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

February 2019

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 Manua*l (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

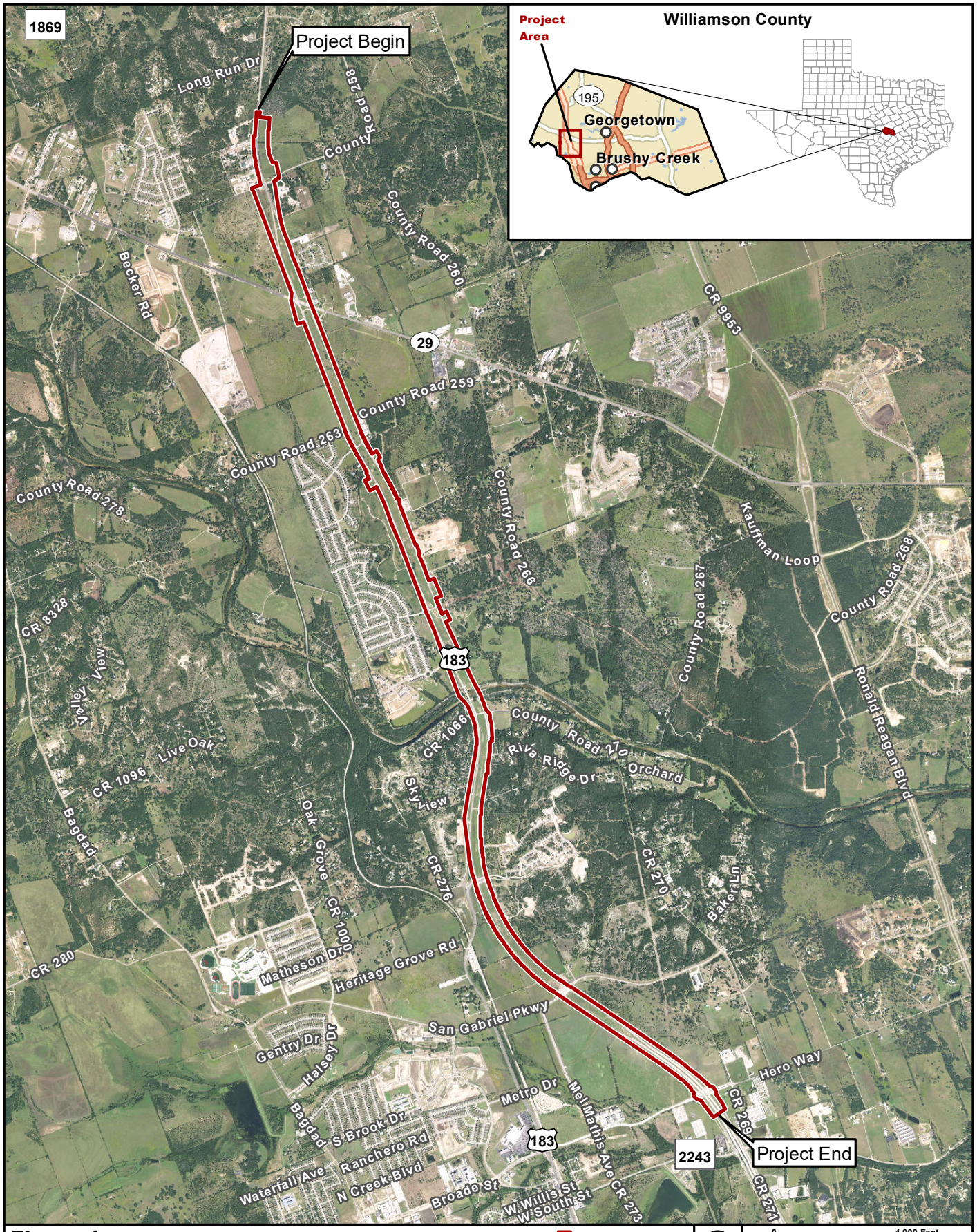

Figure 1

Project Location (Aerial Base)

183A Phase III

Project Location

Aerial Source: NAIP (2016)

0 4,000 Feet

0 1 Kilometer

Prepared for: TxDOT, CTRMA	1 in = 4,000 ft
	Scale: 1:48,000
CSJ: 0914-05-192	Date: 8/14/2018

G:\Projects\CTRMA\183A_PhaseIII\all_Figure 1_Project Location_Aerial_20180814.mxd

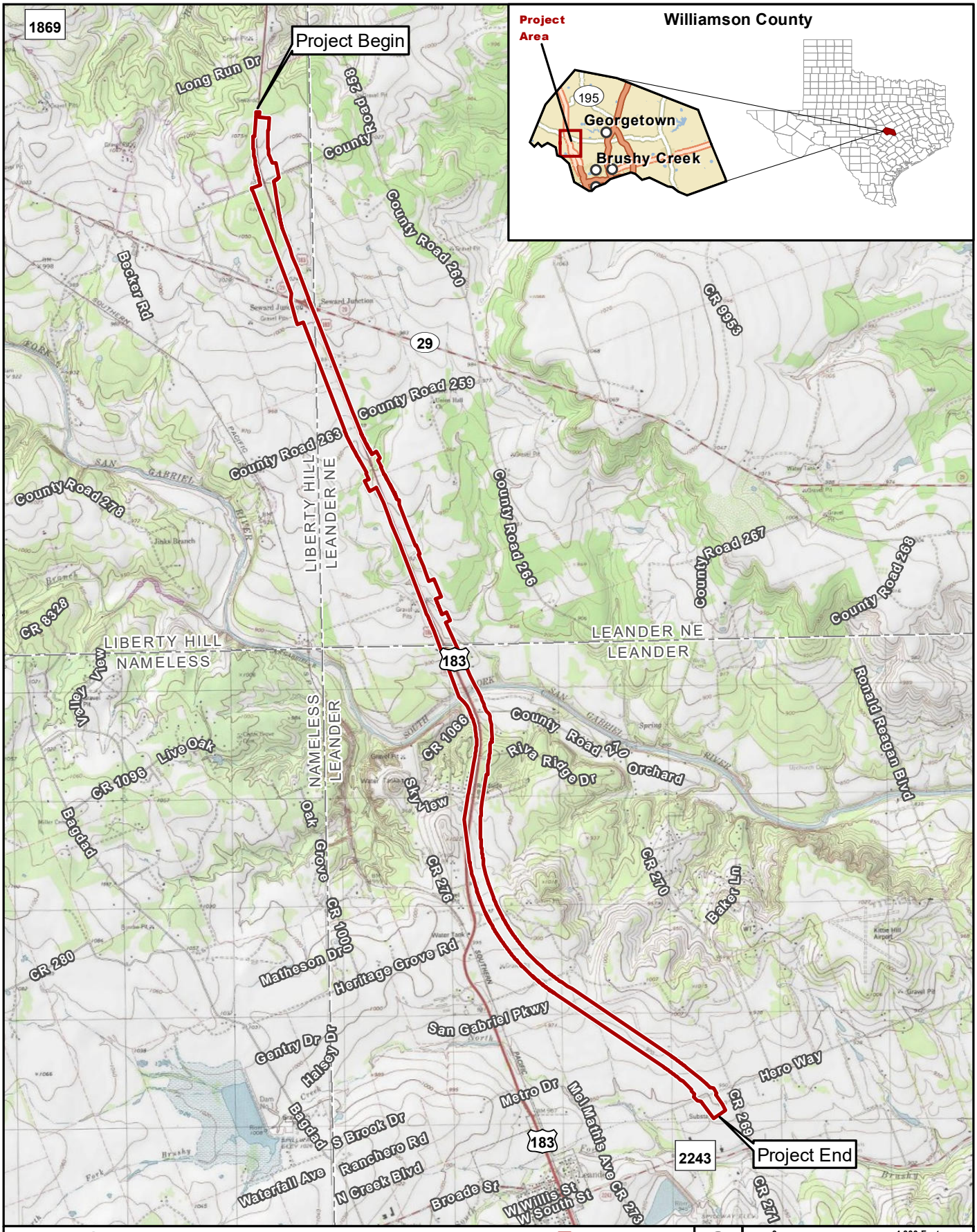

Figure 2

Project Location (Topographic Base)

183A Phase III

Project Location

Basemap Sources: USGS Liberty Hill, Leander, Nameless, Leander NE 7.5' Quadrangles (1979, 1976, 1986, 1987)

0 4,000 Feet
0 1 Kilometer

Prepared for: TxDOT, CTRMA	1 in = 4,000 ft
	Scale: 1:48,000
CSJ: 0914-05-192	Date: 8/14/2018

G:\Projects\CTRMA\183A_PhaseIII\all_Figure 2_Project Location_Topo_20180814.mxd

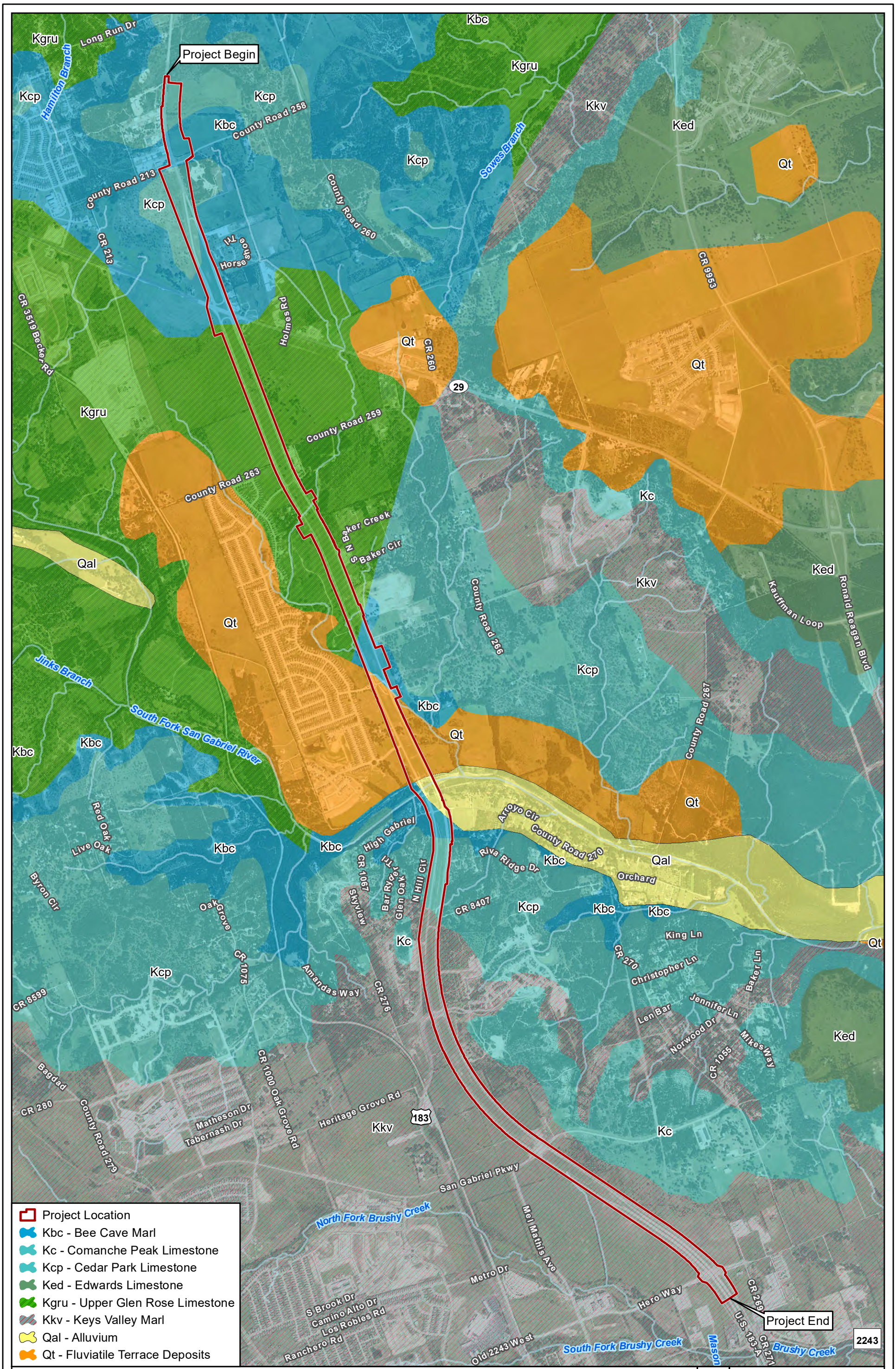

Figure 3

Project Area Geology

183A Phase III

Data Sources: Geologic Database of Texas (2007)/
Geologic Atlas of Austin Sheet (1981)
Aerial Source: NAIP (2016)

Prepared for: TxDOT, CTRMA	1 in = 2,200 feet
	Scale: 1:26,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 3_Geology_20181031.mxd

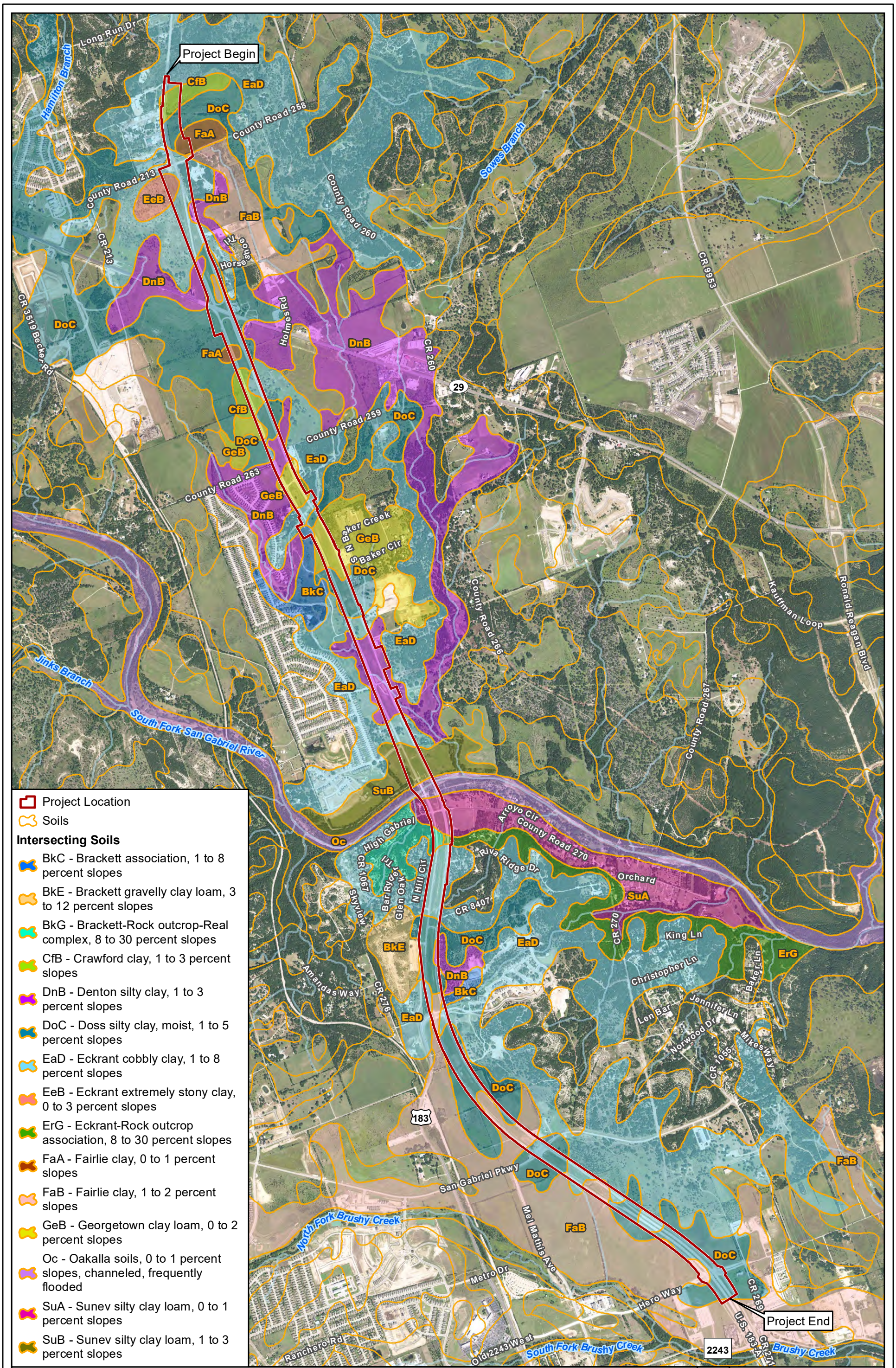

Figure 4

Project Area Soils

183A Phase III

Data Source: NRCS (2016)
Aerial Source: NAIP (2016)

0 2,200 Feet
0 600 Meters

Prepared for: TxDOT, CTRMA	1 in = 2,200 feet
	Scale: 1:26,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 4_Soils_20181031.mxd

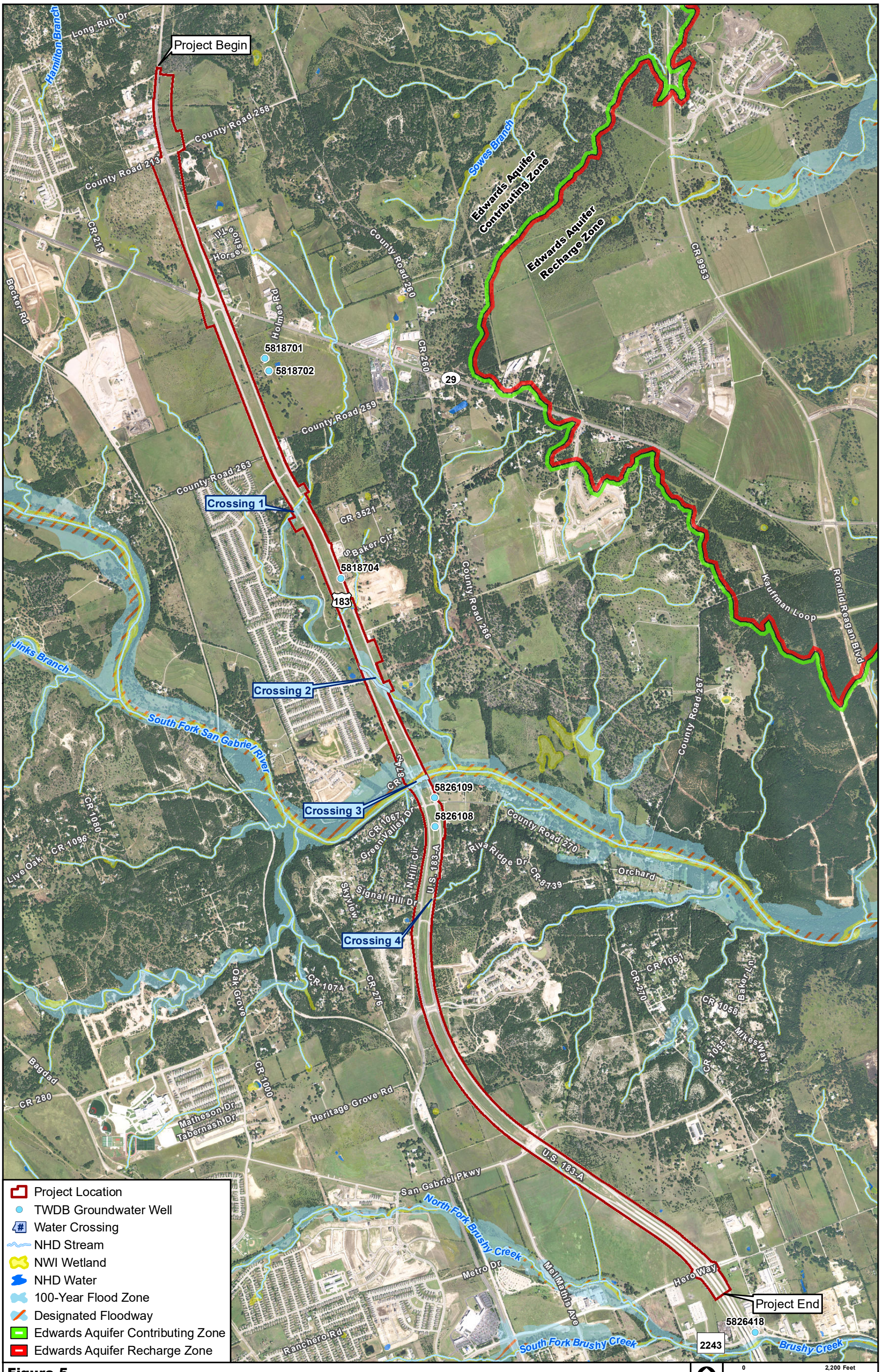

Figure 5

Water Resources

183A Phase III

Data Sources: NHD (2014), NWI (2016), TCEQ (2005)
FEMA NFHL (2017), CMEC (2017), TWDB (2018)
Aerial Source: NAIP (2016)

Prepared for: TxDOT, CTRMA	1 in = 2,200 feet
	Scale: 1:26,400
CSJ: 0914-05-192	Date: 8/14/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 5_Water Resources_201806270814.mxd

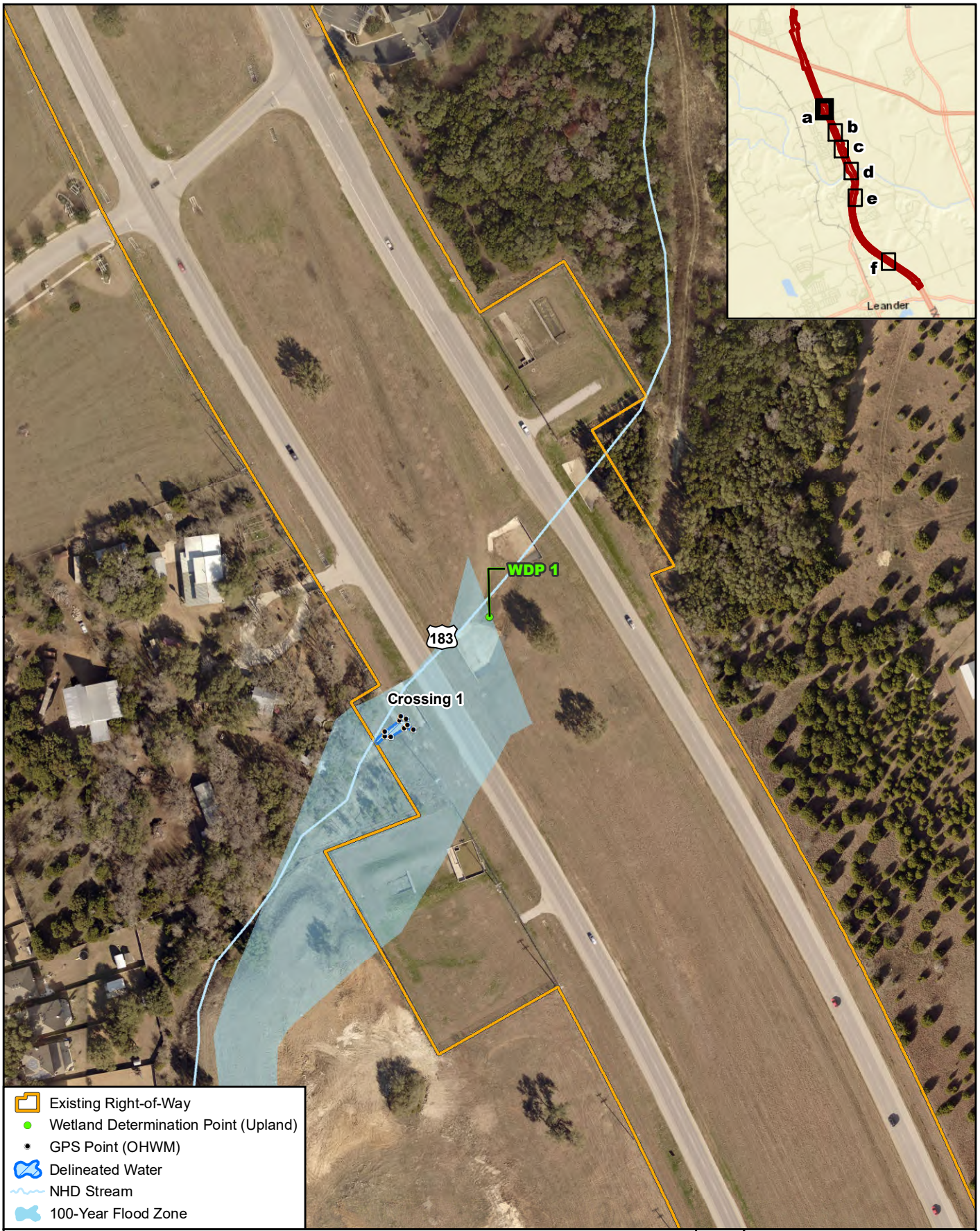

Figure 6a

Potential Waters of the U.S.

183A Phase III

Data Sources: NHD (2014), FEMA NFHL (2018), CMEC (2017)
Aerial Source: CTRMA (2018)

0 200 Feet
0 60 Meters

Prepared for: TxDOT, CTRMA	1 in = 200 feet
	Scale: 1:2,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 6_Crossings_20181031.mxd

Figure 6b

Potential Waters of the U.S.

183A Phase III

Data Sources: NHD (2014), FEMA NFHL (2018), CMEC (2017)
Aerial Source: CTRMA (2018)

0 200 Feet
0 60 Meters

Prepared for: TxDOT, CTRMA	1 in = 200 feet
	Scale: 1:2,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 6_Crossings_20181031.mxd

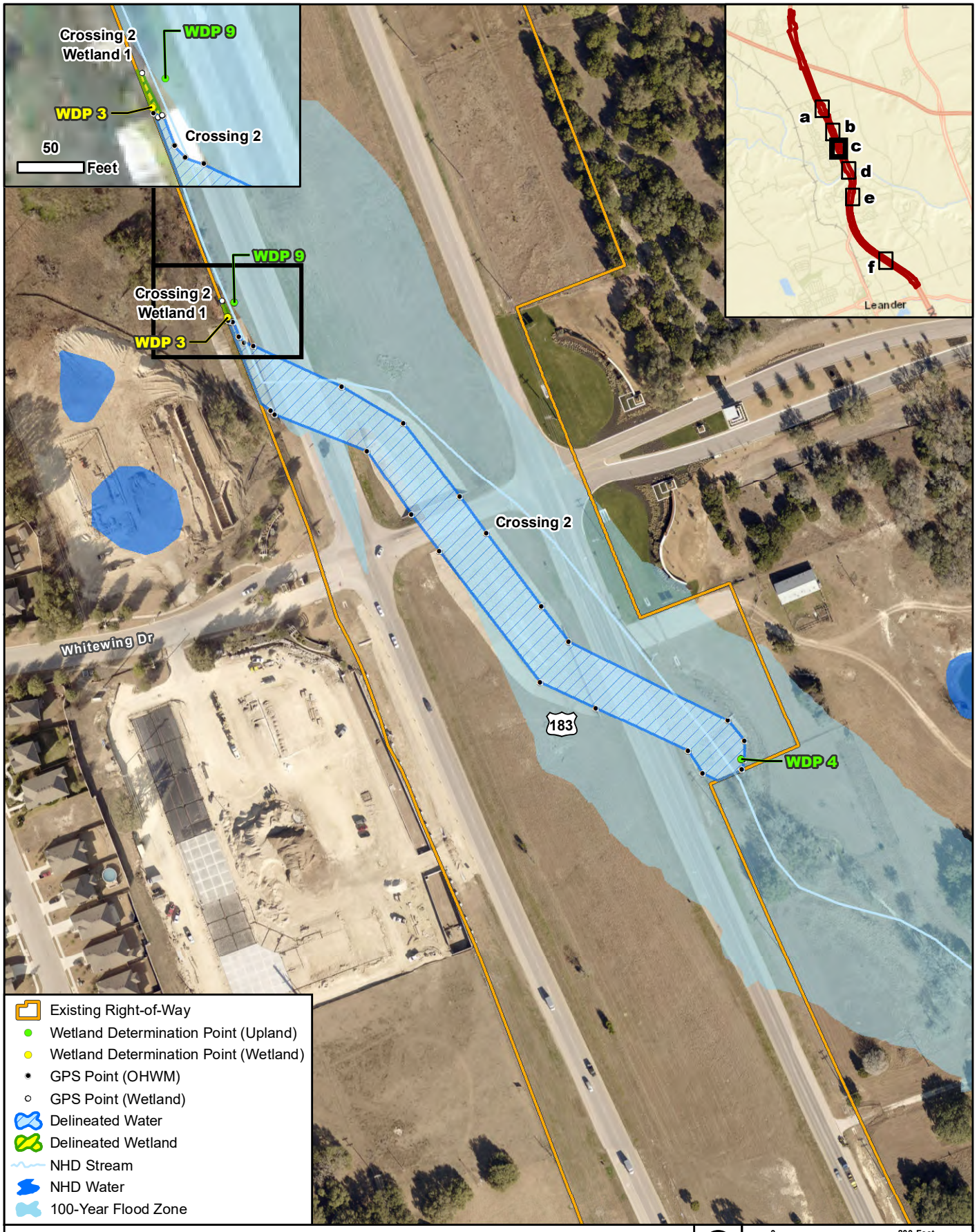

Figure 6c

Potential Waters of the U.S.

183A Phase III

Data Sources: NHD (2014), FEMA NFHL (2018), CMEC (2017)
Aerial Source: CTRMA (2018)

0 200 Feet
0 60 Meters

Prepared for: TxDOT, CTRMA	1 in = 200 feet
	Scale: 1:2,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 6c_Crossings_20181031.mxd

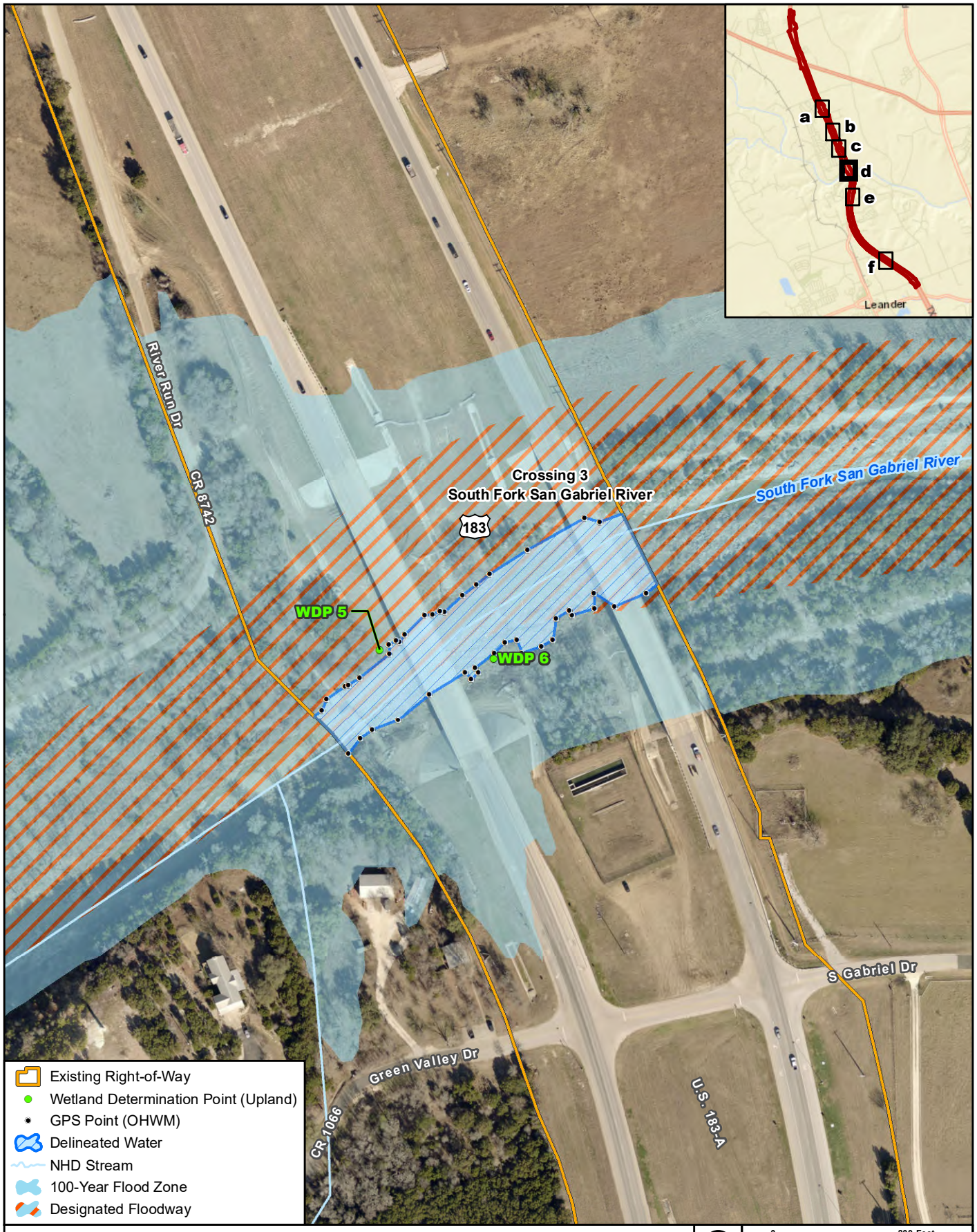

Figure 6d

Potential Waters of the U.S.

183A Phase III

Data Sources: NHD (2014), FEMA NFHL (2018), CMEC (2017)
Aerial Source: CTRMA (2018)

0 200 Feet
0 60 Meters

Prepared for: TxDOT, CTRMA	1 in = 200 feet
	Scale: 1:2,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 6_Crossings_20181031.mxd

Figure 6e

Potential Waters of the U.S.

183A Phase III

Data Sources: NHD (2014), FEMA NFHL (2018), CMEC (2017)
Aerial Source: CTRMA (2018)

0 200 Feet
0 60 Meters

Prepared for: TxDOT, CTRMA	1 in = 200 feet
	Scale: 1:2,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 6_Crossings_20181031.mxd

Figure 6f

Potential Waters of the U.S.

183A Phase III

Data Sources: NHD (2014), FEMA NFHL (2018), CMEC (2017)
Aerial Source: CTRMA (2018)

0 200 Feet
0 60 Meters

Prepared for: TxDOT, CTRMA	1 in = 200 feet
	Scale: 1:2,400
CSJ: 0914-05-192	Date: 10/31/2018

G:\Projects\CTRMA\183A_PhaseIII\JD_Figure 6_Crossings_20181031.mxd

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

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP1

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.6397306 Long: -97.86982789 Datum: NAD 83

Soil Map Unit Name: Eckrant cobbly clay, 1 to 8 percent slopes NWI classification: PFO1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP1 does not lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 30')			
1. Richardia scabra	80	Y	UPL
2. Lolium perenne	25	Y	FACU
3. Rumex crispus	15	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

WDP1 does not contain hydrophytic vegetation.

SOIL

Sampling Point: WDP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100	none				clay loam	
6-8	2.5Y 4/2	100	none				gravelly clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: bedrock

Depth (inches): 8

Hydric Soil Present? Yes _____ No ✓

Remarks:

WDP1 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WDP1 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP2

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.63260799 Long: -97.86623996 Datum: NAD 83

Soil Map Unit Name: Doss silty clay, moist, 1 to 5 percent slopes NWI classification: R4SBC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP2 does not lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 30')			
1. Cynodon dactylon	50	Y	FACU
2. Bromus catharticus	30	Y	UPL
3. Lolium perenne	20	Y	FACU
4. Ambrosia psilostachya	20	Y	FACU
5. Vicia sativa	20	Y	FACU
6. Gernanium maculatum	20	Y	FACU
7. Asclepias asperula	20	Y	UPL
8. Daucus carota	10	N	UPL
9.			
10.			
	190	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

WDP2 does not contain hydrophytic vegetation.

SOIL

Sampling Point: WDP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100	none				clay loam	
10-16	2.5Y 6/4	100	none				clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WDP2 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WDP2 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP3

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): streamside Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR J Lat: 30.62889382 Long: -97.86544867 Datum: NAD 83

Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes NWI classification: PFO1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP3 does lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. Salix nigra	15	Y	FACW
2. Ulmus crassifolia	10	Y	FAC
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 30')			
1. Ambrosia trifida	30	Y	FAC
2. Typha latifolia	30	Y	OBL
3. Eleocharis palustris	20	N	OBL
4. Bromus catharticus	15	N	UPL
5. Daucus carota	10	N	FACU
6. Asclepias asperula	10	N	UPL
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

WDP3 does contain hydrophytic vegetation.

SOIL

Sampling Point: WDP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100	none				clay loam	
3-8	10YR 3/1	97	5YR 3/4	3	C	PL	clay loam	common prominent redox
8-16	10YR 3/1	97	5YR 3/4	3	C	PL	cobbly clay loam	common prominent redox

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WDP3 does contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

WDP3 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP4

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.62701593 Long: -97.8630358 Datum: NAD 83

Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes NWI classification: PFO1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP4 does not lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus crassifolia	15	Y	FAC
2.			
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 30')			
1. Eleocharis palustris	70	Y	OBL
2. Eriochloa sericea	30	Y	UPL
3. Daucus carota	10	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	130	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

WDP4 does contain hydrophytic vegetation.

SOIL

Sampling Point: WDP4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100	none				clay	
5-16	2.5Y 4/2	100	none				gravelly clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WDP4 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WDP4 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Us 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP5

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.62076967 Long: -97.8614787 Datum: NAD 83

Soil Map Unit Name: Oakalla soils, 0 to 1 percent slopes, channeled, frequently flooded NWI classification: R2USA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP5 does not lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	15	Y	FAC
2. Morus rubra	10	Y	FACU
3. Salix nigra	5	N	FACW
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30')			
1. Styphnolobium affine	10	Y	UPL
2. Morus rubra	5	Y	FACU
3. Juglans nigra	5	Y	FACU
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 30')			
1. Ambrosia trifida	80	Y	FAC
2. Daucus carota	20	Y	UPL
3. Sorghum halepense	10	N	FACU
4. Galium aparine	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	130	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Vitis mustangensis	20	Y	UPL
2.			
	20	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

WDP5 does not contain hydrophytic vegetation.

SOIL

Sampling Point: WDP5

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
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	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WDP5 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WDP5 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Us 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP6

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.62072424 Long: -97.86093325 Datum: NAD 83

Soil Map Unit Name: Oakalla soils, 0 to 1 percent slopes, channeled, frequently flooded NWI classification: R2USA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP6 does not lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 30')			
1. Panicum virgatum	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

WDP6 does contain hydrophytic vegetation.

SOIL

Sampling Point: WDP6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	100	none				clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: bedrock

Depth (inches): 9

Hydric Soil Present? Yes _____ No ✓

Remarks:

WDP6 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WDP6 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP7

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.61290055 Long: -97.85989403 Datum: NAD 83

Soil Map Unit Name: Eckrant cobbly clay, 1 to 8 percent slopes NWI classification: R4SBC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP7 does not lie within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	10	Y	FACW
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. Ulmus crassifolia	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 30')			
1. Typha latifolia	80	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

WDP7 does contain hydrophytic vegetation.

SOIL

Sampling Point: WDP7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	2.5Y 3/2	100	none				clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: bedrock

Depth (inches): 9

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WDP7 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

WDP7 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 3/22/17

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP8

Investigator(s): Jeff Allen, Claire Parra Section, Township, Range: N/A

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

Subregion (LRR): LRR J Lat: 30.59357758 Long: -97.84888539 Datum: NAD 83

Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

WDP8 does not lie within a wetland. Ditch contained standing water due to channel work (by Austin Community College) outside of the right-of-way blocking flow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 30')			
1. Eleocharis palustris	60	Y	OBL
2. Typha latifolia	40	Y	OBL
3. Vivia sativa	20	N	FACU
4. Lolium perenne	15	N	FACU
5. Bromus catharticus	15	N	UPL
6.			
7.			
8.			
9.			
10.			
	150	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. N/A			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

WDP8 does contain hydrophytic vegetation.

SOIL

Sampling Point: WDP8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	99	2.5YR 3/6	1	C	PL	clay	few prominent redox
2-8	10YR 3/1	99	2.5YR 3/6	1	C	PL	clay	fewprominent redox
8-16	2.5Y 3/1	100	none				clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: bedrock

Depth (inches): 9

Hydric Soil Present? Yes ___ No ✓

Remarks:

WDP8 does not contain hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 4

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WDP8 contains hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: 183A Phase III City/County: Williamson Sampling Date: 8/10/2018

Applicant/Owner: TxDOT Austin District State: TX Sampling Point: WDP9

Investigator(s): Meghan Lind, Jesus Mares Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Side slope of ditch Local relief (concave, convex, none): concave Slope (%): 3-5

Subregion (LRR): LRR J Lat: 30.628953 Long: -97.865415 Datum: NAD 83

Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

WDP9 does not lie within a wetland; upland point

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Celtis laevigata	5	Y	FAC
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30')			
1. Salix nigra	5	Y	FACW
2. Ulmus crassifolia	5	Y	FAC
3. Baccharis neglecta	5	Y	FAC
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 30')			
1. Cynodon dactylon	95	Y	FACU
2. Helianthus maximiliani	10	N	FACU
3. Typha latifolia	2	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	107	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Vitis mustangensis	15	Y	UPL
2.			
	15	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

WDP9 does contain hydrophytic vegetation.

SOIL

Sampling Point: WDP9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR 3/2	100	none				clay loam	Fill present; no mottles present

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WDP9 does not contain hydric soil. Fill material mixed throughout profile.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WDP9 does not contain hydrology.