

Water Resources Technical Report

183A Phase III from Hero Way to 1.1 miles North of State Highway 29

Leander, Williamson County, Texas

CSJ: 0914-05-192

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

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1.0 INTRODUCTION AND PURPOSE

The Central Texas Regional Mobility Authority (CTRMA) and Texas Department of Transportation (TxDOT) propose the extension of the 183A Toll Road main lanes from Hero Way to State Highway (SH) 29 in Williamson County, Texas. The proposed 183A Phase III project begins on existing 183A at Hero Way and extends northward onto existing US 183 to approximately 1.1 miles north of SH 29 (see Attachment A, Figure 1). Within the project limits, the current six-lane 183A tolled main lanes terminate approximately 0.4 mile north of Hero Way, where they merge with the existing non-tolled, four-lane, divided, 183A frontage roads. The 183A four-lane divided roadway continues north for 1.4 miles to its intersection with US 183 at Bryson Ridge Trail. From this intersection—which is the current northern terminus of existing 183A— heading north, the existing roadway within the project limits is US 183. The length of the proposed project would be approximately 6.60 miles.

From the terminus of the 183A main lanes to SH 29, the existing facility (183A frontage roads and US 183) continues north as a four-lane divided roadway comprised of two 12-foot-wide general purpose lanes in each direction, with 10-foot-wide outside shoulders, four-foot-wide inside shoulders, at-grade intersections, and open-ditch drainage. Lanes are divided by a median typically over 250 feet wide, which was preserved to allow for the currently proposed potential extension of the 183A main lanes, and consists mostly of grassy vegetation, some trees, and drainage features. Left-turn and right-turn bays are present at major arterial intersections and turnarounds are already in place at the intersections with San Gabriel Parkway, US 183/Bryson Ridge Trail, and SH 29. The existing facility traverses the South Fork San Gabriel River via bridges, and multiple box culverts provide crossings over three tributaries to the river. North of SH 29 to the projects northern terminus, the existing facility transitions to an undivided facility with two 10-foot-wide travel lanes in each direction, a 15-foot-wide center left-turn lane, six-foot-wide shoulders, at-grade intersections, and open-ditch drainage.

The proposed action (Build Alternative) would extend the six-lane, controlled-access, grade-separated 183A tolled main lanes from their current terminus approximately 0.4 mile north of Hero Way to approximately 0.4 mile north of SH 29. The 183A tolled main lanes would be located in the median between the existing northbound and southbound US 183 four-lane divided roadway. The existing US 183 four-lane divided roadway within the proposed project limits would serve as the 183A frontage roads north to SH 29, and transition back to the existing, undivided US 183 approximately 1.1 miles north of SH 29. This transition would allow the 183A tolled main lanes to merge with the proposed non-tolled, four-lane, divided frontage roads and, eventually, with the existing four-lane, non-divided US 183 at the project's northern terminus. Project design would include bridges over the South Fork San Gabriel River and multiple box culverts providing for tributary streamflow. A paved, 10-foot-wide

pedestrian/bicycle shared use path would be provided within existing right-of-way (ROW) along the west side of the project from Hero Way to the planned Seward Junction Loop South (approximately 4.6 miles).

The proposed 183A main lanes would include three 12-foot-wide lanes in each direction, with 10-foot-wide paved shoulders and a 38-foot wide grassy median. The main travel lanes would be tolled as an extension of the existing 183A tollway currently in place south of Hero Way. As previously noted, the existing US 183 facility would serve as the 183A frontage roads and, along with the existing 183A frontage roads between Hero Way and US 183, would remain in use as a non-tolled facility. The transition from the 183A main lanes to existing US 183 north of SH 29 would comprise two 12-foot-wide lanes, divided, in each direction, with 10-foot-wide outside shoulders and four-foot-wide inside shoulders. The 183A main lanes would be depressed under SH 29 and elevated over intersections with:

- Seward Junction (planned facility);
- Whitewing Drive/Larkspur Park Drive;
- South Gabriel Drive/Green Valley Drive (South Fork San Gabriel River bridge);
- US 183/Bryson Ridge Trail; and
- San Gabriel Parkway.

The existing main lanes are already elevated over Hero Way. The proposed divided US 183 section north of SH 29 would have an at-grade intersection at CR 213/258 with turnarounds in each direction.

The purpose of this report is to identify, delineate, and describe potentially jurisdictional waters, including wetlands, located within the 183A Phase III Improvements project area to assist in avoidance of impacts and determine whether U.S. Army Corps of Engineers (USACE) permit authorization would be required. Conclusions contained in this report are the opinion of the professionals conducting the study and are subject to confirmation by the USACE Fort Worth District.

2.0 GENERAL DESCRIPTION OF THE PROJECT AREA

2.1 LAND USE

The proposed project area is located in a primarily rural area. Land is largely undeveloped with some residential and commercial uses scattered throughout the project area (**Attachment B**, **Photos 1-2**).

2.2 GEOLOGY

The project area is underlain by eight geologic formations: Bee Cave Marl (Kbc), Cedar Park Limestone (Kcp), Edwards Limestone (Ked), Upper Glen Rose Limestone (Kgru), Comanche Peak Limestone (Kc), Keys Valley Marl (Kkv), Alluvium (Qal), and Fluviatile Terrace deposits (Qt) (TNRIS, 2007) (Figure 3).

2.3 SOILS

According to Natural Resources Conservation Service (NRCS) Web Soil Survey, the project area transects 15 soil map units, which exhibit a range of slopes and infiltration characteristics (**Figure 4**). One soil map unit, Oakalla silty clay loam, 0 to 1 percent slopes, channeled, frequently flooded, is listed as containing hydric inclusions. A list of soils occurring within the project area is summarized in **Table 1**.

Table 1. Soils within the Project area

Soil Map Unit Code	Soil Map Units	Hydric (Yes/No)
BkC	Brackett association, 1 to 8 percent slopes	No
BKE	Brackett gravelly clay loam, 3 to 12 percent slopes	No
BkG	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	No
CfB	Crawford clay, 1 to 3 percent slopes	No
DnB	Denton silty clay, 1 to 3 percent slopes	No
DoC	Doss silty clay, moist, 1 to 5 percent slopes	No
EaD	Eckrant cobbly clay, 1 to 8 percent slopes	No
EeB	Eckrant extremely stony clay, 0 to 3 percent slopes	No
ErG	Eckrant-Rock outcrop association, 8 to 30 percent slopes	No
FaA	Fairlie clay, 0 to 1 percent slopes	No
FaB	Fairlie clay, 1 to 2 percent slopes	No
GeB	Georgetown clay loam, 0 to 2 percent slopes	No

Soil Map Unit Code	Soil Map Units	Hydric (Yes/No)
Oc	Oakalla silty clay loam, 0 to 1 percent slopes, channeled, frequently flooded	No*
SuA	Sunev silty clay loam, 0 to 1 percent slopes	No
SuB	Sunev silty clay loam, 1 to 3 percent slopes	No

^{*}May contain hydric inclusions; Source: NRCS, 2018.

2.4 HYDROLOGY

The project area is located within the San Gabriel River Basin; the San Gabriel 8-digit Hydrologic Unit Code is HUC 12070205. USGS quadrangle maps and field verification indicate that the study area is intersected by three intermittent waterways, all tributaries to the South Fork of the San Gabriel River, and one perennial waterway: the South Fork of the San Gabriel River, in addition to one wetland (Figure 5). One tributary to the South Fork of the San Gabriel River and one tributary to the North Fork of Brushy Creek were identified on the National Hydrography Dataset (NHD) but were determined as non-jurisdictional during field visits due to the lack of an ordinary high water mark (OHWM) (Figure 6b and 6f). No other NHD water bodies were mapped as occurring within the project area. The wetland was identified adjacent to one of the tributaries and is identified by National Wetlands Inventory maps (NWI). The project area is intersected by the 100-year Federal Emergency Management Agency (FEMA) floodplains associated with the South Fork of the San Gabriel River and its tributaries (see Figure 5) (FEMA Flood Maps, 2018; NHD, 2018; NWI, 2018).

3.0 WATER RESOURCE IDENTIFICATION METHODS

3.1 DATA REVIEW

Qualified wetland ecologists reviewed a number of published data resources prior to field investigations in order to identify potentially jurisdictional crossings. Sources consulted included the NWI, the NHD, the NRCS Soil Survey for Williamson County, USGS 7.5-minute quadrangle sheets (*Liberty Hill, Leander Northeast, Leander,* Texas), FEMA floodplain maps, and recent aerial photography (NWI, 2018).

3.2 WATERS OF THE U.S. AND WETLANDS UNDER THE CLEAN WATER ACT

The USACE regulates the discharge of dredged and fill material into wetlands and other waters of the U.S. under Section 404, subsection 330.5(a)(21) of the Clean Water Act. Section 10 of the Rivers and Harbors Act of 1899 authorizes the USACE to regulate any work in or affecting navigable waters of the U.S. Authorization is required from the USACE for any activity that would result in the discharge of dredged or fill material into waters of the U.S. Regulated activities may be permitted through the USACE via Individual Permits, Regional General Permits, Nationwide Permits (NWP), or Letters of Permission.

Qualified wetland ecologists conducted field investigations within the existing project ROW in March 2017 and June 2018. The routine method of wetland delineation outlined in the *Field Guide for Wetland Delineation – 1987 Corps of Engineers Manual* (Environmental Laboratory, 1987) and updated in the *Great Plains Regional Supplement* (USACE, 2010) was utilized for wetland determinations within the project area. Field activities focused on wetlands and waters of the U.S. delineation and descriptions.

The 1987 Corps of Engineers Manual defined wetlands based on three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology (Environmental Laboratory, 1987). In general, all three criteria must be present for an area to qualify as a wetland. Some exceptions can occur in disturbed areas or in newly formed wetlands, where one indicator (such as hydric soils) might be lacking. These areas would be addressed on an individual basis as outlined in the Field Guide for Wetland Delineation.

In addition to the jurisdictional wetlands defined above, the Clean Water Act regulates impacts to other waters of the U.S. The term "waters of the United States" has broad meaning and incorporates both deepwater aquatic habitats and special aquatic sites, including wetlands, as listed below:

- The territorial seas with respect to the discharge of fill material
- Coastal and inland waters, lakes, rivers, and streams that are navigable waters of the United States, including their adjacent wetlands
- Tributaries to navigable waters of the United States, including adjacent wetlands

Interstate waters and their tributaries, including adjacent wetlands

On August 28, 2015, the U.S. Environmental Protection Agency (EPA) finalized the Clean Water Rule: Definition of "Waters of the United States." However, on October 9, 2015, the U.S. Court of Appeals for the Sixth Circuit issued a stay of the rule.

For linear waters of the United States, the OHWM was determined by assessing a combination of factors at each site. In accordance with Section 328.3(e) of the Clean Water Act, the following factors were considered in determining the jurisdictional boundary:

- Natural line impressed on the bank;
- Shelving;
- Changes in the character of soil;
- Destruction of terrestrial vegetation;
- Presence of litter and debris;
- Wracking;
- Vegetation matted down, bent, or absent;
- Sediment sorting;
- Leaf litter disturbed or washed away;
- Scour;
- Deposition;
- Multiple observed flow events;
- Bed and banks;
- Water staining;
- Change in plant community; and/or
- Other appropriate means that consider the characteristics of the surrounding areas.

Following the completion of preliminary data gathering and synthesis, the routine method of wetland determination was used to identify any potential jurisdictional areas within the proposed project ROW. Four presumed jurisdictional crossings and one wetland were identified during field investigation and potential impacts to these waters are described in **Table 3**.

3.2.1 Descriptions of Water Crossings Evaluated

Six blue lines were identified on NHD maps within the proposed project area, however, two features did not have OHWMs and are therefore presumed to be non-jurisdictional (**Figure 6b** and **6f**, **Wetland Determination Data Forms 2** and **8**). Five potential waters of the U.S., consisting of four streams and one adjacent wetland, at four different crossings were identified within the existing ROW during field investigations performed in March 2017. All,

less the wetland, are linear waters and are depicted on **Figure 6a-6f**. Detailed descriptions of the potential waters of the U.S. are included below and impacts are summarized in **Table 3**.

Crossing 1 (Tributary to South Fork of the San Gabriel River)

Crossing 1 is a tributary to the South Fork of the San Gabriel River depicted on USGS maps and on NWI maps as a palustrine, forested, broad-leaved deciduous, temporarily flooded stream. It lies within the 100-year FEMA-designated floodplain. There was no water within the channel at the time of the field visit. The channel was partially concrete-lined and contained within a culvert. The average OHWM was estimated to be approximately 11.4 feet. A Wetland Determination Data Form (WDP1) was completed within the vegetated median of US 183. This form is included in Attachment C and this crossing is shown on Figure 6a. No wetlands were identified at Crossing 1.

Vegetation along Crossing 1 consisted of a tree layer and an herbaceous layer. The tree stratum was dominated by Ashe juniper (*Juniperus ashei*). The herbaceous stratum was dominated by giant ragweed (*Ambrosia trifida*), perennial ryegrass (*Lolium perenne*), rough Mexican clover (*Richardia scabra*), and curly dock (*Rumex crispus*). See **Figure 6a**, **Wetland Determination Data Form 1**, and **Photos 3-5**.

Crossing 2 (Tributary to South Fork of the San Gabriel River & Wetland 1)

Crossing 2 is composed of a tributary to the South Fork of the San Gabriel River and an adjacent wetland. Crossing 2 is depicted on USGS maps and on NWI maps as a palustrine, forested, broad-leaved deciduous, temporarily flooded wetland. It lies within the 100-year FEMA-designated floodplain. Approximately 3 to 12 inches of water were observed standing within the channel at the time of the field visit. The channel was largely concrete-lined and contained within a culvert. The average OHWM was approximately 71.4 feet. An adjacent wetland (Wetland 1) was identified at Crossing 2 on the west side of US 183. Approximately 1 to 2 inches of standing water was observed in the wetland. Three Wetland Determination Data Forms (WDP3, 4, 9) were completed at the crossing. These forms are included in Attachment C and this crossing is shown on Figure 6c.

Vegetation along Crossing 2 and within Wetland 1 consisted of woody trees and saplings and herbaceous vegetation. The tree stratum was dominated by cedar elm (*Ulmus crassifolia*) and black willow (*Salix nigra*). The herbaceous layer was dominated by giant ragweed, common spikerush (*Eleocharis palustris*), Texas cupgrass (*Eriochloa sericea*), and broadleaf cattail (*Typha latifoila*). See **Figure 6c**, **Wetland Determination Data Forms 3**, **4**, and **9** and **Photos 7-15** and **27-28**.

Crossing 3 (South Fork of the San Gabriel River)

The South Fork of the San Gabriel River is depicted on USGS maps and on NWI maps as a riverine, lower perennial, temporarily flooded wetland with an unconsolidated shore. It lies within the 100-year FEMA-designated floodplain associated with the South Fork of the San

Gabriel River. Approximately one to two feet of water were observed flowing within the channel at the time of the field visit. The channel was not concrete-lined and was bridged. The average OHWM was approximately 102.6 feet. Two Wetland Determination Data Forms were completed at the crossing, one on the north bank and one on the south bank (WDP5 and 6). These forms are included in Attachment C and this crossing is shown on Figure 6d. No wetlands were identified at Crossing 3.

Vegetation along the South Fork of the San Gabriel River consisted of a woody canopy, a shrub-layer, and ground cover species common to riparian corridors. The tree stratum was dominated by American elm (*Ulmus americana*), red mulberry (*Morus rubra*), green ash (*Fraxinus pennsylvanica*), and black willow. The sapling/shrub stratum is dominated by Eve's necklace (*Styphnolobium affine*), red mulberry, and black walnut (*Juglans nigra*). The herbaceous layer was dominated by giant ragweed, false carrot (*Daucus carota*), stickywilly (*Galium aparine*), Johnsongrass (*Sorghum halepense*), and switchgrass (*Panicum virgatum*). The only woody vine observed was mustang grape (*Vitis mustangensis*). See **Figure 6d**, **Wetland Determination Data Forms 5** and **6** in **Attachment C**, and **Photos 16-21**.

Crossing 4 (Tributary to South Fork of the San Gabriel River)

Crossing 4 is a tributary to the South Fork of the San Gabriel River depicted on USGS maps and on NWI maps as a riverine, intermittent, seasonally flooded streambed. It does not lie within the 100-year FEMA-designated floodplain. There was no water within the channel at the time of the field visit. The tributary was contained under the roadway in concrete culverts but was otherwise unlined. The average OHWM was approximately 18.6 feet. A Wetland Determination Data Form was completed within the OHWM (WDP7). This form is included in Attachment C and this crossing is shown on Figure 6e. No wetlands were identified at Crossing 4.

Vegetation along Crossing 4 consisted of canopy, shrub-layer, and ground cover species. The tree stratum was dominated by black willow. The sapling/shrub stratum is dominated by cedar elm. The herbaceous layer was dominated by cattails. See **Figure 6e**, **Wetland Determination Data Form 7**, and **Photos 22-26**.

Table 3. Summary of Impacts to Waters of the U.S. Within the Project Area

Single and Complete Crossing #	Name of Water Body	Average OHWM within ROW (feet)	Existing Structure	Water of the U.S.? (Yes/No)	Linear Feet/Acres Within the ROW	Linear Feet/Acres of Proposed Impacts*	NWP 14 Potentially Required?	PCN Potentially Required?	IP Potentially Required?
1	Tributary to South Fork San Gabriel River	11.4	Culvert	Yes	57.35/0.015	None	No	No	No
2	Tributary to South Fork San Gabriel River	71.4	Culvert	Yes	990.1/1.622	39.0/0.002	Yes	No	No
2	Wetland 1	_	None	Yes	0.004	None	No	No	No
3	South Fork San Gabriel River	102.6	Bridges	Yes	572.0/1.322	18.0/0.001	Yes	No	No
4	Tributary to South Fork San Gabriel River	18.6	Culvert	Yes	119.6/0.051	7.0/0.002	Yes	No	No

^{*}Impacts based on available culvert/bridge designs.

3.3 RIVERS AND HARBORS ACT

No navigable waters regulated under Sections 9 and 10 of the Rivers and Harbors Act lie within the project area. The proposed project would not impact any waters regulated by the Rivers and Harbors Act.

3.4 FLOODPLAINS

The project is located within Williamson County, Texas, which is a participant in the National Flood Insurance Program. According to the FEMA Flood Insurance Rate Maps (FIRM), Community Panel Numbers 48053C0550F, 48491C0275E, and 48491C0455E, the project intersects the FEMA-designated 100-year floodplains associated with the South Fork of the San Gabriel River and its tributaries (see **Figure 5**) (FEMA Flood Maps, 2018). Coordination with the local floodplain administrator would be required for proposed impacts within the limits of the base floodplain.

3.4.1 Executive Order (EO) 11988 - Floodplain Management

EO 11988 directs each federal agency to take action to reduce the risk of losses associated with floods, to minimize the impact of floods on human health and safety, and to preserve the beneficial values of floodplains. Compliance with EO 11988 is required for projects that are federally undertaken, financed, or assisted and that involve a floodplain encroachment, which is an action within the limits of the base floodplain. Although the proposed project intersects the 100-year floodplain, a significant encroachment of the floodplain is not expected and coordination with the local floodplain administrator would satisfy the requirements of this EO.

3.5 WATER QUALITY

3.5.1 Section 303(d) of the Clean Water Act

The proposed project area is located within the San Gabriel River Basin and contains one perennial river segment and three ephemeral or intermittent tributaries. The South Fork of the San Gabriel River (Segment ID: 1250) is not listed as impaired by the TCEQ (2014) and the proposed project is not within 5.0 miles of any impaired segments. Best management practices (BMPs) would be used to ensure water quality protection throughout the project area.

3.5.2 Municipal Separate Storm Sewer System

In order to meet minimum control measures set by the TCEQ, any project with construction on a TxDOT system within a municipal separate storm sewer system (MS4) area requires a Notice of Intent (NOI) be submitted to the proper TxDOT district (Austin District). The project area occurs within the Williamson County MS4. An NOI would be required for the proposed project.

3.5.3 Texas Pollutant Discharge Elimination System

The proposed project would include five or more acres of earth disturbance, therefore, TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A Storm Water Pollution Prevention Plan (SW3P) would be implemented, a construction site notice would be posted on the construction site, and a notice of intent would be required.

3.5.4 Groundwater Wells

Based on the Texas Water Development Board's (TWDB's) Groundwater Database (GWDB), there are six domestic or public supply water wells within ¼ mile of the project area: 5818701, 5818702, 5818704, 5826109, 5826108, 5826418 (TWDB, 2018). Three of the wells (5118704, 5826109, and 5826108) are within the proposed project area (**Figure 5**). In accordance with TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, these wells would need to be properly removed, sealed and plugged during construction of the proposed project.

3.6 EXECUTIVE ORDER 11990, WETLANDS

Executive Order 11990 Protection of Wetlands (issued in 1977) requires federal agencies to minimize the destruction or modification of wetlands. No impacts to wetlands are anticipated; therefore, Executive Order 11990 does not apply to the proposed project.

3.7 TEXAS COASTAL MANAGEMENT PROGRAM AND COASTAL BARRIER RESOURCES ACT

The project is located in Williamson County, outside of the boundaries of the Texas Coastal Management Program and the Coastal Barrier Resources System; therefore, a consistency determination would not be required for the proposed project and coordination with the U.S. Fish and Wildlife Service regarding the Coastal Barrier Resources Act is not required.

3.8 TRINITY RIVER CORRIDOR DEVELOPMENT CERTIFICATE

The project is located outside the Trinity River Corridor Development Regulatory zone. A Corridor Development Certificate would not be required.

3.9 EDWARDS AQUIFER ZONES

The Edwards Aquifer is a major aquifer located in the south-central part of the state and crosses eight Texas counties: Williamson, Travis, Hays, Comal, Bexar, Medina, Uvalde, and Kinney (EAA, 2018). The Edwards Aquifer is primarily composed of partially dissolved limestone in thicknesses ranging from 200 to 600 feet and is highly permeable, having sinkholes, caves, surface faults, and fractures. As a result, water levels and spring flows within

the Edwards Aquifer respond quickly to rainfall, drought, and pumping. This aquifer provides water for municipal, industrial, and agricultural uses, and sustains a number of rare and endangered species. The Edwards Aquifer is comprised of three segments: Northern Segment, Barton Springs Segment, and San Antonio Segment; the proposed 183A project crosses the Northern Segment of the aquifer.

The Edwards Aquifer includes three primary zones: the Contributing Zone, the Recharge Zone, and the Transition/Artesian Zone.

- The Contributing Zone. Water from the Contributing Zone flows over relatively impermeable limestones until it reaches the Recharge Zone. The Contributing Zone is located on the Edwards Plateau and "catches" water from rainfall events in streams that flow into the Recharge Zone. The Contributing Zone within the Edwards Plateau generally occurs in the Texas Hill Country. This zone is about 5,400 square miles, with elevations ranging between 1,000 and 2,300 feet above sea level. Rainfall averages about 30 inches per year in this zone, and water runs off into streams or infiltrates into the water table.
- The Recharge Zone. The Recharge Zone is an area where highly fractured and faulted Edwards limestones outcrop at the land surface allowing large quantities of water to flow into the aquifer. The aquifer in the Recharge Zone is unconfined and has a water table that rises and falls in response to rainfall. Water works its way down by gravity into the transition/artesian zone. The Recharge Zone is about 1,250 square miles and is located along the Balcones Fault. About 75-80 percent of the recharge occurs when streams and rivers cross the porous formation and go underground. The remaining recharge amount is the result of precipitation.
- The Transition/Artesian Zone. The Transition/Artesian Zone includes a thin strip of land south and southeast of the Recharge Zone from San Antonio to Austin. Limestones that overlie the Edwards Aquifer in this area are faulted and fractured and have caves and sinkholes that allow surface water entry into the aquifer.

Aquifers are generally recharged by direct precipitation on the land surface, but a number of factors including topography, streamflow characteristics, soils, geology, faulting, land-use, and distribution of precipitation will impact the amount of water that is recharged into or discharged from the aquifer (Ryder, 1996). Karst landscapes have unique hydrogeology that results in aquifers that are highly productive but extremely vulnerable to contamination (Mahler and Massei, 2007). Most of the recharge in karst regions occurs as point recharge into solution cavities or karst features. These features often form a network of subterranean flowpaths that allow for rapid transportation through the aquifer. Rapid transportation typically results in short residence times and little to no filtration, which minimizes the opportunity for sediment, pathogens, and chemicals to settle out, degrade, or become inert (Mahler et al., 2011).

The proposed project occurs within the Contributing Zone of the Edwards Aquifer (**Figure 5**); therefore, a Contributing Zone Plan would be required.

According to the TxDOT-TCEQ 2013 MOU, the project would require coordination with the TCEQ because the project is classified as an Environmental Assessment and is located within the boundary of the Edwards Aquifer Zones. BMPs for limiting impacts to water quality in the project area will be developed once an alternative has been selected. BMPs can include both permanent controls such as stormwater detention ponds, vegetative filter strips, and hazardous material traps and temporary controls such as silt fencing and dust abatement. BMPs are used to limit the amount of sediment entering the surface water and groundwater from the project area during the construction and operational phases.

3.10 INTERNATIONAL BOUNDARY AND WATER COMMISSION

The project is located outside of the jurisdiction of the International Boundary and Water Commission; therefore, coordination would not be required.

3.11 WILD AND SCENIC RIVERS ACT

The Wild and Scenic Rivers Act (WSRA) is codified at Title 16, Chapter 28, Sections 1271-1287 (16 USC 1274). The purpose of the WSRA is to preserve the "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values" of rivers that have been designated under the WSRA as wild and/or scenic and to protect and preserve them in freeflowing condition for the benefit and enjoyment of present and future generations. No wild and scenic rivers occur within the project area; therefore, the WSRA does not apply.

4.0 RESULTS AND CONCLUSIONS

Five potentially jurisdictional waters of the U.S., consisting of four streams and one adjacent wetland, were identified within the project area. These crossings are currently bridged and culverted within the existing facility. All proposed roadway and drainage improvements would be designed in a manner to avoid or minimize impacts to jurisdictional crossings. It is anticipated that impacts to waters of the U.S. would be authorized through NWP #14 without Pre-Construction Notification (PCN). If impacts to waters of the US exceed 0.1 acres or impacts to Wetland 1 would occur, the proposed project would require a PCN.

Coordination with the local floodplain administrator would be required. An Edwards Aquifer Protection Plan would be required. An SW3P is required in compliance with the TPDES. Additionally, construction and post-construction BMPs would be designed and utilized to minimize erosion, off-site sedimentation, and the movement of other pollutants off-site as part of storm-water runoff. Coordination with TCEQ would be required.

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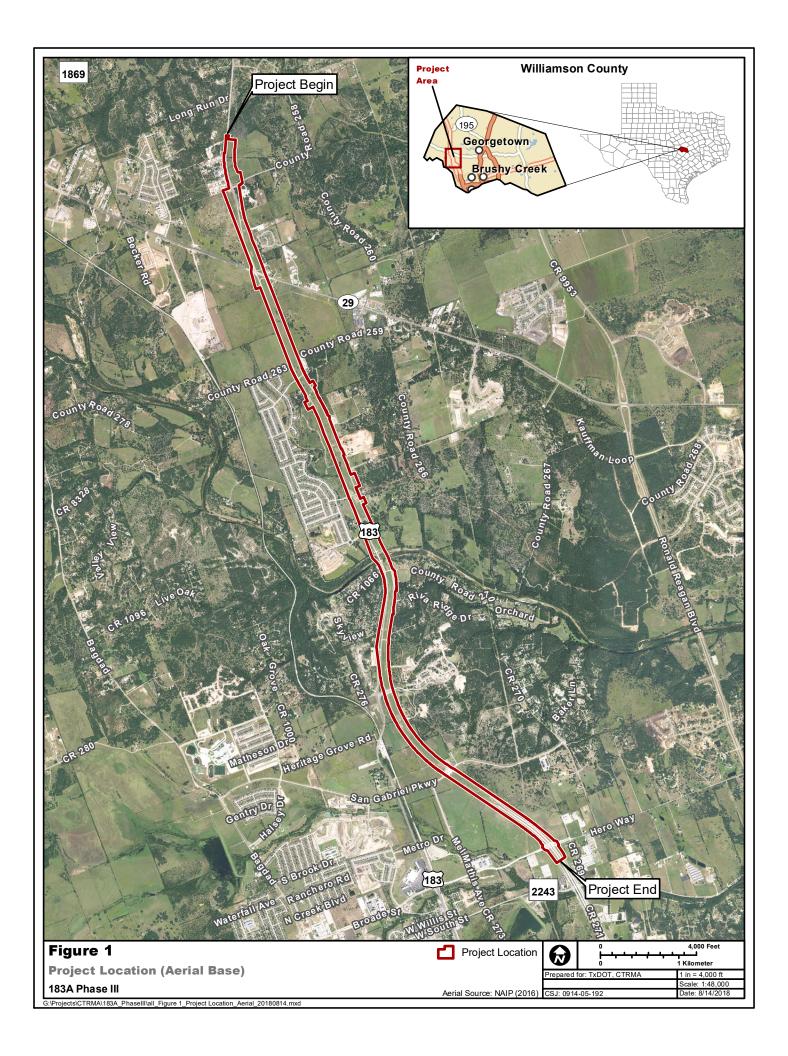
This report was written on behalf of the CTRMA and the Texas Department of Transportation by

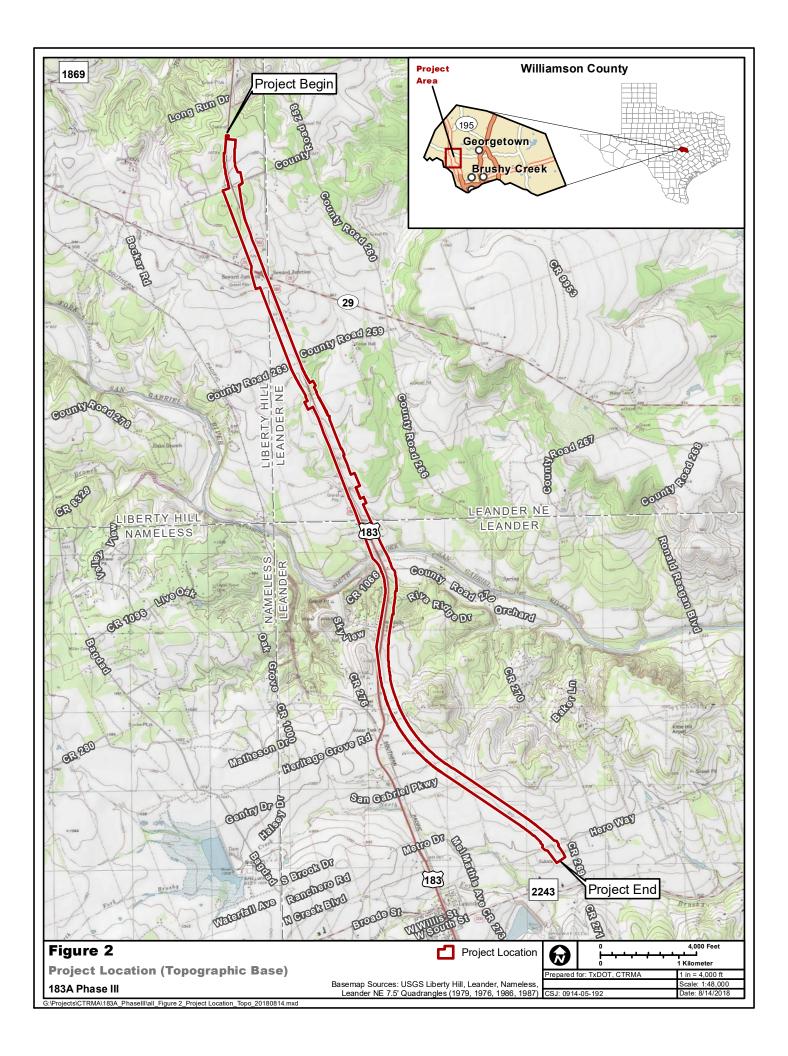


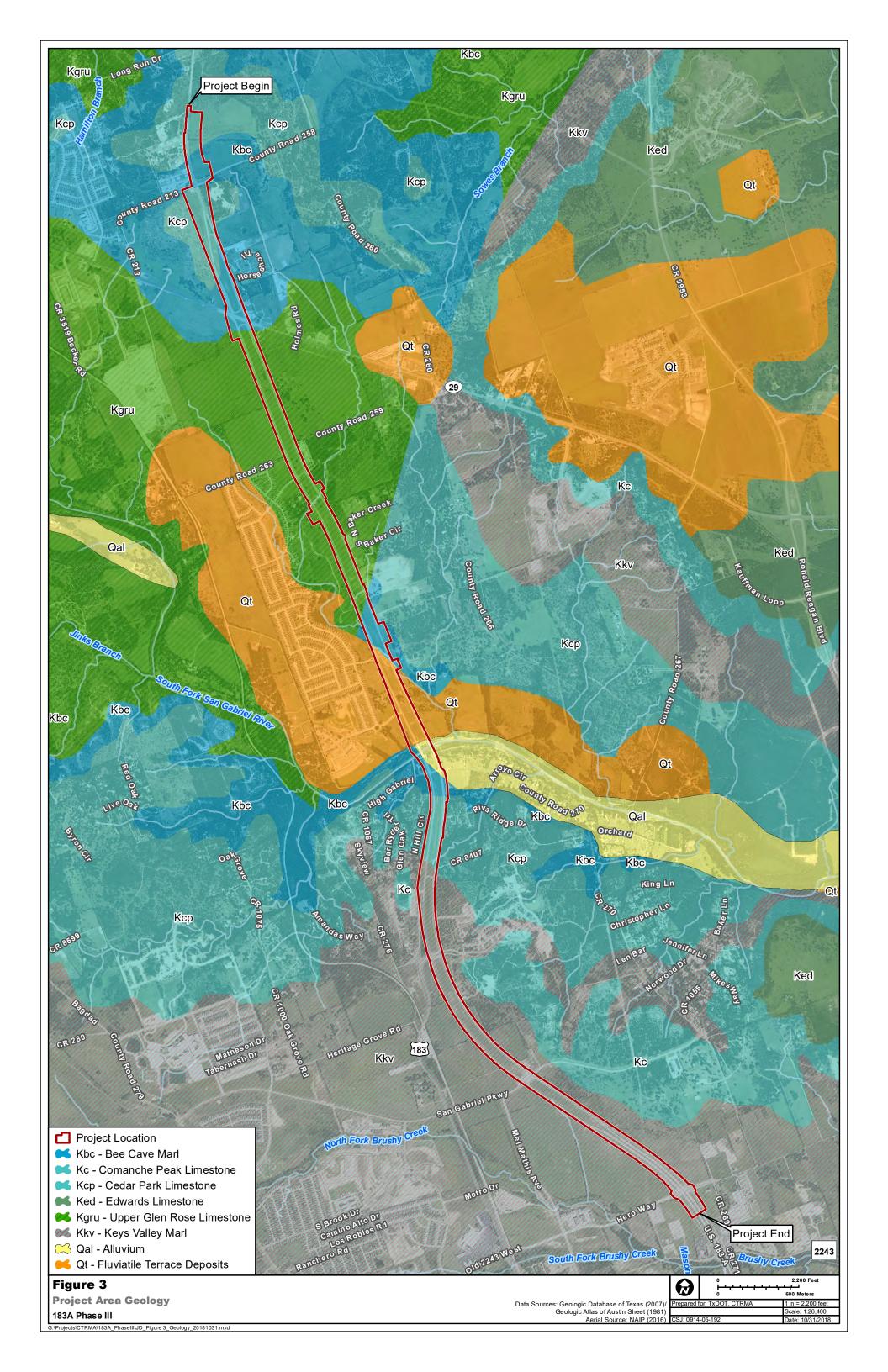
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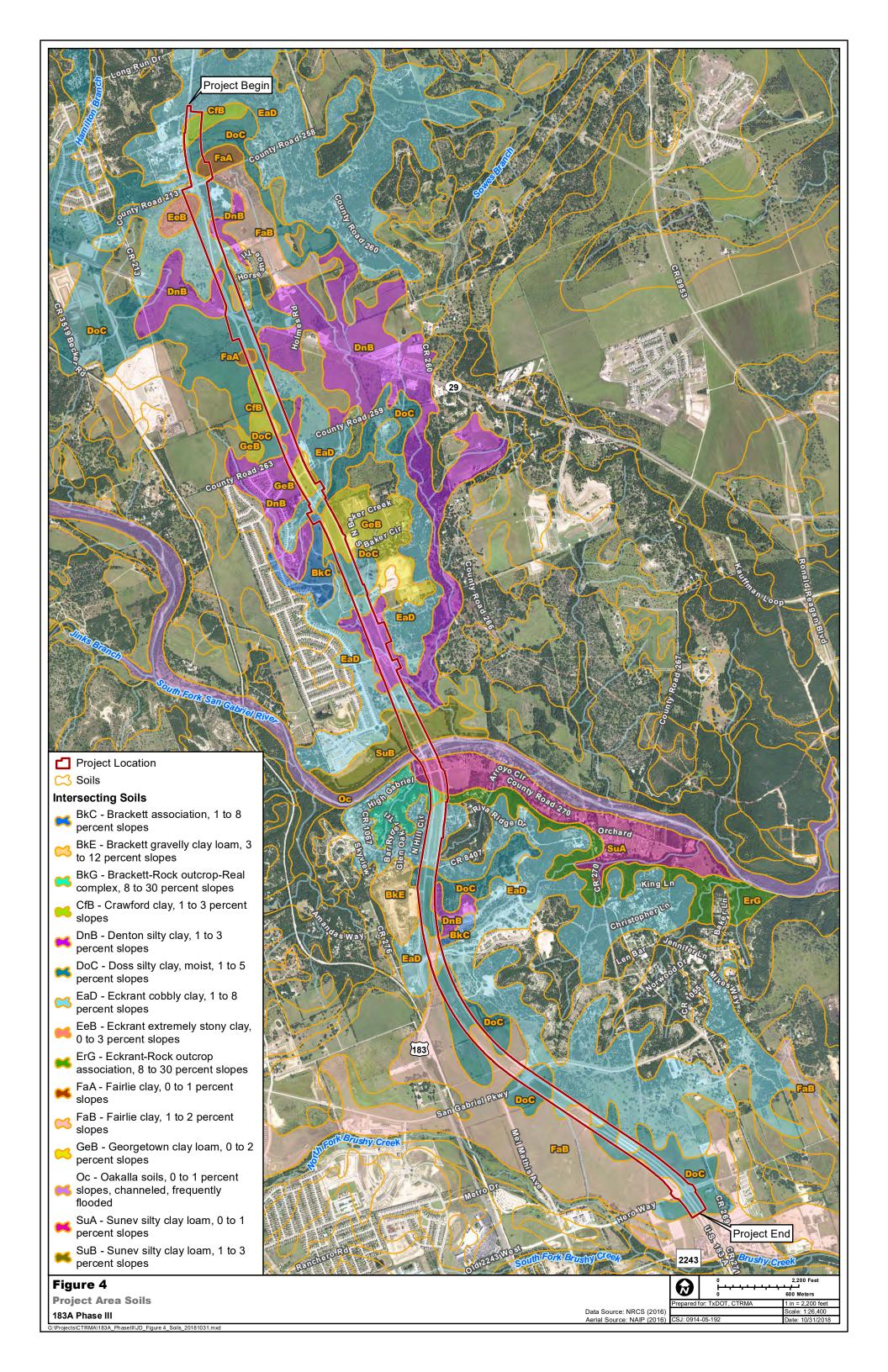
Attachment A

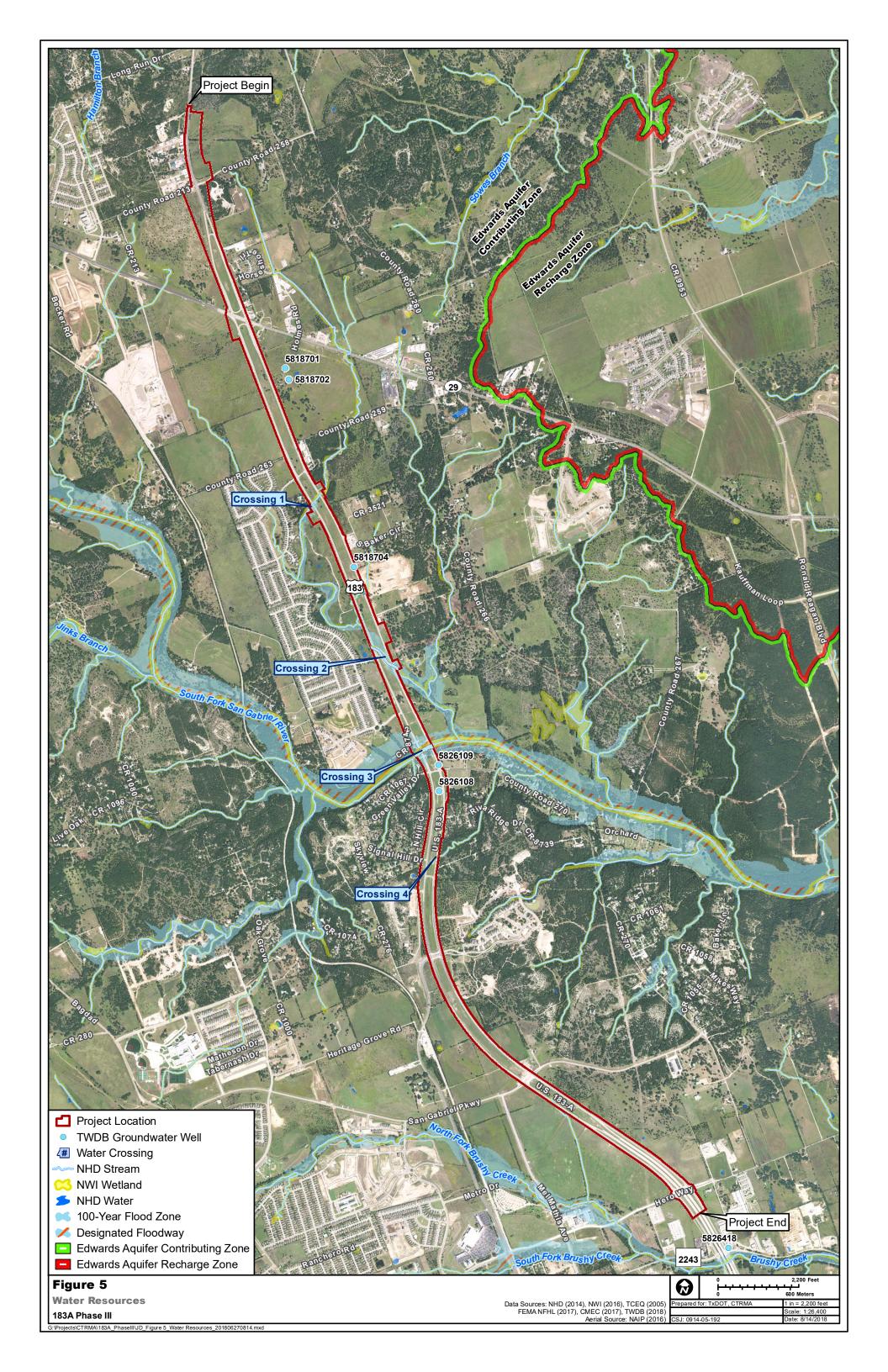
Figures

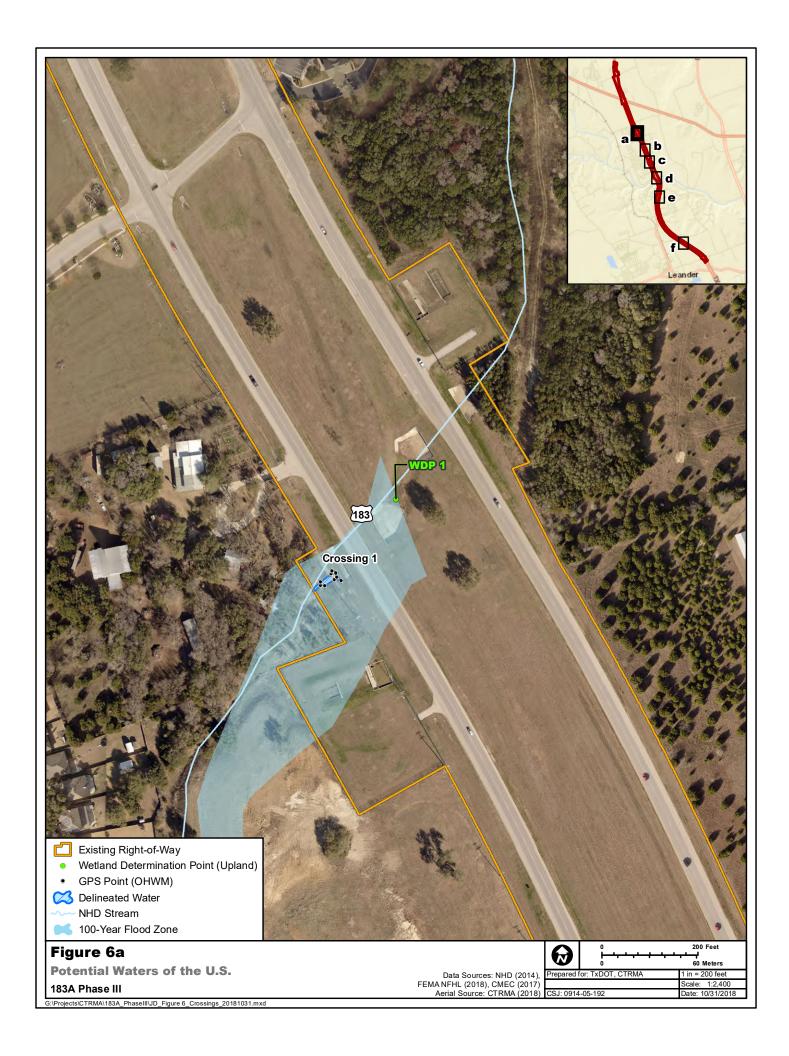




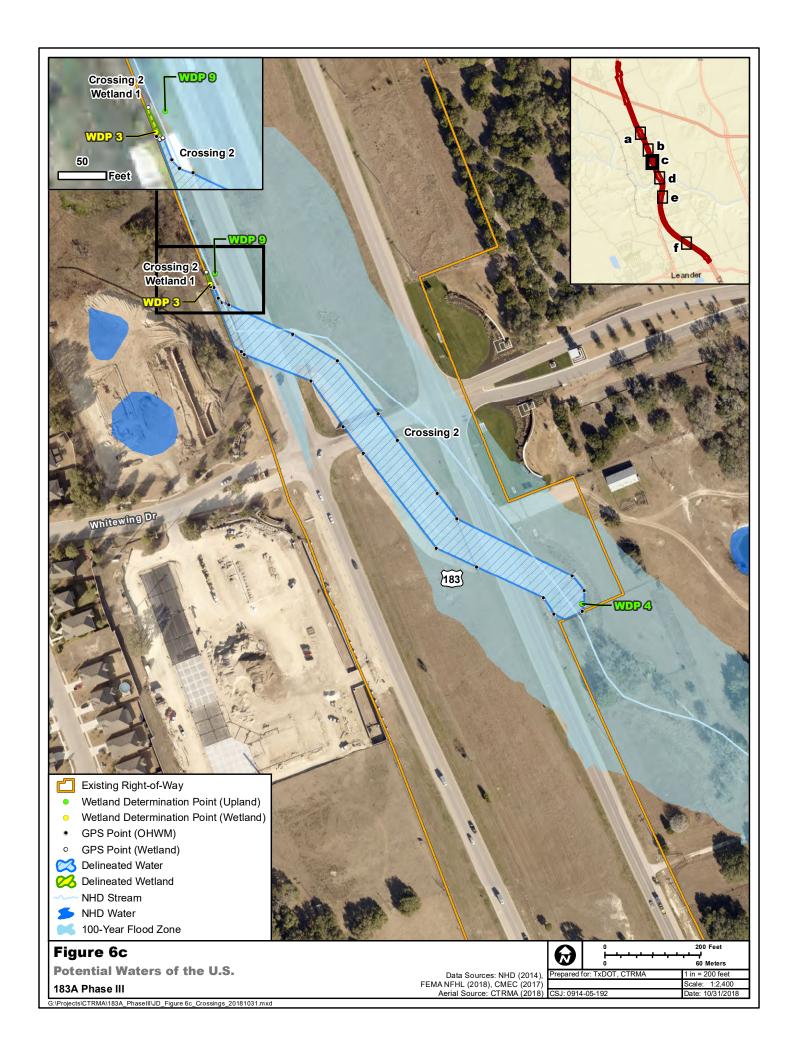


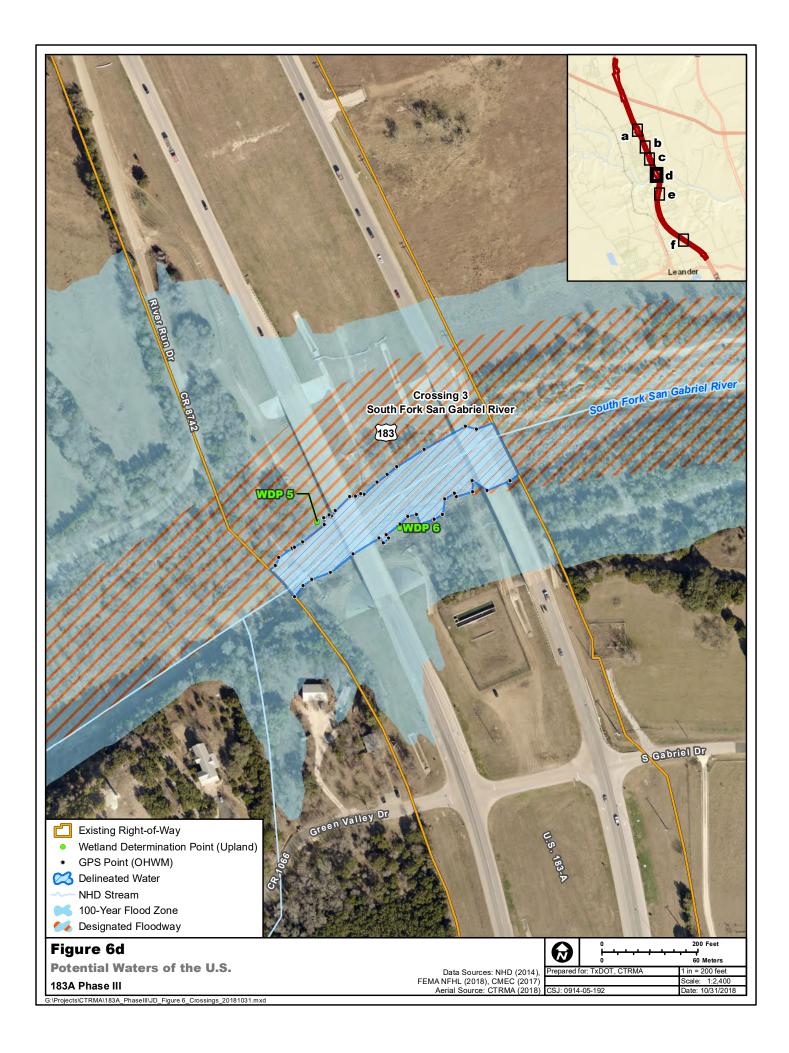


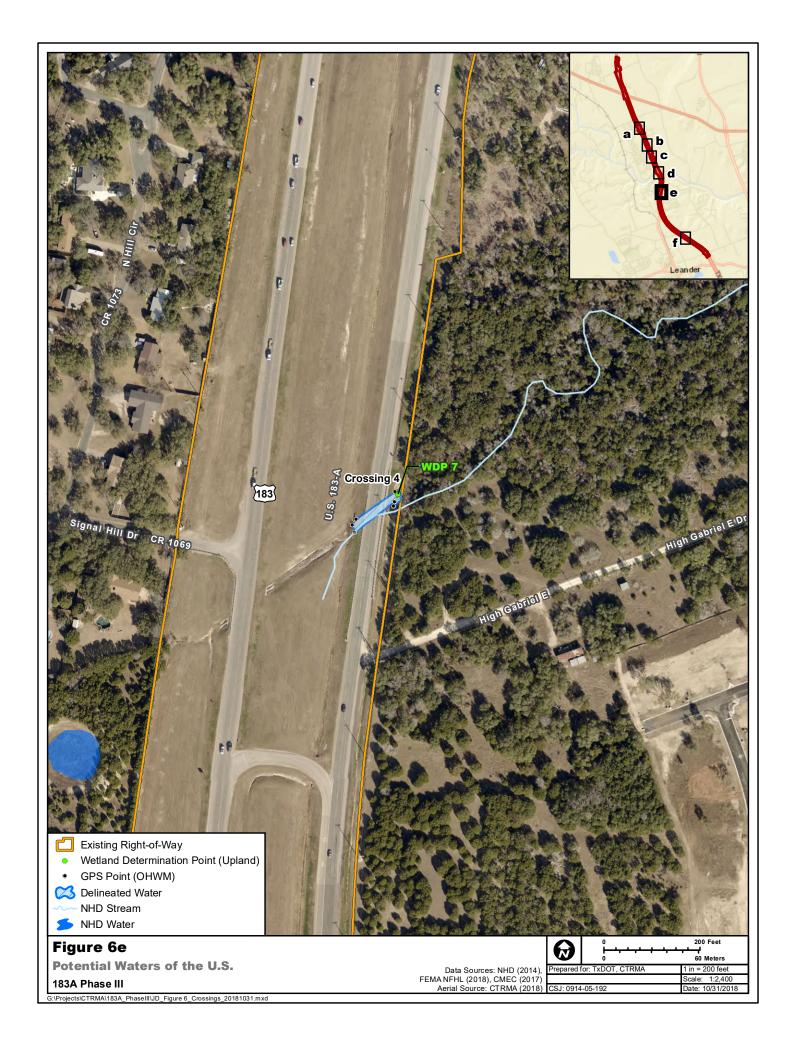


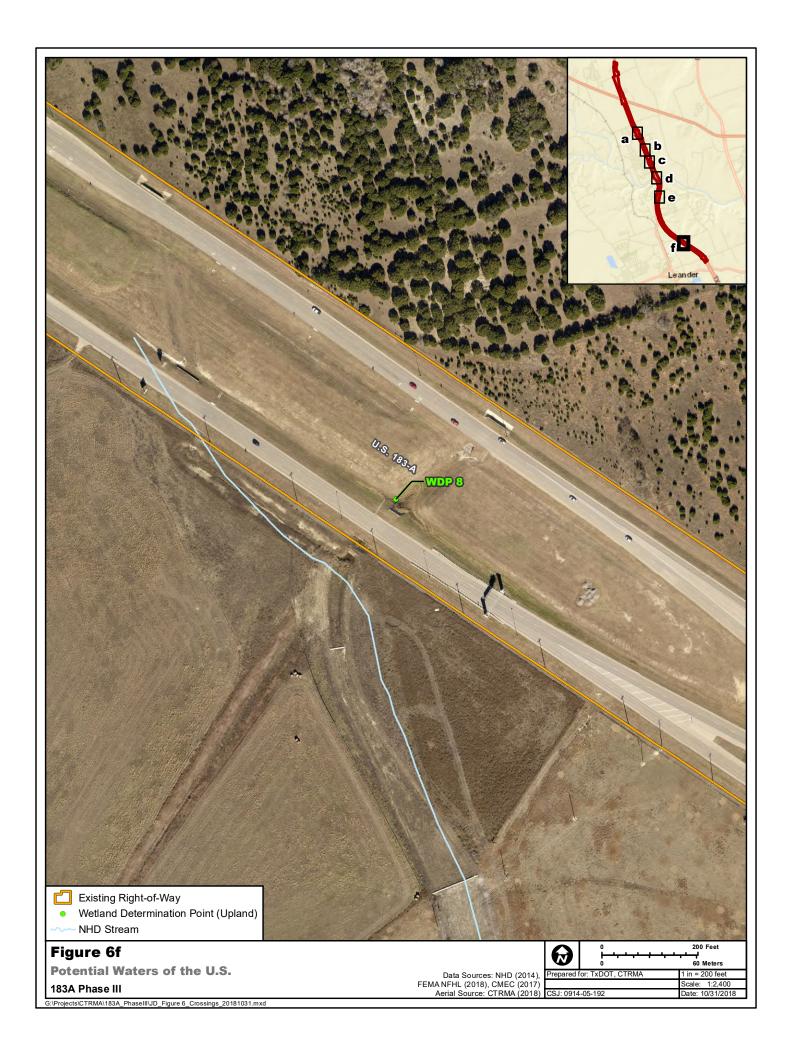












Attachment B

Project Area Photographs



Photo 1: The 183A northern project terminus; facing south.



Photo 2: The 183A southern project terminus; facing northwest.



Photo 3: Crossing 1; facing northwest away from the roadway.



Photo 4: Crossing 1 west of US 183; facing southeast.



Photo 5: WDP1; facing southeast.



Photo 6: WDP2; facing east.



Photo 7: Crossing 2 on west side of the roadway; facing south.



Photo 8: Crossing 2 on west side of the roadway; facing north.



Photo 9: Crossing 2 in median of US 183; facing northwest.



Photo 10: Crossing 2 on east side of the roadway; facing south.



Photo 11: Crossing 2 on east side of the roadway; facing southwest.



Photo 12: Crossing 2 on east side of the roadway; facing southeast.



Photo 13: Wetland 1 at Crossing 2; facing northwest.



Photo 14: WDP 3; facing southwest.



Photo 15: WDP 4; facing west.



Photo 16: South Fork of the San Gabriel River; facing northeast.



Photo 17: South Fork of the San Gabriel River; facing east.



Photo 18: South Fork of the San Gabriel River; facing north.



Photo 19: South Fork of the San Gabriel River; facing west.



Photo 20: WDP5; facing west.



Photo 21: WDP6; facing north.



Photo 22: Crossing 4 on west side of roadway; facing east.



Photo 23: Crossing 4 on west side of roadway; facing west.



Photo 24: Crossing 4 in median of roadway; facing northeast.



Photo 25: WDP7; facing southeast.



Photo 26: WDP8; facing southwest.



Photo 27: WDP9; facing north.



Photo 28: Adjacent to Wetland 1 and WDP9; facing southwest.

Attachment C

Wetland Determination Data Forms

Project/Site: 183A Phase III	(City/Co	ounty:	Williamson	n	Sampling	g Date: <u>3/22/</u>	/17
Applicant/Owner: TxDOT Austin District					State: TX			
Investigator(s): Jeff Allen, Claire Parra		Section	n, Tow	nship, Ra	nge: N/A			
Landform (hillslope, terrace, etc.): depression		Local	relief (concave,	convex, none): concave		Slope (%	%): <u>0</u>
Subregion (LRR): LRR J								
Soil Map Unit Name: Eckrant cobbly clay, 1 to 8 percent si					NWI classific			
Are climatic / hydrologic conditions on the site typical for t								
Are Vegetation, Soil, or Hydrology	-						Yes ✓	No
Are Vegetation, Soil, or Hydrology								
SUMMARY OF FINDINGS – Attach site map	snowing	samı	piing	point	ocations, transects	s, impor	tant reatu	res, etc.
Hydrophytic Vegetation Present? Yes	No		Is the	Sampled	Area			
Hydric Soil Present? Yes				n a Wetlar		No	✓	
Wetland Hydrology Present? Yes	No							
Remarks:								
WDP1 does not lie within a wetland.								
VEGETATION – Use scientific names of pla	ınts.							
	Absolute	Domi	inant	ndicator	Dominance Test work	ksheet:		
<u>Tree Stratum</u> (Plot size: 30'					Number of Dominant S	pecies		
1. <u>N/A</u>					That Are OBL, FACW, (excluding FAC-):	or FAC	0	(A)
2					(excluding 1 AC-).			(A)
3					Total Number of Domir Species Across All Stra		2	(B)
4	0							(D)
Sapling/Shrub Stratum (Plot size: 30'		= rota	II Cove	er	Percent of Dominant S That Are OBL, FACW,	pecies or FAC:	0	(A/B)
1. N/A								(/////
2					Prevalence Index wor			
3					Total % Cover of:			
4		-			OBL species			
5					FACW species			
Herb Stratum (Plot size: 30'	0	= Tota	I Cove	er	FACU species			
Richardia scabra	80	Υ		UPL	UPL species			-
2. Lolium perenne	25	Υ		FACU	Column Totals:			
3. Rumex crispus	15	N		FAC				
4.					Prevalence Index			
5					Hydrophytic Vegetati			
6					1 - Rapid Test for		-	1
7					2 - Dominance Tes 3 - Prevalence Ind			
8					4 - Morphological			supporting
9					data in Remark	s or on a s	separate she	et)
10	400				Problematic Hydro	phytic Veç	getation¹ (Exp	olain)
Woody Vine Stratum (Plot size: 30')	120	= Tota	I Cove	er	¹ Indicators of hydric so	il and wetl	and hydrolog	ıv must
1. N/A					be present, unless dist			,,
2.					Hydrophytic			
	0	= Tota	I Cove	er	Vegetation	_	Na (
% Bare Ground in Herb Stratum 10					Present? Ye		No <u> </u>	_
Remarks:								
WDP1 does not contain hydrophytic v	egetation	١.						

Profile Desc	ription: (Describe	to the de	pth needed to docun	nent the i	indicator	or confirm	n the absence o	of indicators.)
Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 2/2	100	none				clay loam	
6-8	2.5Y 4/2	100	none				gravelly clay loam	
		_						
		_	-		· ———			
				-				
		-	-	-				
•			I=Reduced Matrix, CS I LRRs, unless other			d Sand Gr		tion: PL=Pore Lining, M=Matrix. or Problematic Hydric Soils ³ :
Histosol		able to al		Gleyed Ma				uck (A9) (LRR I, J)
	oipedon (A2)			Redox (S5				rairie Redox (A16) (LRR F, G, H)
Black His			-	Matrix (S				rface (S7) (LRR G)
Hydroge	n Sulfide (A4)				neral (F1)			ains Depressions (F16)
	l Layers (A5) (LRR		-	Gleyed Ma			`	R H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G ,	,		d Matrix (,			d Vertic (F18)
	d Below Dark Surfac ark Surface (A12)	œ (A11)		Dark Surfa	ace (F6) ırface (F7)			ent Material (TF2) allow Dark Surface (TF12)
	lucky Mineral (S1)			Depressio	, ,			Explain in Remarks)
	Mucky Peat or Peat	(S2) (LRR			essions (F	16)		f hydrophytic vegetation and
5 cm Mu	cky Peat or Peat (S	3) (LRR F) (ML	RA 72 & 1	73 of LRR	H)		hydrology must be present,
							unless d	listurbed or problematic.
	_ayer (if present):							
Type: bed								
Depth (inc	cnes): <u> </u>						Hydric Soil P	Present? Yes No/_
Remarks:								
WDP	1 does r	not c	ontain hy	/dric	soi			
HYDROLO								
_	drology Indicators:							
-	•	one require	ed; check all that apply					y Indicators (minimum of two required)
	Water (A1)		Salt Crust	, ,	(5.40)			ce Soil Cracks (B6)
<u> </u>	iter Table (A2)		Aquatic Inv					sely Vegetated Concave Surface (B8)
Saturatio	arks (B1)		Hydrogen Dry-Seaso				·	age Patterns (B10) zed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized F			ina Roots i		ere tilled)
	oosits (B3)			not tilled)		ing receive		ish Burrows (C8)
-	it or Crust (B4)		Presence			·)		ation Visible on Aerial Imagery (C9)
_	osits (B5)		Thin Muck	Surface ((C7)			norphic Position (D2)
Inundation	on Visible on Aerial	Imagery (E	37) Other (Exp	olain in Re	emarks)		FAC-I	Neutral Test (D5)
Water-S	tained Leaves (B9)						Frost-	Heave Hummocks (D7) (LRR F)
Field Observ	vations:							
Surface Water			No Depth (inc					
Water Table			No Depth (inc					
Saturation Pr (includes cap		'es	No ✓ Depth (inc	ches):		_ Wetla	and Hydrology	Present? Yes No
		n gauge, m	nonitoring well, aerial p	ohotos, pr	evious ins	pections),	if available:	
Remarks:								
WDP1 co	ontains hydro	logv.						
	,	0,						

Project/Site: 183A Phase III	City/County: Williamson					Sampli	ng Date: 🧐	3/22/17
Applicant/Owner: TxDOT Austin District					State: TX			
Investigator(s): Jeff Allen, Claire Parra								
					convex, none): none		Slor	oe (%): 0
Subregion (LRR): LRR J								
Soil Map Unit Name: Doss silty clay, moist, 1 to 5 percen								
Are climatic / hydrologic conditions on the site typical for								
Are Vegetation, Soil, or Hydrology	•						•	/ No
Are Vegetation, Soil, or Hydrology								110
SUMMARY OF FINDINGS – Attach site ma	ap showing	sam	nplin	g point l	ocations, transe	cts, impo	rtant fe	atures, etc.
Hydrophytic Vegetation Present? Yes	No <u> </u>		la th	a Camplad	Avoc			
Hydric Soil Present? Yes				e Sampled in a Wetlar		No.		
Wetland Hydrology Present? Yes	No		WILLI	iii a vvetiai	165_		<u> </u>	•
Remarks:								
WDP2 does not lie within a wetland.								
VEGETATION – Use scientific names of pl	ants							
	Absolute	Don	ninant	Indicator	Dominance Test w	orksheet:		
Tree Stratum (Plot size: 30'	% Cover				Number of Dominar			
1. N/A					That Are OBL, FAC		0	(4)
2					(excluding FAC-):		0	(A)
3		-			Total Number of Do		0	(D)
4					Species Across All	Strata:	-	(B)
Sapling/Shrub Stratum (Plot size: 30'	0	= Tot	al Cov	/er	Percent of Dominan		0	(A /D)
1. N/A					That Are OBL, FAC	W, or FAC:	0	(A/B)
2					Prevalence Index v	vorksheet:		
3.					Total % Cover of			-
4.					OBL species			
5					FACW species			
20'	0	= Tot	al Cov	/er	FAC species			
Herb Stratum (Plot size: 30' 1. Cynodon dactylon	50	Υ		FACU	FACU species UPL species			
2. Bromus catharticus	30	· Y		UPL	Column Totals:			
3. Lolium perenne	20	Y		FACU	Column Totals.	(/		(D)
Ambrosia psilostachya	20	Υ		FACU	Prevalence In	dex = B/A =	:	
5. Vicia sativa	20	Υ		FACU	Hydrophytic Veget			
6. Gernanium maculatum	20	Υ		FACU	1 - Rapid Test f			ation
7. Asclepias asperula	20	Υ		UPL	2 - Dominance			
8. Daucus carota	10	N		UPL	3 - Prevalence			
9					4 - Morphologio	al Adaptation	ns (Provi separate	de supporting sheet)
10					Problematic Hy			,
30'	190	= Tot	al Cov	/er			_	
Woody Vine Stratum (Plot size: 30') 1. N/A					¹ Indicators of hydric be present, unless of			
					Lludrophytic		-	
2	0				Hydrophytic Vegetation			
% Bare Ground in Herb Stratum 0					Present?	Yes	No	✓
Remarks:								
WDP2 does not contain hydrophytic	vegetatior	١.						
1								

	Matrix Color (moist)	0/		x Feature	-	Loc²	Texture	Remarks
(inches) 0-10	10YR 2/2	<u>%</u> 100	Color (moist) none	%	<u>rype</u>	LOC	clay loam	Remarks
10-16	2.5Y 6/4						 -	
10-16	2.51 6/4	100	none	- ·			clay	
	_			- ·				
	_		_	_				
	_			_				
	-							
	_	_	-	_				
Type: C=0	Concentration, D=Dep	oletion RN		S=Covere	d or Coate	d Sand G	rains ² Locat	ion: PL=Pore Lining, M=Matrix.
	I Indicators: (Applic					a cana c		r Problematic Hydric Soils ³ :
Histoso				Gleyed Ma			1 cm Mu	ck (A9) (LRR I, J)
Histic I	Epipedon (A2)			Redox (S5				airie Redox (A16) (LRR F, G, H)
	Histic (A3)			d Matrix (S				face (S7) (LRR G)
	gen Sulfide (A4)		-	Mucky Mi			_	ns Depressions (F16)
	ed Layers (A5) (LRR			Gleyed M			`	H outside of MLRA 72 & 73)
	Muck (A9) (LRR F, G,			ed Matrix (Reduced	` '
	ed Below Dark Surfac Dark Surface (A12)	ce (ATT)		Dark Surfa od Dark Si	urface (F7)			ent Material (TF2) Ilow Dark Surface (TF12)
	Mucky Mineral (S1)			Depressio	` ,			(plain in Remarks)
-	Mucky Peat or Peat	(S2) (LRR			essions (F	16)		hydrophytic vegetation and
	lucky Peat or Peat (S				73 of LRR			ydrology must be present,
							unless di	sturbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (i	nches):						Hydric Soil Pi	resent? Yes No/
	nches):		<u></u>				Hydric Soil Pi	resent? Yes No/
Depth (i				vdrid	s soi	 I	Hydric Soil Pi	resent? Yes No/
Depth (i	P2 does r			ydric	c soi	l.	Hydric Soil Pi	resent? Yes No/
Depth (i	P2 does r			ydric	c soi	l.	Hydric Soil Pi	resent? Yes No/
Depth (i	P2 does r	not c		ydrio	soi	<u>l.</u>	Hydric Soil Pi	resent? Yes No/
Depth (i Remarks: VDF YDROLO Wetland H	P2 does r	not c	contain h		soi	l		resent? Yes No ✓
Depth (i Remarks: VDF YDROLO Wetland H Primary Inc	P2 does r	not c	contain h	ly)	soi	l. —	Secondary	Indicators (minimum of two required
Depth (i Remarks: VDF YDROLO Wetland H Primary Inc. Surface	P2 does r OGY ydrology Indicators dicators (minimum of o	not c	contain h	ly) (B11)		l	Secondary Surfac	Indicators (minimum of two required e Soil Cracks (B6)
Depth (i Remarks: VDF YDROLO Wetland H Primary Inc Surface High W	P2 does r	not c	contain h	ly) (B11) vertebrate	es (B13)	l. 	Secondary Surfac Sparse	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surfac High W Satura	P2 does r OGY ydrology Indicators dicators (minimum of of e Water (A1) Vater Table (A2)	not c	ed; check all that app Salt Cruss Aquatic Ir	ly) (B11) vertebrate Sulfide O	es (B13) dor (C1)		Secondary Surfaco Sparse Draina	Indicators (minimum of two required e Soil Cracks (B6)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surfac High W Satura Water	P2 does r OGY ydrology Indicators dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3) Marks (B1)	not c	ed; check all that app — Salt Crus — Aquatic Ir — Hydrogen	ly) (B11) vertebrate Sulfide O on Water	es (B13) dor (C1) Fable (C2)		Secondary Surfac Sparse Draina Oxidiz	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10)
Depth (i Remarks: VDF YDROLO Wetland H Primary Inc Surfac High W Satura Water Sedimo	P2 does r OGY ydrology Indicators dicators (minimum of one Water (A1) Vater Table (A2) tion (A3)	not c	ed; check all that app Salt Crusi Aquatic Ir Hydrogen Dry-Seas Oxidized	ly) (B11) vertebrate Sulfide O on Water	es (B13) dor (C1) Fable (C2) eres on Liv		Secondary Surface Sparse Draina Oxidize (C3)	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3
Depth (i Remarks: VDF YDROLO Wetland H Primary Inc. Surfac. High W Satura Water Water Sedime	P2 does r OGY ydrology Indicators dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)	not c	ed; check all that app Salt Crusi Aquatic Ir Hydrogen Dry-Seas Oxidized	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled)	es (B13) dor (C1) Fable (C2) eres on Liv	ing Roots	Secondary Surface Sparse Draina Oxidize (C3) (whe	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Care tilled)
Depth (i Remarks: VDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedimo Algal N	P2 does r OGY ydrology Indicators dicators (minimum of of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)	not c	ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce	es (B13) dor (C1) Fable (C2) eres on Liv	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Care tilled)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime J Drift Do Algal M Iron De	pogy ydrology Indicators dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Vater Crust (B4)	not c	ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muc	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce c Surface	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (C3 ere tilled) sh Burrows (C8) tion Visible on Aerial Imagery (C9)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime Algal M Iron De	P2 does r OGY ydrology Indicators dicators (minimum of	not c	ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muc	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce c Surface	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Capre tilled) eth Burrows (C8) tion Visible on Aerial Imagery (C9) orphic Position (D2)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime Algal M Iron De	P2 does r DGY ydrology Indicators dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) tion Visible on Aerial Stained Leaves (B9)	not c	ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muc	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce c Surface	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Capre tilled) en Burrows (C8) tion Visible on Aerial Imagery (C9) prephic Position (D2) leutral Test (D5)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime Algal N Iron De Inunda Water- Field Obse	P2 does r OGY ydrology Indicators dicators (minimum of of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Vat or Crust (B4) eposits (B5) etion Visible on Aerial Stained Leaves (B9) ervations:	one requir	ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muc	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce C Surface plain in Re	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Capre tilled) en Burrows (C8) tion Visible on Aerial Imagery (C9) prephic Position (D2) leutral Test (D5)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime Jorift Do Algal M Iron De Inunda Water- Field Obse	P2 does r OGY ydrology Indicators dicators (minimum of	not c	ed; check all that app Salt Crusi Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muci	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce C Surface plain in Re	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Capre tilled) en Burrows (C8) tion Visible on Aerial Imagery (C9) prephic Position (D2) leutral Test (D5)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime Algal N Iron De Inunda Water- Field Obse Surface Wa Water Tabl Saturation	P2 does r OGY ydrology Indicators dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) attion Visible on Aerial Stained Leaves (B9) ervations: ater Present? Present?	not c	ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muct B7) Other (Ex	(B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce of Surface plain in Re	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Core tilled) en Burrows (C8) tion Visible on Aerial Imagery (C9) prephic Position (D2) leutral Test (D5) Heave Hummocks (D7) (LRR F)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime V Drift Do Inunda Water- Field Obse Surface Wa Water Tabl Saturation (includes ca	P2 does r OGY ydrology Indicators dicators (minimum of ore Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) tion Visible on Aerial Stained Leaves (B9) ervations: ater Present? Present? apillary fringe)	Imagery (ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muci B7) No / Depth (ir No / Depth (ir	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce c Surface plain in Re uches): uches):	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome FAC-N Frost-I	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Capre tilled) en Burrows (C8) tion Visible on Aerial Imagery (C9) prephic Position (D2) leutral Test (D5)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime V Drift Do Inunda Water- Field Obse Surface Wa Water Tabl Saturation (includes ca	P2 does r OGY ydrology Indicators dicators (minimum of or e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) attion Visible on Aerial Stained Leaves (B9) ervations: ater Present? Present?	Imagery (ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muci B7) No / Depth (ir No / Depth (ir	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce c Surface plain in Re uches): uches):	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome FAC-N Frost-I	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Care tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) preprice Position (D2) leutral Test (D5) Heave Hummocks (D7) (LRR F)
Depth (i Remarks: WDF YDROLO Wetland H Primary Inc Surface High W Satura Water Sedime V Drift Do Inunda Water- Field Obse Surface Wa Water Tabl Saturation (includes ca	P2 does r OGY ydrology Indicators dicators (minimum of ore Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) tion Visible on Aerial Stained Leaves (B9) ervations: ater Present? Present? apillary fringe)	Imagery (ed; check all that app Salt Crust Aquatic Ir Hydrogen Dry-Seas Oxidized (where Presence Thin Muci B7) No / Depth (ir No / Depth (ir	ly) (B11) vertebrate Sulfide O on Water Rhizosphe not tilled) of Reduce c Surface plain in Re uches): uches):	es (B13) dor (C1) Fable (C2) eres on Liv ed Iron (C4 (C7) emarks)	ing Roots	Secondary Surface Sparse Draina Oxidiz (C3) (whe Satura Geome FAC-N Frost-I	Indicators (minimum of two required e Soil Cracks (B6) ely Vegetated Concave Surface (B8) ge Patterns (B10) ed Rhizospheres on Living Roots (Care tilled) eh Burrows (C8) tion Visible on Aerial Imagery (C9) preprice Position (D2) leutral Test (D5) Heave Hummocks (D7) (LRR F)

Project/Site: 183A Phase III		City/Co	ounty: Williamso	n	Sampling	g Date: <u>3/22/17</u>	
Applicant/Owner: TxDOT Austin District				State: TX			
Investigator(s): Jeff Allen, Claire Parra		Section	n, Township, Ra	inge: N/A			
Landform (hillslope, terrace, etc.): streamside		Local	relief (concave,	convex, none): none		Slope (%):	1
Subregion (LRR): LRR J							
Soil Map Unit Name: Denton silty clay, 1 to 3 percent slope:				NWI classific			
Are climatic / hydrologic conditions on the site typical for th							
Are Vegetation, Soil, or Hydrology	-					Yes √ No	0
Are Vegetation, Soil, or Hydrology							
SUMMARY OF FINDINGS – Attach site map							s, etc.
Hydrophytic Vegetation Present? Yes					•		
Hydric Soil Present? Yes /			Is the Sampled				
Wetland Hydrology Present? Yes N			within a Wetla	nd? Yes <u>✓</u>	No		
Remarks:							
WDP3 does lie within a wetland.							
VECETATION . He acientific names of play	-1-						
VEGETATION – Use scientific names of plan		<u> </u>		T			
Tree Stratum (Plot size: 30'			nant Indicator ies? Status	Dominance Test work Number of Dominant S			
1. <u>N/A</u>				That Are OBL, FACW,		_	
2				(excluding FAC-):		2	(A)
3				Total Number of Domin	ant	0	
4				Species Across All Stra	ta:	2	(B)
Occiliar (Obserts Obserts on April 201	0	= Tota	l Cover	Percent of Dominant Sp		400	
Sapling/Shrub Stratum (Plot size: 30') 1. Salix nigra	15	Υ	FACW	That Are OBL, FACW,	or FAC:	100	(A/B)
2 Ulmus crassifolia	10	Υ	FAC	Prevalence Index wor	ksheet:		
3				Total % Cover of:		Multiply by:	_
4				OBL species	x ´	1 =	_
5.				FACW species			
	25	= Tota	l Cover	FAC species			_
Herb Stratum (Plot size: 30')	20	V	FAC	FACU species			_
Ambrosia trifida Typha latifolia	30	Y Y	OBL	UPL species			
3. Eleocharis palustris	20	N	OBL	Column Totals:	(A))	_ (D)
Bromus catharticus	15	N	UPL	Prevalence Index	= B/A =		_
5. Daucus carota	10	N	FACU	Hydrophytic Vegetation	on Indicat	tors:	
6. Asclepias asperula	10	N	UPL	1 - Rapid Test for H		_	
7				∠ 2 - Dominance Tes			
8				3 - Prevalence Inde			
9				4 - Morphological A data in Remarks	daptation	is' (Provide sup separate sheet)	porting
10				Problematic Hydro		. ,	
30'	115	= Tota	l Cover				
Woody Vine Stratum (Plot size: 30') 1. N/A				¹ Indicators of hydric soi be present, unless distu			nust
2				Hydrophytic			
	0	= Tota	l Cover	Vegetation Ye	e /	No	
% Bare Ground in Herb Stratum 0 Remarks:							
	ation.						
WDP3 does contain hydrophytic veget	aliUII.						

Profile Desc	ription: (Describe	to the de	oth needed to docun	nent the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix			x Feature				
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 3/2	100	none				clay loam	
3-8	10YR 3/1	97	5YR 3/4	3	С	PL	clay loam	common prominent redox
8-16	10YR 3/1	97	5YR 3/4	3	С	PL	cobbly clay loam	common prominent redox
	-			· 	-			
				· 				-
1Type: C=C	ncentration D=Den	letion PM	=Reduced Matrix, CS	=Covered	d or Coate	d Sand Gr	raine ² l o	cation: PL=Pore Lining, M=Matrix.
			LRRs, unless other			u Sanu Oi		for Problematic Hydric Soils ³ :
Histosol				Sleyed Ma				Muck (A9) (LRR I, J)
	pipedon (A2)			Redox (S5				Prairie Redox (A16) (LRR F, G, H)
Black His	stic (A3)		Stripped	l Matrix (S	66)		Dark S	Surface (S7) (LRR G)
	n Sulfide (A4)		-	Mucky Mir				Plains Depressions (F16)
	Layers (A5) (LRR I		•	Gleyed Ma			•	RR H outside of MLRA 72 & 73)
	ck (A9) (LRR F, G,			d Matrix (I				ced Vertic (F18)
	l Below Dark Surfac ark Surface (A12)	e (ATT)	✓ Redox Deplete		ice (F6) irface (F7)			arent Material (TF2) Shallow Dark Surface (TF12)
l ——	lucky Mineral (S1)			Depression	, ,			(Explain in Remarks)
	lucky Peat or Peat (S2) (LRR				16)		of hydrophytic vegetation and
	cky Peat or Peat (S				73 of LRR			d hydrology must be present,
							unless	disturbed or problematic.
Restrictive L	ayer (if present):							
Type:								
	ches):						Hydric Soil	Present? Yes No
Remarks:								
WDD	3 4000	onto	ain hydric	s coi	ı			
וטיי	3 d0e3 t	Olite	all Hydric	501	l.			
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary India	ators (minimum of c	ne require	ed; check all that apply	y)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A1)		Salt Crust	(B11)				face Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Inv	/ertebrate	s (B13)		Spa	arsely Vegetated Concave Surface (B8)
Saturatio	` '		Hydrogen					inage Patterns (B10)
	arks (B1)		Dry-Seaso					dized Rhizospheres on Living Roots (C3)
	t Deposits (B2)		Oxidized R			ing Roots (vhere tilled)
✓ Drift Dep				not tilled)				yfish Burrows (C8)
_	t or Crust (B4)		Presence of			·)		uration Visible on Aerial Imagery (C9)
Iron Dep			Thin Muck				·	omorphic Position (D2)
	on Visible on Aerial	lmagery (E	37) Other (Exp	olain in Re	marks)			C-Neutral Test (D5)
	tained Leaves (B9)						Fros	st-Heave Hummocks (D7) (LRR F)
Field Observ		,	N					
Surface Water			No ✓ Depth (inc					
Water Table			No ✓ Depth (inc				and Hudualaw	W. Dwagout? Voc. / No.
Saturation Pr (includes cap		es	No Depth (inc	cnes):		_ well	and Hydrolog	y Present? Yes No
		gauge, m	onitoring well, aerial p	photos, pr	evious ins	pections),	if available:	
Remarks:								
WDP3 co	ontains hydrol	ogy.						
I	-							

Project/Site: 183A Phase III		City/Cou	unty: Williamso	n	Sampling Date: 3/	/22/17
Applicant/Owner: TxDOT Austin District				State: TX		
Investigator(s): Jeff Allen, Claire Parra		Section	, Township, Ra	nge: N/A		
Landform (hillslope, terrace, etc.): terrace		Local re	elief (concave,	convex, none): none	Slop	e (%): 0
Subregion (LRR): LRR J						
Soil Map Unit Name: Denton silty clay, 1 to 3 percent slope				NWI classific		
Are climatic / hydrologic conditions on the site typical for ti						
Are Vegetation, Soil, or Hydrology	-			'Normal Circumstances" p		No
Are Vegetation, Soil, or Hydrology						
						4
SUMMARY OF FINDINGS – Attach site map	snowing	samp	ling point i	ocations, transects	, important tea	itures, etc.
Hydrophytic Vegetation Present? Yes✓	No	١,	s the Sampled	ΙΔτοα		
Hydric Soil Present? Yes			within a Wetlar		No ✓	
Wetland Hydrology Present? Yes	No					
Remarks:						
WDP4 does not lie within a wetland.						
VEGETATION – Use scientific names of pla	nts.					
201			nant Indicator	Dominance Test work	sheet:	
Tree Stratum (Plot size: 30' 1. Ulmus crassifolia	<u>% Cover</u> 15	Specie Y	es? Status FAC	Number of Dominant S		
-				That Are OBL, FACW, (excluding FAC-):	or FAC 2	(A)
2						
3				Total Number of Domin Species Across All Stra	^	(B)
4	15	= Total	Cover			
Sapling/Shrub Stratum (Plot size: 30'		Total	00101	Percent of Dominant S That Are OBL, FACW,		(A/B)
1. N/A				Prevalence Index wor		
2					Multiply	by:
3				OBL species		-
4				FACW species		
5	0	- Total	Cover	FAC species		
Herb Stratum (Plot size: 30'		= Total	Covei	FACU species		
1. Eleocharis palustris	70	Υ	OBL	UPL species		
2. Eriochloa sericea	30	Υ	UPL	Column Totals:	(A)	(B)
3. Daucus carota	10	N	UPL	Prevalence Index	c = B/A =	
4				Hydrophytic Vegetation	· · · · · · · · · · · · · · · · · · ·	
5				1 - Rapid Test for I		tion
6				2 - Dominance Tes		
7				3 - Prevalence Inde	ex is ≤3.0 ¹	
8 9				4 - Morphological A	Adaptations ¹ (Provid	le supporting
10					s or on a separate s	•
10.		= Total	Cover	Problematic Hydro	pnytic Vegetation (Explain)
Woody Vine Stratum (Plot size: 30') 1. N/A				¹ Indicators of hydric so be present, unless disti		
2				Hydrophytic		
	0	= Total	Cover	Vegetation Present? Ye	es No	
% Bare Ground in Herb Stratum 0 Remarks:						
WDP4 does contain hydrophytic vege	tation.					

Profile Desc	ription: (Describe	to the de	pth needed to docun	nent the i	indicator	or confirm	n the absence of	of indicators.)
Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-5	10YR 3/1	100	none				clay	
5-16	2.5Y 4/2	100	none				gravelly clay	
		-					· ·	
			-		· ———		 ·	
				-			·	
			-	-				
•			I=Reduced Matrix, CS I LRRs, unless other			d Sand Gr		ation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
_		able to al						•
Histosol	oipedon (A2)			Gleyed Ma Redox (S5				uck (A9) (LRR I, J) Prairie Redox (A16) (LRR F, G, H)
Black His			-	Matrix (S				urface (S7) (LRR G)
	n Sulfide (A4)				neral (F1)			ains Depressions (F16)
	d Layers (A5) (LRR		Loamy (Gleyed Ma	atrix (F2)		(LRF	R H outside of MLRA 72 & 73)
	ick (A9) (LRR F, G ,			d Matrix (,			d Vertic (F18)
	d Below Dark Surface	e (A11)		Dark Surfa				rent Material (TF2) nallow Dark Surface (TF12)
	ark Surface (A12) fucky Mineral (S1)			o Dark Sc Depressio	ırface (F7) ns (F8)			Explain in Remarks)
	/lucky Peat or Peat	(S2) (LRR			essions (F	16)		of hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S	3) (LRR F) (ML	RA 72 & 1	73 of LRR	H)	wetland	hydrology must be present,
							unless	disturbed or problematic.
_	_ayer (if present):							
Type:								
, ,	ches):						Hydric Soil F	Present? Yes No✓
Remarks:								
WDP	4 does r	not c	ontain hy	/dric	: soi			
			<u> </u>	, G				
HYDROLO								
Wetland Hyd	drology Indicators:	:						
Primary Indic	cators (minimum of o	one require	ed; check all that apply	y)			Secondar	y Indicators (minimum of two required)
	Water (A1)		Salt Crust	, ,				ice Soil Cracks (B6)
<u> </u>	iter Table (A2)		Aquatic Inv					sely Vegetated Concave Surface (B8)
Saturatio	, ,		Hydrogen					rage Patterns (B10)
	arks (B1) nt Deposits (B2)		Dry-Seaso Oxidized F			ing Poots		zed Rhizospheres on Living Roots (C3) nere tilled)
Sedimer				not tilled)		ing Roots	. ,	fish Burrows (C8)
-	at or Crust (B4)		Presence			!)		ration Visible on Aerial Imagery (C9)
_	oosits (B5)		Thin Muck			• /		norphic Position (D2)
-	on Visible on Aerial	Imagery (E						Neutral Test (D5)
Water-S	tained Leaves (B9)						Frost	-Heave Hummocks (D7) (LRR F)
Field Observ	vations:							
Surface Water	er Present?	/es	No Depth (inc	ches):				
Water Table	Present?	/es	No Depth (inc	ches):				
Saturation Pr		/es	No Depth (inc	ches):		Wetl	and Hydrology	Present? Yes No
(includes cap Describe Red		n gauge, m	nonitoring well, aerial p	ohotos, pr	evious ins	pections),	if available:	
	-	-		-		·		
Remarks:								
WDP4 co	ontains hydro	logy						
		- 3) '						

Project/Site: Us 183A Phase III		City/Co	unty: Williamso	n	Sampling	Date: 3/22/17	7
Applicant/Owner: TxDOT Austin District			-	State: TX			
Investigator(s): Jeff Allen, Claire Parra							
• , , —				convex, none): none		Slope (%)	: 0
Subregion (LRR): LRR J							
Soil Map Unit Name: Oakalla soils, 0 to 1 percent slopes,							
Are climatic / hydrologic conditions on the site typical for							
Are Vegetation, Soil, or Hydrology				"Normal Circumstances		√es √ N	In
Are Vegetation, Soil, or Hydrology				eeded, explain any ansv			
							o oto
SUMMARY OF FINDINGS – Attach site ma	p snowing	Samp	oning point i		ts, import		s, etc.
Hydrophytic Vegetation Present? Yes			Is the Sampled	l Area			
Hydric Soil Present? Yes		١	within a Wetlar	nd? Yes	No _	✓	
Wetland Hydrology Present? Yes✓ Remarks:	NO						
WDP5 does not lie within a wetland.							
WDF5 does not lie within a wetland.							
VEGETATION – Use scientific names of pla	ants.						
20	Absolute		nant Indicator	Dominance Test wo	rksheet:		
Tree Stratum (Plot size: 30')	<u>% Cover</u> 15	Speci Y	es? Status FAC	Number of Dominant			
1. Ulmus americana 2. Morus rubra	10	Y Y	FACU	That Are OBL, FACV (excluding FAC-):	V, or FAC	2	(A)
a Salix nigra	5	 N	FACW		-		(')
		·		Total Number of Dom Species Across All S		8	(B)
4	30	= Total	L Cover		_		. ()
Sapling/Shrub Stratum (Plot size: 30')		- Total	100001	Percent of Dominant That Are OBL, FACW		25	(A/B)
1. Styphnolobium affine	10	Y	UPL				. , ,
2. Morus rubra	5	Y	FACU	Prevalence Index w Total % Cover of		Multiply by:	
3. Juglans nigra	5	Υ	FACU	OBL species			
4				FACW species			
5	20			FAC species			
Herb Stratum (Plot size: 30')	20	= Total	Cover	FACU species			
1. Ambrosia trifida	80	Υ	FAC	UPL species	x 5	=	
2. Daucus carota	20	Υ	UPL	Column Totals:	(A)		(B)
3. Sorghum halepense	10	N	FACU	Drawalan as Ind	D/A -		
4. Galium aparine	10	N	FACU	Prevalence Inde			_
5				1 - Rapid Test fo			
6				2 - Dominance T		, vegetation	
7				3 - Prevalence Ir			
8				4 - Morphologica		s1 (Provide sur	porting
9				data in Rema	irks or on a se	eparate sheet))
10		= Total	Cover	Problematic Hyd	rophytic Vege	etation¹ (Expla	ain)
Woody Vine Stratum (Plot size: 30'		= Total	Cover	¹ Indicators of hydric s			must
1. Vitis mustangensis	20	Υ	UPL	be present, unless di	sturbed or pro	oblematic.	
2				Hydrophytic			
0.5	20	= Total	Cover	Vegetation Present?	Yes	No. ✓	
% Bare Ground in Herb Stratum 0 Remarks:				. 1000111.			
	(Odototic-						
WDP5 does not contain hydrophytic v	regetation	ı.					

Profile Des	cription: (Describe	to the de	pth needed to docur	nent the	indicator	or confirn	n the absence of	indicators.)
Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-1	10YR 3/2	100	none				silt loam	
1-2	2.5Y 4/3	100	none				sandy loam	
2-16	10YR 3/1	100	none				clay loam	
				-				
		_		-				
		_	-	-				
-			-					
		_		-				
•			M=Reduced Matrix, CS			d Sand G		on: PL=Pore Lining, M=Matrix.
		cable to a	II LRRs, unless other					r Problematic Hydric Soils ³ :
Histoso	` '			Gleyed Ma Redox (S5				ck (A9) (LRR I, J) airie Redox (A16) (LRR F, G, H)
	pipedon (A2) listic (A3)		-	d Matrix (S				face (S7) (LRR G)
	en Sulfide (A4)				neral (F1)			ns Depressions (F16)
	ed Layers (A5) (LRR	F)	-	Gleyed M			_	H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G ,			d Matrix (,	Vertic (F18)
l ''	ed Below Dark Surfac	,		Dark Surfa			Red Pare	nt Material (TF2)
Thick D	ark Surface (A12)		Deplete	d Dark Su	urface (F7)		Very Shal	llow Dark Surface (TF12)
	Mucky Mineral (S1)			Depressio				plain in Remarks)
	Mucky Peat or Peat				essions (F			hydrophytic vegetation and
5 cm M	ucky Peat or Peat (S	3) (LRR F	(ML	RA 72 &	73 of LRR	H)		ydrology must be present,
Postrictivo	Layer (if present):						unless dis	sturbed or problematic.
Type:	Layer (ii present).							
I	nches):						Hydric Soil Pr	esent? Yes No ✓
Remarks:							Tiyano con i i	103 103
rtemanto.								
WDP	'5 does r	not c	contain hy	ydric	c soi	l.		
HYDROLO	OGY			<u> </u>				
	drology Indicators	:						
_			ed; check all that appl	v)			Secondary	Indicators (minimum of two required)
Surface	Water (A1)	•	Salt Crust	(B11)			· · · · · · · · · · · · · · · · · · ·	e Soil Cracks (B6)
	ater Table (A2)		Aquatic In	'	es (B13)			ely Vegetated Concave Surface (B8)
_	ion (A3)		Hydrogen					ge Patterns (B10)
· 	Marks (B1)		Dry-Seaso		, ,			ed Rhizospheres on Living Roots (C3)
	ent Deposits (B2)		Oxidized F					ere tilled)
Orift De			· 	not tilled)		5	. ,	th Burrows (C8)
	at or Crust (B4)		Presence	,		1)	_	tion Visible on Aerial Imagery (C9)
Iron De	, ,		Thin Muck			,		orphic Position (D2)
	ion Visible on Aerial	Imagery (eutral Test (D5)
	Stained Leaves (B9)	0 , (,		,			Heave Hummocks (D7) (LRR F)
Field Obse	rvations:							
Surface Wa	ter Present?	/es	No✓ Depth (in	ches):		_		
Water Table			No <u>✓</u> Depth (in					
Saturation F			No _ ✓ Depth (in				and Hydrology P	Present? Yes No
(includes ca	pillary fringe)							
Describe Re	ecorded Data (strean	n gauge, n	nonitoring well, aerial	pnotos, pr	revious ins	pections),	ıт avaılable:	
Domarica								
Remarks:	ontoina kudu-	lo <i>cui</i>						
WDP5 C	ontains hydro	iogy.						
1								

Project/Site: Us 183A Phase III	Cit	y/County:	Williamsor	n Sa	ampling Date: 3/22/17	7
Applicant/Owner: TxDOT Austin District				State: TX Sa		
Investigator(s): Jeff Allen, Claire Parra						
•				convex, none): none	Slope (%)	: 0
Subregion (LRR): LRR J						
Soil Map Unit Name: Oakalla soils, 0 to 1 percent slopes, 0						
Are climatic / hydrologic conditions on the site typical for tl						
Are Vegetation, Soil, or Hydrology	-			Normal Circumstances" pres		lo
Are Vegetation, Soil, or Hydrology				eded, explain any answers i		
				-		
SUMMARY OF FINDINGS – Attach site map	showing s	ampling	point lo	ocations, transects, in	mportant feature	es, etc.
Hydrophytic Vegetation Present? Yes✓	No	lo the	Compled	Avon		
Hydric Soil Present? Yes			Sampled a Wetlan		_ No ✓	
Wetland Hydrology Present? Yes	No	Within	i a vvetiaii	u: 165		
Remarks:						
WDP6 does not lie within a wetland.						
VEGETATION – Use scientific names of pla	nts.					
	Absolute D	Dominant I	ndicator	Dominance Test worksho	eet:	
<u>Tree Stratum</u> (Plot size: 30'	% Cover S	Species?	Status	Number of Dominant Spec	cies	
1. <u>N/A</u>				That Are OBL, FACW, or F	FAC 1	(4)
2				(excluding FAC-):	<u>·</u>	(A)
3				Total Number of Dominant	4	(B)
4				Species Across All Strata:	<u></u>	(D)
Sapling/Shrub Stratum (Plot size: 30'	0 =	Total Cove	r	Percent of Dominant Spec That Are OBL, FACW, or F		(A/B)
1. N/A						(700)
2				Prevalence Index worksh		
3				Total % Cover of:		
4				OBL species		
5				FACW species FAC species		
Herb Stratum (Plot size: 30'	0 =	Total Cove	r	FACU species		_
1. Panicum virgatum	100 Y	1	FAC	UPL species		
2.				Column Totals:		
3						
4					B/A =	_
5				Hydrophytic Vegetation		
6				1 - Rapid Test for Hyd 2 - Dominance Test is		
7				3 - Prevalence Index i		
8				4 - Morphological Ada		portina
9				data in Remarks or	r on a separate sheet))
10				Problematic Hydrophy	tic Vegetation ¹ (Expla	ain)
Woody Vine Stratum (Plot size: 30')	=	Total Cove	r	¹ Indicators of hydric soil ar	nd wetland hydrology	must
1. N/A				be present, unless disturbe	ed or problematic.	
2.				Hydrophytic		
	0 =	Total Cove	r	Vegetation	/ No	
% Bare Ground in Herb Stratum 0				Present? Yes _	No	
Remarks:	4-4					
WDP6 does contain hydrophytic vege	tation.					

Profile Desc	ription: (Describe	to the depth	needed to docu	ment the i	ndicator	or confirm	the absence o	f indicators.)
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-9	10YR 3/1	<u>100</u> n	one				clay loam	
	oncentration, D=Dep					d Sand Gra		tion: PL=Pore Lining, M=Matrix.
Hydric Soil I	Indicators: (Applic	able to all LF	RRs, unless othe	rwise note	ed.)		Indicators for	or Problematic Hydric Soils ³ :
Histosol	` '			Gleyed Ma	. ,			ick (A9) (LRR I, J)
	pipedon (A2)		-	Redox (S5				rairie Redox (A16) (LRR F, G, H)
Black His	` '			d Matrix (S				rface (S7) (LRR G)
	n Sulfide (A4) d Layers (A5) (LRR l	F)		Mucky Min Gleyed Ma	. ,		_	ins Depressions (F16) H outside of MLRA 72 & 73)
	ick (A9) (LRR F, G ,			ed Matrix (F			`	d Vertic (F18)
	d Below Dark Surfac			Dark Surfa				ent Material (TF2)
Thick Da	ark Surface (A12)		Deplete	ed Dark Su	rface (F7)		Very Sha	allow Dark Surface (TF12)
	lucky Mineral (S1)			Depressior	. ,			xplain in Remarks)
	/lucky Peat or Peat (ains Depre				f hydrophytic vegetation and
5 cm Mu	icky Peat or Peat (S	3) (LRR F)	(ML	.RA 72 & 7	3 of LRR	H)		hydrology must be present,
Restrictive I	_ayer (if present):						uniess u	isturbed or problematic.
Type: bed								
Depth (inc			_				Hydric Soil P	resent? Yes No
Remarks:							,	
	. .	_						
WDP	6 does r	not co	ntaın h	ydric	SOI	l.		
HYDROLO	GY							
	drology Indicators:							
-	cators (minimum of o		check all that ann	lv)			Secondary	/ Indicators (minimum of two required)
-	Water (A1)	ono roquirou,	Salt Crust	•			-	ce Soil Cracks (B6)
	iter Table (A2)			vertebrate	s (B13)			ely Vegetated Concave Surface (B8)
Saturation			Hydrogen		, ,			age Patterns (B10)
	arks (B1)			on Water T			' '	zed Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized I			ng Roots (ere tilled)
Drift Dep				not tilled)		•		sh Burrows (C8)
	at or Crust (B4)		Presence	of Reduce	d Iron (C4	·)	Satura	ation Visible on Aerial Imagery (C9)
Iron Dep	osits (B5)		Thin Muck	Surface (C7)		Geom	norphic Position (D2)
Inundation	on Visible on Aerial	Imagery (B7)	Other (Ex	plain in Re	marks)		FAC-I	Neutral Test (D5)
Water-S	tained Leaves (B9)						Frost-	Heave Hummocks (D7) (LRR F)
Field Observ	vations:							
Surface Water	er Present? Y	'es No	Depth (in	ches):		_		
Water Table	Present? Y	'es No	o Depth (in	ches):		_		
Saturation Pr		'es No	Depth (in	iches):		Wetla	and Hydrology	Present? Yes/ No
(includes cap Describe Red	corded Data (stream	n gauge, moni	toring well, aerial	photos, pre	evious ins	pections), i	if available:	
Remarks:								
WDP6 co	ontains hydrol	logy.						
	Í							

Project/Site: 183A Phase III	(City/County	y: Williamso	n	Sampling Date: 3	/22/17	
Applicant/Owner: TxDOT Austin District					Sampling Point: WDP7		
Investigator(s): Jeff Allen, Claire Parra		Section, Township, Range: N/A					
			convex, none): none	Slop	e (%): 0		
				Long: -97.85989403 Datum: NAD 83			
Soil Map Unit Name: Eckrant cobbly clay, 1 to 8 percent s				NWI classification: R4SBC			
Are climatic / hydrologic conditions on the site typical for t							
Are Vegetation, Soil, or Hydrology	-					No	
Are Vegetation, Soil, or Hydrology							
SUMMARY OF FINDINGS – Attach site ma						atures. etc.	
			-9 p	,	,	,	
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes			he Sampled				
Wetland Hydrology Present?		with	nin a Wetlar	nd? Yes	No		
Remarks:							
WDP7 does not lie within a wetland.							
WELL A GOOD HOURS WILLIAM A WOLLAND.							
VEGETATION – Use scientific names of pla	ants.						
Tree Stratum (Plot size: 30')			t Indicator	Dominance Test work			
. Saliv pigra	<u>% Cover</u> 10	Y Species?	FACW	Number of Dominant Sp That Are OBL, FACW, of			
1. Sanx Ingra 2.				(excluding FAC-):	3	(A)	
3				Total Number of Domina	ant		
4				Species Across All Stra	^	(B)	
	40	= Total Co	ver	Percent of Dominant Sp	pecies		
Sapling/Shrub Stratum (Plot size: 30')			540	That Are OBL, FACW, of		(A/B)	
1. Ulmus crassifolia	10	Y	· ——	Prevalence Index worl	ksheet:		
2				Total % Cover of:		bv:	
3			-	OBL species		-	
4				FACW species			
5	10	= Total Co		FAC species	x 3 =		
Herb Stratum (Plot size: 30')		10101 00		FACU species	x 4 =		
1. Typha latifolia	80	Υ	OBL	UPL species			
2				Column Totals:	(A)	(B)	
3		-	<u> </u>	Prevalence Index	= B/A =		
4				Hydrophytic Vegetation	·		
5				1 - Rapid Test for H		tion	
6				✓ 2 - Dominance Tes	t is >50%		
7				3 - Prevalence Inde	ex is ≤3.0 ¹		
8 9				4 - Morphological A	daptations ¹ (Provid	de supporting	
10.			-		s or on a separate s	•	
	00	= Total Co	ver	Problematic Hydrop	onytic vegetation ((Explain)	
Woody Vine Stratum (Plot size: 30') 1. N/A				¹ Indicators of hydric soil be present, unless distu			
2				Hydrophytic			
	0	= Total Co	ver	Vegetation Present? Yes	s∕ No		
% Bare Ground in Herb Stratum 0 Remarks:				163			
	4041						
WDP7 does contain hydrophytic vege	เลแบบ.						

	<u>Matrix</u>			x Feature:		. 2	- .	D 1
inches)	Color (moist)	400	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
)-16	2.5Y 3/2	100 no	ne				clay loam	
• •	oncentration, D=Dep					d Sand G		tion: PL=Pore Lining, M=Matrix.
-	Indicators: (Applic	able to all LRI						or Problematic Hydric Soils ³ :
_ Histoso	• •			Sleyed Ma				ick (A9) (LRR I, J)
	pipedon (A2) istic (A3)		-	Redox (S5 Matrix (S				rairie Redox (A16) (LRR F, G, H) rface (S7) (LRR G)
	en Sulfide (A4)			Mucky Mir				ins Depressions (F16)
	d Layers (A5) (LRR I	F)		Gleyed Ma	. ,			H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G ,		-	d Matrix (I			•	d Vertic (F18)
_ Deplete	d Below Dark Surfac	e (A11)	Redox [ark Surfa	ce (F6)		Red Par	ent Material (TF2)
	ark Surface (A12)				rface (F7)		-	allow Dark Surface (TF12)
_	Mucky Mineral (S1)			epression	. ,			xplain in Remarks)
	Mucky Peat or Peat (essions (F			f hydrophytic vegetation and
_ 5 CIII IVI	ucky Peat or Peat (S	3) (LRR F)	(IVIL	KA / 2 & /	'3 of LRR	H)		hydrology must be present, isturbed or problematic.
estrictive	Layer (if present):						unicss u	istarbed of problematic.
Type: be								
,	iches): 9		_				Hvdric Soil P	resent? Yes No ✓
Depth (in	iches): 9		<u>-</u>				Hydric Soil P	resent? Yes No/
Depth (in			-				Hydric Soil P	resent? Yes No/
Depth (in		not cor	tain h	/dric	soi	l.	Hydric Soil P	resent? Yes No/
Depth (in temarks:	7 does r	not cor	ntain hy	/dric	; soi	l.	Hydric Soil P	resent? Yes No/
Depth (in temarks:	7 does r		ntain hy	/dric	; soi	l.	Hydric Soil P	resent? Yes No _ /
Depth (in temarks:	7 does r	:			soi	l.		
Depth (in lemarks: VDP OROLO Vetland Hy rimary Indi	P7 does r	:	neck all that appl	<i>(</i>)	soi	l	Secondary	y Indicators (minimum of two require
Depth (in emarks: DP DROLO Vetland Hy rimary Indi Surface	PT does roogy Indicators: cators (minimum of colors) Water (A1)	:	neck all that appl Salt Crust	(B11)		l. 	Secondary	y Indicators (minimum of two require ce Soil Cracks (B6)
Depth (in lemarks: VDP /DROLO /etland Hy rimary Indi Surface High W.	PT does root of the control of the c	:	neck all that appl Salt Crust Aquatic Inv	y) (B11) vertebrate	s (B13)	l. ——	Secondary Surface Spars	y Indicators (minimum of two require ce Soil Cracks (B6) ely Vegetated Concave Surface (B8
Depth (in emarks: VDP OROLO Vetland Hy rimary Indi Surface High W. Saturati	PT does r OGY Indrology Indicators: cators (minimum of company) Water (A1) ater Table (A2) Ion (A3)	:	neck all that appl Salt Crust Aquatic Inv Hydrogen	/) (B11) vertebrate Sulfide Od	s (B13) dor (C1)	l	Secondary Surfac Spars Draina	y Indicators (minimum of two require ce Soil Cracks (B6) ely Vegetated Concave Surface (B8 age Patterns (B10)
Depth (in emarks: VDP /DROLC /etland Hy rimary Indi Surface High W. Saturati Water N	PT does rectard (A1) ater Table (A2) fon (A3) Marks (B1)	:	neck all that appl Salt Crust Aquatic In Hydrogen Dry-Seaso	(B11) vertebrate Sulfide Od	s (B13) dor (C1) able (C2)		Secondary Surfac Spars Draina Oxidiz	y Indicators (minimum of two require ce Soil Cracks (B6) ely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (C
Depth (in emarks: VDP /DROLO /etland Hy rimary Indi _ Surface _ High W. Saturati _ Water M. Sedime	PT does report of the control of the	:	neck all that appl Salt Crust Aquatic In Hydrogen Dry-Seaso Oxidized F	(B11) vertebrate Sulfide Od n Water T	s (B13) dor (C1) able (C2)		Secondary Surface Spars Draina Oxidiz	y Indicators (minimum of two require ce Soil Cracks (B6) sely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (C ere tilled)
Depth (in emarks: VDP /DROLO /etland Hy rimary Indi Surface High W. Saturati Water N. Sedime On Drift De	PT does redorded redo	:	eck all that appl Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F	(B11) vertebrate Sulfide Oo n Water T thizosphe not tilled)	s (B13) dor (C1) able (C2) res on Livi	ing Roots	Secondary Surface Spars Draina Oxidiz (C3) (wh	y Indicators (minimum of two require ce Soil Cracks (B6) ely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (C ere tilled) ish Burrows (C8)
Depth (in Depth	drology Indicators: cators (minimum of control (Mater (A1)) ater Table (A2) fron (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4)	:	neck all that appli Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r	y) (B11) vertebrate Sulfide Oo n Water T thizosphe not tilled) of Reduce	s (B13) dor (C1) able (C2) res on Liv d Iron (C4	ing Roots	Secondary Surface Spars Draina Oxidiz (C3) (wh Satura	y Indicators (minimum of two required ce Soil Cracks (B6) (B6) (B6) (B6) (B7) (B7) (B7) (B7) (B7) (B7) (B7) (B7
Depth (in Depth	rdrology Indicators: cators (minimum of control (Marks (B1)) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	one required; ch	seck all that apple Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (s (B13) dor (C1) fable (C2) res on Livi d Iron (C4	ing Roots	Secondary Surface Spars Draina Oxidiz (C3) (wh Crayfi Satura Geom	y Indicators (minimum of two require ce Soil Cracks (B6) lely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) lish Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2)
Depth (in Depth	Pagy Indrology Indicators: Cators (minimum of control (Marks (Ma	one required; ch	neck all that appli Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (s (B13) dor (C1) fable (C2) res on Livi d Iron (C4	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom	y Indicators (minimum of two require ce Soil Cracks (B6) sely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) sh Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2)
Depth (in lemarks: VDP VDROLC Vetland Hy rimary Indi Surface High W. Saturati Water N Sedime / Drift De Inundat Water-S	Profest Profes	one required; ch	seck all that apple Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (s (B13) dor (C1) fable (C2) res on Livi d Iron (C4	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom	y Indicators (minimum of two require ce Soil Cracks (B6) lely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) lish Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2)
Depth (in lemarks: VDP /DROLO /etland Hy rimary Indi Surface High W Saturati Water N Sedime /_ Drift De /_ Algal M Iron De Inundat Water-S ield Observirus	Protections: Procest of the control	one required; ch	Salt Crust Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (slain in Re	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom	y Indicators (minimum of two require ce Soil Cracks (B6) sely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) sh Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2)
Depth (in Depth	red does red	one required; ch	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck Other (Exp	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (blain in Re	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom	y Indicators (minimum of two require ce Soil Cracks (B6) sely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) sh Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2)
Depth (in Depth	Programment of the control of the co	Imagery (B7) 'es No	Salt Crust Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck Other (Exp	(B11) vertebrate Sulfide Od n Water T chizosphe not tilled) of Reduce Surface (plain in Re ches): ches):	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidiz (C3) (wh Crayfi Satura Geom FAC-I Frost-	y Indicators (minimum of two require ce Soil Cracks (B6) sely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) sh Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2) Neutral Test (D5) Heave Hummocks (D7) (LRR F)
Depth (in Depth	Present?	Imagery (B7) 'es No	Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck Other (Exp	(B11) vertebrate Sulfide Od n Water T chizosphe not tilled) of Reduce Surface (plain in Re ches): ches):	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidiz (C3) (wh Crayfi Satura Geom FAC-I Frost-	y Indicators (minimum of two require ce Soil Cracks (B6) sely Vegetated Concave Surface (B8 age Patterns (B10) zed Rhizospheres on Living Roots (Cere tilled) sh Burrows (C8) ation Visible on Aerial Imagery (C9) norphic Position (D2)
Depth (in Depth	Programment of the control of the co	Imagery (B7) 'es No _ 'es No _ 'es No _	Salt Crust Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck Other (Exp	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom FAC-P	y Indicators (minimum of two required ce Soil Cracks (B6) Bely Vegetated Concave Surface (B8) Bage Patterns (B10) Bed Rhizospheres on Living Roots (Cere tilled) Bish Burrows (C8) Bation Visible on Aerial Imagery (C9) Broughic Position (D2) Broughic Position (D2) Broughic Hummocks (D7) (LRR F)
Depth (in Depth	Present?	Imagery (B7) 'es No _ 'es No _ 'es No _	Salt Crust Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck Other (Exp	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom FAC-P	y Indicators (minimum of two required ce Soil Cracks (B6) Bely Vegetated Concave Surface (B8) Bage Patterns (B10) Bed Rhizospheres on Living Roots (Cere tilled) Bish Burrows (C8) Bation Visible on Aerial Imagery (C9) Broughic Position (D2) Broughic Position (D2) Broughic Hummocks (D7) (LRR F)
Depth (in emarks: VDP /DROLO /etland Hy rimary Indi	Present?	Imagery (B7) 'es No _ 'es No _ 'es No _	Salt Crust Salt Crust Aquatic Inv Hydrogen Dry-Seaso Oxidized F (where r Presence of Thin Muck Other (Exp	(B11) vertebrate Sulfide Od n Water T thizosphe not tilled) of Reduce Surface (plain in Re ches): ches): ches):	s (B13) dor (C1) fable (C2) res on Livi d Iron (C4 C7) marks)	ing Roots	Secondary Surface Spars Draina Oxidize (C3) (wh Crayfi Satura Geom FAC-P	y Indicators (minimum of two required ce Soil Cracks (B6) Bely Vegetated Concave Surface (B8) Bage Patterns (B10) Bed Rhizospheres on Living Roots (Cere tilled) Bish Burrows (C8) Bation Visible on Aerial Imagery (C9) Broughic Position (D2) Broughic Position (D2) Broughic Hummocks (D7) (LRR F)

Project/Site: 183A Phase III	(City/Coun	ty: Williamson	n	_ Sampling Date: 3/22/17	
					Sampling Point: WDP8	
Investigator(s): Jeff Allen, Claire Parra	;	Section, T	ownship, Ra	nge: N/A		
Landform (hillslope, terrace, etc.): ditch		Local reli	ef (concave, o	convex, none): concvae	Slope (%): 0	
Subregion (LRR): LRR J	Lat: 30.5	9357758		Long: <u>-97.84888539</u>	Datum: NAD 83	3
				NWI classific		
Are climatic / hydrologic conditions on the site typical for thi						
Are Vegetation, Soil, or Hydrology	-					
Are Vegetation, Soil, or Hydrology				eded, explain any answe		
SUMMARY OF FINDINGS – Attach site map					,	etc.
Hydrophytic Vegetation Present? Yes N Hydric Soil Present? Yes N		Is 1	the Sampled			
Wetland Hydrology Present?		wit	thin a Wetlar	nd? Yes	No	
Remarks:						
WDP8 does not lie within a wetland. Di	itch cont	ained :	standing	water due to cha	annel work (by Austi	in
Community College) outside of the righ			_		()	
, , ,						-
VEGETATION – Use scientific names of plan				· · · · · · · · · · · · · · · · · · ·		
Tree Stratum (Plot size: 30'			nt Indicator Status	Dominance Test work		
1. <u>N/A</u>				Number of Dominant S That Are OBL, FACW,	or FAC	
2				(excluding FAC-):	2 (A	۲)
3				Total Number of Domir	nant	
4				Species Across All Stra	ata: <u>2</u> (B	·)
Sapling/Shrub Stratum (Plot size: 30')	0	= Total C	over	Percent of Dominant S		(D)
1. N/A				That Are OBL, FACW,	or FAC: 100 (A	/B)
2.				Prevalence Index wor	rksheet:	
3.					Multiply by:	
4					x 1 =	
5					x 2 =	
Hart Otastora (Districts 30'	0	= Total C	over		x 3 = x 4 =	
Herb Stratum (Plot size: 30') 1 Eleocharis palustris	60	Υ	OBL	· ·	x 5 =	
2. Typha latifolia	40	Υ	OBL		(A)(B)
3. Vivia sativa	20	N	FACU			,
4. Lolium perenne	15	N	FACU		c = B/A =	
5. Bromus catharticus	15	N	UPL	Hydrophytic Vegetati		
6				2 - Dominance Tes	Hydrophytic Vegetation	
7				3 - Prevalence Ind		
8					Adaptations ¹ (Provide support	tina
9		-			s or on a separate sheet)	9
10	150			Problematic Hydro	ophytic Vegetation ¹ (Explain)	
Woody Vine Stratum (Plot size: 30')		= Total C	over	¹ Indicators of hydric so	il and wetland hydrology mus	at
1. N/A				be present, unless dist		
2				Hydrophytic		
	0	= Total C	over	Vegetation Present? Yes	es No	
% Bare Ground in Herb Stratum 0 Remarks:				riesent: 16	NU	
	otion					
WDP8 does contain hydrophytic veget	auon.					

Depth	Matrix	0/		ox Feature		. 2				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
	10YR 3/2	99	2.5YR 3/6	_ 1	<u>C</u>	PL	clay	few prominent redox		
	10YR 3/1	99	2.5YR 3/6	_ 1	<u>C</u>	PL	clay	fewprominent redox		
8-16 	2.5Y 3/1	100	none				clay			
·		 								
			M=Reduced Matrix, C			d Sand G		cation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :		
-		cable to a	I LRRs, unless othe							
Histosol (ipedon (A2)			Gleyed Ma Redox (S5	. ,			Muck (A9) (LRR I, J) : Prairie Redox (A16) (LRR F, G, H)		
Black His			-	ed Matrix (S				Surface (S7) (LRR G)		
Hydrogen	Sulfide (A4)		Loamy	Mucky Mi	neral (F1)		High I	Plains Depressions (F16)		
	Layers (A5) (LRR			Gleyed M	. ,		•	RR H outside of MLRA 72 & 73)		
	ck (A9) (LRR F, G, Below Dark Surfac			ed Matrix (Dark Surfa	,			ced Vertic (F18) Parent Material (TF2)		
	rk Surface (A12)	c (ATT)		ed Dark Sun				Shallow Dark Surface (TF12)		
	ucky Mineral (S1)		Redox					(Explain in Remarks)		
	ucky Peat or Peat		-					³ Indicators of hydrophytic vegetation and		
5 cm Muc	cky Peat or Peat (S	3) (LRR F) (M	LRA 72 &	73 of LRF	H)		nd hydrology must be present, s disturbed or problematic.		
	ayer (if present):							·		
- bod	rook									
Type: bedr							Hydric Soi	I Present? Yes No ✓		
Depth (inch							Hydric Soi	I Present? Yes No/		
Depth (inch	a does r	not c	ontain h	ydric	soi	l.	Hydric Soi	I Present? Yes No/		
Depth (inches Remarks: WDP8 YDROLOG	a does r		ontain h	ydrid	soi	l.	Hydric Soi	I Present? Yes No/		
Depth (inch Remarks: VDP8 YDROLOG Wetland Hydr	B does r	:	contain h		soi	l		I Present? Yes No/		
Depth (inches Perimary Indicase) Depth (inches Perimary Indicase) Depth (inches Perimary Indicase)	hes): 9 B does r GY rology Indicators ators (minimum of o	:		bly)	soi	l.	Second			
Depth (inch Remarks: MDP8 YDROLOG Wetland Hydromary Indicated Surface W	B does r GY rology Indicators ators (minimum of o	:	ed; check all that app	bly)		l <u>.</u>	Second Sui	ary Indicators (minimum of two required)		
Depth (inch Remarks: WDP8 YDROLOG Wetland Hydi Primary Indica ✓ Surface W ✓ High Wate ✓ Saturation	B does r GY rology Indicators ators (minimum of or Vater (A1) er Table (A2) n (A3)	:	ed; check all that app Salt Crus Aquatic II	oly) t (B11) nvertebrate	s (B13) dor (C1)	l	Second Sui Spai Dra	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) ainage Patterns (B10)		
Depth (inch Remarks: VDP8 YDROLOG Wetland Hydion Primary Indicate V Surface W High Water V Saturation Water Ma	hes): 9 B does r GY rology Indicators ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1)	:	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas	oly) It (B11) Invertebrate In Sulfide O Son Water	s (B13) dor (C1) able (C2)		Second Sur Spr Dra Oxi	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydro Primary Indicator Surface W High Water Water Ma Sediment	B does r GY rology Indicators ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2)	:	ed; check all that app Salt Crus Aquatic li Hydroger Dry-Seas Oxidized	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe	s (B13) dor (C1) fable (C2) res on Liv		Second Sur Spa Dra Oxi (C3)	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) anage Patterns (B10) idized Rhizospheres on Living Roots (C3		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydro Grimary Indicates Surface W High Water Saturation Water Ma Sediment Drift Depo	B does r GY rology Indicators ators (minimum of or Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)	:	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe In tilled	s (B13) dor (C1) rable (C2) res on Liv	ing Roots	Second Sui Spa Dra Oxi (C3) (v	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) ainage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8)		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydro Primary Indicate Surface W High Water Saturation Water Ma Sediment Drift Depo	B does r GY rology Indicators ators (minimum of or Nater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	:	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) Is of Reduce	s (B13) dor (C1) Table (C2) res on Liv	ing Roots	Second Sul Spa Dra Oxi (C3) (\) Cra Sat	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) ainage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) auration Visible on Aerial Imagery (C9)		
Depth (inch Remarks: WDP8 YDROLOG Wetland Hydi Primary Indica Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo	B does r GY rology Indicators ators (minimum of or Nater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	: one requin	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe In tilled	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4	ing Roots	Second Sur Spa Dra Oxi (C3) (v Cra Sat Ge	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) ainage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8)		
Depth (inch Remarks: VDP8 YDROLOG Wetland Hydi Primary Indica Surface W High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation	B does r GY rology Indicators ators (minimum of or Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5)	: one requin	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It k Surface	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4	ing Roots	Second Sur Spa Dra Oxi (C3) (\(\) Cra Sat Ge FA	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) ainage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9) comorphic Position (D2)		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydro Frimary Indicator Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Water-Stat Field Observation	B does r GY rology Indicators ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) n Visible on Aerial ained Leaves (B9) ations:	: one require	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It of Re	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4	ing Roots	Second Sur Spa Dra Oxi (C3) (\(\) Cra Sat Ge FA	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) suration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydine Primary Indication Y Surface Water Manual Sediment Drift Depote Algal Mater Iron Depote Inundation Water-Staffield Observations	B does r Gy rology Indicators ators (minimum of or Nater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) n Visible on Aerial ained Leaves (B9) rations: r Present?	: one require Imagery (I	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc 37) Other (Ex	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It Surface	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4	ing Roots	Second Sur Spa Dra Oxi (C3) (\(\) Cra Sat Ge FA	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) suration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydine Primary Indicate Surface Work High Water Saturation Water Mater	B does r GY rology Indicators ators (minimum of or Vater (A1) per Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) n Visible on Aerial ained Leaves (B9) ations: r Present?	: one require Imagery (I /es /es /	ed; check all that app Salt Crus Aquatic Ii Hydroger Dry-Seas Oxidized (where Presence Thin Muc 37) Other (Ex	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It Surface	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4	ing Roots	Second Sur Spa Dra Oxi (C3) (\footnote{1} \) Cra Sat Ge FA Fro	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) suration Visible on Aerial Imagery (C9) comorphic Position (D2) C-Neutral Test (D5) ist-Heave Hummocks (D7) (LRR F)		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydine Primary Indication Y Surface Water Manage Mater Manage Mater Manage Mater Manage Mater Mater Mater Mater Mater Mater Mater Mater Mater Table Food Mater Mater Table Food Mater Mater Table Food Mater	B does r GY rology Indicators ators (minimum of or Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) n Visible on Aerial ained Leaves (B9) ations: r Present? Present?	: one require Imagery (I /es _ / /es _ /	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc B7) Other (Ex) No Depth (ii No Depth (ii	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It Surface It surface It surface Inches): Inches): Inches): Inches): It is on the surface Inches is one surfac	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4 C7) emarks)	ing Roots	Second Su Spa Dra Oxi (C3) (v Cra Sal Ge FA	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) suration Visible on Aerial Imagery (C9) omorphic Position (D2) C-Neutral Test (D5)		
Depth (inche Remarks: WDP8 YDROLOG Wetland Hydion Primary Indication Surface With Water Manager Mater Manager Mater Manager Mater Manager Mater Mater Mater Mater Mater Mater Table Footnot Mater Table Footnot Mater Table Footnot Mater Mater Mater Table Footnot Mater	B does r GY rology Indicators ators (minimum of or Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) n Visible on Aerial ained Leaves (B9) ations: r Present? Present?	: one require Imagery (I /es _ / /es _ /	ed; check all that app Salt Crus Aquatic Ii Hydroger Dry-Seas Oxidized (where Presence Thin Muc 37) Other (Ex	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It Surface It surface It surface Inches): Inches): Inches): Inches): It is on the surface Inches is one surfac	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4 C7) emarks)	ing Roots	Second Su Spa Dra Oxi (C3) (v Cra Sal Ge FA	ary Indicators (minimum of two required) face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) suration Visible on Aerial Imagery (C9) comorphic Position (D2) C-Neutral Test (D5) ist-Heave Hummocks (D7) (LRR F)		
Depth (inche Remarks: WDP8 WDP8 WDP8 WDP8 Wetland Hyding Primary Indicate Surface Water Manual Sediment Drift Depo Algal Matter Table For Saturation Presidence water Staturation Presidence includes capilled.	B does r GY rology Indicators ators (minimum of or Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) n Visible on Aerial ained Leaves (B9) ations: r Present? Present?	: one require Imagery (I /es _ / /es _ /	ed; check all that app Salt Crus Aquatic II Hydroger Dry-Seas Oxidized (where Presence Thin Muc B7) Other (Ex) No Depth (ii No Depth (ii	oly) It (B11) Invertebrate In Sulfide O Ison Water Rhizosphe Inot tilled) It of Reduce It Surface It surface It surface Inches): Inches): Inches): Inches): It is on the surface Inches is one surfac	s (B13) dor (C1) Fable (C2) res on Liv ed Iron (C4 C7) emarks)	ing Roots	Second Su Spa Dra Oxi (C3) (v Cra Sal Ge FA	ary Indicators (minimum of two required face Soil Cracks (B6) arsely Vegetated Concave Surface (B8) sinage Patterns (B10) idized Rhizospheres on Living Roots (C3 where tilled) ayfish Burrows (C8) suration Visible on Aerial Imagery (C9) comorphic Position (D2) C-Neutral Test (D5) ist-Heave Hummocks (D7) (LRR F)		

Project/Site: 183A Phase III		City/Cour	nty: Williamson	n	Sampling Date: 8/10/2018		
Applicant/Owner: TxDOT Austin District			State: TX				
Investigator(s): Meghan Lind, Jesus Mares		Section,	Township, Ra	nge: N/A			
Landform (hillslope, terrace, etc.): Side slope of ditch		Local reli	ief (concave, o	convex, none): concave	Slope (%): 3-5		
				Long: -97.865415 Datum: NAD 8:			
Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes				NWI classification: None			
Are climatic / hydrologic conditions on the site typical for th							
Are Vegetation, Soil, or Hydrology	-					/ No	
Are Vegetation, Soil, or Hydrology							
SUMMARY OF FINDINGS – Attach site map						atures, etc.	
Hydrophytic Vegetation Present? Yes N					·	· · ·	
Hydric Soil Present? Yes N			the Sampled				
Wetland Hydrology Present? YesN		Wi	ithin a Wetlar	nd? Yes	No <i>′</i>	•	
Remarks:					-		
WDP9 does not lie within a wetland; up	oland po	int					
	·						
VECETATION . He are in a life in a superior of order	-4-						
VEGETATION – Use scientific names of plan							
Tree Stratum (Plot size: 30')			int Indicator S? Status	Dominance Test works			
1. Celtis laevigata		Υ	FAC	Number of Dominant Sp That Are OBL, FACW, of			
2.				(excluding FAC-):	4	(A)	
3				Total Number of Domina	ant		
4				Species Across All Stra	ta: <u>6</u>	(B)	
20'	5	= Total C	Cover	Percent of Dominant Sp			
Sapling/Shrub Stratum (Plot size: 30' 1. Salix nigra	5	Υ	FACW	That Are OBL, FACW, o	or FAC: <u>66%</u>	(A/B)	
2. Ulmus crassifolia	- 5	Y	FAC	Prevalence Index work	ksheet:		
3. Baccharis neglecta	- 5	· Y	FAC	Total % Cover of:	Multiply	y by:	
4				OBL species	x 1 =		
5.				FACW species			
	15	= Total C	Cover	FAC species	x 3 =		
Herb Stratum (Plot size: 30'				FACU species			
1. Cynodon dactylon	95	Y	FACU	UPL species			
Helianthus maximiliani Typha latifolia	_ 10	N N	FACU	Column Totals:	(A)	(B)	
<u> </u>			OBL	Prevalence Index	= B/A =		
4				Hydrophytic Vegetation			
5				1 - Rapid Test for H	lydrophytic Vegeta	ation	
6				2 - Dominance Tes	t is >50%		
7 8				3 - Prevalence Inde			
9.				4 - Morphological A	daptations ¹ (Provi	de supporting	
10.				Problematic Hydrop	•	,	
		= Total C	Cover				
Woody Vine Stratum (Plot size: 30')	4.5		LIDI	¹ Indicators of hydric soil be present, unless distu			
1. Vitis mustangensis		<u>Y</u>	<u>UPL</u>				
2				Hydrophytic Vegetation			
% Bare Ground in Herb Stratum 0		= Total C			s No		
Remarks:				1			
WDP9 does contain hydrophytic veget	ation.						

Profile Desc	cription: (Describ	e to the dep	th needed to docu	ment the i	ndicator	or confirn	n the absence	of indicators.)
Depth (in the ca)	Matrix			ox Features		12	T 4.	Demondo
(inches) 0-18	Color (moist)	<u>%</u>	Color (moist)	%	Type'	Loc ²	<u>Texture</u>	Remarks Fill procent: no mottles procent
<u>U-10</u>	10YR 3/2	100	none				clay loam	Fill present; no mottles present
							-	
	_		_				-	
							-	
			=Reduced Matrix, C			ed Sand Gr		cation: PL=Pore Lining, M=Matrix.
_		ilicable to all	LRRs, unless othe					for Problematic Hydric Soils ³ :
Histosol	pipedon (A2)		Sandy	Redox (S5				Muck (A9) (LRR I, J) Prairie Redox (A16) (LRR F, G, H)
	istic (A3)		-	ed Matrix (S				Surface (S7) (LRR G)
	en Sulfide (A4)			Mucky Mir	,			Plains Depressions (F16)
Stratified	d Layers (A5) (LRF	R F)	Loamy	Gleyed Ma	atrix (F2)		(LR	RR H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G			ed Matrix (F	,			ed Vertic (F18)
	d Below Dark Surfa	ace (A11)		Dark Surfa				arent Material (TF2)
·	ark Surface (A12) ⁄lucky Mineral (S1)			ed Dark Su Depressior				hallow Dark Surface (TF12) (Explain in Remarks)
-	Mucky Peat or Pea			lains Depre	` '	16)		of hydrophytic vegetation and
	ucky Peat or Peat (LRA 72 & 7				d hydrology must be present,
							unless	disturbed or problematic.
Restrictive	Layer (if present)	:						
Type:								
	ches):						Hydric Soil	Present? Yes No/
Remarks:								
WDDa	does not	contain	hydric so	il Fill	matai	rial mi	ived thro	oughout profile.
VVD1 3	does not	Contair	i flydio 30	11. 1 111 1	mate			bagnoat prome.
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary India	cators (minimum o	f one required	d; check all that app	oly)			Seconda	ary Indicators (minimum of two required)
Surface	Water (A1)		Salt Crus	t (B11)			Surf	face Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic I	nvertebrate	s (B13)		Spa	rsely Vegetated Concave Surface (B8)
Saturation	on (A3)		Hydroger	Sulfide Od	dor (C1)		Drai	inage Patterns (B10)
Water M	larks (B1)		Dry-Seas	on Water T	able (C2)		Oxid	dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized		res on Liv	ing Roots		here tilled)
Drift Dep				not tilled)				yfish Burrows (C8)
	at or Crust (B4)		Presence			1)		uration Visible on Aerial Imagery (C9)
Iron Dep		ol Imagamı (D	Thin Muc					omorphic Position (D2)
	on Visible on Aeria stained Leaves (B9		7) Other (E)	tpiairi iri Ke	marks)			C-Neutral Test (D5) st-Heave Hummocks (D7) (LRR F)
Field Obser)					1103	Stilleave Hammooks (D1) (ERRT)
Surface Wat		Yes	No <u>✓</u> Depth (ii	nches).				
Water Table			No <u>✓</u> Depth (ii					
Saturation P			No <u>✓</u> Depth (ii				and Hydrolog	y Present? Yes No/_
(includes car	oillary fringe)							,
Describe Re	corded Data (strea	ım gauge, mo	onitoring well, aerial	photos, pro	evious ins	pections),	if available:	
Remarks:								
WDP9 de	oes not cont	ain hydro	ology.					
i								