Bipartisan Infrastructure Law (BIL) Airport Traffic Control Tower (ATCT) Replacement

David Wayne Hooks Memorial Airport (DWH) ATCT Draft Tiered Environmental Assessment (EA)

Harris County, Texas

October 2024

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ACRONYMS AND ABBREVIATIONS

AFTIL ..... Airport Facilities Terminal Integration Laboratory
AGL ..... Above Ground Level
ALP ..... Airport Layout Plan
AMSL ..... Above Mean Sea Level
APE ..... Area of Potential Effect
AFDR ..... Aquatic Features Delineation Report
ATCT ..... Airport Traffic Control Tower
ATO ..... Air Traffic Organization
AVCO ..... The Aviation Corporation
BIL ..... Bipartisan Infrastructure Law
BLM ..... Bureau of Land Management
BMP ..... Best Management Practice
CAA ..... Clean Air Act
CEQ ..... Council on Environmental Quality
CFR ..... Code of Federal Regulations
CZMA ..... Coastal Zone Management Act
DOT ..... Department of Transportation
DWH ..... David Wayne Hooks Memorial Airport
EA ..... Environmental Assessment
EO ..... Executive Order
EPA ..... U.S. Environmental Protection Agency
ESA ..... Endangered Species Act
FAA ..... Federal Aviation Administration
FBO ..... Fixed Base Operator
FONSI ..... Finding of No Significant Impact
FY ..... Fiscal Year
GA ..... General Aviation
IPAC ..... Information for Planning and Consultation
NAAQS ..... National Ambient Air Quality Standards
NAS ..... National Airspace System
NEPA ..... National Environmental Policy Act
NFHL ..... National Flood Hazard Layer
NOAA ..... National Oceanic and Atmospheric Administration
NPDES ..... National Pollutant Discharge Elimination System
NPS ..... National Park Service
NRCS ..... Natural Resource Conservation Service
NRHP ..... National Register of Historic Places
NWI ..... National Wetlands Inventory
PEA ..... Programmatic Environmental Assessment
PEM ..... Palustrine Emergent Wetlands
PEM1C ..... Palustrine, Emergent, Persistent, Seasonally Flooded
PSS ..... Palustrine Scrub-Shrub Wetlands
ROD ..... Record of Decision
SHPO ..... State Historic Preservation Officer
SOP ..... Standard Operating Procedure
TCEQ ..... Texas Commission on Environmental Quality
THC ..... Texas Historical Commission
TPWD ..... Texas Parks and Wildlife Department
U.S.C. ..... U.S. Code
USFWS ..... U.S. Fish and Wildlife Service

SECTION 1 | INTRODUCTION

1.1 OVERVIEW

The Federal Aviation Administration (FAA) is proposing to replace the existing Airport Traffic Control Tower (ATCT) at David Wayne Hooks Memorial Airport (DWH). The Infrastructure Investment and Jobs Act (Public Law 117-58), enacted on November 15, 2021, also known as the Bipartisan Infrastructure Law (BIL), appropriated $25 billion (B) over a five-year period (Fiscal Year 2022 [FY22] to 2026 [FY26]) for National Airspace System (NAS) improvements, which includes airport traffic control and other airport infrastructure projects. As a result, the FAA Air Traffic Organization (ATO) established the BIL ATCT Replacement Program to use the BIL funding to replace existing FAA-owned ATCTs at mainly non-major airports with modern ATCT facilities (FAA, n.d. (a)). The National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] § 4321 et seq.) requires that a federal agency prepare a statement of environmental impacts as part of the development process for projects requiring a federal action, such as funding, approving, or permitting.

The FAA prepared a Final Programmatic Environmental Assessment (PEA) for the BIL ATCT Replacement Program (referred to as BIL ATCT Final PEA[1]) (BIL ATCT PEA, 2023c) in accordance with NEPA; the White House Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*; and other applicable federal laws and regulations. The BIL ATCT Final PEA provided sufficient evidence and analysis for a Finding of No Significant Impact (FONSI) / Record of Decision (ROD) determination (BIL ATCT PEA, 2023c).

This ATCT EA for DWH tiers[2] from the BIL ATCT Final PEA and evaluates the existing environment and analyzes the anticipated environmental consequences of the proposed alternatives at a site-specific level through the framework established by the BIL ATCT Final PEA and FONSI/ROD.

1.2 PROPOSED ACTION

The FAA's Proposed Action is to replace the existing FAA-owned DWH ATCT with a modern, sustainable ATCT facility. Figure 1-1 provides an aerial image of the proposed project site and study area considered within this EA. The Proposed Action is anticipated to include the following activities:

- Acquisition of a new lease with the airport sponsor to construct an ATCT in a new location.

[1] The BIL ATCT Final PEA can be found here:
https://www.faa.gov/air-traffic/bilatctfinalpea21sept2023signed

[2] Tiering in accordance with NEPA is defined in 40 CFR 1502.20 and 1502.28.

- Unconditional approval of portions of the Airport Layout Plan (ALP) that depict those portions of the Proposed Project subject to FAA review and approval pursuant to 49 U.S.C. § 47107(a)(16).
- Construction and operation of a replacement ATCT and other associated facility support features, such as a parking area and security fencing.
- Extension and/or relocation of access roads and utilities to the replacement ATCT.
- Installation of modern air traffic control electronic equipment in the replacement ATCT.
- Commissioning of the replacement ATCT, cutover of air traffic services to the replacement ATCT, and decommissioning of the existing ATCT.
- Demolition and disposal of the existing ATCT facility and associated infrastructure.

The estimated construction start date to replace the ATCT is May 1, 2025.

Figure 1-1. Aerial Image of Airport Property

1.3 BACKGROUND

1.3.1 Airport Information

The David Wayne Hooks Memorial Airport (ID: DWH) is located in eastern Texas within unincorporated Harris County. DWH is approximately 23 miles northwest of Houston's central business district and about 10 miles northwest of George Bush International Airport (ID: IAH) in Houston. DWH airport is privately owned by Jag Gill (Northwest Airport Management, L.P.). The airport is notable for being one of the only privately owned airports with an FAA-owned and operated airport traffic control tower (ATCT). The airport covers 480 acres including two parallel hard surface runways and a complex system of taxiways. The airport also has a seaplane landing area on the eastern side of the property (see Figure 1-1). DWH is a medium sized, primarily general aviation (GA) airport (FAA, 2023a). DWH is the one of the busiest GA airports in Texas (XO, 2024). There are 300 aircraft based at DWH: 83% single-engine, 10% multi-engine, 3% jet, and 4% helicopter (Airports - Worldwide, 2024).

The airport began as a hobby of Charles Hooks, who built a runway for his personal use. He later developed the runway into a business and added a terminal. The airport opened in the 1960s as Houston Northwest Airport; however, the airport name changed to David Wayne Hooks Memorial Airport shortly after opening. (XO, 2024)

The airport includes several flight schools including United Flight Systems, Texas Flight Schools, Silver State Helicopters, and American Flyers (XO, 2024). Support facilities at the airport include the main Gill Aviation terminal, Tomball Jet Center, helicopter services, and LifeFlight Alert center (LifeFlight 4 is on permanent standby with Memorial Herman Hospital) (Airports - Worldwide, 2024).

1.3.2 Existing Airport Traffic Control Tower Information

Constructed in July 1979, the existing FAA-owned DWH ATCT is a Hunt/Aviation Corporation (AVCO) design (see Figure 1-2), Tier 2, Level 5 facility. The ATCT has a cab size of 225 square feet with the cab floor at 40 ft above ground level (AGL) and a base area of 1,040 square feet. The ATCT operates daily from 7:00 am to 10:00 pm (FAA, 2024). When the tower is closed, the airspace converts to a Class G airspace from the surface to 700 feet AGL and Class E airspace above that until Class B airspace is reached. The existing ATCT is located in the center of the airport property, west of the runways at 30°04'01.2" N, -95°33'21.4" W (see Figure 1-1).

Figure 1-2. Photo of Existing Hunt/AVCO ATCT at DWH

SECTION 2 | PURPOSE AND NEED

This Purpose and Need is tiered from, and consistent with, the BIL ATCT Final PEA (BIL ATCT PEA, 2023c), and focuses on the specific requirements of the DWH ATCT.

2.1 PURPOSE

The DWH ATCT is an FAA-owned ATCT proposed for replacement under the BIL ATCT Replacement Program. The purpose of the Proposed Action is to replace the DWH ATCT with a modern ATCT providing for uninterrupted air traffic control services.

The Proposed Action at this airport would provide for a modern, operationally efficient ATCT that would meet all applicable FAA requirements. This replacement ATCT would enable the installation of modern and required air traffic control equipment, improve visibility of the airport property, provide adequate space and an enhanced work environment for FAA personnel, lower operating costs, and improve environmental performance, resulting in energy savings, water efficiency, reduced carbon emissions, and improved indoor air quality.

2.2 NEED

The FAA recognizes the need to provide continual air traffic control services at DWH. The DWH ATCT does not have the ability to accommodate upgrades to the latest air traffic control technologies, does not meet personnel space requirements, and lacks modern amenities. During the site visit, air traffic controllers noted that the cab windows leak during heavy rain. The ATCT building recently experienced two major flood events from poor water lines and septic surcharge; some communications and electronic equipment is non-functional. Improvements made must ensure uninterrupted air traffic control services to maintain the safety of the NAS.

SECTION 3 | ALTERNATIVES

In compliance with FAA Order 6480.4B, *Airport Traffic Control Tower Siting Process,* the FAA adheres to a siting process to determine the single-most technically feasible site for the establishment or replacement of an ATCT facility (FAA, 2018). This siting process takes into consideration multiple technical criteria, as prescribed in FAA Order 6480.4B.

Representatives from the FAA and DWH airport conducted siting for this project in conjunction with the Airport Facilities Terminal Integration Laboratory (AFTIL) in Atlantic City, New Jersey in March and June 2022. The siting group met twice in-person at the William J Hughes Technical Center to participate in siting activities in accordance with Order 6480.4B to determine viable and preferred ATCT sites for a potential new ATCT (FAA, 2022).

This tiered EA evaluates the selected site alternative and no action alternative for the proposed replacement of the DWH ATCT. Other alternatives considered in the siting report were not carried forward as they did not best meet the technical siting criteria as outlined in FAA Order 6480.4B (FAA, 2023b). Figure 3-1. displays a preliminary layout plan of the proposed replacement tower at the selected site alternative.

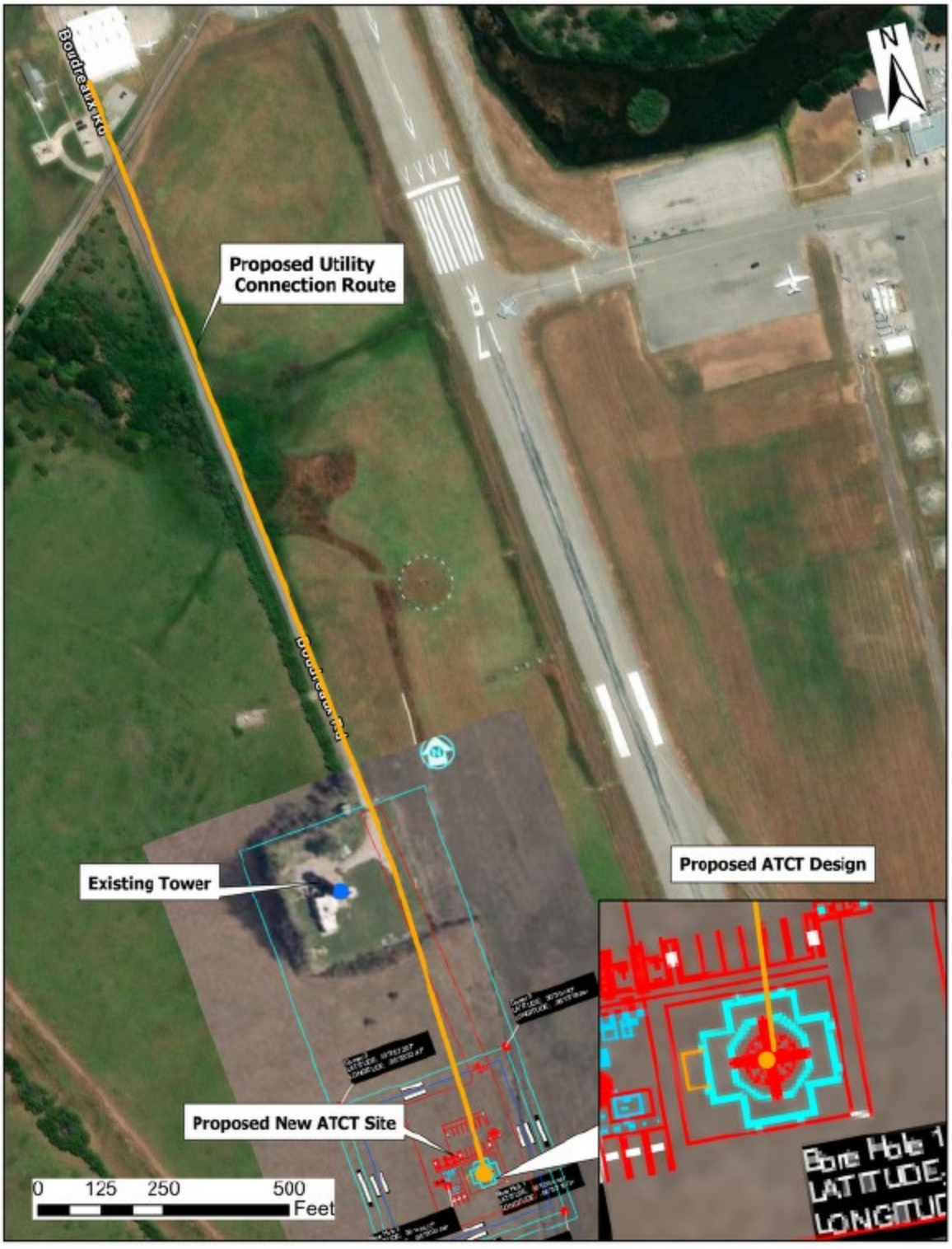

Figure 3-1. Proposed Layout of Replacement ATCT

3.1 ALTERNATIVE 1: PROPOSED ACTION (PREFERRED ALTERNATIVE)

The Proposed Action, as determined by the siting process governed by FAA Order 6480.4B, is construction and operation of a replacement ATCT at a site referred to in the siting report as Site 5. Site 5, hereinafter referred to as the proposed new ATCT site, is located at a latitude of 30°3'55.3614" N and a longitude of -95°33'19.7308" W, approximately 542 feet south from the existing ATCT. This location was deemed most technically feasible of the siting alternatives considered based on the siting criteria referenced in Chapter 3 of the PEA (BIL ATCT PEA, 2023c).

The proposed new ATCT site, located about 800 feet northwest of the intersection of Runway 17R/35L and Taxiway E, is an approximately 3 acre site providing the most optimal visibility of the considered alternatives for air traffic control. The proposed new ATCT site is an open, regularly mowed, grassy field. The proposed tower cab floor elevation is 95 ft AGL and 247 ft above mean sea level (AMSL). At this height, controllers would have unobstructed views of all airport controlled areas and all nearby airborne traffic. The new tower would have an 8-sided, 440 square foot cab facing east. The proposed design includes space for four air traffic controller positions: Ground Control, Local Control, Flight Data, and Supervisor. Stairs would be located opposite the Ground Control position. This proposed design would allow for a safe operating environment and includes upgrades for resistance against seismic events that have the potential to occur in the area (USGS, 2022).

Existing utilities (water, power, gas, telephone) are not located at the proposed new ATCT site. New utilities would be installed along the existing and newly proposed extended access route between the proposed new ATCT site and the existing tower access road, as shown on Figure 3-1. The FAA is planning to install a dedicated well adjacent to the new tower on the proposed new ATCT site. Existing local roads would be used for construction and maintenance traffic.

The Proposed Action also includes demolition of the existing DWH ATCT. Upon demolition of the existing ATCT, the site would be converted to match similar conditions of the surrounding area. Utilities that tie into the existing ATCT would be disconnected or abandoned. Best practices for erosion and sedimentation would be implemented during the demolition process to avoid impacts to surrounding natural resources.

3.2 ALTERNATIVE 2: NO ACTION

A No Action Alternative is required to be included in this EA in accordance with the CEQ's NEPA implementing regulations (40 CFR § 1508.14(c)). The No Action Alternative is defined as maintaining the status quo (baseline conditions) without federal agency involvement. The No Action Alternative is used to evaluate the effects of not replacing the ATCT and provides a benchmark against which other alternatives may be evaluated. Therefore, for purposes of comparative analysis in this EA, the No Action Alternative represents the conditions that would be anticipated if Alternative 1 (Proposed Action) were not implemented.

SECTION 4 | AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This Section describes the existing environmental resource conditions or affected environment at DWH and surrounding areas. This Section also analyzes the anticipated environmental consequences from each alternative for each resource category.

As detailed in the BIL ATCT Final PEA and FONSI/ROD, the FAA identified and analyzed potential environmental impacts for the broad scope of actions planned for ATCT replacement activities (BIL ATCT PEA, 2023c). This programmatic approach allows the FAA to review project-specific details and potential impacts during the planning and site selection process for those ATCT projects within the scope of the PEA analysis.

4.1 RESOURCE CATEGORIES PREVIOUSLY CLEARED BY BIL ATCT FINAL PEA

The BIL ATCT Final PEA and FONSI/ROD identified several resource categories as having "no significant impact" (BIL ATCT PEA, 2023c). The following resource categories were reviewed for project specific impacts and determined to be consistent with the PEA in that no significant impacts are anticipated from implementation of the Proposed Action.

☒ Air Quality

☒ Climate

☐ Farmlands - This resource was programmatically cleared in the BIL ATCT Final PEA and FONSI/ROD; however, a site-specific analysis validated the need to include within this EA due to local conditions. Section 4.2.2 includes a description of the existing environment and potential environmental consequences for farmlands.

☒ Hazardous Materials, Solid Waste, and Pollution Prevention

☒ Land Use

☒ Natural Resources and Energy Supply

☒ Noise

☒ Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

4.2 RESOURCE CATEGORIES REQUIRING SITE-SPECIFIC ANALYSIS PER THE BIL ATCT FINAL PEA

The BIL ATCT Final PEA and FONSI/ROD also identified resource categories that were unlikely to be significantly impacted but would require a site-specific analysis (BIL ATCT PEA, 2023c). In accordance with the BIL ATCT Final PEA, this EA reviews the following resource categories:

- Farmlands – Section 4.2.1 includes a description of the existing environment and potential environmental consequences for farmlands. This resource was programmatically cleared in the BIL ATCT Final PEA and FONSI/ROD; however, a site-specific analysis validated the need to include the resource area in this EA due to local conditions.
- Biological Resources – Section 4.2.2 includes a description of the existing environment and potential environmental consequences for biological resources.
- Coastal Resources – Section 4.2.3 includes a description of the existing environment and potential environmental consequences for coastal resources regulated by the National Oceanic and Atmospheric Administration (NOAA) under the Coastal Zone Management Act (CZMA) (16 U.S.C. §§ 1451 et seq.).
- Historical Architectural, Archaeological, and Cultural Resources – Section 4.2.4 includes a description of the existing environment and potential environmental consequences for historic and cultural resources.
- Department of Transportation (DOT) Act, Section 4(f) – Section 4.2.5 includes a description of the existing environment and potential environmental consequences for Section 4(f) properties on or near DWH.
- Visual Effects – Section 4.2.6 includes a description of the existing environment and potential environmental consequences for visual effects.
- Water Resources – Section 4.2.7 includes a description of the existing environment and potential environmental consequences for water resources.

Regulatory requirements for these resource categories can be reviewed in more detail in the BIL ATCT Final PEA (BIL ATCT PEA, 2023c).

4.2.1 Farmlands

Farmland is agricultural land considered important and protected by federal, state, and local regulations. Farmland resources are considered to be prime, unique, or of statewide/local importance using the criteria provided in 7 CFR § 658.5 and regulated by the Natural Resources Conservation Service's (NRCS) Farmland Protection Policy Act. Important farmlands can include pasturelands, croplands, and forests. Farmland does not incorporate resources already developed for urban or water storage purposes (FAA, 2020)

4.2.1.1 Affected Environment

The affected environment for farmland resources is typically restricted to the construction footprint of the proposed action, unless access to important farmland is restricted or prevented as a result of the action (FAA, 2020). The proposed new ATCT site is located on Splendora-Urban land complex and the existing ATCT is located on Segno-Urban land complex; both complexes are rated as "Not Prime Farmland" (USDA NRCS, 2024a). However, the parcel that encompasses both the existing ATCT and proposed new ATCT site is listed as Land Use Code 9910: Agricultural Land per the Harris County Tax Office. In addition, during the site visit, cattle were observed grazing on the land to the west of the proposed new ATCT site (Booz Allen Hamilton, 2024b).

Although cattle were observed adjacent to the proposed new ATCT site, this parcel is utilized as airfield property and not for agricultural use. New fencing would be installed around the replacement ATCT to prohibit cattle from accessing the area surrounding the proposed new ATCT site.

4.2.1.2 Environmental Consequences

Detailed guidance on significance thresholds and effects determinations for biological resource impacts can be reviewed in the BIL ATCT Final PEA and the FAA Order 1050.1F Desk Reference, Section 6.1 (FAA, 2020).

Alternative 1: Proposed Action

The Proposed Action would not eliminate quality farmland as the proposed new ATCT site is currently an open area maintained by the DWH airport. As stated in Section 4.2.1.1, although the parcel that encompasses both the existing ATCT and proposed new ATCT site is listed as Land Use Code 9910: Agricultural Land per the Harris County Tax Office, the land is not currently used for agriculture. In addition, the land is identified as "Not Prime Farmland" according to the NRCS (USDA NRCS, 2024a). Although cattle have access to this land for grazing presently, the proposed action would include the addition of security fencing around the proposed new ATCT site and would therefore eliminate cattle access. The proposed action would not impact important farmland or access to important farmland.

Alternative 2: No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing farmland resources would occur.

4.2.2 Biological Resources (including Fish, Wildlife, and Plants)

Biological resources include native plants, animals, and their habitats. Protected and sensitive biological resources include federally listed (endangered[3] or threatened[4]), and candidate[5] species designated by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, or a State. Sensitive habitats described in this Section include those areas designated by the USFWS as critical habitat[6] protected by the Endangered Species Act of 1973 (ESA; 16 U.S.C. Chapter 35 § 1531 et seq.).

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3 Endangered species are "any species which is in danger of extinction throughout all or a significant portion of its range" (ESA, Section 3(6))

4 Threatened species are "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (ESA, Section 3(20))

5 Candidate species are any species whose status is under review "to determine whether it warrants listing under the ESA" (ESA, Section 4)

6 Critical habitat refers to "(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by

4.2.2.1 Affected Environment

Vegetation

The DWH airport is in the U.S. Environmental Protection Agency's (EPA) Level III Ecoregion 34 within the 34a (Northern Humid Gulf Coastal Prairies) ecoregion of Texas (EPA, 2004). The airport abuts farmlands immediately to the west and residential neighborhoods farther west and to the north, east, and south. The existing ATCT site is located west of Runway 17L/35R and the proposed ATCT is approximately 542 feet south of the existing ATCT. The proposed ATCT site is located on a vegetated, unimproved area of the airfield. The proposed new ATCT site is regularly mowed to maintain a plant height of approximately 4-inches tall. Vegetation onsite consists of grassy/scrub species including dwarf sedge (*Carex humilis*), common rush (*Juncus effusus*), smut grass (*Sporobolus indicus*), common chickweed (*Stellaria media*), white blooming pinkladies (*Oenothera speciosa*), Chinese tallow (*Triadica sebifera*), red raspberry (*Rubus idaeus*), blackberry (*Rubus subg. Rubus*), yellow thistle (*Cirsium horridulum*), and sand spikerush (*Eleocharis montevidensis*). No structures or existing utilities are present within this vegetated area.

Wildlife and Fish

Due to the proposed ATCT site being located on airport property, surrounded by airport facilities, and on a previously disturbed area (mowed grass), high quality habitat for wildlife species is not present. The proposed ATCT site is located adjacent to wetlands present on the airport property (see Section 4.2.8).

A broad banded water snake (*Nerodia fasciata*), red-winged blackbird (*Agelaius phoeniceuous*), and a crane (*Gruidae*) were observed near the wetland south of the proposed new ATCT site during the site visit. Airport personnel indicated that an Eastern river cooter (*Pseudemys concinna*) was observed at the site recently (Booz Allen Hamilton, 2024b). Highly mobile species such as birds, bats, or flying insects could be transiently present, but it is unlikely most wildlife would use the proposed new ATCT site and existing ATCT as permanent habitat. Common birds, such as the American robin (*Turdus migratorius*), non-native house sparrow (*Passer domesticus*), or mourning dove (*Zenaida macroura*), could use nearby trees or existing structures for nesting or rearing of young. The wetlands and small ponds at the airport (Figure 4-3) may provide habitat for aquatic life that attracts waterfowl and other migratory birds and raptors (Gill Aviation, 2024).

DWH is obligated to comply with the wildlife hazard management requirements, standards, and recommendations made by the FAA in Advisory Circulars. The airport developed a Dead Animals/Wildlife Mitigation Standard Operating Procedure (SOP) to maintain a safe operating environment. The SOP indicated that common wildlife encountered at DWH includes birds, deer, turtles, coyotes, crawfish, snakes, skunks, bobcats, racoons, and opossums. A "bird bang" is used to non-lethally deter birds, and other animals from the

the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species." (ESA, Section 3(5)(A))

airfield to avoid strikes with aircraft (Gill Aviation, 2024) to maintain a safe operating environment.

Special Status Species

Special status species generally occupy unique or specific habitat, such as riverine forests, wetlands, or native ecosystems. The proposed ATCT site is located along the northern boundary of a Palustrine Emergent wetland recently identified on the airport property (Jacobs, 2024b). Although no federal or state-listed endangered, threatened, or candidate species have been documented or observed within the airport study area, this aquatic feature, along with the four other wetland features near the existing ATCT (one to the west and three to the southeast) were further evaluated for potential suitable habitat for three of the native species known to occur in the area: Eastern black rail (*Laterallus jamaicensis*), rufa red knot (*Calidris canutus rufa*), and whooping crane (*Grus americana*) (USFWS, 2024a). All three of these avian species are listed as federally threatened.

Table 4-1 displays the federally listed species within Harris County. According to the Texas Parks and Wildlife Department, there are 18 federally listed special status species known to occur within Harris County. A more focused search of the proposed and existing tower locations and surrounding areas using the USFWS Information for Planning and Consultation (IPaC) website identified two (2) additional species, which were not identified as federally listed in the County list, as shown in Table 4-1 (USFWS, 2024c) (Texas Parks and Wildlife Department, 2023). The IPaC list of federally protected species is provided in Appendix A.

Table 4-1. Federally Listed Species

Common Name	Scientific Name	County Listed Status	Study Area Status
Houston Toad	*Anaxyrus houstonensis*	Endangered	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered	NA
Blue Whale	*Balaenoptera musculus*	Endangered	NA
Gulf of Mexico Bryde's Whale	*Balaenoptera ricei*	Endangered	NA
Rufa Red Knot	*Calidris canutus rufa*	Threatened	Threatened
Oceanic Whitetip Shark	*Carcharhinus longimanus*	Threatened	NA
Loggerhead Sea Turtle	*Caretta caretta*	Threatened	NA
Piping Plover	*Charadrius melodus*	Threatened	Threatened
Monarch Butterfly	*Danaus plexippus*	Candidate	Candidate
North Atlantic Right Whale	*Eubalaena glacialis*	Endangered	NA
Whooping Crane	*Grus americana*	Endangered	Endangered
Texas Prairie Dawn	*Hymenoxys texana*	Endangered	Endangered
Eastern Black Rail	*Laterallus jamaicensis spp. Jamaicensis*	Threatened	Threatened
Alligator Snapping Turtle	*Macrochelys temminckii*	Threatened	Threatened

Common Name	Scientific Name	County Listed Status	Study Area Status
Humpback Whale	*Megaptera novaeangliae*	NA	NA
Tricolored Bat	*Perimyotis subflavus*	NA	Proposed Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered	NA
Louisiana Pigtoe	*Pleurobema riddellii*	Threatened	NA

Source: (Texas Parks and Wildlife Department, 2023) (USFWS, 2024c)

Eastern black rail is known to occur in grasslands and wetlands where the dominant vegetation consists of grasses and forbs, and in areas such as marshes or swamps that are covered, often intermittently, with shallow water or have soil saturated with moisture (USFWS, 2024). Vegetation in the area south of the proposed new ATCT site included grasses and forbs approximately 2 feet in height, with a fragmented patch of shrubs, grasses, and forbs up to approximately 8 feet in height. As dense vegetation is key for this species type, it is not anticipated that the area south of the proposed new ATCT site with the minimal and fragmented dense vegetation would support quality habitat for Eastern black rail. In addition, the area surrounding the three wetland features to the southeast of the existing ATCT has been continuously maintained as airport property with frequent mowing and disturbance. Only a 14-foot-wide strip of dense vegetation intersects these three wetland features around the existing ATCT area. The remainder of the area surrounding these wetlands is similarly regularly mowed and maintained for aviation purposes and therefore does not represent quality suitable habitat.

A similar evaluation applies to rufa red knot. This species is a shorebird generally inhabiting marine and estuarine habitats with large areas of intertidal sediments (USFWS, 2024). As the area surrounding these wetlands is regularly cleared for airport use and lacks sand spits, islets, shoals, sandbars, or features associated with inlets, suitable habitat is not present. Rufa red knots migrate great distances in search of foraging habitat; however, this area does not represent attractive foraging habitat as it lacks year to year abundant food sources (USFWS, 2024).

While whooping cranes generally inhabit wetlands, such as marshes or swamps with intermittent shallow water; the marginal wetlands southeast of the existing ATCT are likely too small and fragmented to attract whooping cranes. As the area surrounding these wetlands is regularly cleared for airport use with high frequency of disturbance, and due to the whooping crane's strong homing instinct, whooping crane is not likely to inhabit the area. The species limits their dispersal to new habitat and has not been observed on airport property in the past.

No critical habitat for species identified in the USFWS IPaC report overlap with the airport property. The USFWS maintains a geographic range map for Texas Prairie Dawn, an extremely rare flower endemic to Harris County, Texas. The range map indicates appropriate habitat surrounding and including portions of the DWH airfield (USFWS, 2022). Adult monarch butterflies feed on the nectar of flowering plants and their larva requires milkweed plants to develop. Monarch butterflies only reproduce where milkweed plants are located (USDA, n.d.). The species could use airport habitat for resting or feeding if flowering plants were present. No milkweed plants were identified during the site survey conducted in April 2024. Roosting habitat and hibernacula (places for bats to hibernate) could be present on

the proposed new ATCT site for the 'proposed endangered' Tricolored Bat (*Perimyotis subflavus*) in the nearby trees, although not observed during the February 2024 site survey. It is possible for the status of this species to change to candidate, threatened, or endangered during the development of this project. Bats could use the existing tower or these trees as roosting habitat. The open, mowed space is not ideal foraging habitat for bats. Given the proximity to wetlands which represents ideal breeding conditions for many insects, a food source is present for many insect-eating species including bats.

In addition to the federally listed species above, 12 other state listed species have been documented in Harris County (Texas Parks and Wildlife Department, 2023). Mobile species such as birds, small or flying mammals, or flying insects could be found within the proposed ATCT site.

Migratory Birds

Texas is located mainly within the Central Flyway for migratory birds. The USFWS lists 10 migratory birds as potentially using or passing through the project area. These species include the American Kestrel (*Falco sparverius paulus*), bald eagle (*Haliaeetus leucocephalus*), brown-headed nuthatch (*Sitta pusilla*), chimney swift (*Chaetura pelagica*), lesser yellowlegs (*Tringa flavipes*), pectoral sandpiper (*Calidris melanotos*), prothonotary warbler (*Protonotaria citrea*), red-headed woodpecker (*Melanerpes erythrocephalus*), swallow-tailed kite (*Elanoides forficatus*), and wood thrush (*Hylocichla mustelina*). At DWH, the probability of presence for American Kestrel, bald eagle, lesser yellowlegs, wood thrush, and brown-headed nuthatch is likely during winter and spring months while the probability of presence for chimney swift, pectoral sandpiper, prothonotary warbler, red-headed woodpecker, and swallow-tailed kite is likely during summer months (USFWS, 2024a). The bald eagle is not a Bird of Conservation Concern in the study area; however, it warrants additional attention due to its inclusion in the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Eagles have been observed visiting airport property (Gill Aviation, 2024). Bald eagles could be migrating, breeding, or hunting in the area; bald eagle management guidelines would apply if any nests were observed in the study area (USFWS, 2007).

Invasive Species

Invasive terrestrial plant species were observed within or surrounding the proposed ATCT site and the existing ATCT during the April 2024 site visit. Invasive plant species noted during the site visit include Chinese tallow tree (*Triadica sebifera*), common chickweed (*Stellaria media*), and Bermuda grass (*Cynodon Dactylon*) (Booz Allen Hamilton, 2024b). Twenty-four additional plant species are listed as invasive grass/grasslike habitats in Texas and have the potential to be present within the study area (Texas Invasives, ND). Noxious and invasive plant species can be spread by vehicles, machinery, wildlife, and by natural forces such as by wind or water. Areas that are disturbed through construction, by vehicles, or fire may be vulnerable to the introduction and spread of noxious weeds.

4.2.2.2 Environmental Consequences

Detailed guidance on significance thresholds and effects determinations for biological resource impacts can be reviewed in the BIL ATCT Final PEA and the FAA Order 1050.1F Desk Reference, Section 2.3.1 (FAA, 2020).

Alternative 1: Proposed Action

The Proposed Action would involve construction on a previously cleared portion of the DWH property and demolition of the existing ATCT. The proposed new ATCT site consists of a regularly mowed grass lot with wetland habitat adjacent to the south. The construction of the proposed new ATCT is not anticipated to encroach upon these wetlands. While none of the species identified during the April 2024 site visit were determined to be protected species, protected species may still use the wetland habitat for nesting and hunting. The proposed demolition of the existing ATCT is also not anticipated to encroach upon the wetland habitat to the west of the existing ATCT. No critical habitat exists at this location and construction activities are not likely to impact any wildlife and/or fish, migratory birds, or special status species. Texas Prairie Dawn has been documented to have suitable habitat within the airport property; however, the species was not observed during the April 2024 site visit. However, the proposed access road extension may impact the three wetland features identified by Jacobs (see **Error! Reference source not found.**).

As the proposed design has not been finalized, it is assumed that there would be a take of these wetlands (refer to Section 4.2.7.2). A portion of the access road to the proposed new ATCT site was further evaluated for suitable habitat for several special status species (Figure 4-3). Informal consultation under Section 7 of the Endangered Species Act was initiated with U.S. Fish and Wildlife Service (USFWS) on February 6, 2024, for a request of the IPaC report to identify species with the potential for presence within the study area (see Appendix A). These aquatic features were evaluated as potential habitat for three of the special status species, as described in Section 4.2.2.1; however, these wetlands do not represent suitable habitat for the protected species. No federal or state-listed endangered, threatened, or candidate species have been documented or observed within the airport study area. There would be no significant impacts to protected species from the Proposed Action.

The proposed new ATCT site is located approximately 542 feet south of the existing ATCT and 570 feet west of Runway 17R/35L. Although the proposed new tower would require additional lighting, the new exterior lighting is unlikely to result in any new effects on wildlife species given its proximity to the existing ATCT. The increased lighting at the proposed new ATCT site is not anticipated to increase the overall effect of lighting on wildlife at the existing airport. The increase of human foot traffic, vehicle traffic, and heavy equipment usage during construction and demolition could introduce noxious weeds and invasive plant species to the construction and demolition sites; however, these impacts are not anticipated. The proposed ATCT would be landscaped with species native to the Harris County area.

The Proposed Action would also involve the demolition of the existing tower. The area of the existing tower would be converted to land similar to the surrounding area. The demolition of the existing tower would not cause impacts to biological resources.

Alternative 2: No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing biological resources would occur.

4.2.2.3 Best Management Practices

In order to maintain native species to the Houston area throughout the process of constructing the proposed new ATCT and demolishing the existing ATCT, landscaping activities would be conducted only with species native to the Houston area.

4.2.3 Coastal Resources

Coastal resources are the natural resources occurring within coastal waters and adjacent shorelands. Coastal resources include islands, transitional and intertidal areas, salt marshes, wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as fish and wildlife and their respective habitats within these areas.

The DWH airport is landlocked and not adjacent to or near any coastal or inland shorelines, regulated by the NOAA under the CZMA (16 U.S.C. §§ 1451 et seq.). The Texas Coastal Zone boundary extends into Houston via the Buffalo Bayou River, and north to the southernmost end of Lake Houston, approximately 22 miles and 26 miles southeast of DWH respectively (The Texas General Land Office, NA). Although Harris County does have a portion of land within the CZMA boundary, DWH is approximately 21 miles northwest of the nearest boundary line. The nearest essential fish habitat is located 17.4 miles east of DWH and protects red drum, shrimp, reef fish, and coastal migratory pelagic species (NOAA, 2021). Given the distance to coastal resources, coastal resources are not anticipated to be impacted by the Proposed Action and this resource category is not analyzed further within this EA.

4.2.4 Historical, Architectural, Archaeological, and Cultural Resources

Historic and cultural resources are sites, structures, buildings, districts, or objects associated with important historic events or people, demonstrating design or construction associated with a historically significant movement, or with the potential to yield historic or prehistoric data, that are considered important to a culture, a subculture, or a community for scientific, traditional, religious, or other reasons (NPS, 1997). Historic and cultural resources may be subdivided into the following categories: Archaeological resources, Architectural resources, Native resources, and Traditional Cultural Properties.

4.2.4.1 Affected Environment

In accordance with applicable federal laws and regulations, the FAA evaluated the proposed alternatives and APE for historic and cultural resources. The APE is “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist” (36 CFR § 800.16(d)). The FAA assessed previously identified cultural resources within the APE and the potential for unidentified resources for each alternative.

Actions that have the potential to affect historic and cultural resources typically involve construction, ground disturbance, or modification of a historic property or a property in the viewshed of a historic property or district. Other effects to consider include noise, vibration, lighting, and increased traffic. The APE consists of a one-mile radius around the project area and is defined as the area shown on **Error! Reference source not found.**.

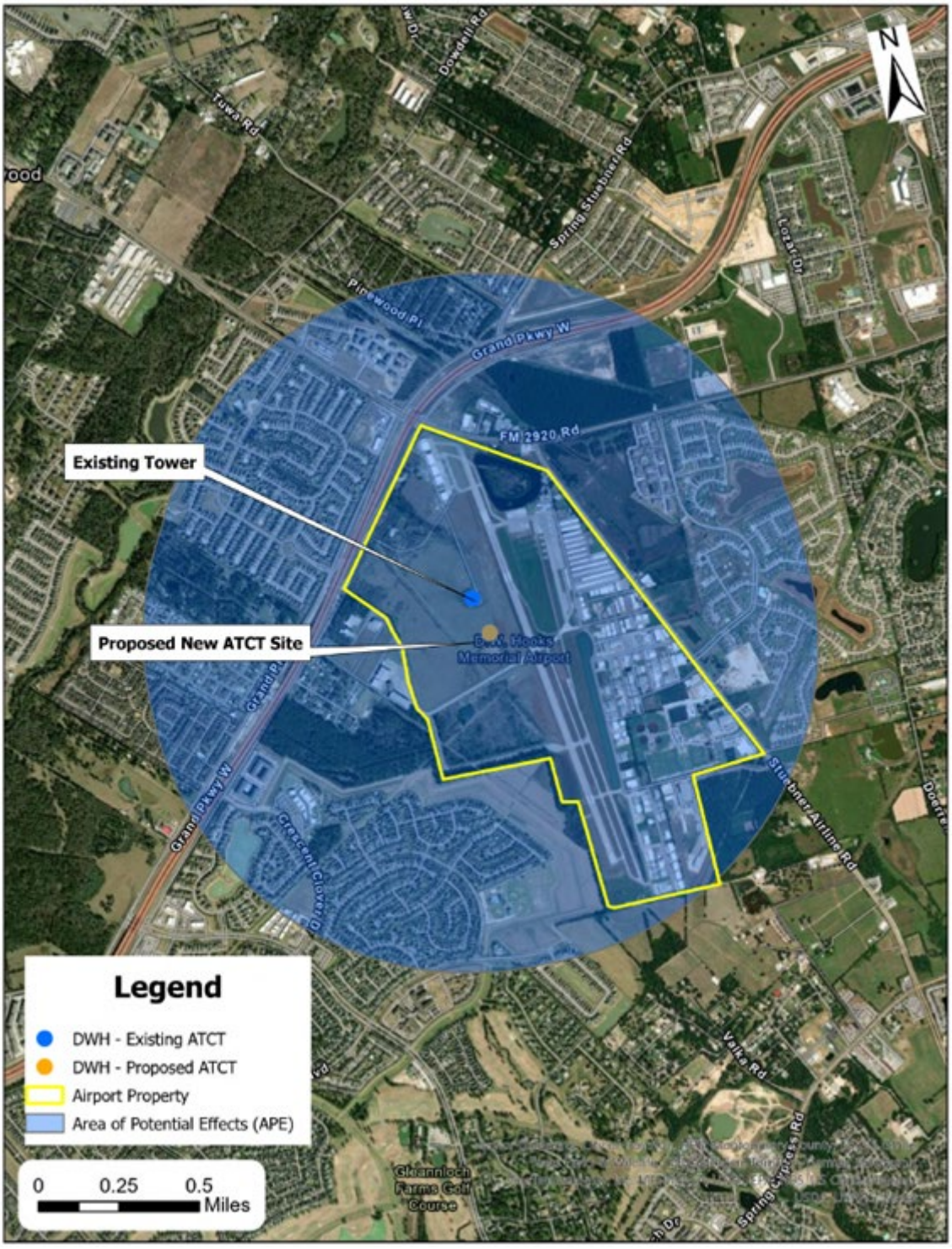

Figure 4-1. Area of Potential Effects (APE)

The first aviation activity on what is today known as David Wayne Hooks Memorial Airport began when Charles Hooks Jr. constructed a runway on his property in 1963 for his personal use. The property, originally known as Houston Northwest Airport, was renamed David Wayne Hooks Memorial Airport in 1967 after Hooks' son who died in a plane accident (Tomball Area Diamond Jubilee, Inc., 1982). In 1989, Hooks sold the airport to the Gill family and the name officially changed to David Wayne Hooks Memorial Airport at Gill Aviation. Today the airport is currently one of the largest private airports in the United States and provides fixed-base operator (FBO) services and is home to several flying schools (Johnson, 2015).

No historic properties are shown within a one-mile radius of the airport on the National Park Service's (NPS) National Register of Historic Places (NRHP) Database or the Texas Historic Sites Atlas (NPS, 2020) (Texas Historical Commission, 2024).

The existing ATCT proposed for demolition is a Hunt/AVCO tower type commissioned in 1979. The Hunt/AVCO standard ATCT design consists of a square functional steel framed shaft supporting a hexagonal steel framed cab. In the early to mid-1970s, this modular type ATCT was constructed at numerous low activity level airports. The prefabricated nature for the whole tower construction allowed the towers to be erected in a very short time from a "kit of parts". The FAA commissioned the first Hunt ATCT in July 1971. Most of the Hunt/AVCO towers were commissioned in the 1973-1975 timeframe with the design type predominately phased out by the end of the 1970s (FAA, 2021).

Review of historical aerial photographs and topographic maps indicates that there has been little activity in the project area, which includes the location of the existing ATCT and the location of the proposed new ATCT, contained within the APE, since the late 20th century (Nationwide Environmental Title Research, LLC., 2024). Prior to its use as an airfield, the project area and surrounding land appears to have been used for agriculture (Jacobs Engineering Group, Inc., 2024a). Foundations for a concrete apron first appear on the airport property in 1964 along with three hangar buildings and two additional structures. By 1973, a paved north/south runway was installed. That period also saw the construction of a seaplane landing strip located between the runway and the apron—one of five landlocked airports in the lower 48 states with a water runway (Kirk, 2014). During this period, the airport added roughly 20 buildings to the south end of the apron and 3 buildings and a lake at the northern end of the property. By 1982, the airport added buildings throughout the apron, extended it and the runway to the south, and built paved taxiways to the west side of the runway. By 2002, in addition to new buildings and demolitions, the airport installed helipads at the north end of the apron. Additional small buildings were added to the property throughout the 21st century to the present (Nationwide Environmental Title Research, LLC., 2024).

The greater Houston area has a rich aviation history highlighted by National Aeronautics and Space Administration mission control at the Johnson Space Center and the childhood home and gravesite of aviator and inventor Howard Hughes; however, the city of Tomball, the closest city to the airport, and Harris County, Texas, where the airport is located, have no notable association with historic aviation.

4.2.4.2 Environmental Consequences

Detailed guidance on significance thresholds and effects determinations for historical, architectural, archaeological, and cultural resources impacts can be reviewed in the BIL ATCT Final PEA and the FAA Order 1050.1F Desk Reference, Chapter 8 (FAA, 2020).

Alternative 1: Proposed Action

The Proposed Action would not impact historic or cultural resources within the APE. Based on a 2024 archaeological review by the Jacobs Engineering Group, the Texas Historical Commission (THC), the Texas State Historic Preservation Office (SHPO), determined on March 4, 2024, that no historic properties are present or would be affected by the undertaking (Jacobs Engineering Group, Inc., 2024a). The THC determined the undertaking, which includes demolition of the existing ATCT, would not affect above-ground historic properties. Therefore, the existing ATCT is not considered a historic property, and the demolition of the existing ATCT would not result in impacts to historic or cultural resources. Because no pimple mounds are within the project area, an archaeological survey was not required by the THC (Jacobs Engineering Group, Inc., 2024a).

The FAA consulted with the THC on the undertaking on February 23, 2024, and received its concurrence on March 4, 2024 (Appendix B). The FAA also initiated consultation and notified Federally Recognized Tribes with known affiliations with and interests in the project area of the FAA's Finding of No Historic Properties Affected on [date]. Tribes included: Alabama-Coushatta Tribe of Texas; Apache Tribe of Oklahoma; Comanche Nation, Oklahoma; Coushatta Tribe of Louisiana; Kickapoo Traditional Tribe of Texas; Tonkawa Tribe of Indians of Oklahoma; and Ysleta del Sur Pueblo.

Alternative 2: No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing historical, architectural, archaeological, and cultural resources would occur.

4.2.4.3 Unanticipated Discoveries

As mentioned in letters to Section 106 consulting parties, if during construction, demolition, and/or maintenance activities any unanticipated cultural resources are discovered, activity would cease in the area of the resource and the appropriate state, federal, and tribal officials would be notified and given the opportunity to review (FAA, 2020). The uncovered resources would be protected. In compliance with all applicable laws and regulations, the FAA would coordinate with the appropriate consulting parties and consider their recommendations, conduct appropriate actions, then provide a report of those actions after they are completed (36 CFR 800.13).

4.2.5 Department of Transportation Act, Section 4(f)

Section 4(f) of the U.S. DOT Act of 1966 (codified in 49 U.S.C. § 303 and 23 U.S.C. § 138) applies to projects that receive funding from or require approval by agencies within the DOT and provides for the consideration of certain properties of national, state, and/or local significance during transportation project development, such as: publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites.

Before approving a transportation project requiring the use of these properties, the DOT agency must determine that there is no feasible and prudent alternative to using that land and the project includes all possible planning to minimize harm resulting from the use (FAA, 2020).

4.2.5.1 Affected Environment

In general, actions that have the potential to affect Section 4(f) properties involve a physical or constructive use. Further detail on what constitutes a physical or constructive occupation of the property may be reviewed in the BIL ATCT Final PEA.

According to the Bureau of Land Management (BLM) National Data Viewer, there are no listed recreational sites or wildlife refuges listed within the study area (Bureau of Land Management, 2024). Gleannloch Farms Bark Park (approximately 1.50 miles southwest of the study area) is a public dog park that is the nearest public park to DWH.

Airport personnel indicated that people fish at the pond located on the northern end of the airport (Figure 4-3). This pond is located approximately 0.40 miles northeast of the proposed new ATCT site. As this area is owned and maintained by DWH airport and open for public recreation use, it is categorized as a Section 4(f) resource.

No historic properties listed on the NRHP are shown within a one-mile radius of the airport on the NPS's NRHP Database (NPS, 2020).

4.2.5.2 Environmental Consequences

Detailed guidance on significance thresholds and effects determinations for Section 4(f) resources impacts can be reviewed in the BIL ATCT Final PEA and the FAA Order 1050.1F Desk Reference, Chapter 5 (FAA, 2020).

Alternative 1: Proposed Action

The Proposed Action would not impact any Section 4(f) resources. Although the pond used for fishing is 0.40 miles from the study area (Figure 4-3), the new tower would be further from the pond than the existing tower and would result in no limitations to fishing at the pond or recreational enjoyment of the pond. Gleannloch Farms Bark Park would not be impacted by the Proposed Action. The Proposed Action, including the demolition of the existing tower, would have no impact on Section 4(f) resources.

Alternative 2: No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing DOT 4(f) resources would occur.

4.2.6 Visual Effects

Visual effects are considered under two categories: light emissions and visual resources/character. Light emissions from outdoor lighting in parking lots, streets, and within businesses or homes affect the darkness of the night sky, particularly in rural areas where fewer light sources are present. Visual character is the overall description of an area, such as rural, farmland, urban, coastal, or mountainous. (FAA, 2020)

4.2.6.1 Affected Environment

The proposed ATCT site is located approximately 542 feet south of the existing ATCT and positioned centrally within the study area shown on Figure 1-1. As such, the proposed new ATCT site is within the same viewshed of the existing ATCT. The surrounding area is characterized by rural and agricultural land with residential housing neighborhoods adjacent to the northwest and southwest of the airport. It is unlikely that surrounding residential neighborhoods and the Gleannloch Farms sports complex southeast of DWH would have the new ATCT within their viewshed due to the presence of trees, commercial buildings, and hangars providing a buffer to block the view. The nearest sensitive receptor is a small residential neighborhood located approximately 0.43 miles southwest of the proposed new ATCT site. Light emissions are a highly subjective resource due to the difference in perception and value that a user associates with the specific feature and surrounding landscape.

Light Emissions

The DWH ATCT operates daily from 6:00 am to 10:00 pm and the lighting of the runways, taxiways, and other airfield safety lights are controlled by air traffic controllers. Currently, the airport operates in the standard configuration at night with light emissions from the following areas: runways, taxiways, navigational aids, apron areas, parking lots, FBO, and terminal building. DWH is located adjacent to a major transportation corridor (State Highway 99) to the northwest. Light emission from airport activities has the potential to impact residential areas and other sensitive land uses. Currently, light emission at DWH does not conflict with neighboring residential and other land uses. Due to the proximity of the proposed ATCT to the existing tower that would be removed, there are no anticipated impacts from light emissions to nearby sensitive receptors.

Wildlife, especially nocturnal species, may be sensitive to nighttime light sources which may disrupt migratory or breeding cycles. As mentioned in Section 4.2.3.2, the light-sensitive tricolored bat was not identified as a species of concern within the study area. Due to the lack of habitat within the study area, it is not likely that this mobile species would utilize habitat surrounding the tower for roosting or nesting. It is possible that the species would utilize the wetland habitat to forage for insect, though tricolored bats are typically found in dense forested areas (USFWS, 2022).

Visual Resources and Visual Character

Visual resources around the proposed new ATCT site are consistent with those of the existing ATCT at DWH. The area surrounding the existing airport is characterized as agricultural and rural with dense residential neighborhoods surrounding the airport. Visual resources surrounding the airport property include agricultural land, local roadways, and highways (Google Earth, 2024). As stated above, Gleannloch Farms Bark Park is located within 1.5 miles of the airport and may be within the viewshed of the existing and replacement towers. The nearest residential area is located 0.43 miles southwest of the proposed new ATCT site. Other visual resources within the existing airport environment include active runways and taxiways, a commercial service passenger terminal building, a maintenance building, fuel storage building, air cargo facilities, aircraft storage hangars, and FBO buildings. The tallest structure at DWH is the ATCT having a cab floor eye level elevation

of 40 ft AGL. The proposed tower would be 100 ft AGL at the cab floor eye level and may be visible from a farther distance than the existing tower.

4.2.6.2 Environmental Consequences

Detailed guidance on significance thresholds and effects determinations for visual resource impacts can be reviewed in the BIL ATCT Final PEA and the FAA Order 1050.1F Desk Reference, Section 13.3.3 (FAA, 2020).

Alternative 1: Proposed Action

The Proposed Action would involve construction of the new ATCT on previously cleared airport property. The proposed ATCT site is located approximately 542 feet south of the existing ATCT and adjacent to agricultural land to the west and wetlands to the south. The reflective surfaces of the new ATCT and support building could alter the visual character of the airport area due to the tower height and change to the viewshed. However, the change in location of light emission from the existing tower to the new tower is unlikely to create additional light emissions once the existing tower is decommissioned, and the new tower is operational. The addition of a newly lit parking area for the proposed ATCT would result in new light emissions as there is no existing lighting at the proposed new ATCT site. The closest visual receptors, the residential neighborhood approximately 0.43 miles southwest of the proposed new ATCT site, would receive minimal to no effects from the shift in location of airport related lighting. The changes in lighting are not anticipated to affect the visual nature of the area or increase the existing lighting emitted from the airport.

Changes to visual resources and visual character from construction of the new tower and removal of the existing tower would not affect or obstruct visually important resources. Although the new proposed ATCT would be 60 ft taller than the existing DWH ATCT, it would not contrast with the area's visual character upon completion due to the study area being an existing and active airport. The replacement tower may be within the viewshed of the Gleannloch Farms Bark Park; however, the existing tower would also likely already be within the park's viewshed and thus would not alter the visual character of the park. General enjoyment of the park is anticipated to remain unchanged from the Proposed Action.

Alternative 2: No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing visual effects would occur.

4.2.7 Water Resources

Water resources include wetlands, floodplains, surface water, groundwater, and Wild and Scenic rivers. These resources provide drinking water, irrigation, and other water uses for communities, in addition to recreation and transportation opportunities, and habitat for vegetation and wildlife species.

4.2.7.1 Affected Environment

Wetlands

The USFWS National Wetlands Inventory (NWI) identifies approximately 23 distinct wetlands within the study area, as shown on Figure 4-3 (EPA, 2024). The majority of these wetlands have been designated as freshwater emergent wetlands; however, two wetlands within the study area are designated as freshwater forested/shrub wetlands. These two wetland features, both freshwater emergent wetlands, are located within close proximity to both the existing and proposed ATCT sites. The nearest wetland to the proposed new ATCT site is a 1.66-acre freshwater emergent wetland located approximately 150 ft to the south/southwest of the proposed new ATCT site and the nearest wetland to the existing ATCT is a 0.40 freshwater emergent wetland located approximately 100 feet west of the existing ATCT (Booz Allen Hamilton, 2024b).

Approximately 0.38 miles northeast of the proposed new ATCT site is an 8.66-acre wetland designated as a freshwater pond, which is also identified on the National Wetland Inventory (NWI), shown on Figure 4-3. DWH manages a 7.51-acre freshwater pond as a sea plane runway approximately 0.28 miles southeast of the proposed new ATCT site (EPA, 2024). Surface water and wetland features are shown in Figure 4-3.

In January 2024, Jacobs Engineering Group performed an aquatic resource delineation to identify the wetlands within a 5.10-acre survey boundary around the existing ATCT and proposed new ATCT site that included the proposed access road extension area, as shown on Figure 4-2**Error! Reference source not found.** (Jacobs, 2024b). The Aquatic Features Delineation Report (AFDR) identifies and describes aquatic resources, including four wetlands within the survey boundary: two Palustrine Emergent Wetlands (PEM), one Palustrine Scrub-Shrub Wetland (PSS), and one Palustrine, Emergent, Persistent, Seasonally Flooded (PEM1C). In total, these wetlands make up 0.59-acres. Three of these wetlands (approximately 0.11-acres) are located within the footprint of the proposed access road (shown on Figure 3-1) at the northern end near the existing ATCT. One wetland feature (approximately 0.47-acres) is located south of the proposed new ATCT site consistent with a wetland previously identified on the NWI at the southern boundary of the project area (see **Error! Reference source not found.**). Jacobs Engineering Group submitted the AFDR to the USACE on February 15, 2024, initiating consultation under Section 404 of the Clean Water Act and requesting a jurisdictional determination or "No Permit Required" verification. At the time of this Draft EA publication, the FAA is waiting for USACE jurisdictional determination.

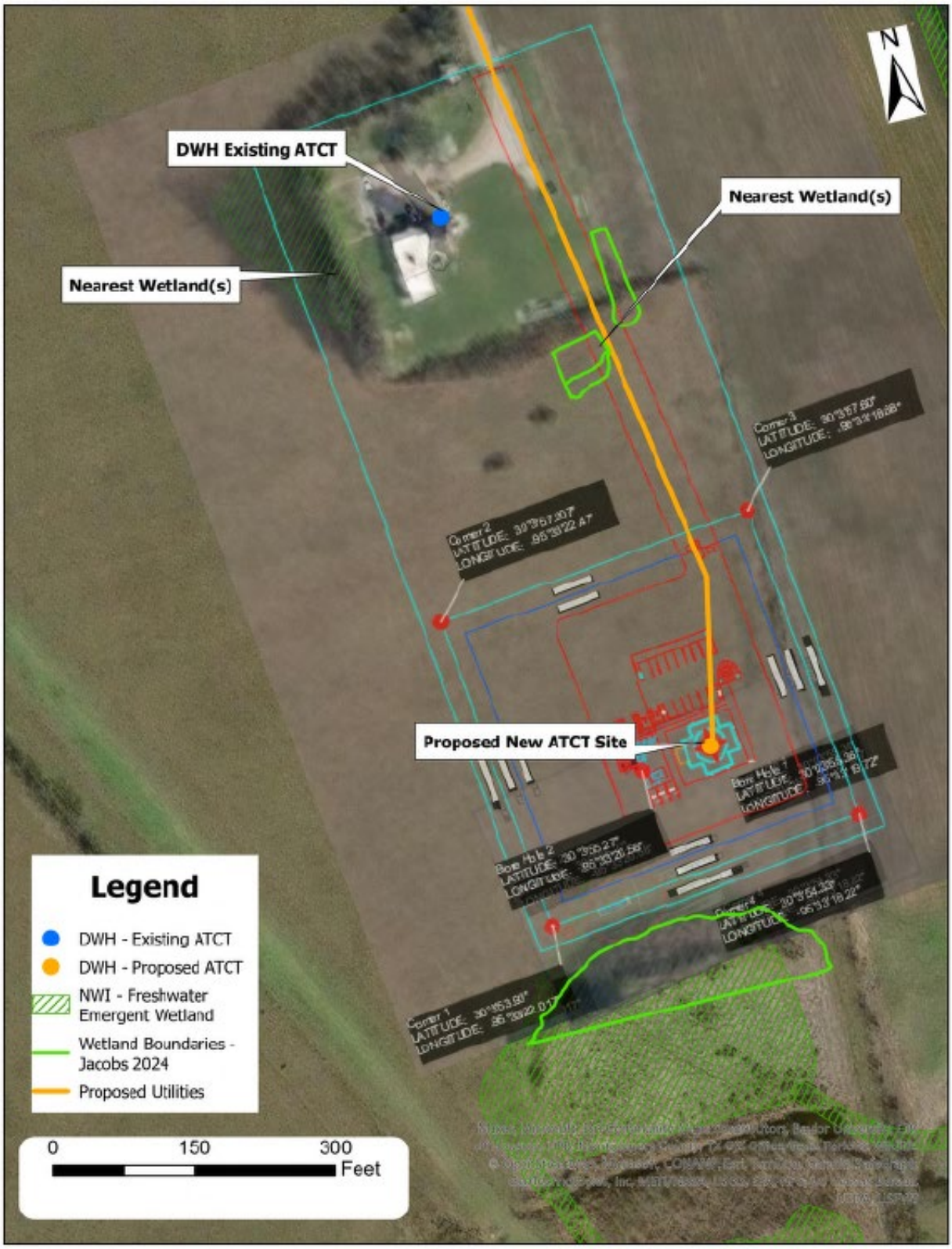

Figure 4-2. Wetland Delineation Map (Jacobs, 2024b)

Floodplains

According to the Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer (NFHL) Viewer, the proposed new ATCT site is located within an area of minimal flood hazard and is therefore not located within a 100- or 500-year FEMA floodplain (FEMA, 2024).

Surface Water

Surface water features present at DWH include two manmade freshwater ponds, a retention pond (used for recreational fishing), and a seaplane runway, shown on Figure 4-3. There are no streams located within the study area. The nearest stream, Willow Creek, is located 1.00 miles northwest of the proposed new ATCT site. Willow Creek flows northward and discharges to Spring Creek approximately 5 miles northeast of DWH. Wetland and surface water features in the proximity of the proposed ATCT site are shown on Figure 4-3Figure 4-3. Aerial Image of National Wetland Inventory Wetlands and Surface Water Features near DWH Airport. (Booz Allen Hamilton, 2024c)

Groundwater

The study area is located within the Gulf Coast aquifer system which includes the Chicot-Evangeline (undifferentiated) and Jasper aquifers. These aquifers are composed of laterally discontinuous deposits of gravel, sand, silt, and clay. In 2023, the Jasper aquifer was recorded at -250 to -300 feet below sea level and the Chicot-Evangeline (undifferentiated) aquifer was recorded at -100 to -150 feet below sea level. The nearest sole source aquifers are the Chicot Aquifer System approximately 100 miles east of DWH and the Edwards Aquifers I & II approximately 133 miles west of DWH. Groundwater in the Gulf Coast aquifer system generally flows towards the southeast, to the coast of Texas. (USGS, 2023)

Wild and Scenic Rivers

The are no wild or scenic rivers located near DWH. The only section of river in Texas classified as wild or scenic is a 191-mile stretch of the Rio Grande along the border with Mexico. The wild and scenic section of the Rio Grande is located approximately 380 miles west of DWH. (National Wild and Scenic Rivers System, 2024)

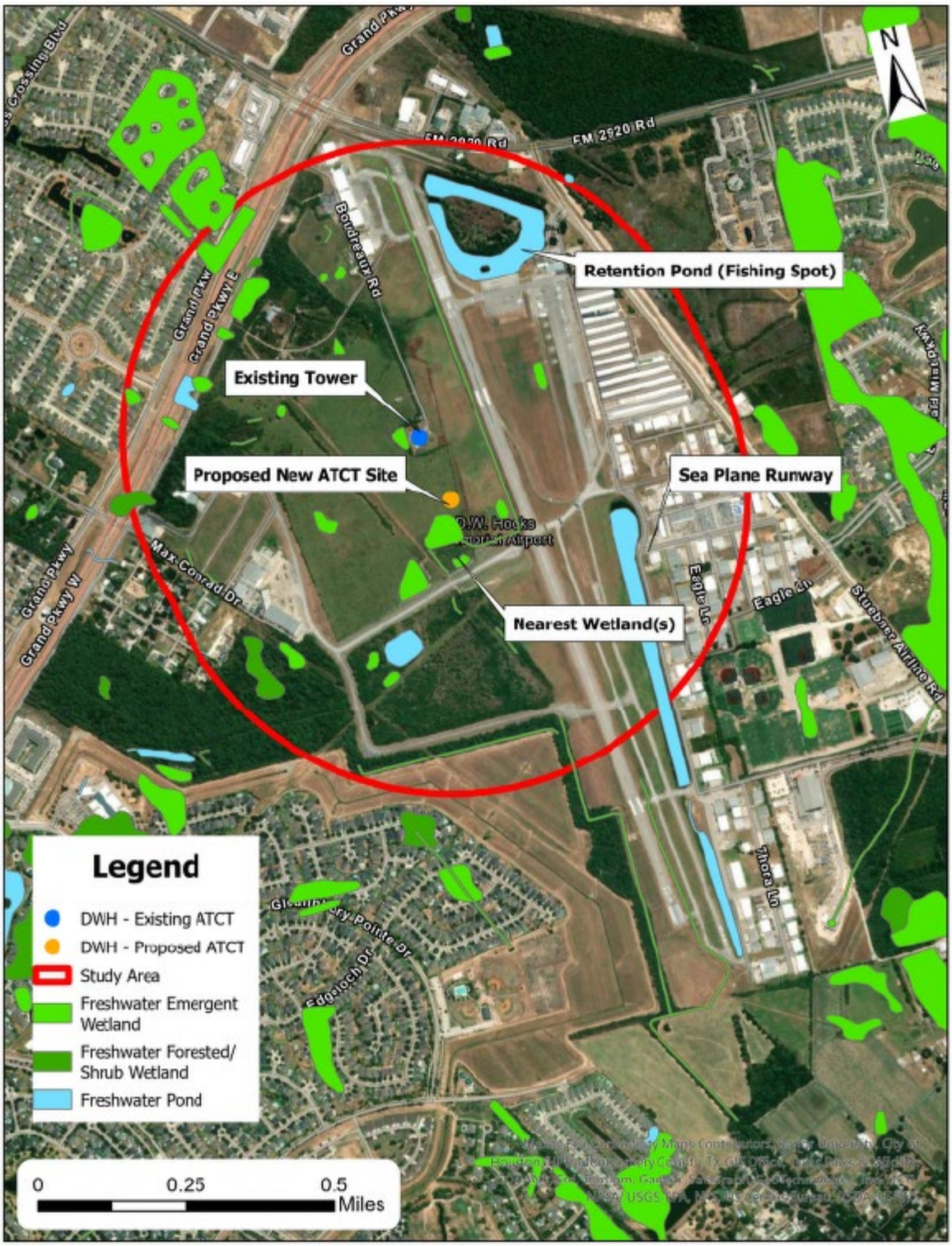

Figure 4-3. Aerial Image of National Wetland Inventory Wetlands and Surface Water Features near DWH Airport

4.2.7.2 Environmental Consequences

Detailed guidance on significance thresholds and effects determinations for water resource impacts can be reviewed in the BIL ATCT Final PEA and the FAA Order 1050.1F Desk Reference, Sections 14.1.3 through 14.5.3.1 (FAA, 2020).

Alternative 1: Proposed Action

The Proposed Action would cause temporary, short term surface disturbing activities in the span of approximately 3 acres involving increased vehicle traffic and use of machinery. As the property lease line for the proposed new ATCT is located approximately 10-feet north of the wetland boundary to the south, no ground disturbance or other direct impacts would occur to this wetland. The wetlands to the west of the existing ATCT, as shown on Figure 4-2 and in the AFDR (Appendix C), would likely experience temporary, indirect impacts from the demolition of the ATCT. Approximately 0.11-acres of wetland to the southeast of the existing ATCT would likely experience direct impacts from fill and grading due to the construction of the proposed access road extension to the proposed new ATCT site.

Based on preliminary design, permanent change and/or filling of the wetland to the south of the proposed new ATCT is not anticipated to occur. Indirect impacts could occur to this wetland due to the addition of impervious surface to the area surrounding the wetland and redirection of stormwater flow, along with the addition of new drainage infrastructure.

These indirect and temporary impacts are anticipated for the wetlands west of the existing ATCT as well. Implementing mitigation measures that include erosion and sedimentation controls would reduce and/or prevent impacts to aquatic resources on site.

The three wetlands southeast of the existing ATCT make up approximately 0.11-acres of wetland (as shown on Figure 4-2). These wetlands would be directly impacted due to fill and grading for the construction of the access road extension to the proposed new ATCT site. Jacobs' preliminary determination was that all four wetlands are non-jurisdictional. The FAA and Jacobs Engineering Group submitted the AFDR to the USACE on February 15, 2024, to initiate consultation under Section 404 of the Clean Water Act and request concurrence with the determinations.

Based on the anticipated construction activities related to the proposed new ATCT and its associated access road, up to 0.11-acres of wetland would be impacted. At the time of this Draft EA publication, the FAA is waiting for USACE jurisdictional determination. In the AFDR, Jacobs made a technical assessment that all four wetlands are non-jurisdictional (Jacobs, 2024b). If it is determined that the wetlands on site do not fall under federal jurisdiction, coordination at the State level would be pursued to address mitigation. The FAA plans to correspond with the Texas Parks and Wildlife Department (TPWD) to identify potential recommendations for construction equipment siting and revegetation of wetlands species.

As stated above, DWH is in an area of minimal flood hazard and no impacts to floodplains are likely to result from the Proposed Action.

Disruption of soil surfaces, introduction of non-native plant species through transfer of seeds, and contamination of soils from chemicals such as hydraulic fluids or petroleum leaks could occur during ground disturbing activities. Runoff containing contaminated soil could result in offsite interface with surface waters downstream from the proposed new ATCT site and the existing ATCT, such as Willow Creek, but is unlikely. Soil, sediment, or chemical

runoff could directly or indirectly damage water quality, alter habitat from sediment build-up, or cause changes to the ecosystems from the introduction of non-native species. The increased presence of heavy construction equipment, fuels, chemicals, or solvents during construction/demolition activities could affect groundwater if spills or leaks were to occur. The severity would depend on the volume or duration of the spill or leak and ability to respond appropriately. Applying BMPs and measures such as spill/leak monitoring and runoff prevention could reduce or prevent impacts to groundwater from excavation and construction.

As the ground disturbance resulting from implementation of the Proposed Action would likely exceed one acre, and the project has the potential to discharge to the wetland located within the study area, a National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit would be required. For construction projects that disturb less than five acres, like the Proposed Action, the operator may apply for a waiver from permit requirements if the site is in a region and during seasons with low erosion potential levels (TCEQ, 2023).

Excavation volume and depth for foundation structural components is unknown at this time. As such, groundwater could be encountered during excavation and construction activities. If this were to occur and pumping was required to extract water and continue construction, the excess water may be discharged offsite through the DWH stormwater system. Discharging this water could result in sediment and chemical runoff where outflow occurs. Disruption of groundwater or groundwater flow could occur at excavation sites and where placement of structural components is located, however these potential impacts would be temporary in nature. Applying runoff and contamination prevention BMPs and mitigation measures could reduce or prevent impacts to groundwater from excavation and construction.

As there are no Wild or Scenic Rivers within 380 miles of the study area, there would be no significant impacts to this resource from the Proposed Action.

The Proposed Action would also involve the demolition of the existing tower. The area of the existing tower would be converted to land similar to the surrounding area and would not cause impacts to the three neighboring wetlands or water resources in proximity of the existing tower.

Alternative 2: No Action Alternative

Under the No Action Alternative, the current ATCT would not be removed and replaced, and activities associated with the ATCT would remain the same. No impacts to existing water resources would occur.

4.2.7.3 Mitigation

Mitigation to offset unavoidable impacts to water resources allow for onsite absorption of rainwater such as permeable surfaces, allowing natural drainage processes, and erosion prevention measures. Descriptions of recommended management practices for these wetlands, surface water, and groundwater are described below.

The City of Houston Flood Control District has developed a Storm Water Management Handbook for Construction Activities for use within Harris County (City of Houston, 2006).

This document provides general guidance related to erosion and sediment controls and other measures to control storm water pollutants from construction activities. In addition, the Texas DOT has published a separate Storm Water Management Guidelines for Construction Activities which provide guidance on the use of storm water management measures for state highway construction projects. (TxDOT, 2018)

As the ground disturbance resulting from implementation of the Proposed Action exceeds one acre, and the project has the potential to discharge to the wetland located within, and adjacent south, of the study area, a National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit would be required. The Texas Commission on Environmental Quality (TCEQ) is the NPDES permitting authority for the state of Texas. Key requirements of this construction general permit would include the development of a stormwater pollution prevention plan. For construction projects that disturb less than five acres, like the Proposed Action, the operator may apply for a waiver from permit requirements if the site is in a region and during seasons with low erosion potential levels (TCEQ, 2023).

Measures for reducing runoff and erosion, as described below, would prevent or reduce sediment and the introduction of non-native plant species from degrading nearby wetlands. These BMPs should be implemented within the study area to avoid the potential for temporary construction impacts to adjacent wetlands and Willow Creek.

- Use pervious surfaces where practicable.
- Control runoff, while ensuring the runoff control measure do not attract wildlife hazardous to aviation.
- Control waste and spoils disposal to prevent contaminating ground and surface water, while not attracting wildlife hazardous to aviation (e.g., control the use of pesticides and herbicides, maintain vegetative buffers to reduce sedimentation and delivery of chemical pollutants to the waterbody).
- Limit ground disturbance to the areas necessary for project-related construction.
- Employ erosion control measures to minimize sedimentation of surface waters.
- Restore vegetation on disturbed areas to prevent soil erosion following project completion.

BMPs to reduce direct impacts to groundwater include, but are not limited to, the following:

- Protect water quality of surface water runoff that may infiltrate into the ground.
- Restore vegetation on disturbed areas to prevent soil erosion following project completion.
- Limit the area of new impervious surfaces to the areas necessary for project-related construction.

In addition to the BMPs outlined above, mitigation measures to satisfy EO 11990 would be accomplished through the purchase of replacement wetlands from private organizations or through an in-lieu fee mitigation option. The Final EA would outline the mitigation measures that the FAA plans to pursue in coordination with TPWD.

4.3 CUMULATIVE IMPACTS

The CEQ regulations implementing the procedural provisions of NEPA of 1969, as amended defines cumulative effects as:

> *"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR Part 1508.7).*

Based on these regulations, if the alternative does not have direct or indirect effects, there can be no cumulative effects resulting from the project because there would be no impacts added to past, present, or reasonably foreseeable actions.

The CEQ regulations also describe cumulative impacts as impacts that "can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR Part 1508.7).

Although the Final PEA indicated that the BIL ATCT Program would not result in cumulative impacts, this EA included a site-specific analysis to confirm that no cumulative impacts would result locally.

Harris County maintains a summary of infrastructure projects completed, in construction, and in design. Most of the anticipated infrastructure improvements within Harris County involve road paving and expansion. The nearest construction project to DWH is the expansion of Hufsmith-Kohrville Road from two lanes to four to improve safety and allow for more traffic (2.75 miles southeast of DWH) (Harris County Commissioner, ND). The current, proposed, and recent county infrastructure improvements would not contribute to cumulative impacts associated with the tower replacement project.

The only known projects proposed at DWH airport at this time are the construction of the DWH ATCT and the demolition of the existing ATCT, which are covered within this EA. No past, present, or reasonably foreseeable actions have occurred recently or are planned to occur now or in the reasonably foreseeable future.

Future plans at the airport aim to develop hangars at the southeast corner of the airport property and realign the runway intersection; however, these projects have not yet been planned or designed. As such, these projects are not reasonably foreseeable and cannot be specifically evaluated as potential cumulative impacts in this EA (Booz Allen Hamilton, 2024b).

4.4 CONCLUSION

This site-specific EA evaluates the existing environment at DWH and analyzes the potential environmental consequences of the Proposed Action. The cumulative impact of the replacement ATCT presented in this EA is not anticipated to result in significant impacts or significant cumulative impacts to either human health or the environment.

SECTION 5 | PUBLIC INVOLVEMENT

The FAA is providing a 508-compliant electronic copy of this Draft EA for review by the public on the following website: https://www.faa.gov/air_traffic/atf. Comments can be submitted to the FAA (Aaron.Comrov@faa.gov). The FAA published a Notice of Availability in the Houston Chronicle on XX DATE to advertise the availability of the EA and allow the public to view the document electronically.

SECTION 6 | LIST OF PREPARERS

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SECTION 7 | REFERENCES

Airports - Worldwide. (2024, April 4). *David Wayne Hooks Memorial Airport*. Retrieved from Airports - Worldwide: https://www.airports-worldwide.com/usa/texas/david_wayne_hooks_memorial_texas.php

BIL ATCT PEA. (2023c). *Final Programmatic Environmental Assessment and Finding of No Significant Impact/Record of Decision for the Bipartisan Infrastructure Law-funded Airport Traffice Control Tower Replacement Program.* Washington, DC: FAA. Retrieved from https://www.faa.gov/air_traffic_atf

Booz Allen Hamilton. (2024, April 9). Existing ATCT at DWH Airport. Booz Allen Hamilton.

Booz Allen Hamilton. (2024a, March 20). Aerial Image of Study Area and Area of Potential Effects (APE). *Aerial Image of Study Area and Area of Potential Effects (APE)*. Booz Allen Hamilton.

Booz Allen Hamilton. (2024b). *DWH ATCT Replacement Site Visit Trip Report.*

Booz Allen Hamilton. (2024c, April 1). Aerial Image of Wetlands and Surface Water Features near DWH Airport. *Aerial Image of Wetlands and Surface Water Features near DWH Airport*. Booz Allen Hamilton.

Bruun, B., Jackson, K., & Lake, P. (2016). *Texas Aquifers Study: Groundwater Quantity, Quality, Flow, and Contributions to Surface Water.* KIP Articles.

Bureau of Land Management. (2024). *BLM National Data*. Retrieved from https://www.arcgis.com/apps/webappviewer/index.html?id=6f0da4c7931440a8a80bfe20eddd7550%20&extent=-125,%2031.0,%20-114,%2043.0

City of Houston. (2006). *Storm Water Management Handbook for Construction Activities.* Houston: Harris County Flood Control District.

EPA. (1977, May 24). Clean Water Act: Protection of Wetlands; EXECUTIVE ORDER No. 11990. USA.

EPA. (2004). *Ecoregions of Texas.* Retrieved from https://gaftp.epa.gov/EPADataCommons/ORD/Ecoregions/tx/tx_eco_lg.pdf

EPA. (2023, September 22). *Ozone Designation and Classification Information*. Retrieved March 26, 2024, from EPA: https://www.epa.gov/green-book/ozone-designation-and-classification-information

EPA. (2024). *National Wetlands Inventory*. Retrieved April 30, 2024, from U.S. Fish & Wildlife Service: https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper

FAA. (2018). *Order 6480.4B: Airport Traffic Control Tower Siting Process.* FAA.

FAA. (2020). *FAA Order 1050.1F Desk Reference.* Retrieved from https://qa-www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref#:~:text=This%20Desk%20Reference%20provides%20explanatory%20guidance%20for%20environmental,%28FAA%29%20Order%201050.1F%20Environmental%2

FAA. (2021). *ATO-Terminal ATCT & TRACON Facility Design Types - Executive Reference Guide.* FAA.

FAA. (2022). *David Wayne Hooks Memorial Airport (DWH) ATCT ATFIL 1 Meeting Minutes.*

FAA. (2023a, December 12). *Know Before You Go - DWH*. Retrieved from https://www.faa.gov/dwh

FAA. (2023b). *DWH Airport Traffic Control Tower Siting Report .* Tomball: FAA.

FAA. (2024, April 4). *David Wayne Hooks (DWH) Memorial Airport*. Retrieved from FAA: https://www.faa.gov/dwh

FAA. (n.d. (a)). *Bipartisan Infrastructure Law - Air Traffic Facilities*. Retrieved from Federal Aviation Administration: www.faa.gov/bil/air-traffic-facilities

Federal Register. (2007). *Federal Presumed to Conform Actions Under General Conformity.* Federal Register.

FEMA. (2024, January). *National Flood Hazard Layer*. Retrieved from FEMA's National Flood Hazard Layer (NFHL) Viewer: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

Gill Aviation. (2024). *Dead Animals/Wildlife Mitigation SOP.* Retrieved April 04, 2024

Google Earth. (2024, January). *https://earth.google.com/web/*.

Harris County Commissioner. (ND). *Infrastructure Projects*. Retrieved from Harris County Precinct 3 Commissioner: https://www.pct3.com/Services/Infrastructure-Projects#dnn_ctr49784_dnnTITLE_titleLabel

Jacobs. (2024b). *Aquatic Features Delineation Report.* Spring: Jacobs.

Jacobs Engineering Group, Inc. (2024a). *No Further Archaeological Study Required for David Wayne Hooks Memorial Airport (DWH) Air Traffic Control Tower (ATCT) Determination/Memo to File.* Dallas, TX: Jacobs Engineering Group, Inc.

Johnson, P. (2015). *Hooks Airport Celebrates 50 Years of Service*. Retrieved from Houston Chronicle: https://texashistory.unt.edu/ark:/67531/metapth875810/m1/122

Kirk, B. (2014). *Water landings are routine events at Hooks Airport.* Retrieved from Houston Chronicle: https://www.chron.com/neighborhood/spring/news/article/Water-landings-are-routine-events-at-Hooks-Airport-5669556.php.

National Wild and Scenic Rivers System. (2024, January). *Find a River*. Retrieved from National Wild and Scenic Rivers System: https://www.rivers.gov/map

Nationwide Environmental Title Research, LLC. (2024). *Historic Aerials*. Retrieved from historicaerials.com

NOAA. (2021, July 22). *Essential Fish Habitat Mapper*. Retrieved April 30, 2024, from NOAA Fisheries: https://www.habitat.noaa.gov/apps/efhmapper/?data_id=dataSource_1-17aaba05881-layer-6-EFH_1%3A3&page=page_1&views=view_8

NPS. (1997). *How to Apply the National Register Criteria for Evaluation.* Retrieved January 18, 2023, from NPS: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf

NPS. (2020). *National Register of Historic Places Database*. Retrieved from National Park Service: https://www.nps.gov/articles/nr_digitization.htm

TCEQ. (2023, October 13). *Houston-Galveston-Brazoria: Current Attainment Status*. Retrieved May 20, 2024, from Texas Commission on Environmental Quality: https://www.tceq.texas.gov/airquality/sip/hgb/hgb-status

TCEQ. (2023). *Stormwater General Permit for Construction Activities Factsheet.*

Texas Historical Commission. (2024). *Map*. Retrieved from Texas Historic Sites Atlas: https://atlas.thc.state.tx.us/Map

Texas Invasives. (ND). *Invasives Database*. Retrieved June 21, 2024, from Texas Invasives: https://www.texasinvasives.org/invasives_database/

Texas Parks and Wildlife Department. (2023, September 1). *Texas Parks and Wildife.* Retrieved April 17, 2024, from Rare, Threatened, and Endangered Species of Texas by County: https://tpwd.texas.gov/gis/rtest/

The Texas General Land Office. (NA). *GIS Maps & Data*. Retrieved April 30, 2024, from The Texas General Land Office: https://www.glo.texas.gov/land/land-management/gis/

Tomball Area Diamond Jubilee, Inc. (1982). *A Tribute to Tomball: A Pictorial HIstory of the Tomball Area.* Tomball, TX: Tomball Area Diamond Jubilee, Inc. Retrieved from https://texashistory.unt.edu/ark:/67531/metapth875810/m1/122

TxDOT. (2018). *Texas Department of Transportation Stormwater Management Program.* Austin: TxDOT.

University of Georgia. (2024). *EDD MapS.* Athens: Center for Invasive Species and Ecosystem Health.

USDA. (2024). *Natural Resources Conservation Service*. Retrieved from Web Soil Survey: https://websoilsurvey.nrcs.usda.gov/app/

USDA. (n.d.). *Monarch Butterfly Habitat Needs*. Retrieved October 3, 2023, from United States Department of Agriculture, US Forest Service: https://www.fs.usda.gov/wildflowers/pollinators/Monarch_Butterfly/habitat/

USDA NRCS. (2024a, July 01). *Web Soil Survey*. Retrieved from Natural Resources Conservation Service: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

USFWS. (2007, February 29). *Eagle Management*. Retrieved from https://www.fws.gov/program/eagle-management/working-around-eagles

USFWS. (2022, August 29). *Prarie Dawn*. Retrieved April 17, 2024, from US Fish and Wildlife Serivce: https://www.fws.gov/species/prairiedawn-hymenoxys-texana

USFWS. (2022). *Tricolored Bat*. Retrieved April 30, 2024, from U.S. FIsh & Wildlife Service: https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus

USFWS. (2024). *Eastern Black Rail*. Retrieved from FWS Focus: https://www.fws.gov/species/eastern-black-rail-laterallus-jamaicensis-jamaicensis

USFWS. (2024a, February). *Information for Planning and Consultation*. Retrieved from IPaC: https://ipac.ecosphere.fws.gov/

USFWS. (2024c). *Threatened and Endangered Species List.*

USGS. (2022, March 9). *USGS*. Retrieved from Earthquake Hazards - Introduction National Seismic Hazard Maps: https://www.usgs.gov/programs/earthquake-hazards/science/introduction-national-seismic-hazard-maps

USGS. (2023). *Texas Gulf Coast Groundwater and Land Subsidence*. Retrieved April 30, 2024, from USGS: https://txpub.usgs.gov/houston_subsidence/

XO. (2024, April 4). *David Wayne Hooks Memorial Airport*. Retrieved from Fly XO: https://flyxo.com/airport/kdwh/

APPENDIX A | FEDERALLY LISTED SPECIES REPORTS FOR HARRIS COUNTY AND THE STUDY AREA

This appendix contains the list of threatened, endangered, candidate, or species under review by the U.S. Fish and Wildlife Service for Harris County, Texas. Appendix A also provides site-specific species list, critical habitat, migratory birds, and other information.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal & Central Plains Eso
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
Phone: (281) 286-8282 Fax: (281) 488-5882

In Reply Refer To:
Project Code: 2024-0045728
Project Name: FAA DWH ATCT Project

February 06, 2024

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Corpus Christi, Arlington, and Alamo, Texas, have combined administratively to form the Texas Coastal Ecological Services Field Office. All project related correspondence should be sent to the field office address listed below responsible for the county in which your project occurs:

Project Leader; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058
Angelina, Austin, Brazoria, Brazos, Chambers, Colorado, Fayette, Fort Bend, Freestone, Galveston, Grimes, Hardin, Harris, Houston, Jasper, Jefferson, Leon, Liberty, Limestone, Madison, Matagorda, Montgomery, Newton, Orange, Polk, Robertson, Sabine, San Augustine, San Jacinto, Trinity, Tyler, Walker, Waller, and Wharton.

Assistant Field Supervisor, U.S. Fish and Wildlife Service; 4444 Corona Drive, Ste 215; Corpus Christi, Texas 78411
Aransas, Atascosa, Bee, Brooks, Calhoun, De Witt, Dimmit, Duval, Frio, Goliad, Gonzales, Hidalgo, Jackson, Jim Hogg, Jim Wells, Karnes, Kenedy, Kleberg, La Salle, Lavaca, Live Oak, Maverick, McMullen, Nueces, Refugio, San Patricio, Victoria, and Wilson.

U.S. Fish and Wildlife Service; Santa Ana National Wildlife Refuge; Attn: Texas Ecological Services Sub-Office; 3325 Green Jay Road, Alamo, Texas 78516
Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata.

For questions or coordination for projects occurring in counties not listed above, please contact arles@fws.gov.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your

proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/media/endangered-species-consultation-handbook.

Non-Federal entities may consult under Sections 9 and 10 of the Act. Section 9 and Federal regulations prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR § 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR § 17.3) as intentional or negligent actions that create the likelihood of

injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Should the proposed project have the potential to take listed species, the Service recommends that the applicant develop a Habitat Conservation Plan and obtain a section 10(a)(1)(B) permit. The Habitat Conservation Planning Handbook is available at: https://www.fws.gov/library/collections/habitat-conservation-planning-handbook.

Migratory Birds:
In addition to responsibilities to protect threatened and endangered species under the Act, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts visit: https://www.fws.gov/program/migratory-birds.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable National Environmental Policy Act (NEPA) documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal & Central Plains Eso
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(281) 286-8282

PROJECT SUMMARY

Project Code: 2024-0045728
Project Name: FAA DWH ATCT Project
Project Type: Airport - New Construction
Project Description: Feasibility study of the relocation of an air traffic control tower
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@30.06590655,-95.5554602992874,14z

Counties: Harris County, Texas

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: • Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. This species only needs to be considered under the following conditions: • Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

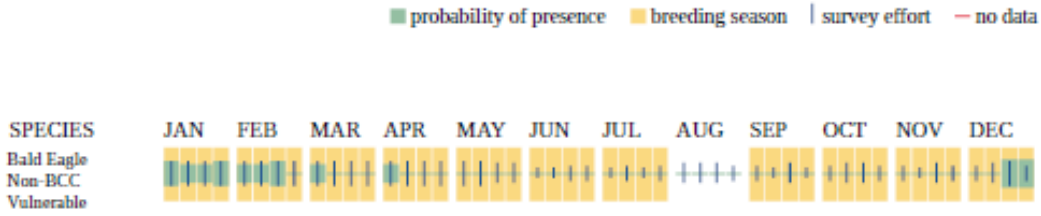
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE

Project code: 2024-0045728 02/06/2024

SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9427	Breeds Mar 1 to Jul 15
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Henslow's Sparrow *Ammodramus henslowii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds elsewhere
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9443	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31

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NAME	BREEDING SEASON
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Swallow-tailed Kite *Elanoides forficatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8938	Breeds Mar 10 to Jun 30
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

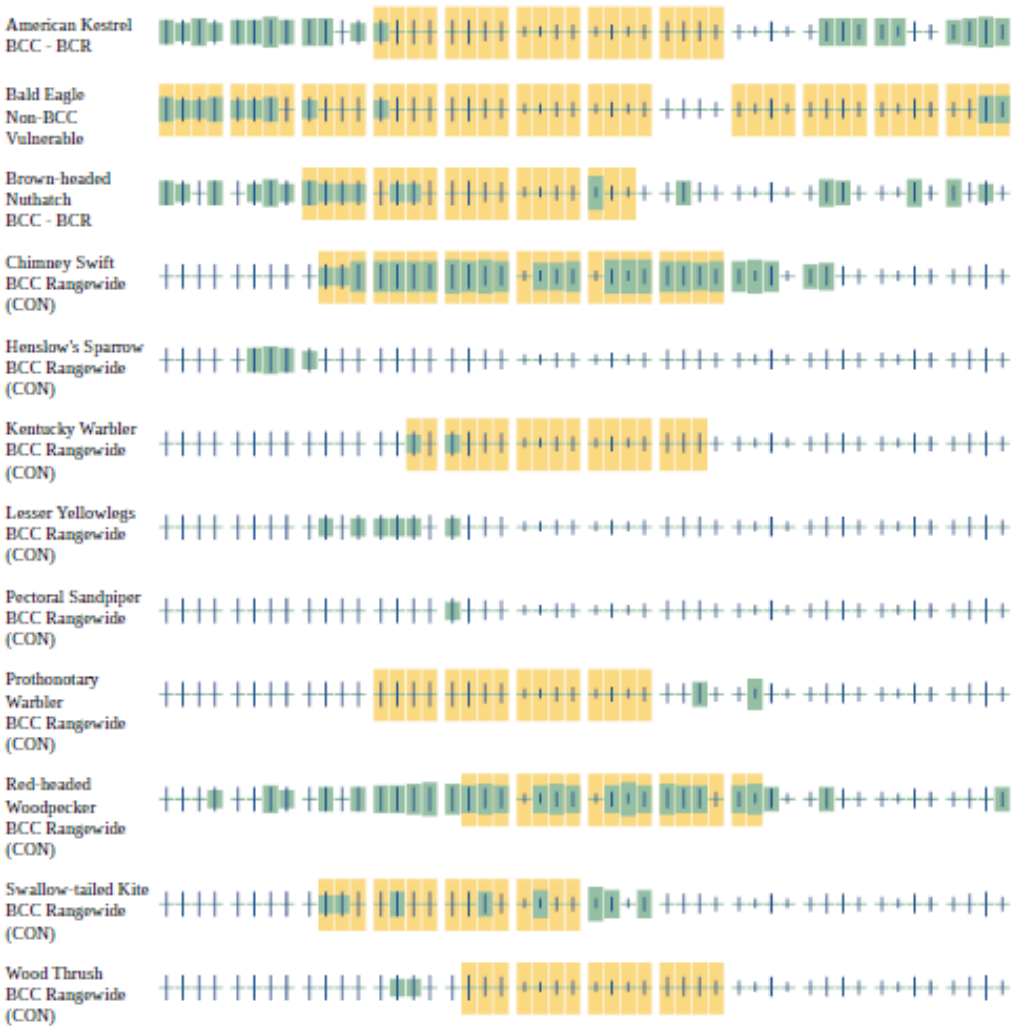
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPAC USER CONTACT INFORMATION

Agency: Jacobs Engineering Group
Name: Kelly Velligan
Address: 818 Town & Country Blvd., Suite 500
Address Line 2: 500
City: Houston
State: TX
Zip: 77024
Email kelly.velligan@jacobs.com
Phone: 7139722478

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration
Name: David Hull

APPENDIX B | SHPO CONCURRENCE

From: noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Sent: Monday, June 17, 2024 9:45 AM
To: Kiel, Lindsay <Lindsay.Kiel@jacobs.com>; reviews@thc.state.tx.us
Subject: [EXTERNAL] David Wayne Hooks Memorial Airport (DWH) Airport Traffic Control Tower (ATCT)

Re: Project Review under Section 106 of the National Historic Preservation Act
THC Tracking #202410538
Date: 06/17/2024
David Wayne Hooks Memorial Airport (DWH) Airport Traffic Control Tower (ATCT)
9125 Boudreaux Road
Description: FAA has requested that we receive THC concurrence that no additional archaeological survey is required since no pimple mounds are located within or adjacent to the project area. The attached memo was drafted summarizing initial THC consultation.
Dear Lindsay Kiel:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff, led by Justin Kockritz and Emily Dylla, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

Archeology Comments

- No historic properties affected. However, if cultural materials are encountered

during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: justin.kockritz@thc.texas.gov, emily.dylla@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Bradford Patterson
Chief Deputy State Historic Preservation Officer
Please do not respond to this email.

APPENDIX C | USACE REQUEST FOR JURISDICTIONAL DETERMINATION AND CONCURRENCE

REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD) or "NO PERMIT REQUIRED" VERIFICATION (NPR)

Send to: *Regulatory Division, Compliance Branch, 2000 Fort Point Road, Galveston, Texas 77550*

I am requesting a JD or NPR on property located at: 9125 Boudreaux Road, Tomball, Texas 77375
(Street Address)

City/Township/Parish: Tomball County: Harris State: TX
Acreage of Parcel/Review Area for JD: 5.10 ac.
Latitude (decimal degrees): 30.065336° Longitude (decimal degrees): -95.555847°
(For linear projects, please include the center point of the proposed alignment.)
*** Require also a survey/plat map and/or a vicinity map identifying location & boundaries of subject parcel.***

_____ I currently own or lease this property/parcel.
_____ I plan to purchase this property/parcel & have approval from the landowner; or under contract for finalizing the purchase of the parcel.
__X__ I am an agent/consultant acting on behalf of the requester & approval from the landowner.
_____ Other (please explain): _____

Reason for this request: (*check as many as applicable*)
___ I intend to construct/develop a project and/or perform activities on this parcel and this request is *accompanied by my permit application* and the JD is to be used in the permit evaluation process. (**PJD and/or AJD**)
___ I intend to construct/develop a project and/or perform activities in or effecting a "*navigable water of the U.S.*" (**PJD or AJD**)
_X_ A Corps response (JD or NPR) is *required prior to obtaining local/state authorization and/or associated resource funding*. (**PJD or AJD**)
___ I intend to construct/develop a project and/or perform activities on this parcel which would be *designed to avoid all aquatic resources*. (**AJD and/or PJD**)
___ I intend to construct/develop a project and/or perform activities on this parcel which would be *designed to avoid all jurisdictional aquatic resources under Corps authority*. (**AJD**)
___ I intend to *contest jurisdiction* over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel. (**AJD**)
___ I believe that the site may be *comprised entirely of dry land*. (**AJD**)
___ Other: _____

Type of jurisdictional determination (JD) or a no permit required verification (NPR) being requested:
___ I am requesting an approved jurisdictional determination (**AJD**).
_X_ I am requesting a preliminary jurisdictional determination (**PJD**).
___ I am requesting a NPR letter as I believe my proposed activity is not regulated. (**NPR**)
___ I am unclear as to what I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the legal authority, or are acting as the duly authorized agent of a person(s) or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the action requested. Your signature shall be an affirmation that you possess the requisite property rights to request such action on the subject property (or properties).

Signature: _____ Date: _____
Typed or Printed Name: _____
Mailing Address: _____
_____
Daytime Phone Number: _____ Email Address: _____

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above and/or if a Department of the Army Permit is required for a proposed action.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be finalized.

David Wayne Hooks Memorial Airport (DWH), Air Traffic Control Tower (ATCT) Project
Harris County, Texas

Aquatic Features Delineation Report

January 2024

Federal Aviation Administration

David Wayne Hooks Memorial Airport, Air Traffic Control Tower Project, Harris County, Texas

Project No: D3286023
Document Title: Aquatic Features Delineation Report
Date: January 2024
Client Name: Federal Aviation Administration (FAA)
Project Manager: Dominador Tirona
Author: Kelly Velligan

Jacobs Engineering Group Inc.

818 Town and Country Blvd, Suite 500
Houston, Texas 77024
United States
T +1 (281)-721-8400
www.jacobs.com

Executive Summary

The Federal Aviation Administration (FAA) is evaluating the construction of a new Air Traffic Control Tower (ATCT), for the David Wayne Hooks Memorial Airport (DWH).

A total of four (4) wetlands (0.585-acre total) were identified within the survey boundary. This report describes delineated aquatic resources, provides a site vicinity map, a National Wetlands Inventory (NWI) map, a Federal Emergency Management Agency (FEMA) Floodplain map, a soils map, an aquatic features delineation map, a list of plants identified within the survey boundary, and representative site photographs.

Contents

Acronyms and Abbreviations

ATCT	Airport Traffic Control Tower
DFIRM	Digital Flood Insurance Rate Map
DWH	David Wayne Hooks Memorial Airport
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
HUC	Hydrologic Unit Code
Jacobs	Jacobs Engineering Group Inc.
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PEM	Palustrine emergent wetland
Project	David Wayne Hooks Memorial Airport, Air Traffic Control Tower Project
PSS	Palustrine scrub-shrub wetland
ROW	Right-of-way
SSURGO	Soil Survey Geographic Database
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1. Introduction

This report presents the findings of the aquatic resources delineation conducted on behalf of the Federal Aviation Administration (FAA) for a new Airport Traffic Control Tower (ATCT) at the David Wayne Hooks Memorial Airport (DWH) in Harris County, Texas.

The DWH Airport is a medium-sized airport near the city of Tomball in unincorporated Harris County, Texas. The airport is located 23 miles northwest of Houston's central business district and about 10 miles northwest of George Bush International Airport in Houston. The FAA is conducting a feasibility study for the new ATCT to replace the existing tower. The project site is located just south of the existing ATCT parking lot.

The aquatic resources survey boundary (5.10 acres; survey boundary) includes an access road extension and the new control tower location right-of-way (ROW), which both were given buffers for the environmental study. The access road has a 50-foot (ft) buffer spanning from the centerline (100 ft wide in total) and the control tower relocation area had a 25-ft buffer from the original construction boundary. The landscape surrounding the Project consists of forests, maintained ROW, residential, and developed industrial areas.

This report identifies and describes aquatic resources within the survey boundary in support of Clean Water Act Sections 401 and 404 permitting. This report facilitates the following efforts:

1) Avoiding or minimizing impacts to aquatic resources during the design process
2) Documenting aquatic resource survey boundary determinations for review by regulatory authorities

The delineation results and conclusions presented in this report are considered preliminary, pending verification by the USACE Regulatory Branch.

2. Location

The Project is located within the DWH Memorial Airport property in the city of Tomball, Harris County, Texas (Figure 1, Appendix A). The construction of the new control tower would be located just south of the existing ATCT. The Project area is located within the U.S. Geological Survey (USGS) 7.5-minute Tomball, Texas quadrangle within the Spring watershed (Hydrologic Unit Code [HUC] 12040102).

The Project area is near Tomball, Texas, and can be accessed as follows:

- From State Highway 249 in Tomball, heading south, exit onto Grand Parkway (SH 99), heading west for 3.25 miles. Take exit for Farm to Market (FM) 2920 and turn right onto Imco or Boudreaux Road. The access road for the Project area starts at the end of this street, where the existing Control Tower is located.

Access to the Project survey boundary and ROW may be obtained by contacting David Hull (Lead Engineer, ASW Terminal Engineering Center), FAA point of contact (POC) at (817) 222 - 4111 or by email (David.Hull@FAA.gov).

3. Methods

Jacobs scientists conducted an aquatic resources field survey on January 29, 2024. The field survey was limited to the survey boundary (5.10 acres) that corresponds with FAA's proposed ROW boundary for the Project. The following subsections describe the field sampling procedures and methods used to determine and map aquatic resources within the survey boundary. Site-specific information reviewed during the pre-field investigation and collected during, or produced from, the field survey is provided in the appendices and figures. The following appendices and figures are provided:

Appendix A Figures

Appendix B Site Photographs

Appendix C List of Plant Species Observed

Appendix D Wetland Determination Data Form

3.1 Pre-field Investigation

General information on climate, vegetation, soils, hydrology, and existing wetlands was reviewed before the field survey. Data sources included USGS topographic maps, National Wetlands Inventory (NWI) maps (U.S. Fish and Wildlife Service [USFWS], 2024 and National Hydrography Dataset (NHD) maps (USGS, 2023), Digital Flood Insurance Rate Maps (DFIRM) (Federal Emergency Management Agency [FEMA], 2020), regional and local precipitation records, and Web Soil Survey (U.S. Department of Agriculture [USDA]- Natural Resources Conservation Service [NRCS], 2022).

3.2 Field Survey

3.2.1 Method for Delineating Wetlands

The survey method for identifying wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* (USACE, 2010). These methods use three criteria (vegetation, soils, and hydrology) to determine the presence of wetlands.

Wetland hydrology was determined from direct observation of soil saturation and inundation or other indicators.

At each sample point, plant species were identified, and percent cover was visually estimated and recorded. Dominant plant species included the most abundant species whose cumulative cover accounted for more than 50 percent of the total cover, as well as any one species that accounted for at least 20 percent of the total vegetative cover. Strata that contained less than five (5) percent cover were not considered in the dominance test. The wetland indicator status for plant species was determined using the National Wetland Plant List (USACE, 2020).

Soil characterization was determined from direct observation of soils between 0 and 16 inches below ground surface.

Onsite photographs, a list of plant species observed, and the wetland determination data forms can be seen in Appendix B, C, and D, respectively.

Aquatic resources within the survey boundary were mapped using Trimble Geo 7X series global positioning systems with sub-meter accuracy.

4. Existing Conditions and Results

4.1 Vegetation and Land Use

The Project is located in the Northern Humid Gulf Coastal Prairies of the Western Gulf Coastal Plain Ecoregion of Texas (Griffith et al., 2004). The physiography of the Northern Humid Gulf Coast Prairies is typified by mostly flat, gently sloping coastal plains dominated by converted cropland, rangeland, pasture, or urban land uses. Due to the low relief caused by a mostly flat landscape, and clay subsoils, drainage is generally poor and soils remain wet throughout parts of the year. Soil texture in this ecoregion varies, but tends to be fine-textured, with clay, clay loam, or sandy clay loam. The exotic Chinese tallow tree (*Triadica sebifera*) and Chinese privet (*Ligustrum sinense*) have invaded large areas in this region. Some loblolly pine (*Pinus taeda*) occurs in the northern part of the region. Small patches of the original vegetation may still exist. These patches may be dominated by small patches of oaks (*Quercus spp.*) with little bluestem (*Schizachyrium scoparium*), yellow indiangrass (*Sorghastrum nutans*), brownseed paspalum (*Paspalum plicatulum*), gulf muhly (*Muhlenbergia capillaris*), and switchgrass (*Panicum virgatum*). Soils within this ecoregion are mostly fine-textured: clay, clay loam, or sandy clay loam (Griffith et al., 2004).

The Project is situated mostly within and adjacent to residential, agricultural, and developed industrial areas. The USFWS NWI data indicates the potential for aquatic resources throughout the survey boundary (USFWS, 2024).

4.2 Soils

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maintains an online Web Soil Survey database (USDA-NRCS, 2022). The data provided in the Web Soil Survey provides a good basis for the soil textures and types expected to be found at a particular delineation area. NRCS-mapped soil types at the Project area were reviewed to determine which of the soils exhibit hydric characteristics. NRCS-mapped soil types are assigned a hydric indicator status of “hydric” or “non-hydric”. NCRS soil data was reviewed to evaluate the mapped soils within the Project area. These data sources indicate the Project is underlain by the Segno-Urban land complex, 1 to 3 percent slopes and the Splendora-Urban land complex, 0 to 2 percent slopes.

Soil types and their respective distributions within the survey boundary are included in Appendix A, Figure 4. Brief descriptions of each soil type within the survey boundary as described in the Web Soil Survey online database are provided in the following subsections (USDA-NRCS, 2022).

4.2.1 Segno-Urban land complex, 1 to 3 percent slopes

The Segno-Urban land complex, 1 to 3 percent slopes consist of two major soil types: The Segno series consists of very deep, well drained soils that formed in loamy fluviomarine deposits of Pleistocene age. Slopes range from 1 to 5 percent. This soil series is listed as not hydric on the USDA Soil Survey Geographic Database (SSURGO) soils database (USDA-NRCS, 2022). Urban land soil series has no data available.

4.2.2 Splendora-Urban land complex, 0 to 2 percent slopes

The Splendora-Urban land complex, 0 to 2 percent slopes consists of two major soil types. The Splendora series consists of very deep, moderately well to somewhat poorly drained soils that formed in loamy fluviomarine deposits of Pleistocene age. Slope ranges from 0 to 2 percent. This soil series is listed as not hydric in the USDA SSURGO soils database (USDA-NRCS, 2022). Urban land soil series has no data available.

4.3 Hydrology

The Project is located within the Spring watershed (HUC 12040102) (USGS, 2020). The Project area does not cross within any regulatory floodways, 100-year floodplains, or 500-year floodplains (Figure 3, Appendix A) (FEMA, 2020). Local hydrology is heavily influenced by runoff from roadsides.

4.4 Aquatic Resources

Four (4) wetlands were identified during the aquatic resources delineation field surveys conducted January 29, 2024. Each aquatic resource is described in the following subsections and summarized in Table 4-1. An aquatic resources delineation map is included as Figure 5 in Appendix A. Corresponding photographs are included in Appendix B. Wetland Determination Data Form sheets are included in Appendix D, respectively.

4.5 Wetlands

Four (4) areas met the three mandatory criteria for wetlands (hydrophytic vegetation, hydrology, and hydric soils) as outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). These wetland areas are summarized in Table 4-1, described in detail below, and photographed in Appendix B.

Table 4-1. Aquatic Resources Delineation Summary

Count	ID	Cowardin Classification[a]	Acreage within Survey Boundary[b]	Jurisdictional Status[c]
1	WDP01_PEM	Palustrine Emergent Wetland (PEM)	0.018	Non-Jurisdictional
	WDP01_PSS	Palustrine Scrub-Shrub Wetland (PSS)	0.039	Non-Jurisdictional
2	WDP02_PEM	Palustrine, Emergent, Persistent, Seasonally Flooded (PEM1C)	0.481	Non-Jurisdictional
3	WDP03_PEM	Palustrine Emergent Wetland (PEM)	0.047	Non-Jurisdictional
		TOTAL	0.585	

[a] Cowardin, 1979.
[b] Acreage rounded to the nearest 0.01 acre.
[c] Jurisdictional status is the opinion of the Jacobs investigator and should be considered preliminary until concurrence by USACE is obtained.

The following are descriptions for each wetland identified within the survey boundary. Wetland photographs are included in Appendix B.

1. WDP01_PEM is a palustrine emergent wetland (PEM). Hydrology indicators included surface water (A1), saturation (A3), and geomorphic position (D2). Vegetation observed within the sample plot was dominated by Chinese tallow, sand spikerush (*Eleocharis montevidensis*), tall flatsedge (*Cyperus eragrostis*), and common rush (*Juncus effusus*). Vegetation met the dominance test and prevalence index indicators. The soil profile at the sample plot consisted of 10YR 4/2 silt clay loam with 5 percent abundance of 10YR 5/8 concentrations in the matrix from 0 to 16 inches. The soil profile at the sample plot meets the hydric soil indicator of depleted matrix (F3).
2. WDP01_PSS is a palustrine scrub-shrub wetland (PSS). Hydrology indicators included surface water (A1), saturation (A3), water-stained leaves (B9), and geomorphic position (D2). Vegetation observed within the sample plot was dominated by Chinese tallow and tall flatsedge. Vegetation met the dominance test and prevalence index indicators. The soil profile at the sample plot

consisted of 10YR 3/2 silty clay loam with 10 percent abundance of 10YR 5/8 concentrations in the matrix from 0 to 16 inches. The soil profile within the sample plot meets the hydric soil indicator of redox dark surface (F6).

3. WDP02_PEM is a palustrine, emergent, persistent, seasonally flooded wetland (PEM1C). Hydrology indicators included surface water (A1), saturation (A3), inundation visible on aerial imagery (B7), and geomorphic position (D2). Vegetation observed within the sample plot was dominated by spinyfruit buttercup (*Ranunculus muricatus*) and tall flatsedge. Vegetation met the rapid test, dominance test, and prevalence index indicators. The soil profile at the sample plot consisted of 10YR 4/2 silty clay with 15 percent abundance of 10YR 5/8 concentrations in the matrix from 0 to 16 inches. The soil profile within the sample plot meets the hydric soil indicator of depleted matrix (F3).
4. WDP03_PEM is a palustrine emergent wetland (PEM). Hydrology indicators included surface water (A1), saturation (A3), crayfish burrows (C8), and geomorphic position (D2). Vegetation observed within the sample plot was dominated by Chinese tallow, sand spikerush, tall flatsedge, and common rush. Vegetation met the dominance test and prevalence index indicators. The soil profile at the sample plot consisted of 10YR 4/3 silty clay with no redox from 0 to 3 inches, and then 10YR 4/2 silty clay with 10 percent abundance of 10YR 5/8 concentrations in the matrix from 3 to 18 inches. The soil profile within the sample plot meets the hydric soil indicator of depleted matrix (F3).

4.6 Uplands

Upland areas within the survey boundary included existing maintained ROW and agricultural field. Dominant species within herbaceous areas surveyed included Bermudagrass (*Cynodon dactylon*), smut grass (*Sporobolus indicus*), and common chickweed (*Stellaria media*). Soils in upland areas ranged from silty clay, silty clay loam, and clay loam, and sometimes included imported material such as gravel. Wetland hydrology indicators were rarely met within upland areas surveyed. Secondary hydrology indicators including crayfish burrows (C8) and geomorphic position (D2) were documented. In all cases, uplands observed lacked at least one or two of the three parameters necessary to indicate an area is a wetland.

5. References

Cowardin L.M., V.C. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States/Riverine System.* U.S. Fish and Wildlife Service Office of Biological Services. Jamestown, North Dakota: Northern Prairie Wildlife Research Center Online. Accessed January 2024.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Federal Emergency Management Agency (FEMA). October 15th, 2020. *FEMA Flood Map Service Center*. Accessed January 2024. https://msc.fema.gov/portal.

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. (2 sided color poster with map, descriptive text, and photographs). U.S. Geological Survey, Reston, VA. Scale 1:2,500,000.

Munsell® Soil Color Charts. 2022. Munsell soil color charts: with genuine Munsell color chips. Grand Rapids, MI: Munsell Color.

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter No. 05-05. SUBJECT: Ordinary High Water Mark Identification.

U.S. Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0).* Vicksburg, Mississippi: U.S. Army Corps of Engineers Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE). 2020. National Wetland Plant List, version 3.5. http://wetland-plants.usace.army.mil/. Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 2022. Web Soil Survey. Accessed January 2024. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

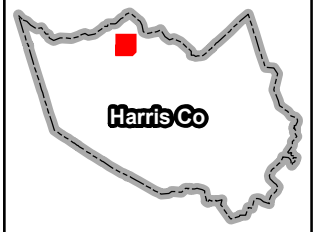
U.S. Geological Survey (USGS). 2020. *Science in Your Watershed*. Accessed January 2024. https://water.usgs.gov/wsc/map_index.html.

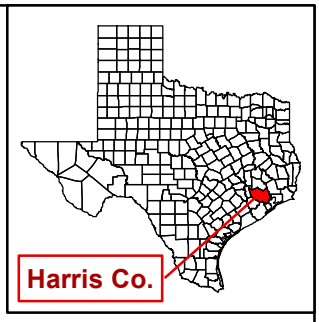
U.S. Fish and Wildlife Service (USFWS). 2024 *National Wetlands Inventory*. Accessed January 2024. http://www.fws.gov/wetlands/.

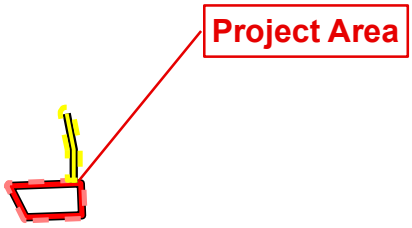
U.S. Geological Survey (USGS). 2023. National Hydrography Dataset. Accessed January 2024. http://nhd.usgs.gov/.

Appendix A
Figures

Document Path: C:\Users\shashyss\OneDrive - Jacobs\Desktop\FAA Spring\GIS\WOUS\FAA Spring_Figure 01_Location Map.mxd







Legend

- Project Area
- Project Area Buffer (25')
- Proposed Access Road Centerline
- Access Road Buffer (50')
- DWH Memorial Airport

FAA DWH ATCT

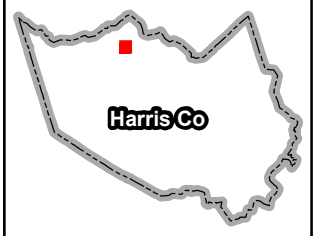
Spring, Harris Co., Texas

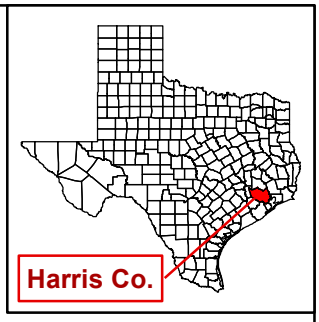
Figure 01 - Site Vicinity Map

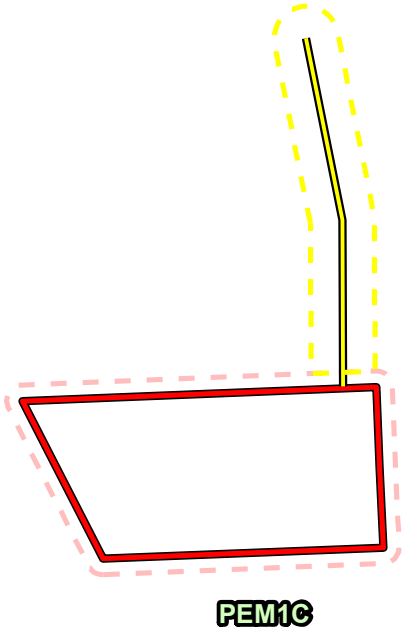
0 750 1,500 3,000 Feet

N W E S

Document Path: C:\Users\shashyss\OneDrive - Jacobs\Desktop\FAA Spring\GIS\WOUS\FAA Spring_Figure 02_NWI Map.mxd







Legend

- Project Area
- Project Area Buffer (25')
- Proposed Access Road Centerline
- Access Road Buffer (50')
- NWI Wetlands

FAA DWH ATCT

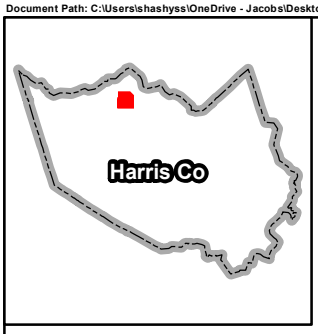
Spring, Harris Co., Texas

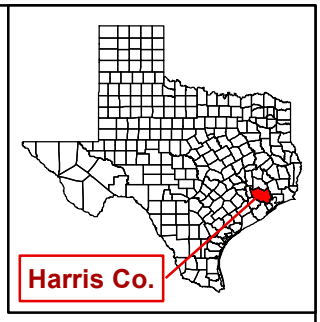
Figure 02 - NWI Map

0 150 300 600 Feet

N W E S

Document Path: C:\Users\shashyss\OneDrive - Jacobs\Desktop\FAA Spring\GIS\WOUS\FAA Spring_Figure 03_FEMA Map.mxd





M114-00-00

Unnamed Lake

Unnamed Lake

Unnamed Lake

Unnamed Lake

K133-07-00

Legend

- Project Area
- Project Area Buffer (25')
- Proposed Access Road Centerline
- Access Road Buffer (50')
- Streams (FEMA)
- 100-yr Floodplain (FEMA)

FAA DWH ATCT

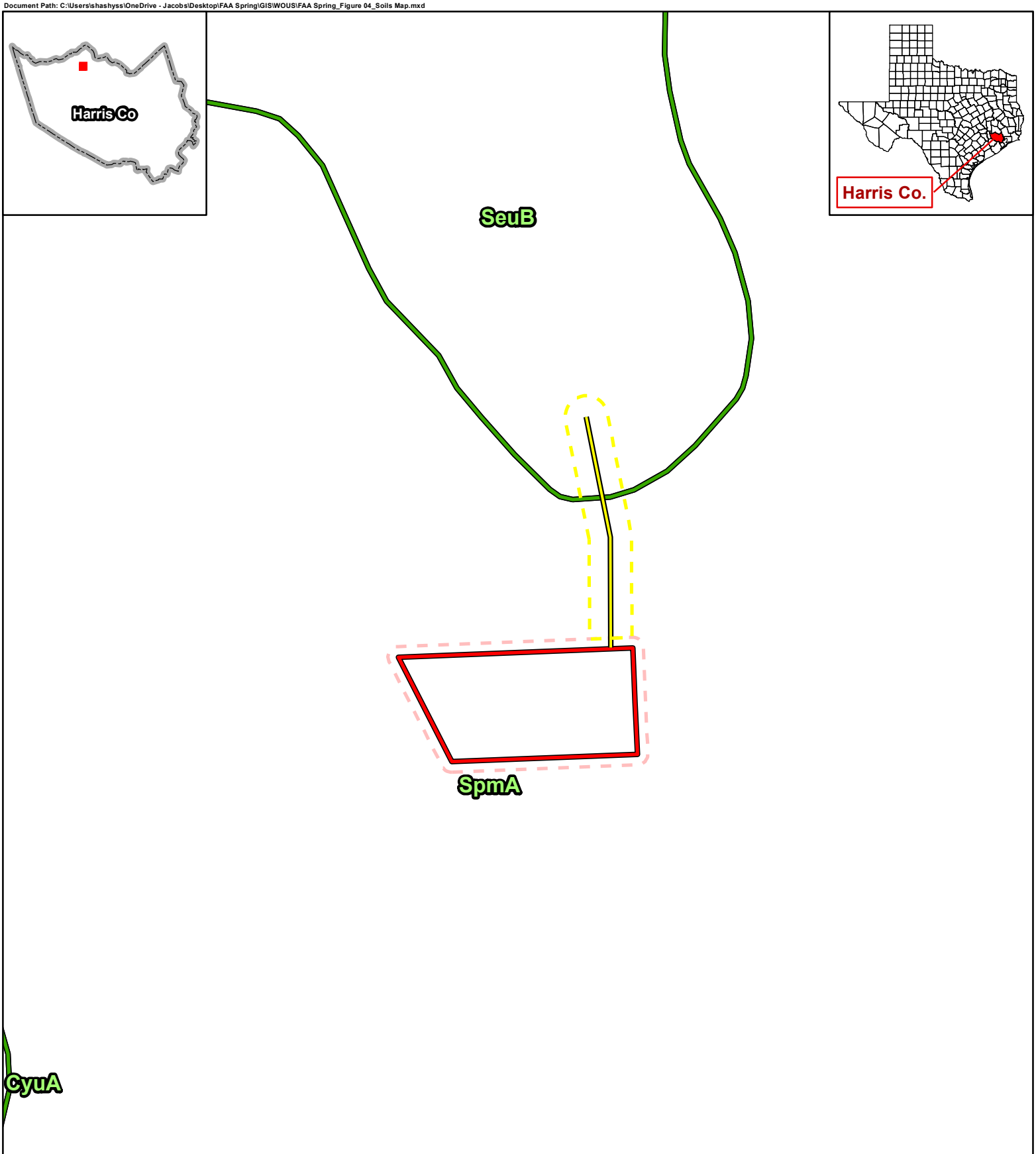
Spring, Harris Co., Texas

Figure 03 - FEMA Map

0 400 800 1,600 Feet

N W E S

Document Path: C:\Users\shashyss\OneDrive - Jacobs\Desktop\FAA Spring\GIS\WOUS\FAA Spring_Figure 04_Soils Map.mxd



Legend

- Project Area
- Project Area Buffer (25')
- Proposed Access Road Centerline
- Access Road Buffer (50')
- Non-hydric Soils

FAA Spring

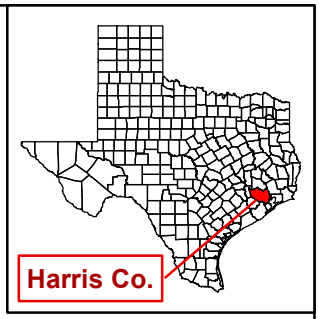
Spring, Harris Co., Texas

Figure 04 - NRCS Soils Map

0 150 300 600 Feet

N W E S

Document Path: C:\Users\shashyss\OneDrive - Jacobs\Desktop\FAA Spring\GIS\WOUS\FAA Spring_Figure 05_Delineation Map.mxd



PEM03
Emergent
0.047 ac.

SP03

PSS01
Shrub-Scrub
0.039 ac.

WDP03_PEM

WDP01_PSS

WDP01_PEM

WDP01_UP

PEM01
Emergent
0.018 ac.

SP03

WDP03_PEM

WDP01_PEM

SP01

SP02

WDP02_PEM

WDP02_UP

PEM02
Emergent
0.481 ac.

Aerial Imagery Date: 5/9/2022

Legend

- Project Area
- Project Area Buffer (25')
- Proposed Access Road Centerline
- Access Road Buffer (50')
- Sampling Point
- PSS Wetland
- PEM Wetland

FAA DWH ATCT

Spring, Harris Co., Texas

Figure 05 - Delineation Map

0 75 150 300 Feet

N W E S

Appendix B
Site Photographs

Appendix B – Site Photographs

Photograph 1. View of an upland area, SP01, within the ag field. View is facing south. Photo taken January 29th, 2024. (30.065523, -95.555478)

Photograph 2. View is of an upland area, SP02. View is within the ag field, facing southwest. Photo taken January 29th, 2024. (30.065374, -95.556640)

Photograph 3. View is of an upland area, SP03. View is within the existing ATCT location, facing south towards the ag field. Photo taken January 29th, 2024. (30.066890, -95.555587)

Photograph 4. View is of emergent wetland, PEM01. View is facing west. Photo taken January 29th, 2024. (30.066550, -95.555594)

Photograph 5. View of scrub-shrub wetland, PSS01, located just north of PEM01. View is facing west. Photo taken January 29th, 2024. (30.066595, -95.555606)

Photograph 6. View of emergent wetland, PEM02, located at the southernmost end of the survey boundary. View is facing east. Photo taken on January 29th, 2024. (30.064908, -95.555801)

Photograph 7. View of emergent wetland, PEM02, located at the southernmost end of the survey boundary. View is facing south. Photo taken on January 29th, 2024. (30.064908, -95.555801)

Photograph 8. View of emergent wetland, PEM03 located just east of the existing ATCT. View is facing southeast. Photo taken on January 29th, 2024. (30.066715, -95.555427)

Appendix C
List of Plant Species Observed

Appendix C. List of Plant Species Observed

Scientific Name	Common Name	Status[a]
Herbaceous		
Ambrosia trifida	great ragweed	FAC
Cynodon dactylon	bermuda grass	FACU
Cyperus eragrostis	tall flatsedge	FACW
Eleocharis montevidensis	sand spikerush	FACW
Geranium carolinianum	Carolina geranium	UPL
Houstonia pusilla	tiny bluet	FACU
Hydrocotyle umbellata	manyflower marshpennywort	OBL
Juncus effusus	common rush	OBL
Ranunculus muricatus	ppinyfruit buttercup	FACW
Rubus trivialis	Southern dewberry	FACU
Sporobolus indicus	smut grass	FACU
Stellaria media	common chickweed	FACU
Shrubs		
Triadica sebifera	Chinese tallow	FAC

[a]Status follows the National Wetland Plant List (USACE, 2020).
Indicator Status:
FAC = facultative; Occurs in wetlands and nonwetlands
FACU = facultative upland; Usually occurs in nonwetlands but may occur in wetlands
FACW = facultative wetland; Usually occurs in wetlands but may occur in nonwetlands
OBL = obligate; Almost always occurs in wetlands
UPL = upland; Almost always occurs in nonwetlands

Appendix D
Wetland Determination Data Form

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: SP01

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

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

Subregion (LRR or MLRA): LRR T Lat: 30.065520 Long: -95.555461 Datum: WGS84

Soil Map Unit Name: SpmA - Splendor-Urban land complex, 0 to 2 percent slopes NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [ ]	No [✔]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✔]
Hydric Soil Present?	Yes [ ]	No [✔]	
Wetland Hydrology Present?	Yes [ ]	No [✔]	

Remarks:

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 [✔]	Depth (inches):
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✔]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✔]

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

Remarks:

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

Sampling Point: SP01

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size:)			
1. Cynodon dactylon	45	Yes	FACU
2. Sporobolus indicus	20	Yes	FACU
3. Rubus trivialis	15	No	FACU
4. Cyperus eragrostis	10	No	FACW
5. Houstonia pusilla	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	10	x 2 =	20
FAC species		x 3 =	
FACU species	85	x 4 =	340
UPL species		x 5 =	
Column Totals:	95 (A)		360 (B)

Prevalence Index = B/A = 3.79

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: SP01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	95	10YR 3/6	5	C	M	Silty 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 ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: SP02

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

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

Subregion (LRR or MLRA): LRR T Lat: 30.065407 Long: -95.556736 Datum: WGS84

Soil Map Unit Name: SpmA - Splendora-Urban land complex, 0 to 2 percent slopes NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [ ]	No [✔]	**Is the Sampled Area within a Wetland?**	Yes [ ]	No [✔]
Hydric Soil Present?	Yes [ ]	No [✔]			
Wetland Hydrology Present?	Yes [ ]	No [✔]			

Remarks:

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 [✔]	Depth (inches):
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✔]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✔]

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

Remarks:

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

Sampling Point: SP02

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Sapling Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: _____)			
1. Cynodon dactylon	45	Yes	FACU
2. Sporobolus indicus	30	Yes	FACU
3. Ambrosia trifida	15	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	15	x 3 =	45
FACU species	75	x 4 =	300
UPL species		x 5 =	
Column Totals:	90 (A)		345 (B)

Prevalence Index = B/A = 3.83

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: SP02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/3	90	10YR 4/6	10	C	M	Silty 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 ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: SP03

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

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

Subregion (LRR or MLRA): LRR T Lat: 30.066883 Long: -95.555593 Datum: WGS84

Soil Map Unit Name: SeuB - Segno-Urban land complex, 1 to 3 percent slopes. NWI classification: N/A

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

Are Vegetation ☐ Soil ✔ or Hydrology ✔ significantly disturbed? ☐ Are "Normal Circumstances" present? Yes ☐ No ✔

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

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

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

Remarks:

This area has been built up for the existing tower in this location. A restrictive layer of gravel was found in 10 inches.

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 ✔	Depth (inches):
Water Table Present?	Yes ☐	No ✔	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☐	No ✔	Depth (inches):

Wetland Hydrology Present? Yes ☐ No ✔

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

Remarks:

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

Sampling Point: SP03

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size:)			
1. Stellaria media	65	Yes	FACU
2. Cynodon dactylon	20	Yes	FACU
3. Geranium carolinianum	15	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species	85	x 4 =	340
UPL species	15	x 5 =	75
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: SP03

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	98	10YR 5/8	2	C	M	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: Compact soil and gravel

Depth (inches): 10

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: WDP01_PEM

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR T Lat: 30.066537 Long: -95.555619 Datum: WGS84

Soil Map Unit Name: SeuB - Segno-Urban land complex, 1 to 3 percent slopes. NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [ ] No [✔]

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

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

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

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 [ ]	Depth (inches): 1
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [✔]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

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

Remarks:

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

Sampling Point: WDP01_PEM

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size:)			
1. Triadica sebifera	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size:)			
1. Eleocharis montevidensis	30	Yes	FACW
2. Cyperus eragrostis	20	Yes	FACW
3. Juncus effusus	15	Yes	OBL
4. Rubus trivialis	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	50	x 2 =	100
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	85 (A)		180 (B)

Prevalence Index = B/A = 2.12

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL Sampling Point: WDP01_PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	95	10YR 5/8	5	C	M	Silty 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 ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: WDP01_PSS

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR T Lat: 30.066607 Long: -95.555592 Datum: WGS84

Soil Map Unit Name: SeuB - Segno-Urban land complex, 1 to 3 percent slopes. NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

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 [ ]	Depth (inches): 3
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [✔]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

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

Remarks:

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

Sampling Point: WDP01_PSS

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

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

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size:)			
1. Triadica sebifera	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	75 = Total Cover		

50% of total cover: 37.5 20% of total cover: 15

Herb Stratum (Plot size:)			
1. Cyperus eragrostis	15	Yes	FACW
2. Rubus trivialis	2	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17 = Total Cover		

50% of total cover: 8.5 20% of total cover: 3.4

Woody Vine Stratum (Plot size:)			
1. Smilax bona-nox	5	Yes	FAC
2.			
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: 3 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	15	x 2 =	30
FAC species	80	x 3 =	240
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	97 (A)		278 (B)

Prevalence Index = B/A = 2.87

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL Sampling Point: WDP01_PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	90	10YR 5/8	10	C	M	Silty 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 ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: WDP01_UP

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

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

Subregion (LRR or MLRA): LRR T Lat: 30.066528 Long: -95.555535 Datum: WGS84

Soil Map Unit Name: SeuB - Segno-Urban land complex, 1 to 3 percent slopes. NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [ ]	No [✔]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✔]
Hydric Soil Present?	Yes [ ]	No [✔]	
Wetland Hydrology Present?	Yes [ ]	No [✔]	

Remarks:

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 [✔]	Depth (inches):
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✔]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✔]

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

Remarks:

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

Sampling Point: WDP01_UP

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

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

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Herb Stratum (Plot size:)			
1. Cynodon dactylon	70	Yes	FACU
2. Rubus trivialis	10	No	FACU
3. Ambrosia trifida	10	No	FAC
4. Houstonia pusilla	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = 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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	10	x 3 =	30
FACU species	85	x 4 =	340
UPL species		x 5 =	
Column Totals:	95 (A)		370 (B)

Prevalence Index = B/A = 3.89

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL

Sampling Point: WDP01_UP

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	90	10YR 3/6	10	C	M	Silty 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 ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: WDP02_PEM

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 4

Subregion (LRR or MLRA): LRR T Lat: 30.064909 Long: -95.555721 Datum: WGS84

Soil Map Unit Name: SpmA - Splendora-Urban land complex, 0 to 2 percent slopes NWI classification: PEM1C

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

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 [ ]	Depth (inches): 6
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [✔]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

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

Remarks:

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

Sampling Point: WDP02_PEM

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

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

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Herb Stratum (Plot size:)			
1. Ranunculus muricatus	40	Yes	FACW
2. Cyperus eragrostis	20	Yes	FACW
3. Eleocharis montevidensis	15	No	FACW
4. Hydrocotyle umbellata	10	No	OBL
5. Juncus effusus	10	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.4 20% of total cover: 19

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = 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	20	x 1 =	20
FACW species	75	x 2 =	150
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	95 (A)		170 (B)

Prevalence Index = B/A = 1.79

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

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

SOIL

Sampling Point: WDP02_PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	85	10YR 5/8	15	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 ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: WDP02_UP

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR T Lat: 30.064871 Long: -95.556211 Datum: WGS84

Soil Map Unit Name: SpmA - Splendora-Urban land complex, 0 to 2 percent slopes NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [ ]	No [✔]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✔]
Hydric Soil Present?	Yes [ ]	No [✔]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

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 [✔]	Depth (inches):
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✔]	Depth (inches):

Wetland Hydrology Present? Yes [✔] No [ ]

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

Remarks:

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

Sampling Point: WDP02_UP

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

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

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Herb Stratum (Plot size:)			
1. Sporobolus indicus	40	Yes	FACU
2. Cynodon dactylon	35	Yes	FACU
3. Rubus trivialis	5	No	FACU
4. Geranium carolinianum	5	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species	80	x 4 =	320
UPL species	5	x 5 =	25
Column Totals:	85 (A)		345 (B)

Prevalence Index = B/A = 4.05

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

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

SOIL Sampling Point: WDP02_UP

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	85	5YR 4/6	15	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 ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: FAA DWH ATCT Project City/County: Harris Sampling Date: 01/29/24

Applicant/Owner: Federal Aviation Administration State: TX Sampling Point: WDP03_PEM

Investigator(s): K. Velligan & J. Speights Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR T Lat: 30.066701 Long: -95.555415 Datum: WGS84

Soil Map Unit Name: SeuB - Segno-Urban land complex, 1 to 3 percent slopes. NWI classification: N/A

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✔] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

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 [ ]	Depth (inches): 1
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [✔]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

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

Remarks:

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

Sampling Point: WDP03_PEM

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

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

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

Shrub Stratum (Plot size:)			
1. Triadica sebifera	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10 20% of total cover: 4

Herb Stratum (Plot size:)			
1. Eleocharis montevidensis	30	Yes	FACW
2. Cyperus eragrostis	30	Yes	FACW
3. Juncus effusus	30	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

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

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	60	x 2 =	120
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	110 (A)		210 (B)

Prevalence Index = B/A = 1.91

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 Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL Sampling Point: WDP03_PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100					Silty clay	
3-18	10YR 4/2	90	10YR 5/8	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 ☑ No ☐

Remarks: