

November
2020



Final

Environmental Stewardship Plan

**FENCE REPLACEMENT PROJECT
IMPERIAL COUNTY,
EL CENTRO SECTOR, CALIFORNIA**

*Department of Homeland Security
U.S. Customs and Border Protection*



**U.S. Customs and
Border Protection**

This page intentionally left blank

Cover Sheet

Final Environmental Stewardship Plan Fence Replacement Project in Imperial County, El Centro Sector, California

Responsible Agencies: Department of Homeland Security (DHS), United States (U.S.) Customs and Border Protection (CBP), and U.S. Border Patrol (USBP).

Parties Consulted: Department of the Interior (DOI), including the Bureau of Land Management (BLM), Bureau of Reclamation (BOR), National Park Service (NPS), and U.S. Fish Wildlife Service (USFWS); U.S. Environmental Protection Agency (USEPA); U.S. Army Corps of Engineers (USACE); United States Section, International Boundary and Water Commission USIBWC); California Department of Fish and Wildlife (CDFW); California Environmental Protection Agency (CalEPA); California Office of Historic Preservation (OHP); state and local governments; local tribes; and local landowners.

Affected Location: U.S./Mexico international border in Imperial County, El Centro Sector, California.

Project Description: CBP proposes to improve and maintain approximately 15 miles of bollard wall along the U.S./Mexico international border in California. CBP is proposing to install and maintain tactical infrastructure consisting of replacement primary pedestrian fence and to install 12 associated staging yards within CBP's El Centro Sector in Imperial County, California. The Project begins approximately 10 miles west of the Calexico Port of Entry and continues west for 15.25 miles (the Project Area).

Report Designation: Final Environmental Stewardship Plan (ESP).

Abstract: CBP is constructing approximately 15 miles of border wall system in areas where the existing barrier no longer meets the USBP's operational needs. The Project Area lies within the USBP El Centro Sector. This ESP evaluates potential environmental impacts associated with the Project. Protections and best management practices for considerations such as air quality, noise, land use and recreation, geological resources and soils, hydrology and water management, biological resources, cultural resources, socioeconomics, and hazardous and waste materials have been incorporated into the Project design.

This page intentionally left blank

FINAL

**ENVIRONMENTAL STEWARDSHIP PLAN
FENCE REPLACEMENT PROJECT
IN IMPERIAL COUNTY,
EL CENTRO SECTOR, CALIFORNIA**

**DEPARTMENT OF HOMELAND SECURITY
U.S. CUSTOMS AND BORDER PROTECTION
U.S. BORDER PATROL**

NOVEMBER 2020

This page intentionally left blank

Executive Summary

BACKGROUND

On May 15, 2019, the Secretary of the Department of Homeland Security (DHS), pursuant to Section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) of 1996, as amended, issued a waiver to ensure the expeditious construction of barriers and roads in the United States Border Patrol (USBP) El Centro Sector. Although the Secretary's waiver means that United States (U.S.) Customs and Border Protection (CBP) no longer has any specific legal obligations under the laws set aside by the waiver, DHS and CBP recognize the importance of responsible environmental stewardship. To that end, CBP has prepared this Environmental Stewardship Plan (ESP), which analyzes the potential environmental impacts associated with construction of tactical infrastructure in the USBP El Centro Sector. The ESP also discusses CBP's plans to potentially mitigate environmental impacts.

This report has been prepared from data collected prior to and during the initial phases of project construction. The data was compiled through field surveys, photo interpretation with ground truthing and use of data from prior surveys and other sources, as referenced. The report is an analysis of potential impacts on the resources discussed based on the initially planned project footprint. This is intended to be viewed as a baseline document and is not intended to capture all impacts during construction. Upon completion of the project, an additional report, called an Environmental Stewardship Summary Report (ESSR), will be prepared summarizing the observed actual impacts. This ESSR will review the baseline information provided in this ESP and be used to compare anticipated to actual impacts, so that a final new baseline of impacts is established for any potential future actions, including maintenance and repair activities. The ESSR will document the success of BMPs and any changes or improvements that could be required for the future. Additionally, the ESSR will summarize any significant modifications during construction that increased or reduced environmental impacts.

As the Project described in this ESP moves forward, CBP will continue to work in a collaborative manner with local governments, state and Federal land managers, and the interested public to identify environmentally sensitive resources and develop appropriate best management practices (BMPs) to avoid or minimize adverse impacts resulting from the Project.

GOALS AND OBJECTIVES OF THE PROJECT

The Project will allow USBP agents to strengthen control of the U.S. border between ports of entry (POE) in the USBP El Centro Sector. The Project will help deter illegal entries within the USBP El Centro Sector by improving enforcement efficiency, so that USBP is better equipped to prevent terrorists and terrorist weapons, cross-border violators (CBVs), drugs, and other contraband from entering the U.S., while contributing to a safer environment for USBP agents and the public.

OUTREACH AND AGENCY COORDINATION

CBP coordinates with numerous government agencies and tribes regarding potential Project impacts. Stakeholders with interests in the region include Department of the Interior (DOI), including the Bureau of Land Management (BLM), Bureau of Reclamation (BOR), National Park

Service (NPS), and U.S. Fish Wildlife Service (USFWS); U.S. Environmental Protection Agency (USEPA); U.S. Army Corps of Engineers (USACE); United States Section, International Boundary and Water Commission (USIBWC); California Department of Fish and Wildlife (CDFW); California Environmental Protection Agency (CalEPA); California Office of Historic Preservation (OHP); state and local governments; local tribes; and local landowners.

DESCRIPTION OF THE PROJECT

CBP proposes to improve and maintain approximately 15 miles of fence along the U.S./Mexico international border in California. The Project will occur within USBP’s El Centro Sector within Imperial County, California. The Project begins approximately 10 miles west of the Calexico Port of Entry and continues west 15.25 miles across the Yuha Desert to the edge of the Jacumba Mountains.

ENVIRONMENTAL IMPACTS AND BEST MANAGEMENT PRACTICES

The Project could result in impacts on several resource categories; however, BMPs are recommended to minimize or eliminate impacts on the evaluated resources. Specific BMPs would be implemented to ensure minimal disturbance to the resources within the Project Area.

Table ES-1 provides an overview of potential environmental impacts by specific resource area and a brief summary of associated BMPs. **Chapter 3** through **12** of this ESP provide the evaluation for these impacts and expand upon the BMPs.

Table ES-1. Summary of Environmental Impacts, Mitigation, and Best Management Practices

Resource Area	Effects of the Project	Best Management Practices/ Conservation Measures
Air Quality	Minor and temporary impact on air quality have the potential to occur during construction; all calculated air emissions will likely remain below <i>de minimis</i> levels.	Bare soil will be wetted to suppress dust, and equipment will be maintained according to specifications. Construction speed limits will not exceed 25 miles per hour on unpaved roads.
Noise	Minor temporary increases to ambient noise during construction activities have the potential to occur. Noise impacts have the potential to be greatest during pile-driving activities.	Equipment will be operated on an as-needed basis. Mufflers and properly working construction equipment will be used to reduce noise. Generators will have baffle boxes, mufflers, or other noise abatement capabilities. Blasting mats will be used to minimize noise and debris.
Land Use, Recreation, and Aesthetics	Land use changes and incompatibilities have the potential to result in long-term, minor adverse and beneficial impacts. Visual interruption has the potential to	Environmental monitors will be present during construction to ensure construction activities remain within the Project footprint and impacts on BLM lands are minimized.

Resource Area	Effects of the Project	Best Management Practices/ Conservation Measures
	result in short- and long-term, minor to moderate adverse impacts.	
Geologic Resources and Soils	Short-term, minor impacts on soils have the potential to occur as a result of the Project. The majority of the impacts will involve only topsoil layers. Approximately 111 acres of previously disturbed soils within the Project footprint will be permanently disturbed.	Construction-related vehicles will remain on established or existing roads as much as possible, and areas with highly erodible soils will be avoided where possible. Gravel or topsoil would be obtained from developed or previously used sources. Where grading is necessary, surface soils will be stockpiled and replaced following construction.
Groundwater	The Project has the potential to have minor to moderate, temporary adverse impacts on the availability of water resources in the region.	Equipment maintenance, staging, laydown, or fuel dispensing will occur upland to prevent runoff. A Storm Water Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure Plan (SPCCP) will be implemented as part of the Project.
Surface Waters and Waters of the United States	Some ephemeral surface waters, including potential Waters of the U.S. jurisdictional waters, have the potential to experience both short- and long-term, minor, impacts.	Construction activities will stop during heavy rains. All fuels, oils, and solvents will be collected and stored. Stream crossings will not be located at bends to protect channel stability. Equipment maintenance, staging, laydown, or fuel dispensing will occur upland to prevent runoff. A SPCCP and SWPPP will be implemented as part of the Project.
Floodplains	The Project has the potential to impact 2.7 acres of floodplains. The Project has the potential to have short- and long-term, moderate permanent impacts from sedimentation, erosion, and accidental spills or leaks caused by construction.	Fence maintenance will include removing any accumulated debris on the fence after a rain event to avoid potential future flooding.
Vegetation	Disturbance and clearing have the potential to result in short- and long-term, minor adverse impacts.	Construction equipment will be cleaned to minimize spread of non-native species. Removal of brush in federally protected areas will be limited to the smallest amount possible. Invasive plants that appear on Project Area will be removed. Fill material, if required, will be weed-free to the maximum extent practicable.
Wildlife and Aquatic Resources	Habitat conversion and fragmentation has the potential to result in short-term, moderate adverse impacts.	Ground disturbance during migratory bird nesting season will require migratory bird nest survey and possible

Resource Area	Effects of the Project	Best Management Practices/ Conservation Measures
		removal and relocation. To prevent entrapment of wildlife, all excavated holes or trenches will either be covered or provided with wildlife escape ramps. All vertical poles and posts that are hollow will be covered to prevent entrapment and discourage roosting. General BMPs will avoid and reduce impacts on wildlife and aquatic resources.
Protected Species and Critical Habitat	Loss of potential habitat, fragmentation, and elevated noise has the potential to result in short-term, minor adverse impacts.	General BMPs and BMPs will be implemented for flat-tailed horned lizard, barefoot banded gecko, burrowing owl, and Peninsular bighorn sheep.
Cultural Resources	No direct or indirect adverse impacts to cultural resources have the potential to occur. Two National Register of Historic Places (NRHP)-eligible cultural resources have the potential to be negatively impacted by the Project. Avoidance measures are recommended.	All construction will be restricted to previously surveyed areas. If any cultural material is discovered during construction, all activities within the vicinity of the discovery will be halted until receipt of clearance to resume work by a qualified archaeologist.
Socioeconomics	Construction activities, increased employment, and new income have the potential to have direct and indirect short-term, minor beneficial impacts. No adverse impacts are expected.	None required.
Hazardous Materials and Waste	Waste generation and use of hazardous materials and wastes have the potential to result in short-term, negligible adverse impacts.	All waste materials and other discarded materials will be removed from the Project Area as quickly as possible. Equipment maintenance, staging, laydown, or fuel dispensing will occur upland to prevent runoff.

CBP followed specially developed design criteria to reduce adverse environmental impacts, which include consulting with Federal and state agencies and other stakeholders to develop appropriate BMPs and minimize physical disturbance where practicable. BMPs include implementation of a Spill Prevention, Control, and Countermeasure Plan (SPCCP), Storm Water Pollution Prevention Plan (SWPPP), Environmental Protection Plan, Dust Control Plan, and Fire Prevention and Suppression Plan. CBP will have environmental monitors on site and impacts will be documented during construction to determine the extent and scope of mitigation measures necessary to reduce or offset adverse environmental impacts.

In addition to the design criteria and BMPs, CBP could implement mitigation measures. The scope or extent of CBP's mitigation will be based on the actual impacts from the Project and available funding. CBP will assess the actual impacts from the Project during and upon completion. CBP's

assessment will be based on, among other things, feedback from environmental monitors and the final construction footprint. To the extent mitigation is warranted and funding is available, CBP will work with stakeholders to identify and implement appropriate mitigation measures.

The following definitions describe various impact characteristics:

- *Short-term or long-term.* These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.
- *Direct or indirect.* A direct impact is caused by an action and occurs contemporaneously at or near the location of the action. An indirect impact is caused by an action and might occur later in time or be farther removed in distance but is still a reasonably foreseeable outcome of the action.
- *Negligible, minor, moderate, or major.* These relative terms are used to characterize the magnitude or intensity of an adverse or beneficial impact. Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. A major impact is severe.
- *Adverse or beneficial.* An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.

This page intentionally left blank

TABLE OF CONTENTS

EXECUTIVE SUMMARY1

1. GENERAL PROJECT DESCRIPTION 1-1

1.1 INTRODUCTION TO THE ENVIRONMENTAL STEWARDSHIP PLAN..... 1-1

1.2 U. S. BORDER PATROL BACKGROUND..... 1-2

1.3 GOALS AND OBJECTIVES OF THE PROJECT..... 1-2

1.4 STAKEHOLDER OUTREACH 1-2

1.5 BEST MANAGEMENT PRACTICES..... 1-4

1.5.1 General Design BMPs..... 1-4

1.5.2 Air Quality 1-5

1.5.3 Noise 1-5

1.5.4 Geological Resources..... 1-5

1.5.5 Water Resources 1-5

1.5.6 Biological Resources 1-6

1.5.7 Cultural Resources 1-7

1.5.8 Hazardous Materials and Wastes 1-7

1.5.9 Potential Avoidance and Mitigation for Unavoidable Impacts..... 1-8

2. DESCRIPTION OF THE PROJECT 2-1

2.1 LOCATION..... 2-1

2.2 DESIGN 2-1

2.3 CONSTRUCTION ACCESS, MATERIALS DELIVERY, AND STAGING..... 2-5

2.4 SITE PREPARATION 2-5

2.5 REMOVAL AND REPLACEMENT OF LEGACY FENCE WITH BOLLARD WALL..... 2-5

2.6 CONSTRUCTION SCHEDULE 2-5

2.7 ENVIRONMENTAL CONSIDERATIONS..... 2-6

3. AIR QUALITY..... 3-1

3.1 AFFECTED ENVIRONMENT 3-1

3.2 ENVIRONMENTAL CONSEQUENCES..... 3-3

4. NOISE 4-1

4.1 AFFECTED ENVIRONMENT 4-1

4.2 ENVIRONMENTAL CONSEQUENCES..... 4-2

5. LAND USE, RECREATION, AND AESTHETICS 5-1

5.1 AFFECTED ENVIRONMENT 5-1

5.1.1 Land Use and Recreation 5-1

5.1.2 Aesthetics..... 5-1

5.2 ENVIRONMENTAL CONSEQUENCES..... 5-1

5.2.1 Land Use and Recreation 5-1

5.2.2 Aesthetics..... 5-1

6. GEOLOGICAL RESOURCES AND SOILS..... 6-1

6.1	AFFECTED ENVIRONMENT	6-1
6.2	ENVIRONMENTAL CONSEQUENCES.....	6-2
7.	HYDROLOGY AND WATER MANAGEMENT	7-1
7.1	AFFECTED ENVIRONMENT	7-1
7.1.1	Groundwater	7-1
7.1.2	Surface Water and Waters of the United States.....	7-5
7.1.3	Floodplains.....	7-6
7.2	ENVIRONMENTAL CONSEQUENCES.....	7-7
7.2.1	Groundwater	7-7
7.2.2	Surface Water and Waters of the United States.....	7-7
7.2.3	Floodplains.....	7-7
8.	BIOLOGICAL RESOURCES (VEGETATION, WILDLIFE, AQUATIC SPECIES, SPECIAL STATUS SPECIES).....	8-1
8.1	AFFECTED ENVIRONMENT	8-1
8.1.1	Vegetation.....	8-1
8.1.2	Wildlife and Aquatic Resources	8-5
8.2	ENVIRONMENTAL CONSEQUENCES.....	8-10
8.2.1	Vegetation	8-10
8.2.2	Wildlife and Aquatic Resources	8-11
9.	CULTURAL RESOURCES.....	9-1
9.1	AFFECTED ENVIRONMENT	9-1
9.1.1	Project Location and Setting.....	9-1
9.1.2	Cultural History	9-1
9.1.3	Records Check and Results.....	9-3
9.1.4	Visual APE.....	9-3
9.2	ENVIRONMENTAL CONSEQUENCES.....	9-4
9.2.1	Visual APE.....	9-5
10.	SOCIOECONOMICS.....	10-1
10.1	AFFECTED ENVIRONMENT	10-1
10.2	ENVIRONMENTAL CONSEQUENCES.....	10-2
11.	HAZARDOUS MATERIALS AND WASTE.....	11-1
11.1	AFFECTED ENVIRONMENT	11-1
11.2	ENVIRONMENTAL CONSEQUENCES.....	11-1
12.	RELATED PROJECTS AND POTENTIAL EFFECTS.....	12-1
12.1	CUMULATIVE AFFECTED ENVIRONMENT.....	12-1
12.2	CUMULATIVE FENCING ALONG THE SOUTHWESTERN BORDER.....	12-2
12.3	PAST ACTIONS.....	12-2
12.4	PRESENT ACTIONS	12-2
12.5	REASONABLY FORESEEABLE FUTURE ACTIONS	12-3
12.6	ENVIRONMENTAL CONSEQUENCES.....	12-3
12.6.1	Air Quality	12-3

12.6.2	Noise	12-4
12.6.3	Land Use, Recreation, and Aesthetics	12-4
12.6.4	Geological Resources and Soils.....	12-4
12.6.5	Hydrology and Water Management.....	12-5
12.6.6	Biological Resources (Vegetation, Wildlife, Aquatic Species, Special Status Species)	12-5
12.6.7	Cultural Resources	12-5
12.6.8	Socioeconomics	12-5
12.6.9	Hazardous Materials and Waste.....	12-6
13.	REFERENCES.....	13-1
14.	ABBREVIATIONS AND ACRONYMS.....	14-1

LIST OF APPENDICES

- Appendix A. Biological Survey Report
- Appendix B. Air Emissions Calculations
- Appendix C. Cultural Resources Survey Report
- Appendix D. Waters of the U.S. Jurisdiction Assessment Report

FIGURES & PHOTOGRAPHS

- Figure 2-1. Project Overview Map 2-3
- Figure 7-1. Map of Aquifers near the Project Area 7-3

TABLES

- Table ES-1. Summary of Environmental Impacts, Mitigation, and Best Management Practices.....2
- Table 2-1. Segment Location Data 2-1
- Table 3-1. Ambient Air Quality Standards 3-2
- Table 3-2. Total Air Emissions from the Project versus the *de minimis* Threshold Levels 3-4
- Table 4-1. A-Weighted Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances from Source 4-2
- Table 6-1. Soil Characteristics of Project Area 6-2
- Table 8-1. Wildlife Observed in Survey Area 8-5
- Table 8-2. Vegetation Community Anticipated Impacts 8-10
- Table 9-1. Summary of Previously Recorded References in the APE 9-3
- Table 10-1. Demographics by County 10-1
- Table 10-2. Employment Data 10-2
- Table 10-3. County Income Comparison..... 10-2

1. GENERAL PROJECT DESCRIPTION

1.1 INTRODUCTION TO THE ENVIRONMENTAL STEWARDSHIP PLAN

The United States (U.S.) Customs and Border Protection (CBP) will replace approximately 15 miles of existing vehicle and pedestrian fence with new bollard wall in the El Centro and Calexico Station Area of Responsibilities (AORs) within the U.S. Border Patrol (USBP) El Centro Sector (the Project). This new bollard fence design is critical to the El Centro Sector’s ability to prevent illegal entries and to achieve operational control of the border commensurate with Executive Order (E.O.) 13767. Under this E.O., CBP is directed to “...secure the southern border of the United States through the immediate construction of a physical wall on the southern border, monitored and supported by adequate personnel so as to prevent illegal immigration, drug and human trafficking, and acts of terrorism.”

Section 102(b) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) mandates the Department of Homeland Security (DHS) to install and improve fencing, barriers, and roads along the U.S. border. In 2019, the Secretary of DHS, pursuant to Section 102(c) of IIRIRA, determined that it is necessary to waive certain laws, regulations, and other legal requirements to ensure expeditious construction of the barriers and roads in the El Centro Sector. Although the Secretary’s waiver means that CBP no longer has any specific legal obligations to do so, DHS and CBP are committed to continue to protect valuable natural and cultural resources through responsible environmental stewardship.

This Environmental Stewardship Plan (ESP) presents the analysis for the potential environmental impacts associated with replacement and construction activities for tactical infrastructure in the USBP El Centro Sector. This ESP also includes a summary of best management practices (BMPs) that have been developed to help CBP avoid, minimize, and mitigate for potential environmental impacts, and will guide the planning and execution of the Project.

This ESP is organized into 14 chapters plus appendices. **Chapter 1** provides a general Project description, discusses the background of USBP, identifies the goals and objectives of the Project, explains the stakeholder outreach process, and provides an overview of BMPs. **Chapter 2** provides a detailed description of the Project. **Chapters 3** through **11** identify potential environmental impacts that could occur within each resource area. **Chapter 12** contains an analysis of related projects and potential effects. **Chapter 13** provides a list of references used to develop the ESP, and **Chapter 14** provides a list of abbreviations and acronyms used in the ESP. Finally, the appendices include other information pertinent to the development of the ESP.

Going forward, this ESP will guide CBP’s efforts in the USBP El Centro Sector, as well as demonstrate CBP’s commitment to environmental stewardship during the construction and replacement of the international border fence between the U.S. and Mexico.

This report has been prepared from data collected prior to and during the initial phases of project construction. The data was compiled through field surveys, photo interpretation with ground truthing and use of data from prior surveys and other sources, as referenced. The report is an analysis of potential impacts on the resources discussed based on the initially planned project

footprint. This is intended to be viewed as a baseline document and is not intended to capture all impacts during construction. Upon completion of the project, an additional report, called an Environmental Stewardship Summary Report (ESSR), will be prepared summarizing the observed actual impacts. This ESSR will review the baseline information provided in this ESP and be used to compare anticipated to actual impacts, so that a final new baseline of impacts is established for any potential future actions, including maintenance and repair activities. The ESSR will document the success of BMPs and any changes or improvements that could be required for the future. Additionally, the ESSR will summarize any significant modifications during construction that increased or reduced environmental impacts.

1.2 U. S. BORDER PATROL BACKGROUND

The mission of the USBP is to detect and prevent cross-border violators (CBVs), terrorists, and terrorist weapons from entering the U.S. and prevent illegal trafficking of people and contraband. To achieve effective control of our nation's borders, CBP uses a multi-prong approach including a combination of personnel, technology, and infrastructure, the mobilization and rapid deployment of people and resources, and the fostering of partnerships with other law enforcement agencies. CBP must ensure that tactical infrastructure functions as intended, which includes meeting the following mission requirements:

- Establishing substantial probability of apprehending terrorists and their weapons as they attempt to illegally enter between ports of entry (POE);
- Deterring illegal entries through improved enforcement; and
- Detecting, apprehending, and deterring smugglers of humans, drugs, and other contraband.

CBP's USBP administration is divided into nine different sectors, each responsible for border operations between the U.S. and Mexico within their respective AORs. The Project falls within the USBP El Centro Sector AOR.

1.3 GOALS AND OBJECTIVES OF THE PROJECT

The purpose of the Project is to aid CBP in fulfilling its mission to detect and prevent CBVs, terrorists, and terrorist weapons from entering the U.S. and therefore achieve effective control of our nation's borders. The Project will help to deter illegal entries within the USBP El Centro Sector by improving enforcement efficiency, thus putting UBP in a better position to prevent terrorists and terrorist weapons, CBVs, drugs, and other contraband from entering the U.S., while also contributing to a safer environment for USBP agents and the public.

1.4 STAKEHOLDER OUTREACH

CBP has consulted with numerous stakeholders regarding the Project. Stakeholders with interest in the region include the following:

- ***Department of the Interior.*** CBP has coordinated with the Department of the Interior (DOI) regarding design features, potential impacts from the Project, and potential conflicts with DOI's planning goals. Coordination with specific bureaus and offices within the DOI include:
 - ***Bureau of Land Management.*** CBP has coordinated with the Bureau of Land Management (BLM) regarding design features, potential impacts from the Project, and potential conflicts with BLM's planning goals, as well as to evaluate potential impacts on BLM land, including the Jacumba Mountains Wilderness.
 - ***Bureau of Reclamation.*** CBP has coordinated with Bureau of Reclamation (BOR) regarding design features and potential conflicts with BOR's planning goals.
 - ***National Park Service.*** CBP has coordinated with the National Park Service (NPS) regarding potential impacts on NPS-managed land and the resources therein.
 - ***U.S. Fish and Wildlife Service.*** CBP has coordinated with the U.S. Fish and Wildlife Service (USFWS) to identify listed species that have the potential to occur in the Project Area.
- ***U.S. Environmental Protection Agency.*** CBP has coordinated with the U.S. Environmental Protection Agency (USEPA) to obtain feedback regarding, among other issues, potential mitigation opportunities for unavoidable impacts, should mitigation be necessary, and to ensure appropriate SWPPP guidelines are implemented.
- ***U.S. Army Corps of Engineers.*** CBP has coordinated all activities with the U.S. Army Corps of Engineers (USACE) to identify potential jurisdictional Waters of the U.S., including wetlands, and to develop measures to avoid and minimize impacts on such resources.
- ***U.S. Section of the International Boundary and Water Commission.*** CBP has coordinated with the U.S. Section of the International Boundary and Water Commission (USIBWC) to ensure that any construction along the U.S./Mexico border does not adversely affect International Boundary Monuments or substantially impede floodwater conveyance within international drainages.
- ***State and Local Governments.*** CBP has coordinated with the various state and local government officials regarding the Project, including, but not limited to:
 - ***California Department of Fish and Wildlife.*** CBP has coordinated with the California Department of Fish and Wildlife (CDFW) regarding potential impacts on species within their jurisdiction.
 - ***California Office of Historic Preservation Office.*** CBP has coordinated with the California Office of Historic Preservation (OHP) regarding the protection and preservation of historic resources.

- **California Environmental Protection Agency.** CBP has coordinated with the California Environmental Protection Agency (CalEPA) regarding potential mitigation opportunities for unavoidable impacts, to identify impaired waters, and to prepare implementation plans to achieve the needed pollution reductions in the watershed.
- **San Diego Regional Water Quality Control Board.** CBP has coordinated with the San Diego Regional Water Quality Control Board regarding the prevention of adverse impacts to regional water quality and public health.
- **Tribes.** CBP has notified and coordinated with various tribes regarding the Project, including the Agua Caliente Band of Cahuilla Indians, Augustine Band of Mission Indians, Barona Band of Mission Indians, Cahuilla Band of Mission Indians, Campo Kumeyaay Nation, Chemehuevi Indian Tribe, Ewiiapaayp Band of Kumeyaay Indians, Iipay Nation of Santa Ysabel, Inaja-Cosmit Band of Mission Indians, Jamul Indian Village, Kwaaymii Laguna Band of Mission Indians, La Jolla Band of Luiseno Indians, La Posta Band of Mission Indians, Los Coyotes Band of Mission Indians, Manzanita Band of Kumeyaay Nation, Mesa Grande Band of Mission Indians, Pala Band of Mission Indians, Rincon San Luiseno Band of Mission Indians, San Pasqual Band of Mission Indians, Santa Rosa Band of Cahuilla Indians, Soboba Band of Luiseno Indians, Sycuan Band of the Kumeyaay Nation, Tohono O'odham Nation, Torres-Martinez Desert Cahuilla Indians, and Viejas Band of Kumeyaay Indians.

1.5 BEST MANAGEMENT PRACTICES

It is CBP's policy to reduce impacts through the sequence of avoidance, minimization, and mitigation. BMPs vary based on location and resource type. Both general BMPs and species- and habitat-specific BMPs have been developed during the preparation of this ESP. CBP could also implement mitigation measures. The scope or extent of CBP's mitigation will be based on the actual impacts from the Project and available funding. Project impacts will be documented during construction and assessed through monitoring after Project construction is complete. CBP's mitigation assessment will be based on, among other things, feedback from environmental monitors and the final construction footprint.

The following sections describe those measures that could be implemented to reduce or eliminate potential adverse impacts on specific aspects of the human and natural environment. Many of these measures have been incorporated by CBP as standard operating procedures based on past projects. Below is a summary of BMPs for each resource category that will be potentially affected. The BMPs have been coordinated with the appropriate agencies and land managers or administrators.

1.5.1 General Design BMPs

The design-build contracts for the Project include design performance measures aimed at avoiding impacts prior to any construction. Designs will be evaluated on their ability to avoid and otherwise minimize environmental impacts by incorporating the following design BMPs:

- Maximum use of existing roads for construction access.
- Lands and roads disturbed by temporary impacts repaired/returned to pre-construction conditions.
- Early identification and protection of sensitive resource areas to be avoided.
- Restoration of grades, soils, and vegetation in temporarily disturbed areas.
- On-site retention of stormwater and runoff.

1.5.2 Air Quality

Measures will be incorporated to ensure that emissions of particulate matter less than or equal to 10 microns in diameter (PM₁₀) do not significantly impact the environment. Such measures include dust suppression methods to minimize airborne particulate matter generated during construction activities. Standard construction BMPs, such as minimized diesel idling and routine watering of the construction site and access roads, will be used to control fugitive dust emissions during the construction phases of the Project. Additionally, all construction equipment and vehicles will be maintained in good operating condition to minimize exhaust emissions.

1.5.3 Noise

All Occupational Safety and Health Administration (OSHA) requirements will be followed by the contractor. The blasting contractor will provide further analysis of blasting techniques and measures to be taken to ensure negligible impacts from the blasting. Construction equipment will possess properly working mufflers and will be properly tuned to reduce backfires.

1.5.4 Geological Resources

Vehicular traffic associated with the construction, maintenance, and repair activities will remain on established roads to the maximum extent practicable. A SWPPP will be prepared prior to construction activities, and BMPs described in the SWPPP will be implemented to reduce erosion. Areas with highly erodible soils will be given special consideration when designing the Project to ensure incorporation of various BMPs, such as silt fences, straw bales, aggregate materials, wetting compounds, and rehabilitation, where possible, to decrease erosion. Materials such as gravel or topsoil will be obtained from existing developed or previously used sources and not from undisturbed areas adjacent to the Project Area.

Erosion-control measures, such as water bars, gabions, straw bales, and revegetation, will be implemented during and after construction activities. Revegetation efforts will be needed to ensure long-term recovery of the area and to prevent soil erosion problems.

1.5.5 Water Resources

To address stormwater runoff, construction contractors will adopt and implement a SWPPP, which will include BMPs to reduce potential stormwater erosion and sedimentation effects on local drainages, as discussed in **Chapter 1.5.4**.

The changing of oil, refueling, and other actions that could potentially result in a release of a hazardous substance should be restricted to designated staging areas that are a minimum of 100

feet from any surface drainage. Such designated areas should be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills should be immediately contained, cleaned up, and properly disposed.

Water storage within the Project Area should be maintained in open water ponds that are not covered and in closed, on-ground containers in upland areas, not in washes. Pumps, hoses, tanks, and other water storage devices will be cleaned and disinfected.

1.5.6 Biological Resources

The following summary of general and species-specific biological BMPs will be implemented and are referenced in more detail in the Biological Survey Report (BSR) prepared for the Project (see **Appendix A**). This list has been ordered to follow a typical construction sequence and discusses species- and habitat-specific BMPs at the end. BMPs were developed in coordination with USFWS and BLM.

1.5.6.1 Biology General Measures Prior to Construction

Contractors will mark designated travel corridors with high visibility, removable or biodegradable markers, and minimize construction traffic through the corridor. No activities, ground disturbance, vegetation removal, or trimming will occur outside of the marked designated work area.

1.5.6.2 General Biology Measures During Construction

Construction equipment will be cleaned prior to entering and departing the Project corridor to minimize the spread and establishment of non-native invasive plant species.

If construction or clearing activities are scheduled during the nesting season (typically February 15 through September 15), the Government will perform a pre-construction survey for migratory bird species to identify active nests prior to the start of any construction or clearing activity. If construction activities will result in the disturbance or harm of a migratory bird, coordination with USFWS and CDFW will be required. Buffer zones around active nests will be established until nestlings have fledged and abandoned the nest.

CBP will provide monitors for environmental and cultural resources throughout the duration of the construction contract.

1.5.6.3 Measures for Wildlife and Aquatic Resources

Areas that are hydro-seeded for temporary erosion-control measures must use only native plant species appropriate to surrounding habitat types. Removal of trees and brush in federally listed species habitats will be limited to the lease amount needed to meet contract requirements.

To prevent wildlife species entrapment during construction, all excavated, steep-walled holes or trenches more than 2 feet deep must be covered by plywood at the close of each working day or provided with one or more escape ramps. Each morning before the start of construction and before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. Any animals discovered must be allowed to voluntarily escape, without harassment, before construction

activities resume, or removed from the trench or hole by a Government biologist. Additionally, all vertical bollards that are hollow must be covered to prevent wildlife entrapment. Bollards should be covered from the time they are erected until the time they are filled.

1.5.6.4 Measures for Protected Species and Critical Habitats

Prior to ground-disturbing activities or vegetation removal or trimming, a qualified biologist will present an environmental awareness program to all on-site personnel. The program will contain, at a minimum, information regarding listed species including flat-tailed horned lizard, barefoot banded gecko, burrowing owl, and Peninsular bighorn sheep. This will include general species identification, habitat description, species sensitivity to human activity, and a discussion of measures to avoid and protect the species during construction. Following the education program, photographs of the species must be posted in the office of the contractor and resident engineer, where they will remain throughout the duration of the Project. The contractor is responsible for ensuring that employees are aware of the listed species.

To eliminate attraction of predators to protected animals, all food-related trash items such as wrappers, cans, bottles, and food scraps must be disposed in closed containers and removed daily from the Project site.

When an individual of a federally listed species is found within the Project limits, work must cease in the area of the species. Any threatened and endangered species or species of concern must not be harmed, harassed, or disturbed to the extent possible by Project activities. Work may resume when the individual moves away on its own, or when a Government biologist safely removes the individual. Individuals of federally listed species found in the Project Area and requiring relocation will be relocated by the Government biologist.

Active burrowing owl burrows will be flagged for avoidance with a 250-foot buffer. Active burrows that cannot be avoided will be collapsed. If construction is during the nesting period (February 15 through September 15), the presence of eggs or young will be determined before owls are prevented from reentering and collapsing the burrows following established guidelines. If young are present, burrows will not be collapsed until they fledge.

1.5.7 Cultural Resources

All construction will be restricted to previously surveyed areas. Any known cultural resources must be clearly flagged for avoidance during construction. CBP will be contacted to complete any necessary flagging efforts for cultural resource avoidance prior to ground-disturbing activities taking place. Should any archaeological artifacts or human remains be found during construction, all ground-disturbing activities in the vicinity of the discovery must stop, and the contractor must immediately notify the contracting officer. Work will not resume until receipt of clearance by a qualified archaeologist.

1.5.8 Hazardous Materials and Wastes

All fuels, waste oils, and solvents will be collected in tanks or drums within a secondary containment system. The refueling of machinery will be completed following accepted guidelines,

and all vehicles will have drip pans during storage. All spills will be contained immediately using an absorbent (e.g., granular, pillow, sock) to absorb and contain the spill. Any spill of a hazardous or regulated substance will be immediately recorded by the contractor and reported to the monitor on-site. A SPCCP will be implemented as part of the Project.

1.5.9 Potential Avoidance and Mitigation for Unavoidable Impacts

If unavoidable impacts result from Project construction, CBP could implement mitigation measures. The scope or extent of CBP's mitigation will be based on the actual impacts from the Project and available funding. CBP will assess the actual impacts from the Project after it is complete. CBP's assessment will be based on, among other things, feedback from environmental monitors and the final construction footprint.

2. DESCRIPTION OF THE PROJECT

2.1 LOCATION

CBP will improve and maintain approximately 15 miles of fence along the U.S./Mexico international border in California. Additionally, CBP will install and maintain tactical infrastructure consisting of replacement primary pedestrian fence, roads, lighting, and other detection technologies, and install 12 associated staging yards within USBP’s El Centro Sector within Imperial County, California. The Project begins approximately 10 miles west of the Calexico Port of Entry and continues west 15.25 miles across the Yuha Desert to the edge of the Jacumba Mountains. **Table 2-1** lists the Project location data and **Figure 2-1** provides a general location map of the Project Area.

Table 2-1. Segment Location Data

Section	Latitude	Longitude
El Centro 1 Start	32.63273	-115.922787
El Centro 1 Stop	32.652563	-115.662399

The construction corridor is the width of the Roosevelt Reservation, the 60-foot-wide strip of land owned by the Federal Government along the U.S. side of the U.S./Mexico border in California, New Mexico, and Arizona.

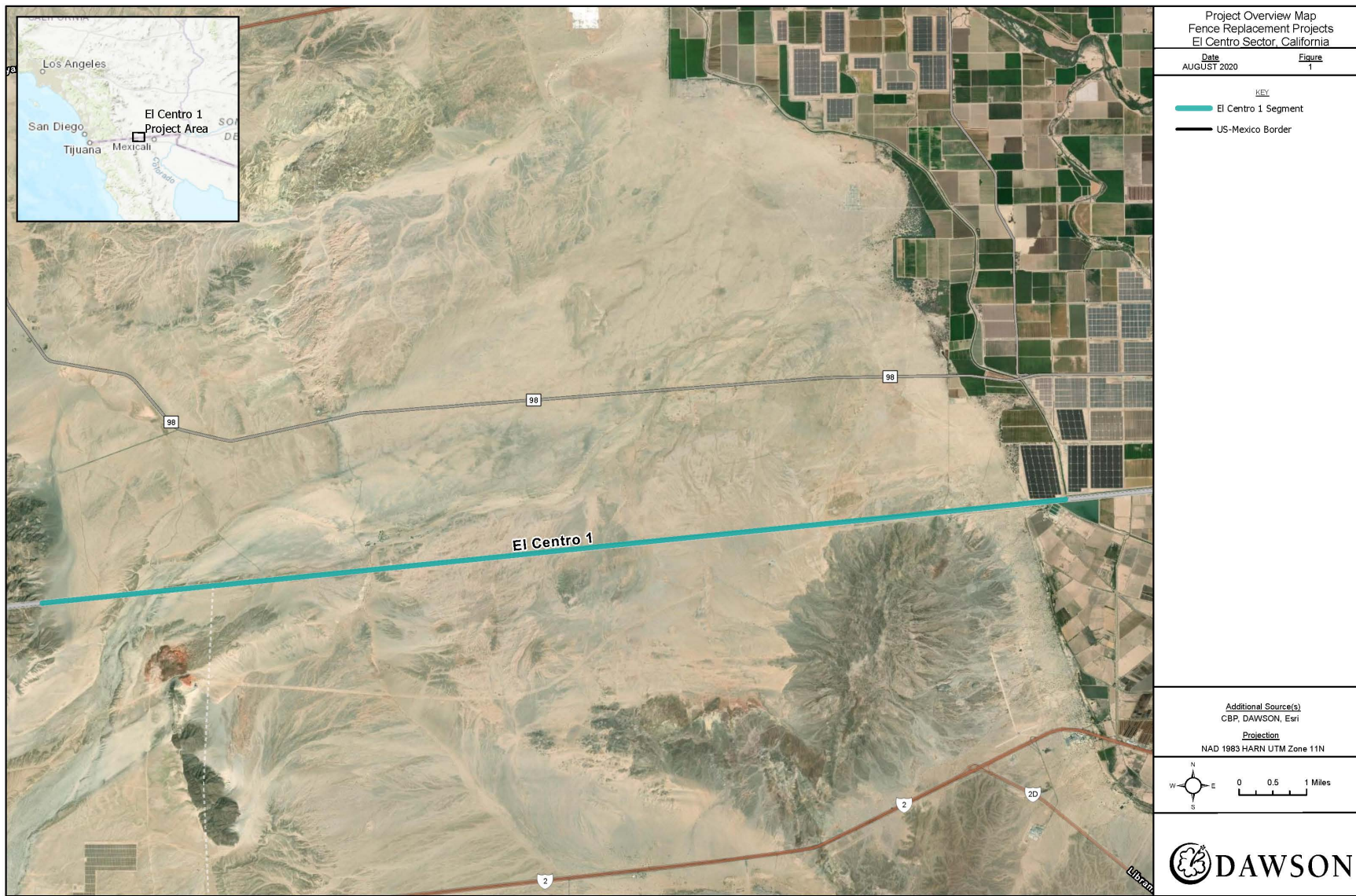
2.2 DESIGN

The current design features 18- to 30-foot, bollard-style fence composed of 6-inch diameter steel bollards spaced center to center 10 inches apart, forming a 4-inch gap between each bollard. The construction corridor will be 60 feet wide. The majority of the corridor has previously been disturbed. The Project also includes repairs and improvements to the existing patrol road, and installation of a fiber-optic cable for communications, LED lighting, and electrical utilities to supply power to the communications cable and lighting. Border security lighting will illuminate the Project Area to allow for construction at night. In areas where border security lighting is not present, mobile light poles will be used during nighttime construction.

It is anticipated that existing access roads will be used for the Project. The access roads were previously used in 2008 when the vehicle and pedestrian fencing was constructed under a previous DHS secretarial waiver. In 2008, an ESP was completed to analyze the potential environmental impacts associated with the construction of approximately 45 miles of tactical infrastructure in six discrete sections along the U.S./Mexico international border near Calexico, Imperial County, California. An Environmental Stewardship Summary Report (ESSR) was completed in 2012 to provide a comprehensive summary of the installation of vehicle and pedestrian fence construction and to compare the final completed action and impacts with the originally planned installation described in the 2008 ESP.

This page intentionally left blank

Figure 2-1. Project Overview Map



This page intentionally left blank

2.3 CONSTRUCTION ACCESS, MATERIALS DELIVERY, AND STAGING

The new bollards will be delivered to 12 laydown areas totaling 246 acres adjacent to the Roosevelt Reservation, and fabricated prior to installation. Each panel will be 8- to 10-feet-wide and composed of eight to ten, 6-inch-square (5/16-inch thick) Core-10 steel bollards filled with cement and welded in place by a horizontal steel bar on the bottom and an approximately 5-foot-wide steel sheet across the top. The steel bollards will be spaced 4 inches apart to allow for cross-border visibility. Each panel is estimated to weigh approximately 3,500 pounds, excluding any below-ground materials or concrete.

The staging areas will store large equipment and construction materials, establish batch plants for mixing concrete, and act as fabrication yards for panel assembly. Access to the Project Area is granted via existing roads within the Project Area wherever possible, including Federal, state, county, and local roads.

2.4 SITE PREPARATION

Site preparation primarily consists of grading 12 staging areas, which will be located in previously disturbed areas whenever possible, including areas previously used for vehicle fence construction. Erosion-control measures will be necessary prior to ground disturbance activity, as will biological surveys, if construction takes place during the nesting season (from February 15 through September 15). BMPs will limit impacts on resources including wildlife, botanical, and cultural resources, among others (see **Chapter 1.5**). Specific BMPs will be implemented prior to and during construction activities to ensure minimal disturbance within the Project Area.

All activities associated with implementation of the Project have been designed pursuant to the constraints identified in the BSR prepared for the Project (see **Appendix A**). These constraints to on-site preparation and construction ensure impacts on the biological resources present are minimized to the extent practicable.

2.5 REMOVAL AND REPLACEMENT OF LEGACY FENCE WITH BOLLARD WALL

The removal of the legacy fence and installation of the bollard wall will be conducted in sections. As each section of the existing legacy fence is removed, a new section of bollard wall will be installed. Each new section of bollard wall will be placed into position and secured below ground. Heavy equipment anticipated to be used during legacy fence removal and bollard wall construction consists of water trucks, impact pile drivers, loaders, bulldozers, excavators, and cranes. Disposal or recycling of the existing legacy fence will be the responsibility of the construction contractor. Once the bollard wall is installed, the Project Area will be returned to conditions similar to those currently existing.

2.6 CONSTRUCTION SCHEDULE

Construction is expected to last from August 2019 to December 2020. The total duration for the Project is approximately 412 days. It is anticipated that construction will occur six days per week from 7:00 a.m. to 7:00 p.m., with some exceptions where work could be scheduled 24 hours per day.

2.7 ENVIRONMENTAL CONSIDERATIONS

Chapters 3 through **11** address numerous environmental factors to be considered during final design and implementation of the Project.

3. AIR QUALITY

3.1 AFFECTED ENVIRONMENT

Definition of the Resource. Pursuant to the DHS Secretary’s waiver, CBP no longer has any specific legal obligations under the Clean Air Act (CAA). However, CBP recognizes the importance of environmental stewardship and has applied the appropriate standards and guidelines associated with the CAA as the basis for evaluating potential environmental impacts and implementing appropriate BMPs regarding air quality.

Air quality is defined by the concentration of various pollutants in the atmosphere at a given location. Under the CAA, the six principal pollutants defining air quality, called “criteria pollutants,” include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), suspended particulate matter (PM) (measured less than or equal to 10 microns in diameter [PM₁₀] and less than or equal to 2.5 microns in diameter [PM_{2.5}]), and lead. CO, SO₂, lead, and some particulates are emitted directly into the atmosphere from emissions sources. O₃, NO₂, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. Volatile organic compounds (VOCs) and nitrogen oxides (NO_x) emissions are used to represent O₃ generation because they are precursors of O₃.

Federal Air Quality Standards. The USEPA established National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the general public. Ambient air quality standards are classified as either primary or secondary. Primary standards protect against adverse health effects and secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. The NAAQS are included in **Table 3-1**.

Areas that are and have historically been in compliance with NAAQS or have not been evaluated for NAAQS compliance are designated as attainment areas. Areas that violate a Federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. The USEPA General Conformity Rule applies to Federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis (the process used to determine whether a Federal action meets the requirements of the General Conformity Rule) are called *de minimis* levels. *De minimis* levels (in tons per year [tpy]) vary by pollutant and depend on the severity of the nonattainment status for the air quality management area in question.

California Ambient Air Quality Standards. The State of California adopted the NAAQS and promulgated additional California Ambient Air Quality Standards (CAAQS) for criteria pollutants. The California standards are more stringent than the Federal primary standards. California law continues to mandate CAAQS, although attainment of the NAAQS has precedence

over attainment of the CAAQS due to Federal penalties for failure to meet Federal attainment deadlines. **Table 3-1** presents the primary and secondary USEPA NAAQS and CAAQS.

Table 3-1. Ambient Air Quality Standards

Pollutant	Primary Averaging Time	National Standards		California Standards
		Primary Standard Level ⁽¹⁰⁾	Secondary Standard Level ⁽¹³⁾	
Carbon Monoxide	8-hour ⁽¹⁾	9 ppm (10 mg/m ³)	-	9 ppm
	1-hour ⁽¹⁾	35 ppm (40 mg/m ³)	-	20 ppm
Lead	Rolling 3-month Average	0.15 µg/m ³ ⁽²⁾	Same as Primary	-
	Quarterly Average	1.5 µg/m ³	Same as Primary	-
	30 Day Average	-	-	1.5 µg/m ³
Nitrogen Dioxide	Annual (Arithmetic Average)	53 ppb ⁽³⁾	Same as Primary	0.030 ppm
	1-hour ⁽⁴⁾	100 ppb	-	0.18 ppm
Particulate Matter (PM₁₀)	Annual (Arithmetic Average)	-	-	20 µg/m ³
	24-hour ⁽⁵⁾	150 µg/m ³	Same as Primary	50 µg/m ³
Particulate Matter (PM_{2.5})	Annual (Arithmetic Average) ⁽⁶⁾	12 µg/m ³	15.0 µg/m ³	12 µg/m ³
	24-hour ⁽⁷⁾	35 µg/m ³	Same as Primary	-
Ozone	8-hour ⁽⁸⁾	0.07 ppm (2015 std)	Same as Primary	0.07 ppm
	1-hour ⁽⁹⁾	-	-	0.09 ppm
Sulfur Dioxide	24-hour	0.14 ppm (for certain areas) ⁽¹¹⁾	-	0.04 ppm
	1-hour	75 ppb ⁽¹²⁾	-	0.25 ppm
Visibility Reducing Particles ⁽¹⁴⁾	8-hour	No Federal Standards		See footnote 14
Sulfates	24-hour	No Federal Standards		25 µg/m ³
Hydrogen Sulfide	1-hour	No Federal Standards		0.03 ppm
Vinyl Chloride	24-hour	No Federal Standards		0.01 ppm

Sources: USEPA 2019a and CARB 2020.

Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb - 1 part in 1,000,000,000) by volume, milligrams per cubic meter of air (mg/m³), and micrograms per cubic meter of air (µg/m³).

(1) Not to be exceeded more than once per year.

(2) Final rule signed October 15, 2008.

(3) The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard

(4) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).

- (5) Not to be exceeded more than once per year on average over 3 years.
- (6) To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
- (7) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).
- (8) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm (effective December 28, 2015).
- (9) (a) USEPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard (“anti-backsliding”).
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
- (10) National Primary Standard Level: The level of air quality necessary, with an adequate margin of safety to protect the public health.
- (11) On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- (12) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.
- (13) National Secondary Standard Level: The level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- (14) In 1989, the California Air Resources Board converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

Project Area. The USEPA designates the entire Imperial County as a marginal nonattainment area for 8-hour O₃, and portions of the County as serious non-attainment areas for PM₁₀ and moderate non-attainment areas for PM_{2.5}.

The California Air Resources Board (CARB) is the state agency that develops comprehensive State Implementation Plans that describe how each non-attainment area will attain national and state air quality standards. The Imperial County Air Pollution Control District (ICAPCD) shares responsibility with CARB for ensuring that all state and Federal ambient air quality standards are achieved and maintained within the county. The ICAPCD is responsible for monitoring ambient air quality and has the authority to regulate stationary sources and some area sources of emissions (CARB 2020).

3.2 ENVIRONMENTAL CONSEQUENCES

Temporary and minor increases in air pollution have the potential to occur during construction. The construction phase will generate air pollutant emissions as a result of transporting materials, grading, compacting, trenching, pouring concrete, and other various activities. Soil disturbance could contribute to increased fugitive dust emissions and would be greatest during the initial site preparation. Increased PM emissions from vehicles and other activities could also contribute to increased air pollution. Levels of fugitive dust emissions will vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions (e.g., wind speed and direction, precipitation). The following paragraphs describe the air calculation methodologies used to estimate air emissions produced by the Project.

USEPA’s Motor Vehicle Emission Simulator (MOVES) model was used to calculate emissions from construction equipment. Combustion emissions calculations were made for standard construction equipment, such as front-end loaders, excavators, bulldozers, cranes, and cement

trucks. Assumptions were made regarding the total number of days each piece of equipment will be used and the number of hours or miles per day each type of equipment will be used. Fugitive dust emissions were calculated using the emission factor of 0.22 ton per acre per month (Air Force Civil Engineer Center 2018).

Construction workers have the potential to temporarily increase the combustion emissions in the airshed while commuting to and from the Project Area. Emissions from delivery trucks could also contribute to the overall air emission budget. Emissions from delivery trucks and construction worker commuters traveling to the job site were also calculated using the MOVES model.

Per 40 Code of Federal Regulations (CFR) Part 93, Chapter 153, a conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions from the criteria pollutant or precursors in a nonattainment or maintenance area caused by a Federal action will equal or exceed specified *de minimis* levels.

Table 3-2 provides a summary of emissions from the Project and a determination of their significance. The ICAPCD screening level thresholds do not apply to construction emissions and are, therefore, not included in **Table 3-2**. The working assumption for calculating emissions is that all construction activity is to be completed within a single year. The total emissions from construction activity is demonstrated to be below the significance threshold levels established by the CFR. Therefore, the Project would likely have no significant impact on ambient air quality. Construction personnel will continue to implement dust control measures, including watering roads, to maintain appropriate air quality levels. Air emissions calculations are provided in **Appendix B**.

Table 3-2. Total Air Emissions from the Project versus the *de minimis* Threshold Levels

	VOCs	CO	NO _x	SO ₂	PM _{2.5}	PM ₁₀
Project Emissions (tpy)	0.59624	2.50991	2.65480	0.00588	2.22263	19.75876
Significance Threshold for Nonattainment Areas (tpy)	50	100	100	100	Moderate: 100 Serious: 70	Moderate: 100 Serious: 70

4. NOISE

4.1 AFFECTED ENVIRONMENT

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by an organism. Noise is defined as unwanted sound, which can be based on objective effects (i.e., hearing loss, damage to structures) or subjective judgments (e.g., community annoyance). Human response to increased sound levels varies according to the type and characteristics of the sound source, distance between the source and the receptor, receptor sensitivity, and time of day. How an organism responds to the sound source determines whether the sound is judged as a pleasing sound or as an annoying noise, or if it disturbs a normal behavior. Sound is usually represented on a logarithmic scale quantified in decibel (dB) units. Sound on the dB scale is referred to as a sound level. The threshold of human hearing is near 0 dB, and the threshold of discomfort or pain is around 120 dB.

The A-weighted decibel (dBA) is used to characterize sound levels that can be sensed by the human ear. Nighttime noise levels are generally viewed as a greater community annoyance than the same levels occurring during the day. It is generally given that people perceive a nighttime noise at 10 A-weighted decibels (dBA) louder than when that same noise is experienced during the day. This perception occurs largely because background environmental sound levels at night are approximately 10 dBA lower than those during the day in most areas. As such, nighttime noise levels are often perceived as intrusive more often than the same noise level during the day. Below is a summary and definition of noise levels based on the U.S. Department of Housing and Urban Development noise program.

Acceptable (not exceeding 65 dB) – This noise exposure could be of some concern, but common building construction makes the indoor environment acceptable and the outdoor environment reasonably pleasant for recreation and play.

Normally Unacceptable (above 65 but not greater than 75 dB) – The noise exposure is significantly more severe. Barriers could be necessary between the site and prominent noise sources to make the outdoor environment acceptable. Special building construction could be necessary to ensure that people indoors are sufficiently protected from the outdoor noise.

Unacceptable (greater than 75 dB) – The noise exposure at the site is so severe that the construction costs to make the indoor noise environment acceptable could be prohibitive and the outdoor environment would still be unacceptable.

Generally, noise generated by a stationary noise source, or “point source,” will decrease by approximately 6 dBA over hard surfaces and 9 dBA over soft surfaces for each doubling of the distance. For example, if a noise source produces a noise level of 85 dBA at a reference distance of 50 feet over a hard surface, that noise level will be 79 dBA at a distance of 100 feet from the noise source, 73 dBA at a distance of 200 feet, and so on.

Table 4-1 depicts noise emissions levels for typical construction equipment, which range from 68 dBA to 104 dBA at 100 feet from the source (FHWA 2007).

Table 4-1. A-Weighted Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances from Source

Noise Source	100 feet	200 feet	500 feet	1,000 feet	2,000 feet	3,000 feet
	dBA	dBA	dBA	dBA	dBA	dBA
Backhoe	72	66	58	52	46	43
Crane	75	69	61	55	49	46
Dump truck	70	64	56	50	44	41
Excavator	75	69	61	55	51	48
Front-end loader	73	67	59	53	47	44
Concrete mixer truck	73	67	59	53	47	44
Pneumatic tools	75	69	61	55	49	46
Auger drill rig	78	72	64	58	52	49
Bulldozer	76	70	62	56	50	47
Generator	75	69	61	55	49	46
Impact pile driver	104	98	90	84	78	75
Flatbed truck	68	62	54	48	42	39

Source: FHWA 2007

Notes: The dBA at 50 feet is a measured noise emission (FHWA 2007).

Under the Noise Control Act of 1972, OSHA established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period (OSHA 2018). The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period (OSHA 2018). Furthermore, the standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that reduce sound levels to acceptable limits.

For open space areas, the Federal Highway Administration (FHWA) noise regulations define a *de minimis* threshold. This regulation defines open space lands as “land on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.” The open space areas, as defined, have a *de minimis* threshold of 57 dBA (23 CFR 722, Table 1).

4.2 ENVIRONMENTAL CONSEQUENCES

Noise within the Project Area will be created during transportation of construction materials, operation of construction equipment, and various other construction activities. Noise levels vary widely to receptors depending on several factors such as climatic and soil conditions, topography, equipment condition, and current ambient noise levels. Open space areas that are less developed have a lesser ambient noise level than developed areas, making it much easier for an adverse noise impact to result in an open space area.

Installation of the replacement fence and repairs and improvements to the existing patrol road are anticipated to be completed in segments. Therefore, construction noise will be temporary and only occur near where work is being performed. Additionally, most of the noise generated by the

Project will occur during construction, and thus does not have the potential to contribute to ambient noise levels. Routine maintenance of the barrier and roads has the potential to result in slight temporary increases in noise levels that will continue to sporadically occur over the long-term and will be similar to those of ongoing road maintenance within the Project Area. Using a worst-case scenario of 104 dBA, the noise model predicts that noise emissions from an impact pile driver (proposed construction equipment) will have to travel 3,000 feet before attenuating to levels below 75 dBA. The area encompassed within the 3,000 feet noise contour does not include sensitive receptors. Therefore, construction and maintenance noise associated with the Project does not have the potential to have an adverse effect.

This page intentionally left blank

5. LAND USE, RECREATION, AND AESTHETICS

5.1 AFFECTED ENVIRONMENT

5.1.1 Land Use and Recreation

The Project will occur within the Roosevelt Reservation, a 60-foot-wide swath of Federal land immediately north of the U.S./Mexico international border that was set aside for border security uses. CBP operations and tactical infrastructure construction within the Roosevelt Reservation, which is consistent with the purpose of the Reservation. Areas immediately outside of the Roosevelt Reservation are owned by BLM (USGS 2020). The Project traverses the Yuha Desert and various other rural areas of Imperial County. The landscape within the Project Area is generally undisturbed, consisting of open desert, with the exception of the existing barrier fence and patrol roads. Certain areas of the Yuha Desert are also identified for recreational use, including but not limited to trail riding and camping (BLM 2020).

5.1.2 Aesthetics

Aesthetic resources consist of natural and man-made landscape features that give a particular environment its visual characteristics. The majority of the Project segment is within areas previously disturbed by prior fence and road construction and USBP law enforcement activities. Very little natural vegetation is present within the Project corridor; however, 27 total plant species were documented within the Project Area during surveys, including 24 native and three non-native species.

5.2 ENVIRONMENTAL CONSEQUENCES

5.2.1 Land Use and Recreation

Land use would remain the same in areas of both replacement and new primary fence. All replacement fence will be constructed within the footprint of existing barrier fence within the Roosevelt Reservation, resulting in no newly disturbed land in those areas. New primary fence will be constructed within the Roosevelt Reservation, which is land set aside for border security uses. Therefore, the Project would be compatible with the existing land use categories and would not impact land use.

Impacts on recreation have the potential to occur within the Yuha Desert. Such impacts could include the temporary closure of certain areas that the public uses for recreational purposes. Temporary closure of these areas has the potential to result in decreased public access to land for activities such as trail riding and camping.

5.2.2 Aesthetics

The existing border barriers that are to be replaced as part of the Project consist of both vehicle and pedestrian fence. The existing pedestrian fence is solid, while the replacement bollard fence will include small gaps, allowing for individuals to see through to the other side. The transparent

qualities of the bollard fence also allow for USBP agents to see through the fence, which could be beneficial in an operational sense. Additionally, bollard fence will be 18- to 30- feet tall, which is four to eight and 14 to 26 feet taller than the current 12-foot pedestrian fence and 4-foot tall vehicle fence, respectively. The bollard fence will be visually more substantial than the existing barrier fence, and therefore more of a visual impediment.

6. GEOLOGICAL RESOURCES AND SOILS

6.1 AFFECTED ENVIRONMENT

Definition of the Resource. Geology is the study of Earth's composition and provides information on the structure and configuration of surface and subsurface features. Soils are the unconsolidated materials overlying bedrock or other parent material. Differences among soil types in terms of their structure, elasticity, strength, water absorption potential, and erosion potential affect the ability to support certain applications or uses.

Regional Geology. The Project Area is in the southwestern corner of the Basin and Range physiographic province, which is characterized by north-to-south-oriented ranges that alternate with flat lying valleys (Scott 2012). The topographic profile of the Project Area is characterized by gently rolling lands with a few steep slopes. Elevations range from about 15 to 65 feet above mean sea level (MSL) along the western section of the Project and about 145 to 200 feet above MSL along the eastern section of the Project.

Soils. Soil structure and chemistry contributes to the determination of prime and unique farmland. Prime and unique farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Unique farmland is defined as land other than prime farmland that is used to produce specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high-quality or high yields of a specific crop when treated and managed according to acceptable farming methods. Soil qualities, growing season, and moisture supply are needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land could be cropland, pasture, rangeland, or other land, but not water or urban built-up land.

Table 6-1 describes the soil characteristics of the Project Area. Soil classification data was only available for the easternmost 1.2 miles of the Project Area, so Ecoregions of California: Descriptions were used to generally describe soil trends across the remainder of the Project Area (CBP 2020a)

The majority of the Survey Area falls within three subregions of the Sonoran Basin and Range ecoregion. The Western Sonoran Basins ecoregion, which includes bajadas, alluvial fans, badland, and rolling hill topography and include sandstones and mudstones from the Palm Springs Formation. Soils are generally sandy to gravelly loam and high permeable and prone to wind erosion. The westernmost terminus of the Project Area includes the Western Sonoran Mountain Woodland and Shrubland ecoregion which is characterized by large granitic boulders and steep canyons. The Eastern terminus of the Project Area includes the Imperial/Lower Coachella Valley ecoregion and is composed of deposited silty soils and sediments from the Quaternary period when the Colorado River meandered across the delta.

Table 6-1. Soil Characteristics of Project Area

Soil Type	Profile	Slope	Runoff Potential	Farmland Classification	Percent of Project Area ¹
Imperial-Glenbar silty clay loams, wet	Moderately well drained, silty clay loam	0 to 2%	Low	Farmland of statewide importance	0.9%
Meloland and Holtville loams, wet	Moderately well drained, loam	0 to 2%	Low	Prime farmland if irrigated and drained	0.7%
Rositas sand	Somewhat excessively drained, sand	0 to 2%	Not reported	Farmland of statewide importance	2.1%
Vint loamy very fine sand, wet	Moderately well drained, loamy very fine sand	0 to 2%	Very low	Prime farmland if irrigated and drained	0.4%

Source: NRCS Undated.

(1) Natural Resources Conservation Service (NRCS) does not have available data for the 96 percent of the Project Area.

6.2 ENVIRONMENTAL CONSEQUENCES

Impacts on geology and soils are considered adverse if they alter the lithology (i.e., the character of a rock formation); stratigraphy (i.e., the layering of sedimentary rocks) and geological structures that dictate groundwater systems; change the soil composition, structure, or function within the environment; or increase the risk of geological hazards.

Regional Geology. Short- and long-term, moderate, adverse impacts on topography have the potential to occur from earthmoving and grading activities during construction. Topography could be altered using excavation and other ground-leveling techniques to provide flat surfaces for the construction of the pedestrian and vehicle barriers, ancillary support facilities and structures, and access roads.

Soils. Approximately 111 acres of soil have the potential to be permanently affected; however, the soils within the Project Area have already been permanently impacted by previous fence and all-weather patrol road construction. Therefore, short-term, minor, adverse impacts on soils have the potential to result from further disturbance of ground surfaces, earthmoving activities, and grading within the proposed disturbance area during construction. These activities would excavate soils and expose rock materials, temporarily remove vegetation in some areas, and expose soils to erosion.

In general, accelerated erosion of soils have the potential to be short-term and minimized by appropriately siting and designing facilities to account for soil limitations, employing construction and stabilization techniques appropriate for the soil and climate, and implementing BMPs and erosion-control measures. BMPs include the installation of silt fencing and sediment traps, application of water to disturbed soil to reduce dust, grading of staging areas, and revegetation of disturbed areas as soon as possible following ground disturbance, as appropriate. Pre- and post-

construction BMPs have been developed and will be implemented to reduce or eliminate erosion and potential downstream sedimentation.

The potential exists for petroleum, oil, and lubricants (POLs) to be spilled during refueling of the construction equipment, adversely impacting soils; however, drip pans will be placed under all staged equipment, and secondary containment will be used when refueling equipment. A SWPPP and SPCCP have been prepared prior to construction activities and BMPs described in these plans will be implemented to reduce potential erosion and contamination.

This page intentionally left blank

7. HYDROLOGY AND WATER MANAGEMENT

7.1 AFFECTED ENVIRONMENT

Definition of the Resource. Hydrology and water management relate to natural and man-made water resources that are available for use by, and for the benefit of, humans and the environment. Evaluation of hydrology and water resources examines the quantity and quality of the resource and its demand for various purposes.

Hydrology concerns the distribution of water-to-water resources, including surface waters and groundwater, through the processes of evapotranspiration, atmospheric transport, precipitation, surface runoff and flow, and subsurface flow. Groundwater consists of subsurface hydrologic resources and includes underground streams and aquifers. It is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater features include depth from land surface, aquifer or well capacity, quality, recharge rate, and surrounding geologic formations. Surface water includes natural, modified, and constructed water confinement and conveyance features above groundwater that could have a defined channel and discernable water flows. These features are generally classified as streams, springs, wetlands, natural and artificial impoundments (e.g., ponds, lakes), and constructed irrigation and drainage canals and ditches.

7.1.1 Groundwater

The Project overlies parts of the Coyote Wells Valley Groundwater Basin and the Imperial Valley Groundwater Basin (see **Figure 7-1**).

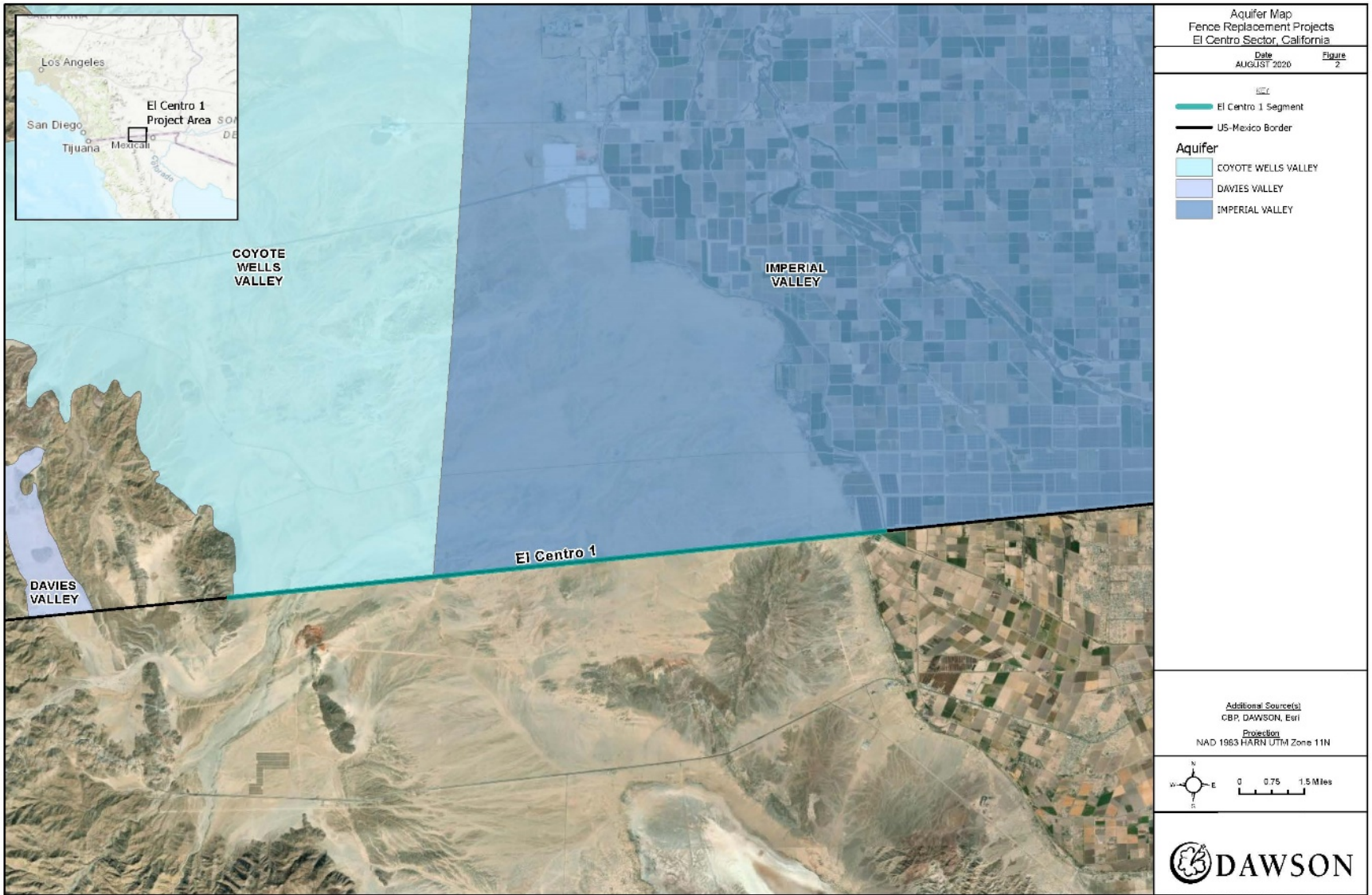
The Coyote Wells Valley Groundwater Basin has a total surface area of 64,000 acres and an estimated storage of 1,000,000 acre-feet (CADWR 2004a). The basin is bound by the Coyote Mountains to the east, and the Jacumba Mountains to the west and southwest. Groundwater flows southeastward through the basin. Unconfined shallow water can be found approximately 100 to 300 feet below-ground surface. Water quality in the aquifer is generally poor and is characterized by high levels of fluoride.

The Imperial Valley Groundwater Basin has a total surface area of 1,200,000 acres and an estimated storage capacity of 14,000,000 acre-feet (CADWR 2004b). The basin is bound by the Sand Hills to the east, Fish Creek and Coyote Mountains to the west, and the Salton Sea along the north. The basin extends south across the border into Baja California, where it underlies a contiguous part of the Mexicali Valley. The primary source of recharge is irrigation return. Lesser sources of recharge include rainfall percolation, surface runoff, underflow into the basin, and seepage from the canals. Groundwater in the basin is generally unusable for domestic and irrigation purposes without treatment due to the high concentration of total dissolved solids (CADWR 2004b).

The Imperial Valley Groundwater Basin has two major aquifers that are separated by a semi-permeable aquitard that averages 60 feet in thickness and reaches a maximum thickness of 280 feet. The aquifers consist mostly of alluvial deposits of late Tertiary and Quaternary age. The

average thickness of the upper aquifer is 200 feet with a maximum thickness of 450 feet. The lower aquifer averages 380 feet in thickness with a maximum thickness of 1,500 feet (CADWR 2004b).

Figure 7-1. Map of Aquifers near the Project Area



This page intentionally left blank

7.1.2 Surface Water and Waters of the United States

The Project is in an arid desert climate characterized by high air and soil temperatures and high evaporation rates. The primary source of water inflow into the basin is runoff from adjacent lands, occasional precipitation in the spring, and monsoonal rainfall during the summer. Total annual precipitation in the area is approximately 2.9 inches (IID 2006). Minimal groundcover and steep topography can lead to heavy runoff and high erosion during the infrequent precipitation events.

The majority of the features in the Project Area are categorized as ephemeral streams, which are episodic channels that convey water flow during and immediately after precipitation events. The features are shallow-bottomed narrow channels, and often braided systems, that stretch across alluvial fan and floodplain systems. Although the channels appear larger due to surrounding topography, their single flow channels remain shallow and flows were not considered to be intermittent. The streams run in a north and south direction and bisect the Project Area. One prominent channel is Pinto Wash, which stretches across the central part of the Project Area. The Project Area contains several features that show connectivity to Pinto Wash.

Waters of the United States. USACE regulates “Waters of the United States” (WOUS) under Section 404 of the Clean Water Act (CWA). WOUS is defined in the CFR as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “non-wetland waters” and are characterized by an Ordinary High Water Mark (OHWM). Non-wetland waters generally include lakes, rivers, streams, and other open-water habitats.

The evaluation of wetland and waters indicators to determine the presence of water subject to jurisdiction was conducted between July 9, 2019 and July 12, 2019 (CBP 2020a). The Survey Area for the delineation consisted of the 60-foot boundary north of the existing vehicle barricade following the main patrol road along the international boundary.

The Project Area contains 2.69 acres of potentially jurisdictional non-wetland waters (CBP 2020a). All waters are identified as ephemeral. Many of these channels display an OHWM. The ephemeral streams are not considered to be connected to traditional navigable waters that flow year-round or seasonally up to a period of three months. The Project Area does not contain any jurisdictional wetland waters. The complete WOUS jurisdictional assessment is provided in **Appendix D**.

Impaired Surface Waters. Water quality standards are regulated by USEPA, under the Safe Drinking Water Act and the CWA. Section 303(d) of the CWA requires states to identify and develop a list of impaired water bodies where technology-based and other required controls have not provided attainment of water quality standards. Section 305(b) of the CWA requires states to assess and report the quality of their water bodies. California’s State Water Resources Control Board works to achieve water quality standards and maintain beneficial uses in all of California’s surface waters.

The eastern-most section of the Project is located adjacent to a USEPA-designated impaired water body, Imperial Valley Drains. Imperial Valley Drains is on the impaired water bodies 303(d) list for excess sediment, metals, polychlorinated biphenyls, and pesticides (USEPA 2016).

7.1.3 Floodplains

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body.

Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain as the area that has a 1 percent chance of inundation by a flood event in any given year. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Certain facilities, such as hospitals, schools, or storage buildings for irreplaceable records, inherently pose too great a risk to be in either the 100- or 500-year floodplain. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

Floodplains are protected under E.O. 11988, Floodplain Management, which requires Federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps (FIRMs), which contain enough general information to determine the relationship of the Project Area to nearby floodplains. If a Federal agency action encroaches within the floodplain and alters the flood hazards designated on a FIRM (e.g., changes to the floodplain boundary), an analysis reflecting any changes must be submitted to the FEMA. E.O. 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with E.O. 11988 outlined in the FEMA document Further Advice on E.O. 11988 Floodplain Management.

All construction activities near the floodplain should be coordinated with the Floodplain Manager for the area FEMA office.

Floodplains in the Project Area. A review of the FIRM for Imperial County in California and unincorporated areas shows that parts of the Project Area near Pinto Wash occur within Zone A, which is defined by FEMA as a Special Flood Hazard Area subject to inundation by the 1 percent annual chance flood (FEMA 2020). Other parts are mapped as Zone X, which is defined as an area determined to be outside the 0.2 percent annual chance floodplain (FEMA 2020).

7.2 ENVIRONMENTAL CONSEQUENCES

7.2.1 Groundwater

The Project has the potential to result in minor to moderate, temporary adverse impacts on the availability of water resources in the region. The Project requires water from the local supply for road construction, including pouring concrete, cut-and-fill operations, and fugitive dust suppression during construction activities. The Project has the potential to use approximately 7 million gallons of water per month. Given a construction duration of 9 months, the Project is expected to use a total of 63 million gallons, or 193 acre-feet. If local groundwater pumping is found to have an adverse effect on aquatic-, marsh-, or riparian-dwelling threatened and endangered species, treated water from outside the immediate area must be used.

The likelihood for groundwater contamination due to road improvements or fence installation will likely be negligible due to the implementation of SWPPP measures and the natural filtration of soils overlying the aquifers in the Project Area. Groundwater quality is not anticipated to be permanently impacted as a result of the Project.

7.2.2 Surface Water and Waters of the United States

Construction of the proposed barrier system has the potential to result in permanent and temporary, minor, adverse impacts on ephemeral surface waters, including the 2.69 acres of potentially jurisdictional waters within the Project Area. The Project has the potential to increase impervious surfaces, which could redirect surface flows and result in adverse impacts on surface waters if these flows cause scour or introduce sediment or other contaminants not already occurring in the drainages.

During construction, there is potential for sediment and other contaminants to be introduced to surface waters and ultimately impact downstream water quality. Chemical or petroleum spills have the potential to result in short-term, direct impacts on surface waters. However, implementation of typical stormwater protection BMPs and spill prevention and management plans would likely reduce or eliminate the potential for permanent, adverse impacts on the water quality of surface waters.

7.2.3 Floodplains

The Project has the potential to result in moderate, short- and long-term permanent impacts on Zone A floodplains that are subject to inundation by the 1 percent annual chance flood. The estimated footprint to the 0.37-mile stretch of Zone A in the Project Area will be approximately 2.7 acres (0.37-mile length multiplied by 60-foot corridor length).

Some potential impacts of the border fence include increased risk of flooding due to increased runoff velocities from additional hard surfaces, potentially obstructed waterways, slightly reduced infiltration, and possibly minimal reductions in groundwater recharge. CBP will coordinate with the construction contractor to consider these impacts and develop a barrier design that includes footings flush with ground, as well as culverts and gates in drainages to maintain continuous water

flow and minimize debris build-up during flood events. Erosion and sediment control and storm water management practices will be implemented during and after construction.

8. BIOLOGICAL RESOURCES (VEGETATION, WILDLIFE, AQUATIC SPECIES, SPECIAL STATUS SPECIES)

8.1 AFFECTED ENVIRONMENT

Site assessments, including jurisdictional assessments, rare plant surveys, and general biological surveys, were conducted in July 2019 (see **Appendix A**). Vegetation mapping was conducted with the use of a submeter global positioning system and aerial photographs. During all surveys and site visits, biologists documented all plant and wildlife species incidentally observed. The Survey Area was delineated by the Normandy vehicle barricade to the south and extended 60 feet to the north following the main patrol road. Biologists were instructed not to cross the vehicle barriers as a safety precaution during surveys, even when the main patrol road turned north and away from the U.S./Mexico international border. The main patrol road veers away from the U.S./Mexico international border at the base of Signal Mountain for approximately 1.20 miles; this area was not included in the survey effort.

The site assessment is intended to identify the presence or absence of suitable habitat for each special status species known to occur in the vicinity, to determine its potential to occur in the Survey Area. Biologists used their best professional judgement using the information and conditions available to make an assessment. Surveys were conducted outside the optimal period when annual special status plant species and special status wildlife would have been detected. In cases where little information is known about species occurrences and habitat requirements, the species evaluation is based on the best professional judgment of the biologists with experience working with the species and habitats.

The Survey Area is immediately on the U.S./Mexico international border, approximately 9.70 miles west of the Calexico West POE, and the majority of the area has been previously disturbed by past border barrier construction and patrol road. The 15-mile Survey Area lies between private property and agricultural lands at the western edge of the City of Calexico and the base of the Jacumba Mountains to the west. The majority of the Survey Area is within the Yuha Basin, an Area of Critical Environmental Concern, as designated by BLM, and is flanked by the Jacumba Wilderness Area to the west and private property and agricultural lands to the east. The Survey Area falls within the Sonoran Basin and Range Ecoregion and that is separated by three subregions: Western Sonoran Basin, Western Sonoran Mountain Woodland and Shrubland, and Imperial Valley/Lower Coachella Valley ecoregions (Bailey 1995; Griffith et al. 2016). These ecoregions are characterized by permeable sandy to gravelly loam soils with high potential for wind erosion, monsoonal precipitation in summer months, and support Sonoran creosote bush scrub and microphyll woodland habitats in dry washes (Bailey 1995; Griffith et al. 2016). Elevations range between 25 to 200 feet above MSL.

8.1.1 Vegetation

8.1.1.1 Vegetation Communities

Plant species observed in the Survey Area were identified using the Desert Jepson Manual (Baldwin et al. 2002) and the Jepson Flora Project (Jepson eFlora 2019) while vegetation

classifications were determined using the United States National Vegetation Classifications Database (USNVC 2019). Vegetation within the Survey Area is along a thin strip (approximately 10 to 20 feet) just north of the main border patrol road. These vegetation communities extend north from the Survey Area into the greater Yuha Basin. Small areas of disturbed habitat intersect the main patrol road, which include off-road vehicle tracks, secondary patrol roads, and vehicle turnaround areas.

Vegetation within the Survey Area consists of both native and non-native vegetation communities as follows: disturbed habitat, *Brassica tournefortii* - *Malcolmia africana* Ruderal Desert Forbs Alliance, *Chorizanthe rigida* - *Geraea canescens* Desert Pavement, *Larrea tridentata* - *Ambrosia dumosa* Shrubland, *Larrea tridentata* - *Ambrosia dumosa* - *Pleuraphis rigida* Desert Shrubland, *Larrea tridentata* - *Atriplex polycarpa* Desert Shrubland, *Larrea tridentata* - *Fouquieria splendens* Upper Bajada & Rock Outcrop Desert Scrub Alliance, and *Parkinsonia florida* - *Olneya tesota* Desert Wash Scrub Alliance. Vegetation community maps can be found in **Appendix A**.

Disturbed Habitat

This vegetation classification covers the majority of the Survey Area and includes the main patrol road along the border. This vegetation class is dominated by bare ground with low cover of ruderal herbaceous plant species. These areas are routinely graded and maintained as part of CBP's road maintenance efforts.

Brassica tournefortii - *Malcolmia africana* Ruderal Desert Forbs Alliance (A4166)

This alliance type occurs in two small patches north of the main patrol road at the eastern end of the Survey Area. The ruderal forbland is dominated by Sahara mustard (*Brassica tournefortii*) with scattered annual plant species including Plicate tiquilia (*Tiquilia plicata*), Booth's evening primrose (*Eremothera boothii*), white bur-sage (*Ambrosia dumosa*), and popcorn flower (*Cryptantha sp.*).

Chorizanthe rigida - *Geraea canescens* Desert Pavement (CEGL009686)

This desert pavement association is found throughout the middle and eastern portion of the Survey Area and is characterized by rocky substrate derived from a diversity in parent material on southwestern aspects. Vegetative cover is sparse across this association with a dominance of low growing annual plant species including rigid spineflower (*Chorizanthe rigida*), desert sunflower (*Geraea canescens*), *Cryptantha*, Booth's evening primrose, and scattered creosote bush (*Larrea tridentata*) throughout.

Larrea tridentata - *Ambrosia dumosa* Shrubland (CEGL002954)

This shrubland type is characterized by a codominance of creosote bush and white bur-sage and is throughout the Survey Area. Annual plant species observed include *Cryptantha*, desert trumpet (*Eriogonum inflatum*), Booth's evening primrose, and Mediterranean schismus (*Schismus barbatus*). At the western terminus of the Survey Area, this shrubland included sparse cover of white rhatany (*Krameria bicolor*) and brittlebush (*Encelia farinosa*). Sparse cover of honey mesquite (*Prosopis glandulosa var. torreyana*) was present in larger drainage features.

Larrea tridentata - *Ambrosia dumosa* - *Hilaria rigida* Desert Shrubland (CEGL005764)

This shrubland type is similar in stature to the above *Larrea tridentata* – *Ambrosia dumosa* Shrubland with the addition of big galleta (*Hilaria rigida*) as an additional codominant. This shrubland type was found in the middle portion of the Survey Area within the bed of drainage features typically with sandy and fine textured soils. Other plant species observed included rhatany as well as large undisturbed areas covered by cryptobiotic crusts.

Larrea tridentata - *Atriplex polycarpa* Desert Shrubland (CEGL005765)

This shrubland type is found along the eastern extent of the Survey Area and is characterized by dense shrub cover of creosote bush and many-fruit saltbush (*Atriplex polycarpa*). Associated annual plant species present in low cover include *Cryptantha*, Mediterranean schismus, and desert plantain (*Plantago patagonica*).

Larrea tridentata - *Fouquieria splendens* Upper Bajada & Rock Outcrop Desert Scrub Alliance (A3278)

This alliance occurs from the middle to the western extent of the Survey Area and includes creosote bush and ocotillo (*Fouquieria splendens* ssp. *splendens*) as the dominant plant species. Associated plant species include sparse cover of white rhatany, white bursage, and teddy-bear cholla (*Cylindropuntia bigelovii*).

Parkinsonia florida - *Olneya tesota* Desert Wash Scrub Alliance (A0588)

This tree-dominated alliance was observed in two areas: one at the eastern terminus of the Survey Area, and the second within the western portion of the Survey Area. This alliance is characterized by a co-dominance of blue paloverde (*Parkinsonia florida*) and ironwood (*Olneya tesota*) tree and is typically found within sandy substrates associated with bottomlands and drainages across the Survey Area. Associated annual species included common Mediterranean schismus, popcorn flower, and wooly plantain.

8.1.1.2 Non-native Species

NatureServe defines a non-native species as “those present in a specified region only as a direct or indirect result of human activity. Other terms that are often used as synonyms for non-native include alien, exotic, introduced, adventive, non-indigenous, and non-aboriginal.” From a conservation perspective, non-native plant species could be very harmful, as many, although not all, non-native species negatively affect native species by outcompeting or hybridizing with them and by modifying the local ecosystem processes upon which they depend (NatureServe 2019). The California Invasive Plant Council (Cal-IPC) ranks non-native plant species as having High, Moderate, or Limited ecological impacts, as follows:

High. These invasive species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are ecologically widely distributed.

Moderate. These invasive species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution can range from limited to widespread.

Limited. These species are also invasive, but their ecological impacts are minor on a statewide level, or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species could be locally persistent and problematic.

This ranking is based on 13 criteria divided into three main categories: the ecological impacts of a species, the species' ability to invade natural vegetation, and the species' current ecological amplitude and extent of invasion. Except for a couple small patches of *Brassica tournefortii* - *Malcolmia africana* Ruderal Desert Forbs Alliance on the eastern end of the Survey Area, the vegetative land cover types discussed above are native plant species. Two non-native species, Sahara mustard and Mediterranean schismus, are Cal-IPC-listed plant species. Sahara mustard has a Cal-IPC ranking of High, and Mediterranean schismus is ranked Limited.

8.1.1.3 Special-Status Plants

Calflora lists 1,169 plant species documented within Imperial County (Calflora 2019). Of these, 949 are native to California and 220 species are non-native. A total of 27 species of plants were documented within the Survey Area during site visits (see **Appendix A**), including 24 native and three non-native species. No special-status plants were observed within the Survey Area during survey efforts, but a total of 12 special status plant species have been documented to occur within one mile of the Survey Area, in the U.S. Geological Survey (USGS) 7.5-minute quadrangles for Coyote Wells, Yuha Basin, and Mount Signal.

There are eight special status species found to have high potential to occur within the Survey Area: roughstalk witch grass (*Panicum hirticaule* ssp. *Hirticaule*), brown turbans (*Malperia tenuis*), Abrams' spurge (*Euphorbia abramsiana*), Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*), pink fairyduster (*Calliandra eriophylla*), hairy stickleaf (*Mentzelia hirsutissima*), Baja California ipomopsis (*Ipomopsis effusa*), and slender cottonheads (*Nemacaulis denudata* var. *gracilis*). An additional two special status species have a moderate potential to occur within the Survey Area: dwarf germander (*Teucrium cubense* ssp. *depressum*) and Parish's desert thorn (*Lycium parishii*). All special status species listed above have the potential to occur in the Survey Area due to suitable soil, topographical, and/or vegetation communities observed during surveys. The remaining two special status species with potential to occur were considered unlikely due to a lack of suitable habitat conditions. All special status plant species with a moderate to high potential to occur in the Survey Area are discussed in greater detail in **Appendix A**.

8.1.2 Wildlife and Aquatic Resources

Vegetation within the Survey Area supports a diverse wildlife community. The majority of the Survey Area is disturbed and consists of a graded, packed, and maintained patrol road and existing vehicle barrier (primarily Normandy Style vehicle barriers). Disturbed native vegetative land cover is used by both native and migratory bird species. **Table 8-1** below lists the wildlife observed during the survey effort. **Appendix A** lists all special status wildlife with the potential to occur within one mile of the Survey Area. Detailed accounts of all federally listed species and special status species observed present or with a moderate to high potential to occur within one mile of the Survey Area are provided in **Appendix A**.

One species of arachnid, one species of insect, 10 species of reptiles, and 28 species of birds were documented during field surveys within Imperial County in July 2019. Biologists recorded all wildlife species that were incidentally observed and they are listed in **Table 8-1** below.

Table 8-1. Wildlife Observed in Survey Area

Species Name	Common Name
Arachnids	
<i>Smeringurus sp.</i>	Dune scorpion
Insects	
<i>Eleodes sp.</i>	Darkling beetle
Reptiles	
<i>Coleonyx variegatus</i>	Western banded gecko
<i>Callisaurus draconoides</i>	Zebratail lizard
<i>Uta stansburiana</i>	Side-blotched lizard
<i>Chionactis annulata annulata</i>	Colorado Desert shovel-nosed snake
<i>Crotalus mitchellii pyrrhus</i>	Southwestern speckled rattlesnake
<i>Crotalus cerastes laterorepens</i>	Colorado Desert sidewinder
<i>Aspidoscelis tigris tigris</i>	Great Basin whiptail
<i>Phrynosoma mcallii</i>	Flat-tailed horned lizard
<i>Dipsosaurus dorsalis dorsalis</i>	Northern desert iguana
<i>Sauromalus ater</i>	Common chuckwalla
Birds	
<i>Callipepla gambellii</i>	Gambel's quail
<i>Phalacrocorax auritus</i>	Double-crested cormorant
<i>Ardea herodias</i>	Great blue heron
<i>Ardea alba</i>	Great egret
<i>Egretta thula</i>	Snowy egret
<i>Butorides virescens</i>	Green heron
<i>Cathartes aura</i>	Turkey vulture
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Falco sparverius</i>	American kestrel
<i>Charadrius vociferus</i>	Killdeer
<i>Himantopus mexicanus</i>	Black-necked stilt
* <i>Columba livia</i>	Rock pigeon
* <i>Streptopelia decaocto</i>	Eurasian collared-dove
<i>Zenaida asiatica</i>	White-winged dove
<i>Zenaida macroura</i>	Mourning dove

Species Name	Common Name
<i>Columbina passerina</i>	Common ground-dove
<i>Chordeiles acutipennis</i>	Lesser nighthawk
<i>Calypte anna</i>	Anna's hummingbird
<i>Tyrannus verticalis</i>	Western kingbird
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Corvus corax</i>	Common raven
<i>Eremophila alpestris</i>	Horned lark
<i>Auriparus flaviceps</i>	Verdin
<i>Polioptila melanura</i>	Black-tailed gnatcatcher
* <i>Sturnus vulgaris</i>	European starling
<i>Phainopepla nitens</i>	Phainopepla
<i>Quisacelus mexicanus</i>	Great-tailed grackle
* <i>Passer domesticus</i>	House sparrow

*Non-native wildlife species

8.1.2.1 Special-Status Species

A total of three special status reptile species, nine special status bird species, and 12 special status mammal species have been documented to occur within the Survey Area. Of these, one reptile species and one bird species were observed during survey efforts. No special status invertebrate, fish, amphibian, or mammal species were documented within the Survey Area during survey efforts.

Reptiles. One special status reptile, the flat-tailed horned lizard (*Phrynosoma macallii*), was observed in the Survey Area. Flat-tailed horned lizard scat and tracks were observed during general biological surveys in July 2019. The flat-tailed horned lizard is a CDFW Species of Special Concern and a BLM Sensitive Species. Management of the species is governed by the Flat-tailed Horned Lizard Interagency Coordinating Committee established under a 1997 conservation agreement. The conservation agreement is in lieu of listing the species as endangered. The Survey Area is within the Yuha Desert Management Area as identified in the Flat-tailed Horned Lizard Rangewide Management Strategy (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003).

In addition to the flat-tailed horned lizard, two other special-status reptile species have a high potential to occur in the Survey Area, the barefoot banded gecko (*Coleonyx switaki switaki*) and Colorado Desert fringe-toed lizard (*Uma notata*). The barefoot banded gecko is listed as threatened by the California Endangered Species Act (ESA), a CDFW Species of Special Concern, and a BLM Sensitive Species. They inhabit arid rocky areas in the foothills of the Eastern Peninsular Range and prefer areas with boulders and rock outcrops with sparse vegetation. They spend the daylight hours under rocks or in rock cracks and venture out at night to hunt their insect and arthropod prey. The western end of the Survey Area reaches the eastern edge of the Peninsular Range foothills, and the eastern edge of barefoot banded gecko range. The steep rugged slopes present in this part of the Survey Area are littered with rocks of varying sizes and boulder outcrops, highly suitable habitat for the barefoot banded gecko.

The Colorado Desert fringe-toed lizard is adapted to life in soft shifting desert sands. They require areas of sparse vegetation and fine, wind-blown sands that they use as shelter overnight, to avoid

excessive desert heat during the day, and to escape predators. Areas of fine sand are a key habitat element for the Colorado Desert fringe-toed lizard, and they possess specific adaptations to surviving in this environment, including fringed toes to aid in movement, a countersunk lower jaw, overlapping eyelids, flaps on their ears and valve-like nostrils and nasal passages to help them burrow and keep fine sand out. Throughout the Survey Area, there are areas where wind-blown sand accumulates, both in undisturbed areas and along existing patrol roads. Accumulation of wind-blown sand is such an issue in the Survey Area that regular road maintenance to remove fine sand deposits are necessary to keep patrol roads accessible. These areas of fine sand accumulation are high-quality habitat for the Colorado Desert fringe-toed lizard. Suitable habitat and historic observations of this species within 0.5 miles of the Survey Area indicate it is highly likely to occur within the Survey Area.

Birds. One CDFW bird Species of Special Concern, the loggerhead shrike (*Lanius ludovicianus*), was observed during surveys. In addition, burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), and black-tailed gnatcatcher (*Poliophtila melanura*) have a high potential to occur within the Survey Area. Burrowing owl require an open desert floor or agricultural field in association with burrow-forming animal species to provide suitable nest burrows. Several historic occurrences have been documented to the northeast of the Project (CNDDDB 2019) in former agricultural habitats. Additional occurrences in agricultural fields have been documented within 10 miles of the Survey Area to the northeast (CNDDDB 2019). Historic occurrences from desert scrub habitats have also been documented 8 miles north of the Survey Area (CNDDDB 2019). The Survey Area contains suitable foraging and burrow habitat to support nesting and wintering burrowing owls.

Suitable rocky ledge nesting habitat for prairie falcons is present to the west of the Survey Area in the rugged, boulder-strewn foothills of the Eastern Peninsular Range (CNDDDB 2019). Prairie falcons nesting in this area would likely forage over the Survey Area where suitable native and non-native prey species, including rock pigeon (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), and common ground-dove (*Columbina passerina*), in addition to other avian species, were observed during the survey effort. The ground-burrowing mammals that provide burrow habitat for burrowing owls would also likely be suitable mammalian prey for prairie falcons. Sufficient prey species are present in the Survey Area to support foraging prairie falcons.

The black-tailed gnatcatchers prefer desert habitats including dry washes and other shrub habitats. A number of dry washes or ephemeral streams were documented in the Survey Area during surveys. These areas were associated with creosote and palo verde dominated vegetation communities; the latter species is also a suitable thorny nesting tree species. Historic occurrences of black-tailed gnatcatchers have been documented 6.5 miles to the north of the Survey Area (CNDDDB 2019). Sufficient nesting and foraging resources are present within and adjacent to the Survey Area to support black-tailed gnatcatchers.

An additional five special status bird species have a moderate potential to occur in the Survey Area, including the golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), mountain plover (*Charadrius montanus*), and LeConte's thrasher (*Toxostoma lecontei*). Golden eagles in this part of Southern California would likely nest in rock outcrops and cliff faces west of the Survey Area in the foothills of the Eastern Peninsular

Range. Golden eagles nesting in this area would forage across the Survey Area in search of suitable prey, including the black-tailed jackrabbit (*Lepus californicus deserticola*), also identified as having a moderate potential to occur in the Survey Area. Golden eagles are known in the region and an active nesting pair is known 13 miles west of the Survey Area at Table Mountain in San Diego County.

Ferruginous hawk could be present during the winter months as individuals and small groups prey on small mammals and reptiles in the Survey Area. Swainson's hawk would be present in the Survey Area for only a short time as they migrated through during the spring and fall months. During that migration, however, Swainson's hawks could hunt small mammals, reptiles, or insects in the Survey Area. Mountain plovers could be present in sandy habitats of the Survey Area during the winter months. This species is not common and most historic observations have occurred in agricultural habitats to the northeast of the Survey Area. However, some documented observations are only 8 miles from suitable sandy habitat in the Survey Area (CNDDDB 2019). Suitable desert scrub and mesquite vegetation in desert wash habitats are present within and adjacent to the Survey Area to support LeConte's thrasher, but historic observations of this species 3 miles north of the Survey Area are dated from the early 1900s (CNDDDB 2019).

Mammals. No special status mammal species were documented in the Survey Area during the survey effort. However, three special status mammals have a high potential to be present in the Survey Area, including the western mastiff bat (*Eumops perotis californicus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), and big free-tailed bat (*Nyctinomops macrotis*). All three special status mammals are bats in the family Molossidae, the "free-tailed" bats, and all three share some similar life history characteristics that make their presence likely in the Survey Area. All three species can inhabit arid regions and are rock crevice-roosting species, prefer the rugged rocky terrain found in the foothills to the west of the Survey Area for roosting, and are swift, high flying bat species that target moths as their principal food source. The open rolling terrain of the Survey Area would suit these species and their hunting style, with a foraging space uncluttered by complex vegetative structure. There is, however, sufficient vegetative growth to support the moth food base preferred by these species. The agricultural landscape east of the Project would further support individuals roosting in rugged rocky terrain west of the Survey Area and south of the U.S./Mexico international border. The few documented occurrences of these species in the region come from the agricultural habitats (CNDDDB 2019). One mummified specimen of western mastiff bat was recovered from inside a CBP camera tower monopole approximately 0.22 miles north of the Survey Area in 2012 (D. Janeke, Biologist, Bio-Studies, personal communication).

An additional nine special status mammal species have a moderate potential to occur in the Survey Area, including the pallid bat (*Antrozous pallidus*), pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western yellow bat (*Lasiurus xanthinus*), California leaf-nosed bat (*Macrotus californicus*), Yuma myotis (*Myotis yumanensis*), Palm Springs little pocket mouse (*Perognathus longimembris bangsi*), Yuma hispid cotton rat (*Sigmodon hispidus eremicus*), and American badger (*Taxidea taxus*).

Bat species, including pallid bats, Townsend's big-eared bats, California leaf-nosed bats, and Yuma myotis, all have the potential to roost in the rough, rocky terrain west of the Survey Area and forage within the Survey Area. Townsend's big-eared bats and California leaf-nosed bats are

primarily mine and cave roosting species, while pallid bats and Yuma myotis tend to favor more rock crevice style roosting habitat.

All species have the potential to roost in suitable human-constructed habitats like bridges, culverts, or buildings. These roosting habitats can be found to the east or west of the Survey Area, but roosting habitat within the Survey Area is limited to absent. The desert flats, rolling hills, and sandy washes within and adjacent to the Survey Area are all suitable foraging habitat for most of these species. The Yuma myotis, however, prefers to forage over water sources like the irrigation canals found near the east end of the Survey Area. Western yellow bats differ considerably in that they prefer to roost in trees, particularly in the dead palm frond skirts of native and non-native palms. This roosting habitat is found near both ends of the Survey Area in palm oases and where palms have been planted along agricultural fields as wind breaks. Western yellow bats would also forage around similar agricultural areas, including fields, irrigation canals, and riparian habitats, also found within one mile of the east end of the Survey Area.

Both the pallid San Diego pocket mouse and the Palm Springs little pocket mouse share similar habitat characteristics. Both species prefer desert scrub type habitats that provide for their seed-based diets and sandy, friable soils that allow for burrowing. The San Diego pocket mouse prefers a rockier soil type and is frequently associated with Yucca species, which were not observed in the Survey Area. Neither species has been documented within a mile of the Survey Area, but both have documented occurrences less than 9 miles away from the Survey Area in vegetation types similar to those present throughout and adjacent to the Survey Area.

Irrigation canals and agricultural fields at the east end of the Survey Area have suitable cover and forage to support Yuma hispid cotton rats. There is no suitable habitat farther to the east in the Survey Area. Historic observations of Yuma hispid cotton rats have been documented 4.5 miles to the north of the Survey Area along an irrigation canal (CNDDDB 2019). The same irrigation canal flows to within 0.5 miles of the Survey Area, providing suitable habitat to support this species.

American badgers can be found in desert scrub and agricultural habitats within a mile of the Survey Area. A suitable prey base is likely to be present as evidenced by the numerous small mammal burrows observed in and adjacent to the Survey Area. Observations of American badgers 7 miles north of the Survey Area are more than 50 years old, but suitable habitat is still present at historic sites and within the Survey Area to support badgers.

8.1.2.2 Federal-listed Species

No federally listed reptile, bird, or mammal species were documented in the Survey Area during the survey effort. However, one mammal species, the Peninsular bighorn sheep (*Ovis canadensis nelsoni*), which is listed as endangered under the Federal and California ESA and as a BLM Sensitive Species, has a high potential to occur in or near the Survey Area. Peninsular bighorn sheep in the Peninsular Range require steep, rugged mountain terrain with sparse vegetation cover to allow for visual detection of predators at a distance. This habitat is present at the extreme western edge of the Survey Area. Peninsular bighorn sheep will also use desert washes, alluvial fans, and the desert flats surrounding rugged terrain to forage. The steep, rugged mountain terrain

and surrounding desert flats at the western end of the Survey Area are suitable to support the presence of Peninsular bighorn sheep.

8.1.2.3 Critical Habitat

Critical habitat was designated for one species in the region, Peninsular bighorn sheep. However, this habitat does not overlap with the Survey Area. At the closest approach, Peninsular bighorn sheep critical habitat is present 4.23 miles to the west of the Survey Area. Suitable vegetation and topography for Peninsular bighorn sheep does occur at the western end of the Survey Area and extends to the areas of designated critical habitat, including open desert scrub vegetation and rugged mountainous terrain.

8.2 ENVIRONMENTAL CONSEQUENCES

8.2.1 Vegetation

The Project has the potential to have impacts on native vegetation communities. Replacement of the existing vehicle barrier along the U.S./Mexico international border with 30-foot bollard could potentially cause permanent impacts on approximately 25.29 acres of native vegetation communities as shown in **Table 8.2** below. Permanent impacts could occur in areas of the existing vehicle and pedestrian fence alignment, adjacent patrol road, infrastructure related to communications, and installation of LED lighting. Temporary impacts could occur in areas north of the existing fence and patrol roads used for equipment and materials storage and staging, and laydown yards used to store equipment, materials, and conduct temporary activities in support of the fence replacement Project.

Table 8-2. Vegetation Community Anticipated Impacts

Community Name (USNVC)	Acres in Survey Area
Disturbed Habitat	86.02
<i>Chorizanthe rigida</i> - <i>Geraea canescens</i> Desert Pavement	1.95
<i>Larrea tridentata</i> - <i>Ambrosia dumosa</i> Shrubland	15.54
<i>Larrea tridentata</i> - <i>Ambrosia dumosa</i> - <i>Pleuraphis rigida</i> Desert Shrubland	0.94
<i>Larrea tridentata</i> - <i>Atriplex polycarpa</i> Desert Shrubland	0.13
<i>Larrea tridentata</i> - <i>Fouquieria splendens</i> Upper Bajada & Rock Outcrop Desert Scrub Alliance	5.35
<i>Parkinsonia florida</i> - <i>Olneya tesota</i> Desert Wash Scrub Alliance	1.19
<i>Brassica tournefortii</i> - <i>Malcolmia africana</i> Ruderal Desert Forbs Alliance	0.19
TOTAL	111.31

Twelve special status plant species have a moderate to high potential to occur in previously undisturbed areas within the Survey Area. Therefore, direct adverse impacts on special status plant species within the Survey Area could occur as a result of fence replacement activities. Special status plant species would be impacted through direct loss of individuals. Adverse impacts on special status plant species found within the Survey Area could be mitigated by avoidance with guidance by a qualified biological monitor. BMPs would be implemented to minimize potential

impacts on special status plant species. Additionally, the anticipated reduction in illegal border traffic from the deterrence provided by the bollard-style fence will have a beneficial impact on vegetation in the region. Fewer border crossings could result in fewer opportunities for vegetation to be disturbed by foot traffic, litter, and other human activities.

8.2.2 Wildlife and Aquatic Resources

The majority of wildlife likely to be found within the Survey Area is common and widespread throughout the region. Mobile wildlife such as birds and larger mammals would likely move away from fence replacement activities toward nearby areas of similar habitat, while smaller, slow, or sedentary species such as invertebrates, reptiles, and smaller mammals could potentially be impacted during construction. Therefore, direct adverse impacts on wildlife within the Survey Area have the potential to occur. However, because construction will be temporary and temporarily impacted native habitat would be restored, this Project is unlikely to result in any long-term or significant decreases in population for most wildlife in the region.

Migratory birds have the potential to be impacted through direct loss of habitat, including foraging, roosting, nesting, and escape cover. Adverse impacts on nesting birds found within the Project footprint could be mitigated by a qualified biologist implementing avoidance measures. Mammals whose migratory patterns have the potential to be disrupted by the inability to traverse through the bollard-style fencing could also experience the loss of genetic diversity when populations across the border are no longer able to mate. BMPs would be implemented to minimize potential impacts on special status wildlife species.

Critical habitat has been designated for one species in the region, Peninsular bighorn sheep, but it does not overlap with the Survey Area. At the closest approach, Peninsular bighorn sheep critical habitat is present 4.23 miles to the west of the Survey Area. Suitable vegetation and topography for Peninsular bighorn sheep does occur at the western end of the Survey Area and extends to the areas of Peninsular bighorn sheep critical habitat, including open desert scrub vegetation and rugged mountainous terrain. No Peninsular bighorn sheep critical habitat will be impacted as a result of fence replacement.

The Project Area is within the Yuha Desert Management Area, which protects approximately 500,000 acres of flat-tailed horned lizard habitat, as identified in the Flat-tailed Horned Lizard Rangeland Management Strategy. Flat-tailed horned lizards have the potential to be impacted through direct loss of habitat due to construction activities. Adverse impacts on flat-tailed horned lizards within the Project footprint could be mitigated by a qualified biologist implementing avoidance measures. BMPs would also be implemented to minimize potential impacts on flat-tailed horned lizards.

Construction-related noise has the potential to have short-term impacts on wildlife species within the Project Area. Anthropogenic noise has been found to increase physiological stress, compromise predator/prey detection, affect mating signals and territorial defense, decrease foraging efficiency, and alter temporal or movement patterns in wildlife, although the intensity of behavioral responses due to noise varies among species as well as individuals within a species (Francis and Barber 2013). However, because construction activities could occur 24 hours a day,

and the most active periods for the majority of wildlife are between dusk and dawn, Project noise-related impacts during construction have the potential to be moderate.

The use of portable construction lighting has the potential to affect wildlife. Light pollution can cause disorientation to wildlife by extending diurnal and crepuscular behaviors into the night. Some species could potentially benefit from this, because it increases foraging potential for predators but decreases benefits for prey (Longcore and Rich 2004). Conversely, wildlife that forages at night have the potential to be adversely influenced due to the shortened nighttime hours or could move away from the area altogether.

Reproduction in certain species also has the potential to be affected. Frogs, for example, have been documented to stop mating activity in the presence of nighttime light. The Project Area will be illuminated at night by permanent lighting for border enforcement activities, which will have a moderate impact on wildlife activities. However, all lighting is shielded and directed downward to prevent light from traveling to areas where it is not needed, therefore minimizing impacts on wildlife.

9. CULTURAL RESOURCES

9.1 AFFECTED ENVIRONMENT

“Cultural resources” is an umbrella term for many heritage-related resources defined in several Federal laws and executive orders, including the National Historic Preservation Act (NHPA), the Archeological and Historic Preservation Act, the American Indian Religious Freedom Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act (NAGPRA). NHPA focuses on cultural resources such as prehistoric and historic sites, buildings and structures, districts, and other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Such resources might provide insight into the cultural practices of previous civilizations or retain cultural and religious significance to modern groups. Resources judged important under criteria established in NHPA are considered eligible for listing in NRHP. These resources are termed “historic properties” and protected under NHPA.

9.1.1 Project Location and Setting

A full-coverage cultural resources survey was conducted within the Project Area in Imperial County. The Area of Potential Effect (APE) was defined as a 15.3-mile long, 90-foot wide area immediately north of the border and 12 associated staging areas. The APE includes the 60-ft Roosevelt Reservation, a 30-ft wide strip of land administered by BLM on the northern side of the Roosevelt Reservation, and 12 laydown areas totaling 246.14 acres located on BLM land on the northern side of the Roosevelt Reservation. In total, the APE includes 412.97 acres.

A pedestrian survey was conducted of 166.83 acres, including the Roosevelt Reservation and adjacent BLM-administered land. Additionally, two laydown areas totaling 1.72 acres were also surveyed. The remainder of the laydown areas were previously surveyed and therefore were not re-surveyed.

The Project Area is in the Colorado Desert, a subdivision of the Sonoran Desert. The Colorado Desert is characterized by its low elevation—mostly below 1,000 ft and some portions below sea level—and arid climate. Hot summers and mild winters typify the climate of the Colorado Desert. Temperatures during the summer average more than 90 degrees Fahrenheit, with frequent peaks greater than 110 degrees Fahrenheit. Winter temperatures are mild, with freezes being uncommon.

9.1.2 Cultural History

In Southern California, the Archaic period is composed of three poorly defined complexes: the San Dieguito, the La Jolla, and the Pauma (Gallegos 1987). Generally, the San Dieguito are thought to inhabit the lower deserts, the La Jolla is associated with coastal areas and shell middens, and the Pauma are associated with inland sites in northern San Diego County.

First described by Rogers as “scraper makers,” the San Dieguito people were a hunting and gathering society that occupied San Diego and Imperial counties as far back as 8,200 B.C.E. (Rogers 1939, 1966; Warren 1967). The San Dieguito were originally ascribed to a wide region of western North America consisting of Southern California, the upper Great Basin, western

Nevada, and Baja California, while also ranging to the Yuma Desert of southern Arizona and the Sonoran Desert of northern Sonora Mexico (Rogers 1966). Subsequent work has narrowed this range and the San Dieguito Complex is now used to refer to the Archaic populations in southwestern California, California's Colorado Desert, northern Baja California, and northern Sonora Mexico.

The Late Period (circa A.D. 700 to contact) is marked by more intensive and efficient exploitation of the available resources, which leads to the advent of smaller projectile points, pottery, and the establishment of seasonal villages. In Imperial County, higher population density and greater numbers of sites appear to correlate with the presence of Lake Cahuilla, which filled the Salton Trough when water flowed into it from the Colorado River. When water ceased to flow from the river, the lake dried, markedly reducing the availability of resources. Occupation of the Salton Trough during the Late Prehistoric Period correlates with three cycles of inundation and drying in Lake Cahuilla that occurred between A.D. 1,200 and 1,680 (Mitchell 2011).

The Kumeyaay are the Yuman-speaking native people of central and southern San Diego County and the northern Baja Peninsula in Mexico. Spanish missionaries and settlers used the collective term Diegueño for these people, which referred to people living near the presidio and mission of San Diego de Alcalá (Mitchell 2011).

It is estimated that the pre-contact Kumeyaay population ranged from approximately 3,000 to 9,000. Beginning in 1775, the semi-nomadic life of the Kumeyaay began to change as a result of contact with European-Americans, particularly from the influence of the Spanish missions. Through successive Spanish, Mexican, and Anglo-American control, the Kumeyaay were forced to adopt a sedentary lifestyle and accept Christianity. As of 1968, Kumeyaay population was approximately 1,500 (Mitchell 2011).

Although the historic period of Southern California began when Juan Rodríguez Cabrillo and his men landed in San Diego in 1542, the first Spanish exploration of the California interior and what is now Imperial County (established in 1907 from the eastern portion of San Diego County) did not occur until the 1770s when Friar Francisco Garcés explored most of Imperial County (Pourade 1961). Horses, cattle, agricultural foods, and weed seeds, and new architectural styles and method of building construction were also introduced. Spanish influence continued after 1821 when California became a part of Mexico. For a period of time under Mexican rule, the missions continued to operate as in the past, and laws governing the distribution of land were also retained.

In 1821, Mexico won its independence from Spain and Southern California became part of the Mexican state of Alta California. Cattle ranching prevailed over agricultural activities, and the development of the hide and tallow trade increased during the early part of this period. The Pueblo of San Diego was established, and transportation routes were expanded. The Mexican Period ended in 1848 as a result of the Mexican-American War.

The American Period began when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Terms of the treaty brought about the creation of the Lands Commission, in response to the Homestead Act of 1851, that was adopted as a means of validating and settling land ownership claims throughout the state. Much of the land that once constituted Mexican rancho holdings became available for settlement by immigrants to California. Founded in 1899

by the Imperial Land Company, the City of Calexico started as a tent city in the desert that was converted into a location for year-round agriculture. Incorporated in 1908, the city has become a blend of American and Mexican cultures that has combined the agricultural roots of the city with a newer and rapidly expanding industrial infrastructure. As of July 2018, the estimated population of Calexico is 40,139 (U.S. Census Bureau 2019).

9.1.3 Records Check and Results

For this analysis, cultural resource experts conducted a records search and literature review covering a one-mile radius for the Project APE. Electronic records on file in the California Historical Resources Information System (CHRIS) at the California OHP were checked. Historical General Land Office (GLO) plat maps on file with the BLM and the NRHP were also checked for information about historic resources within the one-mile search radius. In accordance with California’s confidentiality directives, tables and maps detailing the results of the records search are presented in **Appendix C**.

In summary, 57 previous cultural resources investigations have been conducted within the one-mile search radius. As a result of these previous investigations, 82 resources have been recorded within the one-mile search radius. This includes 22 sites and 60 isolated occurrences (IO). Six previously recorded sites are located, at least in part, within the current area of investigation and are summarized in **Table 9-1**. Several site types were identified, including a large prehistoric sherd and lithic scatter with house floors, trails, and border monuments.

Table 9-1. Summary of Previously Recorded References in the APE

Resource	Description	Reference
P-13-115	Prehistoric artifact scatter	Berryman 2001
P-13-4306	Trail	On file, CHRIS
P-13-4307	Trail	On file, CHRIS
P-13-6174	Artifact scatter and cleared circles	On file, CHRIS
P-13-9617	Border Monument 225	Cheever and Berryman 2008
P-13-14384	Border Monument 224	Hart 2012

Cultural resource experts then conducted fieldwork for this Project in August 2019. As a result of this investigation, six previously recorded sites were revisited and 32 resources were newly recorded. These include three border monuments (numbers 226–228), 12 concrete supplemental border monuments, 10 GLO benchmarks, one possibly modern rock ring, one rock cairn (possibly associated with Border Monument 228), a glass scatter consisting of two broken bottles (ca. 1944–1959), two sanitary cans, one clear glass jar base (ca.1933–1960s), and a quartzite core and three refitted debitage flakes.

9.1.4 Visual APE

Federal regulations stipulate that disturbances to the viewshed of historic properties should be considered when assessing potential adverse effects prior to an undertaking. As a result of the proposed undertaking, the height of the existing primary border fence will be more than doubled and may be increased to up to three times the existing height. Due to the increased height and to

consider all potential impacts from the current undertaking, a viewshed analysis was conducted for all NRHP-listed historical properties within one-half mile of the primary border fence. This indirect impact zone was based on Federal Communications Commission (FCC) guidelines established for the construction of communications towers less than 200 feet tall (FCC 2004).

There are no NRHP-listed historical properties within the one-half mile search area. However, two historic built environment resources, the All-American Canal (P-13-007130) and the Westside Main Canal (P-13-008334) are within the search radius. Both canal segments, which are adjacent to the APE on the eastern end, are considered eligible for listing in the NRHP. The Westside Main Canal was constructed in 1907. The All-American Canal was constructed by the BOR between 1934 and 1940. Both canals are associated with the agricultural development of the region.

9.2 ENVIRONMENTAL CONSEQUENCES

Although the Secretary's waiver means that CBP does not have any specific obligations under NHPA, DHS and CBP recognize the importance of responsible environmental stewardship. CBP has therefore applied the general standards and guidelines associated with NHPA as the basis for evaluating potential environmental impacts and appropriate BMPs.

In August 2019, archaeologists revisited six previously recorded sites. These include P-13-115, a large prehistoric sherd and lithic scatter with house floors (Berryman 2001). This large, low-density site has been heavily disturbed within the APE. One ceramic sherd was recorded within P-13-115, otherwise no evidence of the site was found. P-13-6174 is an artifact scatter and cleared circles (on file, CHRIS). No trace of this site was encountered during fieldwork. Two trails—P-13-4306 and P-13-4307—cross the APE near its western end (on file, CHRIS). Neither trail was relocated during the current survey. Finally, two previously recorded border monuments are within the Project Area. Monument 224 (P-13-14384) was recorded by Hart (2012). Monument 225 (P-13-9617) was recorded by Cheever and Berryman (2008). The condition of the monuments has not changed since their recording.

Avoidance or archaeological monitoring is recommended within P-13-115 and P-13-6174. There is potential for associated buried deposits. Border monuments should be avoided. In addition to the sites, a number of IOs have been recorded in/near the APE. No further investigation of these isolates is recommended.

With the exception of the border monuments, none of the newly recorded resources are considered NRHP eligible. They are not considered significant and no additional investigation of them is recommended.

If human remains are encountered during construction activity, construction should stop, and the proper authorities from CBP must also be notified per NAGPRA. With the implementation of these recommendations, in conjunction with the BMPs listed in **Chapter 1.5.7**, the Project will not have the potential to directly or indirectly adversely impact known cultural resources.

9.2.1 Visual APE

Due to the potential of the All-American Canal (P-13-007130) and the Westside Main Canal (P-13-008334) to be listed in the NRHP, viewshed impacts were considered for the current Project. Previous development along the border, including transmission lines and border infrastructure, have already altered the viewshed of the canals. The installation of the new bollard-style wall will have a minimal impact on the setting of these resources. For this reason, a finding of no adverse effects is recommended for the All-American Canal and Westside Main Canal as a result of these surveys.

Other previously recorded sites in proximity to the APE are considered eligible under Criterion D (information potential). Visual impacts do not apply to sites eligible under Criterion D. A finding of no adverse visual effects applying to these cultural resources is recommended as well.

This page intentionally left blank

10. SOCIOECONOMICS

10.1 AFFECTED ENVIRONMENT

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. While population and demographic data are relatively straightforward and maintained by the Census Bureau, there are many factors that can be used as indicators of economic conditions for a geographic area, such as employment and unemployment rates, employment by business sector, and median household income.

The Project includes the installation of primary pedestrian bollard wall along the U.S./Mexico international border west of Calexico, California, in Imperial County, California, and north of Mexicali, Mexico. The Project will occur in a rural/undeveloped area in the United States. For the purposes of this ESP, the Region of Influence (ROI) includes census tracts 119 and 123.01 in Imperial County, California. Census tracts are designed to be relatively homogenous units with respect to population characteristics, economic status, and living conditions at the time of establishment. The demographics of the ROI, county, and state are listed in **Table 10-1**. The racial mix of the ROI is similar to Imperial County as a whole, although the Hispanic population is much higher than the state average, at 88 percent compared to 38.9 percent for California (U.S. Census Bureau 2020a).

Table 10-1. Demographics by County

Location	Total Population, 2018	Caucasian (%)	Some Other Race	Black/ African American	American Indian/ Native Alaskan	Asian	Native Hawaiian/ Pacific Island	2+ Races	Hispanic/ Latino *
ROI	16,149	62.9%	28.2%	6.2%	0.6%	0.6%	0.1%	1.5%	88.0%
Imperial	180,216	64.3%	26.3%	2.5%	1.0%	1.5%	0.2%	4.2%	83.8%
California	39,148,760	60.1%	13.8%	5.8%	0.8%	14.3%	0.4%	4.8%	38.9%

*Percentage not included as part of demographic total.

Source: U.S. Census Bureau 2020a.

Employment types in the ROI vary (see **Table 10-2**). The largest employment type in the ROI, Imperial County, and California is educational, health, and social services (27.2 percent, 26.3 percent, and 21 percent, respectively). Retail trade is the next largest type for both the ROI and Imperial County (15.8 percent and 14 percent), while it rounds out the top three for the state of California (10.6 percent). In 2018, the ROI had an unemployment rate of 9.1 percent, compared to 15.3 percent for Imperial County and 6.7 percent for the state (U.S. Census Bureau 2020b).

Table 10-2. Employment Data

Location	Civilians Employed	Top Industries	Unemployment Rate
ROI	4,545	Educational services, and health care and social assistance (27.2%); Retail trade (15.8%); Transportation and warehousing, and utilities (12.7%)	9.1%
Imperial	59,919	Educational services, and health care and social assistance (26.3%); Retail trade (14%); Agriculture, forestry, fishing and hunting, and mining (9.8%)	15.3%
California	18,309,012	Educational services, and health care and social assistance (21%); Professional, scientific, and management, and administrative and waste management services (13.4%); Retail trade (10.6%)	6.7%

Source: U.S. Census Bureau 2020b.

Residents, businesses, and industry in Mexicali, Baja California, Mexico, could also be affected by the Project, given the longstanding economic ties between the two countries. The commercial exchange between Baja California and San Diego and Imperial counties is valued at \$6.2 billion annually (WTC San Diego 2018). The population of Mexicali is approximately 1 million and is where numerous international businesses are located, such as the diversified “maquiladora” industry (assembly plants) and other cultural facilities. In 2019, crossings of people through the California-Baja California border accounted for 32 percent of all crossings into the U.S. via land POEs (SANDAG 2020).

In 2018, Imperial County had a per capita personal income (PCPI) of \$36,974, which was only 58 percent of the state average of \$63,557 (BEA 2020). Total personal income (TPI) of an area is the income that is received by, or on behalf of, all the individuals who live in that area. In 2018, the TPI for Imperial County was \$6.7 billion. The income for Imperial County and California is listed in **Table 10-3**.

Table 10-3. County Income Comparison

Location	PCPI ¹	TPI ¹	Median Household Income ²
Imperial County	\$36,974	\$6.2 billion	\$45,834
California	\$63,557	\$2.63 trillion	\$71,228
United States	\$54,446	\$18.6 trillion	\$60,293

¹Source: BEA 2020.

²Source: U.S. Census Bureau 2020b.

10.2 ENVIRONMENTAL CONSEQUENCES

The Project is not anticipated to have impacts, direct or indirect, on long-term population or employment. Legal traffic across the border will continue at the Calexico POE. The Project is anticipated to hire local construction crews and contractors for the duration of construction, reducing the need for new employees or relocation of employees. It is not anticipated that potential

employees will be required to relocate to Imperial County; therefore, population and demographics of the County will remain the same as preconstruction conditions. The nature of the work associated with the construction phase would be temporary and would not result in additional long-term employment. Additionally, it is anticipated that a portion of the required supplies would be bought from the businesses in the vicinity of the Project Area. It is anticipated that the Project is likely to result in an increase in local spending on food and other incidentals. Although the Project has the potential to result in a short-term beneficial impact to the economy through the provision of temporary jobs and purchasing materials and other personal expenses from local businesses, any increase in economic activity would not be sustained to permanently alter the economic status of the residents and/or businesses in the immediate vicinity.

Imperial County will have the potential to benefit from the Project in the long term, since the replacement of the primary fence and installation of complimentary security facilities will provide additional protection from illegal traffic across the border.

This page intentionally left blank

11. HAZARDOUS MATERIALS AND WASTE

11.1 AFFECTED ENVIRONMENT

Hazardous materials and wastes have a chemical composition or other properties that make them toxic or otherwise capable of causing illness, death, or otherwise harmful effect on humans or the environment when mismanaged or released.

USEPA maintains a list of hazardous waste sites, particularly waste storage/treatment facilities or former industrial manufacturing sites in the United States. The chemical contaminants released into the environment (e.g., air, soil, groundwater) from hazardous waste sites could include organic compounds, solvents, and other chemicals. The potential adverse impact of hazardous waste sites on human health is a considerable source of concern to the general public, as well as government agencies and health professionals.

Solid and hazardous wastes are regulated in California by a combination of mandated laws promulgated by the Federal, state, and regional Councils of Government. A search of USEPA's Envirofacts Data Warehouse showed no superfund sites near the Project Area (USEPA 2019b). Furthermore, the Project Area has no structures, therefore, ACMs, LBP, and PCBs in building materials do not exist on the site.

In addition to the laws and regulations previously mentioned, E.O. 12088, Federal Compliance with Pollution Control Standards, as amended, directs Federal agencies to (1) comply with "applicable pollution control standards," in the prevention, control, and abatement of environmental pollution; and (2) consult with USEPA, state, and local agencies concerning the best techniques and methods available for the prevention, control, and abatement of environmental pollution.

11.2 ENVIRONMENTAL CONSEQUENCES

Soils in the Project Area have the potential to be impacted by hazardous or toxic materials in the event of an accidental spill, which could lead to groundwater contamination. BMPs will be implemented during construction activities to avoid any release into the environment as well as to anticipate capture requirements in advance of any potential release. To prevent contamination of the Project Area, care will be taken to avoid impacting the Project Area with hazardous substances (e.g., anti-freeze, fuels, oils, lubricants) used during construction activities. These activities include implementing primary and secondary containment measures, developing a SPCCP prior to the start of construction, and briefing all personnel on the implementation and responsibilities of the SPCCP.

POLs will be stored at designated temporary staging areas to maintain and refuel construction equipment. Cleanup materials (e.g., oil mops) will be maintained on site, in accordance with the SPCCP, to allow for immediate action in the event of an accidental spill. Drip pans will be provided for power generators and other stationary equipment to capture any POLs spilled during maintenance activities or in the event of equipment leaks. A concrete washout containment system will be established to ensure concrete washout is safely managed and properly disposed.

Sanitation facilities will be provided during construction activities and waste products will be collected and disposed of by licensed contractors. No gray water will be discharged to the ground. Disposal contractors will use only established roads to transport equipment and supplies. Proper permits will be obtained by the licensed contractor tasked to handle any unregulated solid waste. All waste will be disposed of in strict compliance with Federal, state, and local regulations, in accordance with the contractor's permits. Therefore, no hazards to the public have the potential to occur through the transport, use, or disposal of unregulated solid waste.

12. RELATED PROJECTS AND POTENTIAL EFFECTS

12.1 CUMULATIVE AFFECTED ENVIRONMENT

This chapter of the ESP addresses the potential combined impacts associated with the implementation of the Project and other projects/programs that are planned for the region. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision making is served by consideration of cumulative impacts resulting from projects that are planned, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects. The geographic scope of the analysis varies by resource area. For example, the geographic scope of cumulative impacts on resources such as soils and vegetation is very narrow and focused on the location of the resource. The scope of air quality, wildlife and sensitive species, visual resources, and socioeconomics is much broader and considers more county or region-wide activities. Projects that were considered for this analysis were identified by reviewing USBP documents, news releases, and published media reports, as well as through coordination with planning and engineering departments of local governments and state and Federal agencies, although only projects on the U.S. side of the border were possible to evaluate. Projects that do not occur in close proximity (i.e., within several miles) to the Project will not contribute to a cumulative impact (or are not possible to evaluate if they are south of the border) and are generally not evaluated further.

USBP has been conducting law enforcement actions along the border since its inception in 1924 and has continually transformed its methods as new missions, CBV modes of operation, agent needs, and national enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, and roads and fences have affected thousands of acres, with synergistic and cumulative impacts on soil, wildlife habitats, water quality, and noise. Beneficial effects have resulted from the construction and use of these roads and fences as well, including but not limited to: increased employment and income for border regions and surrounding communities, protection and enhancement of sensitive resources north of the border, reduction in crime within urban areas near the border, increased land value in areas where border security has increased, and increased knowledge of the biological communities and pre-history of the region through numerous biological and cultural resource surveys and studies.

With continued funding and implementation of CBP's environmental conservation measures, including environmental education and training of its agents, use of biological and archaeological monitors, and restoration of wildlife water systems and other habitats, adverse impacts from ongoing and future projects will be prevented or minimized. However, recent, ongoing, and reasonably foreseeable proposed projects will result in cumulative impacts. General descriptions of these types of activities are discussed in the following paragraphs.

12.2 CUMULATIVE FENCING ALONG THE SOUTHWESTERN BORDER

CBP has been identified to construct approximately 738 total miles of border wall system, including approximately 659 miles of primary barriers and approximately 63 miles of secondary barriers on the southwestern border (CBP 2020b). As of August 7, 2020, approximately 275 miles of new primary and secondary border wall system have been constructed. A summary of past, present, and reasonably foreseeable future actions near the Project Area are presented below.

12.3 PAST ACTIONS

Past actions include projects that have occurred in the relatively recent past that are within the cumulative effects analysis areas of this ESP. The effects of these past actions are generally described throughout the previous sections. For example, the existing vehicle and pedestrian fence, the Calexico POE, the existing access roads, and the previously developed border infrastructure system (BIS) have all contributed to the existing environmental conditions of the area.

12.4 PRESENT ACTIONS

Present actions include current or funded construction projects, USBP or other agency actions in close proximity to the fence locations, and current resource management programs and land use activities within the cumulative effects analysis area. Ongoing actions considered in the cumulative effects analysis include the following:

- **CBP-Funded Border Barrier** – In June 2019, CBP began construction of approximately 11 miles of primary replacement border wall system along the U.S./Mexico international border in Imperial County, California. It is composed of two sections on either side of the Calexico POE: the first starts approximately 2 miles west of the Calexico POE and extends approximately 7.8 miles to the west, while the second is just east of the Calexico POE and extends approximately 2.7 miles to the east. This bollard wall is currently under construction.
- **BIS Maintenance and Repair** - Routine all-weather road, secondary fence, and associated lighting and water conveyance system repair and maintenance.
- **Revegetation Projects** - A variety of revegetation projects have recently been completed as part of previous construction projects (such as Comprehensive Tactical Infrastructure Maintenance and Repair [CTIMR] and tower installations) and additional work is planned to minimize Project-related impacts and to restore habitat along the border.

A review of the California Department of Transportation website, Governor's Office of Planning and Research, and Imperial County Planning and Development Services did not yield any results for additional construction projects to consider.

12.5 REASONABLY FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their effects. The following projects are reasonable foreseeable actions that are likely to occur in the El Centro Sector:

- **DOD 10 U.S.C. § 284 Counter-Narcotics-Funded Border Barrier** – In 2020, DOD identified funding to assist DHS and CBP with construction of 11 miles of new border wall system in Imperial County, California.
- **DOD 10 U.S.C. § 2808 Military Construction-Funded Border Barrier** – In 2019, DOD identified funding to assist DHS and CBP with construction of 13 miles of secondary pedestrian fence system in Imperial County, California. Construction has not yet started.

USBP might be required to implement other activities and operations that are currently not foreseen or mentioned in this document. These actions could be in response to national emergencies or security events, or to changes in the mode of operations of CBVs.

Plans by other agencies that will also affect the region's natural and human environment include various road improvements by California Department of Transportation and Imperial County Transportation. The majority of these projects will be expected to occur along existing corridors and within previously disturbed areas. The magnitude of the impacts depends upon the length and width of the road right-of-way and the conditions within and adjacent to the right-of-way. However, currently no large state or county projects are ongoing or near completion within the vicinity of the Project Area.

Other organizations, such as BLM, routinely prepare or update Resource Management Plans for the resources they manage. A summary of the anticipated cumulative impacts relative to the Project (i.e., construction of the all-weather road and installation of the secondary fence) is presented below. These discussions are presented for each of the resources previously described.

12.6 ENVIRONMENTAL CONSEQUENCES

12.6.1 Air Quality

The emissions generated during and after the replacement of the legacy pedestrian and vehicle fence have the potential to be short-term and minor. There is the potential for cumulative adverse construction impacts on air quality from the current or foreseeable wall replacement Project discussed above. The emissions associated with these actions have the potential to result in short-term and minor impacts on the airshed, even when combined with the other proposed developments in the border region. CBP will minimize air quality impacts by using standard BMPs, such as dust suppression, during construction. Deterrence of and improved response time to illegal border crossings created by the construction of infrastructure have the potential to improved control of the border. A potential result of this improved control could be a reduction in the number of off-road enforcement actions that are currently necessary by USBP agents, thus potentially reducing dust generation and serving to benefit overall air quality as well.

12.6.2 Noise

Most of the noise generated by the Project has the potential to occur during construction and thus is unlikely to contribute to cumulative impacts of ambient noise levels. Routine maintenance of the fence and roads has the potential to result in slight temporary increases in noise levels that could sporadically occur over the long-term and have the potential to be similar to those of ongoing road maintenance within the Project Area. Potential sources of noise from other projects are not significant enough (temporally or spatially) to increase ambient noise levels above 75 dBA at the Project sites. Therefore, the noise generated by the construction and maintenance of Project infrastructure, when considered with the other existing and proposed projects in the region, has the potential to have minor cumulative adverse effects.

12.6.3 Land Use, Recreation, and Aesthetics

The Project has the potential to occur on the Roosevelt Reservation, which was set aside specifically for border control actions. This Project is therefore consistent with the authorized land use and, when considered with other potential alterations of land use, is unlikely to have a major cumulative adverse impact. Similarly, the open space opportunities they provide does not have the potential to be affected by the Project and does not have potential to be negatively impacted when considered with other present and foreseeable projects in the region.

There will be visually apparent changes within the viewsheds that currently include the primary fence. However, although the addition of a new, larger fence has the potential to cause an adverse visual effect in some areas, it does not constitute a major impact on visual resources within the Project Area due to the presence of currently existing infrastructure. Still, when considered with other USBP projects, it has the potential to degrade the existing visual character of the region; thus, cumulative impacts have the potential to be considered moderate and CBP will minimize impacts on resources to the maximum extent feasible.

Areas north of the border within the construction corridors have the potential to experience beneficial, indirect cumulative impacts on aesthetics and habitat through the reduction of trash, soil erosion, and creation of trails by illegal pedestrian traffic.

12.6.4 Geological Resources and Soils

The Project does not have the potential to create any dangerous or unstable conditions within any geologic unit, nor will it expose people or structures to potential substantial adverse effects. Further, no geologic resource is exclusively within the Project Area. The Project impact on previously disturbed lands, when combined with past and proposed projects in the region, has the potential to have minor, cumulative adverse impacts on geological resources.

The Project, when combined with other USBP projects, will not have the potential to permanently reduce prime farmland soils or agricultural production. Pre- and post-construction SWPPP measures will be implemented to control soil erosion. The permanent impact of approximately 111 acres for legacy fence replacement combined with the other USBP projects, has the potential to constitute a moderate cumulative adverse impact.

12.6.5 Hydrology and Water Management

As a result of the Project, when combined with other USBP projects, increased temporary erosion during construction has the potential to occur. Pre- and post-construction SWPPP measures for this and other projects will be implemented to control erosion. Water withdrawal from domestic water supplies or regional groundwater basins for dust suppression and other construction/maintenance activities, for this and other related projects in the region, has the potential to result in cumulatively considerable impacts. Additionally, these short-term activities have the potential to affect long-term water supplies or the quantity of groundwater in the region. Although the volume of water withdrawn is not expected to affect the public drinking water supplies, it has the potential to indirectly contribute to aquifer contamination from surface runoff. With the implementation of appropriate BMPs, the Project will not have the potential to substantially affect water quality.

12.6.6 Biological Resources (Vegetation, Wildlife, Aquatic Species, Special Status Species)

The Project has the potential to have minimal impacts on native vegetation communities, but as discussed in **Chapter 8**, some direct negative impacts on wildlife within the Project Area have the potential to occur due to erosion, noise, lighting, or conflict with construction equipment. However, because construction has the potential to be temporary and impacts will be minimized through implementing appropriate BMPs for the protection of general plants and wildlife, these combined projects are unlikely to result in any long-term or significant decreases in wildlife populations in the region.

12.6.7 Cultural Resources

Construction of the Project has the potential to impact three border monuments and two NRHP-eligible sites; however, with the implementation of monitoring and other avoidance measures, as described in **Chapter 9**, the Project has the potential to result in minimal, if any, adverse impacts. Therefore, this action, when combined with other existing and proposed projects in the region, has the potential to have negligible cumulative impacts on cultural resources.

12.6.8 Socioeconomics

Construction of the Project, when combined with other USBP projects, has the potential to result in temporary, minor, and beneficial impacts on the region's economy. No impacts on populations, minorities, or low-income families have the potential to occur. When practicable, materials and other Project expenditures will predominantly be obtained through merchants in the local community. Local construction crews will also be employed to complete the Project. Safety buffer zones will be designated around all construction sites to ensure public health and safety. Long-term, cumulative effects of the projects on the regional economy have the potential to be beneficial by reducing smuggling and other illegal activity in the area. Legal border crossings and international trade have the potential to continue unaffected by the Project. When combined with the ongoing or currently planned projects within the region, there is the potential for minor cumulative, temporary beneficial impacts on the region's socioeconomics.

12.6.9 Hazardous Materials and Waste

The use of hazardous substances will be required in small amounts within the Project Area during the construction phase. With the inclusion of BMPs listed in **Chapter 1.5.8**, impacts resulting from the use of hazardous materials during this phase have the potential to be avoided or minimized. Similarly, only minor temporary increases in the use of hazardous materials would potentially be experienced from construction associated with other projects in the region. Removal of the existing fence could generate waste, but most of the existing steel plate and mesh material is valuable as a recyclable material. Therefore, the Project, when combined with other ongoing and proposed projects in the region, does not have the potential to have a major cumulative impact on the generation of waste nor the potential for release of hazardous materials.

13. REFERENCES

- Air Force Civil Engineer Center 2018 Air Emissions Guide for Air Force Transitory Sources, Methods for Estimating Emissions of Air Pollutants for Transitory Sources at U.S. Air Force Installations. August 2018. Available online: <<http://solutionenv.com/Documents/2018%20TransitorySourceGuide.pdf>>, Accessed online February 2020.
- Bailey 1995 Robert G. Bailey. 1995. Description of the Ecoregions of the United States. United States Department of Agriculture. March 1995. Available online: <<https://www.fs.fed.us/land/ecosysmgmt/>>. Accessed online September 2019.
- Baldwin et al. 2002 Baldwin, Bruce G. 2002. The Jepson desert manual: vascular plants of southeastern California. Berkeley: University of California Press.
- BEA 2020 Bureau of Economic Analysis (BEA). 2020. BEARFACTS. Available online: <<https://apps.bea.gov/regional/BEARFACTS/>>. Accessed online August 12, 2020.
- Berryman 2001 Berryman, Judy A. 2001. *Cultural Resource Survey of a 230-kV Transmission Corridor from the Imperial Valley Substation to the International Border with Mexico*. RECON Environmental, Inc., San Diego.
- BLM 2020 BLM. BLM Routes of Travel for Western Imperial County, California. www.blm.gov/sites/blm.gov/files/maps-avenza-california-western_imperial_county_routes.pdf. Accessed online: August 13, 2020.
- CADWR 2004a California Department of Water Resources (CADWR). February 27, 2004. California Groundwater Bulletin 118: Coyote Wells Valley Groundwater Basin. Available online: < https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/7_029_CoyoteWellsValley.pdf>. Accessed online August 13, 2020.
- CADWR 2004b CADWR. February 27, 2004. California Groundwater Bulletin 118: Imperial Valley Groundwater Basin. Available online: < https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/7_030_ImperialValley.pdf>. Accessed online August 13, 2020.
- Calflora 2019 Calflora. 2019. Information on California plants for education, research and conservation. [web application]. 2019. Berkeley, California: The

- Calflora Database. <https://www.calflora.org/> Accessed online September 2019.
- CARB 2020 California Air Resources Board (CARB). 2020. Ambient Air Quality Standards. Available online: < <https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf>>. Accessed online August 13, 2020.
- CBP 2020a U.S. Customs and Border Protection (CBP). March 2019. Jurisdictional Assessment Report for the El Centro Fence Replacement Project.
- CBP 2020b U.S. Customs and Border Protection (CBP). 2020. Border Wall Status—August 7, 2020.
- Cheever and Berryman 2008 Cheever, Dayle M., and Judy Berryman. 2008. *Cultural Resource Inventory for Proposed Construction, Operation, and Maintenance of Tactical Infrastructure for Customs and Border Protection, El Centro Sector, California*. Engineering-Environmental Management, Inc., San Diego.
- CNDDDB 2019 California Natural Diversity Database (CNDDDB). 2019. Biogeographic Data Branch. Biogeographic Data Branch, California Natural Diversity Database. Sacramento, CA. http://www.dfg.ca.gov/biogeodata/cnddb/rf_ftpinfo.asp Accessed online August 2019.
- Environmental Laboratory 1987 Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Technical Report Y-87-1. 207 p. Available online < www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf >. Accessed online August 2020.
- FCC 2004 Federal Communications Commission (FCC). 2004. Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission. FCC 04-222. Federal Communications Commission, Washington.
- FEMA 2020 Federal Emergency Management Agency (FEMA) Flood Map Service Center. 2020. Available online: <<https://msc.fema.gov/portal/search?AddressQuery=110.253863%2C%2031.333754#searchresultsanchor>>. Accessed online April 2020.
- FHWA 2007 Federal Highway Administration (FHWA). 2007. Special Report: Highway Construction Noise: Measurement, Prediction, and Mitigation, Appendix A Construction Equipment Noise Levels and Ranges. Available online:

- <www.fhwa.dot.gov/environment/noise/highway/hcn06.htm>. Accessed January 9, 2020.
- Flat-tailed Horned Lizard Interagency Coordinating Committee 2003 Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices.
- Francis and Barber 2013 Francis, Clinton and Jesse Barber. 2013. "A framework for understanding noise impacts on wildlife: an urgent conservation priority." *The Ecological Society of America: Frontiers in Ecology and the Environment*, August 2013. Available online: <<https://esajournals.onlinelibrary.wiley.com/doi/10.1890/120183>>.
- Gallegos 1987 Gallegos, Dennis. 1987. A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. *In San Dieguito-La Jolla: Chronology and Controversy*. San Diego Archaeological Society, San Diego.
- Griffith et al. 2016 Griffith, G.E., Omernik, J.M., Smith, D.W., Cook, T.D., Tallyn, E., Moseley, K., and Johnson, C.B., 2016, Ecoregions of California (poster): U.S. Geological Survey Open-File Report 2016–1021, with map, scale 1:1,100,000, <http://dx.doi.org/10.3133/ofr20161021>.
- Hart 2012 Hart, David R. 2012. *Final. A Class III Cultural Resources Survey of the Proposed Improvements and Construction, Operation, and Maintenance of Approximately 1.6 Miles of All-Weather Road in the El Centro Station Area of Responsibility, U.S. Customs and Border Protection, El Centro Sector, Imperial County, California*. Gulf South Research Corporation, Tucson.
- IID 2006 Imperial Irrigation District (IID). 2006. Imperial Valley Weather History. Available online: <<https://web.archive.org/web/20090615044359/http://www.iid.com/About/ImperialValleyWeatherHistory>>. Accessed online August 13, 2020.
- Jepson eFlora 2019 Jepson Flora Project (eds.). 2019. Jepson eFlora. Available online <<http://ucjeps.berkeley.edu/IJM.html>>. Accessed online November 2019.
- Longcore and Rich 2004 Travis Longcore and Catherine Rich. 2004. "Ecological light pollution." *The Ecological Society of America: Frontiers in Ecology and the Environment*, May 2004. Available online: <<https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/1540-9295%282004%29002%5B0191%3AELP%5D2.0.CO%3B2>>.

- Mitchell 2011 Mitchell, Patricia T. 2011. *Inventory Report of the Cultural Resources within the Centinela Solar Energy Gen-Tie Line, Imperial County, California*. KP Environmental, LLC., Encinitas, California.
- NatureServe 2019 NatureServe. 2019. NatureServe's Classification of Ecological Communities. Available online <<http://explorer.natureserve.org/classeco.htm>>. Accessed online September 2019.
- NRCS Undated Natural Resources Conservation Service (NRCS). Undated. Web Soil Survey. Available online: <<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>>. Accessed online March 10, 2020.
- OSHA 2018 Occupational Safety and Health Administration (OSHA). 2018. Occupational Noise Exposure. Standard 1910.95. Available online: <<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.95>>. Accessed online January 9, 2020.
- Pourade 1961 Pourade, Richard F. 1961. *Time of the Bells: The History of San Diego*. Union Tribune Publishing, San Diego.
- Rogers 1939 Rogers, Malcolm J. 1939. *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Areas*. San Diego Museum Papers No. 3. San Diego.
- Rogers 1966 Rogers, Malcolm J. 1966. *Ancient Hunters of the Far West*. Union-Tribune Publishing, San Diego.
- SANDAG 2020 San Diego Association of Governments (SANDAG). 2020. 2019 California-Baja California Border Crossing and Trade Highlights. Available online: <https://www.sandag.org/uploads/projectid/projectid_451_27426.pdf>.
- Scott 2012 Scott, Nicolle. 2012. The Basin and Range Province of the United States. Available online: <http://academic.emporia.edu/aberjame/student/scott2/basin_range.html>. Accessed online April 2020.
- U.S. Census Bureau 2019 U.S. Census Bureau. 2019. Calexico, California. Available online: <<https://www.census.gov/quickfacts/calexicocitycalifornia>>. Accessed online September 5, 2019.
- U.S. Census Bureau 2020a U.S. Census Bureau. 2020a. ACS Demographic and Housing Estimates: 2014-2018 American Community Survey 5-Year Estimates. Available online: <<https://data.census.gov/cedsci/table?q=ACS%20Demographic%20and>

- %20Housing%20Estimates&g=1400000US06025011900,06025012301
&d=ACS%205-
Year%20Estimates%20Data%20Profiles&tid=ACSDP5Y2018.DP05&hi
dePreview=true >. Accessed online August 12, 2020.
- U.S. Census Bureau 2020b U.S. Census Bureau. 2020b. Selected Economic Characteristics , 2014-2018 American Community Survey 5-Year Estimates. Available online: <<https://data.census.gov/cedsci/table?q=Selected%20%20Economic%20Characteristics%20&g=1400000US06025011900,06025012301&d=ACS%205-Year%20Estimates%20Data%20Profiles&tid=ACSDP5Y2018.DP03&hidePreview=false>>. Accessed online August 12, 2020.
- USEPA 2016 U.S. Environmental Protection Agency (USEPA). 2016. How's My Waterway?. Available online: <<https://mywaterway.epa.gov/community/imperial%20county,%20ca/overview>>. Accessed online August 20, 2020.
- USEPA 2019a USEPA. 2019a. NAAQS Table. Available online: <<https://www.epa.gov/criteria-air-pollutants/naaqs-table>>. Accessed online March 15, 2019.
- USEPA 2019b USEPA. 2019b. Envirofacts. Available online: <<https://enviro.epa.gov/>>. Accessed online January 10, 2020.
- USGS 2020 USGS. Protected Areas Database of the United States. Available online: <<https://maps.usgs.gov/padus/>>. Accessed online January 9, 2020.
- USNVC 2019 United States National Vegetation Classification (USNVC). 2019. United States National Vegetation Classification Database, V2.01. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. [usnvc.org] Accessed online June 2019.
- Warren 1967 Warren, Claude N. 1967. The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* Volume 32(2):168–185.
- WTC San Diego 2018 World Trade Center San Diego ((WTC San Diego). 2018. Trade and Competitiveness in North America: A Focus on the Cali Baja Mega Region. Available online: <<http://www.sandiegobusiness.org/sites/default/files/Trade%20and%20Competitiveness%20in%20North%20America%20-%20SEP.compressed.pdf>>.

This page intentionally left blank

14. ABBREVIATIONS AND ACRONYMS

AOR	Area of Responsibility
APE	Area of Potential Effect
BEA	Bureau of Economic Analysis
BIS	Border Infrastructure System
BLM	Bureau of Land Management
BMP	Best Management Practice
BOR	Bureau of Reclamation
BSR	Biological Survey Report
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
CARB	California Air Resources Board
CBP	U.S. Customs and Border Protection
CBV	Cross-border violator
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
CO	Carbon monoxide
CTIMR	Comprehensive Tactical Infrastructure Maintenance and Repair
CWA	Clean Water Act
dB	Decibels
dBA	A-Weighted decibel
DHS	Department of Homeland Security
DOI	Department of the Interior
E.O.	Executive Order
ESA	Endangered Species Act
ESP	Environmental Stewardship Plan
ESSR	Environmental Stewardship Summary Report
FCC	Federal Communications Commission

FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRMs	Flood Insurance Rate Maps
FPPA	Farmland Protection Policy Act
GLO	General Land Office
GPD	Gallons per day
GPM	Gallons per minute
IBWC	International Boundary and Water Commission
ICAPCD	Imperial County Air Pollution Control District
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
INA	Irrigation Non-Expansion Area
IO	Isolated occurrences
mg/m ³	Milligram per cubic meter
MOVES	Motor Vehicle Emission Simulator
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NHPA	National Historic Preservation Act
NO _x	Total nitrogen oxides
NO ₂	Nitrogen dioxide
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	Ozone
OHP	California Office of Historic Preservation Office
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
PCPI	Per capita personal income
PM	Particulate matter
ppb	Parts per billion
ppm	Parts per million
POE	Port of Entry

POLs	Petroleum, oil, and lubricants
ROI	Region of Influence
SGCN	Species of Greatest Conservation Need
SO ₂	Sulfur dioxide
SPCCP	Spill Prevention, Control, and Countermeasure Plan
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TPI	Total personal income
tpy	Tons per year
µg/m ³	micrograms per cubic meter
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USIBWC	U.S. Section, International Boundary and Water Commission
VOC	Volatile organic compound
WOUS	Waters of the U.S.
°F	Degrees Fahrenheit

This page intentionally left blank