10 April 2019

Michael P. Gurka, PE
Jones & Carter
6330 West Loop South, Suite 150
Bellaire, TX 77401

RE: Habitat Assessment
Fort Bend County MUD 118 – Jogging Trail Phase III
Figure Four Lake, Richmond, Fort Bend County, Texas
HJN 190063.001HA

Dear Mr. Gurka:

This letter provides the results of a habitat assessment of federally listed threatened or endangered species conducted by Horizon Environmental Services, Inc. (Horizon) on the above-referenced site. Horizon conducted the field reconnaissance on 25 March 2019 and spent a minimum of 2 person-hours in the field evaluating the site and surrounding area. The assessment process was completed by conducting a review of existing state and federal agency literature.

1.0 GENERAL SITE DESCRIPTION

The proposed project consists of constructing a sidewalk trail approximately 3600 feet long by 6 feet wide. The proposed edge of the sidewalk will maintain a minimum distance of 10 feet from the center of existing trees on the site. The subject site is located west of the intersection at Lost Lake Drive and Waterside Estates Circle and consists of maintained lawn with scattered native and ornamental trees, surrounded by existing residential development and an open waterbody (Appendix A, Figure 1). On-site vegetation comprises smooth crabgrass (*Digitaria ischaemum*), white clover (*Trifolium repens*), geranium (*Geranium carolinianum*), dandelion (*Taraxacum officinale*), bluegrass (*Poa pratensis*), poison ivy (*Toxicodendron radicans*), creeping buttercup (*Ranunculus repens*), pink evening primrose (*Oenothera speciosa*), bald cypress (*Taxodium distichum*), crowpoison (*Nothoscordum bivalve*), roughleaf dogwood (*Cornus drummondii*), live oak (*Quercus virginiana*), crape myrtle (*Lagerstroemia indica*) and violet woodsorrel (*Oxalis violacea*). Photographs are provided in Appendix B.

Topographically, the subject site is sloping, with natural and artificial elevations ranging from 77 to 85 feet above mean sea level (AMSL). Surface water drains from south to north via overland sheet flow toward Figure Four Lake (USGS, 1982). The subject site is within the Austin-Oyster watershed (EPA, 2019).

CORPORATE HEADQUARTERS
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An LJA Company

Mapped soils on the subject site include the following:

TABLE 1-1
SOILS

Soil Name	Soil Type	Profile (feet)	Parent Material	Natural Drainage	Capacity to Transmit Water	Frequency of Flooding
Brazoria clay, 0 to 1% slopes, rarely flooded	clay	0 to 6.8	Clayey alluvium derived from igneous, metamorphic and sedimentary rock	moderately well-drained	very low to moderately low	rare

Source: NRCS, 2019

Geologically, the subject site is underlain by the following:

TABLE 1-2
GEOLOGY

Unit	Period	Epoch	Description
Alluvium (Qal)	Quaternary	Holocene	Clay, silt, and sand, organic matter abundant locally; includes point-bar, natural levee, stream channel, backswamp, coastal marsh, mud-flat, and narrow beach deposits that are shown by line symbol

Source: UT-BEG, 1982

Horizon's review of the records of the Texas Water Development Board (TWDB) revealed no water wells on the subject site and 4 water wells within a 0.5-mile radius of the subject site (TWDB, 2019). Horizon did not observe any evidence of water wells on the subject site during the field investigation. The results of this survey do not preclude the existence of an abandoned/undocumented well. All abandoned wells must be capped or properly abandoned according to the Administrative Rules of the Texas Department of Licensing and Regulation, 16 Texas Administrative Code (TAC), Chapter 76, effective 3 January 1999. A plugging report must be submitted (by a licensed water well driller) to the Texas Department of Licensing and Regulation, Water Well Drillers Program, Austin, Texas. If a well is intended for use, it must comply with 16 TAC §76.

2.0 THREATENED OR ENDANGERED SPECIES

Literature and agency file searches were conducted to identify the potential occurrence of any federally listed threatened or endangered (T/E) species in the vicinity of the subject site. The search included information from the US Fish and Wildlife Service (USFWS), the Texas Parks and Wildlife Department (TPWD) Natural Diversity Database, and The University of Texas Bureau of Economic Geology (UT-BEG).

Federally listed threatened or endangered (T/E) species for Fort Bend County and species that are potentially affected by activities within the subject site are presented in the following table:

TABLE 2-1
THREATENED/ENDANGERED SPECIES LISTED FOR FORT BEND COUNTY

Common Name	Scientific Name	Federal Status
Whooping crane	*Grus americana*	Endangered
Attwater's greater prairie-chicken	*Tympanuchus cupido attwateri*	Endangered
Least tern	*Sterna antillarum*	Endangered
Piping plover	*Charadrius melodus*	Threatened
Red knot	*Calidris canutus rufa*	Threatened
Texas prairie dawn-flower	*Hymenoxys texana*	Endangered

Source: USFWS, 2019a and 2019b

Whooping Crane

The whooping crane is a migratory bird species listed as potentially occurring in many or all Texas counties. Whooping cranes nest in dense emergent vegetation in shallow water bodies, and migratory stopover points include large expanses of wetlands and rural agricultural fields. In Texas, whooping cranes winter at Aransas National Wildlife Refuge and Matagorda and St. Joseph's islands in Aransas, Calhoun, and Matagorda counties. Habitat for loafing and foraging includes flooded tidal flats and mud or sand in shallow bays and channels (NatureServe, 2019). The subject site is located within the path of migration for the whooping cranes during their 2600-mile flight each spring (late March to late April) and fall (mid-October to late November) (Oberholser, 1974); however, no suitable habitat was observed by Horizon on the subject site or the immediately adjacent properties and development of the subject site would not adversely impact the species.

Attwater's Greater Prairie-Chicken

The Attwater's greater prairie-chicken is a large, chunky, henlike bird, heavily barred above and below with dark brown, cinnamon, and pale buff. Males will gather for communal courtship (10 to 30 birds) when breeding begins in early April. Winter flocks may be all male, all female, or combined. The birds have a terrestrial habitat of cropland/hedgerow and grassland/herbaceous communities, while also habituating in coastal prairie dominated by tall dropseed, little bluestem, sumpweed, broomweed, ragweed, and big bluestem. Oftentimes the birds will use shorter grasses for courtship and feeding, while using tall grasses for nesting and loafing. The birds use fallow rice fields and other combinations of pasturelands and croplands for foraging. Courtship areas may be natural grassy flats with low vegetation or artificially maintained surfaces such as little-used roads, airport runways, or oil well pads (NatureServe, 2019). Horizon observed no suitable habitat on the subject site or the immediately adjacent properties; therefore, development of the subject site would not adversely impact the species.

Least Tern

The least tern is a migratory bird and the smallest North American tern. The breeding habitats for the bird include seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers, while it rests and loafs on sandy beaches, mudflats, and salt-pond dikes. Interior populations nest mainly on riverine sandbars or salt flats that become exposed during periods of low water. As a result of vegetational succession and/or erosion, preferred nesting habitat typically is ephemeral. Birds breeding in riverine situations depend on the presence of sandbars, favorable water levels during nesting season, and sufficient food. Nests are usually located at higher elevations and away from the water. Water levels determine the size of sand bars and the extent of nesting areas. Dams above colonies generally lower habitat quality by eliminating the spring floods that are necessary for alluvium deposition and the scouring of vegetation (NatureServe, 2019). Horizon did not observe any suitable habitat on the subject site; therefore, development of the subject site would not adversely impact the species. Additionally, it is Horizon's opinion that any occurrence of the least tern on the adjacent lake during construction of the proposed trail would be temporary in nature, and that development of the subject site would not adversely impact the species.

Piping Plover

The piping plover is a small dimorphic bird that tends to be monogamous during a single breeding season. The animals are migratory and arrive in the Gulf Coast for the winter season upon leaving the Northern Great Plains and Great Lakes. Suitable habitat for the nonbreeding season usually consists of ocean beaches or sand or algal flats in protected bays. During the nonbreeding season, piping plovers are most abundant on expansive sandflats, sandy mudflats, and sandy beaches, usually in areas with high habitat heterogeneity (NatureServe, 2019). Horizon did not observe any suitable habitat on the subject site or the immediately adjacent properties; therefore, development of the subject site would not adversely impact the species.

Red Knot

The red knot migrates long distances during its life cycle from high in the Arctic latitudes to the coastal United States and beyond into southern South America. The birds will utilize 2 types of habitats depending on the seasons of breeding, migration, and wintering. Breeding habitats are elevated with sparsely vegetated slopes or ridges often adjacent to lakes and wetland edges used for feeding. Wintering and migration habitats are often muddy or sandy coastal areas, such as the mouths of bays and estuaries, as well as tidal flats (NatureServe, 2019). Due to the lack of muddy or sandy coastal areas within the subject site, it is Horizon's opinion that the subject site does not contain suitable habitat for the species; therefore, development of the subject site would not adversely impact the species. Additionally, it is Horizon's opinion that any occurrence of the red knot on the adjacent lake during construction of the proposed trail would be temporary in nature, and that development of the subject site would not adversely impact the species.

Texas Prairie Dawn-Flower

The Texas prairie dawn-flower is a small annual herb belonging to the sunflower family that blooms in March and early April. The plant grows on poorly drained, sparsely vegetated areas ("slick spots") at the base of small mounds in open grassland or in almost barren areas. Soils are slightly saline, sticky when wet, and powdery when dry (NatureServe, 2019). Based on the thick on-site grass vegetation and the subject site not being located within an open grassland, no suitable habitat or presence of the species was observed by Horizon; therefore, development of the subject site would not adversely impact the species.

ADDITIONAL SPECIES OF POTENTIAL CONCERN

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) typically breed and winter in forested areas adjacent to large bodies of water. Throughout the range the bird selects large, super-canopy roost trees that are open and accessible. Nests are usually constructed below the crown of a tree, often at the highest point where large branches join the bole of the tree. The nests are constructed from an array of sticks placed in an interwoven pattern and may use other materials as fillers, including grasses, mosses, and even corn stalks. Nests are massive and can often exceed several thousand kilograms in weight (NatureServe, 2019). Horizon did not observe any suitable habitat on the subject site or the immediately adjacent properties; therefore, development of the subject site would not adversely impact the species.

Other Raptors, Song Birds, Egrets, and Water Fowl

While conducting the field reconnaissance Horizon personnel observed various species of water fowl and song birds. Song birds observed during the site visit included killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), and blue jay (*Cyanocitta cristata*). Egrets and water fowl observed included great blue heron (*Ardea herodias*), egret (*Ardea alba*), and various ducks and mallards. It is Horizon's opinion that any occurrence of these species on the subject site during construction of the proposed trail would be temporary in nature, and that development of the subject site would not adversely impact the species.

ADDITIONAL RESOURCES REVIEWED

The USFWS's Critical Habitat Mapper did not indicate critical habitat for a listed species on or within a 0.5-mile radius of the subject site (USFWS, 2019c).

Examination of the TPWD Natural Diversity Database indicated no documented occurrence(s) of listed species on or within a 0.5-mile radius of the subject site (TPWD, 2019).

T/E SPECIES SUMMARY AND RECOMMENDATIONS

Horizon did not observe potentially suitable habitat on the subject site for any of the federally listed T/E species of Fort Bend County. It is Horizon's opinion that additional species of concern may be temporarily disturbed during construction of the proposed trail; however, no adverse impacts to the species are expected to occur.

3.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

Horizon has performed a habitat assessment for federally listed threatened or endangered species to learn if there are any recorded occurrences or potential habitat on the subject site. Horizon evaluated the subject site to the extent that was reasonably possible within the scope of work.

For Horizon Environmental Services, Inc.

Scott Flesher
Ecological Program Manager

10 April 2019
Date

4.0 REFERENCES

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(NatureServe) NatureServe Explorer: An Online Encyclopedia of Life. *Plant/Animal Records*. <http://explorer.natureserve.org/>. Accessed 5 April 2019.

(NRCS) US Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed 5 April 2019.

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(USGS) US Geological Survey. 7.5-minute series topographic maps, Clodine, Texas, quadrangle. 1982.

(USFWS) US Department of the Interior, Fish and Wildlife Service. 2019a. IPaC – Information, Planning, and Conservation System, <http://ecos.fws.gov/ipac/>. Accessed 5 April 2019.

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Horizon
Environmental Services, Inc.

APPENDIX A

PROJECT FIGURE

Horizon Environmental Services, Inc.

Date:	04/10/2019
Drawn:	RMO
HJN NO:	190063.001HA
Source:	USDA, 2016

Figure 1

Site-Specific Aerial Map
FBCMUD 118 - Jogging Trail Phase III
Figure Four Lake
Richmond, Fort Bend County, Texas

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0 250 500
Feet

190063 - FBCMUD 118 Jogging Trail\Graphics\190063-001HA_01A_Aerial.mxd

APPENDIX B

SITE PHOTOGRAPHS

Horizon
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PHOTO 1
View of the subject site along Figure Four Lake

PHOTO 2
View of the subject site

PHOTO 3
View of the subject site

PHOTO 4
View of the subject site near the sidewalk tie-in location