McCOY RANCH MITIGATION BANK PROSPECTUS

SWG-2018-00742
Liberty County, Texas

Sponsored by: Delta Land Services, LLC
May 2020, revised January 2021

McCoy Ranch Mitigation Bank
Prospectus

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Liberty County, Texas

Sponsored By

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1.0 INTRODUCTION

Delta Land Services, LLC (DLS) has prepared this Prospectus in accordance with 33 CFR § 332.8(d)(2)[1] to establish, operate, and maintain the proposed 1,297.0-acre McCoy Ranch Mitigation Bank (Bank) [**Appendix A, Figures 1** and **2**]. DLS is the Bank Sponsor (Sponsor) and Ironwood Holdings, LLC is the Owner (**Table 1**). The Bank will provide riverine forested (RF) wetland and riverine herbaceous/shrub (RHS) wetland compensatory mitigation for unavoidable, permitted impacts to "Waters of the United States" [2] per 33 CFR § 332.3 (a)(1) and 33 CFR §332.3 (b)(1)[3]. The Bank mitigation types will be riverine forested preservation, riverine forested re-establishment, riverine forest rehabilitation, riverine forest enhancement, riverine herbaceous-shrub re-establishment, and riverine herbaceous-shrub rehabilitation (**Appendix A, Figure 3**).

Table 1. Bank Sponsorship / Ownership, McCoy Ranch Mitigation Bank, Liberty County, Texas					
Name of Sponsor	Winship Songy Delta land Services, LLC	Point of Contact	Chad Butler Delta Land Services, LLC	Property Owner	Winship Songy Ironwood Holdings, LLC
Mailing Address	1090 Cinclare Dr. Port Allen, LA 70767	Mailing Address	6750 W. Loop S. Freeway, Suite 780, Bellaire, TX 77401	Mailing Address	1090 Cinclare Dr. Port Allen, LA 70767
Phone Number	225-388-5187	Phone Number	281-899-5596	Phone Number	225-388-5187
Fax Number	225-343-3200	Fax Number	None	Fax Number	225-343-3200
Email Address	Winship@deltaland-services.com	Email Address	Chad@deltaland-services.com	Email Address	Winship@deltaland-services.com

[1] 33 CFR § 332.8 (d) (2) summarizes the information regarding a proposed mitigation bank at a sufficient level of detail to support informed public and IRT comment. Information included (but not limited too) in a prospectus are the objectives, establishment, operation, service area, general need, technical feasibility, ownership, long-term management, sponsor qualifications, ecological suitability, and water rights.

[2] 33 CFR § 328 defines waters of the United States as it applies to the jurisdictional limits of the authority of the Corps of Engineers under the Clean Water Act. Waters of the United States include those waters listed in 33 CFR § 328(a). The lateral limits of jurisdiction in those waters may be divided into three categories (i.e., territorial seas, tidal waters, and non-tidal waters, which are further described in 33 CFR § 328.4 (a), (b), and (c).

[3] 33 CFR § 332.3 (a)(1) and 33 CFR § 332.3 (b)(1) described general compensatory mitigation requirements; resource types and location of compensatory mitigation; and watershed approach.

1.1 SUPPORTING DOCUMENTATION

Supporting documentation is included with this Prospectus as appendices. **Appendix A** includes maps and figures. **Appendix B** includes the Approved Jurisdictional Determination (AJD) and Waters of the U.S. verification issued by the USACE-Galveston District (CESWG) on March 18, 2020 along with a wetland summary table that lists each wetland by Wetland ID, acreage, restoration type, and Wetland Assessment Area (WAA) [**Appendix B**, **Table B-1**]; additionally, the wetland delineation report is included in **Appendix B**. **Appendix C** includes the habitat baseline and predicted habitat assessment for the Riverine Interim Hydrogeomorphic (iHGM) Assessment Models**;** the baseline iHGM was verified on January 14, 2021. **Appendix D** includes a background cultural resources review. **Appendix E** includes a title opinion and signed and stamped survey plat of the McCoy Ranch Bank subject property. Also included as **Appendix F** are maps, tables, and acreages that present the proposed Bank footprint with the exclusion of acres associated with a potential permittee responsible mitigation (PRM) project on the property. The proposed PRM is in the early stages of review and could be modified or withdrawn. Due to the uncertainty of the PRM status, this prospectus describes the property and initial restoration plan in its entirety with **Appendix F** presenting the Bank with the approximate maximum PRM footprint. Restoration methodologies for the Bank and PRM are similar in nature.

2.0 GOALS AND OBJECTIVES

The primary goals are long-term sustainability and conservation protection of the Bank. The primary objectives are to implement the restoration, construction, and establishment phases of the Bank to meet long-term goals and performance standards. Once the long-term performance standards are met, the Sponsor will serve as the long-term steward; however, the Sponsor may appoint a long-term steward pursuant to 33 CFR § 332.7 (u)(2)[4] and is subject to approval by the CESWG.

As a conservation area, the Bank will be protected by a perpetual conservation easement described in **Section 11.0** and by implementing specific management strategies such as:

- developing applicable mitigation work plans;
- utilizing predetermined monitoring schedules;
- executing prompt adaptive management practices;
- executing a perpetual-term conservation easement for long-term protection;
- establishing financial assurances for completing the construction and establishment phases; and
- establishing a secured long-term funding mechanism for annual expenditures associated

[4] Transfer of long-term stewardship is defined in 33 CFR § 332.7 (u)(2) as *the instrument may contain provisions for the sponsor to transfer long-term management responsibilities to a land stewardship entity, such as a public agency, non-governmental organization, or private land manager.*

with long-term monitoring, management, maintenance, and invasive species control.

The objectives are to restore (re-establish or rehabilitate), enhance, or preserve (preservation) the physical, chemical, and biological functions of 854.7 acres of wetland habitats, which include bottomland hardwood forests, herbaceous-shrub wetlands, and oxbow sloughs (**Appendix A, Figure 3**). Additionally, the Bank will preserve 396.0 acres of non-wetland, forested, buffer habitat. **Table 2** provides a summary of the re-establishment, rehabilitation, enhancement, and preservation acres by resource type. Once the construction and establishment tasks are completed, the wetland functions and values will mature through time and will be self-sustaining. The Bank will provide flood water storage, improve downstream water quality, provide wildlife habitat (native and migratory), and outdoor recreation. Although not currently included as part of the mitigation bank credit assessment, the non-wetland buffer habitats will be preserved and protected. Additional acreage within the bank footprint encompassing 46.2 acres includes a fire break/access along the eastern perimeter, non-mitigation (easements), and other waters of the U.S (**Appendix A**, **Figure 3**).

Table 2. Summary of Restoration and Preservation Goals by Acres for the McCoy Ranch Mitigation Bank

Resource Type	Re-establish	Rehabilitate	Enhance	Preserve
Riverine Wetland Forested	116.0	223.3	57.4	374.1
Riverine Herbaceous-Shrub	42.0	41.9	--	--
Non-wetland Buffer	--	--	--	396.0
Totals	**158.0**	**265.2**	**57.4**	**770.1**
Total wetland mitigation acres				**854.7**

3.0 PROJECT LOCATION

The Bank is approximately 9.5 miles southwest of Dayton, Texas with an approximate center point of Latitude 29.932645° and Longitude -94.955410°[5] (UTM 311259.5 E, 3312929.4 N; **Appendix A, Figure 1**) with the legal description of the tract as 000071 J MALLEY, TRACT 1, ACRES 1299.66. The Bank is within Liberty County, Texas in the North Galveston Bay Cataloguing Unit (HUC 12040203) and Western Gulf Coastal Plain Level III Ecoregion (#35) [EPA 2003] (**Appendix A, Figure 4**). The Bank is within the Atlantic and Gulf Coast Lowland Forest and Crop Region (LRR T) and the Western Gulf Coast Flatwoods Major Land Resource Area (MLRA 152B) [NRCS 2006].

3.1 DRIVING DIRECTIONS

From Dayton, TX travel southwest on US 90W for approximately 6.3 miles. Then turn south (left) onto FM 1413 for 2.3 miles, then right onto Hatcherville Road (County Road 486) for 1.2 miles; then right on unnamed farm road for approximately 1.1 miles to the west.

[5] All geographic coordinates are based on the North American Datum of 1983 (NAD83).

4.0 BASELINE CONDITIONS

The climate in Liberty County is characterized by long hot/humid summers and short mild winters. The average annual precipitation is approximately 61 inches and the average annual temperature is 68° F with a frost-free period of up to 365 days (NRCS 2017). Most of the rainfall occurs as frontal storms during the late fall, winter, and early spring. Although an appreciable amount of precipitation may occur as convective thunderstorms during the early part of the growing season and tropical depressions during the summer and fall.

The Bank supports and is contiguous with adjacent Riverine forested and non-wetland bottomland habitat, which are self-sustaining by overbank stream flooding, precipitation, sheet runoff, microrelief ponding, and seasonally perched water tables. These historic and existing conditions maintain the predominance of hydric soils (NRCS 1996) in wetland and non-wetland areas (**Appendix A, Figures 5 – 7**).

The 1938 and 2018 aerial imagery show that historic and current land uses are similar (i.e., the forest to farm acre ratio; **Appendix A, Figures 8 - 10**). The 1996 aerial imagery shows the implementation of unimproved roads for timber harvest (**Appendix A, Figure 9**). Since 1996, it appears that the forest canopy has re-established over the timber harvest trails (**Appendix A, Figure 10**).

4.1 TOPOGRAPHY

Natural topography within the Bank is flat to gently undulating with typical slopes ranging from 0 to 1% (NRCS 1996). Slight elevational changes and moderately drained soils cause slow to moderate runoff that generally flows northeast to west-southwest. Precipitation runoff is captured in broad shallow depressions and oxbow sloughs (Cedar Bayou channel remnants), which allows surface water percolation. Natural elevation ranges from 15 feet to approximately 50 feet North American Vertical Datum (NAVD) (**Appendix A, Figure 5**). Most of the Bank (92%) is within the 100-year FEMA floodplain (FEMA 1989) [**Appendix A, Figure 6**].

4.2 SOILS

The majority of the Bank area is mapped with League Clay. The League soil series is not listed as a hydric soil series; however, of the 81 sampled data points, 72 exhibited hydric soil field indicators (**Appendix A, Figure 11**; NRCS 2020[a], 2020[b], and 2020[c]). The common hydric soil indicators were Depleted Matrix (F3) and Redox Dark Surface (F6). The soil mapping components occurring within the Bank are listed in **Table 3** and illustrated in **Figure 11**.

Table 3. Soil Mapping Components Occurring Within the McCoy Ranch Mitigation Bank, Liberty County, Texas			
Symbol	**Name**	**Drainage Class**	**Listed as Hydric**
LabA	Labelle clay loam, 0 to 1 percent slopes	Somewhat Poorly Drained	No
LeaA	League Clay, 0 to 1 percent slopes	Somewhat Poorly Drained	No
MofA	Mocarey-Yeaton complex, 0 to 1 percent slopes	Moderately Well Drained	No

4.3 HYDROLOGY

Cedar Bayou was channelized in the 1950's with the spoil material side cast along the bayou banks. Within the Bank, the slight topographical changes slope downward from northeast to southwest toward Cedar Bayou, and micro-depressions and moderately drained soils (percolation) result in slow to moderate runoff. Surface water flow (sheet flow) follows the natural slope towards Cedar Bayou. Precipitation collects in slight forested depressions, broad open-field depressions, and oxbows that were created when Cedar Bayou was deepened and channelized. The oxbows collect and store surface water until it slowly percolates to the subsoil. The open portions of the Bank have been in agricultural production circa 1940. The agricultural areas have been ditched and drainage laterals were constructed to move water off agricultural fields into the adjacent drainages leading towards Cedar Bayou. The agricultural fields were contoured and sloped to move water to the field perimeters and ditches to prevent inundation and/or saturation. The onsite ditches generally transport water south and west to Cedar Bayou. Despite agricultural drainage improvements, some agricultural fields exhibited wetland hydrology indicators, hydric soil field indicators, and were verified as wetland. Those agricultural areas include Wetlands 1 – 4; Wetland 7; and Wetlands 30 – 32 (**Appendix B**, **Table B-1**). The remaining active agricultural fields were classified as non-wetland due to the lack of wetland hydrology; however, hydric soils are present.

Much of the Bank remains saturated to sufficiently support wetland hydrology. Of the 81 sample points, 48 points exhibited wetland hydrology indicators. The most common primary indicators were oxidized rhizospheres (C3) and water-stained leaves (B9). Common secondary indicators observed included the FAC-neutral test (D5) and crayfish burrows (C8).

4.4 VEGETATION

The Bank consists of forested and agricultural land with wetland and upland pine mixed hardwoods, wetland and upland hardwood forests, wetland and upland herbaceous habitats, and crop fields. Vegetation community descriptions are provided below (**Section 4.4.1** and **4.4.2**), which lists dominant and common species observed during field data collection. Additionally, the Bank was divided in WAAs based on existing vegetative and hydrologic conditions as well as conditions post restoration (**Appendix C**, **Figure C-1**). Of the 81 sample locations, 75 met the

requirement for hydrophytic vegetation and these conditions will likely persist for the foreseeable future with further development of hydrophytic vegetation communities being possible with hydrologic restoration treatments. Vegetation nomenclature follows USDA, "*The PLANTS Database"* and the *2018 National Wetland Plant List* (USDA 2020 and USACE 2018).

4.4.1 Wetland Habitats

Riverine forested wetlands (i.e., bottomland hardwoods) occur within the Bank and are contiguous with adjacent bottomland hardwood forests along Cedar Bayou. The bottomland hardwood forest can be further divided into vegetation communities dominated by oaks (*Quercus* spp.) and those dominated by other hardwood species. Tree assemblages and densities vary in different areas of the Bank primarily due to wetland hydrology, landscape position, and high-grade harvesting.

Oak-dominant mixed hardwood vegetation communities occur on elevations with temporarily to seasonally flooded or saturated hydrologic conditions and are classified as *Quercus phellos - Quercus nigra / Sabal minor - Ditrysinia fruticosa* Floodplain Forest (NatureServe 2020). In **Appendix A** on **Figure 3**, these forests are classified as RF Preservation. These forests with a wetter hydrologic regime are dominated by willow oak (*Q. phellos*), with water oak (*Q. nigra*), bottomland post oak (*Q. similis*), and cherry bark oak (*Q. pagoda*) present. Other trees found in this vegetation community include American elm (*Ulmus americana*), cedar elm (*U. crassifolia*), and green ash (*Fraxinus pennsylvanica*) with some loblolly pine (*Pinus taeda*). Common shrubs in this community include small seedlings and saplings of the dominant tree species, as well as dwarf palmetto (*Sabal minor*), deciduous holly (*Ilex decidua*), and yaupon holly (*Ilex vomitoria*). Ground cover density varies, but generally is very sparse within forested areas due to a mostly closed tree canopy and high density of dwarf palmetto. Common ground cover species include seedlings of tree and shrub species with few scattered herbaceous species.

Other mixed hardwood vegetation communities occur on elevations with temporarily flooded or saturated hydrologic conditions, which this forest type is classified as RF Preservation Mosaic (**Appendix A, Figure 3)**. The mosaic areas are a mixture of wetland and transitional non-wetland bottomland forests. In the non-wetland portions, wetland hydrology is not observed due to slight increases in elevation. The canopy of these forests is co-dominated by green ash, red maple (*Acer rubrum*), sugarberry (*Celtis laevigata*), and American elm with some willow oak. Chinese tallow (*Triadica sebifera*) has moderately invaded the midstory with a few overstory mature trees. Within the shrub layer, common species include saplings of the dominant tree species, dwarf palmetto, deciduous holly, wax myrtle (*Morella cerifera*), and arrowwood (*Viburnum dentatum*). Common ground cover species include tree and shrub seedlings, sedges (*Carex* spp.), beaked sedges (*Rynchospora* spp.), flat top sedges (*Cyperus* spp.), sawtooth blackberry (*Rubus argutus*), St. Andrew's cross (*Hypericum hypericoides*), and tapered rosette grass (*Dichanthelium acuminatum*).

Wetland herbaceous vegetation communities occur in lower elevations of fallow crop land and pastures. Dominant species within the wetland herbaceous vegetation communities include prairie dogshade (*Limnosciadium pumilum*), perennial rye grass (*Lolium perenne*), narrow-leaf carpet grass (*Axonopus fissifolius*), bog rush (*Juncus marginatus*), and broom-sedge *(Andropogon virginicus*). Other common species include sedges, beaked sedges, and flat top sedges.

Several agriculture fields exhibited very little native vegetation; however, due to the observed presence of wetland hydrology and hydric soils indicators, these areas were verified as jurisdictional wetlands. The fields are routinely plowed and planted with soybeans (*Glycine max*). At the time of data collection, the total ground cover was 3 to 5 percent. The sparse vegetation included native sedges (*Carex* spp. and *Cyperus* spp.) and non-native perennial ryegrass.

The mitigation features map (**Appendix A, Figure 3**) is based on the verified wetland delineation and approved jurisdictional determination (**Appendix B**), which includes 33 wetland areas and other waters (e.g., drainages). Furthermore, the wetland delineation report covers a slightly larger tract of land (approximately 1,318.5 acres) than the proposed Bank. The difference in acreage is the result of receiving the certified survey boundary after the field delineation. The AJD includes a table listing each wetland by cover type, WAA location, proposed restoration type, and verified acreage (**Appendix B)**. **Table 4** summarizes the verified, wetland types by acreage within the Bank boundary.

Table 4. Existing Wetland Resource Types within the McCoy Ranch Mitigation Bank, Liberty County, Texas

Resource Type	Linear feet in Bank	Acres in Bank
Forested Wetland	-	423.1
Herbaceous/shrub Wetland	-	265.2
Oxbows		8.4
Streams/drainages	9,902	3.3
Totals:	9,902	700.0

4.4.2 Non-Wetland Habitats

Pine-mixed hardwood and mixed hardwood vegetation communities are present within the Bank. The vegetation meets hydrophytic criteria at sample points within these communities, but these areas were classified as non-wetlands due to the lack of wetland hydrology for a minimum of 10% of the growing season and/or hydric soil indicators. The vegetation communities are very similar to the wetland forests described above; however, the species are more facultative (dominance of FAC species) in nature and inhabit slightly higher elevations with a slightly drier hydrologic regime. These pine-mixed hardwood and hardwoods forests can be further divided into vegetation communities dominated by oaks and those dominated by other hardwood species.

The oak-dominated forests occasionally have loblolly pine and sometimes loblolly pine is a co-dominant species. These forests are also classified as *Quercus phellos - Quercus nigra / Sabal minor - Ditrysinia fruticosa* Floodplain Forest (NatureServe 2020), where water oak is the dominant oak species present. Other common oaks and soft mast species include willow oak, bottomland post oak, and southern red oak (*Q. falcata*). The areas in which the wetter plant species occur are generally the wetland portions of the mosaic area. Other common trees present include American elm, green ash, and cedar elm. Common shrubs include small seedlings and saplings of the dominant tree species, as well as dwarf palmetto, yaupon holly, tallow, fringe tree (*Chionanthus virginicus*), and American beautyberry (*Callicarpa americana*). The ground cover is very sparse due to the nearly closed canopy and high density of dwarf palmetto. Common ground cover species include dwarf palmetto, muscadine grape (*Vitis rotundifolia*), trumpet vine (*Campsis radicans*), Cherokee sedge (*C. cherokeensis*), sawtooth blackberry, poison ivy (*Toxicodendron radicans*), and little head nutrush (*Scleria oligantha*).

Other mixed hardwood vegetation communities are very dense thickets with sparse ground cover. These areas are dominated by cedar elm, American elm, southern hackberry, and red mulberry (*Morus rubra*). Common shrubs include dwarf palmetto, yaupon holly, arrowwood, red mulberry, and American beautyberry. This vegetation community has a dense vine community. Vines include muscadine grape, green briars (*Smilax* spp.), pepper vine (*Ampelopsis arborea*), and Virginia creeper (*Parthenocissus quinquefolia*).

Similar to the agriculture wetland areas, there are several non-wetland fields that exhibit very little native vegetation; these areas exhibited hydric soils but not wetland hydrology indicators. The fields are regularly plowed and typically planted with soybeans. At the time of data collection, the total ground cover was 3 to 5 percent. The sparse vegetation included native sedges and non-native perennial ryegrass.

4.5 CULTURAL RESOURCES

A desktop and literature assessment were conducted for the Project in May of 2020 that included a review of the Texas Historical Commission (THC)'s Texas Archeological Sites Atlas (Atlas) online database and the Natural Register of Historic Places (NRHP database) to identify previously recorded cultural resource sites, historic structures, properties listed in the NRHP, designated historic districts, or State Antiquities Landmarks (SAL). Previously recorded cultural resource site forms, reports of archaeological investigations, general historical documents, and secondary sources concerning the background of the area were reviewed. The records search included a review of all previously recorded site forms, cemetery data, and surveys on file within a 1.0- mi (1.6-km) review radius of the Project.

The background review revealed that no previously recorded archeological sites or cemeteries are mapped within the Bank. Additionally, the background review also revealed one cemetery (Harvey Cemetery) is located approximately 0.5-mi NW of the Bank. One linear survey project

is mapped within the broader review radius, conducted in 2012 in support of oil and gas pipeline infrastructure. No previous survey investigations are mapped within, or adjacent to the Bank. A copy of the desktop assessment is provided in **Appendix D**.

5.0 ESTABLISHMENT AND OPERATION

5.1 PRESERVATION

Approximately, 165.0 acres of riverine wetland forest (WAA 3), 8.4 acres of wetland vegetated remnant oxbows (WAA 4), and 200.7 acres of wetland mosaic forest (WAA 2), will be preserved within the Bank (**Appendix A**, **Figure 3** and **Appendix C, Figure C-1**). WAA 4 is approximately 0.7 acre smaller than the USACE's verified 9.1 acres (**Appendix C**). This reduction is a result of the Sponsor adjusting the bank boundary based on the land survey, and the 0.7 acre being located outside the proposed bank boundary. The 200.7 acres of mosaic wetland forests only consists of wetland acres for credit generation; an additional 186.2 acres of transitional non-wetland mosaic will be preserved and protected. These forests are broadly contiguous with forested lands bounding the east stream bank of Cedar Bayou. Within the Bank, the large expanses of bottomland hardwood wetlands and mosaic forest ranges from approximately 0.75-mile wide at the northern boundary to approximately 1.0-mile wide at the southern boundary. The mosaic forest is a mature mid to late successional plant community consisting of several hardwood species heavily dominated by oak with pine dominating on the higher elevations, as described in **Section 4.4.1**. Chinese tallow has encroached on the mid- and understories, particularly where sunlight penetrates large gaps in the forest canopy, which is due to past canopy disturbances. Chinese tallow and other invasive/exotic vegetation (currently listed by Texas Department of Agriculture Noxious and Invasive Plant List (Title 4, Part 1, Chapter 19, Subchapter T, §19.300 of the Texas Administrative Code) will be individually treated in the preservation areas.

As a contiguous portion of a larger stream corridor, forested landscape, the mosaic forest and oxbows are of high ecological value as these habitats provide physical, biological, and chemical wetland functions and added value for aquatic and terrestrial wildlife resources. Placing these areas under a perpetual conservation servitude protects this mature forested resource and eliminates the threat of development.

Site preparation for preservation areas will consist of initializing the applicable, long-term management tasks including boundary maintenance and invasive species control in wetland and non-wetland forested areas. Furthermore, preservation includes long-term management and invasive species control. Long-term viability and sustainability of the wetland forest and oxbows will be ensured through active and adaptive management including, but not limited to, invasive species control, appropriate monitoring, and long-term maintenance. Regarding hydrology, the mosaic forest and oxbows are dependent upon stream back flooding, surface sheet flow, and precipitation. As such, long-term hydrology maintenance is self-sustaining. In regard to the

wetland preservation areas, the non-wetland forest and transitional non-wetland mosaic forest provide high ecological value and will be protected and managed long-term under the conservation servitude.

5.2 RESTORATION PLAN

Wetland restoration (i.e., re-establishment, rehabilitation and enhancement) will be accomplished through the cessation of all agricultural practices (e.g., crop production and livestock production), returning the soil surface to natural topography by degrading drainage ditch spoil deposits, removal of berms, filling/grading of drainage ditches, site planting preparation (e.g., controlling introduced species, deep ripping, and surface disking), the afforestation[6] of native wetland tree and shrub species, and the distribution of native herbaceous, plant materials in the non-forested restoration areas. Hydrologic restoration will increase surface water retention and soil saturation, reduce nonpoint source runoff, and improve water quality through nutrient immobilization (uptake) by vegetation. The plant communities will be restored as RF and RHS plant communities.

5.3 HYDROLOGY RESTORATION

A hydrologic plan map indicates the preliminary locations of soil work to be completed and cross-sectional drawings are included in **Appendix A** (**Figures 14** and **14A – 14E**). Unimproved farm access roads and adjacent borrow areas (drainage ditches) will be degraded or swaled to natural elevations. Drainage ditch spoil banks will be placed in the drainage ditches to re-establish natural contours, restore overbank flooding, and sheet flow across the Bank. Drainage ditches and laterals within the agricultural fields will be filled, swaled, and/or plugged to restore the frequency and duration of water storage, which will restore natural wetland hydrology in the rehabilitation and re-establishment areas (**Appendix A, Figures 14** and **14A – 14E**). Two small, excavated ponds are located within WAA 7 and 8 will be returned to natural grade with *in-situ* material.

5.4 SITE PREPARATION AND PLANTING FORESTED WETLANDS

The forested wetland community will be re-established, rehabilitated or enhanced by afforesting with native hardwood seedlings on 10-foot centers (i.e., 436 stems per acre of hard mast and soft mast). Planting will occur from January through February. Seedlings will be pre-mixed on an off-site location to ensure mixed species distribution during planting. The preservation areas (buffer and wetland) will be chemically spot-treated for invasive species. Tree and shrub species to be planted in the restoration areas will be selected from **Table 5** (below), which were observed within the Bank boundary. The planting ratio in the RF areas of hard to soft mast will be approximately 65:35, which will consist of at least eight (8) of the 16 reference species (**Table 5**). Due to the number of stems required for afforestation, tree seedlings will be provided by commercial nurseries using seeds collected within similar temperature regimes and plant hardiness zones

[6] The Society of American Foresters Dictionary of Forestry (http://dictionaryofforestry.org) defines afforestation as *the establishment of a forest or stand in an area where the preceding vegetation or land use was not forest —see deforestation, reforestation, regeneration, stand establishment.*

within the Western Gulf Coastal Plains and South-Central Plains Level III Ecoregions (USEPA 2003). However, the diversity of tree species for afforesting is often a limiting factor and is determined by seed availability.

Table 5. Native Tree and Shrub Species with a Wetland Indicator Status of Facultative (FAC) or Wetter Referenced on the McCoy Ranch Mitigation Bank Property, Liberty County, Texas

Common Name	Scientific Name	Wetland Indicator Status	Common Name	Scientific Name	Wetland Indicator Status
Trees					
Water Oak	*Quercus nigra*	FAC	Cherry bark Oak	*Quercus pagoda*	FACW
Willow Oak	*Quercus phellos*	FACW	Shumard's Oak	*Quercus shumardii*	FAC
Bottomland Post Oak	*Quercus similis*	FACW	Sugarberry	*Celtis laevigata*	FACW
Overcup Oak	*Quercus lyrata*	FACW	American Elm	*Ulmus americana*	FAC
Water Hickory	*Carya aquatica*	OBL	Cedar Elm	*Ulmus crassifolia*	FAC
Red maple	*Acer rubrum*	FAC	Green ash	*Fraxinus pennsylvanica*	FACW
Shrubs					
Deciduous Holly	*Ilex decidua*	FACW	Green Hawthorn	*Crataegus viridis*	FACW
Arrowwood	*Viburnum dentatum*	FAC	Parsley Hawthorn	*Crataegus marshallii*	FAC

5.4.1 RIVERINE WETLAND FOREST ENHANCEMENT

The RF enhancement areas encompass 57.4 acres and comprise WAA 1 (**Appendix A**, **Figure 3** and **Appendix C**, **Figure C-1**). The USACE's iHGM baseline verified 63.90 acres within WAA 1. The original map and text submitted to the USACE show 57.4 acres (**Appendix C**), but the individual iHGM worksheet that was submitted had an error listing 63.90 acres as the area of WAA 1. The 63.90 acres from the individual iHGM worksheet was used for the USACE's iHGM verification acreage. However, the USACE's verified functional capacity units (FCUs) calculations correctly utilized the 57.4 acres, and the baseline FCUs for WAA 1 are correct in the USACE's verification. The 57.4 acres is the correct acreage and will be used for FCU calculations.

Site preparation will consist of exotic / nuisance species removal via mechanical and hack and squirt methods. The enhancement areas were timber harvested circa 2004 and allowed too naturally regenerate. During regeneration willow oak and Chinese tallow have become the dominant shrub and tree species. Where possible, native tree species will be avoided during

removal of invasive species. Once the site has been cleared of invasive species, the enhancement area will be planted with native species listed in **Table 5** at a rate of 436 trees/acre inclusive of native species that remain after site preparation. Once the initial control treatment is completed, any remaining, sprouting, or germinating invasive species stems will be spot treated. If large areas are devoid of native vegetation, the soil surface will be subsoiled in the fall prior to planting to a depth of 14 to 16 inches to create a seedling planting bed (Allen et al. 2001). Immediately following subsoiling, the areas would be disked, and a pre-emergent herbicide will be applied to control invading grasses and broadleaf species.

5.4.2 RIVERINE WETLAND FOREST REHABILITATION AND RE-ESTABLISHMENT

The RF rehabilitation areas consist of herbaceous wetlands that will be restored to forested wetland systems. The RF rehabilitation areas within the Bank encompass 223.3 acres and are comprised of WAAs 7 and 8 (**Appendix A**, **Figure 3** and **Appendix C**, **Figure C-1**). WAA 7 consists primarily of farmed or hayed areas that exhibit wetland hydrology and hydric soil field indicators. Site preparation for the rehabilitation of farmed wetlands will consist of exotic and introduced species removal / control using herbicide applications (e.g., broadcast and spot spraying). WAA 8 consists of historic agricultural areas that have remained fallow over the last 5 – 10 years and have been grazed with cattle. Additionally, Chinese tallow shrubs have encroached in WAA 8. During site preparation, cattle will be removed, and mechanical control (e.g., grubbing and mulching) of the Chinese tallow will occur. Once woody species are removed, control using herbicide applications would be implemented similar to the farmed rehabilitation areas (WAA 7).

The RF re-establishment areas consist of farmed fields that have been drained and two small ponds that were excavated. This area encompasses 116.0 acres and is comprised of WAA 9 (**Appendix A, Figure 3** and **Appendix C, Figure C-1**). Upon completion of wetland hydrology restoration, as described in **Section 5.3**, the area will be prepared similar to WAA 7.

For both rehabilitation and re-establishment areas, the soil surface will be subsoiled in the fall prior to planting to a depth of 14 to 16 inches to create a seedling planting bed. Immediately following subsoiling, the rehabilitation and re-establishment areas will be disked, and a pre-emergent herbicide will be applied to control invading grasses and broadleaf species. Planting rates and tree species will follow the recommendations listed in **Section 5.4** and **Table 5**.

5.4.3 RIVERINE HERBACEOUS SHRUB REHABILITATION AND RE-ESTABLISHMENT

The RHS rehabilitation areas consist of herbaceous farmed wetlands and a historic pond that has been breached and encroached upon by Chinese tallow. The RHS rehabilitation areas within the Bank encompass 41.9 acres, which comprise WAAs 5 and 6 (**Appendix A, Figure 3** and **Appendix C, Figure C-1**). WAA 5 consists of active agricultural areas that exhibited wetland hydrology and hydric soils. During initial site preparation the WAA will be treated with herbicide to control invasive species. The RHS restoration for WAA 6 will consist of tallow and introduced species removal / control using herbicide applications (e.g., broadcast and spot spraying) and

mechanical control (e.g., grubbing and mulching). Additionally, to restore natural contours, the relic pond berm and spoil in WAA 6 will be graded into the previously excavated areas.

The RHS re-establishment area consists of currently farmed land that exhibited hydric soils but did not exhibit wetland hydrology. These areas are actively farmed, and drainage improvements have been installed to move water offsite. The RHS re-establishment area is WAA 10 and encompasses 42.0 acres (**Appendix A, Figure 3** and **Appendix C, Figure C-1**). One small relic agricultural ditch traverses the middle portion of the RHS re-establishment, it will be filled with *in-situ* material to restore natural grade and to prevent stormwater from leaving the re-establishment area.

Upon completion of hydrology restoration, as described in **Section 5.3**, the RHS restoration areas will be subsoiled and disked to prepare the seed bed. Seed broadcasting and cultipacking will occur in the fall after seedbed preparation. The seed mixture will be comprised of native, southeast Texas, coastal prairie species, which will be purchased from local plant material producers. Native shrubs that tolerate prescribed fire may be planted to increase woody cover.

In the southeast Texas coastal plain, prescribed fire is a natural tool to control woody encroachment and to maintain a diverse herbaceous-shrub ecosystem. The initial burn for WAAs 5 and 6 would be applied when an adequate fuel supply (litter) is available and may occur during any season in Year 0 to Year 3. Thereafter, burning will occur on a two to three-year rotation or as fuel permits. Burning will be conducted to select for fire tolerant native herbaceous species and control woody encroachment of Chinese tallow and native hardwoods. In addition to burning, herbicide spot-treatments will be used to control Chinese tallow. Controlled burning will occur during favorable conditions for safety and smoke management (e.g., wind direction, wind speed). The Sponsor will select a Certified and Insured Commercial Burn Manager (Burn Manager) licensed by the Texas Department of Agriculture[7]. The Burn Manager will prepare the burn plan and serve as the Burn Boss. Once the Burn Manager is selected, the Sponsor will provide the Burn Manager's proof of current certification and burn plan to the IRT.

5.5 MONITORING AND MANAGEMENT

Through the initial, interim, and long-term Bank phases, the Sponsor will monitor and manage all aspects of the Bank. The Sponsor will use prudent efforts, (i.e., physical, chemical, or mechanical) to eliminate existing noxious and/or invasive vegetation present in the Texas Department of Agriculture Noxious and Invasive Plant List. In addition to invasive plants species, the Sponsor will implement techniques / methods to control nuisance, invasive feral species (e.g., hogs; *Sus scrofa*).

[7] http://www.texasagriculture.gov/Home/ProductionAgriculture/PrescribedBurnProgram/FindaBurnManager.aspx

Following completion of construction activities, the Bank will be monitored and inspected annually for invasive species colonization and abiotic / biotic factors affecting tree or herbaceous-shrub establishment and growth. Monitoring will determine if adaptive management measures, such as replanting, need consideration. The Sponsor anticipates that invasive species control will be implemented as-needed (annually if necessary) over the first 5 years following construction and spot treatment as needed following Year 5. Additionally, prescribed fire will be implemented on a 2-3 year rotation in the RHS restoration areas. The Sponsor will continue to monitor the Bank through annual inspections to document the following:

- the effectiveness of control efforts;
- wetland hydrology observations;
- the extent and degree of invasive species present;
- the extent and degree of any herbivory or insect damage;
- the extent and degree of adverse climate impacts (i.e., drought);
- boundary maintenance (e.g., gates, signage, fencing, boundary marking, etc.); and
- the condition and functionality of any earthen structures (i.e., *in situ* earthen fill or plugs).

Following such monitoring, invasive species control will be implemented as necessary, and boundary maintenance will likely occur at five-year intervals.

6.0 Proposed Service Area

The primary and secondary service areas[8] are located within the Western Gulf Coastal Plain and South Central Plains Level III Ecoregions (EPA 2003) (**Appendix A**, **Figure 12**). The primary service area consists of the North Galveston Bay Cataloguing Unit (HUC 12040001). The secondary service area consists of the Buffalo-San Jacinto Cataloguing Unit (HUC 12040104), omitting the Addicks, Barker, and Brays Bayou sub watersheds. Additionally, portions of the West Fork San Jacinto Cataloguing Unit (HUC 12040101) and the East Fork San Jacinto Cataloguing Unit (HUC 12040103) within the Northern Humid Gulf Coastal Prairies and Flatwoods Level IV Ecoregions. The proposed service area does not extend beyond the administrative boundaries of the CESWG and is entirely within the state of Texas.

6.1 CREDIT DETERMINATION

Credit determination will utilize riverine forested iHGM and riverine herbaceous/shrub iHGM models. According to 33 CFR § 332.3(h), forested wetland preservation a must meet certain requirements to generate credit and/or for use as mitigation offsets. The wetland preservation meets the required preservation criteria outlined in the 33 CFR 33 CFR § 332.3 for the following reasons:

[8] The Service Area is defined in 33 CFR § 332.2 as the *geographic area within which impacts can be mitigated at a specific mitigation bank or in-lieu fee program, as designated in its instrument.*

- The Bank offers high functioning forested wetland system that contributes to the watershed via floodplain storage, habitat diversity, forested habitat for wildlife, and filters stormwater runoff from agricultural fields and grazing pastures.
- The forested preservation area is ecological sustainable and according to the iHGM model in **Appendix C** exhibits FCI values consistent with high quality wetlands.
- Currently, portions of the Cedar Bayou watershed are under heavy oil/gas development, particularly near Mont Belvieu. Mature native forests along Cedar Bayou are being impacted and lost. Lastly, merchantable hardwood timber is present within the tract, which is a timber harvesting threat. The forest portion of the tract is under timber exemption, which requires a timber management plan and harvesting schedule. Portions of the preservation area were last harvested circa 2004. These factors demonstrate a threat of destruction or adverse modification to both the wetland preservation areas.
- Preservation within the Bank is consistent with the watershed approach. A watershed protection plan has been established for Cedar Bayou. The plan outlines reduction of cattle waste input and protection/preservation of bottomland forests as a measure to help improve and protect water quality and recreational values within the watershed (HGAC 2015).
- Lastly, the site will be protected through a conservation easement, and it will be managed long-term (invasive species control).

In accordance with 33 CFR § 332.4(c)(6), the credit determination includes a description and number of functional credits (i.e., physical, biological, and chemical) that will be provided for compensatory mitigation. Forested wetland re-establishment, rehabilitation, enhancement, and preservation, mitigation credits were calculated using the CESWG riverine forested and riverine herbaceous/shrub iHGM (USACE 2008). The baseline credits, restored credits, and functional credit lift for each parameter (i.e., physical, biological, and chemical) are included in the draft iHGM Credit Workbook (**Appendix C**).

6.2 CREDIT USE

The RF habitats (re-establishment, rehabilitation, and preservation) will provide credits for non-tidal, forested impacts, and the RHS mitigation areas will provide credits for herbaceous-shrub, non-tidal wetland impacts (non-forested). The following habitats/areas will be excluded from the service areas: Mid-coastal Barrier Islands/coastal marshes, barrier islands (Galveston Island), and the estuaries associated with North Galveston Bay. Exclusion of these tidally influenced, estuarine wetlands are mapped as Estuarine per the U.S. Fish and Wildlife (FWS) National Wetland Inventory (NWI; Cowardin et al. 1979, USFWS 2014) or as confirmed during a Routine Wetland Delineation.

Unavoidable impacts to wetland function within the primary service area will be replaced at a 1:1 ratio while those impacts within the secondary service area will be debited at a 1.5:1 ratio. Any

out-of-kind or use beyond the service area will be considered by the CESWG on a case-by-case basis.

7.0 GENERAL NEED AND TECHNICAL FEASIBILITY

7.1 GENERAL NEED

The Bank will re-establish, rehabilitate, enhance, and preserve RF wetlands and re-establish and rehabilitate RHS wetlands along the eastern stream bank/floodplain of Cedar Bayou. These restoration, enhancement and preservation efforts will restore natural sheet flow from the Bank to Cedar Bayou and backwater flooding from Cedar Bayou to the eastern boundary of the Bank. Additionally, the Bank, in its immediate area, will widen the riverine forested and riverine herbaceous-shrub corridor by approximately 0.2 mile to 0.9 mile eastward of the current forest boundary.

The Bank will provide wetland mitigation credit to compensate for permitted losses of Waters of the U.S. (i.e., RF and RHS wetlands). Forested and herbaceous-shrub wetland habitats are prevalent in the Primary and Secondary Service areas, which both types will likely be impacted due to the current and forecasted development occurring in Liberty, Chambers, Montgomery, and Harris Counties (e.g., residential, industrial, and energy corridors). Many of these impacts will result from the construction of oil and gas transmission pipelines and ancillary facilities (e.g., meter stations) [INGAA 2018] which encompass a major east-west energy corridor transporting products from Eagle Ford formation and Permian Basin to refineries and terminals along the Gulf Coast.

From 1950-2002, over 46,900 acres of freshwater and estuarine wetlands have been lost in the Galveston Bay watershed (DallaRosa and Pulich 2005). As a result, the Galveston Bay Estuary Program (GBEP) is beginning to focus on a more comprehensive watershed management and realizing the importance of inland resources on the Galveston Bay estuary (DallaRosa and Pulich 2005). Restoration of the Bank will provide for contributions to water quality, stormwater retention, and habitat for fish, native wildlife, migratory birds, and bats. The shores of the Gulf of Mexico provide critical stopover habitat for approximately 296 nearctic-neotropical migratory species. The Gulf Coast Bird Observatory has documented the importance of migratory bird habitat and the need to protect and enhance stopover areas near the Gulf Coast (Gulf Coast Bird Observatory 2016).

The watershed in which the impacts and the Bank are situated has experienced tremendous industrial and residential growth in recent years due to the close proximity to the City of Houston. Houston-Galveston Area Council projects over a 46% population increase in Harris County by 2045 (HGAC 2017); Harris County comprises approximately half of the North Galveston Bay watershed. The Bank is located within the ecologically important Galveston Bay watershed. Additionally, the site restoration is consistent with and helps the Cedar Bayou Watershed

Partnership achieve the water quality goals stated in the 2015 *Cedar Bayou Watershed Protection Plan*, and it helps meet some of the goals of the *Cedar Bayou Initiative* (HGAC 2019). The Bank meets the following goals outlined in the Watershed Protection Plan:

- Protection of high-quality, large contiguous ecological areas, more specifically the riparian area located in the central portion of Cedar Bayou in which the Bank is located.
- Remove land from cattle and crop production to aid in the reduction of nonpoint inputs such as bacteria, nutrients, microbenthic impairing substances, and sediment. Livestock loading is highest in the subwatershed the Bank is located in.
- Aid in Flood reduction downstream through the protection of 1,297 acres of undeveloped land along Cedar Bayou, cessation of agricultural, and through the removal of internal drainage infrastructure designed to move water to Cedar Bayou, which would increase floodplain storage.

Additionally, according to the Protection Plan, the watershed from 1996-2011 has experienced a loss of the following habitats which are proposed to be restored/preserved at the Bank: 1,029 acres of forested land; 203 acres of scrub/shrub habitat; and 1,169 acres of herbaceous wetlands. The restoration of the Bank will increase the forested and scrub/shrub acreage in the Galveston Bay watershed as well as ensure long-term conservation and protection of the resource associated with this landscape ecosystem and the protection of 1,258.0 acres of habitat.

7.2 TECHNICAL FEASIBILITY

Site construction, establishment, and long-term management of the Bank is routine and practical. The geomorphological location, relatively flat to slightly sloping landscape, field observed hydric soils, and wetland hydrology implies that the Bank is a prime site for wetland preservation, enhancement, re-establishment, and rehabilitation.

The following parameters were considered in selecting the site for wetland preservation and restoration:

- Location – the Bank will re-establish, rehabilitate, enhance, preserve, and protect the physical, chemical, and biological functions of a forested landscape, which includes RF wetlands, RHS wetlands, hardwood non-wetlands, relic oxbows, and riparian forest along the stream bank.
- Mitigation need - the increasing requests for RF and RHS wetlands within the primary and secondary service areas establishes the need for this Bank, along with the discussion in **Section 7.1**.
- Mitigation availability - the limited availability of riverine forested and riverine herbaceous/shrub wetland credits within the primary and secondary service areas.
- Landscape positioning - the relative low elevation of the Bank and nexus to Cedar Bayou.
- Hydric soils - the field-documented presence of hydric soils within the Bank boundaries.

- Historic evidence - the historical presence of riverine forested habitat as shown by historical aerial photography.
- Compatibility - most surrounding land use of the Bank consists of forested and agricultural landscapes.
- Continuity - restoring and protecting the Bank will reduce fragmentation and reconnect wildlife habitats as stipulated in the Texas Coastal and Estuarine Land Conservation Program (National Oceanic and Atmospheric Administration (NOAA 2010).
- Long-term protection and habitat connectivity - the Bank will preserve a riverine forested landscape that includes mosaic wetland and non-wetland habitat, remnant oxbow features and will restore historic hardwood wetlands, herbaceous-shrub wetland, and forested non-wetlands.

The Bank's geomorphic location along Cedar Bayou is within a contiguous, forested riparian corridor. Due to its remoteness from development and hydrologic connection to Cedar Bayou, the Bank will function as a self-sustaining wetland. Within one mile of the Bank perimeter, the surrounding land use is comprised of woody wetlands (48.0%), Agriculture (40.4%), Developed (5.1%), mixed forest (4.0%), shrub/scrub (2.2%), open water (0.2%), and emergent wetlands (0.1%) (**Appendix A, Figure 7**). Given the low level of disturbance from these compatible land uses, wetland restoration and long-term protection is complementary in this landscape setting. Furthermore, approximately 90% of the Bank is within the designated 100-year flood zone (Zone A) and National Wetland Inventory mapping shows the continuity of the Cedar Bayou forest corridor, which is a mosaic of forested wetlands and non-wetlands (**Appendix A**, **Figures 6** and **13**).

Under the perpetual, conservation easement, the Bank will protect 1,258.0 acres of forest and herbaceous/shrub habitat, which approximately 854.7 acres consist of wetland habitats. These habitat acres provide additional flood water storage and filter sheet flow water for Cedar Bayou, which compliments the Cedar Bayou Watershed Partnership, *Cedar Bayou Watershed Protection Plan* for improving water quality in the above tidal and downstream tidal areas of Cedar Bayou.

As an ecologically restored and protected acreage of the Cedar Bayou forested corridor, the Bank will be sustainable habitat for terrestrial, aquatic, and migratory wildlife and native plant species. Indigenous and / or migratory mammal, bird, reptile, amphibian, fish, insects, mollusks, and plant species inhabiting Cedar Bayou will benefit from the Bank (TPWD 2019). An example is the development of snags and course woody debris (CWD). Snags and CWD are decomposing microhabitats for invertebrates that provide nutrition for higher trophic level species. Snags provide nesting sites for woodpeckers (e.g., downy woodpeckers [*Picoides pubescens*], hairy woodpeckers [*Leuconotopicus villosus*]) and bat roosting sites (e.g., Rafinesque's big-eared bat [*Corynorhinus rafinesquii*] and Southeastern myotis [*Myotis austroriparius*]). Birds and bats are beneficial for long-term forest health, as these species are beneficial in slowing the spread of

species such as the emerald ash borers (*Agrilus planipennis*) (Koenig et al. 2013). CWD is essential invertebrate habitat and nutrient cycling (Brinson et al. 1995, NRCS 2003).

The RHS habitat will be restored from crop land that has been in place prior to 1938. This habitat will sustain pollenating insects, grassland wildlife species, native grasses, graminoids, forbs, and shrubs. Prescribed fire will be the primary management practice to sustain riverine herbaceous/shrub habitat, remove introduced species, and control encroaching hardwoods. The RHS restoration is adjacent to forested habitat and will provide foraging opportunities for bats and birds preferring herbaceous/shrub habitats.

8.0 EASEMENTS AND ENCUMBRANCES

8.1 MORTGAGES, EASEMENTS AND ENCUMBRANCES

A Summary of Title Matters, Title Opinion, and survey plat are included in **Appendix E**. A conservation easement will be placed on the Bank as described in **Section 11.0**. The conservation easement will cover the ROW areas described below but the conservation easement will subordinate to these easements. However, should any of these ROW easements be terminated or relinquished, the conservation easement will become dominate insuring site protection. From the certified survey, the following list of a summarized ROW descriptions is provided:

- Item 10e. 672/280 LCDR - a 30-foot wide easement granted to Santa Fe Pipeline Company for a single 12-inch pipeline.
- Item 10i. 2015020160 LCOPR - nonexclusive 90-foot wide road, utility, and drainage easements reserved and conveyed for the benefit of the Grantors and Grantees.
- Item 10j. 170/11 LCDR - a blanket easement for pipelines, telephone, and telegraph lines across the parent tract for the 1296.96-acre subject tract, granted to Gulf Pipe Line Company.
- Item 10k. 341/320 LCDR - an easement granted to Liberty County Water Control and Improvement District No. 1 for "the channel rectification of Cedar Bayou."
- Item 10l. 429/54 - a drainage ditch right-of-way easement, "approximately 75 feet" in width, granted to Liberty County Water Control and Improvement District No, 1.
- Item 10m. 403/439 LCDR, 403/435 LCDR, 403/432 LCDR, 404/451 LCDR, and 404/57 LCDR - a 30-foot wide permanent easement granted by various former owners of the parent tract for the subject property to Cities Service Pipe Line Company for a pipeline and appurtenances.
- Item 10n. 623/412 LCDR and others - a blanket pipeline easement granted by various former owners of the parent tract for the subject property to Sinclair Pipe Line Company.
- Item 10o. 1931/365 LCDR - a 20-foot wide easement granted to Entergy Gulf States, Inc., and its successors and assigns for electric power and communication facilities.

- Item 10q. 1234/361 LCDR - a 30-foot wide pipeline easement granted to Mustang Pipeline Company, parallel with and adjacent to the west line of the 30-foot wide easement cited in Item 10e above, for two pipelines and their appurtenances.
- Item 10r. 1212/656 LCDR - a 30-foot wide easement granted to Houston Lighting and Power Company on December 10, 1987 for one pipeline and its appurtenances.

8.2 CURRENT SITE RISKS

The Sponsor does not foresee any adjacent land encumbrances or hindrances on the Bank. Due to similar land use practices and management on adjacent land(s), the construction, establishment, and long-term phases of the Bank will not be affected by adjacent land uses. Therefore, adverse impacts are unlikely to result from the continued existence and operation of the neighboring land uses or ROW uses described in **Section 8.1**.

8.3 LONG-TERM SUSTAINABILITY

Long-term wetland hydrology, plants, and hydric soils will be sustained by backwater flooding, localized rainfall, sheet flow, and shallow, seasonally perched high-water tables. The long-term conditions are attainable as indicated by the baseline site conditions described in the AJD and iHGM analysis (**Appendices B** and **C**). Furthermore, long-term viability and sustainability of the Bank is founded on proven construction and establishment practices / techniques discussed in this prospectus. Prior to entering the long-term phase, the initial, interim, and long-term performance standards will be met as prescribed in the MBI. To sustain the long-term standards through management, monitoring and adaptive management (if necessary) will be implemented to manage the Bank. A long-term management plan will be provided with the draft MBI and included in the approved MBI.

9.0 QUALIFICATIONS OF THE SPONSOR

Per 33 CFR § 332.8(d)(2) (vi.), this section describes the Sponsor's qualifications to successfully complete the proposed Bank. DLS will serve as the Sponsor. DLS has developed and implemented mitigation banks in the following USACE Districts: CESWG, Fort Worth (CESWF), New Orleans (CEMVN), and Vicksburg (CEMVK).

DLS is a land management and restoration company whose technical staff includes Certified Wildlife Biologists, Ecological Restoration Practitioners, Foresters, and Professional Wetland Scientists. In addition, DLS has construction specialists who are well-versed in wetland construction activities such as contractor management, earth work, heavy equipment operation, herbicide application, safety, and vegetation restoration. DLS currently operates twenty-four (24) approved wetland mitigation banks (Banks) and five (5) approved amendments within four (4) USACE Districts totaling 17,337.4 acres which include 43,044.9 linear feet of stream restoration. These Districts include CEMVK, CEMVN, CESWF, and CESWG. In addition to the Banks

referenced above, DLS serves as the Responsible Party for the establishment and maintenance of 3,548.1 acres of wetlands and 8,251.0 linear feet of stream on thirty-seven (37) other approved permittee responsible mitigation areas within the CEMVN, CEMVK and CESWG Districts.

The Sponsor will comply with all conditions required by the CESWG. The Bank will be established and operated through mitigation bank procedures outlined in 33 CFR § 332.8. This includes, but is not limited to, review process, modifications, permit coordination, project implementation, financial assurance determination and mechanisms, credit determination, accounting procedures, credit withdrawals, and the use of credits. Details on the operation of the Bank will be further described in the Draft MBI per 33 CFR § 332.8 (d)(6).

10.0 ASSURANCE OF WATER RIGHTS

Per review of the Texas Commission on Environmental Quality's (TCEQ) water rights database, water use is not listed for the Bank (TCEQ 2019) and water use data recorded from 2000 through 2014[9] did not indicate any water purchases. Currently, approximately 40,887 acre-feet/year of water rights have been issued on Cedar Bayou. As restored functional riverine forested wetlands and herbaceous/shrub habitats the Bank will not require the use of public water or a TCEQ Water Use Permit since the restored wetlands will not create a reservoir or off-channel reservoirs that artificially store, hold, retain or divert water from state water sources (i.e., surface or subsurface). Furthermore, there will not be any construction features on the Bank that direct, divert, or cause the retention of flood waters. The hydrologic restoration of the Bank includes filling and leveling of internal agricultural drainage and road features to natural elevation. Any water that may naturally flow onto or through the flood plain will not be diverted or retained by any constructed surface features. As such, long-term hydrology maintenance will not depend on the utilization of water captured from irrigation wells or a Texas public water system; therefore, water rights will not be required.

11.0 SITE PROTECTION

The Sponsor and the Owner, or its heirs, assigns or purchasers shall be responsible for protecting lands contained within the Bank in perpetuity. To provide such protection, the Owner shall execute a perpetual conservation easement (Texas Law, Natural Resources Code, Title 8 Chapter 183 Subchapter A) on all acreage identified as the Bank and the conservation easement will be recorded in the Title Records of Liberty County, Texas (Texas Legislature 2005). The conservation easement will be held by a qualified, non-profit organization (Holder) whose mission is to retain or protect the land's natural habitat, wildlife, open-space, scenic, educational, recreational,

[9] The Water Use data from 2000 through 2014 is accessible from the URL: https://www.tceq.texas.gov/assets/public/permitting/watersupply/water_rights/applications/WRWaterUseData2000Through2014.xlsx (accessed February 14, 2019).

historical, or cultural values. The Holder will be accredited by the National Land Trust Alliance or a credible non-profit conservation organization that is a member of the Texas Land Trust Council. The Holder will conduct annual inspections to verify that there are no activities occurring on the Bank that are inconsistent with the purpose of preserving the conservation values of the restored area. Texas Land Conservancy has preliminarily agreed to hold the conservation easement.

In accordance with 33 CFR 332.7 (a)(3), the easement shall contain a provision requiring a 60-day advance notification to the CESWG before action is taken to void or modify the easement including transfer of title. The conservation easement will protect the Bank from development or any other activity contrary to its use as a wetland mitigation bank.

11.1 LONG-TERM STRATEGY

A long-term management plan will be included with the draft MBI and will detail long-term management needs, costs and identify a funding mechanism in accordance with 33 CFR § 332.7 (d). The Sponsor (or Long-term Steward) and the Owner (or its heirs, assigns or purchasers) shall be responsible for protecting lands contained within the Bank in perpetuity. The Sponsor will establish the "Long-term Land Management and Maintenance" (LTMM) endowment to ensure adequate funding is available to cover future LTMM costs. The Sponsor will enter into a Mitigation Bank Endowment Agreement with the National Fish and Wildlife Foundation (NFWF) to ensure sufficient long-term funding is available for perpetual maintenance and protection of the Bank. Long-term management will consist of monitoring, vegetation management, invasive species control, controlled burning, boundary maintenance (approximately 4.1 miles), site protection, and the funding of such activities. Invasive species control efforts will continue as part of long-term management.

12.0 CONCLUSION

In summary, the Bank has a high potential for successfully re-establishing 116.0 acres of RF wetland, re-establishing 42.0 acres of RHS wetland, rehabilitating 223.3 acres of RF wetland, rehabilitating 41.9 acres of RHS wetland, enhancing 57.4 acres of RF wetlands, and preserving 374.1 acres of RF wetlands/oxbows. Additionally, the Bank will protect and manage 396.0 acres of non-wetland riparian forests. The cessation of agricultural land use, restoration of natural hydrology, and preservation and restoration of native habitats will improve watershed quality by reducing non-point source runoff, increasing ecosystem plant diversity, and increasing habitat for native and migratory wildlife species.

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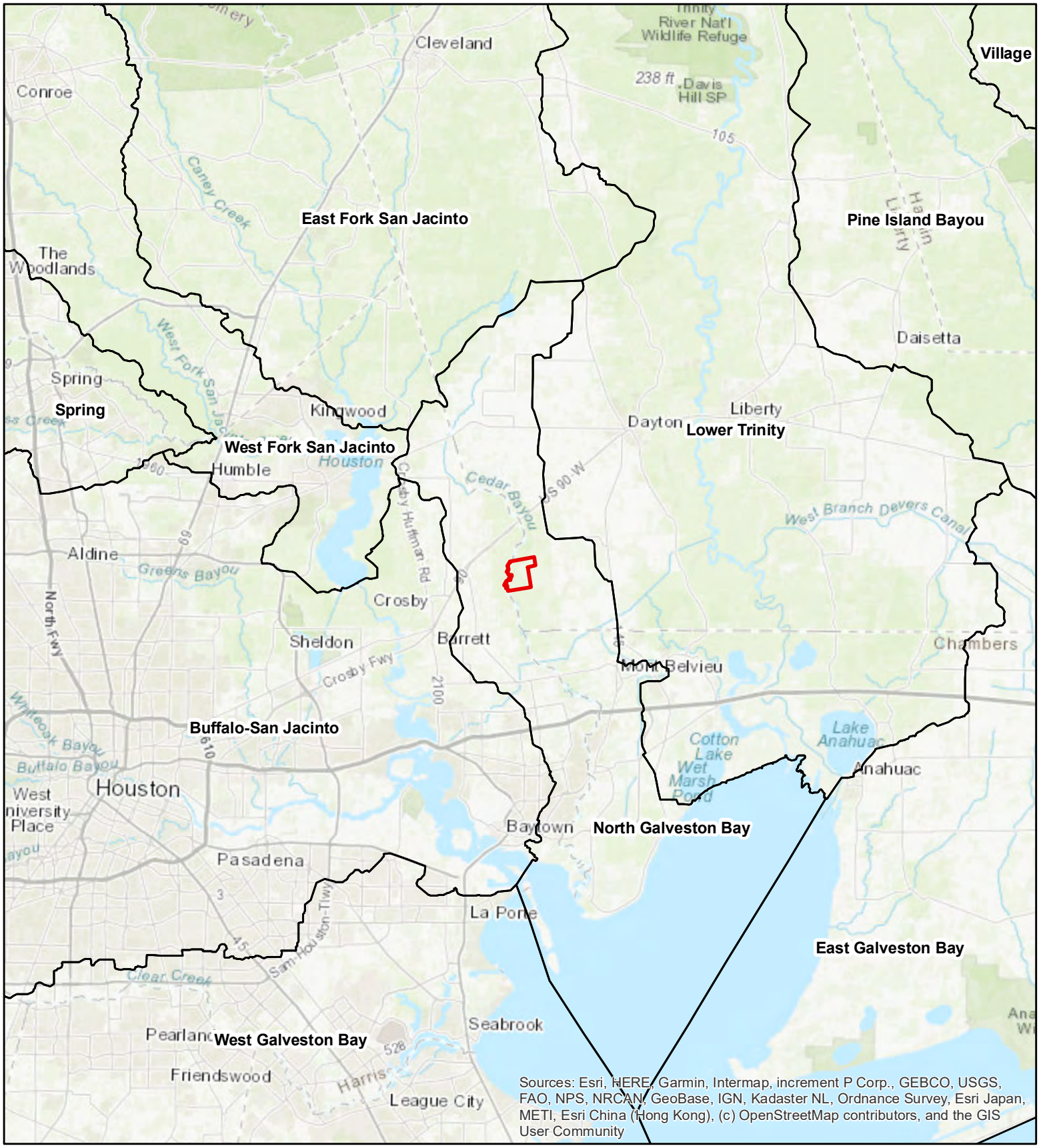
Appendix A
Figures



Project Area (1297.0 ac)

USGS 8-DIGIT HUC

0 3.5 7 14

Miles

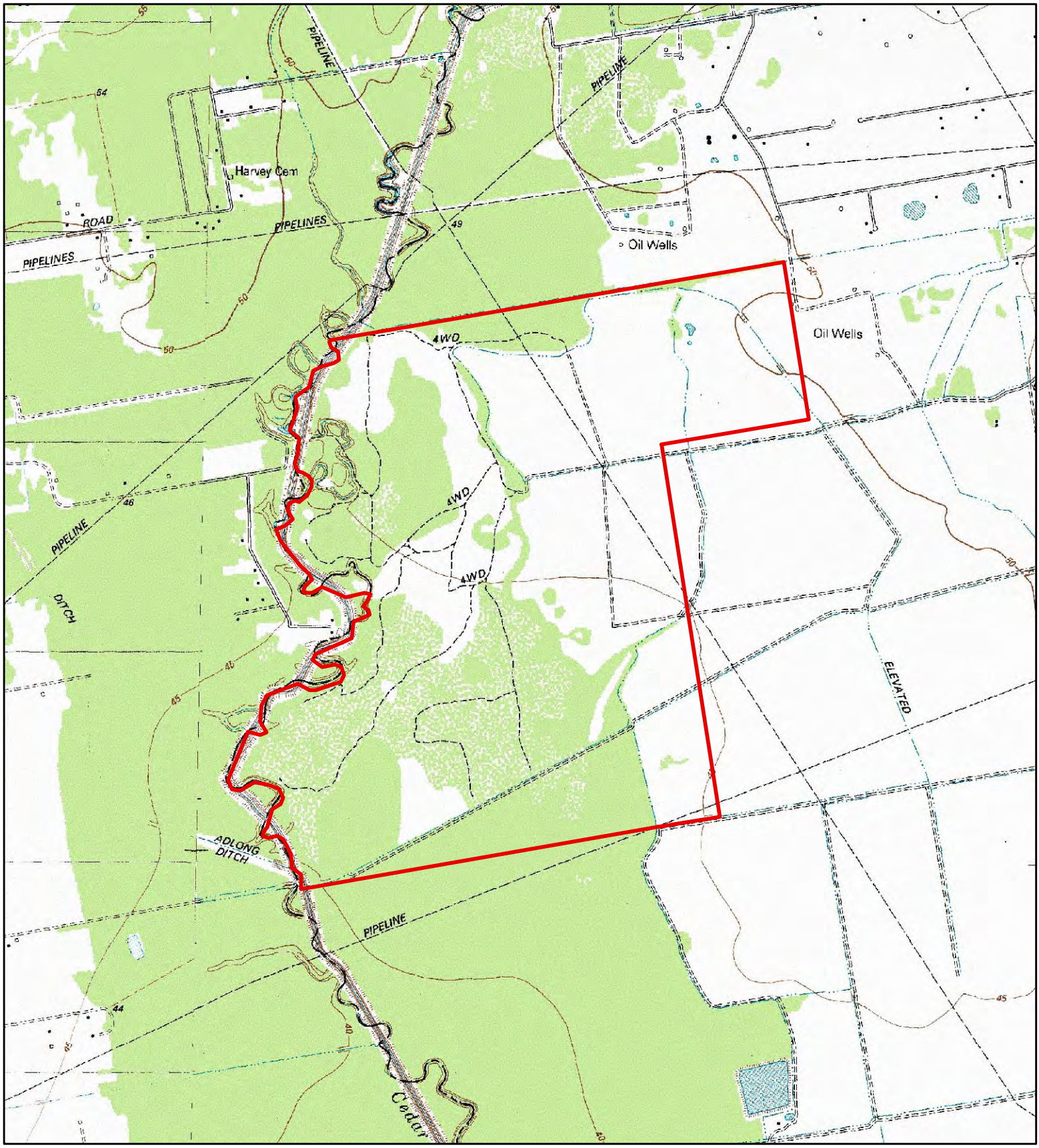
McCoy Ranch Mitigation Bank

VICINITY MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F1_Vicinity.mxd	

FIGURE 1



Project Area (1297.0 ac)

0 1,000 2,000 4,000

Feet

McCoy Ranch Mitigation Bank

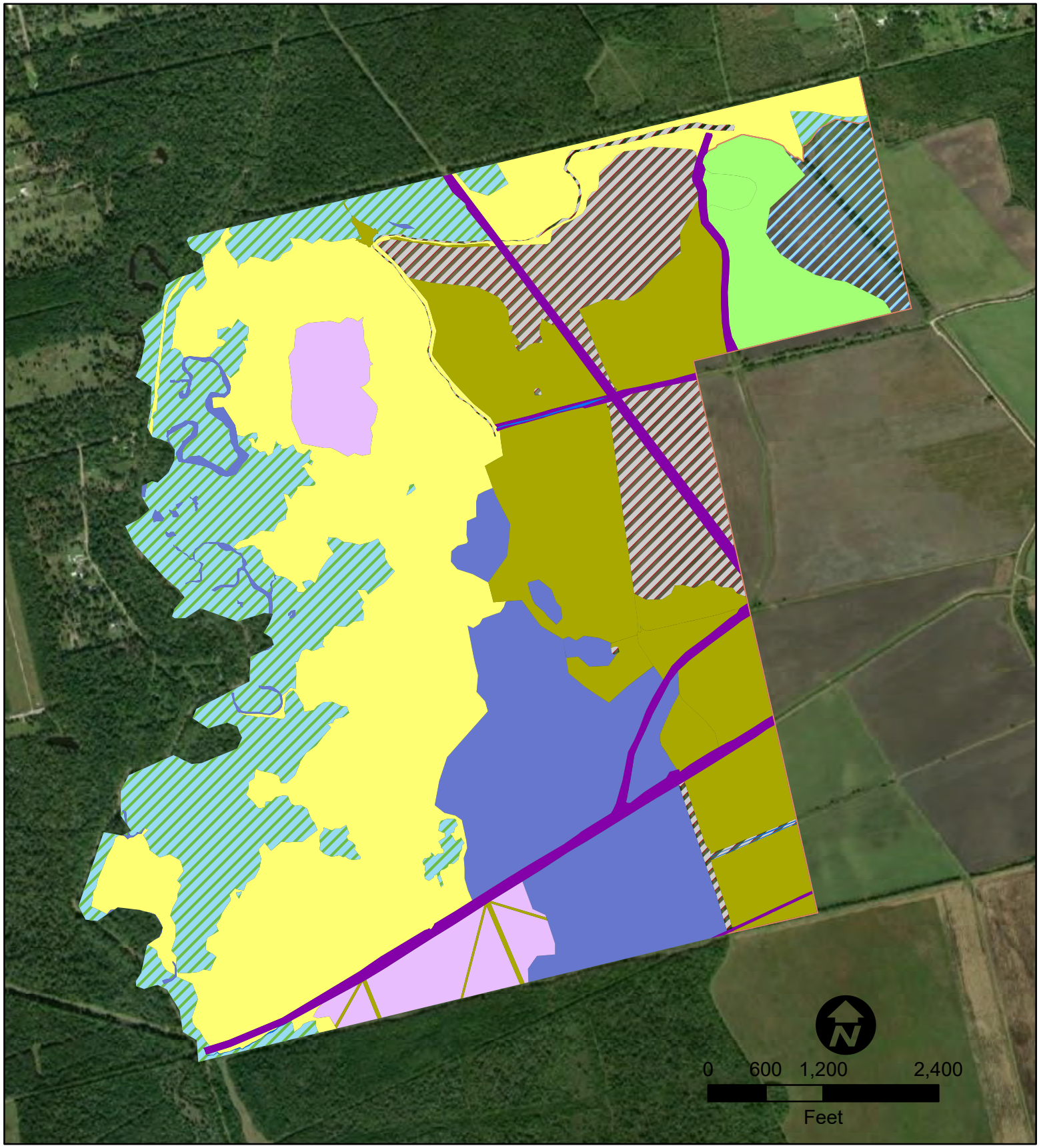
2008 USGS 7.5' QUADRANGLE MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F2_Quad.mxd	

DELTA LAND SERVICES

FIGURE 2



- RF Enhancement (57.4 ac)
- RF Preservation/Oxbows (173.5 ac)
- RF Preservation Mosaic (386.9) (200.7 ac)*
- RF Re-establishment (116.0 ac)
- RHS Rehabilitation (41.9 ac)
- RF Rehabilitation (223.3 ac)
- RHS Re-establishment (42.0 ac)
- Other Waters (3.3 ac)
- Non-wetland buffer (209.8 ac)
- Non Mitigation (39.0 ac)
- Fire Break/Access (3.8 ac)

*Note: The Mosaic includes wetland acres only, total Mosaic is 386.9 acres (51.89%)

McCoy Ranch Mitigation Bank

MITIGATION FEATURES MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 01/29/2021	
Map No. : WAAmap.mxd	

FIGURE 3

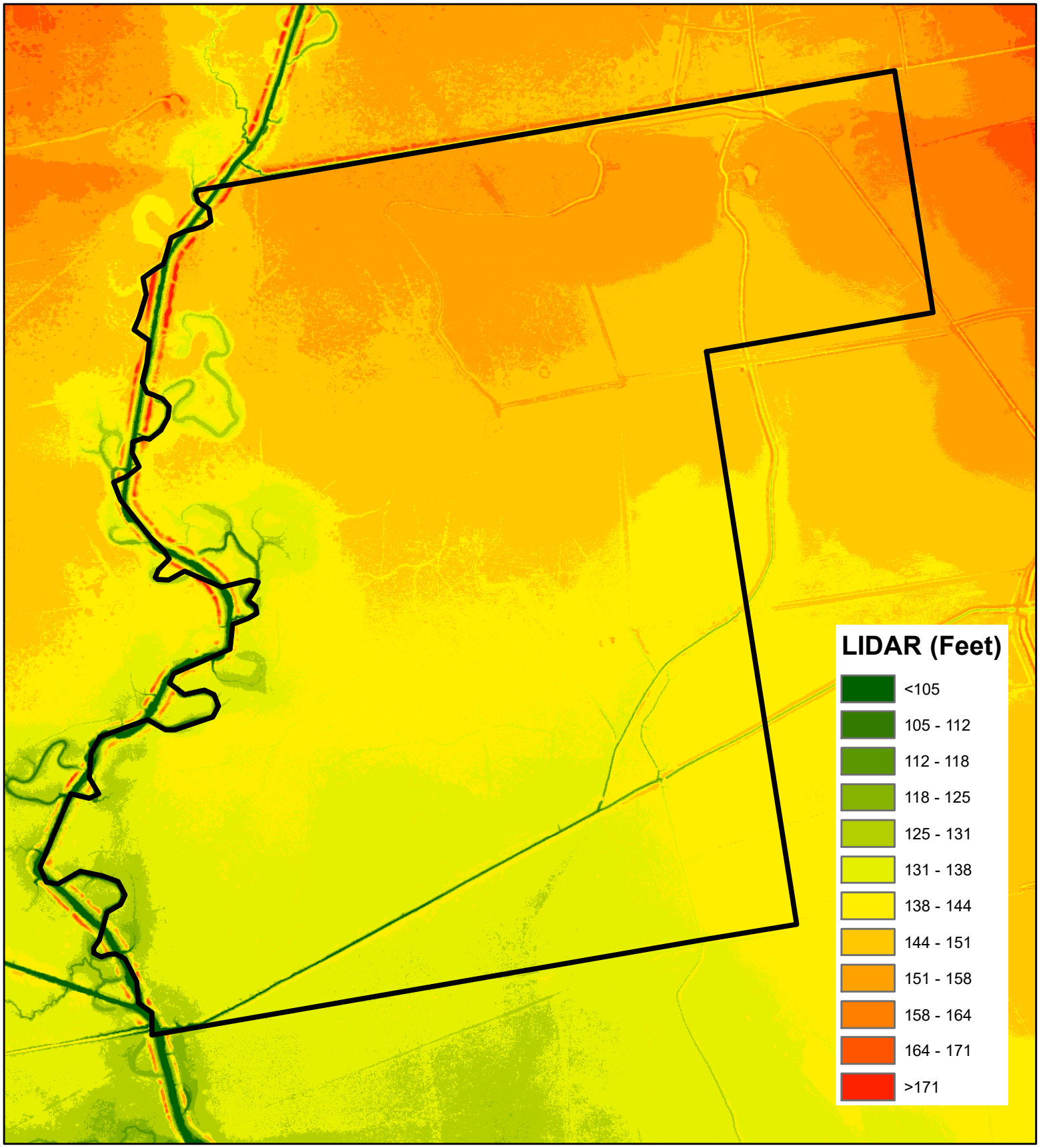
McCoy Ranch Mitigation Bank

LEVEL III ECOREGION MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F4_Ecoregion.mxd	

FIGURE 4



Survey Boundary (1297.0 ac)

N

0 650 1,300 2,600

Feet

McCoy Ranch Mitigation Bank

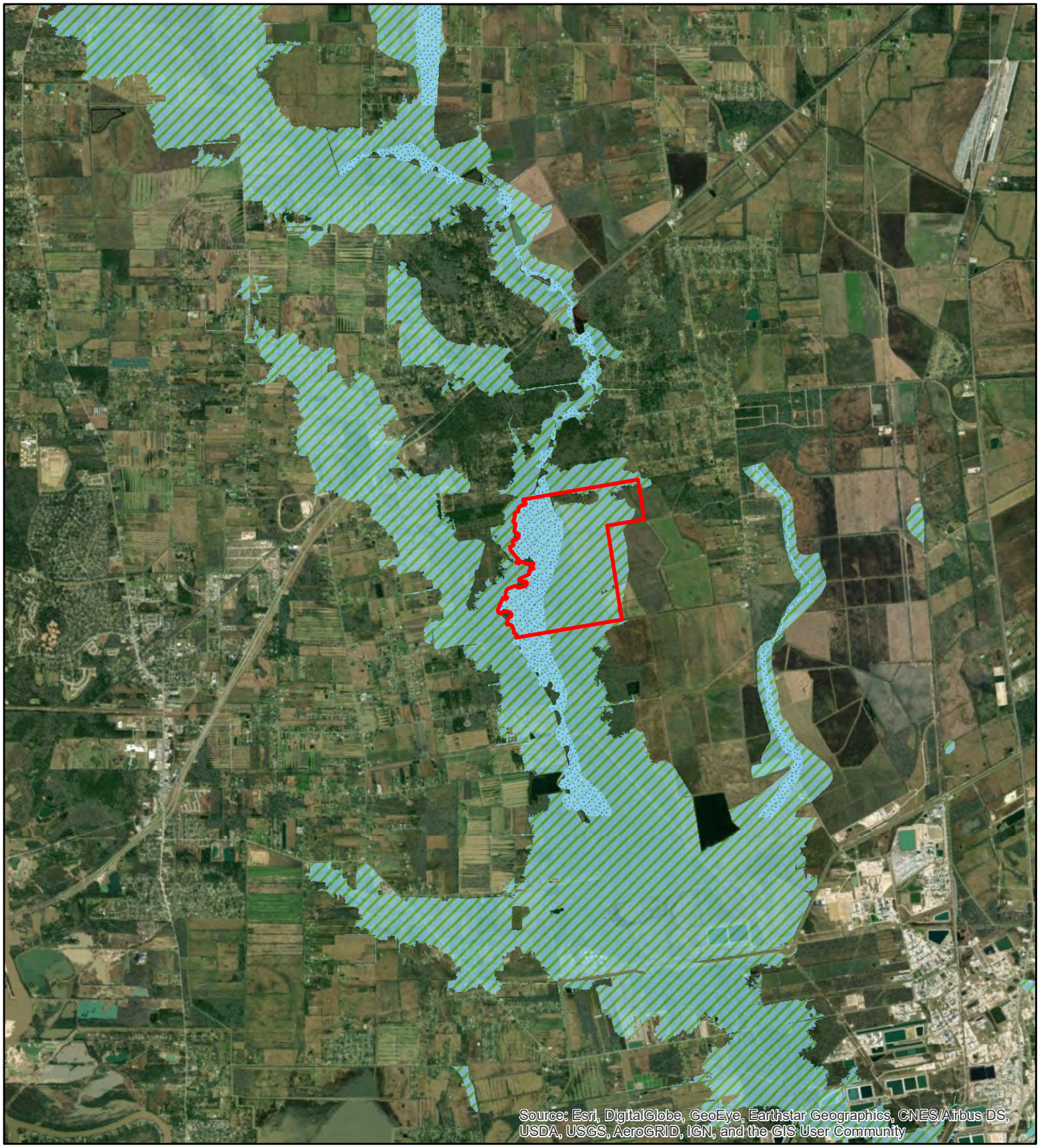
LIDAR DIGITAL ELEVATION MODEL

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F5_Lidar.mxd	

DELTA LAND SERVICES

FIGURE 5



Project Area (1297.0 ac)
100-Year Floodplain
Floodway

0 0.5 1 2
Miles

McCoy Ranch Mitigation Bank

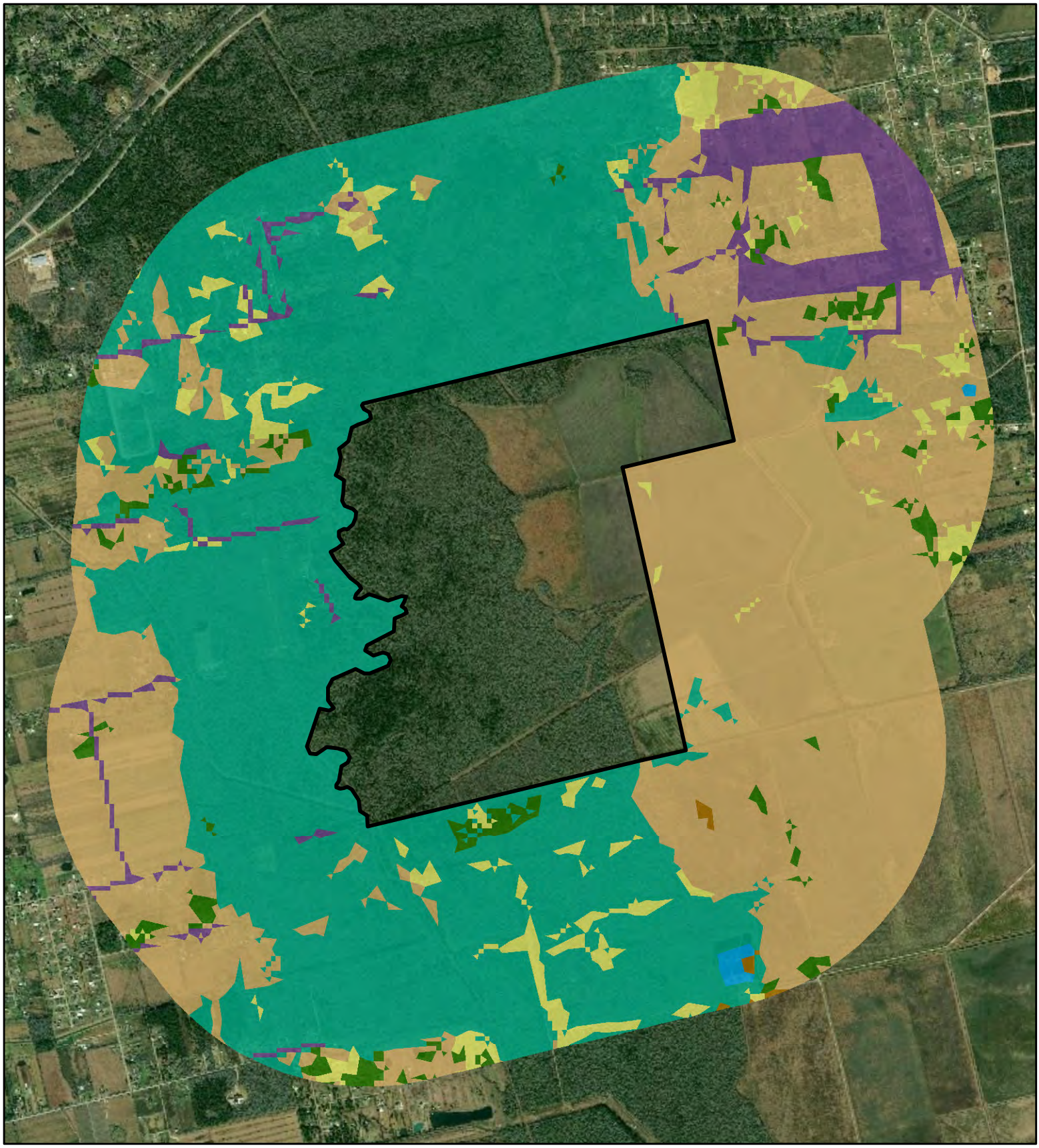
FLOOD ZONE MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F6_Floodzone.mxd	

DELTA LAND SERVICES

FIGURE 6



McCoy Ranch Mitigation Bank

LAND USE WITHIN A ONE-MILE BUFFER

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F12_LULC.mxd	

DELTA LAND SERVICES

FIGURE 7

Survey Boundary (1297.0 ac)

0 600 1,200 2,400

Feet

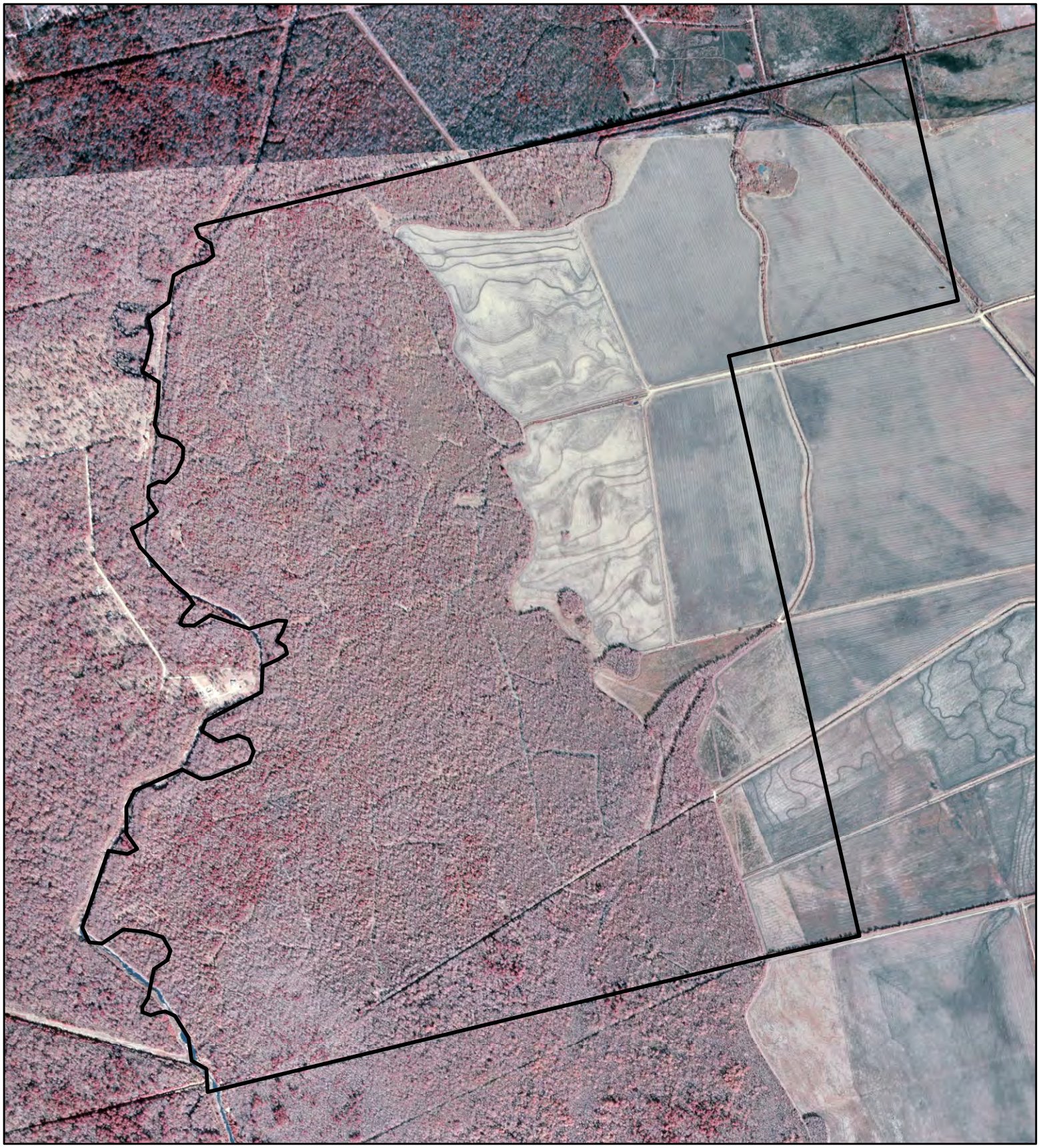
McCoy Ranch Mitigation Bank

1938 AERIAL PHOTOGRAPH

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F8_1938.mxd	

FIGURE 8



Survey Boundary (1297.0 ac)

0 600 1,200 2,400

Feet

McCoy Ranch Mitigation Bank

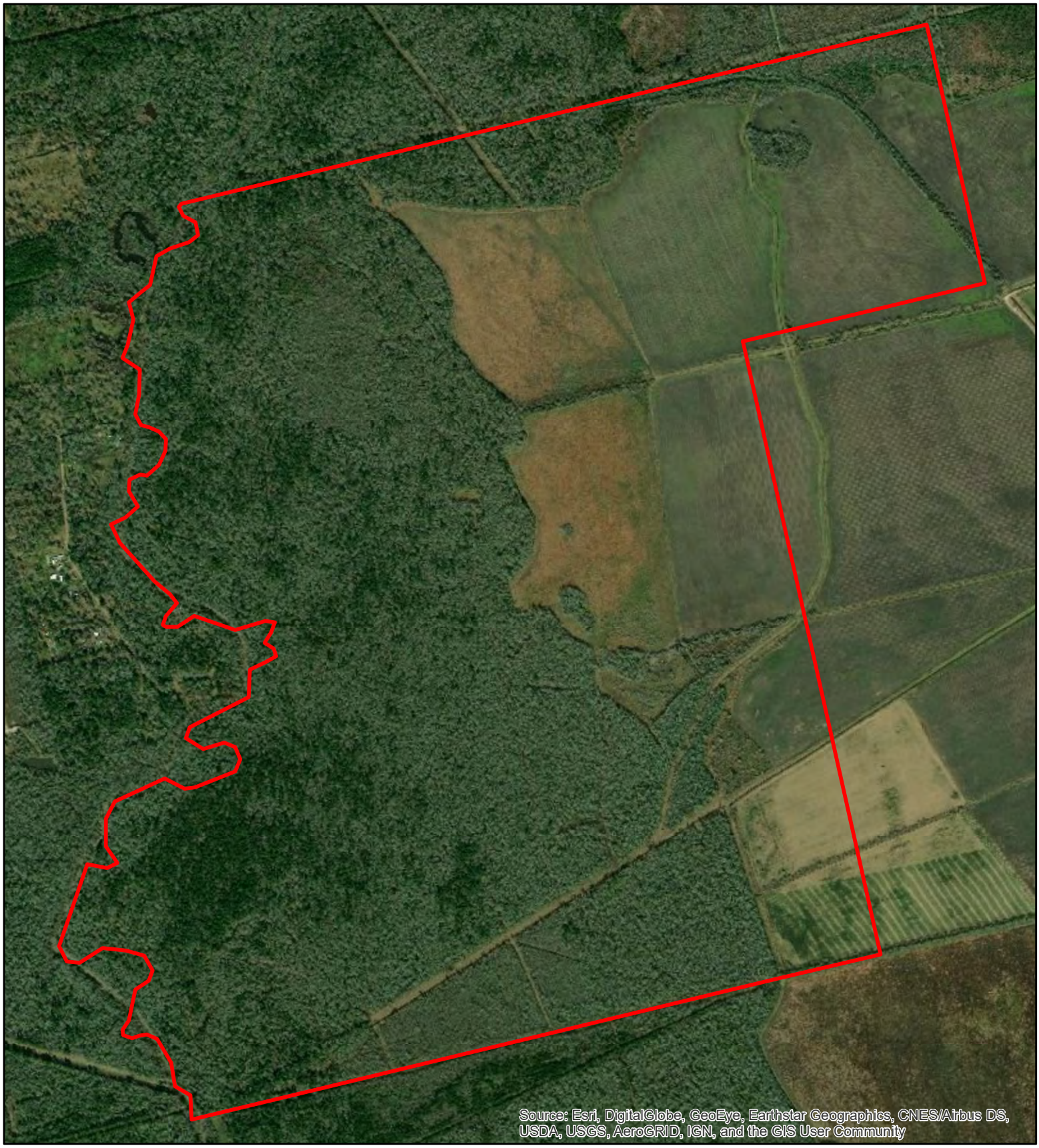
1996 DOQQ AERIAL PHOTOGRAPH

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F9_1989.mxd	

DELTA LAND SERVICES

FIGURE 9



Project Area (1297.0 ac)

0 600 1,200 2,400

Feet

McCoy Ranch Mitigation Bank

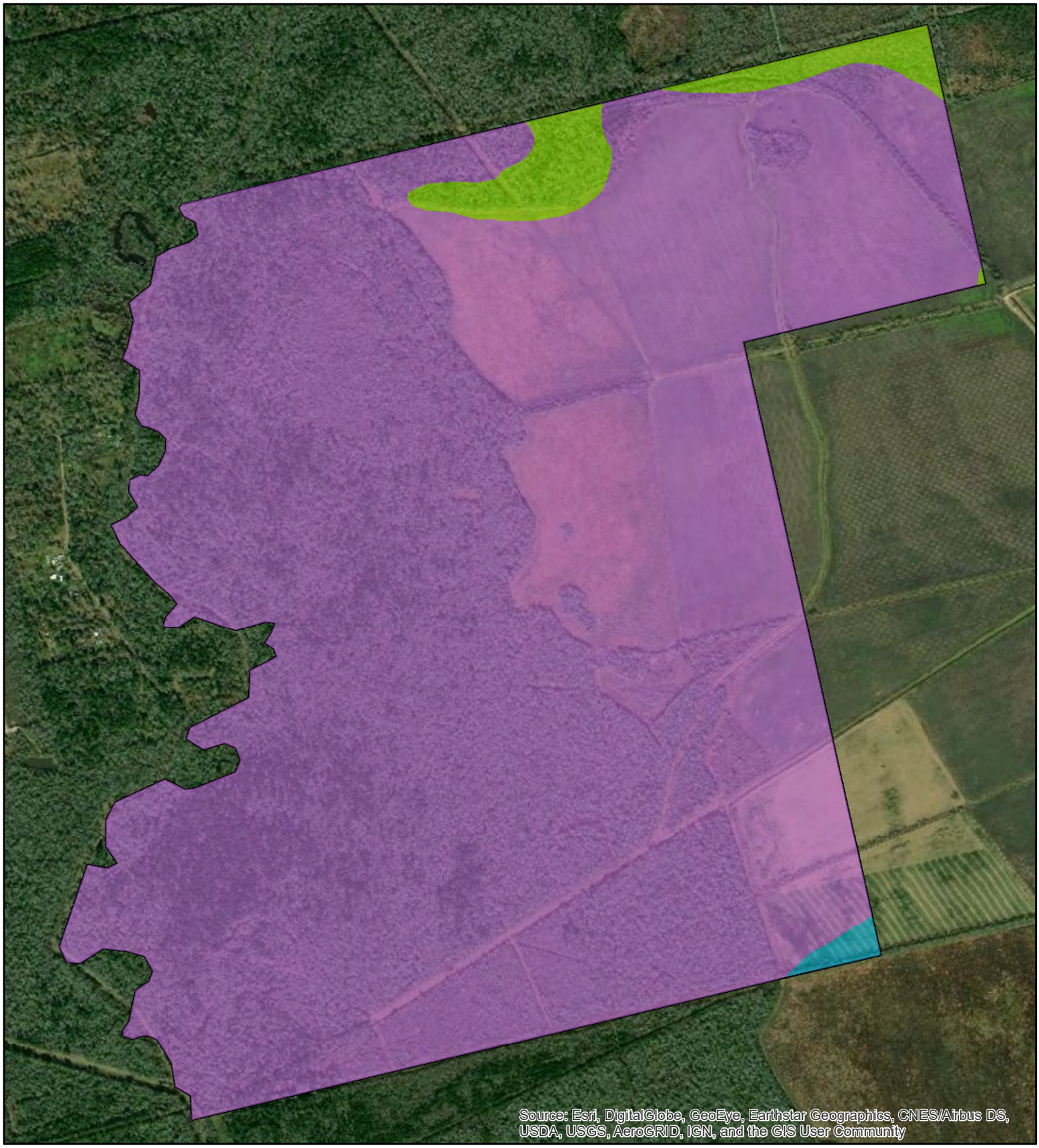
2018 AERIAL PHOTOGRAPH

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F10_2018.mxd	

DELTA LAND SERVICES

FIGURE 10



Project Area (1297.0 ac)
LabA: Labelle clay loam, 0 to 1 percent slopes
LeaA: League clay, 0 to 1 percent slopes
MofA; Mocarey-Yeaton complex, 0 to 1 percent slopes

0 600 1,200 2,400
Feet

McCoy Ranch Mitigation Bank

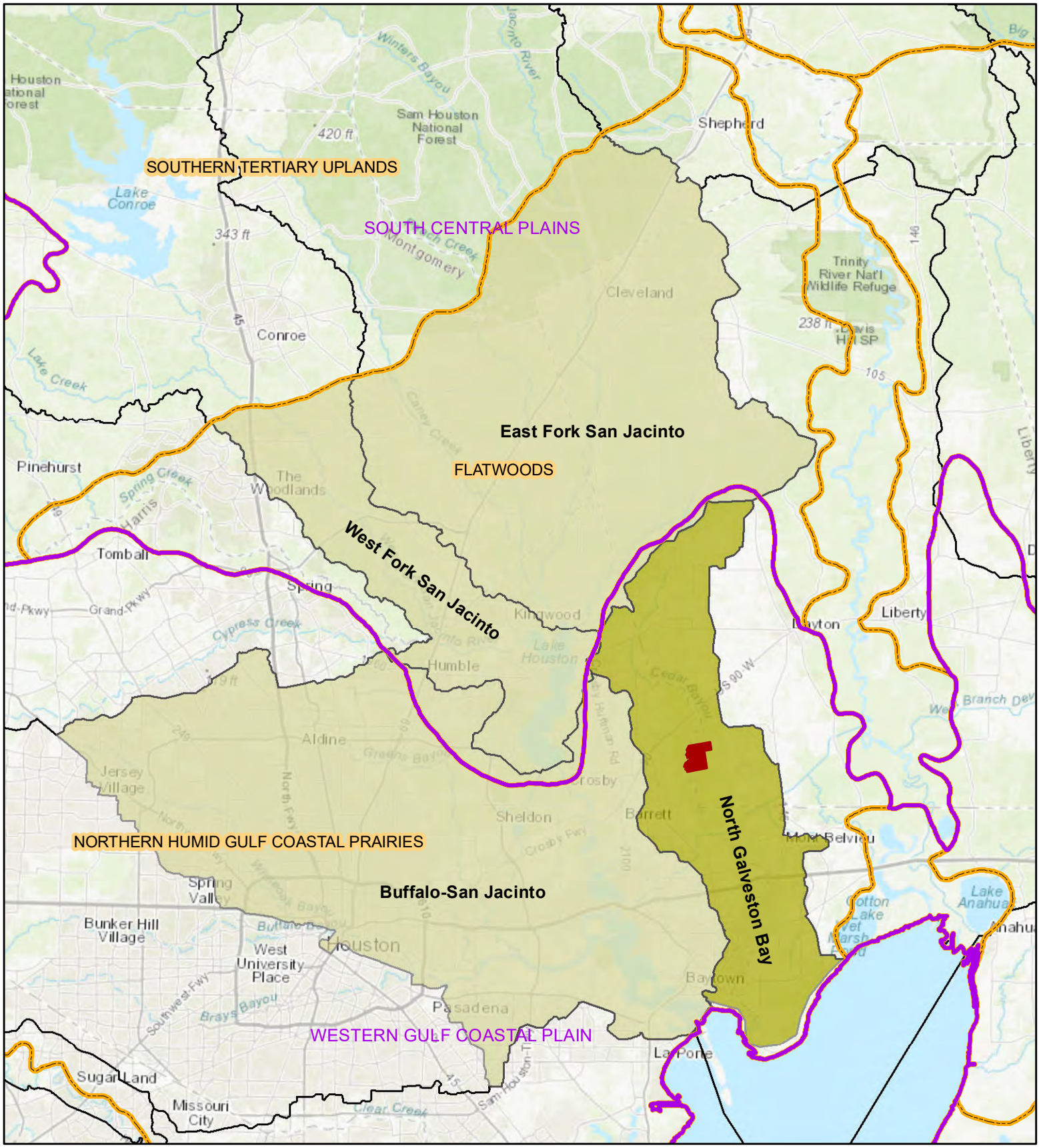
SSURGO SOILS MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F11_Soils.mxd	

DELTA LAND SERVICES

FIGURE 11



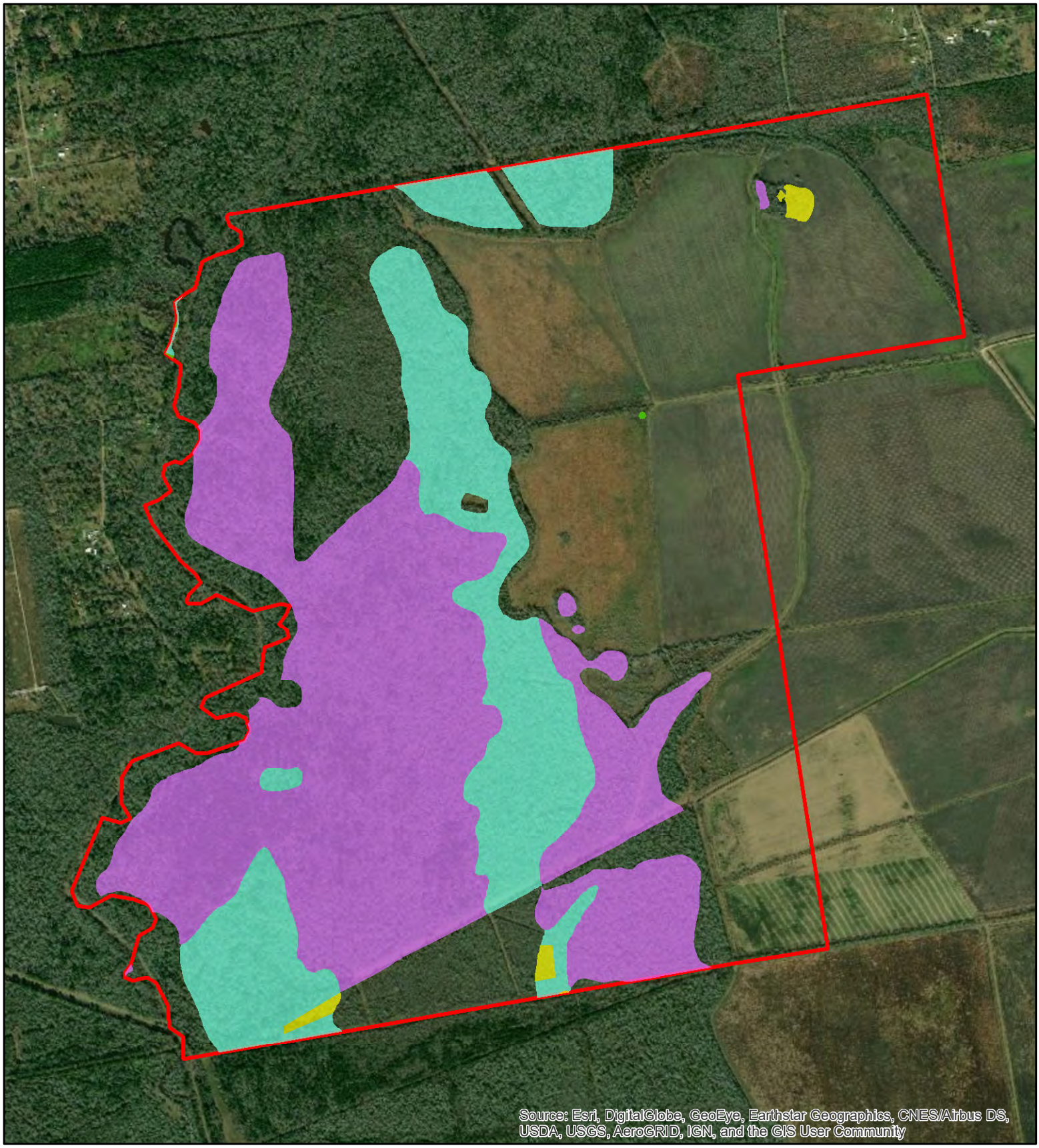
McCoy Ranch Mitigation Bank

SERVICE AREA MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: BWD	
Date : 02/11/2019	
Map No. : F12_ServiceArea.mxd	

FIGURE 12



Project Area (1297.0 ac)
PEM
PFO
PSS
PUB

0 650 1,300 2,600
Feet

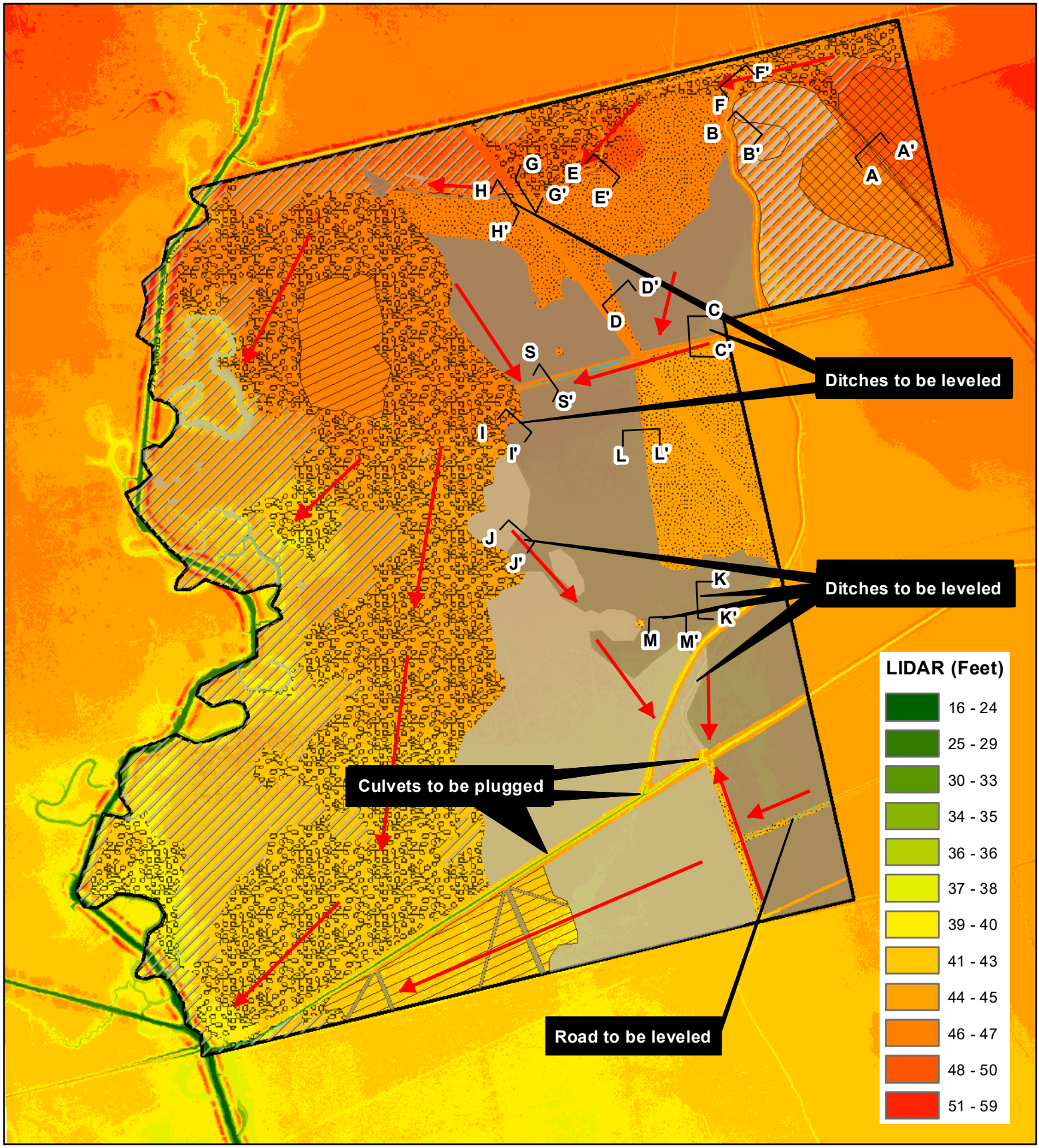
McCoy Ranch Mitigation Bank

NATIONAL WETLAND INVENTORY

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F13_NWI.mxd	

FIGURE 13



Project Area (1297.0 ac)
RF Enhancement (57.4 ac)
RF Preservation (173.5 ac)
RF Preservation Mosaic (197.8 ac)*
RF Re-establishment (116.0 ac)
Hydrology flow

RHS Rehabilitation (44.2 ac)
RF Rehabilitation (223.8 ac)
RHS Re-establishment (40.1 ac)
Other Waters (0.9 ac)
Non-wetland buffer (209.8 ac)

*Note: the Mosaic includes wetland acres only, total Mosaic is 386.9 acres

N

0 600 1,200 2,400
Feet

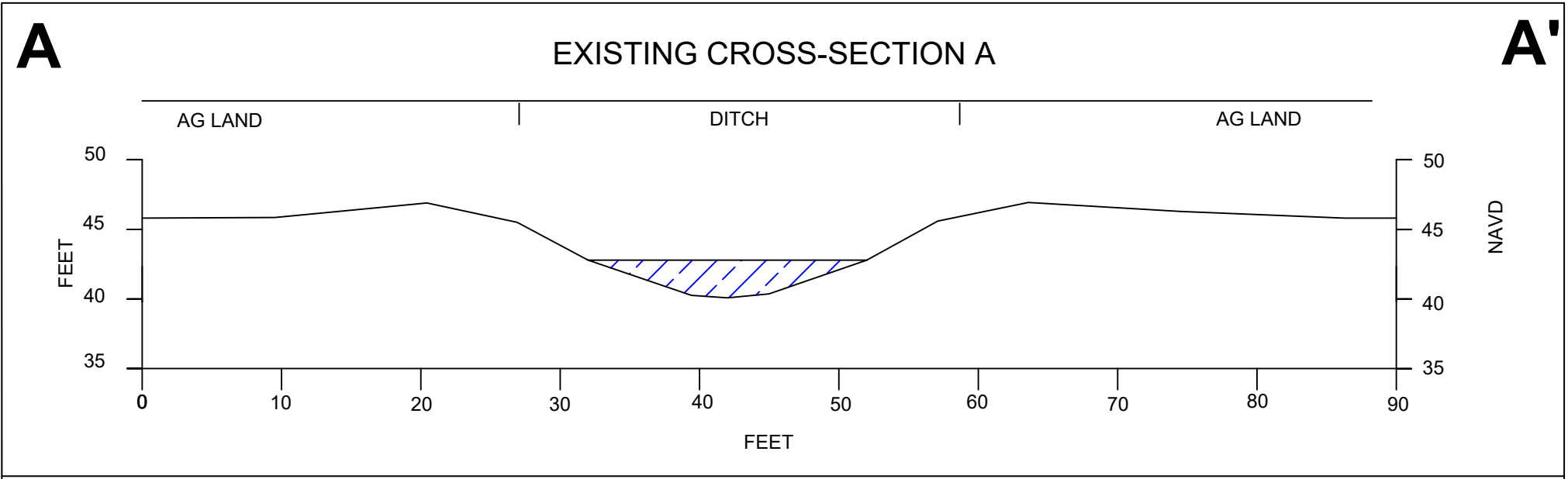
McCoy Ranch Mitigation Bank

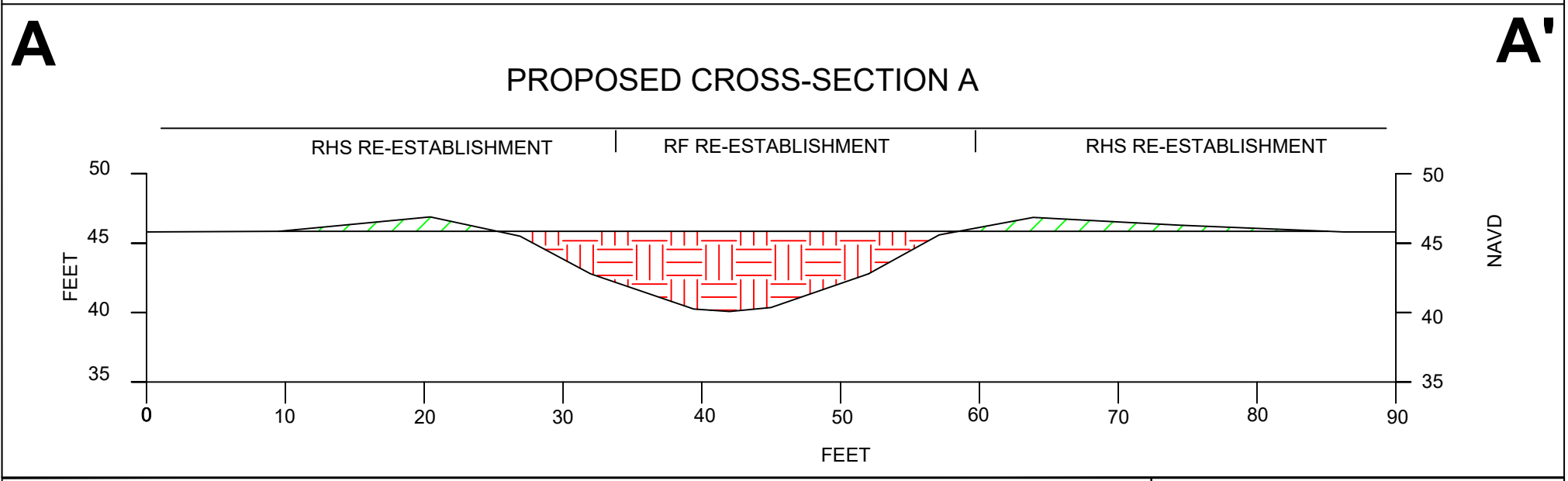
HYDROLOGY PLAN VIEW WITH PRELIMINARY HYDROLOGIC IMPROVEMENTS

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 05/04/2020	
Map No. : F14_Planviewmxd	

FIGURE 14





Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

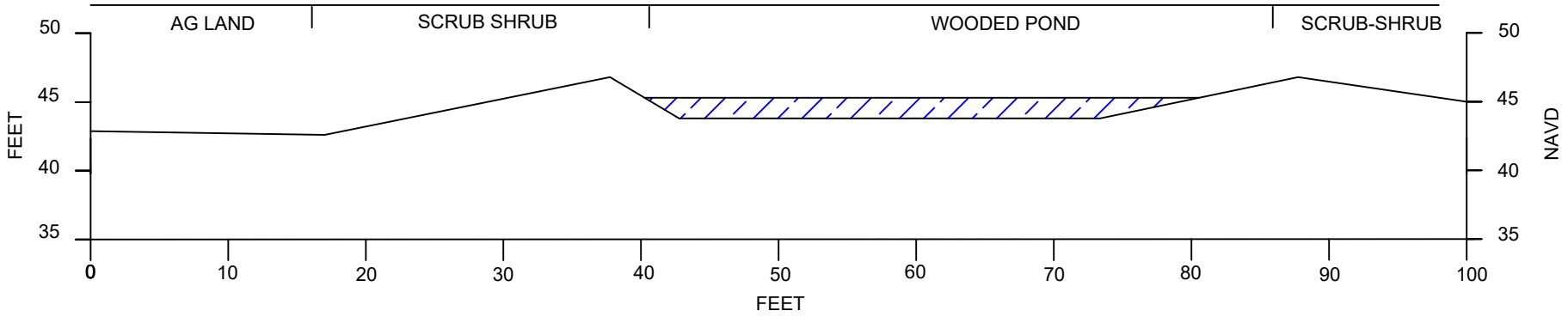
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-A

B

B'

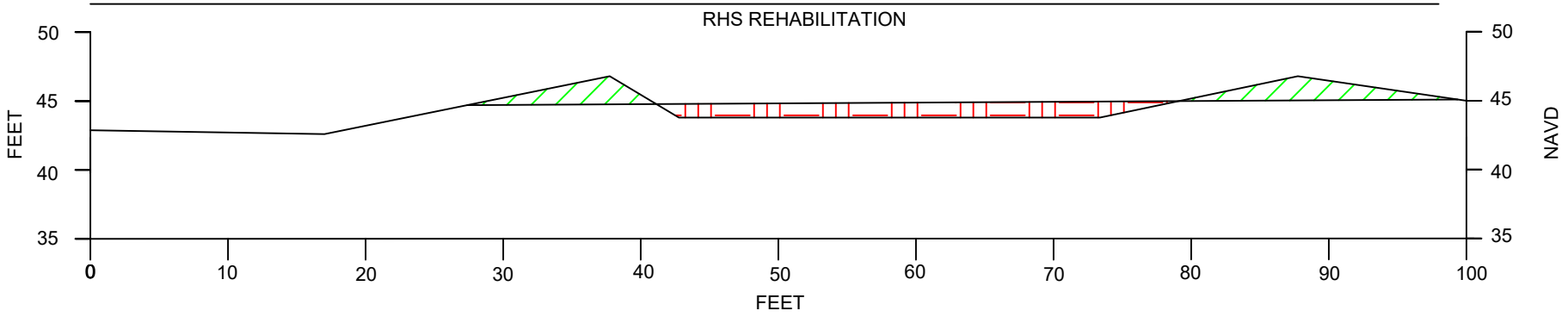
EXISTING CROSS-SECTION B



B

B'

PROPOSED CROSS-SECTION B



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

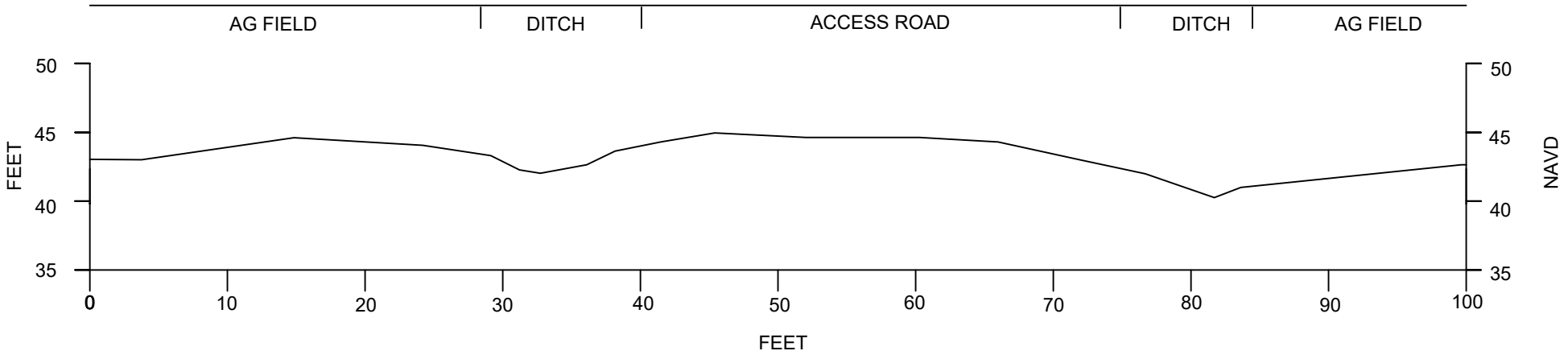
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-B

C

C'

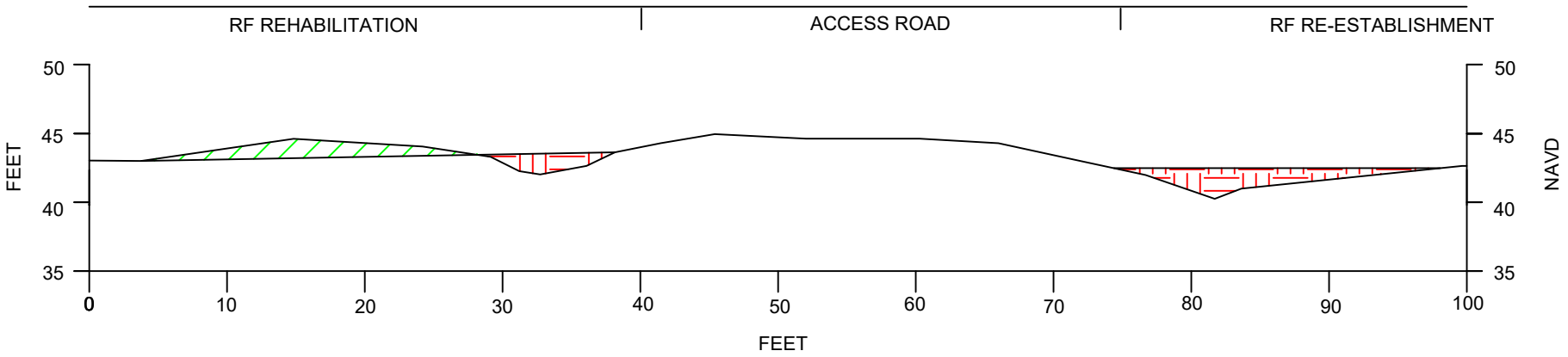
EXISTING CROSS-SECTION C



C

C'

PROPOSED CROSS-SECTION C



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

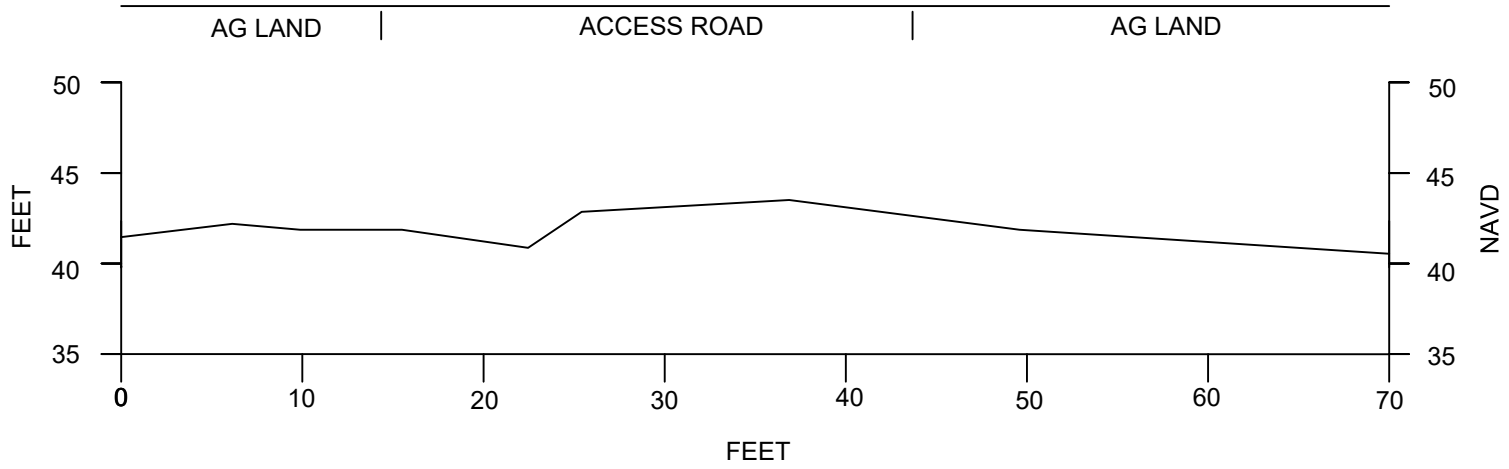
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-C

D

EXISTING CROSS-SECTION D

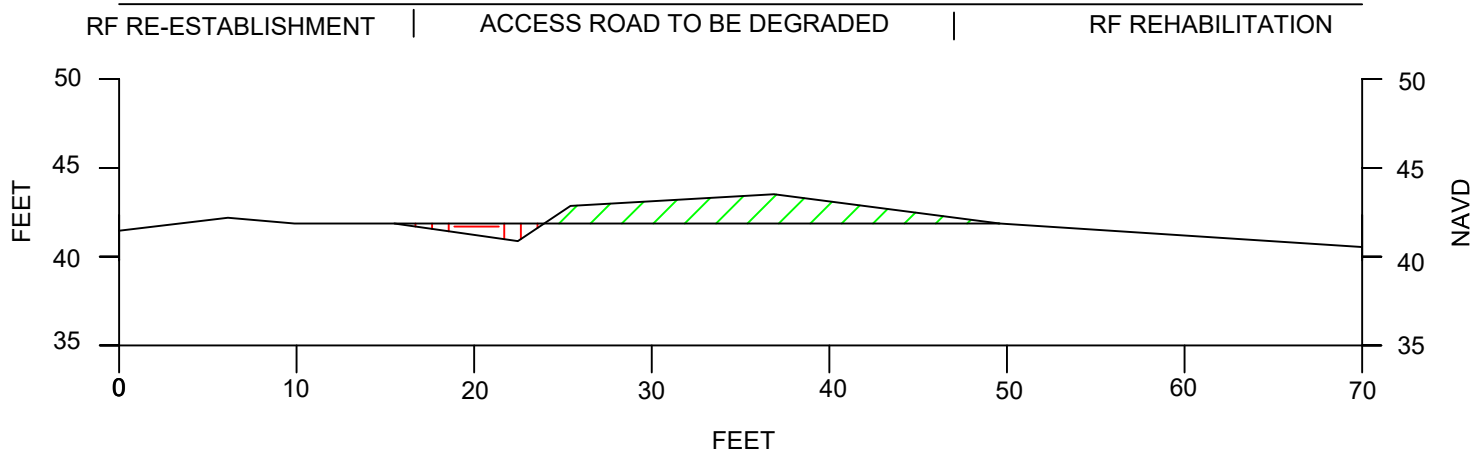
D'



D

PROPOSED CROSS-SECTION D

D'



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

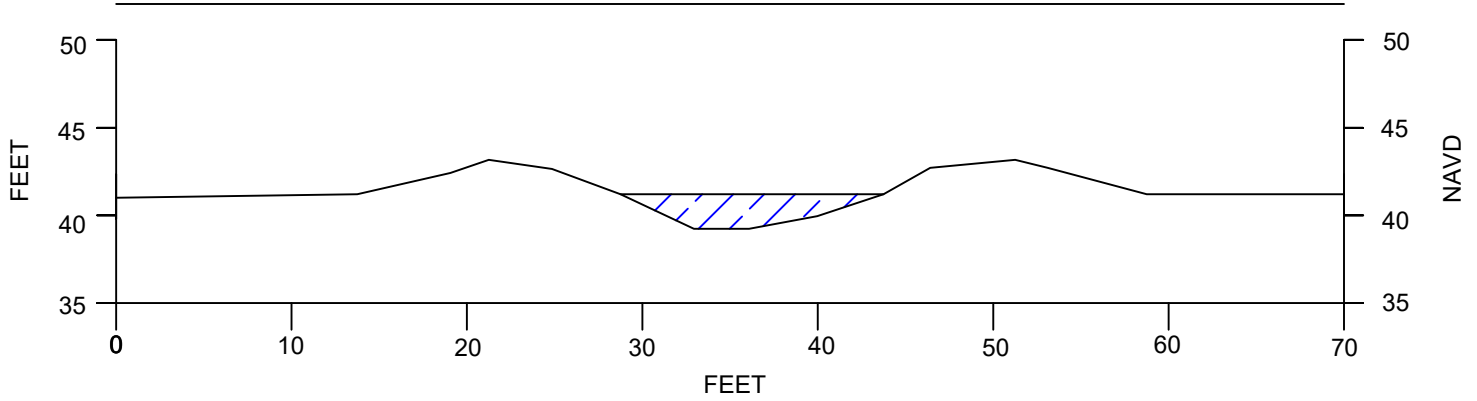
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-D

E

E'

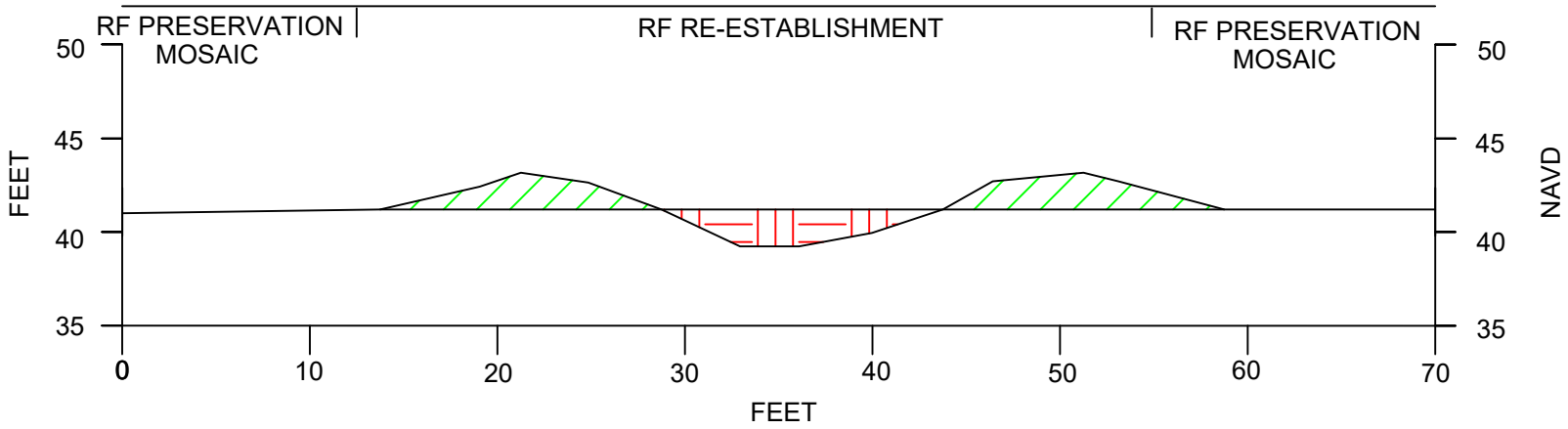
EXISTING CROSS-SECTION E



E

E'

PROPOSED CROSS-SECTION E



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

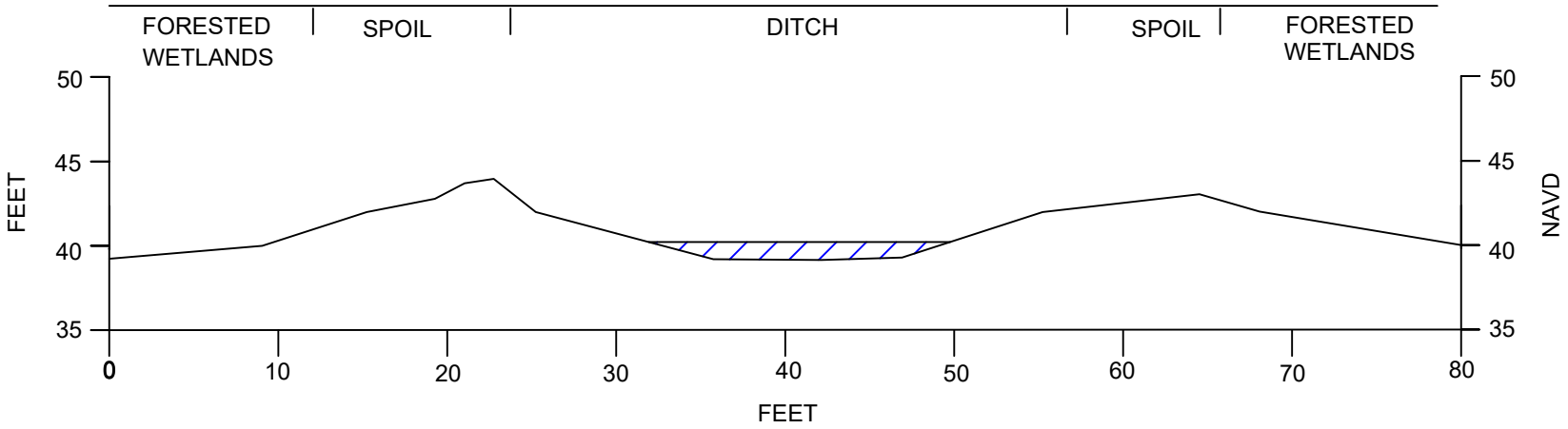
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-E

F

F'

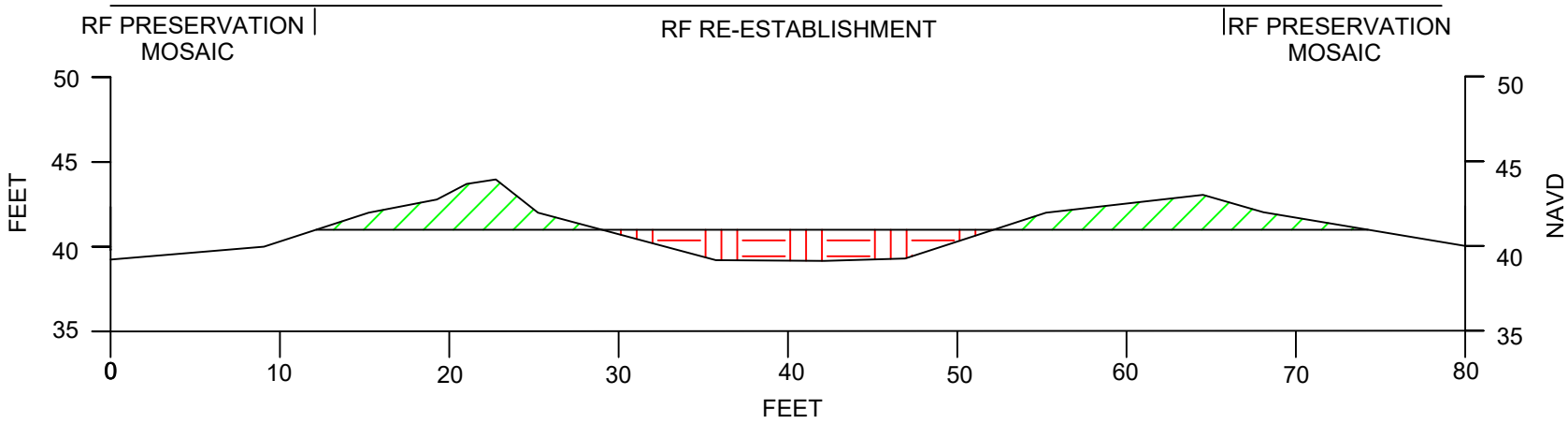
EXISTING CROSS-SECTION F



F

F'

PROPOSED CROSS-SECTION F



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

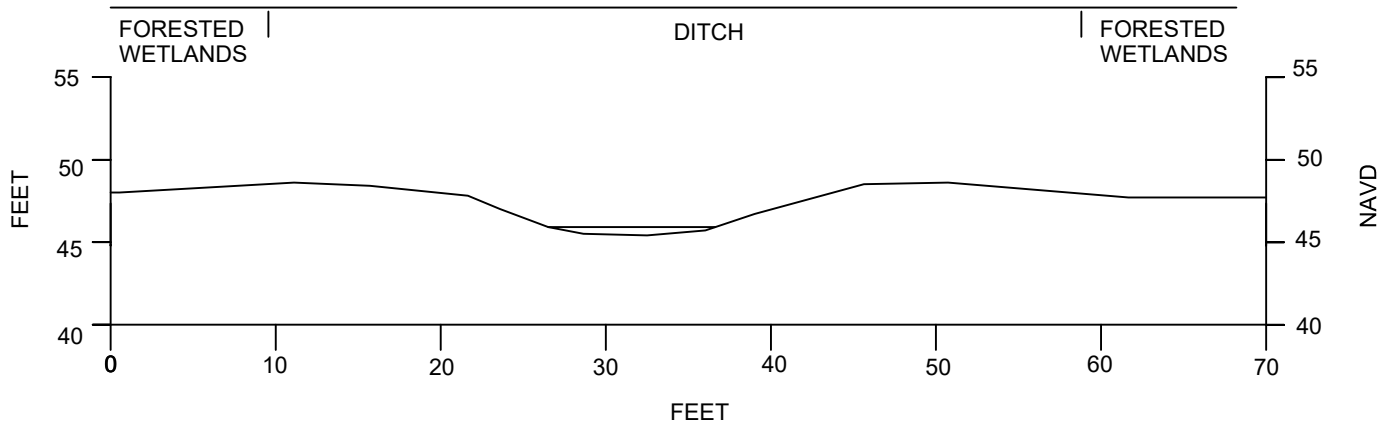
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-F

G

G'

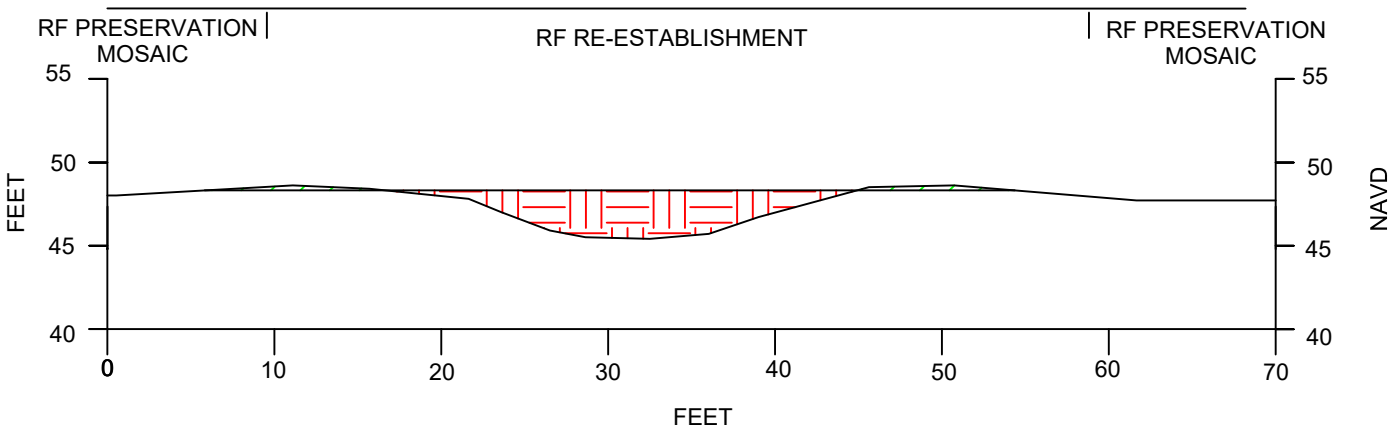
EXISTING CROSS-SECTION G



G

G'

PROPOSED CROSS-SECTION G



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

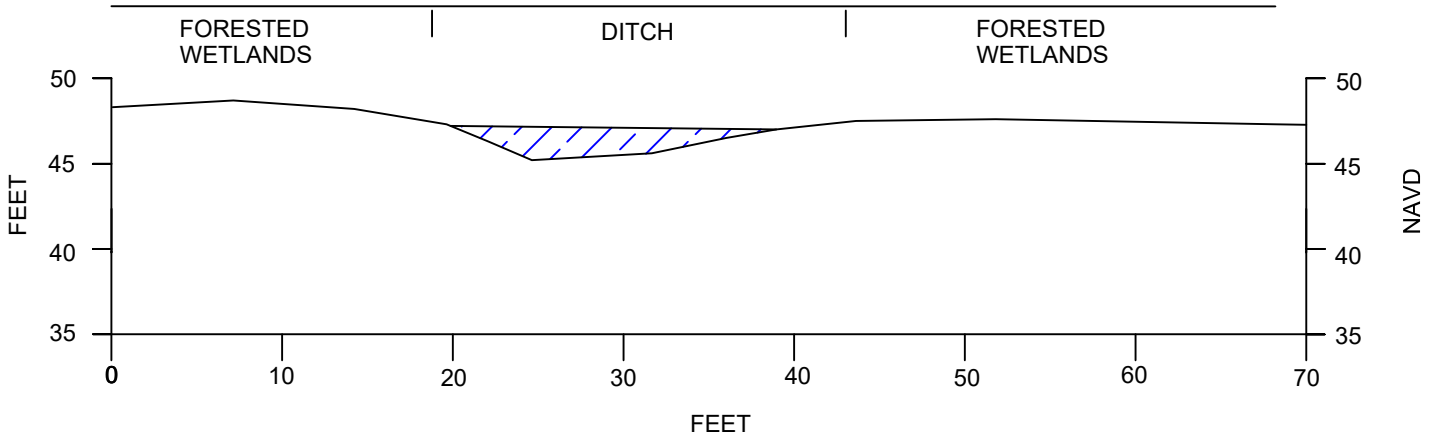
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-G

H

H'

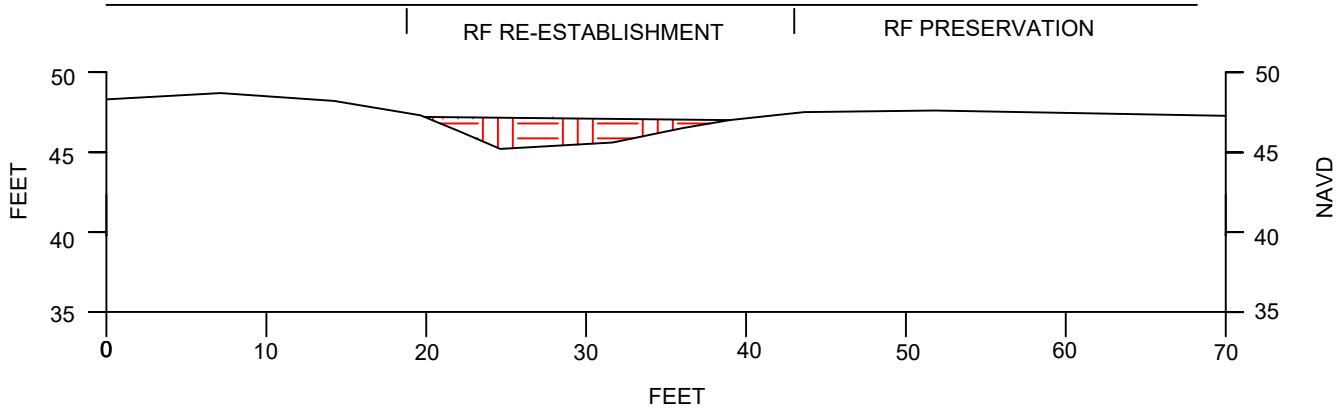
EXISTING CROSS-SECTION H



H

H'

PROPOSED CROSS-SECTION H



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

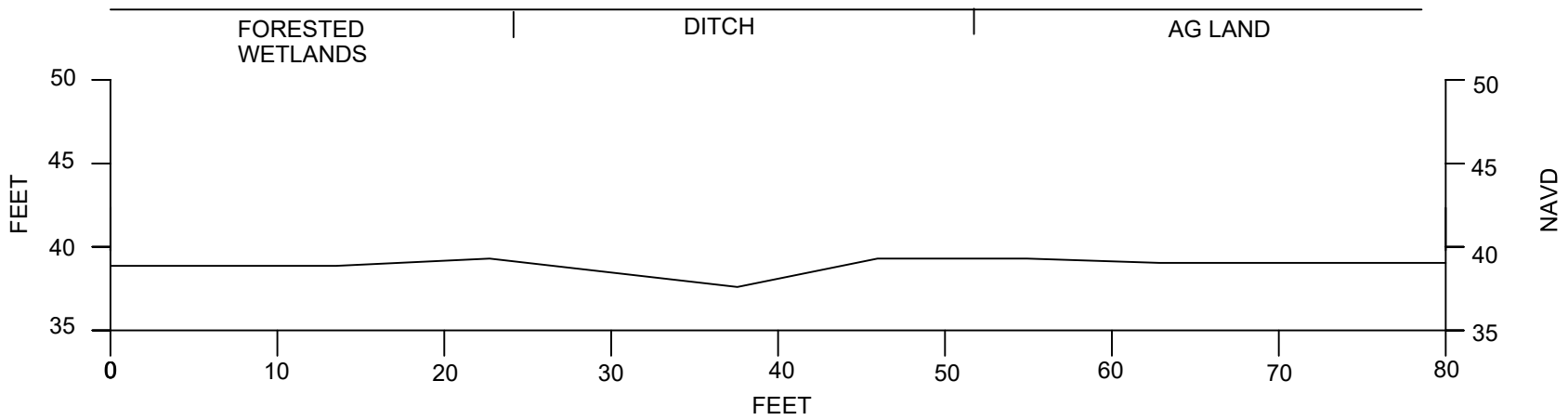
EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

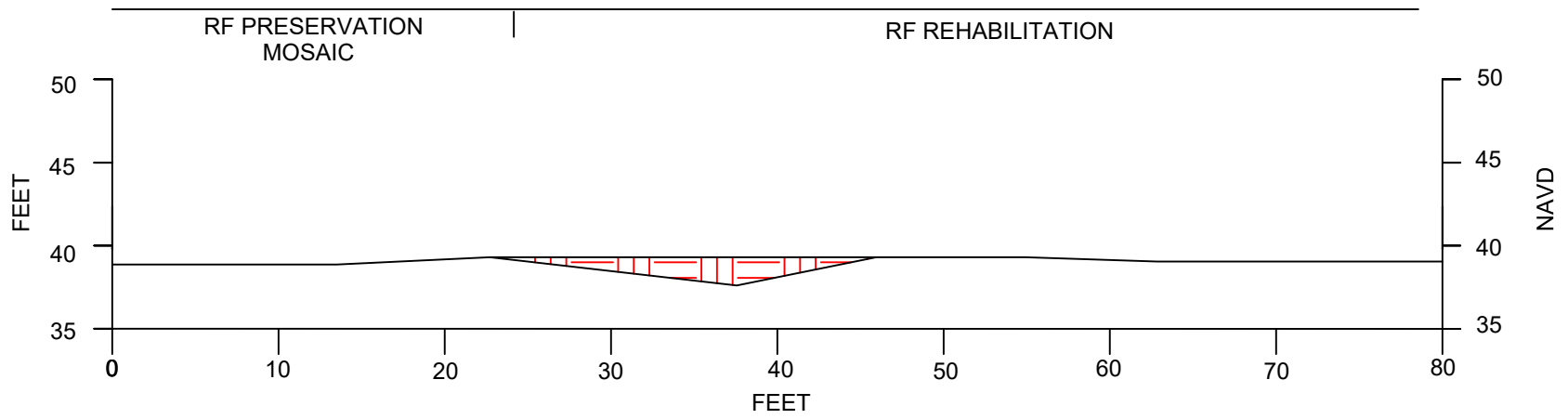
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-H

EXISTING CROSS-SECTION I



PROPOSED CROSS-SECTION I



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

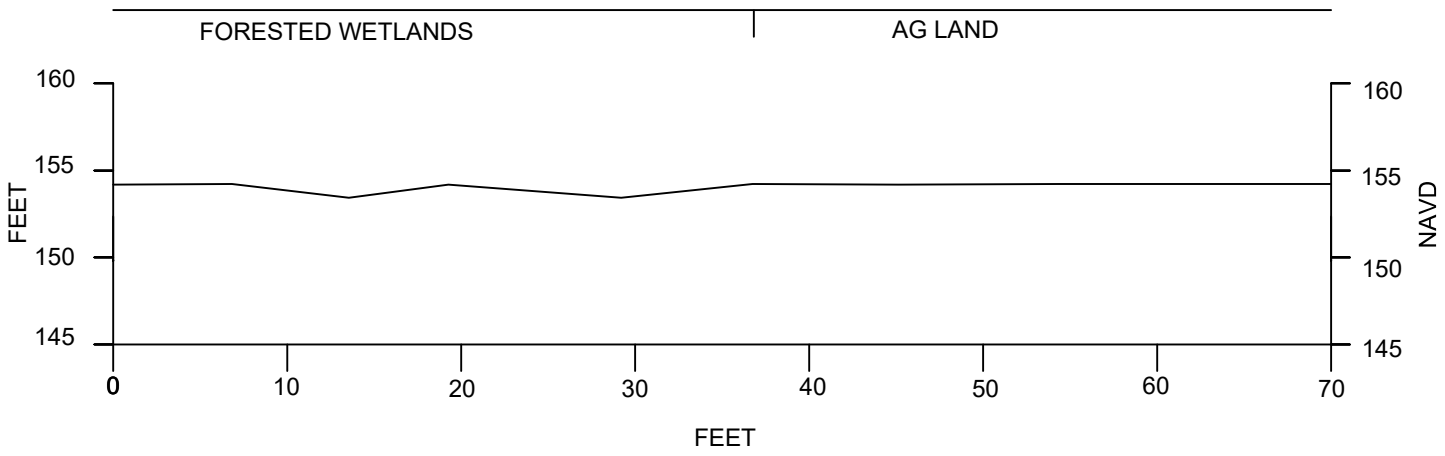
EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

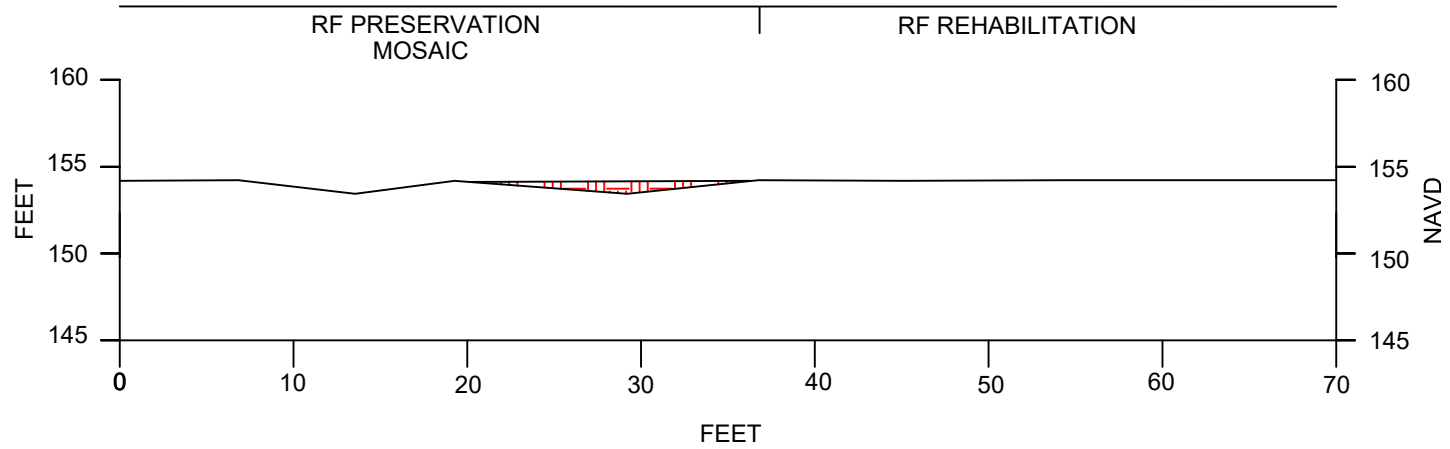
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-I

EXISTING CROSS-SECTION J



PROPOSED CROSS-SECTION J



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

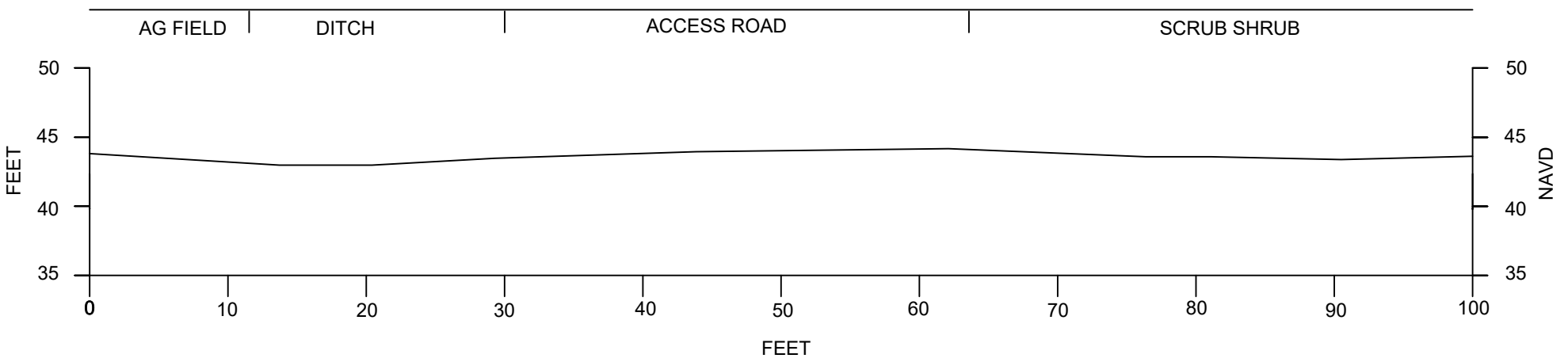
EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

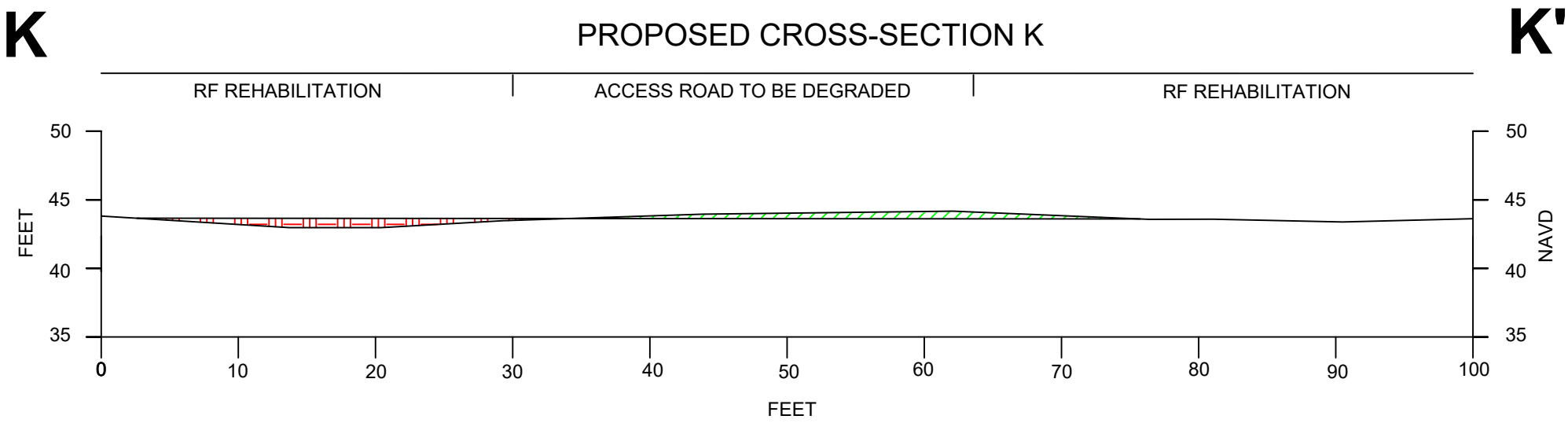
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-J

EXISTING CROSS-SECTION K



PROPOSED CROSS-SECTION K



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

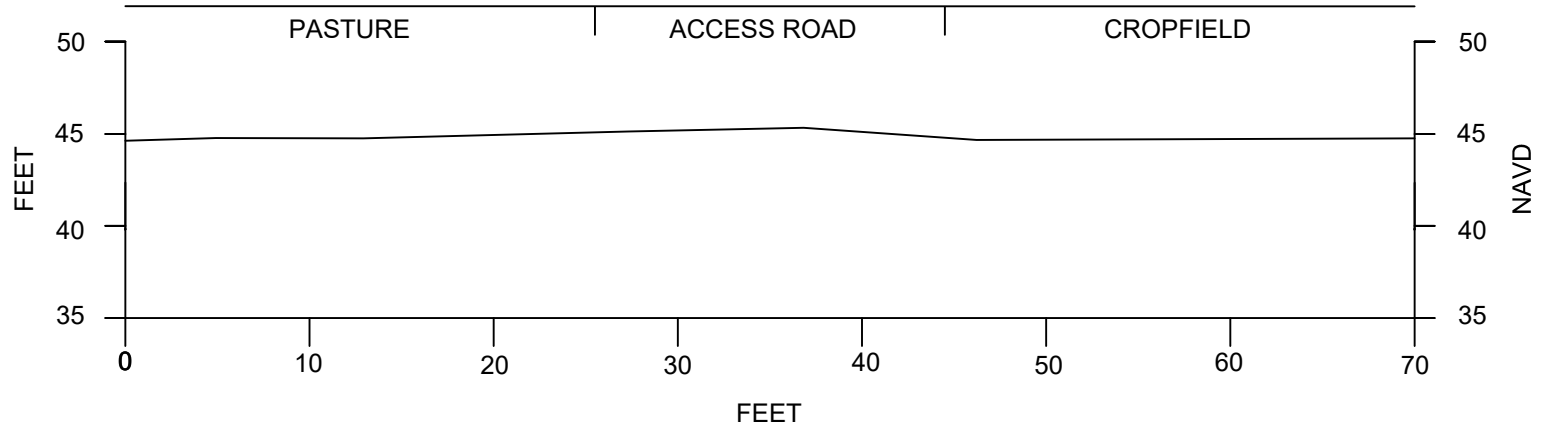
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-K

L

EXISTING CROSS-SECTION L

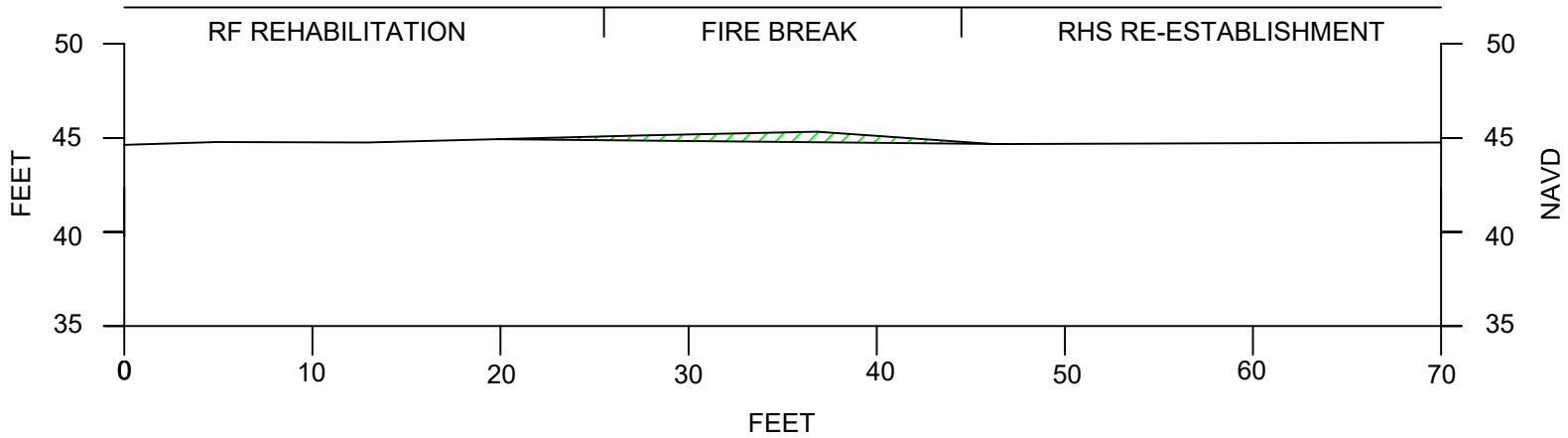
L'



L

PROPOSED CROSS-SECTION L

L'



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

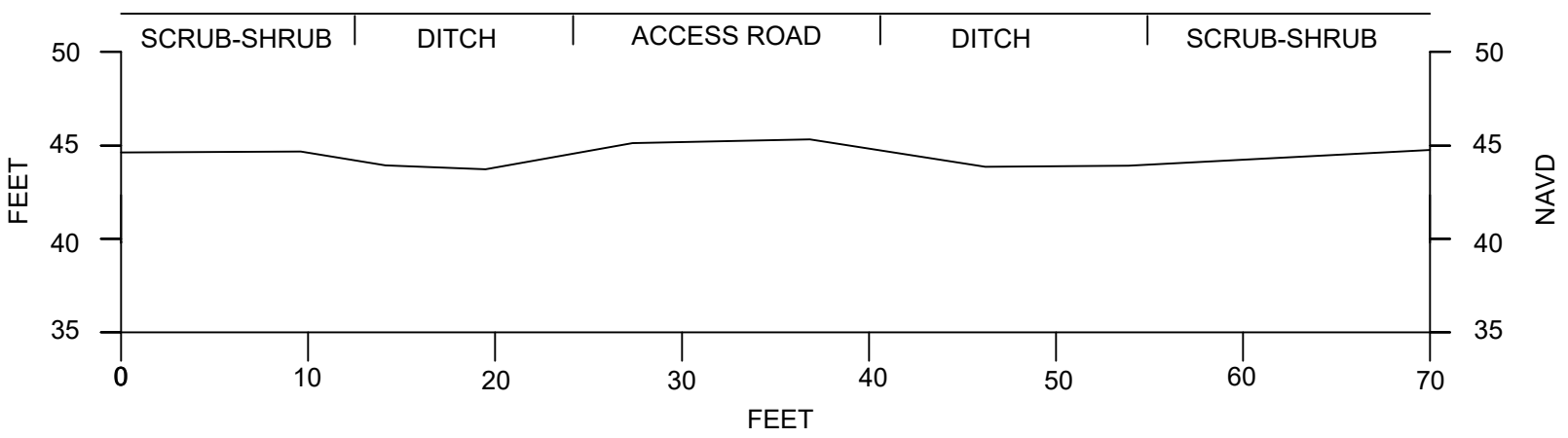
Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-L

M

EXISTING CROSS-SECTION M

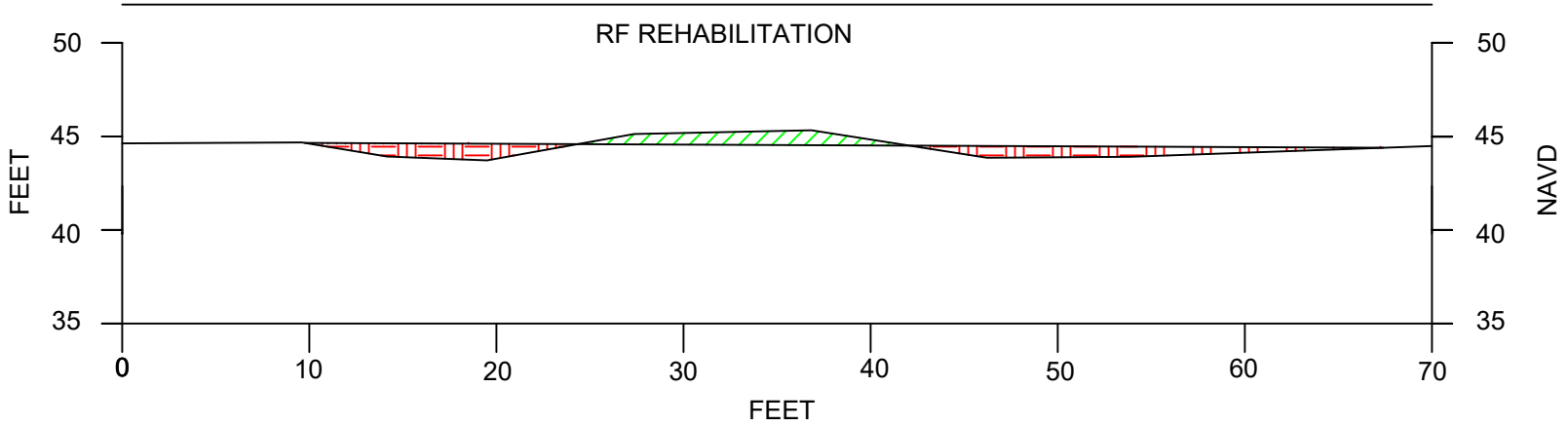
M'



M

PROPOSED CROSS-SECTION M

M'



Proposed Excavation

Proposed Earthen Fill

Existing Water

McCoy Ranch Prospectus

EXISTING CONDITION AND PROPOSED CONDITION

Cameron County, TX

Created:	HJS/AutoCAD
Approved:	CB
Date:	10/11/19
Dwg. No.:	McCoyXSection.dwg

FIGURE 14-M

Appendix B
Approved Jurisdictional Determination and Wetland Summary Table

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

March 13, 2020

Compliance Branch

SUBJECT: **SWG-2018-00742**; Delta Land Services, LLC. Approved Jurisdictional Determination, 1,318-Acre Tract, Crosby, Liberty County, Texas

Mr. Chris Little
DESCO
26902 Nichols Sawmill
Magnolia, Texas 77355

Dear Mr. Little:

This letter is in response to the DESCO request, on behalf of the Delta Land Services, LLC, received on July 17, 2018, for an approved jurisdictional determination on a 1,318-acre tract. The site is located approximately four miles east of Crosby, Liberty County, Texas.

Based on the review of the information provided, our site visits, and off-site data, we determined that there are thirty-two wetlands plus the wetlands in fifty-one percent of the mosaic area on the site totaling approximately 710.1 acres. These wetlands were identified using the Regional Supplement to the 1987 Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), which requires under normal circumstances, a predominance of hydrophytic vegetation, hydric soils, and sufficient hydrology at/or near the surface for adequate duration and frequency to support this aquatic ecosystem.

We determined that nineteen of the wetlands; specifically, Wetland 5, Wetland 12, Wetland 13, Wetland 14, Wetland 15, Wetland 16, Wetland 17, Wetland 18, Wetland 19, Wetland 20, Wetland 22, Wetland 24, Wetland 25, Wetland 26, Wetland 27, Wetland 28, Wetland 29, Wetland 30, Wetland 31, plus a portion of the mosaic wetland totaling 258.3 acres have a significant nexus to the downstream Traditional Navigable Water, Cedar Bayou, and are waters of the United States subject to Section 404.

In addition, we determined that thirteen of the wetlands, specifically, Wetland 1, Wetland 2, Wetland 3, Wetland 4, Wetland 6, Wetland 7, Wetland 8, Wetland 9, Wetland 10, Wetland 11, Wetland 21, Wetland 23, Wetland 32, plus the southern portion of the mosaic wetland totaling 451.8 acres are adjacent to the Traditional Navigable Water, Cedar Bayou, and are waters of the United States subject to Section 404. Any discharge of dredged and/or fill material into the thirty-three wetlands require a Department of the Army permit.

We also determined that there is approximately 9,902 linear feet of the Unnamed Tributary to Cedar Bayou is within the project area. This non-navigable tributary is a relatively permanent water which flows either directly or indirectly into a traditional navigable water, Cedar Bayou; therefore, this tributary is a water of the United States subject to Section 404 of the Clean Water Act. Any discharge of dredged and/or fill material into this tributary would require a Department of the Army permit.

Areas of Federal Interests (federal projects, and/or work areas) may be located within this proposed project area. Any activities in these federal interest areas would also be subject to federal regulations under the authority of Section 14 of the Rivers and Harbors Act (aka Section 408). Section 408 makes it unlawful for anyone to alter in any manner, in whole or in part, any work (ship channel, flood control channels, seawalls, bulkhead, jetty, piers, etc.) built by the United States unless it is authorized by the Corps of Engineers (i.e., Navigation and Operations Division).

This determination has been conducted to identify the limits of the United States Army Corps of Engineers (USACE) CWA jurisdiction for the site identified in this request. However, this determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985 as amended. If you or your tenant are USDA program participants or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

This letter contains an AJD for your subject site. If you wish to appeal the AJD, please see the enclosed sheets regarding the administrative appeal process for jurisdictional determinations: Notification of Appeals Process (NAP) fact sheet and Request for Appeal (RFA) form. If you object to this determination, you may request an administrative appeal under USACE regulations at 33 CFR Part 331. If you request to appeal this determination, you must submit a completed RFA form to the Southwestern Division Office at the following address:

Mr. Elliott Carman
Appeal Review Officer, CESWD-PD-O
U.S. Army Corps of Engineer Division,
Southwestern
1100 Commerce Street, Room 831
Dallas, Texas 75242-1731
Telephone: 469-487-7061; FAX: 469-487-7199

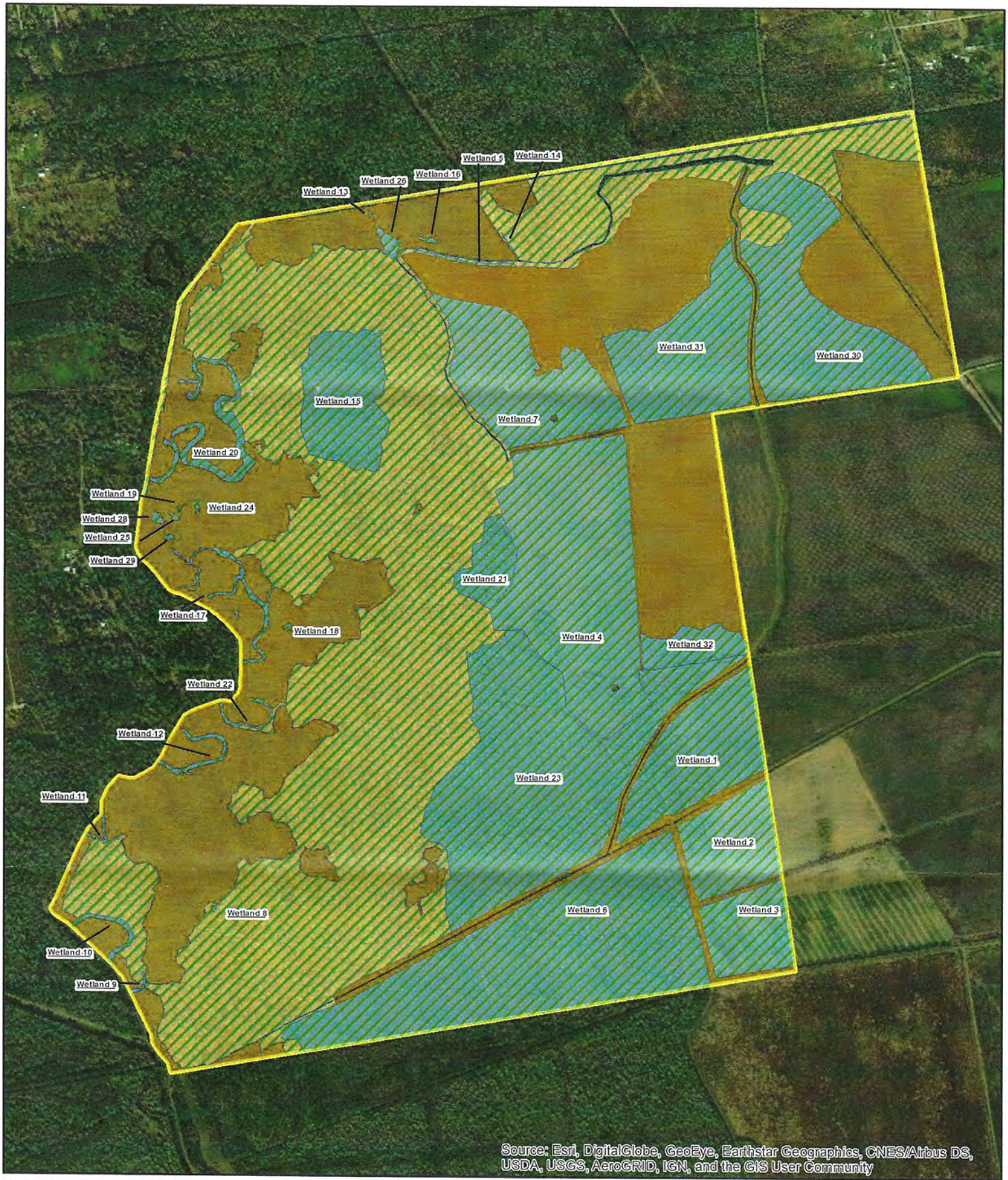
In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within **60 days** of the date of the NAP; noting the letter date is considered day 1. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

This AJD is valid for 5 years from the date of this letter unless new information warrants a revision prior to the expiration date. If you have any questions concerning this jurisdictional determination, please reference file number **SWG-2018-00742** and contact Ms. Lynne Ray at the letterhead address or by telephone at 409-766-6322. To assist us in improving our service to you, please complete the survey found at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0 and/or if you would prefer a hard copy of the survey form, please let us know, and one will be mailed to you.

Sincerely,

John Davidson
Team Lead
Compliance Branch

Enclosures



Legend

- Property Boundary - 1,318.48 acres
- Mosaic - 402.18 acres
- OHWM - 1.80 acres
- Non-Wetlands - 405.18 acres
- Wetlands - 501.45 acres

Figure 11: 2016 NC Delineation Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

SWG 2018 - 00742

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: January 2, 2020

1:15,040

DESCO

0 0.05 0.1 0.2 Miles

Table B-1. Verified Wetland Acreages by Restoration and WAA Type

Wetland ID	Verified Feature	Verified Acres*	Restoration Type	WAA
Wetland 1	PEM/PFO	29.66	RF Rehab	WAAs 7 & 8[1]
Wetland 2	PEM	19.37	RF Rehab	WAA 7
Wetland 3	PEM	15.81	RF Rehab	WAA 7
Wetland 4	PFO/PEM	75.91	Preservation & RF Rehab	WAAs 3 & 7[2]
Wetland 5	PEM	0.54	RF Rehab	WAA 7
Wetland 6	PFO	93.34	RF Enhancement, Preservation, and RF Rehab	WAAs 1, 3, & 7[3]
Wetland 7	PEM	37.00	RF Rehab	WAA 7
Wetland 8	PFO	0.05	Preservation	WAA 3
Wetland 9	PFO	0.17	Preservation	WAA 4
Wetland 10	PFO	1.01	Preservation	WAA 4
Wetland 11	PFO	0.30	Preservation	WAA 4
Wetland 12	PFO	1.03	Preservation	WAA 4
Wetland 13	PFO	0.03	Preservation	WAA 4
Wetland 14	PEM	0.08	Non-Mitigation/ROW	NA
Wetland 15	PFO	24.37	RF Enhancement	WAA 1
Wetland 16	PFO	0.17	Preservation	WAA 3
Wetland 17	PFO	1.97	Preservation	WAA 4
Wetland 18	PFO	0.10	Preservation	WAA 3
Wetland 19	PFO	0.05	Preservation	WAA 4
Wetland 20	PFO	5.72	Preservation	WAA 4
Wetland 21	PFO	8.17	Preservation	WAA 3
Wetland 22	PFO	0.52	Preservation	WAA 4
Wetland 23	PFO	94.37	Preservation	WAA 3
Wetland 24	PFO	0.12	Preservation	WAA 4
Wetland 25	PFO	0.10	Preservation	WAA 4
Wetland 26	PEM	0.92	RF Rehab	WAA 7
Wetland 27	PFO	0.05	Preservation	WAA 4
Wetland 28	PFO	0.23	Preservation	WAA 4
Wetland 29	PFO	0.10	Preservation	WAA 4
Wetland 30	PEM	46.02	RHS Rehab	WAA 5
Wetland 31	PEM	36.33	RF Rehab	WAA 7
Wetland 32	PEM	7.84	RF Rehab	WAA 7
Mosaic/Wetland	PFO	208.71	Preservation and RHS Rehab	WAAs 2 and 6[4]

[1] - WAA 7 consist of active agricultural and WAA 8 has remained fallow with cattle grazing and tallow encroachment

[2] - WAA 3 consist of wetland forests and WAA 7 consists of active agricultural

[3] - WAA 1 consist of new growth timber with heavy tallow encroachment, WAA 3 consist of wetland forests, and WAA 7 consists of active agricultural

[4] - WAA 2 consist of moasic forested wetland and WAA 6 is an old pond that has been breached and encroached with tallow

* Acreages are based on USACE verification and not restoration acreages, delineation boundary is larger than Bank boundary, wetland totals may not match restoration totals

WETLAND DELINEATION REPORT
MCCOY 1,300 ACRE SITE, CROSBY
LIBERTY COUNTY, TEXAS

June 2018

PREPARED FOR:

DELTA LAND SERVICES

DELTA LAND SERVICES, LLC
1090 CINCLARE DRIVE
PORT ALLEN, LOUISIANA 70767

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WETLAND DELINEATION REPORT
MCCOY 1,300 ACRE SITE, CROSBY
LIBERTY COUNTY, TEXAS

1.0 INTRODUCTION

Delta Land Services, LLC contracted DESCO Environmental Consultants, LP. (DESCO) to conduct a wetland delineation within an approximate 1,318.48 acre project area referred to as the area of interest (AOI) throughout this report. The AOI is located west of FM 486 and east of Crosby, in Liberty County, Texas (**Figures 1 and 2**). The approximate site center is located at 29.932645° North and 94.95541° West. The purpose of this report is to identify areas within the AOI that may potentially be jurisdictional "waters of the U.S.," including wetlands as defined in 33 CFR 328.3(a).

Jurisdictional wetlands are regulated by the U. S. Army Corps of Engineers (USACE). Those wetlands are defined as "areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987). Jurisdictional wetlands as defined by the USACE (1987) are referred to as "wetlands" throughout this report.

Three mandatory technical criteria for determining the presence of a wetland are, with exceptions, (1) hydric soils, (2) hydrophytic vegetation, and (3) wetland hydrology. A hydric soil is defined as one that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (NRCS 2018). Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. When hydrophytic vegetation comprises a community where indicators of hydric soils and wetland hydrology also occur, the area has wetland vegetation. The term "wetland hydrology" encompasses the sum total of wetness characteristics in areas that are inundated or have saturated soils (USACE 1987).

Deepwater aquatic habitats are "areas that are permanently inundated at mean annual water depths greater than 6.6 feet or permanently inundated areas, less than or equal to 6.6 feet in depth that do not support rooted-emergent or woody plant species" (USACE 1987). These areas are referred to as "other waters of the U.S." in this report. Navigable waters are "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 CFR 329.4). Any area below the ordinary high water mark [33 CFR 328.3(e)] may fall under federal jurisdiction as a navigable water.

This Preliminary Jurisdictional Delineation was performed in accordance with the USACE standards and depicts the locations of potential jurisdictional waters of the U.S., including wetlands, within the project area.

2.0 PHYSIOGRAPHY, CLIMATE, AND SITE DESCRIPTION

The AOI is considered within the Atlantic and Gulf Coast Lowland Forest and Crop Region (LRRT) and the Western Gulf Coast Flatwoods Major Land Resource Area (MLRA 152B) (NRCS 2006). Natural topography within the AOI is flat to gently undulating with typical slopes ranging from 0 to 1%. Natural elevation ranges from 15 feet to approximately 50 feet North American Vertical Datum (NAVD). The Level III Ecoregion for this site is the South Central Plains (Western Gulf Coastal Plain) (#35) while the Level IV Ecoregion is considered within the Northern Humid Gulf Coastal Prairies (#34a) (Griffith et al. 2004). The surrounding land use is primarily rural homesites, agriculture fields, and cattle pasture.

The climate in Liberty County is hot and humid and is characterized by long hot summers and short mild winters. The average annual precipitation in this area is approximately 61 inches. Most of the rainfall occurs as frontal storms during the late fall, winter, and early spring, although an appreciable amount of precipitation can also occur as convective thunderstorms during the early part of the growing season and tropical systems in the summer and early fall. The average annual temperature is 68° F with a frost free period of up to 365 days (NRCS 2017b).

The AOI is predominately agriculture and forested land. Hydrology is primarily driven from precipitation and seasonal shallow water tables. Surface hydrology is drainage of higher elevation wetlands and uplands to area drainage ditches to north and south and then into Cedar Bayou on the western boundary of the AOI. The infiltraton rate of precipitation to the ground water table varies from moderately low to very low across the site varying with soil type.

DESCO conducted an analysis of historic aerial photography (imagery) of the AOI and surrounding area through Environmental Data Resources, Inc. (EDR®) Aerial Photo Decade Package. In the 1938 and 1944 imagery, the crop fields are cleared and appear to be in production. The drainage ditches along the northern boundary and in the sourthern portion of the AOI are present. In the 1953 imagery, it appears that Cedar Bayou was straightened and a portion of the banks (~100 ft. each side) was cleared with material mounded into berms on either side of the bayou. This action also likely created oxbow lakes and scars along the western boundary of the AOI as depicted on the 2008 Light Detection and Ranging (LiDAR) imagery in **Figure 3**. A small portion the forested area was cleared, potentially for a well pad site or some kind of work space. The 1966, 1973, and 1977 imagery show some recovery along the banks of Cedar Bayou, and the agricultural fields appear to be divided similarly to the way they are today. The 1989 imagery show a system of trails created within the forested area of the AOI.

The U.S. Fish and Wildlife Service (USFWS 2018) identified portions of the AOI as palustrine Forested (PFO); palustrine forested/shrub; and palustrine emergent (PEM) wetlands, per the Cowardin classification system (Cowardin et al. 1979) (**Figure 4**). The AOI is included in the 395-square mile North Galveston Bay Cataloguing Unit (USGS Hydrologic Unit Code [HUC] 12040203) (USGS 2017). The flow path of the drainage would be south through sheetflow and drainage channels to Cedar Bayou then south to the Upper Galveston Bay and Gulf of Mexico as depicted on the National Hydrologic Data (NHD) (**Figure 5**).

3.0 METHODS

The wetland delineation followed *on-site routine* field procedures as outlined by the USACE (1987) and subsequent Regulatory Guidance Letters (RGL). DESCO biologists conducted field investigations on May 2nd to 4th and 7th to 9th of 2018.

Twenty one data points were evaluated within the AOI. These data points were established primarily along three predetermined transects with the intent of capturing any change in plant community, hydrologic condition, and/or soil type. Additional data points were included outside of transects to further refine wetland/upland boundaries. Observations of soils, vegetation, and hydrology were made at each data point and recorded on routine wetland determination data sheets per the Atlantic and Gulf Coastal Plain (AGCP) Regional Supplement (USACE 2010). A total of 21 AGCP data sheets were completed to accurately describe conditions observed during the site investigation. The delineation maps and Appendix 1.1 table show each of the 21 data points and the corresponding habitat type used to describe conditions in AOI.

Soil samples were obtained by excavating an approximate 20 to 24 inch soil pit using a square-headed shovel. Soil color was determined by matching soil samples to color chips contained in a Munsell soil color chart. These samples were examined in the field for the presence of hydric soil indicators as described in the *NTCHS Field Indicators of Hydric Soils in the United States* (NRCS 2017a) and in the AGCP Regional Supplement (USACE 2010).

Vegetative species present in each data plot were recorded for each of the following vertical strata: tree canopy or individual trees; saplings and shrubs; and herbaceous layer. Percent cover for each dominant species was determined by ocular estimation. Dominant species were determined using the 50/20 rule outlined in the 1987 Delineation Manual (USACE 1987). Plant communities met hydrophytic vegetation criteria if a majority of dominant species from all strata were classified as obligate (OBL), facultative-wet (FACW) or facultative (FAC) species within the AGCP Region (Lichvar 2013). In areas where hydric soils and hydrology were present but hydrophytic communities were not dominant, the prevalence index was used to determine if the wetland vegetation criteria were met (USACE 2010).

Hydrology criteria were assessed based on observation of primary and/or secondary field indicators (USACE 2010). The hydrology criteria were met if one primary field indicator was observed or at least two secondary indicators were observed.

Data points and wetland areas/other waters were mapped and the global positioning system (GPS) locations were obtained (surveyed) using a Trimble® GeoXH 6000 GPS data collector. All GPS data were collected in accordance with USACE Galveston District policy regarding GPS data collected for wetland delineation efforts. Acreage was calculated by using geographic information systems (GIS). Digital photographs were taken of the plant community and soil profile at each data point.

4.0 RESULTS

4.1 Soils

All of the soil mapping units within the AOI are characterized as potentially having hydric components (NRCS 2017c and 2017d). Of the 21 data points sampled, 18 contained hydric soil indicators regardless of the map unit in which they were located. In 14 of these data points, Depleted Matrix (F3) was the hydric soil indicator observed. The generally silty loam soils found in the AOI are dense but do allow moderate groundwater flow through the soils. The soil types mapped in the AOI are depicted in **Figure 6** and listed in the following table:

Soil map units identified within the AOI based on SSURGO data (NRCS 2017c).

Symbol	Name	Ponding	Drainage Class	Hydric Criteria
LabA	Labelle clay loam, 0 to 1 percent slopes	No	Somewhat Poorly Drained	No
LeaA	League Clay, 0 to 1 percent slopes	No	Somewhat Poorly Drained	No
MofA	Mocarey-Yeaton complex, 0 to 1 percent slopes	No	Moderately Well Drained	No

4.2 Vegetation

The AOI consists of forested and agricultural land with wetland and upland pine mixed hardwoods, wetland and upland hardwood forests, wetland and upland herbaceous habitats, and crop fields. Vegetation nomenclature follows USDA, "*The PLANTS Database"* (NRCS 2017e).

Wetland Habitats

Palustrine forested wetlands occur on the AOI, which can be classified as bottomland hardwoods. The bottomland hardwoods can be further divided in to vegetation communities dominianted by oaks and those dominated by other hardwood species. Tree densities vary in different areas of the AOI, depending on hydrology, soil type, and landscape position.

Oak dominant mixed hardwood vegetation communities occur on elevations with temporarily to seasonally flooded or saturated hydrologic conditions. These forests are dominated by willow oak (*Quercus phellos*), water oak (*Quercus nigra*), bottomland post oak (*Quercus similis*) and cherry bark oak (*Quercus pagoda*). Other trees found in this vegetation community include American elm (*Ulmus americana*), slippery elm (*Ulmus alata*), and green ash (*Fraxinus pennsylvanica*). Some loblolly pine (*Pinus taeda*) may be present. Common shrubs in this vegetation community include small seedlings saplings of the dominant tree species, as well as dwarf palmetto (*Sabal minor*), deciduous holly (*Ilex decidua*), and yaupon holly (*Ilex vomitoria*). Ground cover density varies, but in general is very sparse within forested areas due to a mostly closed tree canopy and high density of dwarf palmetto. Common ground cover species include seedlings of tree and shrub species with few scattered herbaceous species.

Other mixed hardwood vegetation communities occur on elevations with temporarily to seasonally flooded or saturated hydrologic conditions. The canopy of these forest are largely dominated by Chinese tallow (*Triadica sebifera*), however green ash, red maple (*Acer rubrum*),

southern hackberry (*Celtis laevigata*), and American elm may be dominant as well. Willow oak is present in these vegetation communities, but is generally not dominant. Common shrubs include small seedlings saplings of the dominant tree species, as well as dwarf palmetto, deciduous holly, wax myrtle (*Morella cerifera*), and arrowwood (*Viburnum dentatum*). Common ground cover species include seedlings of tree and shrub species, caric sedges (*Carex* spp.), beaked sedges (*Rynchospora* spp.), flat top sedges (*Cyperus* spp.), sawtooth blackberry (*Rubus argutus*), St. Andrew's cross (*Hypericum hypericoides*), and tapered rosette grass (*Dichanthelium acuminatum*).

Wetland herbaceous vegetation communities (Palustrine emergent, PEM) occurs in lower elevation feral crop land and pastures. Dominant species within the wetland herbaceous vegetation communities include prairie dogshade (*Limnosciadium pumilum*), perennial rye grass (*Lolium perenne*), narrow-leaf carpet grass (*Axonopus fissifolius*), bog rush (*Juncus marginatus*), and broom-sedge *(Andropogon virginicus*). Other common species include caric sedges, beaked sedges, and flat top sedges.

Several agriculture fields (soybeans) are present within the AOI. Very little native vegetation is present. The fields have recently been plowed and planted with soybeans (*Glycine max*). At the time of data collection, the total ground cover was 3 to 5 percent. The sparse native vegetation included perennial rye grass and sedges.

Upland Habitats

Pine mixed hardwood and mixed hardwood vegetation communities are present within the AOI. Within these sample point locations the vegetation communities meet hydrophytic vegetation criteria, but were classified as uplands due to the lack of hydrologic and/or hydric soil indicators. The vegetation communities are very similar to the wetland forest described above; however species more upland in nature are present. These pine mixed hardwood and hardwoods forest can be further divided in to vegetation communities dominianted by oaks and those dominated by other hardwood species.

The oak dominat forest occassionally have loblolly pine present and may be present at high enough density to be co-dominant. Common oaks include willow oak, water oak, bottomland post oak, and southern red oak (*Quercus falcata*). Other common trees presemt include American elm, green ash, slippery elm, and cedar elm (*Ulmus crassifolia*). Common shrubs in this vegetation community include small seedlings saplings of the dominant tree species, as well as dwarf palmetto, yaupon holly, Chinese tallow, fringe tree (*Chionanthus virginicus*), and American beautyberry (*Callicarpa americana*). The ground cover in this forest is very sparse due to the nearly closed canopy and high density of dwarf palmetto. Common ground cover species include dwarf paletto, muscadine grape (*Vitis rotundifolia*), trumpet vine (*Campsis radicans*), Cherokee sedge (*Carex cherokeensis*), sawtooth blackberry, poison ivy (*Toxicodendron radicans*), and little head nutrush (*Scleria oligantha*), among others.

Other mixed hardwood vegetation communities are very dense thickets. These areas are dominated by slippery elm, American elm, southern hackberry, and red mulberry (*Morus rubra*). Common shrubs include dwarf palmetto, yaupon holly, arrowwood, red mulberry, and American beautyberry. The ground cover is very sparse in this vegetation community. This vegetation community has a dense vine presence. Vines include muscadine grape, green briars (*Smilax* spp.), pepper vine (*Ampelopsis arborea*), and Virginia creeper (*Parthenocissus quinquefolia*).

4.3 Hydrology

Within the AOI, the slight topography and general moderately drained soils cause runoff in the area to be slow to moderate. Much of the AOI runoff generally flows north to south. A significant portion of precipitation runoff is collected in slight depressions and oxbow lakes, which will hold surface water until it slowly percolates downward.

Much of the AOI does remain saturated for periods sufficient to support wetland hydrology. Of the 21 sample points, 15 points contained wetland hydrology indicators. Hydrologic indicators was the limiting factor in many of the non-wetland sample points. The most common primary indicators were oxidized rhizospheres (C3) and water stained leaves (B9). Common secondary indicators were the FAC-neutral test (D5) and crayfish burrows (C8).

5.0 CONCLUSION

Based on the field investigation as well as analysis of aerial imagery, soil, and LIDAR datasets, DESCO biologists observed approximately 898 acres of potentially jurisdictional features, as depicted within **Figures 7 through 11** and as identified within the Aquatic Resources Table below.

Wetland ID	Latitude	Longitude	Cowardin	Area/Acres
Wetland 1	3312084.10048	309065.455792	PFO	29.66
Wetland 2	3311807.95982	309170.465263	PEM	19.37
Wetland 3	3311534.70695	309224.736464	PEM	15.80
Wetland 4	3312639.70265	308688.80523	PEM	76.03
Wetland 5	3313725.28542	309263.198661	PFO	3.88
Wetland 6	3311451.14688	308578.755542	PFO	93.34
Ditches (OHWM)	3312689.926679	309058.6897950	NA	11.70
Oxbows	3312454.239127	307505.7760291	PFO	6.88
Mosaic/Wetland	3312508.540052	308026.4125305	PFO	422.04
Crop Fields*	3313320.091074	309213.9411056	NA	219.06*
Total Potentially Jurisdictional Features Delineated				**897.760**

*Cropfield acreage are included in the total potentially jurisdictional waters of the U.S. and wetlands.

These areas exist as a combination of herbaceous wetlands, forested wetlands, and relatively permanent waters (RPW) in the form of drainage ditches. DESCO biologists delineated 238.08 acres of wetlands, 11.70 acres of man made ditch channels measured at the Ordinary High Water Mark (OHWM), and 6.88 acres of oxbox lakes within the AOI. Biologists delineated a large mosaic area utilizing seven transects. The seven transects total 17,561.30 feet crossing the AOI in an east/west orientation with the exception of two shorter transects at the northern end of the property. The wetland distance along the seven transects equals 10,058.51 feet, which calculates to 57% and correlates to 422.04 acres of the 740.42 acres of total mosaic area. The

upland distance of the seven transects equals 7,502.79 feet, which calculates to 43% and correlates to 318.36 acres being upland in the mosaic area. Segments of the transects that are otherwise accounted for in other categories (i.e. wetlands, ditches, oxbows, uplands, or crop fields) are omitted from the totals to keep the calculations specific to wetland and upland segments in the mosaic area.

Although the crop fields (219.06 acres) do not meet all three wetland characteristics in their current state to be classified as potentially jurisdictional wetlands, the crops fields could be considered wetlands with disturbed and problematic vegetation and hydrology. The fields have been plowed and planted with soybeans over the last 80 years. Little native vegetation was observed to determine if hydrophitic vegetation is (or was) present. Any hydrologic indicators that would naturally occur have been disturbed from plowing. All of these crop fields have hydric soils present.

Upland vegetation communities and other upland areas including man made berms along the Cedar Bayou banks, roads, and the berms along the man made drainage ditches comprise 102.36 acres of the AOI. The soils examined through much the AOI revealed characteristics of hydric soils. Vegetation community analysis shows that most of these communities meet hydrophytic vegetation criteria, even in many of the upland areas. Any areas determined to be non-wetland were based on the lack of hydric soil indicators and hydrologic indicators as discussed in Section 3.0.

DESCO has preliminarily determined the USACE does have jurisdiction of the wetlands delineated within the AOI under the authority of the Clean Water Act, Section 404. These wetlands have a direct connection by way of the potentially jurisdictional drainage ditches that are flowing into Cedar Bayou (RPW) as depicted **Figure 5**. Cedar Bayou then flows downstream past Baytown to Trinity Bay, which is a traditionally navigable water of the U.S.

The USACE under the authority of the Clean Water Act, Section 404, and the Rivers and Harbor Act, Section 10, has the responsibility to make the final determination of the location and extent of jurisdictional wetlands and navigable waters on this property. This report represents the opinion of the investigators and should be considered preliminary until final concurrence is obtained from the USACE, Galveston District.

6.0 CITATIONS

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Griffith, G.E., S.A. Bryce, J.M. Omernik, J.A. Comstock, A.C. Rogers, B. Harrison, S.L. Hatch, and D. Bezanson. (2004). Ecoregions of Texas. U.S. Geological Survey, Reston, VA. Scale 1:2,500,000.

Revised January 2020 Aquatic Resource Table - McCoy 1,300 Acre Site, Liberty County, Texas

	Latitude	Longitude	Cowardin	Area/Acres
Wetland 1	3312084.100	309065.456	PEM/PFO	29.662
Wetland 2	3311807.960	309170.465	PEM	19.370
Wetland 3	3311534.707	309224.736	PEM	15.805
Wetland 4	3312640.269	308688.611	PFO/PEM	75.908
Wetland 5	3313617.284	308351.442	PEM	0.535
Wetland 6	3311451.147	308578.756	PFO	93.340
Wetland 7	3313221.967	308537.604	PEM	37.004
Wetland 8	3311597.342	307565.825	PFO	0.053
Wetland 9	3311352.722	307334.156	PFO	0.172
Wetland 10	3311523.112	307244.688	PFO	1.006
Wetland 11	3311827.429	307220.906	PFO	0.300
Wetland 12	3312078.319	307516.230	PFO	1.032
Wetland 13	3313755.572	308046.723	PFO	0.033
Wetland 14	3313659.174	308480.031	PEM	0.084
Wetland 15	3313185.758	307967.132	PFO	24.373
Wetland 16	3313681.926	308221.819	PFO	0.170
Wetland 17	3312570.434	307638.691	PFO	1.965
Wetland 18	3312474.407	307792.864	PFO	0.096
Wetland 19	3312843.446	307457.395	PFO	0.053
Wetland 20	3313075.314	307550.931	PFO	5.717
Wetland 21	3312671.746	308416.807	PFO	8.171
Wetland 22	3312203.899	307672.850	PFO	0.521
Wetland 23	3312015.579	308564.564	PFO	94.373
Wetland 24	3312849.175	307508.963	PFO	0.120
Wetland 25	3312817.103	307440.332	PFO	0.103
Wetland 26	3313669.105	308101.431	PEM	0.922
Wetland 27	3312517.695	307631.224	PFO	0.045
Wetland 28	3312810.725	307386.680	PFO	0.230
Wetland 29	3312752.060	307423.526	PFO	0.100
Wetland 30	3313471.711	309411.535	PEM	46.023
Wetland 31	3313335.009	309037.374	PEM	36.327
Wetland 32	3312419.781	309044.019	PEM	7.835
Ditches and Ponds (OHWM)	3313209.174	308872.422	NA	9.67
Mosaic/Wetland	3312557.018	308072.924	PFO	208.71
Total Potentially Jurisdictional Features Delineated				**719.83**

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Figures

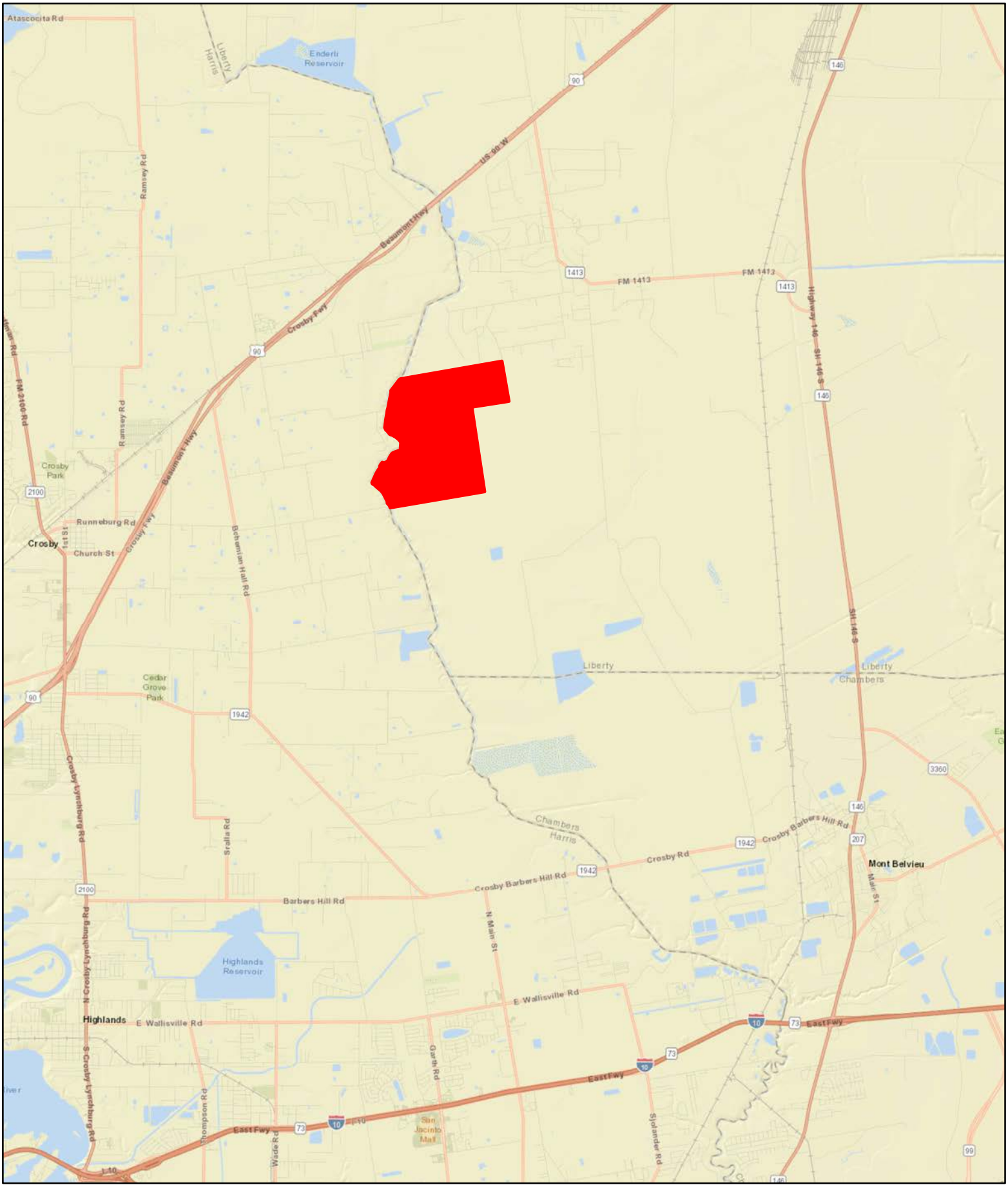

Figure 1: Vicinity Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Legend

Property Location - 1,318.48 acres

Map Base: ERSI World Streetmap
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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DESCO

0 0.5 1 2 Miles

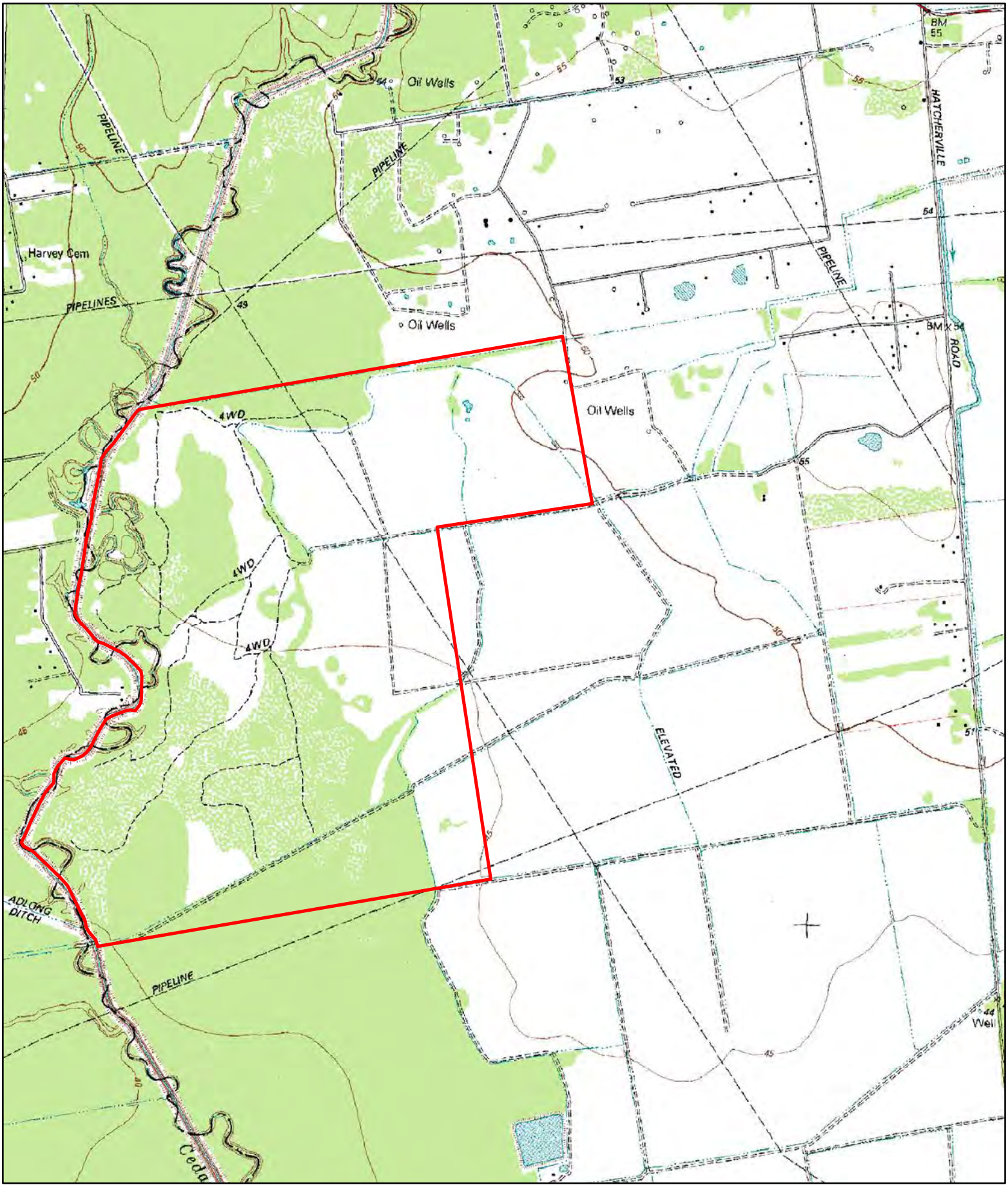

Figure 2: Project Area Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Legend

Property Location - 1,318.48 acres

Map Base: ERSI World Streetmap
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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DESCO

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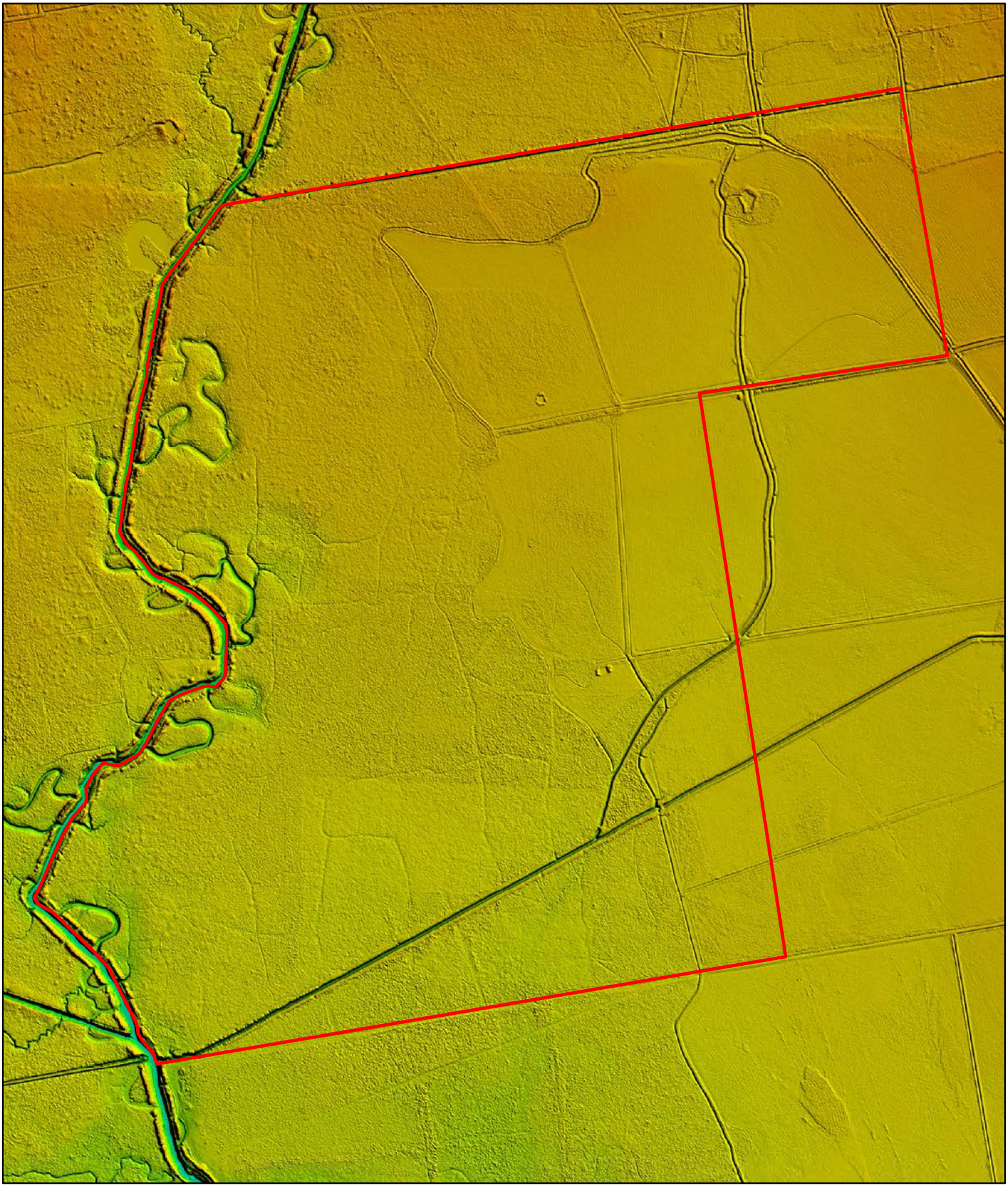

Legend

Property Boundary

Figure 3: 2008 LiDAR Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: HGAC 2008 LiDAR from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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DESCO

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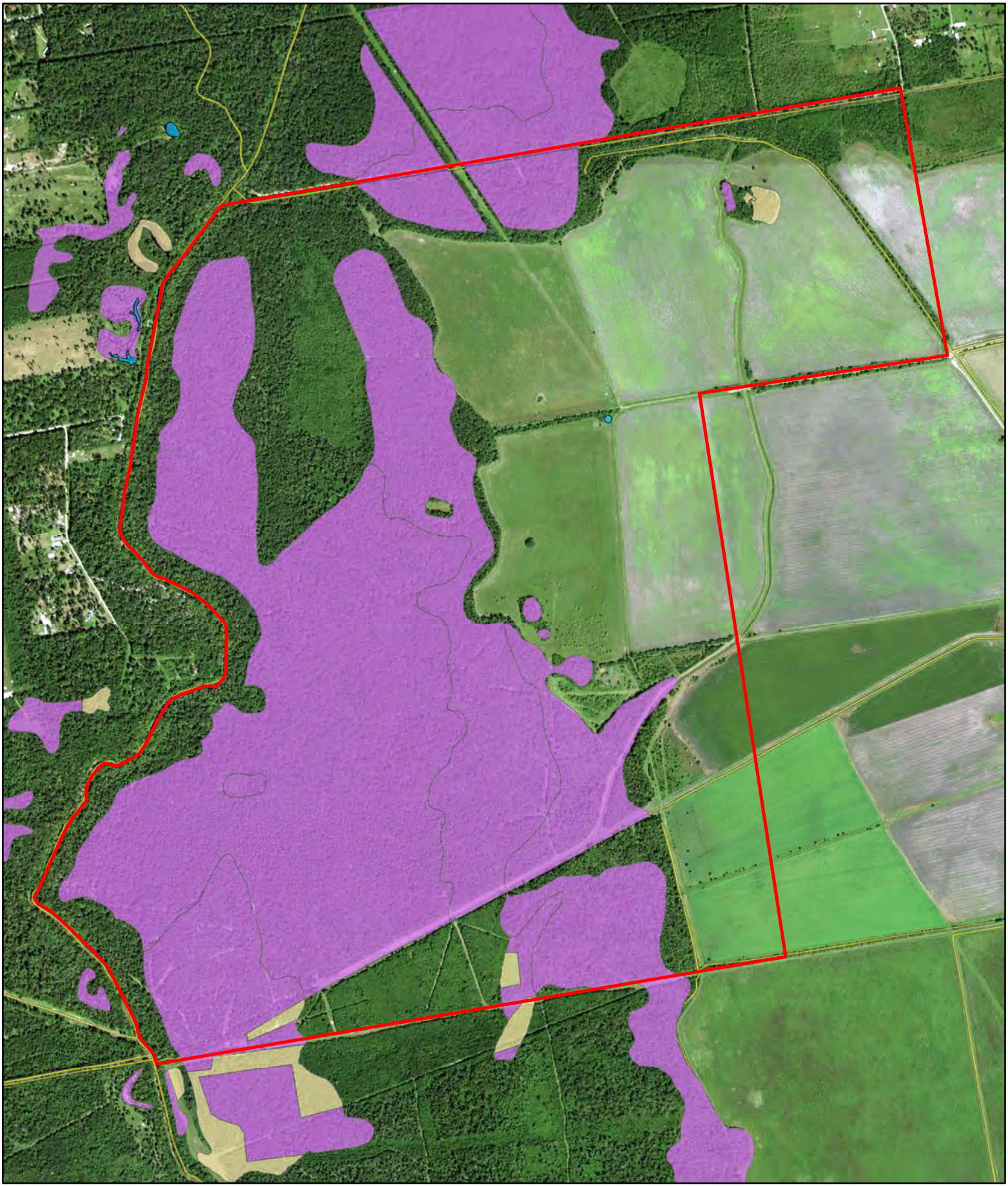

Legend

Property Boundary

NWI (USFWS)

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

Figure 4: NWI Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

N

1:15,000

DESCO

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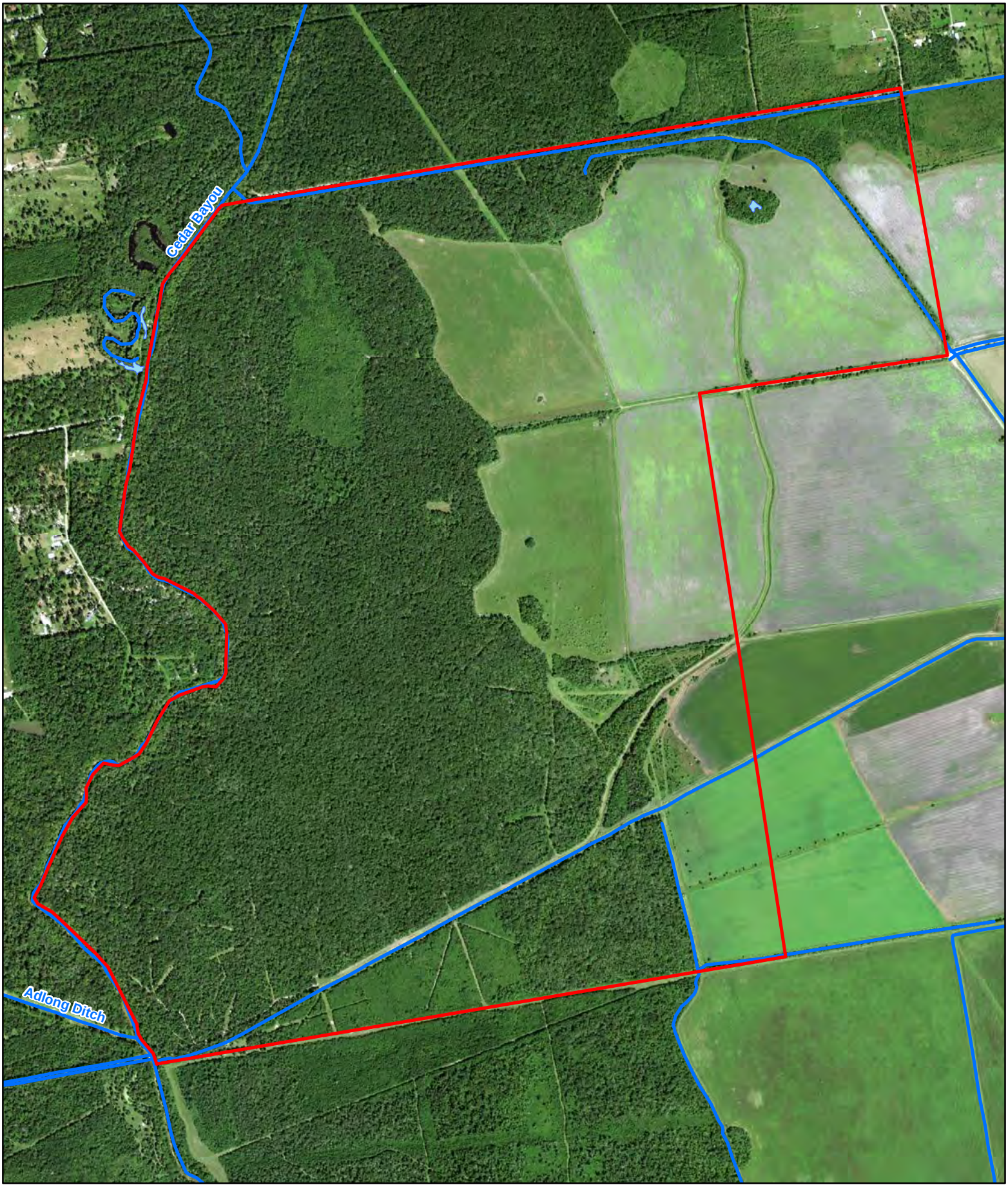

Legend

- Property Boundary
- NHD Waterways
- NHD Waterbodies

Figure 5: NHD Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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1:15,000

DESCO

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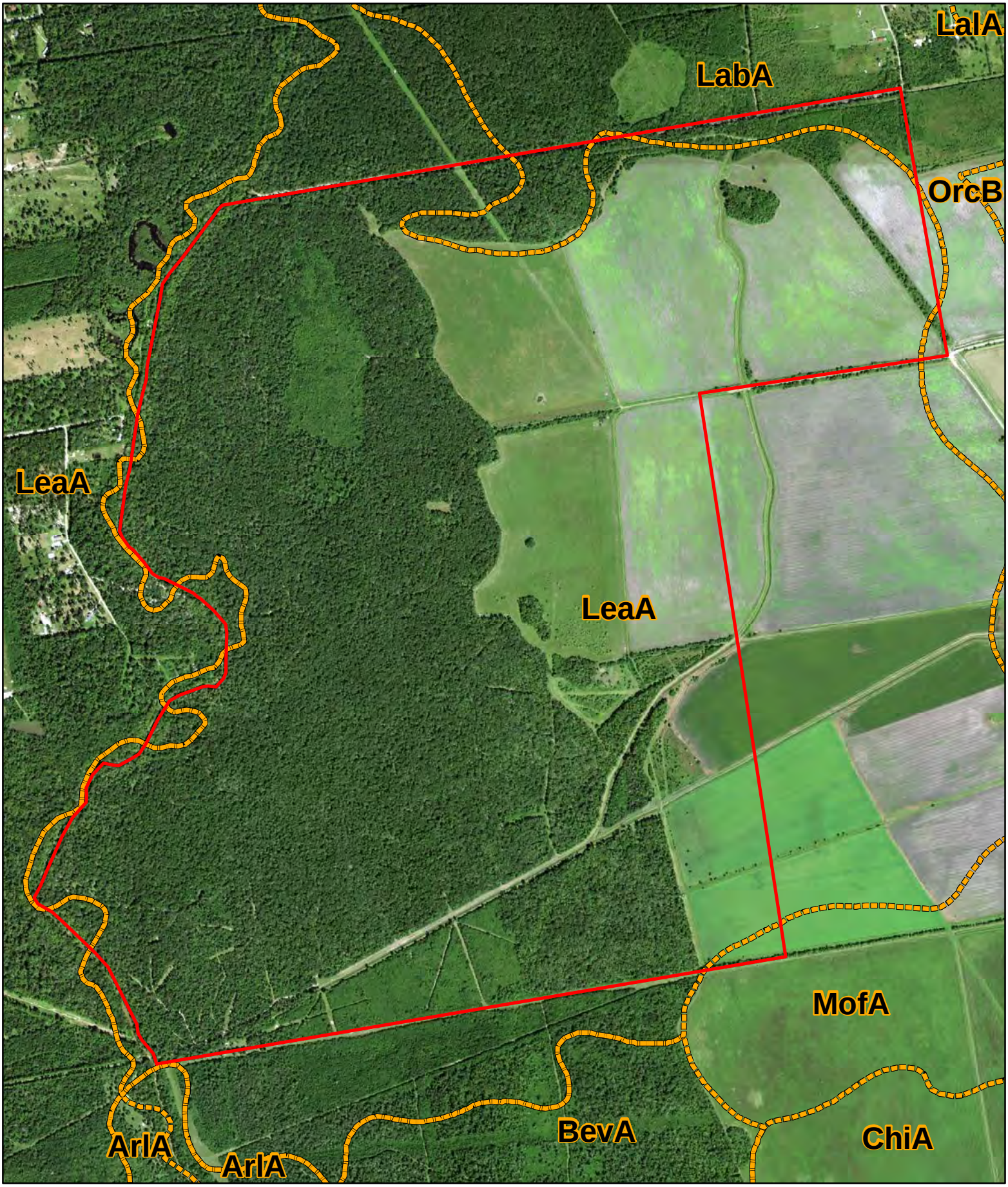

Legend

Property Boundary

Soils (USDA/NRCS)

Figure 6: Soils Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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1:15,000

DESCO

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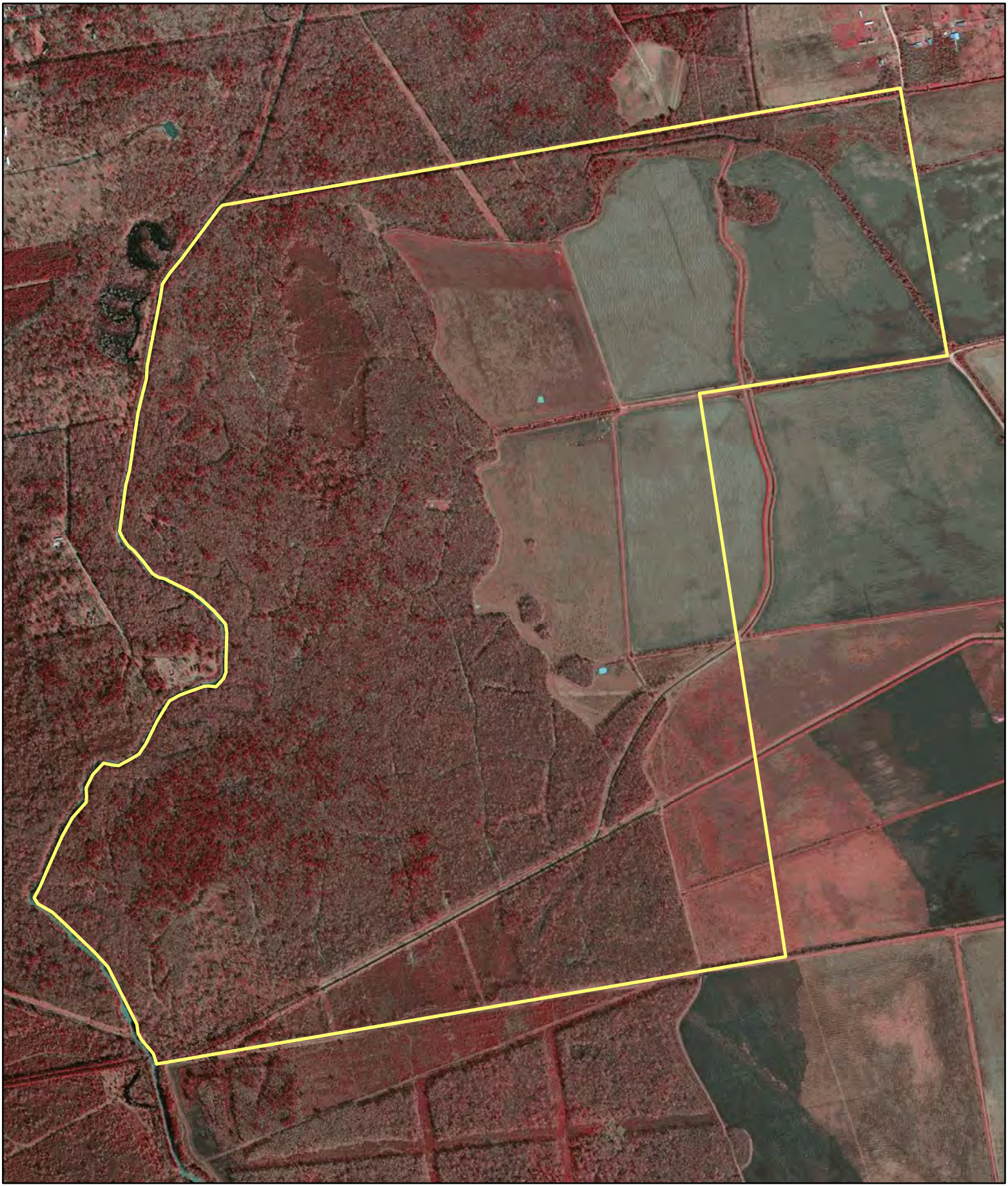

Legend

Property Boundary

Figure 7: 2008 CIR Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2008 CIR Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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1:15,000

DESCO

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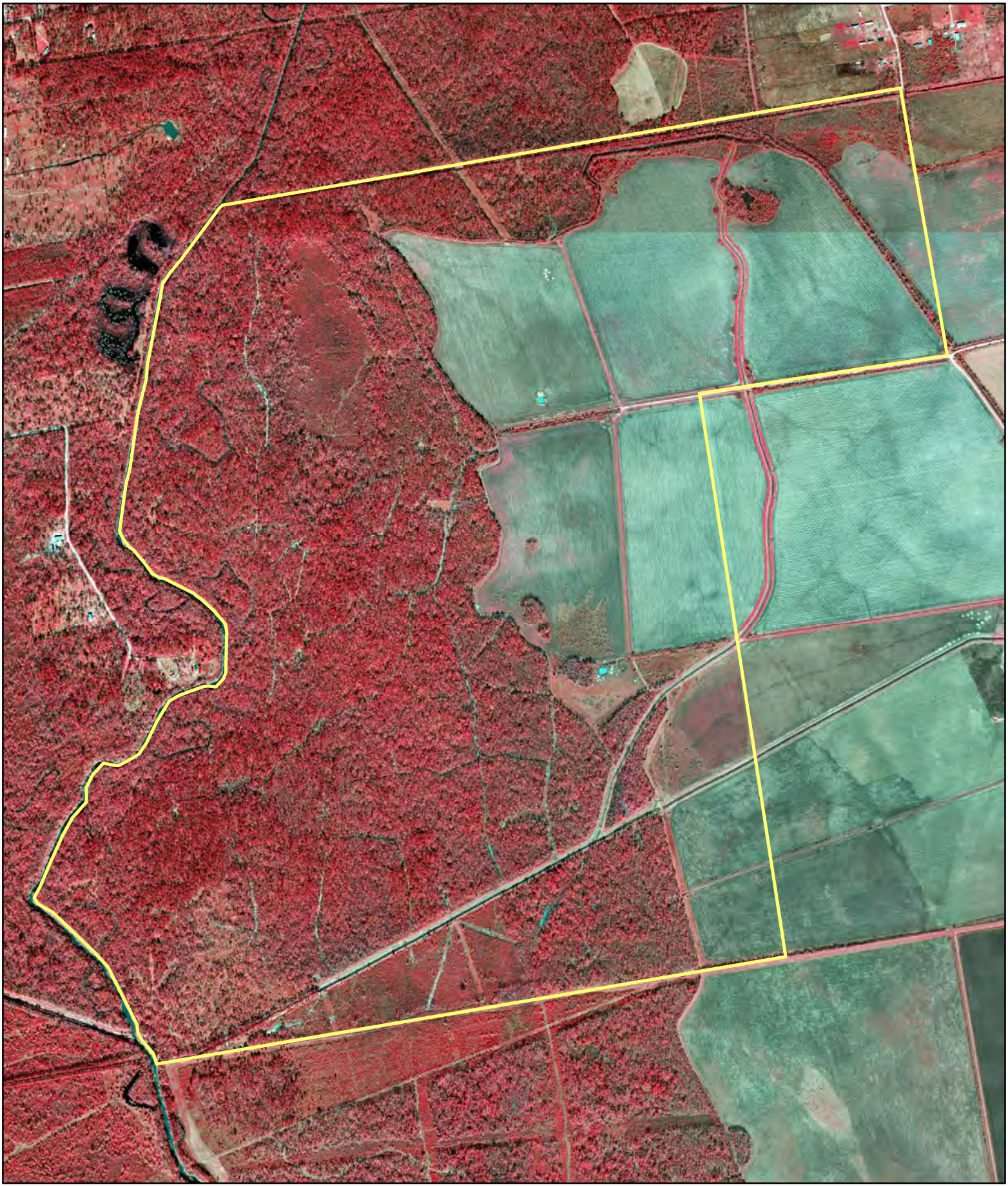

Legend

Property Boundary

Figure 8: 2009 CIR Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2009 CIR Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

N

1:15,000

DESCO

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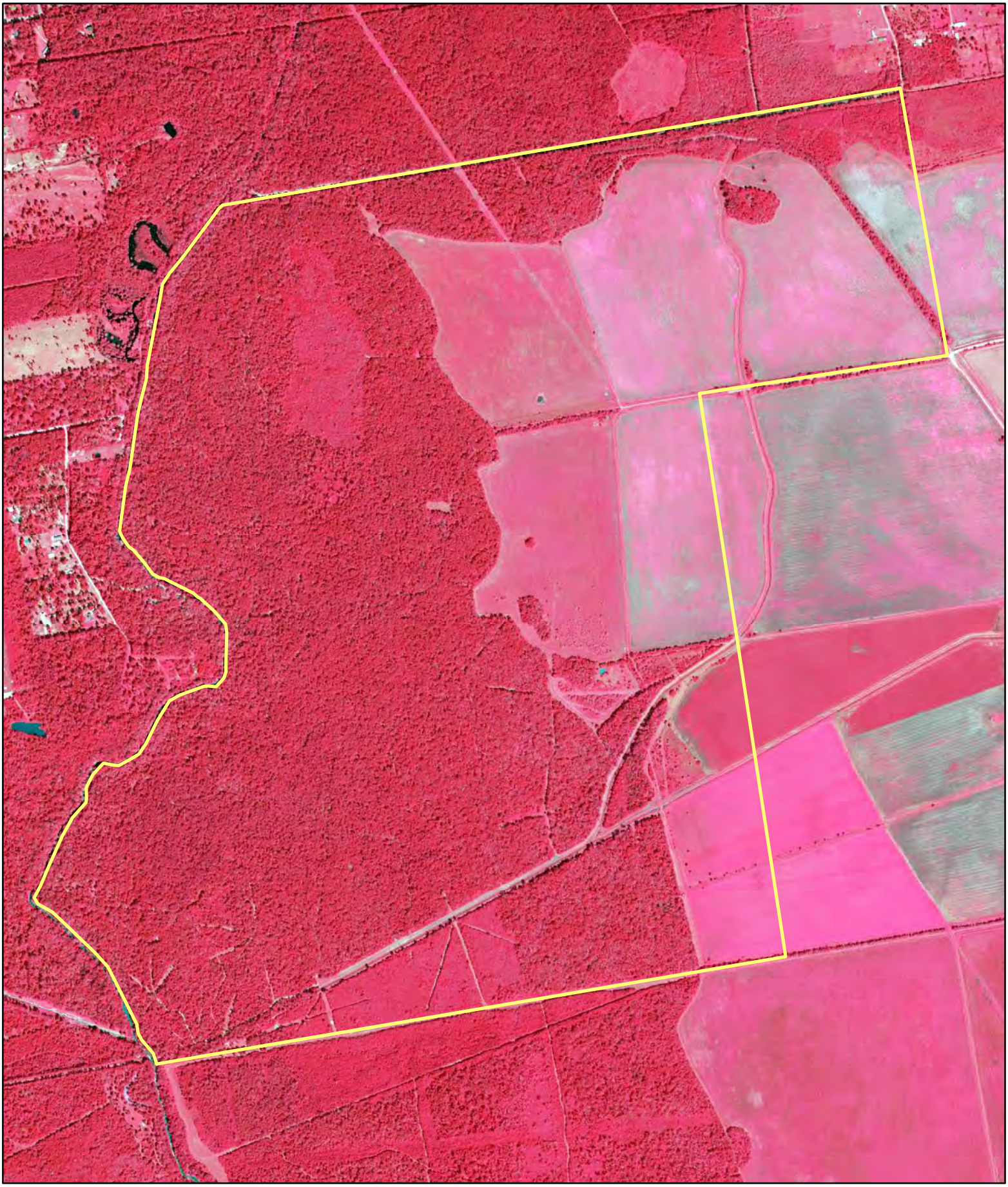

Legend

Property Boundary

Figure 9: 2016 CIR Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2016 CIR Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

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DESCO

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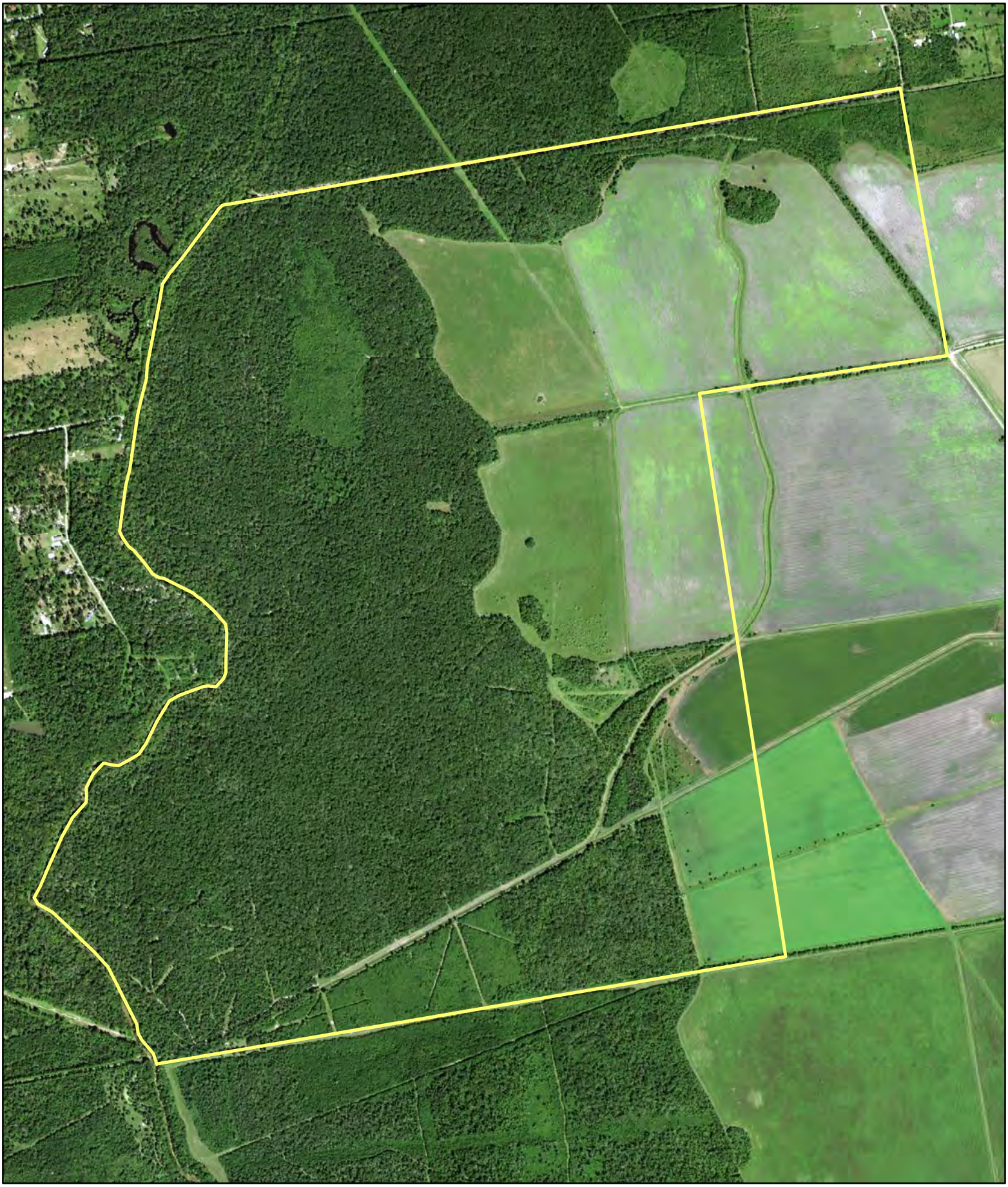

Legend

Property Boundary

Figure 10: 2016 NC Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: April 23, 2019

N

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DESCO

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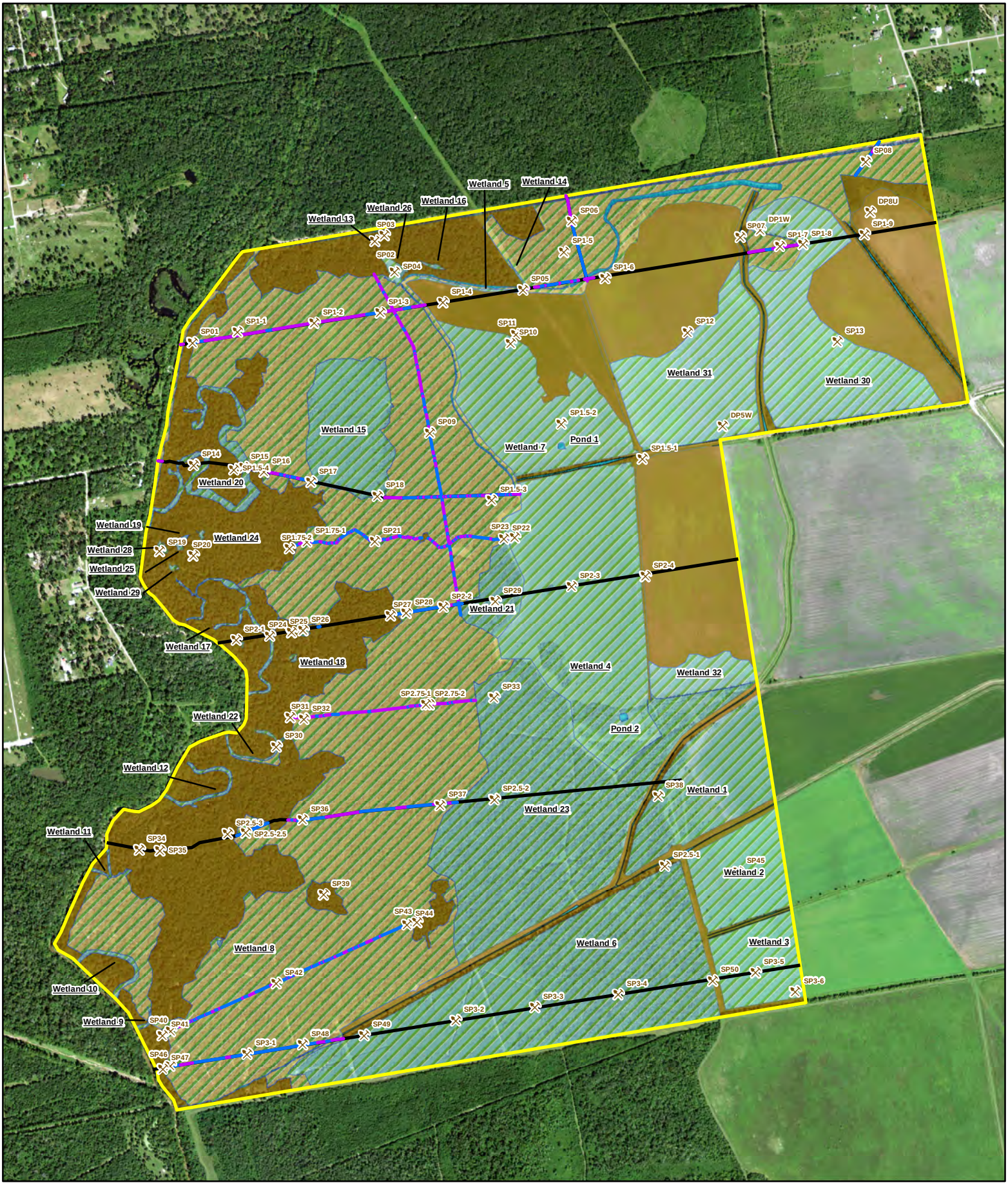

Legend

- Sample Points
- Transects

Mosaic Transects

- Upland - 10,601.81'
- Wet - 11,436.38'

- Property Boundary - 1,318.48 acres
- Mosaic - 402.18 acres
- OHWM - 9.67 acres
- Non-Wetlands - 405.18 acres
- Wetlands - 501.45 acres

Figure 11: 2016 NC Delineation Map

McCoy 1,300 Acre Site

Crosby, Texas

Liberty County, Texas

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: January 2, 2020

N

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DESCO

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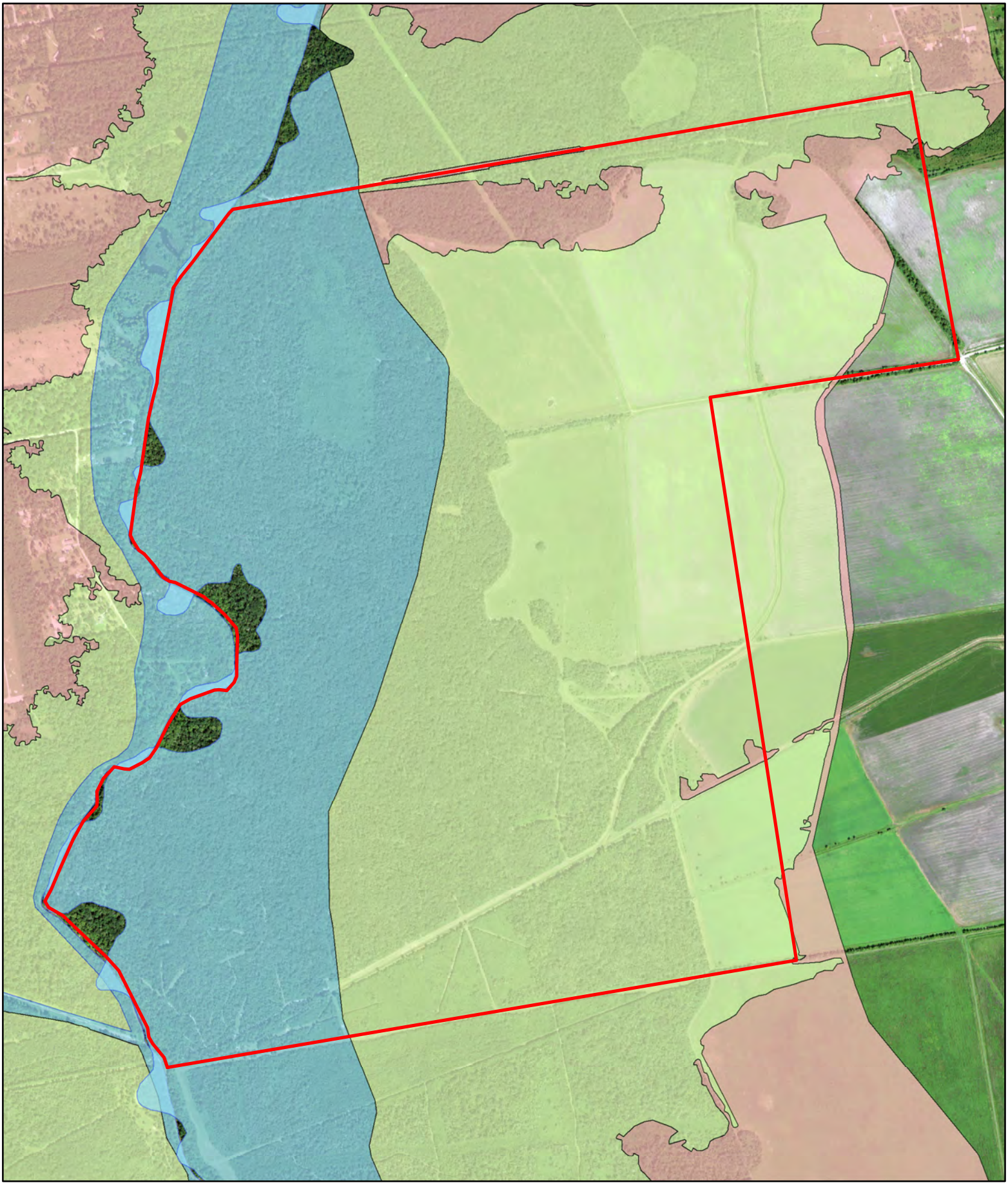


Legend

Property Boundary - 1,318.48 acres

FEMA NFHL

AE - 1% Annual Chance Flood Hazard

AE - Floodway

X - 0.2% Annual Chance Flood Hazard

Figure 12: FEMA Map
McCoy 1,300 Acre Site
Crosby, Texas

Liberty County, Texas

Map Base: 2016 NC Aerial Imagery from TNRIS
Map Datum: NAD 1983 UTM Zone 15N, meters
Map Date: June 5, 2019

N

1:15,000

DESCO

0 0.05 0.1 0.2 Miles

1.1 AGCP Datasheets and Site Photographs

Table 1.1: AGCP Datasheets, Sample Points, and Habitat Types	
AGCP Data Sheets	**Habitat Types**
Wetland Habitats	
SP1-5, SP2-2, and SP3-1	Oak dominant forest on League clay, 0-1 % slopes
SP1-7, SP3-2, SP3-3, and SP3-4	Hardwood dominant forests on League clay, 0-1 % slopes
SP2-3, SP3-5, and SP3-6	Herbaceous vegetation community, on League clay, 0-1% slopes
SP1-6, SP1-8, SP1-9, and SP2-4	Crop fields
Upland Habitats	
SP1-1, SP1-3, and SP2-1	Oak dominant forest on League clay, 0-1 % slopes
SP1-2	Hardwood dominant forests on League clay, 0-1 % slopes
SP1-4, SP1.5-1, and SP2.5-1	Herbaceous vegetation community, on League clay, 0-1% slopes

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-1

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313481.092 Long: 307621.242 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: PFO

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

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

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

Remarks:

Sample point is in oak and pine-mixed hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus similis	35	Y	FACW
2. Quercus phellos	25	Y	FACW
3. Pinus taeda	25	Y	FAC
4.			
5.			
6.			
7.			
8.			
	85	= Total Cover	
50% of total cover: 42.5	20% of total cover: 17		

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	30	Y	FACW
2. Fraxinus pennsylvanica	20	Y	FACW
3. Ulmus rubra	10		FAC
4. Ulmus crassifolia	5		FAC
5. Quercus phellos	5		FACW
6. Ilex decidua	5		FACW
7. Ilex vomitoria	5		FAC
8. Chionanthus virginicus	5		FACU
	85	= Total Cover	
50% of total cover: 42.5	20% of total cover: 17		

Herb Stratum (Plot size: 30')			
1. Sabal minor	5	Y	FACW
2. Dichanthelium commutatum	1		FAC
3. Eupatorium perfoliatum	1		FACW
4. Ampelopsis arborea	1		FAC
5. Chasmanthium laxum	1		FACW
6. Toxicodendron radicans	1		FAC
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		

Woody Vine Stratum (Plot size: 30')			
1. Vitis rotundifolia	3	Y	FAC
2.			
3.			
4.			
5.			
	3	= Total Cover	
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (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	127	x 2 =	254
FAC species	51	x 3 =	153
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	183 (A)		427 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1-1

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
0-4	10yr7/1	96	10yr5/8	4	C	M	Silty loam	
4-12	10yr6/1	90	10yr5/8	10	C	M	Silty loam	
12-18	10yr4/2	75	10yr5/8	25	C	M	Silty clay	
18-24	10yr4/2	90	10yr5/8	10	C	M	Silty clay	

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

DLS-McCoy 1300 Ac AOI Photo Gallery

Photo 1: SP1-1 Soil Profile

Photo 2: SP1-1 habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-2

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313507.655 Long: 307857.786 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

Remarks:

Sample point is in mixed hardwood thicket.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus rubra	20	Y	FAC
2. Celtis laevigata	15	Y	FACW
3. Ulmus americana	10	Y	FAC
4. Morus rubra	5		FACU
5.			
6.			
7.			
8.			
	50	= Total Cover	
50% of total cover: 25		20% of total cover: 10	

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	20	Y	FACW
2. Ilex vomitoria	20	Y	FAC
3. Viburnum dentatum	10		FAC
4. Morus rubra	2		FACU
5. Callicarpa americana	2		FACU
6.			
7.			
8.			
	54	= Total Cover	
50% of total cover: 27		20% of total cover: 10.8	

Herb Stratum (Plot size: 30')			
1. Ligustrum sinense	2	Y	FAC
2. Parthenocissus quinquefolia	2	Y	FACU
3. Arisaema dracontium	1	Y	FACW
4. Callicarpa americana	1	Y	FACU
5. Viburnum dentatum	1	Y	FAC
6. Toxicodendron radicans	1	Y	FAC
7. Ulmus rubra	1	Y	FAC
8. Ilex vomitoria	1	Y	FAC
9. Rubus argutus	1	Y	FAC
10. Carex cherokeensis	1	Y	FACW
11. Celtis laevigata	1	Y	FAC
12. Scleria oligantha	1	Y	FAC
	14	= Total Cover	
50% of total cover: 7		20% of total cover: 2.8	

Woody Vine Stratum (Plot size: 30')			
1. Parthenocissus quinquefolia	3	Y	FACU
2. Vitis rotundifolia	2	Y	FAC
3. Passiflora incarnata	1		NI
4.			
5.			
	6	= Total Cover	
50% of total cover: 3		20% of total cover: 1.2	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 16 (A)

Total Number of Dominant Species Across All Strata: 19 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 84% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	37	x 2 =	74
FAC species	71	x 3 =	213
FACU species	15	x 4 =	60
UPL species		x 5 =	
Column Totals:	123 (A)		347 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1-2

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
0-2	10yr3/2	100					Clay loam	
2-16	10yr3/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 3: SP1-2 Soil Profile

Photo 4: SP1-2 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-3

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313538.543 Long: 308060.451 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: PFO

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

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

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

Remarks:

Sample point is in mixed oak and hardwood thicket.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	30	Y	FAC
2. Quercus phellos	20	Y	FACW
3. Quercus falcata	15	Y	FACU
4. Ulmus americana	10		FAC
5.			
6.			
7.			
8.			
	75	= Total Cover	
50% of total cover: 37.5		20% of total cover: 15	

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	50	Y	FACW
2. Quercus nigra	10		FAC
3. Ilex vomitoria	5		FAC
4. Triadica sebifera	5		FAC
5. Ilex ambigua	5		NI
6. Callicarpa americana	2		FACU
7.			
8.			
	77	= Total Cover	
50% of total cover: 38.5		20% of total cover: 15.4	

Herb Stratum (Plot size: 30')			
1. Ampelopsis arborea	5	Y	FAC
2. Rubus argutus	2	Y	FAC
3. Toxicodendron radicans	2	Y	FAC
4. Quercus nigra	1		FAC
5. Scleria oligantha	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	11	= Total Cover	
50% of total cover: 5.5		20% of total cover: 2.2	

Woody Vine Stratum (Plot size: 30')			
1. Campsis radicans	3	Y	FAC
2. Berchemia scandens	2	Y	FAC
3.			
4.			
5.			
	5	= Total Cover	
50% of total cover: 2.5		20% of total cover: 1	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	70	x 2 =	140
FAC species	76	x 3 =	228
FACU species	17	x 4 =	68
UPL species		x 5 =	
Column Totals:	163 (A)		436 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1-3

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
0-4	10yr5/2	92	10yr5/8	3	C	M	Silty clay	
			10yr7/3	5	D	M		
4-14	10yr3/1	85	10yr5/8	5	C	M	Silty clay	
			10yr7/1	10	D	M		
14-24	10yr3/1	93	10yr5/8	2	C	M	Silty clay	
			10yr7/1	5	D	M		

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 5: SP1-3 Soil Profile

Photo 6: SP1-3 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-4

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313570.475 Long: 308253.869 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

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

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

Remarks:

Sample point is in a fallow field/improved pasture. Field is grazed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

The field/pasture has adjacent drainage ditches.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Paspalum notatum	20	Y	FACU
2. Cynodon dactylon	20	Y	FACU
3. Sisyrinchium biforme	10		FAC
4. Andropogon virginicus	10		FAC
5. Ranunculus hispidus	5		FAC
6. Sida spinosa	5		FACU
7. Carex blanda	3		FAC
8. Juncus tenuis	3		FAC
9. Pyrrhopappus carolinianus	1		NI
10. Oxalis dillenii	1		FACU
11. Anagallis arvensis	1		NI
12. Sisyrinchium rosulatum	1		FAC
	80 = Total Cover		

50% of total cover: 40 20% of total cover: 16

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or 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	32	x 3 =	96
FACU species	46	x 4 =	184
UPL species		x 5 =	
Column Totals:	78 (A)		280 (B)

Prevalence Index = B/A = 3.59

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1-4

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
0-4	10yr4/1	100					Clay loam	
4-20	10yr3/1	98	10yr5/8	2	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 7: SP1-4 Soil Profile

Photo 8: SP1-4 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-5

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 308793.535 Long: 308867.860600089 Datum: NAD 83

Soil Map Unit Name: Labelle clay loam, 0 to 1 percent slopes NWI classification: PFO

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

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

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

Remarks:

Sample point is in mixed oak hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	30	Y	FACW
2. Quercus pagoda	20	Y	FACW
3. Quercus nigra	10		FAC
4. Ulmus americana	5		FAC
5. Fraxinus pennsylvanica	5		FACW
6. Pinus taeda	5		FAC
7. Triadica sebifera	5		FAC
8.			
	80	= Total Cover	
50% of total cover: 40	20% of total cover: 16		

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	30	Y	FACW
2. Quercus phellos	20	Y	FACW
3. Ilex vomitoria	8		FAC
4. Triadica sebifera	5		FAC
5.			
6.			
7.			
8.			
	63	= Total Cover	
50% of total cover: 31.5	20% of total cover: 12.6		

Herb Stratum (Plot size: 30')			
1. Rubus argutus	5	Y	FAC
2. Sabal minor	2	Y	FACW
3. Eupatorium semiserratum	1		FACW
4. Ampelopsis arborea	1		FAC
5. Scleria oligantha	1		FAC
6. Carex abscondita	1		FACW
7. Carex caroliniana	1		FACW
8. Carex flaccosperma	1		FACW
9.			
10.			
11.			
12.			
	13	= Total Cover	
50% of total cover: 6.5	20% of total cover: 2.6		

Woody Vine Stratum (Plot size: 30')			
1. Smilax bona-nox	1	Y	FAC
2. Berchemia scandens	1	Y	FAC
3.			
4.			
5.			
	2	= Total Cover	
50% of total cover: 1	20% of total cover: 0.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (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	111	x 2 =	222
FAC species	47	x 3 =	141
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	158 (A)		363 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1-5

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	10yr4/1	95	10yr5/8	5	C	M	Silty clay	
2-20	10yr3/1	90	10yr5/8	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 9: SP1-5 Soil Profile

Photo 10: SP1-5 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-6

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313645.784 Long: 308752.65 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

Are Vegetation Y, Soil N, or Hydrology Y 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Sample point is in a planted soybean field.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The field has adjacent drainage ditches. When in cultivation, drainage furrows are used to drain the field of excess water. Oxidized rhizospheres observed below till line.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Glycine max	3	Y	NI
2. Cyperus virens	1	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	4 = Total Cover		

50% of total cover: 2 20% of total cover: 0.8

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☑ Problematic Hydrophytic Vegetation[1] (Explain)

Soybeans planted in agricultural field.

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Hydrologic and hydric soil indicators are present to support prevalence index use. The field was recently plowed and planted with soybeans. Native vegetation is very sparse.

SOIL

Sampling Point: SP1-6

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	10yr4/2	100					Clay	till line
5-8	10yr3/2	95	10yr5/8	5	C	M	Clay	
8-20	10yr3/2	95	10yr5/6	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☑ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Soils tilled down to approximately 5 inches.

Photo 11 : SP1-6 Soil Profile

Photo 12: SP1-6 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-7

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313745.515 Long: 309291.662 Datum: NAD 83

Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI classification: PEM

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N 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 X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Sample point is in mixed hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Triadica sebifera	20	Y	FAC
2. Celtis laevigata	15	Y	FACW
3. Fraxinus pennsylvanica	15	Y	FACW
4. Liquidambar styraciflua	5		FAC
5. Ulmus americana	2		FAC
6.			
7.			
8.			
	57	= Total Cover	
50% of total cover: 28.5	20% of total cover: 11.4		
Sapling/Shrub Stratum (Plot size: 30')			
1. Ilex vomitoria	8	Y	FAC
2. Morella cerifera	8	Y	FAC
3. Triadica sebifera	5		FAC
4. Liquidambar styraciflua	5		FAC
5. Sabal minor	2		FACW
6.			
7.			
8.			
	28	= Total Cover	
50% of total cover: 14	20% of total cover: 5.6		
Herb Stratum (Plot size: 30')			
1. Toxicodendron radicans	20	Y	FAC
2. Carex crus-corvi	3		FACW
3. Rubus argutus	3		FAC
4. Ptilimnium capillaceum	2		OBL
5. Lygodium japonicum	1		FAC
6. Juncus effusus	1		OBL
7. Ilex vomitoria	1		FACW
8. Carex cherokeensis	1		FACW
9. Scleria oligantha	1		FAC
10. Sabal minor	1		FACW
11. Morella cerifera	1		FAC
12.			
	35	= Total Cover	
50% of total cover: 17.5	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30')			
1. Vitis rotundifolia	3	Y	FAC
2. Berchemia scandens	2	Y	FAC
3. Campsis radicans	1		FAC
4.			
5.			
	6	= Total Cover	
50% of total cover: 3	20% of total cover: 1.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	38	x 2 =	76
FAC species	85	x 3 =	255
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	126 (A)		334 (B)

Prevalence Index = B/A = 2.65

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1-7

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
0-14	10yr4/1	95	10yr5/8	5	C	M	Clay	

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 13: SP1-7 Soil Profile

Photo 14: SP1-7 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-8

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313750.114 Long: 309361.881 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

Are Vegetation Y, Soil N, or Hydrology Y 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Sample point is in a planted soybean field.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The fallow field has adjacent drainage ditches. When in cultivation, drainage furrows are used to drain the field of excess water, so oxidized rhizospheres that would typically be present are not currently.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Glycine max	3	Y	NI
2. Lolium perenne	1	Y	FACU
3. Cyperus virens	1	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	4 = Total Cover		

50% of total cover: 2 20% of total cover: 0.8

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 1	x 2 = 2
FAC species _____	x 3 = _____
FACU species 1	x 4 = 4
UPL species _____	x 5 = _____
Column Totals: 2 (A)	6 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☑ Problematic Hydrophytic Vegetation[1] (Explain)

Soybeans planted in agricultural field.

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Hydrologic indicators are not present to support prevalence index use. The field was recently plowed and planted with soybeans. Native vegetation is very sparse. Adjacent edge vegetation is upland in nature; however the field is slightly lower in elevation.

SOIL

Sampling Point: SP1-8

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	10yr3/1	100					Clay	till line
5-20	10yr3/1	95	10yr5/8	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Soils tilled down to approximately 5 inches.

Photo 15: SP1-8 Soil Profile

Photo 16: SP1-8 Soil Profile

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1-9

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3313780.034 Long: 309550.919 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

Are Vegetation Y, Soil N, or Hydrology Y 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Sample point is in a planted soybean field.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The fallow field has adjacent drainage ditches. When in cultivation, drainage furrows are used to drain the field of excess water, so oxidized rhizospheres that would typically be present are not.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1-9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Glycine max	3	Y	NI
2. Lolium perenne	1	Y	FACU
3. Cyperus virens	1	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	4 = Total Cover		

50% of total cover: 2 20% of total cover: 0.8

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 1	x 2 = 2
FAC species _____	x 3 = _____
FACU species 1	x 4 = 4
UPL species _____	x 5 = _____
Column Totals: 2 (A)	6 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☑ Problematic Hydrophytic Vegetation[1] (Explain)

Soybeans planted in agricultural field.

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Hydrologic indicators are not present to support prevalence index use. The field was recently plowed and planted with soybeans. Native vegetation is very sparse.

SOIL

Sampling Point: SP1-9

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	10yr3/1	98	10yr5/8	2	C	M	Clay	till line
5-20	10yr2/1	95	10yr5/8	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Soils tilled down to approximately 5 inches.

Photo 17: SP1-9 Soil Profile

Photo 18: SP1-9 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/4/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP1.5-1

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

Landform (hillslope, terrace, etc.): road edge Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): T Lat: 3313089.97224581 Long: 308867.860600089 Datum: NAD83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

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

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

Remarks:

Sampe point is along the side of a farm road bordered by a soybean field. Road side drainage ditches are nearby SP.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP1.5-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Ambrosia trifida	25	Y	FAC
2. Lolium perenne	20	Y	FACU
3. Cynodon dactylon	15	Y	FACU
4. Sorghum helepense	10		FACU
5. Phalaris caroliniana	10		FACW
6. Monarda punctata	8		FACU
7. Pyrrhopappus pauciflorus	5		NI
8. Verbena brasiliensis	3		NI
9. Sida spinosa	2		FACU
10. Rubus trivialis	2		FACU
11. Paspalum urvillei	2		FAC
12. Oxalis dillenii	1		FACU
	103 = Total Cover		

50% of total cover: 51.5 20% of total cover: 20.6

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	10	x 2 =	20
FAC species	27	x 3 =	81
FACU species	58	x 4 =	232
UPL species		x 5 =	
Column Totals:	95 (A)		333 (B)

Prevalence Index = B/A = 3.51

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP1.5-1

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	10yr5/3	100					Clay loam	
3-12	10yr5/1	75	10yr6/8	15	C	M	Clay	
			10yr2/1	10	D	M		
12-20	10yr2/1	90	10yr5/8	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 19: SP1.5-1 Soil Profile

Photo 20: SP1.5-1 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/3/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP2-1

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

Landform (hillslope, terrace, etc.): Undulating terrace Local relief (concave, convex, none): convex Slope (%): 0-3

Subregion (LRR or MLRA): T Lat: 3312531.575 Long: 307617.184 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

Remarks:

Sample point is in mixed hardwood thicket.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP2-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus rubra	10	Y	FAC
2. Quercus nigra	8	Y	FAC
3. Quercus phellos	5		FACW
4. Pinus teada	5		FAC
5. Celtis laevigata	3		FACW
6.			
7.			
8.			
	31	= Total Cover	
50% of total cover: 15.5		20% of total cover: 6.2	

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	25	Y	FACW
2. Ilex vomitoria	15	Y	FAC
3. Ilex decidua	4		FACW
4. Ulmus rubra	2		FAC
5. Diospyros virginiana	2		FAC
6. Ligustrum sinense	2		FAC
7. Callicarpa americana	1		FACU
8.			
	51	= Total Cover	
50% of total cover: 25.5		20% of total cover: 10.2	

Herb Stratum (Plot size: 30')			
1. Bignonia capreolata	3	Y	FAC
2. Carex cherokeensis	3	Y	FACW
3. Ilex vomitoria	3	Y	FAC
4. Dichanthelium commutatum	1		FAC
5. Oplismenus hirtellus	1		FAC
6. Rubus argutus	1		FAC
7. Toxicodendron radicans	1		FAC
8. Scleria oligantha	1		FAC
9. Ulmus rubra	1		FAC
10. Quercus phellos	1		FACW
11. Quercus nigra	1		FAC
12. Callicarpa americana	1		FACU
	18	= Total Cover	
50% of total cover: 9		20% of total cover: 3.6	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (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	41	x 2 =	82
FAC species	57	x 3 =	171
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	100 (A)		261 (B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP2-1

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	10yr3/2	100					Clay loam	
3-10	10yr6/1	90	10yr6/8	10	C	M	Clay loam	
10-18	10yr6/1	75	10yr6/8	20	C	M	Clay loam	
			10yr5/8	5	C	M		

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 21: SP2-1 Soil Profile

Photo 22: SP2-1 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP2-2

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3312633.073 Long: 308254.656 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N 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 X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Sample point is in mixed oak hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP2-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	70	Y	FACW
2. Ulmus americana	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	20	Y	FACW
2. Quercus phellos	15	Y	FACW
3. Chionanthus virginicus	3		FACU
4. Ilex decidua	1		FACW
5.			
6.			
7.			
8.			
	39	= Total Cover	
50% of total cover: 19.5	20% of total cover: 7.8		
Herb Stratum (Plot size: 30')			
1. Quercus phellos	3	Y	FACW
2. Campsis radicans	3	Y	FAC
3. Sabal minor	1		FACW
4. Callicarpa americana	1		FACU
5. Chasmanthium laxum	1		FACW
6. Ligustrum sinense	1		FAC
7. Triadica sebifera	1		FAC
8.			
9.			
10.			
11.			
12.			
	11	= Total Cover	
50% of total cover: 5.5	20% of total cover: 2.2		
Woody Vine Stratum (Plot size: 30')			
1. Vitis rotundifolia	1	Y	FAC
2.			
3.			
4.			
5.			
	1	= Total Cover	
50% of total cover: 0.5	20% of total cover: 0.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (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	111	x 2 =	222
FAC species	11	x 3 =	33
FACU species	4	x 4 =	16
UPL species		x 5 =	
Column Totals:	126 (A)		271 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP2-2

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
0-4	10yr4/1	98	10yr5/8	2	C	M	Clay loam	
4-16	10yr5/1	85	10yr5/8	10	C	M	Clay	
			10yr6/8	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 23: SP2-2 Soil Profile

Photo 24: SP2-2 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP2-3

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3312696.88182058 Long: 308649.074922141 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

Remarks:

Sample point is in a fallow field/improved pasture. Field is grazed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The field/pasture has adjacent drainage ditches.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP2-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Andropogon virginicus	30	Y	FAC
2. Dichanthelium acuminatum	25	Y	FAC
3. Limnosciadium pumilum	10		OBL
4. Rhynchospora inexpansa	10		FACW
5. Axonopus fissifolius	10		FACW
6. Albizia julibrissin	3		NI
7. Rhynchospora glomerata	2		OBL
8. Phyla nodiflora	2		FAC
9. Verbena brasiliensis	2		NI
10. Rubus argutus	2		FAC
11. Ambrosia trifida	2		FAC
12. Plantago heterophylla	1		FACW
	99 = Total Cover		

50% of total cover: 49.5 20% of total cover: 19.8

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or 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	12	x 1 =	12
FACW species	21	x 2 =	42
FAC species	61	x 3 =	183
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	94 (A)		237 (B)

Prevalence Index = B/A = 2.52

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP2-3

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	10yr4/2	97	10yr5/8	3	C	M	Clay	
5-20	10yr3/2	95	10yr5/8	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 25: SP2-3 Soil Profile

Photo 26: SP2-3 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP2-4

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3312727.15 Long: 308877.067 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

Are Vegetation Y, Soil N, or Hydrology Y 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Sample point is in a planted soybean field.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The field has adjacent drainage ditches. Furrows are created in the field when planted to drain excess water, so oxidized rhizospheres that would typically be present are not currently.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP2-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Glycine max	10	Y	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or 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]
- ☑ Problematic Hydrophytic Vegetation[1] (Explain)

Soybeans planted in agricultural field.

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Hydrologic indicators are not present to support prevalence index use. The field was recently plowed and planted with soybeans. Native vegetation is very sparse. Adjacent edge vegetation is upland in nature; however the field is slightly lower in elevation.

SOIL

Sampling Point: SP2-4

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	10yr4/1						Clay	
6-20	10yr4/1	90	10yr5/8	10	C	M	Clay	

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Soils tilled down to approximately 6 inches.

Photo 27 : SP2-4 Soil Profile

Photo 28: SP2-4 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/4/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP2.5-1

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

Landform (hillslope, terrace, etc.): ditch edge Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): T Lat: 3311836.039 Long: 308937.024 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

Sample point is on the upland edge of a man-made drainage ditch, which empties into Cedar Bayou to the west.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP2.5-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30')			
1. Sorghum helepense	15	Y	FACU
2. Paspalum notatum	10	Y	FACU
3. Monarda punctata	10	Y	FACU
4. Cynodon dactylon	5		FACU
5. Rubus trivialis	5		FACU
6. Lolium perenne	5		FACU
7. Oenothera speciosa	3		NI
8. Phalaris caroliniana	2		FACW
9. Mimosa strigillosa	2		FAC
10. Sida spinosa	2		FACU
11. Paspalum urvillei	2		FAC
12. Oxalis dillenii	1		FACU
	62 = Total Cover		
50% of total cover: 31	20% of total cover: 12.4		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	2	x 2 =	4
FAC species	4	x 3 =	12
FACU species	53	x 4 =	212
UPL species		x 5 =	
Column Totals:	59 (A)		228 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP2.5-1

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	10yr4/1	90					Silty clay	
	10yr6/3	10						
5-11	10yr4/1	60					Clay	
	10yr6/3	40						
11-22	10yr4/1	60	10yr5/6	5			Clay	
	10yr6/3	35						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 29: SP2.5-1 Soil Profile

Photo30: SP2.5-1 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP3-1

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3311256.911 Long: 307650.717 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: PFO

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N 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 X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Sample point is in mixed oak hardwood thicket.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP3-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	8	Y	FAC
2. Quercus similis	5	Y	FACW
3. Ulmus rubra	5	Y	FAC
4. Fraxinus pennsylvanica	5	Y	FACW
5. Pinus teada	3		FAC
6.			
7.			
8.			
	26 = Total Cover		
50% of total cover: 13	20% of total cover: 5.2		

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	15	Y	FACW
2. Pinus teada	6	Y	FAC
3. Ilex vomitoria	5	Y	FAC
4. Fraxinus pennsylvanica	5	Y	FACW
5. Quercus nigra	4		FAC
6. Triadica sebifera	4		FAC
7. Ulmus rubra	3		FAC
8. Callicarpa americana	2		FACU
	44 = Total Cover		
50% of total cover: 22	20% of total cover: 8.8		

Herb Stratum (Plot size: 30')			
1. Rubus argutus	4	Y	FAC
2. Rhynchospora inexpansa	3	Y	FACW
3. Symphyotrichum pratense	3	Y	NI
4. Asclepias incarnata	2	Y	OBL
5. Lygodium japonicum	2	Y	FAC
6. Hypericum hypericoides	2	Y	FAC
7. Persicaria hydropiperoides	2	Y	OBL
8. Carex leptalea	2	Y	OBL
9. Ditrysinia fruticosa	1		FAC
10. Ilex vomitoria	1		FAC
11. Chasmanthium laxum	1		FACW
12. Toxicodendron radicans	1		FAC
	24 = Total Cover		
50% of total cover: 12	20% of total cover: 4.8		

Woody Vine Stratum (Plot size: 30')			
1. Campsis radicans	3	Y	FAC
2.			
3.			
4.			
5.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 16 (A)

Total Number of Dominant Species Across All Strata: 17 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 94% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	6	x 1 =	6
FACW species	34	x 2 =	68
FAC species	52	x 3 =	156
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	94 (A)		238 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP3-1

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	10yr4/2	95	10yr5/8	5	C	M	Silty loam	
3-15	10yr6/2	85	10yr5/8	15	C	M,PL	Silty clay	
15-24	10yr7/1	75	10yr5/8	25	C	M,PL	Silty clay	

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 31: SP3-1 Soil Profile

Photo 32: SP3-1 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP3-2

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR or MLRA): T Lat: 3311360.419 Long: 308292.735 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP3-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Triadica sebifera	70	Y	FAC
2. Quercus phellos	10		FACW
3.			
4.			
5.			
6.			
7.			
8.			
	80	= Total Cover	
50% of total cover: 40	20% of total cover: 16		

Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	70	Y	FACW
2. Triadica sebifera	20	Y	FAC
3. Fraxinus pennsylvanica	5		FACW
4. Ilex vomitoria	2		FAC
5. Chironanthus virginicus	1		FACU
6. Rubus argutus	1		FAC
7. Viburnum dentatum	1		FAC
8.			
	100	= Total Cover	
50% of total cover: 50	20% of total cover: 20		

Herb Stratum (Plot size: 30')			
1. Rubus argutus	5	Y	FAC
2. Ilex vomitoria	2	Y	FAC
3. Carex caroliniana	1		FACW
4. Rhynchospera caduca	1		OBL
5. Dichanthelium acuminatum	1		FAC
6. Carex longii	1		OBL
7. Carex flacosperma	1		FACW
8. Carex abscondita	1		FACW
9. Hypericum hypericoides	1		FAC
10.			
11.			
12.			
	14	= Total Cover	
50% of total cover: 7	20% of total cover: 2.8		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	88	x 2 =	176
FAC species	103	x 3 =	309
FACU species	1	x 4 =	4
UPL species		x 5 =	
Column Totals:	194 (A)		491 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP3-2

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
0-4	10yr4/2	98	10yr5/6	2	C	PL	Silty clay	
4-6	10yr4/2	80	10yr5/8	20	C	M	Silty clay	
6-24	10yr5/2	25	10yr5/8	25	C	M	Silty clay	

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 33: SP3-2 Soil Profile

Photo 32: SP3-2 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP3-3

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3311400.899 Long: 308536.145 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: PEM

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP3-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Triadica sebifera	80	Y	FAC
2. Querccus phellos	2		FACW
3. Liquidambar styraciflua	2		FAC
4.			
5.			
6.			
7.			
8.			
	84 = Total Cover		
50% of total cover: 42	20% of total cover: 16.8		

Sapling/Shrub Stratum (Plot size: 30')			
1. Triadica sebifera	30	Y	FAC
2. Sabal minor	25	Y	FACW
3. Fraxinus pennsylvanica	8		FACW
4. Acer rubrum	4		FAC
5. Viburnum dentatum	1		FAC
6.			
7.			
8.			
	68 = Total Cover		
50% of total cover: 34	20% of total cover: 13.6		

Herb Stratum (Plot size: 30')			
1. Rhynchospora inexpansa	8	Y	FACW
2. Rubus argutus	5	Y	FAC
3. Persicaria hydropiperoides	3	Y	OBL
4. Agalinis purpurea	2		FACW
5. Crinum americanum	2		OBL
6. Hypericum hypericoides	2		FAC
7. Toxicodendron radicans	2		FAC
8. Mikania scandens	1		FACW
9. Fraxinus pennsylvanica	1		FACW
10. Acer rubrum	1		FAC
11. Eleocharis montevidensis	1		FACW
12. Viburnum dentatum	1		FAC
	29 = Total Cover		
50% of total cover: 14.5	20% of total cover: 5.8		

Woody Vine Stratum (Plot size: 30')			
1. Ampelopsis arborea	1	Y	FAC
2.			
3.			
4.			
5.			
	1 = Total Cover		
50% of total cover: 0.5	20% of total cover: 0.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	48	x 2 =	96
FAC species	129	x 3 =	387
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	182 (A)		488 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP3-3

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
0-4	10yr3/1	95	10yr5/8	5	C	M	Clay loam	
4-16	10yr4/1	90	10yr5/8	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 33: SP3-3 Soil Profile

Photo 34: SP3-3 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/2/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP3-4

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

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

Subregion (LRR or MLRA): T Lat: 3311439.327 Long: 308793.535 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: PFO

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP3-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Triadica sebifera	20	Y	FAC
2. Fraxinus pennsylvanica	10	Y	FACW
3. Acer rubrum	10	Y	FAC
4. Liquidambar styraciflua	10	Y	FAC
5. Ulmus americana	8		FAC
6. Ulmus rubra	5		FAC
7. Querccus phellos	5		FACW
8.			
	68	= Total Cover	
50% of total cover: 34	20% of total cover: 13.6		
Sapling/Shrub Stratum (Plot size: 30')			
1. Sabal minor	20	Y	FACW
2. Triadica sebifera	8		FAC
3. Acer rubrum	5		FACW
4. Querccus phellos	3		FAC
5. Ditrysinia fruticosa	1		FAC
6.			
7.			
8.			
	37	= Total Cover	
50% of total cover: 18.5	20% of total cover: 7.4		
Herb Stratum (Plot size: 30')			
1. Rhynchospora inexpansa	5	Y	FACW
2. Carex leptalea	4	Y	OBL
3. Sabal minor	1		FACW
4. Rubus argutus	1		FACW
5. Lonicera japonica	1		FACU
6. Triadica sebifera	1		FAC
7. Toxicodendron radicans	1		FAC
8. Acer rubrum	1		FAC
9. Fraxinus pennsylvanica	1		FACW
10. Liquidambar styraciflua	1		FAC
11. Hypericum hypericoides	1		FAC
12. Dichanthelium acuminatum	1		FAC
	19	= Total Cover	
50% of total cover: 9.5	20% of total cover: 3.8		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	x 1 =	4
FACW species	48	x 2 =	96
FAC species	71	x 3 =	213
FACU species	1	x 4 =	4
UPL species		x 5 =	
Column Totals:	124 (A)		317 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: SP3-4

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	10yr4/2	98	10yr5/6	2	C	M	Clay	
2-17	10yr4/1	80	10yr5/8	20	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 35: SP3-4 Soil Profile

Photo 36: SP3-4 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/4/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP3-5

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0-1

Subregion (LRR or MLRA): T Lat: 3311506.618 Long: 309215.725 Datum: NAD 83

Soil Map Unit Name: League Clay, 0 to 1 % slopes NWI classification: None

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

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

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

Remarks:

Sample point is in a fallow crop field that has been plowed with in the last year or two.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The fallow field has adjacent drainage ditches.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP3-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Limnosciadium pumilum	60	Y	OBL
2. Lolium perenne	10		FACU
3. Steinchisma hians	3		OBL
4. Juncus marginatus	2		FACW
5. Juncus acuminatus	2		OBL
6. Cyperus virens	1		FACW
7. Phalaris caroliniana	1		FACW
8. Eragrostis refracta	1		FACW
9. Plantago heterophylla	1		FACW
10.			
11.			
12.			
	81 = Total Cover		

50% of total cover: 40.5 20% of total cover: 16.2

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or 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	65	x 1 =	65
FACW species	6	x 2 =	12
FAC species		x 3 =	
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	81 (A)		117 (B)

Prevalence Index = B/A = 1.44

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Hydrologic and hydric soils indicators are present.

SOIL

Sampling Point: SP3-5

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
0-4	10yr3/1	100					Clay	
4-16	10yr3/1	97	10yr5/8	3	C	PL	Clay	
16-20	10yr3/1	95	10yr5/8	5	D	M,PL	Clay	

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

[2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 37: SP3-5 Soil Profile

Photo 38: SP3-5 Habitat

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: McCoy 1300 Acre Site City/County: Liberty County Sampling Date: 5/4/18

Applicant/Owner: Delta Land Services State: Texas Sampling Point: SP3-6

Investigator(s): DESCO (Arthur Perkins & Chris Little) Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0-1

Subregion (LRR or MLRA): T Lat: 3311448.23663003 Long: 309338.418735929 Datum: NAD 83

Soil Map Unit Name: Mocarey-Yeaton Complex, 0 to1 % slopes NWI classification: None

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

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

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

Remarks:

Sample point is in a fallow crop field that has been plowed with in the last year or two.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ 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)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The fallow field has adjacent drainage ditches. When in cultivation, drainage furrows are used to drain the field of excess water.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: SP3-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30')			
1. Lolium perenne	25	Y	FACU
2. Limnosciadium pumilum	20	Y	OBL
3. Cynodon dactylon	10		FACU
4. Eragrostis refracta	10		FACW
5. Juncus marginatus	8		FACW
6. Cyperus virens	5		FACW
7. Juncus acuminatus	2		OBL
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		

50% of total cover: 40 20% of total cover: 16

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	22	x 1 =	22
FACW species	23	x 2 =	46
FAC species		x 3 =	
FACU species	35	x 4 =	140
UPL species		x 5 =	
Column Totals:	80 (A)		208 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (If observed, list morphological adaptations below).

Hydrologic and hydric soils indicators are present.

SOIL

Sampling Point: SP3-6

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
0-4	10yr3/1	98	10yr5/8	2	C	M	Clay	
4-18	10yr4/1	75	10yr5/8	5	C	M	Clay	
			10yr6/1	20	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ 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 observed):

Type: _____

Depth (inches): _____

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

Remarks:

Photo 39: SP3-6 Soil Profile

Photo 40: SP3-6 Habitat

Appendix C
iHGM Credit Determination

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

January 14, 2021

REPLY TO
ATTENTION OF:

Compliance Branch

SUBJECT: **SWG-2018-00742,** McCoy Ranch Wetland Mitigation Bank, iHGM Baseline Verification, Liberty County, Texas

Mr. Chad Butler
Texas Regulatory Manager
Delta Land Services, LLC
6750 West Loop South #780
Bellaire, Texas 77401

Dear Mr. Butler:

This letter is in response to the request for a baseline functional assessment received on March 4, 2020 on the 710.1 acres of jurisdictional wetlands that were confirmed in our 2020 approved delineation verification for the McCoy Ranch Wetland Mitigation Bank. The 1,318-acre tract is located approximately four miles east of Crosby in Liberty County, Texas.

These 710.1 acres of jurisdictional wetlands on the 1,318-acre tract were divided into eight wetland assessment areas (WAAs) as depicted on the attached map. WAAs are identified by their wetland characteristics and similarities in the hydrogeomorphic setting. Using the previously verified wetland delineation and data, combined with other pertinent site-specific information, each WAA was measured for its potential functional capacity as it relates to the nearby waterway (Cedar Bayou) using the Galveston District riverine forested interim Hydrogeomorphic model (iHGM) and the riverine herbaceous/shrub iHGM. Every WAA has numerous variables that are independently scored, recorded and input into a mathematic equation yielding a numerical score referenced as functional capacity indices (FCIs). FCIs were measured and recorded for each WAA in three categories: Temporary Storage and Detention of Storage Water (TSDSW), Maintain Plant and Animal Community (MPAC) and Removal and Sequestration of Elements and Compounds (RSEC). The FCI score is multiplied by the acreage of that WAA which results in functional capacity units (FCUs). Based on the final verification review, the total riverine forested iHGM FCUs are: 408.41 FCUs TSDSW, 417.84 FCUs MPAC, and 438.29 FCUs RSEC as shown in the attached table. Based on the final verification review, the total riverine herbaceous/shrub iHGM FCUs are: 9.34 FCUs TSDSW, 15.30 FCUs MPAC, and 13.10 FCUs RSEC as shown in the attached table.

This iHGM verification remains valid for the confirmed jurisdictional wetlands on this tract and is based on the conditions existing at the time the model and delineation verification was completed. If you have any questions contact Ms. Lynne Ray, Regulatory Specialist, at the letterhead address or by telephone at 409-766-6322 and reference file number **SWG-2018-00742**. To assist us in improving our service to you, please complete the survey found at: http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0 and/or, if you would prefer a hard copy of the survey form, please let us know, and one will be mailed to you.

Sincerely,

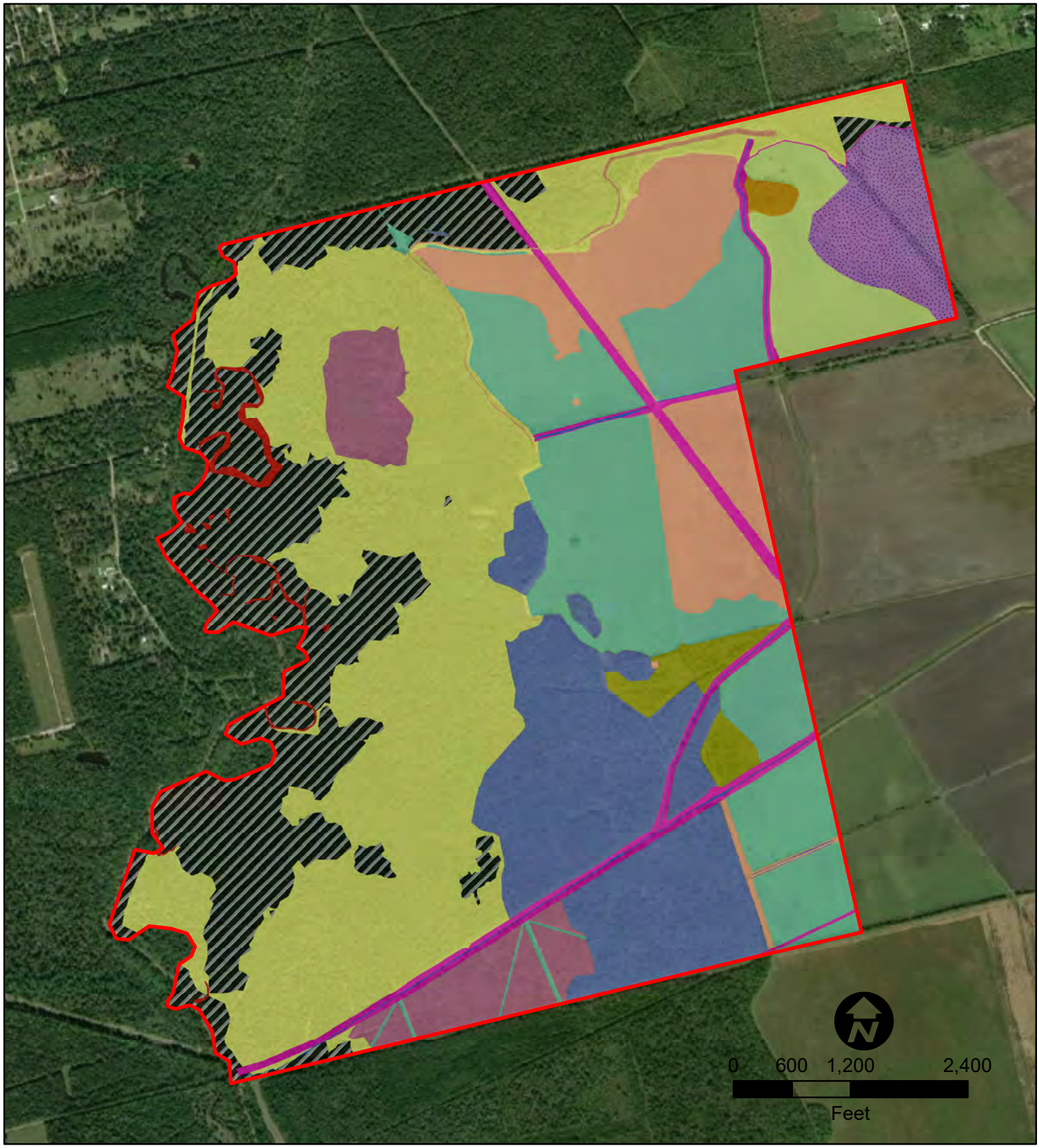
John Davidson
Acting Chief, Compliance Branch

Attachments

SWG 2018-00742
Delta Land Services
iHGM
McCoy Ranch Wetland Mitigation Bank
Liberty County, Texas

Class	WAA1	WAA2	WAA3	WAA4	WAA5	WAA6	WAA7	WAA8	Total
Vdur (Forested, Herbaceous)	0.50	0.75	0.75	1.00	0.25	0.25	0.25	0.25	
Vfreq (Forested, Herbaceous)	1.00	1.00	0.75	1.00	0.25	0.25	0.25	0.25	
Vtopo (Forested, Herbaceous)	0.10	1.00	0.70	1.00	0.10	0.10	0.10	0.10	
Vcwd (Forested)	0.30	1.00	1.00	1.00	0.00	0.00	0.10	0.10	
Vwood (Forested, Herbaceous)	1.00	1.00	1.00	0.50	0.10	0.75	0.10	0.10	
Vtree (Forested)	0.30	0.80	0.50	0.30	0.00	0.00	0.10	0.30	
Vrich (Forested)	1.00	1.00	1.00	1.00	0.00	0.00	0.10	0.40	
Vbasal (Forested)	0.40	0.60	1.00	0.40	0.00	0.00	0.10	0.40	
Vdensity (Forested)	1.00	1.00	0.60	1.00	0.00	0.00	0.10	0.40	
Vmid (Forested, Herbaceous)	1.00	1.00	0.75	0.50	0.10	0.25	0.10	0.50	
Vherb (Forested, Herbaceous)	0.30	1.00	1.00	0.30	0.50	0.25	0.10	1.00	
Vdetritus (Forested, Herbaceous)	1.00	0.50	1.00	1.00	1.00	1.00	1.00	0.50	
Vredox (Forested, Herbaceous)	0.10	0.10	1.00	0.10	0.10	0.10	0.10	0.10	
Vsorpt (Forested, Herbaceous)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Vconnect (Forested, Herbaceous)	1.00	1.00	0.50	1.00	0.50	0.50	0.50	0.75	
Acres	63.90	200.70	165.00	15.40	39.90	2.02	203.80	19.50	
Temporary Storage and Detention of Storage Water (TSDSW) FCI	0.57	0.93	0.82	0.91	0.22	0.21	0.16	0.16	
Maintain Plant and Animal Community (MPAC) FCI	0.66	0.93	0.78	0.73	0.37	0.33	0.17	0.45	
Removal and Sequestration of Elements and Compounds (RSEC) FCI	0.73	0.86	0.88	0.81	0.31	0.43	0.28	0.25	
FCU									
TSDSW FCU (FCI*Acres)	36.71	186.77	135.56	14.06	8.92	0.42	32.22	3.08	**417.75**
MPAC FCU (FCI*Acres)	42.07	187.32	128.56	11.29	14.63	0.67	33.97	8.78	**427.29**
RSEC FCU (FCI*Acres)	46.86	171.93	145.20	12.42	12.24	0.87	57.06	4.81	**451.39**

Riverine Forested	
TSDSW FCU (FCI*Acres)	408.41
MPAC FCU (FCI*Acres)	411.99
RSEC FCU (FCI*Acres)	438.29
Riverine Herbaceous/Shrub	
TSDSW FCU (FCI*Acres)	9.34
MPAC FCU (FCI*Acres)	15.30
RSEC FCU (FCI*Acres)	13.10



- Project Area (1297.0 ac)
- WAA 1 – RF Enhancement (57.4 ac)
- WAA 2 – RF Mosaic Pres (386.9) (200.7 acres)*
- WAA 3 – RF Preservation (165.0 ac)
- WAA 4 – RF Preservation Oxbows (8.4 ac)
- WAA 5 – RHS Rehabilitation (39.9 ac)
- WAA 6 – RHS Rehabilitation (3.9) (2.0 ac)*
- WAA 7 – RF Rehabilitation (203.8 ac)
- WAA 8 – RF Rehabilitation (19.5 ac)
- WAA 9 – RF Re-establishment (116.0 ac)
- WAA 10 – RHS Re-establishment (42.0 ac)
- Other Waters (3.3 ac)
- Upland (209.8 ac)
- Non-Mitigation (42.9 ac)

*Note: The Mosaic acreage is based on 51.89% of the total area
*Note: WAA 6 includes existing wetland acreage only with the remainder in WAA 10

McCoy Ranch Mitigation Bank

WAA MAP

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : WAAmap.mxd	

FIGURE C-1

Table C-1. Predicted iHGM Wetland FCU Lift by WAA.

WAA1 Riverine Forested Enhancement 57.4 Acres	Year 0 Baseline	Year 10 Lift	Total Lift by Function		Total PFO Lift
Physical	33.0	40.4	7.41		**259.13**
Biological	37.8	55.2	17.46		**305.21**
Chemical	42.1	48.2	6.12		**251.47**
WAA2 Riverine Forested Preservation 200.7 Acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function***		**Total PEM/PSS Lift**
Physical	186.8	186.8	18.68		**44.13**
Biological	187.3	187.3	18.73		**41.14**
Chemical	171.9	171.9	17.19		**43.60**
WAA3 Riverine Forested Preservation 165.0 Acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function***		
Physical	135.6	135.6	13.56		
Biological	128.6	128.6	12.86		
Chemical	145.2	145.2	14.52		
WAA4 Riverine Forested Preservation 8.4 Acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function***		
Physical	7.7	7.7	0.77		
Biological	6.2	6.2	0.62		
Chemical	6.8	6.8	0.68		
WAA5 Riverine Herb-Shrub Rehabilitation 39.9 acres	**Year 0 Baseline**	**Year 5 Lift**	**Total Lift by Function**		
Physical	8.9	26.6	17.7		
Biological	14.6	26.6	12.0		
Chemical	12.2	27.8	15.6		
WAA6 Riverine Herb-Shrub Rehabilitation 2.0 acres	**Year 0 Baseline**	**Year 5 Lift**	**Total Lift by Function**		
Physical	0.2	1.4	1.2		
Biological	0.3	1.5	1.2		
Chemical	0.4	1.3	0.9		
WAA7 Riverine Forested Re-establishment 203.8 acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function**		
Physical	32.2	167.4	135.2		
Biological	42.5	184.3	141.8		
Chemical	57.1	179.3	122.3		
WAA8 Riverine Forested Rehabilitation 19.5 acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function**		
Physical	3.1	12.5	9.4		
Biological	8.8	17.6	8.9		
Chemical	4.8	12.7	7.9		
WAA9 Riverine Forested Re-establishement 116.0 acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function**		
Physical	0.0	74.1	74.1		
Biological	0.0	104.9	104.9		
Chemical	0.0	82.7	82.7		
WAA10 Riverine Herb-Shrub Re-establishment 42.0 acres	**Year 0 Baseline**	**Year 5 Lift**	**Total Lift by Function**		
Physical	0.0	25.3	25.3		
Biological	0.0	28.0	28.0		
Chemical	0.0	27.2	27.2		

*PFO preservation, 10% of baseline FCU was used for credit generation

Table C-2. Functional Capacity Units (FCU) by WAA and Mitigation Type, McCoy Ranch Mitigation Bank.

Wetland Restoration by WAA	Acres	Phys FCU	Biol FCU	Chem FCU
WAA1 Riverine Forested Enhancement 57.4 Acres	57.4	7.41	17.46	6.12
WAA2 Riverine Forested Preservation 200.7 Acres	200.7	18.68	18.73	17.19
WAA3 Riverine Forested Preservation 165.0 Acres	165.0	13.56	12.86	14.52
WAA4 Riverine Forested Preservation 8.4 Acres	8.4	0.77	0.62	0.68
WAA5 Riverine Herb-Shrub Rehabilitation 39.9 acres	39.9	17.66	12.0	15.6
WAA6 Riverine Herb-Shrub Rehabilitation 2.0 acres	2.0	1.2	1.2	0.9
WAA7 Riverine Forested Re-establishment 203.8 acres	203.8	135.2	141.8	122.3
WAA8 Riverine Forested Rehabilitation 19.5 acres	19.5	9.4	8.9	7.9
WAA9 Riverine Forested Re-establishement 116.0 acres	116.0	74.1	104.9	82.7
WAA10 Riverine Herb-Shrub Re-establishment 42.0 acres	42.0	25.3	28.0	27.2
Total	**854.7**	**303.26**	**346.35**	**295.07**

McCoy Ranch Mitigation Bank

WAA 1

WAA1 Riverine Forested Enhancement Year 0 (Tallow dominated)	**Riverine Forested**
Acreage	**57.40**
Variable	**Baseline**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	0.10
Vcwd: Course woody debris	0.30
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.40
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	1.00
Vherb: Herbaceous layer	0.30
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.574
Biological FCI: Maintain Plant and Animal Community	0.658
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.733

Physical FCU: Temporary Storage & Detention of Storage Water	32.973
Biological FCU: Maintain Plant and Animal Community	37.788
Chemical FCU: Removal & Sequestration of Elements & Compounds	42.093

McCoy Ranch Mitigation Bank

WAA 1

WAA1 Riverine Forested Enhancement Year 10 (Tallow dominated)	**Riverine Forested**
Acreage	**57.40**
Variable	**Post**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	0.10
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.80
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.704
Biological FCI: Maintain Plant and Animal Community	0.963
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.840

Physical FCU: Temporary Storage & Detention of Storage Water	40.38
Biological FCU: Maintain Plant and Animal Community	55.25
Chemical FCU: Removal & Sequestration of Elements & Compounds	48.22

WAA2 Riverine Forested Preservation Year 0 (Mosaic)	Riverine Forested
Acreage	**200.70**
Variable	**Baseline**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.80
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	1.00
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	0.50
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.931
Biological FCI: Maintain Plant and Animal Community	0.933
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.857

Physical FCU: Temporary Storage & Detention of Storage Water	186.77
Biological FCU: Maintain Plant and Animal Community	187.32
Chemical FCU: Removal & Sequestration of Elements & Compounds	171.93

WAA2 Riverine Forested Preservation Year 10 (Mosaic)	Riverine Forested
Acreage	**200.70**
Variable	**Post**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.80
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	1.00
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	0.50
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.931
Biological FCI: Maintain Plant and Animal Community	0.933
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.857

Physical FCU: Temporary Storage & Detention of Storage Water	186.77
Biological FCU: Maintain Plant and Animal Community	187.32
Chemical FCU: Removal & Sequestration of Elements & Compounds	171.93

WAA3 Riverine Forested Preservation Year 0	Riverine Forested
Acreage	**165.00**
Variable	**Baseline**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.50
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	1.00
Vdensity: Tree density	0.60
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.50

Physical FCI: Temporary Storage & Detention of Storage Water	0.822
Biological FCI: Maintain Plant and Animal Community	0.779
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.880

Physical FCU: Temporary Storage & Detention of Storage Water	135.56
Biological FCU: Maintain Plant and Animal Community	128.56
Chemical FCU: Removal & Sequestration of Elements & Compounds	145.20

WAA3 Riverine Forested Preservation Year 10	Riverine Forested
Acreage	**165.00**
Variable	**Post**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.50
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	1.00
Vdensity: Tree density	0.60
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.50

Physical FCI: Temporary Storage & Detention of Storage Water	0.822
Biological FCI: Maintain Plant and Animal Community	0.779
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.880

Physical FCU: Temporary Storage & Detention of Storage Water	135.56
Biological FCU: Maintain Plant and Animal Community	128.56
Chemical FCU: Removal & Sequestration of Elements & Compounds	145.20

WAA4 Riverine Forested Preservation Year 0 (Oxbow)	Riverine Forested
Acreage	**8.40**
Variable	**Baseline**
Vdur: Duration of flooding	1.00
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.50
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.40
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	0.30
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.913
Biological FCI: Maintain Plant and Animal Community	0.733
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.807

Physical FCU: Temporary Storage & Detention of Storage Water	7.67
Biological FCU: Maintain Plant and Animal Community	6.16
Chemical FCU: Removal & Sequestration of Elements & Compounds	6.78

WAA4 Riverine Forested Preservation Year 10 (Oxbow)	Riverine Forested
Acreage	**8.40**
Variable	**Post**
Vdur: Duration of flooding	1.00
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.50
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.40
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	0.30
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.913
Biological FCI: Maintain Plant and Animal Community	0.733
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.807

Physical FCU: Temporary Storage & Detention of Storage Water	7.67
Biological FCU: Maintain Plant and Animal Community	6.16
Chemical FCU: Removal & Sequestration of Elements & Compounds	6.78

McCoy Ranch Mitigation Bank
WAA 5

WAA5 Riverine Herbaceous Shrub Rehabilitation Year 0	
Acreage	**39.90**
Variable	**Index Value**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vwood: Woody vegetation	0.10
Vmid: Midstory (Shrub/sapling/woody vines)	0.10
Vherb: Herbaceous layer	0.50
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.224
Biological FCI: Maintain Plant and Animal Community	0.367
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.307
Physical FCU: Temporary Storage & Detention of Storage Water	8.922
Biological FCU: Maintain Plant and Animal Community	14.630
Chemical FCU: Removal & Sequestration of Elements & Compounds	12.236

McCoy Ranch Mitigation Bank
WAA 5

WAA5 Riverine Herbaceous Shrub Rehabilitation Year 5	
Acreage	**39.90**
Variable	**Index Value**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vwood: Woody vegetation	0.50
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	1.00
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.666
Biological FCI: Maintain Plant and Animal Community	0.667
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.697
Physical FCU: Temporary Storage & Detention of Storage Water	26.586
Biological FCU: Maintain Plant and Animal Community	26.600
Chemical FCU: Removal & Sequestration of Elements & Compounds	27.797

McCoy Ranch Mitigation Bank
WAA 6

WAA6 Riverine Herbaceous Shrub Rehabilitation Year 0	
Acreage	**2.00**
Variable	**Index Value**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vwood: Woody vegetation	0.75
Vmid: Midstory (Shrub/sapling/woody vines)	0.25
Vherb: Herbaceous layer	0.25
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.209
Biological FCI: Maintain Plant and Animal Community	0.333
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.430
Physical FCU: Temporary Storage & Detention of Storage Water	0.418
Biological FCU: Maintain Plant and Animal Community	0.667
Chemical FCU: Removal & Sequestration of Elements & Compounds	0.860

McCoy Ranch Mitigation Bank
WAA 6

WAA6 Riverine Herbaceous Shrub Rehabilitation Year 5	
Acreage	**2.00**
Variable	**Index Value**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vwood: Woody vegetation	0.50
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.694
Biological FCI: Maintain Plant and Animal Community	0.750
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.653
Physical FCU: Temporary Storage & Detention of Storage Water	1.389
Biological FCU: Maintain Plant and Animal Community	1.500
Chemical FCU: Removal & Sequestration of Elements & Compounds	1.307

WAA7 Riverine Rehabilitation Year 0	Riverine Forested
Acreage	**203.80**
Variable	**Baseline**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vcwd: Course woody debris	0.10
Vwood: Woody vegetation	0.10
Vtree: Tree species	0.10
Vrich: Tree richness/diversity	0.10
Vbasal: Tree basal area	0.10
Vdensity: Tree density	0.10
Vmid: Midstory (Shrub/sapling/woody vines)	0.10
Vherb: Herbaceous layer	0.10
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.158
Biological FCI: Maintain Plant and Animal Community	0.208
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.280

Physical FCU: Temporary Storage & Detention of Storage Water	32.22
Biological FCU: Maintain Plant and Animal Community	42.46
Chemical FCU: Removal & Sequestration of Elements & Compounds	57.06

WAA7 Riverine Rehabilitation Year 10	Riverine Forested
Acreage	**203.80**
Variable	**Baseline**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.822
Biological FCI: Maintain Plant and Animal Community	0.904
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.880

Physical FCU: Temporary Storage & Detention of Storage Water	167.44
Biological FCU: Maintain Plant and Animal Community	184.27
Chemical FCU: Removal & Sequestration of Elements & Compounds	179.34

WAA8 Riverine Forested Rehabilitation Year 0	Riverine Forested
Acreage	**19.50**
Variable	**Base**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vcwd: Course woody debris	0.10
Vwood: Woody vegetation	0.10
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	0.40
Vbasal: Tree basal area	0.40
Vdensity: Tree density	0.40
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	0.50
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.158
Biological FCI: Maintain Plant and Animal Community	0.450
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.247

Physical FCU: Temporary Storage & Detention of Storage Water	3.08
Biological FCU: Maintain Plant and Animal Community	8.78
Chemical FCU: Removal & Sequestration of Elements & Compounds	4.81

WAA8 Riverine Forested Rehabilitation Year 10	Riverine Forested
Acreage	**19.50**
Variable	**Post**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.75
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.639
Biological FCI: Maintain Plant and Animal Community	0.904
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.653

Physical FCU: Temporary Storage & Detention of Storage Water	12.46
Biological FCU: Maintain Plant and Animal Community	17.63
Chemical FCU: Removal & Sequestration of Elements & Compounds	12.74

WAA9 Riverine Forested Re-establishment Year 0	Riverine Forested
Acreage	**116.00**
Variable	**Baseline**
Vdur: Duration of flooding	0.00
Vfreq: Frequency of flooding	0.00
Vtopo: Topography	0.00
Vcwd: Course woody debris	0.00
Vwood: Woody vegetation	0.00
Vtree: Tree species	0.00
Vrich: Tree richness/diversity	0.00
Vbasal: Tree basal area	0.00
Vdensity: Tree density	0.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.00
Vherb: Herbaceous layer	0.00
Vdetritus: Detritus	0.00
Vredox: Redoximorphic process	0.00
Vsorpt: Sorptive Soil Properties	0.00
Vconnect: Connectivity to other habitat types	0.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.000
Biological FCI: Maintain Plant and Animal Community	0.000
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.000

Physical FCU: Temporary Storage & Detention of Storage Water	0.00
Biological FCU: Maintain Plant and Animal Community	0.00
Chemical FCU: Removal & Sequestration of Elements & Compounds	0.00

WAA9 Riverine Forested Re-establishment Year 10	Riverine Forested
Acreage	**116.00**
Variable	**Post**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.75
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.639
Biological FCI: Maintain Plant and Animal Community	0.904
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.713

Physical FCU: Temporary Storage & Detention of Storage Water	74.13
Biological FCU: Maintain Plant and Animal Community	104.88
Chemical FCU: Removal & Sequestration of Elements & Compounds	82.75

McCoy Ranch Mitigation Bank
WAA 10

WAA10 Riverine Herbaceous Shrub Re-establishment Year 0		
Acreage	**42.00**	
Variable	**Index Value**	
Vdur: Duration of flooding	0.00	
Vfreq: Frequency of flooding	0.00	
Vtopo: Topography	0.00	
Vwood: Woody vegetation	0.00	
Vmid: Midstory (Shrub/sapling/woody vines)	0.00	
Vherb: Herbaceous layer	0.00	
Vconnect: Connectivity to other habitat types	0.00	
Vdetritus: Detritus	0.00	
Vredox: Redoximorphic process	0.00	
Vsorpt: Sorptive Soil Properties	0.00	

Physical FCI: Temporary Storage & Detention of Storage Water	0.000
Biological FCI: Maintain Plant and Animal Community	0.000
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.000
Physical FCU: Temporary Storage & Detention of Storage Water	0.000
Biological FCU: Maintain Plant and Animal Community	0.000
Chemical FCU: Removal & Sequestration of Elements & Compounds	0.000

McCoy Ranch Mitigation Bank
WAA 10

WAA10 Riverine Herbaceous Shrub Re-establishment Year 10	
Acreage	**42.00**
Variable	**Index Value**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vwood: Woody vegetation	0.50
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	1.00
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.602
Biological FCI: Maintain Plant and Animal Community	0.667
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.647
Physical FCU: Temporary Storage & Detention of Storage Water	25.287
Biological FCU: Maintain Plant and Animal Community	28.000
Chemical FCU: Removal & Sequestration of Elements & Compounds	27.160

Appendix D
Cultural Resources Background Review

PERENNIAL
Environmental Services
5424 W. US Hwy 290, Suite 208
Austin, Texas 78735

MEMORANDUM

Date	May 6, 2020
Prepared by	Abby Peyton, MA, RPA
Prepared for	Delta Land Services, LLC
Project	McCoy Ranch Mitigation Bank, Liberty County, Texas
Subject	Cultural Resources Background Review

Introduction

On behalf of Delta Land Services, LLC (Delta), Perennial Environmental Services, LLC (Perennial) completed a desktop analysis for the McCoy Ranch Mitigation Bank (Project) located in Liberty County, Texas (Attachment 1). Delta proposes to conduct minor activities such as tree planting and native habitat restoration within an approximately 1,297.0-acre (ac) property located in Liberty County, Texas.

The Project area is located approximately 7.0 miles (mi) northwest of the oil and gas processing hub of Mont Belvieu, Texas. Cedar Bayou forms the western Project area boundary. Approximately half of the Project area is comprised of a wide, and densely wooded riparian corridor that has remained mostly intact and undeveloped, with the exception of logging roads and utility rights-of-way that form a network of cleared corridors. The eastern portion of the Project area consists of a series of cleared pastures with aerial evidence of episodic landscape terracing. The mapped soil profiles within the Project area consist of dense clayey soils with a shallow A-horizon extending to an average depth of 7.0 to 20.0 centimeters (cm) below the surface (NRCS 2020). Geologically, the entirety of the Project area is underlain by the Late Pleistocene-age Beaumont formation (USGS 2020; Tables 1 and 2).

Table 1. Soil Map Units within the Project area

Map Unit	Texture and Drainage	General Location
League clay, 0 to 1 percent slopes (LeaA)	The League series consists of very deep, somewhat poorly drained, very slowly permeable soils. These nearly level soils formed in clayey fluviomarine deposits derives from the Beaumont Formation. The soil series generally has an A-Horizon ranging from 0 to 15cm deep.	Coastal Plains
Labelle clay loam, 0 to 1 percent slopes (LabA)	The Labelle series consists of very deep, somewhat poorly drained soils. These nearly level soils formed in loamy fluviomarine deposits of the Beaumont Formation. The soil series generally has an A-Horizon ranging from 0 to 7 cm deep.	Flat coastal plains

Table 1. Soil Map Units within the Project area		
Map Unit	**Texture and Drainage**	**General Location**
Mocarey-Yeaton complex, 0 to 1 percent slopes	The Mocarey and Yeaton series both consist of very deep, moderately well drained, moderately slow permeable soils. These nearly level soils formed in loamy fluviomarine deposits of the Beaumont Formation. These soil series generally have an A-Horizon ranging from 0 to 20 cm deep.	Flat coastal plain

Table 2. Geological Units within the Project area			
Geologic Map Unit	**Description**	**Geologic Age**	**Percent of Project area underlain by Geologic Map Unit**
Beaumont Formation (Qbc)	The formation contains ridge deposits formed from fluvial processes including stream channels, point bars, crevasse splays and natural levees and can leave meander belt ridges and pimple mounds present on the landscape	Quaternary, Late Pleistocene	100 %

Methods

Perennial archaeologists conducted a records and literature review of the Texas Historical Commission (THC)'s Texas Archeological Sites Atlas (Atlas) online database and the NRHP database to identify previously recorded cultural resource sites, historic structures, properties listed in the National Register of Historic Places (NRHP), designated historic districts, or State Antiquities Landmarks (SAL) which could potentially be affected by the proposed undertaking. Any previously recorded cultural resource site forms, reports of archaeological investigations, general historical documents, and secondary sources concerning the background of the area were reviewed. The records search included a review of all previously recorded site forms, cemetery data, and surveys on file within a 1.0-mi (1.6-km) review radius of the Project.

In addition to a records and literature search, archaeologists gathered information from secondary sources concerning the prehistoric and historic background of the area. Documents associated with the history of the area were used to model prehistoric and historic settlement patterns in relation to the landscape and terrain characteristics as well as cultural patterns and regional trends. Natural Resources Conservation Service (NRCS) soil data, US Geological Survey (USGS) 7.5-minute topographic quadrangles, aerial photographs, and contemporary geologic and physiographic features were also examined.

The background review revealed that no previously recorded archeological sites or cemeteries are mapped within the Project area. One cemetery (Harvey Cemetery) is mapped approximately 0.5-mi northwest of the Project area. The closest previously recorded archeological site (41LB119) is located approximately 1.9-mi east of the Project area and consists of a historic refuse pile recommended as not eligible for listing in the NRHP.

A review of aerial imagery ranging from 1944 through the present depicts several structures and features within the Project area. Specifically, a structure as well as an oil and gas facility appear on 1944 imagery in the northeastern corner of the Project area (Figure 1). By 1996, structures or facilities are no longer shown at these locations, and the adjacent pastures appear to have been more intensively modified to facilitate farming practices (Figure 2).

Additionally, the background review also revealed a total of two previous archaeological surveys have been conducted within 1.0 mi (1.6 km) of the Project (see Attachment 1). These archaeological investigations consist of Phase I surveys conducted on behalf of pipeline and roadway projects. None of the surveys identified are adjacent to or overlap the Project area.

Overall, very little survey work has been done in the immediate region, which accounts for the low number of previously recorded properties across the broader review radius. The limited survey work has typically been restricted to narrow linear corridors, such as those for oil and gas-related development, or roadway infrastructure. While there is little previous survey or site data for the Project, a broader review of the region indicates that prehistoric archeological sites are primarily situated on terrace formations adjacent to major waterways.

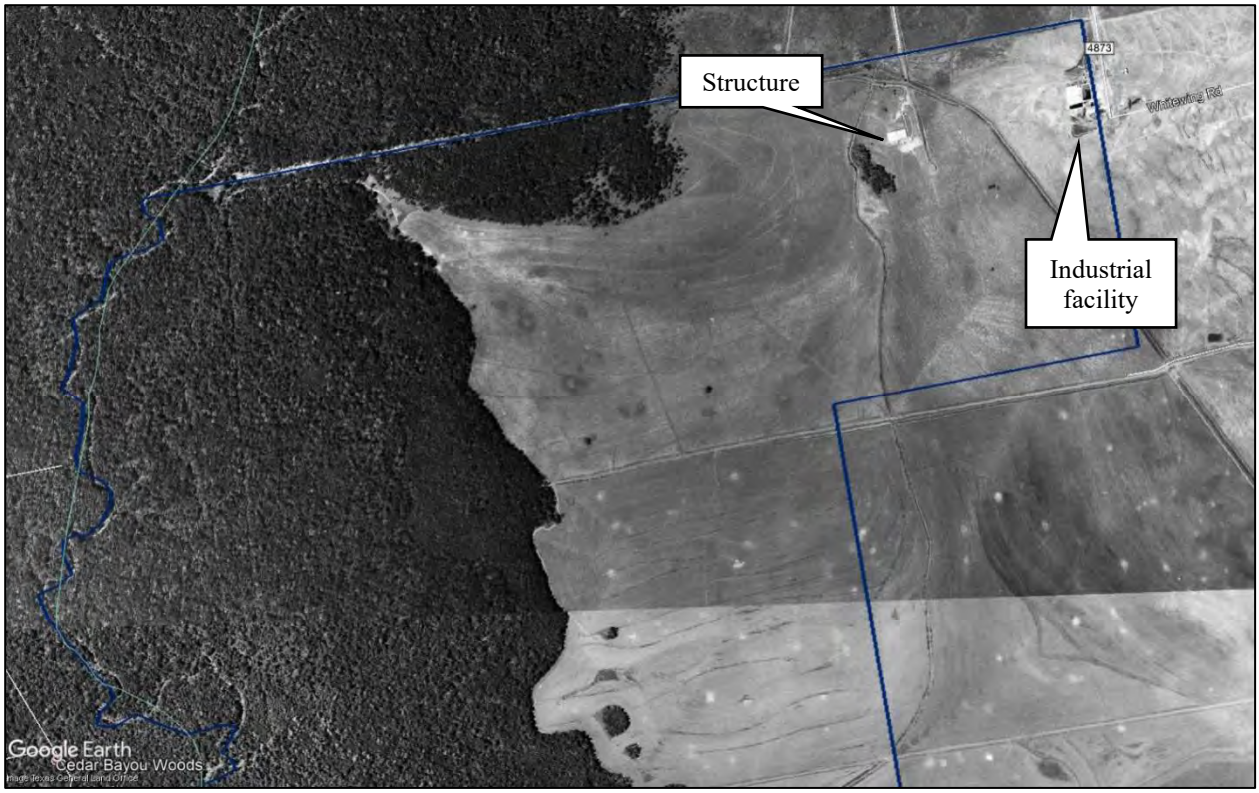


Figure 1. 1944 aerial imagery of the NE quadrant of the Project area

Figure 2. 1996 aerial imagery of the Project area with structures and facilities no longer present

Conclusions

Overall, the Project area is located within a setting that has remained relatively undeveloped overtime, with no previously recorded sites or surveys documented within or adjacent to the Project area. Undocumented cultural materials, if present, would likely be situated along terrace formations that flank Cedar Bayou, or in the northeastern portion of the Project area as indicated by historic imagery.

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Environmental Services
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Austin, Texas 78735

References Cited

(Atlas) Texas Archeological Sites Atlas
2020 Texas Archeological Site Atlas restricted database, Texas Historical Commission. http://nueces.thc. state.tx.us/, accessed May 4, 2020

(NRCS) Natural Resources Conservation Service
2020 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. http://websoilsurvey.nrcs.usda.gov. Accessed May 4, 2020

(USGS) United States Geological Survey
2020 Mineral Resources Online Spatial Data, United States Department of the Interior. *Geologic Maps of US States.* https://mrdata.usgs.gov/geology/state/state.php?state=TX. Accessed May 4, 2020.

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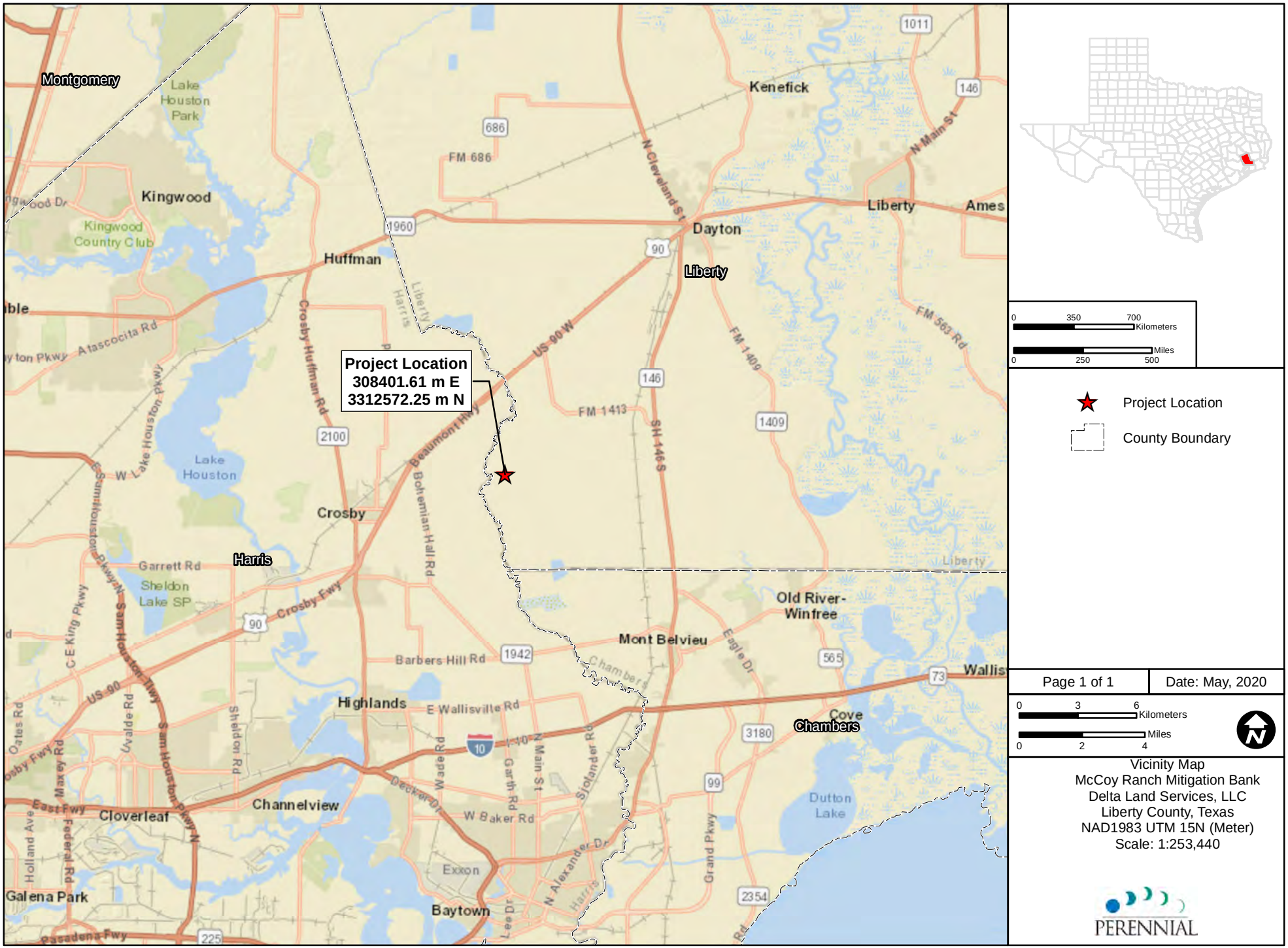
Austin, Texas 78735

ATTACHMENT 1 – PROJECT MAPPING



Page 1 of 1 | Date: May, 2020

Vicinity Map
McCoy Ranch Mitigation Bank
Delta Land Services, LLC
Liberty County, Texas
NAD1983 UTM 15N (Meter)
Scale: 1:253,440

PERENNIAL

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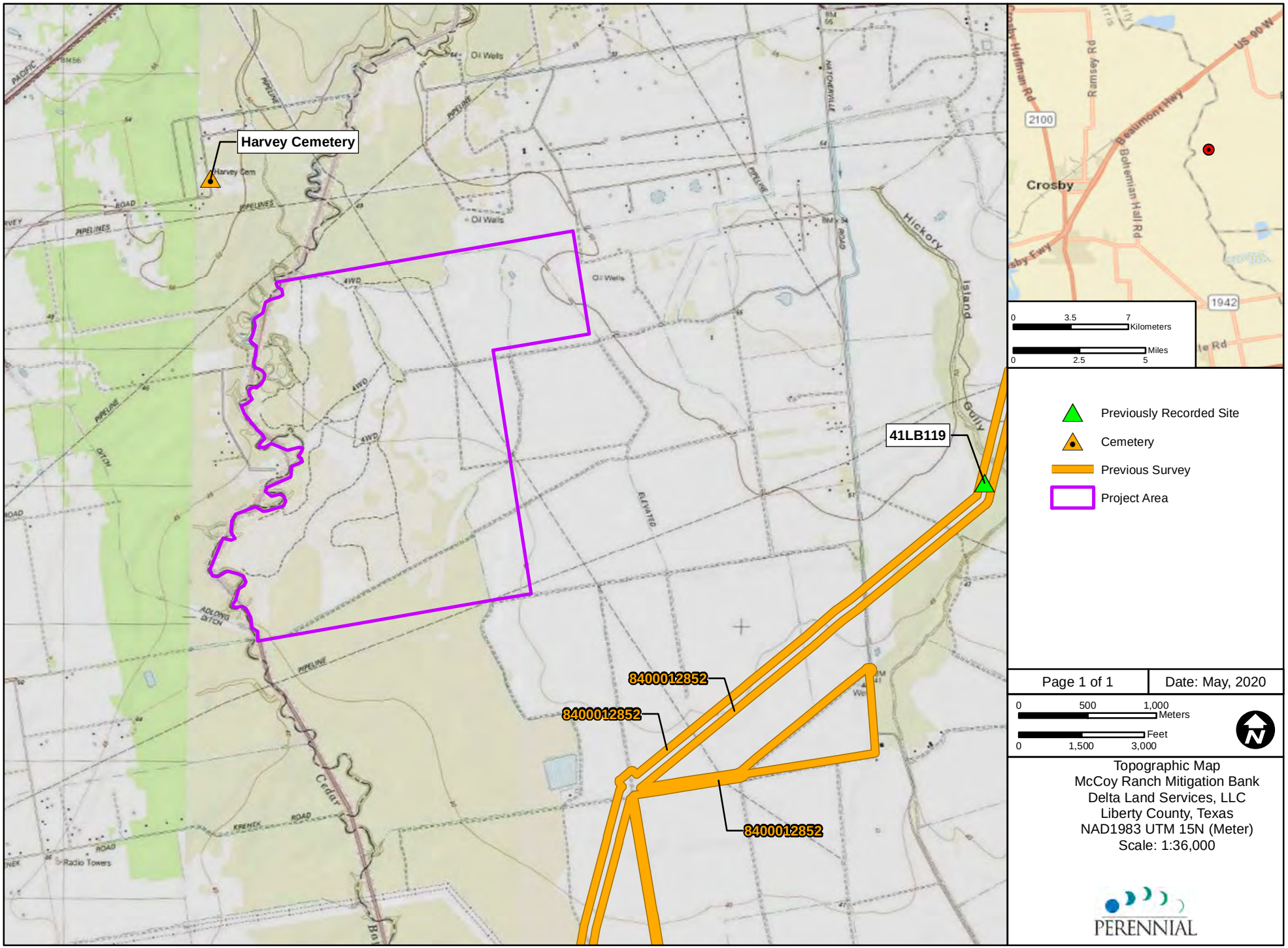

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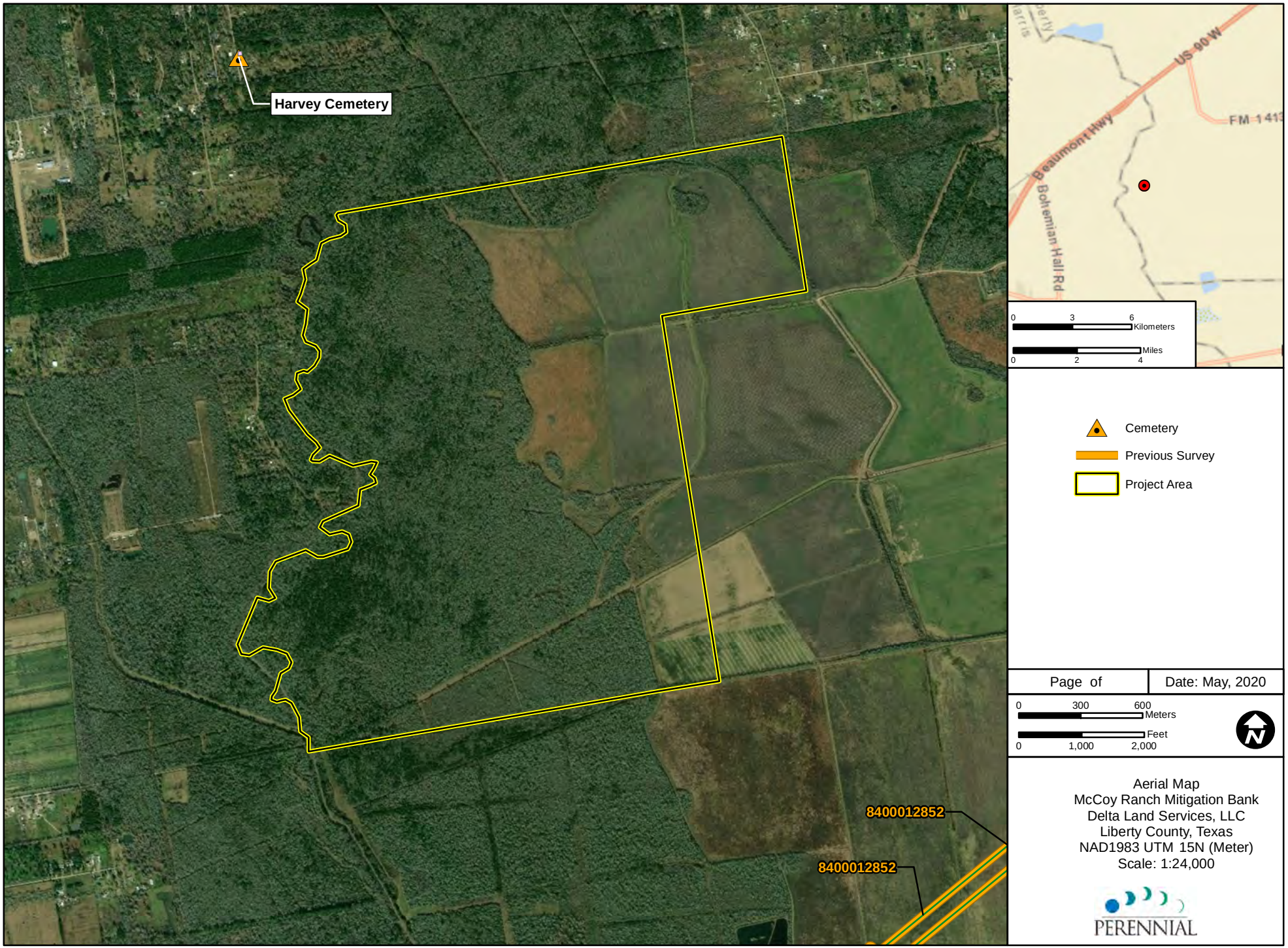

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Appendix E
Survey Plat, Title Commitment and Title Opinion

JULIANA MALLEY SURVEY, ABSTRACT NO. 71
LIBERTY COUNTY, TEXAS

500 0 250 500 1000 2000
U.S. SURVEY FEET

LEGEND

fd. = found
LCDR = Liberty County Deed Records
LCOPR = Liberty County Official Public Records
LCPR = Liberty County Plat Records
POB = Point Of Beginning
wit. = witness

LINE	BEARING	DISTANCE
L1	N 03°55'12" W	228.22'
L2	N 59°22'12" W	167.36'
L3	N 08°18'12" W	225.91'
L4	N 31°16'12" W	256.17'
L5	N 64°12'12" W	107.51'
L6	S 77°26'20" W	71.45'
L7	S 70°32'14" W	75.72'
L8	N 70°46'01" W	88.46'
L9	N 00°55'59" W	52.61'
L10	N 32°34'21" E	102.96'
L11	N 11°37'21" E	293.08'
L12	N 55°14'41" E	156.73'
L13	N 21°06'20" E	101.36'
L14	N 30°38'40" W	157.56'
L15	N 73°20'58" W	171.57'
L16	N 83°19'44" W	225.56'
L17	S 56°28'19" W	256.51'
L18	N 83°58'12" W	123.96'
L19	N 26°31'12" W	161.76'
L20	N 18°55'48" E	810.04'
L21	S 79°25'12" E	194.85'
L22	N 61°19'48" E	107.91'
L23	N 35°21'12" W	189.50'
L24	N 00°00'48" E	259.01'
L25	N 27°05'48" E	182.88'
L26	N 65°41'48" E	512.19'
L27	S 63°37'51" E	210.02'
L28	N 84°35'07" E	98.54'
L29	N 68°04'08" E	408.03'
L30	N 22°54'47" E	121.88'
L31	N 22°46'40" W	128.63'
L32	N 69°35'55" W	111.21'
L33	S 73°16'37" W	204.99'
L34	N 57°28'44" W	192.10'
L35	N 20°30'48" E	105.35'
L36	N 62°34'48" E	623.38'
L37	N 02°27'48" E	255.92'
L38	N 65°17'55" E	167.29'
L39	N 59°07'10" E	106.17'
L40	N 17°49'20" W	75.99'
L41	N 56°01'59" W	97.63'
L42	N 31°15'17" E	111.85'
L43	N 20°56'47" E	106.42'
L44	N 82°57'29" W	90.59'
L45	S 72°38'48" W	295.35'
L46	N 70°27'12" W	407.59'
L47	S 57°05'15" W	187.30'
L48	S 89°13'44" W	111.24'
L49	N 55°27'15" W	33.51'
L50	N 18°50'39" E	85.87'
L51	N 41°21'50" E	157.24'
L52	N 37°17'46" W	106.81'
L53	N 50°28'12" W	188.53'
L54	N 41°52'12" W	483.58'
L55	N 25°51'12" W	195.88'
L56	N 63°35'48" E	152.87'
L57	N 48°54'48" E	154.28'
L58	N 30°49'12" W	165.12'
L59	N 02°27'48" E	107.26'
L60	N 65°03'48" E	114.70'
L61	S 78°10'47" E	62.29'
L62	N 46°53'43" E	151.01'
L63	N 25°26'42" E	149.00'
L64	N 01°20'38" E	105.37'
L65	N 41°16'19" W	98.14'
L66	N 68°14'44" W	105.19'
L67	N 75°04'50" W	72.95'
L68	N 27°40'12" W	116.64'
L69	N 11°12'48" E	189.87'
L70	N 01°52'48" E	234.27'
L71	N 57°14'00" W	195.09'
L72	N 21°33'37" E	131.25'
L73	N 12°10'59" E	245.61'
L74	N 14°23'03" W	170.42'
L75	N 49°50'12" E	148.59'
L76	N 54°40'43" E	107.56'
L77	N 11°43'48" E	276.12'
L78	N 60°31'48" E	149.96'
L79	N 71°46'48" E	189.04'
L80	N 51°17'48" E	102.81'
L81	N 10°38'12" W	122.90'
L82	N 62°51'12" W	102.62'
L83	N 54°40'54" W	28.77'
L84	N 24°11'59" W	91.05'
L85	N 34°28'00" E	38.24'

SURVEYOR'S NOTES

- a metes and bounds description and Surveyor's Report accompany this plat

- bearings refer to Grid North of the Texas Coordinate System of 1983 (Central Zone 4203) as computed from gps vectors; at the Point of Beginning, True Azimuth = Grid Azimuth + 2°45'42"

- 1/2 in. iron rod set" denotes a centerpunched 1-1/2 inch aluminum cap stamped "HOFFPAUIR RPLS 4492" affixed to a 1/2 inch iron rod.

- this survey prepared in conjunction with Title Commitment No. 400411800719a issued by Alamo Title Insurance, effectively dated April 14, 2018; surveyor did not abstract for easements and does not warrant ownership.

Schedule B items (in the following notes, "the subject property" refers to the 1296.96 acre tract):

Item 10e. 672/280 LCDR - a 30 foot wide easement granted to Santa Fe Pipeline Company for a single 12 inch pipeline. This easement applies to the subject property and the approximate location of the pipeline is shown on the plat. There is no listing in Schedule B for this easement.

Item 10i. 2015020160 LCOPR - nonexclusive 90 foot wide road, utility, and drainage easements reserved and conveyed for the benefit of the Grantors and Grantees in the Distribution Deed that is the vesting deed for the subject property. Easement "A", Easement "B", and Easement "E" combine to serve the subject property.

Item 10j. 170/11 LCDR - a blanket easement for pipelines, telephone, and telegraph lines across the parent tract for the 1296.96 acre subject tract, granted to Gulf Pipe Line Company. Unable to locate this line to dues its insufficient description.

Item 10k. 341/320 LCDR - an easement granted to Liberty County Water Control and Improvement District No. 1 for "the channel rectification of Cedar Bayou." The easement is said to include a plat outlining the specific easement area to be utilized by the Water Control and Improvement District; no such plat is included in the easement document. Cedar Bayou has been widened, deepened, and straightened. This easement probably applies to the subject property and I have included a reference to this item on the plat, east of and adjacent to Cedar Bayou. The easement provides for excavated soil to be deposited outside of the easement area at a height not to exceed 5 feet.

Item 10l. 429/54 - a drainage ditch right-of-way easement, "approximately 75 feet" in width, granted to Liberty County Water Control and Improvement District No, 1, said to course generally northeast from Cedar Bayou for a distance of approximately two miles. This easement appears to apply to the drainage canal shown on the plat, running in a northeastwardly direction from the southwest corner of the subject property on Cedar Bayou. This easement provides for disposal of spoil material but does not specify whether disposal is onsite or offsite. The easement as described may not apply to the second drainage canal shown running generally northwardly through the subject property from an intersection with the first canal at a point approximately 4900 feet northeast of the southwest corner of the subject property. There is no easement listed in Exhibit B for the second canal.

Item 10m. 403/439 LCDR, 403/435 LCDR, 403/432 LCDR, 404/451 LCDR, and 404/57 LCDR - a 30 foot wide permanent easement granted by various former owners of the parent tract for the subject property to Cities Service Pipe Line Company for a pipeline and appurtenances. This easement applies to the subject property and the approximate location of the pipeline is shown on the plat.

Item 10n. 623/412 LCDR and others - a blanket pipeline easement granted by various former owners of the parent tract for the subject property to Sinclair Pipe Line Company. The attached copy of a map dated September and October, 1982, prepared by John Griffin Surveyors of Dayton, Texas for Diamond Shamrock Corporation, indicates that this pipeline is located along and west of the east boundary line of the Juliana Malley Survey. Based on the Griffin map, this easement does not apply to the subject property. I observed no marked pipeline at the location specified on the Griffin plat.

Item 10o. 1931/365 LCDR - a 20 foot wide easement granted to Entergy Gulf States, Inc., and its sucessors and assigns for electric power and communication facilites; unable to locate this easement due to its insufficient description. I did not observe any evidence of electric lines or communication lines on or across the subject property.

Item 10p. 1825/181 LCDR - a 10 foot wide easement granted to Bledsoe Petro Corporation for a pipeline serving wells S-24 and C-2. This easement impacts the 1296.96 acre subject tract where it passes the Jay Management Co., LLC Well No. C-2, approximately 650 feet south of the northeast corner of the 1296.96 acre subject tract, as shown on the plat.

Item 10q. 1234/361 LCDR - a 30 foot wide pipeline easement granted to Mustang Pipeline Company, parallel with and adjacent to the west line of the 30 foot wide easement cited in Item 10e above, for two pipelines and their appurtenances. This easement applies to the subject property and the approximate location of the two Mustang pipelines are shown on the plat.

Item 10r. 1212/656 LCDR - a 30 foot wide easement granted to Houston Lighting and Power Company on December 10, 1987 for one pipeline and its appurtenances. There is no visible evidence of a pipeline at the specified location, which is platted on the survey. I questioned Mr. & Mrs. Fred McCoy about this easement; they did not think the pipeline was ever installed. Section 12 of the easement specifies that the easement rights would terminate if construction of the pipeline had not begun by January 1, 1996.

I, Glenn Hoffpauir, a duly Registered Professional Land Surveyor in the State of Texas, do hereby certify that this plat of 1296.96 ACRES surveyed for IRONWOOD HOLDINGS, LLC accurately depicts the results of a survey made by me on the ground, completed on June 19, 2018.

Witness my hand and seal of registration:

GLENN HOFFPAUIR 4492

RPLS No. 4492
(originals signed in red ink and embossed; all others null and void)

Surveyed for
IRONWOOD HOLDINGS, LLC

GLENN HOFFPAUIR SURVEYING, PLLC
TBPLS FIRM NO. 10194243
252 CR 817 NACOGDOCHES, TX 75964
PHONE (936) 560-1227

REV:	JOB NO:	DRAWN BY:
	1" = 500'	gh
DATE:	SHEET NO:	SCALE:
06/22/2018	1 OF 1	1" = 500'

UHL FITZSIMONS

4040 Broadway, Suite 430
San Antonio, Texas 78209
T 210.829.1660
F 210.829.1641
ufjbwlaw.com

May 22, 2020

Delta Land Services, L.L.C.
Attn: Winship Songy
1090 Cinclare Drive
Port Allen, Louisiana 70767

Via Email Transmission: winship@deltaland-services.com

Re: **Summary of Title Matters** for the *surface only* of that certain approximately 1,296.96-acre tract more particularly described on Exhibit "A" attached hereto (the "**Property**"), located in Liberty County, Texas.

Dear Mr. Songy:

As requested, we reviewed the following documents (collectively, the "**Title Documents**") in preparing this Summary of Title Matters:

(i) The Owner's Policy of Title Insurance pertaining to the Property issued by Alamo Title Insurance on August 15, 2018 at 2:38 PM under Policy No. 4000411800719a-O (the "**Title Policy**");

(ii) That certain Abstractor's Report issued by Alamo Title Company on April 30, 2020, and certified through April 26, 2020 (the "**Abstractor's Report**");

(iii) That certain Surveyor's Report 38233 supplemental dated May 22, 2020, prepared by Glenn Hoffpauir, R.P.L.S. No. 4492, on behalf of Glenn Hoffpauir Surveying, PLLC (the "**Surveyor's Report**"); and

(iv) That certain survey of the Property dated June 22, 2018, prepared by Glenn Hoffpauir, R.P.L.S. No. 4492, on behalf of Glenn Hoffpauir Surveying, PLLC (the "**Survey**").

The Title Policy, Abstractor's Report and Surveyor's Report reflect that, as of *April 26, 2020*, the Property is owned in fee simple by *Ironwood Holdings, LLC, doing business in Texas as Ironwood Texas Holdings, LLC*. According to the Title Documents, the Property is free from mortgages, liens, encumbrances or defects, except the following, all of which are recorded in the public records of Liberty County, Texas, or are disclosed by the Survey:

1. Easements reserved in instrument executed by David W. McCoy, et al to Paul A. McCoy, et al, dated October 30, 2015, filed November 3, 2015, recorded in CC# 2015020160, Real Property Records, Liberty County, Texas.

2. Easement created in instrument executed by Bill Daniel, Agent for O.C. Colby Estate to Liberty County Water Control & Improvement District No. 1, dated September 13, 1950, recorded in Volume 341, Page 320, Real Property Records, Liberty County, Texas.

3. Easement created in instrument executed by M.L. Dahl, acting for heirs of O.C. Colby Estate to Liberty County Water Control & Improvement District No. 1, dated November 12, 1954, recorded in Volume 429, Page 54, Real Property Records, Liberty County, Texas.

4. Right of Way Easements to Cities Service Pipe Company, recorded in Volume 403, Page 439; Volume 403, Page 435; Volume 403, Page 432; Volume 404, Page 451; Volume 404, Page 57, Real Property Records, Liberty County, Texas.

5. Right of Way Easement executed by Frederick G. McCoy to Energy Gulf States, Inc., dated February 27, 2001, filed November 30, 2001, recorded in Volume 1931, Page 365, Real Property Records, Liberty County, Texas.

6. Easement created in instrument executed by Barbara Lee McCoy to Bledso Petro Corporation, dated February 4, 2000, filed March 22, 2000, recorded in Volume 1825, Page 181, Real Property Records, Liberty County, Texas.

7. Easement created in instrument to Mustang Pipeline Company, dated April 21, 1988, filed June 17, 1988, recorded in Volume 1234, Page 361, Real Property Records, Liberty County, Texas.

8. A 30 foot wide easement granted to Santa Fe Pipeline Company recorded in Volume 672, Page 280, Liberty County Deed Records.

9. Drainage canal traversing the east southeast Property corner, as shown in the Survey.

10. All conveyances, leases, grants, exceptions or reservations of, and agreements and instruments related to coal, lignite, oil, gas and other minerals, together with all rights, privileges, and immunities relating thereto, that affect the Property, appearing in the Public Records of Liberty County, Texas, including that certain interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated August 8, 2018, recorded August 8, 2018 in Document No. 2018017630, Official Records of Liberty County, Texas.

11. Agriculture Lease Agreement dated January 1, 2019, by and between Jim Smesny Farm, as lessee, and Ironwood Holdings, LLC, a Louisiana limited liability company, d/b/a Ironwood Texas Holdings, LLC, as lessor.

As stated above, our review was based solely on, and is therefore limited to, the information contained in the Title Documents. The Property may be encumbered by other matters that have either arisen after April 26, 2020, or affected the Property before that date and yet were not disclosed in the Title Documents. Those matters may include:

(a) Encumbrances, encroachments, boundary line disputes or other matters that would be reflected by a current on-the-ground survey of the Property;

(b) Rights or claims of parties in possession of the Property not shown by the public records;

(c) Any lien, or right to a lien, for services, labor, or materials furnished in the past or in the future, imposed by law, and not shown by the public records;

(d) The exercise of governmental zoning authority;

(e) The results or consequences of any fraudulent statements or acts, or acts of forgery, in any way related to ownership of or title to the Property;

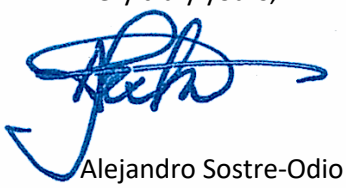
(f) Any claim which may be asserted by the State of Texas or any other governmental authority to any part of the Property as being part of the bottom, bed, or bank of a navigable body of water;

(g) The results of an involuntary or voluntary filing of a petition for bankruptcy by any current, former, or future owner of the Property; or

(h) Any other matter which is not reflected in the Title Documents.

Should you have any questions or comments about this matter, please give me a call.

Very truly yours,



Alejandro Sostre-Odio

cc: Burt Brumfield, Delta Land Services, L.L.C. (Via Email)

EXHIBIT "A"

Property

(1,296.96-acre Tract)

Ironwood Holdings, LLC
1296.96 Acres

Julian Malley Survey, A-71
Liberty County, Texas
Project 38233

All that certain 1296.96 acre tract situated about 13.7 miles southwest of the City of Liberty, Liberty County, Texas, out of the **JULIANA MALLEY SURVEY, ABSTRACT NO. 71**, being the same land called 1299.66 acres, designated "Exhibit A, Tract E" and set aside to Paul A. McCoy, Paul and Ann McCoy, Trustees of the Katherine E. Brausen Supplemental Needs Trust, and Paul McCoy, Trustee of the Katherine Brausen Management Trust, as described in Distribution Deed effectively dated October 30, 2015, recorded in Clerk's Document No. 2015020160 of the Liberty County Official Public Records (LCOPR), said called 1299.66 acre tract being part of a called 2298.5 acre tract conveyed by Laverne W. Colby and wife, Leona Colby to David W. McCoy as described in Deed dated January 31, 1969, recorded in Volume 655, Page 28 of the Liberty County Deed Records (LCDR), said 1296.96 acre tract being more particularly described by metes and bounds as follows:

§§§

Note that in the following description,

- **bearings** refer to Grid North of the Texas Coordinate System of 1983 (Central Zone 4203) as computed from gps vectors; at the Point of Beginning, True Azimuth = Grid Azimuth + 2°45'42", and
- **"1/2 in. iron rod set"** denotes a centerpunched 1-1/2 inch aluminum cap stamped "HOFFPAUIR RPLS 4492" affixed to a ½ inch iron rod.
- a **plat** and **surveyor's report** accompany this description and are a part of the survey.

§§§

COMMENCING for reference at the northeast corner of the called 2298.5 acre tract, a 2-1/2 in. brass disk stamped "NEC J MALLEY JGS RPLS 2032" found for corner in an irregular mass of concrete, said beginning corner being the northeast corner of a called 150.49 acre tract designated "Exhibit B, Tract F" and set aside to Paul McCoy et al as described in Clerk's Document No. 2015020160 LCOPR and on the south boundary line of Aaronglen Estates Subdivision as shown on subdivision plat recorded in Volume 9, Page 8 of the Liberty County Plat Records;

THENCE S 76°29'29" W, 3502.02 feet (called S 79°43'36" W, 3502.02 feet in Clerk's Document No. 2015020160 OPR Exhibit B, Tract F) with the north boundary line of the called 2298.5 acre tract, the north boundary line of the called 150.49 acre tract, and partway with the south boundary line of Aaronglen Estates Subdivision to the point of **BEGINNING**, a ½ in. iron rod set for corner on the south bank of a drainage canal, said beginning corner being the northwest corner of the called 150.49 acre tract and the northeast corner of the called 1299.66 acre tract;

THENCE S 12°40'49" E, 2487.00 feet (called S 11°54'06" E, 2605.70 feet in Clerk's Document No. 2015020160 LCOPR Exhibit A, Tract E, called S 09°27' E, 2487.00 feet in Clerk's Document No. 2015020160 LCOPR Exhibit B, Tract F) with the northernmost east boundary line of the called 1299.66 acre tract and the west boundary line of the called 150.49 acre tract to a ½ in. iron rod set for corner in a cultivated field, said corner being the easternmost southeast corner of the called 1299.66 acre tract and the southwest corner of the called 150.49 acre tract;

THENCE S 76°27'19" W, 2334.77 feet (called S 77°14'02" W, 2334.77 feet in Clerk's Document No 2015020160 LCOPR Exhibit A, Tract E) with the easternmost south boundary line of the called 1299.66 acre tract to its reentrant corner, a ½ in. iron rod set for corner in a cultivated field;

THENCE S 12°41'07" E, with the southernmost east boundary line of the called 1299.66 acre tract, at 158.09 feet pass the centerline of a 15 foot wide rocked road and in all, **S 12°41'07" E, 5892.75 feet** (called S 11°54'24" E, 5890.89 feet in Clerk's Document No. 2015020160 LCOPR Exhibit A, Tract E) to a ½ in. iron rod set for corner at the southernmost southeast corner of the called 1299.66 acre tract in the south boundary line of the called 2298.5 acre tract and the north boundary line of a called 640 acre tract designated "Tract 1" and conveyed by Cedar Bayou Farms, Ltd. to Kevin Acker as described in Warranty Deed dated December 19, 2012, recorded in Clerk's Document No. 2013011099 LCOPR, from said iron rod

- a 13 in. hackberry, marked "X", bears N 69°00' E, 9.9 feet,
- the 7 in. south stem of a double hackberry, marked "X", bears S 84°00' W, 4.0 feet, and
- a 1-1/2 in. iron pipe found for corner at an angle point in the south boundary line of the called 2298.5 acre tract bears N 77°03'40" E, 3274.22 feet;

THENCE with the southernmost south boundary line of the called 1299.66 acre tract, the south boundary line of the called 2298.5 acre tract, the north boundary line of the called 640 acre tract, and with the north boundary line of a called 94.975 acre tract designated "Tract 5" and conveyed to Kevin Acker as described in Clerk's Document No. 2013011099 LCOPR, as follows:

S 77°03'40" W, 1001.57 feet (called S 77°12'30" W in Clerk's Document No. 2015020160 LCOPR Exhibit A, Tract E) to a ½ in. iron rod set for corner;

S 76°25'01" W, at 5503.97 feet pass a ½ in. iron rod set for witness from which a 5 in. white oak, marked "X", bears N 89°02' E, 24.6 feet, and a 14 in. pine, marked "X", bears S 61°40' W, 16.6 feet, , at 5575 feet pass the centerline of the rectified channel of Cedar Bayou, and in all, **S 76°25'01" W, 5660.65 feet** to a point for corner on the east bank of the old channel of Cedar Bayou as shown on plat of 2296.739 acres surveyed for David McCoy by Charles M. Amos, Jr, Registered Professional Land Surveyor, dated December 5, 1969, revised April 25, 1972, said corner being the southwest corner of the called 1299.66 acre tract and the southwest corner of the called 2298.5 acre tract;

THENCE with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with computed meanders of the east bank of the old channel of Cedar Bayou, within the banks of the rectified channel of Cedar Bayou, as follows:

N 03°55'12" W, 228.22 feet;
N 59°22'12" W, 167.36 feet;
N 08°18'12" W, 225.91 feet;

N 31°16'12" W, 256.17 feet;
N 64°12'12" W, 107.51 feet;
S 77°26'20" W, 71.75 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the west side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

S 70°32'14" W, 75.72 feet;
N 70°46'01" W, 88.46 feet;
N 00°55'59" W, 52.61 feet;

N 32°34'21" E, 102.96 feet;
N 11°37'21" E, at 110 feet pass the centerline of the rectified channel of Cedar Bayou and in all, N 11°37'21" E, 293.08 feet to a point for corner on the old bank of Cedar Bayou, still apparent on the east side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

N 55°14'41" E, 156.73 feet;
N 21°06'20" E, 101.36 feet;
N 30°38'40" W, 157.56 feet;

N 73°20'58" W, 171.57 feet;
N 83°19'44" W, 225.56 feet;
S 56°28'19" W, 256.51 feet;

N 83°58'12" W, 123.96 feet to a point for corner in the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the computed meanders of the old east bank of Cedar Bayou, within the banks of the rectified channel of Cedar Bayou, as follows:

N 26°31'12" W, 161.76 feet;
N 18°55'48" E, 810.04 feet;
S 79°25'12" E, 194.85 feet to a point for corner on the old east bank of Cedar Bayou, on the east side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the computed meanders of the old east bank of Cedar Bayou, as follows:

N 61°19'48" E, 107.91 feet;
N 35°21'12" W, 189.50 feet;
N 00°00'48" E, 259.01 feet to a point for corner in the rectified channel of Cedar Bayou;

N 27°05'48" E, 182.88 feet;
N 65°41'48" E, 512.19 feet;
S 63°37'51" E, 210.02 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the east side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

N 84°35'07" E, 98.54 feet;
N 68°04'08" E, 408.03 feet;
N 22°54'47" E, 121.88 feet;

N 22°46'40" W, 128.63 feet;
N 69°35'55" W, 111.21 feet;
S 73°16'37" W, 204.99 feet;

N 57°28'44" W, 192.10 feet to a point for corner in the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the computed meanders of the old east bank of Cedar Bayou, as follows:

N 20°30'48" E, 105.35 feet;
N 62°34'48" E, 623.38 feet;
N 02°27'48" E, 255.92 feet;

N 65°17'55" E, 167.29 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the east side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

N 59°07'10" E, 106.17 feet;
N 17°49'20" W, 75.99 feet;
N 56°01'59" W, 97.63 feet;

N 31°15'17" E, 111.85 feet;
N 20°56'47" E, 106.42 feet;
N 82°57'29" W, 90.59 feet;

S 72°38'48" W, 295.35 feet to a point for corner in the rectified channel of Cedar Bayou;

THENCE N 70°27'12" W, 407.59 feet, continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with a computed meander of the old east bank of Cedar Bayou to a point for corner on the old east bank of Cedar Bayou, still apparent on the west side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

S 57°05'15" W, 187.30 feet;
S 89°13'44" W, 111.24 feet;
N 55°27'15" W, 33.51 feet;

N 18°50'39" E, 85.87 feet;
N 41°21'50" E, 157.24 feet;
N 37°17'46" W, 106.81 feet to a point for corner in the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the computed meanders of the old east bank of Cedar Bayou, as follows:

N 50°28'12" W, 188.53 feet;
N 41°52'12" W, 483.58 feet;
N 25°51'12" W, 195.88 feet;

N 63°35'48" E, 152.87 feet;
N 48°54'48" E, 154.28 feet;
N 30°49'12" W, 165.12 feet;

N 02°27'48" E, 107.26 feet;
N 65°03'48" E, 114.70 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the east side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

S 78°10'47" E, 62.29 feet;
N 46°53'43" E, 151.01 feet;
N 25°26'42" E, 149.00 feet;

N 01°20'38" E, 105.37 feet;
N 41°16'19" W, 98.14 feet;
N 68°14'44" W, 105.19 feet;

N 75°04'50" W, 72.95 feet;
N 27°40'12" W, 116.64 feet to a point for corner in the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the computed meanders of the old east bank of Cedar Bayou, within the banks of the rectified channel of Cedar Bayou, as follows:

N 11°12'48" E, 189.87 feet;
N 01°52'48" E, 234.27 feet;
N 57°14'00" W, 195.09 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the west side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

N 21°33'37" E, 131.25 feet;
N 12°10'59" E, 245.61 feet;
N 14°23'03" W, 170.42 feet;

N 49°50'12" E, 148.59 feet;
N 54°40'43" E, 107.56 feet to a point for corner in the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the computed meanders of the old east bank of Cedar Bayou, as follows:

N 11°43'48" E, 276.12 feet;
N 60°31'48" E, 149.96 feet;
N 71°46'48" E, 189.04 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the east side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

N 51°17'48" E, 102.81 feet;
N 10°38'12" W, 122.90 feet;
N 62°51'12" W, at 49 feet pass the centerline of the rectified channel of Cedar Bayou and in all, N 62°51'12" W, 102.62 feet to a point for corner on the old east bank of Cedar Bayou, still apparent on the west side of the rectified channel of Cedar Bayou;

THENCE continuing with the west boundary line of the called 1299.66 acre tract, the west boundary line of the called 2298.5 acre tract, and with the meanders of the old east bank of Cedar Bayou, as follows:

N 54°40'54" W, 28.77 feet;
N 24°11'59" W, 91.05 feet;

N 34°28'00" E, 38.24 feet to a 5/8 in. iron rod with aluminum cap found for corner at the northwest corner of the called 1299.66 acre tract, the northwest corner of the called 2298.5 acre tract, and the southwest corner of a called 340.00 acre tract conveyed by Leon Measures to Karen Lee Cooley as described in Special Warranty Deed dated October 6, 2017, recorded in Clerk's Document No. 2017020249 LCOPR, said called 340.00 acre tract being the residue of a called 956 acre tract conveyed by Charles M. Gregory and Elizabeth M. Gregory to Charles F. Congleton as described in Deed dated April 6, 1910, recorded in 29/621 LCDR;

THENCE N 76°29'29" E, with the north boundary line of the called 1299.66 acre tract, the north boundary line of the called 2298.5 acre tract and the south boundary line of the called 340.00 acre tract, at 364.34 feet pass 2.26 feet south of a 5/8 in. iron rod found, at 6537.68 feet pass a 1-3/4 in. iron pipe found on line, and in all, **N 76°29'29" E, 7184.89 feet** (called N 77°16'12" E, 7077.94 feet in 2015020160 LCOPR Exhibit A Tract E) to the point of **BEGINNING**, containing within these calls **1296.96 acres, subject to possible claim by the State of Texas in the bed of the rectified channel of Cedar Bayou**.

THERE ARE CONVEYED with the above described 1296.96 acre tract three **NONEXCLUSIVE 90 FOOT WIDE ROAD, UTILITY, AND DRAINAGE EASEMENTS**, the same easements designated "Exhibit E, Easement A", "Exhibit E, Easement B", and Exhibit E, Easement E" in the aforementioned Distribution Deed recorded in Clerk's Document No. 2015020160 LCOPR.

I, Glenn Hoffpauir, a duly Registered Professional Land Surveyor in the State of Texas, do hereby certify that this description of **1296.96 ACRES** surveyed for **IRONWOOD HOLDINGS, LLC** is true and correct, and prepared from a survey made on the ground, completed the 19th day of June, 2018.

Witness my hand and seal of registration:

_____RPLS No. 4492
(originals signed in red ink and embossed; all others null and void)

Alex Markup 5/14/20

Alamo Title Company

240 N. Loop 1604 East, Suite 110, San Antonio, Texas 78232

ABSTRACTOR'S REPORT
FROM **ALAMO TITLE OWNER'S POLICY GF: SAT**-41-4000411800719A-O
EFFECTIVE DATE OF: 8/15/2018
TO
EFFECTIVE DATE OF: 4/26/2020

ADDRESS: CR 4865, HARDIN, TX 77561
LEGAL:
All that certain 1296.96 acre tract situated about 13.7 miles southwest of the City of Liberty, Liberty County, Texas, out of the JULIANA MAI-LEY SURVEY, ABSTRACT NO. 71, being the same land called 1299.66 acres, designated "Exhibit At Tract E" and set aside to Paul A. McCoy, Paul and Ann McCoy, Trustees of the Katherine E, Brausen Supplemental Needs Trust and Paul McCoy, Trustee of the Katherine Brausen Management Trust/ as described in Distribution Deed effectively dated October 30t 2015, recorded in Clerk's Document No. 2015020160 of the Liberty County Official Public Records (I-COPR), said called 1299.66 acre tract being part of a called 2298.5 acre tract conveyed by Laverne W, Colby and wife, Leona Colby to David W. McCoy as described in Deed dated January 31, 1969 recorded in Volume 655, Page 28 of the Liberty County Deed Records.

This report hereby reports that the instruments listed below have been filed of record in the office of the County Clerk of **LIBERTY** COUNTY, Texas, and are affecting title to the property above described during the time frame as set out above:

GENERAL WARRANTY DEED Okay
OWNER: IRONWOOD HOLDINGS, LLC
IN LIBERTY COUNTY DOCUMENT NO: 2018017630
FILED 8/15/2018

RIGHT OF WAY AGREEMENT Glenn - does this affect property?
IN LIBERTY COUNTY DOCUMENT NO: 2019015329
FILED 6/26/2019

MANAGEMENT TRUST Does not affect.
IN LIBERTY COUNTY DOCUMENT NO: 2019027427
FILED 10/18/2019

POSSESSION AND USE AGREEMENT Glenn - does this affect property?
IN LIBERTY COUNTY DOCUMENT NO: 2019027428
FILED 10/18/2019

POSSESSION AND USE AGREEMENT Glenn - does this affect property?
IN LIBERTY COUNTY DOCUMENT NO: 2019027431
FILED 10/18/2019

NAME SEARCHED FOR INVOLUNTARY LIENS ON: IRONWOOD HOLDINGS, LLC—NONE FOUND

This report is issued for the use of and shall benefit:

Alex Sostro-Odio, Uhl, Fitzsimons, Jewett, Burton, Wolff & Rangel, PLLC

And is issued in consideration of $300.00 paid by the benefited party named above, and no others, and to who said sum shall be returned as agreed liquidated damages in the event of any mistakes herein. By accepting this search, the benefited party agrees that the said sum and no more shall constitute the full measure of damages against the issuing company. SPECIAL NOTE AND LIMITATION OF LIABILITY: This report is issued with the express understanding, evidenced by the acceptance of same, that this report does not undertake to give or express any opinion as to the validity of the title hereinabove described or the authority of those executing the above listed instruments, but is simply reporting herein and hereby as to the recitals of instruments listed. The Company assumes

than the consideration paid for this certificate by reason of issuance, delivery and/or use of same, nor for any error or omissions herein. This report does NOT reflect title to any of the oil, gas and other mineral interests affecting subject property, nor any documents creating and/or affecting said estates, nor the validity of any rights, privileges and immunities relating thereto. Further, this report does not address and no search has been performed regarding the following: claims and rights of parties in possession; discrepancies in area and boundaries; unpaid bills for labor or material in connection with repairs or new improvements; unpaid taxes; change in marital or corporate status of owner(s) since date of purchase; homestead rights or claims; easements and restrictions.

ALAMO TITLE COMPANY– CUSTOMER SERVICE SAN ANTONIO AND AUSTIN BY: *Norma Jean Vargas*

11 pgs
AGR

2019015329

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

RIGHT OF WAY AGREEMENT

THE STATE OF TEXAS §
§
COUNTY OF LIBERTY §

50' Pipeline Easement

For and in consideration of the sum of TEN AND NO/100 ($10.00) DOLLARS and other good and valuable consideration in hand paid, the receipt of which is hereby acknowledged, the undersigned, PAUL A. MCCOY, PAUL MCCOY, TRUSTEE OF THE KATHERINE BRAUSEN MANAGEMENT TRUST, AND PAUL A. MCCOY AND ANN MCCOY, CO-TRUSTEES OF THE KATHERINE BRAUSEN SUPPLEMENTAL NEEDS TRUST, whose mailing address is 2605 Westbury Circle, Waco, TX 76710, hereinafter collectively referred to as "GRANTOR" whether one or more, do hereby bargain, grant, convey and warrant unto ONEOK ARBUCKLE II PIPELINE, L.L.C., its successors and assigns, hereinafter referred to as "GRANTEE," the following described easement and right-of-way:

> An easement and right-of-way Fifty (50) feet in width (hereinafter referred to as "the Easement"), and an additional Fifty (50) feet as a Temporary Work Area running adjacent to and contiguous with the West line of said right of way, to survey, clear, excavate, construct, lay, operate, inspect, maintain, protect, repair, remove, replace, alter, or change the size of, ONE (1) pipeline thirty (30) inches in nominal diameter (hereinafter referred to as "the Pipeline") buried below ground with all necessary appurtenances above and below ground, at any time, for the transportation of natural gas, natural gas liquids, crude oil and other hydrocarbon products through the Pipeline, along a route, the centerline of which is described in EXHIBIT "A" and depicted on EXHIBIT "B" attached hereto and made a part hereof for all purposes;

on, under, across and through the following described lands owned by GRANTOR situated in the County of Liberty, State of Texas, to-wit:

> 252.08 acres, more or less, in the P. D. Mason Survey, Abstract No. 756 and the A. Christensen Survey, Abstract No. 679, Liberty County, Texas more particularly described in Distribution Deed dated April 29, 2015 to Paul A. McCoy, individually, Paul McCoy and Ann McCoy, Co-Trustees of the Katherine Brausen Supplemental Needs Trust, and Paul McCoy, Trustee of the Katherine Brausen Management Trust recorded as Document No. 2015006411, Liberty County, Texas, LESS AND EXCEPT 6.44 acres, more or less, in the P. D. Mason Survey, Abstract No. 756 and the A. Christensen Survey, Abstract No. 679, Liberty County, Texas, being a portion of a tract more particularly described in Deed dated May 19, 1913 from G. F. Mitchell to Old River Rice Irrigation Company recorded in Vol. 42, Pg. 255 of the Deed Records of Liberty County, Texas.

Does the easement affect the land purchased by Ironwood?

with the right of ingress to and egress from said right-of-way across the above-described tracts of land for the purposes herein granted.

It is understood and agreed by GRANTOR and GRANTEE herein, that the Easement herein granted is subject to the following terms and conditions:

1. GRANTEE shall be furnished access over and across GRANTOR'S land to the Easement herein granted, over the farm road running parallel and adjacent to the Union Pacific Railroad track east of the Easement herein described, for the clearing, construction and maintenance uses granted herein. Said road shall be maintained during construction, so that it shall be at all reasonable times passable, and GRANTEE agrees to leave the road open for

farming operations and all other necessary purposes of GRANTOR. At the completion of the construction, GRANTEE agrees to repair any parts of said road damaged, rutted or rendered impassable due to GRANTEE'S use as herein granted.

2. Prior to construction of the Pipeline, GRANTEE agrees to pay GRANTOR'S tenants, for any damages, resulting from GRANTEE'S activities, to growing crops, livestock, crop field surface, drainage and/or any other field and agricultural improvements of GRANTOR'S tenants. Said payment shall be paid to GRANTOR'S tenants, and documented on a "Receipt and Release Form" mutually agreed upon by GRANTEE, GRANTOR, and GRANTOR'S tenants. During the exercise of the rights granted hereunder for the construction of the Pipeline, GRANTEE shall provide GRANTOR with not less than twenty-four (24) hour prior notice prior to entry upon the GRANTOR's property to begin construction or thereafter to perform maintenance requiring the use of heavy machinery, absent an emergency or response to a line locate (e.g., ONE Call). During the initial construction of the Pipeline, GRANTEE shall have the right to use the Temporary Work Area for boring, construction, construction operations, equipment, and materials. GRANTEE's use of the Temporary Work Area shall not interfere with the use of any existing recorded easements adjacent or near to the Easement. GRANTEE will designate the approximate location of the Temporary Work Area, at the inception of the work. Use of the Temporary Work Area shall expire upon completion of construction of the Pipeline and restoration of the Temporary Work Area. During construction and afterward, and subject to the terms of this Easement, GRANTEE shall not unreasonably interfere with GRANTOR's access to or use of the Property and shall provide crossings at reasonable intervals.

3. GRANTEE agrees to bury the Pipeline to a minimum of sixty inches (60") measured from the top of the pipe to the level of the ground, and sixty inches (60") measured from the top of the pipe to the bottom of all ditches, laterals or canals as the case may be.

4. GRANTEE agrees to initially restore and level the surface of said land to, as nearly as possible, the condition as the same was in prior to the installation of the Pipeline, including the removal of all debris, trash and materials therefrom. GRANTEE further agrees to double-ditch with respect to the installation of the Pipeline, so that the top soil is kept at all times segregated from the subsoil, with the top soil being replaced and compacted as presently existing, after the backfilling and compaction of the subsoil. GRANTEE agrees that the Pipeline ditch shall be backfilled and packed to restore a reasonable degree of compaction. Further, the installation of the Pipeline shall be conducted in a manner so as to minimize any settling of the surface of the ground causing pockets or depressions and, if at any time during the term of this Easement settling occurs causing depressions or pockets, then GRANTEE promptly shall add soil and take such other action as is appropriate to restore and maintain the surface of the ground level with and at the same grade as the adjoining area. In the event that weather conditions prevent such compaction operations, then same shall be made and completed by GRANTEE within One Hundred Eighty (180) days from the date of construction and burial of the Pipeline. Should GRANTEE fail to fulfill said compacting operations, after GRANTOR provides GRANTEE with notice and a reasonable opportunity to cure, GRANTEE shall promptly reimburse GRANTOR to have said compaction performed at GRANTOR'S expense.

5. GRANTEE agrees to restore and/or replace any fences (including gates) that may have been damaged or removed during the installation of the Pipeline. At the point where the Pipeline of GRANTEE passes under any fence located upon GRANTOR'S property, GRANTEE shall not allow the fence to become slack and shall, prior to the cutting thereof, properly brace the fence with a minimum of 4-1/2 inch by 8 inch H-brace corner posts, or the equivalent thereof, on each side of any fence cut and, if requested by GRANTOR, shall install metal gates with adequate supporting posts.

6. GRANTEE shall not obstruct or inhibit the flow of water on the premises, nor interfere with any field drains or drainage during its construction. GRANTEE shall be liable for all damages to crops outside of the Easement and Temporary Work Area caused by standing water resulting from any such obstruction or inhibition of the flow of water, or from blocked field drainage grades or facilities.

7. GRANTEE agrees that, during construction, GRANTEE will furnish GRANTOR and GRANTOR'S tenants reasonable crossings requested by GRANTOR or GRANTOR'S

tenants for the purpose or purposes of moving vehicles, machinery, harvested crops, cattle and water across the Easement and Temporary Work Area.

8. GRANTEE shall defend, indemnify and hold harmless GRANTOR and each party comprising GRANTOR and their respective heirs, successors, legal representatives and assigns harmless from and against any and all claims, causes of action, costs, expenses, liabilities and demands, including without limitation, claims for damages to property or personal or bodily injury, court costs and attorney's fees (and attorney's fees and defense costs incurred by GRANTOR), arising out of or resulting from GRANTEE's fault, negligent acts or omissions, intentional misconduct or illegal acts or violations of any laws or regulations during the construction, operation, repair, removal and maintenance of the pipeline. This indemnity shall survive the termination of this Easement.

9. GRANTOR shall have the right of full use and enjoyment of the surface of the Easement, except as to the rights and privileges herein granted, and GRANTOR agrees not to build, erect or construct, nor permit to be built, erected or constructed, except as permitted by the provisions of Paragraph 11 hereof, any obstructions, buildings or structures, both above or below ground level within the Easement, which in any way would interfere with the operation or maintenance of the Pipeline, nor shall GRANTOR engage in any operations which would serve to change the grade of the Pipeline, except as herein provided.

10. GRANTOR, his heirs, successors and assigns shall have the right to construct, re-construct or maintain roadways, streets, or utility lines over and across the Easement at such place or places as GRANTOR may from time to time hereafter select for private, restricted or general public use. Said roadways, streets, or utility line crossing shall cross the pipeline at an angle of no less than 45 degrees and shall be constructed in a manner such that the roadways, streets or utility crossing will not interfere with the safe operation and maintenance of the pipeline. In addition to the crossing of the pipeline by roadways, streets, and utilities, GRANTOR shall have the right to construct a rail spur over GRANTEE's pipeline in the location identified on Exhibit B attached hereto. GRANTEE agrees to construct the pipeline at the location identified in Exhibit B in such a manner to allow the GRANTOR to install the rail spur without additional modifications to the Pipeline; however, in the event GRANTEE's pipeline requires additional modification beyond what is required by the terms of this easement (e.g., lowering) to accommodate GRANTOR's rail spur, GRANTEE shall bear the entire cost and loss associated with those modifications. In the event GRANTOR desires to install any other rail spurs across GRANTEE's Pipeline, GRANTOR shall provide copies of its proposed plan to GRANTEE ninety (90) days in advance of said construction, and GRANTOR shall be responsible for any and all costs and loss associated with the modification of GRANTEE's pipeline to accommodate the rail spur.

11. Except only for the use of the surface necessary for the installation, construction, repair, maintenance, replacement and removal of the Pipeline, GRANTEE shall not use or construct or install any surface appurtenances, equipment, property or facilities, buildings, structures or other obstructions on the Easement, it being understood that the Easement shall be used solely for the use of the buried Pipeline. Notwithstanding the foregoing, should GRANTEE deem it necessary to install equipment or facilities above the surface of the ground for the inspection and testing of the Pipeline, GRANTEE may locate such equipment and facilities on the Easement within 50 feet of its north or south boundary line. No underground or above ground storage tanks shall be located in, on or under the Easement Area.

12. At all times, the Pipeline and the Easement Area shall be used, operated and conducted in compliance with all applicable laws, statutes, rules and regulations of any governmental authority having jurisdiction including, without limitation, all safety regulations and requirements of the U.S. Department of Transportation, U.S. Department of Labor (including OSHA), and all environmental laws, statutes, rules and regulations of any federal, state or local authority at any time applicable to the Easement. Specifically, and without limiting the foregoing, GRANTEE agrees that: (1)—no toxic or hazardous substances shall be generated, treated, stored, disposed, released, discharged or otherwise deposited or released in, on or under the Easement Area; (2)—GRANTEE will not engage in and will not permit any other party to engage in any activity with respect to the Easement Area which would cause: (a), the Easement Area or the adjoining property of GRANTOR to become a hazardous waste treatment, storage or disposal facility within the meaning of the Resource Conservation and

Recovery Act of 1976 ("RCRA"), as now or hereafter amended, or any similar state law or local ordinance, or other environmental law; (b), a release or threatened release of a hazardous substance from or to the Easement Area or the adjoining property of GRANTOR within the meaning of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), as now or hereafter amended, or any similar state law or local ordinance or any other environmental law, or; (c), the discharge of pollutants or effluents into any water source or system, or the discharge into the air of any emissions, which would require a permit under the Federal Water Pollution Control Act or the Clean Air Act or any similar state or local ordinance or other environmental law; (3)—no underground or above ground storage tanks shall be located in, on or under the Easement Area and (4)—GRANTEE shall not permit any substance or conditions in or on the Easement Area or the adjoining property of GRANTOR which might support a claim or cause of action under RCRA, CERCLA, or any other federal, state or local environmental statutes, regulations, ordinances or other environmental regulatory requirements. GRANTEE hereby covenants and agrees to indemnify, defend, save and hold harmless GRANTOR, GRANTOR's heirs, successors, GRANTOR'S family, assigns, surface lessees/tenants and guests (collectively referred to below as "indemnitees" or in the singular, an "indemnitee") from and against any and all loss, damage, claim, demand, suit, payment, cost, fines, penalties and expense (including court costs and reasonable attorney's fees and expert fees and expenses) which any indemnitee may suffer, incur or pay to the extent caused by the Grantee relating to (a) the presence in, on, over or under, or the escape, seepage, leakage, spillage, discharge, emission or release on or from, the easements of any hazardous materials, (b) the violation of any environmental laws relating to or affecting the easements by GRANTEE, caused by or within the control of GRANTEE or any of its contractors or licensees, or (c) the failure by GRANTEE to comply fully with the terms and provisions of paragraph 12 by reason of or arising out of GRANTEE's (and its servants', employees', contractors' and subcontractors'): (i) operations on grantor's property, or (ii) any acts or omissions in its exercise of any of its rights under this agreement. GRANTEE shall defend, indemnify and hold harmless indemnitees from any and all such losses, expenses, demands and claims and shall defend any suit or action brought against indemnitees based upon any such alleged injury, loss or damage (including reasonable attorneys', consultant's, expert's fees and expenses), and shall pay all claims, damages, costs and demands in connection with or resulting therefrom. This indemnity provision does not protect any indemnitee from its own negligence or willful misconduct.

13. As used in the preceding provisions of Paragraph 12, the terms "hazardous substance" and "release" shall have the meanings specified in CERCLA, and the terms "solid waste" and "disposal" (or "disposed") shall have the meanings specified in RCRA; provided, in the event either CERCLA or RCRA is amended as to broaden the meaning of any term defined thereby, such amendment shall apply to GRANTEE'S covenants contained herein; and provided further, to the extent that the laws of the State of Texas establish a meaning for such terms which is broader than that specified in either CERCLA or RCRA, the broader meaning or definition shall apply. Upon the removal of the Pipeline as contemplated by the covenants set forth above, the covenants and obligations of GRANTEE respecting repair and restoration specifically shall include, without limitation, the environmental and contamination provisions of this and the preceding Paragraph 12.

14. GRANTOR reserves all oil, gas and other minerals in, on and under the Easement herein granted, but it is expressly understood and agreed that GRANTOR shall not be permitted to drill, mine or operate for oil, gas and other minerals from and under the Easement, except that GRANTOR shall be permitted to extract oil, gas and other minerals from and under the Easement by directional drilling or other means, so long as GRANTEE'S use of the Easement for operations associated with GRANTEE'S use of the Pipeline as herein provided are not disturbed or interfered with.

15. This instrument is executed subject to all easements or rights affecting the above described land which are evidenced by instruments of record or by use or occupancy upon the ground. No later than one hundred eighty (180) days after completion of construction and the installation of the Pipeline, GRANTEE shall provide to GRANTOR a drawing which will reflect the as-built location of the Pipeline with sufficient detail to locate the Pipeline as installed.

16. The term of this Easement shall commence as of the date hereof and shall end when GRANTEE either, (1)—fails to actually use the Easement (either for the initial installation and construction of the Pipeline, the operation or maintenance of the Pipeline for the transportation of permitted products through the Pipeline, the repair or maintenance of the Pipeline, or the removal or replacement of the Pipeline) for a period of more than twenty-four (24) consecutive months, or, (2)—abandons the Easement, whichever event occurs first. Within one hundred twenty (120) days of the termination of this easement, GRANTEE shall notify GRANTOR of such termination and GRANTEE shall record in the appropriate records of Liberty County, Texas, at GRANTEE'S sole cost and expense, a written release of this Easement and all rights granted hereunder executed by GRANTOR and all parties claiming any interest in the Easement. Within one hundred eighty (180) days of the termination of this Easement, GRANTOR shall notify GRANTEE of GRANTOR'S election that GRANTEE remove or not remove the Pipeline. If GRANTOR notifies GRANTEE that GRANTEE is to remove said Pipeline, then GRANTEE shall, within ninety (90) days from the date of such notice, at GRANTEE'S sole cost and expense, remove all pipe and other property, if any, located upon GRANTOR'S property and restore the surface of the land and repair and replace any other damage caused by GRANTEE. If any property of GRANTEE is not promptly removed within such time period, then, GRANTOR may sell such property and credit the proceeds against the cost of removal. If GRANTOR notifies GRANTEE that GRANTEE is not to remove said Pipeline, then such property shall become the property of GRANTOR to the exclusion of any claim by GRANTEE or any party claiming by, through or under GRANTEE. Termination of the Easement shall not operate to relieve either party of any obligation arising before or in progress before the Easement terminated or from any obligation hereunder, including the removal of the pipeline and surface restoration obligations, arising after the Easement terminates.

17. This Easement is granted without warranty of any nature, express or implied, and is expressly subject to all outstanding rights-of-way, easements, restrictive covenants, leases, liens, encumbrances and other interests, if any, with respect to the land and property of GRANTOR. GRANTOR and its lessees expressly reserve and retain the right to use and enjoy the surface of the land in any manner which does not unreasonably interfere with the activities of GRANTEE as authorized herein. In addition, GRANTOR has executed this Easement and granted, bargained, sold, set over, assigned, transferred, delivered and conveyed the Easement, and GRANTEE has accepted and purchased same, AS IS, WHERE IS, WITH ALL FAULTS and without any warranties of whatsoever nature, express or implied, it being the intention of the GRANTOR and GRANTEE to expressly negate and exclude all warranties. GRANTOR has made no, and hereby disclaims all, representations and warranties, express and implied, in respect to the condition of the Easement or the use which may be made thereof, including, without limitation, (A) the physical condition of the Easement, (B) the soil conditions existing at the Easement for any particular purpose or development potential, and (C), the presence or absence of any hazardous substance or matter in or on the improvements or the Easement.

18. If GRANTEE defaults in the timely and complete performance of any covenant, condition or limitation contained in this Easement, then GRANTOR shall have the right to terminate this Easement and all rights of GRANTEE in addition to such other rights and remedies as may be available under the terms of this agreement or at law or in equity. Prior to the exercise of any remedy occasioned by GRANTEE'S default, GRANTOR shall mail written notice to GRANTEE by certified mail, return receipt requested, deposited with the U.S. Postal Service, postage prepaid, addressed to the address of GRANTEE set forth above or such other address as GRANTEE may furnish to GRANTOR by certified mail, return receipt requested from time to time during the term of this Easement, with such notice from GRANTOR specifying the default by GRANTEE. If for any reason GRANTEE fails to correct or cure such default within ninety (90) days from the date such written notice is mailed by GRANTOR, then, in addition to any other remedies available to GRANTOR, GRANTOR may immediately and without further notice to GRANTEE terminate this Easement and all rights of GRANTEE created hereunder. If GRANTOR brings suit to compel performance of, or to recover for breach of any term, covenant or condition herein contained, or for declaratory relief, if GRANTOR prevails in the litigation, GRANTOR shall be entitled to recover its costs and expenses incurred in bringing such suit, and its reasonable attorney and professional fees, including reasonable expert witness fees, costs and expenses, in addition to the amount of judgment and all other fees and all charges, costs and expenses incurred in such lawsuit or lawsuits.

19. GRANTEE may assign the easement, in whole or in part. GRANTEE shall provide to GRANTOR, free of cost, a copy of any assignment of the easement, in whole or in part.

20. GRANTEE shall maintain in force at all times during the term of this Right of Way Agreement and at GRANTEE'S sole cost comprehensive general liability insurance applicable to the Easement and the Pipeline containing minimum underlying limits of $1,000,000.00 for the injury or death to any one person, and $1,000,000.00 with respect to damage to property, together with excess liability insurance coverage of not less than $5,000,000.00 (with the excess liability coverage effective at a base amount equal to the maximum coverage of the underlying insurance). Such insurance coverage shall include GRANTOR as a named insured. Such policy or policies of insurance shall be issued by an insurance underwriter not less than thirty (30) days in advance of the date of any cancellation or modification, and GRANTEE shall furnish to GRANTOR insurance certificates for each and every insurance policy. GRANTEE may satisfy the insurance obligations herein in any combination of self, primary or excess insurance.

21. Neither GRANTEE nor any officer, agent, representative, servant, contractor or employee of GRANTEE shall hunt, carry firearms, bows, slingshots, air rifles, or other weapons, or bring dogs upon the Easement or upon GRANTOR'S adjoining property. Smoking and all types of fires are prohibited on the Easement Area or any of GRANTOR'S other property. GRANTEE shall immediately correct any actions by GRANTEE'S contractors that violate the provisions of this Easement agreement.

22. Cathodic protection shall be provided for the entire Pipeline lying within the Easement. GRANTEE shall install automatic pressure controls with remotely controlled valve operators powered to fail safe at any public roads.

23. Except for emergency operations and routine operations, GRANTEE shall keep GRANTOR advised in writing in advance of all material matters concerning the Easement.

24. GRANTEE shall furnish a lock for each gate installed by GRANTEE, which lock shall be used in common with other locks on such gates for use by GRANTOR and other parties authorized by GRANTOR. GRANTOR may specify any gates to be locked and such gates shall remain locked at all items when not in actual use, until GRANTEE is notified to the contrary by GRANTOR. All other gates shall be left at all times when not in actual use in the same condition as existed when approached, e.g. gates that have been opened by GRANTOR shall be left open by GRANTEE, and gates that have been closed by GRANTOR shall be left closed by GRANTEE.

25. The terms, conditions, and provisions of this Easement Agreement shall extend to and be binding upon the heirs, devisees, executors, administrators, successors and assigns of GRANTOR and GRANTEE. This Easement Agreement: (i) shall be recorded in the real property records of the county in which the Easement Area is located, (ii) contains the entire agreement between GRANTOR and GRANTEE and (iii) may be executed in triplicate originals and counterparts which together shall constitute the entire Easement Agreement.

26. The terms, conditions and provisions of this Easement Agreement shall in no way alter the terms, conditions and provisions of any other easement agreements existing on GRANTOR's property with GRANTEE, even if said other easements overlap with the easement granted herein.

TO HAVE AND TO HOLD the above described right-of-way, together with all and singular the rights and appurtenances thereto in anywise belonging, unto the said ONEOK ARBUCKLE II PIPELINE, L.L.C., its successors or assigns, forever or until the same shall terminate or be abandoned.

EXECUTED IN TRIPLICATE ORIGINALS this 21st day of March 2019.

GRANTOR:

Paul A. McCoy, Individually, as Co-Trustee of the Katherine Brausen Supplemental Needs Trust, and as Trustee of the Katherine Brausen Management Trust

Ann McCoy, Co-Trustee of the Katherine Brausen Supplemental Needs Trust

ACKNOWLEDGEMENT

STATE OF TEXAS §
§
COUNTY OF MCLENNAN §

This instrument was acknowledged before me on this 21st day of March, 2019, by Paul A. McCoy, individually, as Co-Trustee of the Katherine Brausen Supplemental Needs Trust, on behalf of said Trust, and as Trustee of the Katherine Brausen Management Trust, on behalf of said Trust.

-seal-
RACHELLE D CHAVEZ
Notary Public
STATE OF TEXAS
ID#614169-5
My Comm. Exp. June 25, 2020

Notary Public in and for the State of Texas
My Commission Expires: 6-25-2020

ACKNOWLEDGEMENT

STATE OF TEXAS §
§
COUNTY OF MCLENNAN §

This instrument was acknowledged before me on this 21st day of March, 2019, by Ann McCoy as Co-Trustee of the Katherine Brausen Supplemental Needs Trust, on behalf of said Trust.

-seal-
RACHELLE D CHAVEZ
Notary Public
STATE OF TEXAS
ID#614169-5
My Comm. Exp. June 25, 2020

Notary Public in and for the State of Texas
My Commission Expires: 6-25-2020

STATE OF TEXAS

COUNTY OF LIBERTY

EXHIBIT "A"
TRACT TXLB.CVJ2MB.1556.01 (245.64 ACRES)

CENTERLINE SURVEY DESCRIPTION OF A PROPOSED 50-FOOT WIDE PIPELINE EASEMENT ACROSS PAUL A. McCOY

The centerline description of a proposed 50-foot wide pipeline easement, situated in the P.D. Mason Survey, Abstract No. 756 and in the A. Christensen Survey, Abstract No. 679, Liberty County, Texas being upon, over, through and across of the Paul A. McCoy called 245.64 acre tract of land as described by an instrument recorded in Liberty County Clerks File (L.C.C.F.) No. 2015006411 of the Official Public Records of Liberty County, Texas (O.P.R.L.C.T.), said pipeline easement shall be 25.00 feet each side of, parallel and adjacent to said centerline and shall be extended or shortened to intersect grantors boundary line, said centerline being more particularly described as follows:

Bearings shown hereon are referenced to the Universal Transverse Mercator (UTM) Coordinate System, Zone 15, US Survey feet. Distances hereon are grid and may be converted to surface by dividing by a combined scale factor of 1.0000238167.

COMMENCING at an iron pipe found marking the southeast corner of the Daniel Simnacher exempt lifetime trust and Lisa Simnacher exempt lifetime trust called 3,157.440 acre of land as described in L.C.C.F. No 2018001743 and 2018001744 of the O.P.R.L.C.T., and northeast corner of said 245.64 acre tract;

THENCE South 86°04'22" West, along the common line of said Tract one and said 245.64 acre tract, a distance of 323.08 feet to the **POINT OF BEGINNING** of the herein described centerline;

THENCE South 04°42'28" West, a distance of 1,700.73feet to an angle point;

THENCE South 12°10'02" West, a distance of 148.98 feet to an angle point;

THENCE South 06°59'42" East, a distance of 51.09 feet to an angle point;

THENCE South 13°02'58" East, a distance of 57.65 feet to an angle point;

THENCE South 33°02'56" East, a distance of 69.47 feet to an angle point;

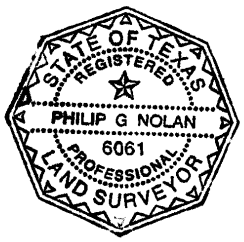
THENCE South 24°28'07" East, a distance of 30.99 feet to an angle point;

THENCE South 12°28'04" East, a distance of 31.31 feet to an angle point;

THENCE South 04°37'10" East, a distance of 66.81 feet to the **POINT OF TERMINUS** of the herein described centerline on the south line of said 245.64 acre tract and the north line of the Frederick G. McCoy called 123.36 acre tract of land as described by an instrument recorded in L.C.C.F. No. 2015006410 of the O.P.R.L.C.T., from which, a iron pipe found marking the southeast corner of 245.64 acre tract bears North 77°19'48" East, a distance of 311.49 feet. The total distance of the herein described centerline is 2,157.03 feet or 130.73 rods, the pipeline easement containing 2.476 acres (107,852 square feet) of land and the temporary workspace containing 2.467 acres (107,458 square feet) of land.

A further description of said centerline together with the pipeline easement and the temporary workspace illustrated on Exhibit "B1" & "B2" titled, "PROPOSED 50-FOOT WIDE PIPELINE EASEMENT ACROSS PAUL A. McCOY PROPERTY SITUATED IN THE P.D. MASON SURVEY, A-756 AND IN THE A. CHRISTENSEN SURVEY, A-679, LIBERTY COUNTY, TEXAS", dated 08/07/18, the latest revision dated 10/29/18 identified as Drawing Number TXLB.CVJ2MB.1556.01.DWG

Compiled by: Ricardo Armenta
Reviewed by: Philip G. Nolan, RPLS
MORRIS P. HEBERT, INC.
10101 SOUTHWEST FREEWAY, SUITE 620
HOUSTON, TEXAS 77074
(713) 219-1470
FIRM NO. 10142100



10-29-18

Philip G. Nolan
Registered Professional Land Surveyor
Texas Registration No. 6061

SHEET: 1 OF 3

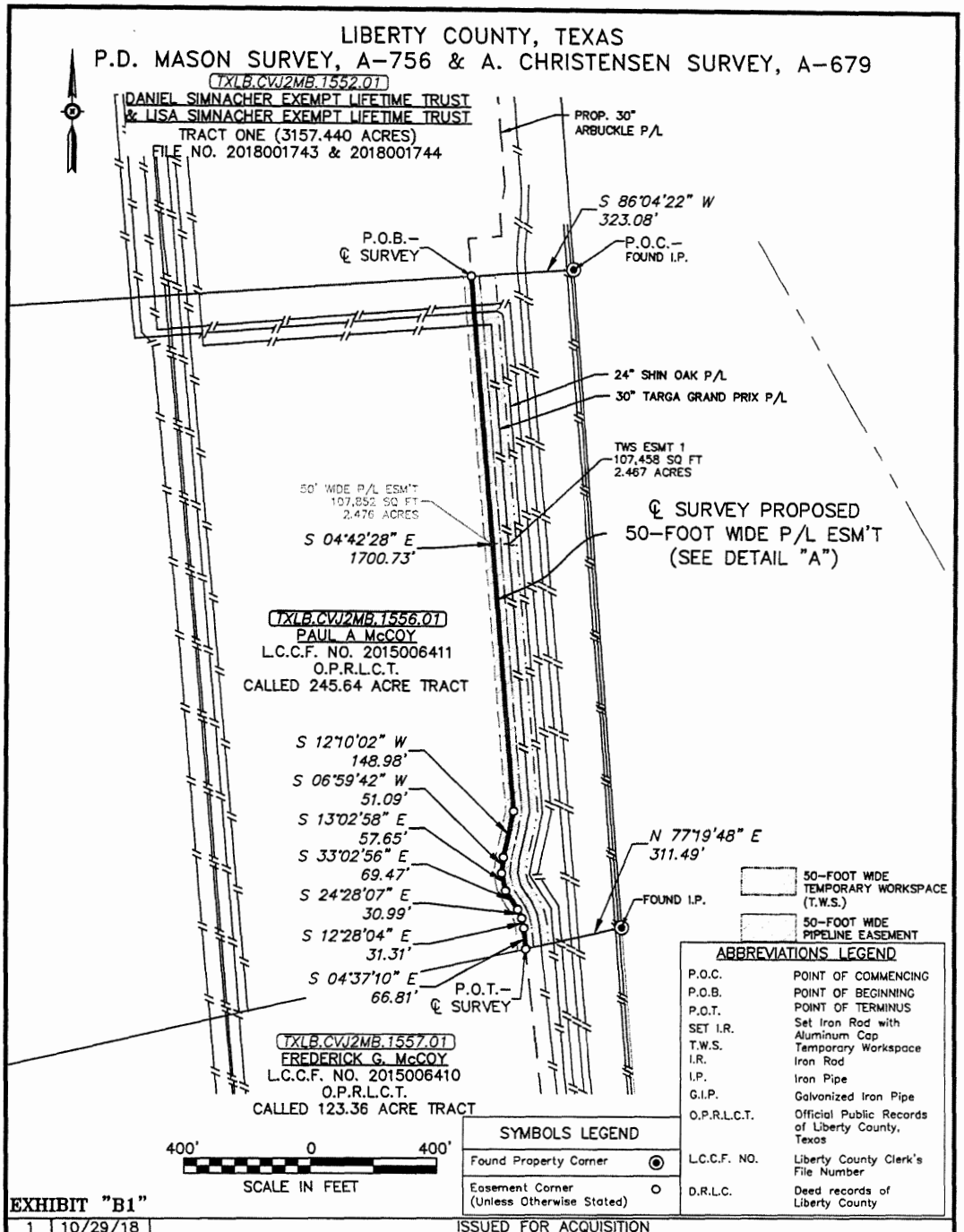


EXHIBIT "B1"

NO.	DATE	REVISION
1	10/29/18	ISSUED FOR ACQUISITION

ONEOK ARBUCKLE II PIPELINE, L.L.C.

EXHIBIT OF A PROPOSED 50-FOOT WIDE PIPELINE EASEMENT
ACROSS PAUL A McCOY PROPERTY
SITUATED IN THE P.D. MASON SURVEY, A-756 AND THE A. CHRISTENSEN SURVEY, A-679
LIBERTY COUNTY, TEXAS

Morris P. Hebert, Inc.
FIRM NO. 10142100
Office Locations:
-HOUMA FACILITY-
283 Corporate Drive
Houma, Louisiana 70360
985-879-2731 FAX: 985-876-9052
-HOUSTON FACILITY-
10101 South West Freeway, Suite 620
Houston, Texas, 77074
713-219-1470 FAX: 713-219-1471
http://www.mphinc.com

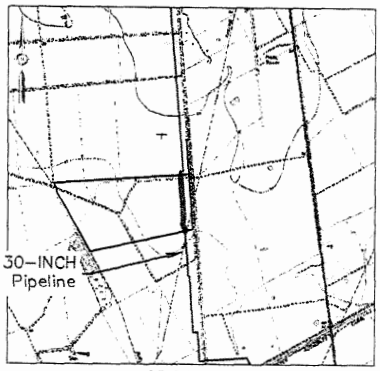
DRAWN BY: LG	SHEET: 2 OF 3
CHECKED BY: AD	SCALE : AS SHOWN
APPROVED BY: PGN	DATE: 08/07/18
CAD FILE: TXLB.CVJ2MB.1556.01.DWG	

H:\Projects\13136 ONK Arbuckle-OMBS\5000 PLATS\DWG\FINAL\LIBERTY\TXLB.CVJ2MB.1556.01.dwg plotted on Oct 26, 2018 - 3:56pm

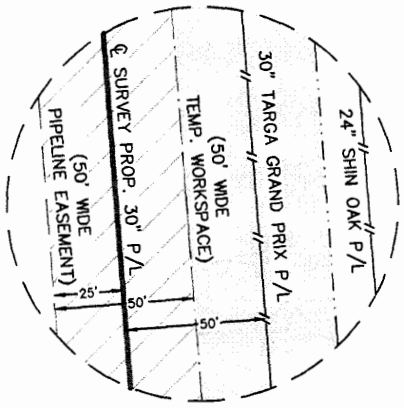
PROPERTY DESCRIPTION

Being that certain tract of land containing 245.64 acres, more or less, situated in the P. D. Mason Survey, Abstract No. 756 and the A. Christensen Survey, Abstract No. 679, Liberty County, Texas, being more particularly described in that certain Distribution Deed dated April 29, 2015, recorded in Liberty County Clerks File No. 2015006411 of the Official Public Records of Liberty County, Texas.

SURVEY LINE	
LENGTH OF C/L SURVEY	2,157.03 L.F./130.73 RODS
RIGHT OF WAY LAND USE	
50' PIPELINE ESM'T	107,852 SQ. FT./2.476 ACRES
50' TEMP. WORKSPACE	107,458 SQ. FT./2.467 ACRES



Vicinity Map
scale 1"=1 miles



Detail "A"
(not to scale)

APPROVED: P G Nolan 10-29-18
PHILIP G. NOLAN
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6061

THIS DOCUMENT VALID ONLY WHEN EITHER AN ORIGINAL CERTIFICATION STAMP OR AN EMBOSSING SEAL IS IMPRESSED OVER AN ORIGINAL SIGNATURE.

GENERAL NOTES :

1. Bearings shown hereon are referenced to Universal Transverse Mercator Coordinate System, Zone15, NAD83. Distances hereon are grid and may be converted to surface by dividing by a combined scale factor of 1.0000238167.

2. This exhibit was prepared without the benefit of a commitment for title insurance; therefore, easements of record may exist and are not shown hereon. The ownership information of the subject and adjoining tracts, shown hereon, provided by Suncoast Land Services, Inc . No additional research has been performed by Morris P. Hebert, Inc.

3. An on-the-ground effort has been made to locate and indicate all cables, pipelines, utilities, etc. crossed by the proposed project; however, due to the inherent limitations of electronic magnetic locating equipment, Morris P. Hebert, Inc. is not responsible for any not located during the course of the survey. It is not within the scope of this exhibit to locate all buried utility lines on this property, not all improvements shown hereon.

4. A separate metes and bounds description titled Exhibit "A" accompanies this plat.

EXHIBIT "B2"

NO.	DATE	REVISION
1	10/29/18	ISSUED FOR ACQUISITION

ONEOK ARBUCKLE II PIPELINE, L.L.C.

EXHIBIT OF A PROPOSED 50-FOOT WIDE PIPELINE EASEMENT
ACROSS PAUL A McCOY PROPERTY
SITUATED IN THE P.D. MASON SURVEY, A-756 AND THE A. CHRISTENSEN SURVEY, A-679
LIBERTY COUNTY, TEXAS

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-HOUMA FACILITY-
283 Corporate Drive
Houma, Louisiana 70360
985-879-2731 FAX: 985-876-9052
-HOUSTON FACILITY-
10101 South West Freeway, Suite 620
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http://www.mphinc.com

DRAWN BY: LG	SHEET: 3 OF 3
CHECKED BY: AD	SCALE : AS SHOWN
APPROVED BY: PGN	DATE: 08/07/18
CAD FILE: TXLB.CVJ2MB.1556.01.DWG	

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FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

Lee Haidusek Chambers, County Clerk
Liberty County Texas
June 26, 2019 03:33:19 PM
FEE: $52.00 VSIERRA
AGR

2019015329

2019027427
ELECTRONICALLY RECORDED
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WFG Company
GF# 703-28716 PUA

J.A. "ANDY" HARWELL
MCLENNAN COUNTY CLERK
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No. 20140003 GDN

IN THE MATTER OF	§	IN THE COUNTY COURT
	§	
KATHERINE BRAUSEN,	§	OF
	§	
A PHYSICALLY DISABLED PERSON	§	McLENNAN COUNTY, TEXAS

- Katherine Brausen Mgmt Trust was Ironwood's Seller.

- Exclude from title summary.

APPLICATION FOR CREATION OF MANAGEMENT TRUST FOR THE BENEFIT OF KATHERINE BRAUSEN

TO THE HONORABLE JUDGE OF SAID COURT:

NOW COMES Katherine Brausen, ("Applicant"), who is a person with only a physical disability, and makes this Application for Creation of Management Trust for the Benefit of Katherine Brausen, pursuant to Chapter 1301 of the Texas Estates Code, and would respectfully show the Court the following:

I.

Applicant is 61 years old, having been born on September 15, 1953, and currently resides at 3338 Chimney Place, Waco, McLennan County, Texas. Applicant is an adult person with only a physical disability. No guardianship of Katherine Brausen exists, and no guardianship is contemplated.

II.

Applicant is the beneficiary of Trust B created under the David W. McCoy Living Trust executed by David W. McCoy as Settlor and Trustee, on November 2, 1998, (referred to herein as "Trust B"). Trust B was created upon the death of David W. McCoy on September 26, 1999, for the benefit of Applicant's mother, Barbara Z. McCoy, for her lifetime. Upon the death of Barbara Z. McCoy, the Trustees of Trust B are to make monetary distributions to two individuals and then divide the remaining property into three separate shares, one for each of David W. McCoy's

A CERTIFIED COPY
Attest: July 11, 2019
J.A. "Andy" Harwell, County Clerk
McLennan County, Texas
By Mary McNeil
Mary McNeil -Deputy

children, and distribute the shares to such children. One such share is to be distributed to Katherine Brausen (referred to as Katie Lee McCoy Brausen in the actual trust agreement), free of trust. The trustees of Trust B are Fred McCoy and Paul McCoy, both of whom are brothers of the Applicant. To date, no property has been distributed from Trust B as the Trustees are still winding up the trust administration; however, it is Applicant's understanding that the winding up of the trust administration is near completion and it is anticipated that the Trustees will be ready to make the distribution to Applicant in the near future. Applicant has received and wishes to continue to receive benefits under Medicaid's Community Based Alternatives Program (the "CBA Program"). Any distribution to Applicant on from Trust B will cause Applicant to be ineligible for such CBA Program. Therefore, Applicant requests this Court create a trust for her benefit in accordance with the terms and provisions of the Terms of Management Trust and Agreement of Trustee filed with this Application (the "Management Trust"). Applicant also requests that the Order creating the Management Trust direct that Fred McCoy and Paul McCoy, in their capacities as Co-Trustees of Trust B, deliver any and all property to which Applicant is entitled from Trust B, except that property which would be Applicant's homestead if such property were distributed to her outright, to the Management Trust.

III.

Applicant has asked her brother, Paul McCoy, to act as trustee of the Management Trust being requested in this Application, in the event this Court agrees that the Management Trust should be created. Paul McCoy is willing to act as trustee. In accordance with Sections 1301.057 and 1301.058 of the Texas Estates Code, Applicant believes that, since she is not a ward or an incapacitated person but rather she is a person who only has a physical disability, it is permissible for the Court to appoint Paul McCoy, an individual, as the trustee of the Management Trust and that Paul McCoy, being a trustee of a management trust created for a person who has only a

physical disability, is permitted to serve without giving a bond. Applicant believes that it is in her best interest to have Paul McCoy serve as trustee of the Management Trust, without bond.

IV.

Applicant and Paul McCoy have agreed upon the terms of the Management Trust. A proposed indenture of the Management Trust reflecting those terms is filed herein and attached to this Application as Exhibit A, and the terms comply with the provisions of Chapter 1301 of the Texas Estates Code. Modification of the terms regarding the distribution of the Management Trust's income and principal under Section 1301.101 of the Texas Estates Code is in the Applicant's best interest and is necessary and appropriate to allow Applicant to be eligible to receive public benefits or assistance under a state or federal program, such as the CBA Program.

WHEREFORE, PREMISES CONSIDERED, Applicant, Katherine Brausen, prays that this Court create a Management Trust in accordance with Chapter 1301 of the Texas Estates Code for her benefit in accordance with the terms and provisions of the Trust Indenture filed with this Application, and with the management trust provisions of the Texas Estates Code; that Paul McCoy be appointed as trustee of such trust, without bond; and for such other and further relief to which Applicant may be entitled.

Respectfully submitted,

NAMAN, HOWELL, SMITH & LEE, PLLC
400 Austin Avenue, Suite 800
P. O. Box 1470
Waco, Texas 76703-1470
(254) 755-4100
FAX (254) 754-6331

By: _____
Kristen A. Mynar
State Bar No. 24074785

Attorneys for Applicant Katherine Brausen

Exhibit A

No. _____

IN THE MATTER OF	§	**IN THE COUNTY COURT**
	§	
KATHERINE BRAUSEN,	§	**OF**
	§	
A PHYSICALLY DISABLED PERSON	§	**McLENNAN COUNTY, TEXAS**

TERMS OF MANAGEMENT TRUST AND AGREEMENT OF TRUSTEE

As provided in Chapter 1301 of the Texas Estates Code, the purpose of this instrument is to establish the terms and conditions of a management trust (herein called "the Trust") created and maintained for the benefit of Katherine Brausen, a person with only a physical disability, as provided in the Order of the County Court of McLennan County, Texas (herein called "the Probate Court") in Cause Number _____.

I.

TRUSTEE

The trustee of the Trust is Paul McCoy, the brother of Katherine Brausen (hereinafter called the "Trustee"). The Trustee's duties shall commence in accordance with the terms of this agreement upon deposit with Trustee of that property which the Court designates as constituting the corpus of this Trust. No bond or other security is required of the Trustee.

II.

BENEFICIARY

The sole beneficiary of the Trust is Katherine Brausen (hereinafter called "the Beneficiary"), who was born on September 15, 1953.

III.

TRUST ESTATE

The Trust shall be funded with the property to which the Beneficiary is entitled from Trust B created under the David W. McCoy Living Trust, except that property which would be the Beneficiary's homestead if such property were distributed to her outright. Such property shall constitute the initial principal of the Trust which, together with all other properties transferred to the Trust and all income therefrom, shall constitute the trust estate of the Trust.

IV.

DISTRIBUTIONS DURING TERM OF TRUST

The following provisions shall govern distributions from the Trust during the term of this Trust:

A. Purpose and Intent. This Trust is created pursuant to 42 U. S. C. § 1396p(d)(4)(A). It is intended to be construed and administered as a "supplemental needs" trust under 42 U. S. C. § 1396p(d)(4)(A). Without limiting the foregoing, neither the corpus of the Trust nor distributions from the Trust shall ever cause the Beneficiary to be disqualified to receive those public benefits or assistance under a state or federal program to which the Beneficiary then may be entitled but for the existence of this Trust or but for the distributions from this Trust.

B. Distribution Standard. During the term of this Trust, the Trustee shall apply for the benefit of the Beneficiary those amounts of the principal and/or income of the Trust for the satisfaction of the Beneficiary's supplemental needs (defined below), as the Trustee, in the trustee's sole and absolute discretion, may from time to time deem appropriate, subject to the strict limitations set out in this instrument. Any income of the Trust not distributed shall be added to the principal.

C. Supplemental Needs. As used in this instrument, "supplemental needs" refers to the requisites, as allowed for in 42 U. S. C. § 1396p(d)(4)(A), for maintaining the Beneficiary's health, safety, and welfare when the Trustee determines, in the Trustee's discretion, that such needs are not being provided for by any public or private agency, including any state, the United States, or any insurance carrier with insurance policies covering the Beneficiary. The Trustee is prohibited from expending any of the Trust principal or income for any property, services, benefits, or medical care which are being received by, or which are otherwise available to, the Beneficiary from any governmental source or from any insurance carrier required to cover the Beneficiary. The Trustee may, however, make distributions that would reduce public benefits without terminating them completely such as, for example, by providing food, clothing and shelter to a beneficiary

eligible for Supplemental Security Income in exchange for a reduction of benefits under the "Presumed Value Rule," when the Trustee in the Trustee's uncontrolled discretion determines such distributions to be in the best interests of the Beneficiary. Provided, the Trustee is prohibited from expending any of the Trust principal or income for any such property, services, benefits, or medical care if that restriction is necessary in order to qualify the Beneficiary for such governmental or insurance carrier benefits. The Trustee may pay any deductible amounts for the Beneficiary on any insurance policies covering the Beneficiary so long as that payment does not disqualify the Beneficiary from receipt of benefits. The Trustee shall cooperate with the Beneficiary, or the Beneficiary's conservator, guardian, or legal representative, as the case may be, to seek support and maintenance for the Beneficiary from all available resources, including but not limited to, the Supplemental Social Security Income Program (SSI), Supplemental Income Program (SIP) of Texas, the Old Age Survivor and Disability Insurance Program (OASDI), the Medicaid Program, and any additional similar or successor programs, and from any private sources. To the extent required by 42 U. S. C. § 1396p(d)(4)(A) and other applicable laws and regulations regarding trusts of this type, the Trustee *may supplement, but shall not supplant*, services, benefits, and medical care received or requested by or on behalf of the Beneficiary that are available through any governmental or private resource.

The Trustee may make any distribution required or permitted hereunder in any of the following ways: (i) to the Beneficiary directly; (ii) to the legal guardian of the Beneficiary's person or estate; (iii) to any person furnishing care, support, or maintenance to the Beneficiary; or (iv) by utilizing any distribution directly for the Beneficiary's benefit.

V.

PAYMENT OF INCOME TAXES

The Trustee shall pay any income tax liability of the Beneficiary which results from income received by the Trust but reported on the income tax return of the Beneficiary. The funds used to pay this income tax liability shall be paid directly to the appropriate taxing authority and shall not be available to the Beneficiary. The Beneficiary shall not have any right to or interest in any of these funds paid by the Trustee. Further, these funds are not a resource of the Beneficiary and shall not be treated as a distribution of cash for purposes of Medicaid qualification.

VI.

SPENDTHRIFT PROVISION

To the fullest extent allowed by law, no property (whether income or principal) of the Trust shall be subject to anticipation or assignment by the Beneficiary, or to attachment by or the interference or control of any creditor or assignee of the Beneficiary, and it may not be taken or reached by any legal or equitable process in satisfaction of any debt or liability of the Beneficiary prior to the actual receipt of such property by Beneficiary. Any attempted transfer or encumbrance of any interest in the trust estate of the Trust by the Beneficiary prior to the actual distribution thereof to the Beneficiary shall be wholly void. To the extent allowed by law, no distribution from the Trust shall be made to satisfy any obligation to the Beneficiary if such obligation would otherwise be met from any Federal or State assistance program if the Trust had not been created.

VII.

TERMINATION OF TRUST

The Trust shall terminate upon the earlier of: (A) the Court's determination that the Trust is no longer in the best interest of the Beneficiary, or (B) the Beneficiary's death.

VIII.

DISTRIBUTION UPON TERMINATION OF TRUST

If the Trust is terminated prior to the Beneficiary's death because the Court determines that the Trust is no longer in the best interest of the Beneficiary, then, upon such termination, the Trustee shall distribute the principal and any undistributed income of the Trust to the Beneficiary.

If the Trust terminates upon the death of the Beneficiary, then, upon such termination, the Trustee shall distribute the principal and any undistributed income of the Trust as follows:

A. First, the Trustee shall pay all amounts required to be reimbursed pursuant to 42 U. S. C. §1396p(d)(4)(A). The Trustee shall reimburse those states where the Beneficiary has received Medicaid Assistance payments from the state, based upon the state's proportionate share of the total amount of Medicaid benefits paid by all of the states on the Beneficiary's behalf, the smallest amount (if any) as applicable law then requires the Trust to pay. The Trustee's duty to reimburse the state upon termination shall apply to the extent there are remaining assets in this trust and shall apply irrespective of any other provision of this instrument. The Trustee shall reimburse the state only for those benefits provided to the Beneficiary which are subject to such reimbursement claim.

B. After the satisfaction of these obligations, the Trustee shall distribute the remaining property, if any, to the representative of the estate of the Beneficiary, to be administered and distributed as a part thereof.

IX.

REVOCABILITY

This Trust shall not be revoked, altered, or amended by the Beneficiary or any guardian or legal representative of the Beneficiary, but it shall remain subject to amendment, modification, or revocation by the Probate Court. The Probate Court may enter such further or additional orders concerning the trust estate as may be authorized.

X.

INVESTMENT AUTHORITY

The Trustee shall invest the trust estate in accordance with the standards set forth in Texas Property Code Chapter 113 (Texas Trust Code), as amended (or any subsequent applicable law), and the Trustee may also invest all or any part of the trust estate in one or more common trust funds now or hereafter established by the Trustee pursuant to Texas Property Code § 113.171 and § 113.172. Notwithstanding the terms of the preceding sentence, the Trustee is hereby specifically given the power to retain, and to invest and reinvest the trust estate in, any type of property, without regard to diversification (such Trustee being specifically relieved from any duty to diversify) and regardless of whether productive or non-productive of income.

XI.

COMPENSATION AND EXPENSES

The Trustee shall be entitled to receive for the Trustee's services hereunder reasonable compensation which shall be determined in accordance with Section 1301.101 et seq. of the Texas Estates Code; provided, however, Paul McCoy shall receive no compensation for serving as Trustee. The Probate Court shall always retain power and authority to review Trustee's fees at any time on the Probate Court's own motion or at the request of any interested person. The Probate Court shall take any action with respect to such fees as the Probate Court may deem appropriate. Each Trustee while serving hereunder shall be reimbursed for the reasonable costs and expenses incurred by such trustee in such capacity.

XII.

ADMINISTRATION

In the administration of the Trust, the Trustee shall be authorized and empowered:

(i) To exercise all of the powers now or hereafter granted to trustees by the Texas Trust Code or any corresponding statute, except in any instance in which the Texas Trust Code, or such other statutory provision, may conflict with the express provisions of this trust instrument, or the provisions contained in Chapter 1301 et seq. of the Texas Estates Code, in which case the provisions of this trust instrument and the Texas Estates Code shall control.

(ii) To adjust, compromise, abandon, sue on or defend, and otherwise deal with and settle all claims in favor of or against the Trust. To engage and retain attorneys or accountants at any time when it may be reasonably necessary to do so in order to provide for the prudent management and preservation of the Trust.

(iii) To continue to act as Trustee of the Trust regardless of any change of

XIV.

INCEPTION

This Trust shall become effective upon: (i) the effective date of the court order which authorizes the creation of this Trust, and (ii) the transfer of the above referenced property to the Trustee, and (iii) the Trustee's acceptance of the Trust which shall be evidenced by his signature below, and (iv) the filing of the original of this document with the County Clerk of McLennan County, Texas in the above numbered proceeding. This Trust is created by the Court by operation of law as it is implemented herein by the Probate Court, and to the extent permitted by law the Probate Court is the grantor of this Trust.

SIGNED in duplicate originals, any one of which shall be deemed an original for all purposes on this the 21st day of January, 2014.

BY: _____
Paul McCoy, Trustee

STATE OF TEXAS §
§
COUNTY OF McLENNAN §

This instrument was acknowledged before me by Paul McCoy on the 21st day of January, 2014, to certify which witness my hand and seal of office.

LAURA C. GONZALEZ
Notary Public
STATE OF TEXAS
My Comm. Exp. February 10, 2014

_____
Notary Public in and for the State of Texas

THE STATE OF TEXAS
COUNTY OF MCLENNAN

I, J.A. "Andy" Harwell, Clerk of the County Court in and for McLennan County, Texas, do hereby certify that the above and foregoing are true and correct copies of the following instruments, to-wit:

1. APPLICATION FOR CREATION OF MANAGEMENT TRUST-KATHERINE BRAUSEN ;
2. ;
3. ;
4. ;
5. ;
6. ;
7. ;
8. ;
9. ;
10. ;
11. ;
12. ;
13. ;
14. ;
15. ;
16. ;
17. ;
18. ;
19. ;
20. ;

in cause No. 20140003GDN said Court, entitled the GUARDIANSHIP of KATHERINE BRAUSEN, INCAPACITATED PERSON

as the same appear from the original instruments, now on file and/or of record in said Court.

TO CERTIFY WHICH, witness my hand and official seal of said Court, at my office, in the City of Waco, this the 11TH day of JULY, A.D., 2019.

J. A. "ANDY" HARWELL
Clerk, County Court
McLennan County, Texas
By Mary McNeil
Mary McNeil, Deputy

(Seal)

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Official Public Records
10/18/2019 11:43 AM

Lee Haidusek Chambers, County Clerk
Liberty County, TX Fee: $ 60.00
Pages: 12 AGR

Does the agreement affect the land purchased by Ironwood?

WFG National Title Company
GF# 203-28716 PUA

Form ROW-N-PUAIC
(Rev. 04/17)
Page 1 of 6

POSSESSION AND USE AGREEMENT FOR TRANSPORTATION PURPOSES WITH ADDITIONAL PAYMENT OF INDEPENDENT CONSIDERATION

STATE OF TEXAS	§	ROW CSJ: 3510-09-004
	§	Parcel No.: 1227
COUNTY OF LIBERTY	§	Project No.: SH 99

This Possession and Use Agreement For Transportation Purposes (the "Agreement") between the State of Texas, acting by and through the Texas Department of Transportation (the "State"), and **Paul A. McCoy, Individually, as Trustee of the Katherine Brausen Management Trust and as Co-Trustee of the Katherine Brausen Supplemental Needs Trust and Ann McCoy as Co-Trustee of the Katherine Brausen Supplemental Needs Trust** (the "Grantor" whether one or more), grants to the State, its contractors, agents and all others deemed necessary by the State, an irrevocable right to possession and use of the Grantor's property, as described in Exhibit A hereto, for the purpose of constructing a portion of Highway No. SH 99 Grand Parkway, Segments H & I (the "Highway Construction Project"). The property subject to this Agreement is described more fully in the field notes and plat map attached as Exhibit A and made a part of this Agreement by reference (the "Property").

1. For the consideration paid by the State which is set forth in Paragraphs 2 and 3 below, the receipt and sufficiency of which is acknowledged, the Grantor grants, bargains, sells and conveys to the State of Texas the right of entry and exclusive possession and use of the Property for the purpose of constructing a highway and appurtenances thereto and the right to remove any improvements, subject to all existing agreements of record. Authorized activities include surveying, inspection, environmental studies, archeological studies, clearing, demolition, construction of permanent improvements, relocating, replacing, and improving existing utility facilities, locating new utility facilities, and other work required to be performed in connection with the Highway Construction Project. This Possession and Use Agreement will extend to the State, its contractors and assigns, owners of any existing utilities on the Property and those which may be lawfully permitted on the Property by the State in the future, and all others deemed necessary by the State for the purpose of the Highway Construction Project. This grant will allow the construction, relocation, replacement, repair, improvement, operation and maintenance of utilities on the Property.

2. In full consideration for this irrevocable grant of possession and use and other Grantor covenants, warranties and obligations under this Agreement, the State will tender to the Grantor the sum of Twenty-Four Thousand Eight Hundred Ninety-Three Dollars ($24,893.00) for Parcel 1227. The Grantor agrees that this sum represents adequate and full compensation for the possession and use of the Property only pursuant to the terms of this Agreement. The State will be entitled to take possession and use of the Property upon tender of such payment. The parties agree that the sum tendered represents 100 percent of the State's approved value, which assumes no adverse environmental conditions affecting the value of the Property. However, Grantor retains the right to claim additional compensation in any further proceedings to acquire this Property. The State's approved value is the State's determination of the just compensation owed to the Grantor for the real property interest to be acquired by the State in the Property, encumbered with the improvements thereon, if any, and damages to the remainder, if any, save and except all oil, gas, sulphur and other

minerals. The parties agree that the sum tendered to Grantor will be deducted from any final settlement amount, Special Commissioners' award or court judgment. In the event the amount of the final settlement or judgment for acquisition of the Property is less than the amount the State has paid for the possession and use of the Property, then the Grantor agrees that the original amount tendered represents an overpayment for the difference and upon written notice from the State, the Grantor will promptly refund the overpayment to the State.

3. As additional consideration, the State will tender to the Grantor the sum of Three Thousand and No/100 Dollars ($3,000.00), the receipt and sufficiency of which is acknowledged. The parties agree that the sum tendered under this Paragraph 3:

   (i) is independent consideration for the possession and use of Grantor's Property and represents no part of the State's compensation to be paid for the anticipated purchase of the Property; and

   (ii) will not be refunded to the State upon any acquisition of the Property by the State.

4. The effective date of this Agreement will be the date on which payments pursuant to Paragraphs 2 and 3 above are tendered to the Grantor by the State, or disbursed to the Grantor by a title company acting as escrow agent for the transaction, (the "Effective Date").

5. The Grantor warrants and represents that the title to the Property is free and clear of all liens and encumbrances, except those encumbrances and agreements which exist of record prior to the Effective Date. The Grantor further warrants that no other person or entity owns an interest in the fee title to the Property and further agrees to indemnify the State from all undisclosed liens, claims or encumbrances not of record affecting the Property.

6. The parties agree that the valuation date for determining the amount of just compensation for the real property interest proposed to be acquired by the State in the Property, for negotiation or eminent domain proceeding purposes, will be the date of the deposit by the State of the amount of the Award of Commissioners in the case seeking to acquire Parcel 1227, less the sum of $24,893.00 which is being tendered to Grantor in accordance with paragraph 2 of this Agreement.

7. This Agreement is made with the understanding that the State will continue to proceed with acquisition of a real property interest in the Property. The Grantor reserves all rights of compensation for the title and interest in and to the Property. This Agreement shall in no way prejudice the Grantor's rights to receive full and just compensation as required by the Texas Constitution and Texas law for all of the Grantor's interests in and to the Property to be acquired by the State, encumbered with the improvements thereon, if any, and the damages, if any, to the remainder of the Grantor's interest in any larger tract of which the Property is a part (the "Remainder"), as of the date of taking. The State's removal or construction of improvements on the Property shall in no way affect the fair market value of the Property in determining compensation due to the Grantor in the eminent domain proceedings. There will be no project impact upon the appraised value of the Property. This grant will not prejudice the Grantor's rights to any relocation benefits for which Grantor may be eligible.

8. In the event the State institutes or has instituted eminent domain proceedings, the State will not be liable to the Grantor for interest upon any award or judgment as a result of such proceedings for any period of time prior to the date of the award. Payment of any interest may be deferred by the State

until entry of judgment.

9. The purpose of this Agreement is to allow the State to proceed with its Highway Construction Project without delay and to allow the Grantor to have the use at this time of a percentage of the estimated compensation for the State's acquisition of a real property interest in the Property. The Grantor expressly acknowledges that the proposed Highway Construction Project is for a valid public use and voluntarily waives any right the Grantor has or may have, known or unknown, to contest the jurisdiction of the court in any condemnation proceeding for acquisition of the Property related to the Highway Construction Project, based upon claims that the condemning authority has no authority to acquire the Property through eminent domain, has no valid public use for the Property, or that acquisition of the Property is not necessary for the public use.

10. The Grantor reserves all of the oil, gas, sulphur and other minerals in and under the Property herein but waives all right of ingress and egress to the surface of the Property for the purpose of exploring, developing, mining or drilling. The extraction of oil, gas, sulphur and other minerals may not affect the geological stability of the surface of the Property. Nothing in this reservation will affect the title and rights of the State to take and use all other materials thereon, and thereunder, as long as such use of the sub-surface does not destroy any of the oil, gas, sulphur and minerals reserved to Grantor pursuant to this Agreement.

11. The undersigned Grantor agrees to pay as they become due, all ad valorem property taxes and special assessments assessed against Property, including prorated taxes for the year in which the State takes title to the Property.

12. Notwithstanding the acquisition of right of possession to the Property by the State in a condemnation proceeding by depositing the Special Commissioners' award into the registry of the court, less any amounts tendered to the Grantor pursuant to Paragraph 2 above, this Agreement shall continue to remain in effect until the State acquires title to the Property either by negotiation, settlement, or final court judgment.

13. There shall be no drinking liquor, hunting, or fishing on the Property or any of Grantor's lands by the State, its officers, agents, employees, contractors, invitees, guests, or representatives at any time. No firearms or fishing equipment shall be taken on the property by the State, its officers, agents, employees, contractors, invitees, guests or representatives at any time. The State, its contractors, and any and all persons entering the Property under this Agreement shall not engage in disorderly conduct and a portable sanitary facilities shall be made available by the State for the State's contractors and any and all persons entering the Property under this agreement.

14. The State shall have the right to remove any fence that now crosses the Property. Prior to cutting any fence, the State shall construct proper support on either side of the contemplated opening by suitable H-braces to prevent the remainder of the fence from sagging. The State shall take reasonable steps to ensure that cattle, horses and/or other livestock cannot stray from the fenced pastures, including but not limited to informing Grantor of any fence removal and allowing for reasonable time to relocate said livestock. The State and its designated contractors, employees, and invitees agree to keep any and all gates and fences closed and locked at all times except when passing through same.

15. This Agreement will also extend to and bind the heirs, devisees, executors, administrators, legal representatives, successors in interest and assigns of the parties as long as it is in force and effect.

16. It is agreed the State will record this document.

17. This Agreement will terminate upon the conveyance of the Property to the State by Special Warranty Deed or the vesting of title in the State to the Property by virtue of a Final Judgment.

18. It is agreed that this Agreement will not be admissible at trial as evidence of market value of the Property or to show any agreement by the parties as to market value of the Property and/or any damages to the Remainder property of Grantor, resulting from the State's acquisition and/or condemnation of the Property.

To Have and to Hold the Agreement and the rights granted and conveyed herein, together with all the rights and appurtenances belonging to the State of Texas and its assigns, for the purposes and uses stated, subject to the limitations set forth hereinabove.

GRANTOR:

Paul A. McCoy, Individually, as Trustee of the Katherine Brausen Management Trust and as Co-Trustee of the Katherine Brausen Supplemental Special Needs Trust

Paul A. McCoy, Individually and as Trustee

Ann McCoy, Co-Trustee of the Katherine Brausen Supplemental Special Needs Trust

Ann McCoy, Trustee

April, 2018
Parcel No. 1227

EXHIBIT A

County: Liberty
Highway: SH 99 (Grand Parkway – Segment I-1)
Project Limits: US 90 to Liberty County Line
RCSJ No.: 3510-09-004

PROPERTY DESCRIPTION FOR PARCEL NO. 1227

Being a 1.263 acre (55,008 square feet) parcel of land situated in the Anton Christensen Section Number 4, Abstract 679, Liberty County, Texas, and being part of a called 245.64 acre tract of land from (a) Paul A. McCoy and Ann McCoy, as Independent Co-Executors of the Estate of Barbara Z. McCoy, deceased, (b) Frederick George McCoy and Paul Arthur McCoy, as Successor Co-Trustees of the David McCoy Trust, and (c) Fred G. McCoy, Individually to Paul A. McCoy (1/2 interest), Paul McCoy and Ann McCoy, Co-Trustees of the Katherine Brausen Supplemental Needs Trust (1/4 interest), Paul McCoy, Trustee of the Katherine Brausen Management Trust (1/4 interest) by deed executed April 29, 2015, as recorded in County Clerk's File Number 2015006411 of the Official Public Records of Liberty County, Texas (O.P.R.L.C.T.), said 1.263 acre parcel being more particularly described by metes and bounds as follows:

COMMENCING at a found 2-inch iron pipe for the northwest corner of said 245.64 acre tract and the northeast corner of a called 10.4213 acre tract of land from James W. Trousdale Jr., joined pro forma by my wife, Sylvia Trousdale, of Harris County, Texas; and Mae Beth Trousdale Pruitt, joined pro forma by my husband, Elmer L. Pruitt, and Maxine Trousdale Edmonds, joined pro forma by my husband, Earnest Edmonds to Diamond Chemicals Company, a subsidiary of Diamond Shamrock Corporation by deed executed October 29, 1983, as recorded in Volume 998, Page 419, O.P.R.L.C.T. on the south line of Lot 14 of ANGUS MCNEIL LEAGUE, an addition to Liberty County, Texas, as recorded in Volume P, Page 199 and Volume 2, Page 65 of the Deed Records of Liberty County, Texas (D.R.L.C.T.);

THENCE, North 83° 07' 04" East, with the north line of said 245.64 acre tract and with the south line of Lot 14 of said ANGUS MCNEIL LEAGUE, a distance of 174.93 feet to a set 5/8-inch iron rod with TxDOT aluminum cap on the proposed southwesterly right-of-way line of State Highway 99 (Grand Parkway, a 250-foot wide right-of-way) for the northwest corner of the parcel herein described and the POINT OF BEGINNING having surface coordinates of N = 13,903,212.56, E = 3,258,479.75, (all bearings and coordinates are based on the Texas Coordinate System, South Central Zone (4204), North American Datum of 1983, (2011 adjustment, 2010.00 epoch), all coordinates and distances are U.S. Survey feet, displayed in surface values and may be converted to grid by dividing by a TxDOT surface adjustment factor of 1.00013);

April, 2018
Parcel No. 1227
Page 2 of 6

EXHIBIT A

1) THENCE, North 83° 07' 04" East, continuing with the north line of said 245.64 acre tract and the south line of Lot 14 of said ANGUS MCNEIL LEAGUE, a distance of 257.43 feet to a set 5/8-inch iron rod with TxDOT aluminum cap on the proposed northeasterly right-of-way line of said State Highway 99 for the beginning of a proposed Access Denial Line, the northeast corner of said parcel herein described, and a point on a non-tangent circular curve to the left having a radius of 8,875.00 feet and a chord that bears South 21° 49' 54" East, a distance of 295.26 feet, from which a found 2-inch iron pipe bears North 83° 07' 04" East, a distance of 4,634.89 feet;

2) THENCE, Southeasterly, departing the north line of said 245.64 acre tract and the south line of Lot 14 of said ANGUS MCNEIL LEAGUE, over and across said 245.64 acre tract, with the proposed northeasterly right-of-way line of said State Highway 99, with said proposed Access Denial Line, and with said curve, through a central angle of 01° 54' 23", an arc distance of 295.27 feet to a set 5/8-inch iron rod with TxDOT aluminum cap for the end of said Access Denial Line, the end of said curve, and the southeast corner of said parcel herein described on the northeast line of a called 10 acre tract of land known as TX291-5, Forty-Fifth Tract from Kirby Exploration Company of Texas to KEC Acquisition Corp. by deed executed April 20, 1988, as recorded in Volume 1228, Page 642, O.P.R.L.C.T.;

3) THENCE, North 71° 05' 38" West, departing the proposed northeasterly right-of-way line of said State Highway 99, with the northeast line of said 10 acre tract, a distance of 331.23 feet to a set 5/8-inch iron rod with TxDOT aluminum cap on the proposed southwesterly right-of-way line of said State Highway 99 for the beginning of a proposed Access Denial Line, the southwest corner of said parcel herein described, and a point on a non-tangent circular curve to the right having a radius of 9,125.00 feet and a chord that bears North 20° 56' 41" West, a distance of 145.53 feet;

4) THENCE, Northwesterly, departing the northeast line of said 10 acre tract, over and across said 245.64 acre tract, with the proposed southwesterly right-of-way line of said State Highway 99, with said proposed Access Denial Line, and with said curve, through a central angle of 00° 54' 50", passing at an arc distance of 142.54 feet a set 5/8-inch iron rod with TxDOT aluminum cap stamped "ADL" for the end of said proposed Access Denial Line, continuing over and across said 245.64 acre tract, with the proposed southwesterly right-of-way line of said State Highway 99 and said curve, in all, a total arc distance of 145.53 feet to the POINT OF BEGINNING, and containing 1.263 acres (55,008 square feet) of land.

April, 2018
Parcel No. 1227
Page 3 of 6

EXHIBIT A

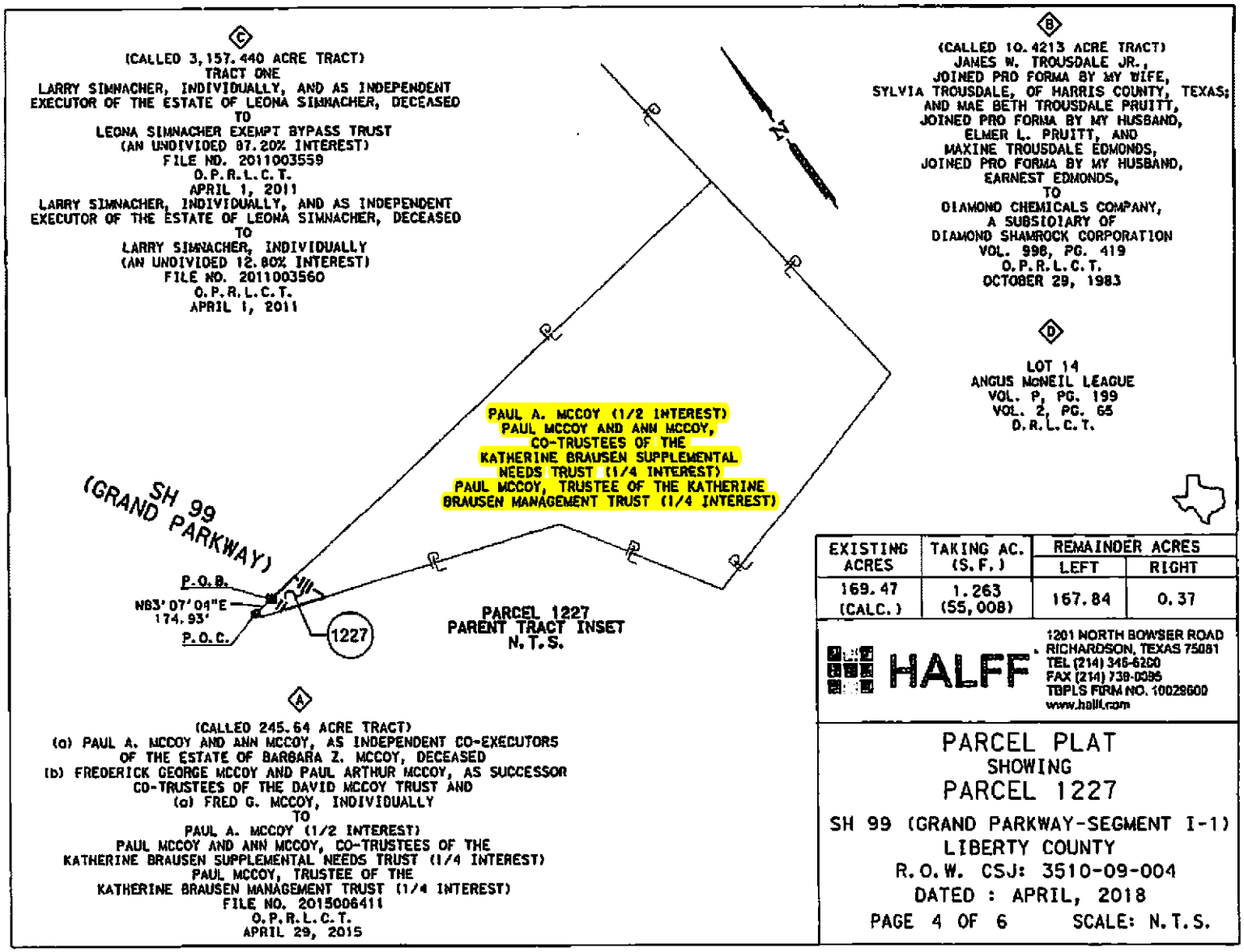
A parcel plat of even date was prepared in conjunction with this property description.

This survey was performed in conjunction with the title commitments issued by WFG National Title Insurance Company, GF No. 703-28336 (KMZ No. 315), having an effective date of December 5, 2017.

Access is prohibited across the Access Denial Line to the highway facility from the abutting remainder property.

Heath W. R—— 4-5-2018

Heath W. Brown, R.P.L.S. Date
Registered Professional Land Surveyor
Texas Registration No. 6189
Halff Associates, Inc.
TBPLS Firm Registration No. 10029600
1201 North Bowser Road
Richardson, Texas 75081



EXISTING ACRES	TAKING AC. (S.F.)	REMAINDER ACRES	
		LEFT	RIGHT
169.47 (CALC.)	1.263 (55,008)	167.84	0.37

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
FAX (214) 739-0095
TBPLS FIRM NO. 10029600
www.halff.com

PARCEL PLAT
SHOWING
PARCEL 1227

SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 4 OF 6 SCALE: N.T.S.

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM OF 1983, (2011 ADJUSTMENT, 2010.00 EPOCH). CONTROL MONUMENTS WERE PROVIDED BY TXDOT AND WERE FIELD VERIFIED UTILIZING THE TxDOT VRS NETWORK.

2. COORDINATES AND DISTANCES ARE U.S. SURVEY FEET, DISPLAYED IN SURFACE VALUES AND MAY BE CONVERTED TO GRID BY DIVIDING BY A TxDOT SURFACE ADJUSTMENT FACTOR OF 1.00013.

3. FIELD INFORMATION SHOWN HEREON IS BASED ON AN "ON-THE-GROUND" SURVEY PERFORMED BY HALFF ASSOCIATES, INC. FROM OCTOBER, 2017 TO APRIL, 2018.

4. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.

5. THIS SURVEY WAS PERFORMED IN CONJUNCTION WITH THE TITLE COMMITMENT ISSUED BY WFG NATIONAL TITLE INSURANCE COMPANY GF NO. 703-28336 (KMZ NO. 315) HAVING AN EFFECTIVE DATE OF DECEMBER 5, 2017.

6. ACCESS IS PROHIBITED ACROSS THE ACCESS DENIAL LINE TO THE HIGHWAY FACILITY FROM THE ABUTTING REMAINDER PROPERTY.

LEGEND

PL	PROPERTY LINE
	LAND HOOK
●	FOUND MONUMENT AS DESCRIBED
■	SET 5/8"IR W/TxDOT ALUMINUM CAP
ADL ■	SET 5/8"IR W/TxDOT ALUMINUM CAP STAMPED "ADL"
○	SET 5/8"IR WITH CAP STAMPED "HALFF"
O.P.R.L.C.T.	OFFICIAL PUBLIC RECORDS OF LIBERTY COUNTY, TEXAS
D.R.L.C.T.	DEED RECORDS OF LIBERTY COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCING
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
——•——	SURVEY LINE
———	EXISTING R.O.W. LINE
———	PROPOSED R.O.W. LINE
—|||—	PROPOSED R.O.W. AND ACCESS DENIAL LINE

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
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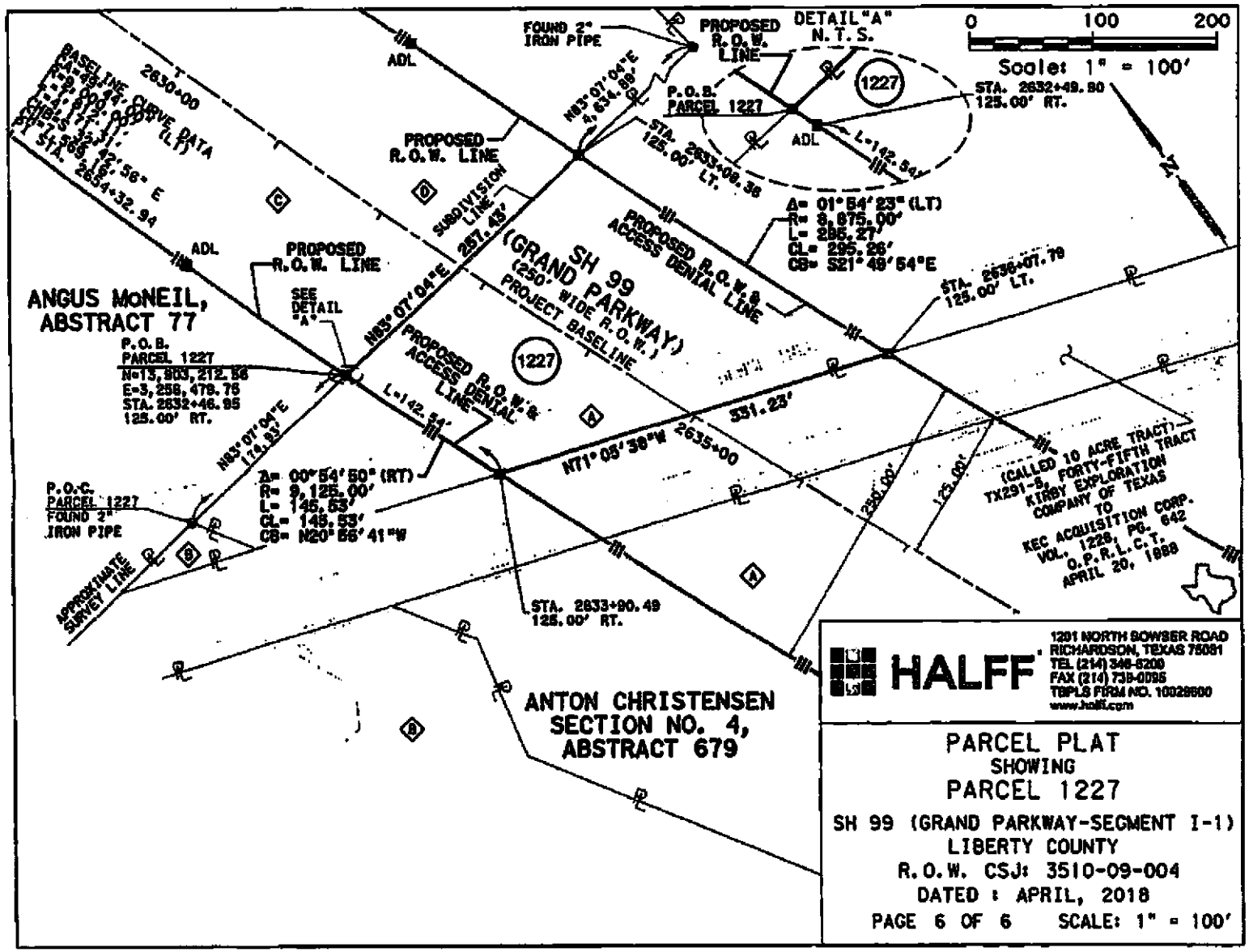
PARCEL PLAT
SHOWING
PARCEL 1227

SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 5 OF 6 SCALE: N.T.S.


DETAIL "A"
N.T.S.
0 100 200
Scale: 1" = 100'
FOUND 2" IRON PIPE
PROPOSED R.O.W. LINE
P.O.B. PARCEL 1227
STA. 2632+49.80
125.00' RT.
STA. 2633+09.38
125.00' LT.
L=142.54'
Δ= 01°54'23" (LT)
R= 8,875.00'
L= 295.27'
CL= 295.26'
CB= S21°49'54"E
STA. 2636+07.79
125.00' LT.
PROPOSED R.O.W. & ACCESS DENIAL LINE
SH 99 (GRAND PARKWAY)
(250' WIDE R.O.W.)
PROJECT BASELINE
SUBDIVISION LINE
257.48'
N83°07'04"E
4,634.89'
ADL
PROPOSED R.O.W. LINE
SEE DETAIL "A"
ANGUS McNEIL, ABSTRACT 77
P.O.B. PARCEL 1227
N=13,903,212.56
E=3,258,478.75
STA. 2632+46.95
125.00' RT.
N83°07'04"E
175.83'
PROPOSED ACCESS DENIAL LINE
L=142.54'
Δ= 00°54'50" (RT)
R= 9,125.00'
L= 145.53'
CL= 145.53'
CB= N20°55'41"W
P.O.C. PARCEL 1227
FOUND 2" IRON PIPE
APPROXIMATE SURVEY LINE
N71°05'36"W 2635.00'
351.23'
STA. 2633+90.49
125.00' RT.
ANTON CHRISTENSEN SECTION NO. 4, ABSTRACT 679
(CALLED 10 ACRE TRACT)
TX291-5, FORTY-FIFTH TRACT
KIRBY EXPLORATION COMPANY OF TEXAS
TO
KEC ACQUISITION CORP.
VOL. 1228, PG. 642
O.P.R.L.C.T.
APRIL 20, 1988
HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
FAX (214) 739-0095
TBPLS FIRM NO. 10029600
www.halff.com
PARCEL PLAT
SHOWING
PARCEL 1227
SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 6 OF 6 SCALE: 1" = 100'

2019027431
ELECTRONICALLY RECORDED
Official Public Records
10/18/2019 11:58 AM

Lee Haidusek Chambers, County Clerk
Liberty County, TX Fee: $ 76.00
Pages: 16 AGR

Does the agreement affect the land purchased by Ironwood?

WFG National Title Company
GF# 703-29791PUA

Form ROW-N-PUAIC
(Rev. 04/17)
Page 1 of 6

POSSESSION AND USE AGREEMENT FOR TRANSPORTATION PURPOSES WITH ADDITIONAL PAYMENT OF INDEPENDENT CONSIDERATION

STATE OF TEXAS	§	ROW CSJ: 3510-09-004
	§	Parcel No.: 1235
COUNTY OF LIBERTY	§	Project No.: SH 99

This Possession and Use Agreement For Transportation Purposes (the "Agreement") between the State of Texas, acting by and through the Texas Department of Transportation (the "State"), and **Paul A. McCoy, Individually, as Trustee of the Katherine Brausen Management Trust and as Co-Trustee of the Katherine Brausen Supplemental Needs Trust and Ann McCoy as Co-Trustee of the Katherine Brausen Supplemental Needs Trust** (the "Grantor" whether one or more), grants to the State, its contractors, agents and all others deemed necessary by the State, an irrevocable right to possession and use of the Grantor's property, as described in Exhibit A hereto, for the purpose of constructing a portion of Highway No. SH 99 Grand Parkway, Segments H & I (the "Highway Construction Project"). The property subject to this Agreement is described more fully in the field notes and plat map attached as Exhibit A and made a part of this Agreement by reference (the "Property").

1. For the consideration paid by the State which is set forth in Paragraphs 2 and 3 below, the receipt and sufficiency of which is acknowledged, the Grantor grants, bargains, sells and conveys to the State of Texas the right of entry and exclusive possession and use of the Property for the purpose of constructing a highway and appurtenances thereto and the right to remove any improvements, subject to all existing agreements of record. Authorized activities include surveying, inspection, environmental studies, archeological studies, clearing, demolition, construction of permanent improvements, relocating, replacing, and improving existing utility facilities, locating new utility facilities, and other work required to be performed in connection with the Highway Construction Project. This Possession and Use Agreement will extend to the State, its contractors and assigns, owners of any existing utilities on the Property and those which may be lawfully permitted on the Property by the State in the future, and all others deemed necessary by the State for the purpose of the Highway Construction Project. This grant will allow the construction, relocation, replacement, repair, improvement, operation and maintenance of utilities on the Property.

2. In full consideration for this irrevocable grant of possession and use and other Grantor covenants, warranties and obligations under this Agreement, the State will tender to the Grantor the sum of Two Hundred Ninety-Five Thousand Nine Hundred Fifty-Four Dollars ($295,954.00) for Parcel 1235. The Grantor agrees that this sum represents adequate and full compensation for the possession and use of the Property only pursuant to the terms of this Agreement. The State will be entitled to take possession and use of the Property upon tender of such payment. The parties agree that the sum tendered represents 100 percent of the State's approved value, which assumes no adverse environmental conditions affecting the value of the Property. However, Grantor retains the right to claim additional compensation in any further proceedings to acquire this Property. The State's approved value is the State's determination of the just compensation owed to the Grantor for the real property interest to be acquired by the State in the Property, encumbered with the improvements thereon, if any, and damages to the remainder, if any, save and except all oil, gas,

sulphur and other minerals. The parties agree that the sum tendered to Grantor will be deducted from any final settlement amount, Special Commissioners' award or court judgment. In the event the amount of the final settlement or judgment for acquisition of the Property is less than the amount the State has paid for the possession and use of the Property, then the Grantor agrees that the original amount tendered represents an overpayment for the difference and upon written notice from the State, the Grantor will promptly refund the overpayment to the State.

3. As additional consideration, the State will tender to the Grantor the sum of Twenty-Five Thousand and No/100 Dollars ($25,000.00), the receipt and sufficiency of which is acknowledged. The parties agree that the sum tendered under this Paragraph 3:

   (i) is independent consideration for the possession and use of Grantor's Property and represents no part of the State's compensation to be paid for the anticipated purchase of the Property; and

   (ii) will not be refunded to the State upon any acquisition of the Property by the State.

4. The effective date of this Agreement will be the date on which payments pursuant to Paragraphs 2 and 3 above are tendered to the Grantor by the State, or disbursed to the Grantor by a title company acting as escrow agent for the transaction, (the "Effective Date").

5. The Grantor warrants and represents that the title to the Property is free and clear of all liens and encumbrances, except those encumbrances and agreements which exist of record prior to the Effective Date. The Grantor further warrants that no other person or entity owns an interest in the fee title to the Property and further agrees to indemnify the State from all undisclosed liens, claims or encumbrances not of record affecting the Property.

6. The parties agree that the valuation date for determining the amount of just compensation for the real property interest proposed to be acquired by the State in the Property, for negotiation or eminent domain proceeding purposes, will be the date of the deposit by the State of the amount of the Award of Commissioners in the case seeking to acquire Parcel 1235, less the sum of $295,954.00 which is being tendered to Grantor in accordance with paragraph 2 of this Agreement.

7. This Agreement is made with the understanding that the State will continue to proceed with acquisition of a real property interest in the Property. The Grantor reserves all rights of compensation for the title and interest in and to the Property. This Agreement shall in no way prejudice the Grantor's rights to receive full and just compensation as required by the Texas Constitution and Texas law for all of the Grantor's interests in and to the Property to be acquired by the State, encumbered with the improvements thereon, if any, and the damages, if any, to the remainder of the Grantor's interest in any larger tract of which the Property is a part (the "Remainder"), as of the date of taking. The State's removal or construction of improvements on the Property shall in no way affect the fair market value of the Property in determining compensation due to the Grantor in the eminent domain proceedings. There will be no project impact upon the appraised value of the Property. This grant will not prejudice the Grantor's rights to any relocation benefits for which Grantor may be eligible.

8. In the event the State institutes or has instituted eminent domain proceedings, the State will not be liable to the Grantor for interest upon any award or judgment as a result of such proceedings for any period of time prior to the date of the award. Payment of any interest may be deferred by the State

until entry of judgment.

9. The purpose of this Agreement is to allow the State to proceed with its Highway Construction Project without delay and to allow the Grantor to have the use at this time of a percentage of the estimated compensation for the State's acquisition of a real property interest in the Property. The Grantor expressly acknowledges that the proposed Highway Construction Project is for a valid public use and voluntarily waives any right the Grantor has or may have, known or unknown, to contest the jurisdiction of the court in any condemnation proceeding for acquisition of the Property related to the Highway Construction Project, based upon claims that the condemning authority has no authority to acquire the Property through eminent domain, has no valid public use for the Property, or that acquisition of the Property is not necessary for the public use.

10. The Grantor reserves all of the oil, gas, sulphur and other minerals in and under the Property herein but waives all right of ingress and egress to the surface of the Property for the purpose of exploring, developing, mining or drilling. The extraction of oil, gas, sulphur and other minerals may not affect the geological stability of the surface of the Property. Nothing in this reservation will affect the title and rights of the State to take and use all other materials thereon, and thereunder, as long as such use of the sub-surface does not destroy any of the oil, gas, sulphur and minerals reserved to Grantor pursuant to this Agreement.

11. The undersigned Grantor agrees to pay as they become due, all ad valorem property taxes and special assessments assessed against Property, including prorated taxes for the year in which the State takes title to the Property.

12. Notwithstanding the acquisition of right of possession to the Property by the State in a condemnation proceeding by depositing the Special Commissioners' award into the registry of the court, less any amounts tendered to the Grantor pursuant to Paragraph 2 above, this Agreement shall continue to remain in effect until the State acquires title to the Property either by negotiation, settlement, or final court judgment.

13. There shall be no drinking liquor, hunting, or fishing on the Property or any of Grantor's lands by the State, its officers, agents, employees, contractors, invitees, guests, or representatives at any time. No firearms or fishing equipment shall be taken on the property by the State, its officers, agents, employees, contractors, invitees, guests or representatives at any time. The State, its contractors, and any and all persons entering the Property under this Agreement shall not engage in disorderly conduct and a portable sanitary facilities shall be made available by the State for the State's contractors and any and all persons entering the Property under this agreement.

14. The State shall have the right to remove any fence that now crosses the Property. Prior to cutting any fence, the State shall construct proper support on either side of the contemplated opening by suitable H-braces to prevent the remainder of the fence from sagging. The State shall take reasonable steps to ensure that cattle, horses and/or other livestock cannot stray from the fenced pastures, including but not limited to informing Grantor of any fence removal and allowing for reasonable time to relocate said livestock. The State and its designated contractors, employees, and invitees agree to keep any and all gates and fences closed and locked at all times except when passing through same.

15. This Agreement will also extend to and bind the heirs, devisees, executors, administrators, legal representatives, successors in interest and assigns of the parties as long as it is in force and effect.

16. It is agreed the State will record this document.

17. This Agreement will terminate upon the conveyance of the Property to the State by Special Warranty Deed or the vesting of title in the State to the Property by virtue of a Final Judgment.

18. It is agreed that this Agreement will not be admissible at trial as evidence of market value of the Property or to show any agreement by the parties as to market value of the Property and/or any damages to the Remainder property of Grantor, resulting from the State's acquisition and/or condemnation of the Property.

To Have and to Hold the Agreement and the rights granted and conveyed herein, together with all the rights and appurtenances belonging to the State of Texas and its assigns, for the purposes and uses stated, subject to the limitations set forth hereinabove.

GRANTOR:

Paul A. McCoy, Individually, as Trustee of the Katherine Brausen Management Trust and as Co-Trustee of the Katherine Brausen Supplemental Special Needs Trust

Paul A. McCoy, Individually and as Trustee

Ann McCoy, Co-Trustee of the Katherine Brausen Supplemental Special Needs Trust

Ann McCoy, Trustee

ACKNOWLEDGEMENTS

STATE OF TEXAS §
§
COUNTY OF MCLENNAN §

This instrument was acknowledged before me by Paul A. McCoy, as Trustee of the Katherine Brausen Management Trust and as Co-Trustee of the Katherine Brausen Supplemental Needs Trust for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 26 day of June, 2019.

RACHELLE D CHAVEZ
Notary Public
STATE OF TEXAS
ID#614169-5
My Comm. Exp. June 25, 2020

Notary Public in and for the State of Texas

STATE OF TEXAS §
§
COUNTY OF MCLENNAN §

This instrument was acknowledged before me by Ann McCoy as Co-Trustee of the Katherine Brausen Supplemental Needs Trust for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 26 day of June, 2019.

RACHELLE D CHAVEZ
Notary Public
STATE OF TEXAS
ID#614169-5
My Comm. Exp. June 25, 2020

Notary Public in and for the State of Texas

THE STATE OF TEXAS

Executed by and approved for the Texas Transportation Commission for the purpose and effect of activating and/or carrying out the orders, established policies or work programs heretofore approved and authorized by the Texas Transportation Commission.

By: _____

Right of Way Manager

Date: 9-15-19

EXHIBIT A

County: Liberty
Highway: SH 99 (Grand Parkway – Segment I-1)
Project Limits: US 90 to Liberty County Line
RCSJ No.: 3510-09-004

PROPERTY DESCRIPTION FOR PARCEL NO. 1235

Being a 14.78 acre (643,903 square feet) parcel of land situated in the Anton Christensen Section Number 4, Abstract 679, and the Paul B. Mason Section Number 4, Abstract 756, Liberty County, Texas, and being part of a called 245.64 acre tract of land from (a) Paul A. McCoy and Ann McCoy, as Independent Co-Executors of the Estate of Barbara Z. McCoy, deceased, (b) Frederick George McCoy and Paul Arthur McCoy, as Successor Co-Trustees of the David McCoy Trust, and (c) Fred G. McCoy, Individually to Paul A. McCoy (1/2 interest), Paul McCoy and Ann McCoy, Co-Trustees of the Katherine Brausen Supplemental Needs Trust (1/4 interest), Paul McCoy, Trustee of the Katherine Brausen Management Trust (1/4 interest) by deed executed April 29, 2015, as recorded in County Clerk's File Number 2015006411 of the Official Public Records of Liberty County, Texas (O.P.R.L.C.T.), said 14.78 acre parcel being more particularly described by metes and bounds as follows:

COMMENCING at a found 2-inch iron pipe for the northwest corner of a called 123.36 acre tract of land from (a) Paul A. McCoy and Ann McCoy, as Independent Co-Executors of the Estate of Barbara Z. McCoy, deceased, (b) Frederick George McCoy and Paul Arthur McCoy, as Successor Co-Trustees of the David McCoy Trust, (c) Paul A. McCoy, Individually, (d) Paul McCoy, Trustee of the Katherine Brausen Management Trust, and (e) Paul McCoy and Ann McCoy, Co-Trustees of the Katherine Brausen Supplemental Needs Trust to Fred G. McCoy by deed executed April 29, 2015, as recorded in County Clerk's File Number 2015006410, O.P.R.L.C.T. and the southwest corner of a said 245.64 acre tract on a northeast line of a called 10.4213 acre tract of land from James W. Trousdale Jr., joined pro forma by my wife, Sylvia Trousdale, of Harris County, Texas; and Mae Beth Trousdale Pruitt, joined pro forma by my husband, Elmer L. Pruitt, and Maxine Trousdale Edmonds, joined pro forma by my husband, Earnest Edmonds to Diamond Chemicals Company, a subsidiary of Diamond Shamrock Corporation by deed executed October 29, 1983, as recorded in Volume 998, Page 419, O.P.R.L.C.T.;

EXHIBIT A

THENCE, North 74° 22' 28" East, with the southeast line of said 245.64 acre tract and with the northwest line of said 123.36 acre tract, a distance of 96.69 feet to a set 5/8-inch iron rod with TxDOT aluminum cap on the proposed southwesterly right-of-way line of State Highway 99 (Grand Parkway, a 250-foot wide right-of-way) for the beginning of a proposed Access Denial Line, the southwest corner of the parcel herein described, and the POINT OF BEGINNING having surface coordinates of N = 13,900,691.97, E = 3,269,913.41, (all bearings and coordinates are based on the Texas Coordinate System, South Central Zone (4204), North American Datum of 1983, (2011 adjustment, 2010.00 epoch), all coordinates and distances are U.S. Survey feet, displayed in surface values and may be converted to grid by dividing by a TxDOT surface adjustment factor of 1.00013), said point being on a non-tangent circular curve to the right having a radius of 9,125.00 feet and a chord that bears North 30° 23' 51" West, a distance of 2,658.30 feet;

1) THENCE, Northwesterly, departing the southeast line of said 245.64 acre tract and the northwest line of said 123.36 acre tract, over and across said 245.64 acre tract with the proposed southwesterly right-of-way line of said State Highway 99, with said proposed Access Denial Line, and with said curve, through a central angle of 16° 45' 04", passing at an arc distance of 627.78 feet a set 5/8-inch iron rod with TxDOT aluminum cap 125.00 feet right of and perpendicular to baseline station 2655+00, continuing over and across said 245.64 acre tract, with the proposed southwesterly right-of-way line of said State Highway 99, said proposed Access Denial Line, and said curve, passing at a cumulative arc distance of 2,148.61 feet a set 5/8-inch iron rod with TxDOT aluminum cap 125.00 feet right of and perpendicular to baseline station 2640+00, continuing over and across said 245.64 acre tract, with the proposed southwesterly right-of-way line of said State Highway 99, said proposed Access Denial Line, and said curve, in all, a total arc distance of 2,667.79 feet to a set 5/8-inch iron rod with TxDOT aluminum cap for the end of said proposed Access Denial Line, the end of said curve, and the northwest corner of said parcel herein described on a southwest line of a called 10 acre tract of land known as TX291-5, Forty-Fifth Tract from Kirby Exploration Company of Texas to KEC Acquisition Corp. by deed executed April 20, 1988, as recorded in Volume 1228, Page 642, O.P.R.L.C.T.;**

2) THENCE, South 71° 05' 38" East, departing the proposed southwesterly right-of-way line of said State Highway 99, with a southwest line of said 10 acre tract, a distance of 334.47 feet to a set 5/8-inch iron rod with TxDOT aluminum cap on the proposed northeasterly right-of-way line of said State Highway 99 for the beginning of a proposed Access Denial Line, the northeast corner of said parcel herein described, and a point on a non-tangent circular curve to the left having a radius of 8,875.00 feet and a chord that bears South 31° 27' 02" East, a distance of 2,474.63 feet;

EXHIBIT A

3) THENCE, Southeasterly, departing a southwest line of said 10 acre tract, over and across said 245.64 acre tract, with the proposed northeasterly right-of-way line of said State Highway 99, with said proposed Access Denial Line, and with said curve, through a central angle of 16° 01' 41", passing at an arc distance of 265.81 feet a set 5/8-inch iron rod with TxDOT aluminum cap 125.00 feet left of and perpendicular to baseline station 2640+00, continuing over and across said 245.64 acre tract, with the proposed northeasterly right-of-way line of said State Highway 99, said proposed Access Denial Line, and said curve, passing at a cumulative arc distance of 1,764.98 feet to a set 5/8-inch iron rod with TxDOT aluminum cap 125.00 feet left of and perpendicular to baseline station 2655+00, continuing over and across said 245.64 acre tract, with the proposed northeasterly right-of-way line of said State Highway 99, said proposed Access Denial Line, and said curve, in all, a total arc distance of 2,482.72 feet to a set 5/8-inch iron rod with TxDOT aluminum cap for the end of said proposed Access Denial Line, the end of said curve, and the southeast corner of said parcel herein described on the southeast line of said 245.64 acre tract and the northwest line of said 123.36 acre tract;**

4) THENCE, South 74° 22' 28" West, departing the proposed northeasterly right-of-way line of said State Highway 99, with the southeast line of said 245.64 acre tract and with the northwest line of said 123.36 acre tract, a distance of 272.59 feet to the POINT OF BEGINNING, and containing 14.78 acres (643,903 square feet) of land.

AREA TABULATION:	
ANTON CHRISTENSEN SECTION NO. 4, ABSTRACT 679:	11.17 AC.
PAUL B. MASON SECTION NO. 4, ABSTRACT 756:	3.61 AC.
TOTAL AREA:	14.78 AC.

**The monument described and set may be replaced with a TxDOT Type II right-of-way marker upon completion of the highway construction project under the supervision of a registered professional land surveyor, either employed or retained by TxDOT.

A parcel plat of even date was prepared in conjunction with this property description.

This survey was prepared without the benefit of a title commitment.

Access is prohibited across the Access Denial Line to the highway facility from the abutting remainder property.

April, 2018
Parcel No. 1235
Page 4 of 10

EXHIBIT A

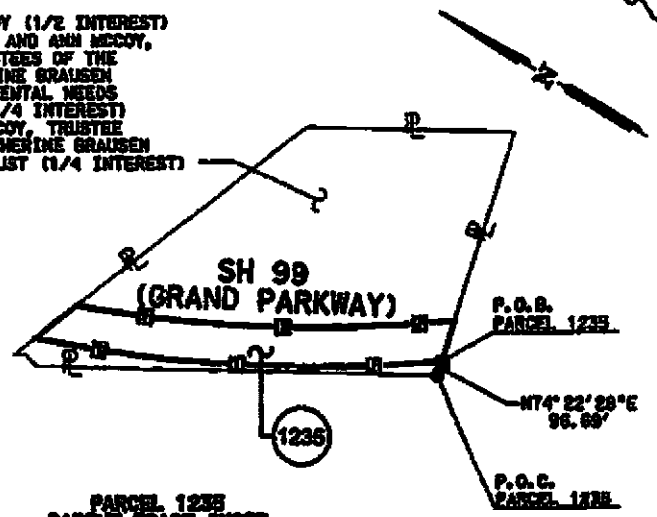
Heath W. Brown 4-5-2018

Heath W. Brown, R.P.L.S. Date
Registered Professional Land Surveyor
Texas Registration No. 6189
Halff Associates, Inc.
TBPLS Firm Registration No. 10029600
1201 North Bowser Road
Richardson, Texas 75081

Ⓐ

(CALLED 245.64 ACRE TRACT)
(a) PAUL A. MCCOY AND ANN MCCOY, AS
INDEPENDENT CO-EXECUTORS
OF THE ESTATE OF BARBARA Z. MCCOY, DECEASED
(b) FREDERICK GEORGE MCCOY AND PAUL ARTHUR
MCCOY, AS SUCCESSOR
CO-TRUSTEES OF THE DAVID MCCOY TRUST AND
(c) FRED G. MCCOY, INDIVIDUALLY
TO
PAUL A. MCCOY (1/2 INTEREST)
PAUL MCCOY AND ANN MCCOY, CO-TRUSTEES OF THE
KATHERINE BRAUSEN SUPPLEMENTAL NEEDS TRUST
(1/4 INTEREST)
PAUL MCCOY, TRUSTEE OF THE KATHERINE BRAUSEN
MANAGEMENT TRUST (1/4 INTEREST)
FILE NO. 2015006411
O.P.R.L.C.T.
APRIL 29, 2015

PAUL A. MCCOY (1/2 INTEREST)
PAUL MCCOY AND ANN MCCOY,
CO-TRUSTEES OF THE
KATHERINE BRAUSEN
SUPPLEMENTAL NEEDS
TRUST (1/4 INTEREST)
PAUL MCCOY, TRUSTEE
OF THE KATHERINE BRAUSEN
MANAGEMENT TRUST (1/4 INTEREST)



PARCEL 1235
PARENT TRACT INSET
N.T.S.

Ⓑ

(CALLED 10.4215 ACRE TRACT)
JAMES W. TROUSDALE JR.,
JOINED PRO FORMA BY MY WIFE,
SYLVIA TROUSDALE,
OF HARRIS COUNTY, TEXAS;
AND MAE BETH TROUSDALE PRUITT,
JOINED PRO FORMA BY MY HUSBAND,
ELMER L. PRUITT, AND
MAXINE TROUSDALE EDMONDS,
JOINED PRO FORMA BY MY HUSBAND,
EARNEST EDMONDS,
TO
DIAMOND CHEMICALS COMPANY,
A SUBSIDIARY OF
DIAMOND SHAMROCK CORPORATION
VOL. 988, PG. 419
O.P.R.L.C.T.
OCTOBER 29, 1963

Ⓒ

(CALLED 123.36 ACRE TRACT)
(a) PAUL A. MCCOY AND ANN MCCOY, AS
INDEPENDENT CO-EXECUTORS
OF THE ESTATE OF BARBARA Z. MCCOY, DECEASED
(b) FREDERICK GEORGE MCCOY AND PAUL ARTHUR
MCCOY, AS SUCCESSOR
CO-TRUSTEES OF THE DAVID MCCOY TRUST
(c) PAUL A. MCCOY, INDIVIDUALLY
(d) PAUL MCCOY, TRUSTEE OF THE KATHERINE
BRAUSEN MANAGEMENT TRUST, AND
(e) PAUL MCCOY AND ANN MCCOY, CO-TRUSTEES OF
THE KATHERINE BRAUSEN
SUPPLEMENTAL NEEDS TRUST
TO
FRED G. MCCOY
FILE NO. 2015006410
O.P.R.L.C.T.
APRIL 29, 2015

EXISTING ACRES	TAKING AC. (S.F.)	REMAINDER ACRES	
		LEFT	RIGHT
76.17 (CALC.)	14.78 (643,903)	56.76	4.63

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
FAX (214) 739-0395
TBPLS FIRM NO. 10029600
www.halff.com

PARCEL PLAT
SHOWING
PARCEL 1235

SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 5 OF 10 SCALE: N.T.S.

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM OF 1983, (2011 ADJUSTMENT, 2010.00 EPOCH). CONTROL MONUMENTS WERE PROVIDED BY TXDOT AND WERE FIELD VERIFIED UTILIZING THE TxDOT VRS NETWORK.

2. COORDINATES AND DISTANCES ARE U.S. SURVEY FEET, DISPLAYED IN SURFACE VALUES AND MAY BE CONVERTED TO GRID BY DIVIDING BY A TxDOT SURFACE ADJUSTMENT FACTOR OF 1.00013.

3. FIELD INFORMATION SHOWN HEREON IS BASED ON AN "ON-THE-GROUND" SURVEY PERFORMED BY HALFF ASSOCIATES, INC. FROM OCTOBER, 2017 TO APRIL, 2018.

4. ** THE MONUMENT DESCRIBED AND SET MAY BE REPLACED WITH A TxDOT TYPE II RIGHT-OF-WAY MARKER UPON COMPLETION OF THE HIGHWAY CONSTRUCTION PROJECT UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR, EITHER EMPLOYED OR RETAINED BY TxDOT.

5. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.

6. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT.

7. ACCESS IS PROHIBITED ACROSS THE ACCESS DENIAL LINE TO THE HIGHWAY FACILITY FROM THE ABUTTING REMAINDER PROPERTY.

LEGEND

℄	PROPERTY LINE
	LAND HOOK
●	FOUND MONUMENT AS DESCRIBED
■	SET 5/8"IR W/TxDOT ALUMINUM CAP
ADL ■	SET 5/8"IR W/TxDOT ALUMINUM CAP STAMPED "ADL"
○	SET 5/8"IR WITH CAP STAMPED "HALFF"
O.P.R.L.C.T.	OFFICIAL PUBLIC RECORDS OF LIBERTY COUNTY, TEXAS
D.R.L.C.T.	DEED RECORDS OF LIBERTY COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCING
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
———	SURVEY LINE
———	EXISTING R.O.W. LINE
———	PROPOSED R.O.W. LINE
—||—	PROPOSED R.O.W. AND ACCESS DENIAL LINE

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FAX (214) 739-0095
TBPLS FIRM NO. 10029600
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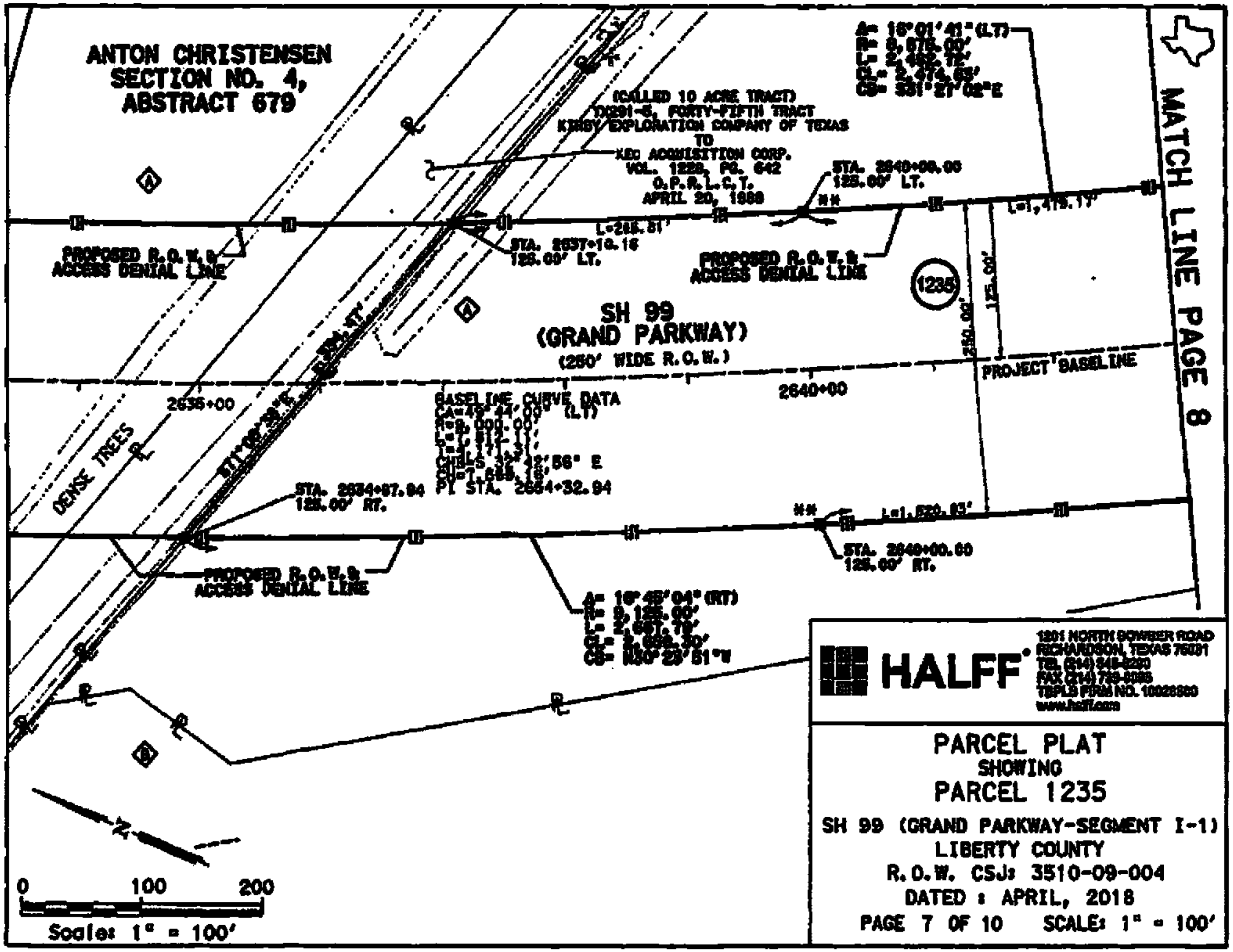
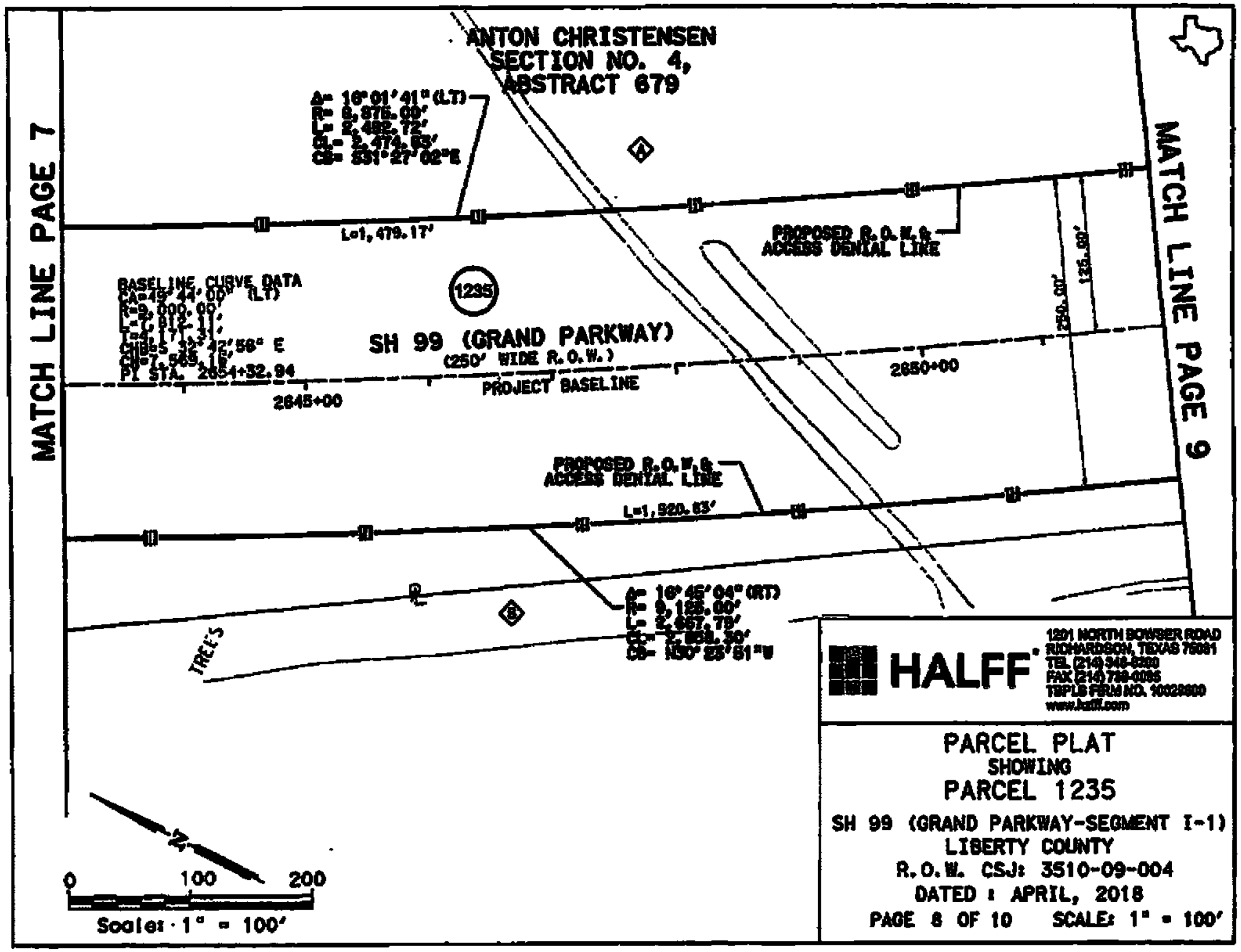
PARCEL PLAT
SHOWING
PARCEL 1235.

SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 6 OF 10 SCALE: N.T.S.


ANTON CHRISTENSEN
SECTION NO. 4,
ABSTRACT 679
(CALLED 10 ACRE TRACT)
TX291-5, FORTY-FIFTH TRACT
KIRBY EXPLORATION COMPANY OF TEXAS
TO
KEC ACQUISITION CORP.
VOL. 1228, PG. 642
O.P.R.L.C.T.
APRIL 20, 1988
MATCH LINE PAGE 8
PROPOSED R.O.W.&
ACCESS DENIAL LINE
STA. 2637+10.16
125.00' LT.
STA. 2640+00.00
125.00' LT.
SH 99
(GRAND PARKWAY)
(250' WIDE R.O.W.)
PROJECT BASELINE
1235
2636+00
2640+00
DENSE TREES
BASELINE CURVE DATA
PI STA. 2634+32.94
STA. 2634+97.94
125.00' RT.
STA. 2640+00.60
125.00' RT.
HALFF
PARCEL PLAT
SHOWING
PARCEL 1235
SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 7 OF 10 SCALE: 1" = 100'
0 100 200
Scale: 1" = 100'


ANTON CHRISTENSEN
SECTION NO. 4,
ABSTRACT 679
Δ= 16°01'41" (LT)
R= 8,875.00'
L= 2,482.72'
CB= S31°27'02"E
L=1,479.17'
PROPOSED R.O.W. & ACCESS DENIAL LINE
BASELINE CURVE DATA
PI STA. 2654+32.94
1235
SH 99 (GRAND PARKWAY)
(250' WIDE R.O.W.)
PROJECT BASELINE
2645+00
2650+00
MATCH LINE PAGE 7
MATCH LINE PAGE 9
250.00'
125.00'
PROPOSED R.O.W. & ACCESS DENIAL LINE
L=1,520.63'
Δ= 16°45'04" (RT)
R= 9,125.00'
L= 2,667.79'
CB= N30°23'51"W
TREES
0
100
200
Scale: 1" = 100'
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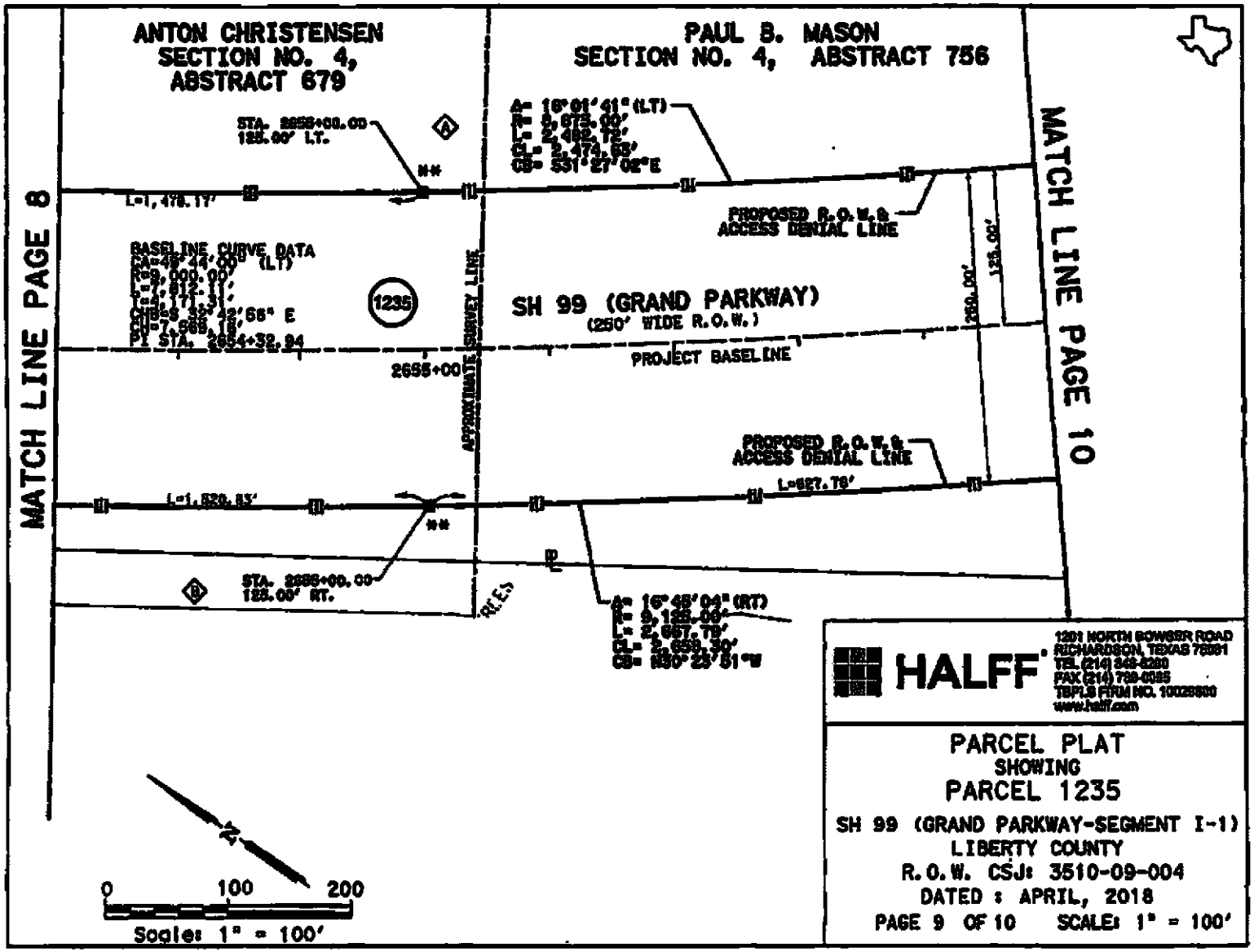
SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 8 OF 10
SCALE: 1" = 100'


ANTON CHRISTENSEN
SECTION NO. 4,
ABSTRACT 679
PAUL B. MASON
SECTION NO. 4, ABSTRACT 756
MATCH LINE PAGE 8
MATCH LINE PAGE 10
STA. 2655+00.00
125.00' LT.
Δ= 16°01'41" (LT)
D= 5,675.00'
L= 2,482.72'
CL= 2,474.93'
CB= S31°27'02"E
L=1,478.17'
PROPOSED R.O.W. & ACCESS DENIAL LINE
BASELINE CURVE DATA
1235
SH 99 (GRAND PARKWAY)
(250' WIDE R.O.W.)
PROJECT BASELINE
2655+00
APPROXIMATE SURVEY LINE
PROPOSED R.O.W. & ACCESS DENIAL LINE
L=827.79'
L=1,828.83'
STA. 2655+00.00
125.00' RT.
Δ= 16°45'04" (RT)
D= 5,125.00'
L= 2,667.79'
CL= 2,659.30'
CB= N30°25'51"W
0
100
200
Scale: 1" = 100'
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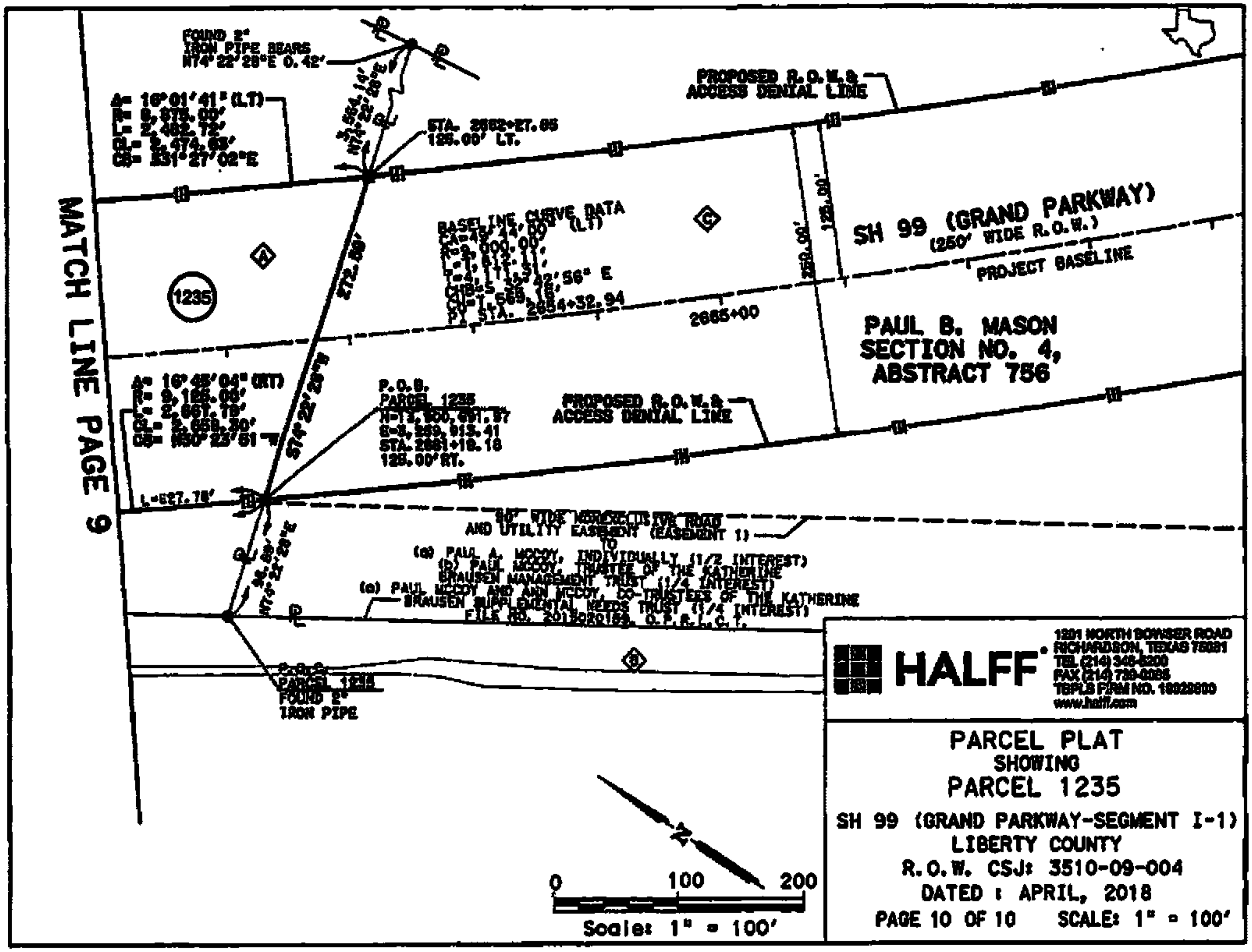
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 9 OF 10 SCALE: 1" = 100'


MATCH LINE PAGE 9
FOUND 2" IRON PIPE BEARS N74°22'28"E 0.42'
STA. 2662+27.85 125.00' LT.
PROPOSED R.O.W. & ACCESS DENIAL LINE
BASELINE CURVE DATA
1235
SH 99 (GRAND PARKWAY) (250' WIDE R.O.W.)
PROJECT BASELINE
2665+00
PAUL B. MASON SECTION NO. 4, ABSTRACT 756
P.O.B. PARCEL 1235
PROPOSED R.O.W. & ACCESS DENIAL LINE
P.O.C. PARCEL 1235 FOUND 2" IRON PIPE
HALFF
1201 NORTH BOWSER ROAD RICHARDSON, TEXAS 75081
www.halff.com
PARCEL PLAT SHOWING PARCEL 1235
SH 99 (GRAND PARKWAY-SEGMENT I-1)
LIBERTY COUNTY
R.O.W. CSJ: 3510-09-004
DATED : APRIL, 2018
PAGE 10 OF 10 SCALE: 1" = 100'
0 100 200
Scale: 1" = 100'

Appendix F

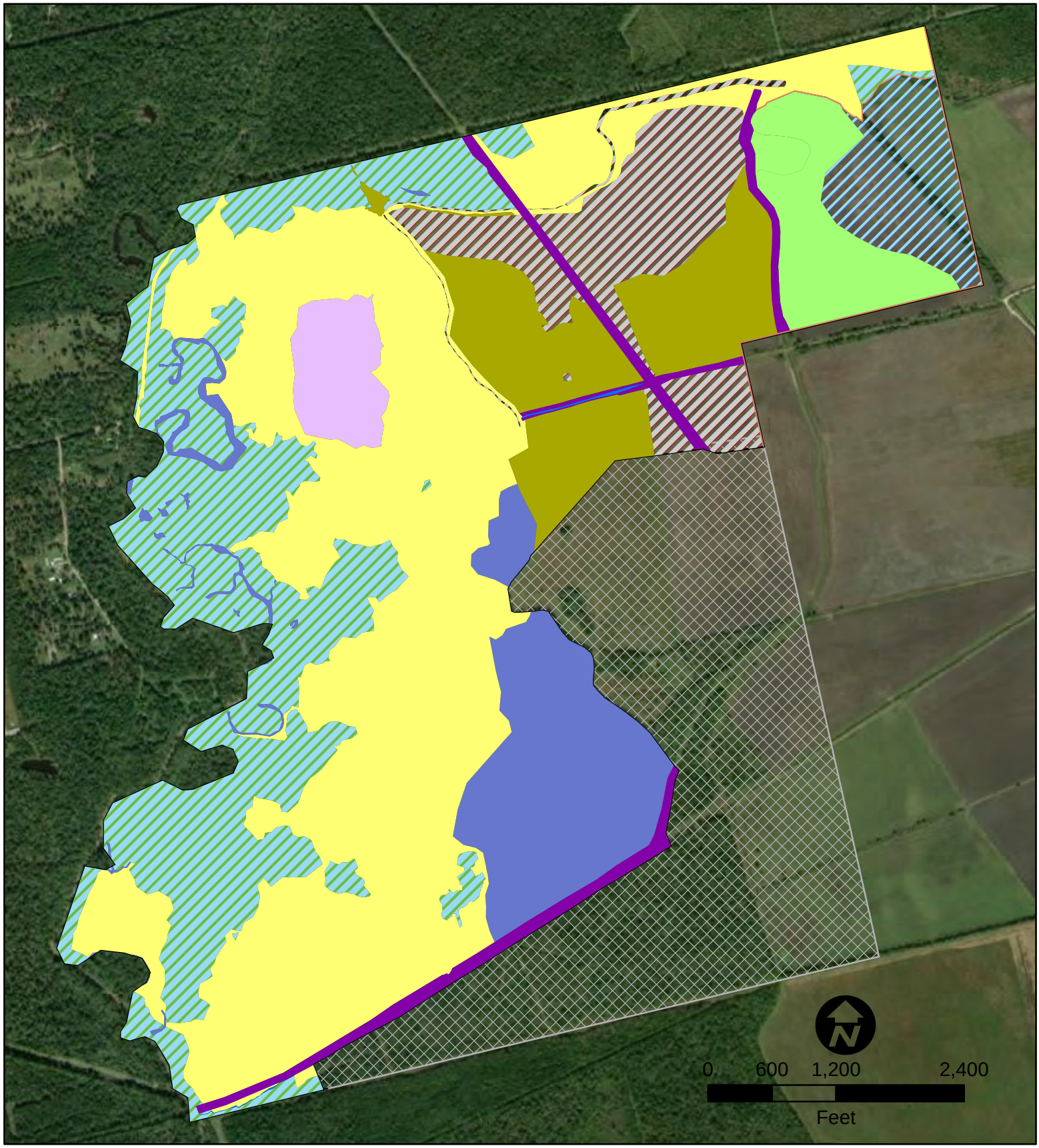
Bank Excluding Potential Permittee Responsible Mitigation Area

Restoration Summary Excluding Potential PRM Acreage

The Bank excluding the potential PRM would encompass approximately 1,010.3 acres. The objectives are to restore (re-establish or rehabilitate), enhance, or preserve (preservation) the physical, chemical, and biological functions of 581.4 acres of wetland habitats, which include bottomland hardwood forests, herbaceous-shrub wetlands, and oxbow sloughs (**Figure F-1**). Additionally, the Bank will preserve 395.3 acres of non-wetland, forested, buffer habitat. **Table F-1** provides a summary of the re-establishment, rehabilitation, enhancement, and preservation acres by resource type. Although not currently included as part of the mitigation bank credit assessment, the non-wetland buffer habitats will be preserved and protected. Additional acreage within the bank footprint encompassing 31.0 acres includes a fire break/access along the eastern perimeter, non-mitigation (easements), and other waters of the U.S (**Figures F-1** and **F-2**).

Table F-1. Summary of Restoration and Preservation Goals by Acres for the McCoy Ranch Mitigation Bank

Resource Type	Re-establish	Rehabilitate	Enhance	Preserve
Riverine Wetland Forested	81.4	95.7	24.4	298.7
Riverine Herbaceous-Shrub	42.0	41.9	--	--
Non-wetland Buffer	--	--	--	395.3
Totals	**123.4**	**137.6**	**24.4**	**694.0**
Total wetland mitigation acres				**584.1**



- Bank Boundary (1010.3 ac)
- RF Enhancement (24.4 ac)
- RF Preservation/Oxbows (98.5 ac)
- RF Preservation Mosaic (200.2 ac)*
- RF Re-establishment (81.4 ac)
- RHS Rehabilitation (41.9 ac)
- RF Rehabilitation (95.7 ac)
- RHS Re-establishment (42.0 ac)
- Other Waters (2.3 ac)
- Non-wetland buffer (209.7 ac)
- Non Mitigation (26.7 ac)
- Fire Break/Access (2.0 ac)
- Potential PRM (287.4 ac)

*Note: the Mosaic includes wetland acres only, total Mosaic is 385.8 acres

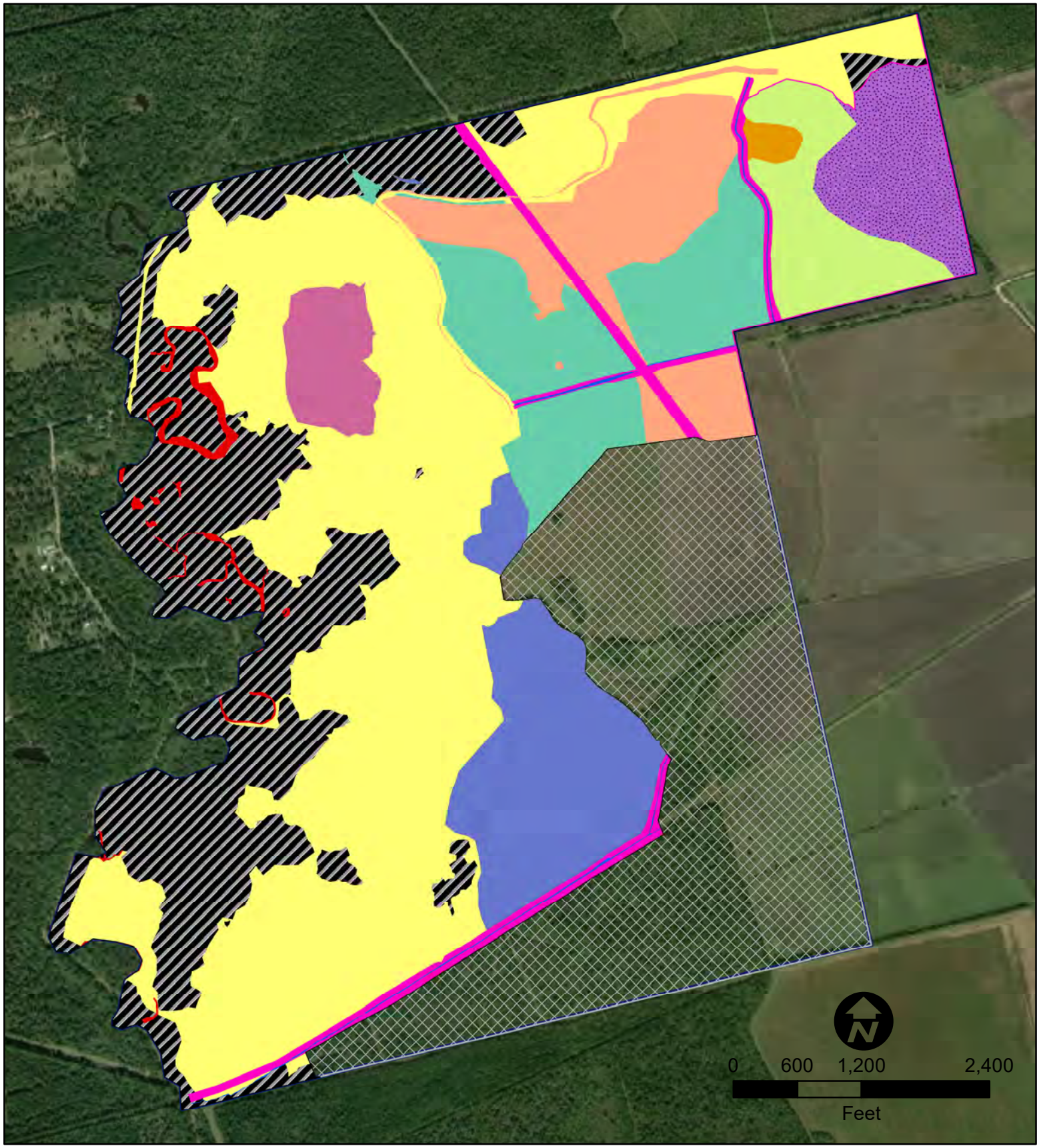
McCoy Ranch Mitigation Bank

MITIGATION FEATURES WITH POTENTIAL PRM

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : F-1_features.mxd	

FIGURE F-1



- Bank Boundary (1010.3 ac)
- WAA 1 – RF Enhancement (24.4 ac)
- WAA 2 – RF Mosaic Preservation (200.2 acres)*
- WAA 3 – RF Preservation (90.1 ac)
- WAA 4 – RF Preservation Oxbows (8.4 ac)
- WAA 5 – RHS Rehabilitation (39.9 ac)
- WAA 6 – RHS Rehabilitation (3.9 ac)
- WAA 7 – RF Rehabilitation (95.7 ac)
- WAA 9 – RF Re-establishment (81.4 ac)
- WAA 10 – RHS Re-establishment (42.0 ac)
- Other Waters (2.3 ac)
- Upland (209.7 ac)
- Non-Mitigation (26.7 ac)
- Potential PRM (287.4 ac)

*Note: the Mosaic includes wetland acres only, total Mosaic is 385.8 acres

McCoy Ranch Mitigation Bank

WAA MAP WITH POTENTIAL PRM

Liberty County, TX

Created : TSC/ARCVIEW	
Approved: SR	
Date : 04/27/2020	
Map No. : WAAmap.mxd	

FIGURE F-2

Table F-2. Predicted iHGM Wetland FCU Lift by WAA.

WAA1 Riverine Forested Enhancement 57.4 Acres	Year 0 Baseline	Year 10 Lift	Total Lift by Function		Total PFO Lift
Physical	14.0	17.2	3.15		**154.56**
Biological	16.1	23.5	7.42		**182.51**
Chemical	17.9	20.5	2.60		**151.52**
WAA2 Riverine Forested Preservation 197.8 Acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function***		**Total PEM/PSS Lift**
Physical	183.5	183.5	18.35		**44.53**
Biological	184.1	184.1	18.41		**41.45**
Chemical	168.9	168.9	16.89		**43.81**
WAA3 Riverine Forested Preservation 165.2 Acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function***		
Physical	74.0	74.0	7.40		
Biological	70.2	70.2	7.02		
Chemical	79.3	79.3	7.93		
WAA4 Riverine Forested Preservation 8.4 Acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function***		
Physical	7.7	7.7	0.77		
Biological	6.2	6.2	0.62		
Chemical	6.8	6.8	0.68		
WAA5 Riverine Herb-Shrub Rehabilitation 40.4 acres	**Year 0 Baseline**	**Year 5 Lift**	**Total Lift by Function**		
Physical	9.0	26.9	17.9		
Biological	14.8	26.9	12.1		
Chemical	12.4	28.1	15.8		
WAA6 Riverine Herb-Shrub Rehabilitation 3.9 acres	**Year 0 Baseline**	**Year 5 Lift**	**Total Lift by Function**		
Physical	0.2	2.7	2.5		
Biological	0.3	2.9	2.6		
Chemical	0.4	2.5	2.1		
WAA7 Riverine Forested Re-establishment 204.3 acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function**		
Physical	15.1	78.6	63.5		
Biological	19.9	86.5	66.6		
Chemical	26.8	84.2	57.4		
WAA8 Riverine Forested Rehabilitation 19.5 acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function**		
Physical	3.1	12.5	9.4		
Biological	8.8	17.6	8.9		
Chemical	4.8	12.7	7.9		
WAA9 Riverine Forested Re-establishement 116.0 acres	**Year 0 Baseline**	**Year 10 Lift**	**Total Lift by Function**		
Physical	0.0	52.0	52.0		
Biological	0.0	73.6	73.6		
Chemical	0.0	58.1	58.1		
WAA10 Riverine Herb-Shrub Re-establishment 40.1 acres	**Year 0 Baseline**	**Year 5 Lift**	**Total Lift by Function**		
Physical	0.0	24.1	24.1		
Biological	0.0	26.7	26.7		
Chemical	0.0	25.9	25.9		

*PFO preservation, 10% of baseline FCU was used for credit generation

Table F-3. Functional Capacity Units (FCU) by WAA and Mitigation Type, McCoy Ranch Mitigation Bank.

Wetland Restoration by WAA	Acres	Phys FCU	Biol FCU	Chem FCU
WAA1 Riverine Forested Enhancement 57.4 Acres	24.4	3.15	7.42	2.60
WAA2 Riverine Forested Preservation 197.8 Acres	197.2	18.35	18.41	16.89
WAA3 Riverine Forested Preservation 165.2 Acres	90.1	7.40	7.02	7.93
WAA4 Riverine Forested Preservation 8.4 Acres	8.4	0.77	0.62	0.68
WAA5 Riverine Herb-Shrub Rehabilitation 40.4 acres	40.4	17.89	12.1	15.8
WAA6 Riverine Herb-Shrub Rehabilitation 3.9 acres	3.9	2.5	2.6	2.1
WAA7 Riverine Forested Re-establishment 204.3 acres	95.7	63.5	66.6	57.4
WAA8 Riverine Forested Rehabilitation 19.5 acres	19.5	9.4	8.9	7.9
WAA9 Riverine Forested Re-establishement 116.0 acres	81.4	52.0	73.6	58.1
WAA10 Riverine Herb-Shrub Re-establishment 40.1 acres	40.1	24.1	26.7	25.9
Total	**601.1**	**199.09**	**223.95**	**195.32**

McCoy Ranch Mitigation Bank

WAA 1

WAA1 Riverine Forested Enhancement Year 0 (Tallow dominated)	**Riverine Forested**
Acreage	**24.40**
Variable	**Baseline**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	0.10
Vcwd: Course woody debris	0.30
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.40
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	1.00
Vherb: Herbaceous layer	0.30
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.574
Biological FCI: Maintain Plant and Animal Community	0.658
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.733

Physical FCU: Temporary Storage & Detention of Storage Water	14.016
Biological FCU: Maintain Plant and Animal Community	16.063
Chemical FCU: Removal & Sequestration of Elements & Compounds	17.893

McCoy Ranch Mitigation Bank

WAA 1

WAA1 Riverine Forested Enhancement Year 10 (Tallow dominated)	**Riverine Forested**
Acreage	**24.40**
Variable	**Post**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	0.10
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.80
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.704
Biological FCI: Maintain Plant and Animal Community	0.963
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.840

Physical FCU: Temporary Storage & Detention of Storage Water	17.17
Biological FCU: Maintain Plant and Animal Community	23.49
Chemical FCU: Removal & Sequestration of Elements & Compounds	20.50

WAA2 Riverine Forested Preservation Year 0 (Mosaic)	Riverine Forested
Acreage	**197.20**
Variable	**Baseline**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.80
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	1.00
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	0.50
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.931
Biological FCI: Maintain Plant and Animal Community	0.933
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.857

Physical FCU: Temporary Storage & Detention of Storage Water	183.52
Biological FCU: Maintain Plant and Animal Community	184.05
Chemical FCU: Removal & Sequestration of Elements & Compounds	168.93

WAA2 Riverine Forested Preservation Year 10 (Mosaic)	Riverine Forested
Acreage	**197.20**
Variable	**Post**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.80
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	1.00
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	0.50
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.931
Biological FCI: Maintain Plant and Animal Community	0.933
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.857

Physical FCU: Temporary Storage & Detention of Storage Water	183.52
Biological FCU: Maintain Plant and Animal Community	184.05
Chemical FCU: Removal & Sequestration of Elements & Compounds	168.93

WAA3 Riverine Forested Preservation Year 0	Riverine Forested
Acreage	**90.10**
Variable	**Baseline**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.50
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	1.00
Vdensity: Tree density	0.60
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.50

Physical FCI: Temporary Storage & Detention of Storage Water	0.822
Biological FCI: Maintain Plant and Animal Community	0.779
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.880

Physical FCU: Temporary Storage & Detention of Storage Water	74.02
Biological FCU: Maintain Plant and Animal Community	70.20
Chemical FCU: Removal & Sequestration of Elements & Compounds	79.29

WAA3 Riverine Forested Preservation Year 10	Riverine Forested
Acreage	**90.10**
Variable	**Post**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	0.50
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	1.00
Vdensity: Tree density	0.60
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.50

Physical FCI: Temporary Storage & Detention of Storage Water	0.822
Biological FCI: Maintain Plant and Animal Community	0.779
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.880

Physical FCU: Temporary Storage & Detention of Storage Water	74.02
Biological FCU: Maintain Plant and Animal Community	70.20
Chemical FCU: Removal & Sequestration of Elements & Compounds	79.29

WAA4 Riverine Forested Preservation Year 0 (Oxbow)	Riverine Forested
Acreage	**8.40**
Variable	**Baseline**
Vdur: Duration of flooding	1.00
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.50
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.40
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	0.30
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.913
Biological FCI: Maintain Plant and Animal Community	0.733
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.807

Physical FCU: Temporary Storage & Detention of Storage Water	7.67
Biological FCU: Maintain Plant and Animal Community	6.16
Chemical FCU: Removal & Sequestration of Elements & Compounds	6.78

WAA4 Riverine Forested Preservation Year 10 (Oxbow)	Riverine Forested
Acreage	**8.40**
Variable	**Post**
Vdur: Duration of flooding	1.00
Vfreq: Frequency of flooding	1.00
Vtopo: Topography	1.00
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.50
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.40
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	0.30
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.913
Biological FCI: Maintain Plant and Animal Community	0.733
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.807

Physical FCU: Temporary Storage & Detention of Storage Water	7.67
Biological FCU: Maintain Plant and Animal Community	6.16
Chemical FCU: Removal & Sequestration of Elements & Compounds	6.78

McCoy Ranch Mitigation Bank
WAA 5

WAA5 Riverine Herbaceous Shrub Rehabilitation Year 0	
Acreage	**40.40**
Variable	**Index Value**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vwood: Woody vegetation	0.10
Vmid: Midstory (Shrub/sapling/woody vines)	0.10
Vherb: Herbaceous layer	0.50
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.224
Biological FCI: Maintain Plant and Animal Community	0.367
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.307
Physical FCU: Temporary Storage & Detention of Storage Water	9.034
Biological FCU: Maintain Plant and Animal Community	14.813
Chemical FCU: Removal & Sequestration of Elements & Compounds	12.389

McCoy Ranch Mitigation Bank
WAA 5

WAA5 Riverine Herbaceous Shrub Rehabilitation Year 5	
Acreage	**40.40**
Variable	**Index Value**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vwood: Woody vegetation	0.50
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	1.00
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.666
Biological FCI: Maintain Plant and Animal Community	0.667
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.697
Physical FCU: Temporary Storage & Detention of Storage Water	26.919
Biological FCU: Maintain Plant and Animal Community	26.933
Chemical FCU: Removal & Sequestration of Elements & Compounds	28.145

McCoy Ranch Mitigation Bank
WAA 6

WAA6 Riverine Herbaceous Shrub Rehabilitation Year 0	
Acreage	**3.90**
Variable	**Index Value**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vwood: Woody vegetation	0.75
Vmid: Midstory (Shrub/sapling/woody vines)	0.25
Vherb: Herbaceous layer	0.25
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.209
Biological FCI: Maintain Plant and Animal Community	0.333
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.430
Physical FCU: Temporary Storage & Detention of Storage Water	0.816
Biological FCU: Maintain Plant and Animal Community	1.300
Chemical FCU: Removal & Sequestration of Elements & Compounds	1.677

McCoy Ranch Mitigation Bank
WAA 6

WAA6 Riverine Herbaceous Shrub Rehabilitation Year 5	
Acreage	**3.90**
Variable	**Index Value**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vwood: Woody vegetation	0.50
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.694
Biological FCI: Maintain Plant and Animal Community	0.750
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.653
Physical FCU: Temporary Storage & Detention of Storage Water	2.708
Biological FCU: Maintain Plant and Animal Community	2.925
Chemical FCU: Removal & Sequestration of Elements & Compounds	2.548

WAA7 Riverine Rehabilitation Year 0	Riverine Forested
Acreage	**95.70**
Variable	**Baseline**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vcwd: Course woody debris	0.10
Vwood: Woody vegetation	0.10
Vtree: Tree species	0.10
Vrich: Tree richness/diversity	0.10
Vbasal: Tree basal area	0.10
Vdensity: Tree density	0.10
Vmid: Midstory (Shrub/sapling/woody vines)	0.10
Vherb: Herbaceous layer	0.10
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.158
Biological FCI: Maintain Plant and Animal Community	0.208
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.280

Physical FCU: Temporary Storage & Detention of Storage Water	15.13
Biological FCU: Maintain Plant and Animal Community	19.94
Chemical FCU: Removal & Sequestration of Elements & Compounds	26.80

WAA7 Riverine Rehabilitation Year 10	Riverine Forested
Acreage	**95.70**
Variable	**Baseline**
Vdur: Duration of flooding	0.75
Vfreq: Frequency of flooding	0.75
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	1.00
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.822
Biological FCI: Maintain Plant and Animal Community	0.904
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.880

Physical FCU: Temporary Storage & Detention of Storage Water	78.63
Biological FCU: Maintain Plant and Animal Community	86.53
Chemical FCU: Removal & Sequestration of Elements & Compounds	84.22

WAA8 Riverine Forested Rehabilitation Year 0	Riverine Forested
Acreage	**19.50**
Variable	**Base**
Vdur: Duration of flooding	0.25
Vfreq: Frequency of flooding	0.25
Vtopo: Topography	0.10
Vcwd: Course woody debris	0.10
Vwood: Woody vegetation	0.10
Vtree: Tree species	0.30
Vrich: Tree richness/diversity	0.40
Vbasal: Tree basal area	0.40
Vdensity: Tree density	0.40
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	0.50
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.158
Biological FCI: Maintain Plant and Animal Community	0.450
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.247

Physical FCU: Temporary Storage & Detention of Storage Water	3.08
Biological FCU: Maintain Plant and Animal Community	8.78
Chemical FCU: Removal & Sequestration of Elements & Compounds	4.81

WAA8 Riverine Forested Rehabilitation Year 10	Riverine Forested
Acreage	**19.50**
Variable	**Post**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.75
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	0.10
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.639
Biological FCI: Maintain Plant and Animal Community	0.904
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.653

Physical FCU: Temporary Storage & Detention of Storage Water	12.46
Biological FCU: Maintain Plant and Animal Community	17.63
Chemical FCU: Removal & Sequestration of Elements & Compounds	12.74

WAA9 Riverine Forested Re-establishment Year 0	Riverine Forested
Acreage	**81.40**
Variable	**Baseline**
Vdur: Duration of flooding	0.00
Vfreq: Frequency of flooding	0.00
Vtopo: Topography	0.00
Vcwd: Course woody debris	0.00
Vwood: Woody vegetation	0.00
Vtree: Tree species	0.00
Vrich: Tree richness/diversity	0.00
Vbasal: Tree basal area	0.00
Vdensity: Tree density	0.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.00
Vherb: Herbaceous layer	0.00
Vdetritus: Detritus	0.00
Vredox: Redoximorphic process	0.00
Vsorpt: Sorptive Soil Properties	0.00
Vconnect: Connectivity to other habitat types	0.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.000
Biological FCI: Maintain Plant and Animal Community	0.000
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.000

Physical FCU: Temporary Storage & Detention of Storage Water	0.00
Biological FCU: Maintain Plant and Animal Community	0.00
Chemical FCU: Removal & Sequestration of Elements & Compounds	0.00

WAA9 Riverine Forested Re-establishment Year 10	Riverine Forested
Acreage	**81.40**
Variable	**Post**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vcwd: Course woody debris	1.00
Vwood: Woody vegetation	0.75
Vtree: Tree species	1.00
Vrich: Tree richness/diversity	1.00
Vbasal: Tree basal area	0.60
Vdensity: Tree density	1.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.75
Vherb: Herbaceous layer	1.00
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00
Vconnect: Connectivity to other habitat types	0.75

Physical FCI: Temporary Storage & Detention of Storage Water	0.639
Biological FCI: Maintain Plant and Animal Community	0.904
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.713

Physical FCU: Temporary Storage & Detention of Storage Water	52.02
Biological FCU: Maintain Plant and Animal Community	73.60
Chemical FCU: Removal & Sequestration of Elements & Compounds	58.07

McCoy Ranch Mitigation Bank
WAA 10

WAA10 Riverine Herbaceous Shrub Re-establishment Year 0	
Acreage	**40.10**
Variable	**Index Value**
Vdur: Duration of flooding	0.00
Vfreq: Frequency of flooding	0.00
Vtopo: Topography	0.00
Vwood: Woody vegetation	0.00
Vmid: Midstory (Shrub/sapling/woody vines)	0.00
Vherb: Herbaceous layer	0.00
Vconnect: Connectivity to other habitat types	0.00
Vdetritus: Detritus	0.00
Vredox: Redoximorphic process	0.00
Vsorpt: Sorptive Soil Properties	0.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.000
Biological FCI: Maintain Plant and Animal Community	0.000
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.000
Physical FCU: Temporary Storage & Detention of Storage Water	0.000
Biological FCU: Maintain Plant and Animal Community	0.000
Chemical FCU: Removal & Sequestration of Elements & Compounds	0.000

McCoy Ranch Mitigation Bank
WAA 10

WAA10 Riverine Herbaceous Shrub Re-establishment Year 10	
Acreage	**40.10**
Variable	**Index Value**
Vdur: Duration of flooding	0.50
Vfreq: Frequency of flooding	0.50
Vtopo: Topography	0.70
Vwood: Woody vegetation	0.50
Vmid: Midstory (Shrub/sapling/woody vines)	0.50
Vherb: Herbaceous layer	1.00
Vconnect: Connectivity to other habitat types	0.50
Vdetritus: Detritus	1.00
Vredox: Redoximorphic process	1.00
Vsorpt: Sorptive Soil Properties	1.00

Physical FCI: Temporary Storage & Detention of Storage Water	0.602
Biological FCI: Maintain Plant and Animal Community	0.667
Chemical FCI: Removal & Sequestration of Elements & Compounds	0.647
Physical FCU: Temporary Storage & Detention of Storage Water	24.143
Biological FCU: Maintain Plant and Animal Community	26.733
Chemical FCU: Removal & Sequestration of Elements & Compounds	25.931