



Water Resources Technical Report

State Loop 288
From IH 35W to IH 35
Denton County, Texas

CSJs: 2250-02-013, 2250-02-014

February 2020

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 9, 2019, and executed by FHWA and TxDOT

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ATTACHMENT D: Stream Assessment Forms

ACRONYMS

Best Management Practices	BMPs
Clean Water Act	CWA
Construction General Permit	CGP
Code of Federal Regulations	CFR
Executive Order	EO
Federal Emergency Management Agency	FEMA
Federal Highway Administration	FHWA
Flood Insurance Rate Maps	FIRMs
Fish and Wildlife Coordination Act	FWCA
Farm-to-Market Road	FM
Geographic Information System	GIS
Global Positioning System	GPS
Interstate Highway	IH
Memorandum of Understanding	MOU
Municipal Separate Storm Sewer System	MS4
National Flood Insurance Program	NFIP
National Hydrography Dataset	NHD
National Wetlands Inventory	NWI
Nationwide Permit	NWP
Notice of Intent	NOI
Notice of Termination	NOT
Ordinary High Water Mark	OHWM
Pre-Construction Notification	PCN
Right-of-Way	ROW
Right-of-Entry	ROE
State Loop	SL
Storm Water Pollution Prevention Plan	SW3P
Texas Commission on Environmental Quality	TCEQ

Texas Department of Transportation	TxDOT
Texas Pollutant Discharge Elimination System	TPDES
Texas Water Development Board	TWDB
United States Army Corps of Engineers	USACE
United States Coast Guard	USCG
United States Fish and Wildlife Service	USFWS
United States Geological Survey	USGS
United States Highway	US
Waters of the United States	WOUS

1. Project Description

The Texas Department of Transportation (TxDOT), in conjunction with Denton County, is proposing the construction of a four-lane new location frontage road system for State Loop (SL) 288 from Interstate Highway (IH) 35W south of Denton to IH 35 north of Denton, in Denton County, Texas. The distance of the proposed project is approximately 9.0 miles. The proposed project right-of-way (ROW) would include a median that would accommodate the future construction of an ultimate mainlane facility. Construction of the ultimate mainlane facility would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

The new location SL 288 frontage road system would include a northbound and southbound frontage road facility. For rural areas, the facility would consist of two travel lanes (one 12-foot wide lane and one 14-foot wide lane for bicycle accommodation) and 8-foot wide inside and outside shoulders in each direction, with open ditch drainage. For urbanized areas, the facility would consist of two travel lanes (one 12-foot wide lane and one 14-foot wide lane for bicycle accommodation) in each direction, with curb and gutter drainage. The facility would also include 6-foot wide sidewalks along both sides of the road throughout the project limits. The proposed project ROW would include a median (variable width) that would accommodate the future construction of an ultimate mainlane facility.

The proposed project would also construct intersections at six (6) major cross roads as follow: John Paine, Farm-to-Market Road (FM) 2449, Tom Cole/FM 1515, Jim Christal Road, United States Highway (US) 380, and Masch Branch Road. In addition, the proposed project would construct a grade separation at the KCS Railroad and would tie into the grade separations at IH 35 and IH 35W.

The proposed SL 288 project (frontage road system) would likely be constructed in two phases based on traffic needs and project funding. A logical sequence for staging the various elements for construction of the new location frontage road system could be as follows:

- Phase 1 would construct a single two-lane, two-way frontage road, and would also acquire the proposed ROW to accommodate the frontage roads and the future ultimate mainlane facility.
- As traffic warrants and funding becomes available, Phase 2 would involve the construction of the two-lane frontage road, which would include the conversion of the two-way frontage road built in Phase 1 to a one-way operation, and the construction of grade separations at specific high-volume intersections.
- Phase 3 (a separate project) would involve the construction of the ultimate mainlane facility in both directions. Construction of the ultimate mainlane facility would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

The project area includes approximately 26.6 acres of existing roadway ROW, 401.5 acres of proposed ROW, 1.2 acres of proposed permanent drainage easements, and 13.2 acres of proposed ROW by others.

This technical report documents the potential impacts to water resources associated with the proposed SL 288 project, Phase 1 and 2. A general project location map is shown in **Figure 1** in **Attachment A**. Photographs of the project area and delineated water resources are provided in **Attachment B**.

2. Water Resources

The project area for water resources encompasses the areas that could incur temporary and/or permanent impacts resulting from the construction of the proposed project. The project area encompasses the existing and proposed ROW limits as well as proposed drainage easements. The proposed project is located within the Trinity River watershed basin. Thirteen streams within the project area are depicted on the United States Geological Survey (USGS) topographic maps (from south to north): four unnamed tributaries to Hickory Creek, Hickory Creek, Dry Fork Hickory Creek, and seven unnamed tributaries to Dry Fork Hickory Creek. A topographic map of the project area is provided on **Figure 2** in **Attachment A**.

2.1. Regulatory Context

This section contains a brief explanation of the regulatory requirements for activities that may impact water and wetland features, water quality, and floodplains. It also summarizes specific permitting activities or agency coordination for each regulatory requirement, if applicable.

Executive Order 11990 – Protection of Wetlands

The purpose of Executive Order (EO) 11990 is to “minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.” The EO requires federal agencies to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The project would comply with EO 11990.

Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into waters of the U.S. (WOUS) and regulating quality standards for surface waters through Sections 404, 401, 402, and 303 of the Act. As specified by the Texas Commission on Environmental Quality (TCEQ) Construction General Permit (CGP) (TXR 150000), the proposed project would require a Storm Water Pollution Plan (SW3P), Notice of Intent (NOI), and Notice of Termination (NOT). The SW3P would detail what best management practices (BMPs) would be utilized and where they would be utilized to reduce storm water impacts to the maximum extent practicable. The SW3P would also ensure that all disturbed areas are properly revegetated prior to the NOT being filed. The project would comply with the CWA.

Rivers and Harbors Act of 1899

The River Rivers and Harbors Act of 1899 generally prohibits the construction of structures over or in navigable WOUS without Congressional approval, which has been delegated to the United States Coast Guard (USCG). The Rivers and Harbors Act of 1899 also prohibits excavation or fill within navigable WOUS without the approval of the U.S. Army Corps of

Engineers (USACE). There are no Section 10 waters, as defined in the Rivers and Harbors Act of 1899, within the project area.

General Bridge Act of 1946

The General Bridge Act of 1946 prohibits the construction of any bridge across navigable WOUS unless first authorized by the USCG. The proposed project would not involve the construction of a bridge across a navigable WOUS.

Executive Order 11988 – Floodplain Management

EO 11988 requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The proposed project would be in compliance with 23 Code of Federal Regulations (CFR) 650 regarding location and hydraulic design of highway encroachments within floodplains.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-666c), enacted in 1956, and amended several times since, calls for the USACE and other federal agencies involved in water resources to consult with the United States Fish and Wildlife Service (USFWS) if a federal permit or license is required. Coordination with the applicable state agency exercising administration over wildlife resources would also be necessary, with a view to the conservation of wildlife resources by preventing loss and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development. The proposed project would comply with the FWCA.

Other Regulations

Due to the location of the project, the following regulations do not apply: Trinity River Corridor Development Certification, Wild and Scenic Rivers, Coastal Zone Management Act and Texas Coastal Management Program, Coastal Barrier Resources Act, and International Boundary and Water Commission Licensing.

2.2. Methodology

Water resources occurring in the project area were researched by desktop review of web resources from USGS National Hydrography Dataset (NHD) and 7.5-minute topographic data for Sanger and Denton West, Texas quadrangles, TCEQ, Texas Water Development Board (TWDB), Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP), USFWS National Wetlands Inventory (NWI) mapping, and aerial photography. Desktop mapping of water resources was performed using Geographic Information System (GIS) mapping utilizing spatial data obtained from USGS, TWDB, FEMA, and USFWS. NWI, NHD, and FEMA data for the project area are provided on **Figure 3**.

Two manuals [1987 *Corps of Engineers Wetland Delineation Manual* (Technical Report Y-87-1) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region*] were used for identifying potential WOUS and to delineate the ordinary high-water mark (OHWM) in the project area. Potential wetlands were also identified with

these manuals based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.

According to the USACE, the federal agency having authority over WOUS, wetlands are those areas that are inundated or saturated by surface or groundwater at a frequent and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The OHWM is defined as that line on the shore or bank established by the fluctuations of water and by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the soil character, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

WOUS considered to be jurisdictional include traditional navigable waterways, relatively permanent non-navigable tributaries to traditional navigable waterways, and non-relatively permanent tributaries that have a significant nexus to traditional navigable waterways. The latter can be identified by the presence of an OHWM. Jurisdictional wetlands include those that are adjacent to traditional navigable waterways or have a continuous surface connection to a jurisdictional tributary.

Field reconnaissance was performed on May 15-17, 2019, to examine and assess resources identified during desktop review and to identify and document the water and wetland resources present in the project area. Global Positioning System (GPS) data and photographs were recorded for each potentially jurisdictional WOUS and wetland feature encountered during the field visit wherever right-of-entry (ROE) was granted. Where ROE was not granted, WOUS were delineated based off aeriels. At wetland features, two data points were taken to document the boundary of the wetland. The wetland determination data forms are included in **Attachment C**. Stream data forms for all potentially jurisdictional streams are provided in **Attachment D**.

2.3. Existing Conditions and Direct Effects of the Proposed Project

2.3.1. Waters of the U.S., including Wetlands

Pursuant to EO 11990 (Protection of Wetlands), Section 404 of the CWA, and Section 10 of the Rivers and Harbors Act of 1899, an investigation was conducted to identify potential jurisdictional WOUS, including wetlands, within the project area. Results of the investigation determined that 19 water features are located across the project area.

Water features delineated within the project area are shown on **Figure 4**. The total areas of the potentially jurisdictional features within the project area were calculated and are described in **Table 1**. A brief description of the anticipated work and impacts to each feature are also included in **Table 1**. Jurisdiction of all the features presented in this report and assessed during the field investigations will be determined by the USACE. It should be noted that only those parcels where ROE was granted were investigated for WOUS. As such, the total WOUS within the project area and impacts to those WOUS should be re-evaluated once ROE is obtained for all parcels within the project area.

Table 1. Project Area Surface Waters

Feature ID	Feature Name	Extent in ROW		Existing Structure(s)	Proposed Work or Structure	Closest Station	Anticipated Permanent Impacts		Potentially Jurisdictional?	Potential Permit
		Length (linear feet)	Area (acres)				Length (linear feet)	Area (acres)		
1	Impoundment	N/A	0.02	None	None	2005+00	N/A	0.02	No	None
2	Unnamed Tributary to Hickory Creek	431.70	0.06	None	Culvert	2045+00	409.81	0.06	Yes	NWP 14 with PCN
3	Unnamed Tributary to Hickory Creek	476.11	0.02	None	Culvert	2045+00	476.11	0.02	Yes	NWP 14 with PCN
4	Unnamed Tributary to Hickory Creek	119.31	0.16	Culvert	Culvert Replacement	2080+00	75.50	0.01	Yes	NWP 14
5	Unnamed Tributary to Hickory Creek	839.36	0.25	None	Culvert	2100+00	333.64	0.09	Yes	NWP 14 with PCN
6	Wetland	N/A	0.21	None	None (Area to be bridged)	2130+00	N/A	0.00	Yes	None
7	Wetland	N/A	0.04	None	None (Area to be bridged)	3135+00	N/A	0.00	Yes	None
8	Impoundment	N/A	0.09	None	Bridge Pilings	Between 3140+00 & 3145+00	N/A	<0.01	Yes	NWP 14
9	Hickory Creek	472.39	0.46	None	None (Area to be bridged)	3145+00	0.00	0.00	Yes	None
10	Impoundment	N/A	0.14	None	Roadway Fill	3155+00	N/A	0.14	No	None
11a	Dry Fork Hickory Creek	657.34	0.21	None	None (Area to be bridged)	2230+00	0.00	0.00	Yes	None
11b	Dry Fork Hickory Creek	439.89	0.19	None	None (Area to be bridged)	3235+00	0.00	0.00	Yes	None
12	Impoundment	N/A	0.03	None	None (Area to be bridged)	2230+00	N/A	0.00	Yes	None
13	Wetland	N/A	0.07	None	Culvert	3260+00	N/A	0.02	Yes	NWP 14 with PCN
14a	Wetland	N/A	0.15	None	Roadway Fill	2310+00	N/A	0.15	No	None

Feature ID	Feature Name	Extent in ROW		Existing Structure(s)	Proposed Work or Structure	Closest Station	Anticipated Permanent Impacts		Potentially Jurisdictional?	Potential Permit
		Length (linear feet)	Area (acres)				Length (linear feet)	Area (acres)		
14b	Pond	N/A	0.03	None	Roadway Fill	2310+00	N/A	0.03	No	None
15a	Unnamed tributary to Dry Fork Hickory Creek	594.49	0.04	Driveway Culverts	Culvert	20+00, 25+00	594.49	0.04	Yes	NWP 14 with PCN
15b	Wetland	N/A	0.02	Driveway culvert	Culvert	20+00, 25+00	N/A	0.01	Yes	NWP 14 with PCN
16	Unnamed tributary to Dry Fork Hickory Creek	677.30	0.13	Culvert	Culvert Replacement and Expansion	2335+00	239.02	0.04	Yes	NWP 14
17	Unnamed tributary to Dry Fork Hickory Creek	1,015.80	0.15	None	Culvert	3375+00	727.83	0.15	Yes	NWP 14 with PCN
18*	Impoundment	N/A	0.19	None	Bridge Pilings	2380+00	N/A	<0.01	Yes	NWP 14
19a*	Impoundment	N/A	1.79	None	None	2400+00	N/A	<0.01	Yes	NWP 14
19b*	Impoundment	N/A	0.16	None	None	2400+00	N/A	<0.01	Yes	NWP 14
TOTALS		5, 723.7	4.61	--	--	--	2,856.4	0.79	--	--

*These features were on parcels where no ROE was granted. Acreages were estimated based off aerial imagery and will need to be updated after ROE has been acquired.

Features 1, 10, and 14 are likely to be considered non-jurisdictional due to being located outside of the 100-year FEMA floodplain and lacking hydrological connectivity to any named or mapped water feature, as noted during field investigations.

There is approximately 4.61 acres and 5,723.7 linear feet (LF) of delineated water features within the project area. Approximately 0.79 acres and 2,856.4 LF of WOUS would be permanently impacted by the proposed project, of which 0.45 acre (2,856.4 LF) is potentially jurisdictional WOUS subject to permitting requirements through USACE. At this time, no temporary impacts are anticipated to any WOUS.

2.3.2. Water Quality

Section 402 of the Clean Water Act: Texas Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System

The proposed project is located partially within the boundaries of TxDOT's Municipal Separate Storm Sewer System (MS4) Phase I permits. The project would not discharge into a non-TxDOT operated MS4.

Section 303(d) of the Clean Water Act

Based on the 2014 Texas Integrated Report of Surface Water Quality, formerly called the Texas Water Quality Inventory and Section 303(d) List, the project area does not cross any impaired waterbody segments and does not contain waterbodies that are upstream within five stream miles of an impaired waterbody segment. All waterbody segments drain to Hickory Creek which eventually flows into Lewisville Lake, all within the Trinity River Basin.

Section 402 of the Clean Water Act: Texas Pollutant Discharge Elimination System, Construction General Permit

This project would include five or more acres of earth disturbance. TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) CGP. A SW3P would be implemented, and a construction site notice would be posted on the construction site. A NOI and a NOT would be required. The SW3P would detail what BMPs would be utilized and where they would be utilized to reduce storm water impacts to the maximum extent practicable. The SW3P would also ensure that all disturbed areas are properly revegetated prior to the NOT being filed.

Section 401 of the Clean Water Act: Water Quality Certification

Since a Nationwide Permit (NWP) would be necessary to permit the proposed project, construction activities would require compliance with the State of Texas Water Quality Certification Program. The 401 Certification requirements for an NWP 14 would be met by implementing Best Management Practices (BMPs) from the TCEQ 401 Water Quality Certification Conditions for NWPs.

Groundwater

The entire project area is located over the Trinity Aquifer. The Trinity Aquifer underlies an area of about 41,000 square miles that extends from south-central Texas to southeastern Oklahoma; the aquifer is also in a small area in southwestern Arkansas. The aquifer consists of interbedded sandstone, sand, limestone, and shale of Cretaceous age. The Trinity Aquifer

underlies a densely populated part of Texas, which includes the large metropolitan areas of San Antonio, Austin, Fort Worth, and Dallas. The aquifer is far more important north of Austin, where it provides the total or partial water needs for many cities, towns, industries, and farms.

According to the TWDB Groundwater Database, there are no water wells within the existing or proposed ROW or proposed drainage easements. No water wells were observed during the field reconnaissance on May 15-17, 2019.

2.3.3. Floodplains

Denton County is a participant in the NFIP. FEMA Flood Insurance Rate Maps (FIRMs) 48121C0220G, 48121C0215G, 48121C0355G, 48121C0365G, and 48121C0370G, all dated April 18, 2011, were reviewed to determine flood zones within the project area. The project area crosses nine areas which are designated as special flood hazard areas inundated by the 100-year flood as either Zone A (no base flood elevations determined) or Zone AE (base elevations determined). There are approximately 31.7 acres of 100-year floodplain within the project area. Other areas are designated as Zone X (areas determined to be outside the 100-year floodplain). The 100-year floodplain areas are shown on **Figure 3**.

2.4. Indirect Effects of the Proposed Project

Indirect effects may occur to water resources as a result of project encroachment/alteration effects. During construction, degradation of water quality could occur due to sedimentation of both surface water and groundwater. Construction has the highest likelihood of creating pollutants and sediment that could impact WOUS if storm water runoff enters surface water features prior to being treated. The potential for project-related encroachment-alteration effects on WOUS would be mitigated through permanent (post-construction) BMPs as described above. WOUS could receive an increased amount of sediment if storm water were released from the project area despite the use of BMPs. To minimize the potential for adverse impacts, BMPs would be regularly inspected and proactively maintained.

The potential for project-related encroachment-alteration effects on floodplains would be mitigated through temporary (construction phase) and permanent (post-construction) BMPs. Floodplains could receive an increased amount of sediment if storm water were released from the project area despite the use of BMPs. Build-up of sediment, in turn, could reduce the water storage capacity of the floodplain. To minimize the potential for adverse impacts, erosion and sedimentation BMPs would be effectively installed, regularly inspected and proactively maintained.

Encroachment-alteration effects may occur to groundwater resources as a result of the proposed project. During construction, degradation of groundwater quality could occur due to fugitive sedimentation from the construction site entering area streams, creeks, and other recharge features. Temporary construction phase water quality BMPs would be in place, regularly inspected, and proactively maintained throughout the duration of construction to minimize the potential for water quality impacts. Post-construction operation of the proposed roadway has the potential to result in encroachment-alteration effects to

groundwater quality if roadway contaminants or increased sediments in runoff were to enter recharge features. The potential for these impacts (both construction phase and post-construction) would be minimized by the development and implementation of water quality BMPs. The utilization of temporary and permanent BMPs would serve to minimize sediments and roadway pollutants arising from normal roadway usage and accidental spills.

3. Agency Coordination, Permitting and Mitigation Requirements

Waters of the U.S., including Wetlands

There are no Section 10 navigable waterways within the project area. As the project currently does not exceed 0.50 acre of permanent impacts to any individual crossing of non-tidal waters, the project would require the use of NWP 14 to satisfy the requirements of work at each WOUS. A Pre-Construction Notification (PCN) is required for more than 0.10 acre of impact, impacts at crossings that exceed 300 LF, or an impact to a special aquatic site, such as a wetland. Features 2, 3, 5, 13, 15, and 17 would require a PCN. Compensatory mitigation may be required for the permanent impacts at a one-to-one ratio at all crossings that exceed 300 LF or 0.10 acre of permanent impacts.

All impact assessments presented in this report are preliminary in nature. Impacts to specific features may change based on final project design and re-evaluation of parcels in the project area where ROE was not granted at the time of field investigations. The final project totals may differ from what is presented in **Table 1**.

Floodplains

This project is subject to and would comply with federal EO 11988 on Floodplain Management. The department implements this EO 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 the Federal Highway Administration's (FHWA) rules implementing EO 11988 at 23 CFR 650.105(q).

Water Quality

Since an NWP would be necessary to permit the proposed project, construction activities would require compliance with the State of Texas Water Quality Certification Program. The 401 Certification requirements for an NWP 14 would be met by implementing BMPs from the TCEQ 401 Water Quality Certification Conditions for NWPs.

Based on the approved 2014 Texas Integrated Report of Surface Water Quality, there are no impaired streams that cross the proposed project area and no impaired stream segments that are located within five miles downstream of the project area. However, coordination with the TCEQ would still be required per the 2019 TxDOT-TCEQ Memorandum of Understanding (MOU). Appropriate BMPs, such as grass-lined ditches, drainage swales, etc., would be used to control potential pollutants.

Impacts to storm water would be minimized as much as possible by utilizing approved temporary and permanent erosion and sediment control BMPs as specified by TCEQ CGP

(TXR 150000). The CGP requires that a SW3P, NOI, and NOT be prepared for the proposed project. The proposed project is located partially within the boundaries of TxDOT's MS4 Phase I permit. The project would not discharge into a non-TxDOT operated MS4.

Construction equipment, spoil material, supplies, forms, and buildings shall not be placed or stored in the floodway during construction activities. Any item that may be transported by flood flows shall not be stored within the floodway. Any work within jurisdictional areas would be coordinated with USACE and permitted, as necessary.

ATTACHMENT A
Project Figures

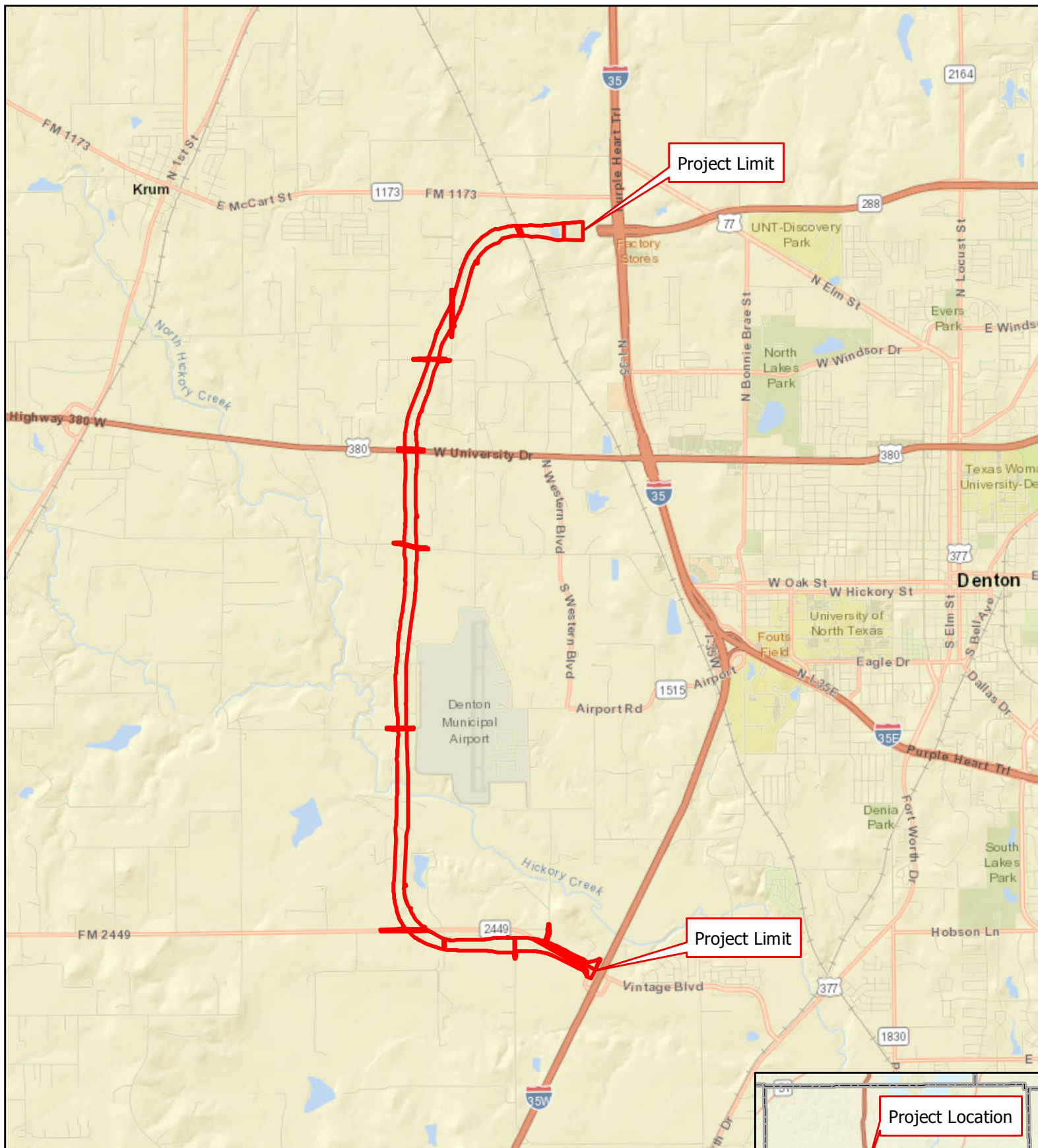


Figure 1: Project Location

State Loop 288

From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013, 2250-02-014

- Project Area
- County Boundary

0 0.5 1 2 3

Miles



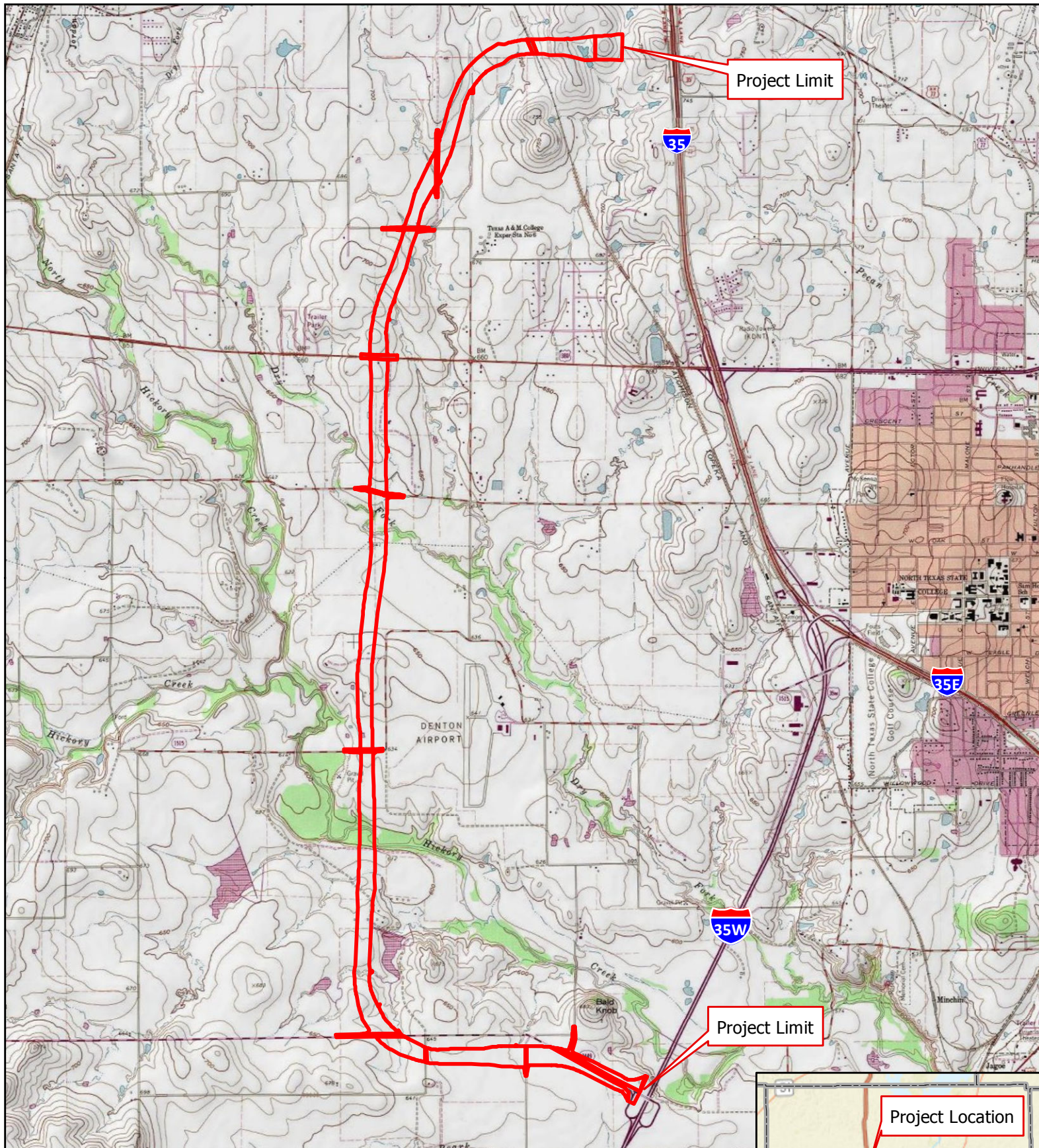


Figure 2: USGS Topographic Map

State Loop 288

From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013, 2250-02-014

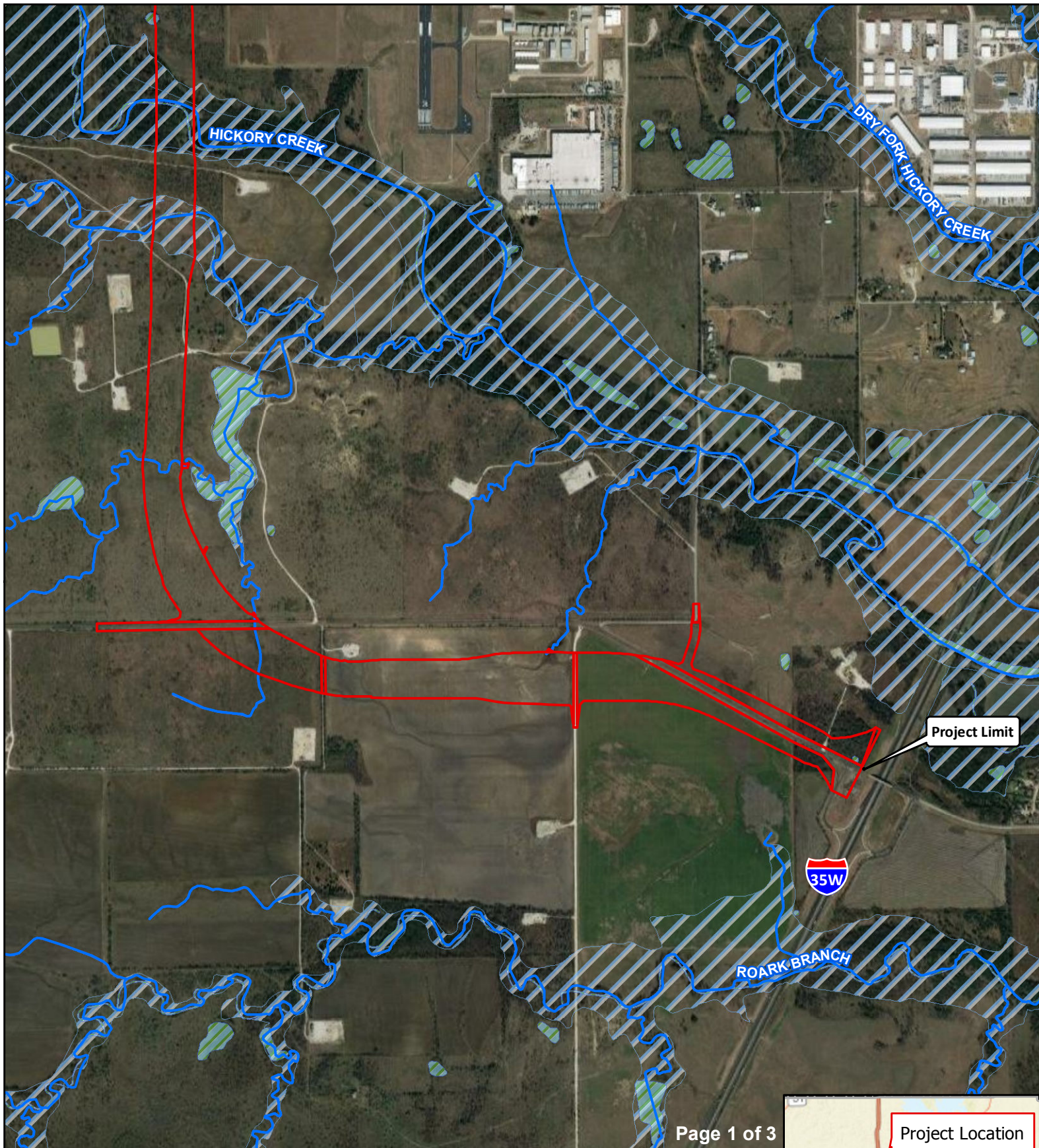
Basemap: ESRI Street Map 2017; USGS Topo
Sanger & Denton West Quads

 Project Area

0 0.25 0.5 1 1.5

Miles





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Figure 3: Water Resources

State Loop 288

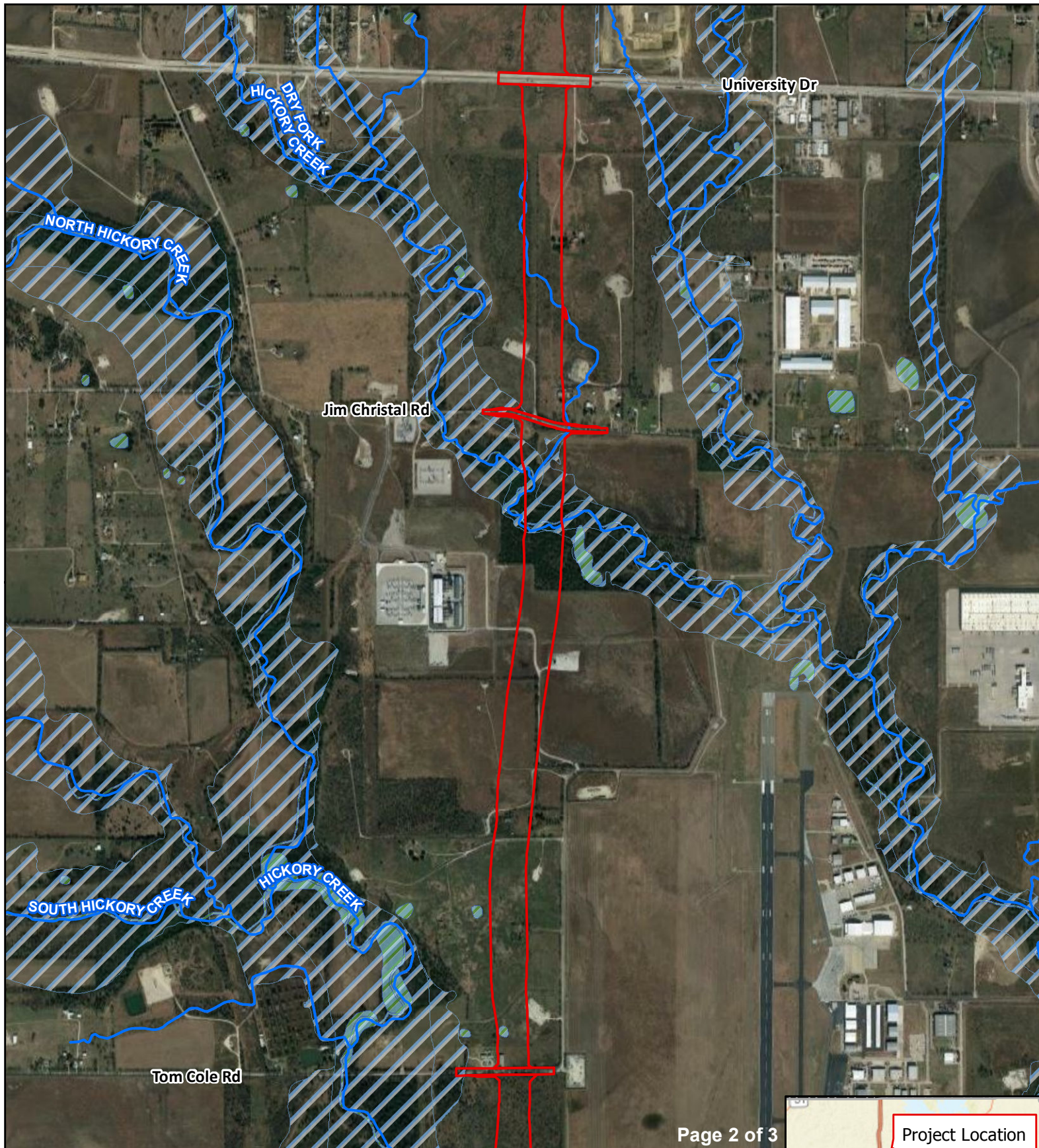
From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013, 2250-02-014

-  Project Area
-  Stream
-  NWI Wetland
-  100-Yr Floodplain





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Figure 3: Water Resources

State Loop 288

From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013, 2250-02-014



Project Area



Stream



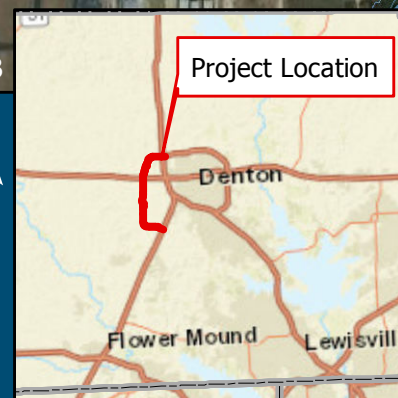
NWI Wetland



100-Yr Floodplain

0 1,000 2,000 3,000

Feet



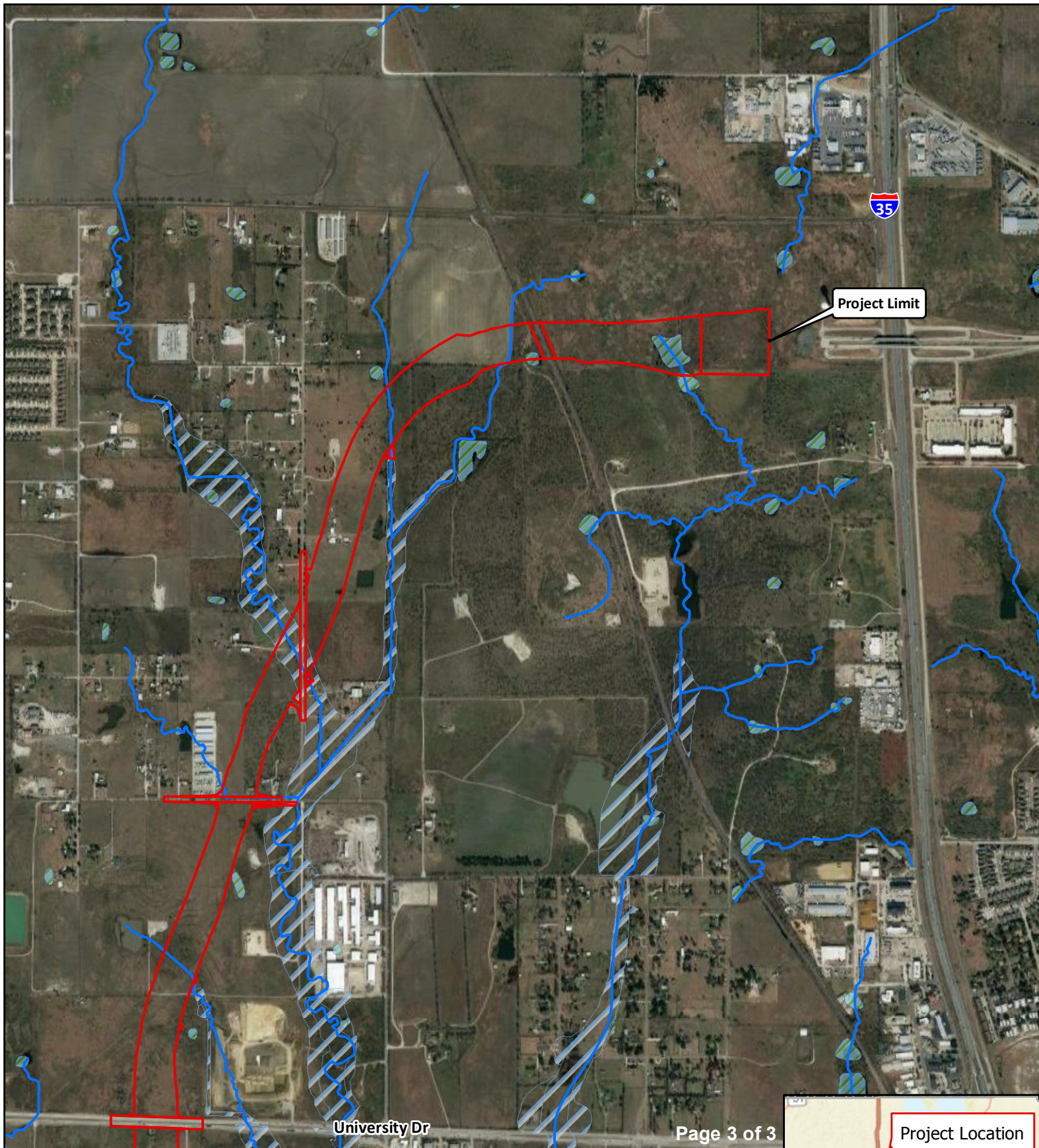
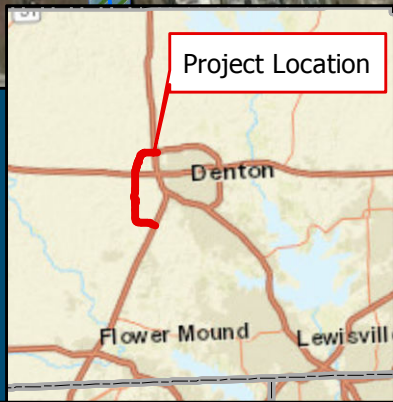
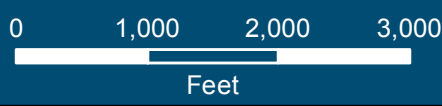


Figure 3: Water Resources

State Loop 288
From IH 35W to IH 35
Denton County, Texas
CSJ: 2250-02-013, 2250-02-014

-  Project Area
-  Stream
-  NWI Wetland
-  100-Yr Floodplain



Basemap: Google Imagery 2018; ESRI Street Map 2017
NHD 2017; NWI 2018; FEMA 2011

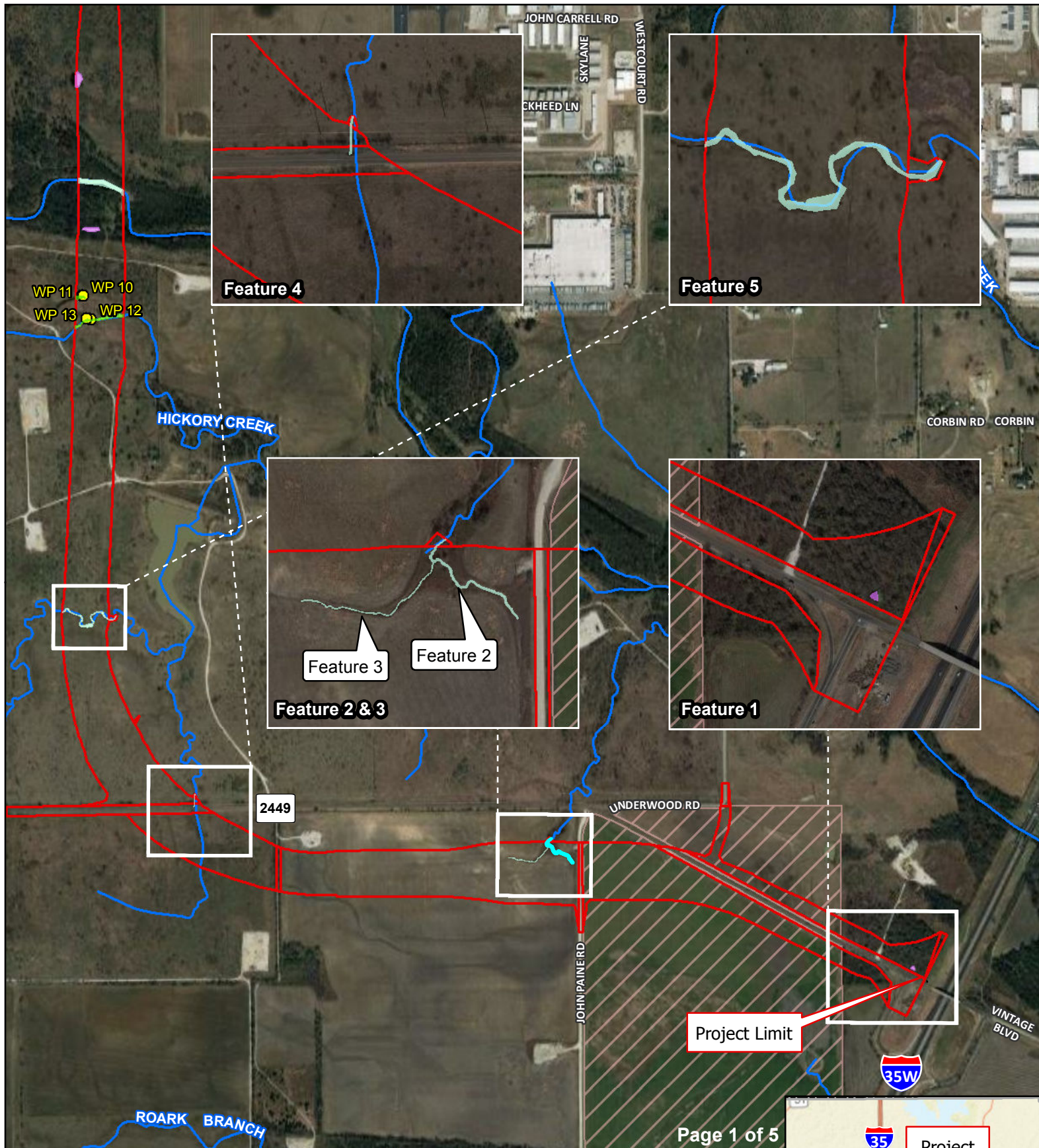


Figure 4: Field Observed Waters

State Loop 288

From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013

& 2250-02-014

Basemap: Google Imagery 2018; NHD 2017;
ESRI Street Map 2017

Project Area

No ROE

Wetland
Determination Point

NHD Stream

OHWM

Impoundment

Wetland

0 1,000 2,000 Feet

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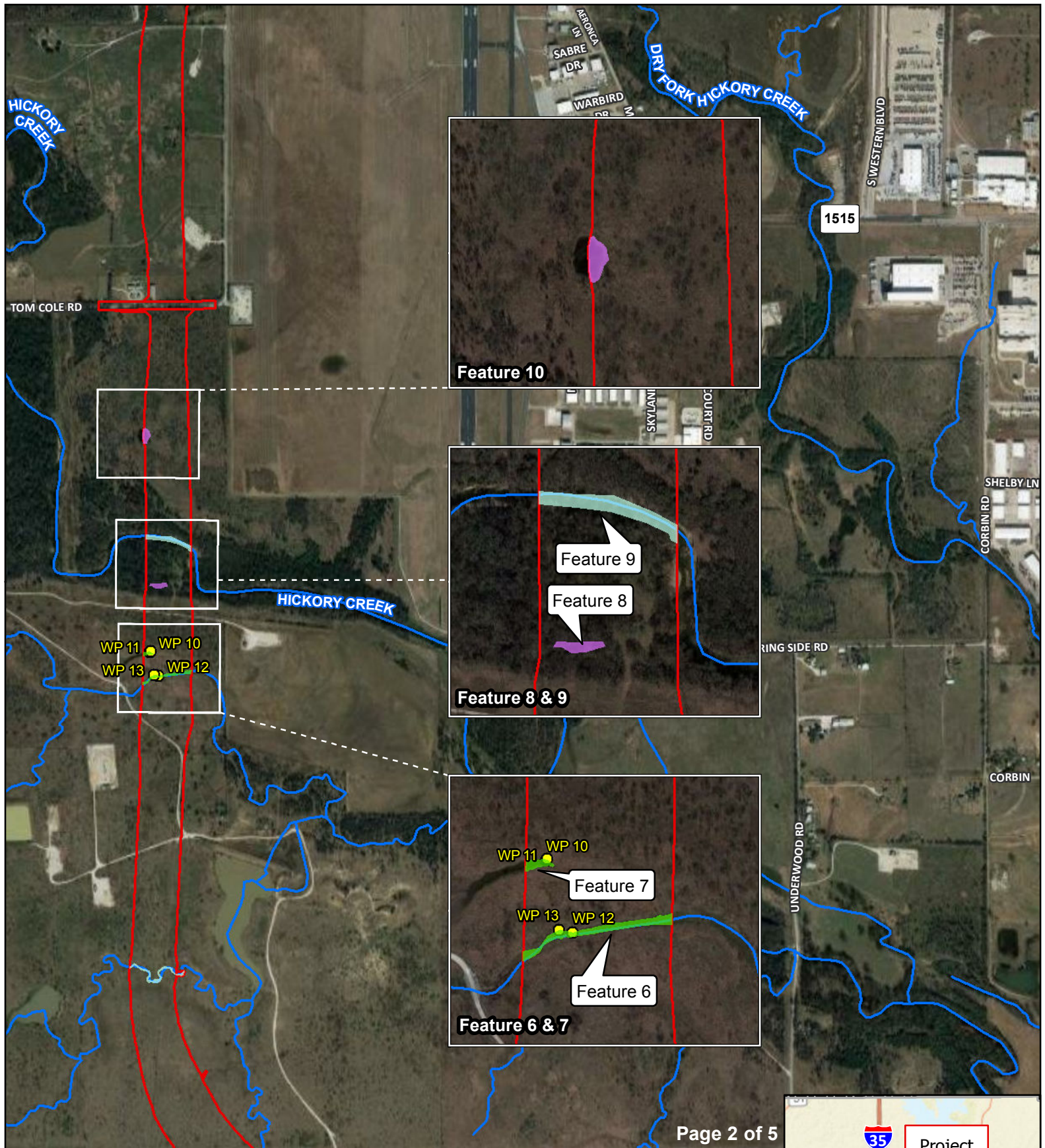


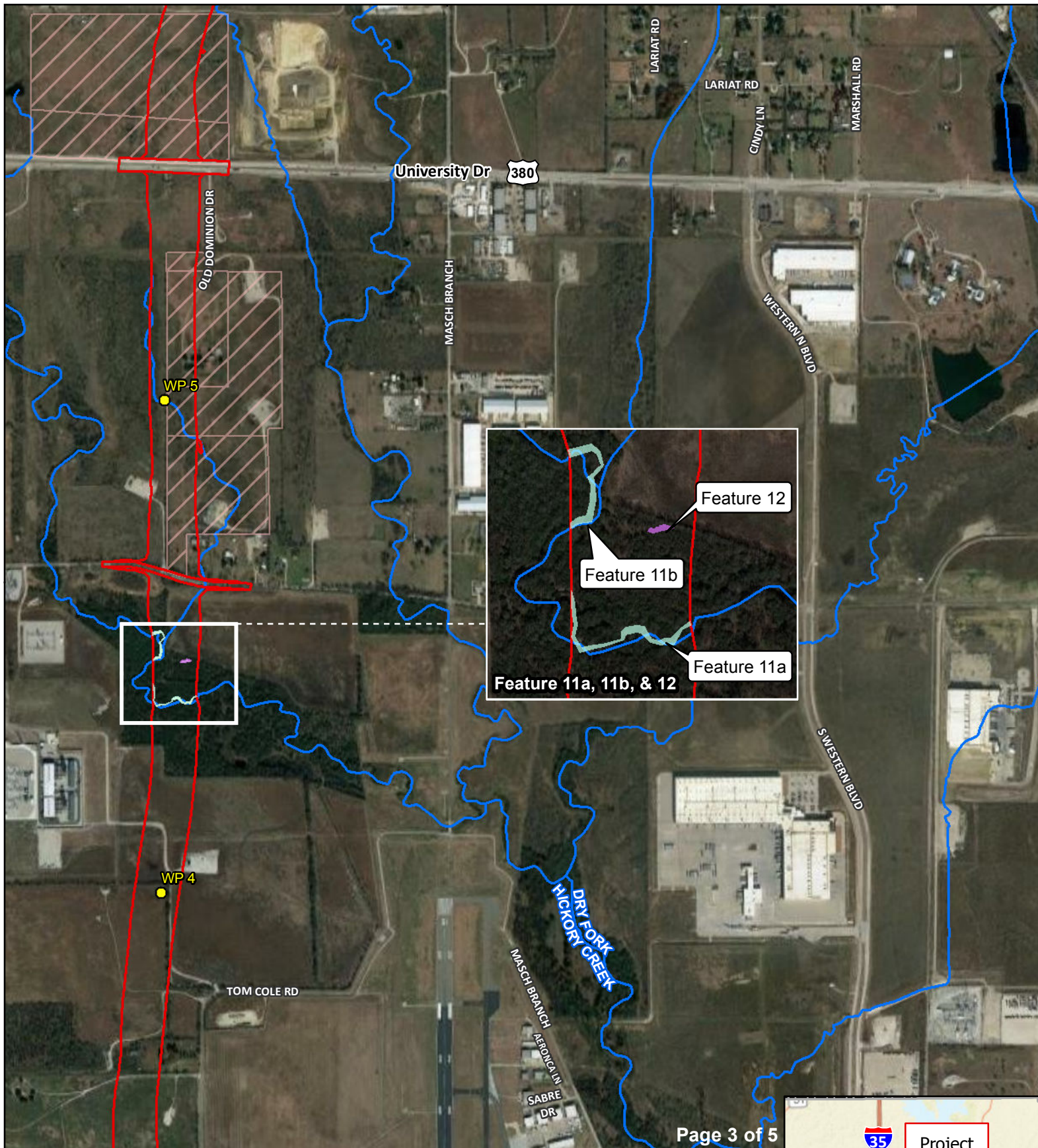
Figure 4: Field Observed Waters

State Loop 288
 From IH 35W to IH 35
 Denton County, Texas
 CSJ: 2250-02-013
 & 2250-02-014

Basemap: Google Imagery 2018; NHD 2017;
 ESRI Street Map 2017

- Project Area
- No ROE
- Wetland Determination Point
- ~~~~~ NHD Stream
- OHWM
- Impoundment
- Wetland





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Figure 4: Field Observed Waters

State Loop 288

From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013

& 2250-02-014

Basemap: Google Imagery 2018; NHD 2017;
ESRI Street Map 2017

Project Area

No ROE

Wetland
Determination Point

NHD Stream

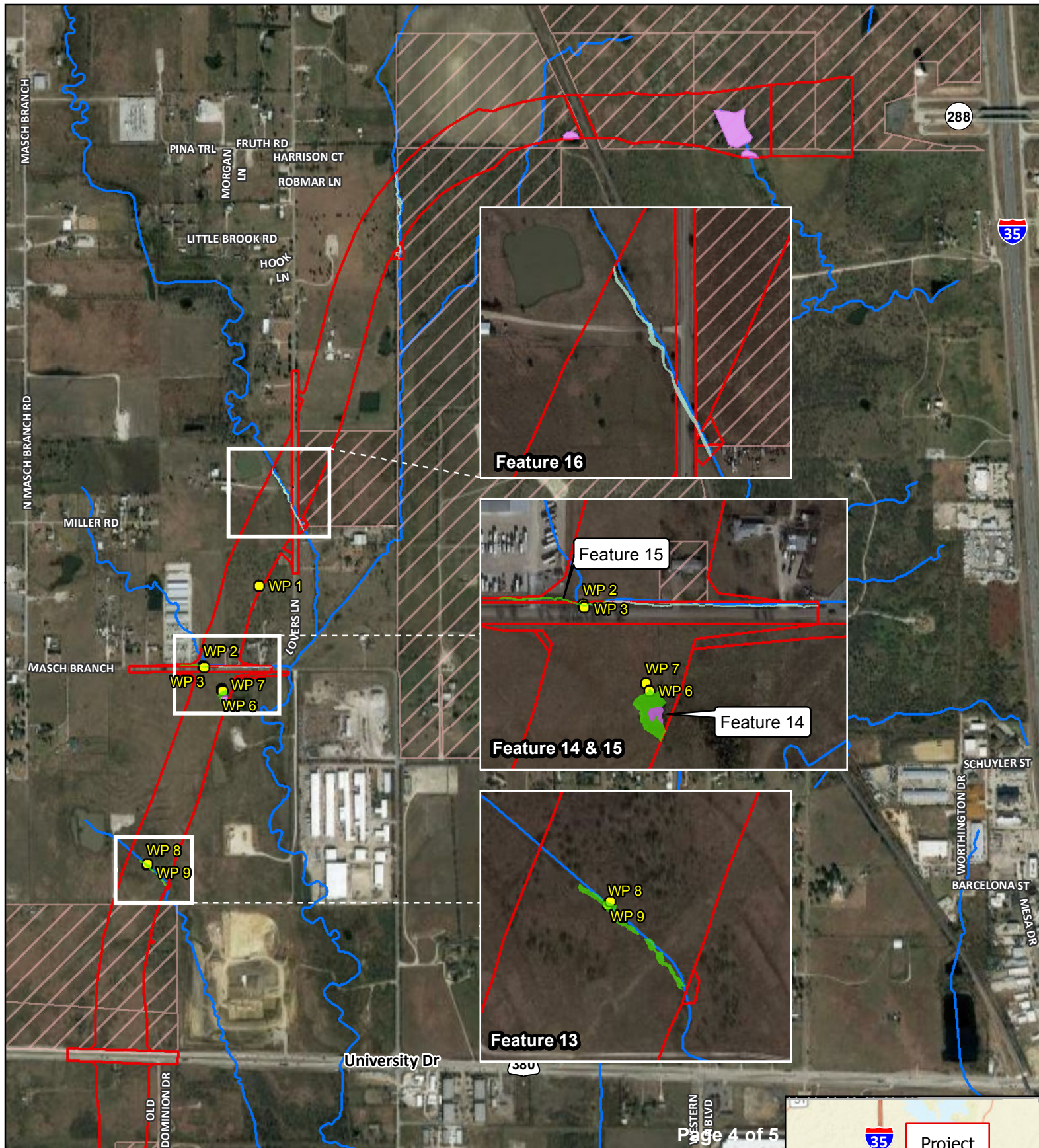
OHWM

Impoundment

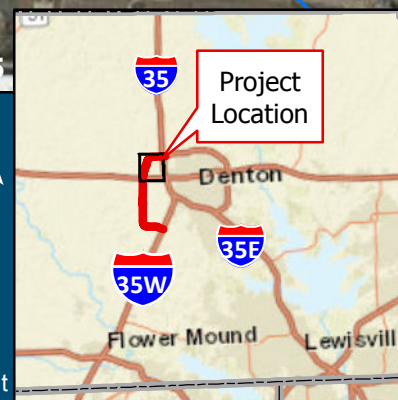
Wetland

0 1,000 2,000 Feet





Page 4 of 5



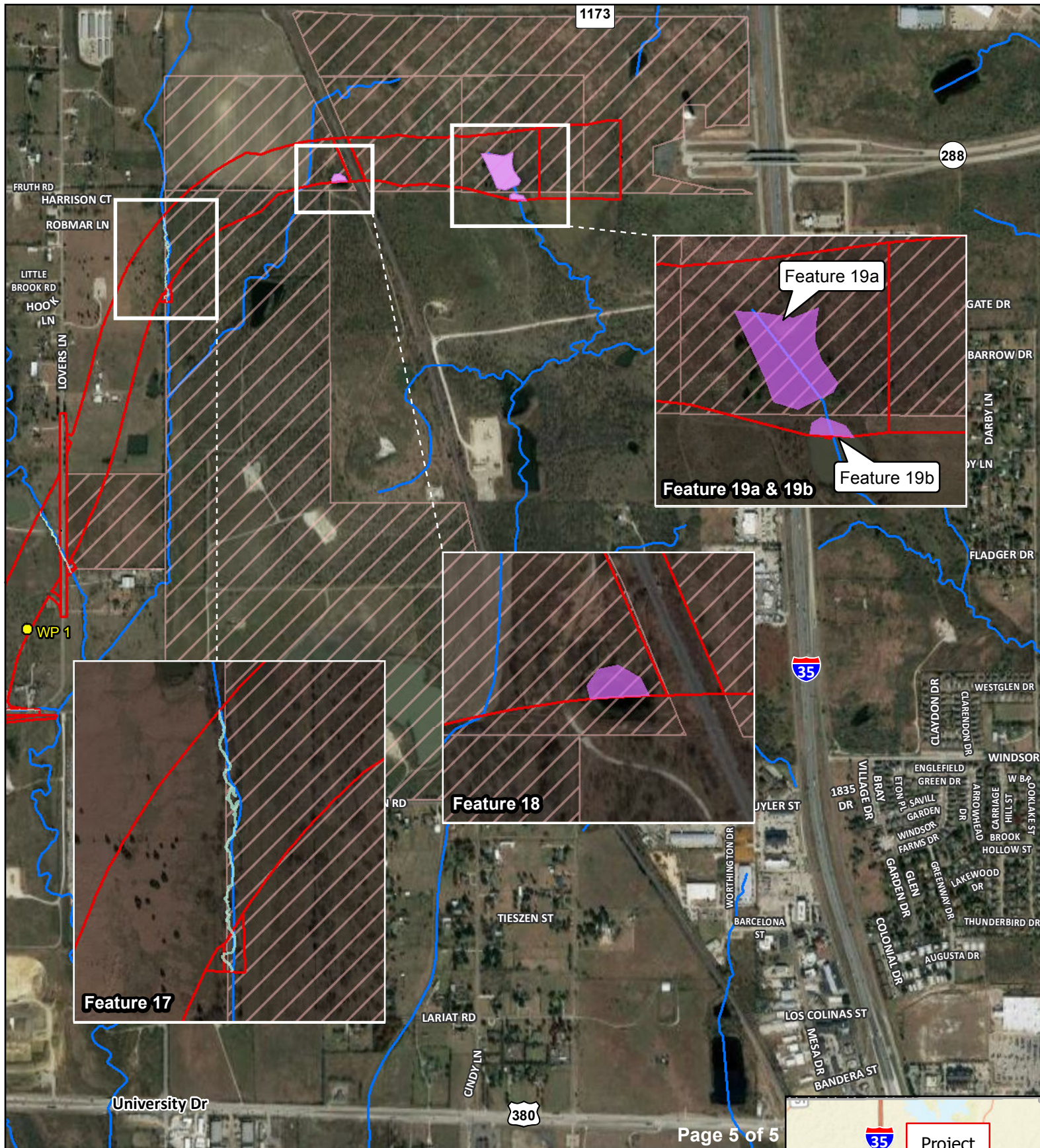


Figure 4: Field Observed Waters

State Loop 288

From IH 35W to IH 35

Denton County, Texas

CSJ: 2250-02-013

& 2250-02-014

Basemap: Google Imagery 2018; NHD 2017;
ESRI Street Map 2017

Project Area

No ROE

Wetland
Determination Point

NHD Stream

OHWM

Impoundment

Wetland

0 1,000 2,000 Feet



ATTACHMENT B
Project Area Photographs



Photograph 1. View looking east from IH 35W at the southern project limit.



Photograph 2. View looking north at Feature 1. This feature is likely to be considered non-jurisdictional due to its lack of hydrological connectivity to any jurisdictional water.



Photograph 3. View looking north from the start of Feature 2, an unnamed tributary to Hickory Creek. This feature is likely to be considered jurisdictional.



Photograph 4. View looking north at Feature 3, an unnamed tributary to Hickory Creek. This feature is likely to be considered jurisdictional.



Photograph 5. View looking south at the mapped NHD line of an unnamed tributary to Hickory Creek. No OHWM or flow was exhibited on the south side of CR 2449, but an OHWM was present on the north side of the road.



Photograph 6. View of the unnamed tributary to Hickory Creek (Feature 4) looking north. This feature would likely be considered jurisdictional.



Photograph 7. View looking west at Feature 5, an unnamed tributary to Hickory Creek. This feature is likely to be considered jurisdictional.



Photograph 8. View looking west at Feature 6, a mapped unnamed tributary to Hickory Creek. This feature was delineated with WP 12 (wetland point) and WP 13 (upland point). The portion of this mapped NHD-line was determined to be a wetland within the project area and would likely be considered jurisdictional.



Photograph 9. View looking west at Feature 7, an herbaceous wetland. This feature is within the floodplain of the unnamed tributary to Hickory Branch and would likely be considered jurisdictional.



Photograph 10. View of WP 10 within Feature 7. This location met the three necessary criteria to be considered a wetland.



Photograph 11. View of WP 11, adjacent to Feature 7. This sample point did not meet the three necessary criteria to be considered a wetland.



Photograph 12. View looking west at Feature 8, an impoundment. This feature is within the floodplain of Hickory Creek and would likely be considered jurisdictional.



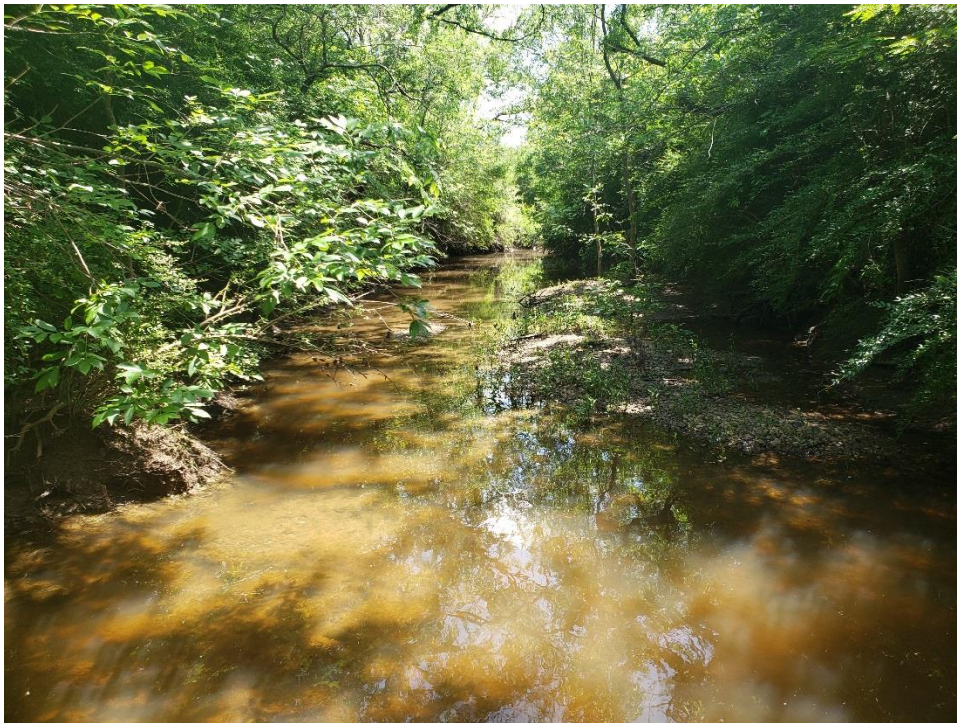
Photograph 13. View looking east at Feature 9, Hickory Creek. This feature is likely to be considered a jurisdictional creek.



Photograph 14. View looking south at Feature 10, an impoundment. This feature is likely to be considered non-jurisdictional due to its lack of hydrological connectivity to any jurisdictional water.



Photograph 15. View of WP 4. This sample location did not meet the three necessary criteria to be considered a wetland.



Photograph 16. View looking south at Feature 11, Dry Fork Hickory Creek. This feature entered the project area at two separate locations (Feature 11a and 11b). This feature is likely to be considered jurisdictional.



Photograph 17. View of WP 5. This sample location was located along a mapped NHD line but did not meet the three necessary criteria to be considered a wetland. No OHWM was observed at this location or any point along the location of the mapped NHD line within the project area.



Photograph 18. View looking west at the location of a mapped NHD-line (referenced in photograph 17) within the project area. No OHWM was observed within the project area.



Photograph 19. View of WP 8 within Feature 13. This sample point did meet the three necessary criteria to be considered a wetland. This wetland was located along a mapped NHD line and would likely be considered jurisdictional.



Photograph 20. View of WP 9 adjacent to Feature 13. This sample point did not meet the three necessary criteria to be considered a wetland.



Photograph 21. View of WP 6 within Feature 14. This sample location did meet the three necessary criteria to be considered a wetland.



Photograph 22. View of WP 7 adjacent to Feature 14, an impoundment with a fringe wetland. This sample location did not meet the three necessary criteria to be considered a wetland.



Photograph 23. View looking west at the OHWM within Feature 15, an unnamed tributary to Dry Fork Hickory Creek. This feature would likely be considered jurisdictional.



Photograph 24. View looking east along the wetland within Feature 15. This feature is along the mapped NHD unnamed tributary to Dry Fork Hickory Creek and would likely be considered jurisdictional.



Photograph 25. View of WP 2 within Feature 15. This sample location has significantly disturbed vegetation but did meet the three necessary criteria to be considered a wetland.



Photograph 26. View of WP 3 adjacent to Feature 15. This sample location did not meet the three necessary criteria to be considered a wetland.



Photograph 27. View of WP 1. This sample location did not meet the three necessary criteria to be considered a wetland.



Photograph 28. View looking northeast at Feature 16, an unnamed tributary to Dry Fork Hickory Creek. This feature is likely to be considered jurisdictional.



Photograph 29. View looking south along Feature 17, an unnamed tributary to Dry Fork Hickory Creek. This feature is likely to be considered jurisdictional.



Photograph 30. View looking west at Feature 19a and 19b. No ROE was obtained to access these features. These impoundments are located along a mapped NHD line, an unnamed tributary to Dry Hickory Creek, and would likely be considered jurisdictional.

ATTACHMENT C
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____				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.
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes _____ No _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations:		
Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____ (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)			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: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)			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: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	---	--

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)			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: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
Herb Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				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.
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
% Bare Ground in Herb Stratum _____ _____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H) <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)			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: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Hydric Soil Present? Yes _____ No _____	Remarks:
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HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	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: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H) <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	--

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)			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: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				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.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

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

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	---	---

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No _____
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

ATTACHMENT D
Stream Assessment Forms

Version 1.0 - Final Draft
TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

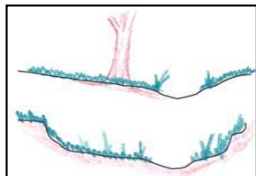
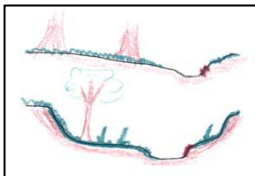
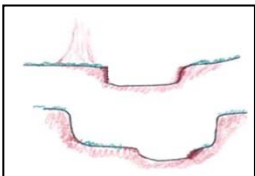
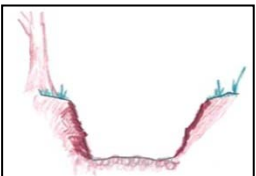
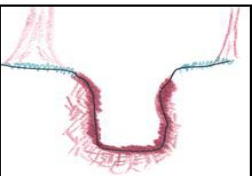
Stream Characteristics

Stream Width (Feet)	Stream Height/Depth (Feet)
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

- ☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
- ☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
- ☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
- ☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
- ☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____

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TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

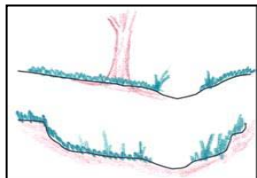
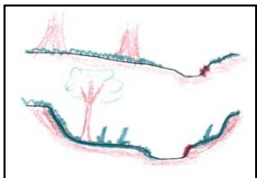
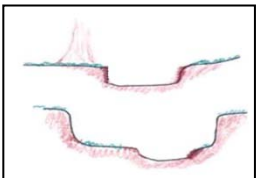
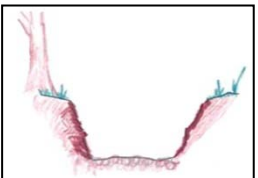
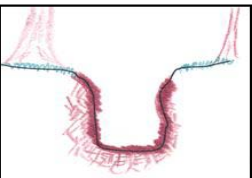
Stream Characteristics

Stream Width (Feet)	Stream Height/Depth (Feet)
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

- ☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
- ☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
- ☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
- ☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
- ☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____

Version 1.0 - Final Draft
TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

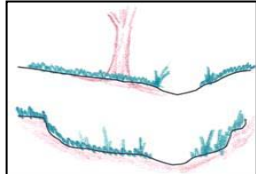

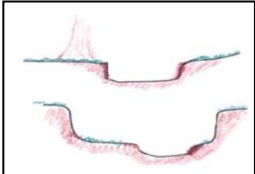
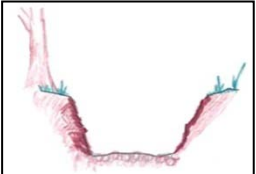
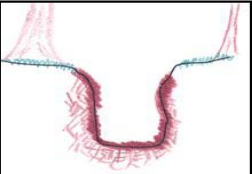
Stream Characteristics

Stream Width (Feet)	Stream Height/Depth (Feet)
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____

Version 1.0 - Final Draft
TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

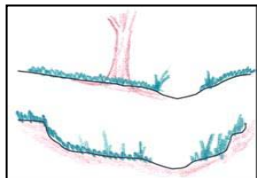
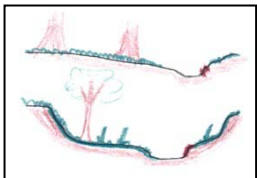
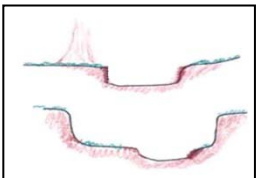
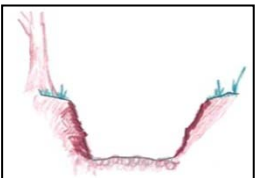
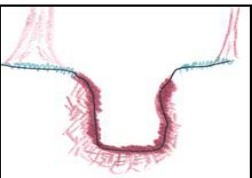
Stream Characteristics

Stream Width (Feet)	Stream Height/Depth (Feet)
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____

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TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

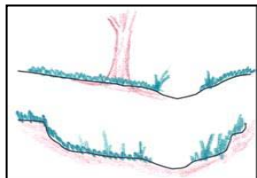
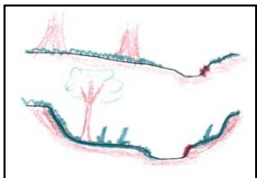
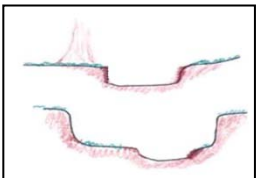
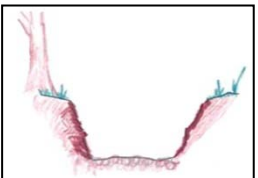
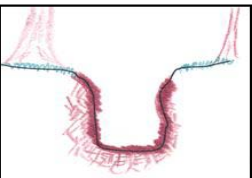
Stream Characteristics

<i>Stream Width (Feet)</i>	<i>Stream Height/Depth (Feet)</i>
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

- ☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
- ☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
- ☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
- ☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
- ☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____

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TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

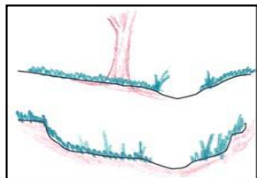
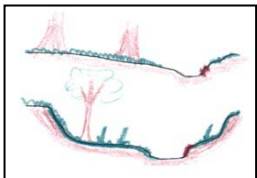
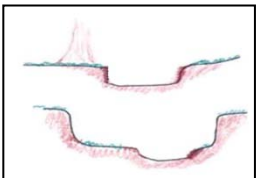
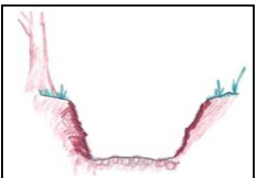
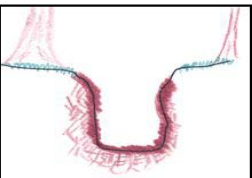
Stream Characteristics

Stream Width (Feet)	Stream Height/Depth (Feet)
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

- ☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
- ☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
- ☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
- ☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
- ☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

<input type="checkbox"/> Noticeable surface flow present (4)	<input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1)
<input type="checkbox"/> Continual pool of water but lacking noticeable flow (3)	<input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0)
<input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2)	

Score: _____

Channel Flow Status

<input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4)
<input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3)
<input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2)
<input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1)
<input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0)

Score: _____

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TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

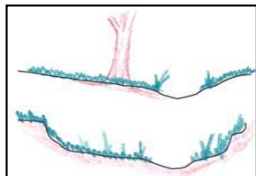
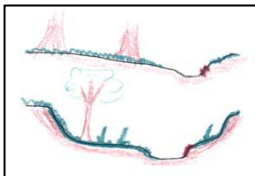
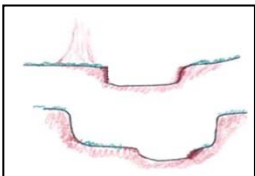
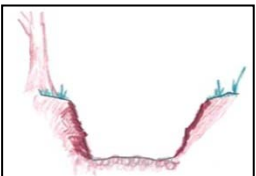
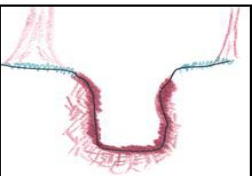
Stream Characteristics

Stream Width (Feet)	Stream Height/Depth (Feet)
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____

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TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

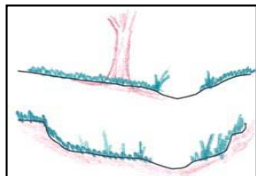
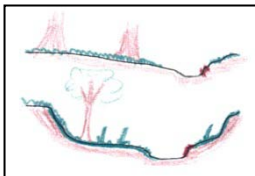
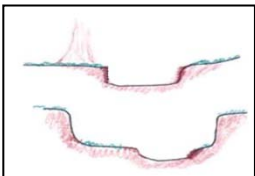
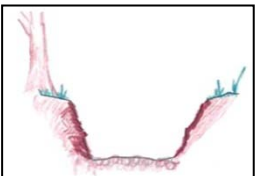
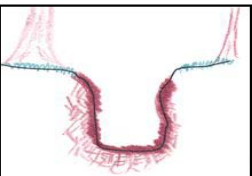
Stream Characteristics

<i>Stream Width (Feet)</i>	<i>Stream Height/Depth (Feet)</i>
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
Overhanging Vegetation													
Rootmats													
Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

<input type="checkbox"/> Noticeable surface flow present (4)	<input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1)
<input type="checkbox"/> Continual pool of water but lacking noticeable flow (3)	<input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0)
<input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2)	

Score: _____

Channel Flow Status

<input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4)
<input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3)
<input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2)
<input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1)
<input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0)

Score: _____

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TXRAM STREAM DATA SHEET

Project/Site Name/No.: _____ Project Type: ☐ Fill/Impact (☐ Linear ☐ Non-linear) ☐ Mitigation/Conservation
 Stream ID/Name: _____ SAR No.: _____ Size (LF): _____ Date: _____ Evaluator(s): _____
 Stream Type: _____ Ecoregion: _____ Delineation Performed: ☐ Previously ☐ Currently
 8-Digit HUC: _____ Watershed Condition (developed, pasture, etc.): _____ Watershed Size: _____
 Aerial Photo Date and Source: _____ Site Photos: _____ Representative: ☐ Yes ☐ No
 Stressor(s): _____ Are normal climatic/hydrologic conditions present? ☐ Yes ☐ No (If no, explain in Notes)

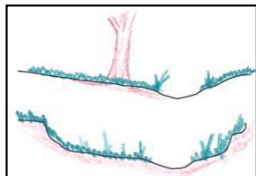
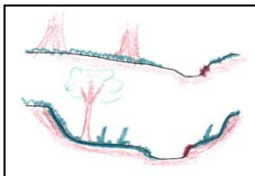
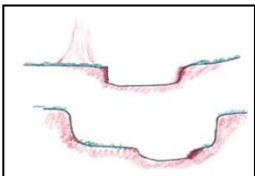
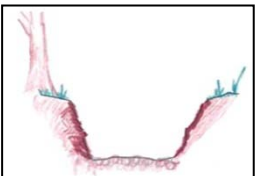
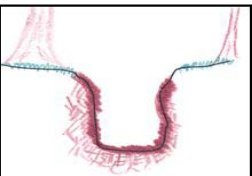
Stream Characteristics

<i>Stream Width (Feet)</i>	<i>Stream Height/Depth (Feet)</i>
Avg. Bank to Bank:	Avg. Banks:
Avg. Waters Edge:	Avg. Water:
Avg. OHWM:	Avg. OHWM:

Notes:

CHANNEL CONDITION

Floodplain Connectivity

				
5	4	3	2	1

Score: _____

Bank Condition

Left Bank Active Erosion: _____ % Right Bank Active Erosion: _____ % Average: _____
 Bank Protection/Stabilization: ☐ Natural ☐ Artificial: _____

Score: _____

Sediment Deposition

☐ Less than 20% of the bottom covered by excessive sediment deposition; bars with established vegetation (5)
☐ 20–40% of the bottom covered by excessive sediment deposition; some established bars with indicators of recently deposited sediments (4)
☐ 40–60% of the bottom covered by excessive sediment deposition; moderate deposition on old bars and creating new bars; moderate sediment deposits at in-stream structures; OR obstructed view of the channel bottom and a lack of other depositional features (3)
☐ 60–80% of the bottom covered by excessive sediment deposition; newly created bars prevalent; heavy sediment deposits at in-stream structures (2)
☐ Greater than 80% of the bottom covered by excessive sediment deposition resulting in aggrading channel (1)

Score: _____

RIPARIAN BUFFER CONDITION*Riparian Buffer - See Table 22 to determine appropriate buffer distance. Confirm in office review.***Identify each buffer type and score according to canopy cover, vegetation community, and land use (see section 3.3.2.1.3).**

Left Bank

Buffer Distance: _____

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

Right Bank

Buffer Type	Canopy Cover	Vegetation Community	Land Use	Score	Percentage of Area	Subtotal
1.						
2.						
3.						
4.						
5.						

Score: _____

IN-STREAM CONDITION**Substrate Composition (estimate percentages)**

Boulder:	Gravel:	Fines (silt, clay, muck):	Artificial:
Cobble:	Sand:	Bedrock:	Other:

Score: _____

In-stream Habitat (check all habitat types that are present)

Habitat Type	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T1F	T1G	T1H
Undercut Banks													
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Rootwads													
Woody/Leafy Debris													
Boulders/Cobbles													
Aquatic Macrophytes													
Riffle/Pool Sequence													
Artificial Habitat Enhancement													
Other													
Total No. Present													

Average: _____ Score: _____

HYDROLOGIC CONDITION**Flow Regime**

- | | |
|--|---|
| <input type="checkbox"/> Noticeable surface flow present (4) | <input type="checkbox"/> Isolated pools and no evidence of surface or interstitial flow (1) |
| <input type="checkbox"/> Continual pool of water but lacking noticeable flow (3) | <input type="checkbox"/> Dry channel and no observable pools or interstitial flow (0) |
| <input type="checkbox"/> Isolated pools and interstitial (subsurface) flow (2) | |

Score: _____

Channel Flow Status

- | |
|---|
| <input type="checkbox"/> Water covering greater than 75% of the channel bottom width; less than 25% of channel substrate is exposed (4) |
| <input type="checkbox"/> Water covering 50–75% of the channel bottom width; 25–50% of channel substrate is exposed (3) |
| <input type="checkbox"/> Water covering 25–50% of the channel bottom width; 50–75% of channel substrate is exposed (2) |
| <input type="checkbox"/> Water present but covering less than 25% of the channel bottom width; greater than 75% of channel substrate is exposed (1) |
| <input type="checkbox"/> No water present in the channel; 100% of channel substrate exposed (0) |

Score: _____