APPENDIX A

Tactical Infrastructure Classifications and Maintenance and Repair Standards

APPENDIX A

Tactical Infrastructure Classifications and Maintenance and Repair Standards

Introduction

The tactical infrastructure will be maintained in accordance with proven maintenance and repair standards. All of the standards CBP is adopting are developed based on comprehensive engineering analysis, proven BMPs adopted by other Federal agencies, and mitigation measures derived from extensive consultation with both regulatory and resources agencies. Below is a description of tactical infrastructure classifications and maintenance and repair standards.

Road Classification

CBP has developed a road classification system whereby roads are maintained to specific standards dependent upon their classification. Under the CBP classification system, five standards for roads have been developed:

- *FC-1 Paved Road* – Paved, all-weather road constructed of any material. Road is two lane with a total road width of 24 feet (see **Figures A-1** and **A-2**).
- *FC-2 All-Weather Road* – Unpaved, all-weather road consisting of a surface of imported aggregate material such as milled bituminous material or processed stone and gravel. Road is two-lane with a total road width of 24 feet (see **Figures A-3** and **A-4**).
- *FC-3 Graded Earth Road* – Unpaved road constructed of graded, native material. Road is two-lane with a total road width of 20 feet (see **Figures A-5** and **A-6**).
- *FC-4 Two-Track Road* – Unpaved road on natural ground consisting of a single lane with an overall road width of 10 feet (see **Figures A-7** and **A-8**).
- *FC-5 Sand Road* – Unpaved, sand road consisting of natural ground conditions, two lanes, and an overall road width of 16 to 18 feet (see **Figures A-9** and **A-10**).

Road Maintenance and Repair

The maintenance and repair of FC-1 and FC-2 roads within state, county, or municipal government's purview is completed by their transportation departments. Maintenance and repair of FC-1 and FC-2 roads located on Federal land are maintained in coordination and performed where necessary by agreement with the appropriate Federal agency. In general, CBP would adhere to U.S. Forest Service (USFS) standards for road maintenance, which have been tried and proven over many years and in a variety of environmental conditions.

Some of the tactical infrastructure on Federal lands is covered by the Secretary's waiver and is the responsibility of CBP to maintain and repair. In the few instances where CBP is required to maintain FC-1 and FC-2 roads, maintenance and repair would be restricted to minor resurfacing to address potholes in paved surfaces and rutting and raveling in all-weather roads. Minor work to shoulder areas of these roads would also be required to maintain the integrity of the road surfaces and roadbeds.

Figure A-1. FC-1 Paved Road (Photograph)

FC 1 – Paved Roads

The proposed paved road facility consists of two (2) 3.6 m (12 ft) travel lanes with 0.6 m (2 ft) shoulders at a 2% cross slope. The proposed pavement design for this section consists of 200 mm (8 in) of compacted aggregate base with a two (2) coarse surface treatment. Parallel ditches with a 1V:3H front slope and a 1V:4H back slope are proposed to provide proper drainage. Existing FC 1 roadways may vary from proposed roadway specifications.

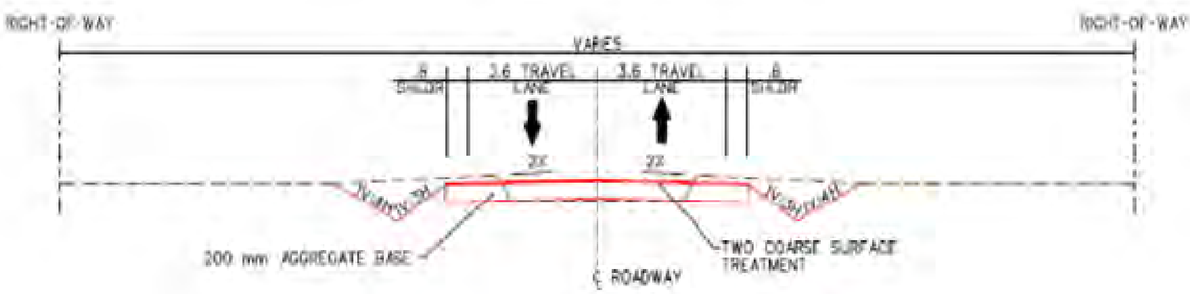

Figure A-2. FC-1 Paved Road (Diagram)

Figure A-3. FC-2 All-Weather Road (Photograph)

FC 2 – All-Weather Roads

The proposed all weather road facility consists of two (2) 3.6 m (12 ft) travel lanes at a 4% cross slope. The proposed section consists of 150 mm (6 in) of compacted aggregate base. Parallel ditches with a 1V:3H front slope and a 1V:4H back slope are proposed to provide proper drainage. Existing FC 2 roadways may vary from proposed roadway specifications.

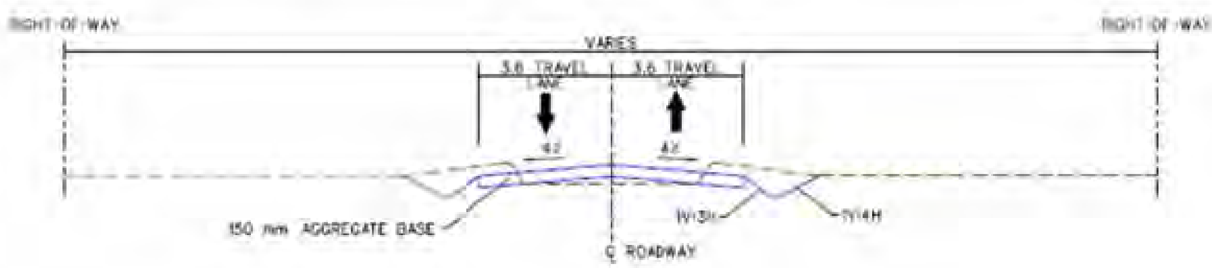

Figure A-4. FC-2 All-Weather Road (Diagram)

Figure A-5. FC-3 Graded Earth Road (Photograph)

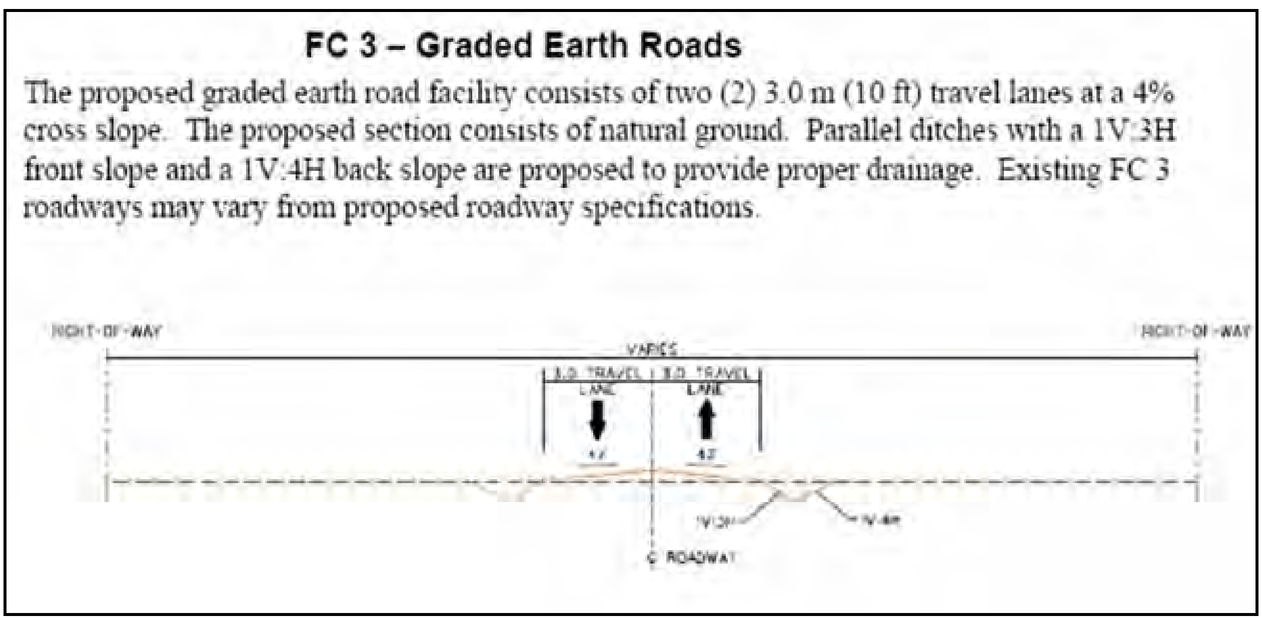

Figure A-6. FC-3 Graded Road (Diagram)

Figure A-7. FC-4 Two-Track Road (Photograph)

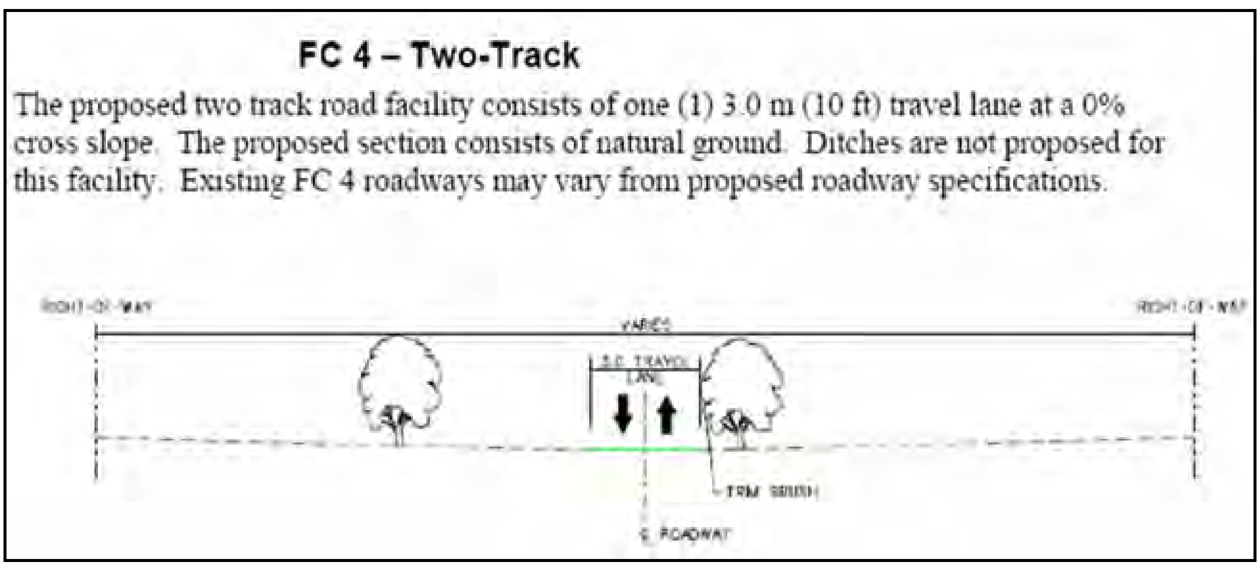

Figure A-8. FC-4 Two-Track Road (Diagram)

Figure A-9. FC-5 Sand Road (Photograph)

FC5 – Sand Road

The proposed sand road consists of 16-18 feet travel lane at a 0% cross slope. The proposed section consist of natural ground – no foundation base. Drainage ditches are not proposed for this type road. Existing FC-5 roadways may vary from proposed roadway specifications,

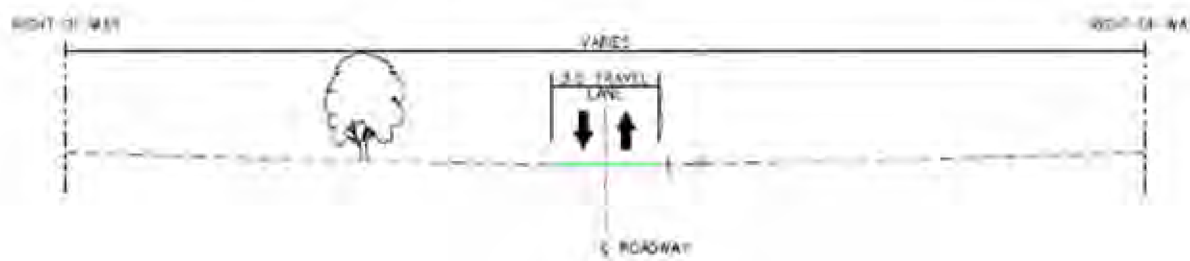

Figure A-10. FC-5 Sand Road (Diagram)

The majority of proposed maintenance and repair is planned for FC-3 and FC-4 roads. Because of their lack of formal construction design, FC-3 and FC-4 roadways are subject to the greatest deterioration if left unmaintained. When subjected to heavier traffic, rutting occurs, which in turn is exacerbated by rain events that further erode the surface. Unmanaged storm water flow also causes general erosion to occur, washing out complete sections of road and in many instances making roads impassable. The characteristics of the FC-4 road will remain unchanged from maintenance and repair.

Grading with the use of commercial grading equipment (see **Figure A-11**) is proposed to restore an adequate surface to FC-3 roads. USBP sector personnel and contract support personnel well-versed in grading techniques would be employed for such activity. A poorly regraded surface quite often results in rapid deterioration of the surface. The restored road should be slightly crowned and absent of windrows in the gutter line to avoid ponding and channeling within the road during rain events. Any associated roadside drainage would be maintained to ensure that runoff is relieved from the road surface quickly and effectively without creating further erosion issues. The addition of material to these roads to achieve the proposed objective would be kept to a minimum. All necessary erosion-control BMPs would be adopted to ensure stabilization of the project areas.

Figure A-11. Standard Grading Equipment

The frequency of maintenance would depend on usage and weather conditions (e.g., heavy rain seasons could require an increase in maintenance and repair). Maintenance and repair activities would include inspections to determine surface irregularities (e.g., potholes, washout), then grading, compacting, and reshaping of the road would occur generally using onsite soils as necessary. The addition of material to these roads to achieve the proposed objective would be kept to a minimum, but may be necessary to fill depressions or to grade the surface of the road back up to match shoulder grades. Roads could occasionally need to be scarified, have aggregate added, and the surface recompacted. It is recommended that these roads be inspected and, if necessary, maintained every six months and after major storm events. Debris and sedimentation removal from low water crossings, culverts, and ditches to minimize flooding, water diversion, and erosion would also occur every six months and after major storm events. All necessary erosion-control BMPs would be adopted to ensure stabilization of the project areas.

As the two track name implies, FC-4 roads consist of two parallel tracks created by the loss of vegetation where the tires contact and compact the earth; between which may lay a strip of low-growth vegetation. These roads receive very little maintenance consisting primarily of occasional brush and boulder clearing, and possibly but much less frequently grading with small tractor mounted box blades. Two-track roads have no crown, and generally do not have any improved drainage features or ditches, although culverts and low water crossings may be installed where continuous erosion issues occur. Any maintenance and repair done to FC-4 roads would not change the character of the roadway.

Most FC-5 roads are associated with fence infrastructure that has been covered by the Secretary's waiver or previous NEPA documentation and therefore dismissed from further discussion. There are, however, some FC-5 roads that provide access to infrastructure that are not covered by the Secretary's waiver or previous NEPA documentation and will be examined throughout this EA. Activities to maintain FC-5 roads would be similar to those described above for FC-3 roads.

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APPENDIX B

Best Management Practices

The following best management practices (BMPs) will be implemented for all Selective Maintenance and Repair Program activities. U.S. Customs and Border Control (CBP) will use an established planning and work development process to identify the BMPs that must be implemented for each project. To identify species-specific BMPs that must be implemented, CBP environmental subject matter experts (SMEs) will identify which species potentially occur in the project area. They will then consider other available sources of information, such as prior survey data, aerial photographs, site visits, and previously developed environmental documentation, to evaluate whether suitable habitat for federally listed threatened and endangered species could occur at each project location. The environmental SME will also determine if a survey conducted by a qualified biologist is required prior to maintenance and repair activities to determine if habitat is present or is required by a BMP. If necessary, the environmental SMEs will hold further consultation with the U.S. Fish and Wildlife Service (USFWS) to clarify any compliance requirements.

BMP No.	Category	Best Management Practices
1	Biological Resources	If federally listed species are found in the contractor's designated project area, the contractor will immediately notify the Government's project manager and the COR. Any species requiring relocation will be relocated by a qualified biological monitor (that the Government will provide) to a safe location outside the impact corridor and in accordance with accepted species handling protocols to the extent practicable.
2	Biological Resources	Temporary light poles and other pole-like structures used for construction activities will have anti-perch devices to discourage roosting by birds.
3	Biological Resources	To prevent entrapment of wildlife species during the construction of the project, all excavated, steep walled 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.
4	Biological Resources	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. Deploy covers (and ensure they remain fully functioning) when the posts or hollow bollards arrive on the site and are unloaded, until they are filled with reinforcing material.
5	Biological Resources	Visible space beneath all heavy equipment must be checked for wildlife prior to moving the equipment.
6	Biological Resources	Materials such as hay bales and waddles used for on-site erosion control in un-infested 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.

7	Biological Resources	The construction contractor will remove invasive plants that appear on the site as needed. If mechanical methods are used to remove invasive plants, the entire plant should be removed and placed in a disposal area. If herbicides are used, the plants will be left in place. All chemical applications on federally managed land must be used in coordination with the federal land manager.
8	Biological Resources	Removal of trees and brush in threatened or endangered species habitats will be limited to the smallest amount needed to meet the objectives of the project. Avoid the removal of mature trees providing shade or bank stabilization within the riparian area of any waterway. Clearing of riparian vegetation will not occur within 100-feet of aquatic habitats to provide a buffer area to protect the habitat from sedimentation. Photo document and provide GPS coordinates where correction is needed.
9	Biological Resources	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. Surveys for nesting migratory birds will be conducted immediately prior to the start of construction activities. If an active nest is found, a buffer zone will be established around the nest, and no activities will occur within that zone until nestlings have fledged and abandoned the nest.
10	Biological Resources	Mechanical and chemical vegetation control will be timed to avoid the migration, breeding, and nesting timeframe of migratory birds (March 15 through September 15). Herbicide retreatments could occur throughout the year. When such activities must be implemented during March 15 through September 15, a survey for nesting migratory birds will be conducted immediately prior to the start of activities. If an active nest is found, a buffer zone will be established around the nest, and no activities will occur within that zone until nestlings have fledged and abandoned the nest.
11	Biological Resources	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.
12	Biological Resources	Minimize animal collisions during the construction project by not exceeding speed limits of 35 miles per hour (mph) on major unpaved roads (i.e., graded with ditches on both sides) and 25 mph on all other unpaved roads. During periods of decreased visibility (e.g., night, poor weather, curves), do not exceed speeds of 25 mph.
13	Biological Resources	The perimeter of all areas to be disturbed during construction activities will be clearly demarcated using flagging or temporary construction fence to prevent unnecessary impacts. Access routes into and out of the project area and laydown yards will also be clearly demarcated using flagging or temporary construction fence. Photo document and provide GPS coordinates where correction is needed.
14	Biological Resources	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. Photo document and provide GPS coordinates where correction is needed. Government to acquire GIS shape files from construction contractor at end of project.

15	Cultural Resources	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 Government and/or ENV SME will be contacted.
16	General Construction	CBP will ensure that all construction will follow DHS Directive 025-02 for Sustainable Practices for Environmental, Energy, and Transportation Management.
16	General Construction	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.
17	General Construction	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.
18	General Construction	Only authorized contractors are allowed within the construction site. No pets owned or under the care of the construction workers will be permitted inside the project's construction boundaries, adjacent native habitats, or other associated work areas.
19	General Construction	Site restoration for staging areas and construction access routes will be monitored, as appropriate.
20	General Construction	Imported materials such as fill and gravel must be from a clean source, obtained from existing developed or previously used sources, and not from undisturbed areas adjacent to the project area. Materials will be weed free.
21	General Construction	Within the contractor's designated project area, grading or topsoil removal will be limited to areas where this activity is needed to provide the ground conditions needed for construction. Minimizing disturbance to soils will enhance the ability to restore the disturbed area after the project is complete.
22	General Construction	Appropriate techniques to restore the original grade, replace soils, and restore proper drainage will be implemented in all areas to be restored (e.g., temporary staging areas).
23	General Construction	A SWPPP will be prepared prior to construction activities. Additional site-specific BMPs will be implemented as described in the SWPPP to reduce erosion and the impact of non-point source pollution during construction activities, giving special consideration to areas with highly erodible soils. BMPs include such things as buffers around washes to reduce the risk of siltation and installation of waterbars to slow the flow of water downhill. These BMPs will greatly reduce the amount of soil lost to runoff during heavy rain events and ensure the integrity of the construction site. Soil erosion BMPs can also beneficially affect air quality by reducing the amount of fugitive dust.
24	General Construction	Vehicular traffic associated with the construction activities and operational support activities shall remain on Government designated and established roads. No off-road vehicle activity will occur outside of the project footprint. All staging, parking, and equipment storage areas will be in areas designated by the Government.

25	General Construction	A Fire Prevention and Suppression Plan will be developed and implemented for all activities that require welding or otherwise have a risk of starting a wildfire.
26	General Construction	All heavy equipment will be cleaned/power-washed prior to delivery onsite to ensure that invasive plant seeds are not brought into the project area.
27	General Construction	Coordinate with the environmental SME to determine which activities occur within the 100-year floodplain. Maintenance activities within the 100-year floodplain will be conducted in a manner consistent with Executive Order (E.O.) 11988 and other applicable regulations.
28	General Construction	If soaps or detergents are used, the wastewater and solids must be pumped and cleaned out and disposed of in an approved facility. If no soaps or detergents are used, the wastewater must first be filtered or screened to remove solids before being allowed to flow off site. This does not apply to concrete washout areas, where associated wastewater must be disposed offsite.
29	General Construction	Detergents and cleaning solutions must not be sprayed over or discharged into surface waters. Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging, laydown, and dispensing hazardous liquids (e.g., fuel and oil) to designated upland areas.
30	General Construction	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 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. Equipment and vehicles used on the project site must be well-maintained and use diesel particulate filters to reduce particulate matter emissions. If a contractor expects significant dust/emissions on their specific site, they must provide method to reduce airborne particulate matter for their site.
31	General Construction	Water application for dust suppression will be stringently implemented when construction generates dust in the vicinity of sensitive receptors.
32	General Construction	Soil watering will be used to minimize airborne particulate matter created during construction activities. Bare ground may be covered with hay or straw to lessen wind erosion during construction.
33	General Construction	Equipment maintenance, staging, laydown, and dispensing of fuel, oil, or any other such activities, will occur in Government designated areas using appropriate containment measures. All fuels, waste oils, and solvents shall be collected and stored in clearly labelled 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. These materials will be removed from the site when construction is complete.
34	Hazardous Materials or Waste Management	All construction shall follow DHS management directive 5100 for waste management.

35	Hazardous Materials or Waste Management	A CBP-approved Spill Protection Plan must be implemented by the contractor at the construction site to ensure that toxic substances are properly handled store and disposed of properly. Drip pans will be used beneath equipment, and containment zones will be used when equipment is not being used, or when refueling vehicles and equipment. No refueling or storage shall take place within 100-feet of a drainage channel.
36	Hazardous Materials or Waste Management	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 immediately after use, in closed containers and removed daily from the project site.
37	Hazardous Materials or Waste Management	Wastewater (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 washout generated from pressure washing, including chute washout, must be collected and retained. A lined ground pit or sump can be used to collect concrete washout. Washout and wastewater must not be discharged onto the ground surface or into any surface water. Contractors are either to keep washout within the confines of their site or complete after leaving site.
38	Noise	Noise levels for construction (any time of day or night) and maintenance should be minimized for all projects. All generators will be in baffle boxes, shall possess properly working mufflers, or use other noise-abatement methods, in accordance with industry standards.
39	Noise	Avoid noise impacts during the night by conducting construction and maintenance activities during daylight hours only.
40	Soils	Implement routine road maintenance practices to avoid making windrows with the soils once grading activities are complete and use any excess soils on site to raise and shape the road surface.
41	Soils	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.
42	Soils	Only apply soil-binding agents during the late summer/early fall months to avoid impacts on federally listed species. Do not apply soil-binding agents in or near (within 100-feet) surface waters (e.g., wetlands, perennial streams, intermittent streams, washes). Only apply soil-binding agents to areas that lack vegetation.
43	Vegetation	Clearly demarcate the perimeter of all new areas to be disturbed using flagging or temporary construction fencing. Do not allow any disturbance outside that perimeter to prevent unnecessary impacts to vegetation.
44	Water Resources	Heavy equipment, 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.
45	Water Resources	All water to be used for construction purposes must be from a potable source.
46	Cultural Resources	Any known cultural resources must be clearly flagged for avoidance during construction. Should any archaeological artifacts or human remains be found during construction, all ground disturbing activities in the vicinity of the discovery must stop and the contractor must immediately notify the contracting officer. Work will not resume until authorized.

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APPENDIX C

Air Quality Calculations

Worksheets in this Workbook:

Summary	Summarizes total emissions by calendar year for 2022 Roadway Construction Project - Laredo EA
Combustion	Estimates emissions from non-road equipment exhaust.
Fugitive	Estimates particulate emissions from construction and demolition activities including earthmoving, vehicle traffic, and windblown dust.
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.
Haul Truck On-Road	Estimates emissions from haul trucks hauling construction, surfacing/paving, and fill materials to the job site.
Construction Commuter	Estimates emissions for construction workers commuting to the site.
AQCR Tier Report	Summarizes total emissions for the Laredo County, Texas Tier report for 2017, to be used to compare 2022 Road Construction Project - Laredo EA to regional emissions.
	Comparisions to local thresholds of significance and to General Conformity de minimimis thresholds (if applicable) are made in the text.

Air Emissions for 2022 Roadway Construction Project - Laredo EA - Alternative 1

Construction Emissions	NO_x (tons)	VOC (tons)	CO (tons)	SO_2 (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)	CO_2 (tons)
Combustion	5.978	0.346	2.428	0.515	0.366	0.355	737.75
Fugitive Dust	-	-	-	-	63.000	6.300	-
Haul Truck On-Road	2.661	0.238	0.886	0.006	0.105	0.097	730.75
Commuter	0.033	0.033	0.501	<0.001	0.001	0.001	51.80
TOTAL	***8.67***	***0.62***	***3.81***	***0.52***	***63.47***	***6.75***	***1,520.30***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,379***	***metric tons***	
State of Texas' CO2 emissions from fuel combustion =	***683,200,000***	***metric tons***	*(DOE 2019)*
Percent of Texas' Fuel Combustion CO2 emissions =	***0.0002%***		
United States' CO_2 emissions from fuel combustion=	***4,872,000,000***	***metric tons***	*(DOE 2021)*
Percent of USA's CO_2 emissions =	***0.00003%***		

Sources: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2019 & 2021. State Carbon Dioxide Emissions From Fossil Fuels Tables: Texas Available online <https://www.eia.gov/environment/emissions/state/>. 2019 data values are the most recent. Data accessed 12 May 2022 and <https://www.eia.gov/environment/>. 2021 values are the most recent for total USA CO2 emissions from fuel combustion. Data accessed 12 May 2022.

Since future year budgets were not readily available, actual 2017 air emissions inventories for the county was used as an approximation of the regional inventory. Because the 2022 Construction Project - Laredo EA is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Laredo County, Texas Regional Criteria Air Pollutant Emissions

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2017	32,222	50,997	40,489	603	6,016	1,407

Source: USEPA National Emissions Inventory (NEI) (https://gispub.epa.gov/neireport/2017/). Site visited on 11 May 2022.

Air Emissions from 2022 Construction Project - Laredo EA

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	32,222	50,997	40,489	603	6,016	1,407
Emissions	9	1	4	1	63	7
% of Regional	**0.0269%**	**0.0012%**	**0.0094%**	**0.0865%**	**1.0550%**	**0.4799%**

Combustion Emissions

Combustion Emissions of VOC, NO_x, SO_2, CO, $PM_{2.5}$, $PM_{10,}$ and CO_2 due to Construction and Demolition

	General Construction and Demolition Activities	Area Disturbed	
1.)	LEA - Total graded/surfaced area	2,154,240 ft^2	Road construction is assumed to be 24 ft by 89,760 ft (17 miles). Assumes construction activity would be limited to the final footprint of the road.
2.)	LEA - Construction Area	0 ft^2	No general construction

Total Construction Area:	0 ft^2	
	0.00 acres	
Total Demolition Area:	0 ft^2	No demolition
	0.00 acres	
Total Pavement Demolition Area:	0 ft^2	No pavement demolition
	0.00 acres	
Total Paved/Surfaced Area:	2,154,240 ft^2	
	49.45 acres	
Total Disturbed Area:	2,154,240 ft^2	
	49.45 acres	
Construction Duration:	12 months	It is possible this project could span multiple years, but we have compressed all activities into a single year to assure a worst-case annual emission estimate.
Annual Construction Activity:	240 days	Assume 4 weeks per month, 5 days per week.

Emission Factors Used for Construction Equipment

References: Guide to Air Quality Assessment, SMAQMD, 2004; and U.S. EPA NONROAD Emissions Model, Version 2005.0.0
Emission factors are taken from the NONROAD model and were provided to e²M by Larry Landman of the Air Quality and Modeling Center (Landman.Larry@epamail.epa.gov) on 12/14/07. Factors provided are for the weighted average US fleet for CY2007.
Assumptions regarding the type and number of equipment are from SMAQMD Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Bulldozer	1	13.60	0.96	5.50	1.02	0.89	0.87	1456.90
Motor Grader	1	9.69	0.73	3.20	0.80	0.66	0.64	1141.65
Water Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	3	41.64	2.58	15.71	3.45	2.55	2.47	4941.53

Paving

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Paver	1	3.83	0.37	2.06	0.28	0.35	0.34	401.93
Roller	1	4.82	0.44	2.51	0.37	0.43	0.42	536.07
Truck	2	36.71	1.79	14.01	3.27	1.99	1.93	4685.95
Total per 10 acres of activity	4	45.37	2.61	18.58	3.93	2.78	2.69	5623.96

Demolition

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Loader	1	13.45	0.99	5.58	0.95	0.93	0.90	1360.10
Haul Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	2	31.81	1.89	12.58	2.58	1.92	1.87	3703.07

Building Construction

Equipment[d]	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Stationary								
Generator Set	1	2.38	0.32	1.18	0.15	0.23	0.22	213.06
Industrial Saw	1	2.62	0.32	1.97	0.20	0.32	0.31	291.92
Welder	1	1.12	0.38	1.50	0.08	0.23	0.22	112.39
Mobile (non-road)								
Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Forklift	1	5.34	0.56	3.33	0.40	0.55	0.54	572.24
Crane	1	9.57	0.66	2.39	0.65	0.50	0.49	931.93
Total per 10 acres of activity	6	39.40	3.13	17.38	3.12	2.83	2.74	4464.51

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Air Compressor	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77
Total per 10 acres of activity	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC. The NONROAD model contains emissions factors for total HC and for VOC. The factors used here are the VOC factors.

c) The NONROAD emission factors assume that the average fuel burned in nonroad trucks is 1100 ppm sulfur. Trucks that would be used for the Proposed Actions will all be fueled by highway grade diesel fuel which cannot exceed 500 ppm sulfur. These estimates therefore over-estimate SO2 emissions by more than a factor of two.

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	Project-Specific Emission Factors (lb/day)						
		NO_x	VOC	CO	SO_2**	PM_{10}	$PM_{2.5}$	CO_2
Grading Equipment	5	208.206	12.885	78.549	17.247	12.728	12.346	24707.632
Paving/Surfacing Equipment	5	226.836	13.029	92.892	19.629	13.880	13.464	28119.784
Demolition Equipment	1	31.808	1.886	12.584	2.585	1.923	1.865	3703.074
Building Construction	1	39.396	3.130	17.382	3.116	2.829	2.744	4464.512
Air Compressor for Architectural Coating	1	3.574	0.373	1.565	0.251	0.309	0.300	359.773
Architectural Coating**			0.000					

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project.

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NOx = (Total Grading NOx per 10 acre)*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft^2)	Total Area (acres)	Total Days	
Grading:	2,154,240	49.45	6	(from "Grading" worksheet)
Paving/Surfacing:	2,154,240	49.45	47	
Demolition:	0	0.00	0	
Building Construction:	0	0.00	0	
Architectural Coating	0	0.00	0	(per SMAQMD "Air Quality of Thresholds of Significance", 1994)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total 'Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition.
The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Total Project Emissions by Activity (lbs)

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Grading Equipment	1,249.24	77.31	471.30	103.48	76.37	74.07	148,246
Paving/Surfacing	10,706.68	614.95	4,384.51	926.47	655.16	635.50	1,327,254
Demolition	-	-	-	-	-	-	0
Building Construction	-	-	-	-	-	-	0
Architectural Coatings	-	-	-	-	-	-	0
Total Emissions (lbs):	**11,955.92**	**692.26**	**4,855.81**	**1,029.96**	**731.52**	**709.58**	**1,475,500**

Results: Total Project Annual Emission Rates

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Total Project Emissions (lbs)	11,955.92	692.26	4,855.81	1,029.96	731.52	709.58	1,475,500
Total Project Emissions (tons)	5.978	0.346	2.428	0.515	0.366	0.355	737.750

Construction Fugitive Dust Emissions

Construction Fugitive Dust Emission Factors

	Emission Factor	Units	Source
Construction and Demolition Activities	0.19	ton PM_{10}/acre-month	MRI 1996; EPA 2001; EPA 2006
New Road Construction	0.42	ton PM_{10}/acre-month	MRI 1996; EPA 2001; EPA 2006

$PM_{2.5}$ Emissions

$PM_{2.5}$ Multiplier	0.10	(10% of PM_{10} emissions assumed to be $PM_{2.5}$)	EPA 2001; EPA 2006
Control Efficiency	0.50	(assume 50% control efficiency for PM_{10} and $PM_{2.5}$ emissions)	EPA 2001; EPA 2006

acres (from Project Combustion worksheet,

Project Assumptions

New Roadway Construction (0.42 ton PM_{10}/acre-month)

Duration of Construction Project 12 months (from Project Combustion worksheet)

Area 25.00 acres (from Project Combustion worksheet, assumes a maximum of 50% of the total acreage will be disturbed or under construction at any given time)

General Construction and Demolition Activities (0.19 ton PM_{10}/acre-month)

Duration of Project 12 months (from Project Combustion worksheet)

Area 0.00 acres (from Project Combustion worksheet)

	Project Emissions (tons/year)			
	PM_{10} uncontrolled	**PM_{10} controlled**	**$PM_{2.5}$ uncontrolled**	**$PM_{2.5}$ controlled**
New Roadway Construction	126.000	63.000	12.600	6.300
General Construction Activities	0.000	0.000	0.000	0.000
Total	**126.000**	**63.000**	**12.600**	**6.300**

Construction Fugitive Dust Emission Factors

General Construction Activities Emission Factor

0.19 ton PM_{10}/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The area-based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM_{10}/acre-month for sites without large-scale cut/fill operations. A worst-case emission factor of 0.42 ton PM_{10}/acre-month was calculated for sites with active large-scale earth moving operations. The monthly emission factors are based on 168 work-hours per month (MRI 1996). A subsequent MRI Report in 1999, Estimating Particulate Matter Emissions From Construction Operations, calculated the 0.19 ton PM_{10}/acre-month emission factor by applying 25% of the large-scale earthmoving emission factor (0.42 ton PM_{10}/acre-month) and 75% of the average emission factor (0.11 ton PM_{10}/acre-month). The 0.19 ton PM_{10}/acre-month emission factor is referenced by the EPA for non-residential construction activities in recent procedures documents for the National Emission Inventory (EPA 2001; EPA 2006). The 0.19 ton PM_{10}/acre-month emission factor represents a refinement of EPA's original AP-42 area-based total suspended particulate (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the EPA, this methodology is also supported by the South Coast Air Quality Management District as well as the Western Regional Air Partnership (WRAP) which is funded by the EPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non-residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The EPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM_{10} and $PM_{2.5}$ in PM nonattainment areas.

New Road Construction Emission Factor

0.42 ton PM_{10}/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The emission factor for new road construction is based on the worst-case conditions emission factor from the MRI 1996 study described above (0.42 tons PM_{10}/acre-month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM10/acre-month emission factor for road construction is referenced in recent procedures documents for the EPA National Emission Inventory (EPA 2001; EPA 2006).

$PM_{2.5}$ Multiplier **0.10**

$PM_{2.5}$ emissions are estimated by applying a particle size multiplier of 0.10 to PM_{10} emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (EPA 2006).

Control Efficiency for PM_{10} and $PM_{2.5}$ **0.50**

The EPA National Emission Inventory documentation recommends a control efficiency of 50% for PM_{10} and $PM_{2.5}$ in PM nonattainment areas (EPA 2006). Wetting controls will be applied during project construction.

References:

EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999.* EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.

EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants.* Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.

MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1).* Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

Grading Schedule

Estimate of time required to grade a specified area.

Input Parameters
Construction area: 49.45 acres/yr (from Combustion Worksheet)
Qty Equipment: 15.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions.
Terrain is mostly flat.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers are used for compacting.
Stripping, Excavation, Backfill and Compaction require an average of two passes each.
Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	49.45	6.18
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	49.45	24.18
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	24.73	24.93
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	24.73	10.23
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	49.45	17.34
TOTAL								82.87

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 82.87
Qty Equipment: 15.00
Grading days/yr: 5.52

Haul Truck Emissions

Emissions from hauling paving and excavated material are estimated in this spreadsheet.

Emission Estimation Method: AFCEE Air Emissions Factor Guide to Air Force Mobile Sources, Oct. 2014.

Fill and Excavation Materials Assumptions:
Haul trucks carry 20 cubic yards of soil per trip, but averaging in trucks carrying redi-mix concrete and other construction supplies, assume 18 cubic yards per truck.
The average distance from the project site to the Laredo area is 5 miles; therefore, a haul truck will travel 10 miles round trip.
Estimated number of trips required by haul trucks = total amount of material/18 cubic yards per truck

Amount of Materials for Other Structures/Equipment =	0	cubic yards	Assume cubic yards of materials for other stuctures is based on the area of disturbance plus the area of demolition listed on Project Combustion tab, times 3 feet deep.
Amount of Excavation Material for Surfacing/Paving =	79,787	cubic yards	Paving area from Project Combustion tab, multiplied by depth of disturbance which is assumed to be 1 foot.
Amount of Surfacing/Paving Materials =	79,787	cubic yards	Paving area from Project Combustion tab, multiplied by 1 foot deep.

Number of trucks required = 8865 heavy duty diesel haul truck trips, calculated from the cubic yards above.
Miles per round trip = 50 miles — Assumed haul from quarry approximately 18 miles east of Laredo

Heavy Duty Diesel Vehicle (HDDV) Average Emission Factors (grams/mile)

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
HDDV	**5.447**	**0.488**	**1.814**	**0.013**	**0.215**	**0.198**	**1495.6**

Notes:
Emission factors for all pollutants are from Table 5-23 - On-Road Vehicle Emission Factors – 2018 - Maryland
AFCEE Air Emissions Factor Guide to Air Force Mobile Sources, Jul 2016.

HDDV Haul Truck Emissions

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
lbs	**5322.82**	**476.88**	**1772.65**	**12.70**	**210.10**	**193.49**	**1461505.71**
tons	**2.661**	**0.238**	**0.886**	**0.006**	**0.105**	**0.097**	**730.753**

Any paving requires some sort of compacted uniform base. Assume that native soil will not do, so you will have to import about 6" of base.
The thickness of the paving itself will range from 2 1/2" for a sidewalk or residential driveway, to 4" for a street or parking lot that carries trucks, to 6" for state/interstate highway that carries heavy trucks, to 1'-3' for runways and aprons that carry heavy aircraft.
Note that any of these dimensions may double, depending upon local soil stability and expected unusual loads.

Construction Commuter Emissions

Emissions from construction workers commuting to the job site are estimated in this spreadsheet.

Emission Estimation Method: Emission factors are from the AFCEC Air Emissions Guide for Air Force Mobile Sources, June 2020.

Assumptions:
Light Duty Gasoline Truck (LDGT) vehicle emission factors for scenario year 2022 are used.
The average roundtrip commute for a construction worker = 10 miles
Number of construction days = 240 days (from Project Combustion worksheet)
Number of construction workers (daily) = 50 people

On-Road Vehicle (LDGT) Emission Factors for Year 2022 (grams/mile)

NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
0.251	0.246	3.785	0.003	0.007	0.006	392

Emission factors for all pollutants are from Table 5-21 - On-Road Vehicle Emission Factors – 2022 - Texas
AFCEC Air Emissions Guide for Air Force Mobile Sources, Jul 2020. <https://aqhelp.com/Documents/2020%20Mobile%20Guide%20-%20Final.pdf>

Construction Commuter Emissions

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
lbs	**66.4**	**65.1**	**1001**	**0.79**	**1.85**	**1.59**	**103597**
tons	**0.033**	**0.033**	**0.501**	**0.000**	**0.001**	**0.001**	**51.80**

Example

0.251 g NOx/mi	10 miles roundtrip	50 workers	240 days/yr	/453.6 g/lb
		= 66.4	**lb NOx/yr**	

https://gispub.epa.gov/neireport/2017/
USEPA National Emissions Inventory (NEI)
Emissions in tons per year for 2017
Accessed 5/11/2022

AQCR 213 BROWNSVILLE-LAREDO
2017 Inventory

	CO	NOx	PM10	PM2.5	SO2	VOC
Webb County (tons)	40,489	32,222	6,016	1,407	603	50,997

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APPENDIX D

Waters of the United States Delineation Report

DRAFT

WETLAND DELINEATION REPORT

Laredo Sector 32-Mile CBP Self Executed New Wall Construction and Laredo Sector 37-Mile DOD Funded and USACE Executed New Wall Construction

CONTRACT: GS10F0058K
TASK ORDER: 70B01C20F00001543

Prepared for:

U.S. Customs and Border Protection
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March 2022

EXECUTIVE SUMMARY

LOCATION

This wetland delineation report provides the results of a wetland delineation conducted for U.S. Customs and Border Protection (CBP) in support of the U.S. Border Patrol (USBP) Laredo Sector for the 32-mile, CBP self-executed new wall construction, the USBP Laredo Sector 37-mile, Department of Defense-funded and U.S. Army Corps of Engineers-executed new wall construction, and the 17-mile Laredo patrol corridor. The project area is a 2,288.2-acre, 200-foot-wide corridor composed of a 1,093.8-acre, 32-mile section (Phase 1) and a 1,194.4 acre, 37-mile section (Phase 2) located adjacent to the U.S./Mexico International Border in and near Laredo in Webb County, Texas. The wetland delineation was conducted by Gulf South Research Corporation in multiple sampling events from December 2, 2020, to March 8, 2022.

SITE DESCRIPTION

The predominant vegetation communities within the project area are Tamaulipan woodland, Tamaulipan thornscrub, mesquite woodland, Arundo-Tamarix riparian edge, and invasive grassland. Dominant vegetation includes black willow (*Salix nigra*), salt cedar (*Tamarix ramosissima*), Roosevelt weed (*Baccharis neglecta*), sugarberry (*Celtis laevigata*), sweet acacia (*Vachellia farnesiana*), guinea grass (*Urochloa maxima*), blackbrush acacia (*Acacia rigidula*), Texas sage (*Leucophyllum frutescens*), Texas prickly pear (*Opuntia engelmannii*), Mormon tea (*Ephedra antisyphilitica*), desert Christmas cactus (*Cylindropuntia leptocaulis*), bearded sprangletop (*Diplachne fusca*), curly dock (*Rumex crispus*), creosote bush (*Larrea tridentata*), buffelgrass (*Cenchrus ciliaris*), Bermuda grass (*Cynodon dactylon*), honey mesquite (*Prosopis glandulosa*), spiny hackberry (*Celtis pallida*), giant reed (*Arundo donax*), graythorn (*Ziziphus obtusifolia*), and Rio Grande stickpea (*Calliandra conferta*). According to the *Natural Resources Conservation Service Web Soil Survey of Webb County, Texas*, soils in the project area are mapped as Aguilares fine sandy loam, 0 to 3 percent slopes, Brennan fine sandy loam, 0 to 3 percent slopes, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded, Catarina clay, 0 to 2 percent slopes, Copita fine sandy loam, 0 to 3 percent slopes, Duval very fine sandy loam, 0 to 3 percent slopes, Garceno clay loam, 0 to 2 percent slopes, Hebbronville loamy fine sand, 0 to 3 percent slopes, Jimenez-Quemado complex, 1 to 8 percent slopes, Lagloria loam, 0 to 1 percent slopes, Lagloria loam, 1 to 3 percent slopes, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded, Maverick-Catarina complex, gently rolling, Maverick-Nido complex, 1 to 20 percent slopes, Nido-Rock outcrop complex, 3 to 15 percent slopes, Nido-Rock outcrop complex, hilly, Palafox clay loam, 0 to 3 percent slopes, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded, Rio Grande very fine sandy loam, occasionally flooded, Tela sandy clay loam, 0 to 1 percent slopes, frequently flooded, Tela sandy clay loam, 0 to 1 percent slopes, occasionally flooded, Tonio fine sandy loam, 1 to 5 percent slopes, and Verick fine sandy loam, 1 to 5 percent slopes.

FINDINGS

Based on the routine field investigation, the project area contains approximately 0.37 acre of potentially jurisdictional wetlands, approximately 4.08 acres of Waters of the U.S. in the form of rivers and large creeks, and approximately 5,624.6 linear feet (1.1 miles) of Waters of the U.S. in the form of small creeks and seasonal, ephemeral drainages.

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1.0 INTRODUCTION

Gulf South Research Corporation (GSRC) was contracted by United States (U.S.) Customs and Border Protection (CBP) to perform a wetland delineation within the U.S. Border Patrol (USBP) Laredo Sector for the 32-mile, CBP self-executed new wall construction area identified as “Phase 1” and the Laredo Sector 37-mile, Department of Defense-funded and U.S. Army Corps of Engineers-executed new wall construction project area identified as “Phase 2”. This survey also includes the 17-mile Laredo patrol corridor. The purpose of this study was to identify and quantify potential wetland areas within the project area that meet the jurisdictional criteria of Waters of the U.S., including wetlands. The wetland delineation was conducted by GSRC biologists, Ross Hackbarth, Jonathon Woods, and Alexander Pate in multiple sampling events from December 2, 2020, to March 8, 2022. Data forms and photographs of sample points can be found in Appendix B and Appendix C, respectively.

Wetlands are defined as “areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 Code of Federal Regulations [CFR] 230.3). The *1987 Corps of Engineers Wetland Delineation Manual* and the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic Gulf Coast Region* follow a three-parameter approach to wetland delineations (Environmental Laboratory 1987, U.S. Army Corps of Engineers [USACE] 2010). A site must contain hydric soils, wetland hydrology, and a dominance of hydrophytic vegetation in order to be considered a wetland.

A hydric soil is a soil that has formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil column. Hydric soils have developed under sufficiently wet conditions to support the growth and reproduction of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. Some soil series, designated as hydric, have phases that are not hydric depending on water table, flooding, and ponding characteristics (U.S. Department of Agriculture Natural Resources Conservation Service [USDA NRCS] 2003).

Wetland hydrology encompasses all hydrological characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season (Environmental Laboratory 1987). Evidence of wetland hydrology is most prevalent in areas where the presence of water is exceedingly prominent in the ecosystem such that it has influenced the vegetation and soil characteristics of the area.

Hydrophytic vegetation is defined as "macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987).

Deepwater aquatic habitats are "areas that are permanently inundated at mean annual water depths greater than 6.6 feet, or permanently inundated areas less than or equal to 6.6 feet in depth that do not support rooted-emergent or woody plant species" (Environmental Laboratory 1987). Diagnostic criteria for vegetation, soils, and hydrology consist of the following: (1) no rooted-emergent or woody plant species present in the area, (2) soils substrate not defined as a soil if the water present is greater than 6.6 feet deep, or (3) the soil does not support rooted, emergent, or woody plants, and permanent inundation with a mean water depth of greater than 6.6 feet. Any area that meets these criteria is commonly classified as "other Waters of the U.S." (Environmental Laboratory 1987).

The *1987 Corps of Engineers Wetland Delineation Manual* and the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Environmental Laboratory 1987, USACE 2010) define "Waters of the U.S." as follows:

> …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; all interstate waters including interstate wetlands; 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: (1) those 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 purpose by industries in interstate commerce; (2) all impoundments of waters otherwise defined as waters of the U.S. under the definition; (3) tributaries of waters identified above, other than those exempted by the Rapanos decision (*Rapanos v United States* 2006); (4) the territorial seas; and (5) wetlands adjacent to waters (other than waters that are themselves wetlands) identified above, other than those exempted by the Rapanos decision (*Rapanos v United States* 2006).

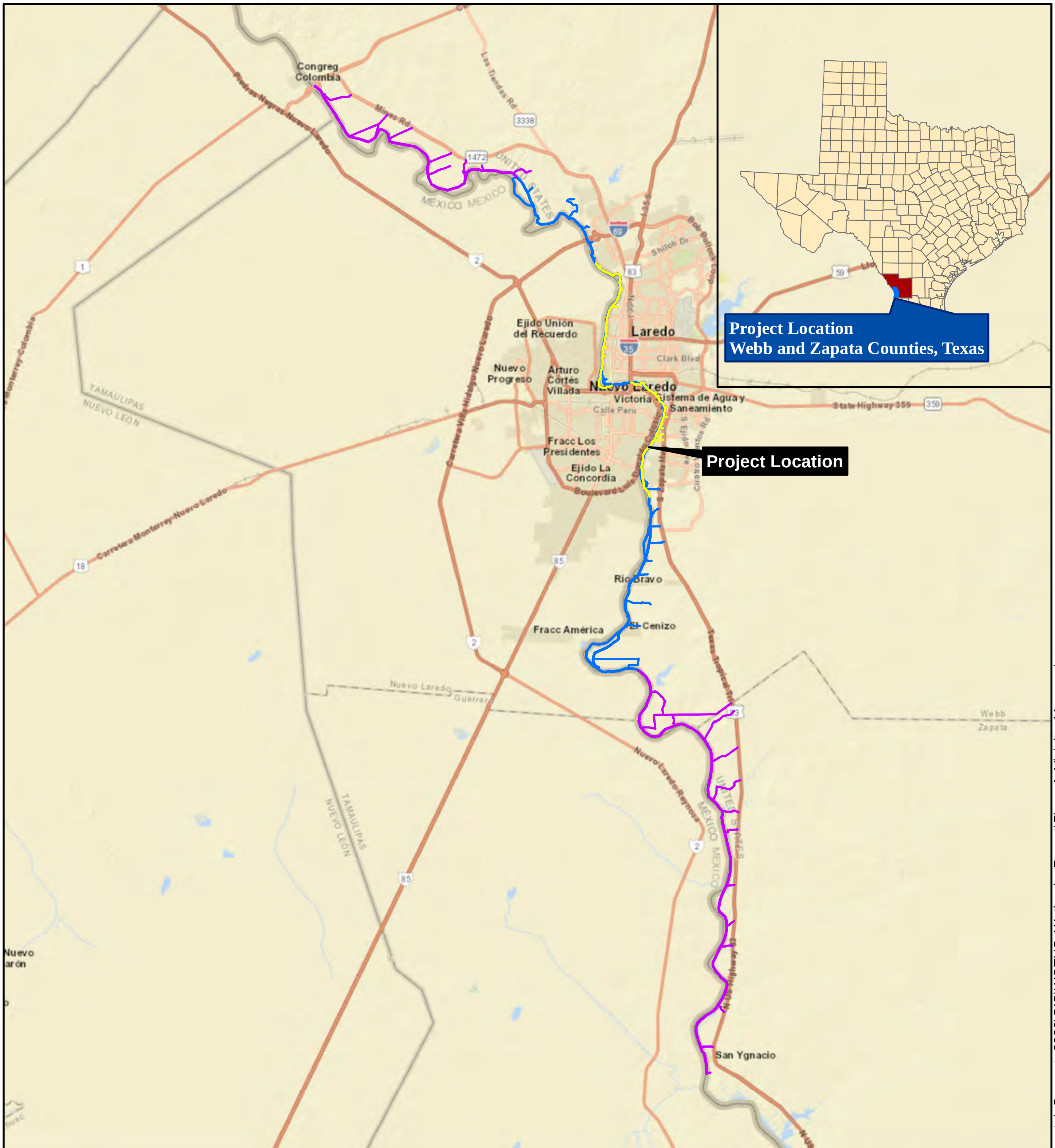
Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 123.11(m), which also meet the criteria of this definition), are not Waters of the U.S. The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other Waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands."

2.0 LOCATION

The project area is a 2,288.2-acre corridor composed of a 1093.8-acre, 32-mile section (Phase 1) and a 1,194.4-acre, 37-mile section (Phase 2), located adjacent to the U.S./Mexico International Border in and near Laredo in Webb County, Texas (Figures 1 through 2j). This survey also includes the 17-mile Laredo patrol corridor. Specifically, the project area extends along the U.S./Mexico International Border from U.S. Highway 255 in Columbia, TX (approximately 19 miles north of Laredo) to Texas State Highway 3169 in San Ygnacio, TX (approximately 33 miles south of Laredo).

3.0 METHODOLOGY

GSRC conducted the wetland delineation in accordance with Section D, Subsection 2, of *Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual* and the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Environmental Laboratory 1987, USACE 2010). References include the NRCS's *Web Soil Survey of Webb County, Texas* (Appendix A) (USDA NRCS 2022) and the *Great Plains 2020 Regional Wetland Plant List* (Lichvar et al. 2020).



Legend

- Laredo Roads Corridor
- Phase I
- Phase II

N

0 3.25 6.5 Miles

0 5 10 Kilometers

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Figure 1. Vicinity Map

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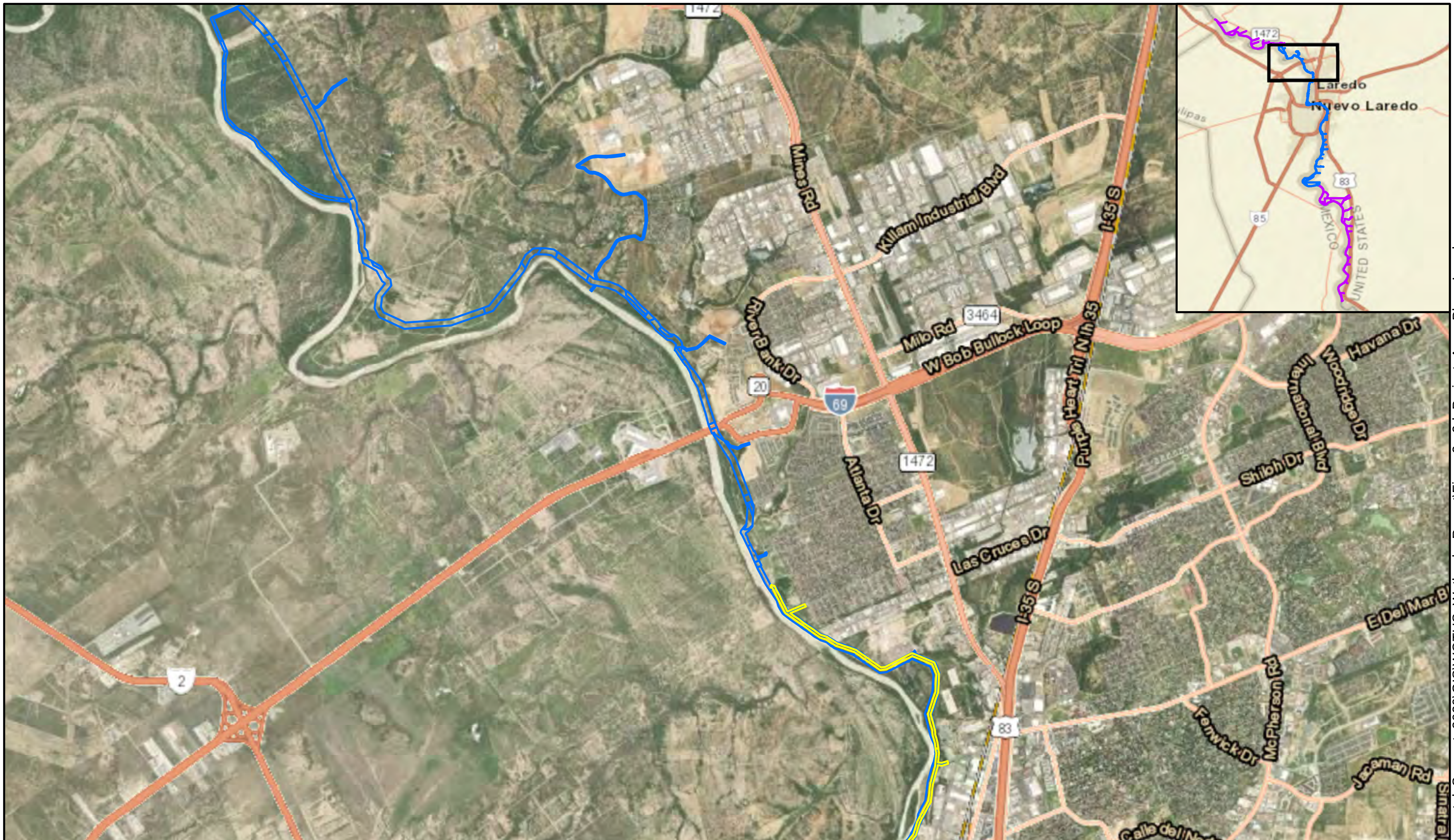

Legend

Phase I (1,093.8 ac.)

Laredo Roads Corridor (202.2 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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Figure 2a. Project Area Map - Phase I

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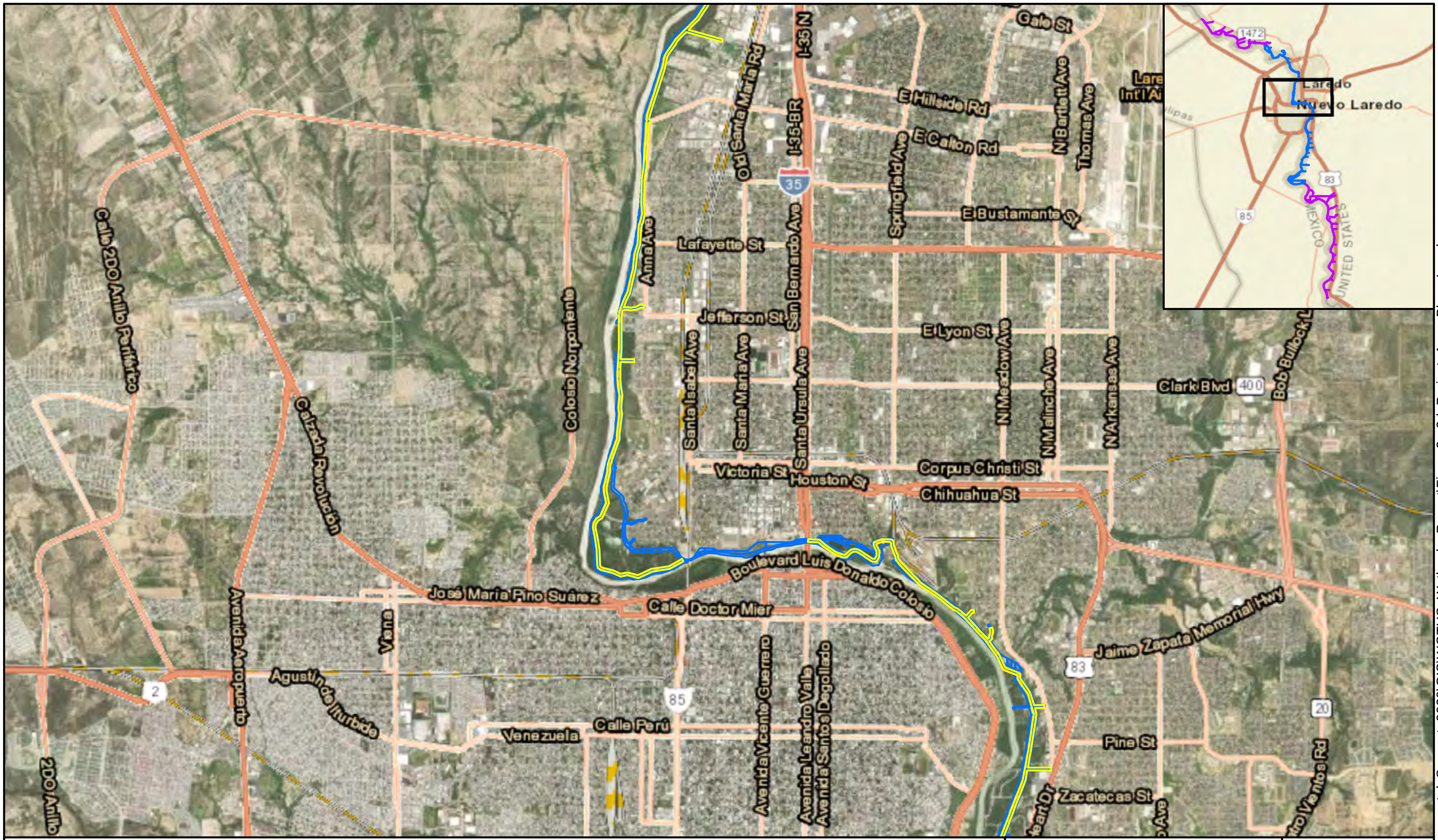

Legend

Phase I (1,093.8 ac.)

Laredo Roads Corridor (202.2 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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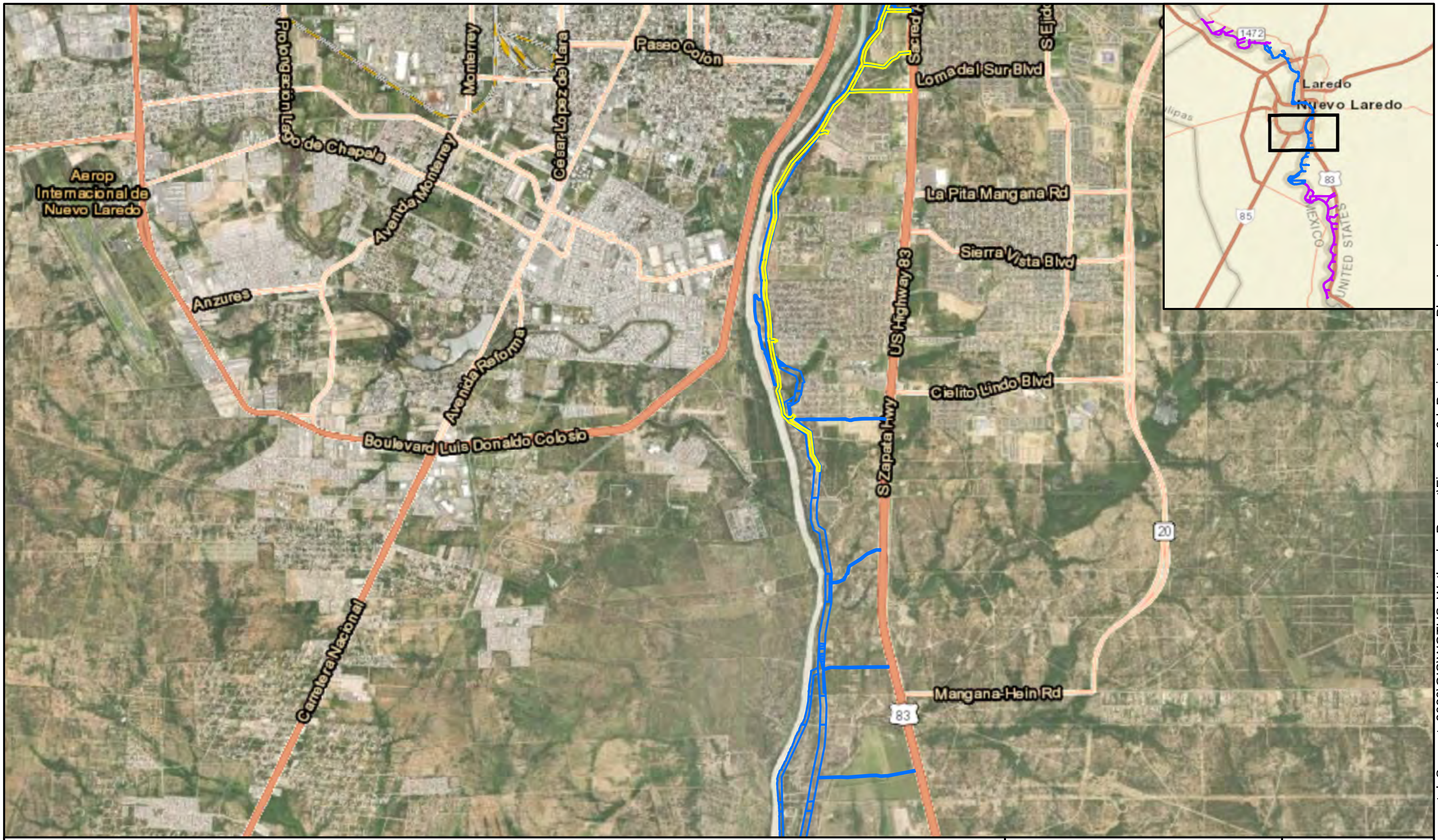
Figure 2b. Project Area Map - Phase I



Legend

Phase I (1,093.8 ac.)

Laredo Roads Corridor (202.2 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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Figure 2c. Project Area Map - Phase I

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Legend

Phase I (1,093.8 ac.)

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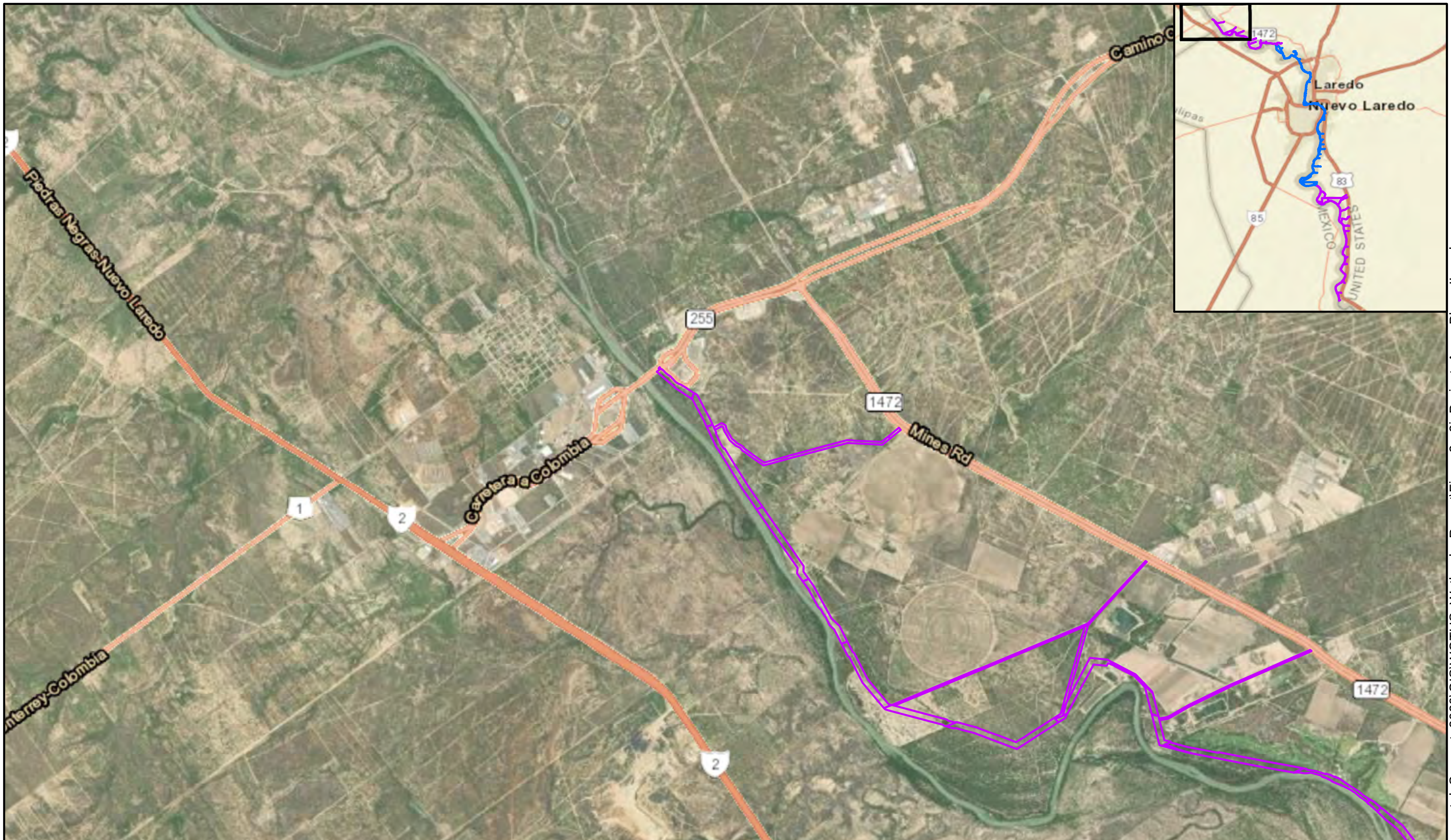
Figure 2d. Project Area Map - Phase I



Legend

Phase II (1,194.4 ac.)

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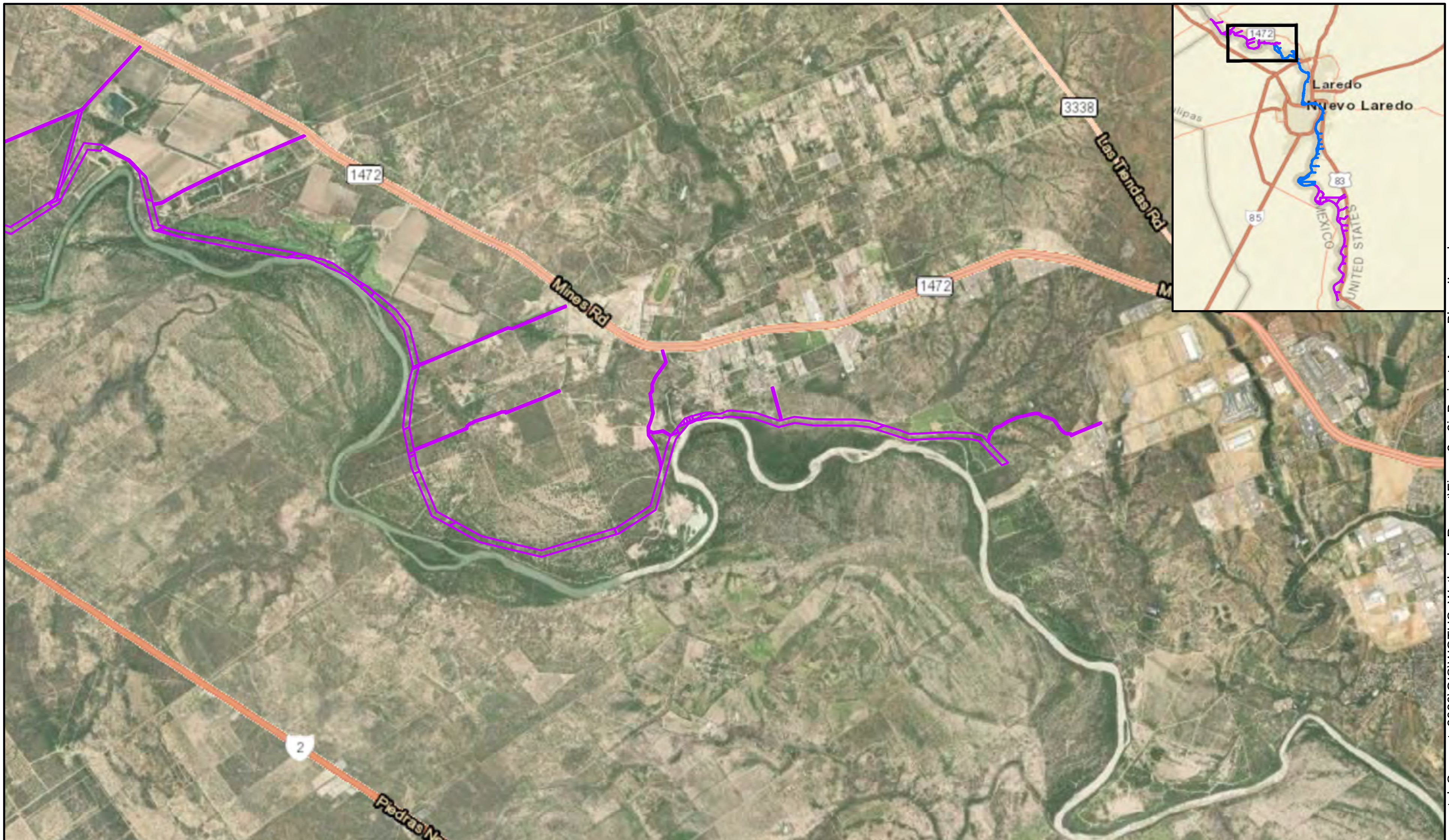
Figure 2e. Project Area Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\Figure2e-2j_Project_Area_PhaseII.mxd



N

0 0.5 1 Miles

0 0.5 1 Kilometers

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March 2022

Legend

Phase II (1,194.4 ac.)

Figure 2f. Project Area Map - Phase II

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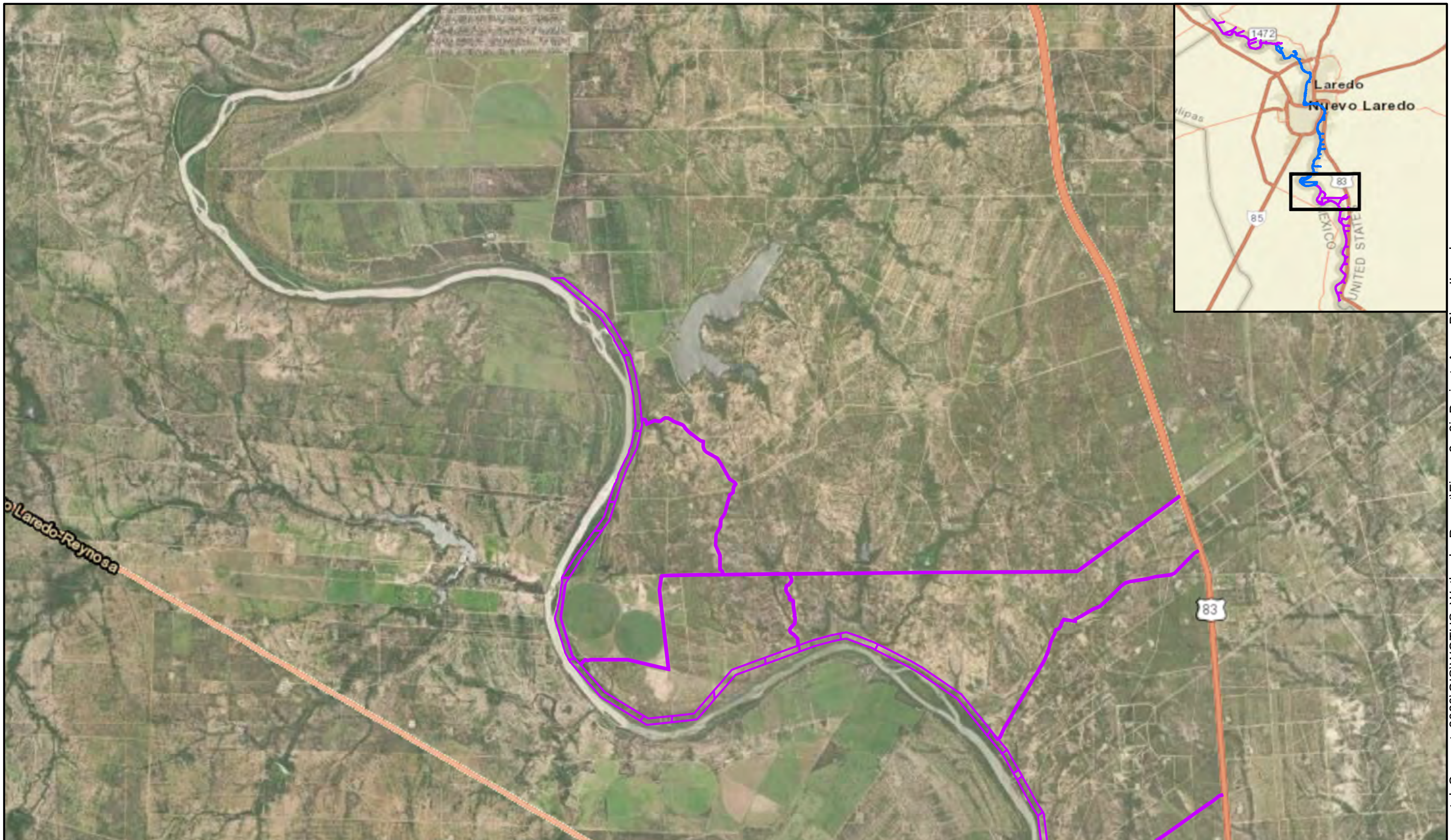

Legend

Phase II (1,194.4 ac.)

N

0 0.5 1 Miles

Kilometers 0 0.5 1

GSRC

March 2022

Figure 2g. Project Area Map - Phase II

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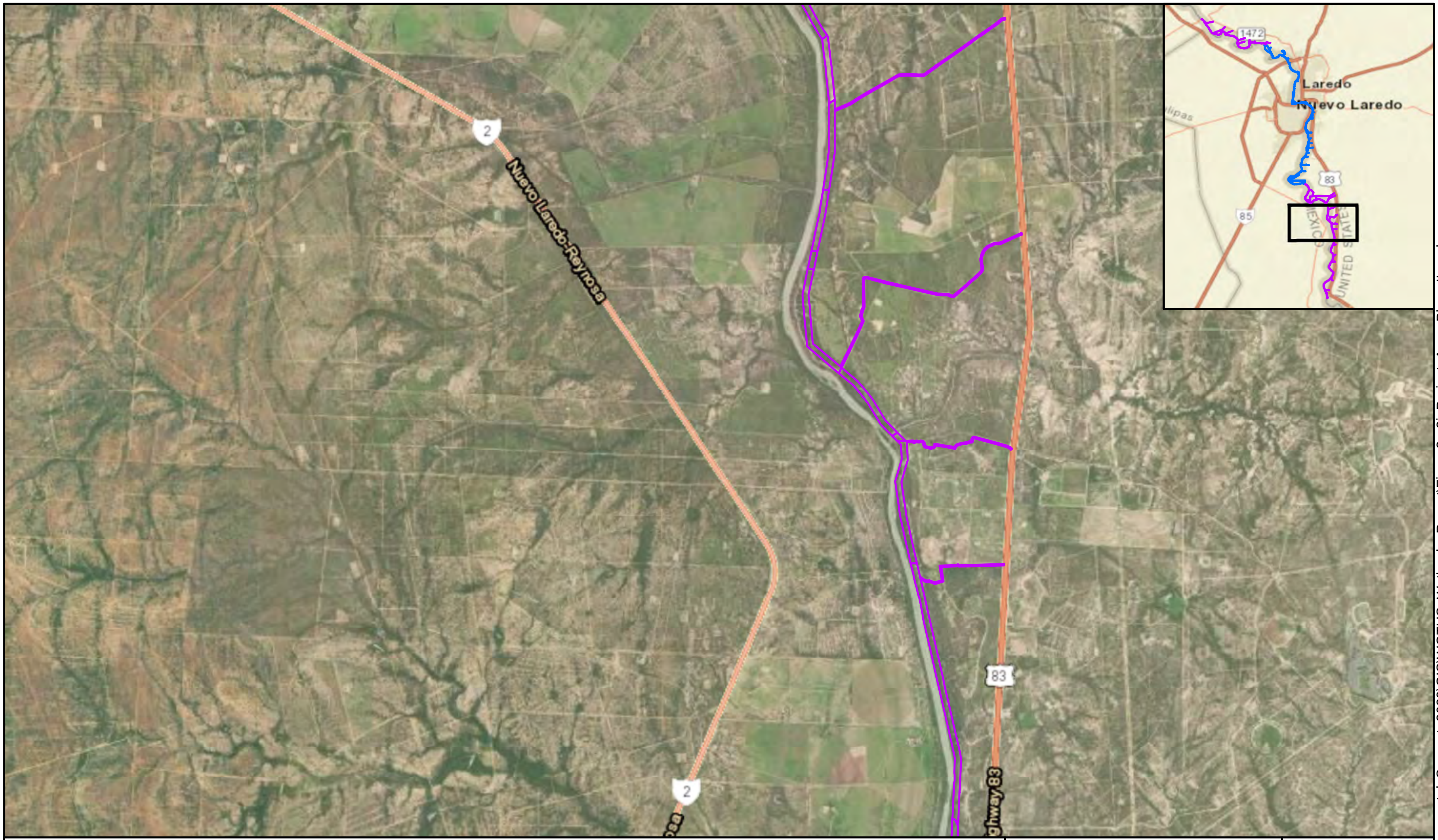

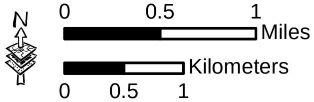

Legend

Phase II (1,194.4 ac.)

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Figure 2h. Project Area Map - Phase II

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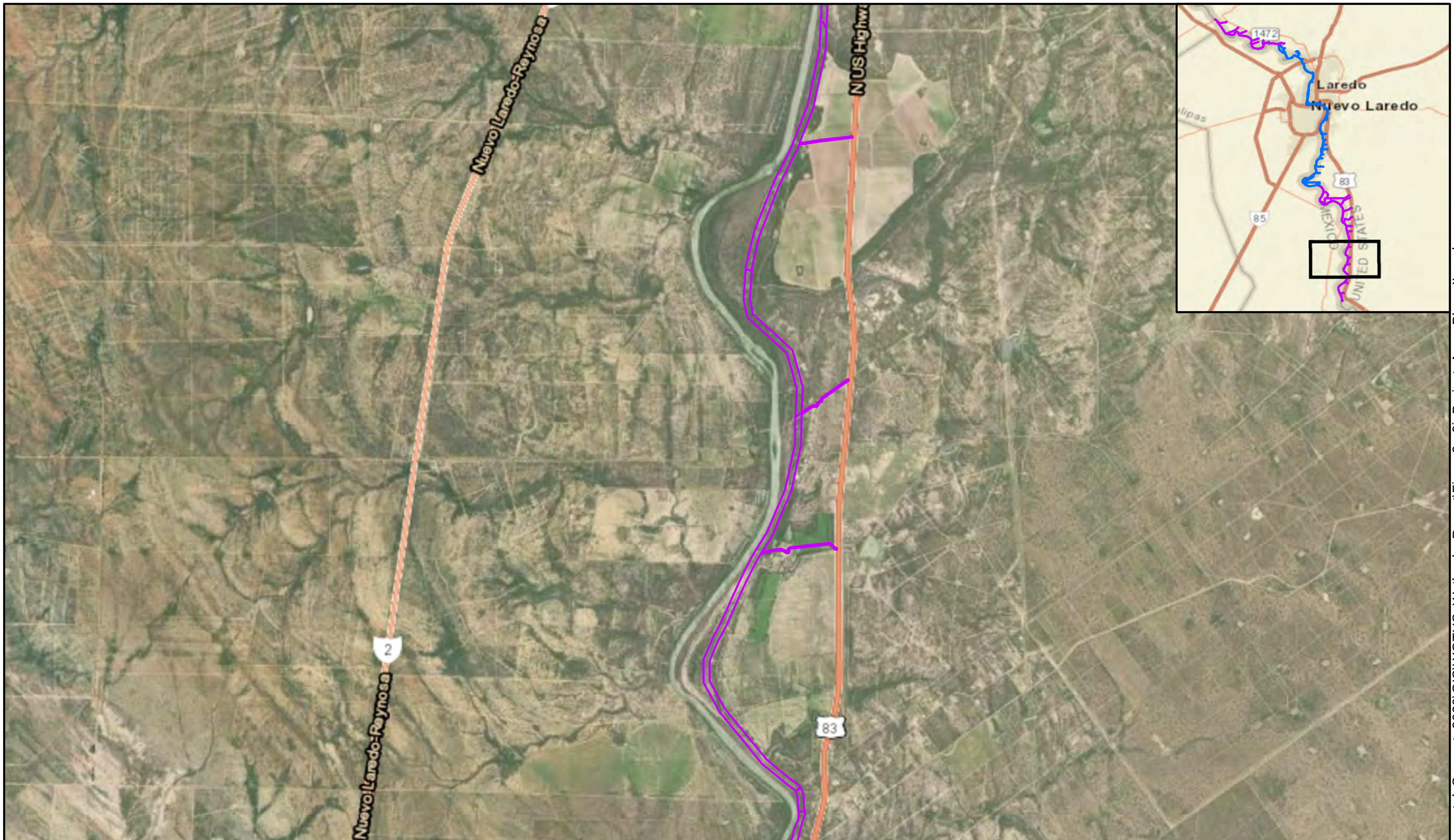

Legend

Phase II (1,194.4 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

GSRC

March 2022

Figure 2i. Project Area Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\Figure2e-2j_Project_Area_PhaseII.mxd

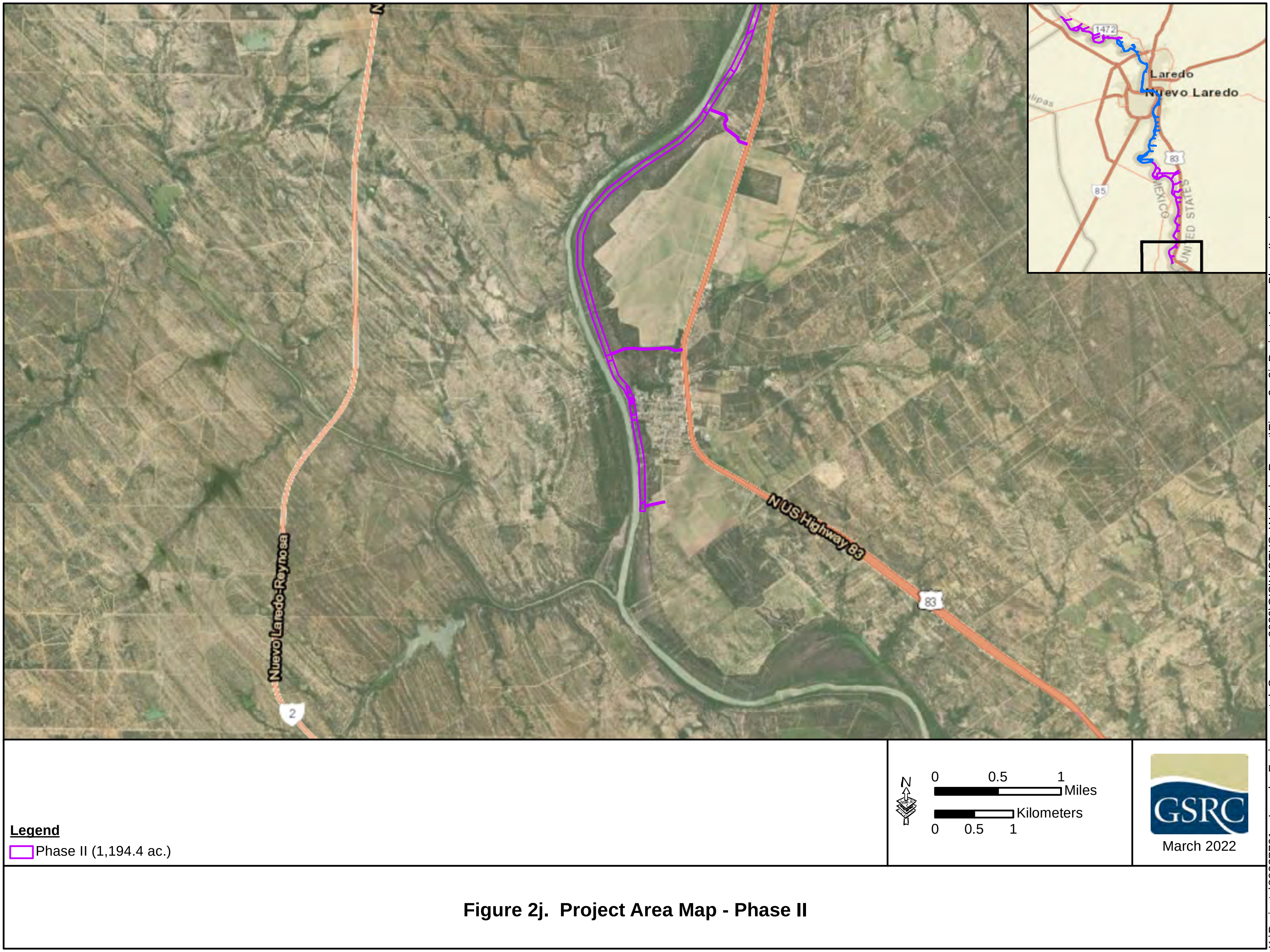

Figure 2j. Project Area Map - Phase II

Field investigations were conducted to determine the presence and extent of potential jurisdictional wetlands in the project area. The site was traversed using meandering pedestrian transects, and sample plots were established within each vegetation community. Wetland Delineation Data Forms – Great Plains Region, as approved by USACE Headquarters (USACE 2010), were completed for each sample plot (Appendix B). These data forms contain information regarding the presence or absence of hydric soils, hydrophytic vegetation, and wetland hydrology sufficient to support the establishment of a wetland boundary.

A soil boring pit was excavated to a depth of approximately 16 inches at each sample plot to confirm the soil series present on-site. The soil pit remained open for at least 15 minutes to allow the pit to fill with water if present. Information recorded on the data form included soil colors (hue, value, and chroma as per the 2010 revised edition of the Munsell Color Chart [Munsell Color 2010]), size, abundance, and depth of mottles, as well as soil texture. Soil texture was determined using the "texture by feel" analysis.

Dominant vegetation was sampled by ocular estimation of percent cover. Species accounting for greater than or equal to 20 percent of the vegetation present were recorded as dominant for each stratum. Vegetation was recorded in the following strata: tree, sapling/shrub, herbaceous, and woody vine. Dominant vegetation was recorded on the data form, along with the indicator status as listed by the Great Plains 2020 Regional Wetland Plant List (Lichvar et al. 2020). Once the dominant vegetation was recorded and evaluated, if more than 50 percent of the dominant vegetation had an indicator status of Facultative (FAC), Facultative Wetland (FACW), or Obligate (OBL), the hydrophytic vegetation criterion was recorded as positive.

Wetland hydrology indicators were also recorded at the sample plot as per USACE requirements. If at least one primary or two secondary indicators of wetland hydrology were present, the sample plot was classified as exhibiting wetland hydrology. Photographs provided in Appendix C show overviews of each sample plot and a representative soil profile at each sample plot.

USACE and the Environmental Protection Agency (EPA) released a proposed rule for defining the scope of waters protected under the Clean Water Act on November 18, 2021 (source: online issuance of proposed rule – not yet in Federal Register). The proposed rule change follows Executive Order 13990, signed on January 25, 2021, which dictates that among other regulations and actions, USACE and the EPA should review the "Navigable Waters Protection Rule" (NWPR) of 2020. Since the agencies determined that the NWPR did not coincide with the objectives of the Clean Water Act and a federal court decision vacated the NWPR on August 30, 2021, the NWPR is no longer being implemented by USACE and the EPA.

The current proposed rule change would return to pre-2015 regulations (i.e., “1986 regulations”), which were in effect for almost three decades while also including minor changes based on recent Supreme Court rulings.

Notable regulatory changes that depart from the 2020 NWPR and return to the pre-2015 rule include:

- Ephemeral waters are considered tributaries and jurisdictional if they can be determined to have a significant nexus to navigable waters. A significant nexus requires that the tributary “significantly affect the chemical, physical, or biological integrity of other covered waters more readily understood as ‘navigable.’”
- The term “adjacency” will be expanded to include a broader definition of when a wetland is considered adjacent to a Waters of the United States, and thus jurisdictional. Adjacency will again include consideration of subsurface hydrologic connections.
- Certain artificial waterbodies again have the potential to be considered jurisdictional based on considerations of related environmental factors and determination of a significant nexus. These artificial waterbodies may include such features as stormwater control systems and ditches.

The proposed rule also includes modifications to the pre-2015 rule based on more recent Supreme Court rulings and guidance. Notably, the “significant nexus standard” definition has been modified to “waters that either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of traditional navigable waters, interstate waters, or the territorial seas.” This definition diverts from the original 1986 definition in that a significant nexus no longer needs to affect “the chemical, physical, and biological integrity” nor does the traditional navigable water need to be downstream from the water in question.

4.0 RESULTS

The following sub-sections provide a characterization of the project area and a summary of data collected at each sample plot. Descriptions of sample plot attributes, including the vegetation community, soil conditions, and hydrologic conditions observed, are also provided. Maps depicting sample point locations and the distribution and extent of each mapped wetland are provided in Appendix D.

4.1 Characterization of the Project Area

The predominant vegetation communities within the project area are Tamaulipan woodland, Tamaulipan thornscrub, mesquite woodland, and invasive grassland. Dominant vegetation includes black willow (*Salix nigra*), salt cedar (*Tamarix ramosissima*), Roosevelt weed (*Baccharis neglecta*), sugarberry (*Celtis laevigata*), sweet acacia (*Vachellia farnesiana*), guinea grass (*Urochloa maxima*), blackbrush acacia (*Acacia rigidula*), Texas sage (*Leucophyllum frutescens*), Texas prickly pear (*Opuntia engelmannii*), Mormon tea (*Ephedra antisyphilitica*), desert Christmas cactus (*Cylindropuntia leptocaulis*), bearded sprangletop (*Diplachne fusca*), curly dock (*Rumex crispus*), creosote bush (*Larrea tridentata*), buffelgrass (*Cenchrus ciliaris*), Bermuda grass (*Cynodon dactylon*), honey mesquite (*Prosopis glandulosa*), spiny hackberry (*Celtis pallida*), giant reed (*Arundo donax*), graythorn (*Ziziphus obtusifolia*), and Rio Grande stickpea (*Calliandra conferta*). According to the *Natural Resources Conservation Service Web Soil Survey of Webb County, Texas*, soils in the project area are mapped as:

- AgB, Aguilares fine sandy loam, 0 to 3 percent slopes
- BeB, Brennan fine sandy loam, 0 to 3 percent slopes
- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- CaB, Catarina clay, 0 to 2 percent slopes
- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- DvB, Duval very fine sandy loam, 0 to 3 percent slopes
- GaB, Garceno clay loam, 0 to 2 percent slopes
- HeB, Hebbronville loamy fine sand, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded

- MCE, Maverick-Catarina complex, gently rolling
- MNE, Maverick-Nido complex, 1 to 20 percent slopes
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- PaB, Palafox clay loam, 0 to 3 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- Te, Tela sandy clay loam, 0 to 1 percent slopes, frequently flooded
- TeB, Tela sandy clay loam, 0 to 1 percent slopes, occasionally flooded
- ToC, Tonio fine sandy loam, 1 to 5 percent slopes
- VkC, Verick fine sandy loam, 1 to 5 percent slopes

Refer to Appendix A for specific soil locations.

4.2 Sample Point 1

Sample Point 1 (P1) is located in the northern portion of the Phase 1 section of the project corridor within a successional borrow pit (Appendix D – Figure D4). The dominant species observed in the tree stratum were black willow and salt cedar. The dominant species observed in the sapling/shrub stratum was Roosevelt weed. The dominant species observed in the herbaceous stratum was Roosevelt weed. No dominant species were observed in the woody vine stratum. All (one hundred percent) of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 12 inches, the soil is silt loam with a matrix color of 10YR 5/3. From 12 to 16 inches, the soil is silt loam with a matrix color of 10YR 4/3 representing 70 percent of the soil layer at this depth and 10YR 3/2 mottles representing 28 percent of the soil layer at this depth and 10YR 5/8 mottles representing 2 percent of the soil layer at this depth. The soil profile resembles Lagloria loam, 0 to 1 percent slopes, as mapped (Appendix A – Figure A18). Lagloria loam, 0 to 1 percent slopes is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. One primary (algal mat) and one secondary (geomorphic position) wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of hydric soil indicators (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.3 Sample Point 2

Sample Plot 2 (P2) is located in the central portion of the Phase 1 section of the project corridor within a Tamaulipan woodland close to the upper edge of a washed-out drainage area (Appendix D – Figure D22). The dominant species observed in the tree stratum were sugarberry and sweet acacia. The dominant species observed in the sapling/shrub stratum were Jerusalem thorn and spiny hackberry. The dominant species observed in the herbaceous stratum was guinea grass. No dominant species were observed in the woody vine stratum. Sixty percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 6 inches, the soil is silt loam with a matrix color of 10YR 5/4. From 6 to 16 inches, the soil is silt loam with a matrix color of 10YR 3/3. The soil profile resembles Rio Grande very fine sandy loam, occasionally flooded, as mapped (Appendix A – Figure A35). Rio Grande very fine sandy loam, occasionally flooded is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators and hydric soil indicators (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.4 Sample Point 3

Sample Plot 3 (P3) is located in the northern portion of the Phase 1 section of the project corridor within a Tamaulipan thornscrub community (Appendix D – Figure D6). No dominant species were observed in the tree stratum. The dominant species observed in the sapling/shrub stratum were blackbrush acacia and Texas sage. The dominant species observed in the herbaceous stratum were Texas prickly pear, Mormon tea, and desert Christmas cactus. No dominant species were observed in the woody vine stratum. Zero percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 16 inches, the soil is sandy silt with a matrix color of 10YR 5/4. The soil profile resembles Jimenez-Quemado complex, 1 to 8 percent slopes, as mapped (Appendix A – Figure A20). Jimenez-Quemado complex, 1 to 8 percent slopes is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators, hydric soil indicators, and hydrophytic vegetation (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.5 Sample Point 4

Sample Plot 4 (P4) is located in the central portion of the Phase 1 section of the project corridor within a wet ditch (Appendix D – Figure D16). No dominant species were observed in the tree stratum. No dominant species were observed in the sapling/shrub stratum. The dominant species observed in the herbaceous stratum were bearded sprangletop and curly dock. No dominant species were observed in the woody vine stratum. All (one hundred percent) of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 10 inches, the soil is clay with a matrix color of 10YR 5/2 with 10YR 5/8 mottles representing 8 percent of the soil layer at this depth. From 10 to 16 inches, the soil is sandy clay with a matrix color of 10G 4/1 with 10YR 6/2 mottles representing 30 percent of the soil layer at this depth. The soil profile does not resemble Rio Grande very fine sandy loam, occasionally flooded, as mapped, but more closely resembles Duval very fine sandy loam, 0 to 3 percent slopes (Appendix A – Figure A31). Duval very fine sandy loam, 0 to 3 percent slopes is on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is functioning as a hydric soil. Two primary (surface water and saturation) and one secondary (geomorphic position) wetland hydrology indicators were observed. This sample point is considered to be within a wetland due to the presence of positive wetland hydrology indicators, hydric soil indicators, and hydrophytic vegetation (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.6 Sample Point 5

Sample Plot 5 (P5) is located in the central portion of the Phase 1 section of the project corridor within a maintained field in a park (Appendix D – Figure D16). The dominant species observed in the tree stratum was black willow. No dominant species were observed in the sapling/shrub stratum. The dominant species observed in the herbaceous stratum were Bermuda grass and guinea grass. No dominant species were observed in the woody vine stratum. Sixty-seven percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 16 inches, the soil is silt loam with a matrix color of 10YR 5/4. The soil profile resembles Rio Grande very fine sandy loam, occasionally flooded, as mapped (Appendix A – Figure A31).

Rio Grande very fine sandy loam, occasionally flooded is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators and hydric soil indicators (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.7 Sample Point 6

Sample Plot 6 (P6) is located in the southern portion of the Phase 2 section of the project corridor within an invasive grassland (Appendix D – Figure D27). No dominant species were observed in the tree stratum. The dominant species observed in the sapling/shrub stratum was creosote bush. The dominant species observed in the herbaceous stratum was buffelgrass. No dominant species observed in the woody vine stratum. Zero percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 16 inches, the soil is silt loam with a matrix color of 10YR 5/4. The soil profile resembles Lagloria loam, 1 to 3 percent slopes, as mapped (Appendix A – Figure A64). Lagloria loam, 1 to 3 percent slopes is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators, hydric soil indicators, and hydrophytic vegetation (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.8 Sample Point 7

Sample Plot 7 (P7) is located in the northern portion of the Phase 2 section of the project corridor within a mesquite woodland (Appendix D – Figure D2). The dominant species observed in the tree stratum was honey mesquite. The dominant species observed in the sapling/shrub stratum was spiny hackberry. The dominant species observed in the herbaceous stratum was buffelgrass. No dominant species were observed in the woody vine stratum. Zero percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 1 inches, the soil is sandy loam with a matrix color of 10YR 4/3. From 1 to 16 inches, the soil is sandy loam with a matrix color of 10YR 5/3. The soil profile resembles Rio Grande very fine sandy loam, occasionally flooded, as mapped (Appendix A – Figure A8). Rio Grande very fine sandy loam, occasionally flooded is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators, hydric soil indicators, and hydrophytic vegetation (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.9 Sample Point 8

Sample Plot 8 (P8) is located in the northern portion of the Phase 2 section of the project corridor within an Arundo-Tamarix riparian edge community (Appendix D – Figure D2). The dominant species observed in the tree stratum was salt cedar. The dominant species observed in the sapling/shrub stratum was giant reed. The dominant species observed in the herbaceous stratum were common reed and buffelgrass. No dominant species were observed in the woody vine stratum. Seventy-five percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 2 inches, the soil is silt loam with a matrix color of 10YR 3/3. From 2 to 16 inches, the soil is sandy loam with a matrix color of 10YR 5/3. The soil profile resembles Lagloria loam, 0 to 1 percent slopes, as mapped (Appendix A – Figure A8). Lagloria loam, 0 to 1 percent slopes is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators and hydric soil indicators (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.10 Sample Point 9

Sample Plot 9 (P9) is located in the northwestern portion of the Phase 2 section of the project corridor within a Tamaulipan thornscrub community (Appendix D – Figure D1). No dominant species were observed in the tree stratum. The dominant species observed in the sapling/shrub stratum were Texas sage, graythorn, and blackbrush acacia. The dominant species observed in the herbaceous stratum were Rio Grande stickpea and buffelgrass. No dominant species were observed in the woody vine stratum. Zero percent of the dominant vegetation observed at this sample plot is classified as hydrophytic.

From 0 to 6 inches, the soil is sandy loam with a matrix color of 10YR 4/3. From 6 to 16 inches, the soil is impermeable bedrock. The soil profile resembles Rio Grande very fine sandy loam, occasionally flooded, as mapped (Appendix A – Figure A1). Rio Grande very fine sandy loam, occasionally flooded is not on the National Hydric Soils List (USDA NRCS 2022). Field characteristics indicate that this soil is not functioning as a hydric soil. No primary or secondary wetland hydrology indicators were observed. This sample point is not considered to be within a wetland due to the lack of positive wetland hydrology indicators, hydric soil indicators, and hydrophytic vegetation (Appendix B). Representative photographs taken at the sample plot are provided in Appendix C.

4.11 Potentially Jurisdictional Wetlands

The project area contains approximately 0.37 acre of potentially jurisdictional wetlands in the form of a 0.11-acre mesquite riparian wetland site and a 0.26-acre drainage ditch located in the Phase 1 section of the project area (Appendix D – Figures D9 and D16).

4.12 Waters of the U.S. and Other Waters

The project area contains approximately 5,624.6 linear feet (1.1 miles) of Waters of the U.S. in the form of small creeks and seasonal, ephemeral drainages and 4.08 acres of Waters of the U.S. in the form of rivers and large creeks (Appendix D).

5.0 CONCLUSION

Based on the routine field investigation, the project area contains approximately 0.37 acre of potentially jurisdictional wetlands, approximately 4.08 acres of Waters of the U.S. in the form of rivers and large creeks, and approximately 5,624.6 linear feet (1.1 miles) of Waters of the U.S. in the form of small creeks and seasonal, ephemeral drainages.

6.0 QUALIFICATIONS

Although GSRC employs the same criteria and methodology as that of the USACE, due to the degree of subjectivity associated with studies of this type, there may be some variance in jurisdictional wetland delineation results. Consequently, GSRC’s opinion may not necessarily reflect that of the USACE, nor does it relieve the client of any legal obligations to verify the wetland findings. It is advised that the client consult with the USACE and obtain a Preliminary

Jurisdictional Determination. The client should obtain a Department of the Army permit prior to performing any dredging, filling, or construction operations within jurisdictional wetlands. GSRC's findings should be verified by the USACE.

7.0 REFERENCES

Code of Federal Regulations (CFR). 2003. Section 404(b) (1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Title 40, Volume 22, Part 230.3.

Environmental Laboratory. 1987. U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2020. The National Wetland Plant List: 2020 wetland ratings. November 2, 2021.

Munsell Color (Firm). 2010. *Munsell soil color charts: with genuine Munsell color chips*. Grand Rapids, Michigan: Munsell Color.

Rapanos v United States. 2006. 547 U.S. 715.

U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-30. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS). 2003. Field Indicators of Hydric Soils in the United States, Version 5.01. G.W. Hurt, P.M. Whited, and R.F. Pringle (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, Texas.

USDA NRCS. 2022. Web Soil Survey. URL address: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Last accessed: March 2022.

APPENDIX A
SOILS MAPS

Legend

- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- MCE, Maverick-Catarina complex, gently rolling
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A1. Soils Map - Phase II

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Legend

CaB, Catarina clay, 0 to 2 percent slopes

JQD, Jimenez-Quemado complex, 1 to 8 percent slopes

MCE, Maverick-Catarina complex, gently rolling

Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A2. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

LgA, Lagloria loam, 0 to 1 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally flooded

Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A3. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A4. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

LgA, Lagloria loam, 0 to 1 percent slopes
LgB, Lagloria loam, 1 to 3 percent slopes
LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
Rg, Rio Grande very fine sandy loam, occasionally flooded
Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A5. Soils Map - Phase II

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- PaB, Palafox clay loam, 0 to 3 percent slopes
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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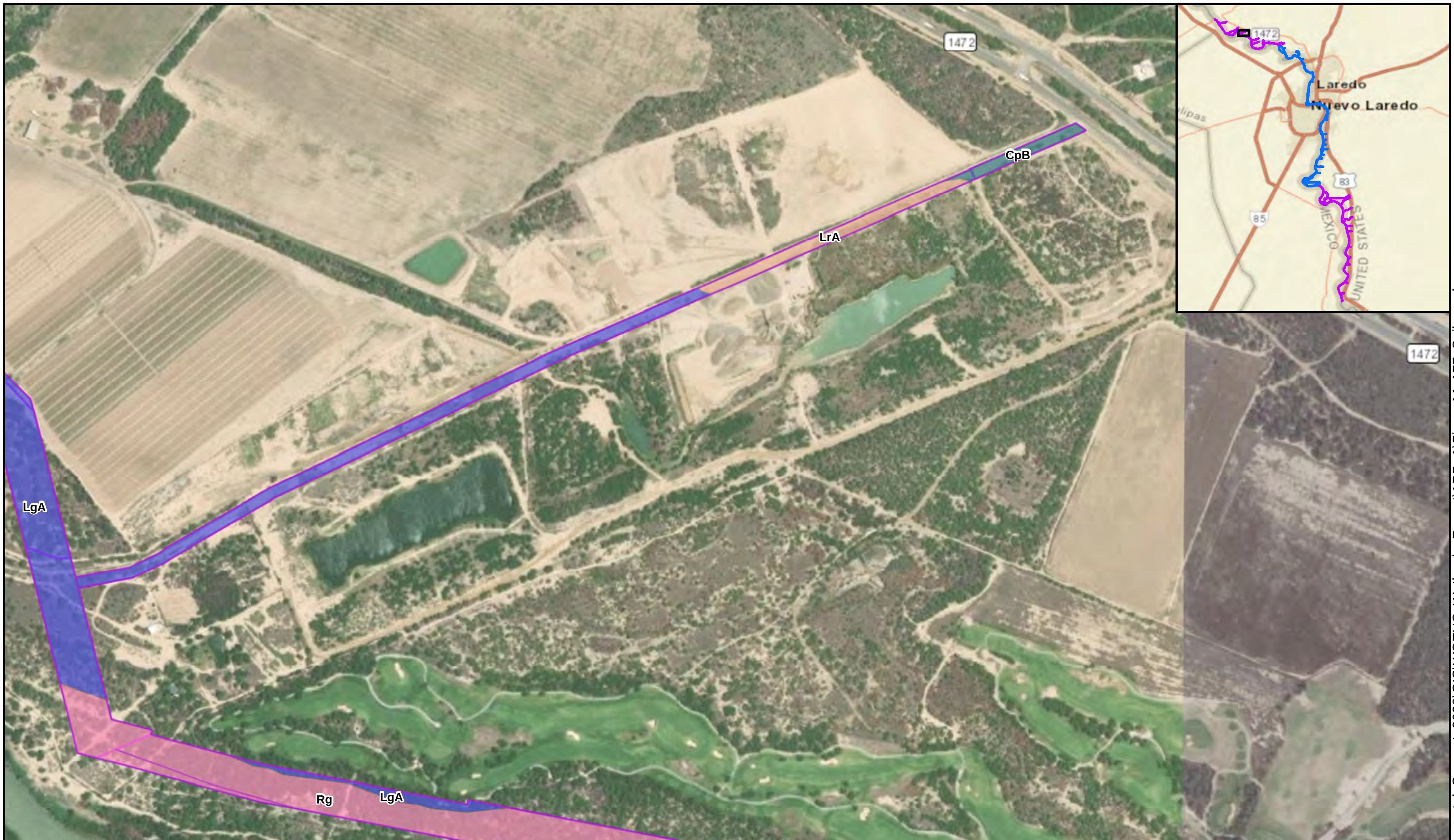
Figure A6. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A7. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A8. Soils Map - Phase II

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- MCE, Maverick-Catarina complex, gently rolling
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A9. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

LgA, Lagloria loam, 0 to 1 percent slopes
Rg, Rio Grande very fine sandy loam, occasionally flooded
Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A10. Soils Map - Phase II

Legend

LgB, Lagloria loam, 1 to 3 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally

Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A11. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

LgB, Lagloria loam, 1 to 3 percent slopes

Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A12. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A13. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

LgA, Lagloria loam, 0 to 1 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally flooded

Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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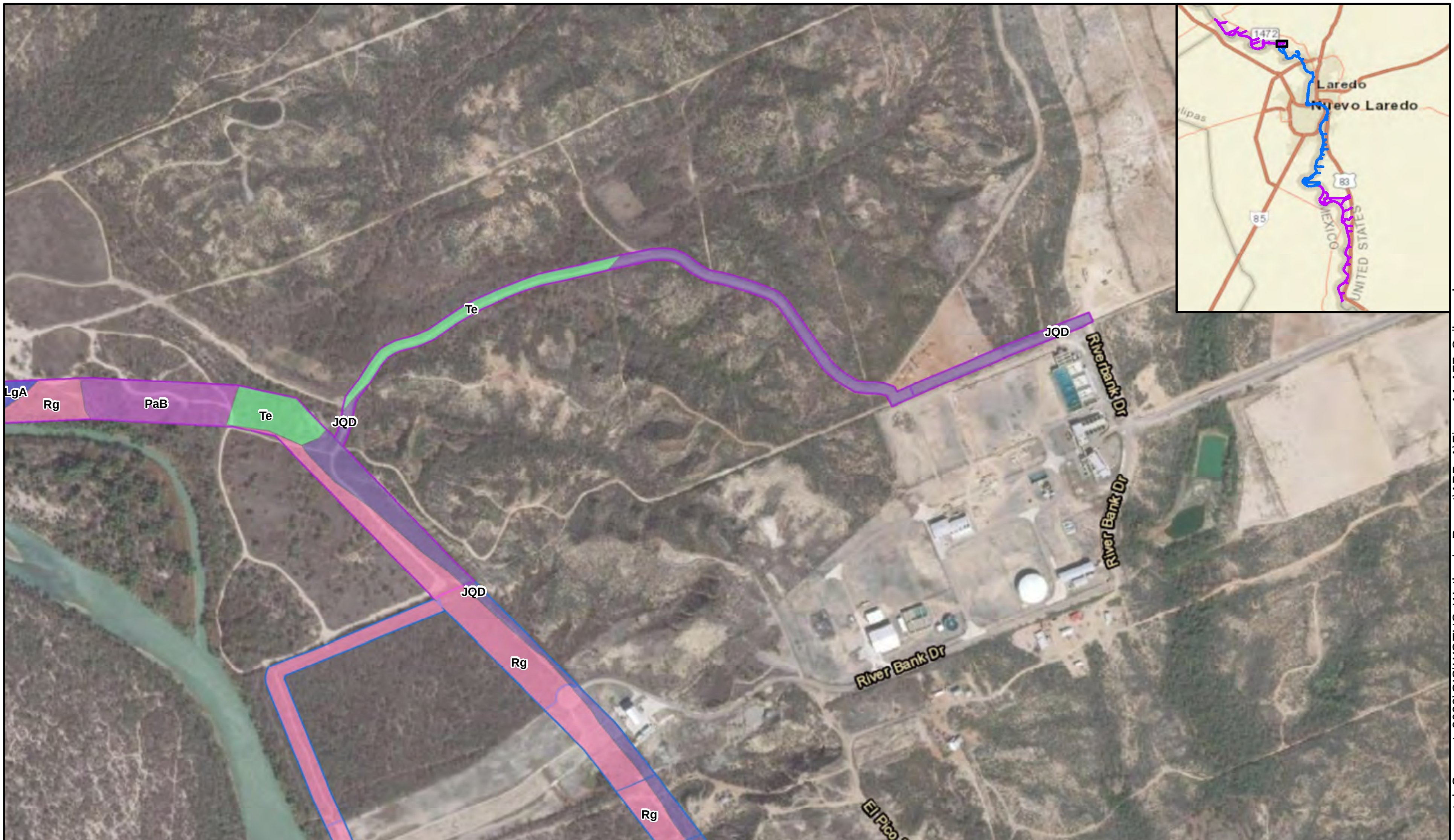
Figure A14. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- PaB, Palafox clay loam, 0 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- Te, Tela sandy clay loam, 0 to 1 percent slopes, frequently flooded
- Phase I
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A15. Soils Map - Phases I and II

Legend

- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A16. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A17. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A18. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- DvB, Duval very fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A19. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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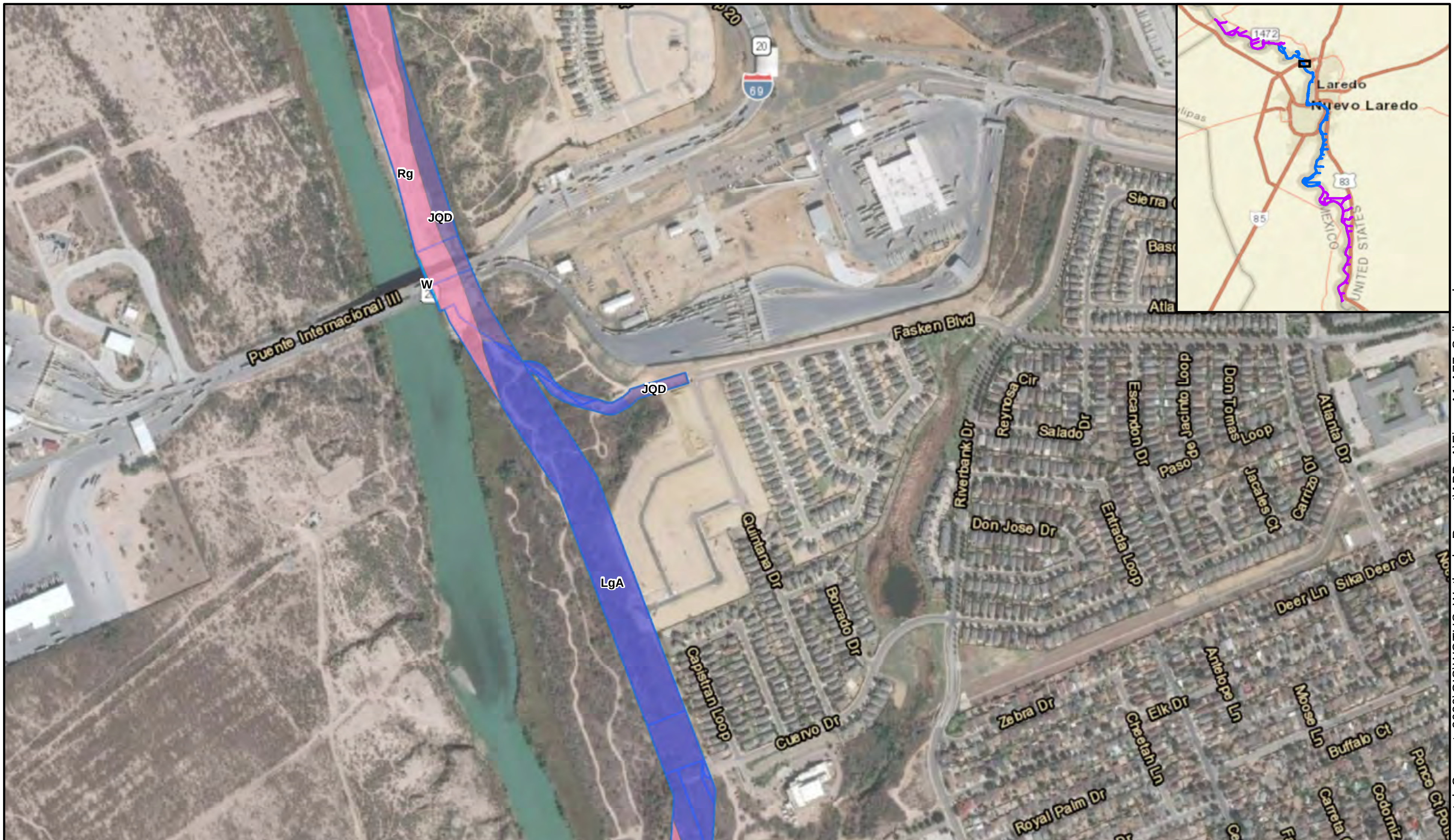
Figure A20. Soils Map - Phase I



Legend

- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A21. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- Laredo Roads Corridor
- LgA, Lagloria loam, 0 to 1 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A22. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

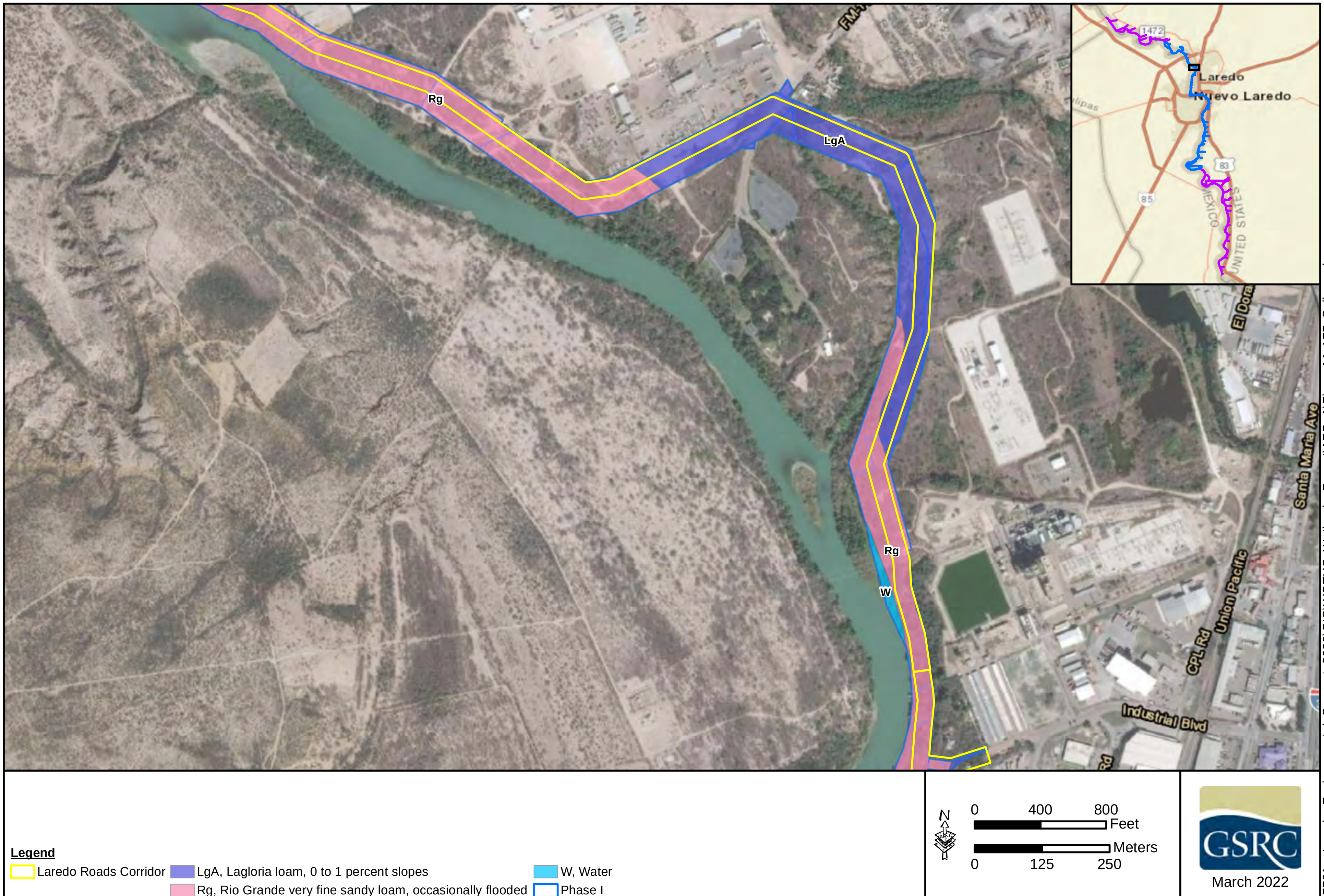

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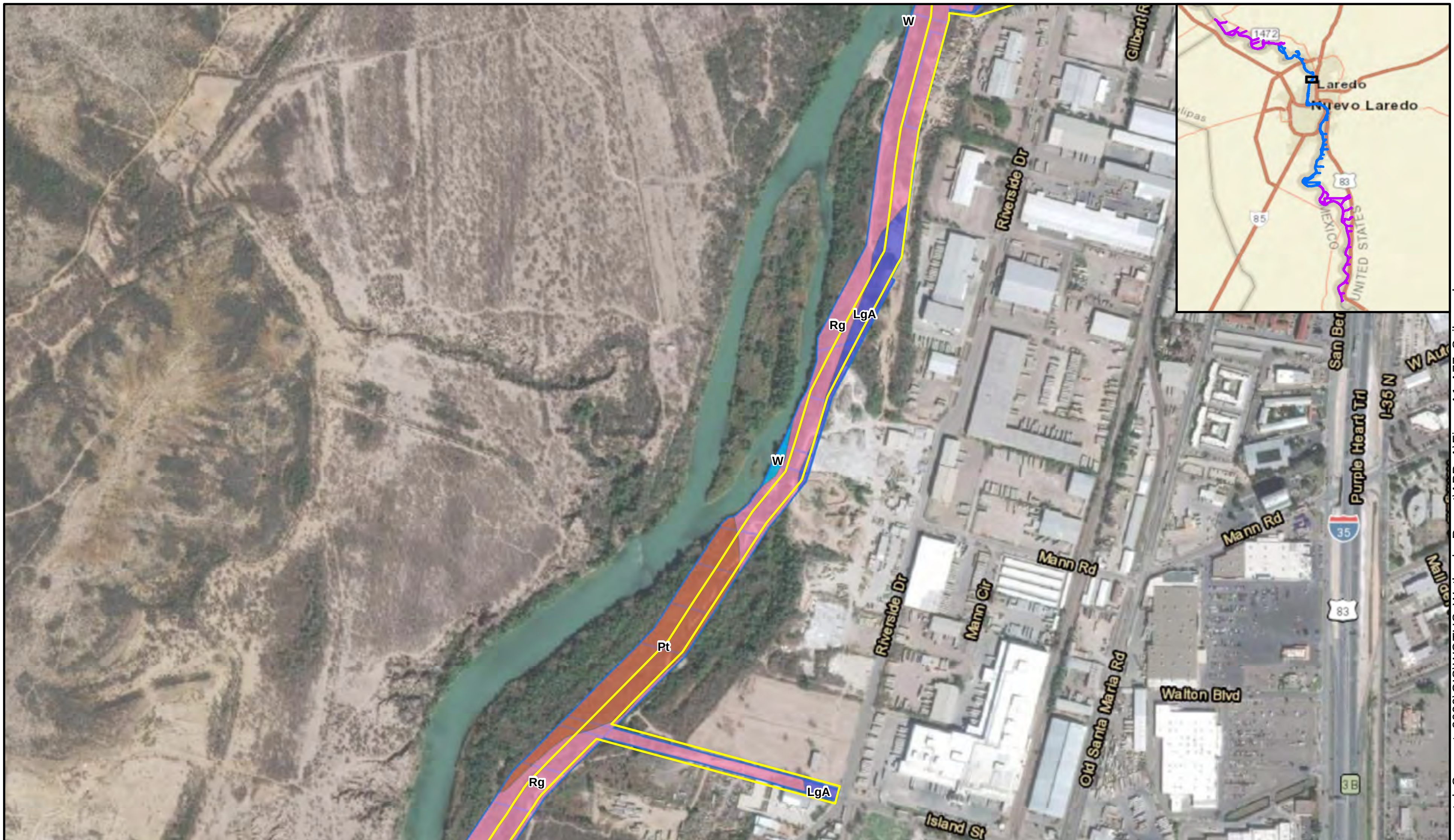
Figure A23. Soils Map - Phase I



Legend

Laredo Roads Corridor
LgA, Lagloria loam, 0 to 1 percent slopes
Pt, Pits
Rg, Rio Grande very fine sandy loam, occasionally
W, Water
Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A24. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

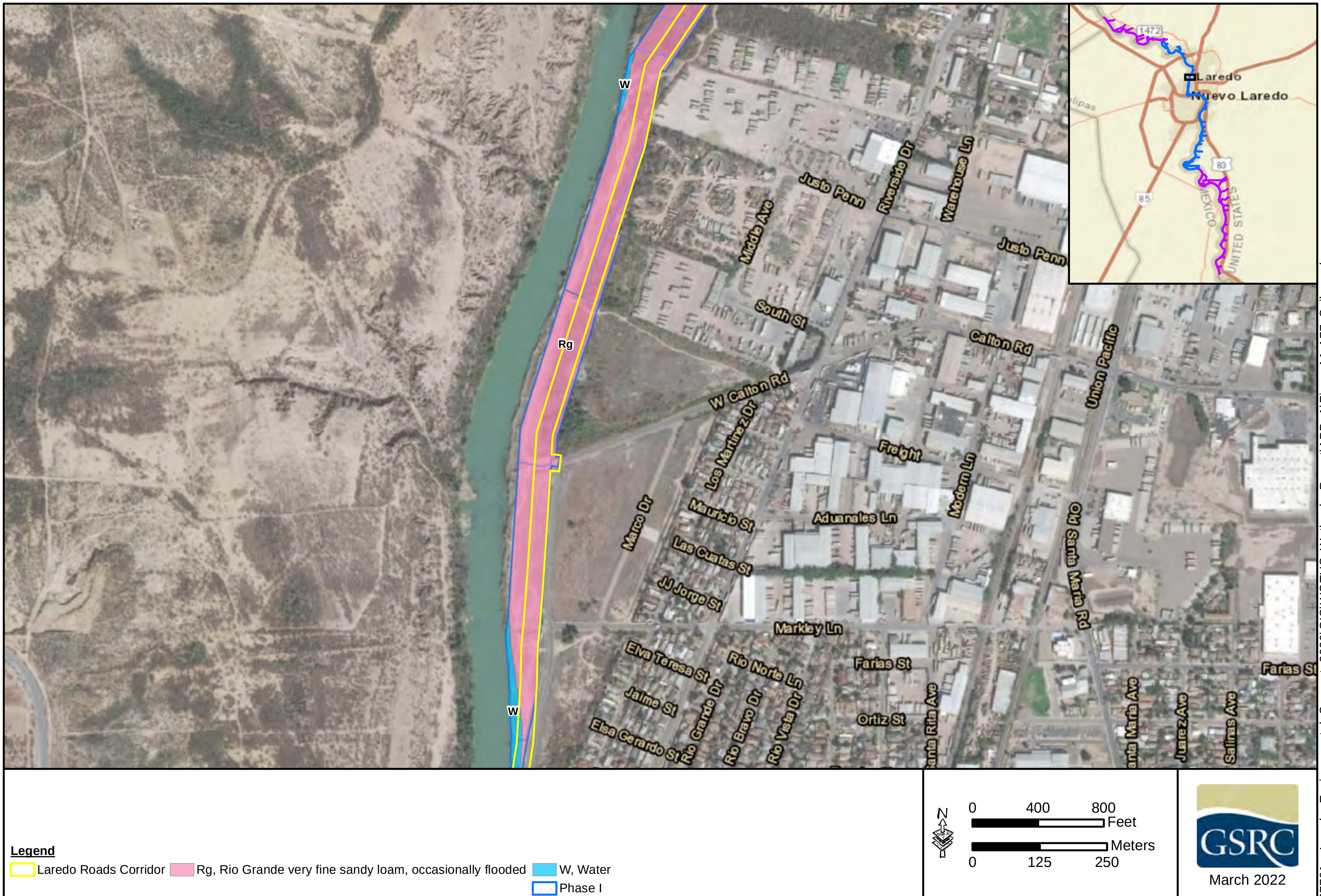
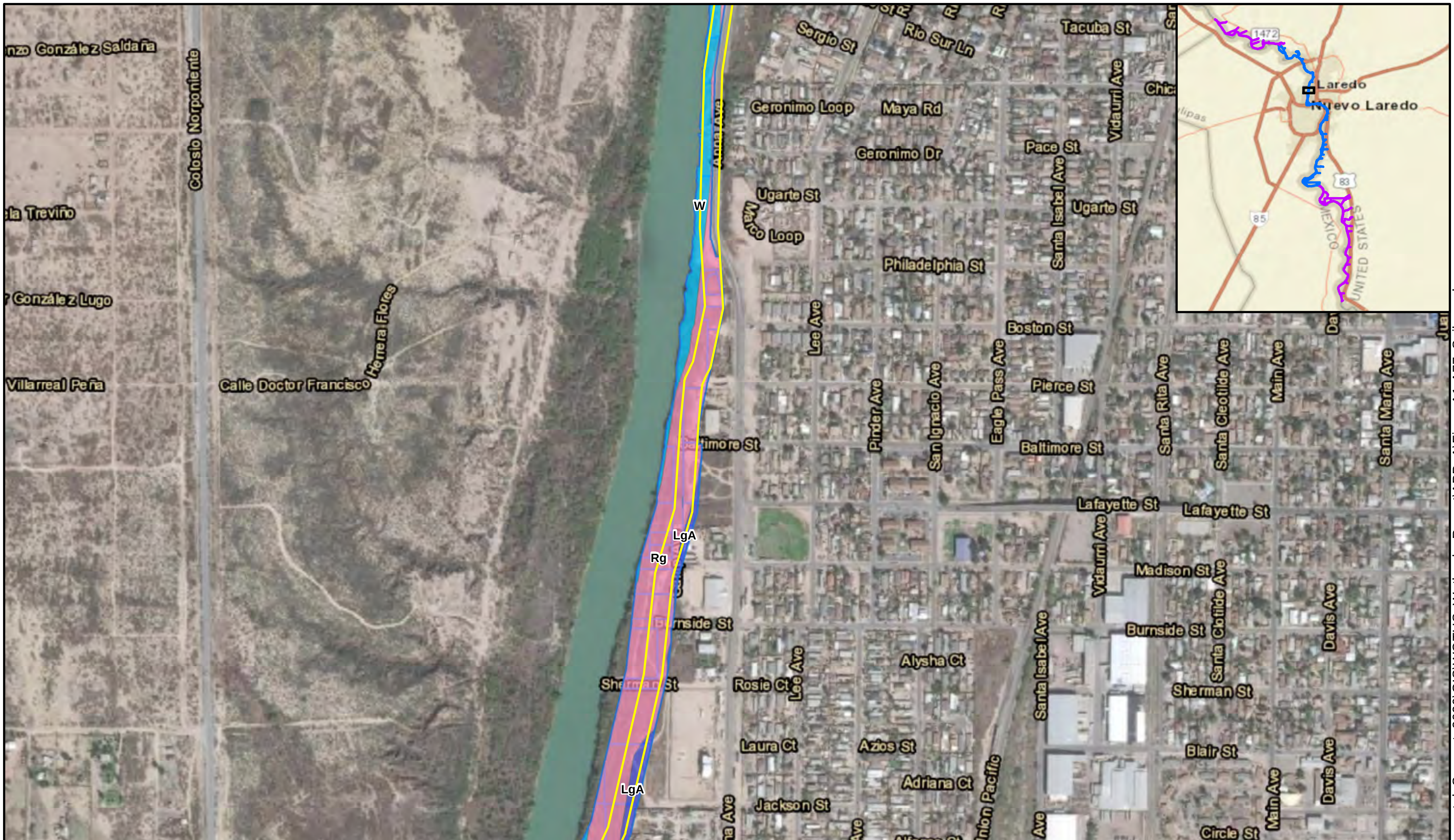


Figure A25. Soils Map - Phase I



Legend

Laredo Roads Corridor	LgA, Lagloria loam, 0 to 1 percent slopes
	Rg, Rio Grande very fine sandy loam, occasionally
W, Water	
Phase I	

N

0 400 800 Feet

0 125 250 Meters

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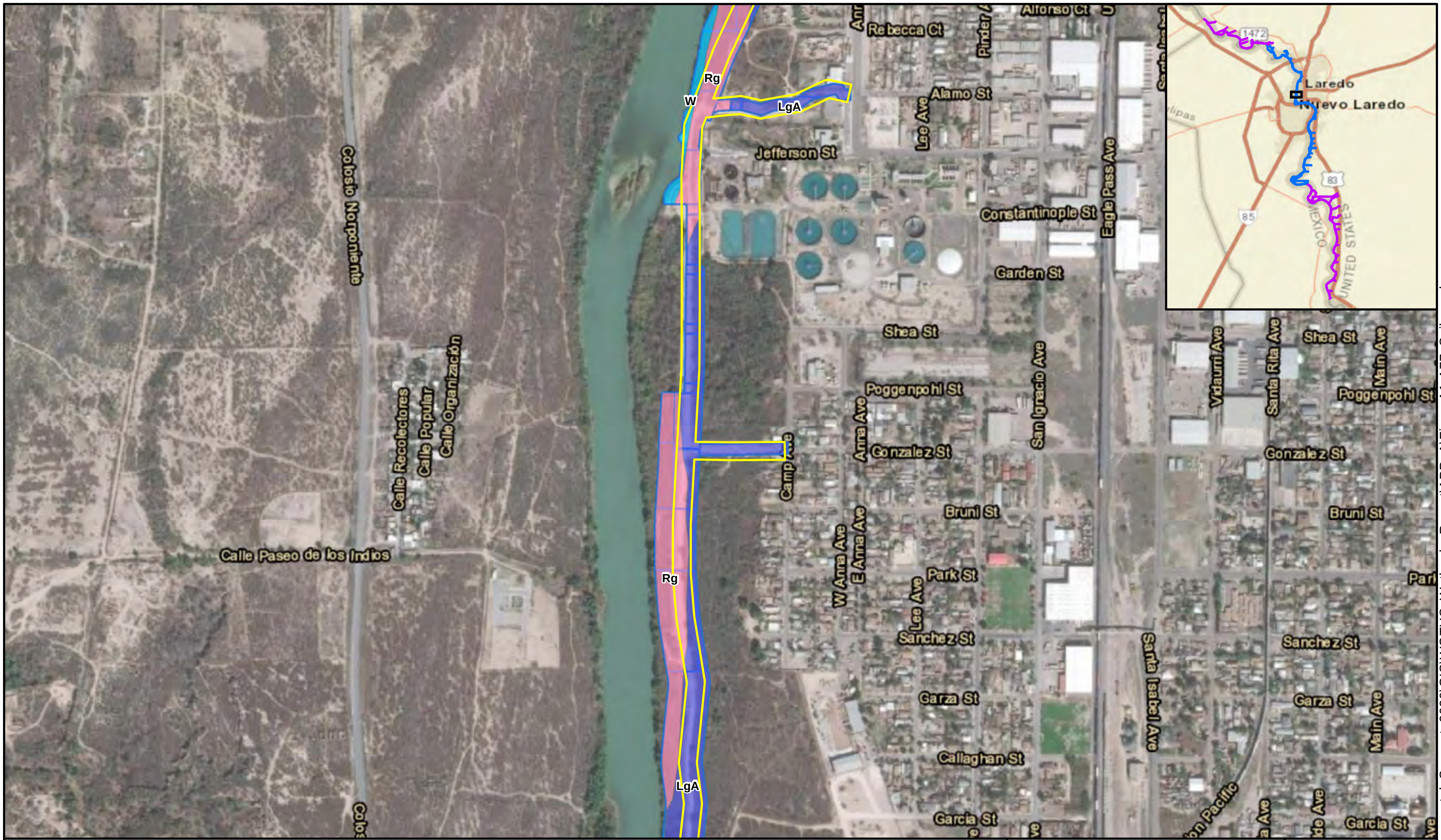
Figure A26. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

Laredo Roads Corridor

LgA, Lagloria loam, 0 to 1 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally

W, Water

Phase I

N

0 400 800 Feet

0 125 250 Meters

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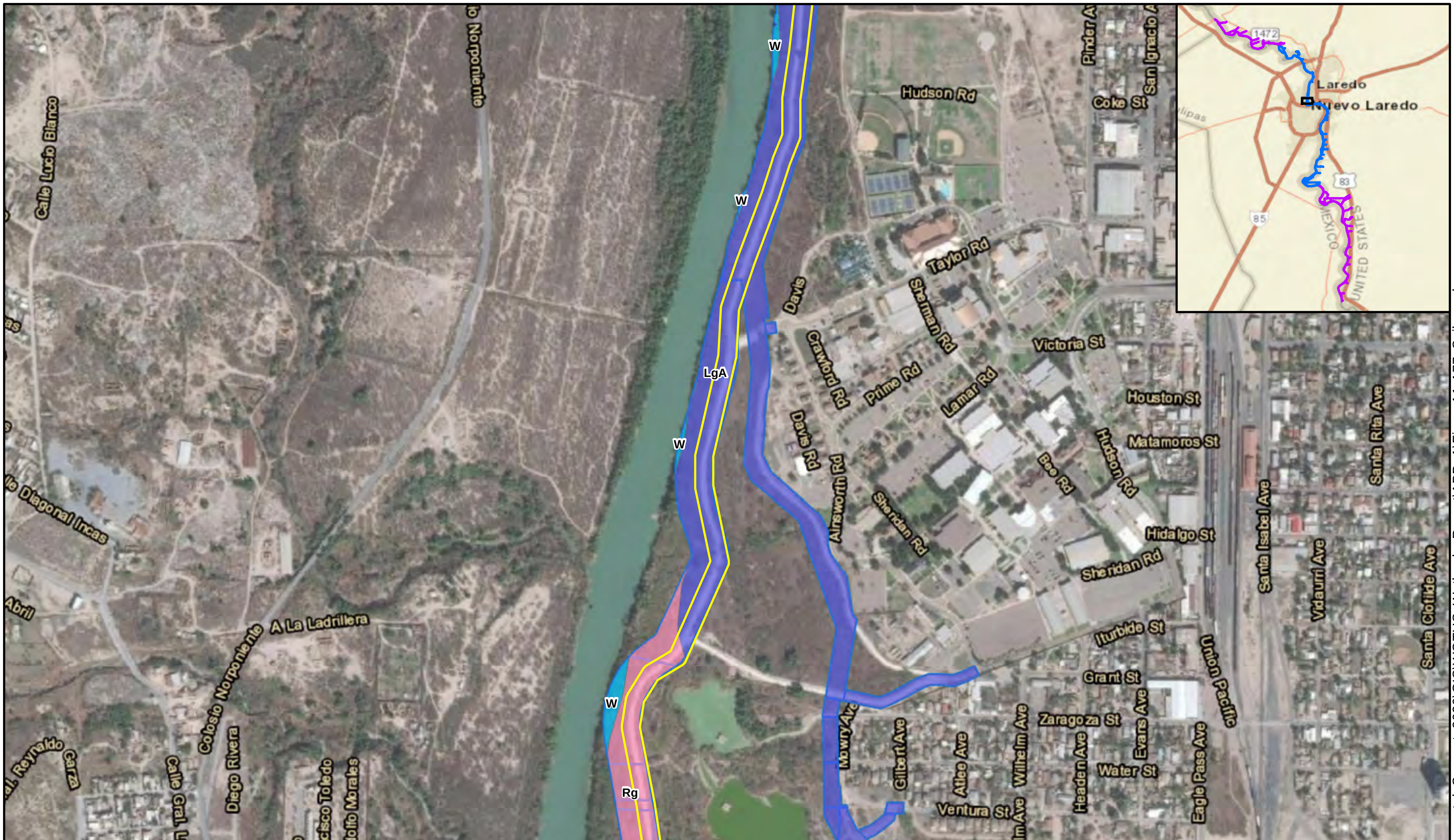
K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A27. Soils Map - Phase I



N	0 400 800 Feet	
	0 125 250 Meters	

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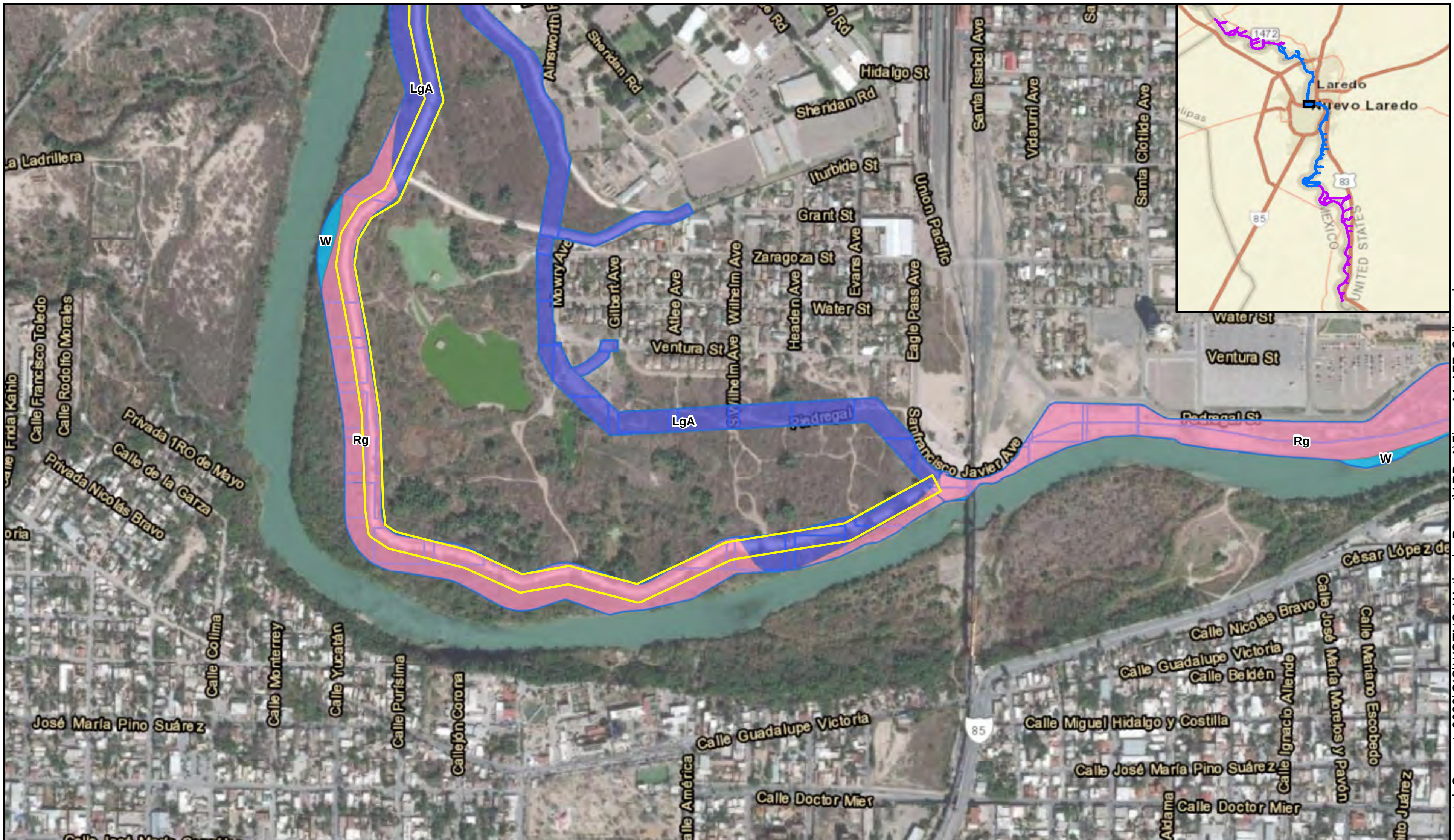
Legend

- Laredo Roads Corridor
- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally
- W, Water
- Phase I

Figure A28. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

Laredo Roads Corridor

LgA, Lagloria loam, 0 to 1 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally

W, Water

Phase I

N

0 400 800 Feet

0 125 250 Meters

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A29. Soils Map - Phase I

Legend

- Laredo Roads Corridor
- LgA, Lagloria loam, 0 to 1 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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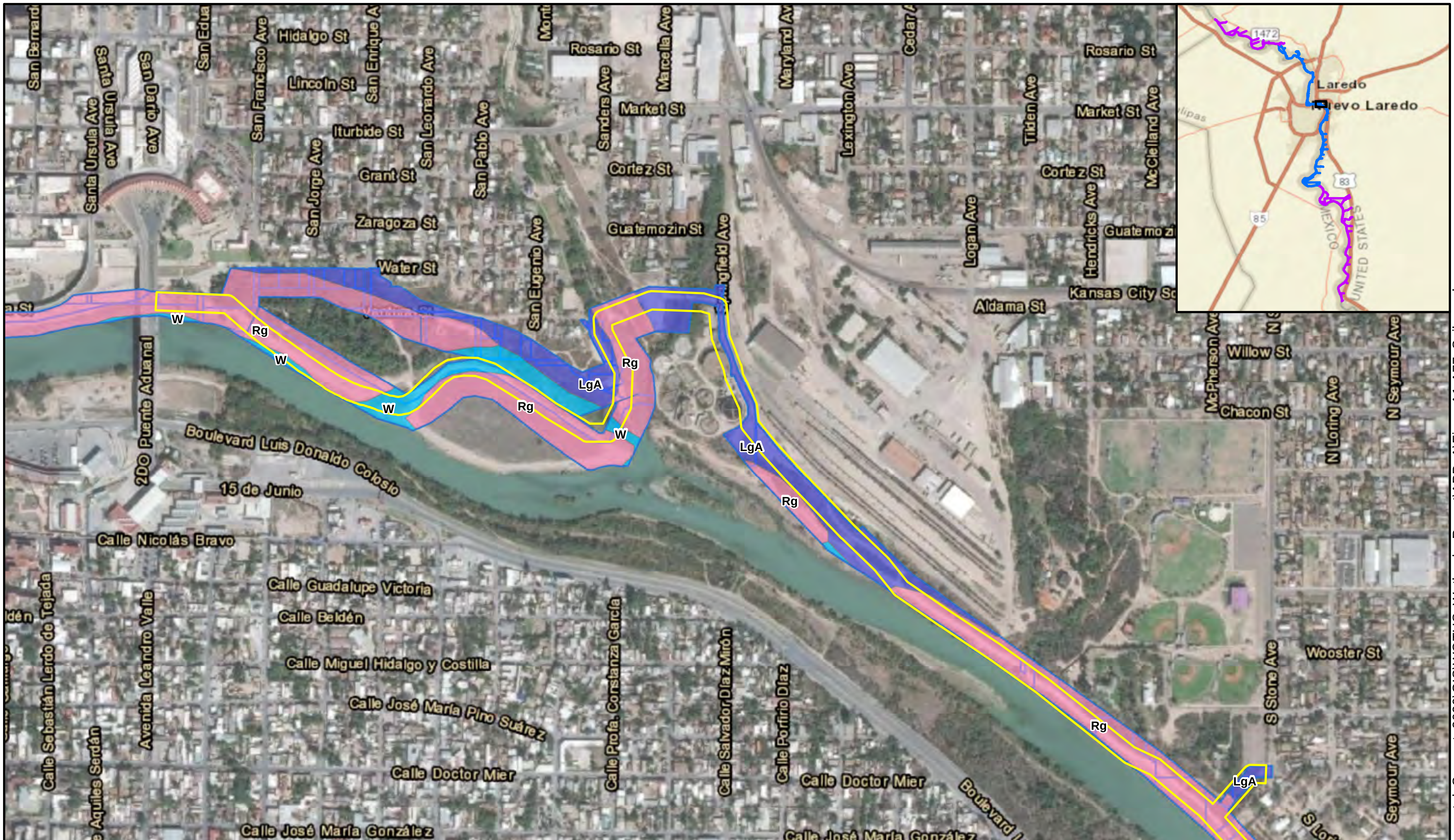
Figure A30. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

Laredo Roads Corridor

LgA, Lagloria loam, 0 to 1 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally

W, Water

Phase I

N

0 400 800 Feet

0 125 250 Meters

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Figure A31. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

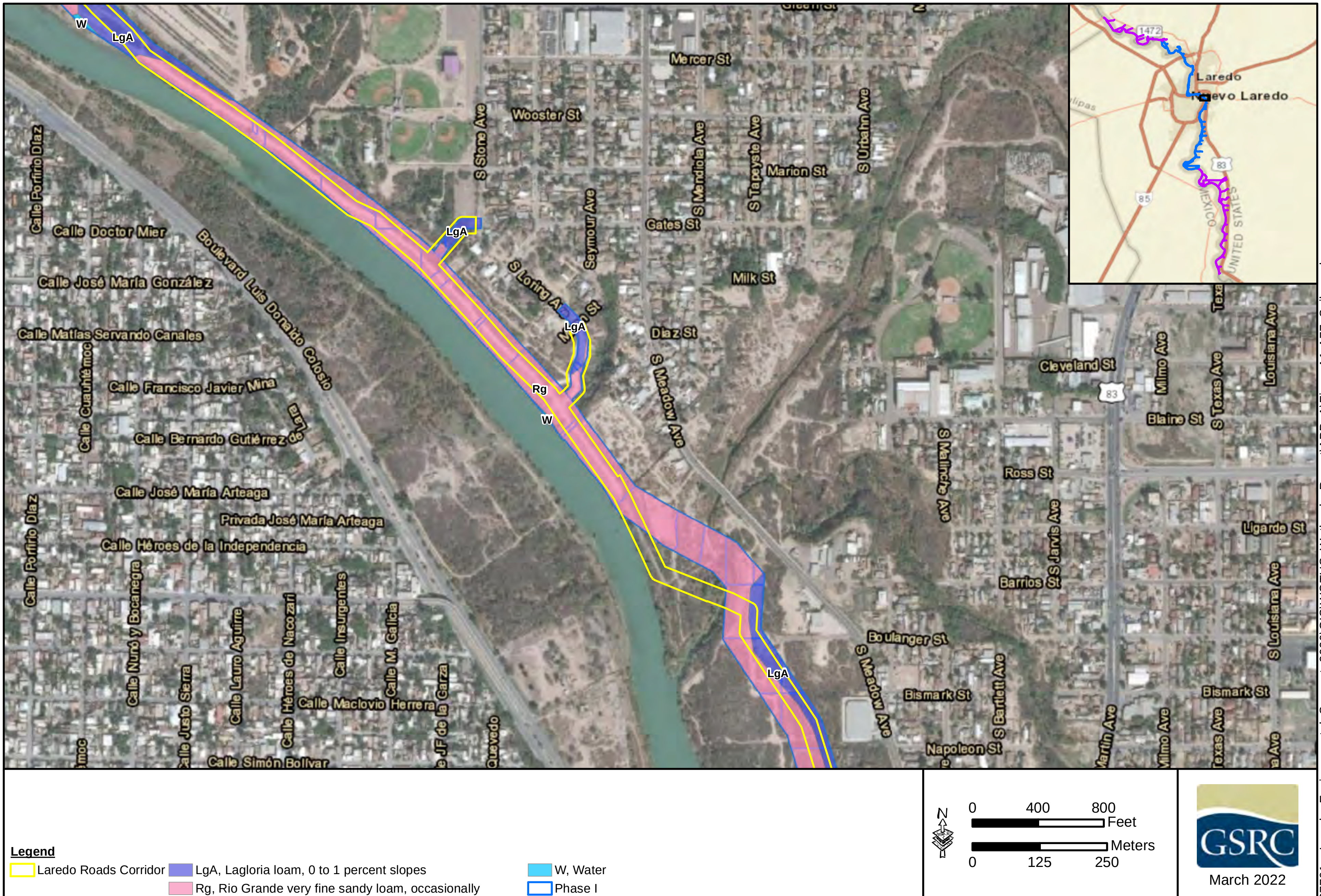
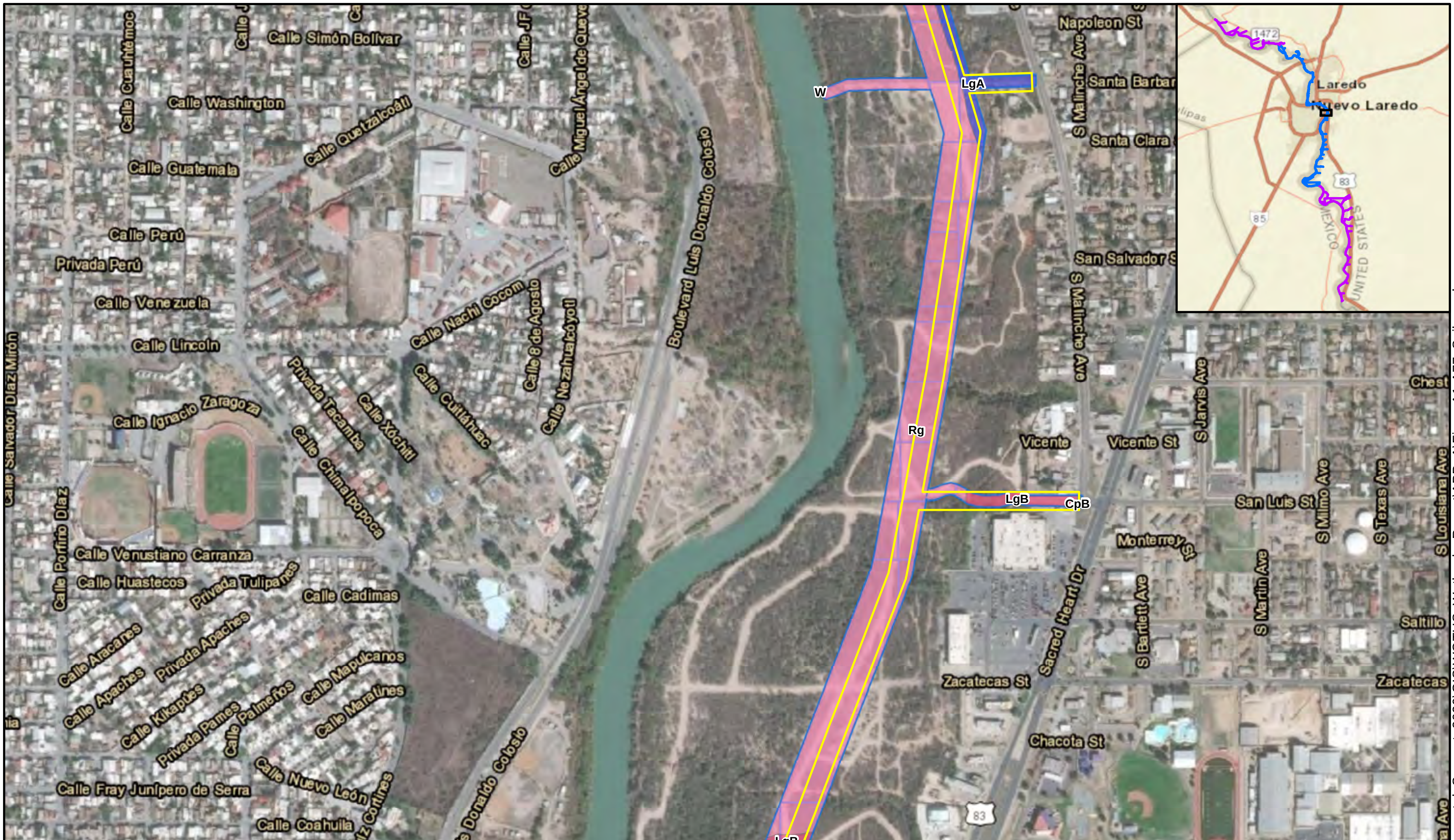


Figure A32. Soils Map - Phase I



Legend

- Laredo Roads Corridor
- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

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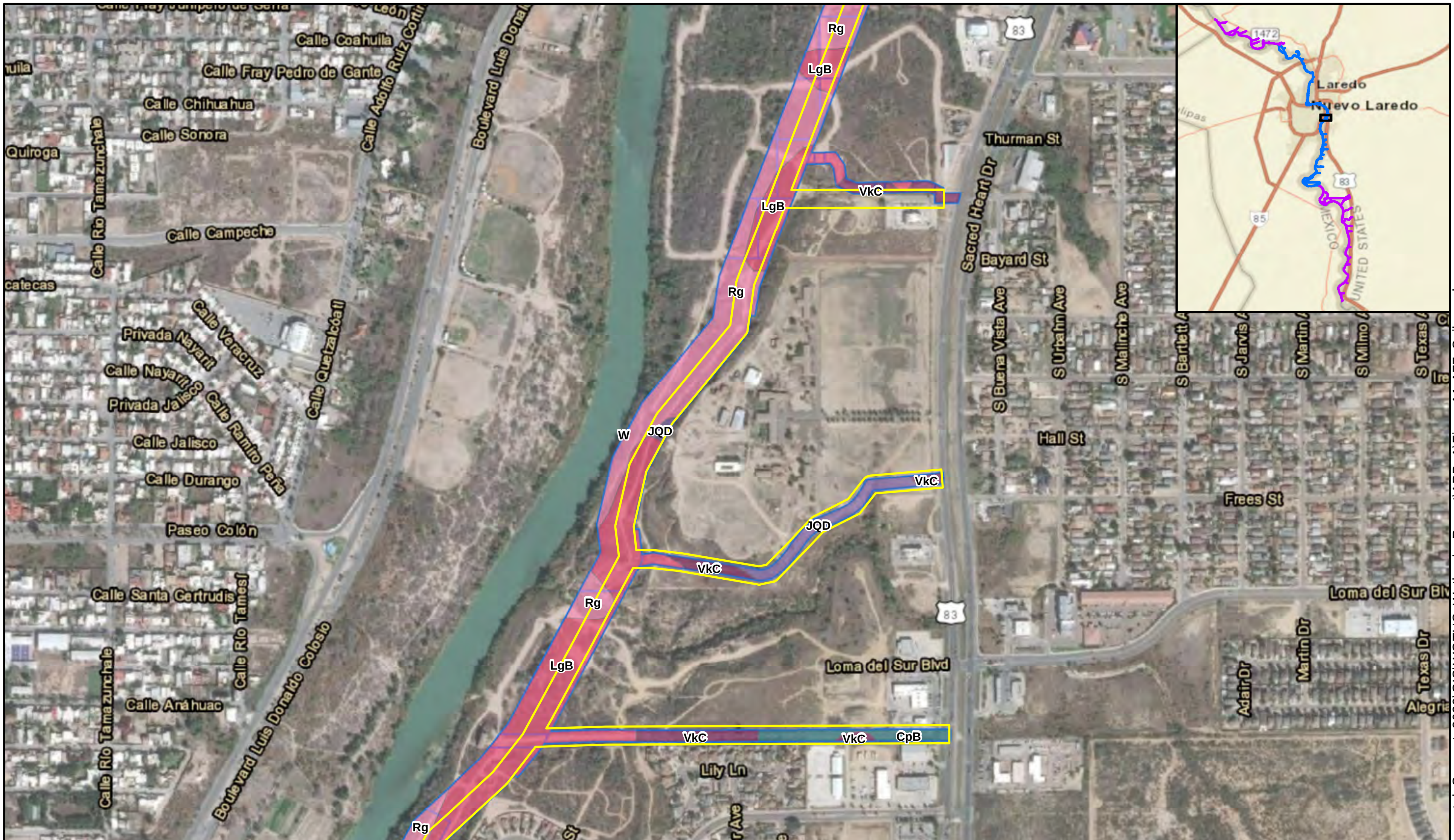
Figure A33. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

Laredo Roads Corridor

CpB, Copita fine sandy loam, 0 to 3 percent slopes

JQD, Jimenez-Quemado complex, 1 to 8 percent slopes

LgB, Lagloria loam, 1 to 3 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally flooded

VkC, Verick fine sandy loam, 1 to 5 percent slopes

W, Water

Phase I

N

0 400 800 Feet

0 125 250 Meters

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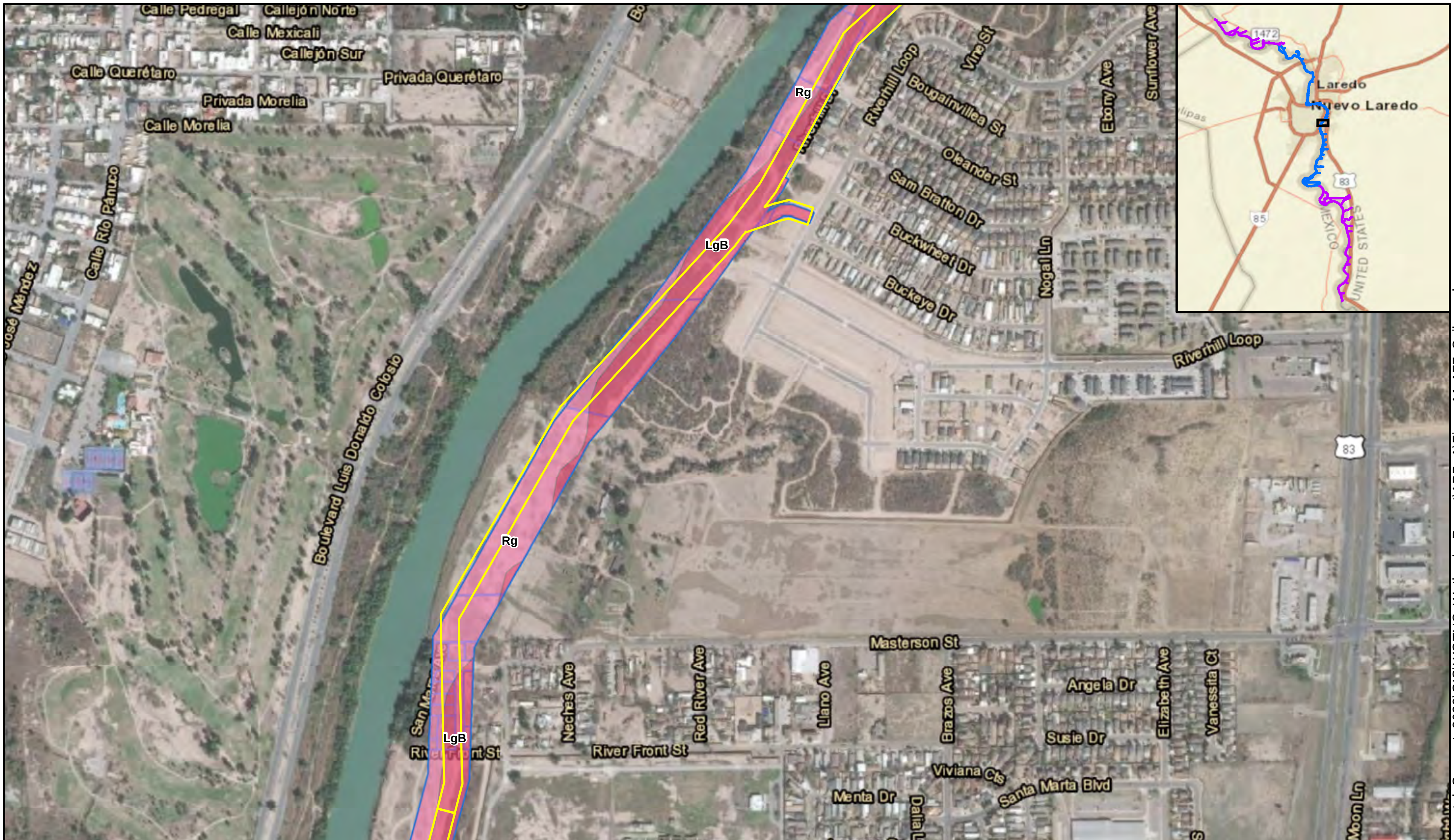
Figure A34. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

Laredo Roads Corridor | LgB, Lagloria loam, 1 to 3 percent slopes | Rg, Rio Grande very fine sandy loam, occasionally flooded | Phase I

N

0 400 800 Feet

0 125 250 Meters

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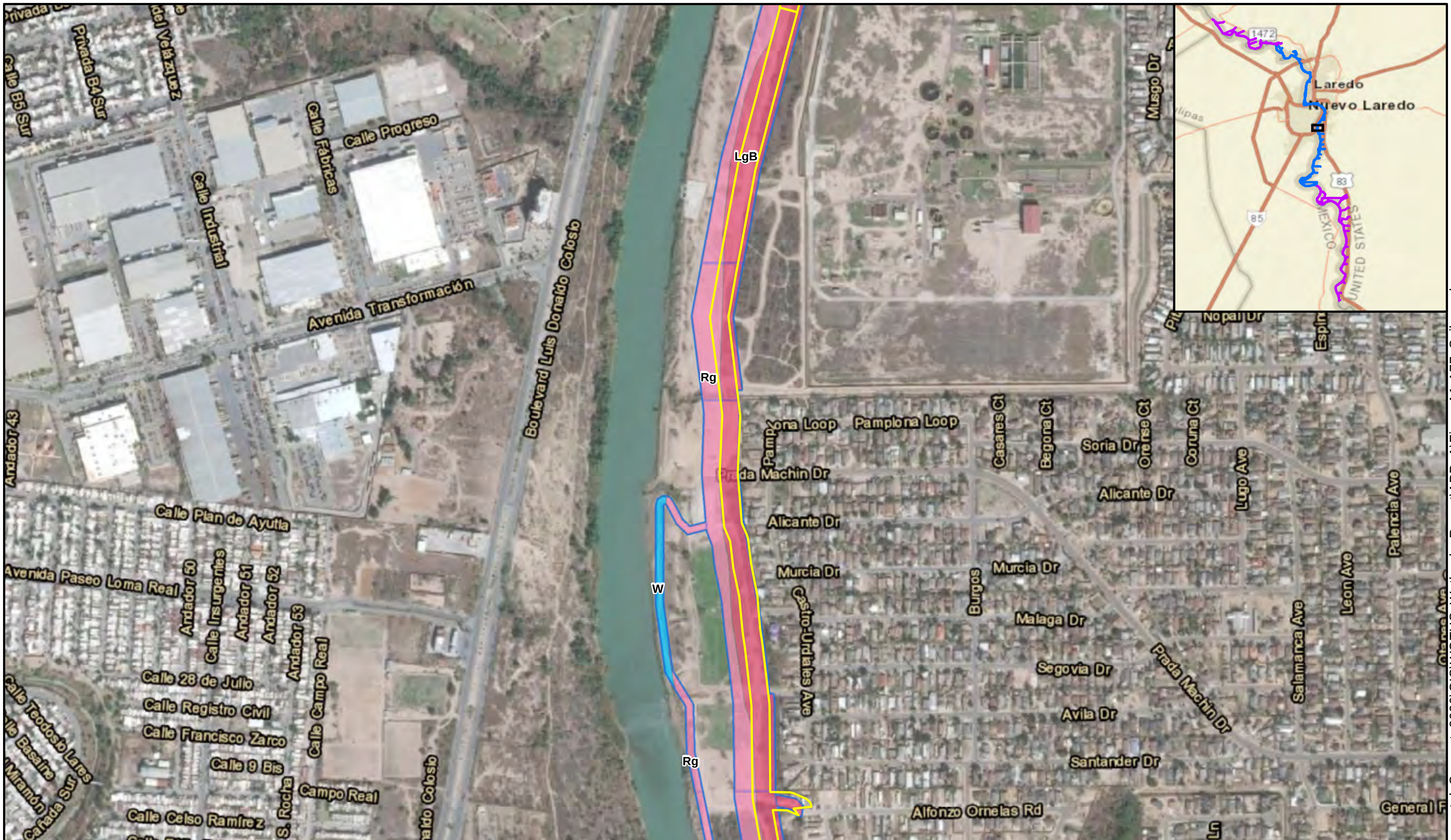
Figure A35. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

Laredo Roads Corridor

LgB, Lagloria loam, 1 to 3 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally

W, Water

Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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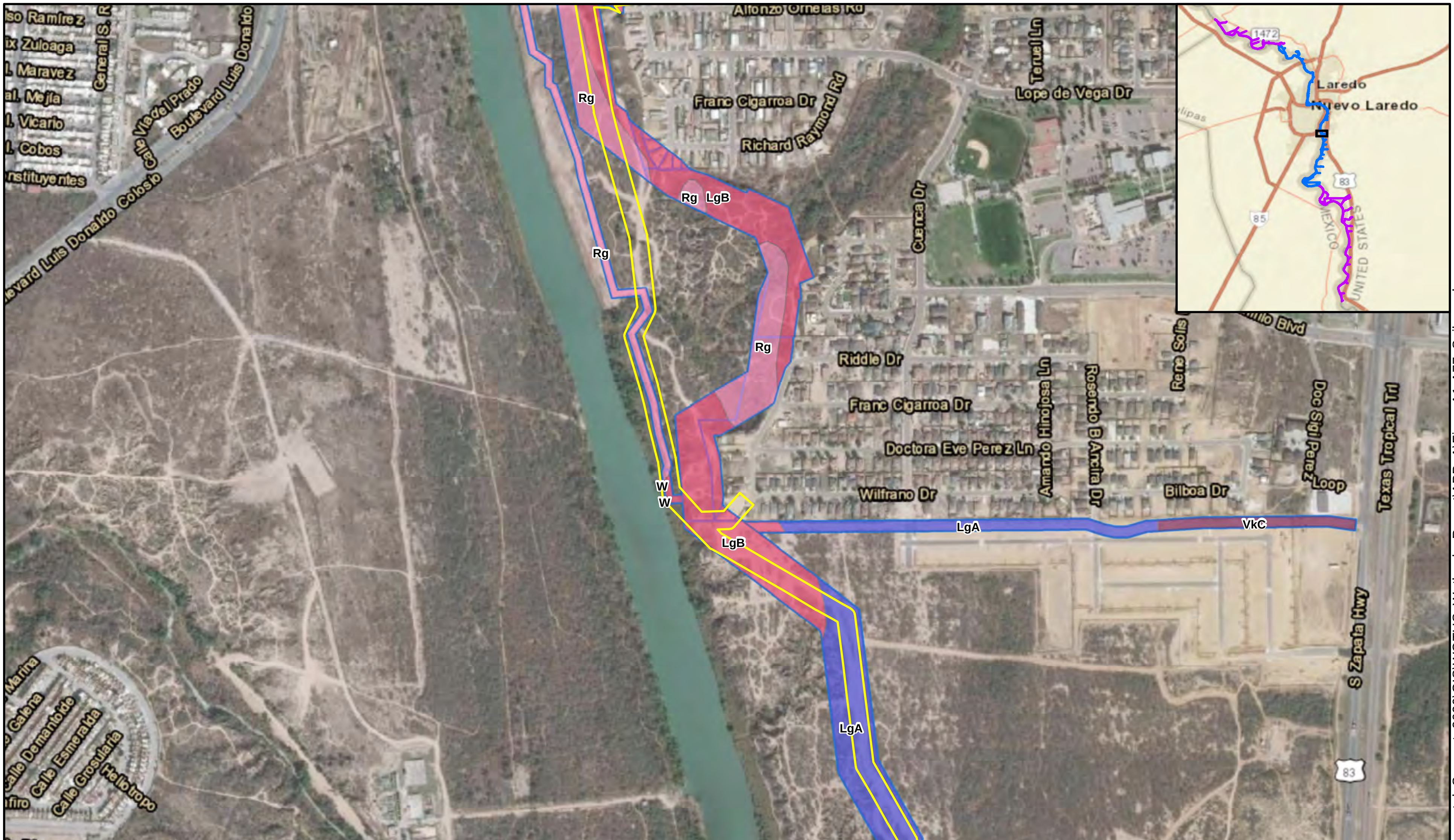
Figure A36. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- Laredo Roads Corridor
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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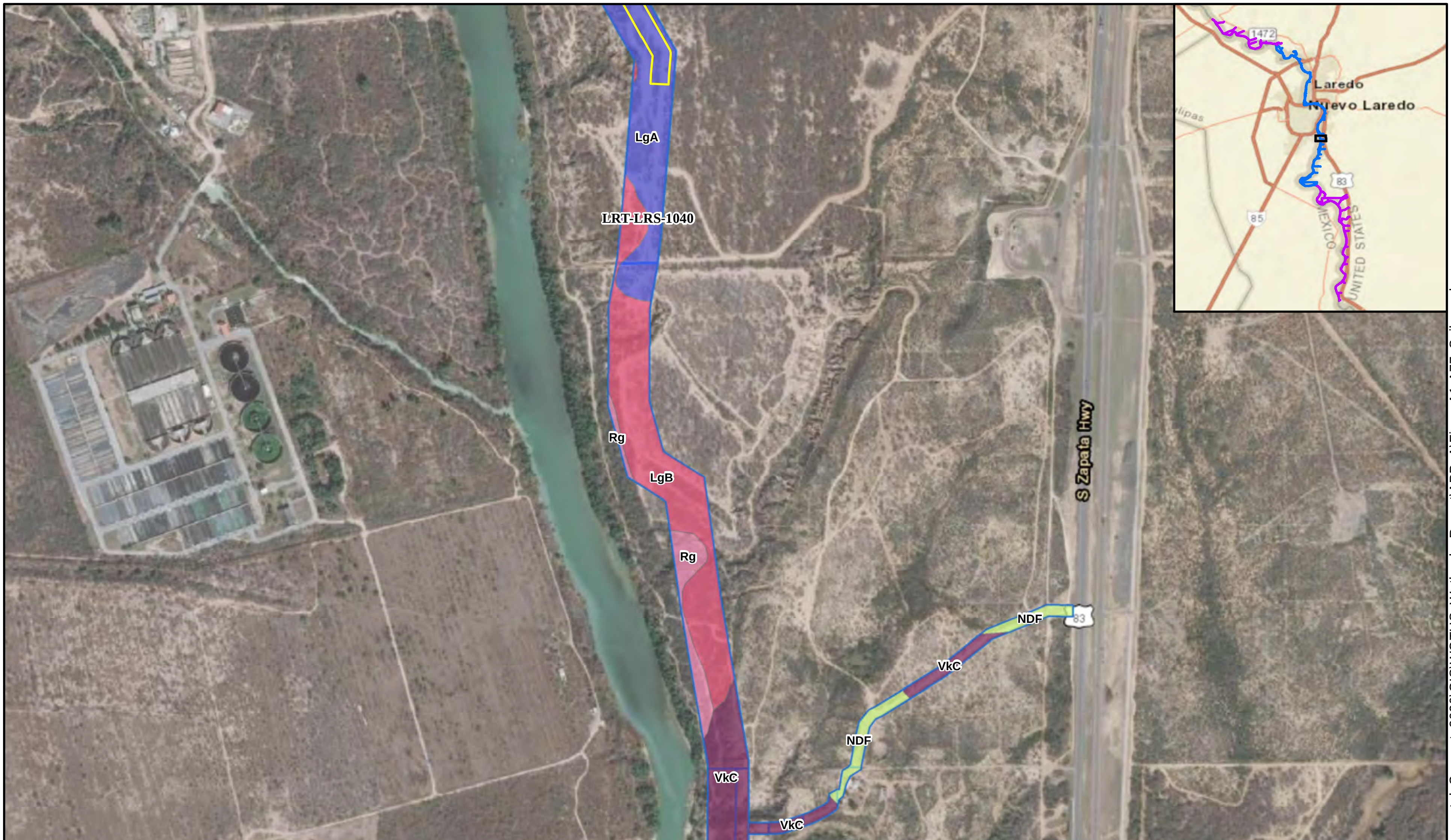
Figure A37. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- Laredo Roads Corridor
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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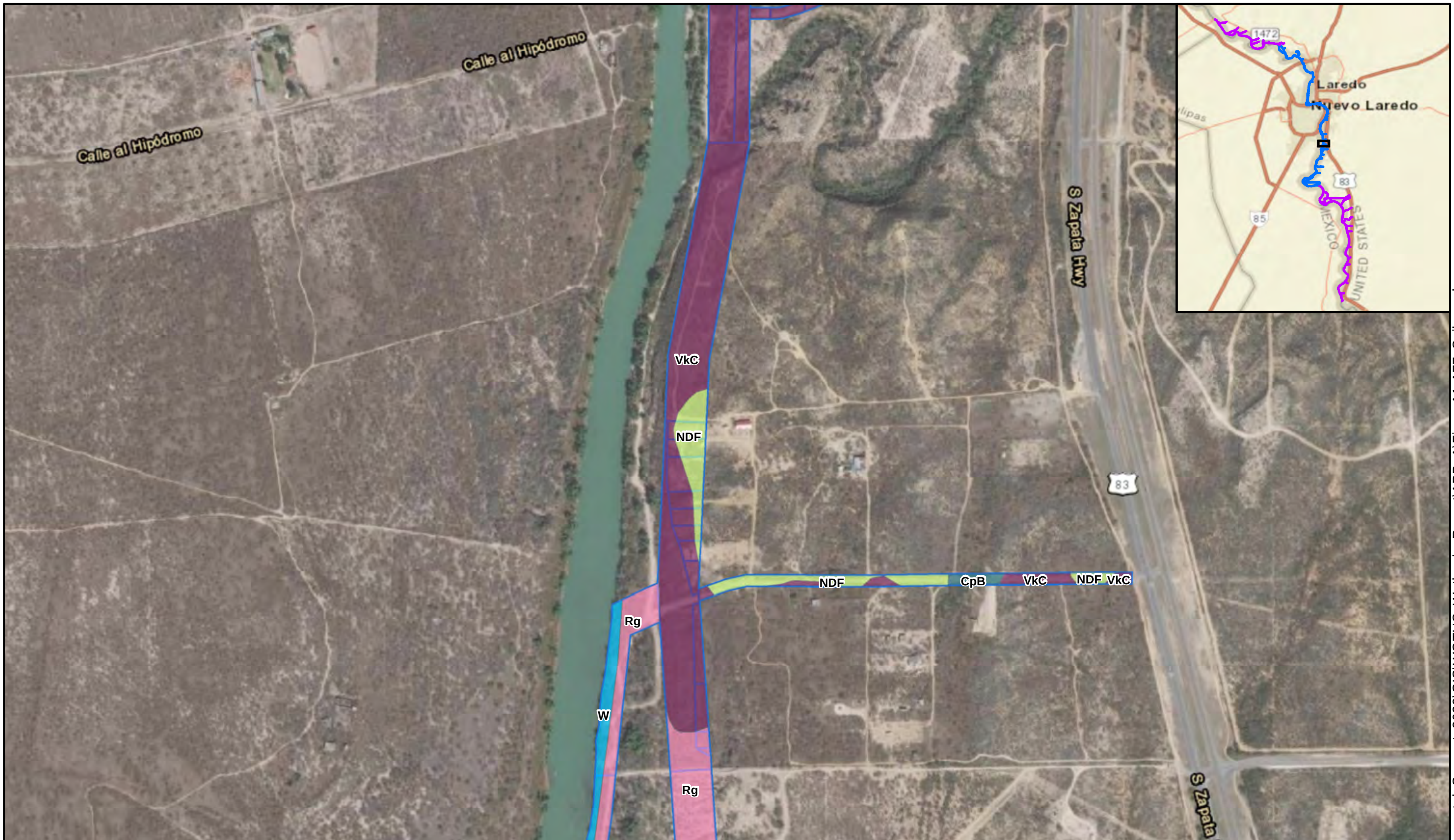
Figure A38. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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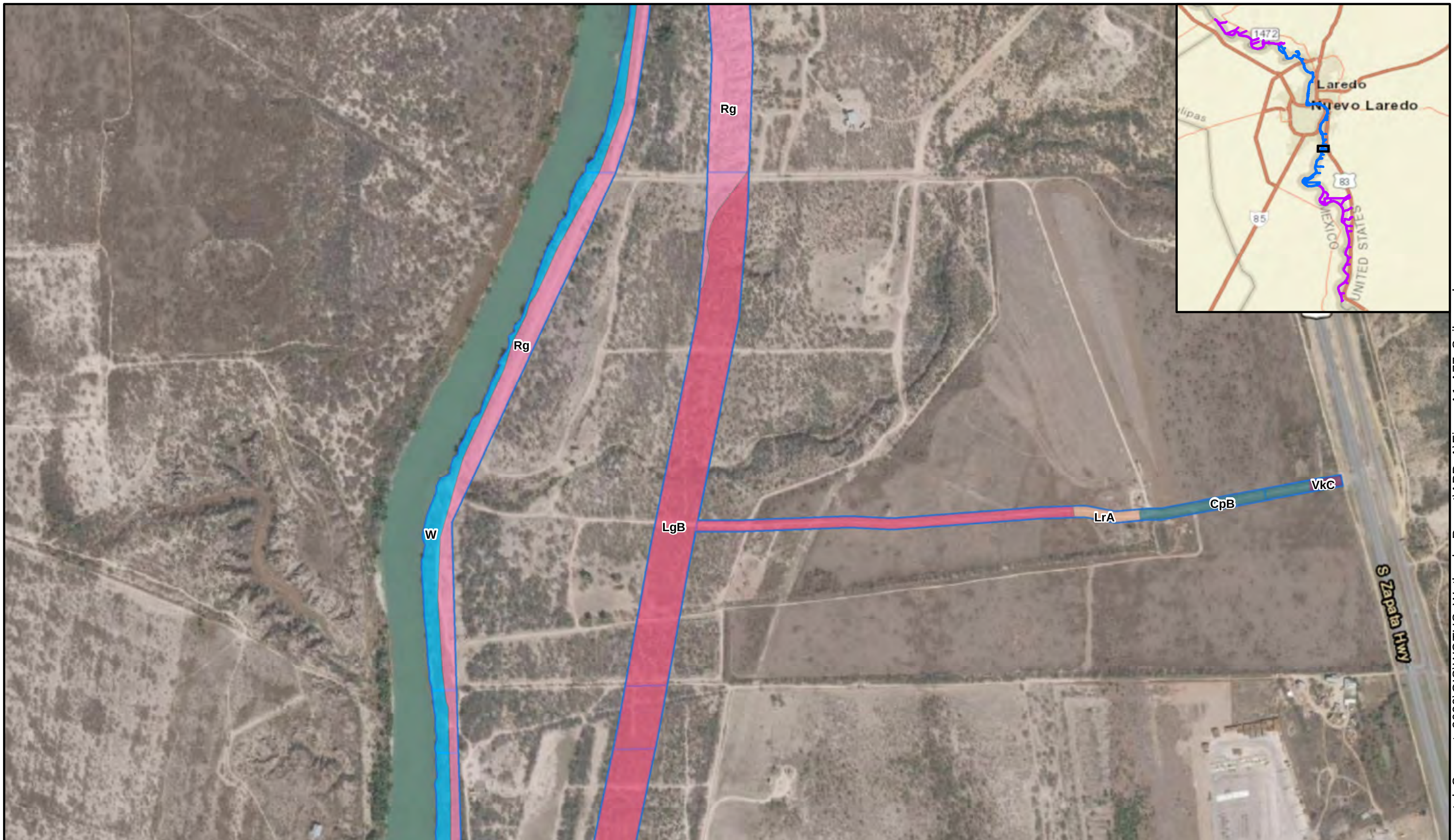
Figure A39. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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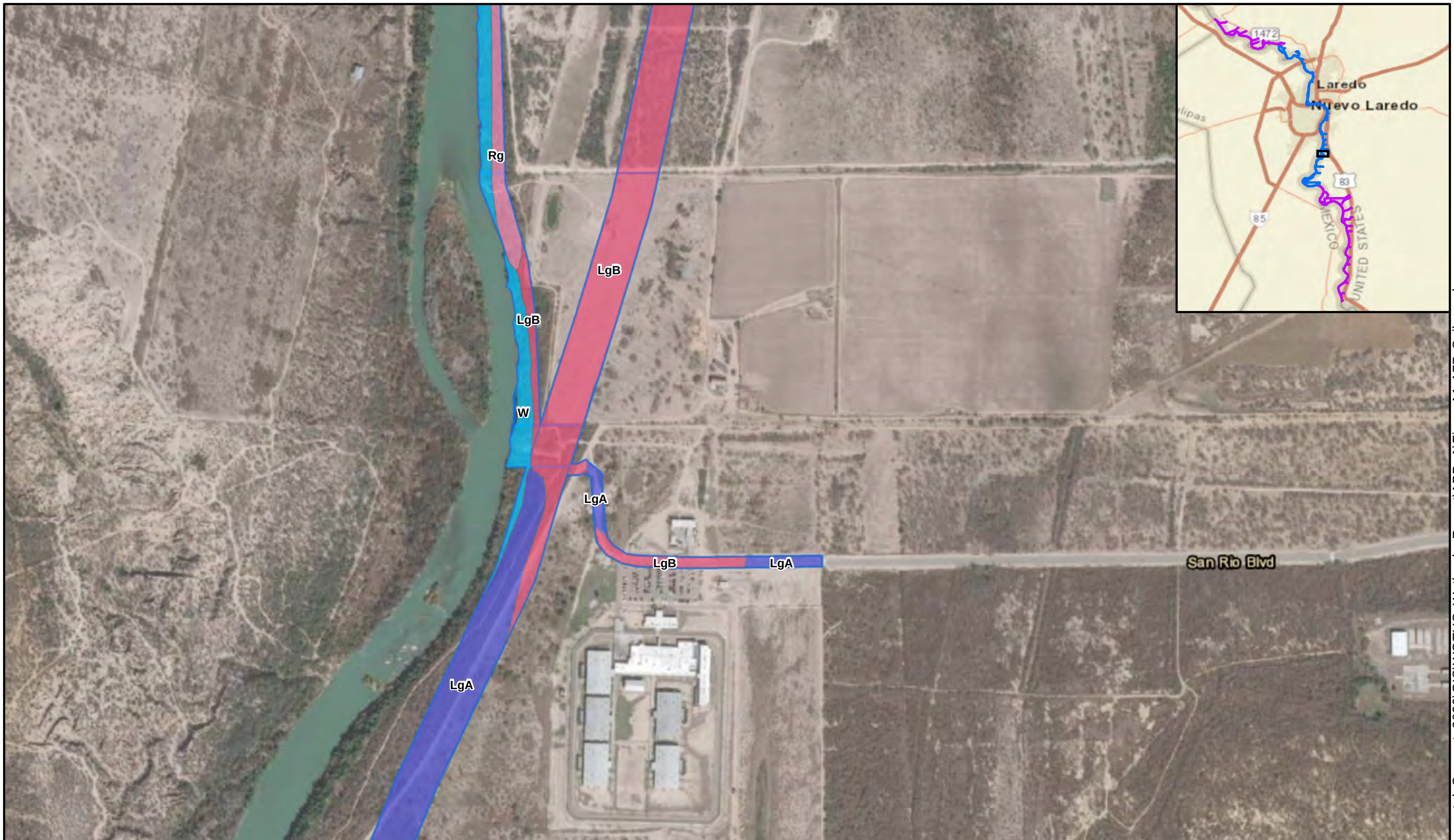
Figure A40. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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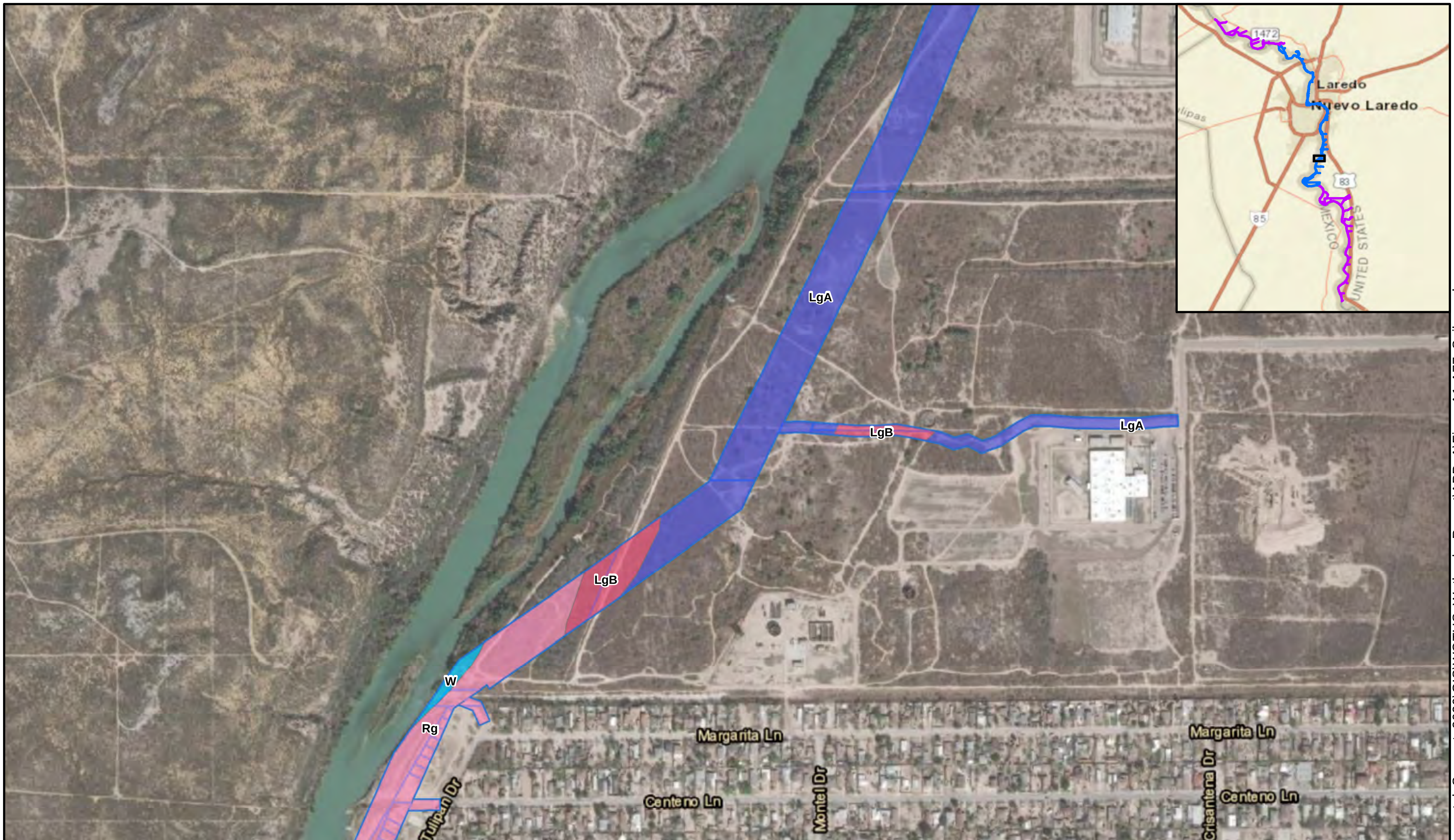
Figure A41. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

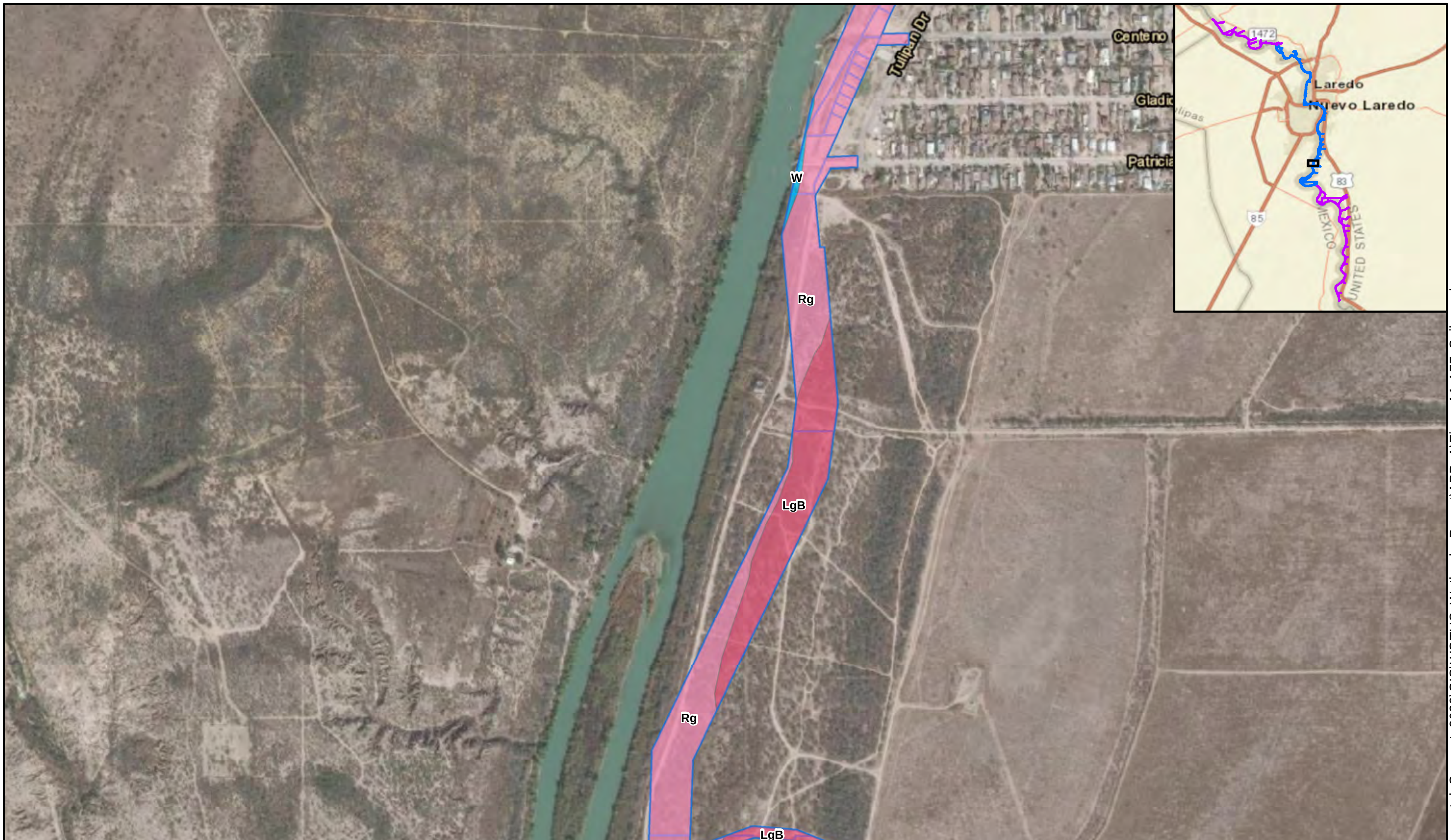
0 125 250 Meters

GSRC

March 2022

Figure A42. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

LgB, Lagloria loam, 1 to 3 percent slopes

Rg, Rio Grande very fine sandy loam, occasionally flooded

W, Water

Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A43. Soils Map - Phase I

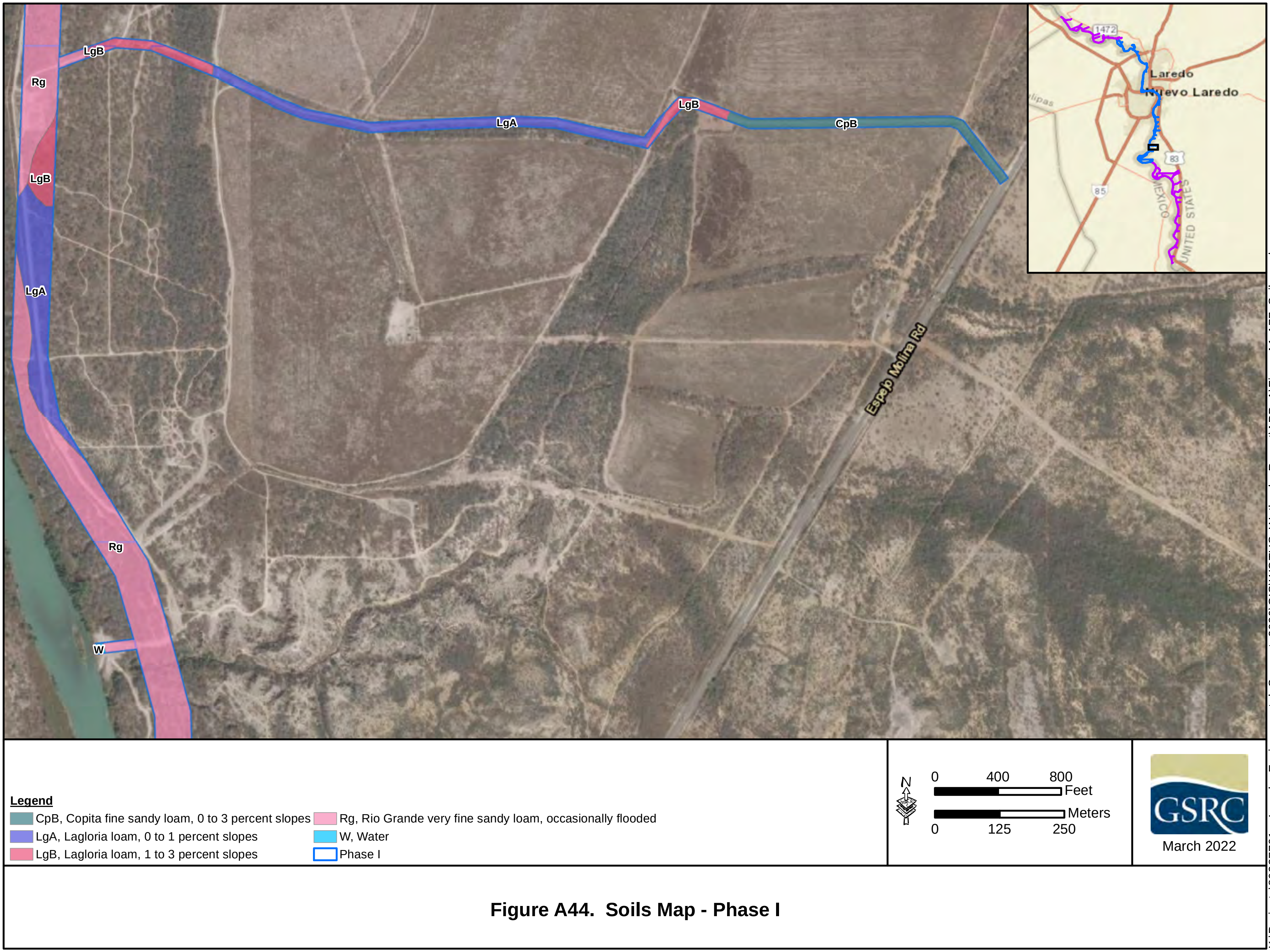
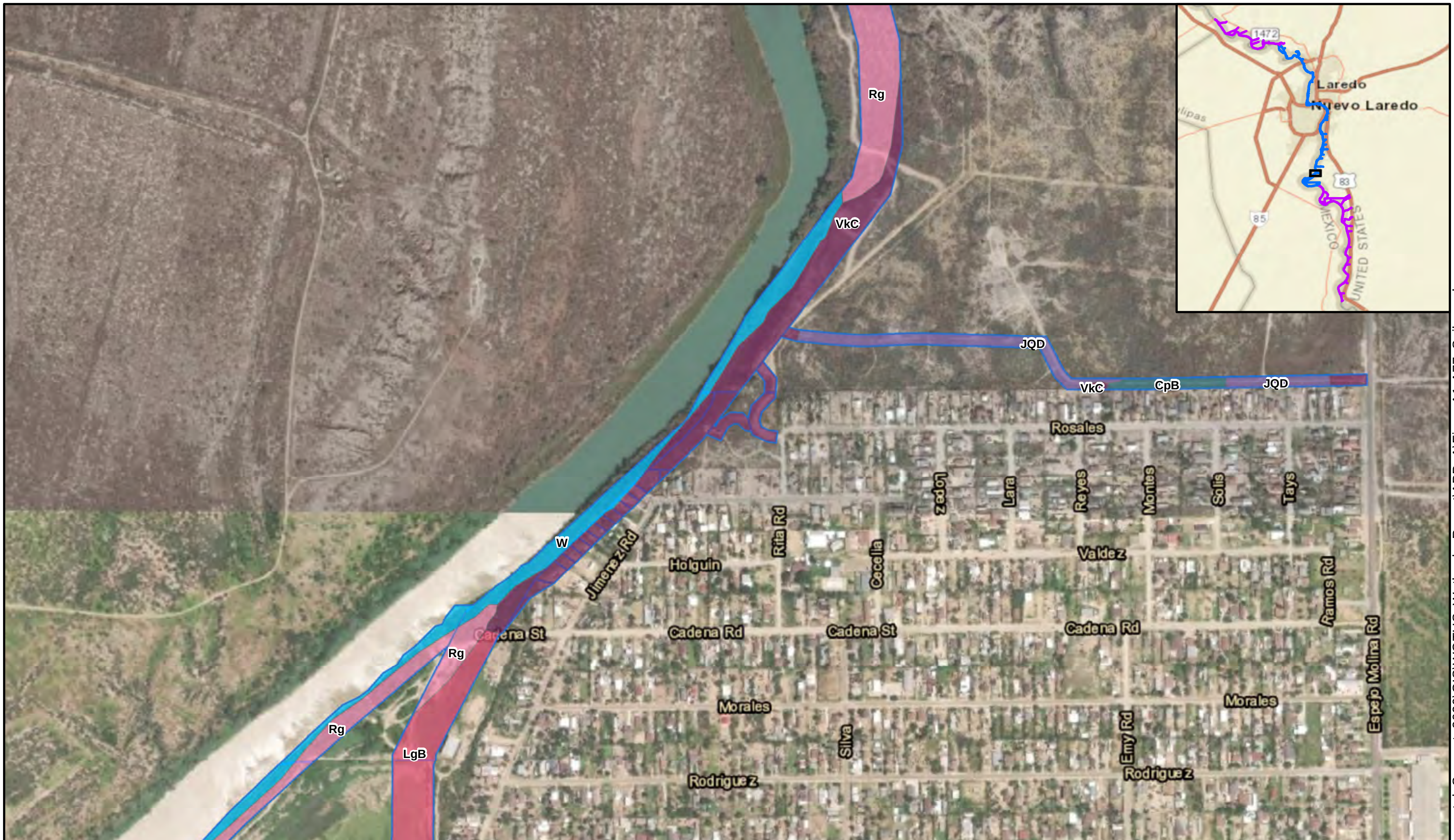


Figure A44. Soils Map - Phase I



Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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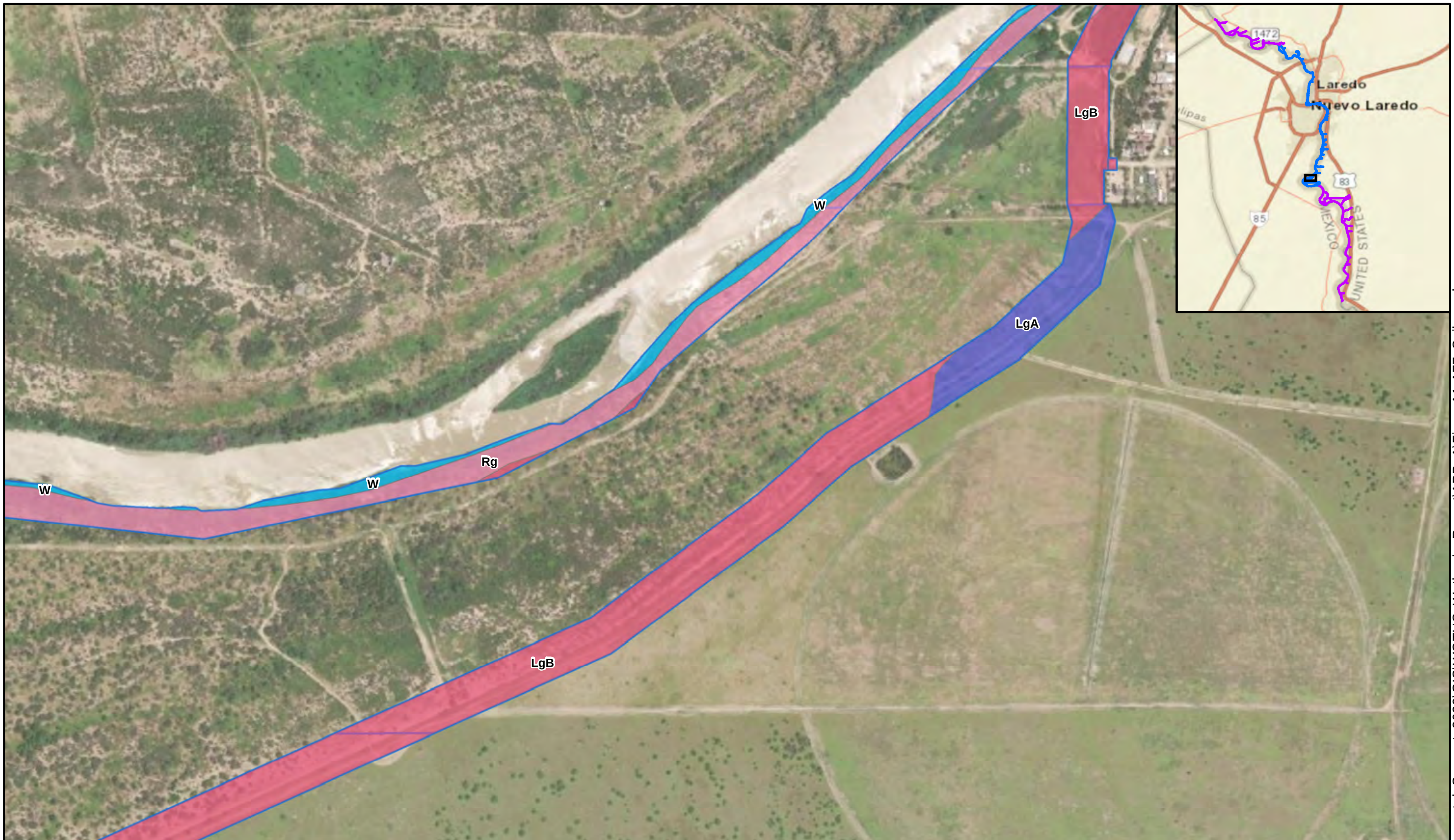
Figure A45. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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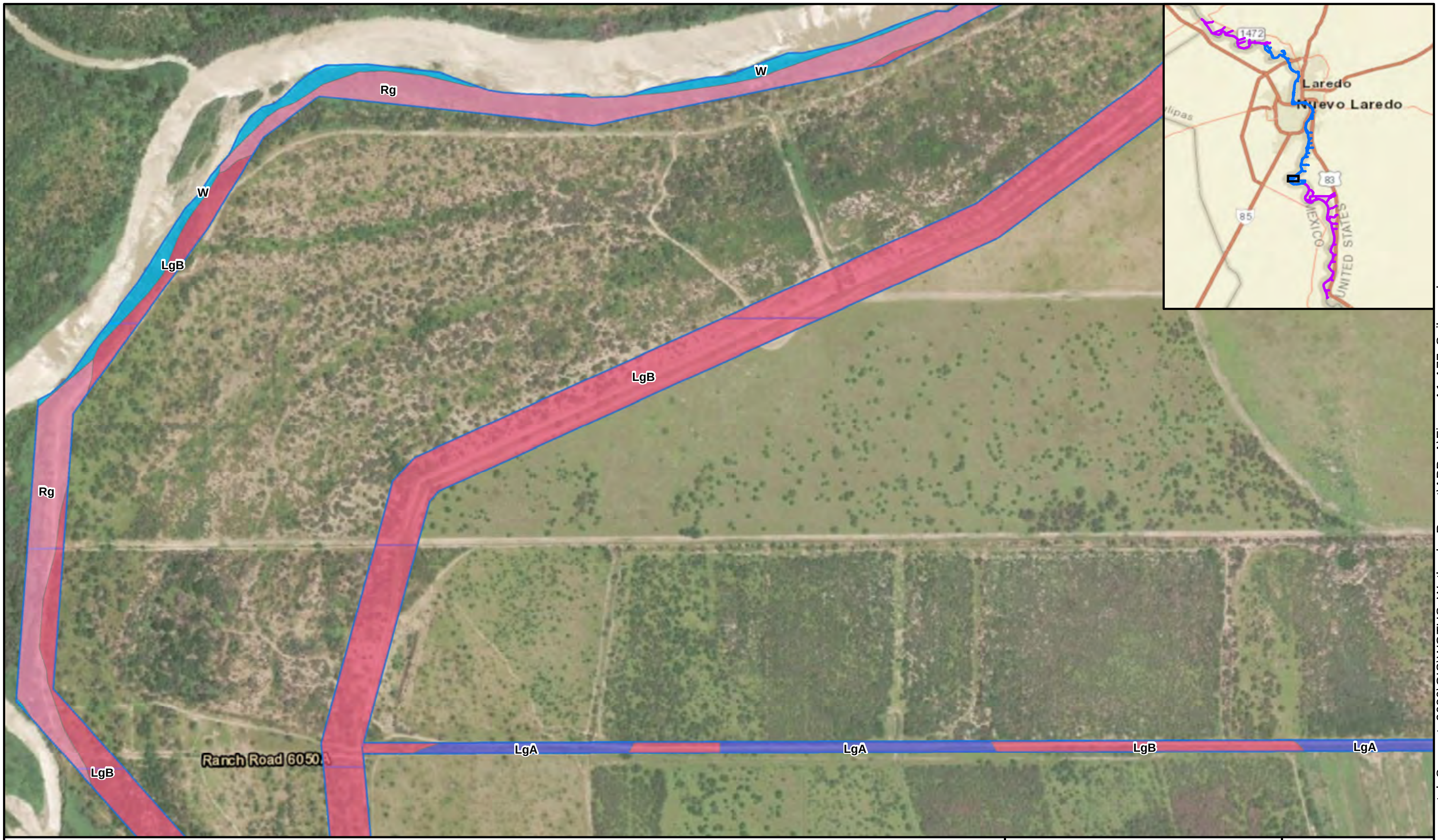
Figure A46. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I

N

0 400 800 Feet

0 125 250 Meters

GSRC

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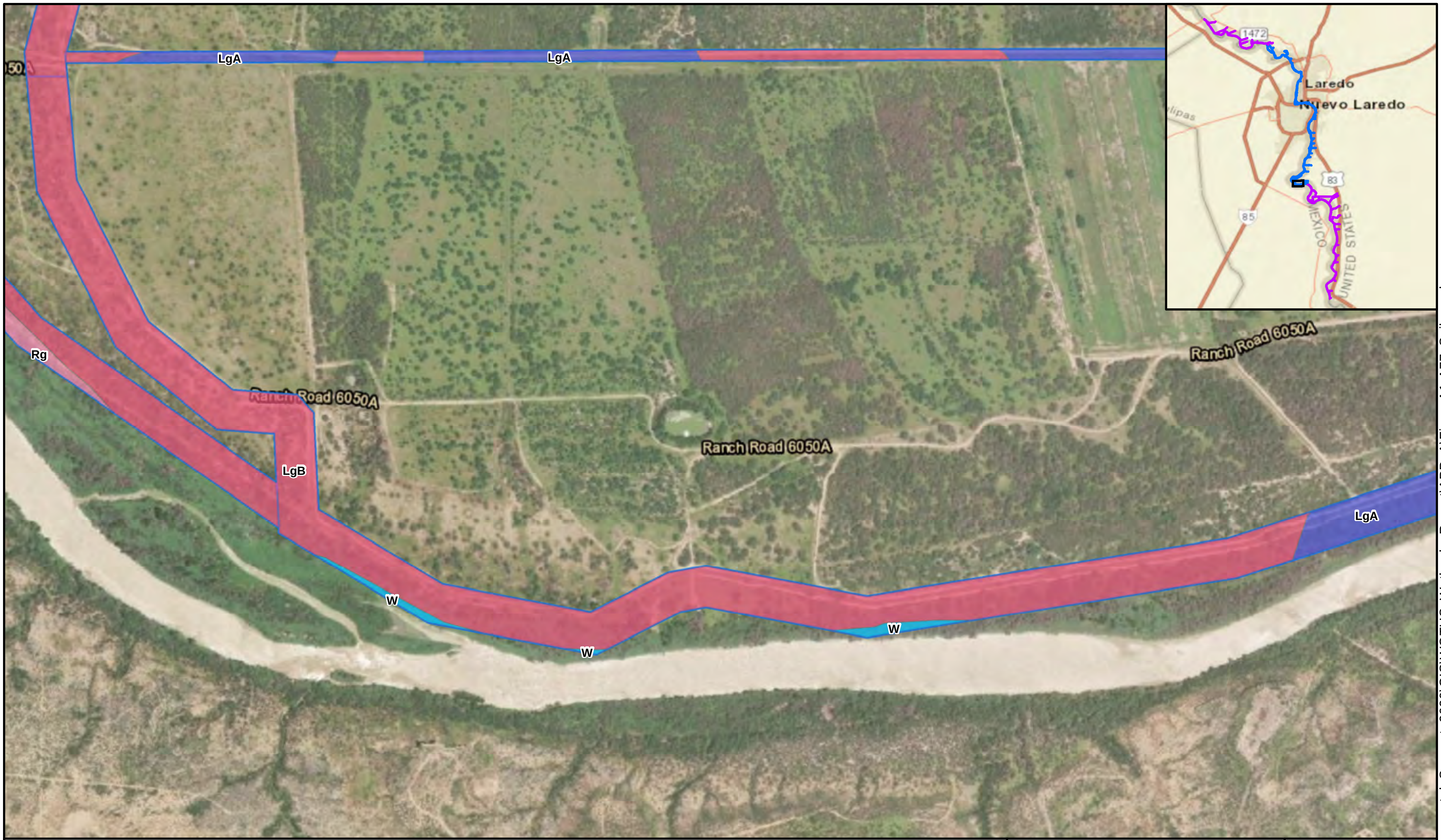
K:\Projects\8033770\1g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A47. Soils Map - Phase I



Legend
LgA, Lagloria loam, 0 to 1 percent slopes
LgB, Lagloria loam, 1 to 3 percent slopes
Rg, Rio Grande very fine sandy loam, occasionally flooded
W, Water
Phase I

N

0 400 800 Feet

0 125 250 Meters

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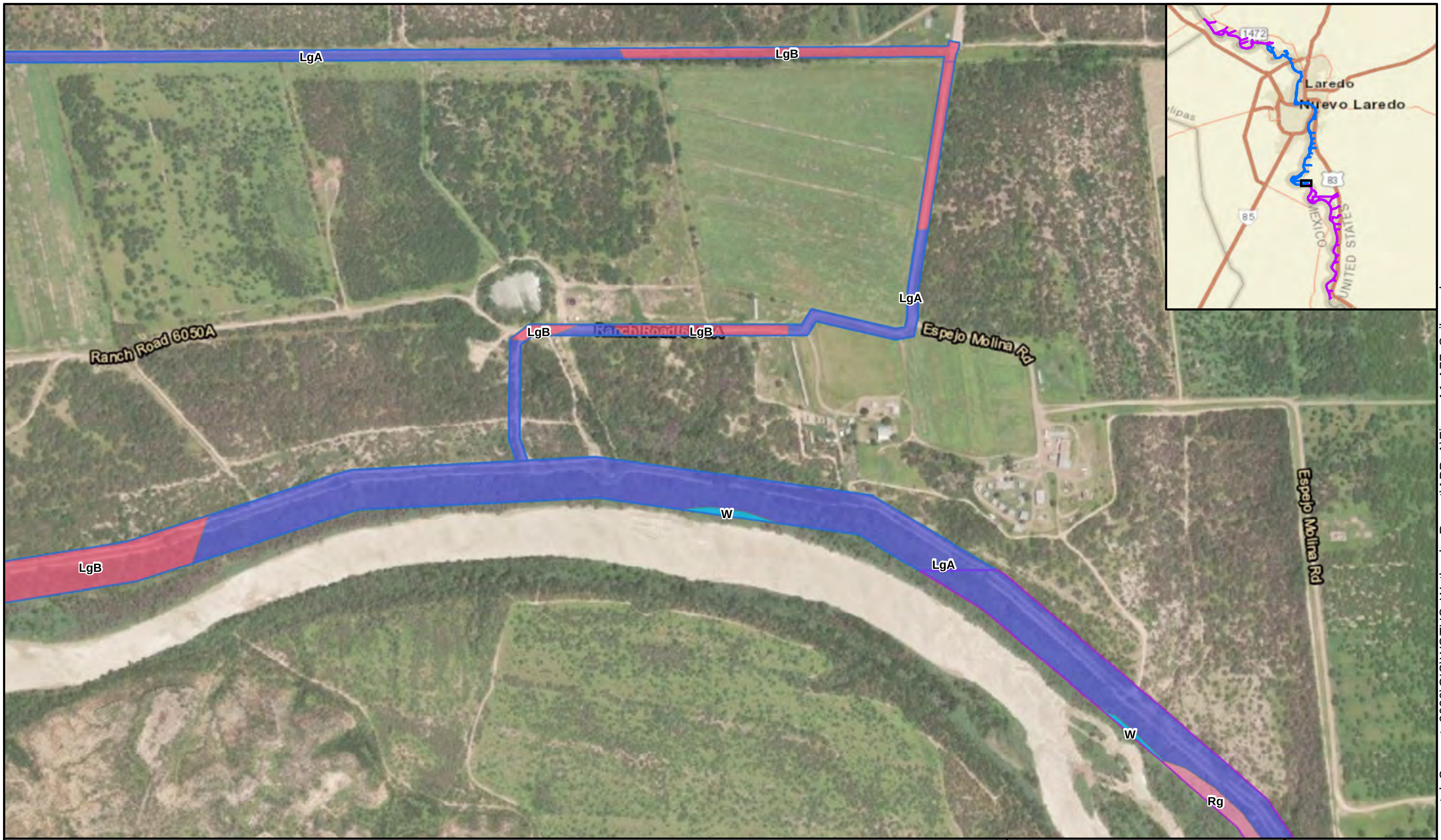
Figure A48. Soils Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase I
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A49. Soils Map - Phases I and II

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Rg, Rio Grande very fine sandy loam, occasionally
- W, Water
- Phase I
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A50. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A51. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A52. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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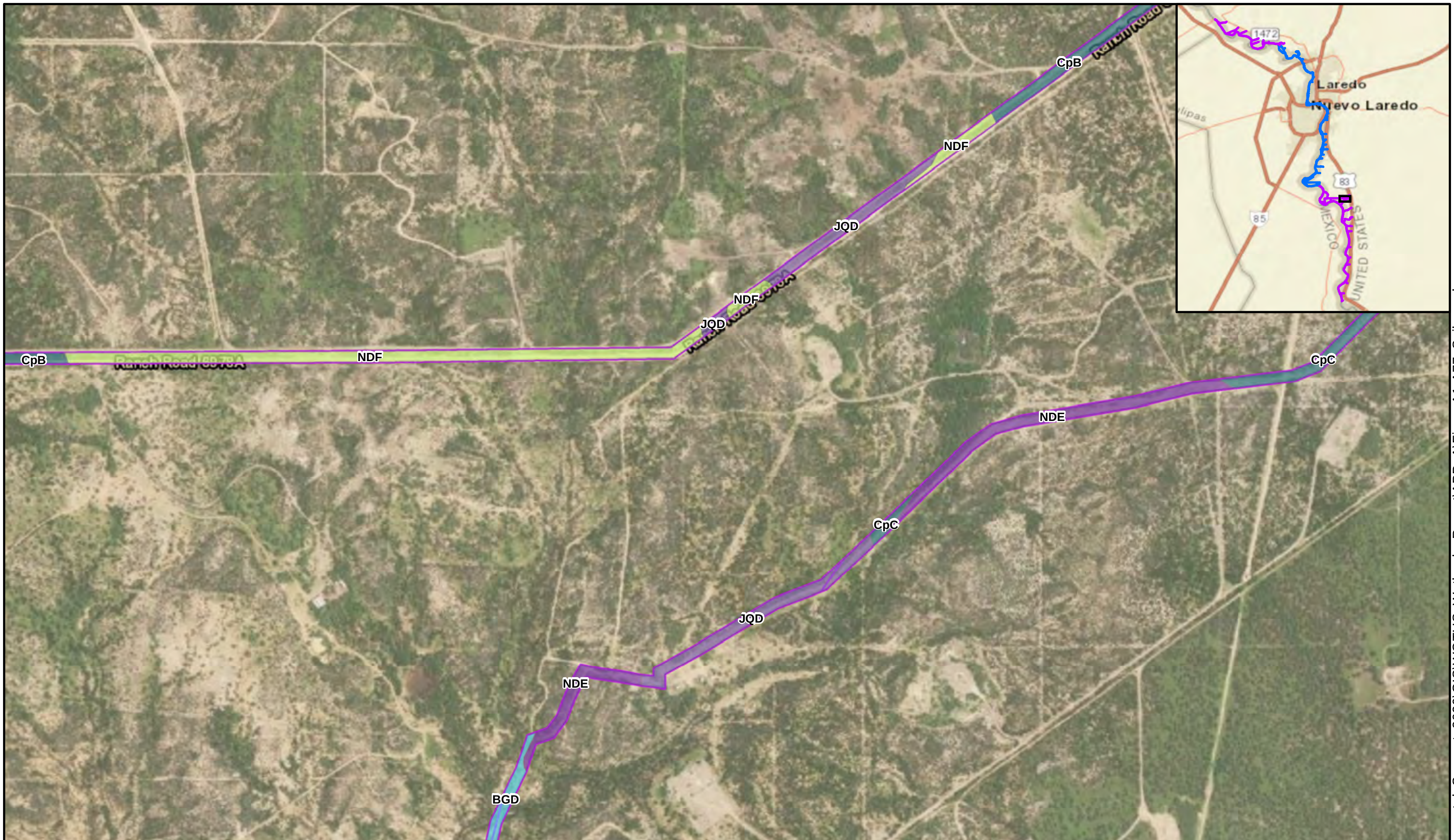
Figure A53. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- BeB, Brennan fine sandy loam, 0 to 3 percent slopes
- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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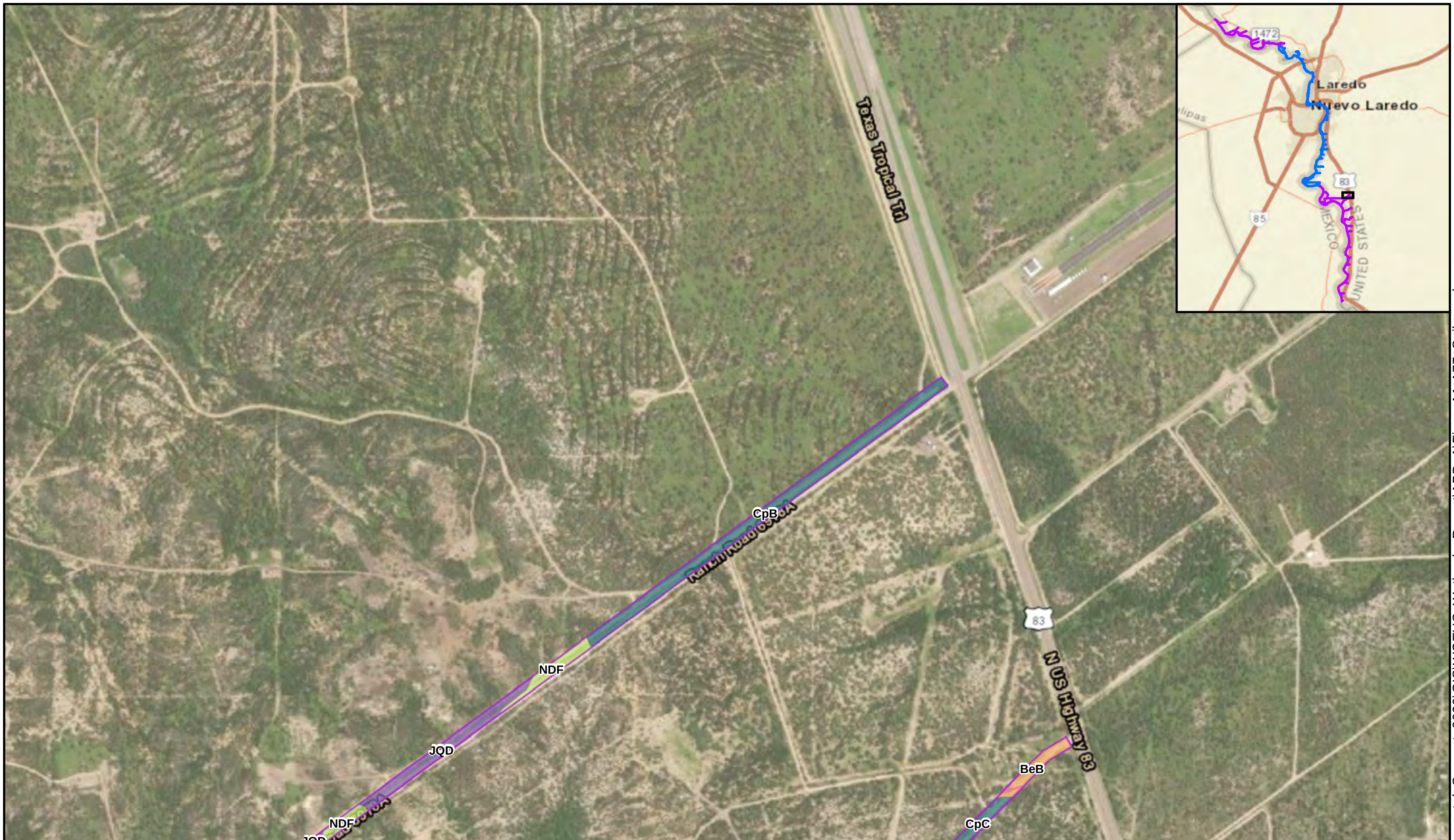
Figure A54. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- BeB, Brennan fine sandy loam, 0 to 3 percent slopes
- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A55. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

CpB, Copita fine sandy loam, 0 to 3 percent slopes
LgA, Lagloria loam, 0 to 1 percent slopes
Rg, Rio Grande very fine sandy loam, occasionally flooded
W, Water
Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A56. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- NDF, Nido-Rock outcrop complex, hilly
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Rg, Rio Grande very fine sandy loam, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A57. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- Pt, Pits
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

March 2022

Figure A58. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- AgB, Aguilares fine sandy loam, 0 to 3 percent
- BeB, Brennan fine sandy loam, 0 to 3 percent slopes
- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- HeB, Hebbronville loamy fine sand, 0 to 3 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- MNE, Maverick-Nido complex, 1 to 20 percent slopes
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- TeB, Tela sandy clay loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A59. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- LgB, Lagloria loam, 1 to 3 percent slopes
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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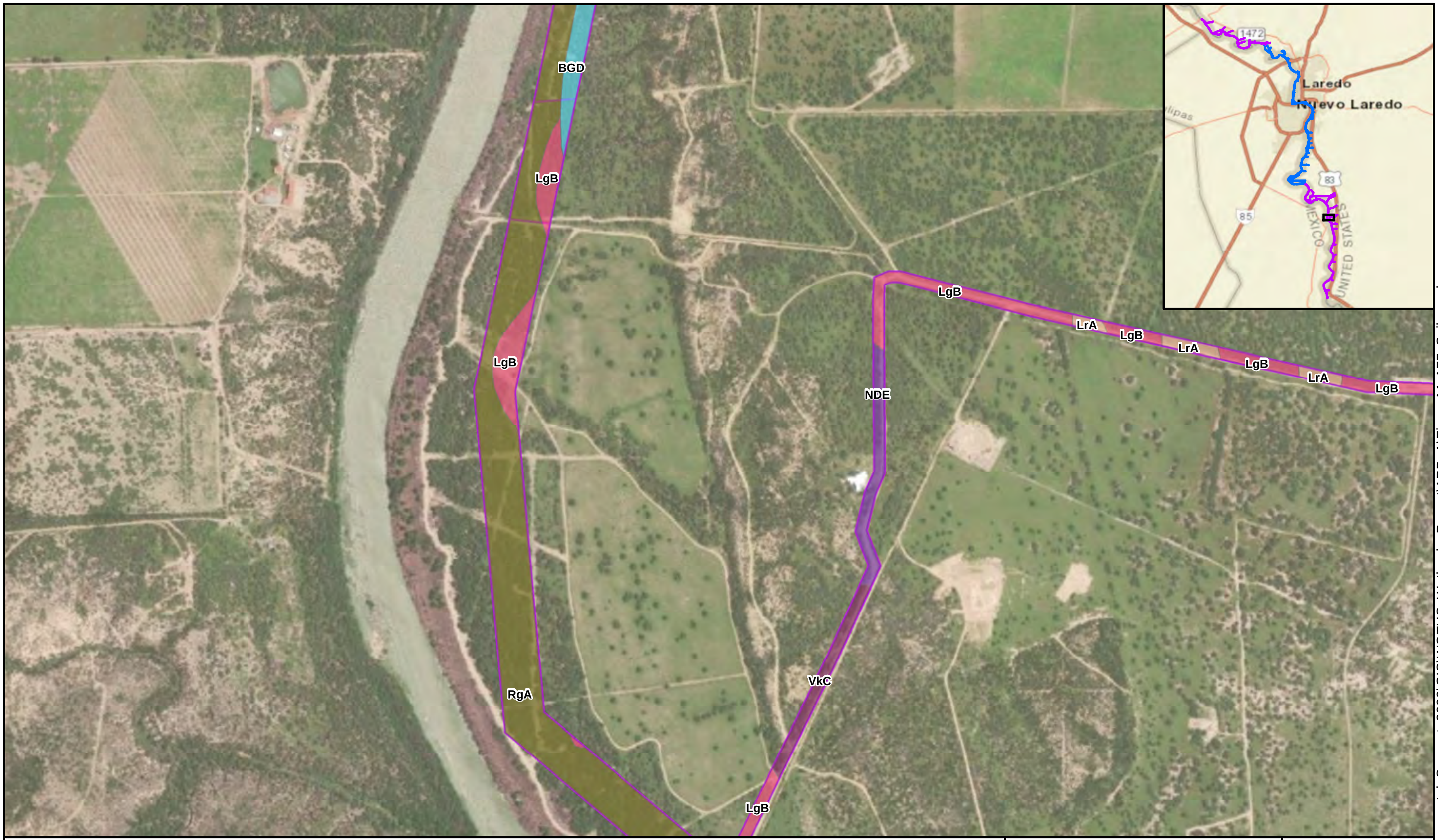
Figure A60. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- VkC, Verick fine sandy loam, 1 to 5 percent slopes
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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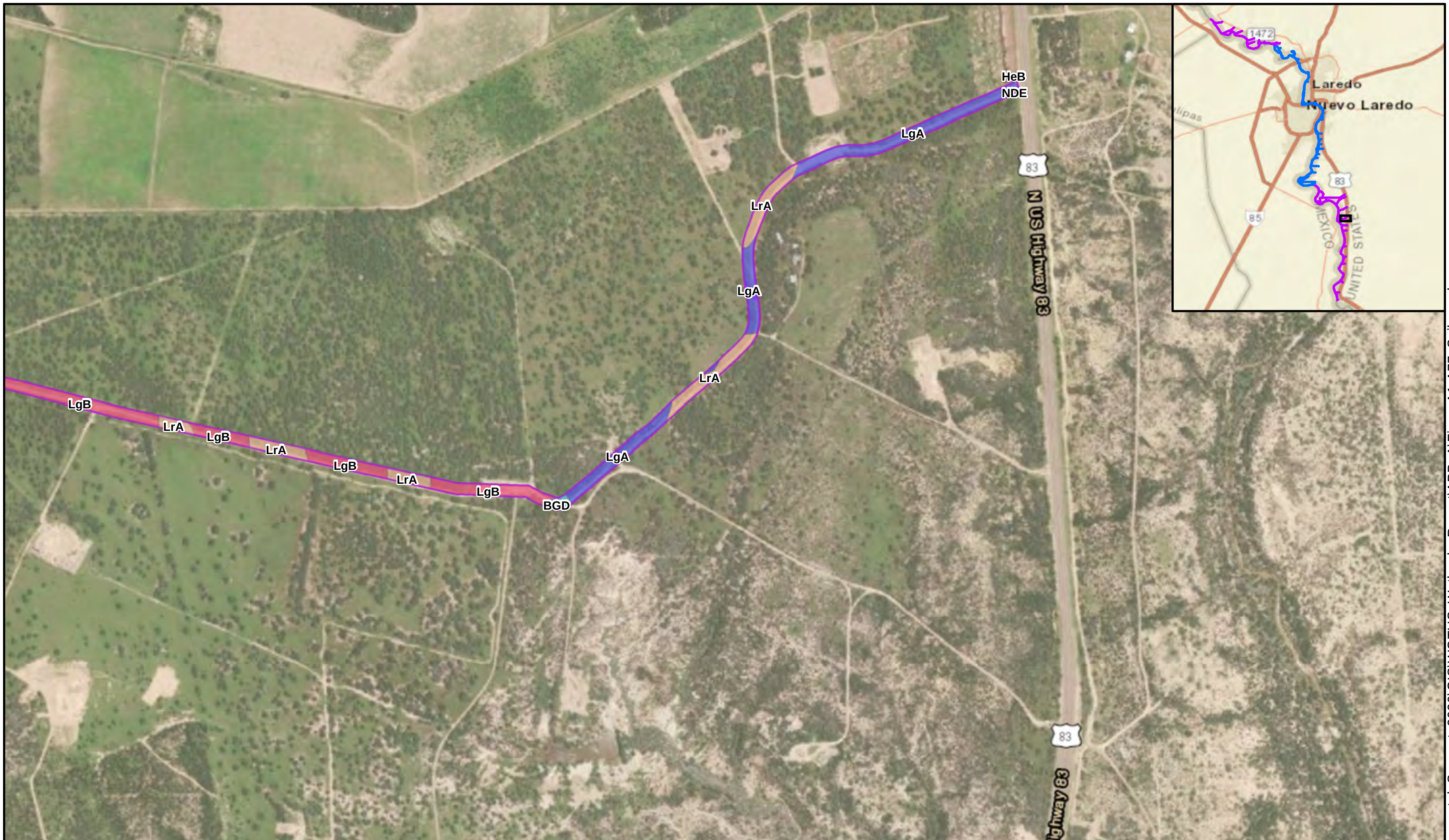
Figure A61. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- HeB, Hebbronville loamy fine sand, 0 to 3 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A62. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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Figure A63. Soils Map - Phase II

K:\Projects\803377\01g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

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Figure A64. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded

Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A65. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
CpB, Copita fine sandy loam, 0 to 3 percent slopes
LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
Phase II

N

0 400 800 Feet

0 125 250 Meters

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A66. Soils Map - Phase II

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- LrA, Laredo silty clay loam, dry, 0 to 1 percent slopes, rarely flooded
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A67. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- BGD, Brennan-Gullied land-Maverick association, 1 to 8 percent slopes, eroded
- LgB, Lagloria loam, 1 to 3 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

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Figure A68. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

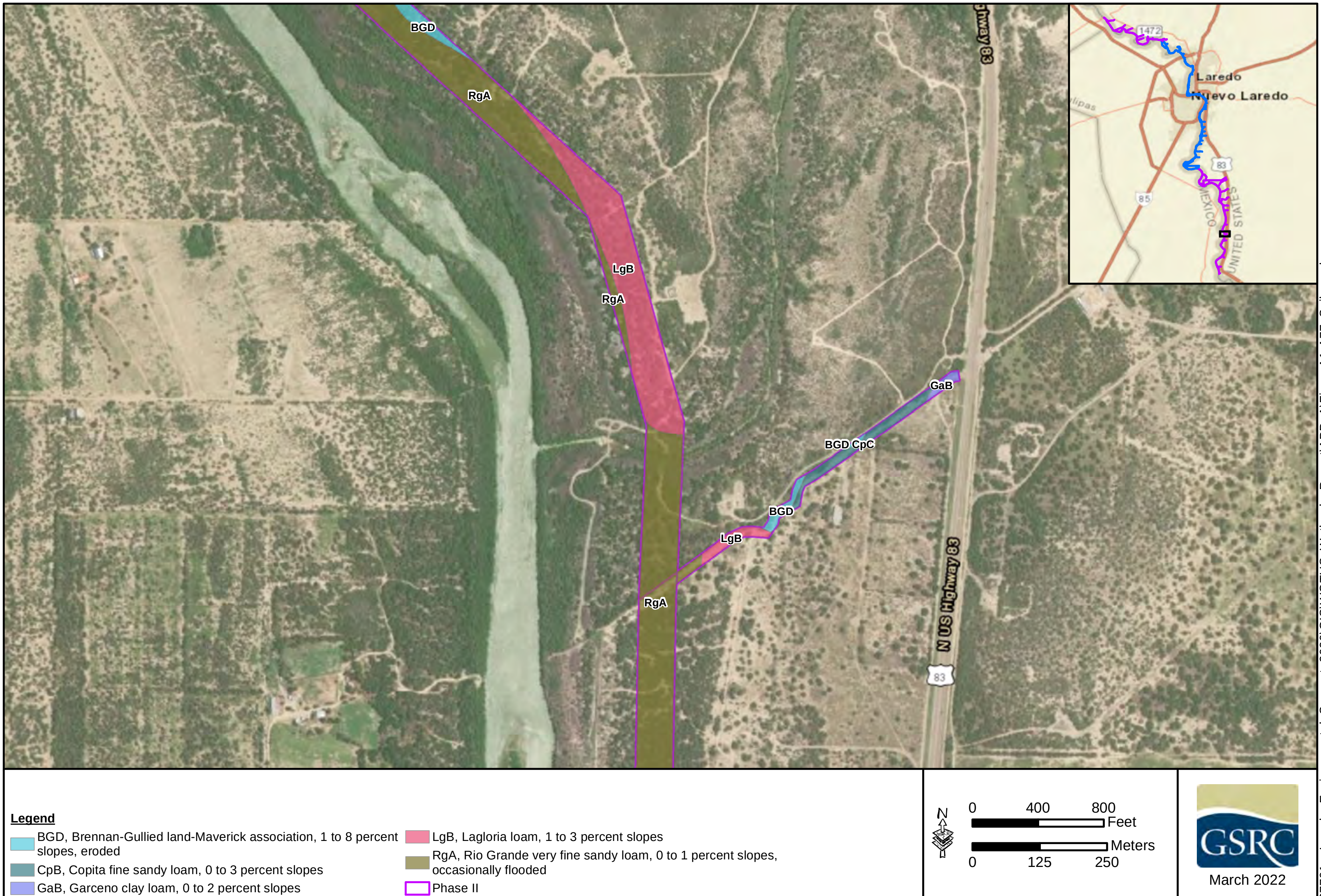
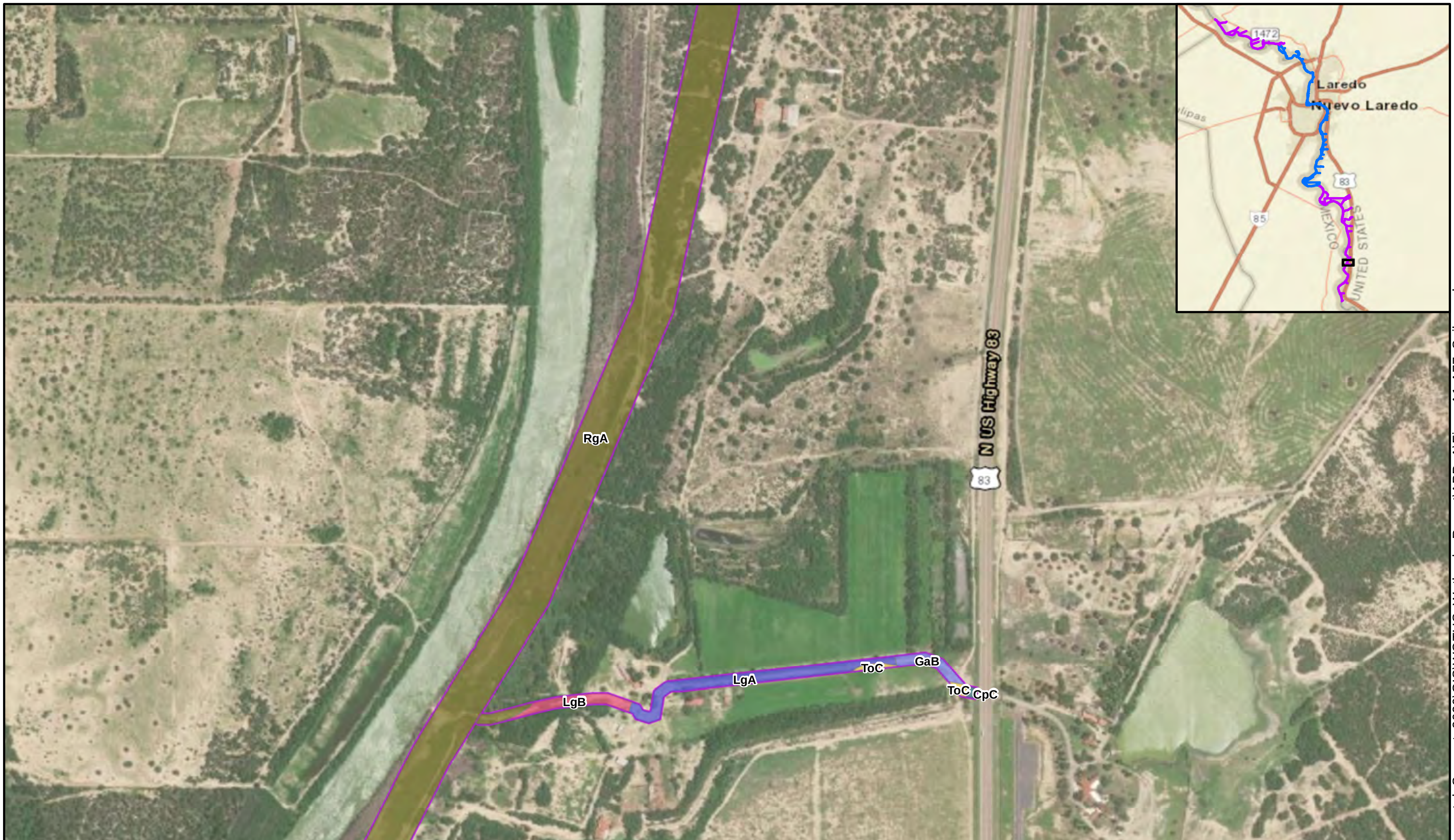


Figure A69. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- CpB, Copita fine sandy loam, 0 to 3 percent slopes
- GaB, Garceno clay loam, 0 to 2 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- ToC, Tonio fine sandy loam, 1 to 5 percent slopes
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A70. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

LgA, Lagloria loam, 0 to 1 percent slopes
LgB, Lagloria loam, 1 to 3 percent slopes
RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
Phase II

N

0 400 800 Feet

0 125 250 Meters

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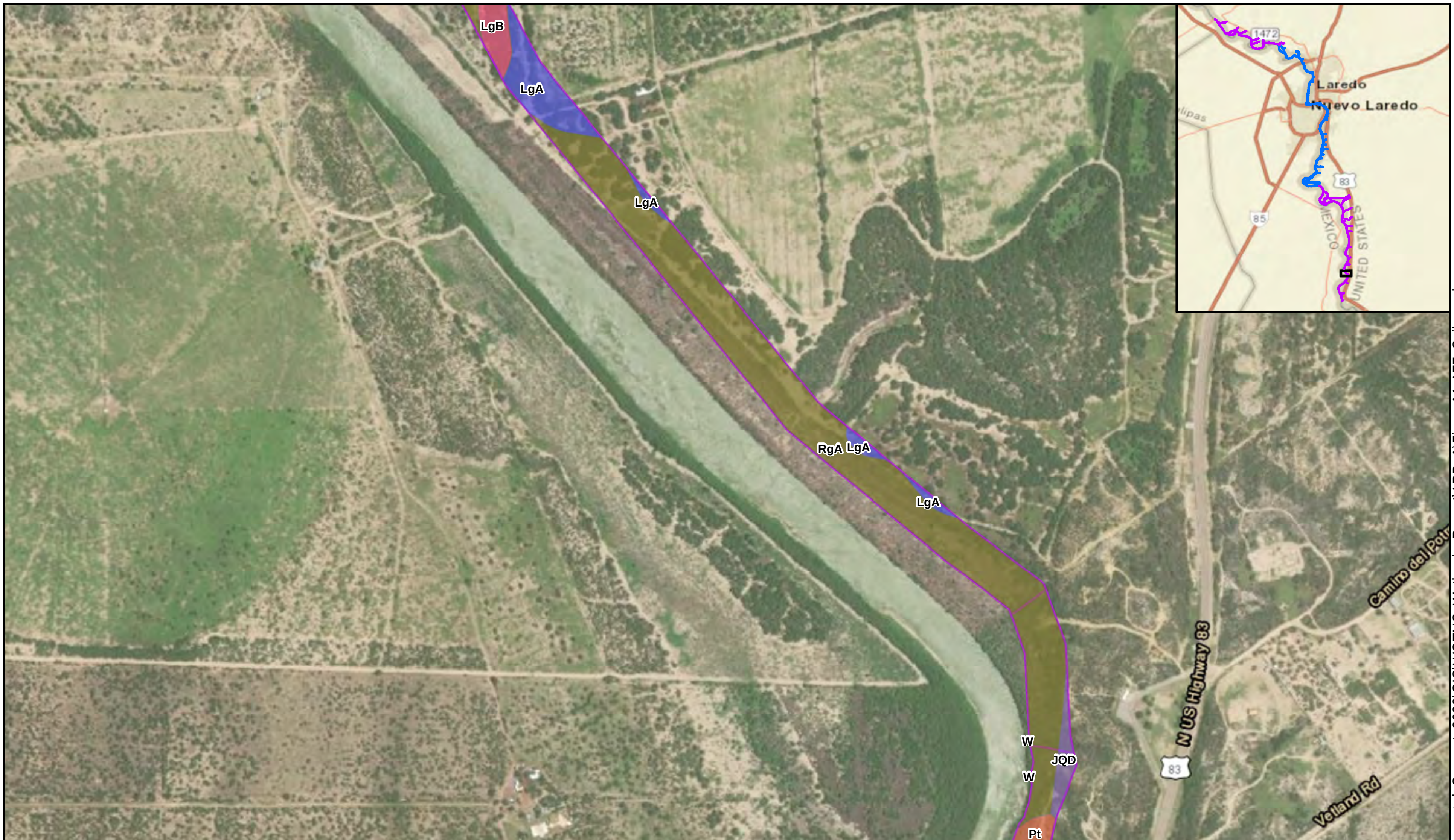
Figure A71. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- JQD, Jimenez-Quemado complex, 1 to 8 percent slopes
- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- Pt, Pits
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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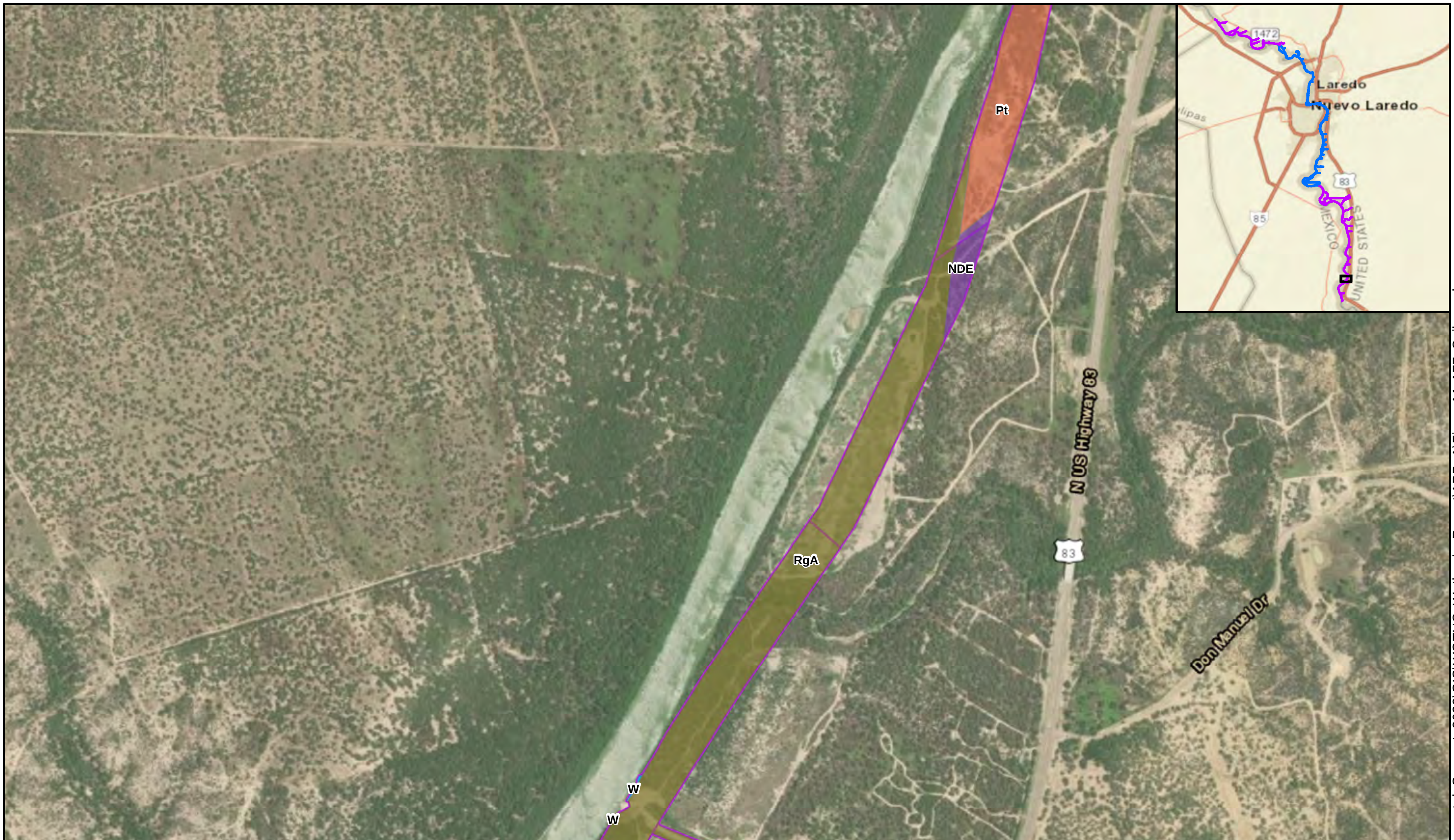
Figure A72. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- NDE, Nido-Rock outcrop complex, 3 to 15 percent slopes
- Pt, Pits
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

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Figure A73. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- Phase II

N

0 400 800 Feet

0 125 250 Meters

March 2022

Figure A74. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Legend

RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded

Phase II

N

0 400 800 Feet

0 125 250 Meters

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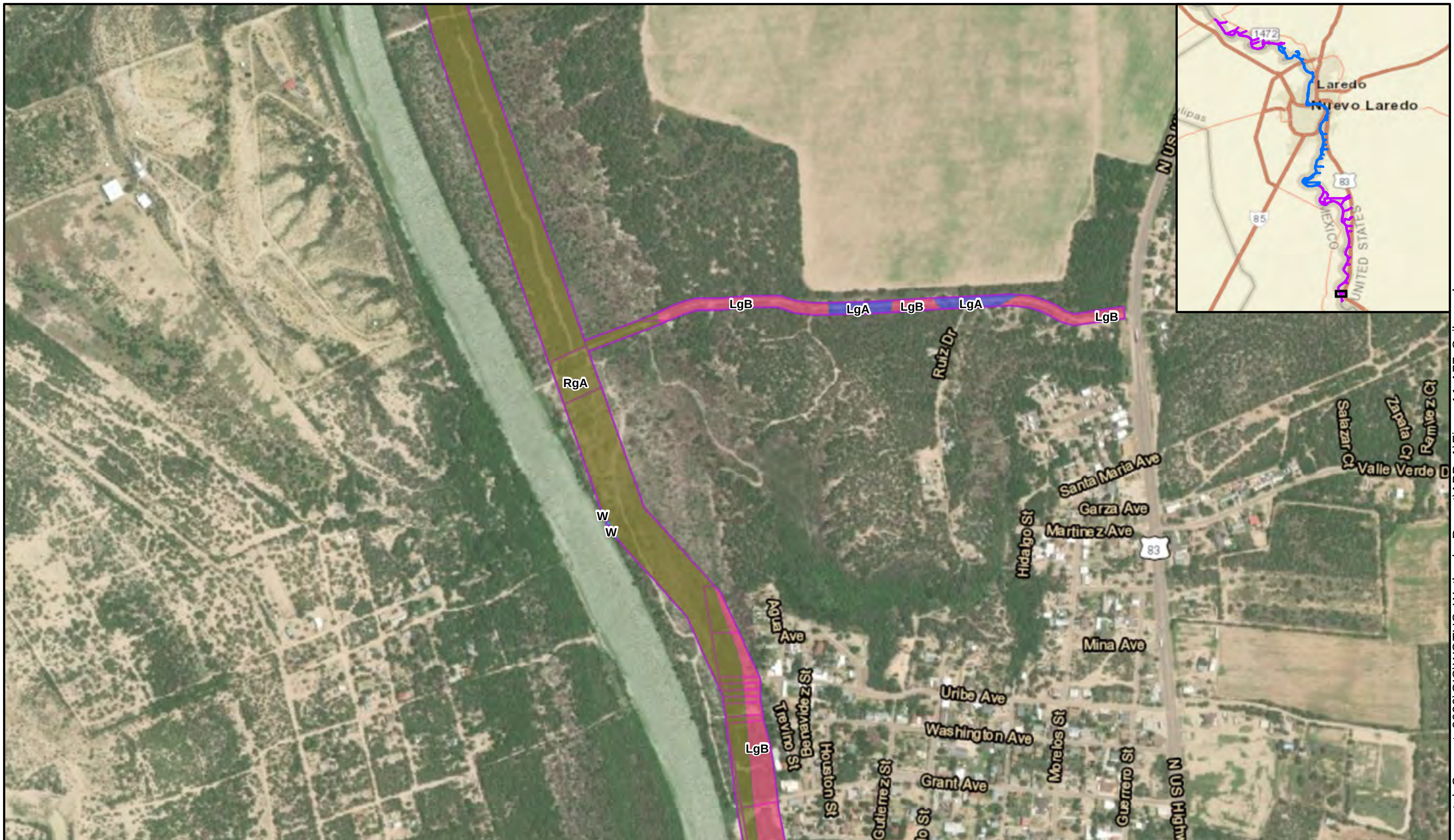
Figure A75. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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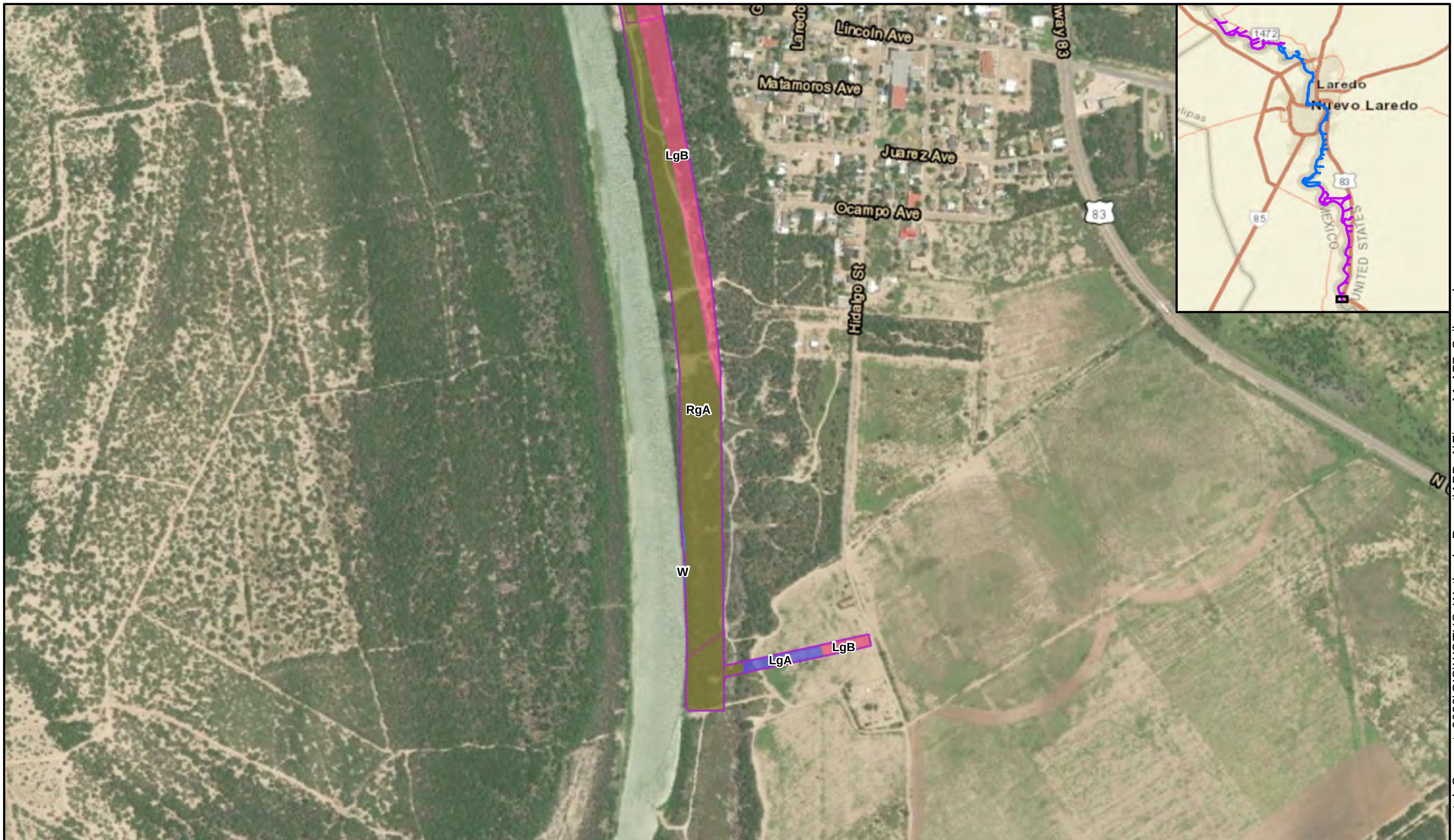
Figure A76. Soils Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd



Legend

- LgA, Lagloria loam, 0 to 1 percent slopes
- LgB, Lagloria loam, 1 to 3 percent slopes
- RgA, Rio Grande very fine sandy loam, 0 to 1 percent slopes, occasionally flooded
- W, Water
- Phase II

N

0 400 800 Feet

0 125 250 Meters

GSRC

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K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_A\FigureA1-A77_Soils.mxd

Figure A77. Soils Map - Phase II

APPENDIX B
WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Webb County Sampling Date: 12/2/2020

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P1

Investigator(s): Hackbarth, Woods (GSRC) Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Local depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): LRR I Lat: 27.6113677 Long: -99.56019066 Datum: NAD 83

Soil Map Unit Name: LgA, Lagloria loam, 0 to 1 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☑	☐
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☑	☐

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Phase 001

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.1)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	10	Yes	FACW
2. Tamarix ramosissima	5	Yes	FAC
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Baccharis neglecta	50	Yes	FAC
2. Salix nigra	10	No	FACW
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 0.1)			
1. Baccharis neglecta	70	Yes	FAC
2. Dichanthium annulatum	8	No	UPL
3. Phyla nodiflora	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 0.1)			
1. -None-			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/3	100	-	-	-	-	Silt loam	
12-16	10YR 4/3	70	10YR 3/2	28	C	M	Silt loam	Redox = clay globules in soil
-	-	-	10YR 5/8	2	C	M	-	(part of 10-16" layer)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): ____

Water Table Present? Yes ☐ No ☑ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): ____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Webb County Sampling Date: 12/6/2020

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P2

Investigator(s): Hackbarth, Woods (GSRC) Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR I Lat: 27.4508997 Long: -99.49335444 Datum: NAD 83

Soil Map Unit Name: Rio Grande very fine sandy loam, occasionally flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☑	☐
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☐	☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Close to upper edge of a washed-out drainage area (upland drainage). Phase 001

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0.1)			
1. Prosopis glandulosa	10	No	FACU
2. Celtis laevigata	30	Yes	FAC
3. Vachellia farnesiana	15	Yes	FACU
4. Parkinsonia aculeata	10	No	FAC
	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Celtis pallida	35	Yes	UPL
2. Parkinsonia aculeata	15	Yes	FAC
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 0.1)			
1. Urochloa maxima	80	Yes	FAC
2. Phragmites spp.	8	No	
3. Cenchrus ciliaris	5	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	93	= Total Cover	
Woody Vine Stratum (Plot size: 0.1)			
1. Merremia spp.	5	Yes	
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 7

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: P2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/4	100	-	-	-	-	Silt loam	
6-16	10YR 3/3	100	-	-	-	-	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): ______

Water Table Present? Yes ☐ No ☑ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): ______

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence   City/County: Webb County   Sampling Date: 12/8/2020

Applicant/Owner: U.S. Customs and Border Protection (CBP)   State: TX   Sampling Point: P3

Investigator(s): Hackbarth, Woods (GSRC)   Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Hillside   Local relief (concave, convex, none): None   Slope (%): 10

Subregion (LRR): LRR I   Lat: 27.612754   Long: -99.550257   Datum: NAD 83

Soil Map Unit Name: Jimenez-Quemado complex, 1 to 8 percent slopes   NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?   Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☐	☑
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☐	☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Phase 001

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0.1)			
1. -None-			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Acacia rigidula	30	Yes	UPL
2. Leucophyllum frutescens	40	Yes	UPL
3. Karwinskia humboldtiana	5	No	UPL
4. Koeberlinia spinosa	8	No	UPL
5. Krameria ramosissima	5	No	UPL
= Total Cover	88		
Herb Stratum (Plot size: 0.1)			
1. Opuntia engelmannii	5	Yes	UPL
2. Ephedra antisyphilitica	5	Yes	UPL
3. Cylindropuntia leptocaulis	5	Yes	UPL
4. Cenchrus ciliaris	2	No	UPL
5. Aristida spp.	2	No	
6.			
7.			
8.			
9.			
10.			
= Total Cover	19		
Woody Vine Stratum (Plot size: 0.1)			
1. -None-			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 81

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: P3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/4	100	-	-	-	-	Sandy silt	20% of layer is cobble/gravel.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): ______
Water Table Present?	Yes ☐	No ☑	Depth (inches): ______
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): ______

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Laredo / Webb County Sampling Date: 03/8/2022

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P4

Investigator(s): A.J. Pate and Ross Hackbarth Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): A Lat: 27.4991350 Long: -99.4952286 Datum: WGS 84

Soil Map Unit Name: Rio Grande very fine sandy loam, occasionally flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐
Wetland Hydrology Present?	Yes ☑	No ☐

Is the Sampled Area within a Wetland? **Yes** ☑ **No** ☐

Remarks:

Phase 001

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. -None-			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. -None-			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Diplachne fusca	30	Yes	FACW
2. Rumex crispus	30	Yes	FAC
3. Phragmites australis	10	No	FACW
4. Bacopa monnieri	5	No	OBL
5. Lactuca serriola	3	No	FAC
6.			
7.			
8.			
9.			
10.			
	78	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1. -None-			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 81

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

SOIL

Sampling Point: P4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 10	10YR 5/2	92	10YR 5/8	8	C	M	clay	
10 - 16	10G 4/1	70	10YR 6/2	30	D	M	sandy clay	Gley soil is very charcoaly. Concentration is mixture of top soil layer and gley.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?	☑	☐	3
Water Table Present?	☐	☑	
Saturation Present? (includes capillary fringe)	☑	☐	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Laredo / Webb County Sampling Date: 03/8/2022
Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P5
Investigator(s): A.J. Pate and Ross Hackbarth Section, Township, Range: n/a
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): A Lat: 27.4994750 Long: -99.4958016 Datum: WGS 84
Soil Map Unit Name: Rio Grande very fine sandy loam, occasionally flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☐	☑
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☐	☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:
Phase 001

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	5	Yes	FACW
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. -None-			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5 ft r)			
1. Cynodon dactylon	60	Yes	FACU
2. Megathyrsus maximus	25	Yes	FAC
3. Rumex crispus	3	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
= Total Cover	78		
Woody Vine Stratum (Plot size: 30 ft r)			
1. -None-			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 81

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: P5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 5/4	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):
Water Table Present?	Yes ☐	No ☑	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Webb County Sampling Date: 1/11/2021

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P6

Investigator(s): Hackbarth, Woods (GSRC) Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): LRR I Lat: 27.196604 Long: -99.427352 Datum: NAD 83

Soil Map Unit Name: Lagloria loam, 1 to 3 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑
Wetland Hydrology Present?	Yes ☐	No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:
Phase 002 (SP2-1)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0.1)			
1. -None-			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Larrea tridentata	10	Yes	UPL
2.			
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: 0.1)			
1. Cenchrus ciliaris	90	Yes	UPL
2. Euphorbia x martinii	3	No	
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
= Total Cover	93		
Woody Vine Stratum (Plot size: 0.1)			
1. -None-			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 7

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: P6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/4	100	-	-	-	-	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): ____

Water Table Present? Yes ☐ No ☑ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Webb County Sampling Date: 1/13/2021

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P7

Investigator(s): Hackbarth, Woods (GSRC) Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR I Lat: 27.655672 Long: -99.659886 Datum: NAD 83

Soil Map Unit Name: Rio Grande very fine sandy loam, occasionally flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☐	☑
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☐	☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Phase 002 (SP 2-2)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0.1)			
1. Prosopis glandulosa	50	Yes	FACU
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Celtis pallida	65	Yes	UPL
2. Aloysia gratissima	5	No	UPL
3.			
4.			
5.			
	65 = Total Cover		
Herb Stratum (Plot size: 0.1)			
1. Cenchrus ciliaris	70	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 0.1)			
1. -None-			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: P7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/3	100	-	-	-	-	Sandy loam	
1-16	10YR 5/3	100	-	-	-	-	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): ____

Water Table Present? Yes ☐ No ☑ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Webb County Sampling Date: 1/13/2021

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P8

Investigator(s): Hackbarth, Woods (GSRC) Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 25

Subregion (LRR): LRR I Lat: 27.656277 Long: -99.661471 Datum: NAD 83

Soil Map Unit Name: Lagloria loam, 0 to 1 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☑	☐
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☐	☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Phase 002 (SP 2-3)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0.1)			
1. Tamarix ramosissima	40	Yes	FAC
2.			
3.			
4.			
= Total Cover	40		
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Arundo donax	75	Yes	FAC
2.			
3.			
4.			
5.			
= Total Cover	75		
Herb Stratum (Plot size: 0.1)			
1. Arundo donax	50	Yes	FAC
2. Cynodon dactylon	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
= Total Cover	70		
Woody Vine Stratum (Plot size: 0.1)			
1. -None-			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: P8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100	-	-	-	-	Silt loam	
2-16	10YR 5/3	100	-	-	-	-	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): ______

Water Table Present? Yes ☐ No ☑ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): ______

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Laredo Fence City/County: Webb County Sampling Date: 1/14/2021

Applicant/Owner: U.S. Customs and Border Protection (CBP) State: TX Sampling Point: P9

Investigator(s): Hackbarth, Woods (GSRC) Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 12

Subregion (LRR): LRR I Lat: 27.695247 Long: -99.737752 Datum: NAD 83

Soil Map Unit Name: Rio Grande very fine sandy loam, occasionally flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	☐	☑
Hydric Soil Present?	☐	☑
Wetland Hydrology Present?	☐	☑

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☑

Remarks:

Phase 002 (SP 2-4)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0.1)			
1. -None-			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 0.1)			
1. Leucophyllum frutescens	12	Yes	UPL
2. Ziziphus obtusifolia	10	Yes	UPL
3. Acacia rigidula	10	Yes	UPL
4. Opuntia engelmannii	8	No	UPL
5. Prosopis glandulosa	5	No	FACU
	45 = Total Cover		
Herb Stratum (Plot size: 0.1)			
1. Cenchrus ciliaris	20	Yes	UPL
2. Calliandra conferta	15	Yes	UPL
3. Guaiacum angustifolium	5	No	UPL
4. Bouteloua trifida	10	No	UPL
5. Opuntia engelmannii	5	No	UPL
6. Cylindropuntia leptocaulis	3	No	UPL
7. Hilaria belangeri	2	No	UPL
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 0.1)			
1. -None-			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 40			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☑

Remarks:

SOIL

Sampling Point: P9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100	-	-	-	-	Sandy loam	15% gravel/cobble interspersed
6-16	((bedrock))	-	-	-	-	-	-	No soil layer present past 6 inches.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):
Water Table Present?	Yes ☐	No ☑	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX C
PHOTOGRAPHS

Photograph 1. Sample Point 1 (P1) – Soil Profile

Photograph 2. Sample Point 1 (P1) – Facing North

Photograph 3. Sample Point 1 (P1) – Facing East

Photograph 4. Sample Point 1 (P1) – Facing South


Photograph 5. Sample Point 1 (P1) – Facing West


Photograph 6. Sample Point 2 (P2) – Soil Profile

Photograph 7. Sample Point 2 (P2) – Facing North

Photograph 8. Sample Point 2 (P2) – Facing East

Photograph 9. Sample Point 2 (P2) – Facing South

Photograph 10. Sample Point 2 (P2) – Facing West

Photograph 11. Sample Point 3 (P3) – Soil Profile

Photograph 12. Sample Point 3 (P3) – Facing North

Photograph 13. Sample Point 3 (P3) – Facing East

Photograph 14. Sample Point 3 (P3) – Facing South

Photograph 15. Sample Point 3 (P3) – Facing West

Photograph 16. Sample Point 4 (P4) – Soil Profile


Photograph 17. Sample Point 4 (P4) – Facing North


Photograph 18. Sample Point 4 (P4) – Facing East


Photograph 19. Sample Point 4 (P4) – Facing South


Photograph 20. Sample Point 4 (P4) – Facing West


Photograph 21. Sample Point 5 (P5) – Soil Profile


Photograph 22. Sample Point 5 (P5) – Facing North

Photograph 23. Sample Point 5 (P5) – Facing East

Photograph 24. Sample Point 5 (P5) – Facing South

Photograph 25. Sample Point 5 (P5) – Facing West

Photograph 26. Sample Point 6 (P6) – Soil Profile


Photograph 27. Sample Point 6 (P6) – Facing North


Photograph 28. Sample Point 6 (P6) – Facing East

Photograph 29. Sample Point 6 (P6) – Facing South

Photograph 30. Sample Point 6 (P6) – Facing West

Photograph 31. Sample Point 7 (P7) – Soil Profile

Photograph 32. Sample Point 7 (P7) – Facing North

Photograph 33. Sample Point 7 (P7) – Facing East

Photograph 34. Sample Point 7 (P7) – Facing South

Photograph 35. Sample Point 7 (P7) – Facing West

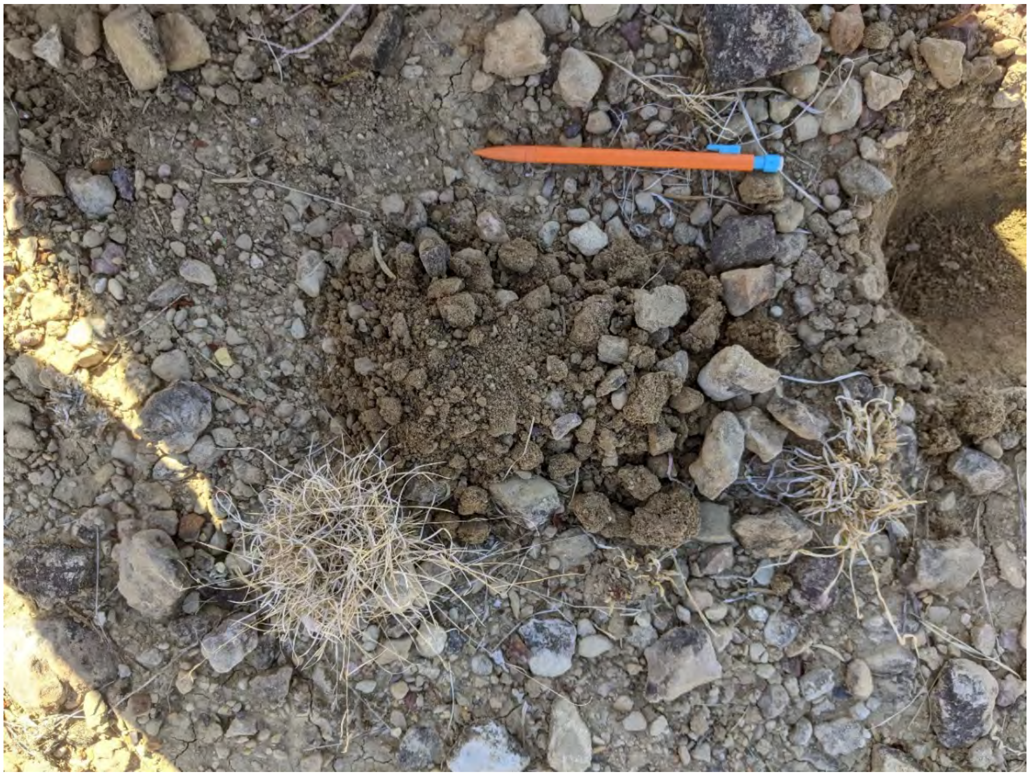
Photograph 36. Sample Point 8 (P8) – Soil Profile


Photograph 37. Sample Point 8 (P8) – Facing North


Photograph 38. Sample Point 8 (P8) – Facing East

Photograph 39. Sample Point 8 (P8) – Facing South

Photograph 40. Sample Point 8 (P8) – Facing West



Photograph 41. Sample Point 9 (P9) – Soil Profile

Photograph 42. Sample Point 9 (P9) – Facing North


Photograph 43. Sample Point 9 (P9) – Facing East


Photograph 44. Sample Point 9 (P9) – Facing South

Photograph 45. Sample Point 9 (P9) – Facing West

APPENDIX D
WETLANDS MAPS

Legend

Sample Plot

Phase II

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D1. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

Sample Plot

Phase II

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D2. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

Waters of the U.S.

Phase II

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D3. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

- Sample Plot
- Phase I

0 50 100 Feet

0 12.5 25 Meters

N

GSRC

March 2022

Figure D4. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

Waters of the U.S.

Phase I

N

0 50 100 Feet

0 12.5 25 Meters

March 2022

Figure D5. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend
- Sample Plot
- Phase I

0 50 100 Feet
0 12.5 25 Meters

GSRC
March 2022

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Figure D6. Wetlands Map

Legend

Waters of the U.S.

Phase I

N

0 50 100 Feet

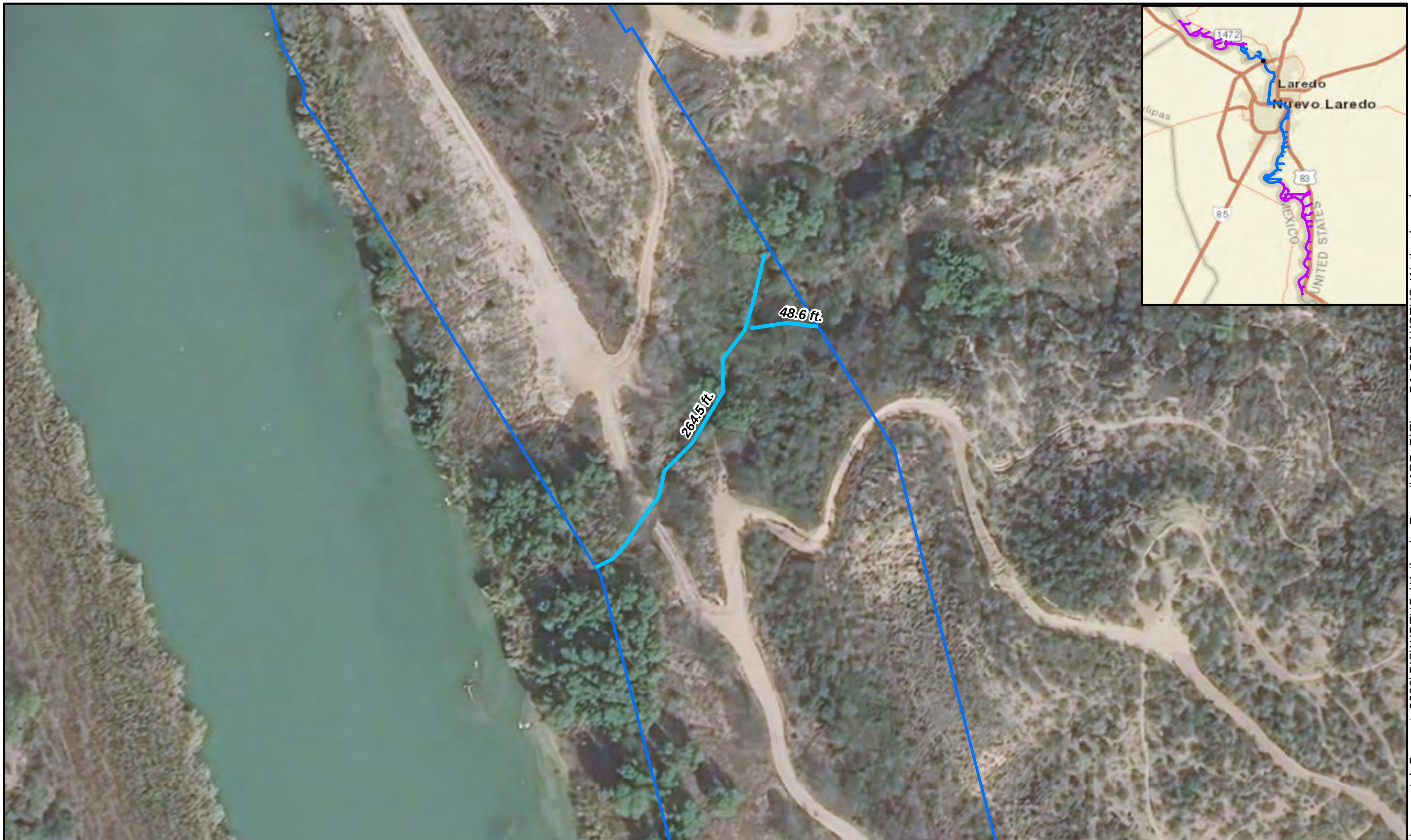
0 12.5 25 Meters

GSRC

March 2022

Figure D7. Wetlands Map

K:\Projects\803377\01g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd



Legend

- Waters of the U.S.
- Phase I

N

0 50 100 Feet

0 12.5 25 Meters

March 2022

Figure D8. Wetlands Map

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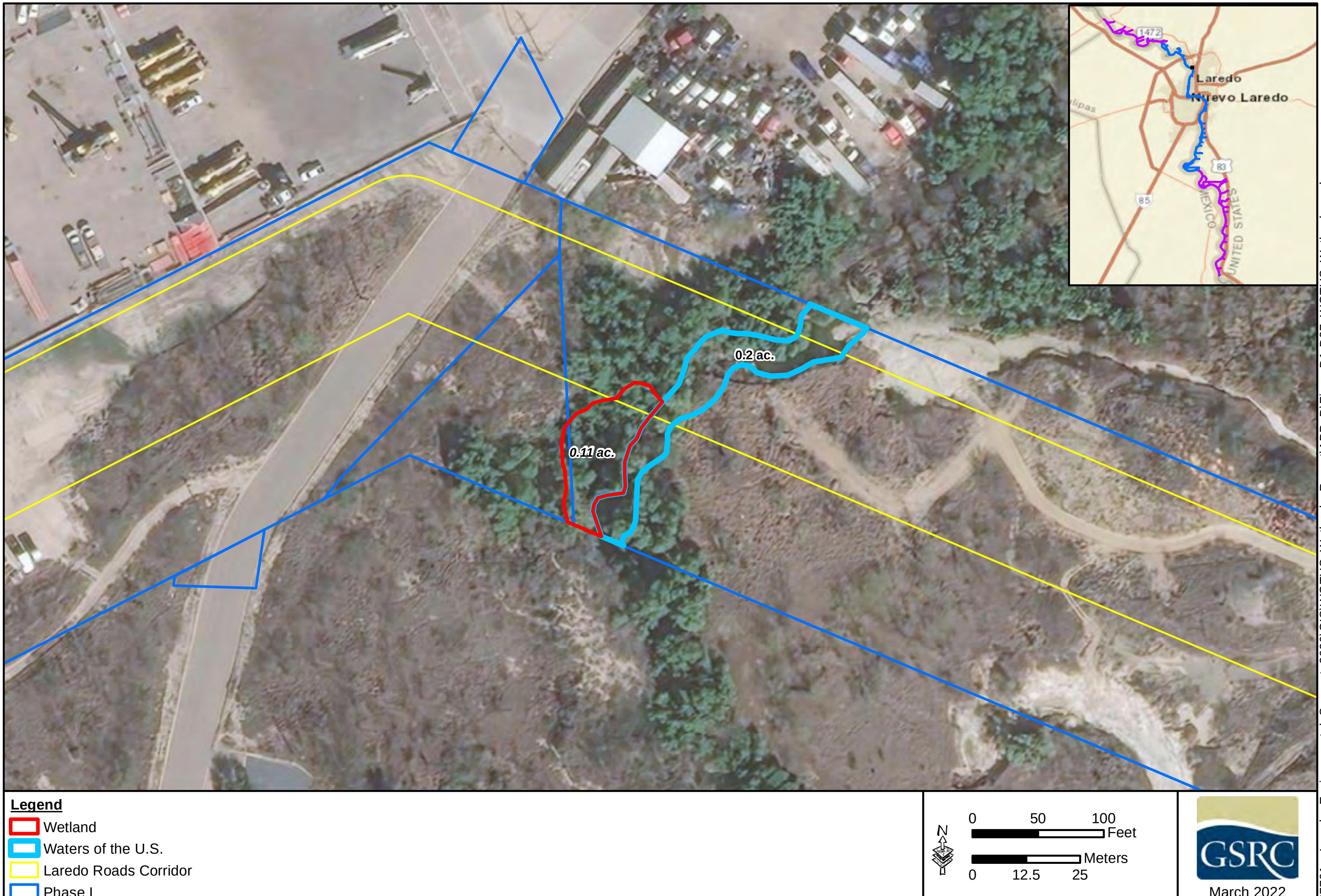

Figure D9. Wetlands Map

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Legend
- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

0 100 200 Feet
0 25 50 Meters

GSRC
March 2022

Figure D10. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend
- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D11. Wetlands Map

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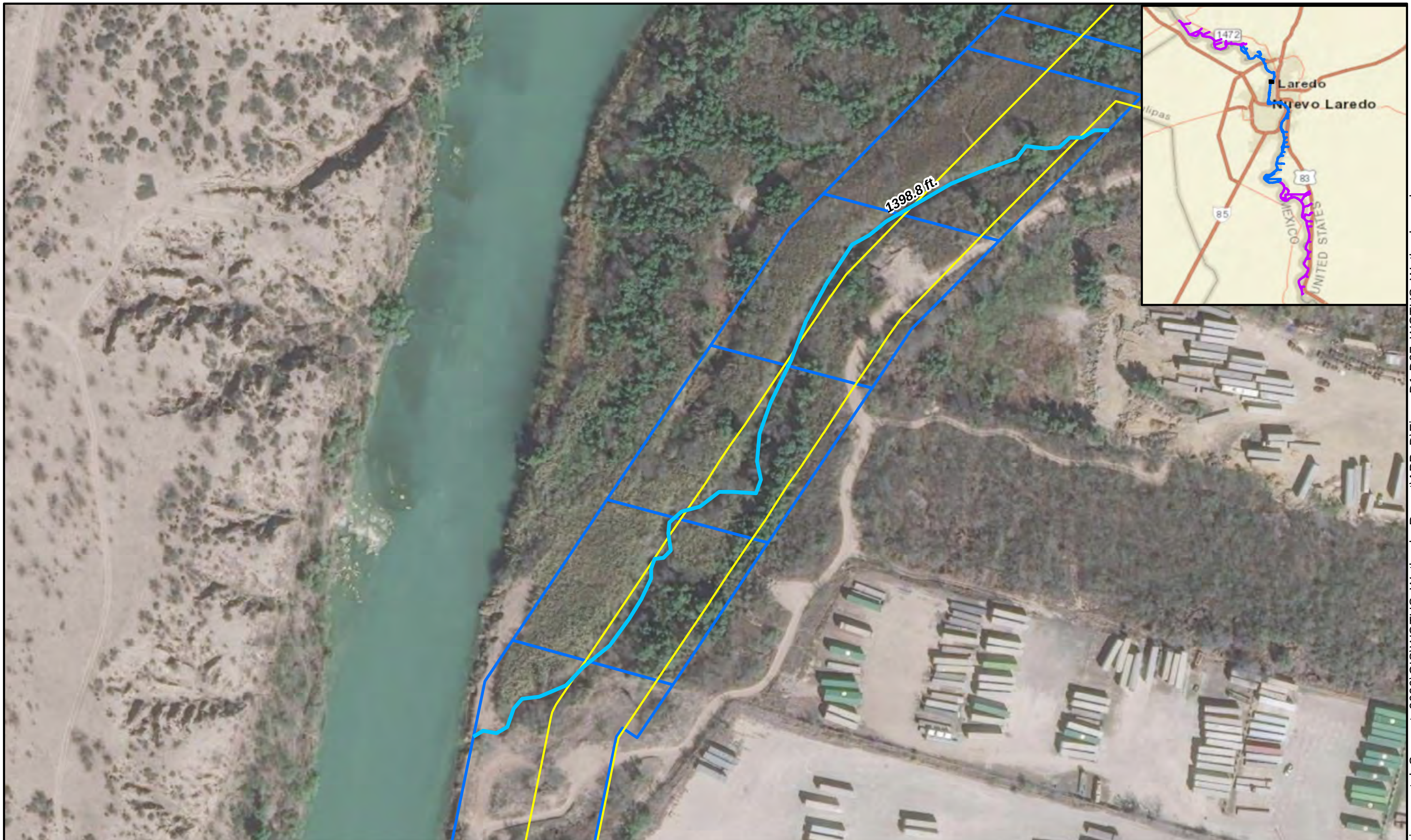

Legend
Waters of the U.S.
Laredo Roads Corridor
Phase I

0 100 200 Feet
0 25 50 Meters

March 2022

Figure D12. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

Waters of the U.S.

Phase I

N

0 50 100 Feet

0 12.5 25 Meters

March 2022

Figure D13. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

Waters of the U.S.

Phase I

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D14. Wetlands Map

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Legend
- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D15. Wetlands Map

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Waters of the U.S.
Wetland
Waters of the U.S.
Laredo Roads Corridor
Phase I

0 100 200 Feet
0 25 50 Meters

GSRC
March 2022

Figure D16. Wetlands Map

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Legend

- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D17. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D18. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend
- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

N

0 100 200 Feet

0 25 50 Meters

GSRC

March 2022

Figure D19. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend
- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

0 50 100 Feet
0 12.5 25 Meters

GSRC
March 2022

Figure D20. Wetlands Map

K:\Projects\803377\01g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

- Waters of the U.S.
- Laredo Roads Corridor
- Phase I

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D21. Wetlands Map

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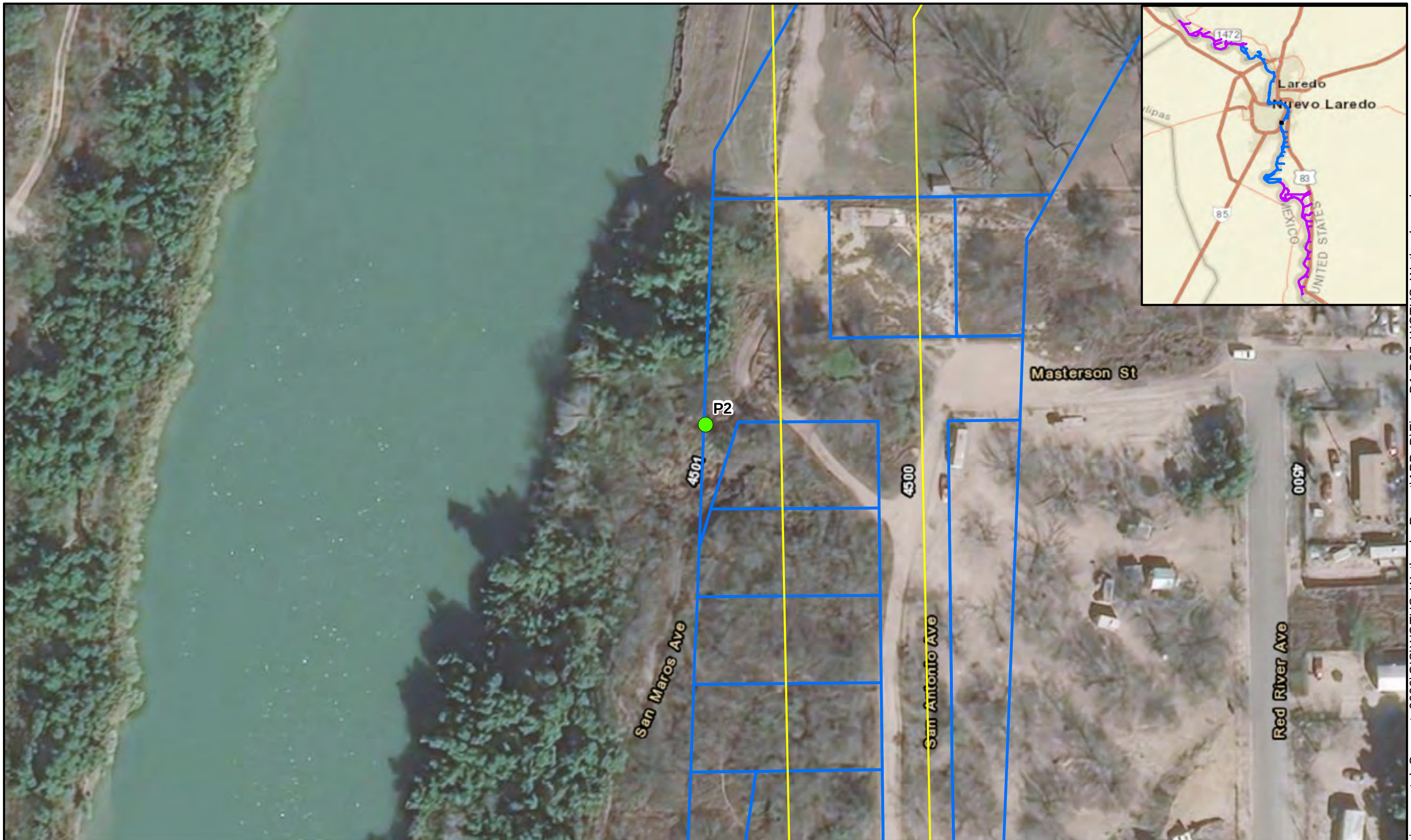

Legend

- Sample Plot
- Laredo Roads Corridor
- Phase I

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D22. Wetlands Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\WOTUS_Wetlands_Report\APP_D\FigureD1-D27_WOTUS_Wetlands.mxd

Legend

Waters of the U.S.

Phase I

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D23. Wetlands Map

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Legend

Waters of the U.S.

Phase I

N

0 100 200 Feet

0 25 50 Meters

GSRC

March 2022

Figure D24. Wetlands Map

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Legend

Waters of the U.S.

Phase I

N

0 50 100 Feet

0 12.5 25 Meters

March 2022

Figure D25. Wetlands Map

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Figure D26. Wetlands Map

Legend

- Sample Plot
- Phase II

N

0 50 100 Feet

0 12.5 25 Meters

GSRC

March 2022

Figure D27. Wetlands Map

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APPENDIX E

Biological Survey Report

DRAFT

BIOLOGICAL RESOURCES SURVEY REPORT

LAREDO SECTOR 32-MILE CBP SELF-EXECUTED NEW WALL CONSTRUCTION AND LAREDO SECTOR 37-MILE DOD-FUNDED AND USACE-EXECUTED NEW WALL CONSTRUCTION WEBB AND ZAPATA COUNTIES, TEXAS

U.S. CUSTOMS AND BORDER PROTECTION

April 2022

DRAFT

BIOLOGICAL RESOURCES SURVEY REPORT

LAREDO SECTOR 32-MILE CBP SELF-EXECUTED NEW WALL CONSTRUCTION AND LAREDO SECTOR 37-MILE DOD-FUNDED AND USACE-EXECUTED NEW WALL CONSTRUCTION
WEBB AND ZAPATA COUNTIES, TEXAS

U.S. CUSTOMS AND BORDER PROTECTION

Prepared for

U.S. Customs and Border Protection
Border Patrol and Air and Marine Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, California 92677
Contract No.: GS10F0058K
Task Order: 70B01C20F00001543

Prepared by

Gulf South Research Corporation
8081 Innovation Park Drive
Baton Rouge, Louisiana 70820

April 2022

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1.0 INTRODUCTION

U.S. Customs and Border Protection (CBP) contracted Gulf South Research Corporation (GSRC), Contract Number GS10F0058K – Task Order 70B01C20F00001543, to conduct biological resources surveys for the presence of sensitive and protected species, their suitable habitats, and general floral and faunal species occurrences within the U.S. Border Patrol (USBP) Laredo Sector for the 32-mile, CBP self-executed new wall construction area identified as “Phase 1” and the Laredo Sector 37-mile, Department of Defense (DOD)-funded and U.S. Army Corps of Engineers (USACE)-executed new wall construction project area identified as “Phase 2” located within Webb and Zapata Counties, Texas. The purpose of the new wall construction project is to improve CBP’s ability to limit the amount of illegal cross-border activity located within the USBP Laredo Sector. The proposed action will also support CBP’s responsibility under Executive Order (EO) 13767, in which CBP is directed to minimize impacts on natural resources as part of CBP’s environmental stewardship. This report was prepared to evaluate general floral and faunal species occurrences, habitat conditions, and the presence of sensitive and protected species within the Project Corridor.

2.0 LOCATION

The project area (Project Corridor) is a 2,288.2-acre corridor composed of a 1093.8-acre, 32-mile section (Phase 1) and a 1,194.4-acre, 37-mile section (Phase 2), located adjacent to the U.S./Mexico International Border in and near Laredo in Webb and Zapata counties, Texas (Appendix A, Figure A1). This survey also includes the 17-mile Laredo patrol road corridor. Specifically, the project area extends along the U.S./Mexico International Border from U.S. Highway 255 in Columbia, TX (approximately 19 miles north of Laredo) to Texas State Highway 3169 in San Ygnacio, TX (approximately 33 miles south of Laredo) (Appendix A, Figures A2 through A11).

2.1 Habitat

The Project Corridor is located in the South Texas Plains ecoregion, an area that is characterized by plains of thorny shrubs and trees with scattered patches of palms and subtropical woodland habitat (Texas Parks and Wildlife Department [TPWD] 2020). The South Texas Plains ecoregion is located between the Chihuahuan Desert to the west, Tamaulipan brushland and subtropical woodlands along the Rio Grande, and coastal grasslands to the east. Due to its location, this ecoregion contains high species diversity and is home to many rare plant and animal species.

3.0 SURVEY METHODS

Between December 1, 2020, and March 8, 2022, GSRC biologists Ross Hackbarth, Alexander Pate, Beau Rapier, Joshua Stonecipher, and Jonathon Woods surveyed approximately 2,288.2 acres encompassing the Project Corridor. GSRC biologists conducted meandering pedestrian transect surveys within the Project Corridor and recorded all wildlife and plant species observed.

GSRC biologists utilized a Trimble™ global positioning system (GPS) to obtain high-accuracy coordinates. Field notes were recorded during the biological surveys to document all findings and observations and digital cameras were used to gather images of significant observations. Photographs were collected to show typical habitat conditions and to depict significant changes in plant communities and habitat types across the Project Corridor. GSRC completed flora and fauna surveys, as well as surveyed for protected species and their suitable habitat within the Project Corridor.

When encountered, changes in vegetation communities were delineated using a GPS unit. Definitions for vegetation communities found in the region were taken from sources including the Texas Parks and Wildlife Ecological Mapping System (TPWD 2022c) and NatureServe Explore (NatureServe 2022). Vegetation community definitions took into account plant species composition, canopy levels (e.g., tree, shrub) and structure, and degree of disturbance observed.

4.0 RESULTS

4.1 Site Conditions

GSRC biologists identified 10 distinct vegetation communities within the Project Corridor. Mesquite savannah/woodland and Rio Grande riparian edge were the dominant community types found within the Project Corridor. Additionally, the corridor contained Tamaulipan thornscrub, Tamarisk woodland, creosote flats, disturbed woodland, disturbed grassland, agricultural field, maintained vegetation, and developed area habitat types. Descriptions of habitat types within the Project Corridor are provided below. Acreages of community types within the Project Corridor are provided in Table 1, and a complete delineation of vegetation communities within the Project Corridor is presented in Appendix A, Figures A12 though A30.

Table 1. Vegetation Community Types and Acreages Within the Project Corridor

Vegetation Community	Acreage (ac)
Tamaulipan thornscrub	13.6
Mesquite savanna/woodland	879.4
Rio Grande riparian edge	530.8
Tamarisk woodland	80.7
Creosote flat	3.1
Disturbed woodland	200.8
Disturbed grassland	236.2
Agricultural field	155.8
Maintained vegetation	19.2
Developed	45.9

Tamaulipan brushland is a typical habitat type found in the Lower Rio Grande Valley (LRGV) and is characterized by dense and thorny vegetation. High vegetation density is found in the riparian and scrub forests dominated by alluvial and mesic soils. In the upland regions, Tamaulipan brushland can be divided into chaparral thornscrub and mezquital woodland vegetation communities (Jahrsdoerfer and Leslie 1988).

The Tamaulipan chaparral thornscrub community consists of thickets of stiff, xerophytic, usually evergreen brush (Photograph 1). Dominant species include blackbrush acacia (*Vachellia rigidula*), honey mesquite (*Prosopis glandulosa*), spiny hackberry (*Celtis ehrenbergiana*), guaiacum (*Guaiacum angustifolium*), cenizo (*Leucophyllum frutescens*), lotebush (*Ziziphus obtusifolia*), Texas prickly pear (*Opuntia engelmannii*), Christmas cholla (*Cylindropuntia leptocaulis*), and *Condalia* spp. and *Castela* spp. (Jahrsdoerfer and Leslie 1988). Tamaulipan thornscrub provides important habitat for a rich diversity of wildlife.

Photograph 1. Characteristic Tamaulipan thornscrub habitat within the Project Corridor.

Mesquite savanna/woodland consists of an open savannah-like bosque containing scattered honey mesquite and, less commonly, Texas ebony (*Ebenopsis ebano*) trees with a grassland/herbaceous understory (Photograph 2). This community resembles Tamaulipan mezquital woodland habitat with a more prevalent grassland and sparser overstory. Due to heavy grazing and other disturbance, much of the curly mesquite grass (*Hilaria belangeri*) that historically dominated the understory of the mezquital habitat has been removed and replaced by non-native grasses such as buffelgrass (*Cenchrus ciliaris*) and Guinea grass as well as encroaching brush and cacti. The shrub layer may include plants such as desert olive (*Forestiera angustifolia*) and lotebush. Hardwood trees and understory forbs may be present but do not make up the dominant cover. This habitat type provides moderate wildlife value depending on its successional development.

The Rio Grande riparian edge habitat type is found along high floodplains of the Rio Grande River and is characterized by high proportions of giant reed (*Arundo donax*) and common reed (*Phragmites australis*) with a mostly undeveloped herbaceous layer typically dominated by Guinea grass (Photograph 3). Other common plant associations include Texas ebony, Anacua (*Ehretia anacua*), sugarberry, Rooseveltweed (*Baccharis neglecta*), Tamarisk (*Tamarix ramosissima*), and Texas sandbar willow (*Salix exigua*).

Photograph 2. Characteristic mesquite savanna/woodland habitat within the Project Corridor.

Photograph 3. Characteristic Rio Grande riparian edge habitat within the Project Corridor.

The Tamarisk woodland community is characterized by mixed woodlands dominated by invasive tamarisk trees (Photograph 4). Other common plant associations include retama (*Parkinsonia aculeata*), spiny hackberry, and sugarberry. This community type is typically found in or near wet areas or riparian zones and resembles Rio Grande riparian edge with a high proportion of tamarisk trees.

Photograph 4. Characteristic Tamarisk woodland habitat within the Project Corridor.

The creosote flat community occurs on flat and gently rolling landforms, often on alluvial plains occupying outwash plains and those on intermountain basins (Photograph 5). Creosote flats are dominated by creosote bush (*Larrea tridentata*) and other shrubs, and typically have rock rubble or bare ground substrate with an underdeveloped herbaceous later. Scattered honey mesquite trees may be present. Succulents such as prickly pears (*Opuntia* spp.) and hedgehog cacti (*Echinocereus* spp.) are often found in this habitat.

The disturbed woodland community is characterized by degraded mixed woodlands where frequent or historic disturbance has occurred (Photograph 6). The canopy layer may include species such as honey mesquite, sugarberry, spiny hackberry, tamarisk, and Texas ebony. This habitat type includes any woodland affected by a significant level of disturbance.

Photograph 5. Characteristic creosote flat habitat within the Project Corridor.

Photograph 6. Characteristic disturbed woodland habitat within the Project Corridor.

Disturbed grassland/shrubland contains frequently or historically disturbed areas, such as levee slopes, irrigation canal edges, mowed areas, or fallow agricultural land that has been vegetated with ruderal species (Photograph 7). This community is comprised of open areas with mainly herbaceous species to areas with mixed shrubs and is commonly found in active or abandoned pastures. Dominant species range from exotic grasses with a mixture of native forbs to sparse, immature native shrubs with an exotic grass understory.

Photograph 7. Characteristic disturbed grassland habitat within the Project Corridor.

The agricultural field community type includes active or recently fallow cropland, and ruderal species growing amongst the crop rows such as low amaranth (*Amaranthus polygonoides*), Pennsylvania cudweed (*Gamochaeta pensylvanica*), and false ragweed (*Parthenium hysterophorus*) (Photograph 8).

The maintained vegetation community includes areas of mowed barren grass, and low intensity developed areas such as parks. These areas provide habitat value mostly to wildlife species that are adapted to urban areas but may support a wider range of wildlife than developed areas with a high proportion of impervious surfaces.

Photograph 8. Characteristic agricultural field within the Project Corridor.

The developed community includes areas with anthropoenic structures including buildings, pavement, parking lots, and paved roads. These areas provide minimal habitat value to wildlife species.

4.2 General Wildlife and Botanical Observations

GSRC biologists identified a total of 140 native and non-native species of plants (Table 2) and 147 species of wildlife (Table 3), either through direct observations or through observations of signs such as tracks, sheds, scat, or burrows.

Table 2. Plants Observed During Laredo Environmental Support Biological Resources Surveys

Common Name	Scientific Name	Growth Form
Triangle cactus	*Acanthocereus tetragonus*	Cactus
Fishhook cactus	*Ancistrocactus scheeri*	Cactus
Christmas cholla	*Cylindropuntia leptocaulis*	Cactus
Horse crippler cactus	*Echinocactus texensis*	Cactus
Fitch's hedgehog cactus	*Echinocereus reichenbachii* ssp. *fitchii*	Cactus

Common Name	Scientific Name	Growth Form
Strawberry hedgehog cactus	*Echinocereus stramineus*	Cactus
Junior Tom Thumb cactus	*Escobaria emskoetteriana*	Cactus
Dog cholla	*Grusonia schottii [Opuntia schottii]*	Cactus
Little nipple cactus	*Mammillaria heyderi*	Cactus
Texas prickly pear	*Opuntia engelmannii* var. *lindheimeri*	Cactus
Sweet Indian mallow	*Abutilon fruticosum*	Forb
Indian mallow	*Abutilon* sp.	Forb
Wright's catclaw	*Acacia greggii* var. *wrightii*	Forb
Agave (ornamental)	*Agave* sp.	Forb
Weakleaf bur ragweed	*Ambrosia confertiflora*	Forb
Prairie broomweed	*Amphiachyris dracunculoides*	Forb
Herb-of-grace	*Bacopa monnieri*	Forb
Seaside ox-eye	*Borrichia frutescens*	Forb
Nettle-leaved goosefoot	*Chenopodiastrum murale*	Forb
False daisy	*Eclipta prostrata*	Forb
Blue mistflower	*Eupatorium odoratum*	Forb
Sandmat	*Euphorbia prostrata*	Forb
Catchfly prairie gentian	*Eustoma exaltatum*	Forb
Smallhead sneezeweed	*Helenium microcephalum*	Forb
Annual sunflower	*Helianthus annuus*	Forb
Seaside heliotrope	*Heliotropium curassavicum*	Forb
Camphorweed	*Heterotheca subaxillaris*	Forb
Largeleaf pennywort	*Hydrocotyle bonariensis*	Forb
Mother of thousands	*Kalanchoe* sp.	Forb
Lantana	*Lantana strigocamara*	Forb
Common duckweed	*Lemna minor*	Forb
Dotted blazing star	*Liatris punctata*	Forb
Pyramid flower	*Melochia pyramidata*	Forb
Rose evening primrose	*Oenothera rosea*	Forb
Pink smartweed	*Persicaria pensylvanica*	Forb
Sawtooth frog fruit	*Phyla nodiflora*	Forb
Smallflower groundcherry	*Physalis cinerascens*	Forb
Marsh fleabane	*Pluchea odorata*	Forb
Dwarf screw bean	*Prosopis reptans*	Forb
Castor bean	*Ricinus communis*	Forb
Southern dewberry	*Rubus trivialis*	Forb
Curly dock	*Rumex crispus*	Forb
Tumbleweed	*Salsola tragus*	Forb
London rocket	*Sisymbrium irio*	Forb

Common Name	Scientific Name	Growth Form
Bittersweet nightshade	*Solanum dulcamara*	Forb
Silverleaf nightshade	*Solanum elaeagnifolium*	Forb
Prickly sow-thistle	*Sonchus asper*	Forb
Common sow thistle	*Sonchus oleraceus*	Forb
Narrowleaf globemallow	*Sphaeralcea angustifolia*	Forb
Southern annual saltmarsh aster	*Symphyotrichum divaricatum*	Forb
Coastal germander	*Teucrium cubense*	Forb
Five-needle dogweed	*Thymophylla pentachaeta*	Forb
Cattail	*Typha domingensis*	Forb
Purple three-awn	*Aristida purpurea*	Graminoid
Giant reed	*Arundo donax*	Graminoid
Sea clubrush	*Bolboschoenus maritimus*	Graminoid
Red grama	*Bouteloua trifida*	Graminoid
Buffelgrass	*Cenchrus ciliaris*	Graminoid
Bermuda grass	*Cynodon dactylon*	Graminoid
Umbrella sedge	*Cyperus involucratus [C. alternifolius]*	Graminoid
Flat sedge	*Cyperus* spp.	Graminoid
Kleberg bluestem	*Dichanthium annulatum*	Graminoid
Barnyardgrass	*Echinochloa crus-galli*	Graminoid
Spike rush	*Eleocharis* sp.	Graminoid
Sprangletop	*Leptochloa fusca*	Graminoid
Common reed	*Phragmites australis*	Graminoid
Little bluestem	*Schizachyrium scoparium*	Graminoid
False Rhodes grass	*Trichloris crinita*	Graminoid
Guinea grass	*Urochloa maxima*	Graminoid
Guajillo	*Acacia berlandieri*	Shrub
Blackbrush acacia	*Acacia rigidula*	Shrub
Common bee brush	*Aloysia gratissima*	Shrub
Poverty weed	*Baccharis neglecta*	Shrub
Rio Grande stickpea	*Calliandra conferta*	Shrub
Goat Bush	*Castela erecta* ssp. *texana*	Shrub
Granjeno	*Celtis pallida*	Shrub
Texas palo verde	*Cercidium texanum*	Shrub
Spiny aster	*Chlorocantha spinosa*	Shrub
Rabbitbrush	*Chrysothamnus nauseosus*	Shrub
Squaw bush	*Condalia spathulata*	Shrub
Blue mistflower	*Conoclinium coelestinum*	Shrub
Jimson weed	*Datura wrightii*	Shrub
Mormon tea	*Ephedra antisiphylitica*	Shrub

Common Name	Scientific Name	Growth Form
Texas kidneywood	*Eysenhardtia texana*	Shrub
Narrow leaf forestiera	*Forestiera angustifolia*	Shrub
Common jimmyweed	*Isocoma coronopifolia*	Shrub
Sangre de drago	*Jatropha dioica*	Shrub
Coyotillo	*Karwinskia humboldtiana*	Shrub
Allthorn	*Koeberlinia spinosa*	Shrub
Calderona	*Krameria ramosissima*	Shrub
Creosote bush	*Larrea tridentata*	Shrub
Texas ranger (cenizo)	*Leucophyllum frutescens*	Shrub
Berlandier’s wolfberry	*Lycium berlandieri*	Shrub
Retama	*Parkinsonia aculeata*	Shrub
Snake eyes	*Phaulothamnus spinescens*	Shrub
Mistletoe	*Phoradendron tomentosum*	Shrub
Desert yaupon	*Schaefferia cuneifolia*	Shrub
Catclaw acacia	*Senegalia greggii*	Shrub
Huisache	*Vachellia farnesiana*	Shrub
Spanish dagger	*Yucca treculeana*	Shrub
Prickly lime	*Zanthoxylum fagara*	Shrub
Lotebush	*Ziziphus obtusifolia*	Shrub
Huisache	*Acacia farnesiana*	Shrub/ small tree
Brasil	*Condalia hookeri*	Shrub/ small tree
Texas persimmon	*Diospyros texana*	Shrub/ small tree
Texas ebony	*Ebenopsis ebano*	Shrub/ small tree
Guayacan	*Guaiacum angustifolium*	Shrub/ small tree
Chinaberry	*Melia azedarach*	Shrub/ small tree
Tree tobacco	*Nicotiana glauca*	Shrub/ small tree
Coma	*Sideroxylon celastrinum [Bumelia celastrina]*	Shrub/ small tree
Saltcedar	*Tamarix ramosissima*	Shrub/ small tree
Lilac chastetree	*Vitex agnus-castus*	Shrub/ small tree
Pecan	*Carya illinoinensis*	Tree
Sugarberry	*Celtis laevigata*	Tree
Mexican olive	*Cordia boissieri*	Tree
Anacua	*Ehretia anacua*	Tree
River redgum	*Eucalyptus camaldulensis*	Tree
Texas ash	*Fraxinus albicans*	Tree
Mexican ash	*Fraxinus berlandieriana*	Tree
Leadtree	*Leucaena leucocephala*	Tree
Tepeguaje	*Leucaena pulverulenta*	Tree
White mulberry	*Morus alba*	Tree

Common Name	Scientific Name	Growth Form
Date palm	*Phoenix dactylifera*	Tree
Honey mesquite	*Prosopis glandulosa*	Tree
Texas sabal palm	*Sabal mexicana*	Tree
Black willow	*Salix nigra*	Tree
Soapberry	*Sapindus saponaria*	Tree
Athel tamarisk	*Tamarix aphylla*	Tree
Mexican fan palm	*Washingtonia robusta*	Tree
Pepper vine	*Ampelopsis arborea*	Vine
Sorrelvine	*Cissus trifoliata*	Vine
Old man's beard	*Clematis drummondii*	Vine
Variable snailseed	*Cocculus diversifolius*	Vine
Bindweed	*Convolvulus* sp.	Vine
Talayote	*Cynanchum unifarium*	Vine
Alamo vine	*Distimake dissectus*	Vine
Climbing milkweed	*Funastrum cynanchoides*	Vine
Red-center morning glory	*Ipomoea amnicola*	Vine
Climbing snapdragon	*Maurandya antirrhiniflora*	Vine
Greenbriar	*Smilax* sp.	Vine

Table 3. Wildlife Observed During the Laredo Environmental Support Biological Resources Surveys

Common Name	Scientific Name
Amphibians/Reptiles	
Texas banded gecko	*Coleonyx brevis*
Texas indigo snake	*Drymarchon melanurus erebennus*
Rio Grande chirping frog	*Eleutherodactylus campi*
Western narrow-mouthed toad	*Gastrophryne olivacea*
Texas tortoise	*Gopherus berlandieri*
Mediterranean house gecko	*Hemidactylus turcicus*
Gulf coast toad	*Incilius nebulifer*
Brahminy blindsnake	*Indotyphlops braminus*
Rio Grande leopard frog	*Lithobates berlandieri*
Four-lined skink	*Plestiodon tetragrammus*
Blue spiny lizard	*Sceloporus cyanogenys*
Variable groundsnake	*Sonora semiannulata*
Flat-headed snake	*Tantilla gracilis*
Plains black-headed snake	*Tantilla nigriceps*

Common Name	Scientific Name
Red-eared Slider	*Trachemys scripta elegans*
Birds	
Cooper's hawk	*Accipiter cooperii*
Sharp-shinned hawk	*Accipiter striatus*
Spotted sandpiper	*Actitis macularius*
Red-winged blackbird	*Agelaius phoeniceus*
Black-throated sparrow	*Amphispiza bilineata*
Mexican duck	*Anas diazi*
Blue-winged teal	*Anas discors*
Great egret	*Ardea alba*
Great blue heron	*Ardea herodias*
Olive sparrow	*Arremonops rufivirgatus*
Verdin	*Auriparus flaviceps*
Black-crested titmouse	*Baeolophus atricristatus*
Cedar waxwing	*Bombycilla cedrorum*
Red-tailed hawk	*Buteo jamaicensis*
Gray hawk	*Buteo plagiatus*
Swainson's hawk	*Buteo swainsoni*
Common black hawk	*Buteogallus anthracinus*
Green heron	*Butorides virescens*
Scaled quail	*Callipepla squamata*
Cactus wren	*Campylorhynchus brunneicapillus*
Nightjar species	*Caprimulgidae*
Northern crested caracara	*Caracara cheriway*
Northern cardinal	*Cardinalis cardinalis*
Pyrrhuloxia	*Cardinalis sinuatus*
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Green kingfisher	*Chloroceryle americana*
Northern harrier hawk	*Circus hudsonius*
Northern flicker	*Colaptes auratus*
Rock pigeon	*Columba livia*
Inca dove	*Columbina inca*
Common ground dove	*Columbina passerina*
Black vulture	*Coragyps atratus*
American crow	*Corvus brachyrhynchos*
Chihuahan raven	*Corvus cryptoleucus*
Green jay	*Cyanocorax yncas*
Emu	*Dromaius novaehollandiae*

Common Name	Scientific Name
Ladder-backed woodpecker	*Dryobates scalaris*
Snowy egret	*Egretta thula*
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
Wilson's snipe	*Gallinago delicata*
Greater roadrunner	*Geococcyx californianus*
Common yellowthroat	*Geothlypis trichas*
White-tailed hawk	*Geranoaetus albicaudatus*
House finch	*Haemorhous mexicanus*
Black-necked stilt	*Himantopus mexicanus*
Audubon's oriole	*Icterus graduacauda*
Loggerhead shrike	*Lanius ludovicianus*
Gadwall	*Mareca strepera*
Belted kingfisher	*Megaceryle alcyon*
Ringed kingfisher	*Megaceryle torquata*
Golden-fronted woodpecker	*Melanerpes aurifrons*
Rio Grande wild turkey	*Meleagris gallopavo intermedia*
Lincoln's sparrow	*Melospiza lincolnii*
Northern mockingbird	*Mimus polyglottos*
Monk parakeet	*Myiopsitta monachus*
Black-crowned night heron	*Nycticorax nycticorax*
Osprey	*Pandion haliaetus*
Harris's hawk	*Parabuteo unicinctus*
House sparrow	*Passer domesticus*
American white pelican	*Pelecanus erythrorhynchos*
Cassin's sparrow	*Peucaea cassinii*
Double-crested cormorant	*Phalacrocorax auritus*
Neotropical cormorant	*Phalacrocorax brasilianus*
Green-tailed towhee	*Pipilo chlorurus*
Great kiskadee	*Pitangus sulphuratus*
Blue-gray gnatcatcher	*Polioptila caerulea*
Vesper sparrow	*Pooecetes gramineus*
Green parakeet	*Psittacara holochlorus*
Vermilion flycatcher	*Pyrocephalus obscurus*
Great-tailed grackle	*Quiscalus mexicanus*
Black phoebe	*Sayornis nigricans*
Eastern phoebe	*Sayornis phoebe*
Yellow-rumped warbler	*Setophaga coronata*
Black-throated gray warbler	*Setophaga nigrescens*

Common Name	Scientific Name
Eastern bluebird	*Sialia sialis*
Northern shoveler	*Spatula clypeata*
Field sparrow	*Spizella pusilla*
Morelet's seedeater	*Sporophila morelleti*
Rough-winged swallow	*Stelgidopteryx serripennis*
Eurasian collared dove	*Streptopelia decaocto*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Least grebe	*Tachybaptus dominicus*
Curve-billed thrasher	*Toxostoma curvirostre*
Long-billed thrasher	*Toxostoma longirostre*
Greater yellowlegs	*Tringa melanoleuca*
Solitary sandpiper	*Tringa solitaria*
Orange-crowned warbler	*Vermivora celata*
White-winged dove	*Zenaida asiatica*
Mourning dove	*Zenaida macroura*
Mammals	
Coyote	*Canis latrans*
Domestic dog	*Canis lupus familiaris*
American beaver	*Castor canadensis*
Nine-banded armadillo	*Dasypus novemcinctus*
Domestic cat	*Felis catus*
Bobcat	*Lynx rufus*
Meadow vole	*Microtus* sp.
Wood rat	*Neotoma* sp.
White-tailed deer	*Odocoileus virginianus*
Collared peccary (javelina)	*Pecari tajacu*
Raccoon	*Procyon lotor*
Fox Squirrel	*Sciurus niger*
Hispid cotton rat	*Sigmodon hispidus*
Feral hog	*Sus scrofa*
Desert cottontail	*Sylvilagus audubonii*
Coyote	*Canis latrans*
Butterflies	
Gulf fritillary	*Agraulis vanillae*
Tawny emperor	*Asterocampa clyton*
Pipevine swallowtail	*Battus philenor*
Common checkered skipper	*Burnsius communis*
Queen	*Danaus gilippus*

Common Name	Scientific Name
American snout	*Libytheana carinenta*
Common mestra	*Mestra amymone*
Dainty sulphur	*Nathalis iole*
Black swallowtail	*Papilio polyxenes*
Phaon crescent	*Phyciodes phaon*
Cabbage white	*Pieris rapae*
Red admiral	*Vanessa atalanta*
Southern dogface	*Zerene cesonia*
Insects	
Slender prairie mantis	*Oligonicella scudderi*
Guinea paper wasp	*Polistes exclamans*
Corsair	*Rasahus hamatus*
Arachnids	
Texas tan tarantula	*Aphonopelma anax*
Rio Grande gold tarantula	*Aphonopelma moderatum*
Silver argiope	*Argiope argentata*
Striped bark scorpion	*Centruoides vittatus*
Spinybacked garden orbweaver	*Gasteracantha cancriformis*
Fish	
Threadfin shad	*Dorosoma petenense*
Texas cichlid	*Herichthys cyanoguttatus*
Largemouth bass	*Micropterus salmoides*
Janitor fish	*Pterygoplichthys* sp.

4.3 Sensitive Natural Resources

The State of Texas lists 65 species as rare, threatened, or endangered in Webb County and 68 species listed as rare, threatened, or endangered in Zapata County (TPWD 2022a). These species, their status, and habitat associations are provided in Appendix B. GSRC biologists observed three state of Texas protected species: Texas tortoise (*Gopherus berlandieri*), Texas indigo snake (shed) (*Drymarchon melanurus erebennus*), and gray hawk (*Buteo plagiatus*) within the Project Corridor.

A total of six federally listed, endangered, or threatened species have the potential to occur within or near the Project Corridor (Table 4). No federally listed species were observed during biological surveys. However, designated Critical Habitat for Texas hornshell (*Popenaias popeii*) is present in the northern-most area of the Project Corridor (Appendix A, Figure A31). Federally recognized sensitive species with the potential to occur in or adjacent to the Project Corridor are discussed in the following sections.

Table 4. List of Threatened and Endangered Species that Potentially Occur Within the Project Corridor, Their Status, and Critical Habitat Designation

Common Name	Scientific Name	Status	Critical Habitat	Observed During Surveys?
Birds				
Piping plover*	*Charadrius melodus*	Threatened	Yes; Outside of Project Corridor	No
Red Knot*	*Calidris canutus rufa*	Threatened	None	No
Invertebrates				
Texas hornshell	*Popenaias popeii*	Endangered	Yes	No
Monarch butterfly	*Danaus plexippus*	Candidate	None	No
Flowering Plants				
Ashy dogweed	*Thymophylla tephroleuca*	Endangered	None	No
Zapata bladderpod	*Physaria thamnophila*	Endangered	Yes; Outside of Project Corridor	No

Source: U.S. Fish and Wildlife Service (USFWS) 2022
* Excluded from discussion below as these species only need to be considered in the planning process for wind related projects within the migratory route.

4.3.1 Texas Hornshell

Texas hornshell is a medium-sized freshwater mussel that was once found throughout the Rio Grande drainage in the U.S. and Mexico, as well as Mexican Gulf Coast streams. At present, five known populations of Texas hornshell are known to remain in the U.S. (USFWS 2020).

The outer surface of the Texas hornshell appears olive green to dark brown. Individuals may grow to be more than 4.5 inches long and live up to 20 years. The species had not been observed since the mid-1970s in the Rio Grande until the discovery of a large population (604 live specimens recorded) was made in 2011 near Laredo. The conservative estimate of more than 8,000 individuals made this Laredo population the largest ever reported from the Rio Grande (USFWS 2020).

The primary factors affecting population conditions of the Texas hornshell include river fragmentation due to habitat inundation by impoundments, alterations of the natural streamflow regime (e.g., impoundments, drought, groundwater withdrawal, and resultant mussel-smothering sediment accumulation), and degradation of water quality within its range. The section of the Rio Grande in and above Laredo, where the only known large population of Texas hornshell was found, was designated a mussel sanctuary (mussel harvest is prohibited), but this species is still vulnerable to water flow alteration potentially damaging their remaining habitat (USFWS 2020).

No individuals of this species were detected during biological surveys. However, the Project Corridor contains habitat that could support Texas hornshell. Critical Habitat has been designated for the species north of Laredo and extending into the northern portion of the project area (Appendix A, Figure A31). Any work adjacent to the river north of Laredo should follow all appropriate best management practices to prevent sediment deposits, streamflow alteration, and general degradation of water quality that could damage the remaining Texas hornshell habitat.

4.3.2 Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is a candidate species and is not yet listed or proposed for listing. There are generally no Section 7 requirements for candidate species, but the USFWS encourages agencies to take advantage of any opportunity that may arise to conserve the species.

Adult monarch butterflies are large and conspicuous, with orange wings with black and white borders and covered with black veins. During the breeding season, monarch butterflies lay eggs on obligate milkweed (*Asclepias* spp.) host plants and larvae emerge after 2 to 5 days. Larvae develop through five larval instars over a period of 9 to 18 days, at which point the larva pupates into a chrysalis before emerging as an adult butterfly after 6 to 14 days (USFWS 2022b).

No individuals of this species were detected during biological surveys, and no Critical Habitat has been designated. However, the Project Corridor contains habitat that could potentially support monarch butterflies during their migration through the region.

4.3.3 Ashy Dogweed

Ashy dogweed (*Thymophylla tephroleuca*) is restricted to unique soils found in south Texas. The known populations of ashy dogweed are located on the sandy pockets of Maverick-Catarina, Copita-Zapata, and Nueces-Comita soils of southern Webb and northern Zapata counties. When listed in 1984, ashy dogweed was only known from Starr County. Since then, an additional five populations have been found and the species is known from both Webb County and Zapata

County (USFWS 2011). Although ashy dogweed has been observed in areas where the ground has been disturbed, it is not known whether this species is more likely to occur in areas of disturbance or if it grows equally well on disturbed and undisturbed sites.

No individuals of this species were detected during biological surveys, and no Critical Habitat has been designated. However, the Project Corridor contains habitat that could potentially support ashy dogweed. Vegetation clearing and earth work within this area could potentially damage or destroy some individual plants if they are present within the Project Corridor footprint and/or make the habitat unsuitable for the regrowth or persistence of ashy dogweed.

4.3.4 Zapata Bladderpod

Zapata bladderpod (*Physaria thamnophila*) is a perennial branched forb that is associated with undisturbed calcareous, loamy soils and typically occurs beneath a canopy of xenophytic shrubs. Zapata bladderpod is known to have high spatial and temporal variation among populations, dependent upon seasonal precipitation. One of the main threats to the survival of this species is invasion by non-native species, such as buffelgrass, and habitat conversion (USFWS 2015). No individuals of this species were detected during biological surveys, and no Critical Habitat has been designated within the Project Corridor. The Project Corridor is unlikely to support this species due to agricultural disturbance, invasive species, and a lack of suitable soil.

5.0 CONCLUSIONS

After extensive pedestrian surveys of the Project Corridor, GSRC concludes that:

- A total of 140 species of plants and 147 wildlife species were identified within the Project Corridor.
- The Project Corridor contains a mixture of Tamaulipan thornscrub, mesquite savanna/woodland, Rio Grande riparian zone, Tamarisk woodland, creosote flat, disturbed woodland, disturbed grassland, agricultural field, maintained vegetation, and developed habitat community types.
- No federally-listed species were observed during biological surveys.
- There is designated Critical Habitat for Texas hornshell in the northern-most area of the Project Corridor.

- Three Texas state listed species (Texas tortoise, Texas indigo snake, and gray hawk) were observed within the Project Corridor.

6.0 REFERENCES

Jahrsdoerfer, S. E., & Leslie Jr, D. M. 1988. Tamaulipan brushland of the Lower Rio Grande Valley of south Texas: description, human impacts, and management options. Oklahoma Cooperative Fish and Wildlife Research Unit Stillwater.

NatureServe. 2022. NatureServe Explorer website. NatureServe, Arlington, Virginia. Available https://explorer.natureserve.org/. Accessed: April 8, 2022.

Texas Parks and Wildlife Department (TPWD). 2020. Plant Guidance by Ecoregions website. https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/wildscapes/ecoregions/ecoregion_6.phtml. Accessed March 2022.

TPWD. 2021. Ashy Dogweed. URL Address: https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/listedspecies/plants/ashy_dogweed.phtml. Accessed March 2022.

TPWD. 2022a. Rare, Threatened, and Endangered Species of Texas by County website. https://tpwd.texas.gov/gis/rtest. Accessed April 6, 2022.

TPWD. 2022b. The Monarch Butterfly and Other Insect Pollinators. URL Address: https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/texas_nature_trackers/monarch/#:~:text=Texas%20is%20an%20important%20state,monarchs%20use%20two%20principal%20flyways. Accessed April 6, 2022.

TPWD. 2022c. Ecological Mapping Systems of Texas https://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/emst. Accessed April 8, 2022.

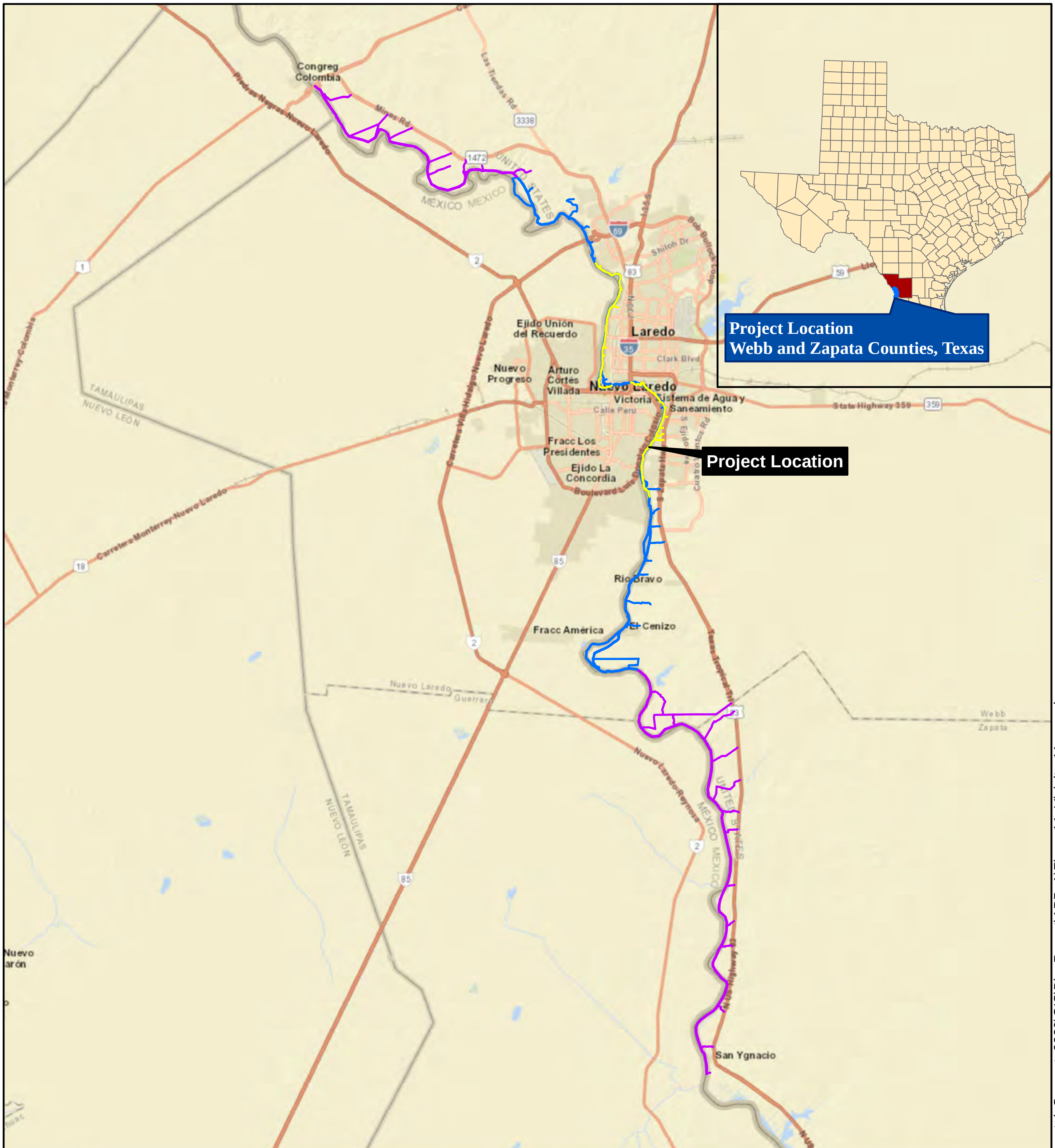
U.S. Fish and Wildlife Service (USFWS). 2011. Ashy Dogweed (*Thymophylla tephroleuca*) 5-Year Review: Summary and Evaluation. https://www.fws.gov/southwest/es/Documents/R2ES/Ashy_Dogweed_5-yr_Review_FINAL_2011.pdf. Accessed March 2022.

USFWS. 2015. Zapata bladderpod *Physaria thamnophila* (Rollins & E.A. Shaw) O'Kane & Al-Shehbaz (Synonym: *Lesquerella thamnophila* Rollins & E.A. Shaw) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Corpus Christi Ecological Services Field Office, Corpus Christi, Texas.

USFWS. 2020. Texas Hornshell (*Popenaias popeii*) Recovery Plan. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico. https://ecos.fws.gov/docs/recovery_plan/Texas%20Hornshell%20Draft%20Recovery%20Plan_12.2.20.pdf. Accessed March 2022.

USFWS. 2022. Information for Planning and Consultation (IPaC) website. https://ecos.fws.gov/ipac/. Accessed March 2022.

APPENDIX A
REPORT FIGURES



Legend

- Laredo Roads Corridor
- Phase I
- Phase II

N

0 3.25 6.5 Miles

0 5 10 Kilometers

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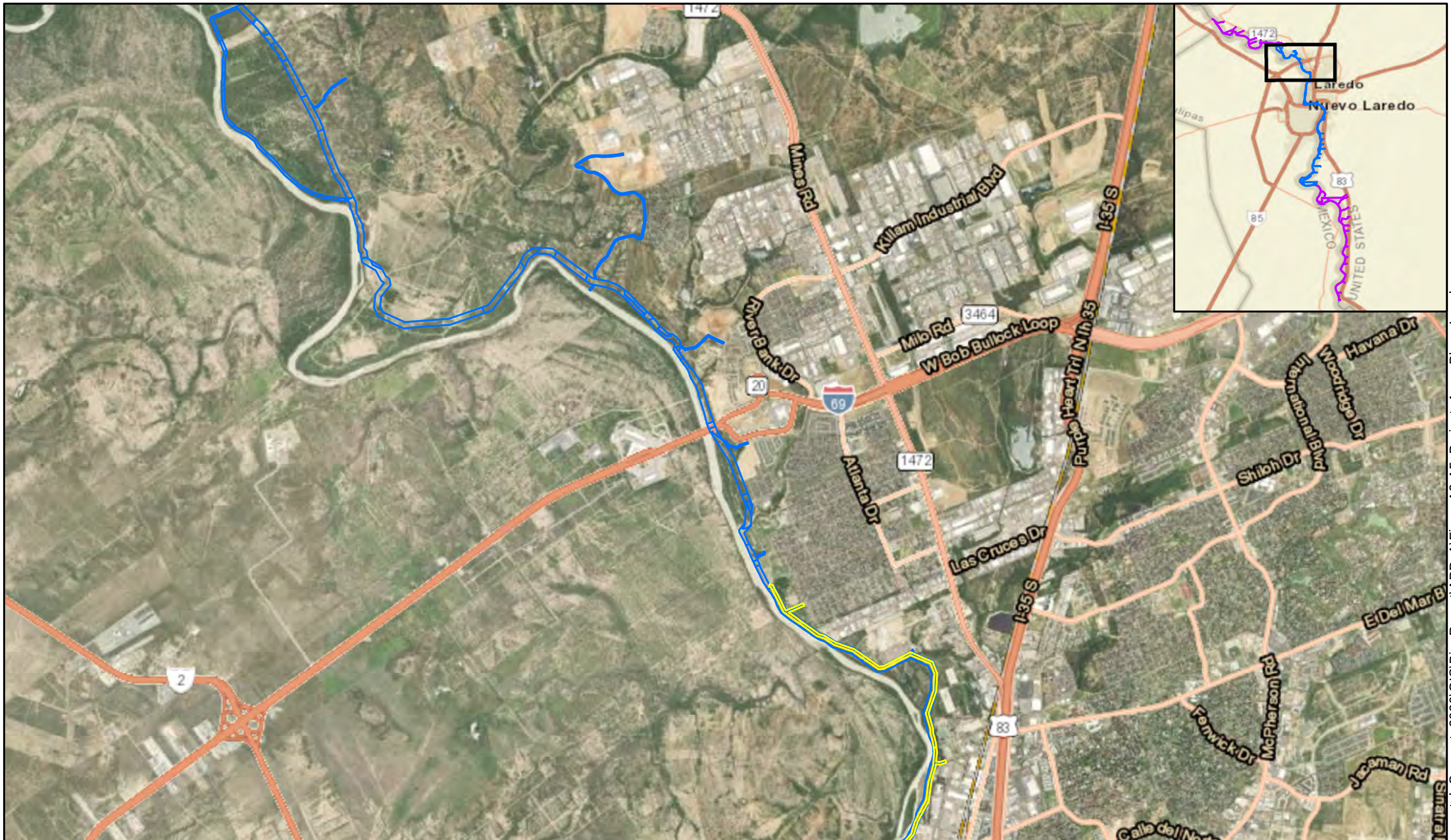
Figure A1. Vicinity Map

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA1_Vicinity_Map.mxd



Legend

Phase I (1,093.8 ac.)

Laredo Roads Corridor (202.2 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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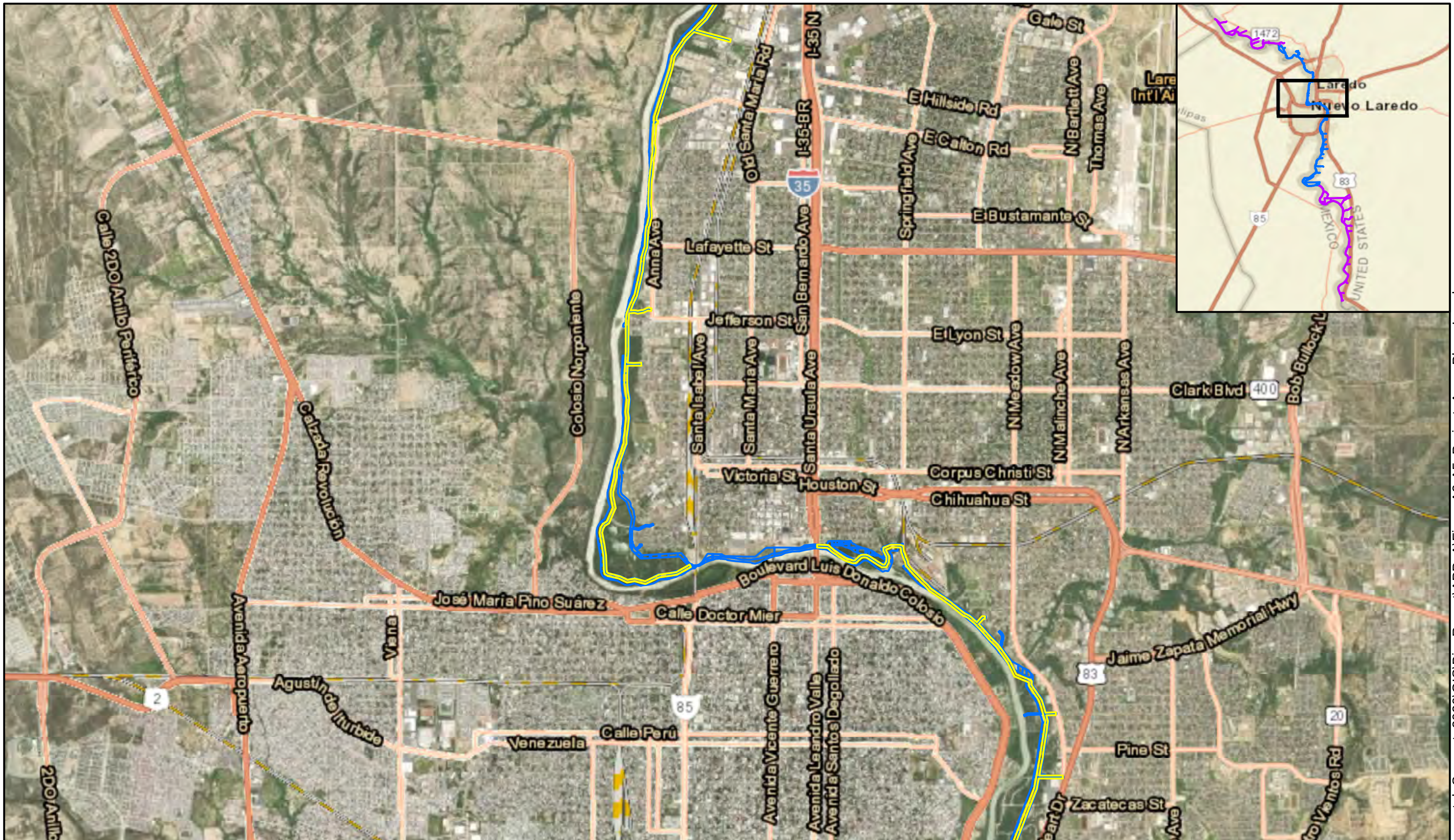
K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA2-A5_Project_Area_PhaseI.mxd

Figure A2. Project Area Map - Phase I



Legend

Phase I (1,093.8 ac.)

Laredo Roads Corridor (202.2 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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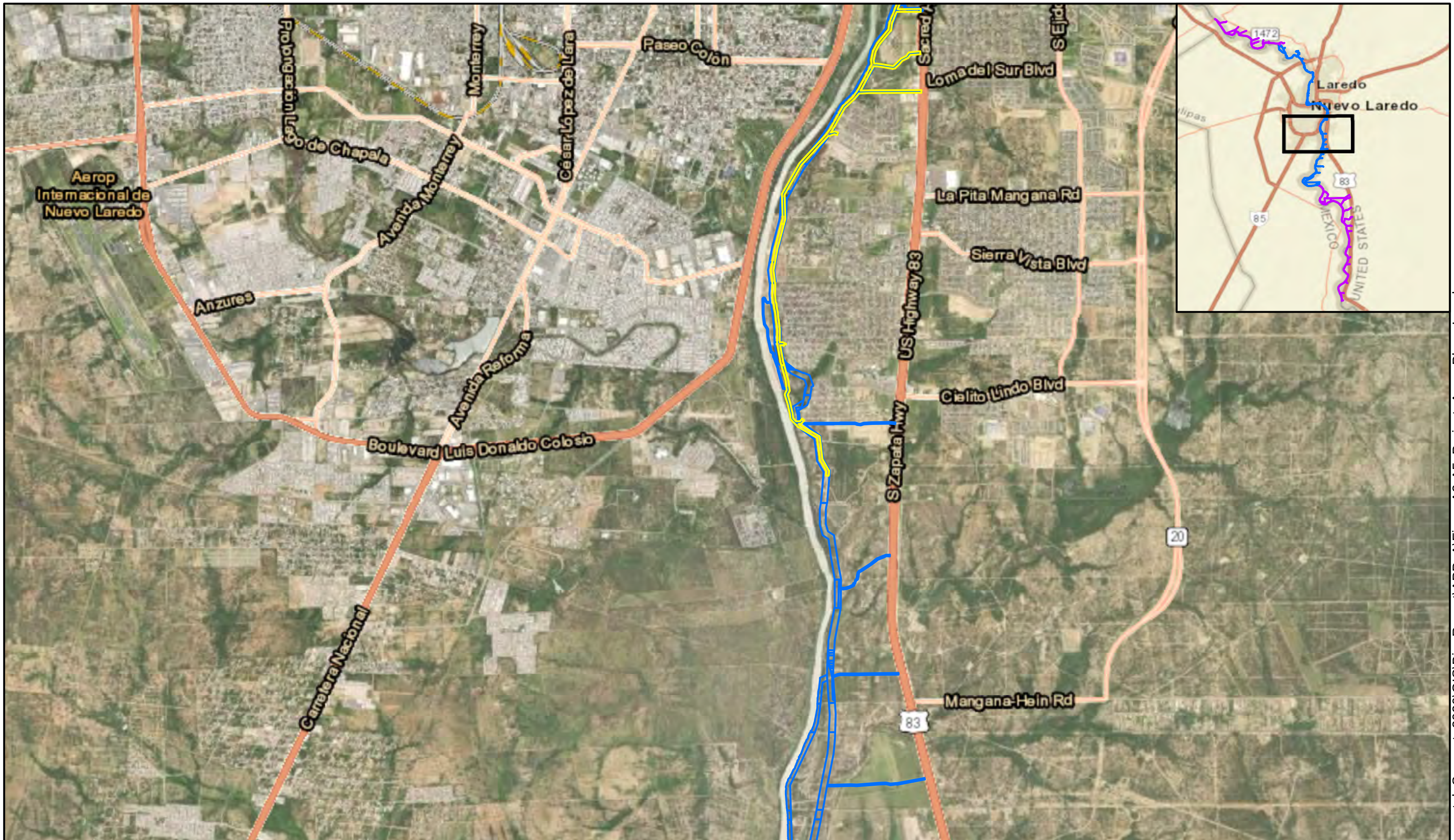
Figure A3. Project Area Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA2-A5_Project_Area_PhaseI.mxd



Legend

Phase I (1,093.8 ac.)

Laredo Roads Corridor (202.2 ac.)

N

0 0.5 1 Miles

Kilometers 0 0.5 1

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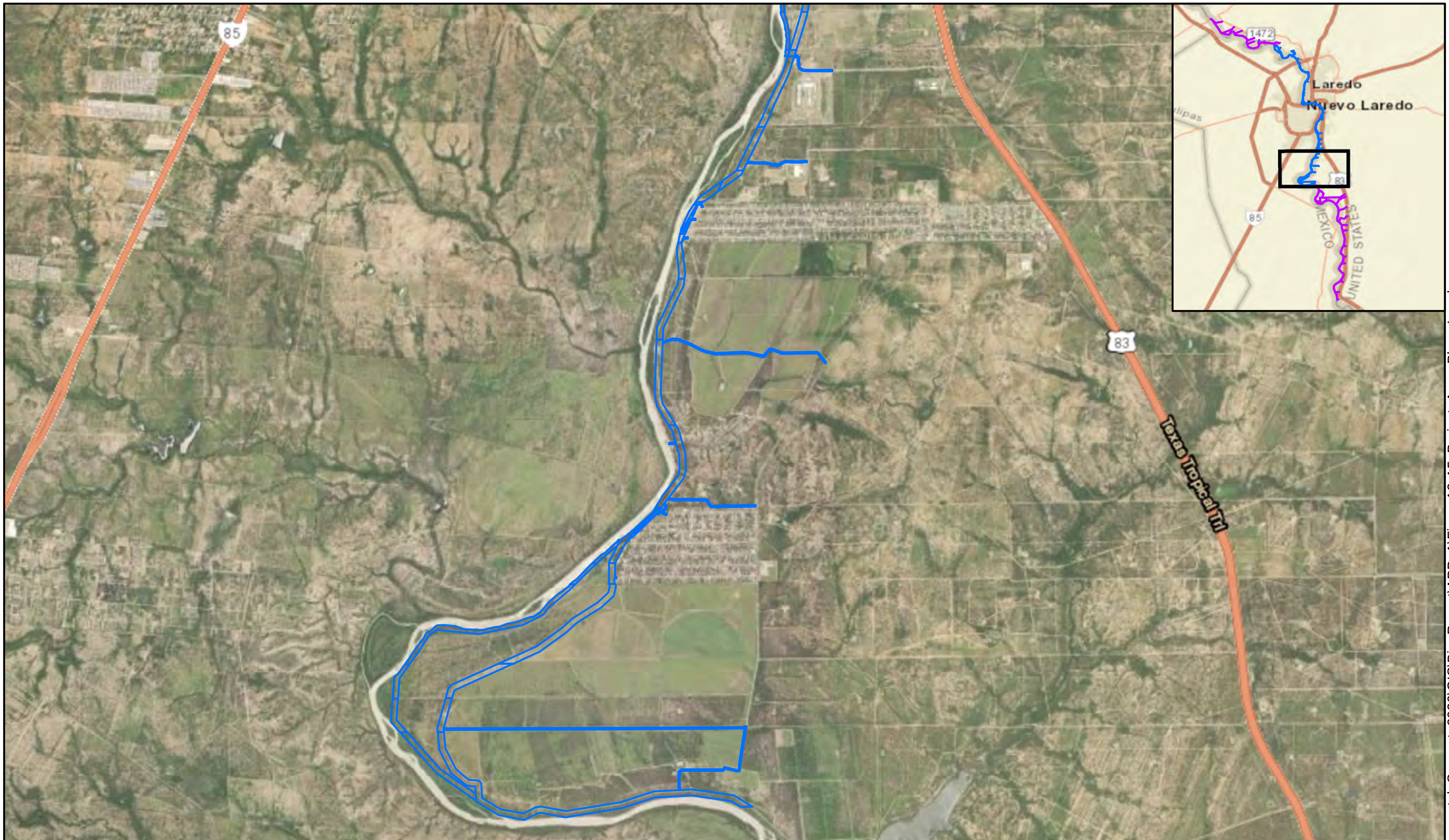
Figure A4. Project Area Map - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA2-A5_Project_Area_PhaseI.mxd



Legend

Phase I (1,093.8 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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Figure A5. Project Area Map - Phase I

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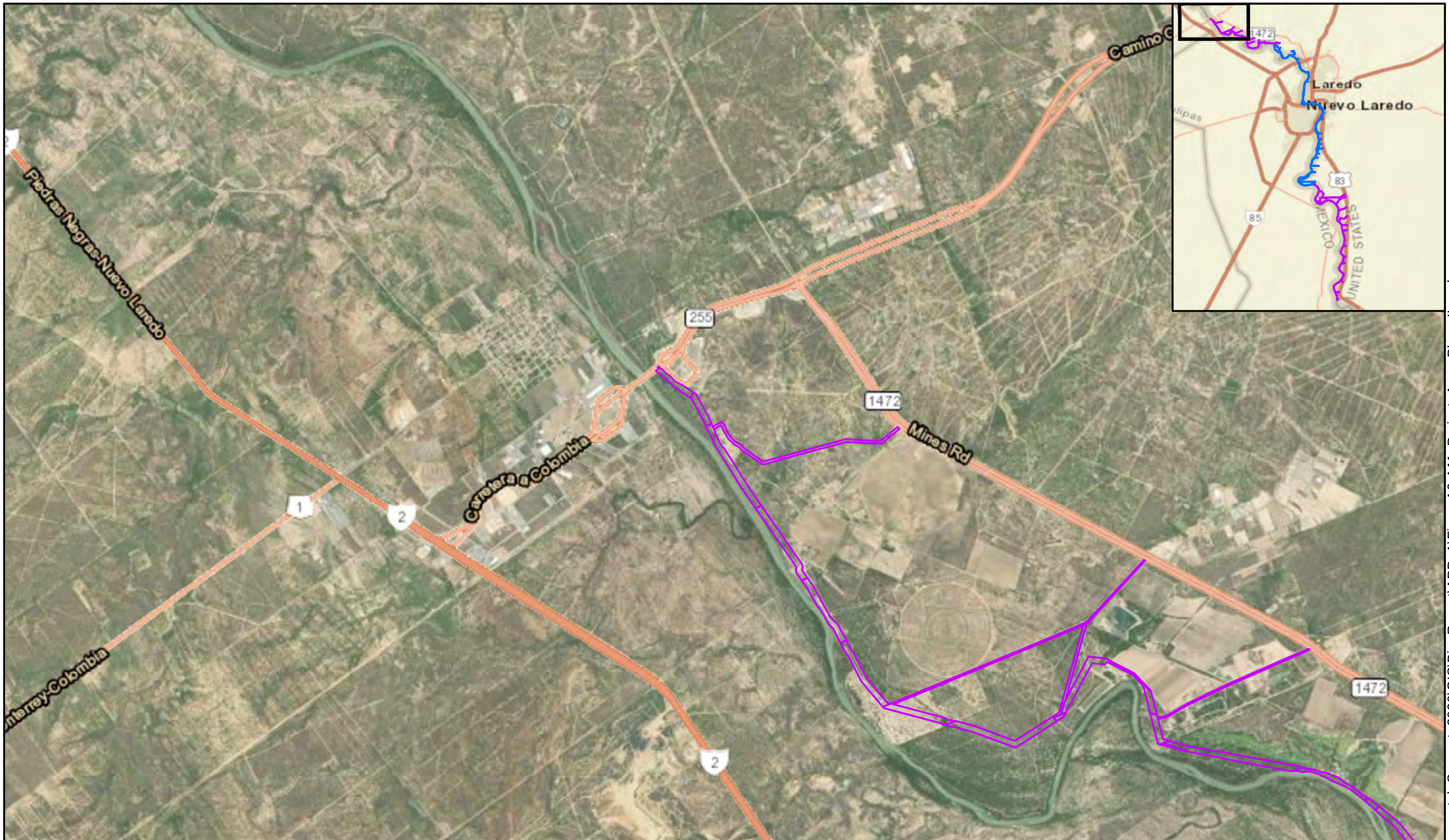

Legend

Phase II (1,194.4 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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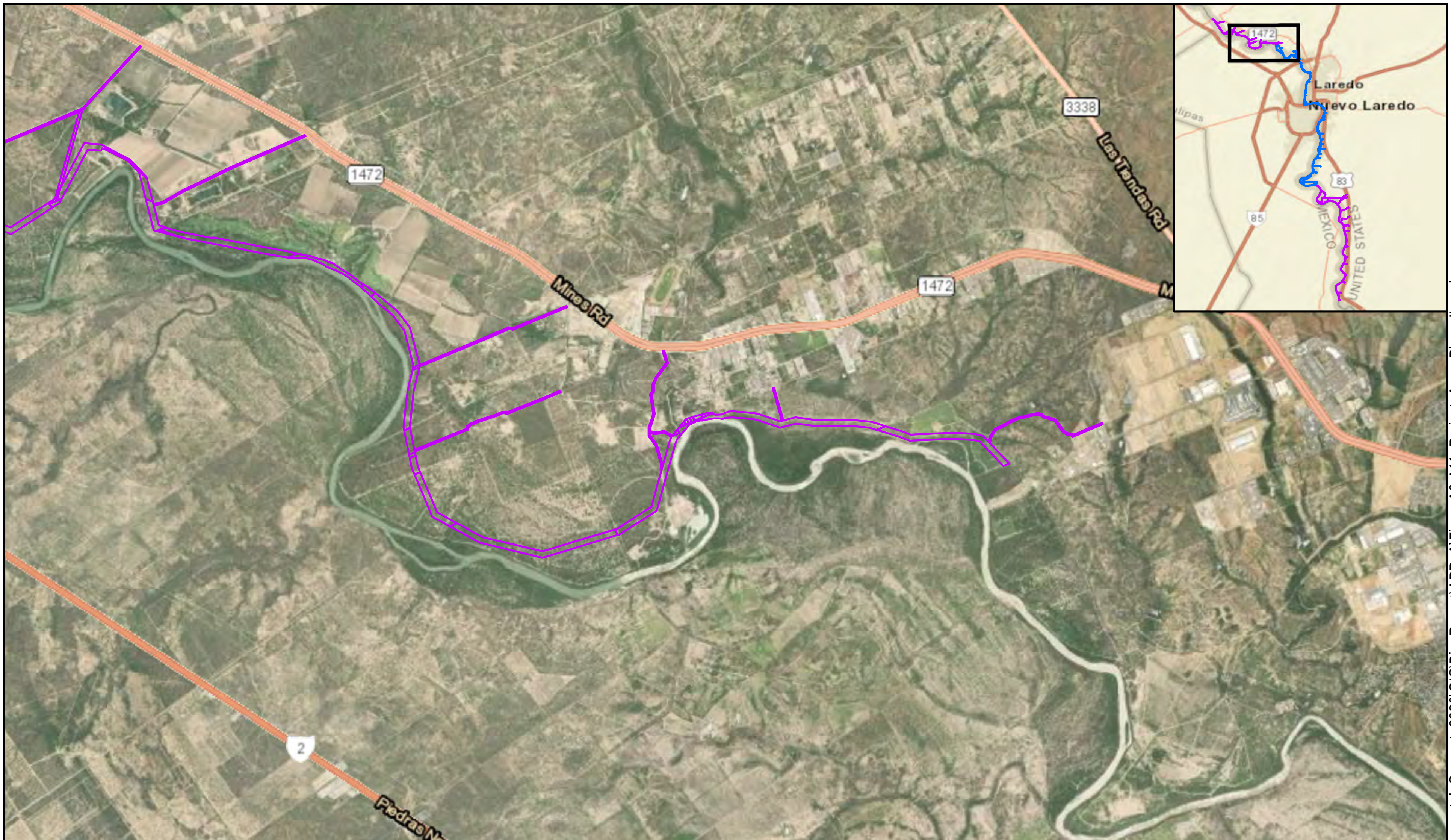
K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA6-A11_Project_Area_PhaseII.mxd

Figure A6. Project Area Map - Phase II



Legend
Phase II (1,194.4 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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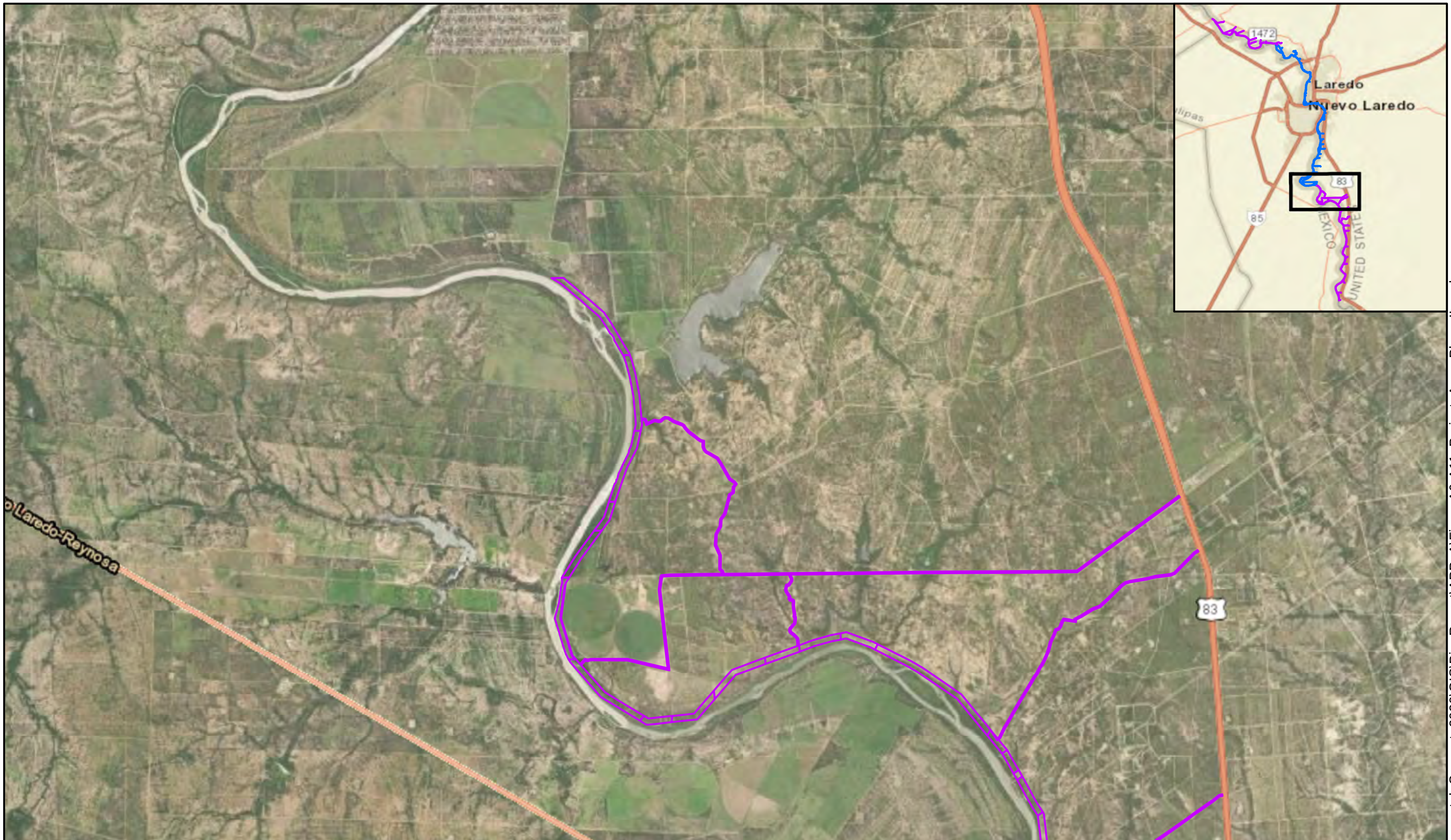
Figure A7. Project Area Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA6-A11_Project_Area_PhaseII.mxd



Legend

Phase II (1,194.4 ac.)

0 0.5 1 Miles

0 0.5 1 Kilometers

N

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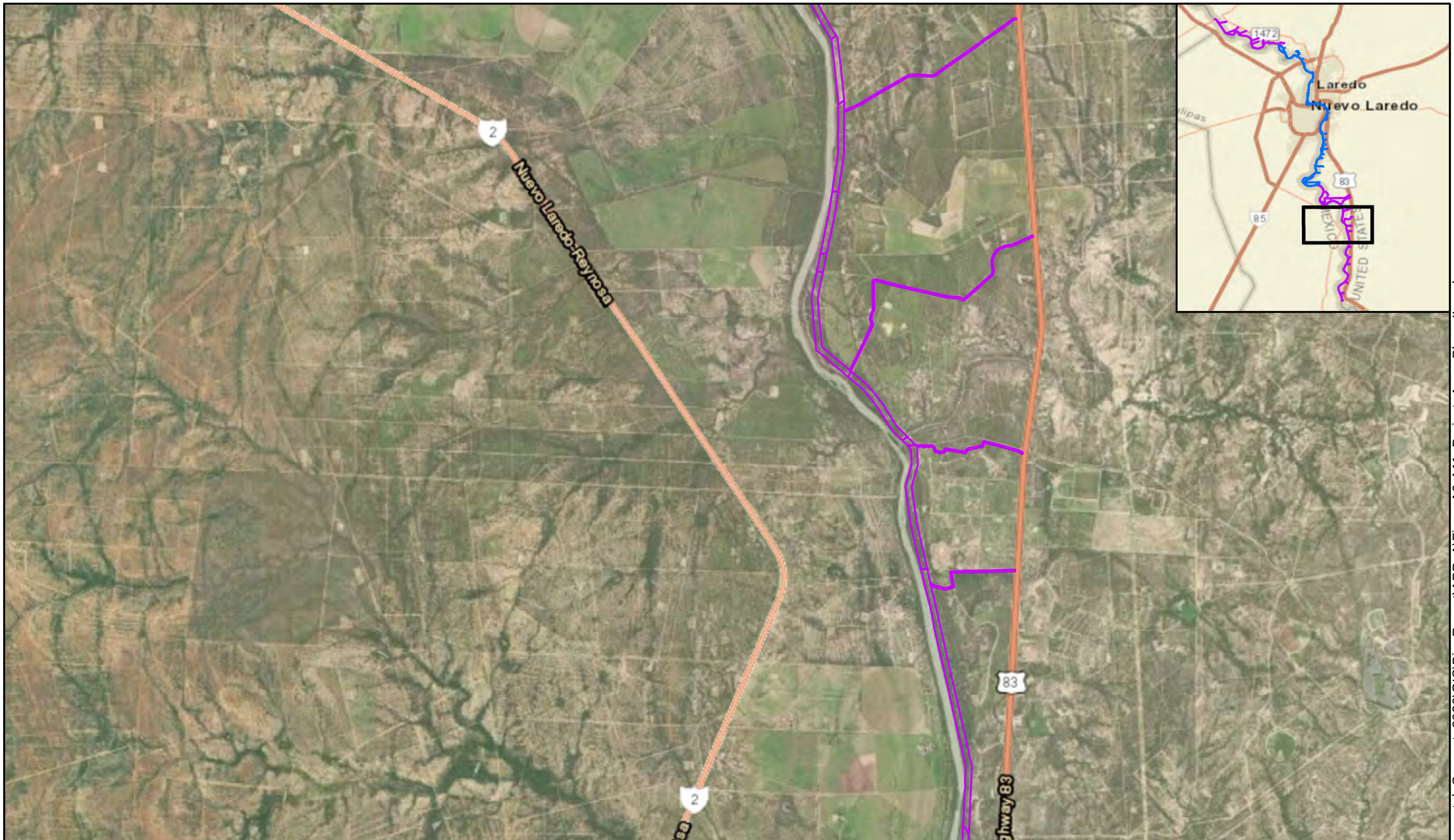
Figure A8. Project Area Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA6-A11_Project_Area_PhaseII.mxd



Legend

Phase II (1,194.4 ac.)

N

0 0.5 1 Miles

0 0.5 1 Kilometers

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Figure A9. Project Area Map - Phase II

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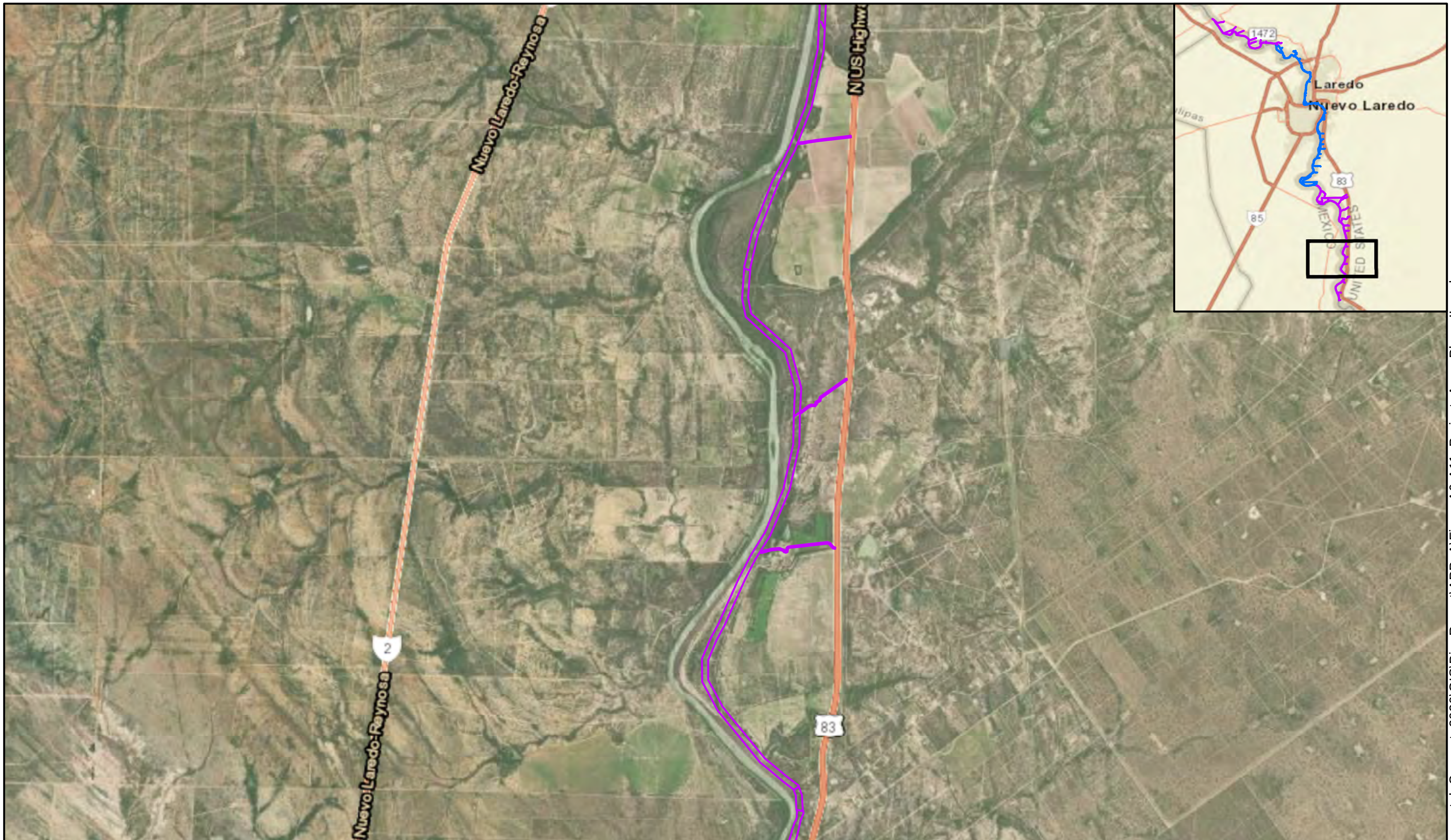

Legend

Phase II (1,194.4 ac.)

0 0.5 1 Miles

0 0.5 1 Kilometers

N

GSRC

April 2022

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA6-A11_Project_Area_PhaseII.mxd

Figure A10. Project Area Map - Phase II

Legend

Phase II (1,194.4 ac.)

N

0 0.5 1 Miles

Kilometers 0 0.5 1

GSRC

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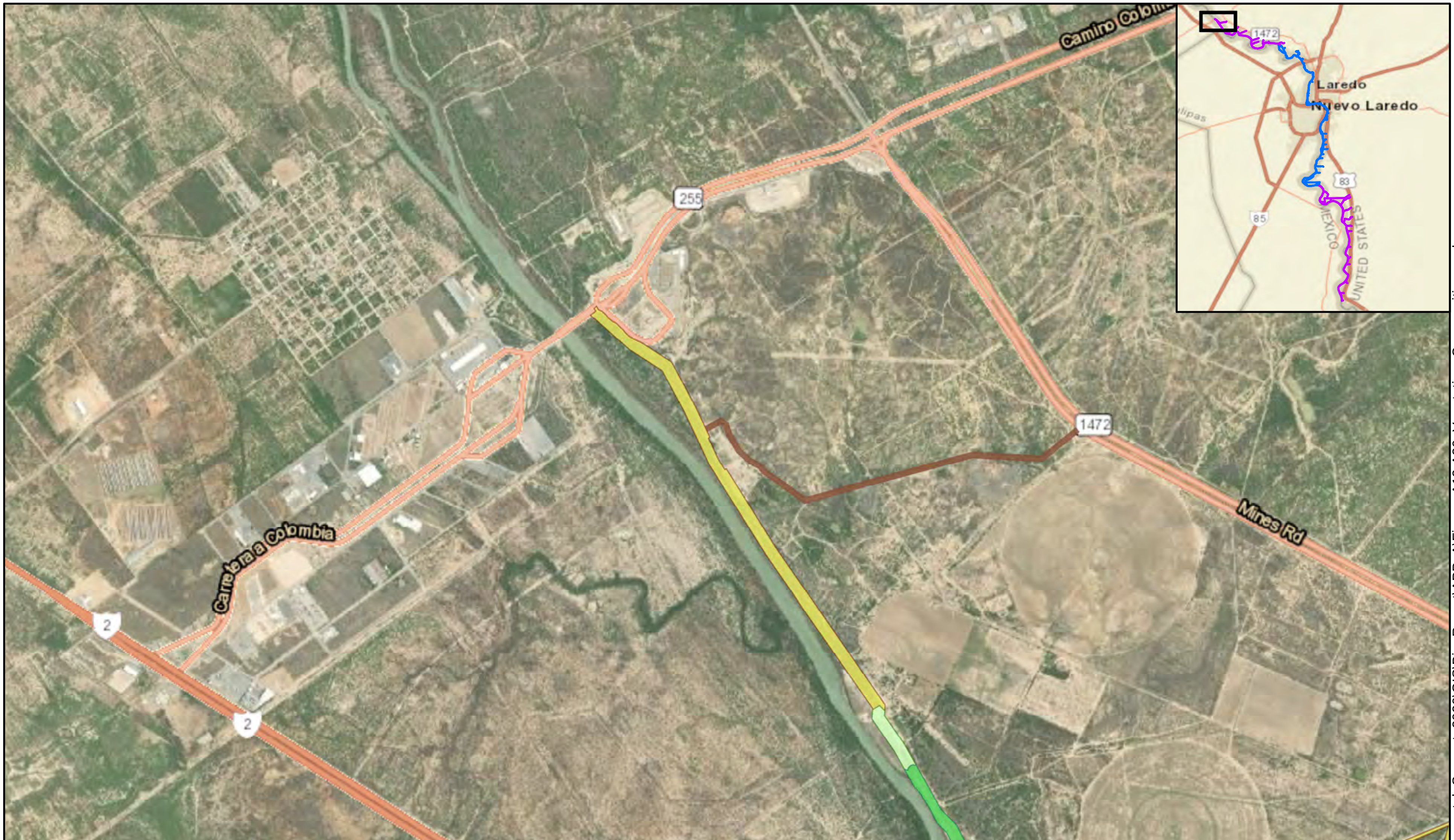
Figure A11. Project Area Map - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FigureA6-A11_Project_Area_PhaseII.mxd



Legend

Vegetation

Agricultural

Disturbed Grassland

Mesquite Savanna/Woodland

Tamaulipan Thornscrub

N

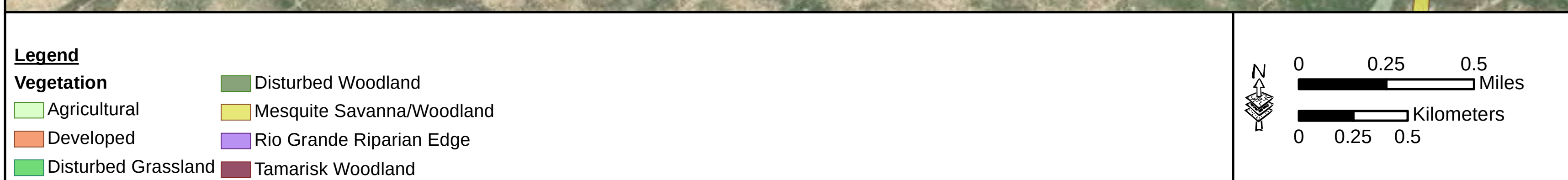
0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

April 2022

Figure A12. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



GSRC

April 2022

Figure A13. Vegetation Communities - Phase II

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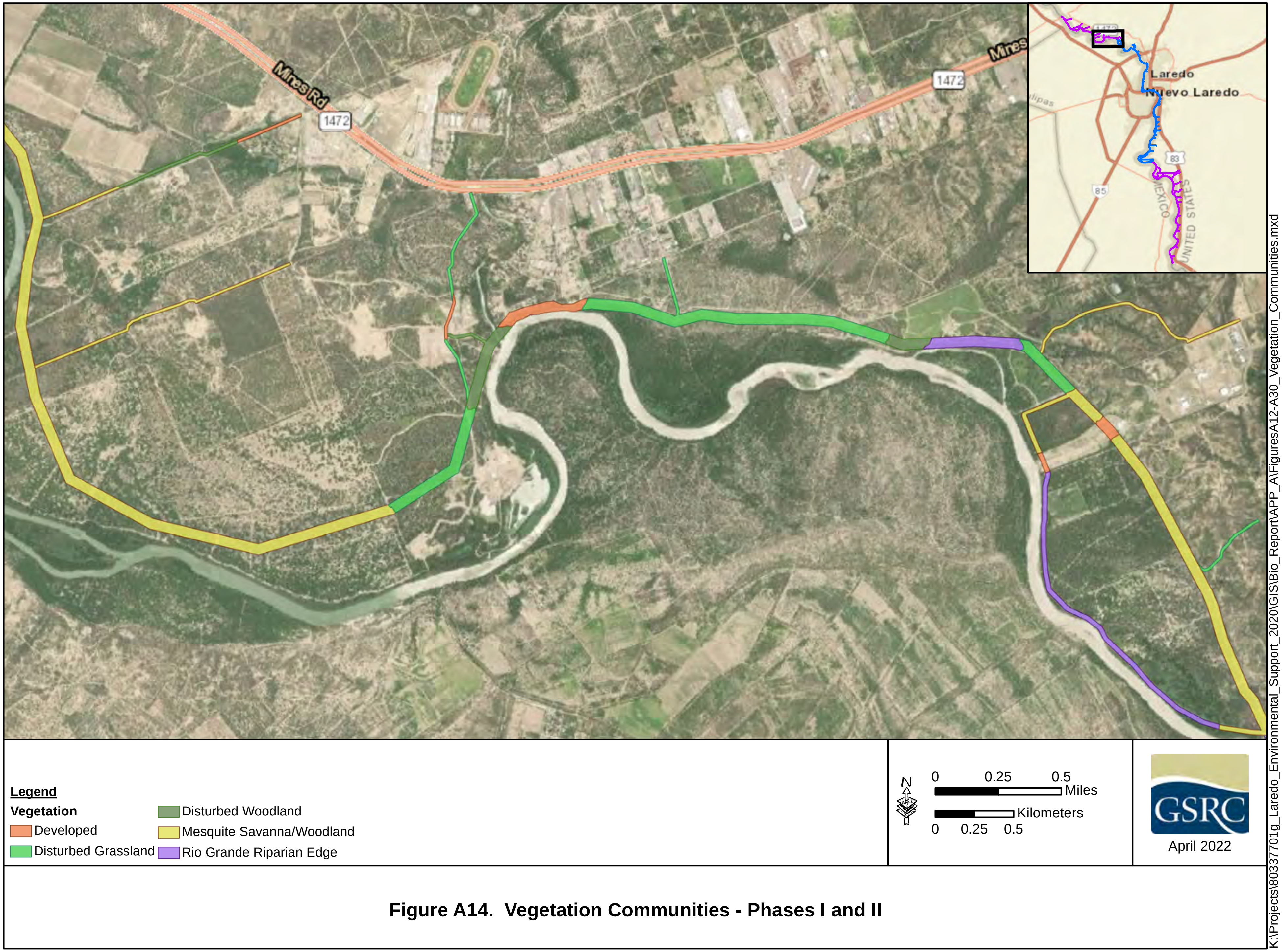
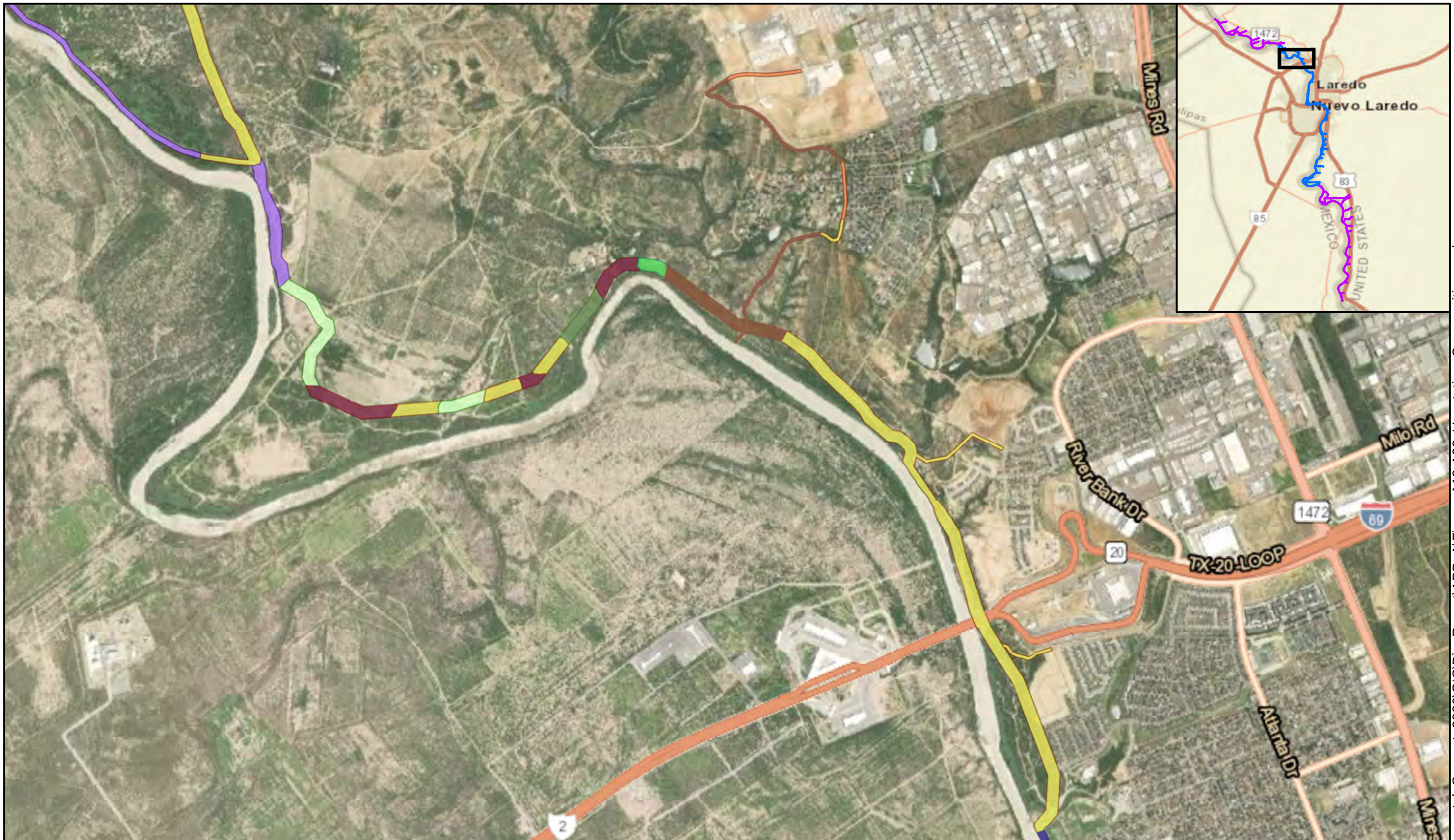


Figure A14. Vegetation Communities - Phases I and II



Legend

Vegetation

- Agricultural
- Developed
- Disturbed Grassland
- Disturbed Woodland
- Maintained Vegetation
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge
- Tamarisk Woodland
- Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

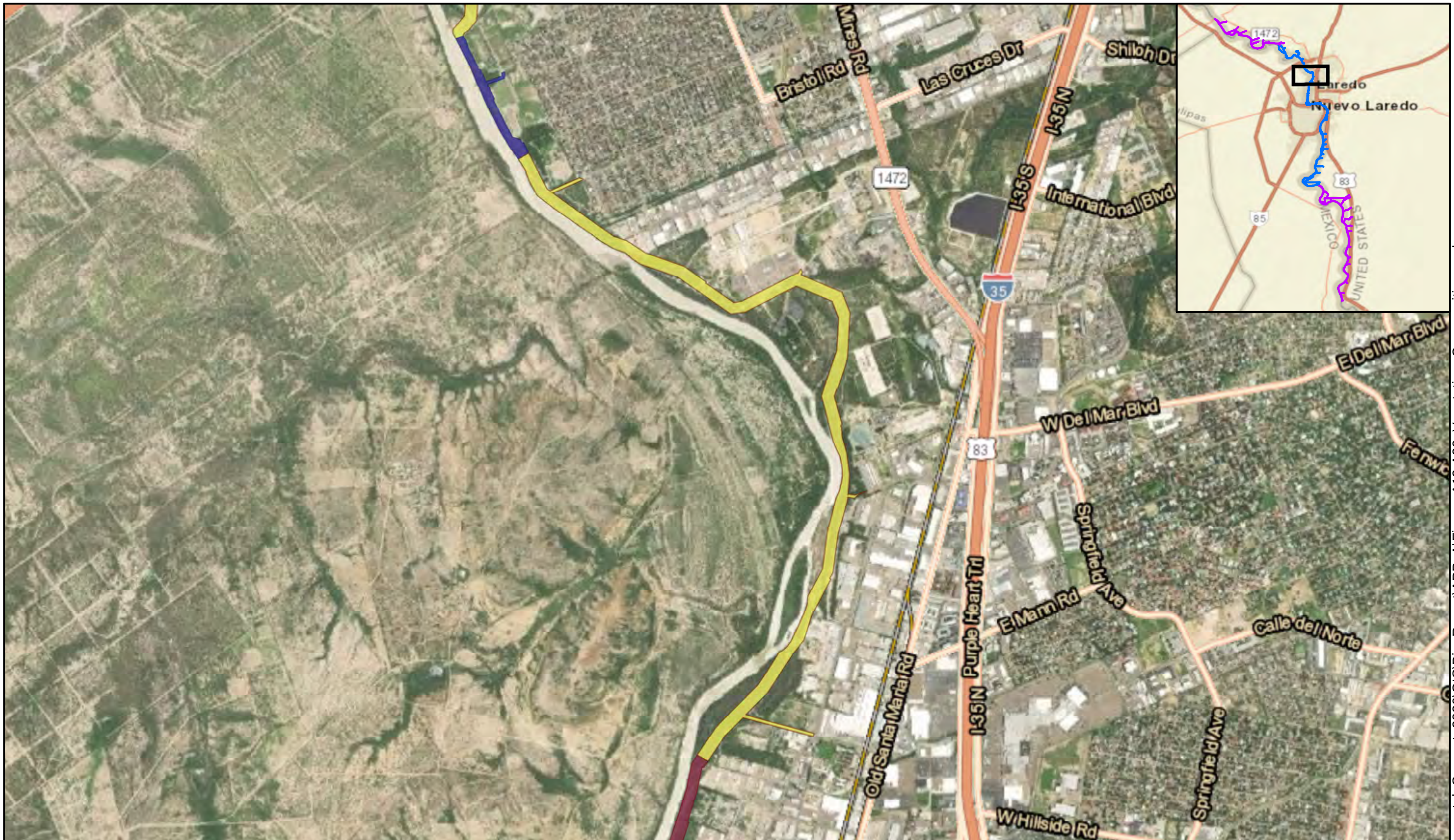
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A15. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

Maintained Vegetation	Mesquite Savanna/Woodland
	Tamarisk Woodland

N

0 0.25 0.5 Miles

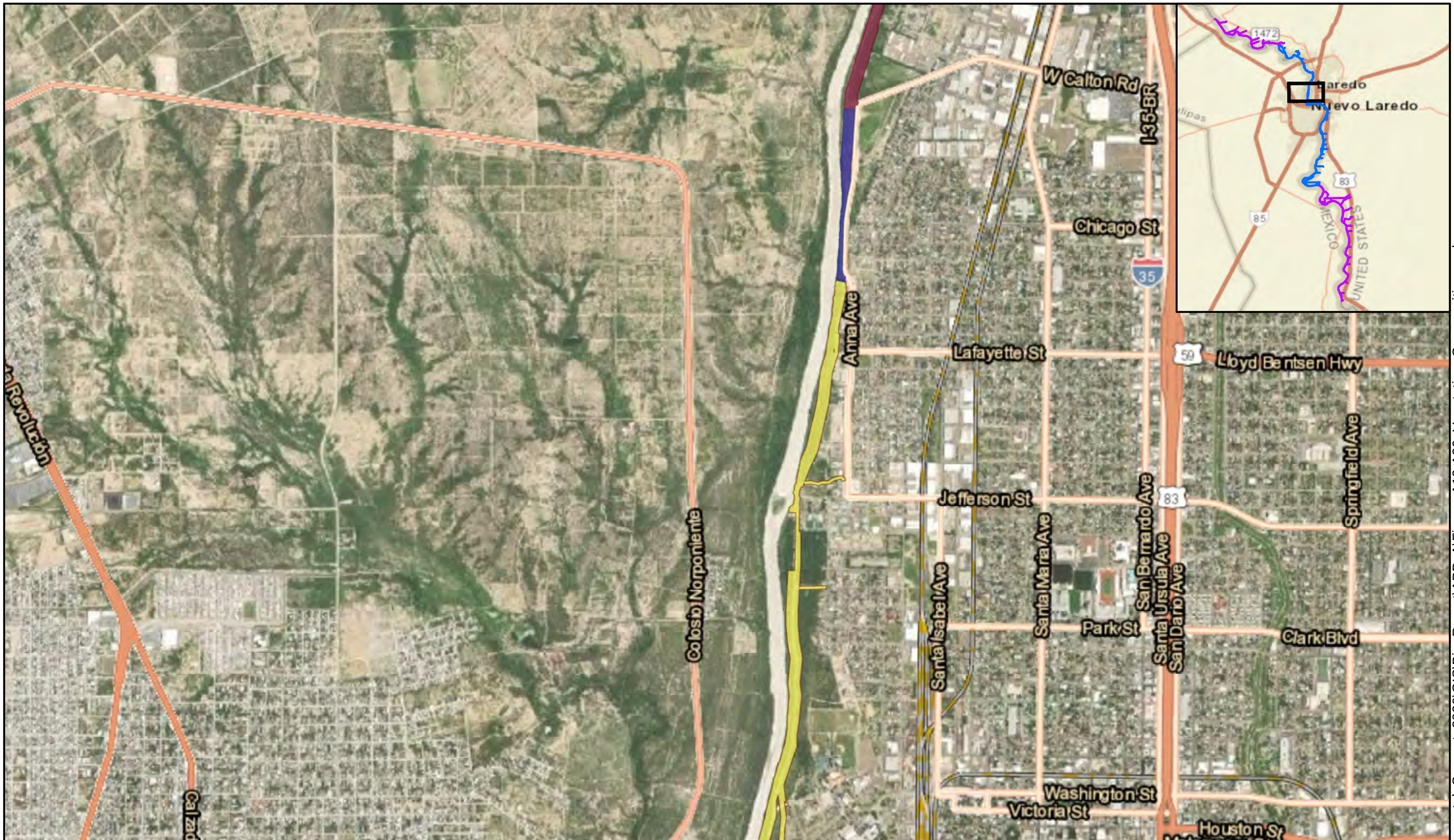
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A16. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

Maintained Vegetation

Mesquite Savanna/Woodland

Tamarisk Woodland

N

0 0.25 0.5 Miles

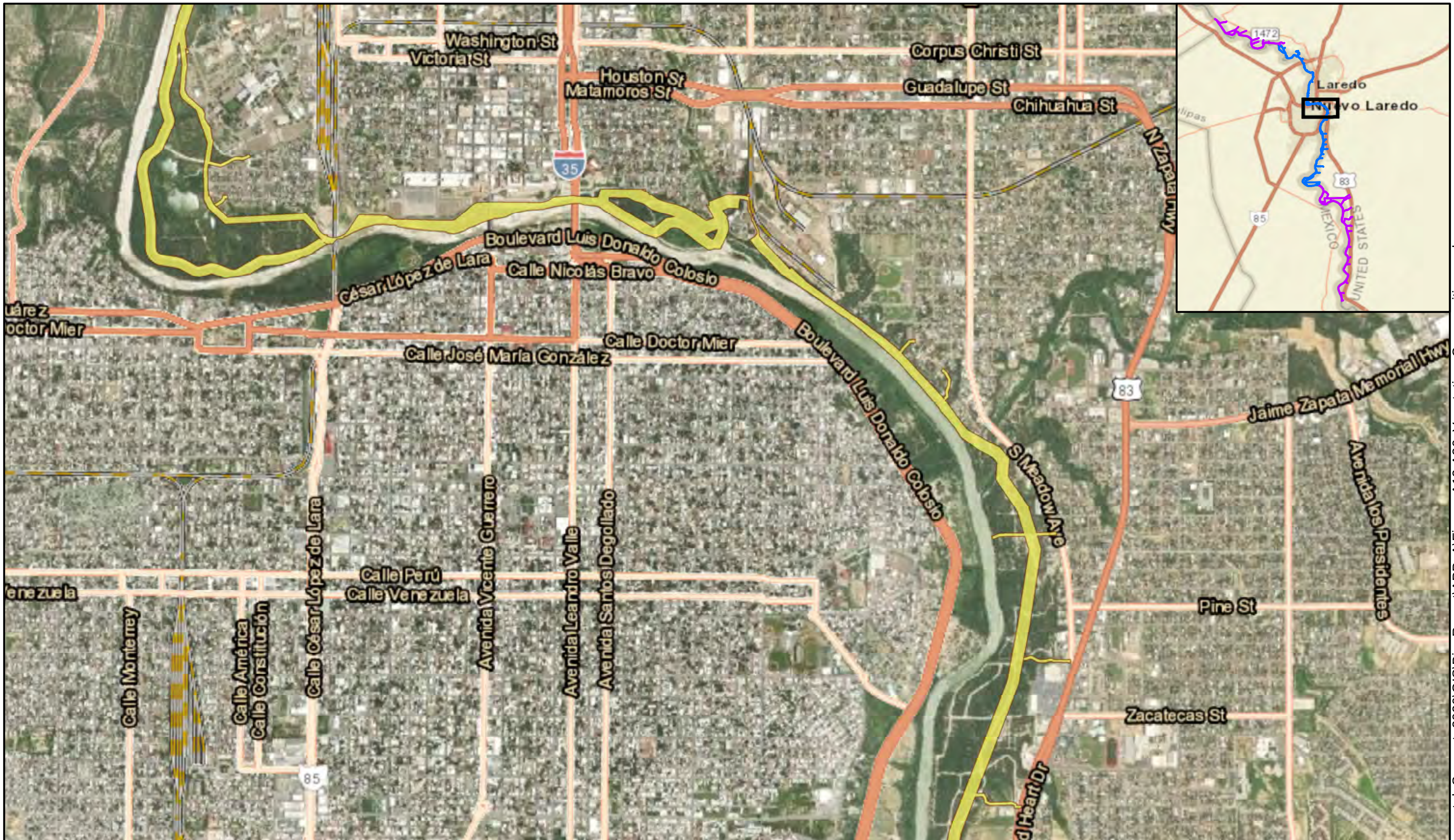
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A17. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

Mesquite Savanna/Woodland

N

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

April 2022

Figure A18. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\Figures\A12-A30_Vegetation_Communities.mxd

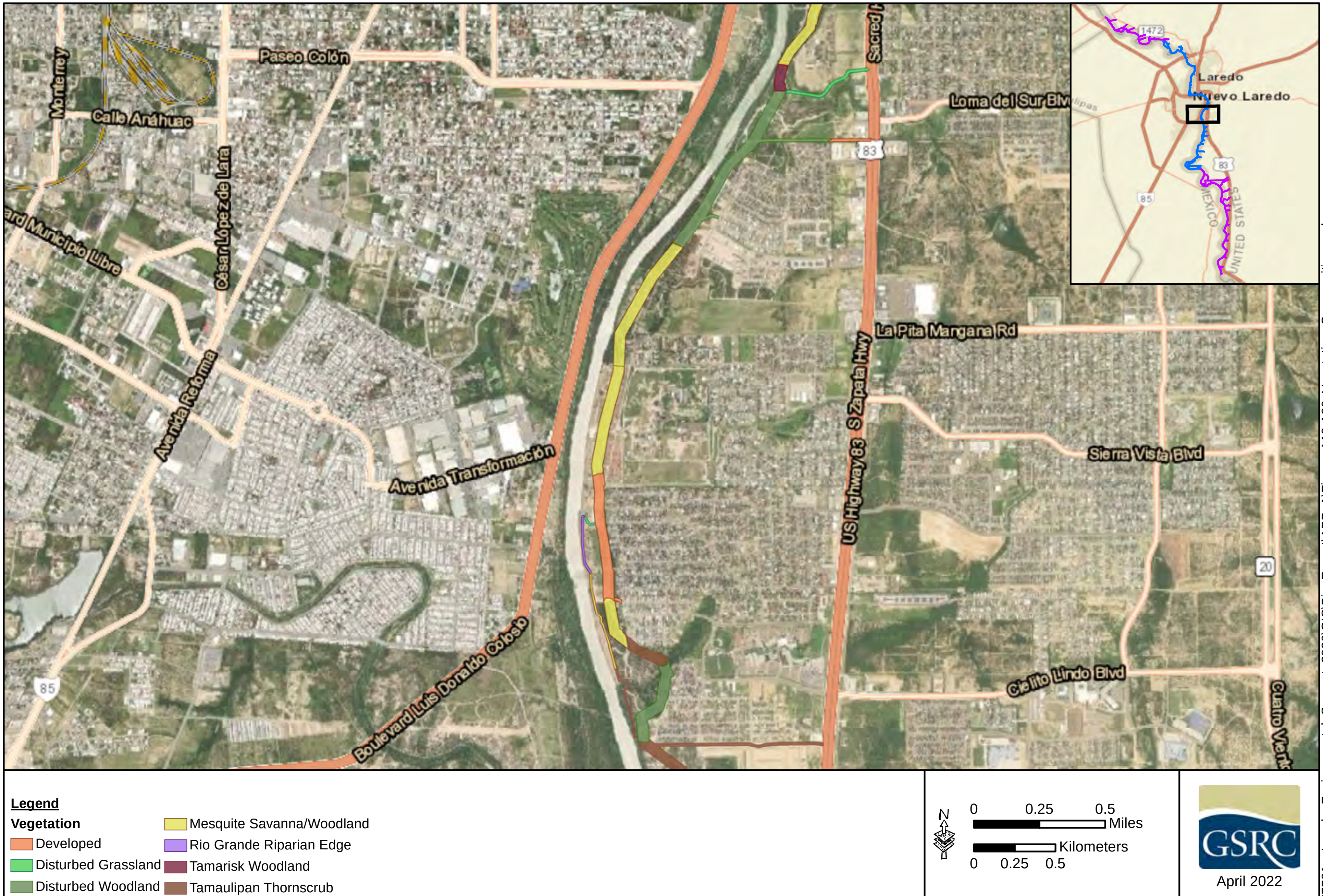
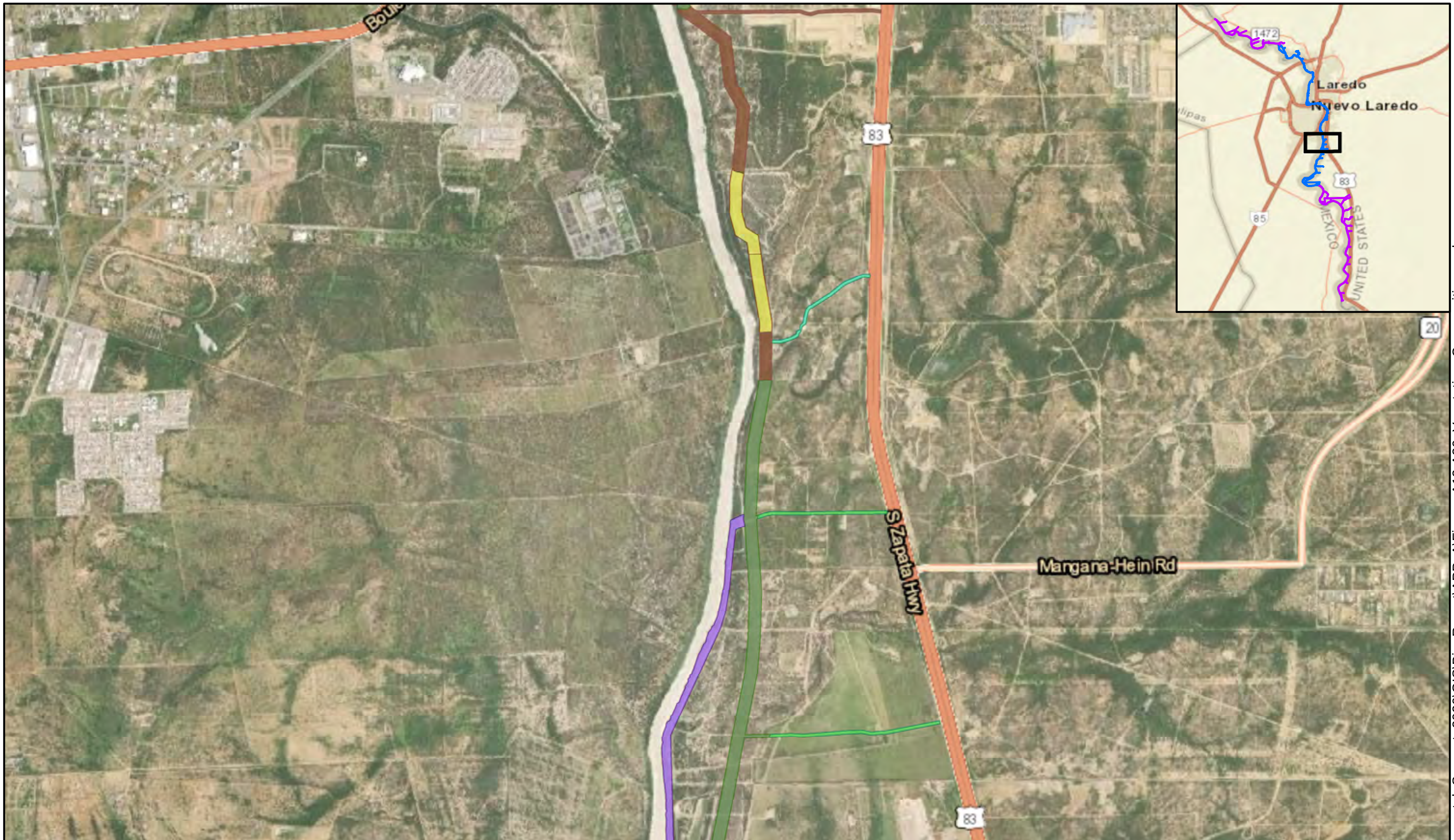


Figure A19. Vegetation Communities - Phase I



Legend

Vegetation

- Creosote Flat
- Disturbed Grassland
- Disturbed Woodland
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge
- Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

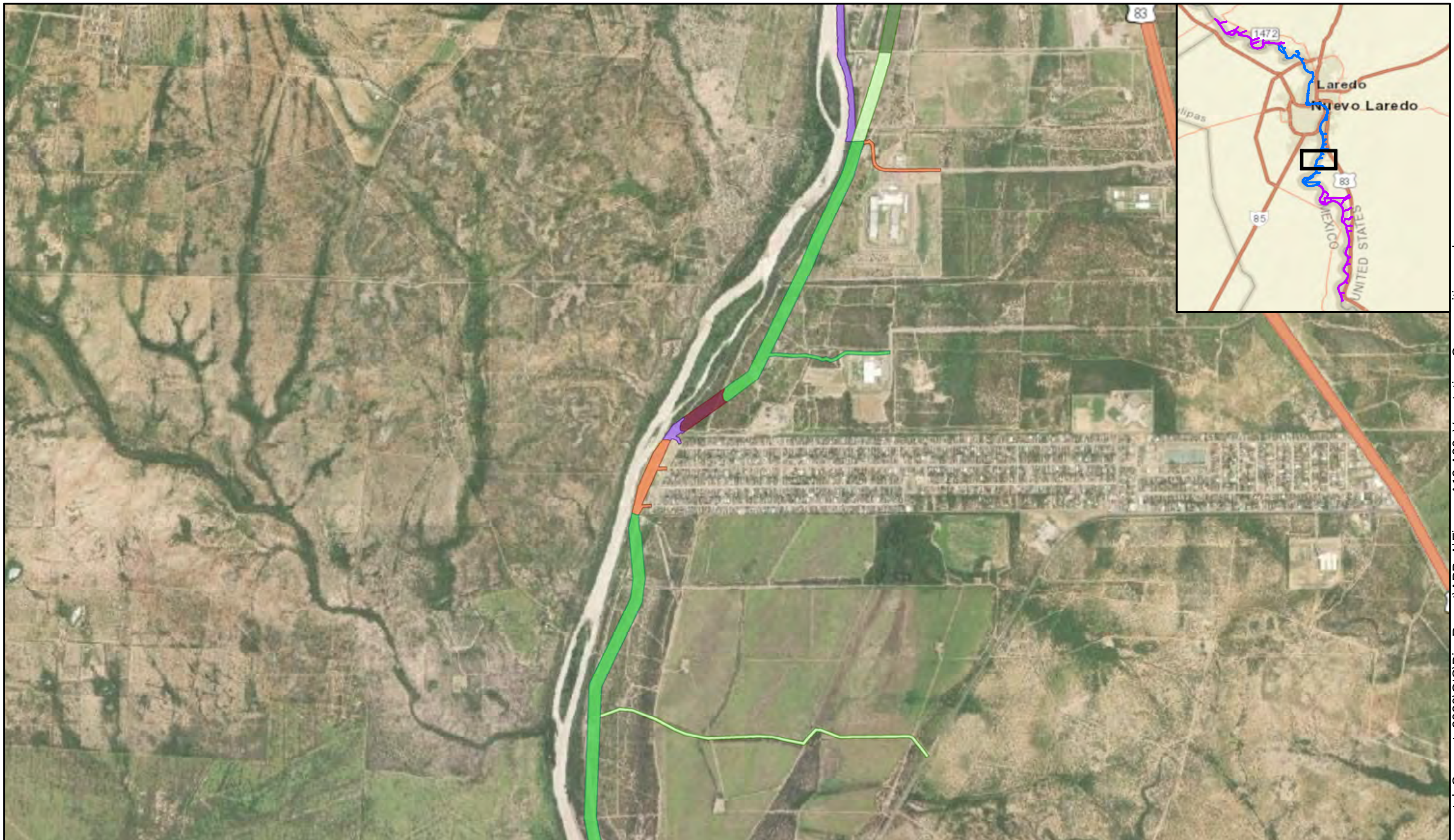
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A20. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

- Agricultural
- Developed
- Disturbed Grassland
- Disturbed Woodland
- Rio Grande Riparian Edge
- Tamarisk Woodland

N

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A21. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd

Legend

Vegetation

- Agricultural
- Disturbed Grassland
- Disturbed Woodland
- Rio Grande Riparian Edge

N

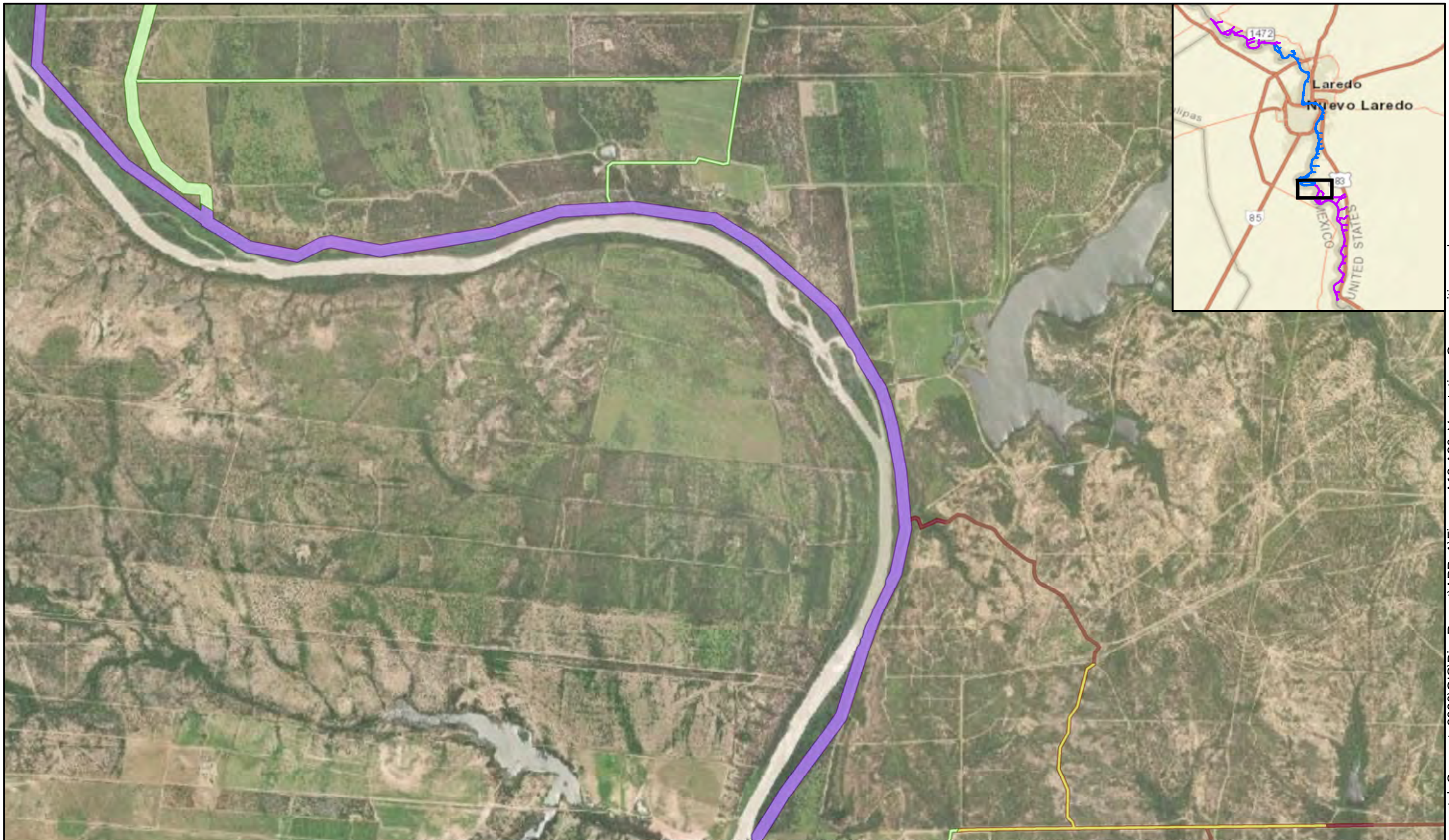
0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

April 2022

Figure A22. Vegetation Communities - Phase I

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

- Agricultural
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge
- Tamarisk Woodland
- Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

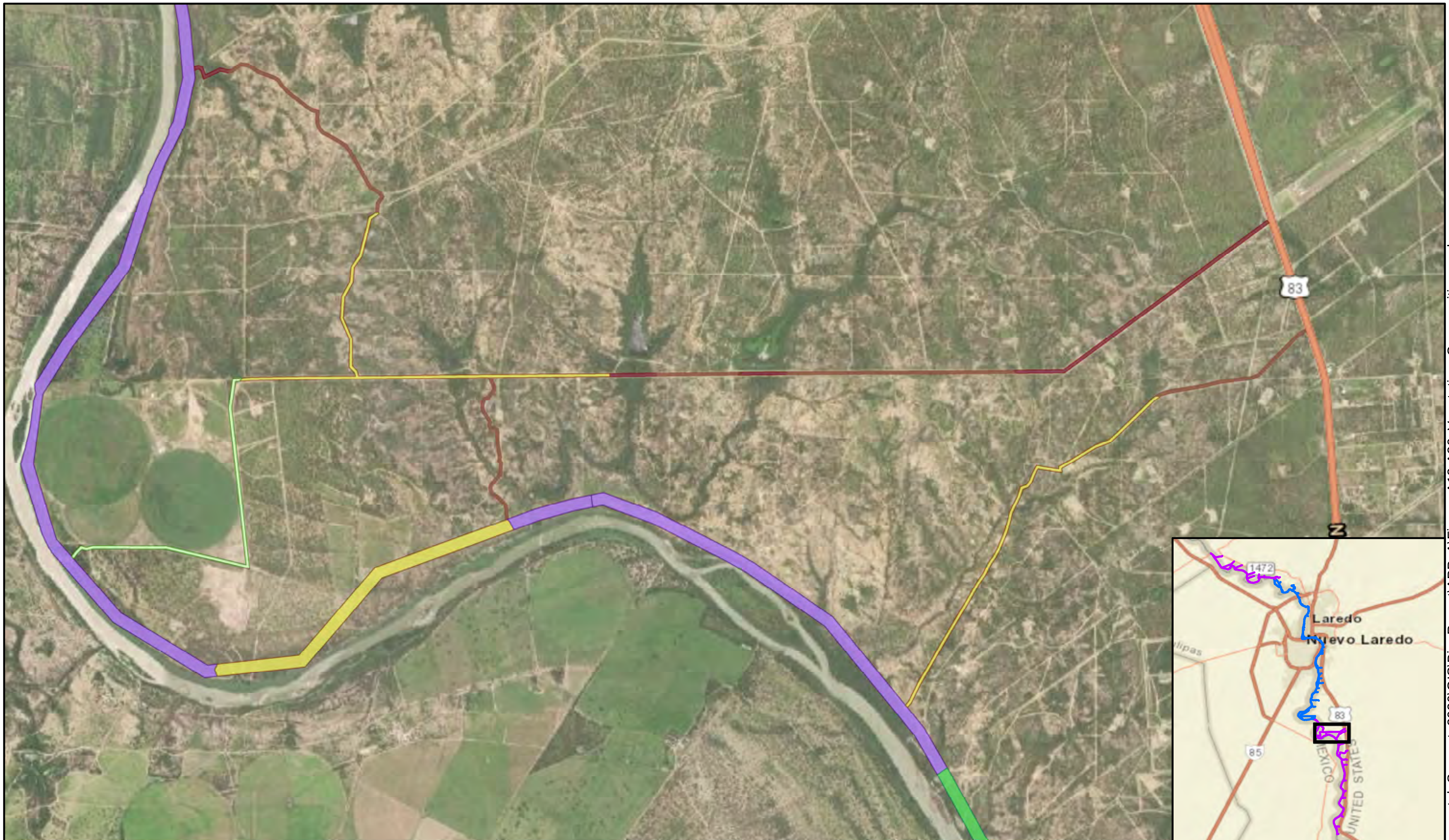
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A23. Vegetation Communities - Phases I and II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

- Agricultural
- Disturbed Grassland
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge
- Tamarisk Woodland
- Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

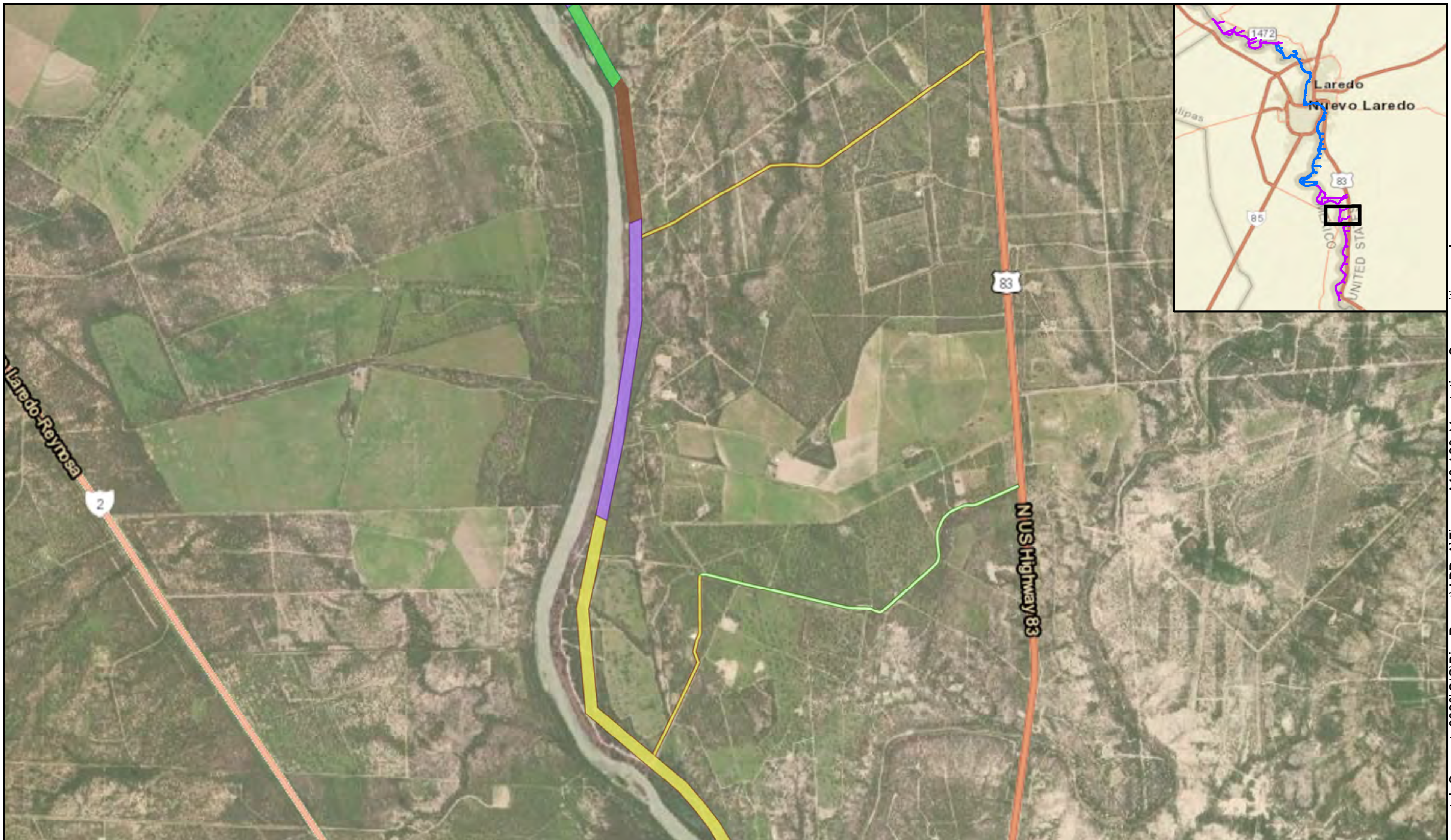
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A24. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

- Agricultural
- Disturbed Grassland
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge
- Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A25. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd

Legend

Vegetation

Disturbed Grassland

Mesquite Savanna/Woodland

Rio Grande Riparian Edge

Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

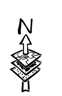
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A26. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

Agricultural

Disturbed Grassland

Mesquite Savanna/Woodland

Tamaulipan Thornscrub

N

0 0.25 0.5 Miles

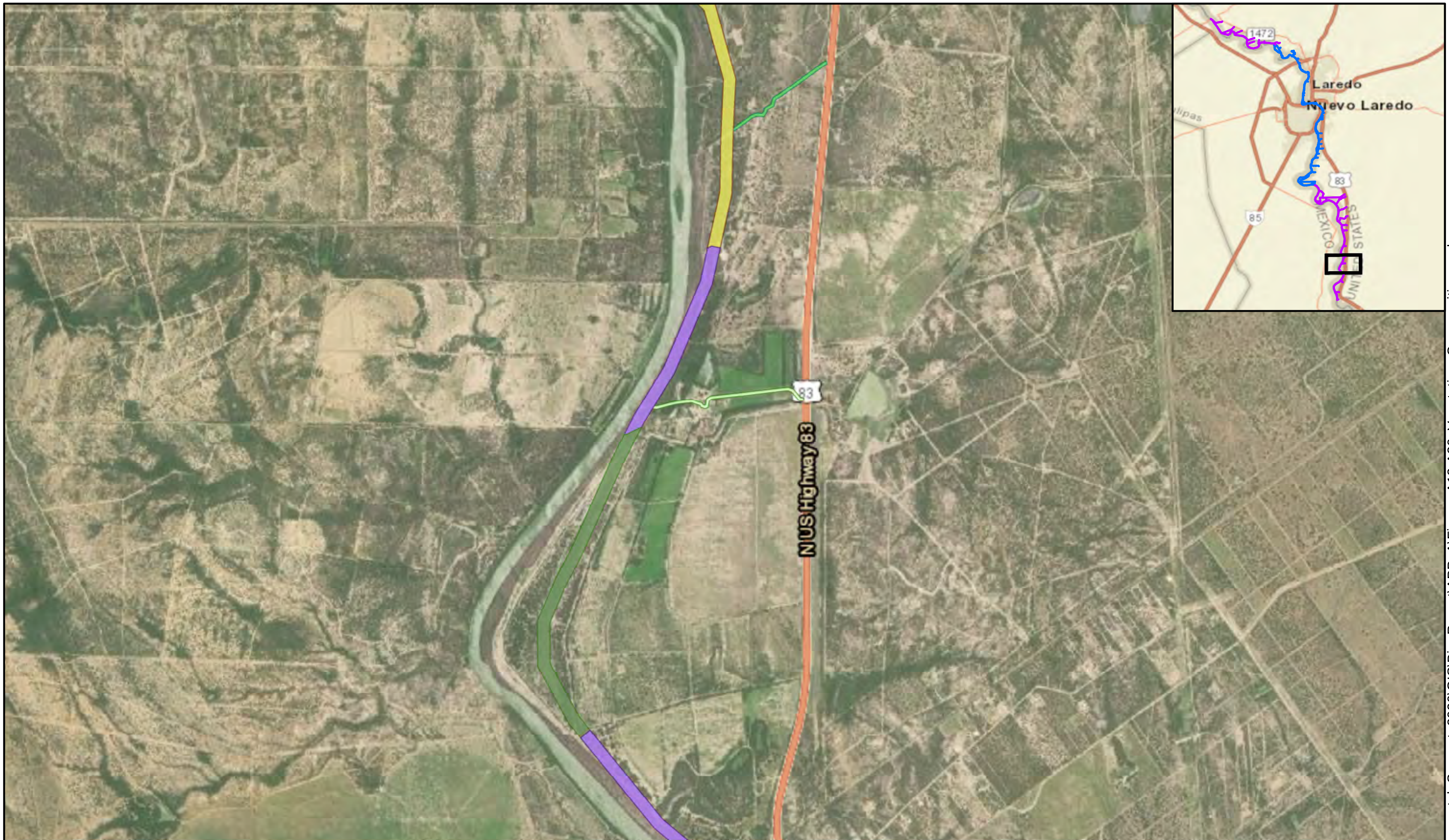
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A27. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

- Agricultural
- Disturbed Grassland
- Disturbed Woodland
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge

N

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A28. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd

Legend

Vegetation

Agricultural

Disturbed Woodland

Rio Grande Riparian Edge

N

0 0.25 0.5 Miles

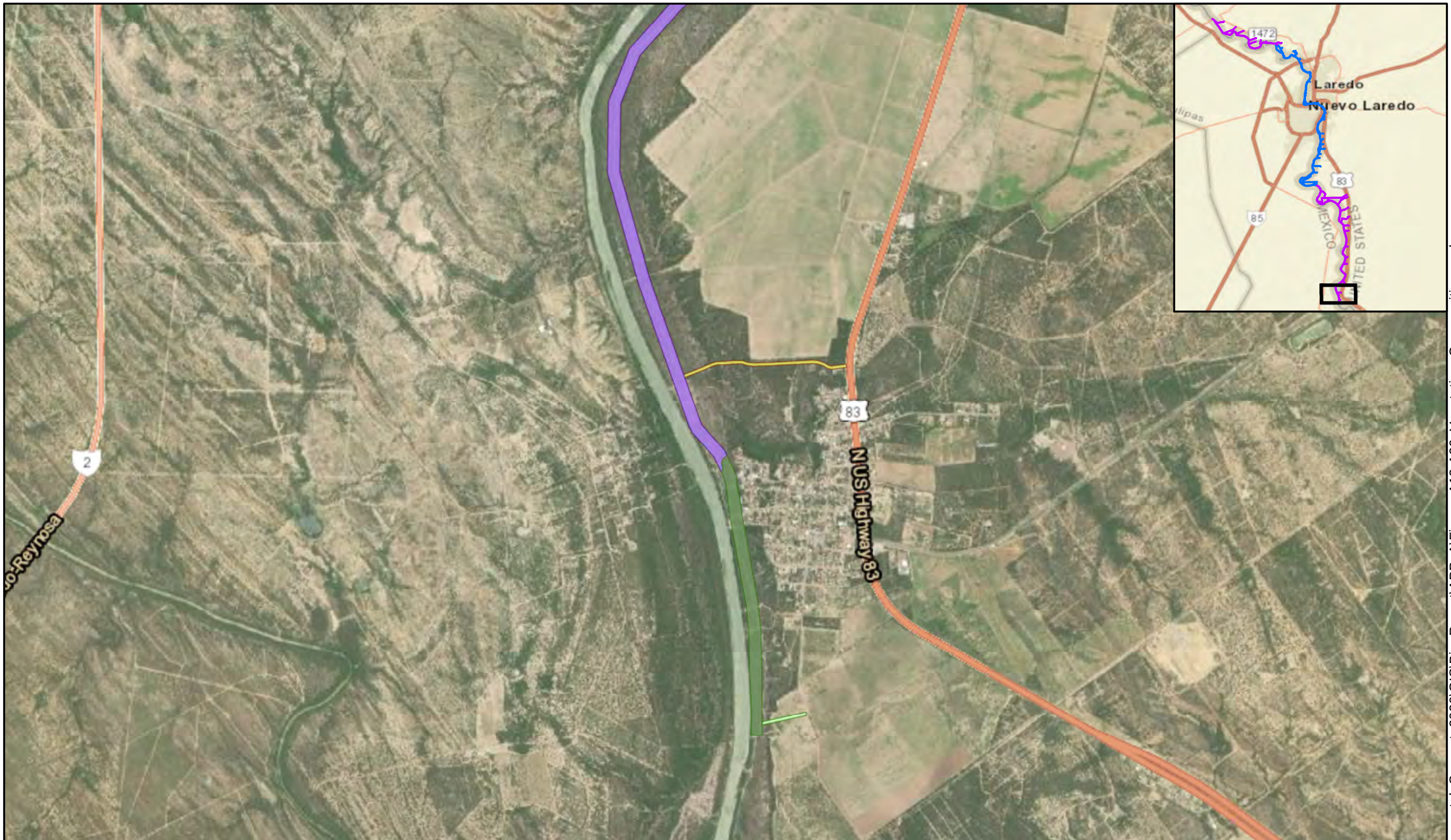
0 0.25 0.5 Kilometers

GSRC

April 2022

Figure A29. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

Vegetation

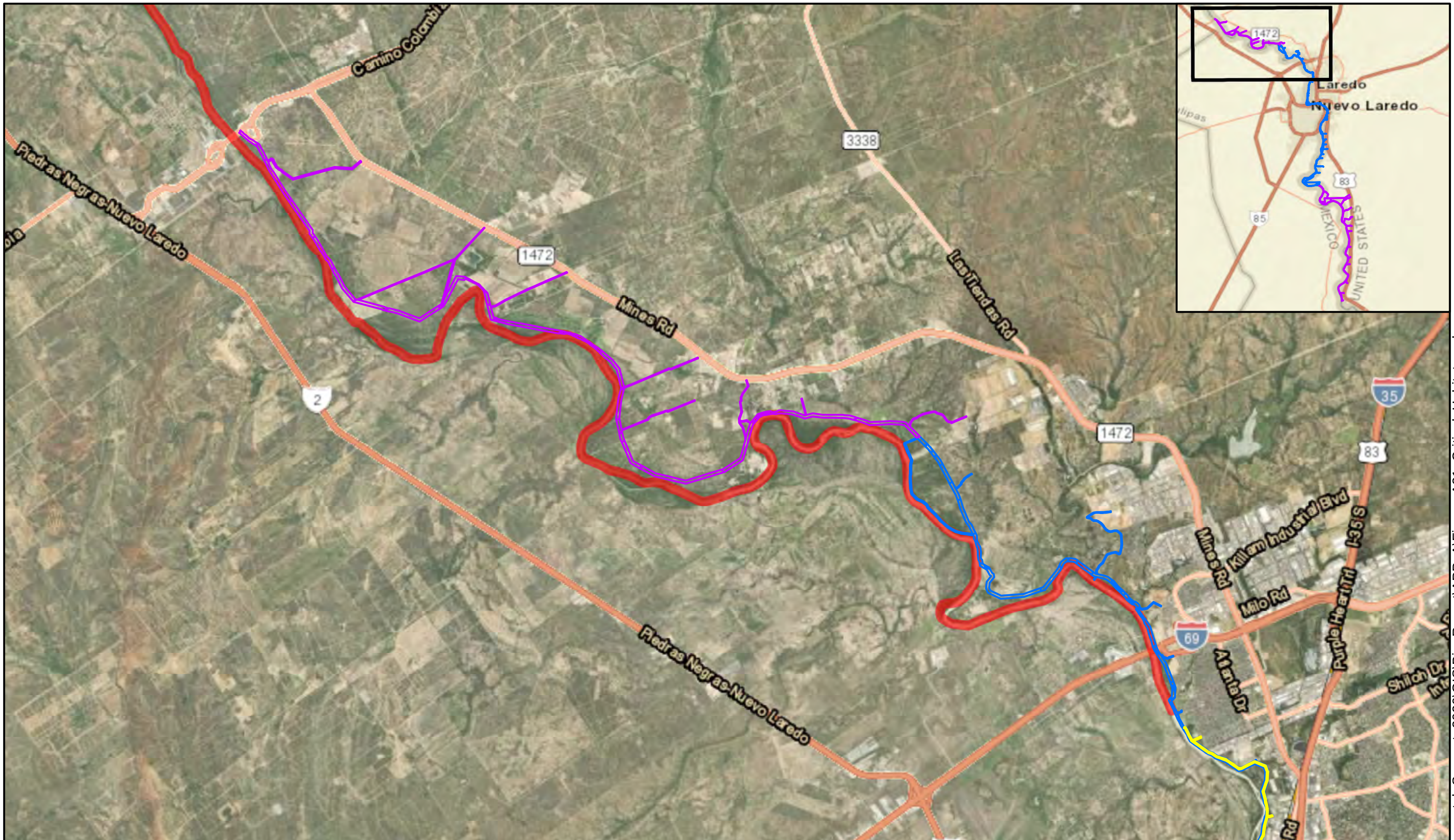
- Agricultural
- Disturbed Woodland
- Mesquite Savanna/Woodland
- Rio Grande Riparian Edge

GSRC

April 2022

Figure A30. Vegetation Communities - Phase II

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA12-A30_Vegetation_Communities.mxd



Legend

- Laredo Roads Corridor (202.2 ac.)
- Phase I (1,093.8 ac.)
- Phase II (1,194.4 ac.)
- Critical Habitat for Texas Hornshell *(Popenaias popeii)*

N

0 1 2 Miles

0 1.5 3 Kilometers

GSRC

April 2022

Figure A31. Texas Hornshell *(Popenaias popeii)* Critical Habitat

K:\Projects\80337701g_Laredo_Environmental_Support_2020\GIS\Bio_Report\APP_A\FiguresA31_Critical_Habitat.mxd

APPENDIX B
TEXAS STATE-LISTED SPECIES AND SPECIES OF GREATEST CONSERVATION NEED FOR WEBB AND ZAPATA COUNTIES

Last Update: 3/17/2022

WEBB COUNTY

AMPHIBIANS

South Texas siren (Large Form) *Siren sp. 1*

Aquatic: Mainly found in bodies of quiet water, permanent or temporary, with or without submergent vegetation. Wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods, but does require some moisture to remain.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: GNRQ State Rank: S1

ARACHNIDS

No accepted common name *Diplocentrus diablo*

Like all species of Diplocentrus, D. diablo is an obligate burrower but may be found under large surface objects in rocky areas of the Rio Grande Valley (Stockwell & Nilsson 1987).

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: GNR State Rank: S2

BIRDS

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5 State Rank: S2N

gray hawk *Buteo plagiatus*

Locally and irregularly along U.S.-Mexico border; mature riparian woodlands and nearby semiarid mesquite and scrub grasslands; breeding range formerly extended north to southernmost Rio Grande floodplain of Texas

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: GNR State Rank: S2B

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: DL: Delisted State Status: SGCN: Removed from Y

Endemic: N Global Rank: G4T3Q State Rank: S1B

WEBB COUNTY

BIRDS

lark bunting *Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (Koeleria), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5 State Rank: S4B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S2

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4T4 State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S4B

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: SHB,S2N

FISH

Rio Grande darter *Etheostoma grahami*

Essentially restricted to the mainstream and spring-fed tributaries of the Rio Grande and the lower Pecos River downstream to the Devils River and Dolan, San Felipe and Sycamore creeks. Gravel and rubble riffles

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G2G3 State Rank: S2

WEBB COUNTY

FISH

Rio Grande shiner *Notropis jemezanus*

Rio Grande drainage. Occurs over substrate of rubble, gravel and sand, often overlain with silt

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G3 State Rank: S1

speckled chub *Macrhybopsis aestivalis*

Found throughout the Rio Grande and lower Pecos River but occurs most frequently between the Río Conchos confluence and the Pecos River. Flowing water over coarse sand and fine gravel substrates in streams; typically found in raceways and runs.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G3G4 State Rank: S1S2

Tamaulipas shiner *Notropis braytoni*

Restricted to the Rio Grande basin in Texas including the lower Pecos River. Typically found in large rivers and creeks associated with a variety of flowng-water habitats such as runs and riffles over gravel, cobble, and sand.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: S1S2

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G3G4 State Rank: SNR

neojuvenile tiger beetle *Cicindela obsoleta neojuvenilis*

Bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas; peak adult activity in Jul

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G5T1 State Rank: SH

No accepted common name *Latineosus cibola*

This species was recently described from Texas in only two localities (a creek and a water treatment plant on a major river) in Val Verde and Webb Cos. (Sun and McCafferty, 2008).

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G1G2 State Rank: SNR

MAMMALS

black bear *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: State Status: T SGCN: Y

WEBB COUNTY

MAMMALS

Endemic: N   Global Rank: G5   State Rank: S3

cave myotis bat   *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status: State Status: SGCN: Y

Endemic: N   Global Rank: G4G5   State Rank: S2S3

Davis pocket gopher   *Geomys personatus davisi*

Burrows in sandy soils in southern Texas

Federal Status: State Status: SGCN: Y

Endemic: Y   Global Rank: G4T2   State Rank: S2

eastern red bat   *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status: State Status: SGCN: Y

Endemic: N   Global Rank: G3G4   State Rank: S4

eastern spotted skunk   *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: State Status: SGCN: Y

Endemic: N   Global Rank: G4   State Rank: S1S3

hoary bat   *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status: State Status: SGCN: Y

Endemic: N   Global Rank: G3G4   State Rank: S4

long-tailed weasel   *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: State Status: SGCN: Y

Endemic: N   Global Rank: G5   State Rank: S5

mountain lion   *Puma concolor*

WEBB COUNTY

MAMMALS

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

ocelot *Leopardus pardalis*

Restricted to mesquite-thorn scrub and live-oak mottes; avoids open areas. Dense mixed brush below four feet; thorny shrublands; dense chaparral thickets; breeds and raises young June-November.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1

southern yellow bat *Lasiurus ega*

Relict palm grove is only known Texas habitat. Neotropical species roosting in palms, forages over water; insectivorous; breeding in late winter. Roosts in dead palm fronds in ornamental palms in urban areas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3S4

Strecker's pocket gopher *Geomys streckeri*

Underground burrows of deep, sandy soils; feed mostly on vegetation; reproductive data not well known, but likely breed year round, with no more than two litters per year

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1Q	State Rank: S1

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

western hog-nosed skunk *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western spotted skunk *Spilogale gracilis*

Brushy canyons, rocky outcrops (rimrock) on hillsides and walls of canyons. In semi-arid brushlands in U.S., in wet tropical forests in Mexico. When inactive or bearing young, occupies den in rocks, burrow, hollow log, brush pile, or under building.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

white-nosed coati *Nasua narica*

WEBB COUNTY

MAMMALS

Woodlands, riparian corridors and canyons.Most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

MOLLUSKS

Mexican fawnsfoot *Truncilla cognata*

Occurs in large rivers but may also be found in medium-sized streams. Is commonly found in habitats with some flowing water, often in protected near shore areas such as banks and backwaters but also at the head of riffles; the latter more often supporting both sub-adults and adults. Typically occurs in substrates of mixed sand and gravel as well as soft unconsolidated sediments. Considered intolerant of reservoirs (Randklev et al. 2017b; Randklev et al. forthcoming). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1

Salina mucket *Potamilus metnecktayi*

Occurs in medium to large rivers, where it may be found in substrates composed of various combinations of mud, sand, gravel, and cobble, as well as under rocks. It occurs in areas with slow to moderate current, most often in stable littoral habitats dominated by boulder or bedrock habitat; not known from reservoirs (Randklev et al. 2017b; Randklev et al. forthcoming). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1

Texas hornshell *Popenaias popeii*

Occurs in small streams to large rivers in slow to moderate current, often residing in rock crevices, travertine shelves, and under large boulders, where small-grained material, such as clay, silt, or sand gathers. Can also occur in riffles that are clean swept of soft silt; not known from reservoirs (Carman 2007; Inoue et al. 2014; Randklev et al. 2017b; Randklev et al. forthcoming). [Mussels of Texas 2019]

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1

REPTILES

mexican hog-nosed snake *Heterodon kennerlyi*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G4	State Rank: SNR

northern cat-eyed snake *Leptodeira septentrionalis septentrionalis*

Terrestrial: Thorn scrub and decidious woodland; dense thickets bordering ponds and streams.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

WEBB COUNTY

REPTILES

reticulate collared lizard *Crotaphytus reticulatus*

Terrestrial: Requires open brush-grasslands; thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils; often on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S4

Rio Grande river cooter *Pseudemys gorzugi*

Aquatic: Habitat includes rivers and their more permanent spring-fed tributary streams, beaver ponds, and stock tanks (Garrett and Barker 1987). Occupied waters may have a muddy, sandy, or rocky bottom, and may or may not contain aquatic vegetation (Degenhardt et al. 1996).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

roundtail horned lizard *Phrynosoma modestum*

This species seems to prefer rocky or gravelly substrates in open areas that are sparsely vegetated.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Tamaulipan spot-tailed earless lizard *Holbrookia subcaudalis*

Terrestrial: Habitats include moderately open prairie-brushland regions, particularly fairly flat areas free of vegetation or other obstructions (e.g., open meadows, old and new fields, graded roadways, cleared and disturbed areas, prairie savanna, and active agriculture including row crops); also, oak-juniper woodlands and mesquite-prickly pear associations (Axtell 1968, Bartlett and Bartlett 1999).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

Texas indigo snake *Drymarchon melanurus erebennus*

Terrestrial: Thornbush-chaparral woodland of south Texas, in particular dense riparian corridors.Can do well in suburban and irrigated croplands. Requires moist microhabitats, such as rodent burrows, for shelter.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T4	State Rank: S4

WEBB COUNTY

REPTILES

Texas tortoise *Gopherus berlandieri*

Terrestrial: Open scrub woods, arid brush, lomas, grass-cactus association; often in areas with sandy well-drained soils. When inactive occupies shallow depressions dug at base of bush or cactus; sometimes in underground burrow or under object. Eggs are laid in nests dug in soil near or under bushes.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4 State Rank: S2

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

western hognose snake *Heterodon nasicus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4

western massasauga *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S3

PLANTS

arrowleaf milkvine *Matelea sagittifolia*

Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July and Dec?

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3 State Rank: S3

ashy dogweed *Thymophylla tephroleuca*

Grasslands with scattered shrubs; most sites on sands or sandy loams on level or very gently rolling topography over Eocene strata of the Laredo Formation; flowering March-May depending to some extent on rainfall

Federal Status: LE State Status: E SGCN: Y
Endemic: Y Global Rank: G2 State Rank: S2

WEBB COUNTY

PLANTS

Buckley's spiderwort *Tradescantia buckleyi*

Occurs on sandy loam or clay soils in grasslands or shrublands underlain by the Beaumont Formation.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

Croft's bluet *Houstonia croftiae*

Occurs in sparsely vegetated areas in grasslands or among shrubs (Carr 2015).

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G3 State Rank: S3

Fitch's hedgehog cactus *Echinocereus reichenbachii var. fitchii*

Grasslands, thorn shrublands, and mesquite-acacia woodlands on sandy, possibly somewhat saline, soils on the coastal prairie. Within these communities, the plants may be most frequently found in open areas that are somewhat sparsely covered with brush of a low stature. Frequently grows at the ecotone where these upland areas meet lower areas dominated by halophytic grasses and forbs; Perennial

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5T3 State Rank: S3

Johnston's frankenia *Frankenia johnstonii*

Dwarf shrublands on strongly saline, highly alkaline, calcareous or gypseous, clayey to sandy soils of valley flats or rocky slopes; mapped soils at many sites are of the Catarina and/or Maverick Series, other mapped soils include Copita, Brennan, Zapata, and Montell series; most sites are underlain by Eocene sandstones and clays of the Jackson Group or the Yegua and Laredo formations; a few are underlain by El Pico clay or the Catahoula and Frio formations shrublands; flowering throughout the growing season depending upon rainfall

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

Kleberg saltbush *Atriplex klebergorum*

Usually occurs in sparsely vegetated saline areas, including flats and draws; in light sandy or clayey loam soils with other halophytes; occasionally observed on scraped oil pad sites; observed flowering in late August-early September, but may vary with rainfall, fruits are usually present in fall; because of its annual nature, populations fluctuate widely from year to year

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G2 State Rank: S2

McCart's whitlow-wort *Paronychia maccartii*

Known only from the type specimen, habitat poorly understood; substrate for type location described as very hard-packed red sand, possibly the Cuevita-Randado Complex, probably occurring in thorn shrubland plant community; based on type specimens presence of flowers and collection date, flowers in March, possibly also in other months and in response to rainfall

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: GH State Rank: SH

WEBB COUNTY

PLANTS

Nickels' cory cactus *Coryphantha nickelsiae*

Limestone outcrops and nearby alluvial or gravelly soils on hills or plains in grasslands or shrublands at low elevations; known sites in Mexico have been described as Chihuahuan Desert scrub; flowering August through September

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G2 State Rank: SH

sand sheet leaf-flower *Phyllanthus abnormis var. riograndensis*

Semi-desert scrub of deep South Texas; Annual; Flowering Feb-July; Fruiting Oct-March

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G5T3 State Rank: S3

shortcrown milkvine *Matelea brevicoronata*

Primarily in grasslands on tight sandy or silty substrates; Perennial; Flowering March-Sept; Fruiting May-Sept

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G3 State Rank: S3

Siler's huaco *Manfreda sileri*

Rare in a variety of grasslands and shrublands on dry sites; Perennial; Flowering April-July; Fruiting June-July

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

South Texas gilia *Gilia ludens*

Occurs in open areas in shrublands on shallow sandy loam over rock outcrops; Perennial; Flowering Dec-April; Fruiting March

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G3 State Rank: S3

South Texas yellow clammyweed *Polanisia erosa ssp. breviglandulosa*

Sand plains of south Texas (Iltis 1958). Flowering early spring-mid fall.

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G5T3T4 State Rank: S3S4

Texas almond *Prunus minutiflora*

Wide-ranging but scarce, in a variety of grassland and shrubland situations, mostly on calcareous soils underlain by limestone but occasionally in sandier neutral soils underlain by granite; Perennial; Flowering Feb-May and Oct; Fruiting Feb-Sept

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G3G4 State Rank: S3S4

WEBB COUNTY

PLANTS

Texas shrimp-plant *Yeatesia platystegia*

Occurs very sparingly in a variety of shrublands and canyon woodlands at widely scattered locations; Perennial; Flowering/Fruiting April-Dec

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3G4 State Rank: S3S4

Texas stonecrop *Lenophyllum texanum*

Found in shrublands on clay dunes (lomas) at the mouth of the Rio Grande and on xeric calcareous rock outcrops at scattered inland sites; Perennial; Flowering/Fruiting Nov-Feb

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

yellow-flowered alicoche *Echinocereus papillosus*

Under shrubs or in open areas on various substrates; Perennial; Flowering Jan-April.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

ZAPATA COUNTY

AMPHIBIANS

Mexican burrowing toad *Rhinophrynus dorsalis*

Terrestrial and aquatic: Low, rolling hills of sand, gravel or thin soil drained by ravines and gullies. Prefers moderate to dense vegetation cover of cactus and thornscrub. Roadside ditches, temporary ponds, arroyos, or wherever loose friable soils are present in which to burrow.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

sheep frog *Hypopachus variolosus*

Terrestrial and aquatic: Predominantly grassland and savanna; largely fossorial in areas with moist microclimates.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

South Texas siren (Large Form) *Siren sp. 1*

Aquatic: Mainly found in bodies of quiet water, permanent or temporary, with or without submergent vegetation. Wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods, but does require some moisture to remain.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNRQ	State Rank: S1

ARACHNIDS

No accepted common name *Diplocentrus diablo*

Like all species of Diplocentrus, D. diablo is an obligate burrower but may be found under large surface objects in rocky areas of the Rio Grande Valley (Stockwell & Nilsson 1987).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2

BIRDS

common black-hawk *Buteogallus anthracinus*

Cottonwood-lined rivers and streams; willow tree groves on the lower Rio Grande floodplain; formerly bred in south Texas

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S2B

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

ZAPATA COUNTY

BIRDS

gray hawk *Buteo plagiatus*

Locally and irregularly along U.S.-Mexico border; mature riparian woodlands and nearby semiarid mesquite and scrub grasslands; breeding range formerly extended north to southernmost Rio Grande floodplain of Texas

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2B

hook-billed kite *Chondrohierax uncinatus*

Dense tropical and subtropical forests, but does occur in open woodlands; uncommon to rare in most of range; accidental in south Texas

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: DL: Delisted	State Status:	SGCN: Removed from Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

lark bunting *Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (Koeleria), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

northern beardless-tyrannulet *Camptostoma imberbe*

Mesquite woodlands; also cottonwood, willow, elm, and tepeguaje near the Rio Grande. Breeding April to July

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B

ZAPATA COUNTY

BIRDS

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4T4 State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S4B

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: SHB,S2N

zone-tailed hawk *Buteo albonotatus*

Arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: S3B

FISH

Rio Grande shiner *Notropis jemezanus*

Rio Grande drainage. Occurs over substrate of rubble, gravel and sand, often overlain with silt

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G3 State Rank: S1

speckled chub *Macrhybopsis aestivalis*

Found throughout the Rio Grande and lower Pecos River but occurs most frequently between the Río Conchos confluence and the Pecos River. Flowing water over coarse sand and fine gravel substrates in streams; typically found in raceways and runs.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G3G4 State Rank: S1S2

ZAPATA COUNTY

FISH

Tamaulipas shiner *Notropis braytoni*

Restricted to the Rio Grande basin in Texas including the lower Pecos River. Typically found in large rivers and creeks associated with a variety of flowng-water habitats such as runs and riffles over gravel, cobble, and sand.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: S1S2

INSECTS

neojuvenile tiger beetle *Cicindela obsoleta neojuvenilis*

Bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas; peak adult activity in Jul

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G5T1 State Rank: SH

No accepted common name *Cenophengus pallidus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: GNR State Rank: SNR

No accepted common name *Callipogonius cornutus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: GNR State Rank: SNR

MAMMALS

black bear *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G5 State Rank: S3

cave myotis bat *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G4G5 State Rank: S2S3

ZAPATA COUNTY

MAMMALS

Davis pocket gopher *Geomys personatus davisi*

Burrows in sandy soils in southern Texas

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G4T2	State Rank: S2

eastern red bat *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

ZAPATA COUNTY

MAMMALS

ocelot *Leopardus pardalis*

Restricted to mesquite-thorn scrub and live-oak mottes; avoids open areas. Dense mixed brush below four feet; thorny shrublands; dense chaparral thickets; breeds and raises young June-November.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1

southern yellow bat *Lasiurus ega*

Relict palm grove is only known Texas habitat. Neotropical species roosting in palms, forages over water; insectivorous; breeding in late winter. Roosts in dead palm fronds in ornamental palms in urban areas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3S4

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

western hog-nosed skunk *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western spotted skunk *Spilogale gracilis*

Brushy canyons, rocky outcrops (rimrock) on hillsides and walls of canyons. In semi-arid brushlands in U.S., in wet tropical forests in Mexico. When inactive or bearing young, occupies den in rocks, burrow, hollow log, brush pile, or under building.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

white-nosed coati *Nasua narica*

Woodlands, riparian corridors and canyons.Most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

ZAPATA COUNTY

MOLLUSKS

Mexican fawnsfoot *Truncilla cognata*

Occurs in large rivers but may also be found in medium-sized streams. Is commonly found in habitats with some flowing water, often in protected near shore areas such as banks and backwaters but also at the head of riffles; the latter more often supporting both sub-adults and adults. Typically occurs in substrates of mixed sand and gravel as well as soft unconsolidated sediments. Considered intolerant of reservoirs (Randklev et al. 2017b; Randklev et al. forthcoming). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G1 State Rank: S1

No accepted common name *Praticolella trimatris*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G2 State Rank: S2

Salina mucket *Potamilus metnecktayi*

Occurs in medium to large rivers, where it may be found in substrates composed of various combinations of mud, sand, gravel, and cobble, as well as under rocks. It occurs in areas with slow to moderate current, most often in stable littoral habitats dominated by boulder or bedrock habitat; not known from reservoirs (Randklev et al. 2017b; Randklev et al. forthcoming). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G1 State Rank: S1

Texas hornshell *Popenaias popeii*

Occurs in small streams to large rivers in slow to moderate current, often residing in rock crevices, travertine shelves, and under large boulders, where small-grained material, such as clay, silt, or sand gathers. Can also occur in riffles that are clean swept of soft silt; not known from reservoirs (Carman 2007; Inoue et al. 2014; Randklev et al. 2017b; Randklev et al. forthcoming). [Mussels of Texas 2019]

Federal Status: LE State Status: E SGCN: Y

Endemic: N Global Rank: G1 State Rank: S1

REPTILES

mexican hog-nosed snake *Heterodon kennerlyi*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: N

Endemic: Global Rank: G4 State Rank: SNR

reticulate collared lizard *Crotaphytus reticulatus*

Terresstrial: Requires open brush-grasslands; thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils; often on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S4

ZAPATA COUNTY

REPTILES

Rio Grande river cooter *Pseudemys gorzugi*

Aquatic: Habitat includes rivers and their more permanent spring-fed tributary streams, beaver ponds, and stock tanks (Garrett and Barker 1987). Occupied waters may have a muddy, sandy, or rocky bottom, and may or may not contain aquatic vegetation (Degenhardt et al. 1996).

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3G4 State Rank: S2

roundtail horned lizard *Phrynosoma modestum*

This species seems to prefer rocky or gravelly substrates in open areas that are sparsely vegetated.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5 State Rank: S5

Tamaulipan spot-tailed earless lizard *Holbrookia subcaudalis*

Terrestrial: Habitats include moderately open prairie-brushland regions, particularly fairly flat areas free of vegetation or other obstructions (e.g., open meadows, old and new fields, graded roadways, cleared and disturbed areas, prairie savanna, and active agriculture including row crops); also, oak-juniper woodlands and mesquite-prickly pear associations (Axtell 1968, Bartlett and Bartlett 1999).

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: GNR State Rank: S2

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4G5 State Rank: S3

Texas indigo snake *Drymarchon melanurus erebennus*

Terrestrial: Thornbush-chaparral woodland of south Texas, in particular dense riparian corridors.Can do well in suburban and irrigated croplands. Requires moist microhabitats, such as rodent burrows, for shelter.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5T4 State Rank: S4

Texas tortoise *Gopherus berlandieri*

Terrestrial: Open scrub woods, arid brush, lomas, grass-cactus association; often in areas with sandy well-drained soils. When inactive occupies shallow depressions dug at base of bush or cactus; sometimes in underground burrow or under object. Eggs are laid in nests dug in soil near or under bushes.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4 State Rank: S2

ZAPATA COUNTY

REPTILES

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5 State Rank: S3

PLANTS

arrowleaf milkvine *Matelea sagittifolia*

Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July and Dec?

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

ashy dogweed *Thymophylla tephroleuca*

Grasslands with scattered shrubs; most sites on sands or sandy loams on level or very gently rolling topography over Eocene strata of the Laredo Formation; flowering March-May depending to some extent on rainfall

Federal Status: LE State Status: E SGCN: Y

Endemic: Y Global Rank: G2 State Rank: S2

Burridge greenthread *Thelesperma burridgeanum*

Sandy open areas; Annual; Flowering March-Nov; Fruiting March-June

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G3 State Rank: S3

Chihuahua balloon-vine *Cardiospermum dissectum*

Thorn shrublands or low woodlands on well to excessively well drained, calcareous, sandy to gravelly soils in drier uplands of the Lower Rio Grande Valley, in areas underlain by the Goliad formation, Catahoula and Frio formations undivided, Jackson Group, and other Eocene formations; during drought conditions the normally inconspicuous slender twining vine turns a more conspicuous deep reddish-purple; flowering (April-) July-September, probably throughout the growing season in response to rainfall.

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

Correll's bluet *Houstonia correllii*

Sandy soils in grasslands with scattered shrubs or in mesquite savannas; does not occur in disturbed sandy areas or in improved pastures; flowering March, other months unknown

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G1 State Rank: S1

ZAPATA COUNTY

PLANTS

Correll's false dragon-head *Physostegia correllii*

Wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G2 State Rank: S2

Croft's bluet *Houstonia croftiae*

Occurs in sparsely vegetated areas in grasslands or among shrubs (Carr 2015).

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G3 State Rank: S3

Fitch's hedgehog cactus *Echinocereus reichenbachii var. fitchii*

Grasslands, thorn shrublands, and mesquite-acacia woodlands on sandy, possibly somewhat saline, soils on the coastal prairie. Within these communities, the plants may be most frequently found in open areas that are somewhat sparsely covered with brush of a low stature. Frequently grows at the ecotone where these upland areas meet lower areas dominated by halophytic grasses and forbs; Perennial

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G5T3 State Rank: S3

Johnston's frankenia *Frankenia johnstonii*

Dwarf shrublands on strongly saline, highly alkaline, calcareous or gypseous, clayey to sandy soils of valley flats or rocky slopes; mapped soils at many sites are of the Catarina and/or Maverick Series, other mapped soils include Copita, Brennan, Zapata, and Montell series; most sites are underlain by Eocene sandstones and clays of the Jackson Group or the Yegua and Laredo formations; a few are underlain by El Pico clay or the Catahoula and Frio formations shrublands; flowering throughout the growing season depending upon rainfall

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G3 State Rank: S3

Kleberg saltbush *Atriplex klebergorum*

Usually occurs in sparsely vegetated saline areas, including flats and draws; in light sandy or clayey loam soils with other halophytes; occasionally observed on scraped oil pad sites; observed flowering in late August-early September, but may vary with rainfall, fruits are usually present in fall; because of its annual nature, populations fluctuate widely from year to year

Federal Status: State Status: SGCN: Y

Endemic: Y Global Rank: G2 State Rank: S2

prostrate milkweed *Asclepias prostrata*

Grasslands or openings in shrublands on loamy fine sands and fine sandy loams of the Copita, Hebbronville, and possibly other soil series occurring over the Laredo, Yegua, and other Eocene formations; also in Loreto caliche sand plain in Tamaulipas; flowering April-October, but may be sporadic and dependent on rainfall

Federal Status: State Status: SGCN: Y

Endemic: N Global Rank: G1G2 State Rank: S1

ZAPATA COUNTY

PLANTS

sand sheet leaf-flower *Phyllanthus abnormis var. riograndensis*

Semi-desert scrub of deep South Texas; Annual; Flowering Feb-July; Fruiting Oct-March

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T3	State Rank: S3

shortcrown milkvine *Matelea brevicoronata*

Primarily in grasslands on tight sandy or silty substrates; Perennial; Flowering March-Sept; Fruiting May-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

South Texas yellow clammyweed *Polanisia erosa ssp. breviglandulosa*

Sand plains of south Texas (Iltis 1958). Flowering early spring-mid fall.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T3T4	State Rank: S3S4

St. Joseph's staff *Manfreda longiflora*

Thorn shrublands on clays and loams with various concentrations of salt, caliche, sand, and gravel; rossettes are often obscured by low shrubs; flowering September-October

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2

star cactus *Astrophytum asterias*

Gravelly clays or loams, possibly of the Catarina Series (deep, droughty, saline clays), over the Catahoula and Frio formations, on gentle slopes and flats in sparsely vegetated openings between shrub thickets within mesquite grasslands or mesquite-blackbrush thorn shrublands; plants sink into or below ground during dry periods; flowering from mid March-May, may also flower in warmer months after sufficient rainfall, flowers most reliably in early April; fruiting mid April-June

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

stinking rushpea *Pomaria austrotexana*

In open areas on deep well drained sands; Perennial; Flowering Feb-Oct; Fruiting April-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

woolly butterfly-weed *Gaura villosa ssp. parksii*

Flats and hills of red sand of Rio Grande Plains (Raven and Gregory 1972). April-Oct.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T3	State Rank: S3

Zapata bladderpod *Physaria thamnophila*

ZAPATA COUNTY

PLANTS

Open, thorn shrublands on shallow, well-drained sandy loams and sandstone outcrops of Eocene origin, including the Jackson Group and Yegua and Laredo formations; the known sites soils are mapped as Zapata, Maverick, Catarina, or Copita Series; flowering usually February-April, but also summer or fall depending on rainfall

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1S2

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APPENDIX F

Supplemental Biological Resources Data

APPENDIX F

Supplemental Biological Resource Data

Field Survey Methodology

Surveys were conducted from December 1, 2020 through March 8, 2022 along an 100-foot-wide, 17-mile road corridor to document plant and vegetation communities present within the survey area and assess potential habitat for special status species. Habitat conditions observed in the survey area were used to evaluate the potential for occurrence of special status species based on these surveys and the professional evaluation of the investigating biologists. The potential for each special status species to occur in the survey area was then evaluated according to the following criteria:

- *No Potential*. Habitat on and adjacent to the site is clearly unsuitable for the species' requirements.
- *Unlikely.* The species is not likely to be found on the site because few of the required habitat components are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.
- *Moderate Potential*. Some of the habitat components meeting the species' requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable.
- *High Potential*. Most or all habitat components meeting the species' requirements are present and/or most of the habitat on or adjacent to the site is highly suitable.
- *Present.* The species was observed on the site or has been documented recently as being on the site.

Federal- and State-Listed Species with the Potential to Occur in the Survey Area

Species listed as threatened or endangered under the ESA as well as all designated critical habitat that could be affected by the Proposed Action are discussed in this section. A list of potential threatened, endangered and candidate species was compiled from U.S. Fish and Wildlife Service (USFWS) and TPWD (**Table F-1**). The USFWS maintains a list of Federal threatened, endangered and candidate species and tracks population recovery or decline. TPWD maintains a similar list of species defined at the state level and tracks the status of species populations on that list to help prevent extinction. Any species listed as a Federal or state candidate species is assessed in this analysis as if it has already been listed as threatened or endangered.

- **Table F-1. Federal- and State-Listed Species with the Potential to Occur in the Survey Area**

Taxon	Common Name	Scientific Name	Federal Status	State Status
Plants	Ashy dogweed	*Thymophylla tephroleuca*	FE	
Plants	Zapata bladderpod	*Physaria thamnophila*	FE	
Mollusks	Mexican fawnsfoot	*Truncilla cognata*		ST
Mollusks	Salina mucket	*Potamilus metnecktayi*		ST
Mollusks	Texas hornshell	*Popenaias popeii*	FE	SE
Insects	Monarch butterfly	*Danaus plexippus*	C	
Fish	Rio Grande darter	*Etheostoma grahami*		ST
Fish	Rio Grande shiner	*Notropis jemenzanus*		ST
Fish	Speckled chub	*Macrhybopsis aestivalis*		ST
Fish	Tamaulipas shiner	*Notropis braytoni*		ST
Amphibians	South Texas siren (large form)	*Siren* sp. 1		ST
Reptiles	Texas horned lizard	*Phrynosoma cornutum*		ST
Reptiles	Texas tortoise	*Gopherus berlandieri*		ST
Birds	Gray hawk	*Buteo plagiatus*		ST
Birds	Piping plover*	*Charadrius melodus*	FT	ST
Birds	Red Knot*	*Calidris canutus rufa*	FT	ST
Birds	White-face ibis	*Plegadis chihi*		ST
Birds	White-tailed hawk	*Buteo albicaudatus*		ST
Birds	Wood stork	*Mycteria americana*		ST
Mammals	Gulf Coast Jaguarundi	*Puma yagouaroundi cacomitli*	FE	SE
Mammals	Ocelot	*Leopardus pardalis*	FE	SE
Mammals	White-nosed coati	*Nasua narica*		ST

Key: * Excluded from affected environment discussion as these species only need to be considered in the planning process for wind related projects within the migratory route (USFWS 2022).
FE: Federal Endangered
FT: Federal Threatened
C: Federal Candidate
ST: State-Threatened
SE: State-Endangered

Native vegetation. As displayed in **Figures F-1 through F-7**, a total of 9.23 acres of Tamaulipan thornscrub vegetation community was mapped in the survey area. The Tamaulipan thornscrub community is composed of stiff, xerophytic, evergreen plant species growing in dense, thorny thickets. This is the typical vegetation community found in the Lower Rio Grande Valley (LRGV) on alluvial and mesic soils. The vegetation community can be further subdivided into chaparral thornscrub and mexquital woodland vegetation communities (Jahrsdoerfer and Leslie 1988). Dominant species found in Tamaulipan thornscrub in the survey area include blackbrush acacia (*Vachellia rigidula*), honey mesquite (*Prosopis glandulosa*), spiny hackberry (*Celtis ehrenbergiana*), and quaiacum (*Guaiacum angustifolium*) in the woody overstory, cenizo (*Leucophyllum frutescens*), lotebush (*Ziziphus obtusifolia*), Texas prickly pear (*Opuntia englemannii)*, and Christmas cholla (*Cylindropuntia leptocaulis*) in the shrubby understory. The dense, thorny vegetation cover of this community provides suitable habitat for a rich diversity of wildlife.

Mesquite savanna/woodland is an open grassland-like bosque with scattered honey mesquite and Texas ebony (*Ebenopsis ebano*) trees with an understory of grasses and forbs. This community superficially resembles the Tamaulipan thronscrub vegetation community but with a more prominent grassland understory and sparser tree and shrub cover. A total of 150.33 acres of Mesquite savanna/woodland vegetation community was mapped in the survey area. Cattle grazing has disturbed this vegetation community to the extent that much of the historic curly mesquite grass (*Hilaria belangeri*) populations have been replaced by non-native buffelgrass (*Cenchrus ciliaris*), and Guinea grass (*Urochloa maxima*), and brush and cactus now encroach into the community. Honey mesquite dominates the overstory of the community with occasional Texas ebony trees, while desert olive (*Forestiera angustifolia*) and lotebush are present in shrub stands. This vegetation community provides a moderate level of value as wildlife habitat, but its value is ultimately dependent on the successional stage of the habitat patch.

Non-native Vegetation. Tamarisk woodland vegetation community was mapped in 7.71 acres of the survey area. Tamarisk woodland is a predominantly non-native vegetation community consisting of mixed woodland species dominated by invasive Tamarisk (*Tamarix aphylla*). This vegetation community is typically found in mesic or riparian zones and can resemble Rio Grande riparian edge communities dominated by the tamarisk. Other woodland species found in the Tamarisk woodland include retama (*Parkinsonia aculeata*), spiny hackberry, and sugarberry (*Celtis laevigata*).

Disturbed woodland communities were mapped over 17.28 acres of the survey area and is distinguished by woodland vegetation with a significant level of current or historic disturbance. Native and non-native species can be found in this degraded vegetation community and include honey mesquite, sugarberry, spiny hackberry tamarisk and Texas ebony.

Maintained vegetation consists of mowed grass vegetation and low intensity developments that include features like parks. Maintained vegetation was mapped over 8.11 acres of the survey area and support urban-adapted wildlife at a greater degree than more heavily developed areas.

Developed areas are a land cover designation dominated by anthropogenic structures, including buildings, parking lots, roads, and other paved areas. Developed areas were mapped on 8.0 acres of the survey area.

Local Special Status Plant Species. Special status plant species include those that are listed as endangered or threatened at the Federal or state level, and TPWD species of greatest conservation need (SGCN). Texas Parks and Wildlife Department lists 19 special status plant species occurring in Webb County, Texas (TPWD 2020, 2022). One special status plant species was observed in the survey area, Fitch's hedgehog cactus (*Echinocereus reichenbachii* ssp. *fitchii*), which is a TPWD SGCN, but not a Federal- or state-listed species.

Terrestrial and Aquatic Wildlife Species. The proposed survey area can support a variety of terrestrial wildlife, including reptiles, amphibians, birds, mammals, insects and mollusks. Texas Parks and Wildlife Department list 46 species of terrestrial wildlife in Webb County as sensitive at the level of state-listed threatened or endangered, or SCGN (TPWD 2020, 2022, **Table F-2**).

Biological surveys documented 147 species of wildlife and 17 sensitive wildlife species (TPWD 2020, CBP 2022a) in the survey area (**Table F-2**). These species included three state-listed threatened species: Texas tortoise (*Gopherus berlandieri)*, gray hawk (*Buteo plagiatus)*, and white-tailed hawk (*Buteo albicaudatus*). The other 14 species are considered SGCN by TPWD.

Table F-2. Terrestrial Special Status Species of Webb County, Texas

Common Name	Species Name	Status	Observed During Surveys
Arachnids			
No accepted common name	*Diplocentrus diablo*	SGCN	
Insects			
American bumblebee	*Bombas pensylvanicus*	SGCN	
Neojuvenile tiger beetle	*Cicindela obsolete neojuvenilis*	SGCN	
No accepted common name	*Latineosus cibola*	SGCN	
Mollusks			
Hidalgo scrubsnail	*Praticolella trimatris*	SGCN	
Birds			
American white pelican	*Pelecanus erythrorhynchos*	SGCN	X
Cassin's sparrow	*Peucaea cassinii*	SGCN	X
Common yellowthroat	*Geothlypis trichas*	SGCN	X
Field sparrow	*Spizella pusilla*	SGCN	X
Franklin's gull	*Leucophaeus pipixcan*	SGCN	
Gray hawk	*Buteo plagiatus*	ST, SGCN	X
Green heron	*Butorides virescens*	SGCN	X
Green parakeet	*Psittacara holochlorus*	SGCN	X
Harris's hawk	*Parabuteo unicinctus*	SGCN	X
Lark bunting	*Calamospiza melanocorys*	SGCN	
Loggerhead shrike	*Lanius ludovicianus*	SGCN	X
Mountain plover	*Charadrius montanus*	SGCN	
Northern harrier	*Circus hudsonius*	SGCN	X
Scaled quail	*Callipepla squamata*	SGCN	X
Snowy egret	*Egretta thula*	SGCN	X
Swainson's hawk	*Buteo swainsoni*	SGCN	X
Rio Grande wild turkey	*Meleagris gallopavo intermedia*	SGCN	X
Western burrowing owl	*Athene cunicularia hypungaea*	SGCN	
White-faced ibis	*Plegadis chihi*	ST, SGCN	
White-tailed hawk	*Geranoaetus albicaudatus*	ST, SGCN	X
Wood stork	*Mycteria americana*	ST, SGCN	
Insects			
American bumblebee	*Bombas pensylvanicus*	SGCN	
Neojuvenile tiger beetle	*Cicindela obsolete neojuvenilis*	SGCN	
No accepted common name	*Latineosus cibola*	SGCN	
Mammals			

Common Name	Species Name	Status	Observed During Surveys
Cave myotis	*Myotis velifer*	SGCN	
Davis pocket gopher	*Geomys personatus davisis*	SGCN	
Eastern red bat	*Lasiurus borealis*	SGCN	
Eastern spotted skunk	*Spilogale putorius*	SGCN	
Hoary bat	*Lasiurus cinereus*	SGCN	
Long-tailed weasel	*Mustela frenata*	SGCN	
Ocelot	*Leopardus pardalis*	FE, SE, SGCN	
Southern yellow bat	*Lasiurus ega*	SGCN	
Strecker's pocket gopher	*Geomys streckeri*	SGCN	
Tricolored bat	*Perimyotis subflavus*	SGCN	
Western hog-nosed skunk	*Conepatus leuconotus*	SGCN	
Western spotted skunk	*Spilogale gracilis*	SGCN	
White-nosed coati	*Nasua narica*	ST, SGCN	
Reptiles			
Reticulate collared lizard	*Crotaphytus reticulatus*	SGCN	
Rio Grande river cooter	*Pseudemys gorzugi*	SGCN	
Roundtail horned lizard	*Phrynosoma modestrum*	SGCN	
Tamaulipan spot-tailed earless lizard	*Holbrookia subcaudalis*	SGCN	
Texas horned lizard	*Phrynosoma cornutum*	ST, SGCN	
Texas indigo snake	*Drymarchon melanurus erebennus*	SGCN	X
Texas tortoise	*Gopherus berlandieri*	ST, SGCN	X
Western box turtle	*Terrapene ornate*	SGCN	

Key: FE: Federal Endangered
ST: State-Threatened
SE: State-Endangered
SGCN: Species of Greatest Conservation Need

Special Status Terrestrial Species. One SGCN reptile, Texas indigo snake (*Dymarchon melanurus erebennus*), was noted during surveys. The Texas indigo snake inhabits thornbrush-chaparral woodlands of south Texas, preferring dense riparian corridors, but can also be found in irrigated croplands or urban habitats. They shelter in moist areas, like rodent burrows. Suitable habitat for Texas indigo snakes in the survey area include Tamaulipan thornscrub, mesquite savanna/woodland, tamarisk woodland, disturbed woodland, and irrigated portions of maintained vegetation.

Fourteen species of birds listed as SGCN by TPWD were observed during surveys (**Table F-1**), including Swainson's hawk (*Buteo swainsoni*), green heron (*Butorides virescens*), scaled quail (*Callipepla squamata*), northern harrier (*Circus hudsonius*), snowy egret (*Egretta thula*), American kestrel (Falcon sparverius), common yellowthroat (*Geothlypis trichas*), loggerhead shrike (*Lanius ludovicianus*), Rio Grande wild turkey (Meleagris gallopavo intermedia), Harris's hawk (*Parabuteo unicinctus*), American white pelican (*Pelecanus erythrorhynchos*), Cassin's sparrow (*Peucaea cassinii*), green parakeet (*Psittacara holochlorus*), and field sparrow (*Spizella pusilla*).

Swainson's hawks are long-distance migratory, broad winged hawks that breed in the western United States and Canada, and winter in Central and South America. Between 1987 and 1992, the Texas Bird Breeding Atlas (TBBA) found that most of the breeding occurred in the High and Rolling Plains, northern Edwards Plateau, South Texas Brush country and northeastern Trans-Pecos regions (Tweit 2007a); however, breeding is recorded in the South Texas Plains with breeding "probable" in the Laredo area (Tweit 2007a). Nests consist of bulky mass of sticks, thistles, sagebrush, or brambles placed in solitary trees or bushes in small groves or riparian corridors (Tweit 2007). Potential nesting habitat for Swainson's hawks is present in Tamaulipan thornscrub, Mesquite savanna/woodland, Tamerisk woodland, and disturbed woodland habitats.

The green heron is a small, stocky heron associated with a variety of wetland habitats. In Texas, green herons are more common inland than on the coast and are more common in the eastern two-thirds of the state. They are rare to locally uncommon in the winter along the LRGV (Telfair 2007). They nest near wetland foraging habitat and typically over water, but nesting sites are often determined by local foraging areas. The TBBA indicates a potential for nesting in the region (Telfair 2007), but suitable nesting habitat is unlikely to occur within the survey area.

Scaled quail are small ground birds that inhabit shrubland habitats. Preferred breeding habitat includes mesquite, four-wing saltbush (*Atriplex canescens*), littleleaf (*Rhus microphulla*) and skunkbush (*Rhus trilobata*) sumac, creosote (*Larrea tridentata*), sandsage (*Artemisia filifolia*), yucca (*Yucca sp.)* and various cactus shrublands. The TBBA reported reports confirmed breeding in the Laredo, Texas region. Nests consists of well-camouflaged shallow depressions with a sparse lining of grass or leaves. Suitable nesting habitat is present in Tamaulipan thornscrub, mesquite savanna/woodland, tamarisk woodland, and disturbed woodland habitat within the survey area.

The northern harrier is a raptor specialized for feeding on small mammals, reptiles, birds, amphibians and other birds. Northern harriers forage on the wing and unlike other hawks, rely heavily on their sense of hearing to locate prey. In Texas, northern harriers are most commonly seen during migration and few confirmed breeding sights are known (Tweit 2007b). Nesting habitat consists of open grasslands, wetlands, marshes, pastures, old fields, and dry upland prairies where nests are constructed sticks and grasses. Suitable nesting habitat does not occur in the survey area.

Snowy egrets, like the green heron, are associated with wetland habitats. They can be found in coastal wetlands and river drainages, the latter of which may extend far inland, and are known from both fresh and saltwater habitats. Snowy egrets nest with other colonial waterbirds and form breeding populations in wooded areas along streams, near reservoirs, swamps, and natural and dredged coastal island areas. The TBBA does not report confirmed or potential breeding in the Laredo region and suitable nesting habitat is not present.

The American kestrel is the smallest falcon in North America and is found in open country with scattered trees or woodlands, but they tend to avoid dense forest (Seyffert 2006). American kestrels are cavity nesters and will nest in natural cavities in trees, or simulated cavities in man-made structures. The TBBA reports probable breeding in the Laredo region and suitable nesting habitat is present in mesquite savanna/woodland, tamarisk woodland, disturbed woodland and in suitable man-made structures in maintained vegetation and developed areas.

Common yellowthroats are found in dense shoreline vegetation that include cattails or other dense vegetation in riparian areas (Tweit 2004). Suitable nesting habitat for the common yellowthroat is not present in the survey area.

Loggerhead shrikes breed in open country with low vegetation where then nest in scattered trees, thorny shrubs, woodland edges, and hedgerows (Rasmussen and Kaskey 2006). The TBBA does not report breeding from the Laredo region; however, the species was observed during surveys and suitable nesting habitat is present in Tamaulipan thornscrub, mesquite savanna/woodland, tamarisk woodland, and disturbed woodland habitats.

The Rio Grande wild turkey is a large ground bird suited for walking more than flying. They inhabit areas where there is sufficient water to support grasslands and forests. The Rio Grande wild turkey is one of three subspecies of wild turkey in Texas. In winter, wild turkeys will roost in communal roosts in large trees along riparian habitats. During the breeding season, they will move out to suitable grass and forb vegetation (Dickson 2005). The TBBA does not report breeding in the region around Laredo, and suitable grass and forb dominated vegetation communities are not present in the survey area.

Harris's hawks are year-round residents throughout their range in Texas where they breed in mesquite woodlands with prickly pear (Opuntia sp.) understory. The highest average numbers of Harris's hawks reported by the TBBA comes from transects in Zapata and Webb counties. Suitable nesting habitat is present in the survey area in mesquite savanna/woodland and disturbed woodland vegetation communities.

American white pelicans in Texas nest on natural or man-made islands with varying vegetation types and forage in aquatic environments (Telfair 2007b). Suitable nesting and foraging habitat do not occur in the survey area.

Cassin's sparrows are present in Texas during the breeding season and inhabit short-grass prairies with scattered shrubby mesquite, cacti, yucca, or oak (Tweit 2009). The TBBA indicates probable breeding in the Laredo region and suitable habitat is present in mesquite savanna/woodland habitat.

Green parakeet is generally considered to be a native of the Rio Grande Valley (Walker and Chapman 1992). They will congregate in large flocks during the winter and will make long flights to suitable foraging grounds. Green parakeets are cavity nesters and prefer Canary Island palms (*Phoenix canariensis*) but will also make use of Mexican fan palms (*Washingtonia robusta*) (Burgess 2007). The latter of which were observed during surveys. Date palms (Phoenix dactylifera), closely related to Canary Island palms were also noted during surveys. Suitable nesting habitat for green parakeets is present where suitable nesting palms are present.

Field sparrows make use of early successional stages of abandoned fields, clearcuts, and burned habitats and will use these until maturing landscapes shade out the grasses and forbs that provide field sparrows food (Tweit 2008). The TBBA reports breeding areas well to the north of the Laredo region, but suitable breeding habitat may be present in open-canopy mesquite savanna/woodland vegetation communities.

Aquatic Resources. The survey area can support a variety of aquatic wildlife, including amphibians, fish, and mollusks. The TPWD lists eight sensitive aquatic species known to occur in Webb County (CBP 2022a, **Table F-3**).

No special status aquatic wildlife, including native or naturalized fish, mollusks, or crustaceans, were observed within the survey area during surveys (CBP 2022a). A total of 3.3 acres of aquatic habitat identified as large creeks, and 0.37 acres of wetland habitat, are present in the survey area and provide potential suitable habitat for state-listed and SGCN aquatic species. These habitats are centered primarily on three creeks: Manadas Creek, Zacata Creek, and Chacon Creek.

Table F-3. Special Status Aquatic Species Known to Occur in Webb County, Texas

Common Name	Species Name	Status	Observed During Surveys
Amphibians			
South Texas siren (large form)	*Siren* sp. 1	ST, SGCN	
Fish			
Rio Grande darter	*Etheostoma grahami*	ST, SGCN	
Rio Grande shiner	*Notropis jemenzanus*	ST, SGCN	
Speckled chub	*Macrhybopsis aestivalis*	ST, SGCN	
Tamaulipas shiner	*Notropis braytoni*	ST, SGCN	
Mollusks			
Mexican fawnsfoot	*Truncilla cognata*	ST, SGCN	
Salina mucket	*Potamilus metnecktayi*	ST, SGCN	
Texas hornshell	*Popenaias popeii*	FE, SE, SGCN	

Key: FE: Federal Endangered
ST: State-Threatened
SE: State-Endangered
SGCN: Species of Greatest Conservation Need

State-Listed Species. The TPWD currently lists 74 fish and wildlife species as endangered, and 148 species as threatened under Texas Administrative codes §65.175 and §65.176 (TPWD 2020). Three state-listed threatened species, Texas tortoise, gray hawk, and white-tailed hawk were observed during biological surveys.

Figure F-1. Vegetation within the Project Area, Map 1

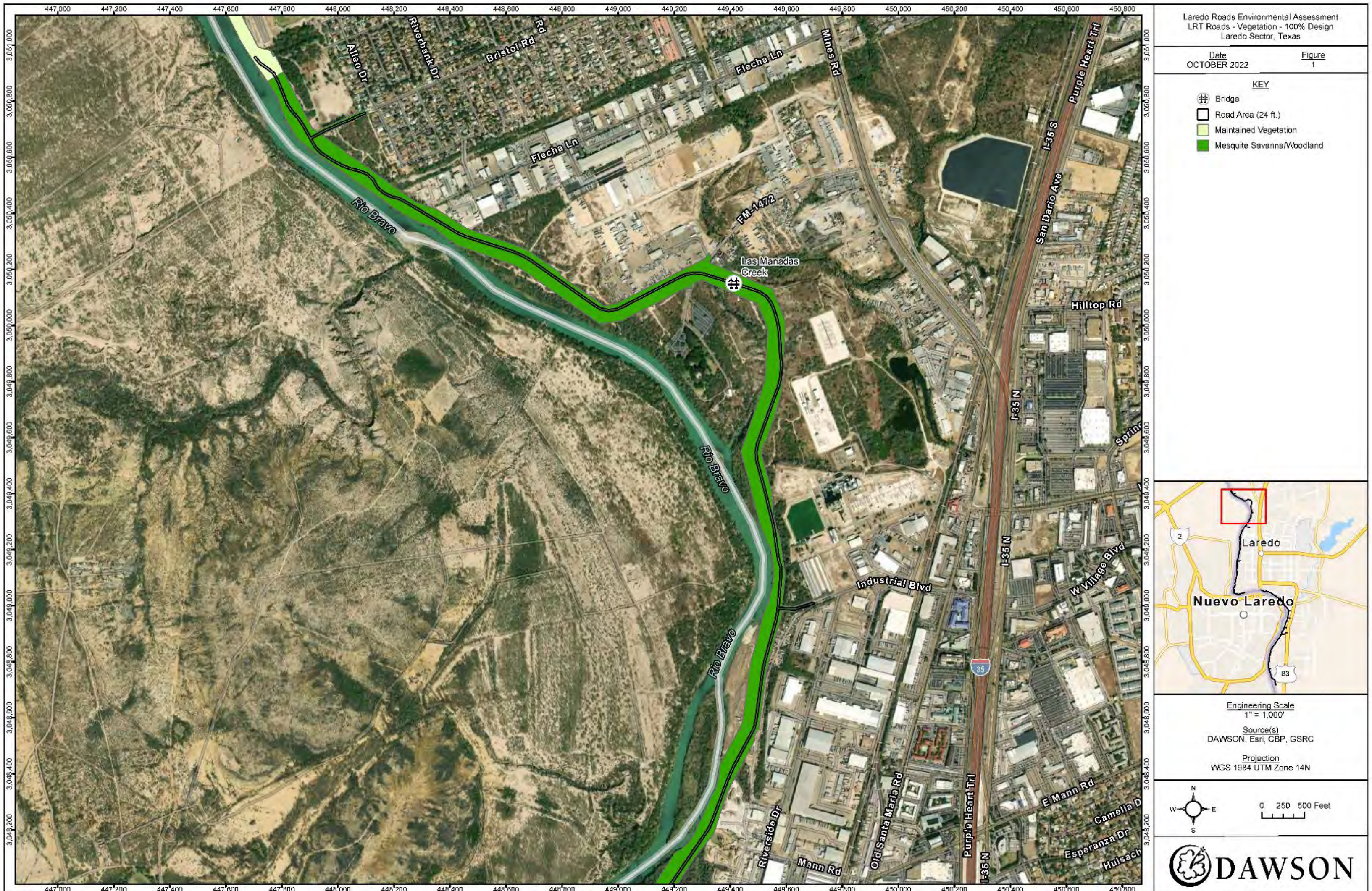


Figure F-2. Vegetation within the Project Area, Map 2

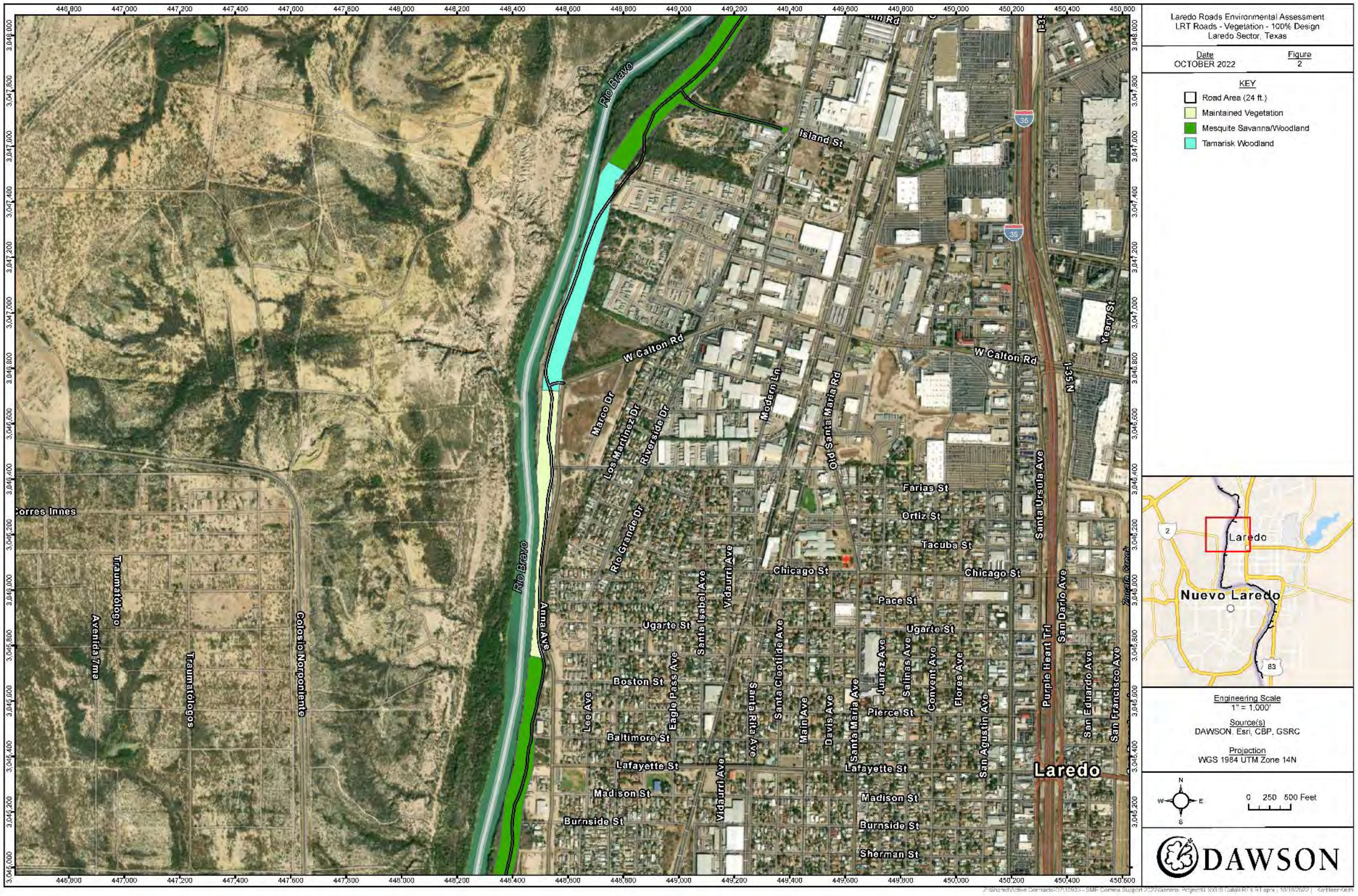


Figure F-3. Vegetation within the Project Area, Map 3

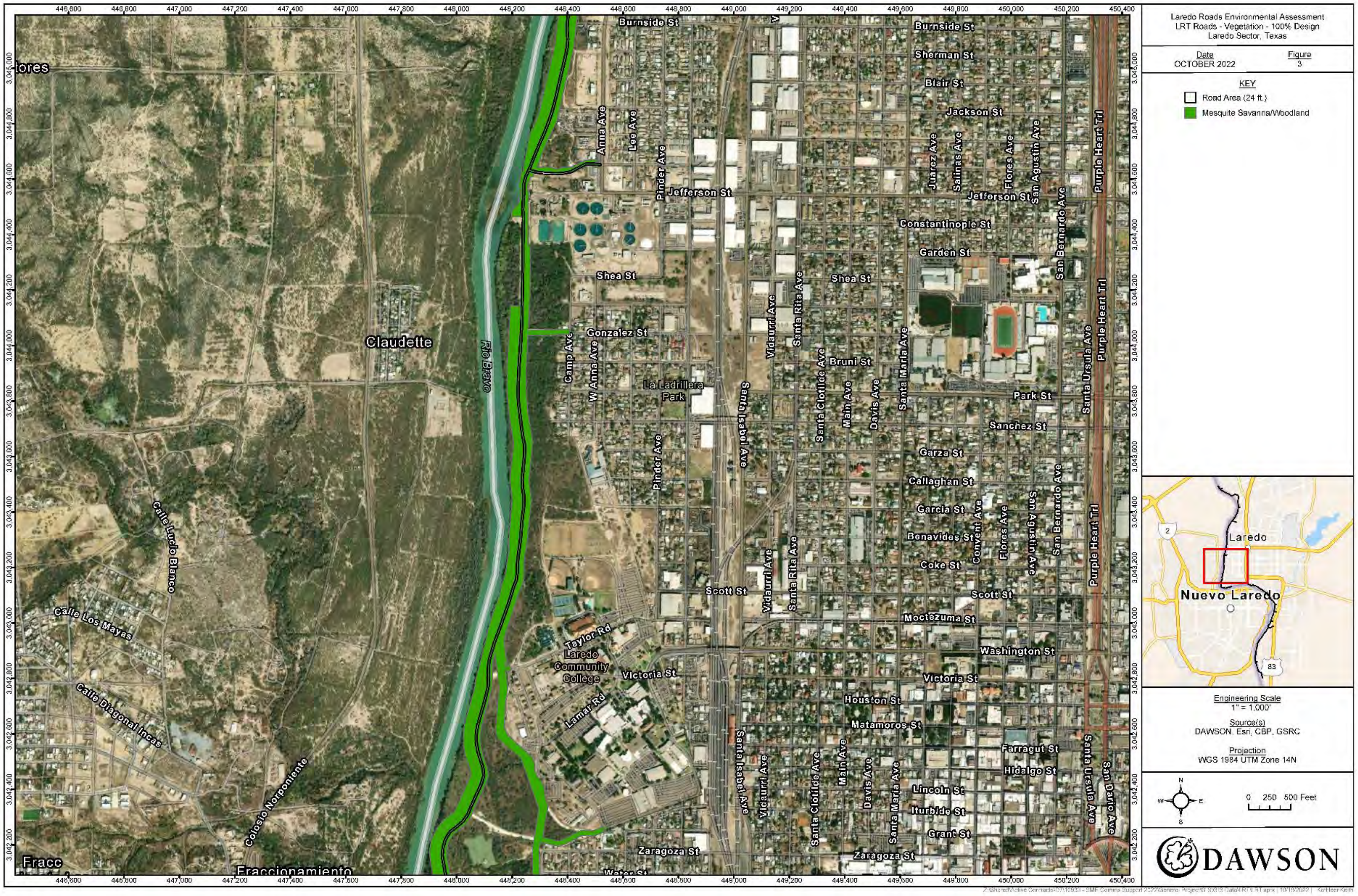


Figure F-4. Vegetation within the Project Area, Map 4

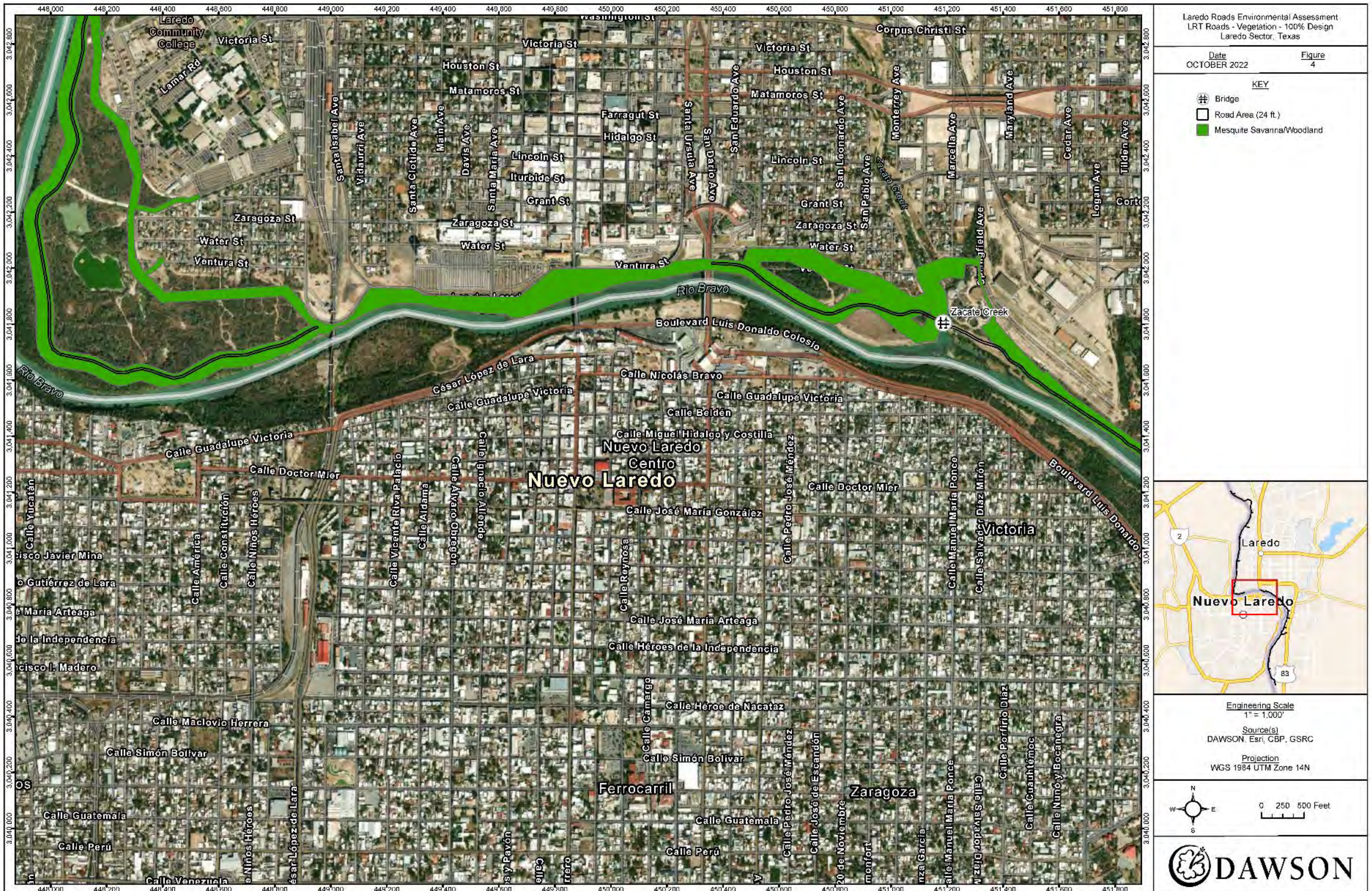


Figure F-5. Vegetation within the Project Area, Map 5

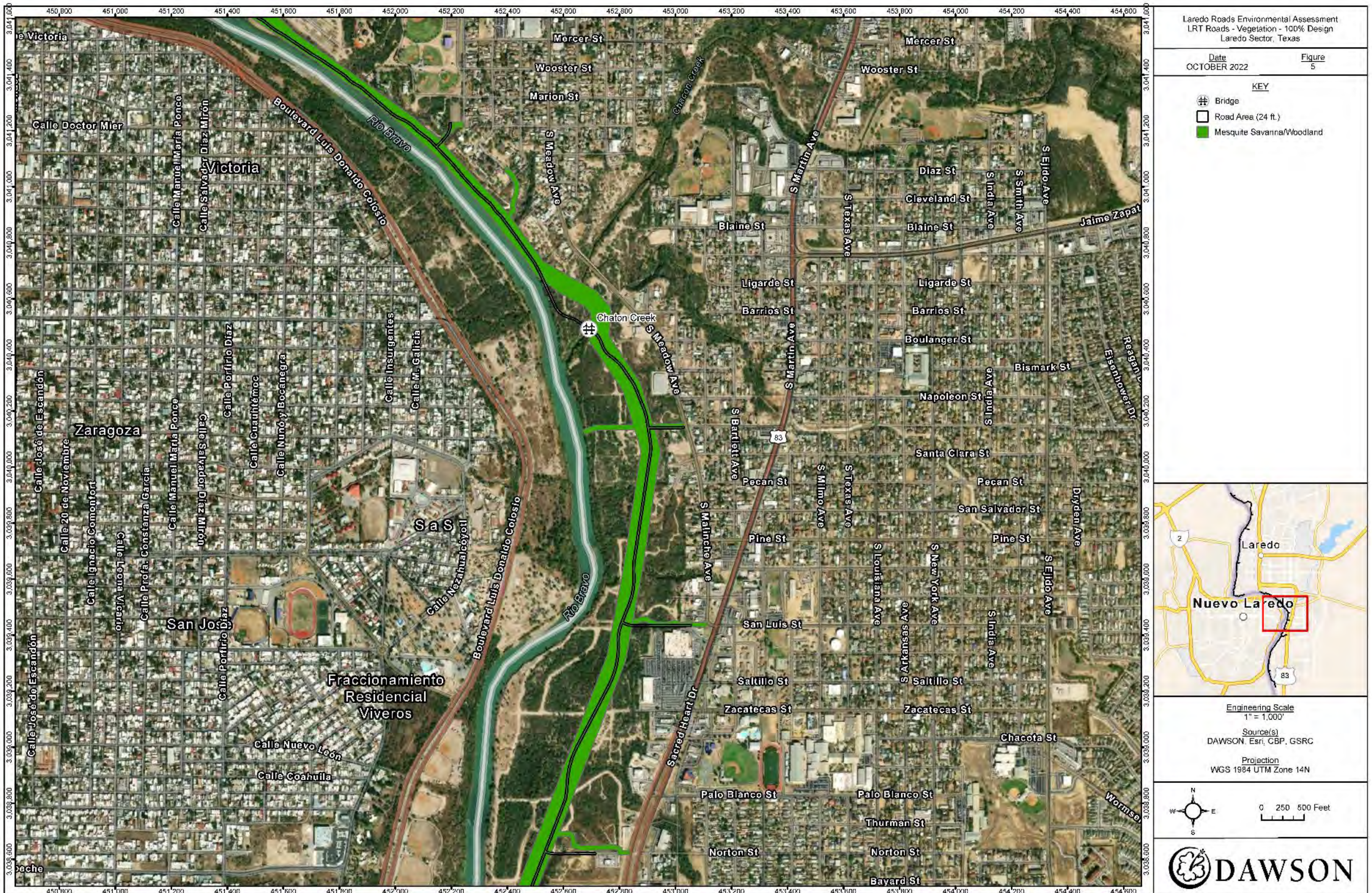


Figure F-6. Vegetation within the Project Area, Map 6

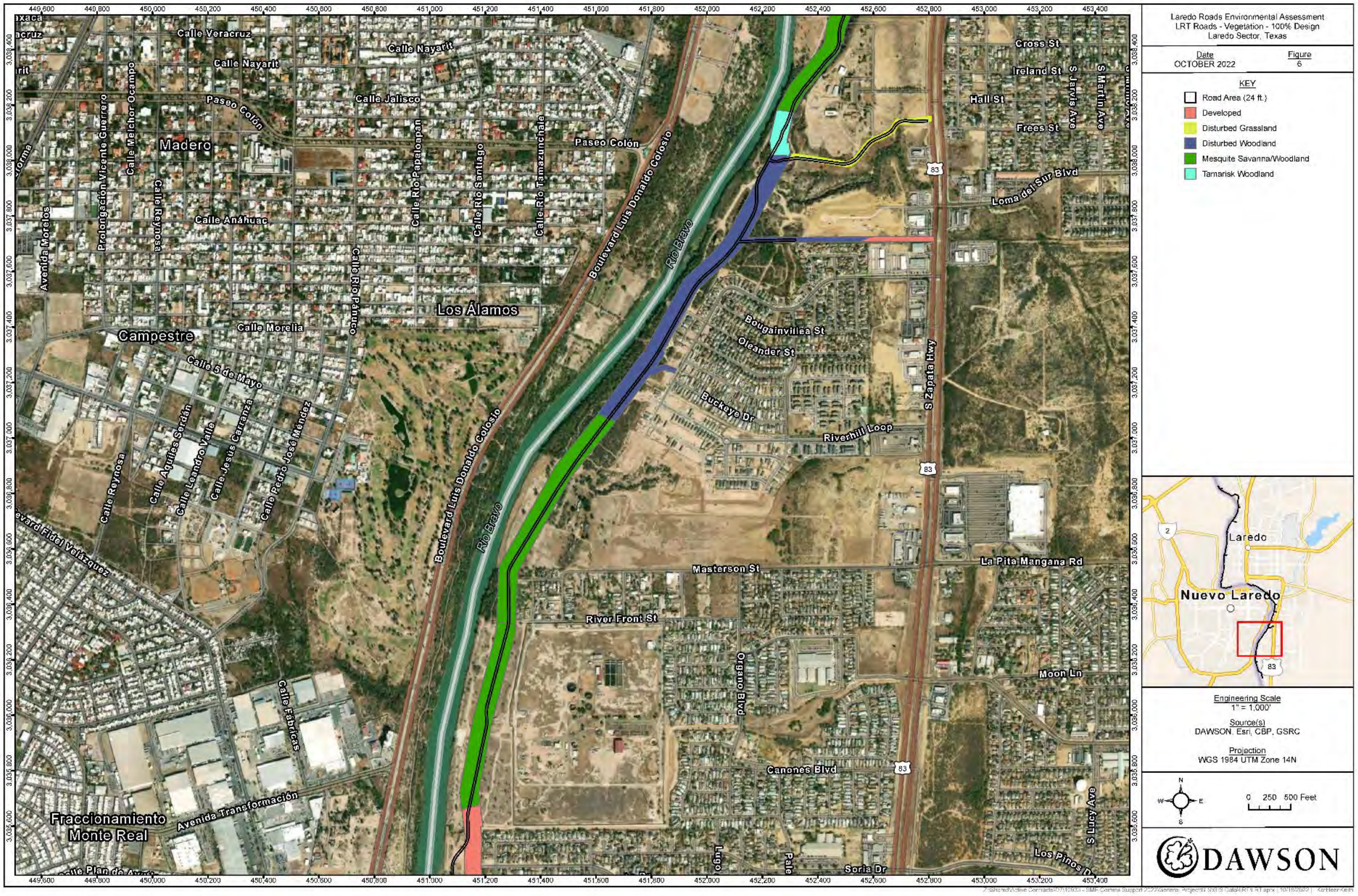
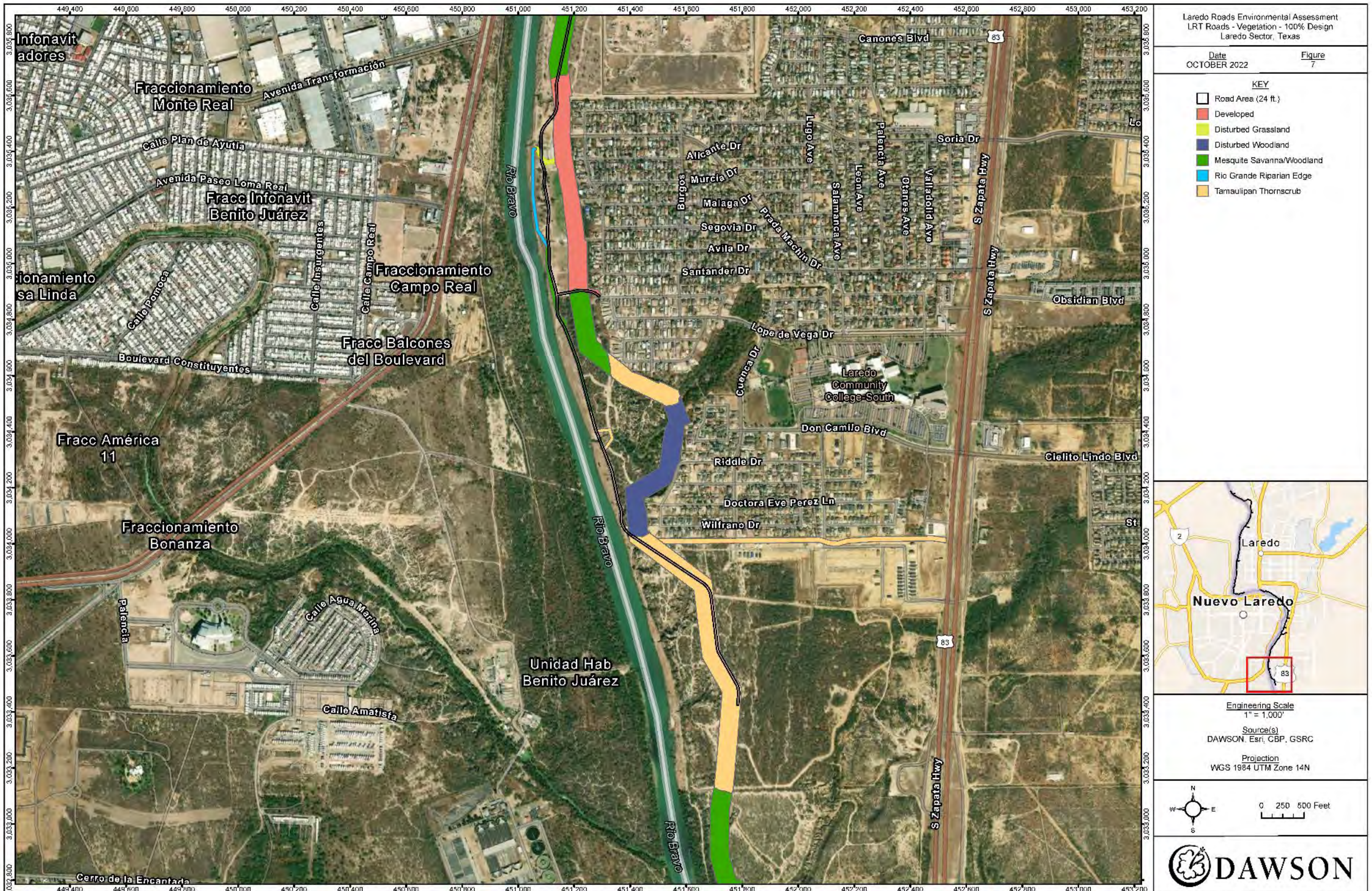


Figure F-7. Vegetation within the Project Area, Map 7



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