Final
Water Resources Technical Report

Loop 88 Segment 4
From US Highway 87 to US Highway 84
Lubbock County, Texas

CSJ: 1502-03-006

June 2019

Prepared for the Texas Department of Transportation, Lubbock District

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) Lubbock District proposes to construct the second portion (Segment 4) of Loop 88 in Lubbock County, Texas. The proposed project would construct a controlled access facility, consisting of a six-lane divided freeway (three lanes in each direction) with two-lane frontage roads, associated ramps, and grade separated diamond intersections. This portion, Segment 4 of Loop 88, connects with the currently-under-design Segment 3, continues east along Farm-to-Market (FM) 1585 before curving in a southeastern direction and then eastbound at County Road (CR) 2600 along CR 7500 to CR 3000, and then curving in a northeastern direction to the project end at United States Highway (US) 84. The logical termini for this project are US 87 to the west and US 84 to the east (**Figures 1** and **2** in **Appendix A**). Construction limits for the project are 0.5 mile east of US 87 and US 84. The project length is approximately 8.8 miles. The control-section-job (CSJ) number for the overall Loop 88 project is 1502-01-033; the CSJ for Segment 4 is 1502-03-006.

This report provides the results of water resource investigations in the project area and discusses the project's compliance with water resource regulations. This report addresses all regulations outlined in TxDOT's current Environmental Handbook for water resources.

2.0 PROJECT DESCRIPTION

2.1 *Existing Facility*

Loop 88, Segment 4, is a proposed new facility, but portions follow existing facilities. From the western construction limit, Segment 4 follows FM 1585 for approximately 0.96 mile. The existing FM 1585 facility is a two-lane undivided roadway, with one 12-foot lane and an 8-foot shoulder in each direction. The existing right-of-way (ROW) width varies from approximately 80 to 120 feet. The proposed project also follows CR 7500 for approximately 3.98 miles. The existing CR 7500 is an unimproved dirt road approximately 24 feet wide. The remainder of the proposed project is on new location.

2.2 *Proposed Project*

The proposed project would construct a six-lane divided freeway, three lanes in each direction, with two-lane frontage roads in each direction between the construction limits. The proposed mainlanes would consist of six (three in each direction) 12-foot-wide travel lanes with 10-foot-wide outside shoulders and 11-foot-wide inside shoulders. The proposed frontage roads consist of two 12-foot-wide travel lanes with 8-foot-wide outside shoulders and 4-foot-wide inside shoulders. The proposed ROW width is 400 feet.

The project area includes approximately 14.74 acres of existing transportation ROW. The proposed project would require approximately 511.1 acres of proposed ROW and 50.34 acres of drainage easements.

3.0 PROJECT SITE AND SURROUNDING AREA

The project area is south of Lubbock, Texas, in the Llano Estacado subregion of the High Plains ecoregion of Texas (Griffith et al. 2007). Most of the project area is currently used for agricultural production, with limited residential properties primarily on the western end. The proposed ROW includes some existing paved and unpaved roads.

3.1 *Site Topography*

The project area has relatively little change in topography, with elevations ranging between approximately 3,125 feet above mean sea level (MSL) to 3,190 feet above MSL (U.S. Geological Survey [USGS] 1985). Most of the project area slopes eastward toward the North Fork Double Mountain Fork Brazos River, located approximately 5 miles east of the eastern project limit. No streams are mapped within the project area, but several playas (shallow depressions) are located in or near the project area.

3.2 *Site Plant Communities*

Most of the project area consists of irrigated agricultural fields, and the primary crops observed during field investigations include cotton (*Gossypium hirsutum*), sorghum (*Sorghum bicolor*), and wheat (*Triticum aestivalis*). Common plant species observed in fallow fields and roadsides clude sideoats grama (*Bouteloua curtipendula*), Texas grama (*B. rigidiseta*), silver bluestem (*Bothriochloa laguroides*), common pepperweed (*Lepidium densiflorum*), redstem stork's bill (*Erodium cicutarium*), and Ram's-horn (*Proboscidea louisianica*).

3.3 *Soils*

Eight soil types are mapped in the project area by the Natural Resources Conservation Service (NRCS) (U.S. Department of Agriculture [USDA]–NRCS 2019a) (**Table 1**). Randall clay contains approximately 80 percent hydric components, and this soil type is mapped mainly within playas in the region. The other soil series are mapped sandy loams and clay loams without hydric components (USDA–NRCS 2019b).

Table 1: Soils Mapped in the Project Area

Soil Mapping Unit	Percent in Project Area	Percent of Soil with Hydric Components
Acuff loam, 0 to 1% slopes	30.6	0
Amarillo fine sandy loam, 0 to 1% slopes	22.9	0
Amarillo fine sandy loam, 1 to 3% slopes	8.1	0
Estacado clay loam, 0 to 1% slopes	19.3	0
Estacado clay loam, 1 to 3% slopes	0.1	0
Lofton clay loam, 0 to 1% slopes, rarely ponded	2.6	0

Table 1: Soils Mapped in the Project Area

Soil Mapping Unit	Percent in Project Area	Percent of Soil with Hydric Components
Olton clay loam, 0 to 1% slopes	13.2	0
Randall clay, 0 to 1% slopes, occasionally ponded	3.2	80

Source: USDA-NRCS 2019a, 2019b.

3.4 *Hydrology*

The project area is located within the North Fork Double Mountain Fork watershed (Hydrologic Unit Code 12050003) (USGS 2019), which is part of the Brazos River watershed. No natural streams cross the project area (USGS 2018). Based on topographic, floodplain, and National Wetland Inventory (NWI) maps, the project area contains portions of four playas (**Figures 3**, **4**, and **5** in **Appendix A**). Playas are natural, shallow, closed depressions that are common in the High Plains region and collect water from rainfall and agricultural irrigation (TPWD 2019). The Federal Emergency Management Agency (FEMA) has mapped 100-year floodplains within many playas in the region (FEMA 2019) (**Figure 3**). Water that collects in playas typically remains in the playa and gradually recedes through infiltration to groundwater or evaporation.

The average annual precipitation for the project area (based on National Oceanic and Atmospheric Administration [NOAA] data for Lubbock, Texas) is approximately 19 inches, and the average annual snowfall is approximately 8 inches (NOAA 2019).

4.0 METHODS

Investigations to identify surface water resources, including potential waters of the U.S., included an initial review of background information, including aerial photography from various years, topographic maps, soil maps, NWI maps (U.S. Fish and Wildlife Service [USFWS] 2019), floodplain maps (FEMA 2019), and the National Hydrography Dataset (NHD) (USGS 2018). Following the background review, wetland specialists conducted field surveys of the project area in April and May 2019. During the survey, the project area was visited where access was available; right-of-entry (ROE) was not available for some areas of the proposed ROW and drainage easements. In those areas, the potential for surface water features was visually estimated from public access points and through review of the background data and maps. Most of the project area is in crop production or otherwise disturbed, so wetland determination data collection was limited to undisturbed areas at potential playa locations. Completed wetland determination data forms are provided in **Appendix C**.

5.0 RESULTS AND DISCUSSION

This section addresses the project's compliance with regulations related to water resources. As noted in Section 1.0, all water resource regulations outlined in TxDOT's current

Environmental Handbook are discussed below; however, the following regulations do not apply to the project because the project would not affect the regulated resources:

- Executive Order 11990 on Wetlands
- General Bridge Act and Sections 9 and 10 of the Rivers and Harbors Act (RHA)
- Section 408/Section 14 of the RHA
- Section 303(d) of the Clean Water Act (CWA)
- Edwards Aquifer Rules
- Trinity River Corridor Development
- Wild and Scenic Rivers Act
- Coastal Zone Management Act and Texas Coastal Management Program (TCMP)
- Coastal Barrier Resources Act
- International Boundary and Water Commission (IBWC)
- Texas General Land Office (GLO) Memorandum of Understanding (MOU)

5.1 *Section 404 of the Clean Water Act: Waters of the U.S.*

The project area does not contain any waters of the U.S. subject to regulation under Section 404 of the CWA. Therefore, no impacts to waters of the U.S. are anticipated, and no Section 404 permit would be required.

Portions of four playas occur near the western terminus (see Playas 1 through 4 on **Figures 3**, **4**, and **5**) and are generally described below. However, the playas are not expected to be considered waters of the U.S. because they are closed depressions that have no surface water connection to a water of the U.S. **Figures 3**, **4**, and **5** show the playas as depicted by FEMA floodplain and NWI data. **Appendix B** provides representative photographs of the playas.

Review of aerial photography from various years and observations made during the April/May 2019 field investigations show that Playas 1, 2, and 3 hold water after large rainfall events but are plowed and used for crop production during dry periods. Based on field investigations from public access points and where ROE was granted, vegetation in Playas 1, 2, and 3 appeared similar to surrounding agricultural fields, contained standing crops or crop stubble (wheat and cotton), and were either plowed or showed recent signs of plowing. Standing water was present in the lowest portion of Playa 3, but aerial photographs show the water is not permanent. Wetland determinations at two observation points (see data forms in **Appendix C**) indicate the playas do not typically contain hydrophytic vegetation, nor do they contain soils that meet hydric soil criteria.

At Playa 4, the proposed ROW appears to be plowed on an ongoing and continuous basis. Review of aerial photography and field observations did not reveal standing water or other signs of a playa in the proposed ROW at this location.

5.2 *Section 401 of the Clean Water Act: Water Quality Certification*

Section 401 of the CWA requires any applicant who seeks a permit from a federal agency for an activity that will involve a discharge into waters of the U.S. to first obtain a certification from the State that the discharge will not violate state water quality standards. The proposed project would not require authorization under Section 404, Section 10, or Section 9/General Bridge Act. Therefore, Section 401 of the CWA does not apply.

5.3 *Section 402 of the Clean Water Act*

Since Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) and compliance (and the associated documentation) occur outside the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the projects. TxDOT's Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a Storm Water Pollution Prevention Plan (SW3P) be included in the plans of all projects that disturb 1 or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (Notice of Intent or Site Notice) be completed, posted, and submitted, when required by the CGP, to the Texas Commission on Environmental Quality (TCEQ). It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the "Required Specifications Checklists" require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SW3P and complete the appropriate authorization documents.

5.4 *Executive Order 11988 on Floodplain Management*

Portions of the project are located within FEMA designated 100-year floodplains associated with the four playas (**Figures 3**, **4**, and **5**). This project is subject to and will comply with federal Executive Order 11988 on Floodplain Management. The department implements this Executive Order on a programmatic basis through its Hydraulic Design Manual. Design of this project will be conducted in accordance with the department's Hydraulic Design Manual. Adherence to the TxDOT Hydraulic Design Manual ensures that this project will not result in a "significant encroachment" as defined by Federal Highway Administration's (FHWA) rules implementing Executive Order 11988 at 23 CFR 650.105(q).

5.5 *Executive Order 11990 on Wetlands*

No wetlands were identified in the project area; therefore, Executive Order 11990 on wetlands does not apply because no wetlands would be impacted.

5.6 *Sections 9 and 10 of the Rivers and Harbors Act*

No water features within the project area are classified as navigable waters; therefore, Sections 9 and 10 of the RHA are not applicable to the project.

5.7 *Section 408/Section 14 of the Rivers and Harbors Act*

The project area does not include any USACE federally authorized civil works project or USACE-managed land. Therefore, Section 408/Section 14 of the RHA is not applicable to the project.

5.8 *Section 303(d) of the Clean Water Act*

Runoff from the project area would not directly discharge into a Section 303(d) listed threatened or impaired water, or into a stream within 5 miles upstream of a Section 303(d) listed threatened or impaired water. The most recent *2016 Texas Integrated Report Index of Water Quality Impairments* was utilized in this assessment (TCEQ 2018).

5.9 *Trinity River Corridor Development*

The project area is not located within the Trinity River Corridor Regulatory Zone; therefore, a Trinity River CDC is not required.

5.10 *Wild and Scenic Rivers*

No designated wild and scenic rivers occur in Lubbock County; therefore, the Wild and Scenic Rivers Act does not apply.

5.11 *Coastal Zone Management and Texas Coastal Management Program*

The project is not located within the TCMP coastal zone management boundary; therefore, the Coastal Zone Management Act and TCMP are not applicable to the project.

5.12 *Coastal Barrier Resources*

There are no Coastal Barrier Resources System units mapped in Lubbock County; therefore, the Coastal Barrier Resources Act does not apply to the project.

5.13 *Edwards Aquifer*

The Edwards Aquifer Recharge Zone, Contributing Zone, and Transition Zone do not occur in Lubbock County; therefore, the Edwards Aquifer Rules do not apply to the project.

5.14 *International Boundary and Water Commission*

No IBWC flood control projects or ROW occur in or adjacent to the project area; therefore, the project does not require an IBWC license.

5.15 *Texas General Land Office Memorandum of Understanding*

The project area does not include State-owned streambeds, state submerged lands, or other State-owned land that is under the management of the Texas GLO; therefore, no coordination with or lease from the GLO is required.

6.0 REFERENCES

Federal Emergency Management Agency (FEMA). 2019. Flood Map Service Center. Search All Products. https://msc.fema.gov/portal/advanceSearch. Accessed March 2019.

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_____. 2018. National Hydrography Dataset (NHD) Online Mapper. https://viewer.nationalmap.gov/advanced-viewer/. Accessed May 2019.

_____. 2019. USGS Water Resources Links for 12050003 – North Fork Double Mountain Fork. https://water.usgs.gov/lookup/getwatershed?12050003/www/cgi-bin/lookup/getwatershed. Accessed March 2019.

Appendix A

Figures

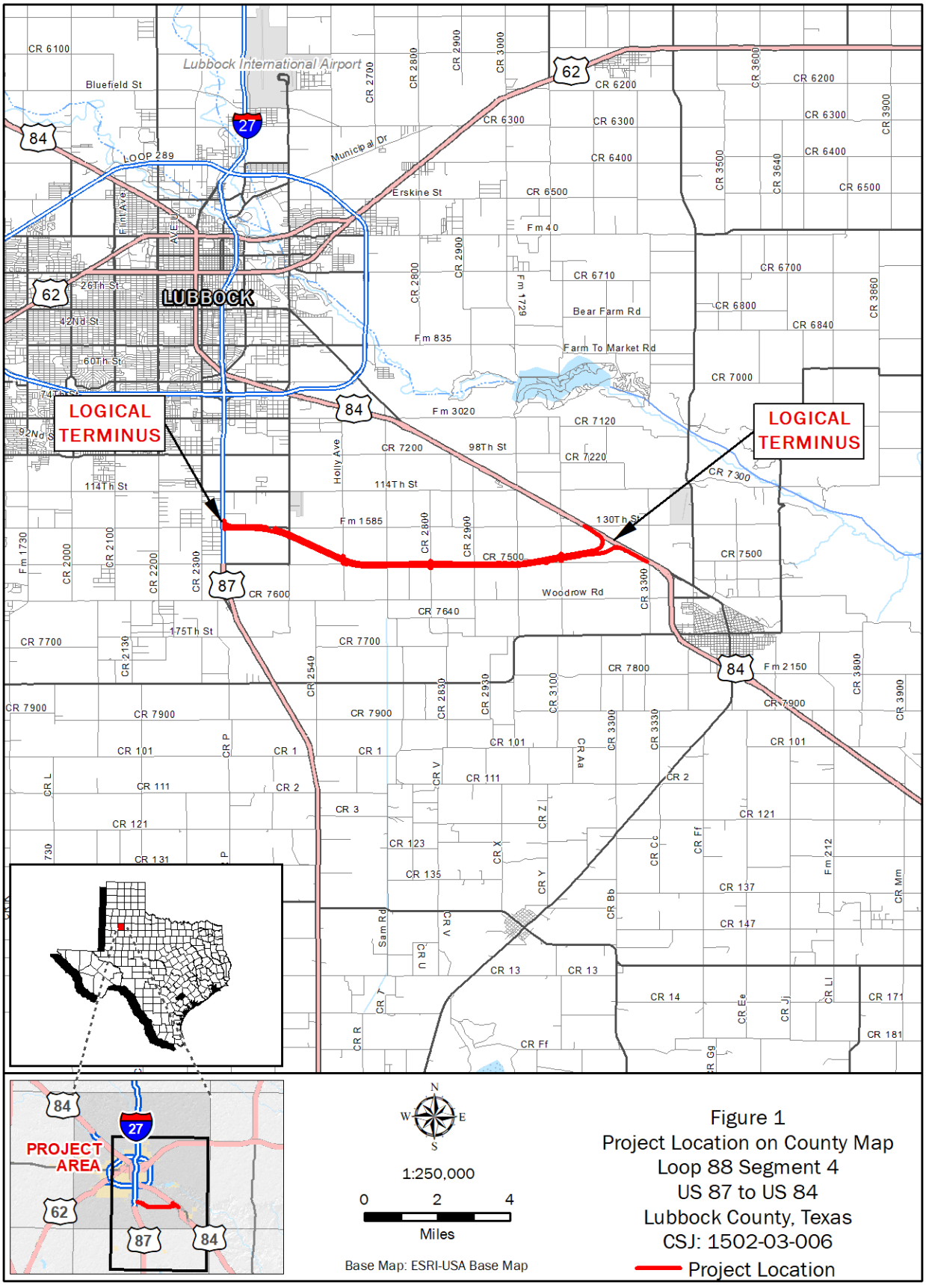


Figure 1
Project Location on County Map
Loop 88 Segment 4
US 87 to US 84
Lubbock County, Texas
CSJ: 1502-03-006
Project Location

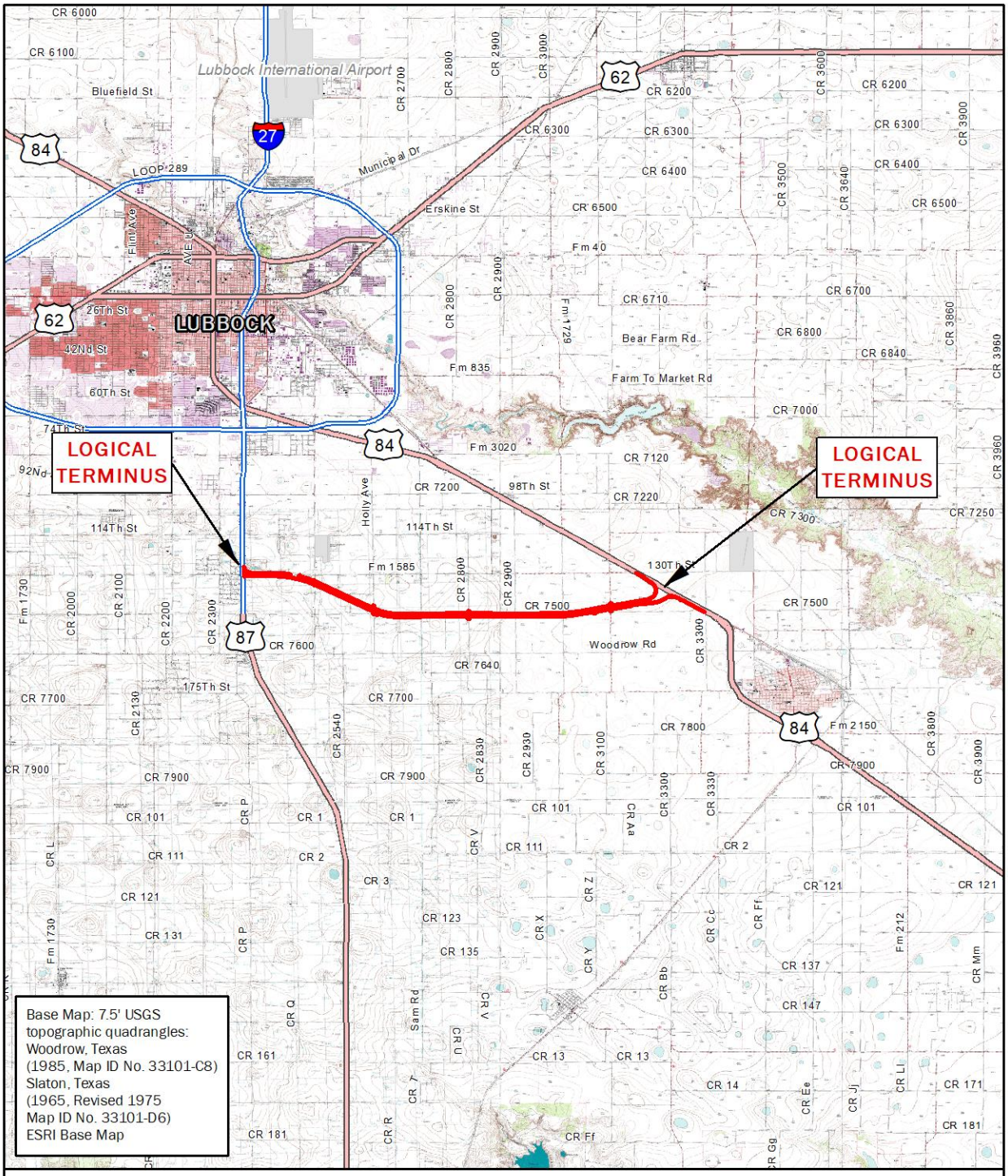


Figure 2
Project Location on Topographic Base
Loop 88 Segment 4
US 87 to US 84
Lubbock County, Texas
CSJ: 1502-03-006

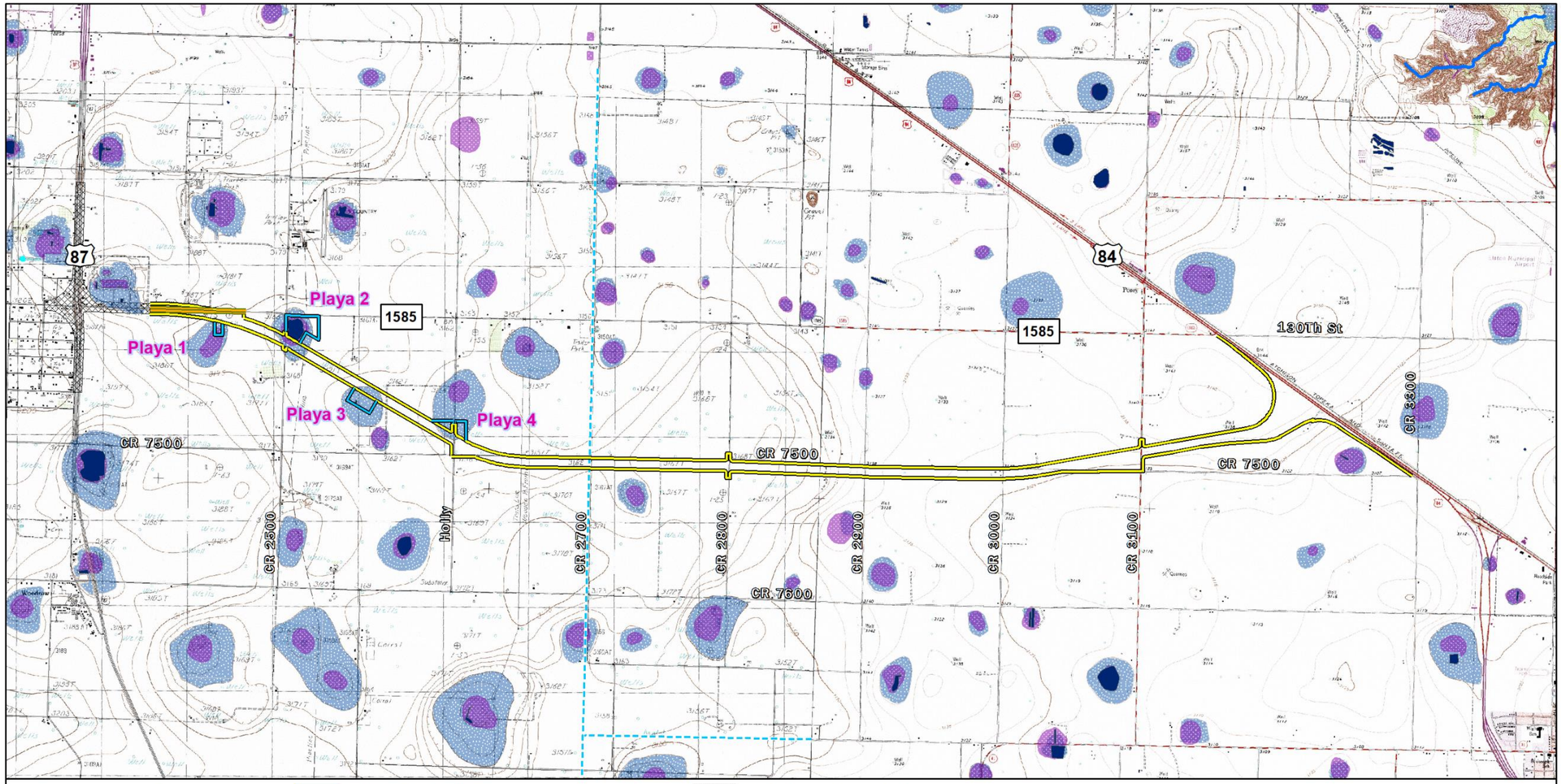
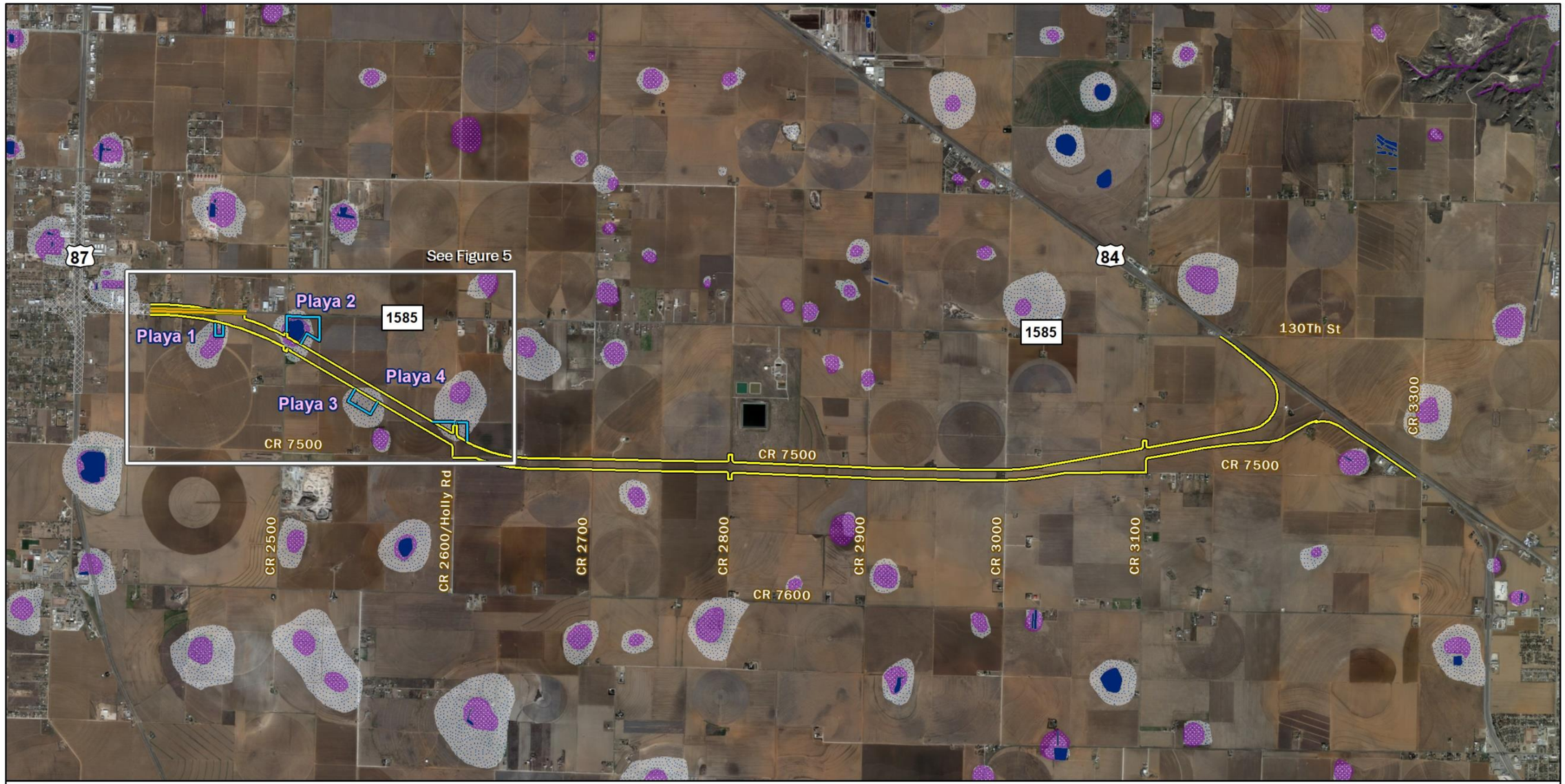


Figure 3
Water Resources Background Information
Loop 88 Segment 4
US 87 to US 84
Lubbock County, Texas
CSJ: 1502-03-006

Base Map: USGS 7.5' Topographic Lubbock County, Texas



Base Map: Texas Imagery Service, 2018 Lubbock County, Texas

- Existing Right-of-way
- Proposed Right-of-way
- Proposed Drainage Easement
- Lake/Pond/Tank
- National Wetland Inventory Feature
- 100-year Floodplain
- Work to be constructed by others

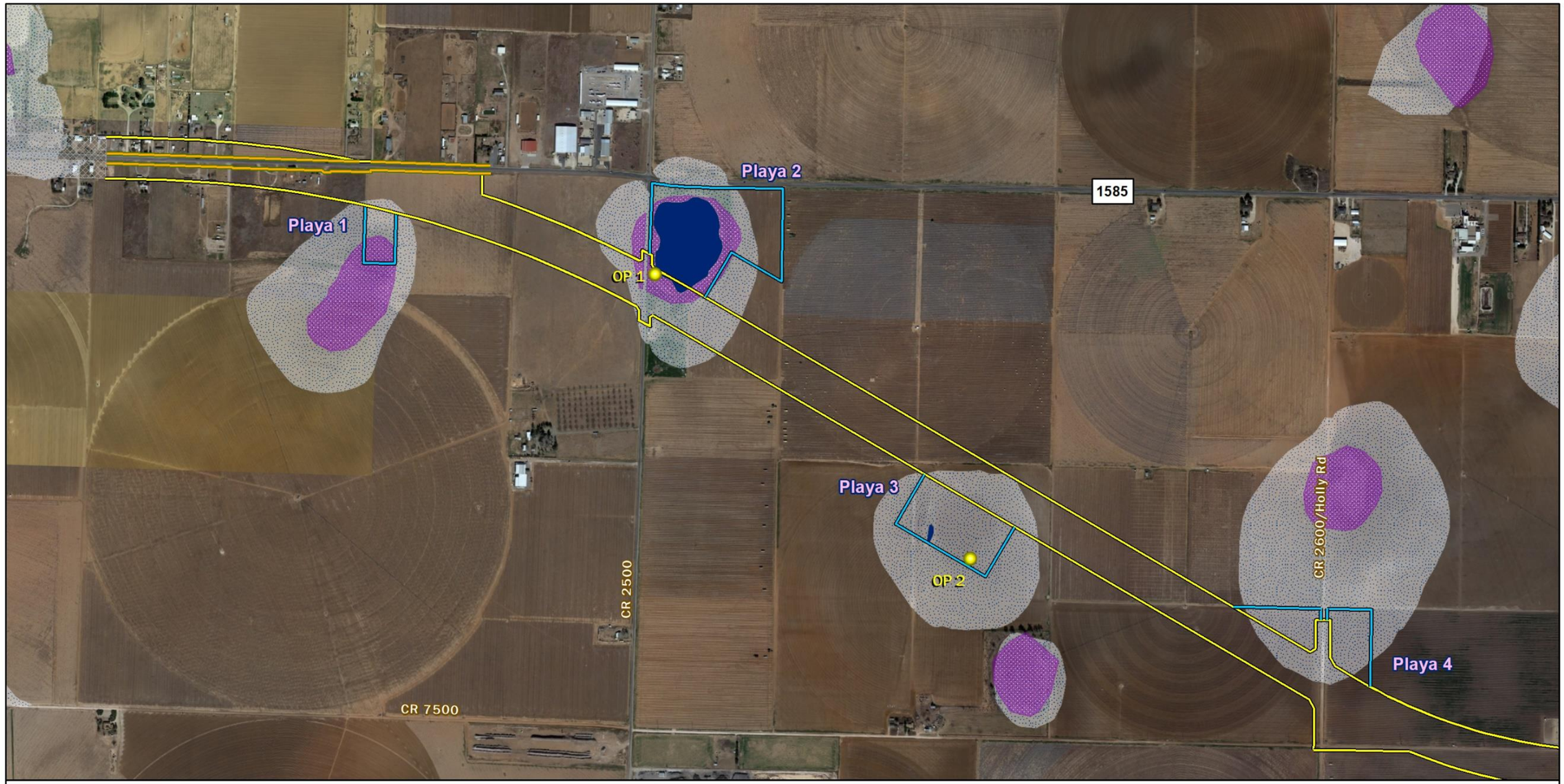
N W E S

1:48,000

0 2,000 4,000

Feet

Figure 4
Project Area on Aerial Imagery
Loop 88 Segment 4
US 87 to US 84
Lubbock County, Texas
CSJ: 1502-03-006



Base Map: Texas Imagery Service, 2018 Lubbock County, Texas

- Existing Right-of-way
- Proposed Right-of-way
- Proposed Drainage Easement
- Work to be constructed by others
- Lake/Pond/Tank
- National Wetland Inventory Feature
- 100-year Floodplain
- Observation Point (OP#)

N W E S

1:12,000

0 500 1,000

Feet

Figure 5
Playas
Loop 88 Segment 4
US 87 to US 84
Lubbock County, Texas
CSJ: 1502-03-006

Appendix B

Representative Photographs

Photo 1. Facing southwest toward Playa 1.

Photo 2. View of Playa 2 and adjacent field, facing east

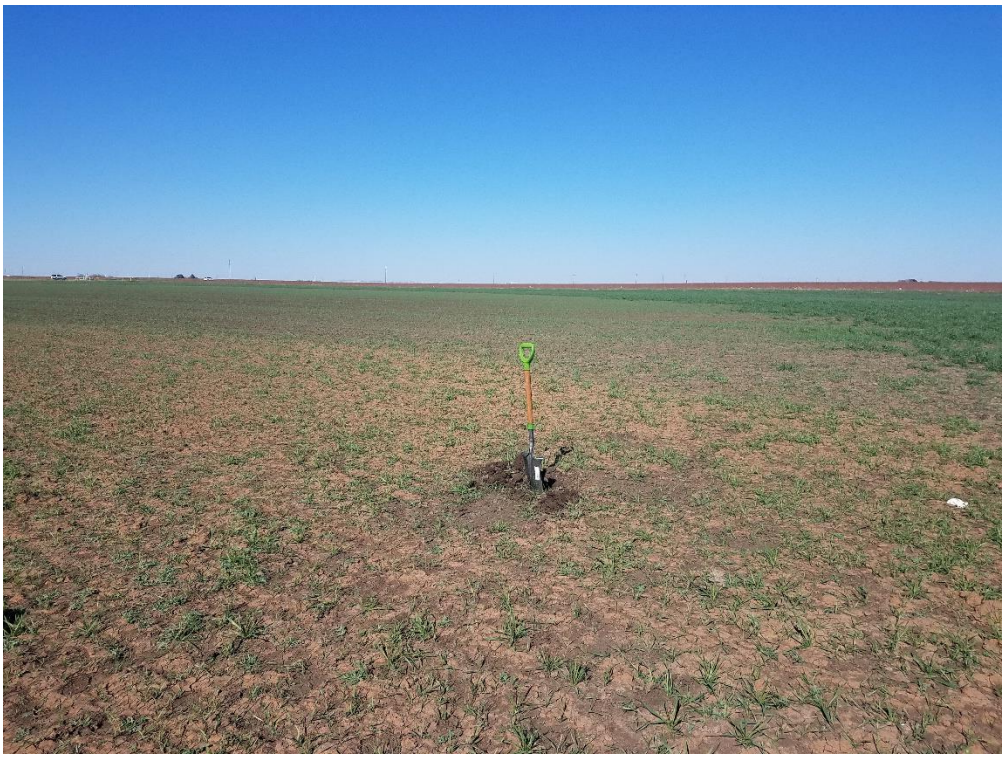


Photo 3. View of Playa 2, OP 01.

Photo 4. View of Playa 3, facing southwest.

Photo 5. Typical farm field within the project area, located south of CR 7500.

Appendix C

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Loop 88 Segment 4 City/County: Lubbock Sampling Date: 1-Apr-19

Applicant/Owner: Texas Department of Transportation State: Texas Sampling Point: OP 01

Investigator(s): G. Casares, J. Noel, M. Torres Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): playa Local relief (concave, convex, none): flat Slope (%): 0 to 1

Subregion (LRR): H Lat: 33.473591° Long: -101.818175° Datum: WGS84

Soil Map Unit Name: Randall clay, 0 to 1 percent slopes, occasionally ponded NWI Classification: PUSA

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No _____ (If no, explain in remarks)

Are vegetation No , soil No , or hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are vegetation No , soil No , or hydrology No 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 **X**	
Hydric Soil Present?	Yes _____	No **X**	
Wetland Hydrology Present?	Yes _____	No **X**	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** **X**

Remarks: Does not meet the three criteria for a wetland.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30-ft R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15-ft R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5-ft R)			
1. *Triticum aestivalis*	35	Yes	UPL
2. *Ambrosia psilostachya*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30-ft R)			
1.			
2.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

% Bare Ground in Herb Stratum 45

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** **X**

Remarks: Does not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point: OP 01

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

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 4	7.5YR 3/2	100					clay loam	
4 to 16	7.5YR 3/2	100					loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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 X

Remarks: Does not meet the criteria for hydric soil.

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)

- X 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

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

Remarks: Does not meet the criteria for wetland hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Loop 88 Segment 4 City/County: Lubbock Sampling Date: 9-May-19

Applicant/Owner: Texas Department of Transportation State: Texas Sampling Point: OP 02

Investigator(s): J. Barton, J. Noel Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): shallow depression Local relief (concave, convex, none): shallow concave Slope (%): 0 to 1

Subregion (LRR): H Lat: 33.466430° Long: -101.807873° Datum: WGS84

Soil Map Unit Name: Lofton clay loam, 0 to 1 percent slopes, rarely ponded NWI Classification: PUSA

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No _____ (If no, explain in remarks)

Are vegetation No , soil No , or hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are vegetation No , soil No , or hydrology No 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 **X**	
Hydric Soil Present?	Yes _____	No **X**	
Wetland Hydrology Present?	Yes _____	No **X**	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** **X**

Remarks: Does not meet the three criteria for a wetland.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30-ft R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15-ft R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5-ft R)			
1. *Triticum aestivalis*	40	Yes	UPL
2. *Gossypium hirsutum*	40	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30-ft R)			
1.			
2.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
% Bare Ground in Herb Stratum 20			

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** **X**

Remarks: Does not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point: OP 02

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 to 16	7.5YR 4/3	100					clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked 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 X

Remarks: Does not meet the criteria for hydric soil.

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)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

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

Remarks: Does not meet the criteria for wetland hydrology.