

FINAL

ENVIRONMENTAL STEWARDSHIP PLAN

FOR THE

PROPOSED RGV-06, 08, & 09 BORDER WALL PROJECT SEGMENTS

U.S. BORDER PATROL RIO GRANDE VALLEY SECTOR,

RIO GRANDE CITY STATION, TEXAS

NOVEMBER 2022



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U.S. BORDER PATROL RIO GRANDE VALLEY SECTOR,
RIO GRANDE CITY STATION, TEXAS**

Prepared for

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NOVEMBER 2022

COVER SHEET

ENVIRONMENTAL STEWARDSHIP PLAN FOR THE PROPOSED RGV-06, 08, & 09 BORDER WALL PROJECT SEGMENTS U.S. BORDER PATROL RIO GRANDE VALLEY SECTOR, RIO GRANDE CITY STATION, TEXAS

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

Parties Consulted: U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), Texas Parks and Wildlife Department (TPWD), and the U.S. Section, International Boundary and Water Commission (USIBWC).

Affected Location: United States/Mexico International Border in Hidalgo and Starr Counties, Texas.

Project Description: CBP proposes to construct approximately 39.87 miles of new bollard border wall in the USBP Rio Grande Valley (RGV) Sector Area of Responsibility (AOR) within Hidalgo and Starr Counties, Texas. The new wall will be composed of vertical steel bollard panels that will vary in height from 18-feet to 30-feet. In addition, CBP will also include a 150-foot-wide enforcement zone extending north from the foot of the border wall. The enforcement zone will be free of vegetation with the exception of short, mowed, and maintained grasses. The enforcement zone will also include the use of detection and surveillance technology that would be incorporated into the border barrier system. Automated vehicle gates, pedestrian gates, an all-weather patrol road that will run parallel to the border barrier system, and enforcement zone lighting are components of this project.

The new border wall system will be constructed within the RGV-06, 08, and 09 corridors, and will consist of seven linear segments of varying lengths (Las Palomas Wildlife Management Area to south of Military Road, El Faro Road 18 to El Salado, Mission Street to River Road, Patriot Lane to Los Olmos Creek, East of Midway 19 Road to Victor Road, Los Negros Creek to Este Road, and Salineño Wildlife Preserve to Falcon Dam) that total approximately 39.87 miles in length in Hidalgo and Starr Counties, Texas.

RGV-06, 08, & 09 Border Wall System Project Segments

Project	Segment ID	Mileage
RGV-06, 08, & 09	Las Palomas Wildlife Management Area to south of Military Road	8.15
	El Faro Road 18 to El Salado	4.57
	Mission Street to River Road	3.30
	Patriot Lane to Los Olmos Creek	3.42
	East of Midway 19 Road to Victor Road	7.44
	Los Negros Creek to Este Road	8.76
	Salineño Wildlife Preserve to Falcon Dam	4.23
	Total Mileage of all Segments	39.87

Report Designation: Environmental Stewardship Plan (ESP).

Abstract: CBP plans to construct, operate, and maintain approximately 39.87 miles of bollard wall, gates, enforcement zone, patrol road, and detection and surveillance technology along the U.S./Mexico border in Hidalgo and Starr Counties, Texas. The Project corridor lies within the USBP RGV Sector. All components of construction will occur within a 150-foot enforcement zone.

The ESP evaluates potential environmental impacts associated with the Project. Protection and Best Management Practices (BMPs) for factors such as air quality, noise, geological resources, water use and quality, biological resources, cultural resources, and hazardous materials have been incorporated into the Project design (Section 1.5).

EXECUTIVE SUMMARY

BACKGROUND

On October 10, 2018, 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 new border wall in the U.S. Border Patrol (USBP) Rio Grande Valley (RGV) Sector Area of Responsibility (AOR) in Hidalgo and Starr Counties, Texas (hereafter, “Project”). 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) to analyze the potential environmental impacts associated with construction of tactical infrastructure in the USBP RGV Sector. The ESP also discusses the CBP plans as to how it can mitigate potential environmental impacts. The ESP will guide CBP efforts going forward.

As it moves forward with the Project described in this ESP, 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 installation of tactical infrastructure.

GOALS AND OBJECTIVES OF THE PROJECT

The Project is being carried out pursuant to Section 102(a) of IIRIRA, which provides that the Secretary shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the U.S. border to deter illegal crossings. In Section 102(b) of IIRIRA, Congress has called for the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwestern border. Finally, in Section 102(c) of IIRIRA, Congress granted to the Secretary the authority to waive all legal requirements as determined necessary to ensure the expeditious construction of barriers and roads authorized by Section 102 of IIRIRA.

On October 10, 2018, the Secretary issued a waiver covering, among other things, the construction of approximately 39.87 miles of border infrastructure in the USBP RGV Sector (the Project). The RGV Sector is the busiest sector in the nation and accounts for more than 40 percent of the illegal immigrant apprehensions and more than 43 percent of the seized marijuana on the southwestern border. Although the RGV Sector accounts for a large percentage of the southwestern border illegal alien apprehensions and illicit drug seizures, the majority of its activity occurs in areas where the RGV Sector has limited infrastructure, access and mobility, and technology.

Historic data indicate that the implementation of infrastructure combined with the appropriate technology and personnel significantly reduces the amount of illegal border entries; RGV Sector is in immediate need of additional border barriers and roads (CBP 2019). CBP will implement the Project to achieve operational control of the border in RGV Sector. The Secretary's waiver means that CBP does not have any specific legal obligations under the laws that were included in the waiver, but as was the case with past projects covered by a waiver, DHS and CBP recognize the importance of responsible environmental stewardship of our valuable natural and cultural resources.

OUTREACH AND AGENCY COORDINATION

CBP notified relevant federal, state, and local agencies of the Project and requested input on environmental concerns such parties might have regarding the Project. CBP has coordinated with the Department of Interior (DOI), including the U.S. Fish and Wildlife Service (USFWS); U.S. Section, International Boundary and Water Commission (USIBWC); U.S. Army Corps of Engineers (USACE); Texas Parks and Wildlife Department (TPWD); Hidalgo County; Starr County; Texas Historical Commission (THC); and U.S. Environmental Protection Agency (USEPA), along with various Native American tribes.

Although the Secretary issued the waiver, CBP has continued to work in a collaborative manner with federal, state, and local agencies, Native American tribes, and other stakeholders and has considered and incorporated agency comments into this ESP.

DESCRIPTION OF THE PROJECT

CBP proposes to construct approximately 39.87 miles of new bollard border wall in the USBP RGV Sector AOR in Hidalgo and Starr Counties, Texas. The new border wall system will be composed of vertical steel bollard panels that will vary in height from 18-feet to 30-feet. In addition, CBP will also include a 150-foot-wide enforcement zone extending north from the foot of the border wall. The enforcement zone will be free of vegetation with the exception of short, mowed, and maintained grasses. The enforcement zone will also include the use of detection and surveillance technology that will be incorporated into the border wall. Automated vehicle gates, pedestrian gates, an all-weather patrol road that will run parallel to the border wall, and enforcement zone lighting are components of this project.

The new border wall system will be constructed within the RGV-06, 08, and 09 corridors, and will consist of seven linear segments of varying lengths (Las Palomas Wildlife Management Area to south of Military Road, El Faro Road 18 to El Salado, Mission Street to River Road, Patriot Lane to Los Olmos Creek, East of Midway 19 Road to Victor Road, Los Negros Creek to Este Road, and Salineño Wildlife Preserve to Falcon Dam) that total approximately 39.87 miles in length in Hidalgo and Starr Counties, Texas.

Table ES-1. RGV-06, 08, & 09 Border Wall System Project Segments

Project	Segment ID	Mileage
RGV-06, 08, & 09	Las Palomas Wildlife Management Area to south of Military Road	8.15
	El Faro Road 18 to El Salado	4.57
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	Total Mileage of all Segments	39.87

ENVIRONMENTAL IMPACTS AND BEST MANAGEMENT PRACTICES

Table ES-2 provides an overview of potential environmental impacts by specific resource area and a brief summary of associated BMPs. Chapters 3 through 11 of this ESP evaluate the impacts on resources and expand upon the BMPs presented in Table ES-1.

Table ES-2. Summary of Anticipated Environmental Impacts

Resource Area	Effects of the Project	Best Management Practices/Conservation Measures
Air Quality	Minor and temporary impacts on air quality will occur during construction; air emissions will remain below <i>de minimis</i> levels.	To suppress fugitive dust emissions, BMPs (e.g., watering of soil prior to construction activities, minimization of diesel idling, and routine vehicle maintenance) will be followed and equipment will be maintained according to specifications.
Noise	Minor, temporary increases to ambient noise will occur during construction activities.	Equipment will be operated on an as-needed basis. Mufflers and properly maintained equipment will be used to reduce noise. All generators will be in baffle boxes, have an attached muffler, or use other noise-abatement methods in accordance with industry standards.
Land Use, Recreation, and Aesthetics	Existing land use within the enforcement zone will change from the current land use (i.e., agriculture, brushland) to developed space (i.e., border wall system). This change of land use will have moderate, long-term impacts within the region. Moderate, long-term impacts on visual resources will occur due to placement of the bollard wall.	An environmental monitor will be present during construction hours to observe activity and to ensure land outside of the Project corridor is not adversely affected by construction activities.
Geologic Resources and Soils	There will be minor, long-term impacts on soils due to the loss of natural production.	A Storm Water Pollution Prevention Plan (SWPPP) and Spill Prevention Control and Countermeasure Plan (SPCCP) will be implemented as part of the Project.
Hydrology and Water Management	<p>Groundwater is not the major water source in Hidalgo and Starr Counties and will be negligibly impacted.</p> <p>Surface waters from the nearby Rio Grande will be used during construction for concrete and dust abatement. Minor, temporary impacts on surface water will occur as a result of using the water.</p> <p>Long-term, permanent impacts on Waters of the U.S. will occur by potentially filling 0.4 acre of potentially jurisdictional wetlands. Additionally, the Project corridor also contains 13,997.4</p> <p>Linear feet of Waters of the U.S. and 1.65 acres of Other Waters of the U.S. in the form of isolated agricultural and drainage ditches that may be potentially disrupted.</p> <p>Floodplains will experience minor and temporary impacts from sedimentation, erosion, and accidental spills or leaks caused by construction.</p>	A SWPPP and SPCCP will be implemented as part of the Project.
Biological Resources		
Vegetation	Approximately 467 acres of vegetation communities, primarily composed of agricultural land and Tamaulipan brushland will be impacted due to clearing and grubbing of the enforcement zone. These areas will be grassed, mowed, and maintained once construction activities are complete. Beneficial impacts on vegetation resources are anticipated as a result of protecting resources from cross-border violator traffic.	<p>A monitor will be on-site during construction to ensure that all BMPs are followed.</p> <p>Materials used for on-site erosion control in uninfested native habitats will be free of non-native plant seeds and other plant parts to limit potential for infestation. Since natural materials cannot be certified as completely weed-free, if such materials are used, there will be follow up monitoring to document establishment of non-native plants and appropriate control measures should be implemented for a period of time to be determined in the site restoration plan.</p> <p>Invasive plants that appear on the site will be removed. Removal will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. Herbicides can be used according to label directions if they are not toxic to T&E species that may be in the area. Training to identify non-native invasive will be provided for CBP personnel or contractors, as necessary.</p>
Wildlife and Aquatic Resources	<p>Long-term, minor impacts on wildlife are expected due to the removal of approximately 467 acres of potential wildlife habitat. Loss of small mammals and reptiles during construction could occur.</p> <p>Minor disruptions to migration and other wildlife activities may occur due to the presence of the border wall.</p> <p>Lighting could affect some species, but lights will occur only within the enforcement zone.</p>	<p>Surveys of nesting migratory birds will be conducted, and migratory bird nests will be flagged and avoided if construction occurs during breeding/nesting season.</p> <p>To allow small animals to move freely through the wall, wildlife gaps may be installed.</p> <p>Enforcement zone lighting will be limited from the bollard wall to the outer perimeter of the enforcement zone. In addition, shields will be installed on the lights to ensure that light is directed downward and stays within the enforcement zone.</p>

Resource Area	Effects of the Project	Best Management Practices/Conservation Measures
Protected Species and Critical Habitat	<p>The Project has the potential to have a long-term, negligible to minor effect on ocelot, gulf coast jaguarundi, northern Aplomado falcon, and Texas ayenia due to modifications in habitat.</p> <p>Long-term, moderate adverse effects on Zapata bladderpod would occur as multiple populations of the species were identified during biological surveys of the Project corridor. Additionally, Critical Habitat for Zapata bladderpod is present within portions of RGV-08.</p> <p>The Project could have a minor to moderate impact on state-listed species such as Texas indigo snake, gray hawk, or Vasey’s adelia.</p>	<p>BMPs will be implemented as part of the Project to minimize impacts on these species.</p> <p>A monitor will be on-site during construction to ensure that all BMPs are followed. If a protected species is identified, work will cease in the area of the species until it moves away on its own or it will be relocated by a qualified biological monitor to a safe location outside the Project corridor.</p>
Cultural Resources	<p>There have been 21 new isolated occurrences as well as 22 new archaeological sites identified within the Project corridor. Nine previously recorded archaeological sites have been relocated and updated.</p> <p>Within the RGV-06 Project corridor, no new archaeological sites or isolated occurrences were recorded.</p> <p>Within the RGV-08 Project corridor, six previously recorded archaeological sites were relocated and updated, 12 new archaeological sites were recorded, and four isolated occurrences were recorded. Of the archaeological sites updated and recorded within the RGV-08 Project corridor, nine were recommended for additional testing with six found to be eligible for the NRHP and recommended for data recovery excavations. The remaining 12 archaeological sites and four isolated occurrences have either been determined or recommended to be ineligible for the NRHP.</p> <p>Within the RGV-09 Project corridor, three previously recorded archaeological sites were relocated and updated, 10 new archaeological sites were recorded, and 17 isolated occurrences were recorded. Of the archaeological sites updated and recorded within the RGV-09 Project corridor, two were recommended for additional testing. The remaining 11 archaeological sites and 17 isolated occurrences have either been determined or recommended to be ineligible for the NRHP.</p>	<p>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.</p>
Socioeconomics	<p>Short-term beneficial impacts on the local economy will be expected in the form of jobs for area residents and taxes from locally sourced materials purchased for construction.</p>	<p>No measures required.</p>
Hazardous Materials and Waste	<p>Potentially significant environmental risk concerns were observed within RGV-08 and RGV-09. These concerns consist of multiple surface dumps containing household solid waste, construction and demolition debris, and automotive lubricant and coolant containers; several occurrences of unmarked 50-gallon barrels and chemical containers; and unmaintained oil and gas infrastructure.</p> <p>A government records search identified one potentially significant environmental risk: the Fordyce Tract 1 Site, identified on the Texas Voluntary Cleanup Program Historical Brownfields database.</p>	<p>Nonhazardous waste materials and other discarded materials, such as construction waste, will be contained until removed from the construction site.</p> <p>All fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system.</p> <p>The refueling of machinery will be completed following accepted industry guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips.</p> <p>A SPCCP will be implemented as part of the Project.</p>

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
1.0 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	1-3
1.4 STAKEHOLDER OUTREACH.....	1-3
1.5 BEST MANAGEMENT PRACTICES	1-4
1.5.1 General Design BMPs.....	1-5
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	1-6
1.5.6 Biological Resources	1-6
1.5.7 Cultural Resources	1-9
1.5.8 Hazardous Materials and Wastes	1-9
2.0 DESCRIPTION OF THE PROJECT	2-1
2.1 LOCATION	2-3
2.2 DESIGN	2-3
2.3 CONSTRUCTION ACCESS, MATERIAL DELIVERY, AND STAGING.....	2-3
2.4 SITE PREPARATION.....	2-12
2.5 CONSTRUCTION SCHEDULE.....	2-12
2.6 ENVIRONMENTAL CONSIDERATIONS	2-12
3.0 AIR QUALITY.....	3-1
3.1 AFFECTED ENVIRONMENT	3-1
3.2 ENVIRONMENTAL CONSEQUENCES	3-1
4.0 NOISE	4-1
4.1 AFFECTED ENVIRONMENT	4-1
4.2 ENVIRONMENTAL CONSEQUENCES	4-2
5.0 LAND USE, RECREATION, AND AESTHETICS	5-1
5.1 AFFECTED ENVIRONMENT	5-1
5.1.1 Land Use and Recreation	5-1
5.2 ENVIRONMENTAL CONSEQUENCES	5-3
5.2.1 Land Use and Recreation	5-3
5.2.2 Aesthetics	5-4
6.0 GEOLOGICAL RESOURCES AND SOILS	6-1
6.1 AFFECTED ENVIRONMENT	6-1
6.2 ENVIRONMENTAL CONSEQUENCES	6-3

7.0	HYDROLOGY AND WATER MANAGEMENT	7-1
7.1	AFFECTED ENVIRONMENT	7-1
7.1.1	Groundwater	7-1
7.1.2	Surface Water.....	7-1
7.1.3	Waters of the United States Including Wetlands	7-2
7.1.4	Floodplains.....	7-13
7.2	ENVIRONMENTAL CONSEQUENCES	7-13
7.2.1	Groundwater	7-13
7.2.2	Surface Water.....	7-13
7.2.3	Waters of the United States including Wetlands	7-24
7.2.4	Floodplains.....	7-24
8.0	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	8-1
8.1.3	Protected Species and Critical Habitat.....	8-2
8.1.3.1	Federally Listed Species	8-2
8.2	ENVIRONMENTAL CONSEQUENCES	8-7
8.2.1	Vegetation	8-7
8.2.2	Wildlife and Aquatic Resources	8-7
8.2.3	Protected Species and Critical Habitat.....	8-8
9.0	CULTURAL RESOURCES.....	9-1
9.1	AFFECTED ENVIRONMENT	9-1
9.2	ENVIRONMENTAL CONSEQUENCES	9-13
10.0	SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE	10-1
10.1	AFFECTED ENVIRONMENT	10-1
10.2	ENVIRONMENTAL CONSEQUENCES	10-2
11.0	HAZARDOUS MATERIALS AND WASTE.....	11-1
11.1	AFFECTED ENVIRONMENT	11-1
11.2	ENVIRONMENTAL CONSEQUENCES	11-2
12.0	CUMULATIVE IMPACTS	12-1
12.1	CUMULATIVE AFFECTED ENVIRONMENT.....	12-1
12.2	CUMULATIVE FENCING ALONG THE SOUTHWESTERN BORDER.....	12-1
12.3	PAST ACTIONS	12-2
12.4	PRESENT ACTIONS	12-2
12.5	REASONABLY FORESEEABLE FUTURE ACTIONS	12-2
12.6	ENVIRONMENTAL CONSEQUENCES	12-3
12.6.1	Air Quality	12-3
12.6.2	Noise	12-3
12.6.3	Land Use, Recreation, and Aesthetics	12-3
12.6.4	Geological Resources and Soils.....	12-3

12.6.5 Hydrology and Water Management.....	12-3
12.6.6 Biological Resources (Vegetation, Wildlife, Aquatic Species, Special Status Species)	12-4
12.6.7 Cultural Resources	12-4
12.6.8 Socioeconomics and Environmental Justice.....	12-4
12.6.9 Hazardous Materials and Waste.....	12-5
13.0 REFERENCES.....	13-1
14.0 ABBREVIATIONS AND ACRONYMS.....	14-1

LIST OF TABLES

Table ES-1. RGV-06, 08, & 09 Border Wall System Project Segments.....	ES-3
Table ES-2. Summary of Anticipated Environmental Impacts	ES-4
Table 2-1. RGV-06, 08, & 09 Border Wall System Project Segments.....	2-3
Table 3-1. National Ambient Air Quality Standards	3-2
Table 3-2. Estimated Air Emissions (tons/year) from the Proposed Construction Project versus the <i>de minimis</i> Threshold Levels	3-3
Table 4-1. A-Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances from the Source	4-2
Table 5-1. Land Use Classifications	5-1
Table 6-1. Soil Types Found within the Project Corridor	6-1
Table 7-1. Impaired Waterbodies near the Project Corridor.	7-2
Table 8-1. Federally Listed Threatened and Endangered Species with Potential to Occur Within the Project Corridor, Their Status, and Critical Habitat Designation.....	8-3
Table 10-1. Population Demographics in the ROI	10-2
Table 10-2. Income, Poverty, and Unemployment in Hidalgo and Starr Counties	10-2

LIST OF FIGURES

Figure 2-1. Vicinity Map	2-2
Figure 2-2. Project Area Maps.....	2-4
Figure 2-3. Project Area Maps.....	2-5
Figure 2-4. Project Area Maps.....	2-6
Figure 2-5. Project Area Maps.....	2-7
Figure 2-6. Project Area Maps.....	2-8
Figure 2-7. Project Area Maps.....	2-9
Figure 2-8. Project Area Maps.....	2-10
Figure 2-9. Project Area Maps.....	2-11
Figure 6-1. Soil Maps	6-4
Figure 6-2. Soil Maps	6-5
Figure 6-3. Soil Maps	6-6
Figure 6-4. Soil Maps	6-7
Figure 6-5. Soil Maps	6-8
Figure 6-6. Soil Maps	6-9

LIST OF FIGURES, CONTINUED

Figure 6-7.	Soil Maps	6-10
Figure 6-8.	Soil Maps	6-11
Figure 6-9.	Soil Maps	6-12
Figure 6-10.	Soil Maps	6-13
Figure 7-1.	Waters of the U.S. Maps	7-3
Figure 7-2.	Waters of the U.S. Maps	7-4
Figure 7-3.	Waters of the U.S. Maps	7-5
Figure 7-4.	Waters of the U.S. Maps	7-6
Figure 7-5.	Waters of the U.S. Maps	7-7
Figure 7-6.	Waters of the U.S. Maps	7-8
Figure 7-7.	Waters of the U.S. Maps	7-9
Figure 7-8.	Waters of the U.S. Maps	7-10
Figure 7-9.	Waters of the U.S. Maps	7-11
Figure 7-10.	Waters of the U.S. Maps	7-12
Figure 7-11.	FEMA Floodzone Maps.....	7-14
Figure 7-12.	FEMA Floodzone Maps.....	7-15
Figure 7-13.	FEMA Floodzone Maps.....	7-16
Figure 7-14.	FEMA Floodzone Maps.....	7-17
Figure 7-15.	FEMA Floodzone Maps.....	7-18
Figure 7-16.	FEMA Floodzone Maps.....	7-19
Figure 7-17.	FEMA Floodzone Maps.....	7-20
Figure 7-18.	FEMA Floodzone Maps.....	7-21
Figure 7-19.	FEMA Floodzone Maps.....	7-22
Figure 7-20.	FEMA Floodzone Maps.....	7-23
Figure 8-1.	Zapata Bladderpod Critical Habitat and Known Populations Within the Project Corridor.....	8-4
Figure 9-1.	Cultural Resources Surveys	9-2
Figure 9-2.	Cultural Resources Surveys	9-3
Figure 9-3.	Cultural Resources Surveys	9-4
Figure 9-4.	Cultural Resources Surveys	9-5
Figure 9-5.	Cultural Resources Surveys	9-6
Figure 9-6.	Cultural Resources Surveys	9-7
Figure 9-7.	Cultural Resources Surveys	9-8
Figure 9-8.	Cultural Resources Surveys	9-9

LIST OF PHOTOGRAPHS

Photograph 2-1.	Portable Lights	2-1
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LIST OF APPENDICES

- Appendix A. Copy of 2018 Border Waiver
- Appendix B. Best Management Practices
- Appendix C. Air Emissions Estimates
- Appendix D. Vegetation Observed During the RGV-06, 08, & 09 Biological Surveys
- Appendix E. Wildlife Observed During RGV-06, 08, & 09 Biological Surveys

1.0 GENERAL PROJECT DESCRIPTION

1.1 INTRODUCTION TO THE ENVIRONMENTAL STEWARDSHIP PLAN

The principal mission requirements of the Department of Homeland Security (DHS) include border security and detecting and preventing illegal entry into the United States (U.S.). Congress has provided the Secretary of DHS with a number of authorities necessary to carry out the DHS border security mission. One of these authorities is found in Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) of 1996. Section 102(a) of the IIRIRA provides that the Secretary shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the U.S. border to deter illegal crossings in areas of high illegal entry into U.S. lands. In Section 102(b) of the IIRIRA, Congress has called for the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwestern border. Finally, in Section 102(c) of the IIRIRA, Congress granted to the Secretary the authority to waive all legal requirements as determined necessary to ensure the expeditious construction of barriers and roads authorized by Section 102 of the IIRIRA.

DHS has used the authority granted to it by Congress in Section 102(c) of the IIRIRA to construct needed border infrastructure across the southwestern U.S. border. U.S. Customs and Border Protection (CBP) is the DHS component that has primary responsibility for such construction. Construction of past border infrastructure has been aided by the waiver authority set forth in Section 102(c) of the IIRIRA. Although the waiver authority has facilitated the construction of border infrastructure, DHS/CBP has continually made a voluntary commitment to responsible environmental stewardship for projects covered by an IIRIRA waiver.

On October 10, 2018, the Secretary issued a waiver covering, among other things, the construction of approximately 39.87 miles of border infrastructure in the U.S. Border Patrol (USBP) Rio Grande Valley (RGV) Sector (the Project). The RGV Sector is the busiest sector in the nation and accounts for more than 40 percent of the illegal immigrant apprehensions and more than 43 percent of the seized marijuana on the southwestern border. Although RGV accounts for a large percentage of the southwestern crossborder violator apprehensions and illicit drug seizures, the majority of its activity occurs in areas where RGV has limited infrastructure, access and mobility, and technology. The Secretary's waiver means that CBP does not have any specific legal obligations under the laws that were included in the waiver, but as was the case with past projects covered by a waiver, DHS and CBP recognize the importance of responsible environmental stewardship of our valuable natural and cultural resources. In order to work towards responsible environmental stewardship, CBP has completed environmental resource surveys, consulted with various stakeholders, and prepared this Environmental Stewardship Plan (ESP). The 2018 waiver is included as Appendix A.

The results of the CBP environmental review of the Project are published in this ESP. The ESP includes a summary of the Best Management Practices (BMPs) developed to help CBP avoid, minimize, and mitigate potential environmental impacts and will guide the planning and execution of the Project (Appendix B).

This ESP was prepared to evaluate potential impacts of the Project on natural and human resources and to assist CBP and USBP to the extent practicable, while still achieving their security goals, in protecting critical resources during construction and operation of the tactical infrastructure being installed as a part of the Project. This ESP is designed to identify each affected resource and evaluate all potential impacts on that resource. This ESP was not prepared to comply with specific laws or regulations; rather, it is a planning and guidance tool to facilitate construction in a manner that will minimize adverse impacts to the greatest extent practicable.

The Project corridor in this document refers to the area in which permanent or temporary impacts could occur from Project construction activities. These impacts will generally be restricted to the 150-foot-wide enforcement zone (Project corridor) which extends north from the foot of the border wall.

Some resources within the Project's region of influence (ROI), which is Hidalgo County and Starr County, Texas, are not addressed in this ESP because they are either not relevant to the analyses or the impacts on such resources are negligible. The resources excluded from further analyses, and the reasons for eliminating them are as follows:

- Climate: An Executive Order dated March 28, 2017, rescinded guidance provided earlier in a Council on Environmental Quality (CEQ) memorandum regarding the approach to Green House Gases (GHG) and climate decision-making analyses. Pursuant to the Executive Order, further analysis of GHG impacts from the Project is not required.
- Human health and safety: Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage, and no workplace safety laws or regulations were included in the waiver. The Occupational Safety and Health Administration (OSHA) and U.S. Environmental Protection Agency (USEPA) issue standards that specify the amount and type of training required for industrial workers, the use of protective equipment and clothes, engineering controls, and maximum exposure limits with respect to workplace stressors. The Project will not introduce new or unusual safety risks, and construction protocols are expected to be carefully followed. Furthermore, the Project will benefit the safety of USBP agents and the public in the vicinity of the border by increasing operational efficiency of border infrastructure and reducing the flow of weapons, illegal drugs, and other contraband into the U.S. Since the only potential impacts of the Project on human safety are beneficial, this topic will not be reviewed in detail in the ESP.

1.2 U.S. BORDER PATROL BACKGROUND

The CBP mission is to safeguard America's borders, thereby protecting the public from dangerous people and materials while enhancing the nation's global economic competitiveness by enabling legitimate trade and travel. In supporting the CBP mission, USBP is charged with establishing and maintaining operational control of the U.S. border between land ports of entry (POEs). The USBP mission strategy consists of five main objectives:

- Establish substantial probability of apprehending terrorists (and their weapons) as they attempt to illegally enter between the POEs.
- Deter illegal entries through improved enforcement.
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband.
- Leverage “smart border” technology to multiply the effect of enforcement personnel.
- Reduce crime in border communities, and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the U.S./Mexico International Border. Each sector is responsible for implementing an optimal combination of personnel, technology, and infrastructure appropriate for its operational requirements. The USBP RGV Sector covers more than 34,000 square miles of Southeast Texas. The RGV Sector Area of Responsibility (AOR) includes the following counties: Starr, Willacy, Hidalgo, Starr, Brooks, Kenedy, Kleberg, Nueces, San Patricio, Jim Wells, Bee, Refugio, Calhoun, Goliad, Victoria, DeWitt, Jackson, Matagorda, Brazoria, Galveston, Chambers, Jefferson, Wharton, Fort Bend, Colorado, Austin, Waller, Montgomery, Liberty, Hardin, Orange, Harris, Aransas, and Lavaca. USBP Stations included in the RGV Sector include Brownsville, Fort Brown, Weslaco, Harlingen, McAllen, Rio Grande City, Falfurrias, Kingsville, and Corpus Christi, Texas. The Project is in the Rio Grande City Station’s AOR and is divided between Hidalgo and Starr Counties, Texas.

1.3 GOALS AND OBJECTIVES OF THE PROJECT

The goal of the Project is to ensure CBP is able to fulfill its mission and prevent illegal entries into the U.S. This Project will help to achieve operational control of the U.S./Mexico International Border.

The Project will help deter cross-border violations within the USBP RGV Sector by improving border infrastructure, preventing terrorists and weapons from entering the U.S., and reducing the flow of illegal drugs and other contraband, thus providing a safer environment for USBP agents and the public.

1.4 STAKEHOLDER OUTREACH

CBP has notified numerous tribes, agencies, and non-profit organizations of their intent to construct the Project. Stakeholders with interests in the area include:

U.S. Section, International Boundary and Water Commission (USIBWC) – CBP has coordinated with 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.

U.S. Army Corps of Engineers (USACE) – Regulatory Division – CBP has coordinated all activities with the USACE to identify potential jurisdictional Waters of the U.S., including wetlands, and to develop measures to avoid and minimize impacts on these resources.

U.S. Fish and Wildlife Service (USFWS) – CBP has coordinated with USFWS to identify listed species that have the potential to occur in the ROI.

U.S. Environmental Protection Agency (USEPA) – CBP has coordinated with USEPA to obtain feedback regarding, among other things, potential mitigation opportunities for unavoidable impacts, should mitigation be necessary, and to ensure appropriate Storm Water Pollution Prevention Plan (SWPPP) guidelines are implemented.

Texas Historical Commission (THC) – CBP has coordinated with the THC regarding the protection and preservation of Texas’ historic resources.

Texas Parks and Wildlife Department (TPWD) – CBP has coordinated with TPWD regarding potential impacts on species within their jurisdiction.

Texas Commission on Environmental Quality (TCEQ) – CBP has coordinated with the TCEQ regarding potential impacts on water and air quality and BMPs to minimize potential sedimentation and pollution resulting from Project implementation.

Hidalgo and Starr Counties – CBP has coordinated with the counties regarding design features and potential conflicts with the counties’ planning goals.

Tribes – CBP has coordinated with the following tribes to alert them of the Project. Tribes included on the notification list include the following:

- Alabama - Coushatta Tribe of Texas
- Apache Tribe of Oklahoma
- Comanche Nation of Oklahoma
- Carrizo/Comecrudo Tribe of Texas
- Coushatta Tribe of Louisiana
- Fort Sill Apache Tribe
- Lipan Apache Tribe of Texas
- Thlopthlocco Tribal Town
- Tonkawa Tribe of Oklahoma
- Ysleta del Sur Pueblo

1.5 BEST MANAGEMENT PRACTICES

It is CBP policy to reduce impacts through the sequence of avoidance, minimization, and mitigation. BMPs vary based on location, resource type, and activity. Both general BMPs and species-specific BMPs have been developed during the preparation of this ESP. The scope or extent of CBP 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 both during construction and after it has been completed. The CBP assessment of mitigation will be based on, among other things, feedback from environmental monitors and the final construction footprint.

1.5.1 General Design BMPs

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

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

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 potentially impacted resource category. The BMPs have been coordinated with the appropriate agencies and land managers or administrators.

1.5.2 Air Quality

Measures will be incorporated to ensure that emissions of particulate matter less than 10 microns in size (PM₁₀) do not significantly impact the environment. Dust suppression methods, such as routine watering of the construction site and access roads, will be used to control fugitive dust during the construction phases of the Project. Other standard construction BMPs, such as minimizing diesel idling and maintaining all construction equipment and vehicles in good operating condition, will minimize diesel and exhaust emissions.

1.5.3 Noise

During the construction phase, short-term noise impacts are anticipated. All OSHA requirements will be followed by the contractor. 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. 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. A SWPPP will be prepared prior to construction activities, and BMPs described in the SWPPP will be implemented to reduce 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 corridor.

Erosion control measures, such as waterbars, 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 major soil erosion problems.

1.5.5 Water Resources

With regard to managing stormwater flows, CBP will address the potential for sedimentation and erosion with appropriate BMPs. A SWPPP will be adopted and implemented by contractors performing work on the Project, which will also include BMPs to reduce potential stormwater erosion and sedimentation effects on local drainages.

The changing of oil, refueling, and other actions that could result in a release of a hazardous substance will be restricted to designated staging areas that are a minimum of 100 feet from any surface drainage. Such designated areas will be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills will be immediately contained, cleaned up, and properly disposed.

Recycled water will be used for dust suppression to the maximum extent possible. Water tankers will not discard unused water where it has the potential to enter any aquatic or marsh habitat. Water storage within the Project corridor will be maintained in closed on-ground containers in upland areas, not in washes. Pumps, hoses, tanks, and other water storage devices will be cleaned and disinfected.

All engineering designs and subsequent hydrology reports will be reviewed by USIBWC prior to the start of construction activities so that the results of those activities do not increase, concentrate, or relocate overland surface flows into the U.S. or Mexico.

1.5.6 Biological Resources

The following summary of general Biological BMPs will be implemented. This list has been ordered to follow a typical construction sequence. CBP recognizes all measures and BMPs discussed as valid interests and will work with USFWS and other appropriate agencies to address impacts on the greatest degree feasible, given that the Project is operating under the Secretary's waiver.

1. Areas already disturbed, or those to be disturbed later in the construction sequence, will be used for staging, parking, and equipment storage. Widening of existing roadbeds beyond approved designs will be prohibited.
2. To prevent impacts on avian species covered under the Migratory Bird Treaty Act (MBTA), clearing and grubbing should take place in fall and winter if possible to avoid impacts on nesting birds. If work cannot be avoided during the breeding season (March 15 to September 15), a biologist will survey for nesting birds and identify any active nests one week prior to starting work. An appropriate buffer for avoidance will be established around any nesting birds until the young have fledged or the nest is no longer active.
3. The perimeter of all areas to be disturbed and/or protected during construction or maintenance activities will be clearly demarcated using flagging or temporary construction fence prior to habitat clearing, and the marked boundaries will be maintained throughout the construction period. Disturbance outside of the construction perimeter will not be permitted. Construction travel will generally be constrained to

previously disturbed areas wherever possible, using only designated roads and parking areas.

4. A designated biological monitor will be present during construction activities five days per week for the duration of construction. The biologist will:
 - a. Conduct pre-construction nesting/breeding bird surveys along the Project corridor ahead of active construction. Observations of birds, bird breeding/nesting behavior, and bird nests shall be documented or recorded. Any active nests that are observed shall be identified to the species level and a buffer zone around the nest shall be flagged for avoidance until the young have fledged or the nests are abandoned, to the extent practicable. If avoidance is not possible, the biologist shall coordinate with CBP on the relocation of active nests.
 - b. Advise the implementation of and document adherence to BMPs and project conditions. The monitor shall also remind the construction crews as necessary to stay within the Project corridor and of sensitive resources not to be damaged, destroyed, relocated, or removed. The monitor shall immediately notify the on-site construction representative assigned to the Project if any sensitive resources are observed in the Project corridor and offer appropriate measures to avoid adverse effects to the resources.
 - c. Immediately notify CBP in the event that a sensitive resource is inadvertently disturbed through construction and provide a description and location of the resource and the disturbance. Any infraction of other BMPs (e.g., accidental spills, lack of drip pans, etc.) shall also be reported to the on-site construction representative and recorded in the weekly monitoring reports. The monitor shall also be present at the final construction walk-through to identify any unresolved BMP or Project condition infractions. The monitor will maintain daily notes and prepare weekly reports. The weekly reports will be used to prepare a monthly monitoring report that will be submitted to CBP.
5. With the guidance of a biologist familiar with the potential species and habitats to be affected, CBP will develop a training plan regarding sensitive resources for CBP and construction personnel. This BMP does not apply to USBP operations. The training will include, at a minimum, descriptions of the resource and purpose for its protection, the conservation measures that must be implemented, and environmentally responsible construction practices.
6. Within the designated disturbance area, grading or topsoil removal will be limited to areas of necessity and performed only where required to create ground conditions for construction and maintenance activities. Minimizing the disturbance footprint reduces impacts and restoration requirements. The top six inches of topsoil will be stockpiled for use in revegetation whenever feasible. Stockpiles will not exceed 3.5 feet in height and will be covered with natural materials such as burlap. No plastic is permitted due to the heat's sterilization effect on the topsoil.

7. Materials used for construction and on-site erosion control will be biodegradable and free of non-native plant seeds and other non-native plant parts to limit potential for infestation. Some natural materials cannot be fully certified as completely weed-free, and if such materials are used, follow-up monitoring and control to limit establishment of non-native plants will be implemented during the establishment period to ensure native plant materials provide effective erosion control cover. Erosion control blankets and wattles will use biodegradable netting.
8. All material sources will be reviewed and approved prior to material being brought on-site. Borrow areas for fill materials such as rock, gravel, or topsoil will be obtained from existing developed or previously used sources, not from undisturbed areas within or adjacent to the Project corridor.
9. To eliminate attracting predators of protected animals, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the Project corridor.
10. Any night lighting for Project construction will be selectively placed, shielded, and directed away from all native vegetative communities south of the Project footprint.
11. Waste contaminated with construction materials or from cleaning equipment carries oils, toxic materials, or other contaminants. Contaminated wastewater will be stored in closed containers on site until removed for disposal. Concrete wash water will not be dumped on the ground but will be collected and moved offsite for disposal.
12. Construction speed limits will not exceed 35 mph on major unpaved roads (graded with ditches on both sides) and 25 mph on all other unpaved roads. Nighttime travel speeds will not exceed 25 mph, and could be less, based on visibility and other safety considerations.
13. To prevent entrapment of wildlife species, the ends of all hollow construction stock, such as vertical fence posts/bollards, including those that will later be filled with reinforcing or other materials, shall be covered to prevent wildlife from entering. Covers of all hollow construction stock will be in place upon arrival at the site and will be retained until such time the material is filled or otherwise closed to prevent entry by an animal. Construction (temporary or otherwise) of steep-walled pits is also to be avoided to prevent animal entrapment. Excavations more than 18 inches deep will either be covered or provided with a means of small animal escape, such as a firmly placed board (8" or wider) or an earthen ramp at a slope no steeper than 4:1, to prevent animal entrapment.
14. All areas temporarily impacted by Project construction will be revegetated with native plant species.
15. During follow-up monitoring and maintenance activities, invasive plants found on the site will be treated and removed. All chemical applications will be performed by a licensed applicator and herbicides will be used only according to label directions. The monitoring

period will be defined in the site revegetation plan. Training to identify non-native invasive plants will be provided for CBP personnel or contractors, as necessary. Restored areas will have successfully established native plant communities within 5 years of implementing the plan.

1.5.7 Cultural Resources

BMPs to protect cultural resources will include:

1. Preconstruction surveys and documentation of cultural resources have been completed within the construction corridor (Appendix B).
2. If cultural resources are encountered, work must stop and monitor(s) must be notified. The monitor(s) will coordinate with the on-site construction supervisor and with Project management. An archaeologist will assess all findings and make recommendations to the CBP.
3. Archaeological material collected during the current Project will be cross analyzed with collections from earlier investigations for data recovery purposes.
4. All cultural resources should be treated with respect and dignity. No photographs should be taken of any human remains.

1.5.8 Hazardous Materials and Wastes

BMPs will be implemented as standard operating procedures during all construction activities, including proper handling, storage, and/or disposal of hazardous and/or regulated materials. The BMPs will include the following:

1. Nonhazardous waste materials and other discarded materials, such as construction waste, will be contained until removed from the construction site. Solid waste receptacles will be maintained at the staging areas, and non-hazardous solid waste (trash and waste construction materials) will be collected and deposited in on-site receptacles. Waste materials and other discarded materials contained in these receptacles will be removed from the site as quickly as practicable.
2. All fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein.
3. The refueling of machinery will be completed following accepted industry guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips.
4. Any spill of reportable quantities will be contained immediately within an earthen dike, and the application of an absorbent material (e.g., granular, pillow, sock, etc.) will be used to absorb and contain the spill. All spills will be reported to the designated CBP point-of-contact for the Project as well as the appropriate federal and state agencies.

5. A Spill Prevention Control and Countermeasure Plan (SPCCP) will be in place prior to the start of operations, and all personnel will be briefed on the implementation and responsibilities of this plan.
6. All equipment maintenance, laydown, and dispensing of fuel, oil, or any other such activities will occur in the staging areas. The designated staging areas will be located in such a manner as to prevent runoff from staging areas entering surface drainages. All used oil and solvents will be recycled if practicable. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed of consistent with USEPA standards.

2.0 DESCRIPTION OF THE PROJECT

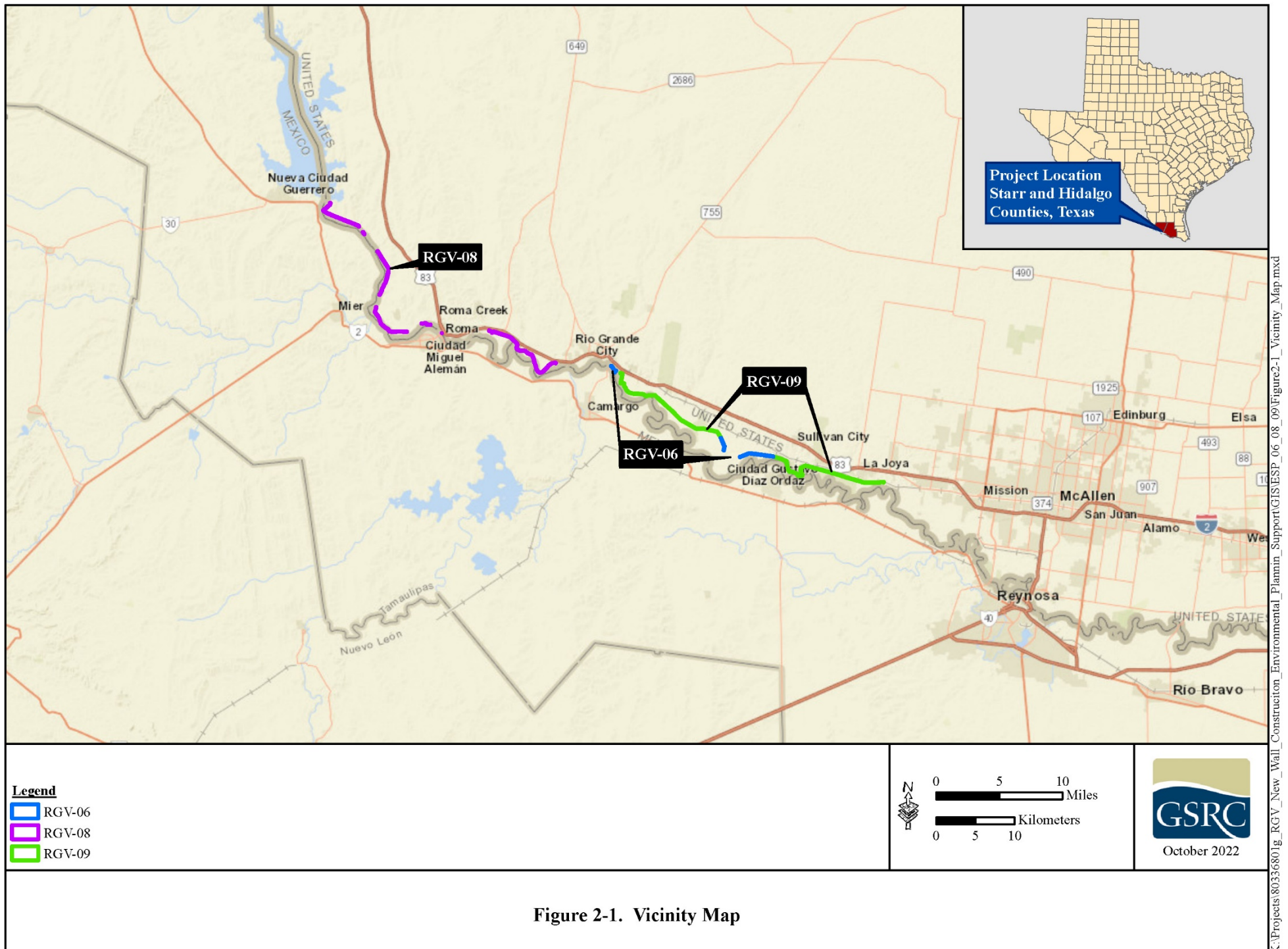
CBP proposes to construct approximately 39.87 miles of bollard wall in the USBP RGV Sector AOR in Hidalgo and Starr Counties, Texas (Figure 2-1). The new bollard wall system will be composed of a vertical steel bollard wall that will vary in height from 18-feet to 30-feet. In addition, the Project will include the construction of a 150-foot-wide enforcement zone that extends north from the foot of the bollard wall. The enforcement zone will be free of vegetation with the exception of short, mowed, and maintained grasses. The enforcement zone will also include the use of detection and surveillance technology that would be incorporated into the bollard wall system. Automated vehicle gates, pedestrian gates, an all-weather patrol road that will run parallel to the bollard wall, and enforcement zone lighting are components of this Project. The enforcement zone lighting will be limited from the bollard wall to the outer perimeter of the enforcement zone (150 feet). In addition, shields will be installed on the lights to ensure that the light is directed downward and stays within the enforcement zone.

To facilitate construction activities during potential nighttime work hours, portable lights will be used. It is estimated that no more than ten lights will be in operation at any one time at each site within the Project corridor. A six-kilowatt self-contained diesel generator powers these lights (Photograph 2-1). Each unit typically has four 400- to 1,000-watt lamps. The portable light systems can be towed to the desired construction location as needed. Lights will be shielded and oriented to illuminate only the work area to ensure the safety of the workers. The number of lights will be minimized and will be used for construction purposes only. The area affected by illumination is limited to 200 feet from the light source.



Photograph 2-1. Portable lights

To account for heat restrictions for adequate concrete drying and curing processes, concrete pours could take place during pre-dawn hours during summer months. The contractor will determine the appropriate schedule for concrete pouring and will ensure that the concrete is installed in accordance with industry standards. A 24-hour schedule will be implemented only when additional efforts are needed to maintain the work task schedule due to weather or to meet federally mandated timelines.



2.1 LOCATION

The new border wall system will be constructed within the RGV-06, 08, and 09 corridors, and will consist of seven linear segments of varying lengths (Las Palomas Wildlife Management Area [WMA] to south of Military Road, El Faro Road 18 to El Salado, Mission Street to River Road, Patriot Lane to Los Olmos Creek, East of Midway 19 Road to Victor Road, Los Negros Creek to Este Road, and Salineño Wildlife Preserve to Falcon Dam) that total approximately 39.87 miles in length in Hidalgo and Starr Counties, Texas (Table 2-1) (Figures 2-2 through 2-8).

Table 2-1. RGV-06, 08, & 09 Border Wall System Project Segments

Project	Segment ID	Mileage
RGV-06, 08, & 09	Las Palomas Wildlife Management Area to south of Military Road	8.15
	El Faro Road 18 to El Salado	4.57
	Mission Street to River Road	3.30
	Patriot Lane to Los Olmos Creek	3.42
	East of Midway 19 Road to Victor Road	7.44
	Los Negros Creek to Este Road	8.76
	Salineño Wildlife Preserve to Falcon Dam	4.23
	Total Mileage of all Segments	39.87

2.2 DESIGN

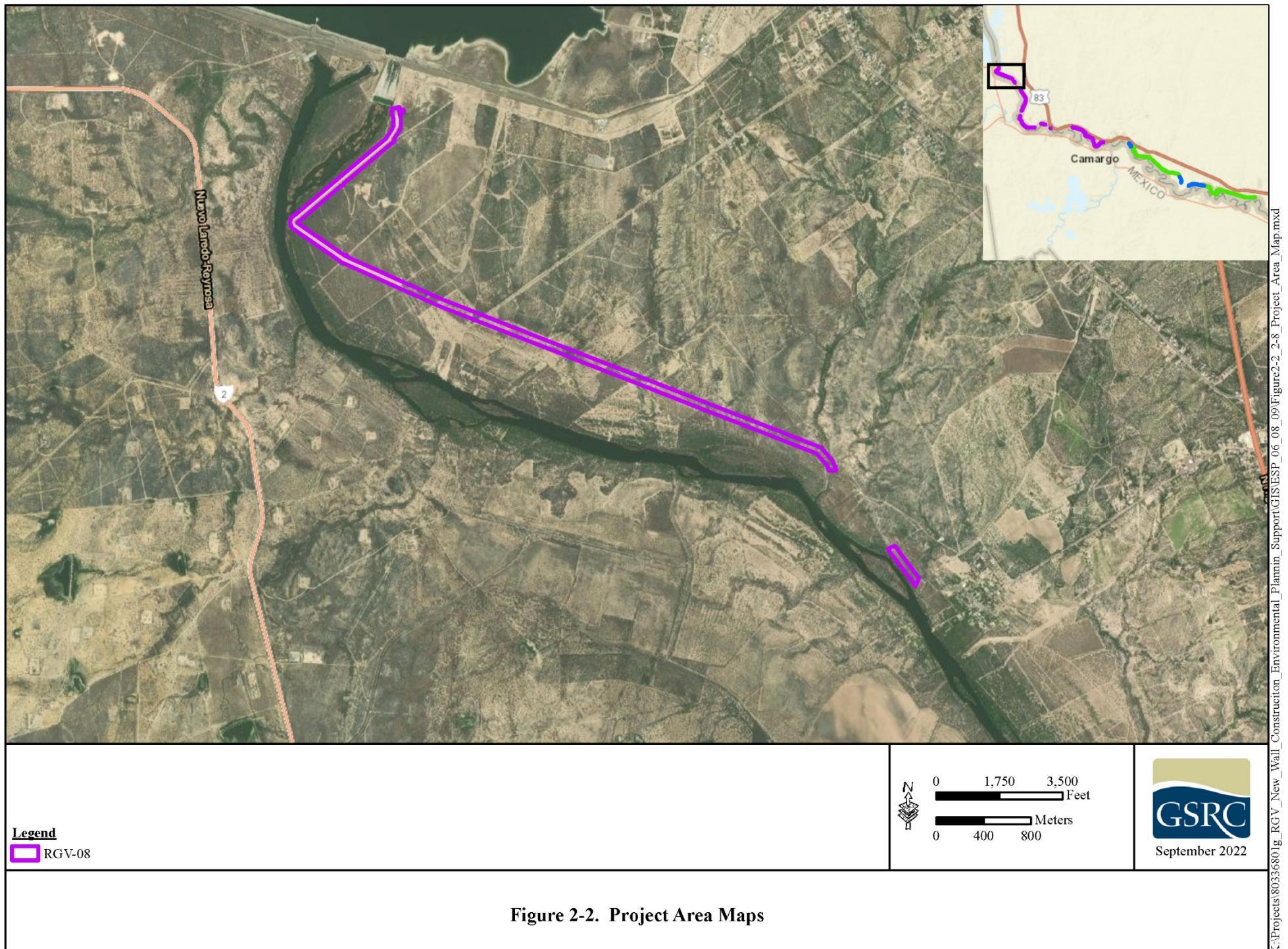
The preliminary design meets the Project goals and has been informed by numerous technical studies such as engineering, constructability, and environmental evaluations, which included biological and cultural resource assessments. A vertical steel bollard wall, varying in height from 18-feet to 30-feet, will be erected within the Project corridor. Additionally, a 150-foot-wide enforcement zone will extend south from the foot of the bollard wall.

An all-weather road will be constructed along the bottom of the bollard wall. The road will be approximately 20 feet wide. Periodically throughout the Project corridor, earthen ramps will be built to allow USBP agents to enter and exit the enforcement zone. Within the bollards at the junction of these earthen ramps and the existing road, wildlife gaps could be installed to allow small animals to migrate through the wall.

Construction of these design elements will generate impacts within the 150-foot enforcement zone. Temporary construction impacts could occur within the enforcement zone, and those will be restored, as applicable, to pre-construction conditions.

2.3 CONSTRUCTION ACCESS, MATERIAL DELIVERY, AND STAGING

The new bollard wall will be prefabricated off-site and then transported to the site by 18-wheel flatbed trucks using pre-approved haul routes. The new bollard wall will arrive on-site as eight-to ten-foot-wide panels. Each truck will transport an estimated five panels at a time.



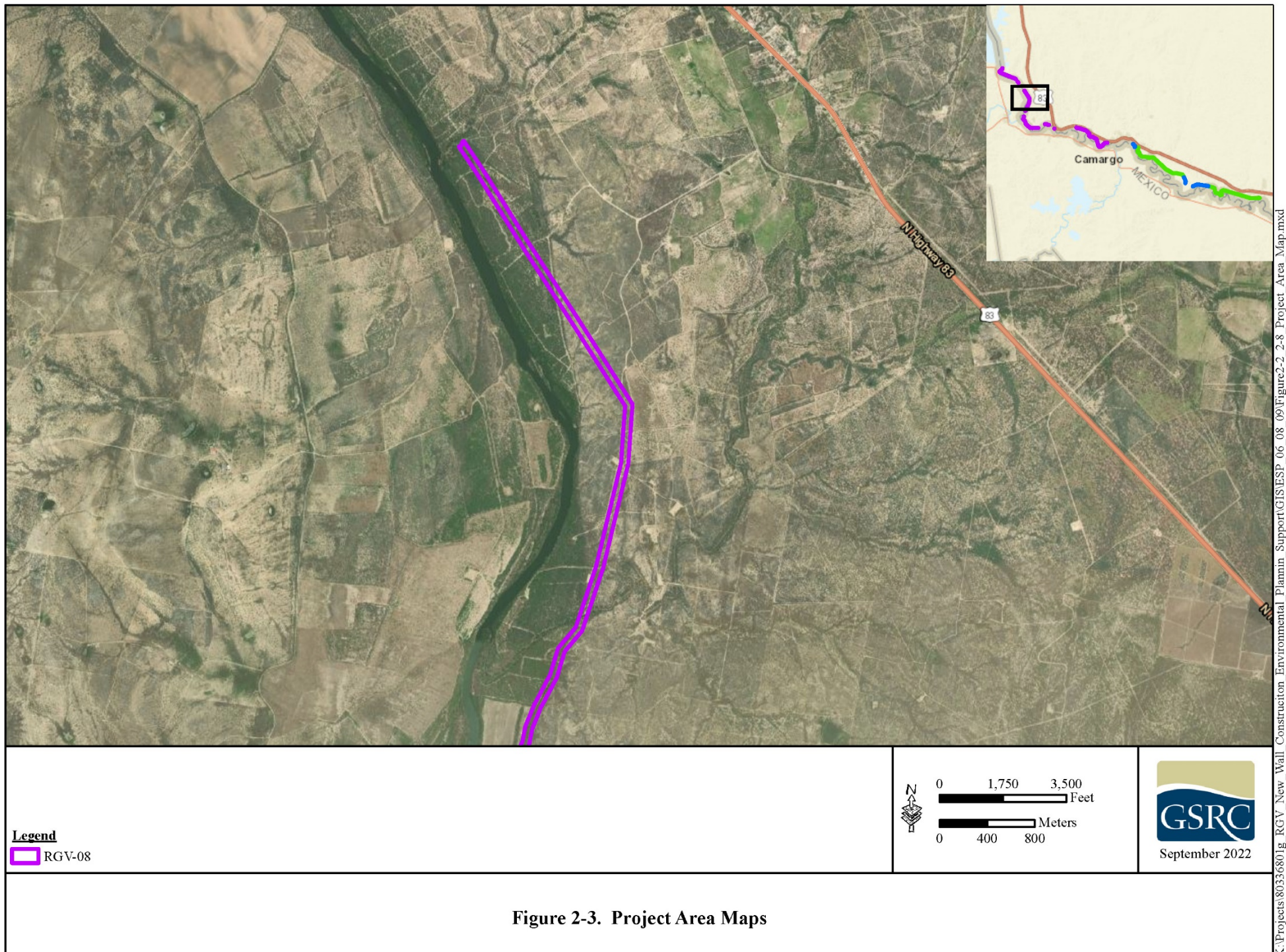


Figure 2-3. Project Area Maps

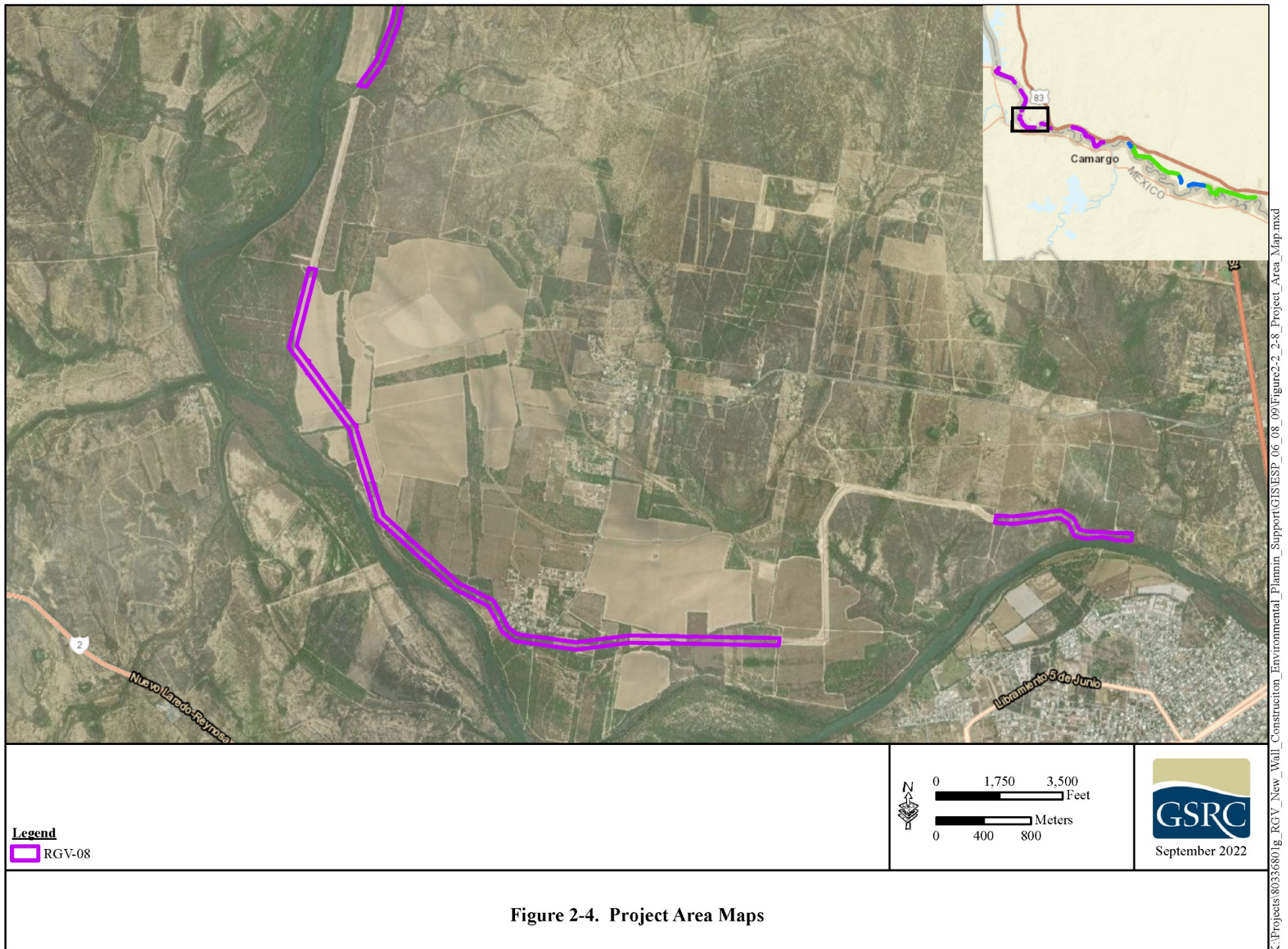




Figure 2-5. Project Area Maps

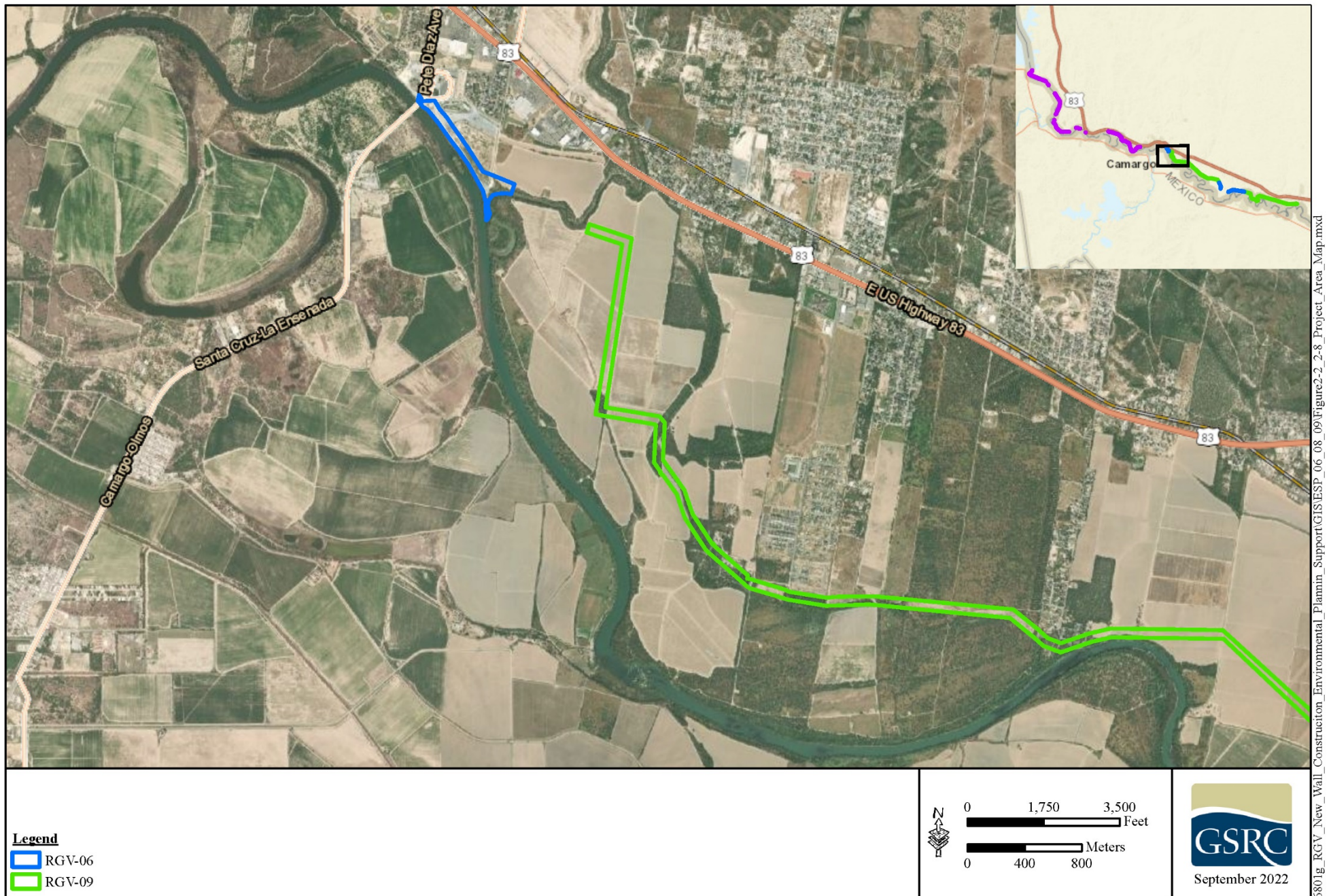
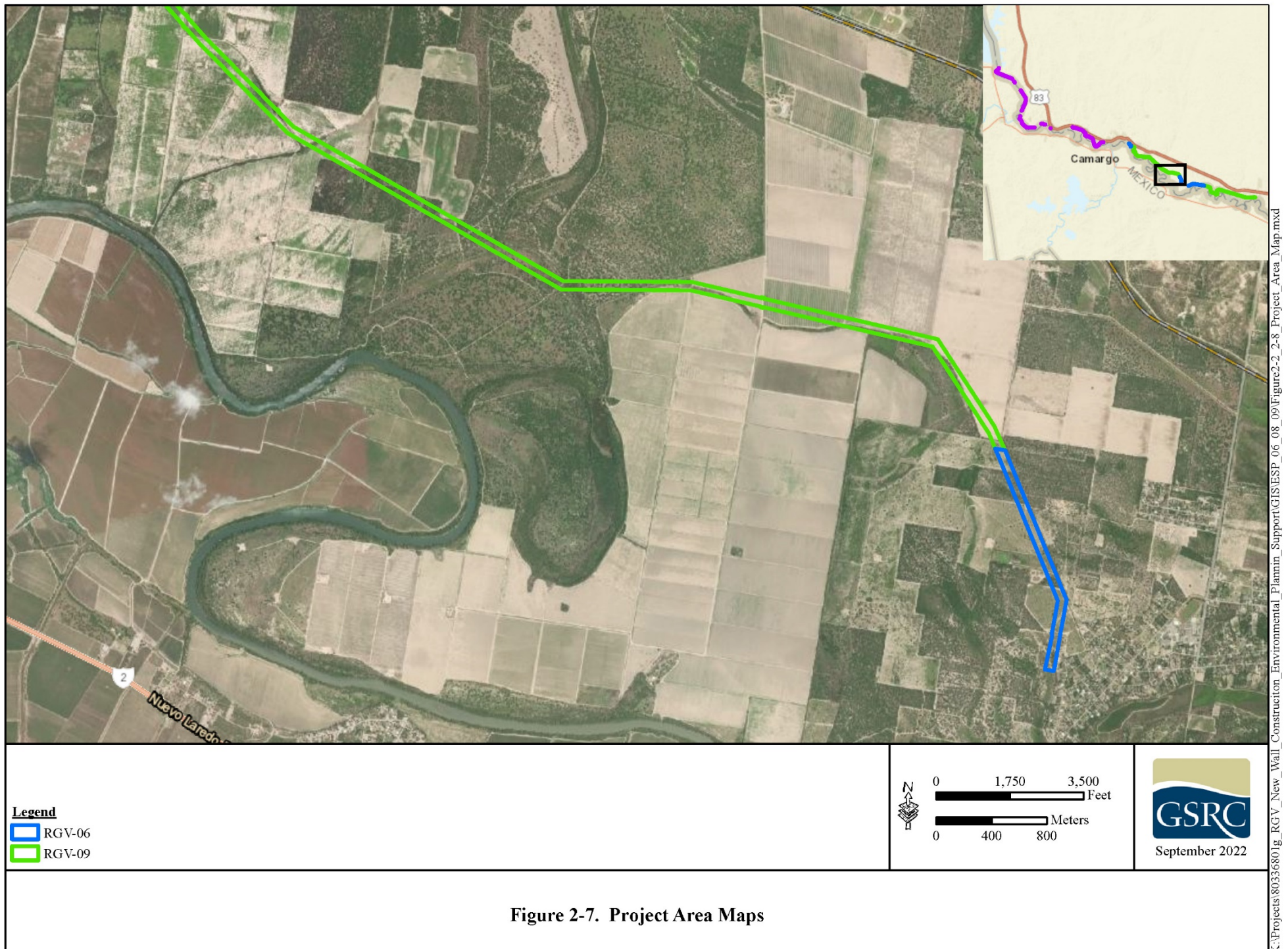


Figure 2-6. Project Area Maps



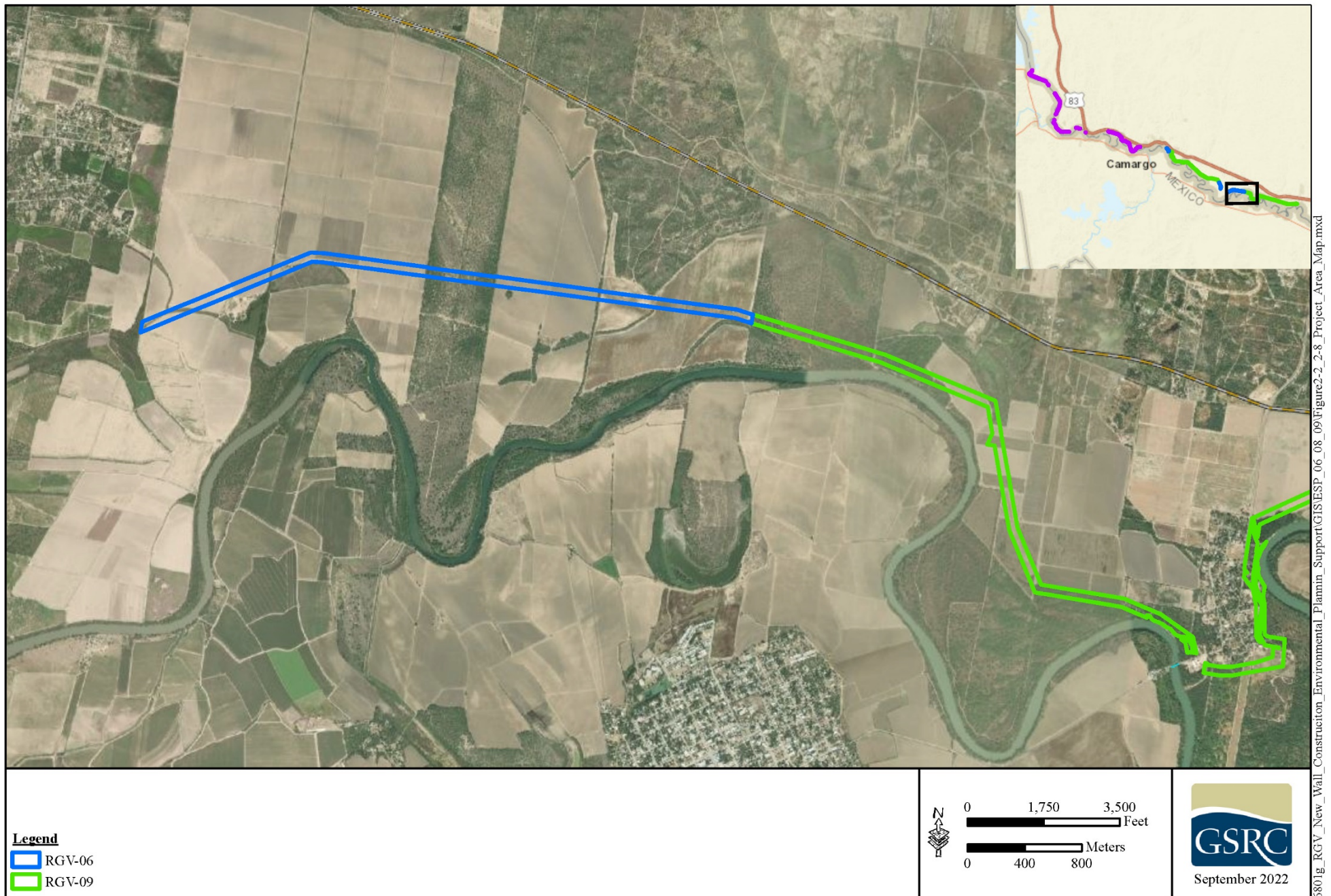
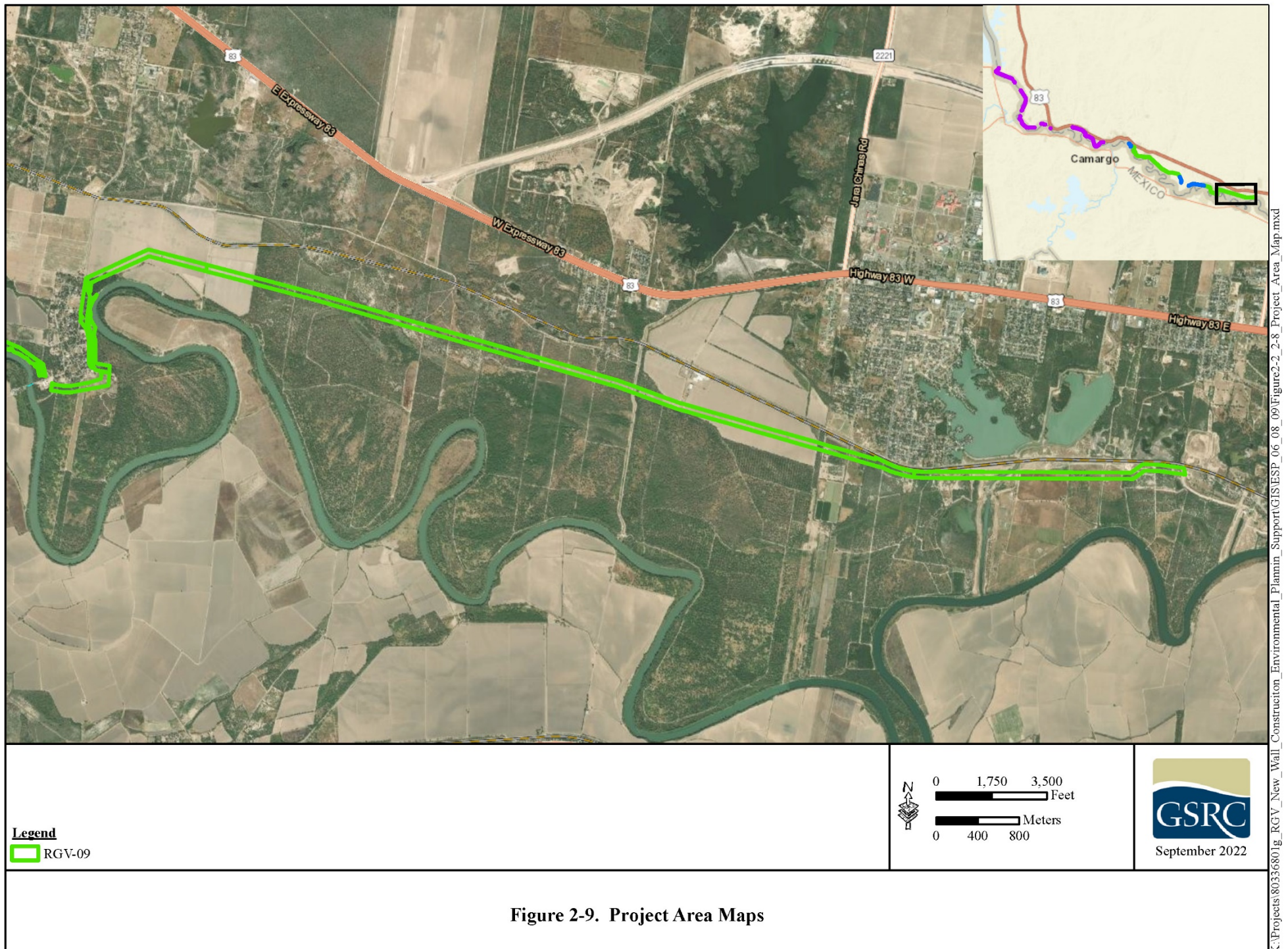


Figure 2-8. Project Area Maps



Each panel will be composed of eight to ten, six-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 two-foot-wide steel sheet across the top. The steel bollards will be spaced approximately five 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.

A staging area will be established for each segment either within the Project corridor or on adjacent, privately-owned land. The staging areas will accept large fence panel deliveries, store larger equipment, and house construction materials. Access to the Project corridor will use existing roads whenever possible, including federal as well as state, county, and city roads. The primary access along the Project corridor will be the all-weather road along the southern side of the bollard wall.

2.4 SITE PREPARATION

Site preparation primarily consists of clearing and grubbing activities to remove all vegetation within the 150-foot enforcement zone. Erosion control measures and biological surveys will be necessary if construction takes place during the breeding season (from March 15 through September 15 every year). BMPs will limit impacts on all resources including (but not limited to) wildlife, botanical, cultural, and other resources. Specific BMPs will be implemented prior to and during construction to ensure minimal disturbance to the Project corridor.

2.5 CONSTRUCTION SCHEDULE

It is anticipated that construction will occur five days per week from 7:00 a.m. to 7:00 p.m., with some exceptions when work will occur six days per week. Construction will occur from April 2020 to February 2021. Nighttime construction will occur occasionally as well. In those areas where border security lighting is not present, mobile light plants will be used during nighttime construction.

2.6 ENVIRONMENTAL CONSIDERATIONS

The following Chapters 3 through 11 address numerous environmental factors to be considered during final design and implementation of the bollard wall system Project.

3.0 AIR QUALITY

3.1 AFFECTED ENVIRONMENT

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 with regard to air quality.

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." The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), and lead. NAAQS represent the maximum levels of background pollution 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 do not meet these NAAQS standards are called non-attainment areas; areas that meet both primary and secondary standards are known as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria or requirements for conformity determinations for federal projects. The Federal Conformity Rule was first promulgated in 1993 by USEPA, following the passage of Amendments to the CAA in 1990. The rule mandates that a conformity analysis must be performed when a federal action generates air pollutants in a region designated as a non-attainment or maintenance area for one or more NAAQS.

A conformity analysis is the process used to determine whether a federal action meets the requirements of the general conformity rule. It requires the responsible federal agency to evaluate the nature of a Project and associated air pollutant emissions and calculate emissions resulting from the Project. If the emissions exceed established limits, known as *de minimis* thresholds, the proponent is required to implement appropriate mitigation measures. The USEPA has designated both Hidalgo and Starr County as in attainment for all NAAQS (USEPA 2021).

3.2 ENVIRONMENTAL CONSEQUENCES

Temporary and minor increases in air pollution will occur from the use of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during construction of the wall, and during repair and maintenance of the construction road. The following paragraphs describe the air calculation methodologies used to estimate air emissions produced by the Project.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide (Co)	9 ppm (10mg/m ³)	8-hour ⁽¹⁾	None	None
	35 ppm (40 mg/m ³)	1-hour ⁽¹⁾	Same as Primary	Same as Primary
Lead (Pb)	0.15 µg/m ³ ⁽²⁾	Rolling 3-month average	Same as Primary	Same as Primary
	1.5 µg/m ³	Quarterly Average	Same as Primary	Same as Primary
Nitrogen Dioxide (NO ₂)	53 ppb ⁽³⁾	Annual (Arithmetic Average)	Same as Primary	Same as Primary
	100 ppb	1-hour ⁽⁴⁾	None	None
Particulate Matter (PM ₁₀)	150 µg/m ³	24-hour ⁽⁵⁾	Same as Primary	Same as Primary
Particulate Matter (PM _{2.5})	12.0 µg/m ³	Annual ⁽⁶⁾ (Arithmetic Average)	15.0 µg/m ³	Annual ⁽⁶⁾ (Arithmetic Average)
	35 µg/m ³	24-hour ⁽⁷⁾	24-hour ⁽⁷⁾	Same as Primary
Ozone (O ₃)	0.075 ppm (2008 std)	8-hour ⁽⁶⁾	8-hour ⁽⁸⁾	Same as Primary
	0.070 ppm (2015 std)	8-hour ⁽⁷⁾	8-hour ⁽⁹⁾	Same as Primary
	0.12 ppm	1-hour ⁽⁸⁾ (applies only in limited areas)	1-hour ⁽¹⁰⁾	Same as Primary
Sulfur Dioxide	75 ppb ⁽¹¹⁾	1-hour	0.5 ppm	3-hour ⁽¹⁾

Source: USEPA 2021

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 0.075 ppm (effective May 27, 2008).

⁽⁹⁾ 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).

⁽¹⁰⁾ (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.

⁽¹¹⁾ (a) 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.

Fugitive dust emissions were calculated using the emission factor of 0.22 tons per acre per month (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), which is a more current standard than the 1985 PM₁₀ emission factor of 1.2 tons per acre-month presented in AP-42 Section 13 Miscellaneous Sources 13.2.3.3 (USEPA 2001).

The USEPA Motor Vehicle Emission Simulator (MOVES) model was used to calculate emissions from construction equipment. Combustion emission 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.

Construction workers will temporarily increase the combustion emissions in the airshed during their commute to and from the Project corridor. Emissions from delivery trucks will 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.

The purpose of this assessment is to evaluate impacts on ambient air quality from the Project. Air quality impacts from the Project will be significant if emissions would:

1. Increase ambient air pollution concentrations above the NAAQS
2. Contribute to existing violations of the NAAQS
3. Interfere with, or delay timely attainment of, the NAAQS
4. Impair visibility within federally mandated Prevention of Significant Deteriorations Class I areas
5. Result in the potential for any new stationary source to be considered a major source of emissions as defined in 40 CFR Part 52.21 (total emissions of any pollutant subject to regulations under the CAA that is greater than 250 tons per year for attainment areas)
6. For mobile source emissions, the increase in emissions to exceed 250 tons per year for any pollutant, or
7. For GHG emissions, exceed 25,000 metric tons (27,557 U.S. Tons) of direct carbon dioxide equivalent (CO₂e) emissions on an annual basis.

Hidalgo and Starr Counties are designated as in attainment in all areas for criteria pollutants; therefore, *de minimis* levels would not apply. In determining the significance of the Project, compounds would be compared to significance levels specified in (1) through (6), above.

Table 3-2 provides an estimate of emissions from the Project based on calculations performed for a recently completed project of similar scope as well as a determination of the significance of each emission type. The total emissions from all activities are demonstrated to be below the significance levels; therefore, the Project is determined to not have significant impacts on ambient air quality. Air emissions calculations are provided in Appendix C.

Table 3-2. Estimated Air Emissions (tons/year) from the Proposed Construction Project versus the *de minimis* Threshold Levels

Pollutant	Total (tons/year)	Significance Thresholds (tons/year) ¹	Significant Impact
CO	3.53	250	No
Volatile Organic Compounds (VOC)	0.82	250	No
Nitrogen Oxides (NO _x)	1.88	250	No
PM ₁₀	91.42	100	No
PM _{2.5}	9.35	250	No
SO ₂	0.01	250	No

Source: 40 CFR 93.153(b)(1) and Gulf South Research Corporation (GSRC) model projections for the 2019 USBP Yuma wall replacement.

¹ Project area analyzed was approximately 27.5 miles in Yuma, AZ.

4.0 NOISE

4.1 AFFECTED ENVIRONMENT

The U.S. Department of Housing and Urban Development (HUD) noise program sets the standards for construction activities in residential areas (HUD 1984). The HUD noise regulations are based on 24 CFR 51B and establish the minimum national standards “to protect citizens against excessive noise in their community and places of residence.” Generally, noise is described as an unwanted sound, which can be based either on objective (e.g., hearing loss, damage to structures, etc.) or subjective (e.g., community annoyance) observations.

Sound is usually represented on a logarithmic scale in units called decibels (dB) and is referred to as sound level. Another measurement, A-weighted decibel (dBA), is a single measure of noise at a given, maximum level or constant state level, but weighted to approximate the response of the human ear with respect to frequencies. In general, the range of human hearing is 0 dB to approximately 140 dB, with any noise over 85 dB considered damaging.

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 dBA louder than when that same noise is experienced during the day. This perception occurs largely because background environmental sound levels at night, in most areas, are also approximately 10 dBA lower than those during the day. 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 HUD noise program.

Acceptable (not exceeding 65 dBA) – The noise exposure may be of some concern, but common building construction will make the indoor environment acceptable, and the outdoor environment will be reasonably pleasant for recreation and play.

Normally Unacceptable (above 65 dBA but not greater than 75 dBA) – The noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable; special building constructions may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.

Unacceptable (greater than 75 dBA) – The noise exposure at the site is so severe that the construction costs to make the indoor noise environment acceptable may be prohibitive, and the outdoor environment will 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. To estimate the attenuation of the noise over a given distance, the following relationship is used:

$$\text{Equation 1: } dBA_2 = dBA_1 - 20 \log (d_2/d_1)$$

Where:

- dBA_2 = dBA at distance 2 from source (predicted)
- dBA_1 = dBA at distance 1 from source (measured)
- d_2 = Distance to location 2 from the source
- d_1 = Distance to location 1 from the source

Source: California Department of Transportation 1998.

The majority of bollard wall construction for RGV-06, 08, & 09 will occur outside of metropolitan areas and is located within a rural setting buffered by agriculture or brushland. Approximately 718 residential homes, the majority of which are located in proximity to the Las Palomas WMA to El Faro Road Segment and the East of Midway Road to Victor Road Segment, would be considered sensitive noise receptors that are located within 1,000 feet of the bollard wall system. Additionally, portions of RGV-06, 08, & 09 occur within and adjacent to the Salineño Wildlife Preserve and Las Palomas WMA. These areas should be considered as sensitive noise receptors.

4.2 ENVIRONMENTAL CONSEQUENCES

Most of the Project will occur within a rural landscape. There are sensitive noise receptors within and adjacent to the Project corridor. Table 4-1 depicts noise emission levels for construction equipment, which range from 68 dBA to 104 dBA at 100 feet (Federal Highway Administration [FHWA] 2007).

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

Noise Source	100* feet	200* feet	500* feet	1,000* feet	2,000 feet	3,000 feet
	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
Flatbed truck	68	62	54	48	42	39

Source: FHWA 2007 and GSRC

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

*Results based on GSRC modeled estimates.

Using a worst-case scenario of 78 dBA, the noise model predicts that noise emissions from the auger drill rig (proposed construction equipment) will have to travel 200 feet before attenuating to levels below 75 dBA. All of the proposed construction equipment will attenuate to a noise level less than 65 dBA at 500 feet from the source. It was assumed that the bollard wall system will take approximately 365 days to construct, and construction noises affecting sensitive noise receptors will not occur over the entire Project corridor at any one time. Additionally, these impacts will be short-term and limited to the amount of time that construction crews are working near sensitive noise receptors. Noise will return to ambient levels post-construction. It is anticipated that noise impacts from construction activities will be minor and short-term.

5.0 LAND USE, RECREATION, AND AESTHETICS

5.1 AFFECTED ENVIRONMENT

5.1.1 Land Use and Recreation

The existing land use for the Project corridor is primarily composed of agricultural land. Other prominent existing land uses include brushland and grassland. Edinburg and Rio Grande City are the county seats of Hidalgo and Starr Counties, respectively. Other nearby urban areas include the city of Roma.

Hidalgo County is approximately 1,013,120 acres in size with approximately 623,875 acres being used as farms. The major land uses in Hidalgo County are cropland (57 percent) and pastureland (31 percent). Crops account for 94 percent of sales by agricultural type in Hidalgo County (USDA 2017a).

Starr County is approximately 786,560 acres in size with approximately 571,483 acres being used as farms. The major land use in Starr County is pastureland and woodland for the production of livestock, poultry, and other associated products (80 percent). Thirteen percent of the farmland in Starr County is used as cropland (USDA 2017b).

Using the 2019 National Land Cover Database, it was determined that 15 different land cover classifications occur within the Project corridor (Multi-Resolution Land Cover Characteristics Consortium 2019). The definitions of each of the classifications are described below. Table 5-1 shows the various classifications as well as the approximate acreage of each classification in the Project corridor.

Table 5-1. Land Use Classifications

Land Use Classification	Acres
Cultivated Crops	515.3
Shrub/Scrub	260.6
Grassland/Herbaceous	62.3
Deciduous Forest	49.6
Developed, Low Intensity	47.1
Woody Wetlands	38.9
Pasture/Hay	34.7
Mixed Forest	33.8
Developed, Open Space	22.0
Emergent Herbaceous Wetlands	20.2
Barren Land	15.3
Developed, Medium Intensity	14.2
Developed, High Intensity	2.9
Evergreen Forest	1.6
Open Water	0.2
	1118.7

Cultivated Crops (Herbaceous Planted/Cultivated): These areas are used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Shrub/Scrub (Vegetated, Natural Shrubland): These areas are dominated by shrubs; less than 15 feet tall with shrub canopy typically greater than 20 percent of total vegetation. This class includes true shrubs, young trees in an early successional stage, or trees stunted from environmental conditions.

Grassland/Herbaceous (Herbaceous Upland Natural/Shrubland): These areas are dominated by graminoid or herbaceous vegetation, generally greater than 80 percent of total vegetation. These areas are not subject to intensive management such as tilling, but can be used for grazing.

Deciduous Forest (Vegetated, Natural Forest Upland): These areas are dominated by trees generally greater than 15 feet tall, and greater than 20 percent of total vegetation cover. More than 75 percent of the tree species shed foliage simultaneously in response to seasonal change.

Developed, Low Intensity: These areas possess a mixture of constructed materials and vegetation. Impervious surfaces account for 20 to 49 percent of total cover. These areas most commonly include single-family housing units.

Woody Wetlands (Wetlands): These are areas where forest or shrubland vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Pasture/Hay (Herbaceous Planted/Cultivated): These areas are dominated with grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Mixed Forest (Vegetated, Natural Forest Upland): These areas are dominated by trees generally greater than 5 meters tall, and greater than 20 percent of total vegetation cover. Neither deciduous nor evergreen species are greater than 75 percent of total tree cover.

Developed, Open Space: These areas possess a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Emergent Herbaceous Wetlands: These are areas where perennial herbaceous vegetation accounts for greater than 80 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Barren Land: These are areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15 percent of total cover.

Developed, Medium Intensity: These areas have a mixture of constructed materials and vegetation. Impervious surfaces account for 50 to 79 percent of the total cover. These areas most commonly include single-family housing units.

Developed, High Intensity: These areas are highly developed with people residing or working in high numbers. Examples include apartment complexes, row houses, and commercial/industrial. Impervious surfaces account for 80 to 100 percent of the total cover.

Evergreen Forest: These areas are dominated by trees generally greater than five meters tall, and greater than 20 percent of total vegetation cover. More than 75 percent of the tree species maintain their leaves all year. Canopy is never without green foliage.

Open Water: These are areas of open water, generally with less than 25 percent cover of vegetation or soil.

Recreational activities in the Project Corridor are associated with the Las Palomas WMA and Salineño Wildlife Preserve. The Las Palomas WMA manages Tamaulipan thornforest, grasslands, farmland, and wetlands for wildlife. Initially, properties were acquired for white-winged dove nesting habitat. Efforts were then focused on the conservation and re-establishment of Tamaulipan thornscrub through re-vegetation, in areas where it was lacking up through 2011. Efforts have now shifted focus to combating non-native and invasive grasses through mechanical and chemical treatments, yearly (TPWD 2022). The Salineño Wildlife Preserve is a small wilderness refuge utilized for birdwatching since the 1980s.

Several studies have determined that ecotourism in the Rio Grande Valley brings in an estimated \$463 million dollars per year (Woosnam et al. 2012). The Rio Grande Valley is known as a top bird watching destination in the U.S. due to the subtropical ecosystem along the Rio Grande.

5.2 ENVIRONMENTAL CONSEQUENCES

5.2.1 Land Use and Recreation

Approximately 1,172 acres could be impacted by the construction of the proposed new bollard wall. These lands will change from their current land use (i.e., agriculture, brushland) to developed open space (i.e., bollard wall system). This change of land use will have minor, long-term impacts within the region.

Recreation, in particular ecotourism, will be impacted through the loss of some lands within the enforcement zone that are currently wildlife habitat. Portions of the Las Palomas WMA and Salineño Wildlife Preserve will be affected as the bollard wall system will transect these properties. However, by having the bollard wall system, these same areas will be afforded much greater protection from illegal cross-border activities, such as the creation of new trails or

trash/debris left behind, as the bollard wall system will act as a deterrent within those areas (Gaynor 2012; Arizona Department of Environmental Quality 2016).

5.2.2 Aesthetics

Currently, the Project corridor consists of areas of disturbed and undisturbed vegetation. The new bollard wall would be substantially taller than the preexisting vegetation. Installation of the bollard wall will allow for views through the fence. The transparent qualities of the bollard fence allow people to see through the fence, which is beneficial for USBP agents in an operational sense and for anyone else wishing to obtain views of the broader landscape. Construction of the bollard wall will have moderate, long-term impacts on aesthetics.

6.0 GEOLOGICAL RESOURCES AND SOILS

6.1 AFFECTED ENVIRONMENT

There are 17 soil types associated with the Project corridor. Each of these soil types is described in Table 6-1. The Farmland Protection Policy Act of 1980 and 1995 was established to preserve the nation's farmland. In Section 7 of CFR Part 657.5, prime farmlands are defined as having the best combinations of physical and chemical properties to produce fiber, animal feed, and food, and are available for these uses. Of the 17 soil types in the Project corridor, 6 are considered to be prime farmland or have the potential to be considered prime farmland. Soils maps for the various Project segments are provided in Figures 6-1 to 6-10.

Table 6-1. Soil Types Found within the Project Corridor

Name	Description	Prime Farmland	Acreage	Segment(s)
Alluvial land	Alluvial land consists of deep, nearly level to sloping, loamy alluvium. This land type occurs as narrow, elongated areas along the Rio Grande. These areas are generally less than 20 feet above the riverbed and are flooded at intervals ranging from once every year to once in three years. The topography is altered with each of the floodwater deposits.	No	26.1	RGV-06, RGV-08, RGV-09
Arents	These soils lack horizons due to deep mixing as a result of plowing, spading, or other methods of moving by humans. Some of these soils are the result of deliberate soil modification intended to break or remove a pan. Some are the result of replacing the soil profile after strip-mining. Others have resulted from cuts and fills made to shape the surface.	No	35.6	RGV-09
Camargo silt loam	These soils are found on the active flood plain of the Rio Grande. The soil is well drained and moderately permeable with slow runoff. This soil rarely floods and is used entirely for the irrigation of crops.	Yes	9.4	RGV-09
Camargo silty clay loam	These soils are found in the active floodplain of the Rio Grande and range from 10 to 25 acres. These soils are well-drained and surface runoff is slow. This soil is rarely flooded. These soils are mainly irrigated cropland.	Yes	90.1	RGV-06, RGV-08, RGV-09
Catarina clay	The Catarina series consists of deep, undulating, clayey soils on uplands. Areas of these soils are irregularly shaped or elongated and may be several hundred acres in size. Catarina soils are used for rangeland. Due to their high salt content and rapid runoff, they are not cultivated.	No	17.5	RGV-08

Name	Description	Prime Farmland	Acreage	Segment(s)
Copita fine sandy loam	These soils are moderately deep, well-drained, nearly level to gently undulating soils of the uplands. Areas of this soil are elongated or irregularly shaped and range from 50 to several hundred acres in size. Most of the acreage is used for rangeland, but scattered fields are dry-farmed.	No	55.0	RGV-08
Grulla clay	These soils are found in partly filled resacas or oxbows on the active Rio Grande floodplain. Areas are long and narrow and are less than 50 acres. These soils are 1 to 5 feet below the surrounding landscape and have no natural drainage. This soil is poorly drained and is frequently flooded for long periods after heavy rainfall. This soil has low potential for crops, rangeland, and urban uses due to frequent flooding.	No	69.8	RGV-06, RGV-08, RGV-09
Harlingen clay	This soil is found on nearly level stream terraces in areas several hundred acres in size. The soil is moderately well drained, very slowly permeable, and has low runoff. Some areas are subject to rare flooding. This soil is mostly used for irrigated cropland.	No	9.9	RGV-09
Jimenez-Quemado association	This association of soils is found on high terraces 20 to 50 feet above the flood plains of the Rio Grande. These areas are broad, dissected, irregularly shaped, and as much as 500 acres in size. Jimenez soils make up about 52 percent of the acreage, the Quemado soils make up about 38 percent, and included soils make up the rest. Runoff is rapid, and erosion is a slight hazard. This association of soils is primarily used for rangeland with some areas in operation as gravel pits.	No	40.3	RGV-06, RGV-08, RGV-09
Lagloria silt loam	This soil is found on old flood plains or terraces that no longer receive sediments from flooding. Areas of this soil are broad, irregularly shaped, and generally several hundred acres in size. This soil is primarily utilized for agriculture purposes. Almost all of the acreage is cultivated and irrigated.	Yes, if irrigated	177.6	RGV-06, RGV-08, RGV-09
Matamaros silty clay	This soil is found on the active Rio Grande floodplain and ranges in size from 10 to 50 acres. The soil is calcareous throughout and moderately well-drained and occasionally flooded. These soils are mainly used as irrigated cropland.	No	66.6	RGV-06, RGV-08, RGV-09

Name	Description	Prime Farmland	Acreage	Segment(s)
McAllen fine sandy loam	This soil is found in nearly level to gently sloping uplands. This soil is deep, well drained, and moderately permeable. Use is primarily rangeland although several thousand acres are dry farmed and a few hundred acres are irrigated.	Yes, if irrigated	10.3	RGV-09
Reynosa silty clay loam	These soils are found in ancient stream terraces. These areas are irregular in shape and range in size from 20 to 100 acres. These soils are well-drained and calcareous throughout. These soils are mainly used as irrigated cropland.	Yes, if irrigated	213.1	RGV-06, RGV-08, RGV-09
Rio Grande silt loam	These deep, level soils are found on the active Rio Grande floodplain and areas range in size from 20 to 50 acres. These soils are well-drained, calcareous throughout, and are rarely flooded. They are almost exclusively used as irrigated cropland.	No	213.3	RGV-06, RGV-08, RGV-09
Rio Grande silty clay loam	These deep, nearly level soils are found on the active Rio Grande floodplain and range in size from 5 to 45 acres. These soils are calcareous throughout. These soils are rarely flooded but flooding is possible during tropical storms. These areas are almost exclusively used for irrigated cropland.	No	35.1	RGV-08, RGV-09
Runn silty clay	This soil occurs primarily on old floodplains of the Rio Grande. This soil is deep, moderately well drained, and has slow permeability and runoff. The soil is typically irrigated and used for the cultivation of crops.	Yes	56.2	RGV-09
Zapata soils	The Zapata series consists of well-drained, gently sloping soils that are very shallow over caliche. These soils occupy low ridges on upland divides. The slope range is 1 to 5 percent.	No	3.1	RGV-08

Source: USDA 1972, USDA 1981, USDA Natural Resource Conservation Service 2022.

6.2 ENVIRONMENTAL CONSEQUENCES

Temporary impacts on soils, such as increased compaction and erosion, can be expected from the creation of the staging areas; however, these impacts will be alleviated once construction is finished. The staging area will be disked, graded, and returned to pre-construction conditions, if applicable. Additional temporary impacts during construction could occur from wind or water erosion along the access roads and within staging areas. Pre- and post-construction BMPs will be developed and implemented to reduce or eliminate erosion and potential downstream sedimentation. Erosion control measures such as wetting compounds, silt fencing, and straw bales will be some of the BMPs implemented.

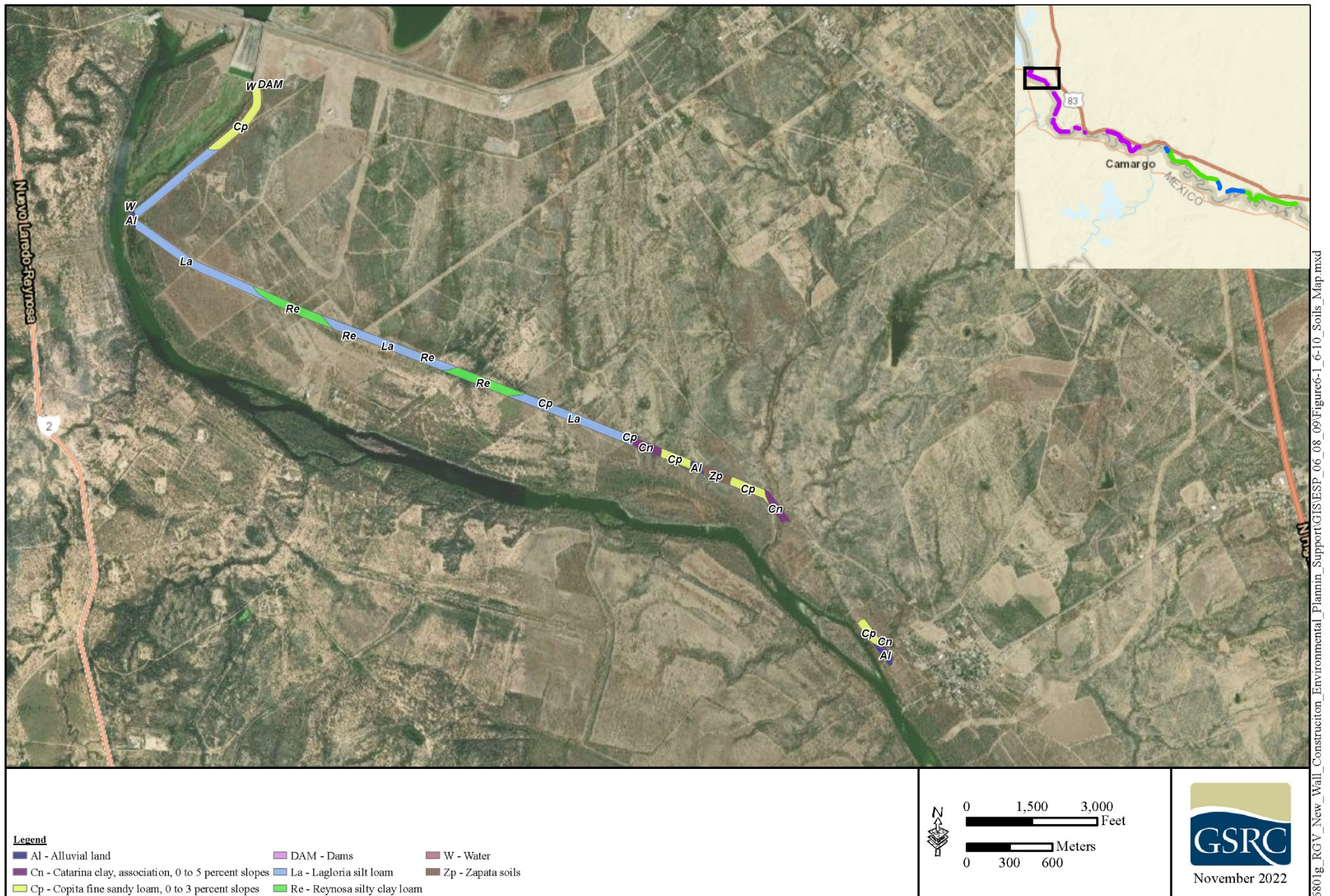
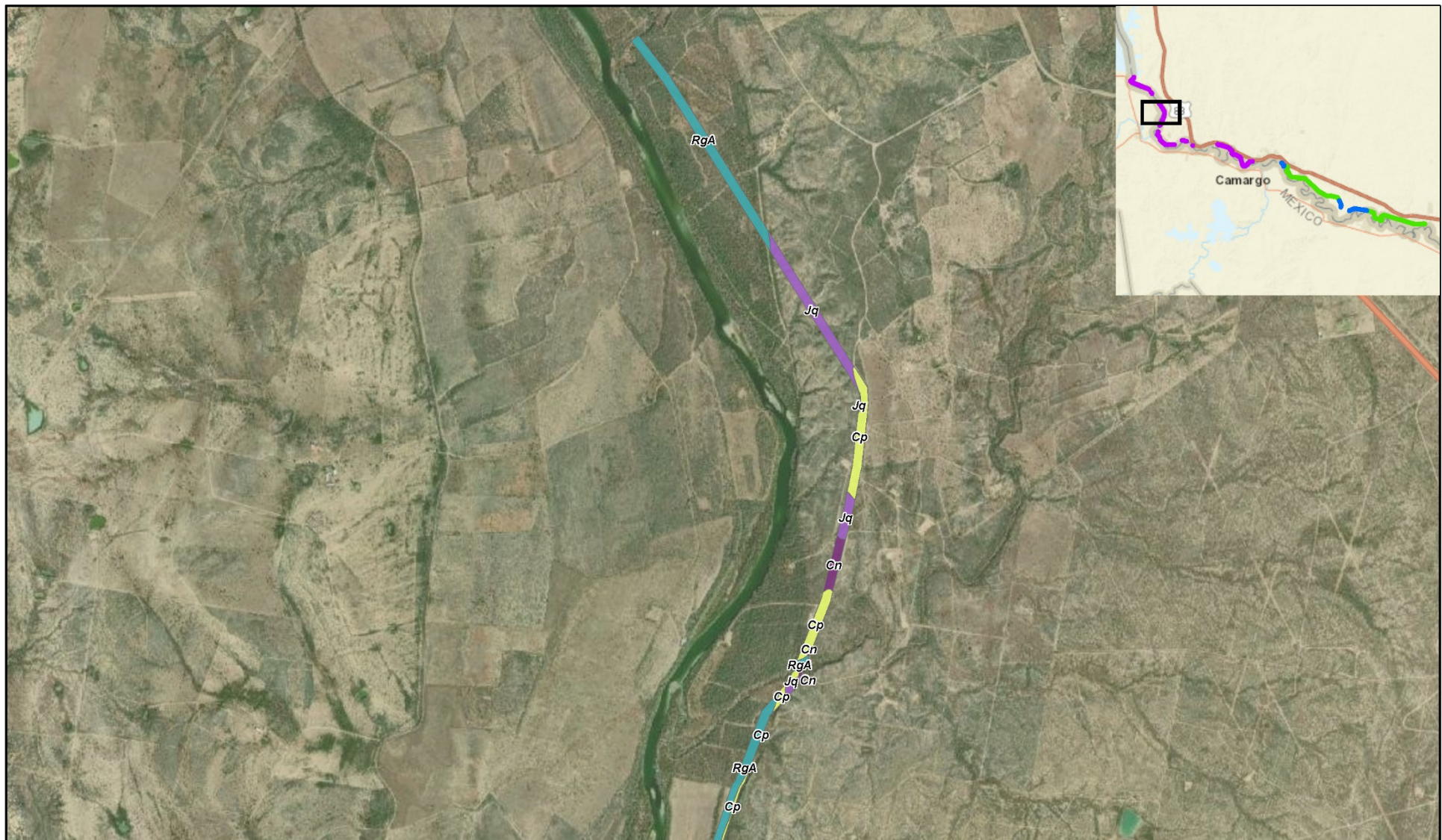


Figure 6-1. Soil Maps



Legend

- Cn - Catarina clay, association, 0 to 5 percent slopes
 ■ Cp - Copita fine sandy loam, 0 to 3 percent slopes
 ■ Jq - Jimenez-Quemado association
 ■ RgA - Rio Grande silt loam, 0 to 1 percent slopes



0 1,500 3,000 Feet

0 300 600 Meters



November 2022

Figure 6-2. Soil Maps

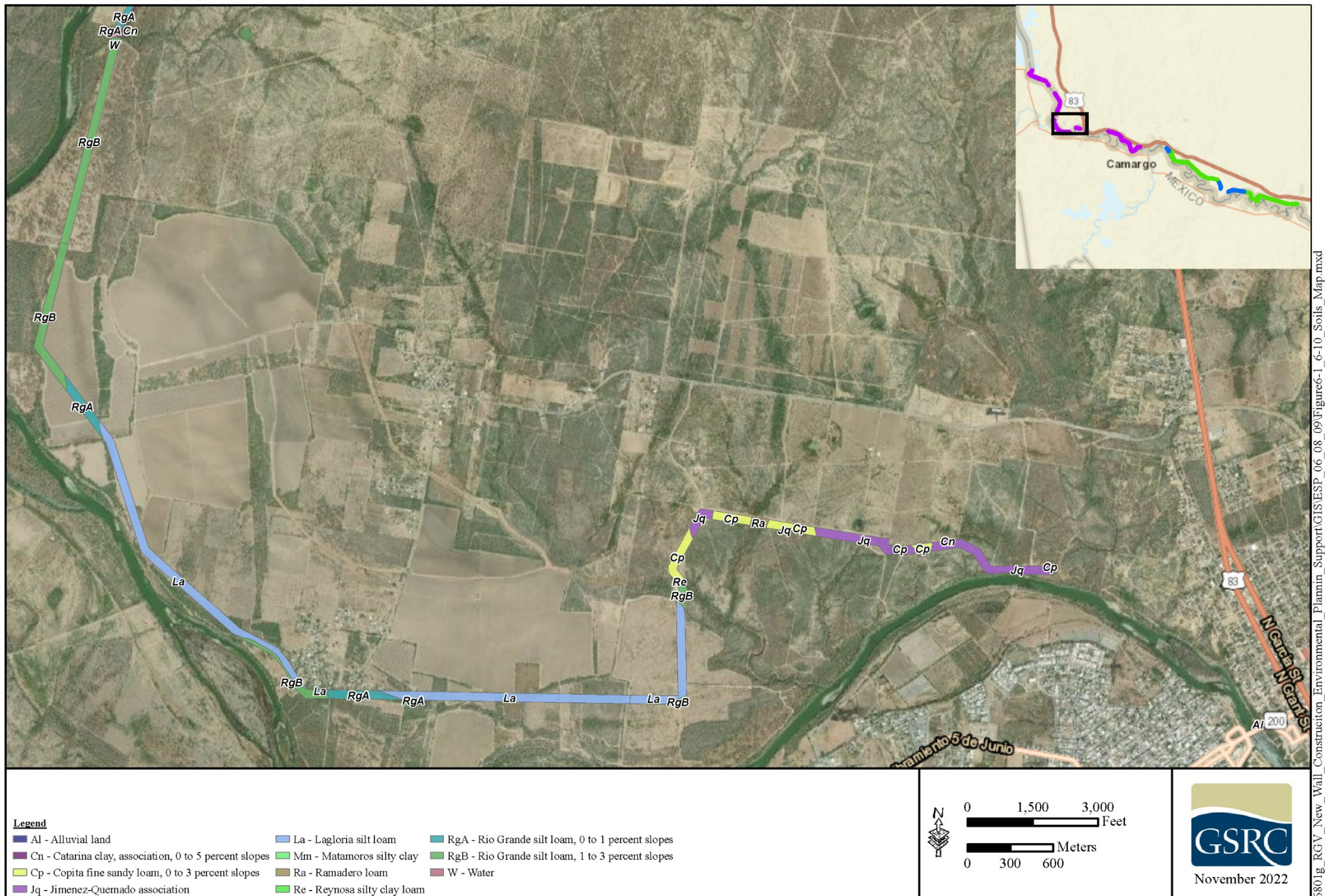


Figure 6-3. Soil Maps

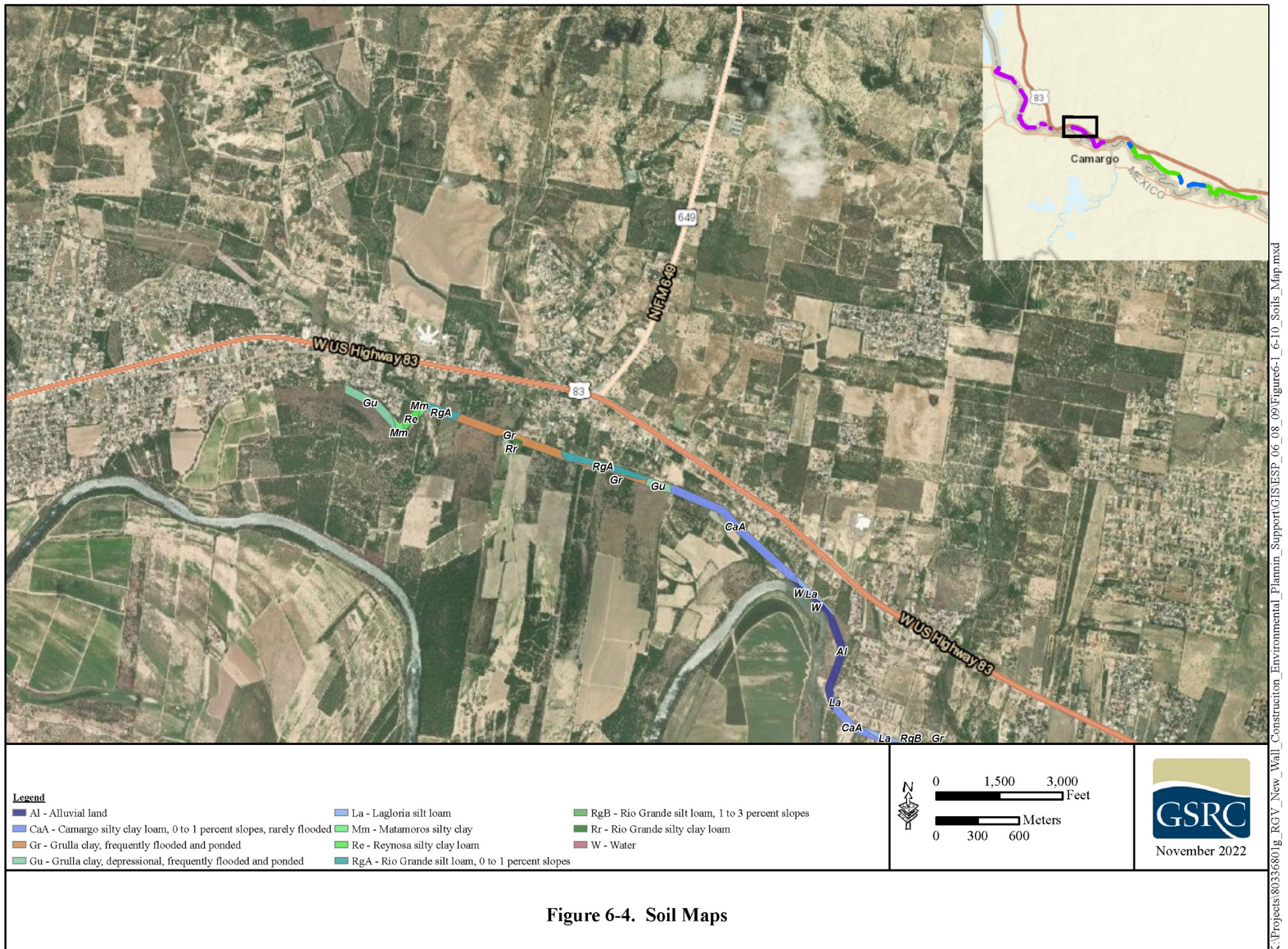


Figure 6-4. Soil Maps

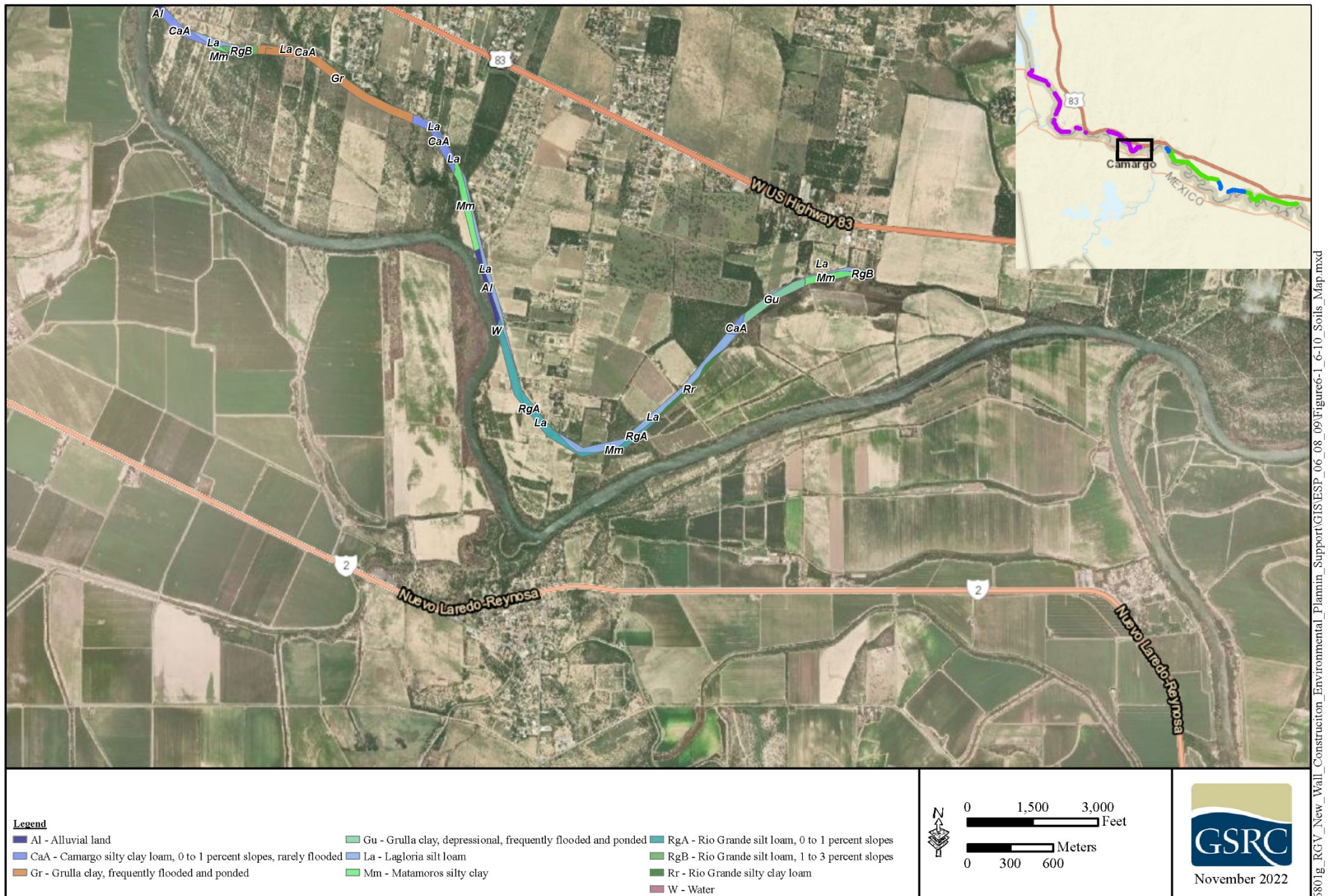


Figure 6-5. Soil Maps



Legend

- | | | |
|--|--------------------------------|---|
| ■ AI - Alluvial land | ■ La - Lagloria silt loam | ■ RgA - Rio Grande silt loam, 0 to 1 percent slopes |
| ■ CaB - Camargo silty clay loam, 1 to 3 percent slopes | ■ Mm - Matamoros silty clay | ■ RgB - Rio Grande silt loam, 1 to 3 percent slopes |
| ■ Gr - Grulla clay, frequently flooded and ponded | ■ Re - Reynosa silty clay loam | ■ Rr - Rio Grande silty clay loam |
| | ■ W - Water | |



0 1,500 3,000 Feet
0 300 600 Meters



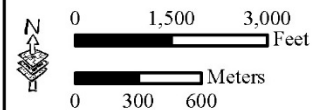
November 2022

Figure 6-6. Soil Maps



Legend

- | | | |
|--|---|---|
| CaA - Camargo silty clay loam, 0 to 1 percent slopes, rarely flooded | La - Lagloria silt loam | RgB - Rio Grande silt loam, 1 to 3 percent slopes |
| CaB - Camargo silty clay loam, 1 to 3 percent slopes | Mm - Matamoros silty clay | Rr - Rio Grande silty clay loam |
| Gr - Grulla clay, frequently flooded and ponded | Re - Reynosa silty clay loam | W - Water |
| Gu - Grulla clay, depressional, frequently flooded and ponded | RgA - Rio Grande silt loam, 0 to 1 percent slopes | |



November 2022

Figure 6-7. Soil Maps

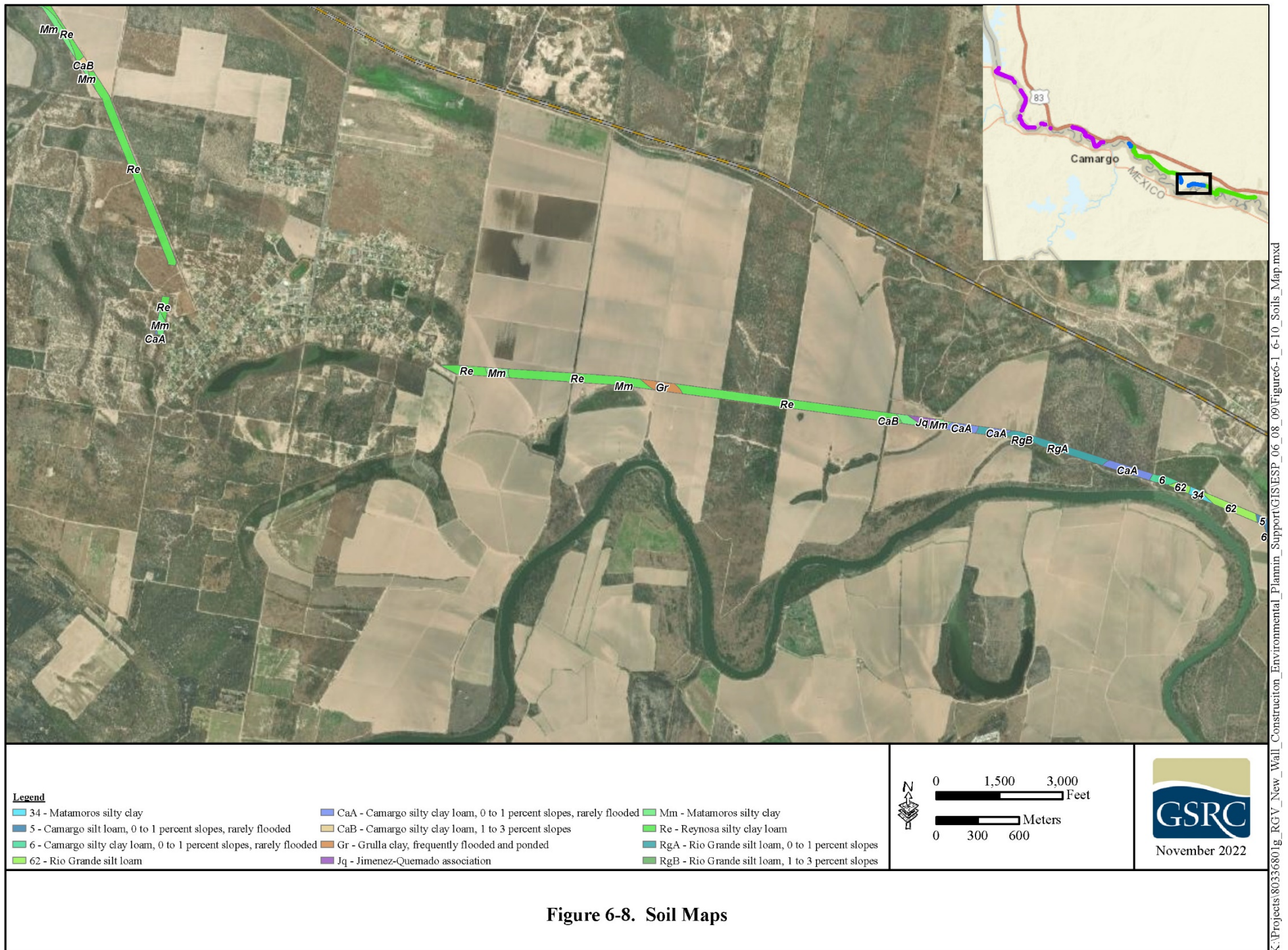


Figure 6-8. Soil Maps



Legend

- | | | |
|---|--|--|
| 1 - Arents, loamy | 45 - Borrow Pits | 6 - Camargo silty clay loam, 0 to 1 percent slopes, rarely flooded |
| 15 - Grulla clay, frequently flooded and ponded | 47 - Gravel Pits | 62 - Rio Grande silt loam |
| 34 - Matamoros silty clay | 5 - Camargo silt loam, 0 to 1 percent slopes, rarely flooded | 63 - Rio Grande silty clay loam |
| 36 - McAllen fine sandy loam, 1 to 3 percent slopes | 55 - Reynosa silty clay loam, 0 to 1 percent slopes | 64 - Runn silty clay |
| 37 - McAllen fine sandy loam, 3 to 5 percent slopes | 56 - Reynosa silty clay loam, saline, 0 to 1 percent slopes | W - Water |



0 1,500 3,000 Feet
0 300 600 Meters



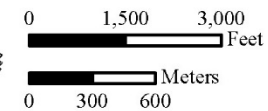
November 2022

Figure 6-9. Soil Maps



Legend

1 - Arents, loamy	35 - McAllen fine sandy loam, 0 to 1 percent slopes	LEVEE
20 - Harlingen clay, saline	55 - Reynosa silty clay loam, 0 to 1 percent slopes	W - Water
34 - Matamoros silty clay	65 - Runn silty clay, saline	



November 2022

Figure 6-10. Soil Maps

A total of 556.7 acres of soil with the potential to be considered prime farmland may be reduced in quality or lost as a result of construction activities associated with the Project. These soils are regionally common throughout the Project ROI. Pre- and post-construction BMPs will be developed and implemented to reduce the impact on prime farmland soils.

The potential exists for petroleum, oil, and lubricants (POLs) to be spilled during refueling of 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 will be prepared prior to construction activities and BMPs described in these plans will be implemented to reduce potential erosion and contamination.

With the implementation of the BMPs, the Project is anticipated to result in negligible to minor, long-term impacts on geological resources and soils due to the removal of acreage from natural production.

7.0 HYDROLOGY AND WATER MANAGEMENT

7.1 AFFECTED ENVIRONMENT

7.1.1 Groundwater

The major aquifer within the Project region is the Gulf Coast Aquifer, which parallels the Gulf of Mexico coastline from the western boundary of Florida to Mexico. This aquifer covers over 41,800 square miles and has an annual groundwater availability of approximately 1.77 million acre-feet with an annual use of approximately 1.23 million acre-feet (Texas Water Development Board [TWDB] 2017). The Gulf Coast Aquifer is present within the entirety of Hidalgo County and Starr County. Within the Gulf Coast Aquifer lie several other aquifers including the Jasper, Evangeline, and Chicot aquifers. These aquifers are composed of discontinuous sand, silt, clay, and gravel beds. The upper portion of the Gulf Coast Aquifer is generally fresher with saline levels increasing as the aquifer trends southward towards Mexico. The aquifer is generally used for municipal, industrial, and agricultural purposes (TWDB 2011).

Recharge of the Gulf Coast Aquifer occurs primarily through percolation of precipitation and is supplemented in some areas by the addition of irrigation water from the Rio Grande. Available groundwater from the Gulf Coast Aquifer is estimated to be approximately 41,926 acre-feet per year in Hidalgo County and 7,526 acre-feet per year in Starr County (TWDB 2016). It should be noted that groundwater is not a significant source of water within Hidalgo County and Starr County; surface water from the Rio Grande is the major water supply source.

7.1.2 Surface Water

The Project corridor is located in southern Texas and is within the Rio Grande River Basin (TCEQ 2021).

The Rio Grande enters Texas northwest of El Paso and travels 1,248 miles to the Gulf of Mexico forming the international boundary between the U.S. and Mexico. It is estimated that within Texas approximately 48,259 square miles drain into surface waters that eventually flow to the Gulf of Mexico.

The Clean Water Act (CWA) § 303[d][1][A] requires that each state monitor surface waters and compile a "303[d] List" of impaired streams and lakes. The 2020 Texas Integrated Report of Surface Water Quality for the Clean Water Act Sections 305(b) and 303(d) lists four impaired water bodies near the Project corridor (TCEQ 2020, 2022). The closest impaired water bodies to the Project corridor are the Rio Grande Below Falcon Reservoir and the Arroyo Los Olmos. Table 7-1 provides information on the impaired waterbodies near the Project corridor.

Table 7-1. Impaired Waterbodies near the Project Corridor.

Sub-watershed Name & TCEQ ID	Location	Impairment Description	Year of First Listing
Rio Grande Below Falcon Reservoir (2302)	From the Progresso International Bridge (Farm to Market [FM] 1015) upstream to the McAllen International Bridge (U.S. Highway 281)	Bacteria in water (Recreation Use)	1996
Arroyo Los Olmos (2302A)	From the Rio Grande confluence in Rio Grande City to El Sauz in Starr County	Bacteria in water (Recreation Use)	2004

Source: TCEQ 2020, 2022.

7.1.3 Waters of the United States Including Wetlands

Waters of the U.S. are defined within the CWA as (1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: which are or could be used by interstate or foreign travelers for recreational or other purposes; or (from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce; (4) all impoundments of waters otherwise defined as waters of the United States under this definition; (5) tributaries of waters previously identified; (6) the territorial sea; and (7) wetlands adjacent to waters (other than waters that are themselves wetlands) previously identified. Jurisdiction of Waters of the U.S. is regulated by USACE and USEPA. There could be temporary impacts on Waters of the U.S. if drainage structures within agricultural ditches need replacement. These actions will be covered under Section 404 of the CWA, Nationwide Permit 14 (linear transportation) and are considered to result in negligible impacts.

Wetlands are a subset of the Waters of the U.S. that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Waters of the U.S. delineations were completed for the Project between July 16 and September 19, 2019. Approximately 0.4 acre of potentially jurisdictional wetlands were identified within the Project corridor in the form of arroyos. The Project corridor also contains approximately 13,997.4 linear feet of potentially jurisdictional Waters of the U.S. in the form of drainage ditches and approximately 1.65 acres of Other Waters of the U.S. in the form of isolated agricultural ditches (CBP 2020). Waters of the U.S. delineation maps are provided in Figures 7-1 to 7-10.

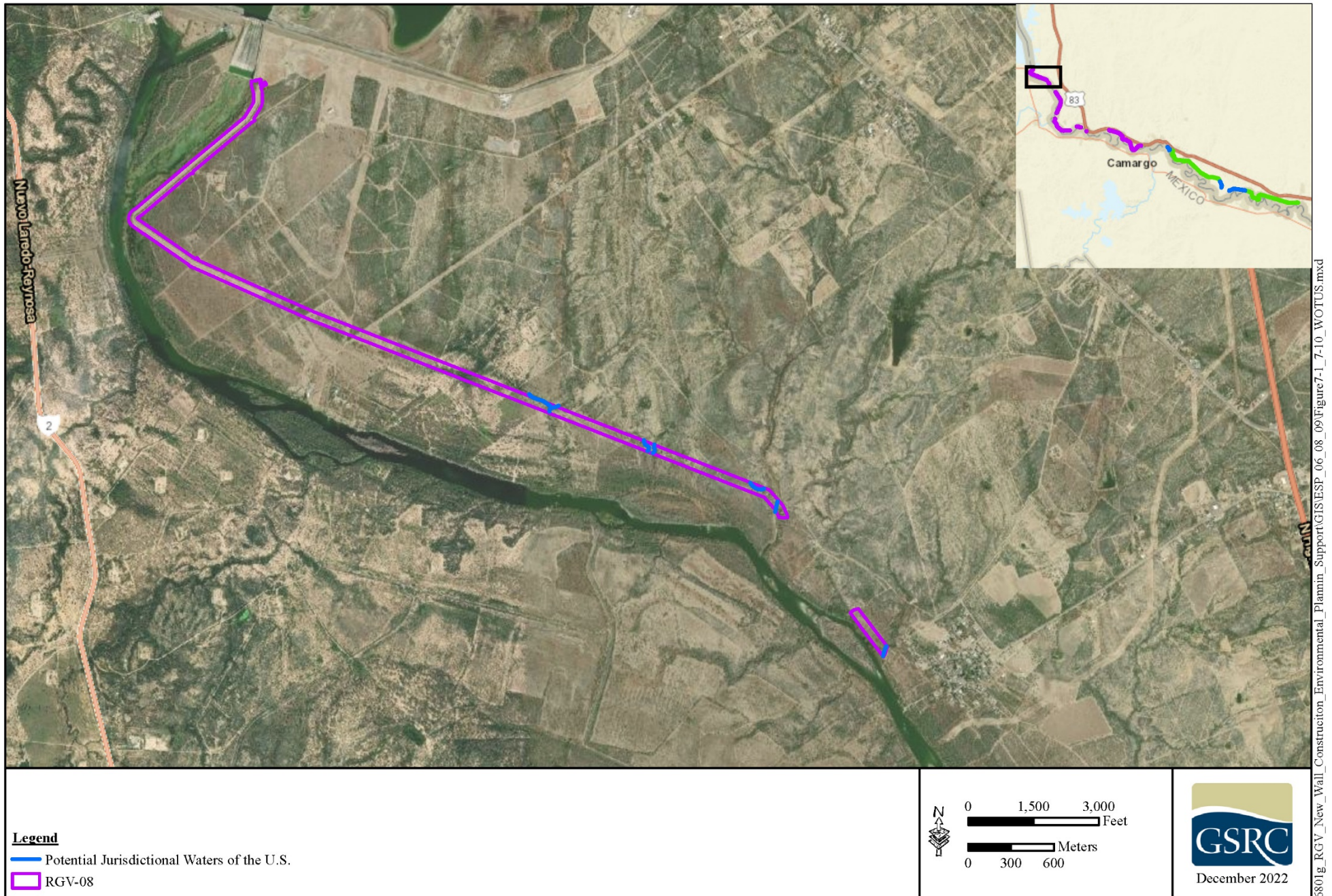
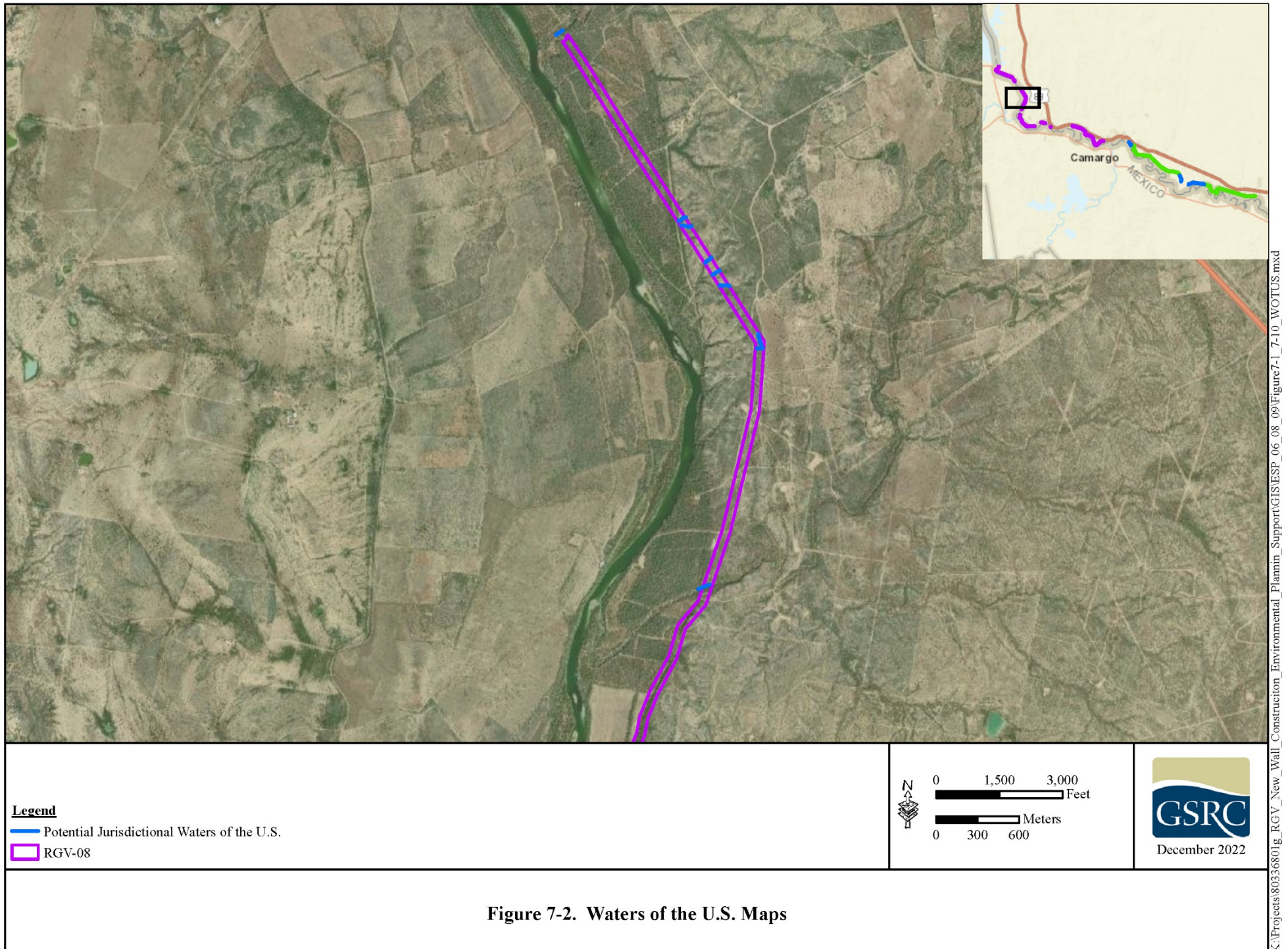


Figure 7-1. Waters of the U.S. Maps



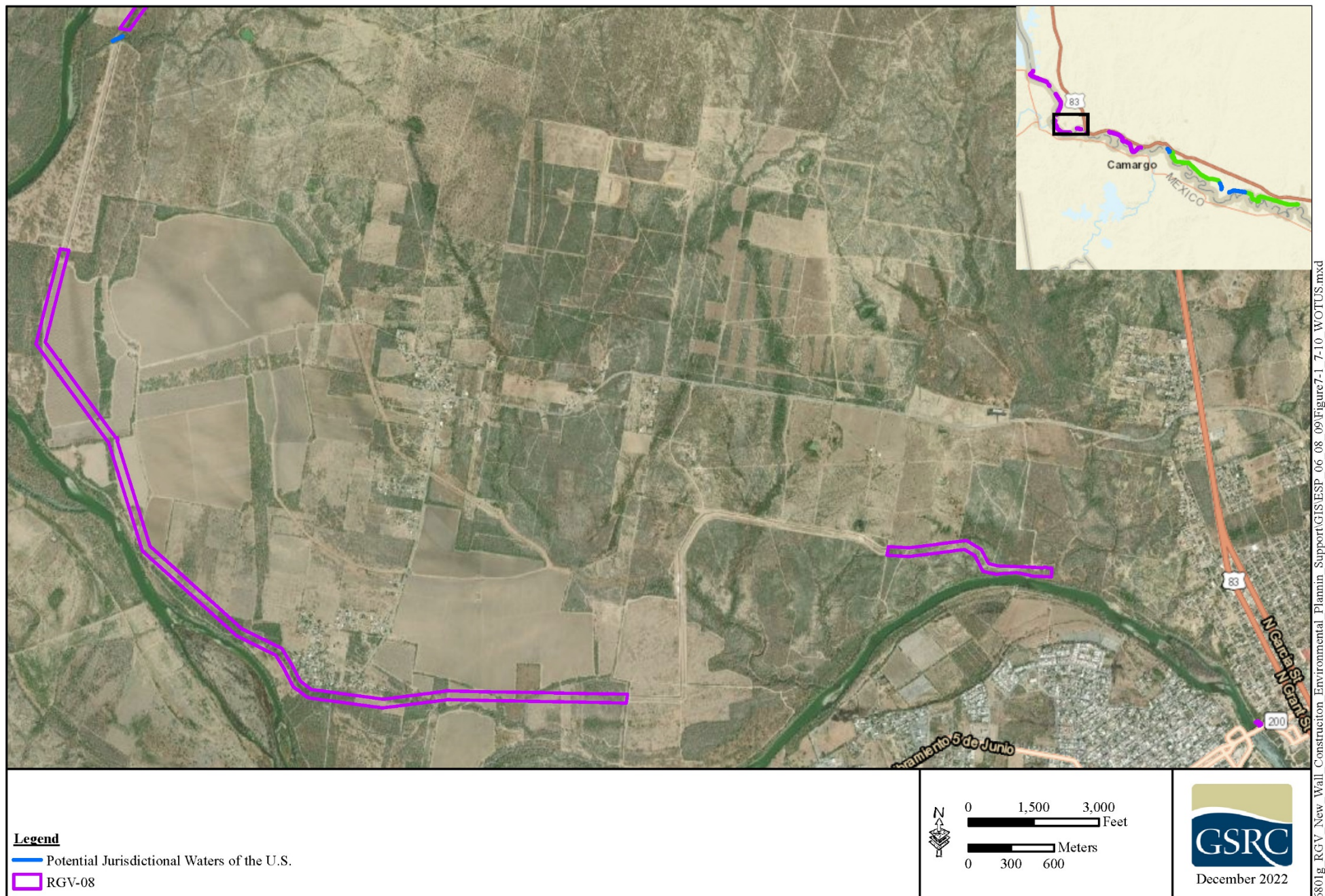
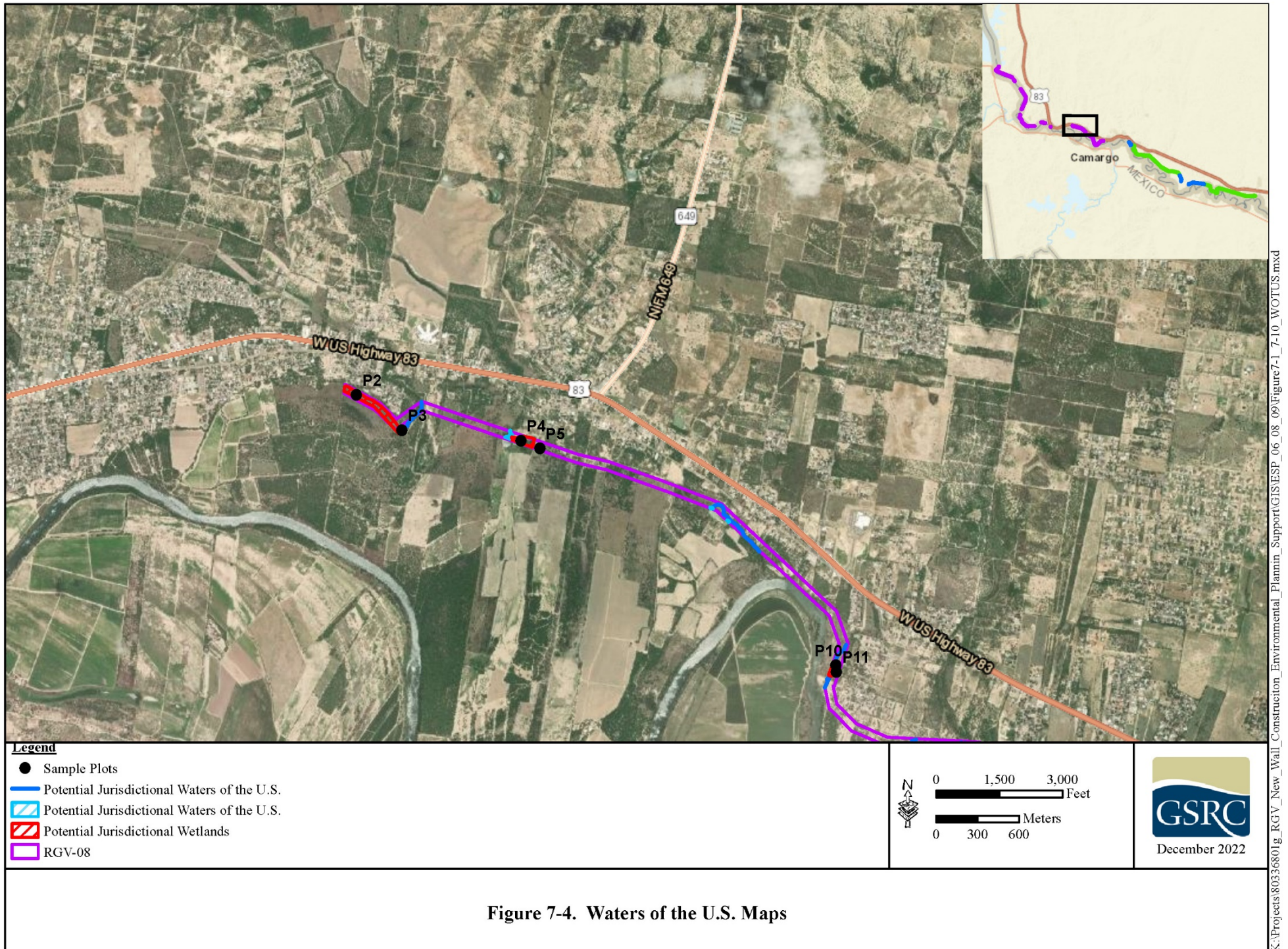


Figure 7-3. Waters of the U.S. Maps



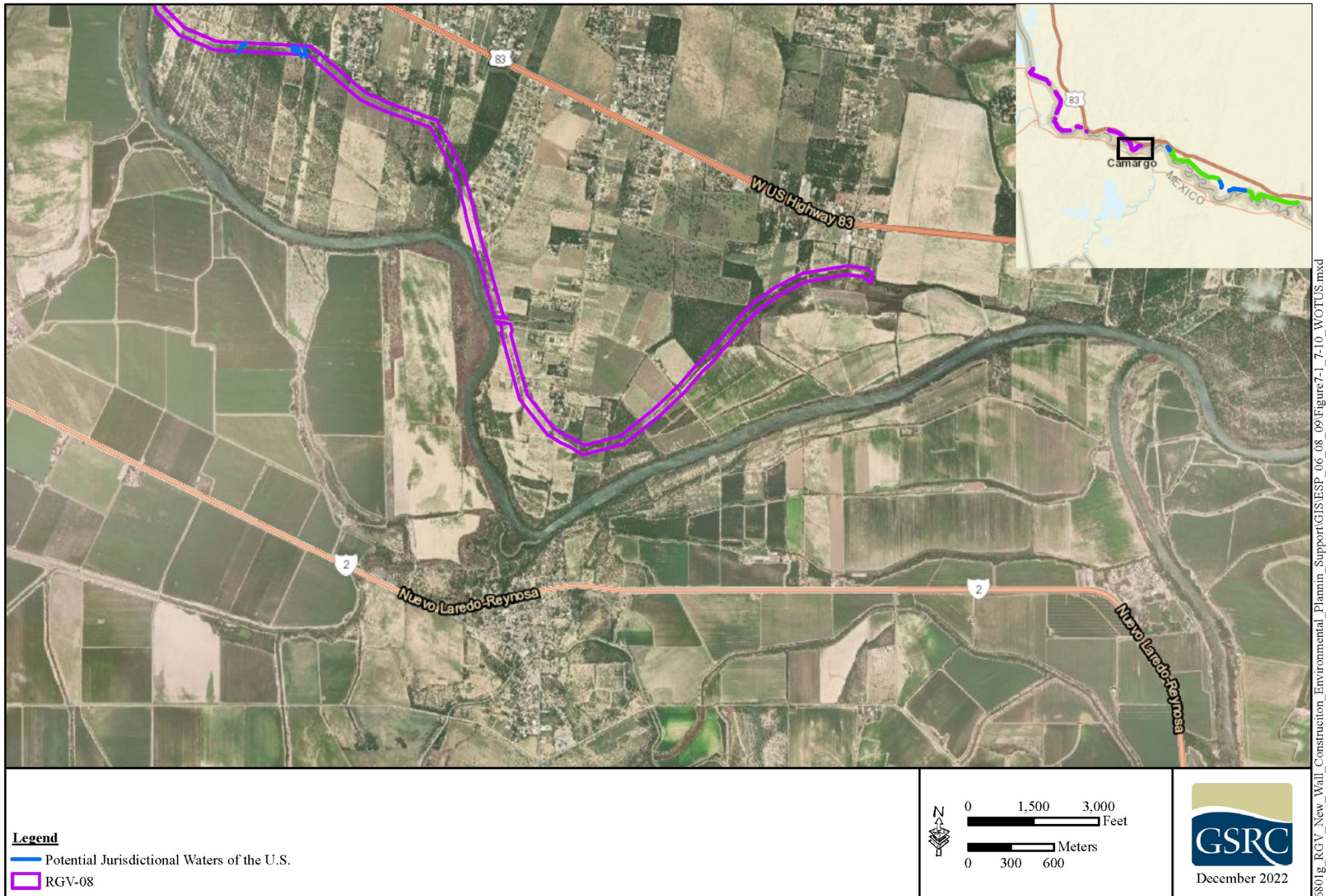


Figure 7-5. Waters of the U.S. Maps



Legend

- Sample Plots
- Potential Jurisdictional Waters of the U.S.
- ▨ Potential Other Waters
- ▭ RGV-06
- ▭ RGV-09



0 1,500 3,000 Feet
0 300 600 Meters



December 2022

Figure 7-6. Waters of the U.S. Maps

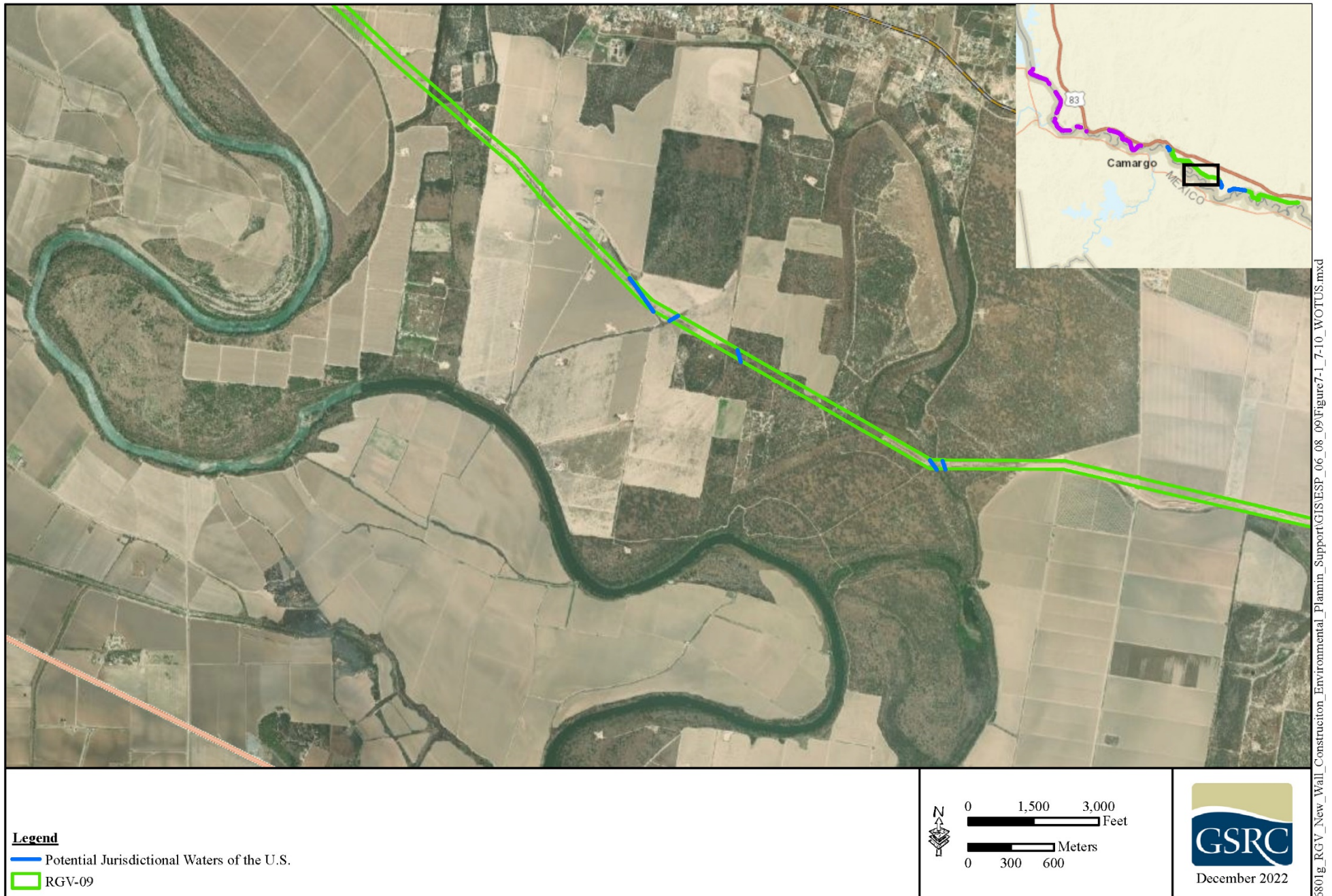


Figure 7-7. Waters of the U.S. Maps



Legend

- Potential Jurisdictional Waters of the U.S.
- RGV-06
- RGV-09

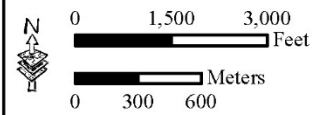


Figure 7-8. Waters of the U.S. Maps

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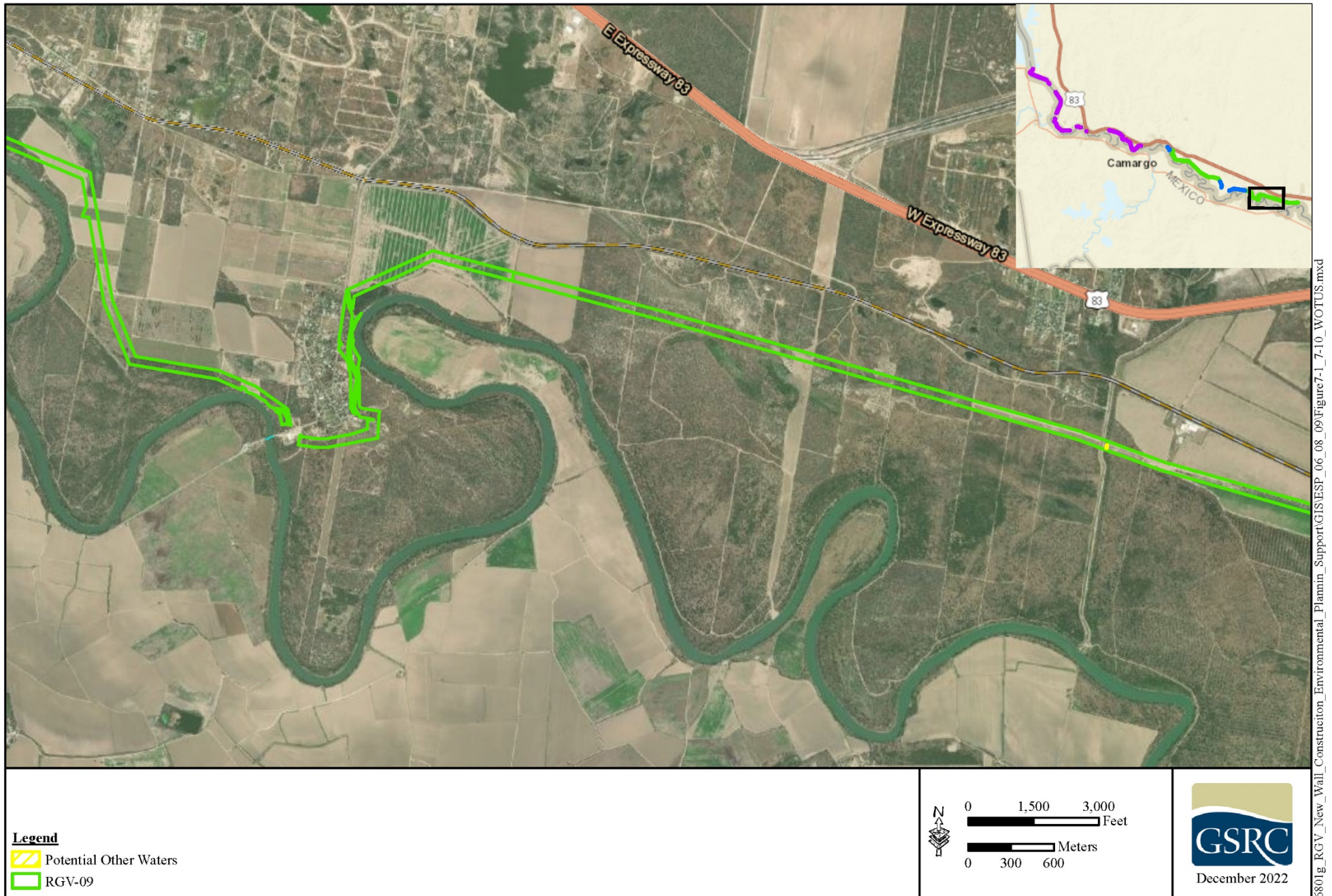


Figure 7-9. Waters of the U.S. Maps

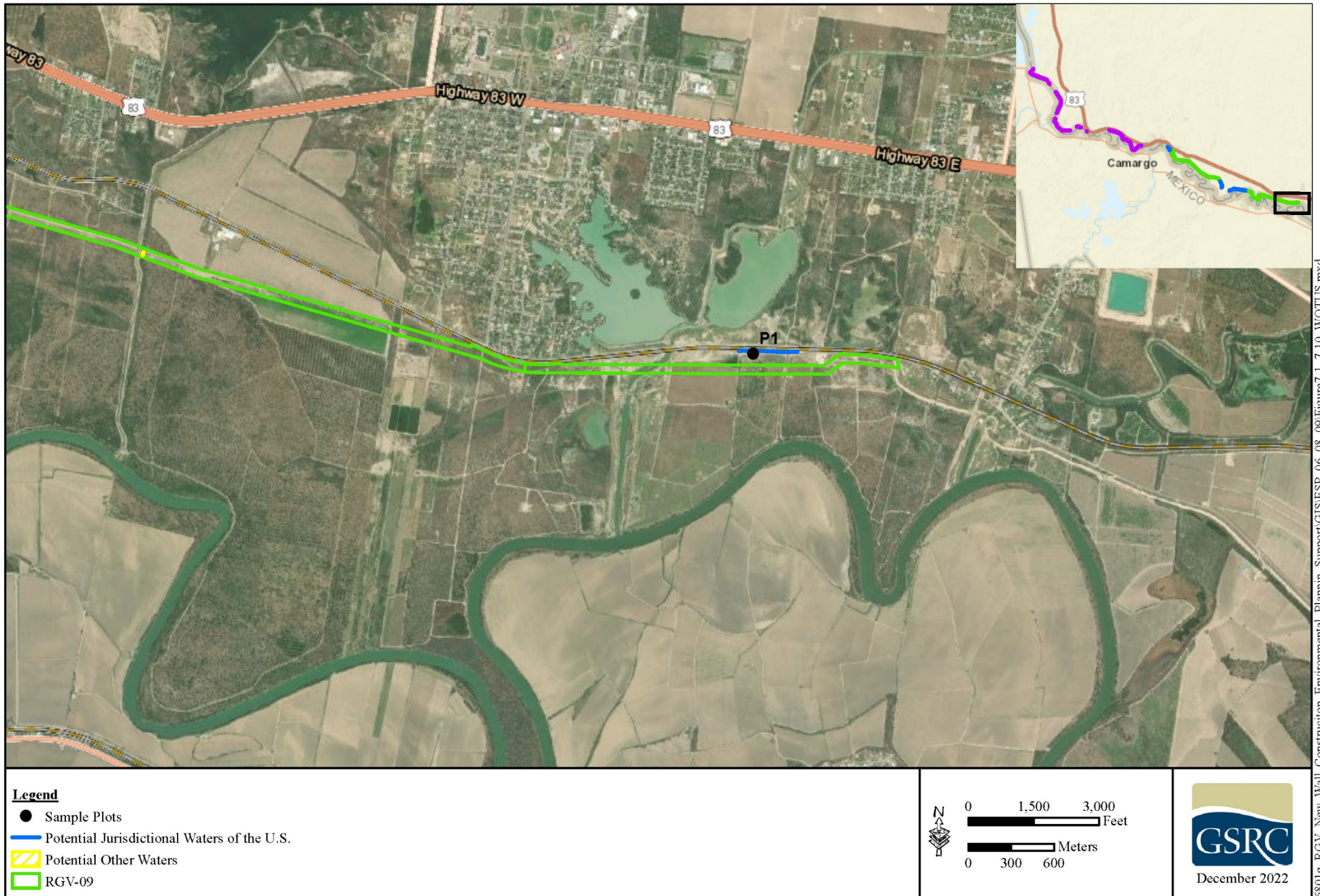


Figure 7-10. Waters of the U.S. Maps

7.1.4 Floodplains

A floodplain is the area adjacent to a river, creek, lake, stream, or other open waterway that is subject to flooding when there is a major rain event. Floodplains are further defined by the likelihood of a flood event. If an area is in the 100-year floodplain, there is a 1-in-100 chance in any given year that the area will flood. Federal Emergency Management Agency (FEMA) floodplain maps were reviewed to identify project locations within mapped floodplains (FEMA 2022). Approximately 593.9 acres of the Project corridor fall within Zone A of the FEMA floodplain. Zone A has a 1% annual chance of being flooded, and is otherwise known as the 100-year floodplain. FEMA floodplain maps are provided in Figures 7-11 to 7-20.

7.2 ENVIRONMENTAL CONSEQUENCES

CBP has applied the appropriate standards and guidelines associated with the CWA as the basis for evaluating potential environmental impacts.

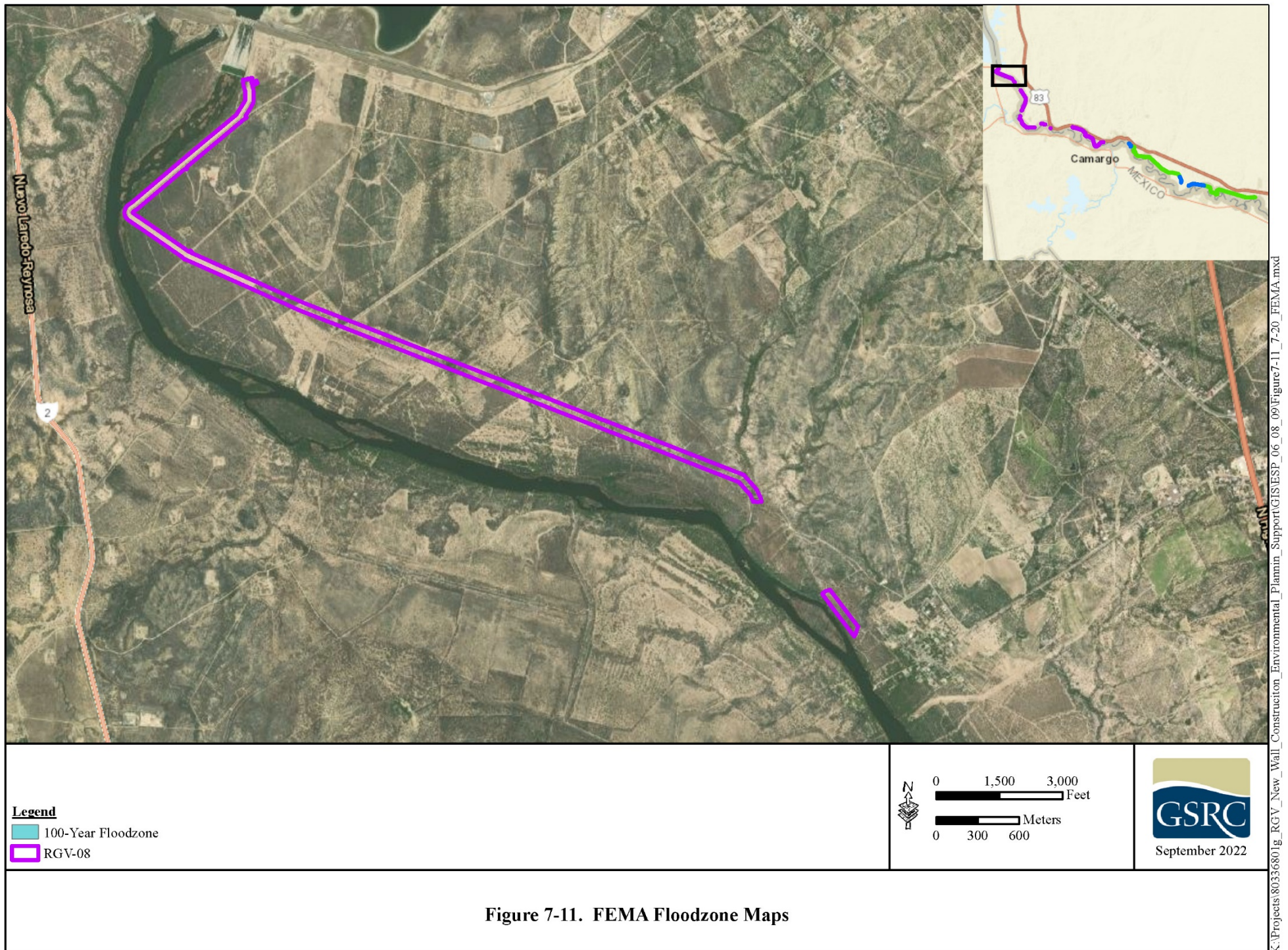
7.2.1 Groundwater

Groundwater is not a significant source of water within Hidalgo County or Starr County and is rarely used. The likelihood for groundwater contamination due to construction of the new bollard wall system will be negligible due to the implementation of a SPCCP and the natural filtration of soils overlying the aquifers in the Project corridor. Therefore, no impacts are expected on groundwater resources from the implementation of the Project.

7.2.2 Surface Water

Minor, temporary impacts on surface water will occur as a result of using water sourced from the Rio Grande for concrete and dust abatement. There could be temporary impacts on Waters of the U.S. if drainage structures within agricultural ditches need replacement. These actions will be covered under Section 404 of the CWA, Nationwide Permit 14 (linear transportation) and are considered to result in negligible impacts. To minimize impacts to potential Waters of the U.S., a SWPPP will be prepared by the contractor prior to construction and will be implemented with the other BMPs listed in Section 1.5.5.

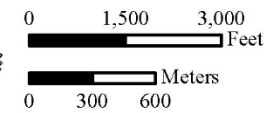
BMPs for the handling and storage of hazardous substances, such as fuel, lubricants, and hydraulic fluid during construction will be incorporated to minimize the potential for these substances to migrate to the adjacent area. An SPCCP will be in place prior to the start of construction, and all personnel will be briefed on the implementation and responsibilities of this plan. A more detailed description of the measures related to hazards and hazardous materials is found in Section 11 Hazardous Materials of this ESP.





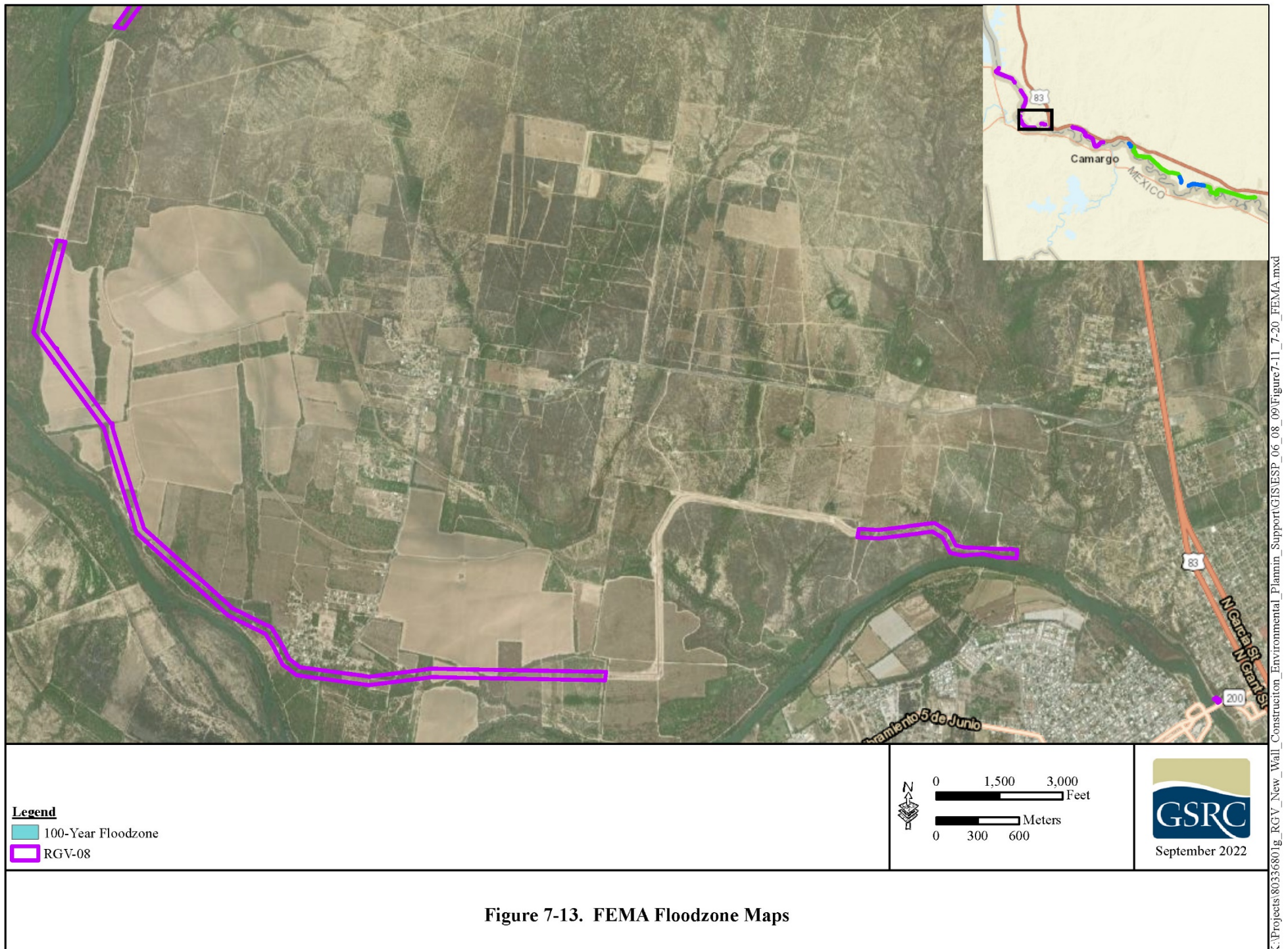
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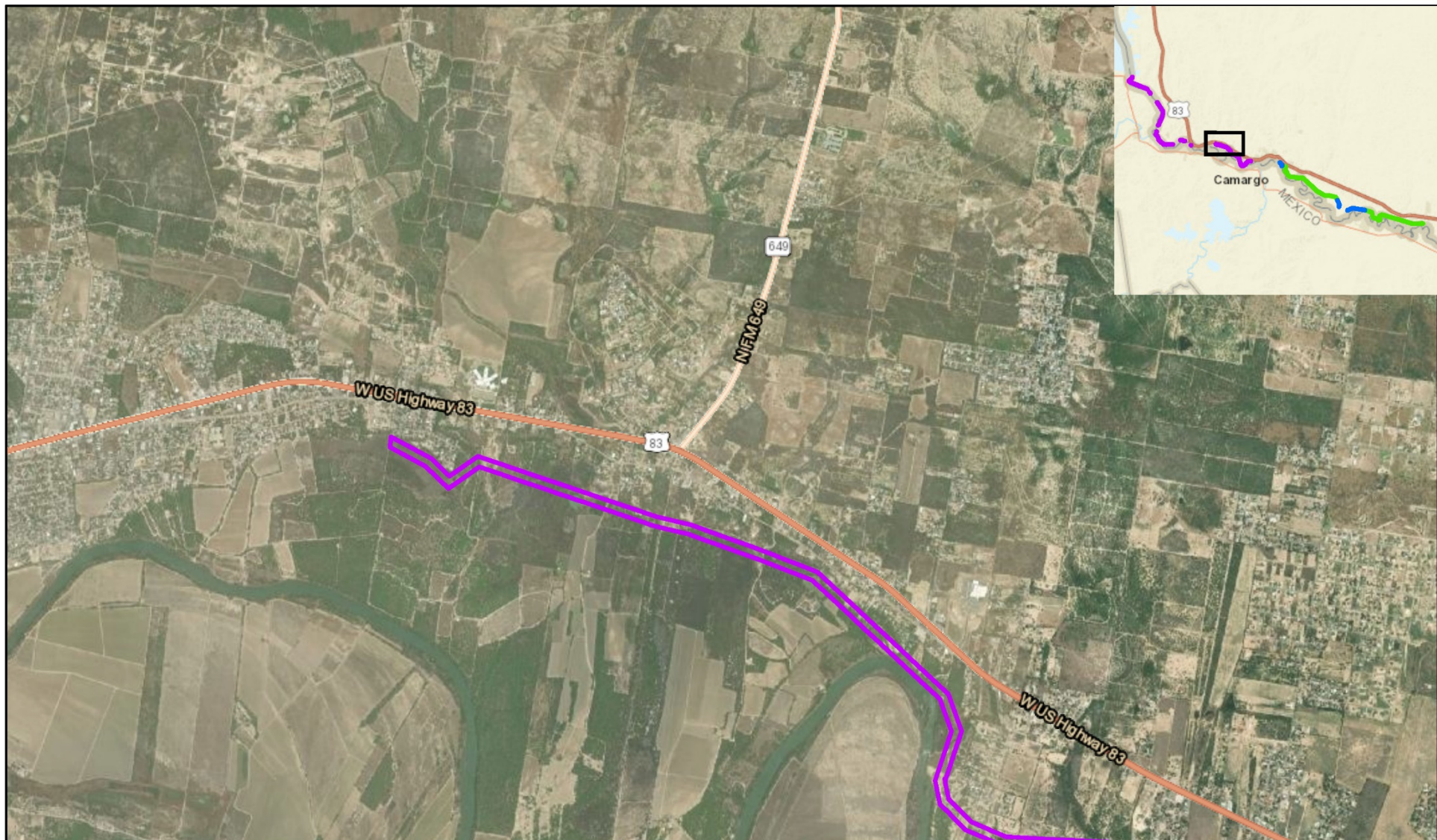
- 100-Year Floodzone
- RGV-08



September 2022

Figure 7-12. FEMA Floodzone Maps





Legend

- 100-Year Floodzone
- RGV-08

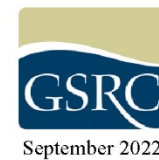
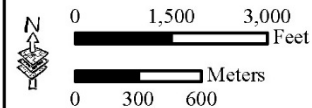
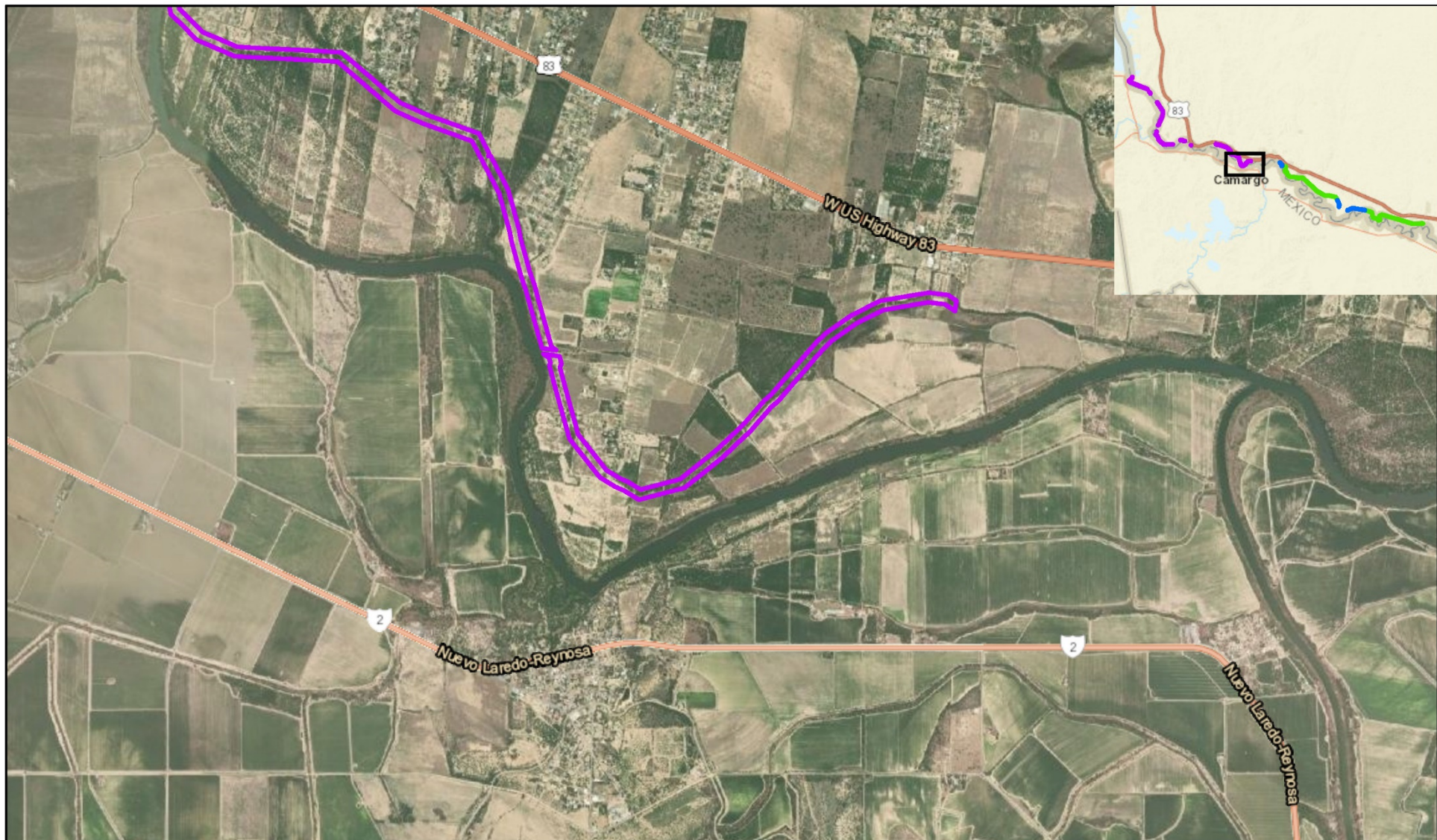


Figure 7-14. FEMA Floodzone Maps



Legend

- 100-Year Floodzone
- RGV-08

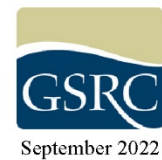
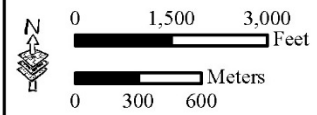


Figure 7-15. FEMA Floodzone Maps

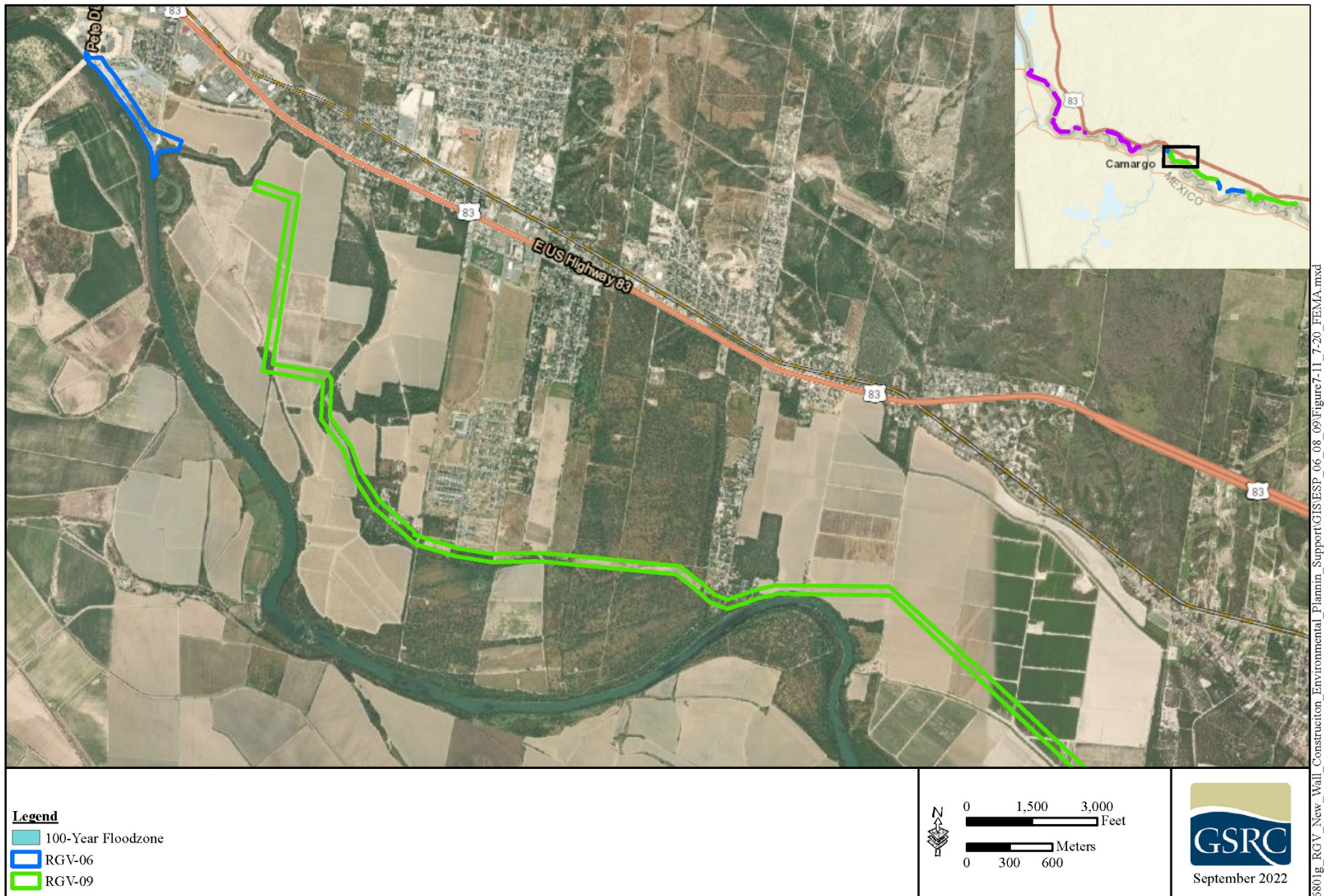


Figure 7-16. FEMA Floodzone Maps



Legend

- 100-Year Floodzone
- RGV-09



0 1,500 3,000 Feet
0 300 600 Meters



September 2022

Figure 7-17. FEMA Floodzone Maps



Legend

- 100-Year Floodzone
- RGV-06
- RGV-09

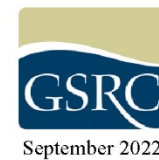
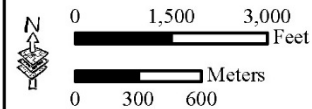
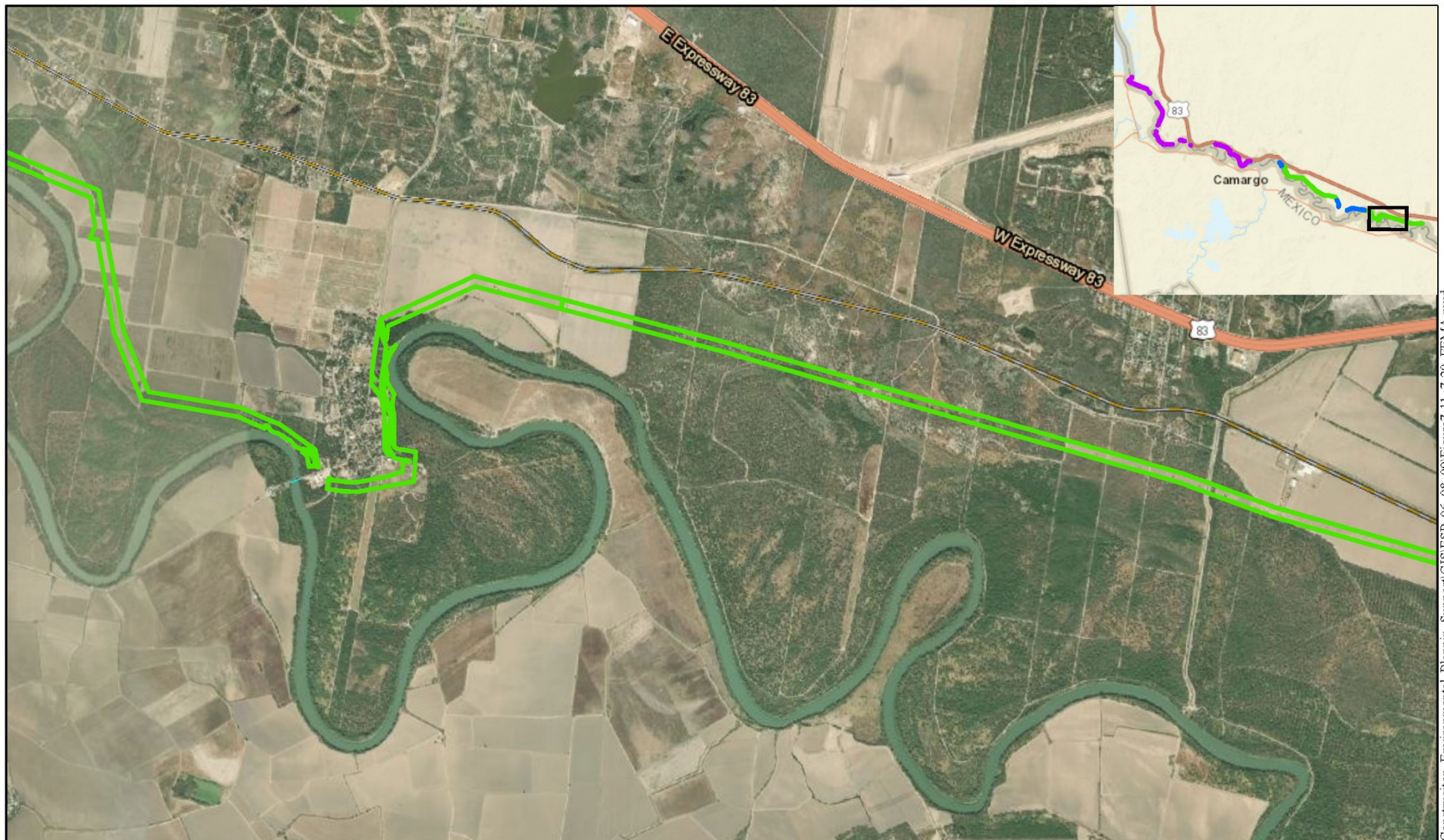


Figure 7-18. FEMA Floodzone Maps



Legend

RGV-09



0 1,500 3,000 Feet
0 300 600 Meters



September 2022

Figure 7-19. FEMA Floodzone Maps



Legend

RGV-09



0 1,500 3,000 Feet
0 300 600 Meters



September 2022

Figure 7-20. FEMA Floodzone Maps

7.2.3 Waters of the United States including Wetlands

As mentioned previously, there are approximately 0.4 acre of potentially jurisdictional wetlands and approximately 13,997.4 linear feet of potentially jurisdictional Waters of the U.S. within the Project corridor. These could be filled as part of the Project to create the enforcement zone resulting in long-term, minor impacts. Prior to any Waters of the U.S. being filled, CBP will attain a Section 404 permit from USACE. If these Waters of the U.S. are filled, mitigation would occur to prevent long-term, adverse impacts. Mitigation can be accomplished by creating a mitigation bank or through purchasing and assigning a conservation easement on other wetlands elsewhere. A conservation easement will ensure these lands remain wetlands in perpetuity.

7.2.4 Floodplains

The new bollard wall would not impede any flows or cause any backwater effects if the Rio Grande were to flood. The removal of trees and brush within the floodplain as a result of creating the enforcement zone could enhance flood flow capacity; however, these areas are intermittently scattered between agricultural and brushed areas within the Project corridor. As a result, the impact of tree and brush removal in the floodplain would long-term and negligible.

During the construction period, erosion, sedimentation, and accidental spills or leaks could have temporary and minor effects on the floodplain. However, with proper implementation of BMPs, as identified in the SWPPP and SPCCP prepared for the Project, these effects will be substantially reduced or eliminated. Therefore, the overall impact as a result of the Project will be short-term and minor.

8.0 BIOLOGICAL RESOURCES (VEGETATION, WILDLIFE, AQUATIC SPECIES, SPECIAL STATUS SPECIES)

8.1 AFFECTED ENVIRONMENT

8.1.1 Vegetation

The Project corridor is within the South Texas Plains Ecoregion as characterized by the TPWD (TPWD 2019a). The South Texas Plains Ecoregion is a diverse ecoregion because it has elements of three converging vegetative communities, Chihuahuan Desert to the west, Tamaulipan thornscrub and subtropical woodlands along the Rio Grande to the south, and coastal grasslands to the east. It is transected by numerous arroyos and streams and is generally covered in low-growing thorny vegetation (TPWD 2019a). The average temperature is 73 degrees Fahrenheit, with an average annual rainfall ranging from 16 inches in the east to 30 inches in the west.

Common tree species for the area includes pecan (*Carya illinoensis*), sugarberry (*Celtis laevigata*), anacua (*Ehretia anacua*), Texas ebony (*Pithecellobium flexicaule*), sabal palm (*Sabal palmetto*), black willow (*Salix nigra*), Texas persimmon (*Diospyros texana*), honey mesquite (*Prosopis glandulosa*), lotebush (*Ziziphus obtusifolia*), huisache (*Acacia farnesiana*), and Texas wild olive (*Cordia boissieri*).

Shrubs that are most common in this ecoregion include fiddlewood (*Citharexylum berlandieri*), desert yaupon (*Schaefferia cuneifolia*), Rio Grande abutilon (*Abutilon hypoleucum*), bee bush (*Aloysia gratissima*), agarita (*Mahonia trifoliolata*), American beauty-berry (*Callicarpa americana*), lantana (*Lantana urticoides*), cenizo (*Leucophyllum frutescens*), Turk's cap (*Malvaviscus drummondii*), rose pavonia (*Pavonia lasiopetala*), and autumn sage (*Salvia greggii*).

Common vines, grasses, and wildflowers according to the TPWD are marsh's pipevine (*Aristolochic* sp.), old man's beard (*Clematis drummondii*), sideoats grama (*Bouteloua curtipendula*), slender grama (*Bouteloua repens*), buffalograss (*Buchloe dactyloides*), inland sea-oats (*Chasmanthium latifolium*), plains lovegrass (*Eragrostis intermedia*), little bluestem (*Schizachyrium scoparium*), heartleaf hibiscus (*Hibiscus matianus*), scarlet sage (*Salvia coccinea*), red prickly poppy (*Argemone sanguinea*), and purple phacelia (*Phacelia bipinnatifida*) (TPWD 2019a).

A complete list of floral species observed during the biological survey of the RGV-06, 08, & 09 corridor is included in Appendix D.

8.1.2 Wildlife and Aquatic Resources

The Project corridor is within the Southwest Plateau and Plains Dry Steppe and Shrub Province. Common mammals within this province include white-tailed deer (*Odocoileus virginianus*), Mexican ground squirrel (*Spermophilus mexicanus*), fox squirrel (*Sciurus niger*), ringtail (*Bassariscus astutus*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), collared peccary (*Pecari tajacu*), striped skunk (*Mephitis mephitis*), nine-banded armadillo (*Dasypus novemcinctus*), eastern cottontail (*Sylvilagus*

floridanus), desert cottontail (*Sylvilagus audubonii*), fulvous harvest mouse (*Reithrodontomys fulvescens*), hispid cotton rat (*Sigmodon hispidus*), and Gulf Coast kangaroo rat (*Dipodomys compactus*) (TPWD 2019b).

Bird species are especially abundant in this region as the Central and Mississippi flyways converge in south Texas. In addition to the Neotropical migrants that migrate through the region in the spring and fall, this area is also the northernmost extent for many Central American species. Approximately 500 avian species, including Neotropical migrants, shorebirds, raptors, and waterfowl can occur in south Texas. Common birds that frequent south Texas include least grebe (*Tachybaptus dominicus*), plain chachalaca (*Ortalis vetula*), red-billed pigeon (*Patagioenas flavirostris*), white-tipped dove (*Leptotila verreauxi*), green parakeet (*Aratinga holochlora*), groove-billed ani (*Crotophaga sulcirostris*), common pauraque (*Nyctidromus albicollis*), buff-bellied hummingbird (*Amazilia yucatanensis*), ringed kingfisher (*Ceryle torquata*), green kingfisher (*Chloroceryle americana*), brown-crested flycatcher (*Myiarchus tyrannulus*), great kiskadee (*Pitangus sulphuratus*), tropical kingbird (*Tyrannus melancholicus*), Couch's kingbird (*Tyrannus couchii*), green jay (*Cyanocorax yncas*), brown jay (*Cyanocorax morio*), Tamaulipas crow (*Corvus imparatus*), cave swallow (*Petrochelidon fulva*), clay-colored robin (*Turdus grayi*), long-billed thrasher (*Toxostoma longirostre*), white-collared seedeater (*Sporophila torqueola*), olive sparrow (*Arremonops rufivirgatus*), Altamira oriole (*Icterus gularis*), and Audubon's oriole (*Icterus graduacauda*) (TPWD 2019b).

Common reptiles and amphibians include the blue spiny lizard (*Sceloporus serrifer*), Laredo striped whiptail (*Aspidoceles laredoensis*), prairie racerunner (*Aspidoceles sexlineata viridis*), Texas spiny softshell turtle (*Apalone spinifera emoryi*), Rio Grande cooter (*Pseudemys gorzugi*), Rio Grande leopard frog (*Lithobates berlandieri*), Rio Grande chirping frog (*Eleutherodactylus cystignathoides*), Gulf Coast toad (*Incilius nebulifer*), and the giant (marine) toad (*Rhinella marina*) (TPWD 2019b).

A list of wildlife observed during biological surveys is included in Appendix E.

8.1.3 Protected Species and Critical Habitat

8.1.3.1 Federally Listed Species

A total of 10 federally listed endangered or threatened species and one candidate species (monarch butterfly [*Danaus plexippus*]) have the potential to occur within the Project corridor (USFWS 2022). Two species (prostrate milkweed [*Asclepias prostrata*] and Zapata bladderpod [*Physaria thamnophila*]) have designated Critical Habitat which overlaps with the Project Corridor. A list of federally threatened and endangered species within the Project Corridor is presented in Table 8-1.

Table 8-1. Federally Listed Threatened and Endangered Species with Potential to Occur Within the Project Corridor, Their Status, and Critical Habitat Designation

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur in the Project Corridor
Mammals				
Gulf Coast jaguarundi	<i>Herpailurus yagouaroundi cacomitli</i>	Endangered	None	Yes, but not likely; no confirmed sightings in Texas in over 30 years
Ocelot	<i>Leopardus pardalis</i>	Endangered	None	Yes, but not likely; no known populations in the area
Birds				
Piping plover	<i>Charadrius melodus</i>	Threatened	Yes; Outside of Project Corridor	No; suitable habitat not present
Red knot	<i>Calidris canutus rufa</i>	Threatened	Proposed	No; suitable habitat not present
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	Endangered	None	Yes
Insects				
Monarch butterfly	<i>Danaus plexippus</i>	Candidate	None	Yes
Flowering Plants				
Ashy dogweed	<i>Thymophylla tephroleuca</i>	Endangered	None	No
Star cactus	<i>Astrophytum asterias</i>	Endangered	None	Yes
Texas ayenia	<i>Ayenia limitaris</i>	Endangered	None	Yes
Walker's manioc	<i>Manihot walkerae</i>	Endangered	None	No
Zapata bladderpod	<i>Physaria thamnophila</i>	Endangered	Yes; Within Project Corridor	Yes; populations observed in RGV-08

Source: USFWS 2022

Biological surveys of the proposed Project corridor were conducted by GSRC between July and December 2019. These investigations included surveys for all federally and state-listed species potentially occurring at or near the Project corridor and an assessment of suitable habitat for those species. During the investigations, one large (500-600 individuals) and two small populations (20 and 5 individuals) of federally endangered Zapata bladderpod were observed (Figure 8-1). Three state-listed species, Texas horned lizard (*Phrynosoma cornutum*), Texas indigo snake (*Drymarchon melanurus erebennus*), and Texas tortoise (*Gopherus berlandieri*), were observed in the Project Corridor.

Federally listed species with the potential to occur in or adjacent to the Project corridor are discussed below.

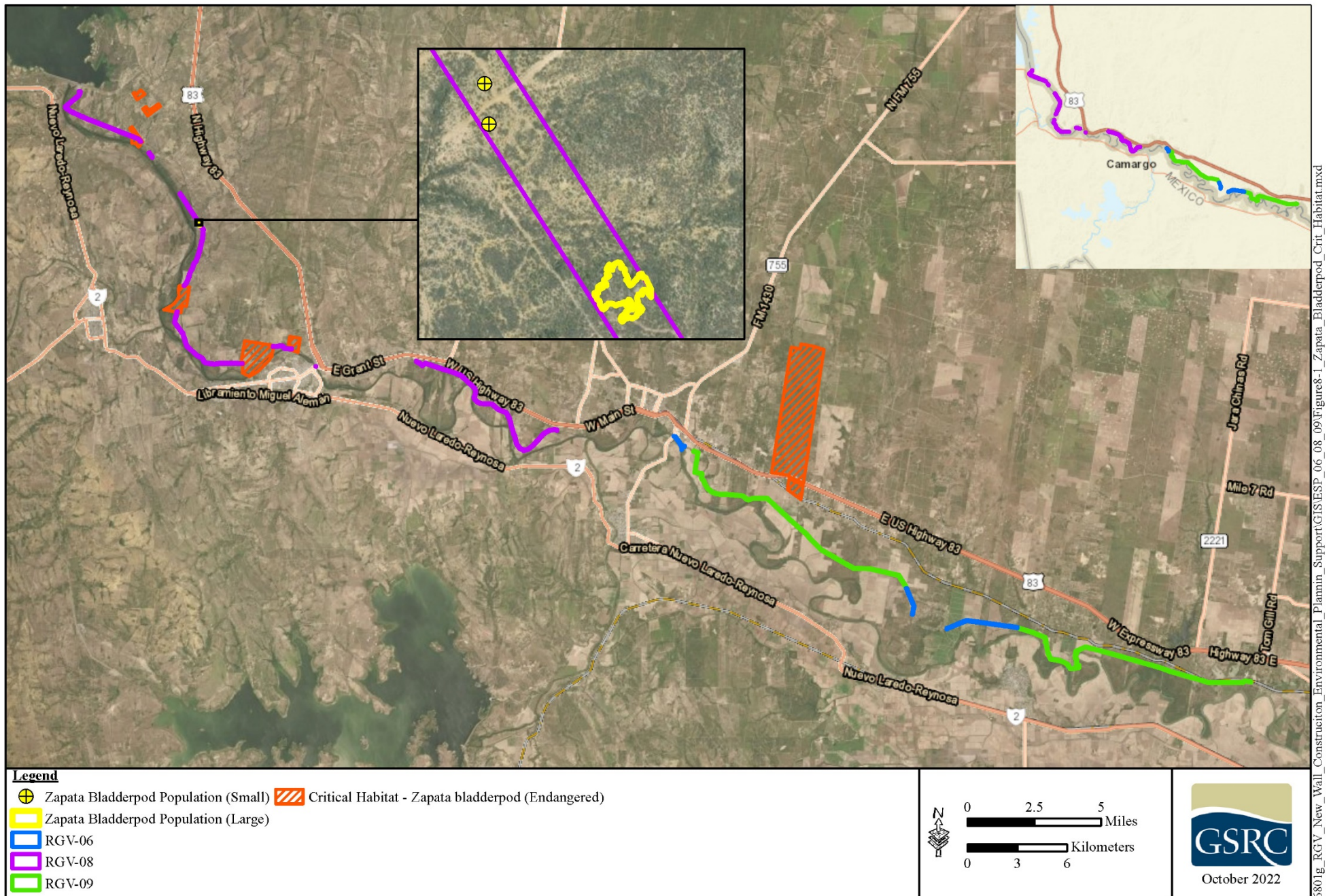


Figure 8-1: Zapata Bladderpod Critical Habitat and Known Populations Within the Project Corridor

Ocelot and Gulf Coast Jaguarundi

The ocelot (*Leopardus pardalis*) population in Texas is believed to be comprised of fewer than 50 individuals, composing two separate populations in south Texas. The Laguna Atascosa National Wildlife Refuge supports one of these populations, and the other population occurs on private ranches in Willacy and Kenedy counties (USFWS 2010). Individuals occurring in Texas outside these areas are occasionally observed, but are likely wandering or released, and not part of a breeding population. A third population of ocelot occurs in Tamaulipas, Mexico, but is geographically isolated from ocelots in Texas. Genetic evidence shows little or no recent breeding occurs between the Texas and Mexico populations (USFWS 2010).

The Gulf Coast jaguarundi (*Herpailurus yagouaroundi cacomitli*) is listed as endangered throughout its range where it was historically distributed from the Lower Rio Grande Valley in southern Texas into the eastern portion of Mexico in the States of Coahuila, Nuevo Leon, Tamaulipas, San Luis Potosi, and Veracruz (USFWS 1990a). They prefer dense, concealing vegetation for hunting and travel corridors between larger habitat areas. Little information is available on the population status of jaguarundi in Texas. The historic range of the Gulf Coast jaguarundi includes Starr County, although there have been no confirmed sightings in Texas in over three decades (USFWS 1990a).

Both the ocelot and the Gulf Coast jaguarundi face similar threats and occupy similar habitat types. There are far fewer recent sightings of Gulf Coast jaguarundi than there are of ocelots, and little information is available on the population status of Gulf Coast jaguarundi in Texas. Existing habitat patches are often isolated by roads or expanses of inadequate habitat that do not offer protective cover or concealment. There are multiple references of road kills of these species in the literature (USFWS 1990a, 2010). Ocelots and Gulf Coast jaguarundi prefer dense, concealing vegetation for hunting, and travel corridors between larger habitat areas. Clearing of land for agricultural practices and urbanization has destroyed over 95 percent of their historic habitat in south Texas (USFWS 2010). No ocelots or Gulf Coast jaguarundi were identified during biological surveys, and no Critical Habitat has been designated for this species (CBP 2021).

Northern Aplomado Falcon

The northern aplomado falcon (*Falco femoralis septentrionalis*) is a subspecies of the aplomado falcon and is the only subspecies on record in the United States. Its historic range extended from portions of the Trans-Pecos Texas south to Nicaragua (USFWS 1990b). The essential habitat elements for this species appear to be open terrain with scattered trees, relatively low ground cover, an abundance of insects and small to medium-sized birds, and appropriate nest sites (e.g., abandoned stick platform nests of corvids and other raptors). Reintroductions of this species in Texas began in 1993 and productivity studies indicate that northern aplomado falcons are successfully nesting in the Brownsville and Matagorda areas of Texas (USFWS 2014). No northern aplomado falcons were identified during biological surveys, and no Critical Habitat is currently designated for this species (CBP 2021).

Star Cactus

Star cactus (*Astrophytum asterias*) is typically associated with low shrubs, grasses, and salt-tolerant plants on xeric upland sites (USFWS 2013). The species occurs on gravelly clay or loam soils that typically contain high levels of gypsum, salt, or other alkaline minerals. Historically, star cactus was found in Starr, Hidalgo, and Zapata counties in southern Texas; currently there are no known populations within Starr or Hidalgo counties (TPWD 2020). A large portion of suitable habitat has been lost to pasture, urban, and residential development. In addition, the species is incompatible with non-native competitive grasses, primarily buffelgrass (*Cenchrus ciliaris*) (USFWS 2013). The USFWS lists protection of star cactus habitat as a major action needed for its recovery (USFWS 2003). No individuals of star cactus were identified during site surveys, and no Critical Habitat has been designated for the species (CBP 2021).

Texas Ayenia

Texas ayenia (*Ayenia limitaris*) is a shrub that occurs in well drained soils within subtropical Tamaulipan shrublands and thorn forests in south Texas and northeast Mexico (USFWS 2016). Texas ayenia was listed as federally endangered in 1994 and state endangered in 1997, and no Critical Habitat has been designated for this species. Five populations ranging from 100 to 1,000 individuals have been documented in Starr, Hidalgo, and Willacy counties. Several populations are protected at the Lower Rio Grande Valley National Wildlife Refuge (LRGV NWR), Estero Llano Grande State Park (Hidalgo County), and C. B. Wood County Park (Starr County). The range of Texas ayenia is restricted by aridity to the west, freezing weather to the north, and higher elevations to the south. Major threats to this species include habitat loss and alteration due to development, lack of wildfires, and competition with invasive grasses, particularly guinea grass (*Urochloa maxima*) (USFWS 2016). No individuals of Texas ayenia were identified during biological surveys (CBP 2021).

Zapata Bladderpod

Zapata bladderpod is a perennial branched forb that is associated with undisturbed calcareous, loamy soils and typically occurs beneath a canopy. The species occurs with other Tamaulipan thornscrub species found within the Project Corridor, such as blackbrush acacia (*Vachellia rigidula*), sangre de drago (*Jatropha dioica*), horse crippler cactus (*Echinocactus texensis*), and Texas prickly pear (*Opuntia engelmannii*), and is threatened by buffelgrass invasion and habitat loss. Zapata bladderpod is known to have high spatial and temporal variation in their populations and are dependent on precipitation (USFWS 2015).

Critical Habitat for Zapata bladderpod has been designated in both the Los Negros Creek to Este Road Segment and the Salineño Wildlife Preserve to Falcon Dam Segment (USFWS 2022). A large population of this species containing 500-600 individuals as well as two smaller populations of 20 and 5 individuals, respectively, were identified on September 18, 2019 in the Los Negros Creek to Este Road Segment within the Project Corridor (see Figure 8-1).

8.2 ENVIRONMENTAL CONSEQUENCES

8.2.1 Vegetation

The Project will have permanent, minor impacts on approximately 467 acres of vegetation communities within the Project corridor. The species observed during the biological surveys are common to Hidalgo and Starr Counties and the bollard wall system would not adversely affect the population viability of any vegetative species in the region.

Permanent impacts will be associated with the enforcement zone and the clearing and grubbing of vegetation within the zone. Beneficial impacts on the enforcement zone may occur as the area will have all non-native species removed and will be revegetated with native grasses and maintained and mowed; therefore, the areas will remain vegetated, but in an altered state.

Staging areas will be within the cleared enforcement zone and revegetated similarly to the rest of the enforcement zone upon completion of construction activities. General BMPs to minimize soil disturbance and erosion will be implemented. The anticipated reduction in illegal border foot traffic could potentially have a slight beneficial impact on vegetation communities in the region by reducing the trash/debris, trampling of vegetation, and creation of trails.

8.2.2 Wildlife and Aquatic Resources

The permanent loss of approximately 467 acres of potential wildlife habitat would have a long-term, minor impact on wildlife. Soil disturbance and operation of heavy equipment could result in the direct loss of less mobile individuals such as lizards, snakes, and ground-dwelling species such as mice and rats. However, most wildlife would avoid any direct harm by escaping to surrounding habitat. The direct degradation and loss of habitat could also impact burrows and nests, as well as cover, forage, and other important wildlife resources. The loss of these resources would result in the displacement of individuals that would then be forced to compete with other wildlife for the remaining resources. Although this competition for resources could result in a reduction of total population size, such a reduction would be minor in relation to total population size and would not result in long-term effects on the sustainability of any wildlife species. The wildlife habitat present in the Project corridor is regionally common and the permanent loss of approximately 1,118 acres of wildlife habitat would not adversely affect the population viability or fecundity of any wildlife species in the region. Upon completion of construction, all temporary disturbance areas and the enforcement zone would be revegetated with a mixture of native plant seeds and would be mowed and maintained.

The MBTA requires that federal agencies coordinate with USFWS if a construction activity would result in the “take” of a migratory bird. In accordance with compliance measures of the MBTA, BMPs identified in Section 1.5.6 would be implemented if construction or clearing activities were scheduled during the nesting season (typically March 15 to September 15).

Lighting would attract or repel various wildlife species within the vicinity of the Project corridor. The presence of lights within the Project corridor could also produce some long-term behavioral effects on wildlife, although the magnitude of these effects is not presently known. Some species, such as insectivorous bats, might benefit from the concentration of insects that would be attracted to the lights. Continual exposure to light has been proven to alter circadian rhythms in

mammals and birds. Studies have demonstrated that under constant light, the time an animal is active, compared with the time it is at rest, increases in diurnal animals, but decreases in nocturnal animals (Carpenter and Grossberg 1984). Outdoor lighting can disturb flight, navigation, vision, migration, dispersal, oviposition, mating, feeding and crypsis in some moths. In addition, it could disturb circadian rhythms and photoperiodism (Frank et al. 1988). It has also been shown that, within several weeks under constant lighting, mammals and birds would quickly stabilize and reset their circadian rhythms back to their original schedules (Carpenter and Grossberg 1984).

While the number of lights throughout the new bollard wall system is not presently known, artificial lighting spread throughout the 39.87-mile-long Project corridor would not significantly disrupt activities of wildlife populations across the region since similar habitat is readily available to the north, east, west and south for wildlife relocation. Finally, construction activities would be limited primarily to daylight hours whenever possible; therefore, construction impacts on wildlife would be insignificant since the highest period of movement for most wildlife species occurs during night hours or low daylight hours.

Periodic noise from construction activities and subsequent operational activities would have moderate and intermittent impacts on the wildlife communities adjacent to the Project corridor. However, because similar habitat is readily available, wildlife would easily relocate.

8.2.3 Protected Species and Critical Habitat

CBP has applied the appropriate standards and guidelines associated with the Endangered Species Act (ESA) as the basis for evaluating potential environmental impacts on protected species and Critical Habitat. Of the ten federally protected species listed in the Project Corridor within Hidalgo and Starr Counties, six have the potential to occur in the Project corridor (see Table 8-1).

Tamaulipan brushland is the preferred habitat of the ocelot and jaguarundi for hunting and traveling. While some areas of Tamaulipan brushland may be removed during the Project, this habitat is regionally common throughout Hidalgo and Starr Counties. As a result, the Project will result in a negligible to minor, long-term adverse effect to the ocelot and jaguarundi.

Northern aplomado falcon have the potential to be present within the Project Corridor. As the preferred habitat of the northern Aplomado falcon is regionally common in Hidalgo and Starr Counties, the Project will result in a negligible to minor, long-term adverse effect.

No impacts on star cactus would occur as this species does not occur within habitat associated with the Project corridor.

Texas ayenia is found in Tamaulipan brushland; however, no individuals were observed during biological surveys. As Tamaulipan brushland is regionally common throughout Hidalgo and Starr Counties, the effect of the Project on Texas ayenia will be negligible to minor.

Long-term, moderate adverse effects on Zapata bladderpod would occur as multiple populations of the species were identified during biological surveys of the Project corridor. Additionally, Critical Habitat for Zapata bladderpod is found within approximately 13.1 acres of the RGV-08 corridor. BMPs to limit the impact of construction activities on this species (e.g., biological monitor present at all times during construction, relocation of species whenever possible) will be implemented. Any new construction activities occurring within this portion of the Project Corridor would likely have an adverse effect on these populations (CBP 2021).

The Project could have a minor to moderate impact on state-listed species (e.g., Texas horned lizard, Texas indigo snake, Texas tortoise) that occur in the Project corridor. BMPs will be implemented to minimize the impact on these species resulting from the proposed Project.

9.0 CULTURAL RESOURCES

9.1 AFFECTED ENVIRONMENT

The Project corridor is within the south Texas archaeological region. The prehistoric cultural chronology of south Texas archaeological region is split into six broad periods: Paleoindian, Early Archaic, Middle Archaic, Late Archaic, Late Prehistoric, and Protohistoric (Perttula 2004). A detailed cultural history for the area can be found in Hester (1980) and Hester (2004).

The predominance of the archaeological research in these areas has been contract work focused on compliance with Section 106 of the National Historic Preservation Act. Previously conducted archaeological investigations, and recorded cultural resources, particularly those that overlap the Project corridor, are discussed below by survey segment. As a result of adjustments made to the Project corridor following field survey events, portions of RGV-08 and RGV-09 were not surveyed. Figures 9-1 through 9-8 indicate portions of the Project corridor that were not surveyed for cultural resources.

RGV-06

Twelve previously conducted archaeological investigations are on record with the *Texas Archaeological Sites Atlas* within a 0.8-kilometer (km) (0.5-mile [mi]) radius of the RGV-06 survey area (THC 2020). None of the previously conducted archaeological investigations overlap with the RGV-06 corridor.

Previously recorded cultural resources within a 0.5-mi (0.8-km) radius of the RGV-06 survey area, include four archaeological sites (41SR65, 41SR142, 41SR182, and 41SR457), seven cemeteries (Ayala St. Cemetery, Ruben Solis Cemetery, Cantu Cemetery, Longoria Cemetery, an Unknown Cemetery along S Hwy 83, North Los Olmos Cemetery and newly recorded South Los Olmos Cemetery), and one National Register of Historic Places (NRHP)-listed district (Fort Ringgold Historic District). During the survey, two previously undocumented historic architectural structures, the Rio Grande City-Camargo International Bridge and the Building at International Bridge P. Diaz were identified. Both of these historic structures overlap with the RGV-06 corridor. The Rio Grande City-Camargo International Bridge and the Building at International Bridge P. Diaz were constructed in the 1960s and serve as a crossing point for the international border between the U.S. and Mexico.

RGV-08

Within a 0.5-mi (0.8-km) radius of the RGV-08 survey area, there are a total of 61 previously conducted archaeological investigations that are either mapped or on record with THC and GSRC's archives (THC 2020). Fifteen of the 61 previously conducted archaeological investigations overlap with the RGV-08 corridor (Atlas Nos. 8400009453, 8400009454, 8400009456, 8400009457, 8500000556, 8500000557, 8500000563, 8500000564, 8500000565, 8500009850, 8500009854, 8500080826, 8500080827, and 8500015978).

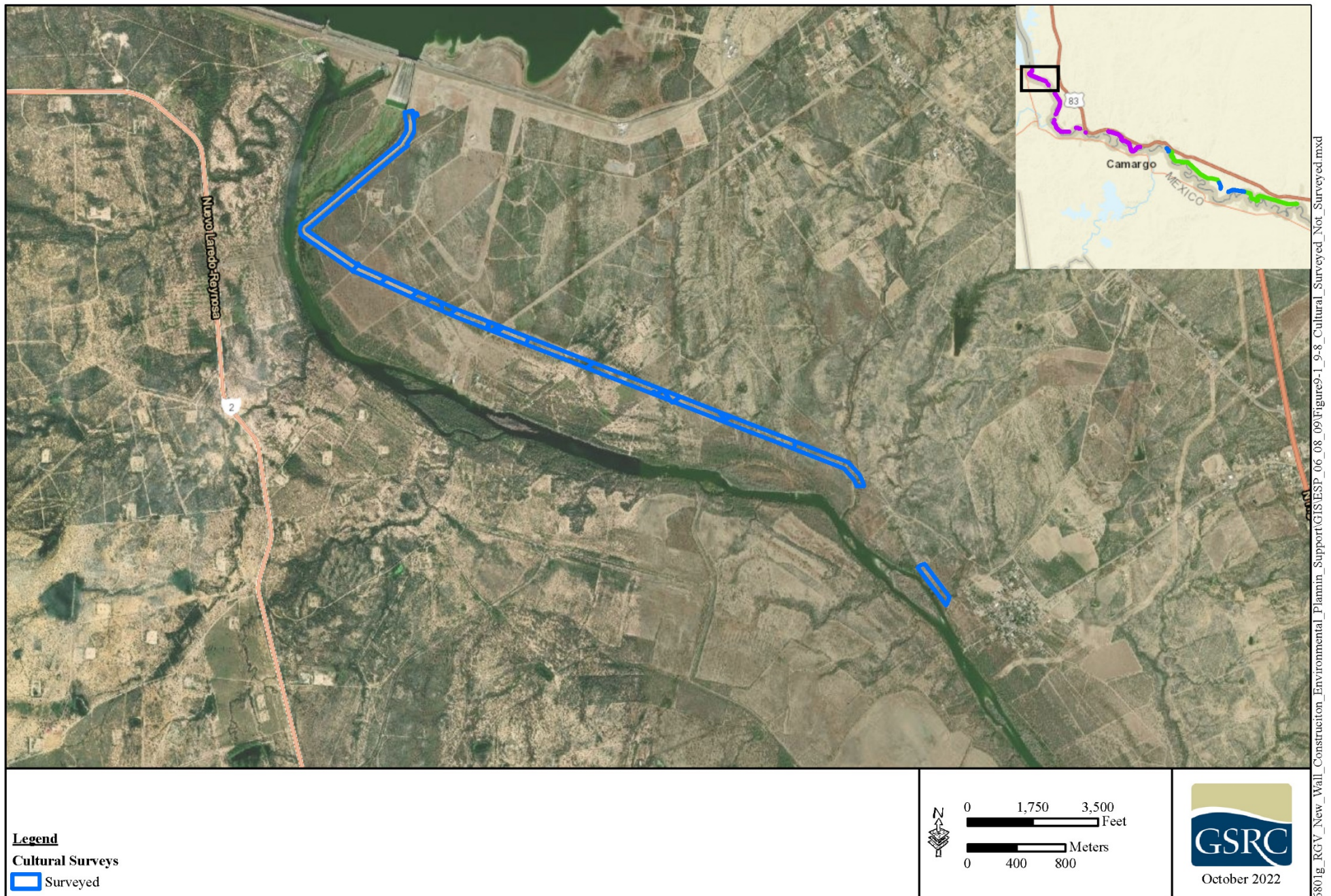
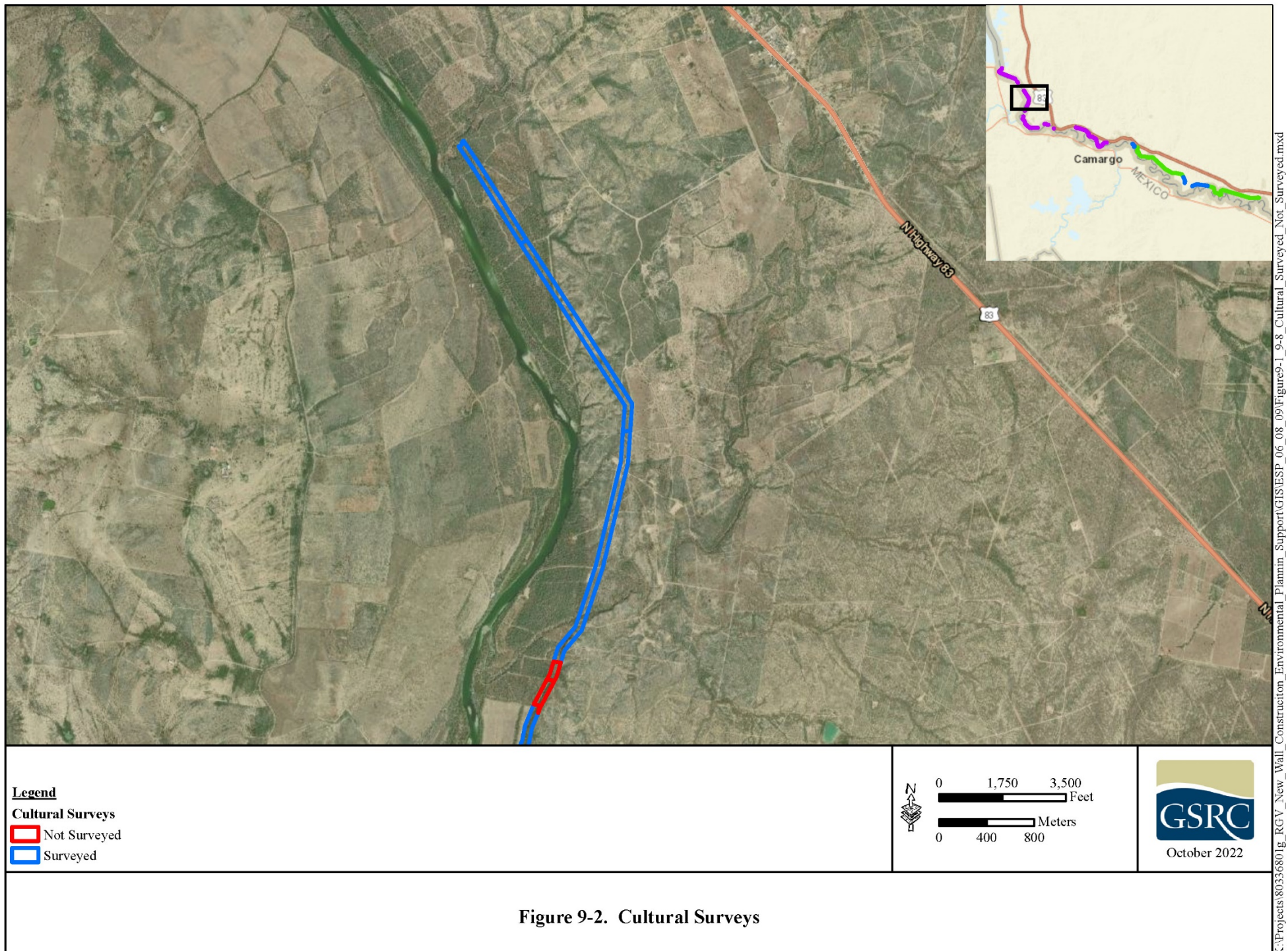


Figure 9-1. Cultural Surveys



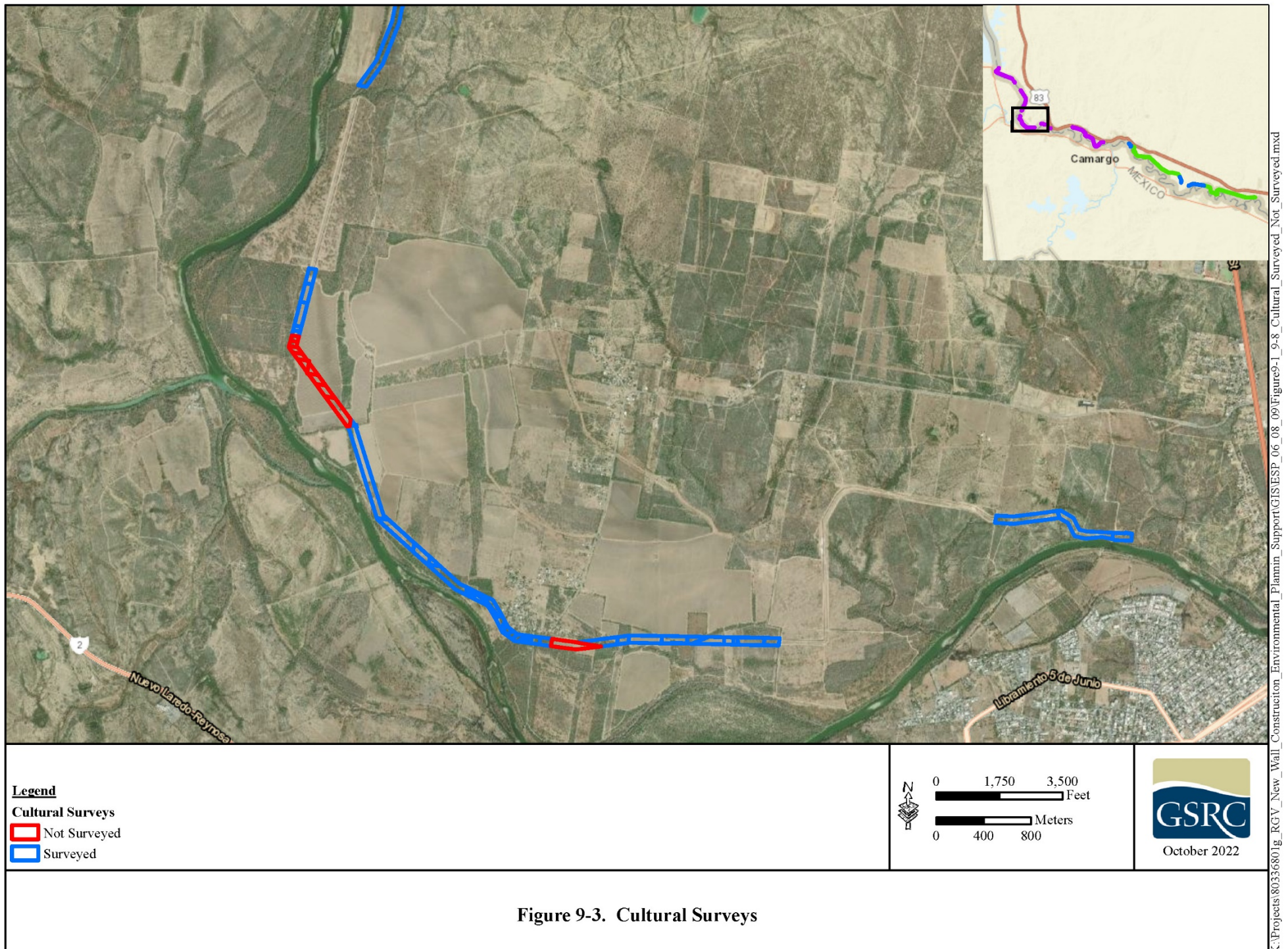




Figure 9-4. Cultural Surveys

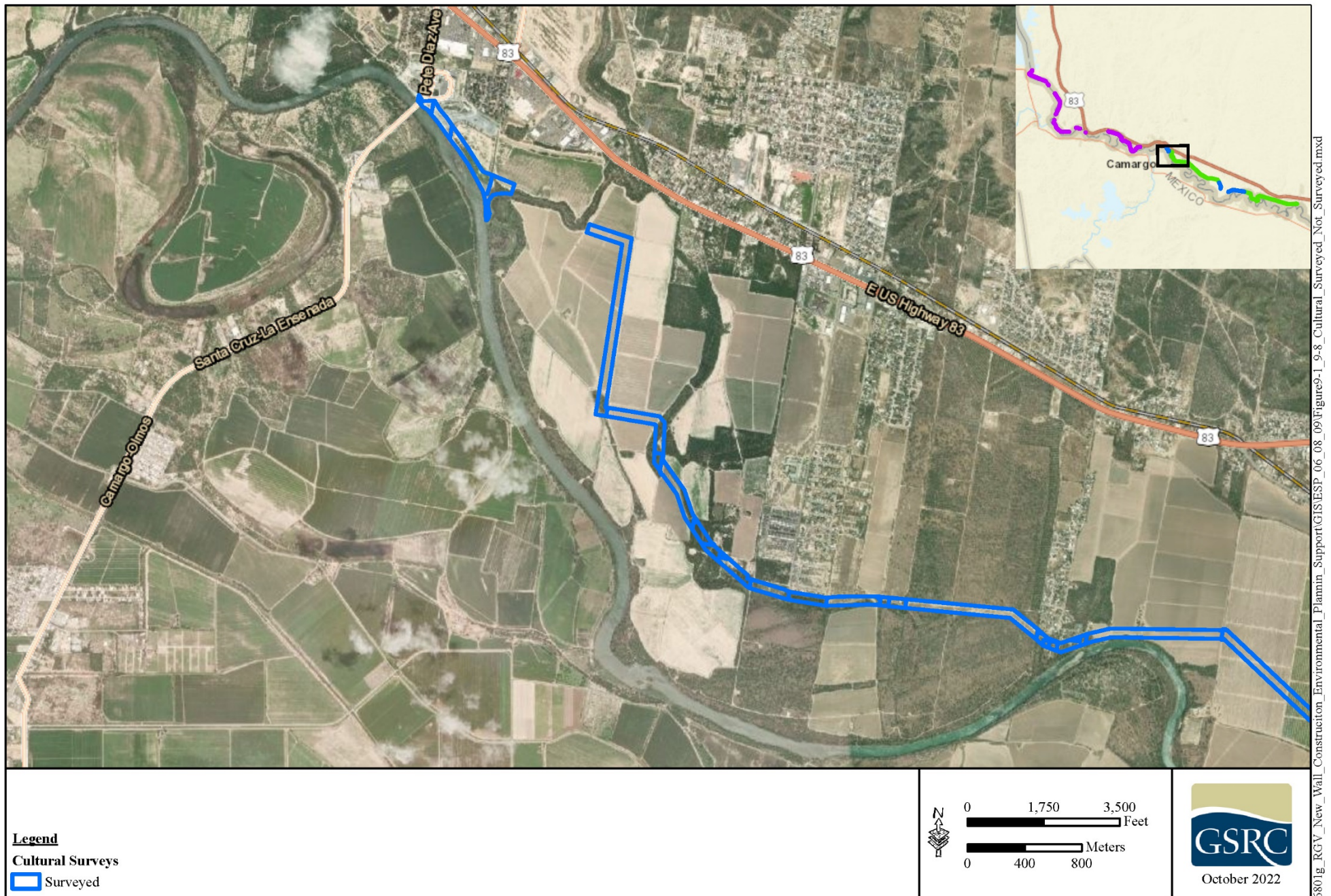
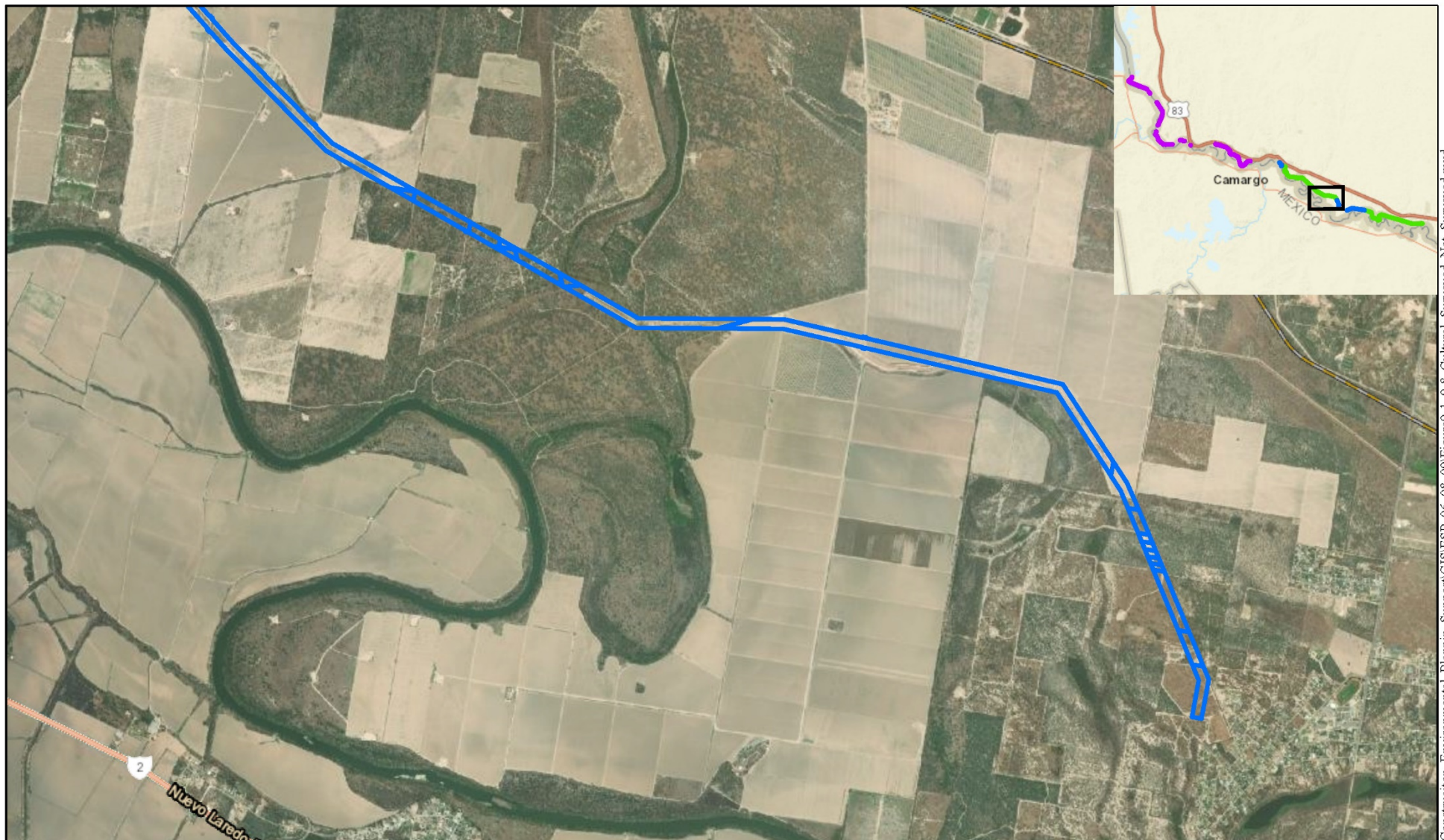


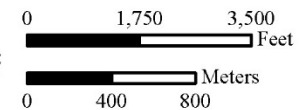
Figure 9-5. Cultural Surveys



Legend

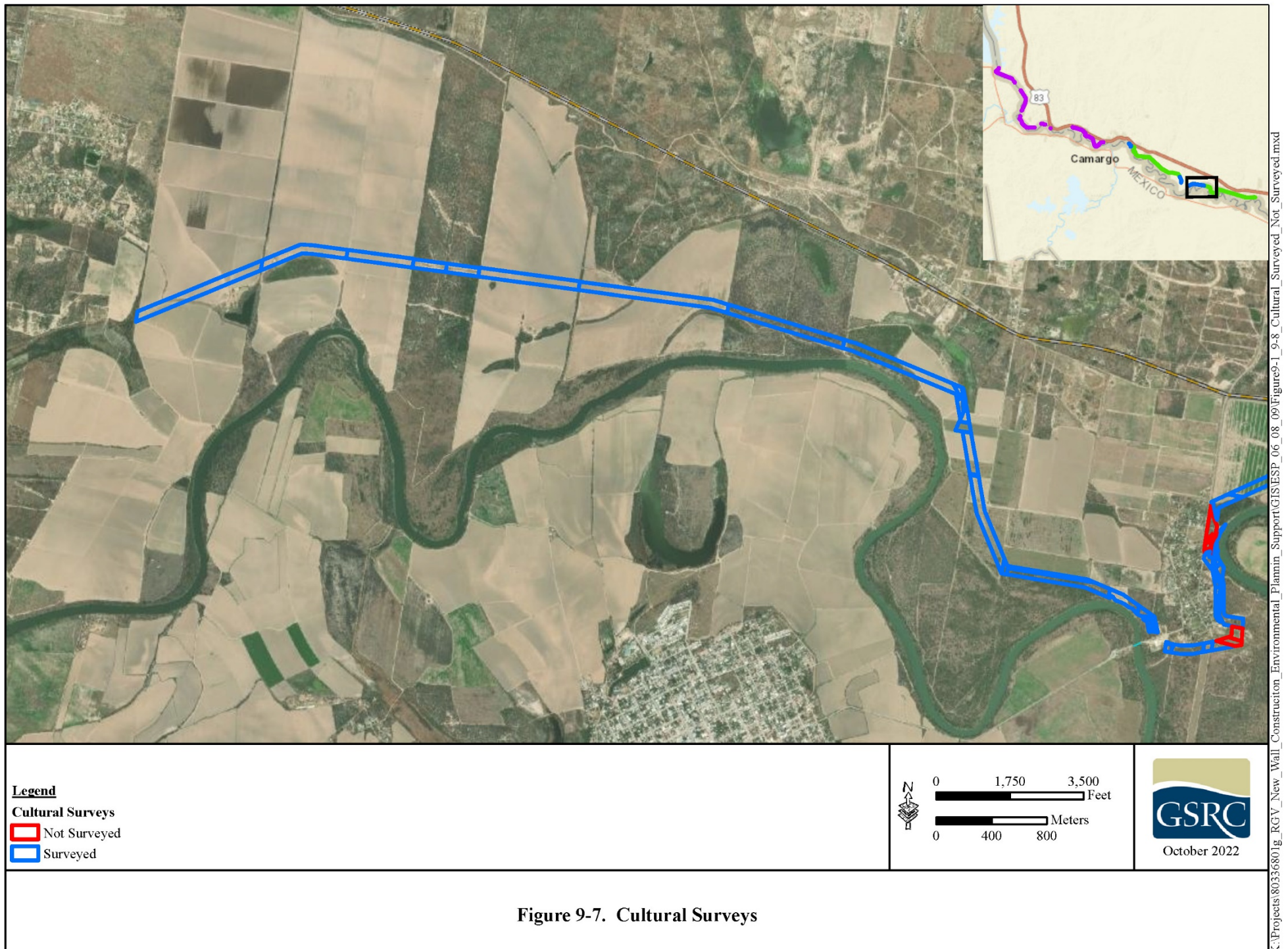
Cultural Surveys

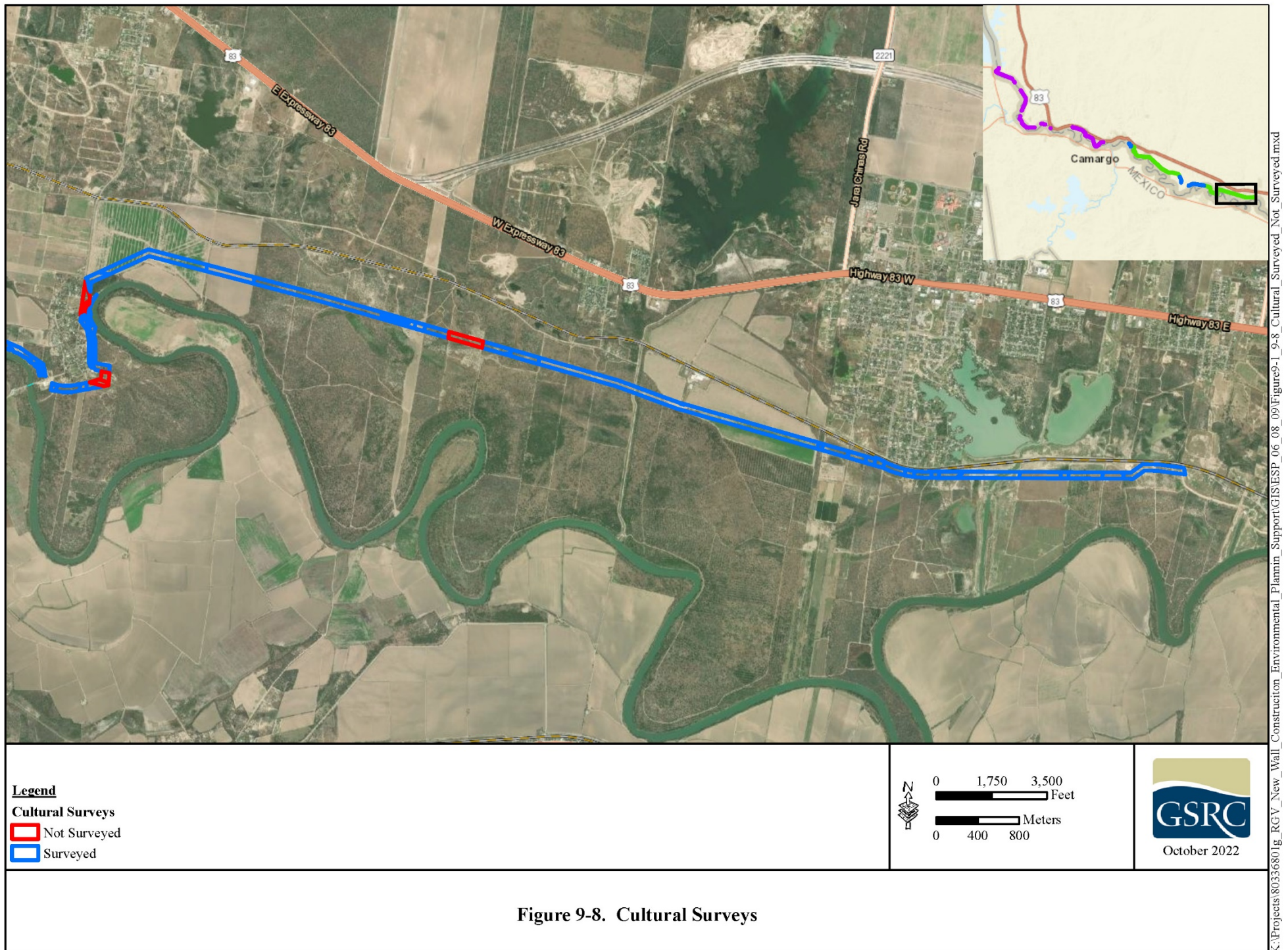
Surveyed



October 2022

Figure 9-6. Cultural Surveys





One of the investigations (Lindemuth and Frederick 2020) is on record in GSRC archives, but has not been assigned an Atlas number or mapped within the *Texas Archaeological Sites Atlas*. Four of the previous surveys (Atlas Nos. 8400009453, 8400009454, 8400009456, and 8400009457) were conducted in 1999 for the TWDB; however, no further information other than the survey location is provided. Five of the previous surveys (Atlas Nos. 8500000556, 8500000557, 8500000563, 8500000564, 8500000565), conducted in 1976 for the General Land Office, are likely associated with the Rio Grande-Falcon Thorn Woodland Project of the same year, edited by Don Kennard. Two surveys (8500009850 and 8500009854) were conducted in 1997 under TAC permit numbers 1934 and 1779, on behalf of the TWDB in association with a number of other surveys in support of water line and wastewater treatment system improvements. There were no sites overlapping with the Project corridor that were associated with these project numbers. In 2018, a survey (8500080826) was completed by Nicholas Billstrand on behalf of CBP within a portion of a Middle Archaic-Prehistoric site 41SR403. The entire portion was considered ineligible for the NRHP within the ROW and no further work was recommended. In 2018, John Lindemuth performed eligibility testing (8500080827) at six archaeological sites within the RGV Sector AOR on behalf of CBP. Only one of these sites (41SR403) overlapped with the Project corridor, but was considered ineligible for the NRHP and no further work was recommended. A survey (8500015978) was conducted in 2009 by Brazos Valley Research Associates on behalf of the Rio Water Supply Corporation in support of the Water Treatment Plant Project in Starr County, Texas. There were no cultural resources recorded as a result of this investigation.

Within the 0.5-mi (0.8-km) buffer radius of the RGV-08 survey area, there have been 81 documented historic resources. Those include 61 archaeological sites, eight cemeteries, eight Official Texas Historical Markers (OTHM)s, one NRHP-listed district, one NRHP-eligible district, one designated National Historic Landmark (NHL), and one NRHP-listed structure. Only nine of the archaeological sites (41SR270, 41SR271, 41SR272, 41SR281, 41SR293, 41SR392, 41SR403, 41SR473, 41SR484) and the NRHP-listed district overlap with the Project corridor. Of these nine sites, one was recorded as historic (41SR271), three were multicomponent sites (41SR272, 41SR293, and 41SR473), and five were prehistoric sites (41SR270, 41SR281, 41SR392, 41SR403, and 41SR484).

Site 41SR271 was recorded as a Spanish Colonial site in 1975 by THC archaeologist Nancy O'Malley. Records on the Texas Atlas site are sparse, but it is noted that the site was approximately 100 square meters and consisted of a scatter of lithic debris as well as historic Mexican ware, Anglo ware, and Indian ware. There was no further investigation recommended for this site and no further details available.

Site 41SR272 was initially recorded by THC archaeologist Nancy O'Malley in 1975. It is currently defined as a prehistoric repeated short-term occupation campsite with features and an extensive surface scatter of prehistoric artifacts along with an intrusive scatter of historic artifacts. The site measures 27,129 square meters across several remnant landforms across a broad area with deposits over a meter below ground surface. Deposits consist of stone tools, historic ceramics, glass, metal, and brick. The lithic materials suggest an early Archaic occupation while the historic material appears to indicate a turn of the century deposition ranging from the mid-19th century to present.

Site 41SR293 was recorded as a multicomponent site by THC archaeologist Nancy O'Malley in 1975. The site measured approximately 15,000 square meters and consisted of a small rancho settlement of five houses dated to the 19th century. Artifacts included prehistoric lithic tools and debris as well as historic ceramics, glass, and metal artifacts. Prehistoric cultural material was interpreted as a camp site. The historic material identified was associated with the Spanish Colonial settlement known as Casas Blancas which dated from 1776 to 1894.

Site 41SR473 was recorded by John Lindemuth on behalf of CBP in 2019 for the Rio Grande City Road Improvement Project. The site measured 43,623 square meters on a broad terrace situated between two drainages with artifact deposition more than a meter below ground surface. It consisted of a prehistoric repeated short-term occupation campsite with features and an extensive surface scatter of prehistoric artifacts as well as a historic scatter. Deposits consisted of stone tools, prehistoric and historic ceramics, glass, metal, and brick. Prehistoric cultural material seemed to indicate a Middle Archaic to Late Prehistoric occupation with a later deposition of historic material from the late 19th century. Eligibility testing conducted by GSRC recovered a density of diagnostic artifacts in a small portion of the site which was recommended as eligible for the NRHP.

Site 41SR270 was initially recorded in 1975 by THC archaeologist Nancy O'Malley. It was determined that this site represented a short-term, repeated use open campsite that was occupied from some point in the Middle Archaic to the Late Prehistoric period. Artifacts included lithic tools and debitage as well as faunal shell material.

Site 41SR281 was initially recorded in 1975 by THC archaeologist Nancy O'Malley as a prehistoric campsite. The site was relocated by GSRC in 2020 during a revisit to adjacent site 41SR283. During this revisit, it was determined that the two sites should be merged together due to a continual surface scatter of cultural material between the two sites. Artifacts consisted of stone tools dating from the Middle Archaic to the Late Prehistoric as well as lithic debris and a small amount of intrusive historic glass and ceramic material.

Site 41SR392 was initially recorded in 2007 by Michael Church on behalf of the DHS in support of the Lower Rio Grande Valley Border Fence Project. It was located on a terrace overlooking the Rio Grande and defined as a prehistoric campsite consisting of stone tools and lithic debitage as well as an intrusive recent historic element.

Site 41SR403 was identified in 2015 by Eric Cox on behalf of CBP. The site is located on a relatively high ridge above a tributary of the Rio Grande and was defined as a prehistoric campsite with a lithic procurement and reduction element. Artifact deposits included lithic tools and debris, thermally altered rock, and faunal shell material. Diagnostic stone tools suggest a broad temporal range from the Middle Archaic to the Late Prehistoric.

Site 41SR484 was recorded in 2019 by John Lindemuth on behalf of CBP in support of the Rio Grande City Road Improvement. The site is located on the Rio Grande floodplain and was defined as a multicomponent scatter of non-diagnostic prehistoric and historic artifacts. Artifacts consisted of stone tools and lithic debitage as well as historic ceramic and glass.

Roma Historic District is a NRHP-listed district as well as a NHL. It is a fifteen-block area located on a bluff above the Rio Grande that contains significant extant examples of Lower Rio Grande building techniques from the 18th century traditions of Northern Mexico. Numerous resources contribute to the district including OTHMs Knights of Columbus Hall marker and the First Roma Chapel marker as well as the Memorial Hospital and Manuel Guerra Store marker.

RGV-09

Seventeen previously conducted archaeological investigations are within a 0.5-mi (0.8-km) radius of the RGV-09 survey area. Nine of the previously conducted archaeological investigations (Atlas Nos. 8400012835, 8500000499, 8500009368, 8500009370, 8500011302, 8500014026, 8500033753, 8500080150, and 8100015816) overlap with the RGV-09 corridor (THC 2020). A 2014 survey was conducted by David Dechambre on behalf of CBP, but no further details are available. A 1979 survey for the Farmers Home Administration was recorded with no further information. Two surveys were conducted in 1999 on behalf of the TWDB in support of water line projects. There were no sites associated with these projects. A 2006 reconnaissance survey was conducted by Brandon S. Young and Mark D. Willis with Blanton and Associates for the USFWS. No further information is provided other than location and a note that the reconnaissance locations were approximate. The following year, a 2007 survey was conducted by Sergio A. Iruegas with GTI Environmental, Inc. for the TWDB. The investigation was an intensive archaeological survey of the City of La Joya's Wastewater Outfall Pipeline Project. The project consisted of the construction of a 334-meter-long pipeline to drain wastewater into the Rio Grande as well as a new water treatment plant constructed on two tracts of land measuring 12 and 16 acres. No cultural resources were recorded as a result of the investigation. A 2013 survey was conducted by Michael Quigg of TRC companies Inc. for the Federal Energy Regulatory Commission on a proposed natural gas pipeline facility for NET Mexico Pipeline Partners, LLC. No cultural resources were recorded during the investigation. A 2017 survey was conducted by David Dechambre on behalf of CBP in support of a boat ramp and access road. A 2011 report by James Gallison details backhoe trench excavations along the Rio Grande in addition to two data recovery excavations at Sites 41SR392 and 41HG218. These excavations resulted in both sites being recommended as eligible for the NRHP.

Within the 0.5-mi (0.8-km) radius of the RGV-09 survey area, there are 19 archaeological sites, six cemeteries, and one OTHM. Only six of the archaeological sites (41SR372, 41SR373, 41HG207, 41HG218, 41HG236, and 41HG259) overlap with the Project corridor. Site 41SR372 was recorded in 2006 by Blanton & Associates, Inc., as a multicomponent site known as the Santo Domingo Rancho, a ranch site with four structural remnants as well as prehistoric lithic artifacts scattered on surface. Site 41SR373 was initially recorded in 2005 by Blanton & Associates, Inc., as a prehistoric artifact scatter along a terrace of the Rio Grande. The site measured 457 meters by 117 meters in size and consisted of artifacts which included lithic debitage, faunal material, and thermally altered rock. Site 41HG207 was initially recorded in 2007 by David Kilby. The site is a multicomponent artifact scatter defined as an open-air campsite and lithic reduction site with an intrusive historic trash dump element dating from the mid-19th century to present. Site 41HG218 was recorded in 2008 by Michael Church as a Middle Archaic Period lithic artifact scatter with both surface and subsurface elements. The site was located on an alluvial terrace above the Rio Grande and measured 45 meters by 20 meters with artifacts consisting of lithic debitage and tools as well as historic ceramic and glass. Site

41HG236 was recorded in 2008 by David Kilby as an unknown prehistoric artifact scatter with both surface and subsurface components. The site was located on an upper terrace north of the Rio Grande and measured 60 meters by 30 meters with artifacts including lithic tools and debitage as well as a limited amount of modern domestic and architectural debris such as glass, ceramic, wire nails, and tiles. Site 41HG259 was recorded in 2015 by John Lindemuth as a multicomponent site consisting of two occupations including a prehistoric open campsite and a historic farmstead. The site measured 2,229 square meters with artifact scatters consisting of lithic tools and debitage as well as historic ceramics, glass, metal, and brick.

9.2 ENVIRONMENTAL CONSEQUENCES

During the intensive archaeological survey of the three survey segments, RGV-06, RGV-08, and RGV-09, there have been 21 new isolated occurrences (IOs) as well as 22 new archaeological sites identified (RGV-08-16, RGV-08-08, RGV-08-12, RGV-08-01, RGV-08-03, RGV-08-04, RGV-08-05, RGV-08-13, RGV-08-14, RGV-08-15, RGV-08-18, RGV-08-22, RGV-09-18, RGV-09-01, RGV-09-02, RGV-09-08, RGV-09-09, RGV-09-16, RGV-09-17, RGV-09-19, RGV-09-24, RGV-09-25). Nine previously recorded archaeological sites have been relocated and updated (41SR270, 41SR272, 41SR283, 41SR293, 41SR403, 41SR473, 41SR372, 41SR373, and 41HG259). Survey and assessment has been carried out for both physical and visual impacts to 33 historic resources including NHLs, NRHP-listed properties, NRHP-listed districts, NRHP-eligible districts, OTHMs, and cemeteries.

Within the RGV-06 Project corridor, no new archaeological sites or IOs were recorded. Within the RGV-06 Project corridor visual Area of Potential Effect (APE), eight historic resources were recorded. Those historic resources included seven cemeteries, two newly recorded historic architectural structures, and one NRHP-listed historic district. Adverse visual impacts are anticipated to five of the historic resources within RGV-06 (four historic cemeteries and one newly recorded historic architectural structure).

Within the RGV-08 Project corridor, six previously recorded archaeological sites were relocated and updated, 12 new archaeological sites were recorded, and four IOs were recorded. Of the archaeological sites updated and recorded within the RGV-08 Project corridor, nine were recommended for additional testing with six found to be eligible for the NRHP and recommended for data recovery excavations. The remaining 12 archaeological sites and four IOs have either been determined or recommended to be ineligible for the NRHP. A total of 20 historic resources were recorded within the RGV-08 Project corridor visual APE which includes one NRHP-eligible historic district, one NRHP-listed district, one designated NHL, one NRHP listed structure, eight OTHMs, and eight cemeteries. Of the OTHMs within the visual APE, seven are designated as Recorded Texas Historic Landmarks (RTHLs). Adverse visual impacts are anticipated to 12 of the historic resources recorded, which include two historic districts, one NHL, one cemetery, and eight OTHMs (7 of which are RTHLs). In addition, adverse physical impacts to the integrity of one historic district and one NHL are also anticipated.

Within the RGV-09 Project corridor, three previously recorded archaeological sites were relocated and updated, 10 new archaeological sites were recorded, and 17 IOs were recorded. Of the archaeological sites updated and recorded within the RGV-09 Project corridor, two were recommended for additional testing (41HG373 and RGV-09-18). The remaining 11 archaeological sites and 17 IOs have either been determined or recommended to be ineligible for the NRHP. A total of seven historic resources were recorded within the RGV-09 Project corridor visual APE which includes one OTHM and six cemeteries. The single OTHM is not designated as a RTHL. Visual impacts are anticipated to the single OTHM and two of the cemeteries, though the impacts are not anticipated to be adverse.

Prior to being disturbed, any areas not surveyed would be tested to determine their eligibility for the NRHP. If they are determined sufficient to be eligible for the NRHP, then data recovery excavations would be conducted at the sites prior to disturbance from construction. In addition, public information displays would be developed for sites that have features that are important to the history of the region. BMPs to reduce impacts on historic and cultural resources are discussed in Section 1.5.7. If any cultural material is discovered during construction, all activities within the vicinity of the discovery will be halted until the area has been cleared by a qualified archaeologist in accordance with the BMPs.

10.0 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

10.1 AFFECTED ENVIRONMENT

This socioeconomics section outlines the basic attributes of population and economic activity in Hidalgo and Starr Counties, Texas, which is the ROI for socioeconomics. Demographic data are also presented for cities in the vicinity of the Project corridor, including Rio Grande City and Roma.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, ensures that proposed federal actions do not have disproportionately high and adverse human health and environmental effects on minority and low-income populations and ensures greater public participation by minority and low-income populations. EO 12898 does not provide guidelines as to how to determine concentrations of minority or low-income populations. However, analysis of demographic data on race, ethnicity, and poverty provides information on minority and low-income populations that could be affected by the proposed actions. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, Pacific Islander, or Other. Poverty status is used to define low-income. Poverty is defined as the number of people with income below poverty level, which was \$27,750 for a family of four in 2022 (U.S. Department of Health and Human Services 2020). A potential disproportionate impact may occur when the minority populations in the study area exceeds 50 percent and/or the low-income population exceeds 20 percent. Additionally, a disproportionate impact may occur when the minority and/or low income populations in the study area are meaningfully greater than those in the region.

Demographic data, shown in Table 10-1, provide an overview of the socioeconomic environment in the ROI. In 2021, Hidalgo County and Starr County had estimated populations of 880,356 and 66,049, respectively. From 2010 to 2020, Hidalgo County grew at an average annual rate of 1.24 percent and Starr County grew at an average annual rate of 0.81 percent. The population of Texas grew at an average annual rate of 1.59 percent, comparable to Hidalgo County. The U.S. grew at an average annual rate of 0.74 percent. Hidalgo and Starr Counties are both heavily Hispanic, with over 90 percent of the populations identifying as Hispanic. Greater than 94 percent of both Counties' populations are minority compared to 59 percent for the State of Texas and 40 percent for the U.S. (U.S. Census Bureau 2022).

Table 10-1. Population Demographics in the ROI

Geographic Area	Population		Race/Ethnicity		
	2021 Population Estimate	Average Annual Growth Rate 2010-2020 (Percent)	White, Not Hispanic (Percent)	Hispanic (Percent)	Minority (Percent)
Rio Grande City, Texas	15,670	1.07	1.4	96.3	98.6
Roma, Texas	11,505	1.84	0	100	100
Hidalgo County, Texas	880,356	1.24	5.7	92.6	94.3
Starr County, Texas	66,049	0.81	3.3	98.4	96.7
Texas	29,527,941	1.59	40.3	40.2	59.7
United States	331,893,745	0.74	59.3	18.9	40.7

Source: U.S. Census Bureau 2022

Data on the per capita income and poverty are presented in Table 10-2, and show that per capita income in both Hidalgo County and Starr County is very low, approximately 50 percent of the per capita income of the U.S. The poverty rates for Hidalgo County (23.9 percent) and Starr County (25.2 percent) are approximately double the poverty rate for Texas (13.4 percent) and the U.S. (11.4 percent). The 2020 average annual unemployment rates in Hidalgo County (11.7 percent) and Starr County (17.5 percent) are well above Texas (7.7 percent) and the U.S. (8.1 percent).

Table 10-2. Income, Poverty, and Unemployment in Hidalgo and Starr Counties

Geographic Area	Per Capita Income* (Dollars)	Per Capita Income as a Percent of the U.S. (Percent)	Poverty Rate (Percent)	Unemployment Rate (Annual Average 2020) (Percent)
Rio Grande City, Texas	16,990	48.0	29.6	-
Roma, Texas	12,396	35.0	39.1	-
Hidalgo County, Texas	17,816	50.4	23.9	11.7
Starr County, Texas	14,545	41.1	25.2	17.5
Texas	32,177	90.9	13.4	7.7
United States	35,384	100	11.4	8.1

* Per capita income in past 12 months (in 2020 dollars), 2016-2020

Source: U.S. Census Bureau 2022, U.S. Bureau of Labor Statistics (BLS) 2022a, BLS 2022b, BLS 2022c

10.2 ENVIRONMENTAL CONSEQUENCES

Most of the Project corridor is located in rural areas. As a result, socioeconomic impacts related to border wall construction, operation, and maintenance would be negligible. No structures are anticipated to be demolished to construct the bollard wall system at this time; however, in the event that CBP would demolish a structure, CBP would pay fair market value to the landowner for the value of the structure, thereby, mitigating any loss of value. There would also be temporary, minor adverse socioeconomic impacts in areas immediately adjacent to segments of the bollard wall that have residences within 500 feet of the construction areas. These residences and other areas would experience temporary construction-related noise, traffic, and dust.

As a result of the high level of minority populations (94.3 for Hidalgo County and 96.7 percent for Starr County) and poverty rate (23.9 for Hidalgo County and 25.2 percent for Starr County) in the ROI, the Project has the potential to have a disproportionate impact on minority and low-income communities. To mitigate the impact on minority populations and low-income communities, BMPs (e.g. the Project corridor and all associated access roads will be clearly demarcated and vehicle speed limits will be strictly enforced; noise and light pollution will be minimized to the greatest possible extent and all OSHA requirements will be followed; dust suppression methods will be implemented to maintain PM₁₀ levels below the *de minimis* threshold; wastewater and other non-hazardous waste materials will be properly contained until they are removed from the Project corridor) would be implemented throughout construction. The Project corridor would be temporarily fenced off to keep the general public, especially children, out of the project site to mitigate any potential safety risks to the community.

Temporary, minor beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales and use taxes to Hidalgo County and Starr County, local cities, and the State of Texas from locally purchased building materials could be realized if construction materials are purchased locally and local construction workers are hired for road construction. Additionally, the wall would contribute to a decrease in cross-border violators. The decrease in cross-border violator activities could have a beneficial effect on the incidence of crime and enhanced safety, providing long-term beneficial impacts in the region.

11.0 HAZARDOUS MATERIALS AND WASTE

11.1 AFFECTED ENVIRONMENT

Hazardous materials are substances that cause physical or health hazards (29 CFR 1910.1200). Materials that are physically hazardous include combustible and flammable substances, compressed gases, and oxidizers. Health hazards are associated with materials that cause acute or chronic reactions, including toxic agents, carcinogens, and irritants. Hazardous materials are regulated in Texas by a combination of mandated laws promulgated by the USEPA and the TCEQ.

The USEPA maintains a list of hazardous waste sites, particularly waste storage/treatment facilities or former industrial manufacturing sites in the U.S. The chemical contaminants released into the environment (air, soil, or groundwater) from hazardous waste sites could include heavy metals, 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.

Transaction Screen Site Assessments were conducted along all 39.87 miles of the Project corridor in accordance with the American Society for Testing and Materials International Standard E1528-06. These assessments were performed to evaluate any potential environmental risk associated with the construction and operation of the bollard wall system. Each assessment included a search of federal and state records of known hazardous waste sites, potential hazardous waste sites and remedial activities, and included sites that are either on the National Priorities List or being considered for the list.

Field surveys identified tracts of land within Segments RGV-08 and RGV-09 for which current potentially significant environmental risk concerns were observed on or immediately adjacent to the subject property corridor. These concerns consist of multiple surface dumps containing household solid waste, construction and demolition debris, and automotive lubricant and coolant containers; several occurrences of unmarked 50-gallon barrels and chemical containers; and unmaintained oil and gas infrastructure.

A government records search (Envirosite 2019) indicated that there are 76 sites within one mile of the Project corridor that report to state or federal environmental databases. The government records search identified one potentially significant environmental risk concern within RGV-08. The Fordyce Tract 1 Site is listed in the Texas Voluntary Cleanup Program Historical Brownfields database.

There are also 43 sites listed as orphan sites (sites lacking sufficient address information) within the vicinity of the Project corridor. None of the orphan sites are expected to present an environmental risk to the subject property.

11.2 ENVIRONMENTAL CONSEQUENCES

Any areas containing recognized environmental conditions or potential for impacts to the subsurface may necessitate the completion of Phase II sampling to confirm the presence of potential pollutants as well as their potential impacts. All surface dumps, unmarked barrels and chemical containers, and unmaintained oil and gas infrastructure identified during field surveys and potentially significant environmental risks identified the governmental records search will be properly cleared and any hazardous materials will be disposed of following approved BMPS (Appendix B).

CBP will apply the appropriate standards and guidelines associated with the Comprehensive Environmental Response, Compensation, and Liability Act for evaluating potential environmental impacts.

The soils in the Project corridor could be impacted by hazardous or toxic materials in the event of an accidental spill, which could lead to groundwater contamination. To minimize the potential for release of hazardous materials into the environment, BMPs will be implemented throughout construction to avoid release and to anticipate capture requirements in advance of any potential release. The following paragraphs describe the steps that will be taken to prevent contamination of the Project corridor.

Care will be taken to avoid impacting the Project corridor with hazardous substances (i.e., anti-freeze, fuels, oils, lubricants) used during construction. POLs will likely be stored at the temporary staging areas to maintain and refuel construction equipment. However, these activities will include primary and secondary containment measures, an SPCCP will be in place prior to the start of construction, and all personnel will be briefed on the implementation and responsibilities of this plan.

Cleanup materials (e.g., oil mops), in accordance with the Project's SPCCP, will also be maintained at the site to allow immediate action in case an accidental spill occurs. Drip pans will be provided for the power generators and other staged equipment to capture any POL accidentally spilled during maintenance activities or leaks from the equipment.

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; all waste will be disposed of in strict compliance with federal, state, and local regulations, in accordance with the contractor's permits. All construction debris will be disposed of in compliance with federal, state, and local regulations. Due to the proper permits being obtained by the licensed contractor tasked to handle any unregulated solid waste, and because all unregulated solid waste will be handled in the proper manner, no hazards to the public are expected through the transport, use, or disposal of unregulated solid waste.

12.0 CUMULATIVE IMPACTS

12.1 CUMULATIVE AFFECTED ENVIRONMENT

This section of the ESP defines cumulative impacts; identifies past, present, and reasonably foreseeable projects relevant to cumulative impacts; and analyzes the potential cumulative impacts associated with the implementation of the Project and other projects/programs planned within the ROI, which is the USBP RGV Sector AOR.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future actions which affected any part of the human or natural environment impacted by the Project. Activities were identified for this analysis by reviewing CBP and USBP documents, news/press releases and published media reports, and through consultation with planning and engineering departments of federal and state agencies and local governments. Projects that do not occur in close proximity (i.e., within several miles) to the Project will not contribute to cumulative impacts (or are not possible to evaluate if they are south of the border) and are not generally 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, 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 of future and ongoing 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

As of August 2, 2017, CBP has completed 654 miles of pedestrian and vehicle fencing along the southwest border. A total of 354 miles of primary pedestrian fence, 37 miles of secondary pedestrian fence, and 14 miles of tertiary pedestrian fence have been constructed. The final total of vehicle fence constructed was 300 miles.

12.3 PAST ACTIONS

Past actions are those 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 pedestrian fence, the heavily used POEs, the secondary fence, all-weather road, lighting, and remote video surveillance system (RVSS) towers 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 Project, and current resource management programs and land use activities within the cumulative effects analysis area. Ongoing actions considered in the cumulative effects analysis include:

- Border Infrastructure System Maintenance and Repair: Routine all-weather road, secondary fence, tower approach road, lighting, and RVSS repair and maintenance.
- Levee Maintenance and Repair: USIBWC repairs and maintains the levees and roads paralleling the Rio Grande.

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 reasonably foreseeable actions that are likely to occur in the USBP RGV Sector AOR.

- Border Wall: As part of this or future administrations, DHS/CBP may construct additional border walls in the USBP RGV Sector AOR. Currently, approximately 3.06 miles, 14.83 miles, and 23.3 miles are proposed as part of RGV-05, -07, and -10, respectively.

USBP may 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.

Plans by other agencies that will also affect the region's natural and human environment include various road improvements by TxDOT and Hidalgo and Starr Counties. The majority of these projects will be expected to occur along existing corridors and within previously disturbed areas. The magnitude of the impacts will depend upon the length and width of the road right-of-way and the existing conditions within and adjacent to the right-of-way.

Other organizations 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 primary 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 construction of the bollard wall will be temporary and minor. There will be cumulative adverse construction impacts on air quality from the current or foreseeable wall replacement project discussed above. The emissions associated with these actions will also result in temporary 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 the use of standard BMPs during construction, such as dust suppression to reduce PM₁₀ emissions. Deterrence of and improved response time to illegal border crossings created by the construction of infrastructure will lead to improved control of the border. A result of this improved control will be a reduction in the number of off-road enforcement actions that are currently necessary by USBP agents, and will reduce dust generation and serve to benefit overall air quality as well.

12.6.2 Noise

Most of the noise generated by the Project will occur during construction and will not contribute to cumulative impacts of ambient noise levels. Routine maintenance of the bollard wall will result in slight temporary increases in noise levels that will sporadically occur over the long-term and will be similar to those associated with ongoing road maintenance within the Project corridor. Potential sources of noise from other projects are not significant enough (temporally or spatially) to increase ambient noise levels above the 65 dBA range at the Project sites. As a result, the noise generated by the construction and maintenance of Project infrastructure, when considered with the other existing and proposed projects in the region, is considered to have a minor cumulative adverse effect.

12.6.3 Land Use, Recreation, and Aesthetics

The majority of the land within the Project corridor is previously disturbed agriculture and brushland, and is in use for border control efforts. Land use outside the enforcement zone would not change and the Project is not expected to have a major cumulative adverse impact. Similarly, open space opportunities will not be affected by the Project and will not be negatively impacted when considered with other present and foreseeable projects in the region.

12.6.4 Geological Resources and Soils

The Project would temporarily increase compaction and erosion of soils within the construction corridor. The Project, when combined with other USBP projects, will result in a negligible reduction in prime farmland soils or agricultural production. Pre and post-construction SWPPP measures will be implemented to control soil erosion. The impact of disturbing approximately 1,118 acres, combined with other USBP projects, will constitute a minor to moderate cumulative adverse impact.

12.6.5 Hydrology and Water Management

Groundwater is not a significant source of water in Hidalgo County or Starr County and is rarely used. Furthermore, a SPCCP will be implemented as part of the Project, thus the potential for groundwater contamination would be low. The Project will have a negligible cumulative impact on groundwater.

The Project will have a temporary and minor impacts on surface water as a result of sourcing water from the Rio Grande for construction purposes and to supplement recycled water for dust suppression. As mentioned in Section 7.2.3, here are approximately 0.4 acre of potentially jurisdictional wetlands and approximately 13,997.4 linear feet of potentially jurisdictional Waters of the U.S. within the Project corridor. These features could be filled as part of the Project to create the enforcement zone resulting in long-term, minor impacts. Prior to any Waters of the U.S. being filled, CBP will attain a Section 404 permit from USACE.

Mitigation measures would be implemented as part of the SWPPP to minimize erosion and sedimentation to protect surface waters. Due to the temporary nature of construction and the implementation of BMPs, the Project would not have a significant cumulative impact on surface water.

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

The Project will have a long-term and minor impact on native vegetation communities, but as discussed in the Biological Resources section, some direct negative impacts on wildlife within the Project corridor may occur due to erosion, noise, lighting, or conflict with construction equipment. These adverse impacts will be cumulatively more significant when considered alongside other current and foreseeable projects in the region. However, because construction will be temporary and impacts will be minimized through implementation of appropriate BMPs for the protection of general plants and wildlife, these projects combined are unlikely to result in any long-term or significant decreases in wildlife populations in the region.

Negligible to minor, short-term impacts are anticipated for all federally protected species with the exception of Zapata bladderpod which would experience long-term, moderate adverse impacts due to the presence of critical habitat and known populations within the Project corridor.

12.6.7 Cultural Resources

Construction of the proposed Project will not adversely affect any NRHP-eligible cultural resources per the Cultural Resources section in this ESP. Therefore, this action, when combined with other existing and proposed projects in the region, will have negligible cumulative impacts on significant cultural resources.

12.6.8 Socioeconomics and Environmental Justice

Construction of the Project, when combined with other USBP projects, will result in temporary, minor, and beneficial impacts on the region's economy. Due to the high levels of minority populations and poverty within the ROI, BMPs to limit the impacts on minority and economically disadvantaged communities. No impacts on populations, minorities, or low-income families will 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 economy of the region should be beneficial by reducing smuggling and other illegal activity in the area. Legal border crossings and international trade will continue unaffected by the Project. When combined with the other projects currently planned or ongoing

within the region, they will have 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 corridor during the construction phase. It is anticipated, with the inclusion of BMPs listed in Section 1.5.7, that impacts resulting from the use of hazardous materials during this phase will be avoided or minimized. Similarly, only minor temporary increases in the use of hazardous materials will potentially be experienced from construction associated with other projects in the region. Hazardous materials present within the Project corridor from previous landowners will be properly cleared and any hazardous materials will be disposed of following approved BMPS. Therefore, the Project, when combined with other ongoing and proposed projects in the region, is not expected to have a major cumulative impact on the generation of waste, nor the potential for release of hazardous materials.

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14.0 ABBREVIATIONS AND ACRONYMS

AOR	Area of Responsibility
APE	Area of Potential Effect
BLS	Bureau of Labor Statistics
BMP	Best Management Practices
CAA	Clean Air Act
CBP	United States Customs and Border Protection
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CWA	Clean Water Act
dB	decibel
dBA	decibel – A weighted scale
DHS	United States Department of Homeland Security
DOI	Department of Interior
EPA	Environmental Protection Agency
ESP	Environmental Stewardship Plan
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GHG	Green House Gases
GSRC	Gulf South Research Corporation
HUD	U.S. Department of Housing and Urban Development
IBWC	International Boundary and Water Commission
IES	Integrated Environmental Solutions, LLC
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
km	kilometer
LRGV	Lower Rio Grande Valley
MBTA	Migratory Bird Treaty Act
µg/m ³	micrograms per cubic meter
mg/m ³	milligrams per cubic meter
mi	mile
MOVES	Motor Vehicle Emission Simulator
mph	miles per hour

NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O ₃	Ozone
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyls
PM ₁₀	Particulate<10 micrometers
PM _{2.5}	Particulate<2.5 micrometers
POE	Port of Entry
POL	Petroleum, oil, and lubricants
ppb	parts per billion
ppm	parts per million
ROI	Region of influence
RGV	Rio Grande Valley
SO ₂	Sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasure Plan
SWPPP	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
U.S.	United States
USACE	United States Army Corps of Engineers
USBP	United States Border Patrol
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USIBWC	United States Section, International Boundary Water Commission
VOC	Volatile organic compounds
WMA	Wilderness Management Area



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DEPARTMENT OF HOMELAND SECURITY

Office of the Secretary

Determination Pursuant to Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as Amended

AGENCY: Office of the Secretary, Department of Homeland Security.

ACTION: Notice of determination.

SUMMARY: The Secretary of Homeland Security has determined, pursuant to law, that it is necessary to waive certain laws, regulations, and other legal requirements in order to ensure the expeditious construction of barriers and roads in the vicinity of the international land border of the United States in Starr County in the State of Texas.

DATES: This determination takes effect on **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

SUMMARY INFORMATION: Important mission requirements of the Department of Homeland Security (“DHS”) include border security and the detection and prevention of illegal entry into the United States. Border security is critical to the nation’s national security. Recognizing the critical importance of border security, Congress has mandated DHS to achieve and maintain operational control of the international land border. Secure Fence Act of 2006, Public Law 109-367, § 2, 120 Stat. 2638 (Oct. 26, 2006) (8 U.S.C. § 1701 note). Congress defined “operational control” as the prevention of all unlawful entries into the United States, including entries by terrorists, other unlawful aliens, instruments of terrorism, narcotics, and other contraband. *Id.* Consistent with that mandate from Congress, the President’s Executive

Order on Border Security and Immigration Enforcement Improvements directed executive departments and agencies to deploy all lawful means to secure the southern border. Executive Order 13767, § 1. In order to achieve that end, the President directed, among other things, that I take immediate steps to prevent all unlawful entries into the United States, including the immediate construction of physical infrastructure to prevent illegal entry. Executive Order 13767, § 4(a).

Congress has provided to the Secretary of Homeland Security a number of authorities necessary to carry out DHS's border security mission. One of those authorities is found at section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as amended ("IIRIRA"). Public Law 104-208, Div. C, 110 Stat. 3009-546, 3009-554 (Sept. 30, 1996) (8 U.S.C. 1103 note), as amended by the REAL ID Act of 2005, Public Law 109-13, Div. B, 119 Stat. 231, 302, 306 (May 11, 2005) (8 U.S.C. 1103 note), as amended by the Secure Fence Act of 2006, Public Law 109-367, § 3, 120 Stat. 2638 (Oct. 26, 2006) (8 U.S.C. § 1103 note), as amended by the Department of Homeland Security Appropriations Act, 2008, Public Law 110-161, Div. E, Title V, § 564, 121 Stat. 2090 (Dec. 26, 2007). In section 102(a) of IIRIRA, Congress provided that the Secretary of Homeland Security shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the United States border to deter illegal crossings in areas of high illegal entry into the United States. In section 102(b) of IIRIRA, Congress mandated the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwest border. Finally, in section 102(c) of IIRIRA, Congress granted to the Secretary of Homeland Security the authority to waive all legal requirements that

I, in my sole discretion, determine necessary to ensure the expeditious construction of barriers and roads authorized by section 102 of IIRIRA.

Determination and Waiver:

Section 1

The United States Border Patrol's Rio Grande Valley Sector is an area of high illegal entry. For the last several years, the Rio Grande Valley Sector has seen more apprehensions of illegal aliens than any other sector of the United States Border Patrol ("Border Patrol"). For example, in fiscal year 2017 alone, Border Patrol apprehended over 137,000 illegal aliens. In that same year Border Patrol seized approximately 260,000 pounds of marijuana and approximately 1,200 pounds of cocaine.

In order to satisfy the need for additional border infrastructure in the Rio Grande Valley Sector, DHS will take action to construct barriers and roads. DHS will construct mechanical gates and roads within gaps of existing barriers in the vicinity of the United States border in the Rio Grande Valley Sector. The segments of the border within which such construction will occur are referred to herein as the "project area" and are more specifically described in Section 2 below.

Section 2

I determine that the following areas in the vicinity of the United States border, located in Starr County in the State of Texas, within the United States Border Patrol's Rio Grande Valley Sector, are areas of high illegal entry (the "project area"):

- Starting approximately three-tenths (0.3) of a mile west of a gap in the existing levee wall commonly referred to as the Anacua gate location, which is situated at the intersection of Wichita Street and the International Boundary and Water Commission (IBWC) levee

approximately one and one-half (1.5) miles south of the intersection of Wichita Street with US Route 281, and extending to approximately three-tenths (0.3) of a mile east of the Anacua gate location.

- Starting approximately three-tenths (0.3) of a mile west of a gap in the existing levee wall commonly referred to as the Webber Road gate location, which is situated at the intersection of Webber Road and the IBWC levee located approximately eight-tenths (0.8) of a mile southwest of the intersection of Webber Road with US Route 281, and extending approximately three-tenths (0.3) of a mile east of the Webber Road gate location.
- Starting approximately three-tenths (0.3) of a mile southwest of a gap in the existing levee wall commonly referred to as the Cantu Road gate location, which is situated at the intersection of Avilia Road and the IBWC levee located approximately eight-tenths of a mile south of the intersection of Avilia Road with US Route 281, and extending approximately three-tenths (0.3) of a mile northeast of the Cantu Road gate location.
- Starting approximately three-tenths (0.3) of a mile west of a gap in the existing levee wall commonly referred to as the Garza Sandpit Road gate location, which is situated at the intersection of the County Road 677 and the IBWC levee located approximately twotenths (0.2) of a mile southwest of the intersection of County Road 677 with US Route 281, and extending approximately three-tenths (0.3) of a mile northeast of the Garza Sandpit Road gate location.
- Starting approximately three-tenths (0.3) of a mile northwest of a gap in the existing levee wall commonly referred to as the Pool Road gate location, which is situated at the intersection of Domanski Drive with the IBWC levee located approximately one (1) mile

south of the intersection of Domanski Drive and US Route 281, and extending approximately three-tenths (0.3) of a mile southeast of the Pool Road gate location.

- Starting approximately three-tenths (0.3) of a mile northwest of a gap in the existing levee wall commonly referred to as the Flor De Mayo gate location, which is situated at the intersection of Flor De Mayo Road and the IBWC levee located approximately seventenths (0.7) of a mile southwest of the intersection of Flor De Mayo Road with US Route 281, and extending approximately three-tenths (0.3) of a mile southeast of the Flor De Mayo Road gate location.
- Starting approximately three-tenths (0.3) of a mile northwest of a gap in the existing levee wall commonly referred to as the Impala Road gate location, which is situated at the intersection of an unnamed road and the IBWC levee (said unnamed road is approximately 250 feet long from its point of intersection with the IBWC levee and a point located approximately 100 feet northwest of the intersection of Impala Drive and Gazelle Avenue) located approximately one (1) mile east of the Brownsville/Veterans Port of Entry, and extending approximately three-tenths (0.3) of a mile southeast of the Impala Road gate location.
- Starting approximately three-tenths (0.3) of a mile west of a gap in the existing levee wall commonly referred to as the South Point Road gate location, which is situated at the intersection of South Point Road and the IBWC levee located approximately seven-tenths (0.7) of a mile south of the intersection of South Point Road with Southmost Boulevard, and extending approximately three-tenths (0.3) of a mile northeast of the South Point Road gate location.

- Starting approximately three-tenths (0.3) of a mile south of a gap in the existing levee wall commonly referred to as the Loops Sandpit gate location, which is situated at the intersection of an unnamed road and the IBWC levee located approximately 65 feet east of the intersection of Alaska Road with S. Oklahoma Drive, and extending approximately three-tenths (0.3) of a mile north of the Loops Sandpit gate location.
- Starting approximately three-tenths (0.3) of a mile south of a gap in the existing levee wall commonly referred to as the Implement Shed gate location, which is situated at the intersection of County Road 142 and the IBWC levee located approximately 675 feet east of the intersection of Oklahoma Avenue with County Road 142, and extending approximately three-tenths (0.3) of a mile north of the Implement Shed gate location.
- Starting approximately three-tenths (0.3) of a mile south of a gap in the existing levee wall commonly referred to as the Florida Road gate location, which is situated at the intersection of Florida Road and the IBWC levee located approximately 600 feet east of the intersection of Oklahoma Avenue with Florida Road, and extending approximately three-tenths (0.3) of a mile north of the Florida Road gate location.

There is presently an acute and immediate need to construct physical barriers and roads in the vicinity of the border of the United States in order to prevent unlawful entries into the United States in the project area. In order to ensure the expeditious construction of the barriers and roads in the project area, I have determined that it is necessary that I exercise the authority that is vested in me by section 102(c) of IIRIRA.

Accordingly, pursuant to section 102(c) of IIRIRA, I hereby waive in their entirety, with respect to the construction of roads and physical barriers (including, but not limited to, accessing the project area, creating and using staging areas, the conduct of earthwork, excavation, fill, and site

preparation, and installation and upkeep of physical barriers, roads, supporting elements, drainage, erosion controls, safety features, lighting, cameras, and sensors) in the project area, all of the following statutes, including all federal, state, or other laws, regulations, and legal requirements of, deriving from, or related to the subject of, the following statutes, as amended: The National Environmental Policy Act (Pub. L. 91-190, 83 Stat. 852 (Jan. 1, 1970) (42 U.S.C. 4321 et seq.)); the Endangered Species Act (Pub. L. 93-205, 87 Stat. 884 (Dec. 28, 1973) (16 U.S.C. 1531 et seq.)); the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act (33 U.S.C. 1251 et seq.)); the National Historic Preservation Act (Pub. L. 89-665, 80 Stat. 915 (Oct. 15, 1966), as amended, repealed, or replaced by Pub. L. 113-287 (Dec. 19, 2014) (formerly codified at 16 U.S.C. 470 et seq., now codified at 54 U.S.C. 100101 note and 54 U.S.C. 300101 et seq.)); the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.); the Migratory Bird Conservation Act (16 U.S.C. 715 et seq.); the Clean Air Act (42 U.S.C. 7401 et seq.); the Archaeological Resources Protection Act (Pub. L. 96-95 (16 U.S.C. 470aa et seq.)); the Paleontological Resources Preservation Act (16 U.S.C. 470aaa et seq.); the Federal Cave Resources Protection Act of 1988 (16 U.S.C. 4301 et seq.); the Safe Drinking Water Act (42 U.S.C. 300f et seq.); the Noise Control Act (42 U.S.C. 4901 et seq.); the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.); the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 et seq.); the Archaeological and Historic Preservation Act (Pub. L. 86-523, as amended, repealed, or replaced by Pub. L. 113-287 (Dec. 19, 2014) (formerly codified at 16 U.S.C. 469 et seq., now codified at 54 U.S.C. 312502 et seq.)); the Antiquities Act (formerly codified at 16 U.S.C. 431 et seq., now codified 54 U.S.C. § 320301 et seq.); the Historic Sites, Buildings, and Antiquities Act (formerly codified at 16 U.S.C. 461 et seq., now codified at 54 U.S.C. 3201-320303 & 320101-

320106); the Farmland Protection Policy Act (7 U.S.C. 4201 et seq.); the Coastal Zone Management Act (Pub. L. 92-583 (16 U.S.C. 1451, et seq.)); the Federal Land Policy and Management Act (Pub L. 94-579 (43 U.S.C. 1701 et seq.)); the National Wildlife Refuge System Administration Act (Pub. L. 89-669, 16 U.S.C. 668dd-668ee); National Fish and Wildlife Act of 1956 (Pub. L. 84-1024 (16 U.S.C. 742a, et seq.)); the Fish and Wildlife Coordination Act (Pub. L. 73-121 (16 U.S.C. 661 et seq.)); the Administrative Procedure Act (5 U.S.C. 551 et seq.); the River and Harbors Act of 1899 (33 U.S.C. 403)); the Eagle Protection Act (16 U.S.C. 668 et seq.); the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.); and the American Indian Religious Freedom Act (42 U.S.C. 1996).

This waiver does not revoke or supersede the previous waiver published in the Federal Register on April 8, 2008 (73 FR 19078), which shall remain in full force and effect in accordance with its terms. I reserve the authority to execute further waivers from time to time as I may determine to be necessary under section 102 of IIRIRA.

Dated: October 2, 2018.

Kirstjen M. Nielsen,

Secretary of Homeland Security

[FR Doc. 2018-21930 Filed: 10/9/2018 8:45 am; Publication Date: 10/10/2018]

Appendix B
Best Management Practices

Best Management Practices

ID	Master BMP Number	BMP Description	BMP Keywords
108	2025-1	If an individual of a T&E species is found in the designated project area, work will cease in the area of the species until it moves away on its own or to the extent practicable be relocated by a qualified biological monitor to a safe location outside the impact corridor in accordance with accepted species handling protocols.	T&E, Species, Plants, Animals, General, Disturbance, Site restoration
108	2025-1	The perimeter of all areas to be disturbed during construction or maintenance activities are clearly demarcated using flagging or temporary construction fence to prevent unnecessary impacts. Photo document and provide GPS coordinates where correction is needed.	T&E, Non-Listed, Habitat, Soil, Water, Vegetation, General, Disturbance, Perimeter
108	2025-1	Construction speed limits should not exceed 35 mph on major unpaved roads (graded with ditches on both sides) and 25 mph on all other unpaved roads. Nighttime travel speeds should not exceed 25 mph, and may be less, based on visibility and other safety considerations. Monitor to periodically (once a week) ask land managing agency and construction manager if any speeding incidents have occurred.	T&E, Animals, Vehicles, Roads
108	2025-1	Transmission of disease vectors and invasive non-native aquatic species can occur if vehicles cross infected or infested streams or other waters and water or mud remains on the vehicle. If these vehicles subsequently cross or enter uninfected or noninfested waters, the disease or invasive species may be introduced to the new area. To prevent this, crossing of streams or marsh areas with flowing or standing water will be avoided, and when unavoidable, the vehicle will be sprayed with a 10% bleach solution after the crossing before entering a new watershed. Photo document and provide GPS coordinates where correction is needed.	T&E, Invasives, Water, Vehicles, Wetlands
108	2025-1	All equipment maintenance, staging, laydown, and dispensing of fuel, oil, or any other such activities, will occur in designated upland areas. The designated upland areas will be located in such a manner as to prevent any runoff from entering waters of the United States, including wetlands. Photodocument and provide GPS coordinates where correction is needed.	T&E, Water, Wetlands, Staging, Vehicles, HazMat, Disturbance
108	2025-1	A stormwater management plan is being implemented. ACOE to provide monitor a copy of SWPPP for review.	T&E, Water, General, Erosion, Runoff, Storm water
108	2025-1	Access routes into and out of the project area are clearly flagged. Photo document and provide GPS coordinates where correction is needed.	Roads, T&E, Non-Listed, Vegetation, Habitat, Disturbance, Perimeter
108	2025-1	No pets owned or under the care of the project proponent or any and all construction workers will be permitted inside the project's construction boundaries, adjacent native habitats, or other associated work areas.	T&E, Non-Listed, Disturbance, General
108	2025-1	Light poles and other pole-like structures will be designed to discourage roosting by birds, particularly ravens or other raptors that may use the poles for hunting perches.	T&E, Non-Listed, General, Lights, Birds
108	2025-1	To prevent entrapment of wildlife species during the construction of the project, all excavated, steepwalled holes or trenches more than 2 feet deep will either be covered at the close of each working day by plywood or provided with one or more escape ramps constructed of earth fill or wooden planks. The ramps will be located at no greater than 1,000-foot intervals and will be sloped less than 45 degrees. 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 so discovered will be allowed to escape voluntarily (by escape ramps or temporary structures), without harassment, before construction activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.	T&E, Non-Listed, General, Disturbance, Excavation, Trench, Animals
108	2025-1	Road bed erosion into Federal Listed Species habitat will be avoided or minimized. Document areas where erosion has occurred along fence, washes, and roads.	Roads, Erosion, T&E
108	2025-1	Road location is such that the potential for roadbed erosion into federally listed species habitat will be avoided or minimized.	Roads, Erosion, T&E
108	2025-1	The potential for entrapment of surface flows within the roadbed due to grading will be avoided or minimized. Depth of any pits created will be minimized so animals do not become trapped. Photo document and provide GPS coordinates where correction is needed.	Roads, Runoff, Animals, Design, Erosion, Water
108	2025-1	The widening of existing or created roadbed beyond the design parameters due to improper maintenance and use will be avoided or minimized. The width of all roads that are created or maintained by CBP should be measured and recorded using GPS coordinates and provided to the Government. Maintenance actions should not increase the width of the road bed or the amount of disturbed area beyond the road bed. Photo document and provide GPS coordinates where correction is needed. Monitor to acquire GIS shape files from Construction Contractor at end of project.	Roads, Maintenance
108	2025-1	Water for construction use shall be from wells at the discretion of the landowner. If local groundwater pumping is an adverse effect to aquatic, marsh, or riparian dwelling T&E species, treated water from outside the immediate area will be utilized.	General, Water, Wetlands, T&E, Wells
108	2025-1	Where practicable, particular importance is given to proper design and locating roads such that stream crossings should not be located near or at bends or meanders but rather at straight stream reaches where channel stability is enhanced.	Roads, Water, Wetlands, Erosion, Streams
108	2025-1	Was there excessive use of unimproved roads that resulted in their deterioration such that it affected the surrounding T&E species habitat areas? Was the condition monitored? Was corrective maintenance provided? Photo document and provide GPS coordinates where correction is needed.	Roads, Erosion, T&E, Habitat
108	2025-1	The minimum number of roads needed for proposed actions will be constructed and maintained to proper standards. Roads no longer needed should be closed and restored to natural surface and topography using appropriate techniques. The GPS coordinates of roads that are thus closed should be recorded and provided to the Government. A record of acreage or miles of roads taken out of use, restored, and revegetated will be maintained. Photo document restoration efforts if they occur prior to completion of project. Acquire GIS files from Construction Contractor.	Roads, Restoration
108	2025-1	When available, areas already disturbed by past activities or those that will be used later in the construction period will be used for staging, parking, and equipment storage. Photo document and provide GPS coordinates where correction is needed	Staging Areas, Disturbance
108	2025-1	All construction shall follow DHS management directive 5100 for waste management.	General, HazMat, Waste
108	2025-1	Provision will be made for proper waste disposal at staging areas, work camps, bivouacs, and camp details, and implementation of waste management protocols will be made the responsibility of the appropriate project officers. Photo document and provide GPS coordinates where correction is needed.	Staging Areas, HazMat, Waste

ID	Master BMP Number	BMP Description	BMP Keywords
108	2025-1	A CBP-approved spill protection plan is being implemented at construction and maintenance sites to ensure that any toxic substances are properly handled and escape into the environment prevented. Agency standard protocols should be used. Drip pans underneath equipment, containment zones used when refueling vehicles or equipment, and other measures are to be included. ACOE to provide monitor a copy of spill plan for review. Photo document and provide GPS coordinates where correction is needed.	General, HazMat, Fuel, Spill
108	2025-1	To eliminate attraction to predators of protected animals, all food related trash items such as wrappers, cans, bottles, and food scraps, will be disposed of in closed containers and removed daily from the project site. Photo document and provide GPS coordinates where correction is needed.	General, HazMat, Animals, Waste
108	2025-1	Nonhazardous waste materials and other discarded materials such as construction waste will be contained until removed from site. This should assist in keeping the project area and surroundings free of litter and reduce the amount of disturbed area needed for waste storage. Photo document and provide GPS coordinates where correction is needed.	General, HazMat, Disturbed
108	2025-1	Waste water (water used for project purposes that is contaminated with construction materials, was used for cleaning equipment and thus carries oils or other toxic materials or other contaminants in accordance with state regulations) will be stored in closed containers on site until removed for disposal. Concrete wash water will not be dumped on the ground, but is to be collected and moved offsite for disposal. This wash water is toxic to aquatic life. Photo document and provide GPS coordinates where correction is needed.	General, HazMat, Water
108	2025-1	To prevent entrapment of wildlife species during emplacement of vertical posts/bollards, all vertical fence posts/bollards that are hollow (i.e., those that will be filled with a reinforcing material such as concrete), shall be covered so as to prevent wildlife from entrapment. Covers will be deployed from the time the posts or hollow bollards are erected to the time they are filled with reinforcing material. Photo document and provide GPS coordinates where correction is needed.	General, Animals
108	2025-1	Site restoration for staging areas and construction access routes will be monitored, as appropriate.	Staging Areas, Restoration, Disturbance
108	2025-1	Materials such as gravel have been obtained from existing developed or previously used sources, not from undisturbed sites.	General, Soil, Fill
108	2025-1	If new access is needed or existing access requires improvements to be usable for the project, related road construction and maintenance BMPs will be incorporated into the access design and implementation.	Roads
108	2025-1	Within the designated disturbance area, grading or topsoil removal will be limited to areas where this activity is needed to provide the ground conditions needed for construction or maintenance activities. Minimizing disturbance to soils will enhance the ability to restore the disturbed area after the project is complete. Photo document and provide GPS coordinates where correction is needed.	Roads, Staging Areas, Disturbance, Soil, Restoration
108	2025-1	Removal of trees and brush in T&E species habitats will be limited to the smallest amount needed to meet the objectives of the project. Photo document and provide GPS coordinates where correction is needed.	General, Vegetation, T&E, Habitat, Brush, Clearing
108	2025-1	Surface water from aquatic or marsh habitats will not be used for construction purposes if that site supports aquatic T&E species or if it contains non-native invasive species or disease vectors and there is any opportunity to contaminate a T&E species habitat through use of the water at the project site.	General, Water, Wetlands, T&E, Invasives
108	2025-1	Wells or treated irrigation water sources will be used when within 1 mile of aquatic habitat for federally listed aquatic species. This is to prevent the transfer of invasive animals or disease pathogens between habitats, if water on the construction site were to reach the federally listed species habitats.	General, Water, Wetlands, T&E, Invasives
108	2025-1	Water tankers that convey untreated surface water will not discard unused water within 2 miles of any drainage aquatic or marsh habitat for federally listed species.	General, Water, Wetlands
108	2025-1	Storage tanks containing untreated water should be of a size that if a rainfall event were to occur (assuming open tanks), the tank would not be overtopped and cause a release of water into the adjacent drainages. Water storage on the project area should be in on-ground containers located on upland areas not in washes. Photo document and provide GPS coordinates where correction is needed.	General, Water, Water Storage
108	2025-1	Pumps, hoses, tanks, and other water storage devices will be cleaned and disinfected with a 10% bleach solution at an appropriate facility (this water is not to enter any surface water area) before use at another site, if untreated surface water was used. If a new water source is used that is not from a treated or groundwater source, the equipment will require additional cleaning. This is important to kill any residual disease organisms or early life stages of invasive species that may affect local populations of T&E species.	T&E, General, Water, Wetlands, Invasives, Water Storage
108	2025-1	If construction or maintenance work activities are to continue at night, all lights will be shielded to direct light only onto the work site and the area necessary to ensure the safety of the workers, the minimum wattage needed will be used, and the number of lights will be minimized. Photo document and provide GPS coordinates where correction is needed.	General, Lights
108	2025-1	Noise levels for construction (any time of day or night) and maintenance should be minimized for all projects affecting federally listed animals. All generators are in baffle boxes, have an attached muffler, or use other noise-abatement methods, in accordance with industry standards.	General, Noise, Vehicles, Generators
108	2025-1	Materials used for on-site erosion control in uninfested native habitats will be free of non-native plant seeds and other plant parts to limit potential for infestation. Since natural materials cannot be certified as completely weed-free, if such materials are used, there will be follow up monitoring to document establishment of non-native plants and appropriate control measures should be implemented for a period of time to be determined in the site restoration plan. Photo document and provide GPS coordinates where correction is needed.	General, Erosion, Restoration, Invasives
108	2025-1	Fill material brought in from outside the project area will be identified as to source location and will appear to be weed free. Inspect fill loads as they arrive. Return to fill sites from earlier in construction and inspect for weed germination. Photodocument and provide GPS coordinates where correction is needed.	General, Soil, Invasives
108	2025-1	Infrastructure sites will only be accessed using designated roads. Parking will be in designated areas. This should limit the development of multiple trails to such sites and reduce the effects to T&E habitats in the vicinity.	Roads, Vehicles, T&E, Trails
108	2025-1	Appropriate techniques to restore the original grade, replace soils, and restore proper drainage will be implemented for areas to be restored (e.g., temporary staging areas).	Staging Areas, Restoration, Drainage, Erosion
108	2025-1	Fences and walls will provide for passage of wildlife species. Impermeable fences and walls will not be constructed in key wildlife movement corridors. The type of passage needed will vary with the location of the barrier and the species that occur in that area. Specific designs and locations will be coordinated with the USFWS, TPWD, and the landowner/manager.	General, Animals

ID	Master BMP Number	BMP Description	BMP Keywords
108	2025-1	Invasive plants that appear on the site will be removed. Removal will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. Herbicides can be used according to label directions if they are not toxic to T&E species that may be in the area. Training to identify non-native invasive will be provided for CBP personnel or contractors as necessary. Photo document and provide GPS coordinates where correction is needed. Construction contractor to remove invasive plants as needed.	General, Invasives, HazMat, T&E, Herbicides
108	2025-1	No off-road vehicle activity will occur outside of the project footprint by the project proponent, project workers, and project contractors.	General, Vehicles, Perimeter
108	2025-1	Visible space underneath all heavy equipment is checked for listed species and other wildlife prior to moving the equipment.	General, Vehicles, Animals, Equipment
108	2025-1	During the construction phase, short term noise impacts are anticipated. All Occupational Safety and Health Administration requirements shall be followed. Construction equipment shall possess properly working mufflers and shall be kept properly tuned to reduce backfires. Implementation of these measures shall reduce the expected short term noise impacts to an insignificant level in and around the construction site.	General, Noise, Vehicles, Equipment
108	2025-1	Mitigation measures will be incorporated to ensure that PM10 emission levels do not rise above the de minimus threshold as required per 40 CFR 51.853(b)(1). Measures shall include dust suppression methods to minimize airborne particulate matter that will be created during construction activities. Standard construction BMPs, such as routine watering of the patrol, drag, and access roads, shall be used to control fugitive dust during the construction phases of the proposed project. Additionally, all construction equipment and vehicles shall be required to be kept in good operating condition to minimize exhaust emissions.	General, HazMat, Air, Vehicles, Equipment
108	2025-1	Vehicular traffic associated with the construction activities and operational support activities shall remain on established roads to the maximum extent practicable. Areas with highly erodible soils will be given special consideration when designing the proposed project to ensure incorporation of various BMPs, such as, straw bales, aggregate materials, and wetting compounds, to control erosion. A SWPPP will be prepared prior to construction activities and BMPs described in the SWPPP will be implemented to reduce erosion. Photo-document and provide GPS coordinates where correction is needed.	Roads, Vehicles, Erosion, Storm water
108	2025-1	Standard construction procedures shall be implemented to minimize the potential for erosion and sedimentation during construction. All work shall cease during heavy rains and shall not resume until conditions are suitable for the movement of equipment and materials. All fuels, waste oils, and solvents shall be collected and stored in tanks or drums within a secondary containment area consisting of an impervious floor and bermed sidewalls capable of holding the volume of the largest container stored therein. The refueling of machinery shall be completed following accepted guidelines, and all vehicles shall have drip pans during storage to contain minor spills and drips. No refueling or storage shall take place within 100 feet of a drainage channel or structure. Other design measures shall be implemented, such as straw bales, silt fencing, aggregate materials, wetting compounds, and re-vegetation with native plant species, where possible, to decrease erosion and sedimentation. Furthermore, a SWPPP and all applicable Section 404/401 permit procedures shall be completed before construction shall be initiated within jurisdictional Waters of the U.S. (WUS). It shall be the responsibility of the Design/Build Contractor to prepare and submit 404 and 401 permitapplications to the respective USCOE and State offices. Photodocument and provide GPS coordinates where correction is needed	General, Erosion, HazMat, Fuel, Storm water, Water, Wetlands, Restoration, Streams
108	2025-1	(Ocelot) Pre-construction surveys will identify any ocelot habitat in or adjacent to the project area, and the presence of the ocelot at the habitat area will be assumed.	General, Animals, T&E, Ocelot, Habitat, Monitor
108	2025-1	(Ocelot) During construction or maintenance activities in or within 500 feet of ocelot habitat (or such distance that noise, light, or other effects reach the habitat), a biological monitor will be present on site to advise the construction contractor to temporarily suspend construction whenever the appropriate BMPs agreed to are not being properly implemented.	General, Animals, T&E, Ocelot, Habitat, Monitor
108	2025-1	(Ocelot) In planning for roads, fences, and other facilities that require land clearing, include avoidance of wetlands, dense thorn scrub, and riparian vegetation as a consideration for facility location.	General, Animals, T&E, Ocelot, Habitat, Wetlands, Vegetation, Clearing, Brush
108	2025-1	(Ocelot) Removal of wetland habitat, dense thorn scrub, or riparian vegetation will be avoided or minimized. Photo document and provide GPS coordinates where correction is needed.	General, Animals, T&E, Ocelot, Habitat, Wetlands, Vegetation, Clearing, Brush
108	2025-1	(Ocelot) Removal of dense thorn scrub or riparian vegetation within the conservation easements established by the USIBWC for the Rio Grande will be avoided to the extent practicable. Photo document and provide GPS coordinates where correction is needed.	General, Animals, T&E, Ocelot, Habitat, Wetlands, Vegetation, Brush, Clearing
108	2025-1	(Ocelot) To the extent practicable, impermeable fences/barriers will not be constructed that bisect or fragment ocelot dispersal corridors.	General, Habitat, Ocelot, Animals, T&E
108	2025-1	(Ocelot) If freshwater sources are limited, impermeable barriers will not be constructed that prevent ocelot access to freshwater sources.	General, Water, Ocelot, Animals, T&E
108	2025-1	(Ocelot) Where artificial lighting must be used, directed (shielded) lighting will be used and directed away from ocelot (thorn scrub and riparian) habitat. Lighting intensity will be minimized, and the light reaching such habitat will not exceed 1.5 foot candles.	General, Ocelot, Animals, T&E, Lights
108	2025-1	(Ocelot) Documentation of ocelots in project and activity areas will be reported to USFWS. Report all Ocelot sightings in detail and submit in your daily notes.	General, Ocelot, Animals, T&E, Monitor
108	2025-1	(Ocelot) Construction and maintenance activities will be conducted during daylight hours only to avoid noise and lighting issues during the night. If construction or maintenance work activities continue at night, all lights will be shielded to direct light only onto the work site, the minimum wattage needed will be used, and the number of lights will be minimized.	General, Ocelot, Animals, T&E, Lights
108	2025-1	(Jaguarundi) Pre-construction surveys will identify any jaguarundi habitat in or adjacent to the project area, and the presence of the jaguarundi at the habitat area will be assumed.	General, Habitat, Animals, T&E, Jaguarundi, Monitor
108	2025-1	(Jaguarundi) During construction or maintenance activities in or within 500 feet of jaguarundi habitat (or such distance that noise, light, or other effects reach the habitat), a biological monitor will be present on site to advise the construction contractor to temporarily suspend construction whenever the appropriate BMPs agreed to are not being properly implemented.	General, Animals, T&E, Jaguarundi, Monitor
108	2025-1	(Jaguarundi) In planning for roads, fences, and other facilities that require land clearing, include the avoidance of wetlands, dense thorn scrub, and riparian vegetation as a consideration for facility location Photo document and provide GPS coordinates where correction is needed.	General, Habitat, Wetlands, Vegetation, Jaguarundi, Animals, T&E, Roads
108	2025-1	(Jaguarundi) Removal of wetland habitat, dense thorn scrub, or riparian vegetation will be avoided or minimized.	General, Animals, T&E, Jaguarundi, Wetlands, Vegetation, Habitat, Brush, Clearing

ID	Master BMP Number	BMP Description	BMP Keywords
108	2025-1	(Jaguarundi) To the extent practicable, removal of dense thorn scrub or riparian vegetation within the conservation easements for the cat corridor established by the USIBWC along the Rio Grande will be avoided. Photo document and provide GPS coordinates where correction is needed.	General, Animals, T&E, Jaguarundi, Wetlands, Vegetation, Habitat, Brush, Clearing
108	2025-1	(Jaguarundi) To the extent practicable, impermeable fences/barriers will not be constructed that bisect or fragment jaguarundi dispersal corridors.	General, Habitat, Jaguarundi, Animals, T&E
108	2025-1	(Jaguarundi) If freshwater sources are limited, impermeable barriers will not be constructed that prevent jaguarundi access to freshwater sources.	General, Jaguarundi, Animals, T&E, Water
108	2025-1	(Texas ayenia) Surveys will be conducted on all intact Texas ayenia habitat within the impact corridor in Starr, Hidalgo, and Starr counties before beginning activities that may affect individual plants or habitat.	General, Plants, T&E, Texas ayenia, Habitat, Monitor
108	2025-1	(Texas ayenia) Prevent or control guinea grass and other invasive plants from colonizing uninfested native habitat following CBP disturbance.	General, Plants, T&E, Texas ayenia, Invasives, Disturbance
108	2025-1	(Texas ayenia) Minimize permanent impacts to individual Texas Ayenia populations and habitats.	General, Plants, T&E, Texas ayenia, Habitat
108	2025-1	(Texas ayenia) Reduce the duration of impacts to Texas ayenia populations and habitats.	General, Plants, T&E, Texas ayenia, Habitat
108	2025-1	(Texas ayenia) Where it is necessary to temporarily remove vegetation, cut plants above ground level rather than clearing with bulldozers, root plows, or other implements that cut into the soil. Only high quality Texas ayenia should be cut, and the remaining above ground height should not exceed 2 inches.	General, Plants, T&E, Texas ayenia, Vegetation, Clearing
108	2025-1	(Star cactus) Avoid impacts—Avoid disturbance to star cactus populations and occupied habitat, including land clearing, introduction and spread of invasive plants, herbivory, trampling, and exposure to toxic substances. Surveys should be conducted on all intact star cactus habitat and potential habitat in the impact corridor in western Hidalgo and Starr counties before beginning activities that may affect individual plants or habitat. Photo document and provide GPS coordinates where correction is needed.	General, Plants, T&E, Star cactus, Disturbance, Invasives, HazMat, Habitat, Vegetation, Cactus, Monitor
108	2025-1	(Walker’s manioc) Surveys will be conducted in the impact corridor on all intact Walker’s manioc habitat in Starr and Hidalgo counties before beginning activities that may affect individual plants or habitat.	General, Plants, T&E, Walker's manioc, Monitor
108	2025-1	(Walker’s manioc) Prevent or control invasive plants from colonizing uninfested native habitat following disturbance.	General, Plants, T&E, Walker's manioc, Invasives, Disturbance
108	2025-1	(Walker’s manioc) Minimize permanent impacts to individual Walker’s manioc populations and habitats.	General, Plants, T&E, Walker's manioc, Habitat, Disturbance
108	2025-1	(Walker’s manioc) Reduce the duration of impacts to Walker’s manioc populations and habitats.	General, Plants, T&E, Walker's manioc, Habitat, Disturbance
108	2025-1	(Walker’s manioc) Where it is necessary to temporarily remove vegetation, cut plants above ground level rather than clearing with bulldozers, root plows, or other implements that cut into the soil. Cut plants above ground only in suitable Walker’s manioc habitat, and the remaining plant should not exceed 2 inches in height.	General, Plants, T&E, Walker's manioc, Vegetation, Clearing
108	2025-1	(Star cactus) If impacts were unavoidable, were they minimized? Minimization may be accomplished by, but is not limited to, the following: Prevent or control buffelgrass and other invasive plants from colonizing sites following disturbance; Minimize permanent impacts to individual populations and habitats; Reduce the duration of impacts to populations and habitats; Where it is necessary to temporarily remove vegetation, cut plants above ground level rather than clearing with bulldozers, root plows, or other implements that cut into the soil. Photo document and provide GPS coordinates where correction is needed.	General, Animals, T&E, Lesser long-nosed bat, Habitat, Training
108	2025-1	All chemicals or potentially toxic materials are stored in secure containers, clearly labeled, and removed from the site when construction is complete.	General, Cultural Resources
378	C-TX-HID-001	Since construction or clearing activities cannot be scheduled to avoid the migratory bird nesting season (March 15 through September 15), surveys will be performed to identify active nests.	General, Animals, Migratory Birds, Clearing, Monitor
378	C-TX-HID-001	All construction activities shall be kept within previously surveyed areas. The Contractor shall not conduct ground disturbing activities in any area that has not been previously surveyed for cultural resources. If any cultural or historic resources are discovered during the action, the action will cease immediately and the ENV SME will be contacted.	General, Cultural Resources, Monitor
CRSA_68	28-CRSA37	If construction or clearing activities cannot be scheduled to avoid the migratory bird nesting season (March 1 through September 15), surveys will be performed to identify active nests. These surveys will be coordinated with USFWS and the CBP ENV SME.	General, Animals, Migratory Birds, Clearing, Monitor
CRSA_68	28-CRSA37	All construction activities shall be kept within previously surveyed areas. The Contractor shall not conduct ground disturbing activities in any area that has not been previously surveyed for cultural resources. If any cultural or historic resources are discovered during the action, the action will cease immediately and the ENV SME will be contacted.	General, Cultural Resources, Monitor

Appendix C
Air Emissions Estimates

GSRC 2019-USBP Yuma – Table of Equipment

Type of Equipment	Quantity	Usage	Usage Unit	Total Days	Number of Trips	Total Usage	Total Usage Units	Comments
Loader	1	10	hrs/day	260	---	2,600	hours	
Dozer	1	10	hrs/day	260	---	2,600	hours	Assume dirt to be removed = 27.5 mi x (5280 ft/mi) x (3 ft wide) = 435,600 ft ² = 10 acres (will need this for grading area) 435,600 ft ² x 6 ft deep = 2,613,600 ft ³ . Assume spread and leveling dirt at 48 m ³ /day and 12-hour days = 576 m ³ /day (or 20,341.2 ft3/day) = 129 days.
Excavator	1	10	hrs/day	260	---	2,600	hours	Assume dirt to be removed = 27.5 mi x (5280 ft/mi) x (3 ft wide) = 435,600 ft ² = 10 acres (will need this for grading area) 435,600 ft ² x 6 ft deep = 2,613,600 ft ³ . Assume digging 40 m ³ /hour and 12-hour days = 480 m ³ /day (or 16,951 ft ³ /day) = 155 days.
Crane	1	10	hrs/day	260	---	2,600	hours	
Water Truck	1	10	miles/trip	---	260	2,600	miles	Assume Water Truck stays at project site and drives 10 miles in the project corridor once a day.
Delivery Truck (Vendor Trip)	1	46	miles/trip	---	2904	133,584	miles	Based on round trip from Yuma to San Luis (22.5 miles one way). Assume 5 panels per trip; flat bed truck (5280 ft/mi, 10’ panel = 528 panels/mile = 14,520 panels = 2904 trips).
Truck (Hauling Demo Debris)	1	46	miles/trip	---	200	9,200	miles	Based on round trip from Yuma to San Luis (22.5 miles one way). Assume flat bed truck with 50,000-lb capacity. Assume using 8’ sections (5280 ft/mi, 8’ panel = 660 panels/mile = 18,150 panels total at 550 lbs per panel = 200 truck loads).
Cement Truck	1	46	miles/trip	---	2,555	117,530	miles	Based on round trip from Yuma to San Luis (22.5 miles one way). Assume 8 yd ³ concrete capacity per delivery. Assume footing = 27.5' x 1' x 2' = 290,400 ft ³ . Assume 8 poles per 10 ft panel of fence and poles are 6" x 6" x 18'. Assume poles filled half capacity with cement to account for rebar. 1 panel of fence = 18 ft ³ ; 18ft ³ x 14, 520 panels = 261360 ft ³ . 290,400 + 261,360 = 551,760 ft ³ = 20,435 yd ³ . With 8 yd ³ trips with cement truck 2,555 trips are needed.
Passenger Vehicle (Worker Commute)	15	46	miles/trip	---	260	179,400	miles	Based on round trip from Yuma to San Luis (22.5 miles one way). One operator, two riggers, and one safety representative for crane; one operator and one assistant for all other equipment; 3 other construction site workers (e.g., foreman). Assume 8 passenger trucks (8x46x260=95,680 miles) and 7 passenger cars (7x46x260=83,720).

Equipment	Pollutant Name Description	Pollutant Name	Total Emissions (lbs)	Total Emissions (tons)	Notes
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	Carbon Monoxide (CO)	Carbon Monoxide (CO)	370.8092071	0.185404604	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Carbon Monoxide (CO)	Carbon Monoxide (CO)	228.6119688	0.114305984	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Carbon Monoxide (CO)	Carbon Monoxide (CO)	2814.833233	0.141531616	Dozer
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Carbon Monoxide (CO)	Carbon Monoxide (CO)	2.694901989	0.001347451	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Carbon Monoxide (CO)	Carbon Monoxide (CO)	9.703756672	0.004851878	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Carbon Monoxide (CO)	Carbon Monoxide (CO)	140.8985469	0.070449273	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	Carbon Monoxide (CO)	Carbon Monoxide (CO)	10.33173804	0.005165869	Water Truck
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	Carbon Monoxide (CO)	Carbon Monoxide (CO)	2255.44736	1.12772368	Loader
Worker Commuter Vehicle - Car	Carbon Monoxide (CO)	Carbon Monoxide (CO)	484.5279093	0.242263955	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Carbon Monoxide (CO)	Carbon Monoxide (CO)	696.5238966	0.348261948	Passenger Vehicle (Worker Commute)
		Carbon Monoxide (CO) Total	4482.612518	2.241306259	
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	CO2 Equivalent	CO2 Equivalent	21.67841361	0.010839207	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	CO2 Equivalent	CO2 Equivalent	78.0592584	0.039029629	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	CO2 Equivalent	CO2 Equivalent	1133.420432	0.566710216	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	CO2 Equivalent	CO2 Equivalent	176.596537	0.088298269	Water Truck
		CO2 Equivalent Total	1409.754641	0.70487732	
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	1746.34795	0.873173975	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	560.022109	0.280011054	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	721.540444	0.360770222	Dozer
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	0	0	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	0	0	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	0	0	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	2.913029392	0.001456515	Water Truck
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	1740.897291	0.870448646	Loader
Worker Commuter Vehicle - Car	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	6.529105128	0.003264553	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Oxides of Nitrogen (NOx)	Oxides of Nitrogen (NOx)	12.61502528	0.006307513	Passenger Vehicle (Worker Commute)
		Oxides of Nitrogen (NOx) Total	4790.864954	2.395432477	
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	Primary Exhaust PM10 - Total	PM10	69.17569203	0.034587846	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Primary Exhaust PM10 - Total	PM10	35.69445113	0.017847226	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Fugitive Dust PM 10	PM10	31000.00	15.50	Excavator

Equipment	Pollutant Name Description	Pollutant Name	Total Emissions (lbs)	Total Emissions (tons)	Notes
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Primary Exhaust PM10 - Total	PM10	50.56784374	0.025283922	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Fugitive Dust PM 10	PM10	25800.00	12.90	Dozer
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Primary Exhaust PM10 - Total	PM10	0.000847558	4.23779E-07	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Primary Exhaust PM10 - Total	PM10	0.003051871	1.52594E-06	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Primary Exhaust PM10 - Total	PM10	0.044313166	2.21566E-05	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	Primary Exhaust PM10 - Total	PM10	0.009506939	4.75347E-06	Water Truck
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	Primary Exhaust PM10 - Total	PM10	306.8525431	0.153426272	Loader
Worker Commuter Vehicle - Car	Primary PM10 - Tirewear Particulate	PM10	1.885449748	0.000942725	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	Primary Exhaust PM10 - Total	PM10	0.592231931	0.000296116	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	Primary PM10 - Brakewear Particulate	PM10	6.738011644	0.003369006	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Primary PM10 - Brakewear Particulate	PM10	12.80274944	0.006401375	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Primary PM10 - Tirewear Particulate	PM10	2.154799712	0.0010774	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Primary Exhaust PM10 - Total	PM10	0.983963552	0.000491982	Passenger Vehicle (Worker Commute)
		PM10 Total	57287.50546	28.64375273	
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	Primary Exhaust PM2.5 - Total	PM2.5	67.10046957	0.033550235	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Primary Exhaust PM2.5 - Total	PM2.5	34.62362227	0.017311811	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Fugitive Dust PM 2.5	PM2.5	3100.00	1.55	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Primary Exhaust PM2.5 - Total	PM2.5	49.05080485	0.024525402	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Fugitive Dust PM 2.5	PM2.5	2580.00	1.29	Dozer
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Primary Exhaust PM2.5 - Total	PM2.5	0.000779748	3.89874E-07	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Primary Exhaust PM2.5 - Total	PM2.5	0.002807705	1.40385E-06	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Primary Exhaust PM2.5 - Total	PM2.5	0.040767873	2.03839E-05	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	Primary Exhaust PM2.5 - Total	PM2.5	0.008746343	4.37317E-06	Water Truck
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	Primary Exhaust PM2.5 - Total	PM2.5	297.6471159	0.148823558	Loader
Worker Commuter Vehicle - Car	Primary PM2.5 - Brakewear Particulate	PM2.5	0.842248316	0.000421124	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	Primary PM2.5 - Tirewear Particulate	PM2.5	0.282815369	0.000141408	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	Primary Exhaust PM2.5 - Total	PM2.5	0.523899667	0.00026195	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Primary Exhaust PM2.5 - Total	PM2.5	0.870428707	0.000435214	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Primary PM2.5 - Brakewear Particulate	PM2.5	1.600353248	0.000800177	Passenger Vehicle (Worker Commute)

Equipment	Pollutant Name Description	Pollutant Name	Total Emissions (lbs)	Total Emissions (tons)	Notes
Worker Commuter Vehicle - Pickup Truck	Primary PM2.5 - Tirewear Particulate	PM2.5	0.323217565	0.000161609	Passenger Vehicle (Worker Commute)
		PM2.5 Total	6132.918077	14.836459039	
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	4.718335172	0.002359168	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	2.660991736	0.001330496	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	2.702214479	0.001351107	Dozer
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	0.000178262	8.91312E-08	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	0.000641884	3.20942E-07	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	0.009320156	4.66008E-06	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	0.001479894	7.39947E-07	Water Truck
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	2.31203437	0.001156017	Loader
Worker Commuter Vehicle - Car	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	0.452900084	0.00022645	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Sulfur Dioxide (SO2)	Sulfur Dioxide (SO2)	0.631185651	0.000315593	Passenger Vehicle (Worker Commute)
		Sulfur Dioxide (SO2) Total	13.48928169	0.006744641	
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	Total Gaseous Hydrocarbons	Volatile Organic Compounds	267.5028764	0.133751438	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Total Gaseous Hydrocarbons	Volatile Organic Compounds	144.3707084	0.072185354	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Total Gaseous Hydrocarbons	Volatile Organic Compounds	149.1800768	0.074590038	Dozer
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Volatile Organic Compounds	Volatile Organic Compounds	1.462839197	0.00073142	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Volatile Organic Compounds	Volatile Organic Compounds	5.267366189	0.002633683	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	Volatile Organic Compounds	Volatile Organic Compounds	76.48215707	0.038241079	Delivery Truck (Vendor Trip)
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	Volatile Organic Compounds	Volatile Organic Compounds	1.67609292	0.000838046	Water Truck
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	Total Gaseous Hydrocarbons	Volatile Organic Compounds	355.7037767	0.177851888	Loader
Worker Commuter Vehicle - Car	Volatile Organic Compounds	Volatile Organic Compounds	8.838293275	0.004419147	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	Volatile Organic Compounds	Volatile Organic Compounds	16.48171816	0.008240859	Passenger Vehicle (Worker Commute)
		Volatile Organic Compounds Total	1026.965905	0.513482952	

Equipment Description	Year	Horsepower (HP)	MOVES EF Set	Emission Rate	Emission Rate Units	Total Usage	Total Usage Unit	Pollutant Name	Total Emissions (lbs)	TOE Identifier
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	2020	300	Cranes-Diesel Fuel-300HP	0.147730087	g/hp-hr per day	2600	Hours	Volatile Organic Compounds	267.5028764	Crane
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	2020	300	Cranes-Diesel Fuel-300HP	0.215635062	g/hp-hr per day	2600	Hours	Carbon Monoxide (CO)	370.8092071	Crane
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	2020	300	Cranes-Diesel Fuel-300HP	1.015546111	g/hp-hr per day	2600	Hours	Oxides of Nitrogen (NOx)	1746.34795	Crane
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	2020	300	Cranes-Diesel Fuel-300HP	4.02E-02	g/hp-hr per day	2600	Hours	Primary Exhaust PM10 - Total	69.17569203	Crane
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	2020	300	Cranes-Diesel Fuel-300HP	3.90E-02	g/hp-hr per day	2600	Hours	Primary Exhaust PM2.5 - Total	67.10046957	Crane
EP C80GV025 CRANES, HYDRAULIC, TRUCK MTD, 40 TON, 95' BOOM, 6X4	2020	300	Cranes-Diesel Fuel-300HP	2.74E-03	g/hp-hr per day	2600	Hours	Sulfur Dioxide (SO2)	4.718335172	Crane
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	2020	175	Excavators-Diesel Fuel-175HP	3.45E-02	g/hp-hr per day	2600	Hours	Primary Exhaust PM2.5 - Total	34.62362227	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	2020	175	Excavators-Diesel Fuel-175HP	0.136679314	g/hp-hr per day	2600	Hours	Volatile Organic Compounds	144.3707084	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	2020	175	Excavators-Diesel Fuel-175HP	2.65E-03	g/hp-hr per day	2600	Hours	Sulfur Dioxide (SO2)	2.660991736	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	2020	175	Excavators-Diesel Fuel-175HP	0.558286656	g/hp-hr per day	2600	Hours	Oxides of Nitrogen (NOx)	560.022109	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	2020	175	Excavators-Diesel Fuel-175HP	0.227903523	g/hp-hr per day	2600	Hours	Carbon Monoxide (CO)	228.6119688	Excavator
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	2020	175	Excavators-Diesel Fuel-175HP	3.56E-02	g/hp-hr per day	2600	Hours	Primary Exhaust PM10 - Total	35.69445113	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	2020	175	Crawler Tractor/Dozers-Diesel Fuel-175HP	4.89E-02	g/hp-hr per day	2600	Hours	Primary Exhaust PM2.5 - Total	49.05080485	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	2020	175	Crawler Tractor/Dozers-Diesel Fuel-175HP	2.69E-03	g/hp-hr per day	2600	Hours	Sulfur Dioxide (SO2)	2.702214479	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	2020	175	Crawler Tractor/Dozers-Diesel Fuel-175HP	0.141232462	g/hp-hr per day	2600	Hours	Volatile Organic Compounds	149.1800768	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	2020	175	Crawler Tractor/Dozers-Diesel Fuel-175HP	0.282186048	g/hp-hr per day	2600	Hours	Carbon Monoxide (CO)	2814.833233	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	2020	175	Crawler Tractor/Dozers-Diesel Fuel-175HP	0.719304462	g/hp-hr per day	2600	Hours	Oxides of Nitrogen (NOx)	721.540444	Dozer
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	2020	175	Crawler Tractor/Dozers-Diesel Fuel-175HP	0.050411139	g/hp-hr per day	2600	Hours	Primary Exhaust PM10 - Total	50.56784374	Dozer
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	2020	100	Tractors/Loaders/Backhoes-Diesel Fuel-100HP	3.934801415	g/hp-hr per day	2600	Hours	Carbon Monoxide (CO)	2255.44736	Loader
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	2020	100	Tractors/Loaders/Backhoes-Diesel Fuel-100HP	3.03712924	g/hp-hr per day	2600	Hours	Oxides of Nitrogen (NOx)	1740.897291	Loader
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	2020	100	Tractors/Loaders/Backhoes-Diesel Fuel-100HP	0.535327865	g/hp-hr per day	2600	Hours	Primary Exhaust PM10 - Total	306.8525431	Loader
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	2020	100	Tractors/Loaders/Backhoes-Diesel Fuel-100HP	0.51926829	g/hp-hr per day	2600	Hours	Primary Exhaust PM2.5 - Total	297.6471159	Loader
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	2020	100	Tractors/Loaders/Backhoes-Diesel Fuel-100HP	4.03E-03	g/hp-hr per day	2600	Hours	Sulfur Dioxide (SO2)	2.31203437	Loader
MAP L40CA019 LOADER, FRONT END, WHEEL, 1.70 CY BUCKET, ARTICULATED, 4X4	2020	100	Tractors/Loaders/Backhoes-Diesel Fuel-100HP	0.589318709	g/hp-hr per day	2600	Hours	Volatile Organic Compounds	355.7037767	Loader

Note: 1.053 is the ratio of VOC to THC from "Conversion Factors for Hydrocarbon Emission Components", July 2010, EPA-420-R-10-015

Equipment Description	Year	MOVES EF Set	Pollutant Name	Emission Rate	Emission Rate Units	Total Usage	Total Usage Unit	Total Emissions (lbs)	TOE Identifier
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	Primary Exhaust PM2.5 - Total	3.36398E-06	lbs/mi	2600	Miles	0.008746343	Water Truck
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	Sulfur Dioxide (SO2)	5.6919E-07	lbs/mi	2600	Miles	0.001479894	Water Truck
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	Primary Exhaust PM10 - Total	3.65652E-06	lbs/mi	2600	Miles	0.009506939	Water Truck
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	Volatile Organic Compounds	0.000644651	lbs/mi	2600	Miles	1.67609292	Water Truck
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	Oxides of Nitrogen (NOx)	0.001120396	lbs/mi	2600	Miles	2.913029392	Water Truck
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	CO2 Equivalent	0.067921745	lbs/mi	2600	Miles	176.596537	Water Truck
GEN T60Z7910 TRUCK, WATER, OFF-HIGHWAY, 5,000 GAL (18,927 L), W/175 HP (130 KW) TRACTOR	2020	Single Unit Short-haul Truck	Carbon Monoxide (CO)	0.003973745	lbs/mi	2600	Miles	10.33173804	Water Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	CO2 Equivalent	0.008484702	lbs/mi	2555	Miles	21.67841361	Cement Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Sulfur Dioxide (SO2)	6.977E-08	lbs/mi	2555	Miles	0.000178262	Cement Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Volatile Organic Compounds	0.00057254	lbs/mi	2555	Miles	1.462839197	Cement Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Carbon Monoxide (CO)	0.001054756	lbs/mi	2555	Miles	2.694901989	Cement Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Primary Exhaust PM10 - Total	3.31725E-07	lbs/mi	2555	Miles	0.000847558	Cement Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Primary Exhaust PM2.5 - Total	3.05185E-07	lbs/mi	2555	Miles	0.000779748	Cement Truck
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Oxides of Nitrogen (NOx)	0	lbs/mi	2555	Miles	0	Cement Truck
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	CO2 Equivalent	0.008484702	lbs/mi	9200	Miles	78.0592584	Truck (Hauling Demo Debris)
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Sulfur Dioxide (SO2)	6.977E-08	lbs/mi	9200	Miles	0.000641884	Truck (Hauling Demo Debris)
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Volatile Organic Compounds	0.00057254	lbs/mi	9200	Miles	5.267366189	Truck (Hauling Demo Debris)
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Carbon Monoxide (CO)	0.001054756	lbs/mi	9200	Miles	9.703756672	Truck (Hauling Demo Debris)
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Primary Exhaust PM10 - Total	3.31725E-07	lbs/mi	9200	Miles	0.003051871	Truck (Hauling Demo Debris)
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Primary Exhaust PM2.5 - Total	3.05185E-07	lbs/mi	9200	Miles	0.002807705	Truck (Hauling Demo Debris)
GEN T50Z7520 TRUCK, HIGHWAY, 55,000 LB (24,948 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Oxides of Nitrogen (NOx)	0	lbs/mi	9200	Miles	0	Truck (Hauling Demo Debris)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	CO2 Equivalent	0.008484702	lbs/mi	133584	Miles	1133.420432	Delivery Truck (Vendor Trip)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Sulfur Dioxide (SO2)	6.977E-08	lbs/mi	133584	Miles	0.009320156	Delivery Truck (Vendor Trip)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Volatile Organic Compounds	0.00057254	lbs/mi	133584	Miles	76.48215707	Delivery Truck (Vendor Trip)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Carbon Monoxide (CO)	0.001054756	lbs/mi	133584	Miles	140.8985469	Delivery Truck (Vendor Trip)

Equipment Description	Year	MOVES EF Set	Pollutant Name	Emission Rate	Emission Rate Units	Total Usage	Total Usage Unit	Total Emissions (lbs)	TOE Identifier
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Primary Exhaust PM10 - Total	3.31725E-07	lbs/mi	133584	Miles	0.044313166	Delivery Truck (Vendor Trip)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Primary Exhaust PM2.5 - Total	3.05185E-07	lbs/mi	133584	Miles	0.040767873	Delivery Truck (Vendor Trip)
GEN T50Z7580 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	2020	Combination Short-haul Truck	Oxides of Nitrogen (NOx)	0	lbs/mi	133584	Miles	0	Delivery Truck (Vendor Trip)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Oxides of Nitrogen (NOx)	0.000131846	lbs/mi	95680	Miles	12.61502528	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Carbon Monoxide (CO)	0.007279723	lbs/mi	95680	Miles	696.5238966	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Volatile Organic Compounds	0.000172259	lbs/mi	95680	Miles	16.48171816	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Primary Exhaust PM2.5 - Total	9.09729E-06	lbs/mi	95680	Miles	0.870428707	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Primary PM10 - Brakewear Particulate	0.000133808	lbs/mi	95680	Miles	12.80274944	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Primary PM10 - Tirewear Particulate	2.25209E-05	lbs/mi	95680	Miles	2.154799712	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Primary PM2.5 - Brakewear Particulate	1.67261E-05	lbs/mi	95680	Miles	1.600353248	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Primary PM2.5 - Tirewear Particulate	3.37811E-06	lbs/mi	95680	Miles	0.323217565	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Sulfur Dioxide (SO2)	6.59684E-06	lbs/mi	95680	Miles	0.631185651	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Pickup Truck	2020	Passenger Truck	Primary Exhaust PM10 - Total	1.02839E-05	lbs/mi	95680	Miles	0.983963552	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Primary PM10 - Tirewear Particulate	2.25209E-05	lbs/mi	83720	Miles	1.885449748	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Primary PM2.5 - Brakewear Particulate	1.00603E-05	lbs/mi	83720	Miles	0.842248316	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Primary PM2.5 - Tirewear Particulate	3.37811E-06	lbs/mi	83720	Miles	0.282815369	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Sulfur Dioxide (SO2)	5.4097E-06	lbs/mi	83720	Miles	0.452900084	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Volatile Organic Compounds	0.00010557	lbs/mi	83720	Miles	8.838293275	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Primary Exhaust PM10 - Total	7.07396E-06	lbs/mi	83720	Miles	0.592231931	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Primary Exhaust PM2.5 - Total	6.25776E-06	lbs/mi	83720	Miles	0.523899667	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Oxides of Nitrogen (NOx)	7.79874E-05	lbs/mi	83720	Miles	6.529105128	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Carbon Monoxide (CO)	0.005787481	lbs/mi	83720	Miles	484.5279093	Passenger Vehicle (Worker Commute)
Worker Commuter Vehicle - Car	2020	Passenger Car	Primary PM10 - Brakewear Particulate	8.04827E-05	lbs/mi	83720	Miles	6.738011644	Passenger Vehicle (Worker Commute)

Equipment	Pollutant Name Description	Pollutant Name	Total Emissions (lbs)	Total Emissions (tons)	Notes
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Fugitive Dust PM 10	PM10	31000	15.5	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Fugitive Dust PM 10	PM10	25800	12.9	Dozer
GEN H25Z3190 HYDRAULIC EXCAVATOR, CRAWLER, 70,000 LB (31,751 KG), 2.00 CY (1.5 M3) BUCKET, 21.6' (6.6 M) MAX DIGGING DEPTH	Fugitive Dust PM 2.5	PM2.5	3100	1.55	Excavator
GEN T15Z6500 TRACTOR, CRAWLER (DOZER), 136-180 HP (101-134 KW), POWERSHIFT, W/UNIVERSAL BLADE	Fugitive Dust PM 2.5	PM2.5	2580	1.29	Dozer

- Notes:
- 1) Used excavation production and removal rates from <https://www.methvin.org/construction-production-rates/excavation/bulk-excavation> to estimate PM 10 for excavation using USAF Transitory guide and equation 4-4.
 - 2) Used "Spread and level" (Average) rate for grading from: <https://www.methvin.org/construction-production-rates/excavation/spread-and-level> - Dozer, 1.2m3 bucket, 50-200m2, Sand/Soil Slow: 43.5 Average: 48.0 Fast: 52.6 Unit: m3/hr to estimate PM 10 using USAF Transitory guide and equation 4-4.
 - 3) PM 10 Fugitive dust emissions were calculated using the emission factor of 0.22 ton per acre per month (20 lb/ac-day) (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).
 - 4) PM 2.5 was calculated using PM 10 conversion factor of 0.1. (Source: <https://www3.epa.gov/ttn/chief/ap42/ch13/bgdocs/b13s02.pdf>, AP-42, Chapter 13.2.2, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors (Nov 2006), Table 1)

Appendix D
Vegetation Observed During the RGV-06, 08, & 09 Biological Surveys

Common Name	Scientific Name	Common Name	Scientific Name
Berlandier's Indian mallow	<i>Abutilon berlandieri</i>	Heartleaf hibiscus	<i>Hibiscus martianus</i>
Indian mallow	<i>Abutilon</i> sp.	Sangre de Drago	<i>Jatropha dioica</i>
Round copperleaf	<i>Acalypha monostachya</i>	Gregg's tube tongue	<i>Justicia pilosella</i>
Poirot's copperleaf	<i>Acalypha poirotii</i>	Coyotillo	<i>Karwinskia humboldtiana</i>
Vasey's adelia	<i>Adelia vaseyi</i>	Allthorn	<i>Koeberlinia spinosa</i>
Hierba de la hormiga	<i>Allionia incarnata</i>	Calderona	<i>Krameria ramosissima</i>
Aloe vera	<i>Aloe vera</i>	Brushland lantana	<i>Lantana achyranthifolia</i>
White brush	<i>Aloysia gratissima</i>	Texas lantana	<i>Lantana urticoides</i>
Rio Grande beebrush	<i>Aloysia macrostachya</i>	Pepperwort	<i>Lepidium</i> sp.
Palmer's amaranth	<i>Amaranthus palmeri</i>	River tamarind	<i>Leucaena leucocephala</i>
Pigweed	<i>Amaranthus</i> sp.	Tepeguaje	<i>Leucaena pulverulenta</i>
Field ragweed	<i>Ambrosia confertiflora</i>	Humidity bush	<i>Leucophyllum frutescens</i>
Wright's yellowshow	<i>Amoreuxia wrightii</i> (<i>Cochlospermum wrightii</i>)	Peyote	<i>Lophophora williamsii</i>
Texas torchwood	<i>Amyris texana</i>	Berlandier wolfberry	<i>Lycium berlandieri</i>
Fishhook cactus	<i>Ancistrocactus scheeri</i>	Malva loca	<i>Malvastrum americanum</i>
Sixweeks threeawn	<i>Aristida adscensionis</i>	Pincushion cactus	<i>Mammillaria heyderi</i>
Giant reed	<i>Arundo donax</i>	Arrow leaf milkvine	<i>Matelea saggitifolia</i>
Poverty weed	<i>Baccharis neglecta</i>	Hoary blackfoot	<i>Melampodium cinereum</i>
Sea ox-eye daisy	<i>Borrichia frutescens</i>	Chinaberry	<i>Melia azederach</i>
Cayenne pepper	<i>Capsicum annuum</i>	Alamo vine	<i>Merremia dissecta</i>
Sedge	<i>Carex</i> sp.	Lipfern	<i>Myriopteris</i> sp.
Amargosa	<i>Castela erecta</i>	Bicolored greggia	<i>Nerisyrenia camporum</i>
Sugar hackberry	<i>Celtis laevigata</i>	Tree tobacco	<i>Nicotiana glauca</i>
Spiny hackberry	<i>Celtis ehrenbergiana</i>	Guara	<i>Oenothera</i> sp.
Buffelgrass	<i>Cenchrus ciliaris</i>	Texas prickly pear	<i>Opuntia engelmannii</i>
Stinging cevallia	<i>Cevallia sinuata</i>	Pennyleaf wood sorrel	<i>Oxalis dichondrifolia</i>
Pitseed goosefoot	<i>Chenopodium berlandieri</i>	Texas palafoxia	<i>Palafoxia texana</i>
Finger grass	<i>Chloris barbata</i>	Retama	<i>Parkinsonia aculeata</i>
Hooded windmill grass	<i>Chloris cucullata</i>	Palo verde	<i>Parkinsonia texana</i>
Texas thistle	<i>Cirsium texanum</i>	False ragweed	<i>Parthenium hysterophorus</i>
Possum grape	<i>Cissus trifoliata</i>	Crowngrass	<i>Paspalum</i> sp.
Mexican fiddlewood	<i>Citharexylum brachyanthum</i>	Corona de Cristo	<i>Passiflora foetida</i> var. <i>gossypifolia</i>
Old man's beard	<i>Clematis drummondii</i>	Passion flower	<i>Passiflora</i> sp.
Variable-leaf snailseed	<i>Cocculus diversifolius</i>	Devilqueen	<i>Phaulothamnus spinescens</i>
White-mouth dayflower	<i>Commelina erecta</i>	Yellow flamethrower	<i>Phemeranthus aurantiacus</i>
Brasil	<i>Condalia hookeri</i>	Mistletoe	<i>Phoradendron tomentosum</i>
Squaw bush	<i>Condalia spathulata</i>	Silky leaf frogfruit	<i>Phyla nodiflora</i>
Blue mistflower	<i>Conoclinium coelestinum</i>	Zapata bladderpod	<i>Physaria thamnophila</i>
Bindweed	<i>Convolvulus</i> sp.	Smartweed	<i>Polygonum</i> sp.
Horseweed	<i>Conyza canadensis</i>	Common purslane	<i>Portulaca oleracea</i>

Common Name	Scientific Name	Common Name	Scientific Name
Rain lily	<i>Cooperia drummondii</i>	Pink purslane	<i>Portulaca pilosa</i>
Texas olive	<i>Cordia bossieri</i>	Purslane	<i>Portulaca</i> sp.
Runyon's corypantha	<i>Coryphantha macromeris</i> var. <i>runyonii</i>	Common devil's-claw	<i>Proboscidea louisianica</i>
Woolly croton	<i>Croton capitatus</i>	Mesquite	<i>Prosopis glandulosa</i>
Low croton	<i>Croton humilis</i>	Castorbean	<i>Ricinus communis</i>
Torrey's croton	<i>Croton incanus</i>	Violet ruellia	<i>Ruellia nudiflora</i>
Croton	<i>Croton</i> sp.	Black willow	<i>Salix nigra</i>
Christmas cholla	<i>Cylindropuntia leptocaulis</i>	Russian thistle	<i>Salsola tragus</i>
Bermuda grass	<i>Cynodon dactylon</i>	Soapberry	<i>Sapindus saponaria</i>
Flatsedge	<i>Cyperus</i> sp.	Guajillo	<i>Senegalia berlandieri</i>
Kleberg's bluestem	<i>Dichanthium annulatum</i>	Catclaw acacia	<i>Senegalia greggii</i>
Texas persimmon	<i>Diospyros texana</i>	Twinleaf senna	<i>Senna bauhinoides</i>
Texas ebony	<i>Ebenopsis ebano</i>	Sesame (cultivated)	<i>Sesamum indicum</i>
Horse crippler	<i>Echinocactus texensis</i>	Sida	<i>Sida</i> sp.
Strawberry cactus	<i>Echinocereus enneacanthus</i>	Coma	<i>Sideroxylon celastrinum</i>
Yellow flowered alicocha	<i>Echinocereus papillosus</i> var. <i>angusticeps</i>	Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
Pencil cactus	<i>Echinocereus poselgeri</i>	Texas nightshade	<i>Solanum triquetrum</i>
Fitch's rainbow cactus	<i>Echinocereus reichenbachii</i> var. <i>fitchii</i>	Johnson grass	<i>Sorghum halepense</i>
Anacua	<i>Ehretia anacua</i>	Seepweed	<i>Suaeda</i> sp.
Mormon tea	<i>Ephedra antisiphilitica</i>	Salt cedar	<i>Tamarix ramosissima</i>
White-margined sandmat	<i>Euphorbia albomarginata</i>	Coastal germander	<i>Teucrium cubense</i>
Prostrate sandmat	<i>Euphorbia prostrata</i>	Glory-of-Texas	<i>Thelocactus bicolor</i>
Texas kidneywood	<i>Eysenhardtia texana</i>	Five-needle dogweed	<i>Thymophylla pentachaeta</i>
Sticky florestina	<i>Florestina tripteris</i>	Oreja de perro	<i>Tiquilia canescens</i>
Narrowleaf elbow bush	<i>Forestiera angustifolia</i>	Puncture vine	<i>Tribulus terrestris</i>
Mexican ash	<i>Fraxinus berlandieriana</i>	False Rhodes grass	<i>Trichloris crinita</i>
Wavy twinevine	<i>Funastrum clausum</i>	Cattail	<i>Typha</i> sp.
Climbing milkweed	<i>Funastrum cynanchoides</i>	Cedar elm	<i>Ulmus crassifolia</i>
Fire wheel	<i>Gaillardia pulchella</i>	Guinea grass	<i>Urochloa maxima</i>
Narrowleaf goldshower	<i>Galphimia angustifolia</i>	Whitethorn acacia	<i>Vachellia constricta</i>
Cotton (cultivated)	<i>Gossypium hirsutum</i>	Huisache	<i>Vachellia farnesiana</i>
Grindelia	<i>Grindelia</i> sp.	Blackbrush acacia	<i>Vachellia rigidula</i>
Dog cholla	<i>Grusonia schottii</i>	Huisachillo	<i>Vachellia schaffneri</i> var. <i>bravoensis</i>
Guaiacum	<i>Guaiacum angustifolium</i>	Gray vervain	<i>Verbena canescens</i>
Guapilla	<i>Hechtia glomerata</i>	Texas verbena	<i>Verbena halei</i>
Common sunflower	<i>Helianthus annuus</i>	Skeleton-leaf golden eye	<i>Viguiera stenoloba</i>
Barreta	<i>Helietta parvifolia</i>	Yucca	<i>Yucca</i> sp.
Scorpion's tail	<i>Heliotropium angiospermum</i>	Spanish dagger	<i>Yucca treculeana</i>

Common Name	Scientific Name	Common Name	Scientific Name
Heliotrope	<i>Heliotropium</i> sp.	Colima	<i>Zanthoxylum fagara</i>
Camphorweed	<i>Heterotheca subaxillaris</i>	Lote bush	<i>Ziziphus obtusifolia</i>

Source: CBP 2021

Appendix E
Wildlife Observed During RGV-06, 08, & 09 Biological Surveys

Common Name	Scientific Name
Reptiles	
Texas horned lizard	<i>Phrynosoma cornutum</i>
Blue spiny lizard	<i>Sceloporus cyanogenys</i>
Texas spiny lizard	<i>Sceloporus olivaceus</i>
Rose-bellied lizard	<i>Sceloporus variabilis</i>
Four-lined skink	<i>Plestiodon tetragrammus</i>
Texas spotted whiptail	<i>Aspidoscelis gularis</i>
Laredo striped whiptail	<i>Aspidoscelis laredoensis</i>
Mediterranean house gecko	<i>Hemidactylus turcicus</i>
Flat-headed snake	<i>Tantilla gracilis</i>
Texas indigo snake	<i>Drymarchon melanurus erebennus</i>
Western hognose snake	<i>Heterodon nasicus</i>
Diamondback water snake	<i>Nerodia rhombifer</i>
Common box turtle	<i>Terrapene carolina</i>
Texas tortoise	<i>Gopherus berlandieri</i>
Amphibians	
Cane toad	<i>Rhinella marina</i>
Gulf Coast toad	<i>Incillus nebulifer</i>
Rio Grande leopard frog	<i>Lithobates berlandieri</i>
Birds	
Black-throated sparrow	<i>Amphispiza bilineata</i>
Cassin's sparrow	<i>Peucaea cassinii</i>
Olive sparrow	<i>Arremonops rufivirgatus</i>
Lark sparrow	<i>Chondestes grammacus</i>
House sparrow	<i>Passer domesticus</i>
Green kingfisher	<i>Chloroceryle americana</i>
Great kiskadee	<i>Pitangus sulphuratus</i>
Couch's kingbird	<i>Tyrannus couchii</i>
Western kingbird	<i>Tyrannus verticalis</i>
Tropical kingbird	<i>Tyrannus melancholicus</i>
Scissor-tailed flycatcher	<i>Tyrannus forficatus</i>
Groove-billed ani	<i>Crotophaga sulcirostris</i>
Cactus wren	<i>Campylorhynchus brunneicapillus</i>
Dickcissel	<i>Spiza americana</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Painted bunting	<i>Passerina ciris</i>
Eurasian collared-dove	<i>Streptopelia decaocto</i>
Common ground-dove	<i>Columbina passerina</i>
Inca dove	<i>Columbina inca</i>
Mourning dove	<i>Zenaida macroura</i>
White-winged dove	<i>Zenaida asiatica</i>
Rock dove	<i>Columba livia</i>
European starling	<i>Sturnus vulgaris</i>
Orange-crowned warbler	<i>Vermivora celata</i>

Common Name	Scientific Name
Yellow warbler	<i>Setophaga petechia</i>
Common nighthawk	<i>Nyctidromus albicollis</i>
Northern bobwhite	<i>Colinus virginianus</i>
Golden-fronted woodpecker	<i>Melanerpes aurifrons</i>
Verdin	<i>Auriparus flaviceps</i>
House finch	<i>Haemorhous mexicanus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Eastern meadowlark	<i>Sturnella magna</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>
Eastern wood pewee	<i>Contopus virens</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Greater roadrunner	<i>Geococcyx californianus</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Black-crested titmouse	<i>Baeolophus atricristatus</i>
Neotropic cormorant	<i>Phalacrocorax brasilianus</i>
Least sandpiper	<i>Calidris minutilla</i>
Great egret	<i>Ardea alba</i>
Snowy egret	<i>Egretta thula</i>
Great blue heron	<i>Ardea herodias</i>
Crested caracara	<i>Caracara cheriway</i>
Grey hawk	<i>Buteo plagiatus</i>
White-tailed hawk	<i>Geranoaetus albicaudatus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Harris's hawk	<i>Parabuteo unicinctus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Osprey	<i>Pandion haliaetus</i>
Turkey vulture	<i>Cathartes aura</i>
Black vulture	<i>Coragyps atratus</i>
Curve-billed thrasher	<i>Toxostoma curvirostre</i>
Long-billed thrasher	<i>Toxostoma longirostre</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Grey catbird	<i>Dumetella carolinensis</i>
Bell's vireo	<i>Vireo bellii</i>
White-eyed vireo	<i>Vireo griseus</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Chimney swift	<i>Chaetura pelagica</i>
Baltimore oriole	<i>Icterus galbula</i>
Orchard oriole	<i>Icterus spurius</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Green jay	<i>Cyanocorax yncas</i>
Plain chachalaca	<i>Ortalis vetula</i>
Mammals	
Bobcat	<i>Lynx rufus</i>
Nine-banded armadillo	<i>Dasypus novemcinctus</i>

Common Name	Scientific Name
Collared peccary	<i>Pecari tajacu</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Black-tailed jackrabbit	<i>Lepus californicus</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Virginia opossum	<i>Didelphis virginiana</i>
Raccoon	<i>Procyon lotor</i>
Butterflies & Moths	
American snout	<i>Libytheana carinenta</i>
Queen	<i>Danaus gilippus</i>
Giant swallowtail	<i>Papilio cressphontes</i>
White peacock	<i>Anartia jatrophae</i>
Bordered patch	<i>Chlosyne lacinia</i>
Fawn-spotted skipper	<i>Cymaenes trebius</i>
Phaon crescent	<i>Phyciodes phaon</i>
Mexican bluewing	<i>Myscelia ethusa</i>
Tawny emperor	<i>Asterocampa clyton</i>
Io moth	<i>Automeris io</i>
Southern dogface	<i>Zerene cesonia</i>
Empress leilia	<i>Asterocampa leilia</i>
Gray hairstreak	<i>Strymon melinus</i>
Common mestra	<i>Mestra amymone</i>
Great purple hairstreak	<i>Atlides halesus</i>
Lyside Sulphur	<i>Kricogonia lyside</i>
Laviana white skipper	<i>Heliopetes laviana</i>
Common checkered skipper	<i>Pyrgus communis</i>
Desert checkered skipper	<i>Pyrgus philetas</i>
Pearl crescent	<i>Phyciodes tharos</i>
Gulf fritillary	<i>Agraulis vanillae</i>
Clouded skipper	<i>Lerema accius</i>
Exposed bird dropping moth	<i>Tarache aprica</i>
Western pygmy blue	<i>Brephidium exilis</i>
Ceraunus blue	<i>Hemiargus ceraunus</i>
Theona checkerspot	<i>Chlosyne theona</i>
Variegated fritillary	<i>Euptoieta claudia</i>
Melipotis moth	<i>Melipotis sp.</i>
Striped grass looper	<i>Mocis latipes</i>

Source: CBP 2021