

APPENDIX IIE
ENDANGERED OR THREATENED SPECIES

APPENDIX IIE1
ENDANGERED SPECIES BIOLOGICAL ASSESSMENT

City of Edinburg Landfill Expansion Project Endangered Species Biological Assessment

Prepared For:

City of Edinburg, Hidalgo County, Texas



Prepared By:

Naismith Engineering, Inc.

4501 Gollihar

Corpus Christi, Texas



Texas Registered Engineering Firm No. F-000355

Geoscientist Firm Registration No. 50017

Texas Licensed Surveying Firm Registration No. 100395-00

Architectural Business Entity Registration No. 13553

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EXECUTIVE SUMMARY

Naismith Engineering, Inc. (NEI) conducted a desktop review, site inspection, and habitat characterization for the Edinburg Municipal Solid Waste Landfill (MSWLF) expansion project site which is located in Hidalgo County, Texas. This biological assessment report specifically addresses NEI's findings regarding Federal and State-listed threatened, endangered, and rare species. This information will be used to support the City's MSWLF permit amendment application to expand their existing landfill operation.

A large majority of the project site is highly disturbed and is primarily comprised of agricultural fields. The project site does contain limited amounts of native woodland habitat along its eastern boundary. Hidalgo County contains current or historical ranges for 79 Federal and State-listed rare, threatened, and/or endangered species. A careful evaluation was performed for each species and eighteen (18) of the 79 species were subsequently identified as species which could potentially occur within the landfill expansion area based on habitat observed during the site visit. It was further determined that 11 of these species could potentially be impacted or affected by the proposed project expansion activities if present at the site. Of these eleven species, one is Federal and State-listed endangered, eight are State-listed threatened species, and two are State-listed rare species. The eleven species include sheep frog, white-lipped frog, Audubon's oriole, cactus ferruginous pygmy-owl, white-tailed hawk, ocelot, plains spotted skunk, black-striped snake, reticulate collared lizard, Texas indigo snake, and Texas tortoise. Only one listed species, the State-listed threatened white-tailed hawk, was observed during the November 2014 site visit.

Based upon the findings in this biological assessment, threatened and endangered species may potentially occur at the project site. Although direct and indirect impacts to protected wildlife may occur when habitat is removed, impacts can be eliminated or greatly reduced through resource agency coordination and implementation of appropriate Best Management Practices (BMPs). No critical habitat for endangered species is located within the proposed project site, and it appears that any loss of habitat would not result in significant impacts to populations of threatened and endangered species in Hidalgo County.

1. Purpose and Location

1.1 Purpose

Naismith Engineering, Inc. (NEI) was retained by Golder Associates, Inc. on behalf of the City of Edinburg (City) to support the City's municipal solid waste landfill (MSWLF) application for an amendment to their existing Texas Commission on Environmental Quality (TCEQ) municipal solid waste permit to expand the City's existing landfill operation. This biological assessment specifically addresses NEI's findings regarding the proposed expansion area relative to threatened and endangered species.

This biological assessment was prepared in accordance with 30 TAC 330.61(n) Texas Commission on Environmental Quality (TCEQ) requirements for MSWLF operators in relation to endangered or threatened species. The 30 TAC 330.61(n) requirements are as follows:

(1) The owner or operator shall consider the impact of a solid waste disposal facility upon endangered or threatened species. The facility and the operation of the facility shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or threatened species.

(2) For landfill applications, the owner or operator shall submit Endangered Species Act compliance demonstrations as required under state and federal laws and determine whether the facility is in the range of endangered or threatened species. If the facility is located in the range of endangered or threatened species, the owner or operator shall have a biological assessment prepared by a qualified biologist in accordance with standard procedures of the United States Fish and Wildlife Service and the Texas Parks and Wildlife Department to determine the effect of the facility on the endangered or threatened species. Where a previous biological assessment has been made for another project in the general vicinity, a copy of that assessment may be submitted for evaluation. The United States Fish and Wildlife Service and the Texas Parks and Wildlife Department shall be contacted for locations and specific data relating to endangered and threatened species in Texas.

A desktop review was performed using previously developed and publicly available information. Field investigations were conducted on November 17 and 18, 2014 by qualified biologists in order to characterize habitat types occurring within the proposed landfill expansion area, evaluate the proposed expansion site for suitable habitat of Federal and State-listed species, and evaluate potential effects of the facility expansion on endangered and/or threatened species that may occur within the expansion area.

1.2 Project Location

The Edinburg Landfill Expansion project is located in Hidalgo County, Texas approximately 6 miles north of the City of Edinburg (see Exhibit 1A). The project's general coordinates are longitude 26.396915 and latitude -98.121069. The City of Edinburg recently purchased additional land for a permit expansion area (the project site) that may be used to expand their existing MSWLF (see Exhibit 1B). These new parcels of land, which are located immediately adjacent to the existing landfill facility, were evaluated for Federal and State-listed threatened

and endangered species. The existing landfill facility was evaluated for Federal and State-listed species during previous permitting activities.

2 Site Evaluation

2.1 Surface Soils

According to the Bureau of Economic Geology's Geology of Texas maps, the primary geologic formations which are exposed at the project site's surface are Cenozoic aged. The geologic formations at the project location include the Goliad Formation from the Tertiary Period and the Lissie Formation from the Quaternary Period. The formations are Quaternary Undivided and the soil associations at the project site include the Hebbronville-Delmita-Delfina-Comitas and Willacy-Hargill-Delfina associations.

The Web Soil Survey (WSS), developed by the U.S. Department of Agriculture, Natural Resources Conservation Service, provides soil data (such as hydric soils status) and other information produced by the National Cooperative Soil Survey. Soils occurring throughout the project site are almost exclusively comprised of fine sandy loams, loamy fine sands, and sandy loams (see Exhibit 2). Rio clay loams do occur within the project site; however, these clay loams are limited to isolated areas along the northern sections of the site and are classified as predominantly hydric soils.

During the site visit, soil observations were consistent with the surface features identified during the desktop review. Surficial soils at the site were noted as being comprised of fine sands and sandy loams.

2.2 FEMA Floodplains Evaluation

According to recent FEMA floodplain maps, the project site contains two areas that are located within the 1% Annual Chance Flood Zone (Zone A) (see Exhibit 3). Zone A is defined as special flood hazard areas that are subject to inundation by the 1% annual chance flood. The 1% annual chance flood (100-year flood), which is also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. Both of the floodplain areas depicted on Exhibit 3 are currently comprised of plowed dirt and fallow agricultural fields.

2.3 General Hydrology and Hydrological Features

Hydrological features, including wetlands, depressions, drainage features, saturated areas, moist soils, irrigation canals, and ponds, can provide valuable habitat for numerous moisture-dependent species. A number of hydrological features are present in the general project vicinity including four potentially wet (PW) areas which were evaluated for wetland characteristics. Only one was determined to be a small (0.358 acres) wetland (PW-4). Other areas include an excavated pond (PW-1), various depressions (PW-2 and PW-3), and a drainage ditch near PW-1 (see Exhibit 4). Open water (lined) ponds and several excavated areas that appear to hold rainwater on a temporary basis are also located nearby the project site.

For more information on hydrological features within the project site, see the City of Edinburg Landfill Expansion Project: Wetlands Evaluation report dated July 2015 which includes a

detailed review of Web Soil Survey (WSS), FEMA floodplain, National Hydrography Dataset (NHD), and National Wetland Inventory (NWI) maps as well as field survey results.

2.4 Ecoregion Classification and Mapped Vegetation Types

The project site is located in the Rio Grande River Basin which lies within the Gulf Coast Prairies and Marshes Ecoregion of the Tamaulipan Biotic Province. The project site is also located in the south Texas Brush Country Region which is characterized by plains of thorny shrubs and trees and scattered patches of palms and subtropical woodlands within the Rio Grande Valley. The plains were once covered with open grasslands and a scattering of trees, and the Rio Grande Valley woodlands were once significantly more extensive. Today, the south Texas Brush Country Region is considered a high-shrub savanna which is comprised of thorny brush such as mesquite, acacia, and prickly pear mixed with areas of grasslands.

The Texas Parks and Wildlife Department (TPWD) has produced Ecological Mapping Systems of Texas (EMST) digitized datasets which have illustrated current vegetation types of Texas. According to the EMST, the project site is primarily comprised of Row Crop, Disturbed Grassland, Barren, Urban, and Sandy Mesquite Savanna Grassland vegetation types (see Exhibits 5A and 5B).

2.4.1 TPWD: EMST Maps – Disturbed Habitats

TPWD describes the Disturbed Grassland vegetation type as being heavily grazed grasslands that include managed exotic pasture grass species. Dominant plant species within this vegetation type includes buffelgrass, King Ranch bluestem, threeawns, guineagrass, Kleberg bluestem, and pink pappusgrass. This vegetation type also includes shrubs and small trees such as honey mesquite, huisache, spiny hackberry, and lotebush.

The Sandy Mesquite Savanna Grassland vegetation type, which consists of grasslands containing scattered mesquite, is characterized as occurring over both loamy sands and loams. This vegetation type is dominated by grasses (including many exotic species) such as Kleberg bluestem, bermudagrass, little bluestem, purple threeawn, silver bluestem, tanglehead, and buffelgrass. Common shrubs include huisache, lime prickly ash, spiny hackberry, hog croton and prickly pear.

Based on recent aerial photography and information obtained during the field inspections, it appears that most of the EMST mapped vegetation types occurring in the project area (particularly the Disturbed Grasslands and the Sandy Mesquite Savanna Grasslands vegetation types) have been converted to agricultural fields (see Exhibits 5A and 5B). The agricultural fields use dry farming practices where cultivated soils are not irrigated and no drainage features or water retention are present. These areas no longer resemble the EMST map designations and they no longer contain the plant species described in the EMST vegetation types.

2.4.2 TPWD: EMST Maps – Native Habitats

The only intact native vegetation types occurring within the project site are located along the site's eastern edge (see Exhibit 5B). The EMST maps classify this area as a diverse assemblage of Tamaulipan thornscrub vegetation which includes Sandy Mesquite Dense Shrubland, Sandy

Mesquite-Evergreen Woodland, Sandy Mesquite Woodland and Shrubland, and Clayey Blackbrush Mixed Shrubland vegetation types.

According to the EMST maps, the Sandy Mesquite Dense Shrubland vegetation type is comprised of dense mesquite shrublands that contain a relatively diverse assemblage of shrubs and small trees such as colima, granjeno, Texas persimmon, sugar hackberry, Texas ebony, huisache, guajillo, blackbrush, and brasil.

The Sandy Mesquite-Evergreen Woodland vegetation type is dominated by honey mesquite and huisache with other small trees and shrubs such as granjeno, colima, brasil, lotebush, and coma.

The Sandy Mesquite Woodland and Shrubland vegetation type is described as being relatively dense mesquite woodlands that are low in stature and contain limited amounts of prickly pear, granjeno, colima, huisache, sugar hackberry, lotebush, and brasil.

The Clayey Blackbrush Mixed Shrubland vegetation type is characterized as containing relatively dense shrublands with a variety of plant species including blackbrush, honey mesquite, granjeno, guajillo, lotebush, amargosa, brasil, and colima.

2.5 Existing Site Conditions and On-Site Habitat Evaluation

Field investigations were conducted on November 17 and 18, 2014 via pedestrian and vehicular surveys throughout the project site. The purpose of the field investigations was to characterize existing habitat types, and evaluate the potential for the occurrence of Federal and State-listed species. The potential for Federal and State-listed species occurring at or near the project site is addressed in Section 3. No critical habitat for endangered species is located within the proposed project site.

The majority of the project area is cultivated agricultural fields or excavated bare area (approximately 226 and 24.8 acres, respectively), however, there are three additional upland habitat types (UHT) which were identified, characterized, and photographed during the field inspections. The general locations of these habitat types are depicted with polygons and denoted as Areas UHT-1 through UHT-3 (see Exhibit 6). The polygons do not represent exact boundaries of habitat nor are they meant to indicate habitat homogeneity within them. Descriptions of the existing plant assemblages, wildlife use, etc. were also collected in the field during the site visits. Wildlife use was gathered through direct observation, sound, tracks, burrows, and scat. Debris (such as pieces of wood, logs, rocks, etc.) occurring within these areas were overturned and the areas were searched for evidence of amphibians and reptiles. Information obtained during the desktop review and recent site visits was critical in assessing the area for potential Federal and State-listed species. A list of plant species (with the appropriate scientific nomenclature) that were identified during site visits is included in Appendix 2.

2.5.1 Upland Areas - Disturbed Vegetated- Areas UHT-1 and UHT-2

Area UHT-1 (see Exhibit 6 and Appendix 1 – Photos 4-5), which is located in the northern section of a plowed field, consists of approximately 15.8 acres of very sparse secondary growth woody vegetation that is dominated by huisache. This area, which has evidently been cleared in the past, is dominated by non-native grasses such as buffelgrass, guineagrass, and rose natal

grass. Other vegetative species occurring within Area UHT-1 include honey mesquite, Texas wild olive, desert Christmas cactus, Texas prickly pear, Roosevelt weed, three-furrowed indian mallow, an unknown aster, blue mistflower, white shrub mistflower, Mexican trixis, cowpen daisy, Kearney's threeawn, and common balloon vine.

Area UHT-2 (see Exhibit 6 and Appendix 1 – Photos 6-8), which is located in the southeastern corner of the project site, is approximately 17.6 acres and contains berms along its northern, western, and southern sides. This area appears to have been partially cleared at one time and is now supporting secondary growth woody plants such as huisache and honey mesquite. These small trees and shrubs are sparsely scattered throughout the area along with several large, very old prickly pear cacti. Numerous burrows were observed throughout this area as well as ruts and other ground disturbance likely produced by feral hogs. The plant community is dominated by honey mesquite, huisache, Texas prickly pear, spiny hackberry, bluewood condalia, Mexican trixis, south Texas false cudweed, cowpen daisy, Texas virgin's bower, an unknown aster, rose natal grass, Kleberg bluestem, mourning lovegrass, and multiflower false rhodesgrass.

2.5.2 Native Vegetated Upland Area - Area UHT-3

Area UHT-3 (see Exhibit 6 and Appendix 1 – Photos 9-14) is located on the eastern end of the project site. This area is approximately 20.0 acres and currently contains dense thickets of native thornscrub and is considered to be mature Tamaulipan thornshrub woodland habitat. Woody vegetation occurring within Area UHT-3 is consistent with the plant species described in the EMST Vegetation Type Maps (see Section 2.4). This area contains a dense and relatively diverse assemblage of thorny shrubs and trees including bluewood condalia, lime prickly ash, spiny hackberry, desert yaupon, coyotillo, mesquite, allthorn goatbush, twisted acacia, Texas hogplum, purple sage, knifeleaf condalia, spiny allthorn, and little leaf sumac. The extremely dense thorny vegetation precluded human entry during the site inspections; however, there were many small burrows, tracks, ground disturbance, and other signs of wildlife use along the edges of the site. The woodlands possess a closed understory due to the density of thornscrub vegetation; however, grasses, forbs, vines, and cacti were observed in the open areas located between the berms and the edge of the woodlands. These open areas were dominated by guineagrass, buffelgrass, mourning lovegrass, blue mistflower, Texas doubtful palafoxia, three-furrowed indian mallow, white shrub mistflower, Torrey's croton, Mexican trixis, common balloonvine, Texas prickly pear, and Berlandier's hedgehog cactus.

A small, isolated woodland area, which is surrounded on all sides by agricultural fields, is located immediately adjacent to the northwest corner of the project site (see Exhibit 6 and Appendix 1 – Photos 17-19). This wooded area is dominated by Texas ebony, mesquite, lime prickly ash, bluewood condalia, huisache, Texas prickly pear, and guineagrass. Although this woodland area is outside of the project site, its close proximity and vegetative composition increases the potential for some listed species to occur within the project site.

2.6 *Wildlife Use*

The purpose of the November 17 and 18, 2014 site visits was for habitat evaluation and not to conduct scientific species surveys or inventories; however, numerous wildlife observations were made during the habitat characterization field work. The following is a summary of direct observation of wildlife (or other evidence) made during the site visits.

Water birds observed in and near the project site included ruddy duck, lesser scaup, northern shoveler, green-winged teal, least sandpiper, black-necked stilt, great egret, laughing gull, and least grebe. Several sandhill cranes (approximately 36 individuals) as well as red-winged blackbirds were noted in the fallow fields which contained crop stubble. The wooded areas contained a diverse array of bird species including yellow-rumped warbler, green jay, great kiskadee, eastern phoebe, northern mockingbird, northern bobwhite, common ground-dove, loggerhead shrike, inca dove, and mourning dove. The grasslands/sparse shrub areas, plowed dirt fields, and fallow fields contained a variety of sparrows including lark sparrow, olive sparrow, chipping sparrow, white-crowned sparrow, and savannah sparrow as well as eastern meadowlark, inca dove, loggerhead shrike, northern bobwhite, barn swallow, crested caracara, and American kestrel. Turkey vultures, black vultures, and crested caracaras were very abundant throughout the project vicinity. Several raptors were observed during the site inspections including northern harrier, Cooper's hawk, white-tailed hawk, and red-tailed hawk.

Burrows were observed throughout the grasslands and woodlands and were particularly abundant in the grassy/shrubby areas and along berms (see Appendix 1 – Photo 12). Cottontail rabbits and white-tailed deer were also observed at these woodland/grassland locations as well as evidence of wildlife use such as tracks, scat, deer (buck) rubs, and ground disturbance (including ruts) associated with feral hog, deer, coyote, raccoon, armadillo, rodents, and black-tailed jackrabbit. Several bird nests were also observed in the woodland areas. A number of insects and gastropods were observed throughout the project site with snout-nosed butterflies and small-mouth land snails being the most abundant at the time of the site visits. Harvester ants were not observed at the project site.

3 Federal and State-listed Species Review

3.1 Endangered or Threatened Species

TCEQ regulations govern the location of new MSWLF units in areas that may affect certain protected species. According to 30 TAC 330.61(n)(1), “The facility and the operation of the facility shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or cause or contribute to the taking of any endangered or threatened species.”

The project site is located in Hidalgo County, Texas which includes current and historical ranges for 79 Federal and State-listed rare, threatened and/or endangered species which could potentially occur. These listed species include 5 amphibians, 26 birds, 4 fish, 10 insects, 10 mammals, 3 mollusks, 8 reptiles, and 13 plants. The TPWD's Annotated County List of Rare Species for Hidalgo County and the U.S. Fish and Wildlife Service Southwest Region's Threatened and Endangered Species List for Hidalgo County (Appendix 3) were consulted during the desktop review to identify any species which could potentially occur at or near the project site. This desktop evaluation involved researching and reviewing the literature (including recovery plans) to identify specific habitat requirements for each listed species as well as conducive soil types, each species' historic range, locations of confirmed existing and historic populations, and factors involving each species' mobility, territorial range, and behavior. The

Texas Natural Diversity Database (TXNDD) was also queried for confirmed records of rare or listed species within 1.75 and 5 miles of the project site (see Appendix 3).

The Federal and State-listed species were further evaluated during the field investigation. All 79 listed species were evaluated relative to existing site conditions as well as habitats occurring immediately adjacent to the project site. Scientific species surveys (which require multiple visits during various months and environmental conditions) were not conducted. Of the 11 listed species with suitable habitat within or immediately adjacent to the expansion area, only one, the State-listed threatened white-tailed hawk, was observed during the field investigation. No critical habitat exists in the project site for any of the 11 listed species. Information from the desktop review and field investigation was compiled and utilized to evaluate the potential for each listed species to occur at or near the project site. This information has been summarized in Section 3.3 and is presented in Appendix 4.

Section 3.2 provides a brief overview of the habitat requirements and other pertinent information used to support the potential for a listed species to occur at or near the project site. Species that would not be expected to occur at the project site (due to the lack of suitable habitat and/or other relevant factors) are included in Appendix 4 but are not further discussed in Section 3.2 nor included in the following table. Table 1 below is a subset of Appendix 4 and includes only species that were determined to have suitable habitat within or immediately adjacent to the expansion area, and could potentially be impacted or affected by the proposed project if present.

Table 1 - Rare, Threatened and Endangered Species in Hidalgo County, Texas that could potentially be impacted or affected by the proposed project if present.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Potential Effect/Impact	Justification
AMPHIBIANS						
Sheep Frog (<i>Hypopachus variolosus</i>)	NL	T	Moist areas in grasslands, savannas and woodland margins under fallen trees and debris	Yes	May impact	The project site contains suitable habitat including potentially wet areas within cultivated fields (PW 1-4) and potentially wet areas within brushland and grassland (UHT-1, UHT-2, and UHT-3). This species would be active after adequate rainfall events. There are three records of this species within 1.75 to 5 miles of the project area as shown in the TXNDD.
White-lipped Frog (<i>Leptodactylus fragilis</i>)	NL	T	Moist places within grasslands, cultivated fields, roadside ditches, and various other habitats. Found under rocks, in burrows, and under grass clumps.	Yes	May impact	The project site contains suitable habitat including potentially wet areas within cultivated fields (PW 1-4) and potentially wet areas within open savanna and grassland (UHT-1 and UHT-2). This species would be active after adequate rainfall events within small pools, ponds, and inundated ditches.
BIRDS						
Audubon's Oriole (<i>Icterus graduacauda audubonii</i>)	NL	R	Resident of scrub and mesquite thickets of deep south Texas. Usually near water courses	Yes	May impact	Suitable habitat is present within the project area (UHT-3), however due to the minimal habitat taken by this project and mobility of this species, no impacts are expected during non-nesting season. During Audubon's Oriole nesting season (Mar-Aug), impacts may occur.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Potential Effect/Impact	Justification
Cactus Ferruginous Pygmy-Owl (<i>Glaucidium brasilianum cactorum</i>)	NL	T	Found in riparian tree and brush thickets, roosting also in small caves, and recesses on hills.	Yes	May impact	Suitable habitat is present within the project area (UHT-3), however due to the minimal habitat taken by this project and mobility of species, no impacts are expected during non-nesting season. During cactus ferruginous pygmy-owl nesting season (Mar – June) impacts may occur.
White-tailed Hawk (<i>Buteo albicaudatus</i>)	NL	T	Inhabits undeveloped coastal grasslands, mesquite/live oak savannas and open chaparral of the south Texas Plains. Nests in south Texas in low trees, large shrubs, and yuccas.	Yes	May impact	Suitable habitat is present (UHT-1 and UHT-2), and this species was confirmed visually soaring over the project site during 11-17-14 site visit. The project site may be used for foraging but minimal habitat will be taken, therefore no impacts are expected during non-nesting season. However, during white-tailed hawk nesting season (Jan – July) impacts may occur.
MAMMALS						
Ocelot (<i>Leopardus pardalis</i>)	LE	E	Large patches of dense chaparral thickets, mesquite-thorn scrub and live oak mottes	Yes	May effect	Suitable, but non-critical, habitat is present within the project area (UHT-3) and two records of this species were found in the large tract of woodlands connected to the project area in the 1980s per the TXNDD results.
Plains Spotted Skunk (<i>Spilogale putorius interrupta</i>)	NL	R	Open fields, prairies, croplands, fence rows, farmyards, and forest edges. Prefers brushy areas and tallgrass prairie	Yes	May impact	Preferred habitat is present within UHT-1, UHT-2, and UHT-3. This species also utilizes rodent and other mammal burrows for cover and denning.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Potential Effect/Impact	Justification
REPTILES						
Black-striped Snake (<i>Coniophanes imperialis</i>)	NL	T	Semi-arid coastal plain, warm, moist micro-habitats and sandy soils	Yes	May impact	Suitable habitat is present within the project area (UHT-1, UHT-2, and UHT-3). This species can be found under leaf litter or debris during periods of inactivity and is also able to burrow in sandy soils.
Reticulate Collared Lizard (<i>Crotaphytus reticulatus</i>)	NL	T	Open brush-grasslands, thorn-scrub vegetation usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils. Scattered flat rocks below escarpments or outcrops among scattered clumps of prickly pear and mesquite	Yes	May impact	Suitable habitat is present within the project area (UHT-2 and UHT-3). This species can be found under debris and in burrows during periods of inactivity.
Texas Indigo Snake (<i>Drymarchon melanurus erebennus</i>)	NL	T	South of Guadalupe River and Balcones Escarpment. Thornbrush-chaparral woodlands, dense riparian corridors, and suburban croplands.	Yes	May impact	Preferred habitat includes moist areas within UHT-2 and UHT-3. This species also utilizes rodent and other mammal burrows as dens or during periods of inactivity.
Texas Tortoise (<i>Gopherus berlandieri</i>)	NL	T	Open brush with grass understory, rests near bases of cacti and bushes, occasionally in underground burrows or under objects	Yes	May impact	Suitable habitat is present in the project area (UHT-2 and UHT-3). This species utilizes existing mammal or rodent burrows as well as making small depressions or burrows themselves under brush or cacti during periods of inactivity. Prickly pear cacti is a preferred food source of the Texas tortoise.

3.2 Discussion of Listed Species that Could Potentially Occur at the Project Site

3.2.1 Amphibians

3.2.1.1 Sheep Frog (*Hypopachus variolosus*)

The sheep frog primarily occurs in moist sites within grasslands and savannas, but can also be found in moist sites in arid areas and within woodlands. This frog prefers moist subterranean burrows and is often associated with burrows of rats. It will remain burrowed for most of the year if suitable soil moisture is present. Although this frog is most frequently encountered in wet areas within open woodlands or pasturelands with abundant short grass cover, they have been found under logs associated with mature coastal brushland habitats. The sheep frog does, as with all amphibians, require pools of water to breed and can be found in intact native brushland with temporary aquatic features and moist conditions created after a sufficient rainfall. The project site contains a small (0.358 acres), irregularly inundated wetland (PW-4) in the cultivated field which could provide a suitable breeding area for the sheep frog. Other potentially wet areas include PW-1, PW-2, and PW-3; however, due to dry farming practices and regular cultivation, drainage and water retention features are not present in the cultivated areas.

The project site does contain several areas with varied amounts of fragmented disturbed brushland/grassland (such as UHT-1 and UHT-2) and native thornscrub woodland habitat (UHT-3, Exhibit 6) which could also contain suitable moist or wet areas for the sheep frog. There is similar habitat north and east of the project site which has three Texas Natural Diversity Database (TXNDD) records for the sheep frog (see Appendix 3). The sheep frog could potentially occur in moist or wet areas within the above identified project site habitats and would be active after rainfall events. This species was not observed during the November 2014 habitat evaluation.

3.2.1.2 White-Lipped Frog (*Leptodactylus fragilis*)

The white-lipped frog is known to occur near moist sites within grasslands, cultivated fields, roadside ditches, and a wide variety of other open habitats such as savannas. It is found in moist sites ranging from ponds, marshes, inundated ditches, and irrigated fields as well as other permanent or temporary standing water. This nocturnal frog often hides in moist areas under rocks or debris or can burrow. The white-lipped frog does, as with all amphibians, require pools of water to breed. Eggs are laid on vegetation or in ground excavations made by the male near water and can tolerate dryness until wet conditions return. The white-lipped frog is incompatible with pesticide use.

The project site does contain cultivated fields with moist soil areas (i.e, PW-1, PW-2, PW-3, and PW-4); however, due to dry farming practices and regular cultivation, drainage and water retention features are not present. Other moist soil areas within the project site include ditches and grasslands (such as UHT-1 and UHT-2) which could have suitable moist areas for the white-lipped frog; therefore this species could occur in these portions of the project area and would be active after rainfall events. This species was not observed during the November 2014 habitat evaluation.

3.2.2 Birds

3.2.2.1 *Peregrine Falcon (Falco peregrinus), American Peregrine Falcon (Falco peregrinus anatum), and Arctic Peregrine Falcon (Falco peregrinus tundrius)*

The peregrine falcon occupies a wide range of habitats during migration. These falcons breed in the northern areas of the United States and Canada and in West Texas, and they typically stop over at leading landscape edges during migration. During migration, they are known to use lake shores, coastlines, barrier islands, and even urban areas.

Although the project site does not contain preferred habitat, the peregrine falcon could potentially occur at or near the project site because these raptors are known to utilize large open areas (including disturbed areas such as fields and pastures) when foraging. The project site does contain habitat that supports many different types of prey items such as small birds and is surrounded by urban areas to the west and rural residences, agricultural fields, and pastures to the south. State Highway 281 is located less than ½ mile west of the project site. These nearby urban and rural areas likely contain tall structures, power poles, towers, tanks, and other structures which may serve as perch sites for raptors such as the peregrine falcon. Although the peregrine falcon could utilize the project area for foraging, no impacts are expected. This species was not observed during the November 2014 habitat evaluation.

3.2.2.2 *Audubon's Oriole (Icterus graduacauda audubonii)*

The Audubon's oriole utilizes a variety of woodland habitat types including dense mesquite forests, thorn forests and thorn scrub, riparian forests, and oak forests. According to the literature, preferred breeding habitat may involve relatively undisturbed forests with dense layers of foliage as this oriole's nests are typically found hidden in dense foliage.

The project site does contain dense mesquite/thorn scrub woodland habitat (UHT-3, Exhibit 6) which could potentially provide habitat for the Audubon's oriole. Area UHT-3 could potentially provide habitat for the Audubon's oriole because it is immediately adjacent to and contiguous with similar dense (and extensive) thornscrub woodlands located north and east of the project site. No impacts to the Audubon's oriole are expected during non-nesting season, however, during nesting season (March-August), impacts could occur. This species was not observed during the November 2014 habitat evaluation.

3.2.2.3 *Cactus Ferruginous Pygmy-Owl (Glaucidium brasilianum cactorum)*

In Texas, the cactus ferruginous pygmy-owl is known to occur in mesquite, ebony, and oak dominated woodlands. Although this small owl prefers riparian woodlands, small breeding populations have been found in suitable woodland habitats that are not located along watercourses. In south Texas, the pygmy-owl will inhabit mesquite brush areas that include thorny shrubs such as lime prickly ash. These owls prefer wooded areas with dense understory cover and trees that are large enough to hold appropriately sized nest cavities. The pygmy-owl, which is an obligate cavity nester, depends on medium-sized woodpeckers such as the golden-fronted woodpecker for nest cavities.

The project site does contain one area (UHT-3, Exhibit 6) which could potentially provide habitat for the cactus ferruginous pygmy-owl. This small owl is known to inhabit thornscrub woodlands. Area UHT-3 contains many of the trees and shrubs that are important vegetative components for habitats used by the cactus ferruginous pygmy-owl including honey mesquite, bluewood condalia, lime prickly ash, spiny hackberry, desert yaupon, coyotillo, allthorn goatbush, twisted acacia, Texas hogplum, purple sage, knifefleaf condalia, spiny allthorn, and little leaf sumac. Area UHT-3 also contains a very dense (closed) understory which is preferred by this owl. Even though it is not located near a watercourse, the cactus ferruginous pygmy-owl could potentially occur within or near this area because this area is immediately adjacent to similar woodlands located north and east of the project site. The presence of large tracts of similar native habitat increases the potential for species, such as the cactus ferruginous pygmy-owl to occur in the project area. No impacts to the cactus ferruginous pygmy-owl are expected during non-nesting season, however, there may be trees large enough to support nesting within Area UHT-3; therefore, impacts could potentially occur during nesting season (March-June). This species was not observed during the November 2014 habitat evaluation.

3.2.2.4 *Mountain Plover (Charadrius montanus)*

The mountain plover is endemic to the Great Plains and is associated with short grass prairies. This plover, which winters in Texas, utilizes habitats such as plowed fields, bermudagrass fields, heavily grazed annual grasslands, coastal prairies, alkaline flats, and even burned fields.

The majority of the proposed project area contains fallow agricultural fields, plowed dirt fields, and disturbed grasslands and it appears that the mountain plover could potentially occur in these areas, however, no impacts are expected. This species was not observed during the November 2014 habitat evaluation.

3.2.2.5 *Sprague's Pipit (Anthus spragueii)*

The Sprague's pipit, which winters in Texas, utilizes coastal short grass prairies as well as disturbed and heavily grazed grasslands provided that the grass is very short. This bird, which readily uses large, over-grazed pastures dominated by bermudagrass, are also often found on turf grass farms, golf courses, plowed dirt fields, fallow short grass fields, and bare fields. The Sprague's pipit is often seen using secondary or tertiary roads with grassy shoulders. These paved and unpaved roads, which support very low volumes of traffic, are typically located in agricultural settings.

A large portion of the proposed project site contains fallow agricultural fields, plowed dirt fields, disturbed grasslands, and barren areas, therefore, the Sprague's pipit could potentially occur in the project area; however, no impacts are expected. This species was not observed during the November 2014 habitat evaluation.

3.2.2.6 *White-Tailed Hawk (Buteo albicaudatus)*

The white-tailed hawk, which is a resident in south Texas, can be seen perched along highways on telephone poles, fence posts, or dead trees. It occurs in open savannas, prairies, and arid habitats of mesquite, cacti and brush and will readily perch in trees, shrubs, and bushes. The white-tailed hawk preys on a variety of mammals (such as rabbits and rodents), birds (such as bobwhite quail), reptiles, amphibians, insects, and arthropods. They breed in the Coastal Sand

Plain, Coastal Prairies, and south Texas Brush Country regions of south Texas. The white-tailed hawk breeds in Texas from late January to late August. On the Coastal Sand Plain of south Texas, the white-tailed hawk nests in savannas in short trees and shrubs with an average height of 12 feet.

One white-tailed hawk was observed soaring over the project site during the November 17, 2014 site inspection. The project site does contain open barren and disturbed grassland/savanna habitat which could be used as hunting grounds for the white-tailed hawk. This hawk may also nest in short trees and shrubs occurring in the disturbed grasslands (such as UHT-1 and UHT-2); however, this is less likely due to the limited amount of open trees and shrubs in the grassland areas and disturbance factors associated with on-going agricultural operations and other nearby land use activities. No impacts are expected during non-nesting season; however, impacts could occur during nesting season if the white-tailed hawk is nesting near the project site.

3.2.2.7 *Western Burrowing Owl (Athene cunicularia hypugaea)*

Western burrowing owls are small ground-dwelling owls that winter (October - March) in south Texas. They are found on open grasslands, savanna, bare fields, and vacant lots, and depend upon a daytime roost for survival. Roosts can be abandoned burrows, road culverts, or crevices between rocks or other debris in open areas.

The open agricultural fields within the project area could attract a western burrowing owl. Although cultivation is not typically conducive to the establishment of animal burrows, western burrowing owls are known to roost in a variety of man-made structures and other crevices located in and adjacent to cultivated fields. Western burrowing owls could occur in the agricultural fields or in open grasslands within the project area; however, no impacts would be expected. This species was not observed during the November 2014 habitat evaluation.

3.2.3 Fishes

The project site does not contain suitable habitat for State-listed fish species.

3.2.4 Insects

3.2.4.1 *Royal Moth (Sphingicampa blanchardi)*

The royal moth occurs in Tamaulipan thornscrub of the Lower Rio Grande Valley in south Texas. The moth's caterpillar phase requires host plants such as Texas ebony, blackbrush acacia, Wright's acacia, guajillo, and soft leaf mimosa. According to the literature, this moth heavily relies on Texas ebony as its natural host plant in the U.S.; however, it is believed that the larvae will readily accept a variety of other legumes in the Family Fabaceae. Adults fly from March through November.

Texas ebony is present in very limited numbers in the wooded area near the northwest corner of the project boundary (see Exhibit 6). Other legumes which could also be used as host plants are present in Areas UHT-2 and UHT-3. However, it is unlikely that this moth would occur within the project site because the area containing the preferred host plant (Texas ebony) is very small

and the literature indicates that this moth may actually be completely extirpated from the U.S. or it may be limited to very small remnant populations due to loss of habitat. This species was not observed during the November 2014 habitat evaluation.

3.2.4.2 *Tamaulipan agapema (Agapema galbina)*

The known distribution of the Tamaulipan agapema (which is a Saturniid moth) within the U.S. is limited to Cameron and Hidalgo Counties in the Lower Rio Grande Valley of south Texas. This moth occupies Tamaulipan thornscrub habitat and utilizes bluewood condalia (brasil) as a host plant.

The Tamaulipan agapema could potentially occur at the project site because the site does contain limited areas of Tamaulipan thornscrub which contain the agapema's host plant bluewood condalia. The potential for the Tamaulipan agapema to occur at the project site is considered possible but unlikely. This assumption is based on the literature which indicates that extensive habitat loss has occurred in south Texas, therefore the Tamaulipan agapema may be extirpated from the U.S. or it may be limited to very small remnant populations. This species was not observed during the November 2014 habitat evaluation.

3.2.5 Mammals

3.2.5.1 *Gulf Coast Jaguarundi (Herpailurus yaguarondi)*

The Gulf Coast jaguarundi (jaguarundi) was historically distributed from the Lower Rio Grande Valley in south Texas into the eastern portion of Mexico. This endangered cat is found in the Tamaulipan Biotic Province, where it uses dense, thorny shrublands or woodlands and bunchgrass pastures that are adjacent to areas containing dense brush or woody cover. Typical Gulf Coast jaguarundi habitat is comprised of mixed thornshrub species such as spiny hackberry, brasil, desert yaupon, wolfberry, lotebush, amargosa, white-brush, catclaw, blackbrush, lantana, guayacan, cenizo, elbowbush, and Texas persimmon. Trees such as mesquite, live oak, ebony, and hackberry may also be interspersed among the thornshrub habitat. Canopy cover and density of the shrubs are important relative to identifying suitable habitat for the Gulf Coast jaguarundi. Even though these endangered cats require tracts of at least 100 acres of isolated dense brush, or 75 acres of brush that is interconnected with other habitat tracts by brush corridors, they will use brush tracts as small as 5 acres if they are located adjacent to larger areas of suitable habitat. Roadways, narrow water bodies, and rights-of-way are not considered barriers to jaguarundi movement. In addition, brushy fence lines, water courses, and other brush strips that connect areas of habitat are known to provide very important movement corridors for these cats as well as protective cover. The primary threats to the Gulf Coast jaguarundi are habitat destruction, degradation, and fragmentation resulting from agriculture and urbanization as well as border security activities. Less than 5% of the Rio Grande Valley's original native vegetation remains today. Mortality from vehicular collisions has also posed a threat to this endangered cat.

Habitat for the Gulf Coast jaguarundi (dense thornscrub woodlands) does occur in Area UHT-3 (see Exhibit 6) along the site's eastern boundary. This densely wooded area is also located immediately adjacent to and contiguous with dense Tamaulipan woodlands that extend north and east of the project site (see Exhibit 7). The presence of large tracts of similar native habitat

increases the potential for species, such as the Gulf Coast jaguarundi, to occur in the project area. The potential for a jaguarundi to occur in the project vicinity is unlikely, and therefore no impacts are expected. This is based on the Gulf Coast jaguarundi's rarity in south Texas as there have been no confirmed jaguarundi sightings in the U.S. for several decades. The last confirmed sighting in the U.S. was in April 1986 when a Gulf Coast jaguarundi roadkill specimen was collected two miles east of Brownsville, Texas. According to the literature, numerous unconfirmed sightings have been reported since then, including several sightings with unidentifiable photographs, but no U.S. reports since April 1986 have been confirmed as jaguarundi and ongoing trapping efforts in recent years by the USFWS have not been successful in confirming jaguarundi occurrence in south Texas. This species was not observed during the November 2014 habitat evaluation.

3.2.5.2 *Ocelot (Leopardus pardalis)*

The ocelot is a medium sized cat that occurs in dense thorny shrub lands of the Lower Rio Grande Valley and Rio Grande Plains of south Texas. This endangered cat prefers mixed brush species such as spiny hackberry, bluewood condalia, desert yaupon, wolfberry, lotebush, althorn goatbush, white-brush, blackbrush acacia, lantana, guayacan, purple sage, elbowbush, and Texas persimmon. These thornshrub species are often interspersed with trees such as honey mesquite, sugar hackberry, live oak, and Texas ebony. Density and canopy cover associated with vegetation is very important in determining suitable habitat for the ocelot. Optimal habitat has at least 95% canopy cover of shrubs whereas marginal habitat ranges from 75% to 95% canopy cover. The shrub density occurring below the six foot level is the most important component of ocelot habitat. Shrub density should be such that the depth of vision from outside the brush line is restricted to approximately five feet. Human movement within this type of brush would be restricted to crawling because of the vegetation density below the six foot level.

Similar to the Gulf Coast jaguarundi, important habitat would be comprised of tracts of at least 100 acres of isolated dense brush, or 75 acres of brush that are interconnected with other habitat tracts by brush corridors. The ocelot is even known to use brush tracts as small as 5 acres if they are adjacent to larger areas of habitat. Roadways, rights-of-way, and narrow water bodies are not considered barriers to ocelot movement. Brushy fence lines, water courses, and other brush strips that connect areas of habitat function as very important movement corridors. The ocelot historically occurred throughout south Texas, the southern Edwards Plateau Region, and along the Coastal Plain. Ocelot populations have significantly declined primarily due to loss of habitat and predator (primarily coyote) control activities. Less than 5% of the original vegetation remains in the Rio Grande Valley today and only about 1% of the south Texas area supports what is currently defined as optimal ocelot habitat. Most of this habitat occurs in scattered patches that are likely too small to support ocelots for extended periods. The ocelot population in Texas is currently very small with perhaps no more than 80 to 120 individuals. Approximately 30 to 35 of these individuals live in the chaparral remaining at or near the Laguna Atascosa National Wildlife Refuge which is located approximately 40 miles east of the project site. Hidalgo County is one of the 13 Texas counties identified as containing occupied habitat for the ocelot.

The ocelot could potentially occur at or near the project site because dense thornscrub woodlands (Area UHT-3, Exhibit 6) do occur along the site's eastern boundary with canopy cover estimated

to range from 85% to 98%, and a portion of the woodland estimated to be at least 95%. This densely wooded area is also located immediately adjacent to and contiguous with dense thornscrub woodlands that extend north and east of the project site. The presence of large tracts of similar native habitat does increase the potential for species, such as the ocelot to occur in the project area. The thornscrub woodlands located north and east of the project site are connected to other large tracts of land (involving >2,500 acres) and smaller brush tracts that appear to contain similar dense thornscrub habitats (see Exhibit 7). These large off-site parcels of thornscrub woodlands could potentially be used by ocelot. TXNDD records indicate that two ocelots were live-trapped during the early 1980's within thornscrub woodlands located less than 0.5 miles east of the project area (see Appendix 3). Even though Area UHT-3 is not critical habitat for the ocelot and is extremely small relative to the aforementioned extensive thornscrub woodland tracts, it is consistent with the thornscrub species composition, density, and canopy cover that is described as suitable habitat for the ocelot and it is connected to much larger tracts of similar woodland habitat. Therefore, the ocelot may potentially be affected by the proposed project. This species was not observed during the November 2014 habitat evaluation.

3.2.5.3 Plains Spotted Skunk (*Spilogale putorius interrupta*)

The plains spotted skunk occurs largely in wooded areas and tall grass prairies, preferring rocky canyons and outcrops when such sites are available. This skunk has, however, modified its habitat preferences and they will occur where there is an abundance of food. They primarily feed on insects (particularly during summer months) but will also consume small mammals (primarily mice and rats) during winter months as well as small birds, carrion, and plant material. The plains spotted skunk will use gopher, tortoise, and other burrows when dens in rocky canyons, rock crevices, and hollow trees are not available. They will also utilize short grass plains (less commonly) provided that food sources are plentiful. These skunks are preyed upon by the great horned owl, bobcats, and domestic dogs and cats. The skunk's native habitat has significantly been altered by mankind, primarily through land conversion (agriculture) and urbanization. These nocturnal mammals prefer native habitats (woodlands and tall grass prairies) associated with streams or rivers; however, they have readily adapted to habitat changes by living in areas of human habitation including farmyards, barns, brush piles, cultivated fields, etc. They will often den under buildings, in attics, in underground burrows, and even in underground tile drains.

The plains spotted skunk could potentially occur at the project site because the project site does contain woodlands (UHT-3) that extend past the project site boundary to the north and east. The project site also contains cultivated fields, fallow areas containing vegetative cover, numerous mammal burrows, and other features that may provide suitable habitat for this skunk (such as UHT-1 and UHT-2). Therefore, the proposed project could potentially impact the plains spotted skunk. This species was not observed during the November 2014 habitat evaluation.

3.2.6 Mollusks

The project site does not contain suitable habitat for any Federal or State-listed mollusks.

3.2.7 Reptiles

3.2.7.1 *Black-Striped Snake (Coniophanes imperialis)*

The black-striped snake can be found in forests, savannas, agricultural landscapes, and along the edges of wet or marshy areas. Texas represents the most northern end of this snake's range where it is also called the Tamaulipan black-striped snake. The black-striped snake historically occupied Tamaulipan thorn thicket woodlands, particularly those occurring along arroyos and seasonally filled watercourses and resacas. A significant amount of this habitat type has been destroyed primarily by agricultural practices. Although the black-striped snake will occur most readily in the remaining thorn thicket woodlands of south Texas, they can also be found in the semi-arid coastal plains where much of this thornshrub habitat used to occur. These snakes have been found around buildings and in vacant lots in localized suburban areas. They are tolerant of a moderate degree of habitat alteration but not of conversion to intensive agricultural use. The black-striped snake is a secretive snake that crawls in leaf litter or hides under vegetative debris, logs, or trash when inactive. This snake, which can be found in moist micro-habitats, is also a proficient burrower in sandy soils.

The black-striped snake could potentially occur at the project site as it contains sandy soils as well as thornshrub woodlands, therefore, impacts could occur. Although this snake could possibly occur in disturbed areas associated with the project site, it appears that they may be more likely to occur along the woodland edges at the project site's eastern boundary (such as UHT-2 and UHT-3). The thornshrub woodland habitat located outside of the project boundary (UHT-3) would increase the potential for black-striped snakes to occur in or near the project area, particularly if the adjacent woodlands contain hydrologic features. This species was not observed during the November 2014 habitat evaluation.

3.2.7.2 *Reticulate Collared Lizard (Crotaphytus reticulatus)*

The reticulate collared lizard occupies a variety of habitats including rock piles, escarpments, and burrows in brushy environments. It inhabits open brush-grasslands on well drained rolling terrains of shallow gravel, caliche, or sandy soils. Although these lizards often occur on scattered flat rocks below escarpments or on isolated rock outcrops among scattered clumps of prickly pear and mesquite, they also commonly range into mesquite flats located far from the nearest rocky habitat. This diurnal lizard is quick and active and will often use fence posts and the branches of mesquite trees as basking perches in addition to rocks. They shelter beneath debris and in burrows and readily feed on insects, spiders, small reptiles, and small mammals. The greatest threats to the reticulate collared lizard is habitat alteration, particularly land clearing practices, the conversion of native grazing lands to farms and improved pastures, and the planting of non-native mat-forming grasses such as buffelgrass for livestock grazing.

The reticulate collared lizard could potentially occur at or near the project site. Although this lizard is mostly associated with scrubby vegetation on gravel and caliche soils with rock outcrops, they do occur on well drained sandy soils that support open brush vegetation. The project site does contain some areas of open brush that would be suitable for this species and impacts could occur (such as UHT-2 and UHT-3). This species was not observed during the November 2014 habitat evaluation.

3.2.7.3 *Texas Indigo Snake (Drymarchon melanurus erebennus)*

The Texas indigo snake occurs in thornbrush chaparral woodlands of south Texas. They prefer to be near permanent water sources such as riparian corridors, but are also found in mesquite savannas and open grassland areas. It requires moist microhabitats such as mammal burrows for shelter and they will readily den in the burrows of other animals. These snakes can also do well in irrigated croplands. The Texas indigo snake, which spends most of its time hiding, preys on small mammals, birds, lizards, frogs, turtles, eggs, and even other snakes. They require large home ranges to forage and their natural habitat has significantly been reduced by development associated with urban sprawl and habitat conversion by agricultural practices.

The Texas indigo snake could potentially occur at the project site and impacts could occur. The project site contains several areas of woody vegetation (UHT-2 and UHT-3) as well as numerous mammal burrows which the indigo snake could utilize. This species was not observed during the November 2014 habitat evaluation.

3.2.7.4 *Texas Tortoise (Gopherus berlandieri)*

The Texas tortoise occurs in open scrub and brushlands of south Texas and prefers habitats with sandy, well-drained soils. They prefer open brush with a grass understory and avoid open grass and bare ground. The Texas tortoise will readily use pre-dug mammal burrows during oppressively hot summer days and are also known to create shallow depressions at the base of a bush or cactus where they rest when inactive. This tortoise is herbivorous and prefers to feed on prickly pear cactus as well as grasses and small annual plants.

The Texas tortoise could potentially occur at the project site because the project site does contain some areas of open brush with grass understories (such as UHT-2 and UHT-3). The project site also contains several areas which support large mature prickly pear cactus which is a preferred food source for the Texas tortoise (UHT-2 and UHT-3). The project site also contains numerous burrows which could be utilized by these tortoises. This species was not observed during the November 2014 habitat evaluation.

3.2.8 Plants

The project site does not appear to contain suitable habitat for Federal or State-listed plants.

4 Conclusion

4.1 Summary

In summary, the majority of the 79 Federal and/or State-listed endangered, threatened, and/or rare species listed for Hidalgo County would not be expected to occur at the project site. Eighteen (18) species were identified as having suitable habitat within or immediately adjacent to the landfill expansion area, including two amphibians (sheep frog and white-lipped frog), seven birds (peregrine falcon, Audubon's oriole, cactus ferruginous pygmy-owl, mountain plover, Sprague's pipit, western burrowing owl, and white-tailed hawk), two insects (royal moth and Tamaulipan agapema), three mammals (ocelot, Gulf Coast jaguarundi, and plains spotted skunk), and four reptiles (black-striped snake, reticulate collared lizard, Texas indigo snake, and Texas tortoise). Impacts could potentially occur for 11 of the 18 listed species (sheep frog,

white-lipped frog, Audubon's oriole, cactus ferruginous pygmy-owl, white-tailed hawk, ocelot, plains spotted skunk, black-striped snake, reticulate collared lizard, Texas indigo snake, and Texas tortoise). The only listed species seen at the project site during the November 17-18, 2014 habitat evaluations was the State-listed threatened white-tailed hawk; however, scientific species surveys were not conducted.

Habitat provides shelter, food, and breeding areas for wildlife; therefore, impacts to protected wildlife (such as the ocelot) can occur when their habitat is altered or removed. Some species are highly mobile and can escape; however other species, such as slow-moving reptiles or amphibians, as well as eggs or very young animals, cannot escape. Based on the findings in this report, it is recommended that reasonable and appropriate best management practices be considered and coordinated with the appropriate natural resource agencies to minimize potential impacts to the eleven species listed above.

4.2 Agency Coordination

Based on the aforementioned findings, it is recommended that early coordination with the appropriate Federal and State agencies be accomplished in order to minimize and/or avoid potential impacts to project scheduling. Of the eleven species listed above, only one (the ocelot) is endangered on both the Federal and State lists. Eight others are State-listed threatened species. Protective measures may be required or recommended by the agencies for these endangered and threatened species.

4.2.1 Federal Trust Species

Two Federal laws protect species that could potentially occur within the proposed landfill expansion project. These two laws are the Endangered Species Act (ESA) of 1973 (16 USC 1531-1544) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-712).

The ESA requires that projects with a federal component (such as federal funding or a federal permit) must consult with the USFWS if Federally-listed species would be affected. When a project has no federal funding, permits, or other nexus, consultation with the USFWS is not required but is still considered the best course of action if habitat removal is necessary. The ocelot is the only Federally-listed species determined to be potentially affected by this project and the USFWS could potentially require or recommend mitigation as a result of ocelot habitat loss.

The Migratory Bird Treaty Act (MBTA) of 1918 is a federal law (16 USC 703-712) that protects 1,007 species of birds, making it unlawful to "take" migratory birds. Under the MBTA, "take" means to pursue, hunt, shoot, wound, kill, trap, capture, or collect any such bird covered by the MBTA, or to attempt those activities. "Migratory birds" include most native birds in the United States that migrate as well as those that do not migrate. If a project inadvertently destroys active nests or causes physical harm to protected birds, then this constitutes a violation of the MBTA.

To minimize the potential for MBTA violations, habitat clearing (especially in the wooded HT-3 area) during the peak nesting period (March – August) should be avoided; otherwise, nesting bird surveys by qualified biologists can be conducted to identify active nests within the project

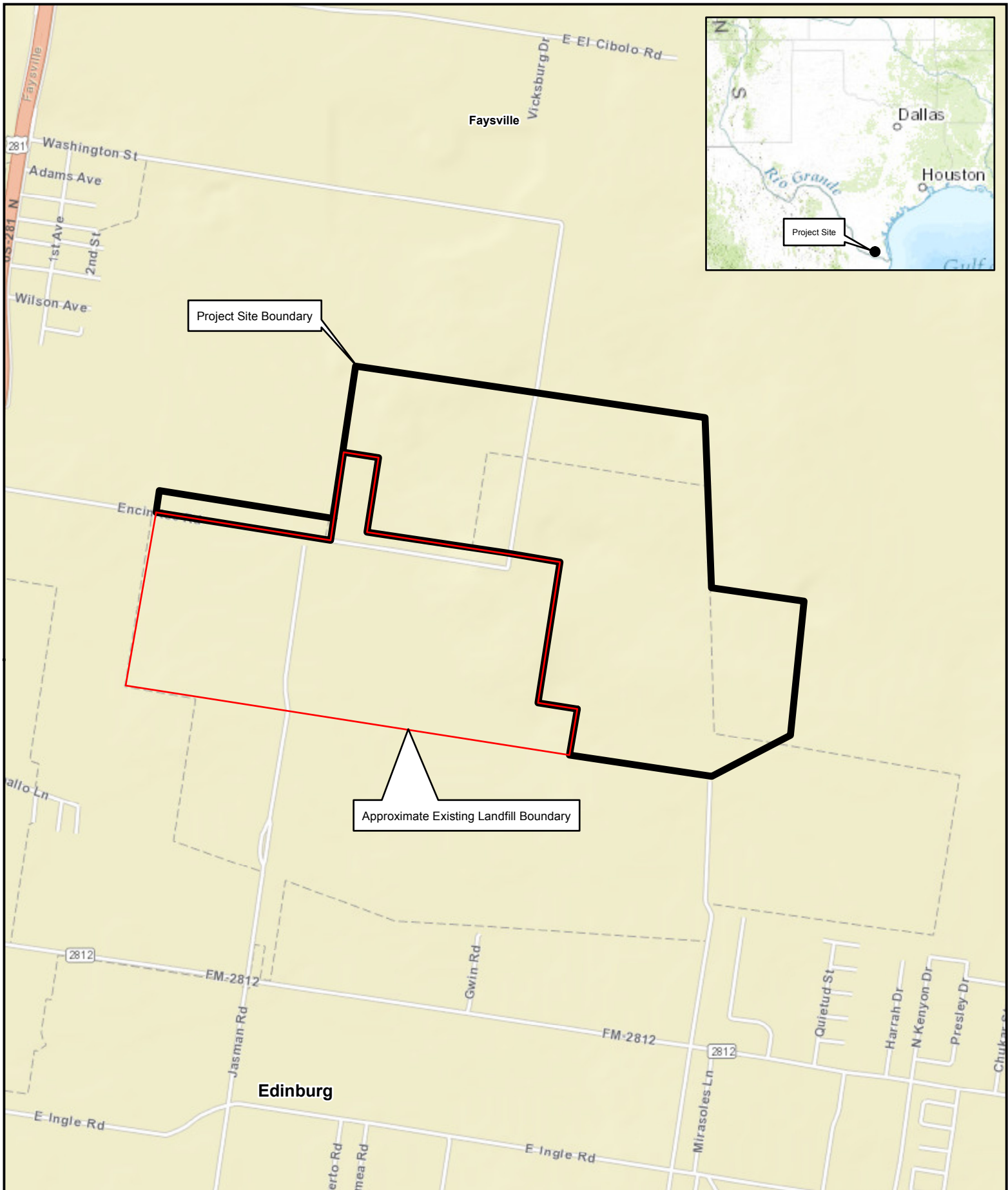
area. If active bird nests are found, options include postponement of construction until after nesting is complete or the use of species-specific buffer zones around active nests.

4.2.2 State Trust Resources

Laws and regulations pertaining to State-listed endangered or threatened animal species are contained in Chapters 67 and 68 of the Texas Parks and Wildlife Code and Sections 65.171 – 65.176 of Title 31 of the Texas Administrative Code. If potential habitat for a protected species is found within a proposed project, coordination with the TPWD Wildlife Habitat Assessment Program may be requested. Coordination typically results in the implementation of Best Management Practices (BMPs) to avoid or minimize adverse impacts to State-listed species. A general BMP for all listed species is to avoid harming a species if encountered; however, several species-specific BMPs have also been established by TPWD.

EXHIBITS 1A AND 1B

LOCATION MAP AND AERIAL PHOTOGRAPH



**Naismith
Engineering Inc**
TBPE Firm No. F-355

**EXHIBIT 1A
GENERAL VICINITY MAP
CITY OF EDINBURG
LANDFILL EXPANSION PROJECT
HIDALGO COUNTY, TEXAS**

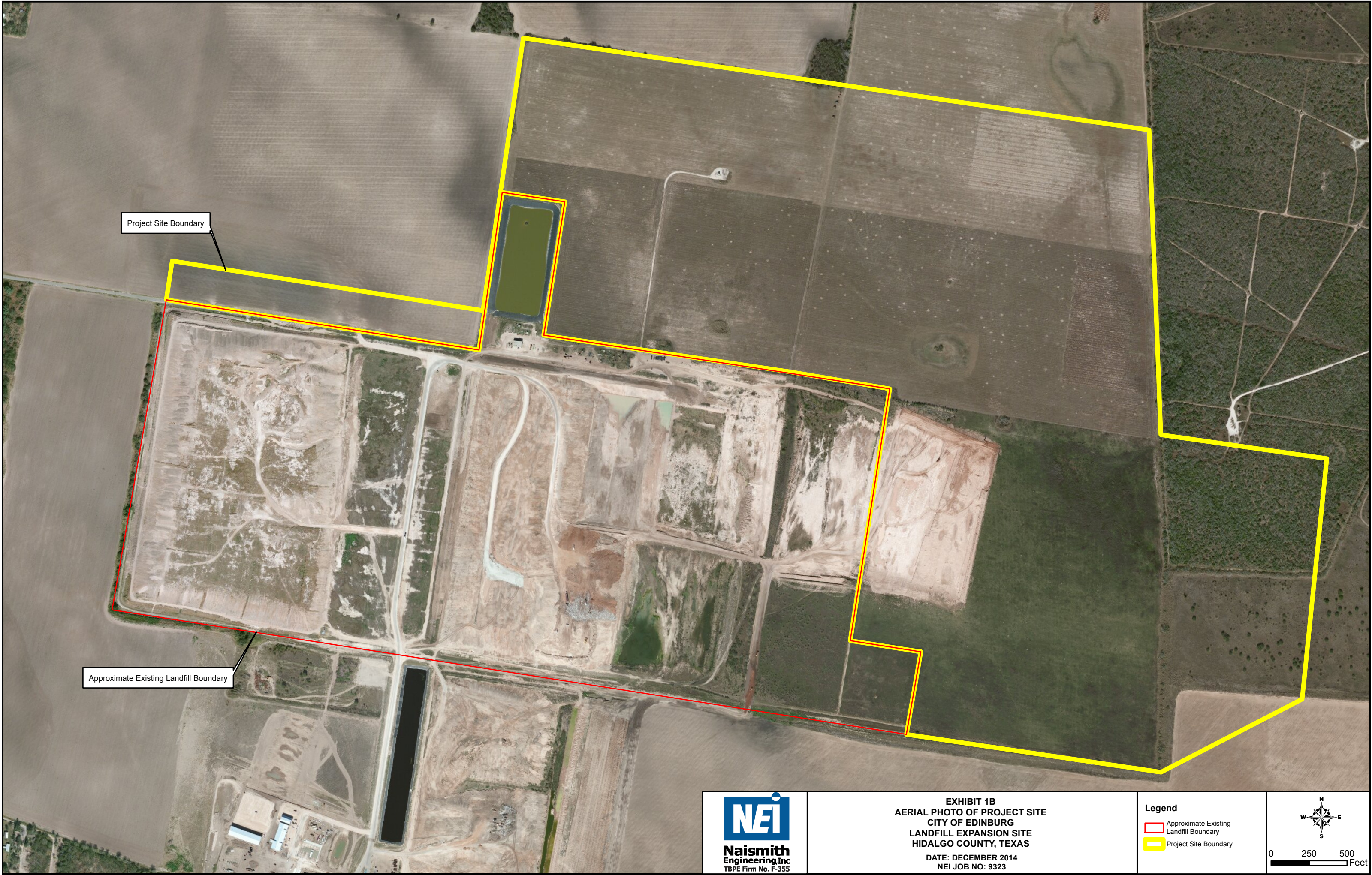
DATE: DECEMBER 2014
NEI JOB NO: 9323

Legend

- Approximate Existing Landfill Boundary
- Project Site Boundary



0 0.125 0.25 Miles



Project Site Boundary

Approximate Existing Landfill Boundary



EXHIBIT 1B
AERIAL PHOTO OF PROJECT SITE
CITY OF EDINBURG
LANDFILL EXPANSION SITE
HIDALGO COUNTY, TEXAS

DATE: DECEMBER 2014
NEI JOB NO: 9323

Legend

- Approximate Existing Landfill Boundary
- Project Site Boundary

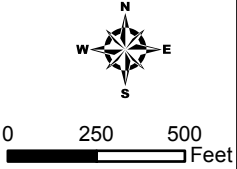
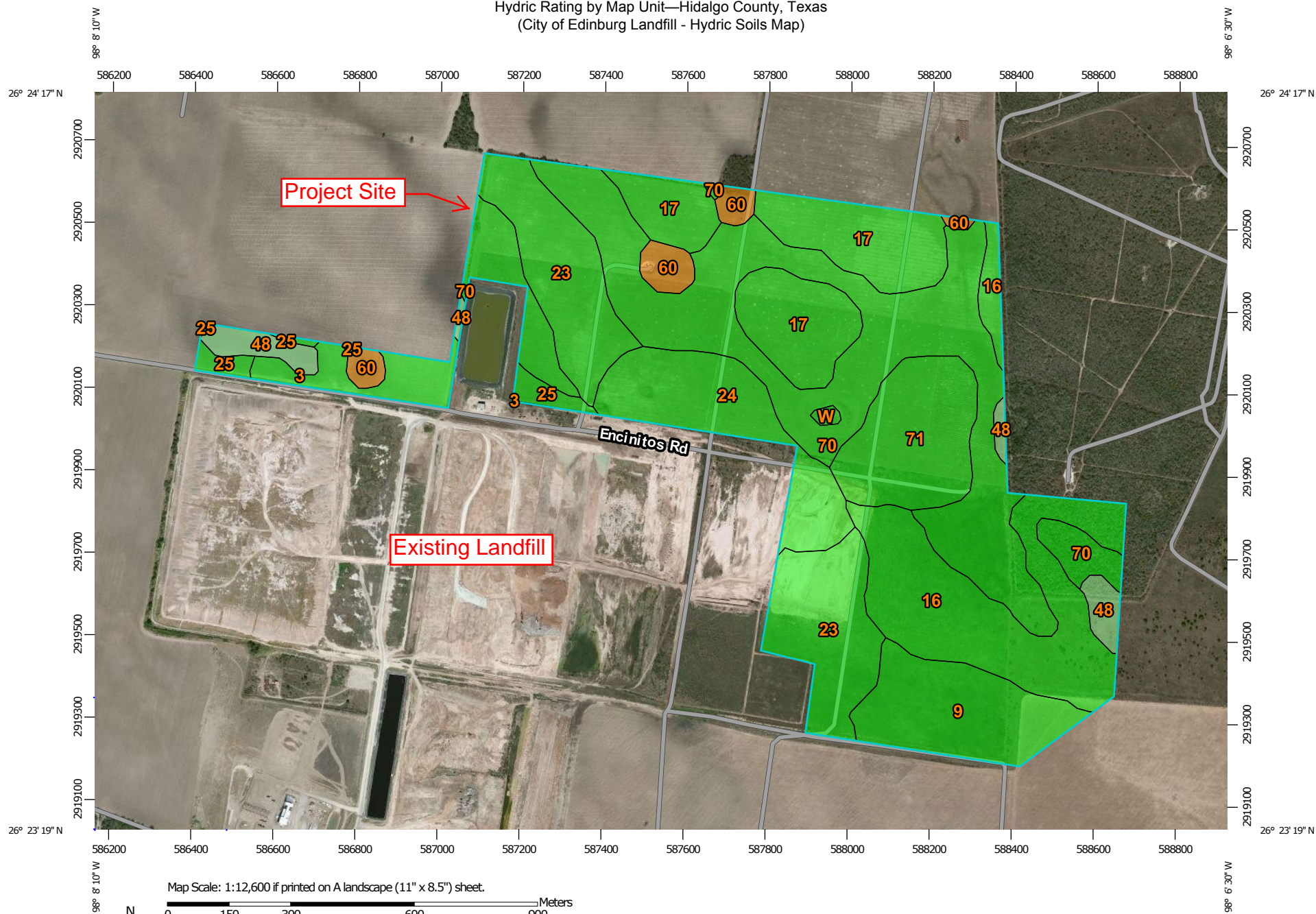


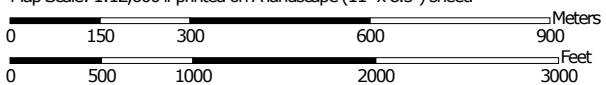
EXHIBIT 2

WEB SOIL SURVEY MAP

Hydric Rating by Map Unit—Hidalgo County, Texas (City of Edinburg Landfill - Hydric Soils Map)



Map Scale: 1:12,600 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 14N WGS84



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

4/22/2015
Page 1 of 5

Hydric Rating by Map Unit—Hidalgo County, Texas
(City of Edinburg Landfill - Hydric Soils Map)







MAP LEGEND

Area of Interest (AOI)







 Area of Interest (AOI)

Soils







Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available






Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hidalgo County, Texas
Survey Area Data: Version 11, Sep 30, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 10, 2010—Jan 25, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Hidalgo County, Texas (TX215)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Brennan fine sandy loam, 0 to 1 percent slopes	0	9.3	2.8%
9	Delfina loamy fine sand, 0 to 3 percent slopes	0	25.2	7.5%
16	Hargill fine sandy loam, 0 to 1 percent slopes	0	46.8	14.0%
17	Hargill fine sandy loam, 1 to 3 percent slopes	0	41.6	12.4%
23	Hebbronville sandy loam, 1 to 3 percent slopes	0	46.7	14.0%
24	Hebbronville sandy loam, 3 to 5 percent slopes	0	25.9	7.8%
25	Hidalgo fine sandy loam, 0 to 1 percent slopes	0	4.8	1.4%
48	Racombes sandy clay loam	5	8.5	2.5%
60	Rio clay loam	95	7.5	2.2%
70	Willacy fine sandy loam, 0 to 1 percent slopes	0	92.8	27.7%
71	Willacy fine sandy loam, 1 to 3 percent slopes	0	24.7	7.4%
W	Water	0	0.6	0.2%
Totals for Area of Interest			334.5	100.0%

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Percent Present" returns the cumulative percent composition of all components of a map unit for which a certain condition is true. For example, attribute "Hydric Rating by Map Unit" returns the cumulative percent composition of all components of a map unit where the corresponding hydric rating is "Yes". Conditions may be simple or complex. At runtime, the user may be able to specify all, some or none of the conditions in question.

Component Percent Cutoff: None Specified

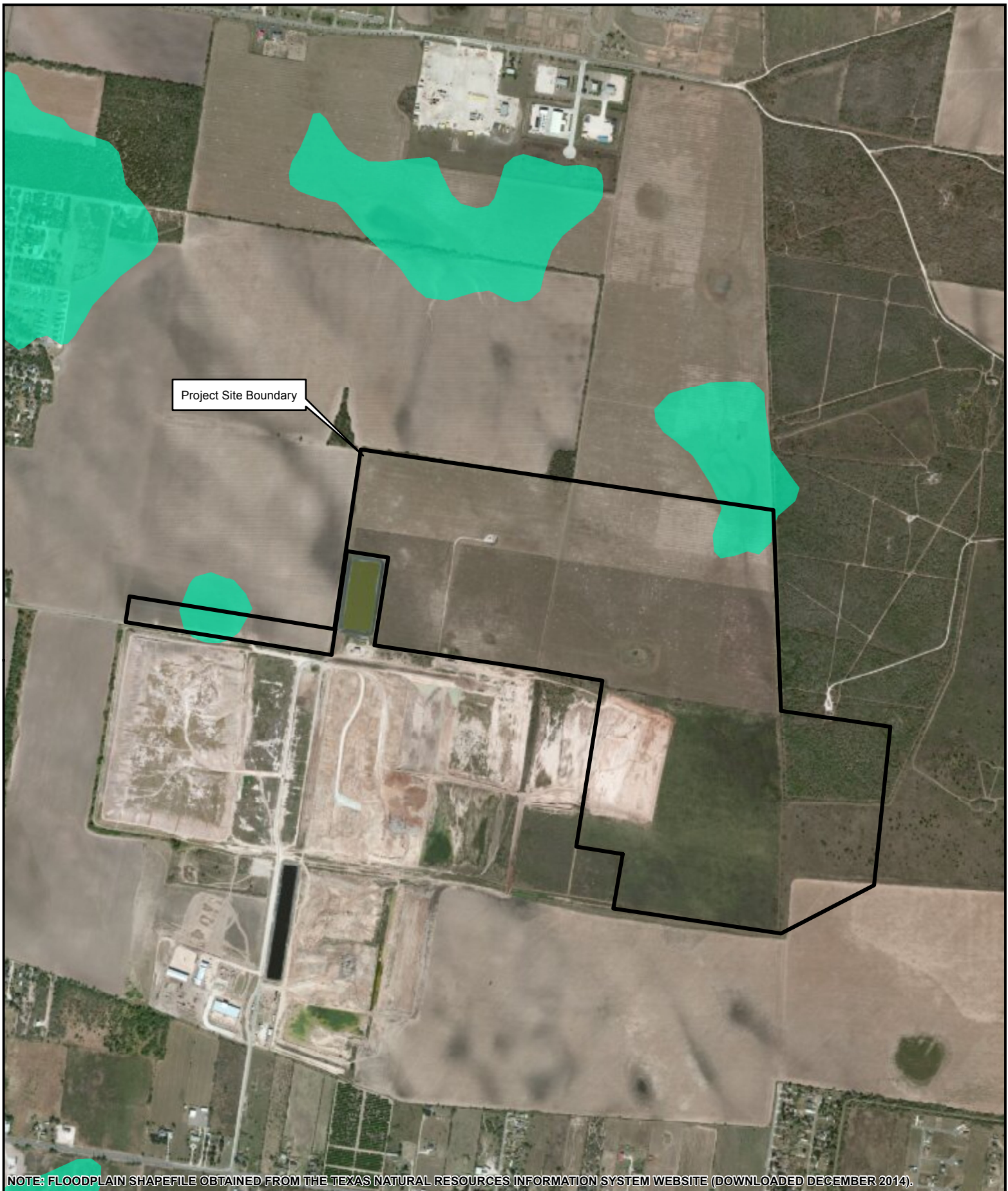
Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

EXHIBIT 3

FEMA FLOODPLAIN MAP



NOTE: FLOODPLAIN SHAPEFILE OBTAINED FROM THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM WEBSITE (DOWNLOADED DECEMBER 2014).





Naismith
Engineering, Inc.
TBPE Firm No. F-355

**EXHIBIT 3
FEMA FLOODPLAIN MAP
CITY OF EDINBURG
LANDFILL EXPANSION SITE
HIDALGO COUNTY, TEXAS**

DATE: DECEMBER 2014
NEI JOB NO: 9323

Legend

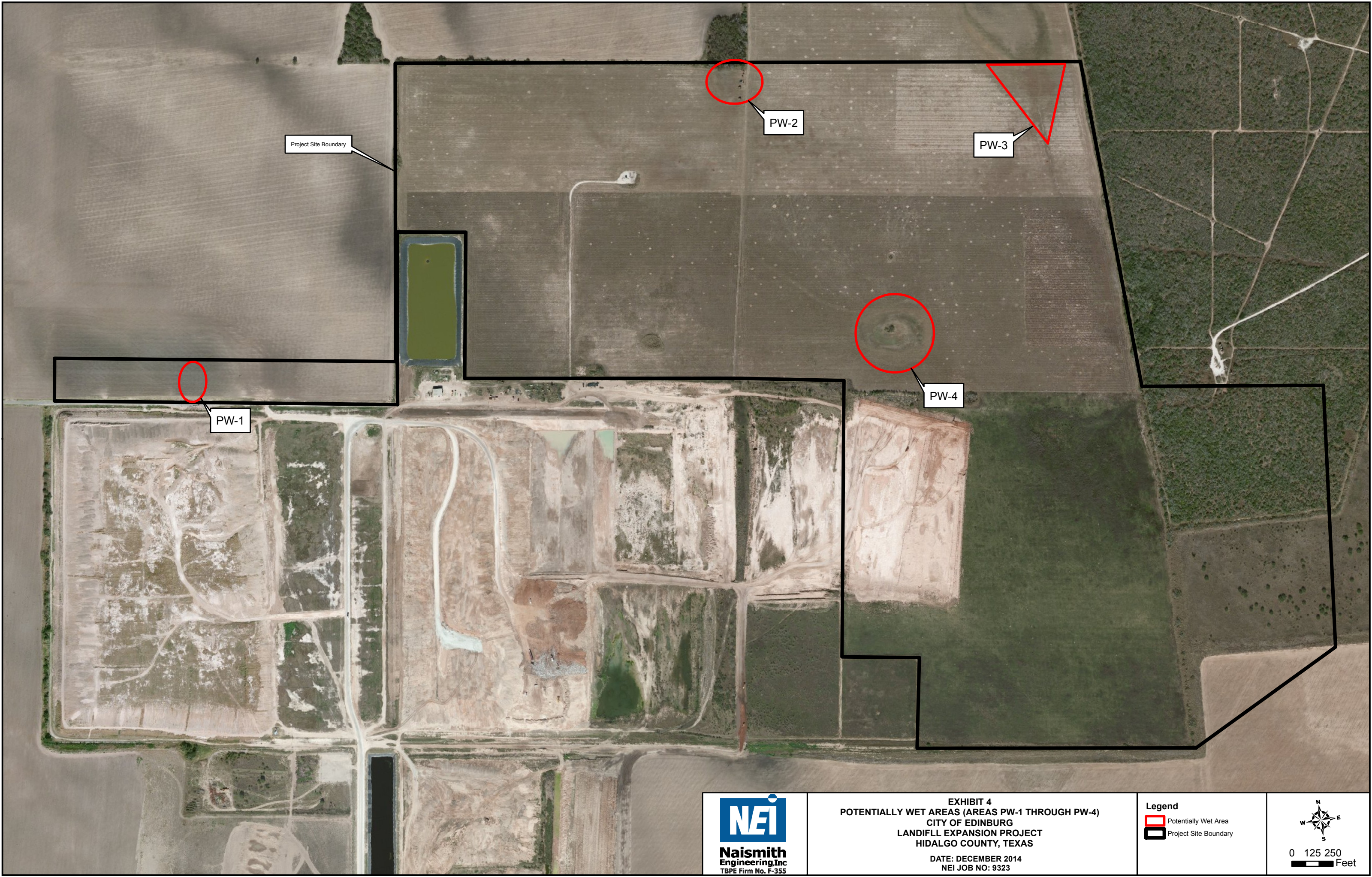
-  Project Site Boundary
-  1% Annual Chance Flood Zone



0 500 1,000
Feet

EXHIBIT 4

POTENTIALLY WET AREAS MAP



Project Site Boundary

PW-2

PW-3

PW-1

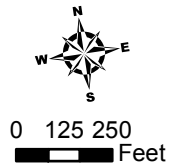
PW-4



EXHIBIT 4
POTENTIALLY WET AREAS (AREAS PW-1 THROUGH PW-4)
CITY OF EDINBURG
LANDFILL EXPANSION PROJECT
HIDALGO COUNTY, TEXAS

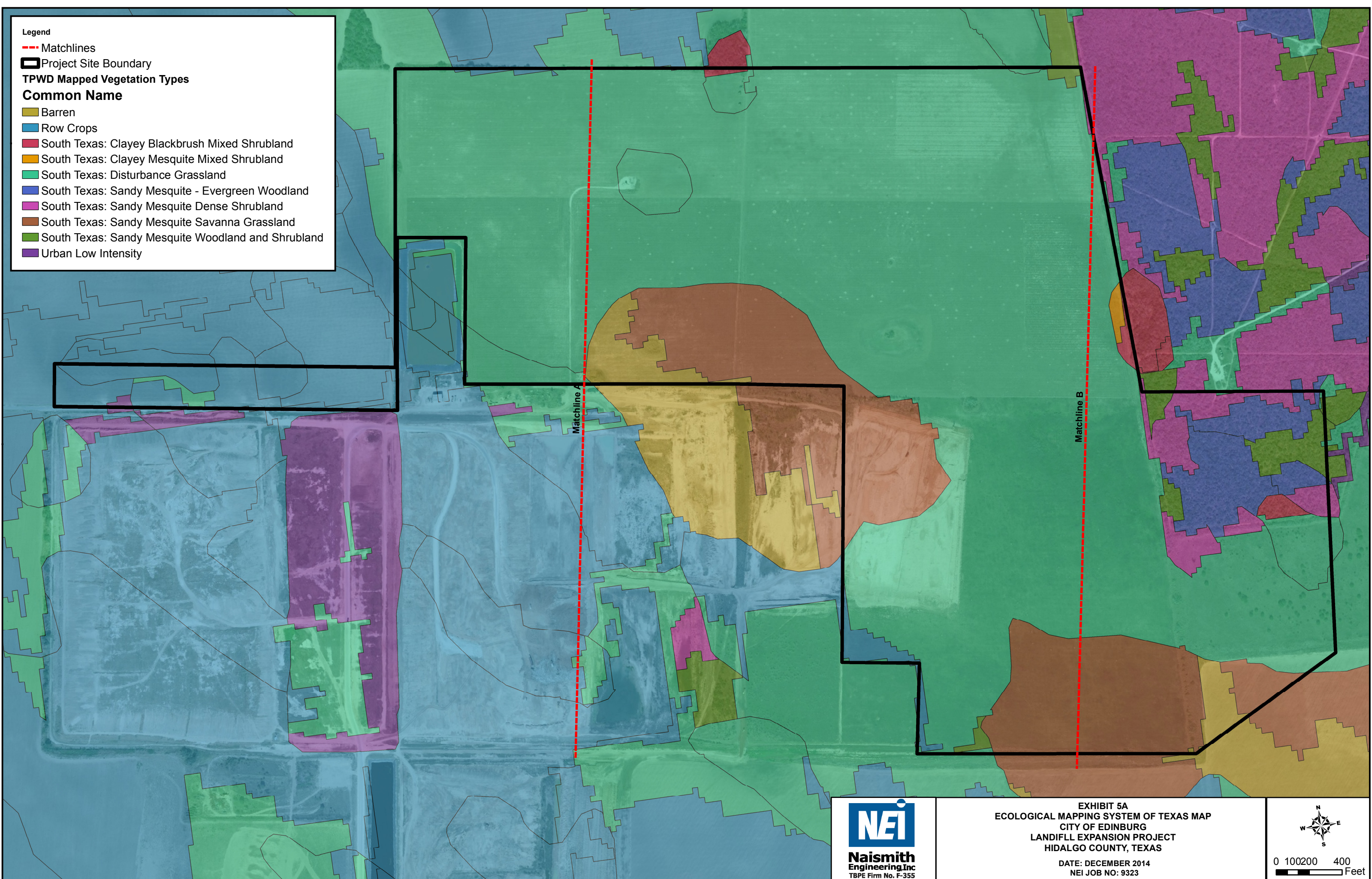
DATE: DECEMBER 2014
NEI JOB NO: 9323

Legend
 Potentially Wet Area
 Project Site Boundary



EXHIBITS 5A AND 5B

ECOLOGICAL MAPPING SYSTEM OF TEXAS (EMST) MAPS



Legend

--- Matchlines

▬ Project Site Boundary

TPWD Mapped Vegetation Types

Common Name

- Barren
- Row Crops
- South Texas: Clayey Blackbrush Mixed Shrubland
- South Texas: Clayey Mesquite Mixed Shrubland
- South Texas: Disturbance Grassland
- South Texas: Sandy Mesquite - Evergreen Woodland
- South Texas: Sandy Mesquite Dense Shrubland
- South Texas: Sandy Mesquite Savanna Grassland
- South Texas: Sandy Mesquite Woodland and Shrubland
- Urban Low Intensity



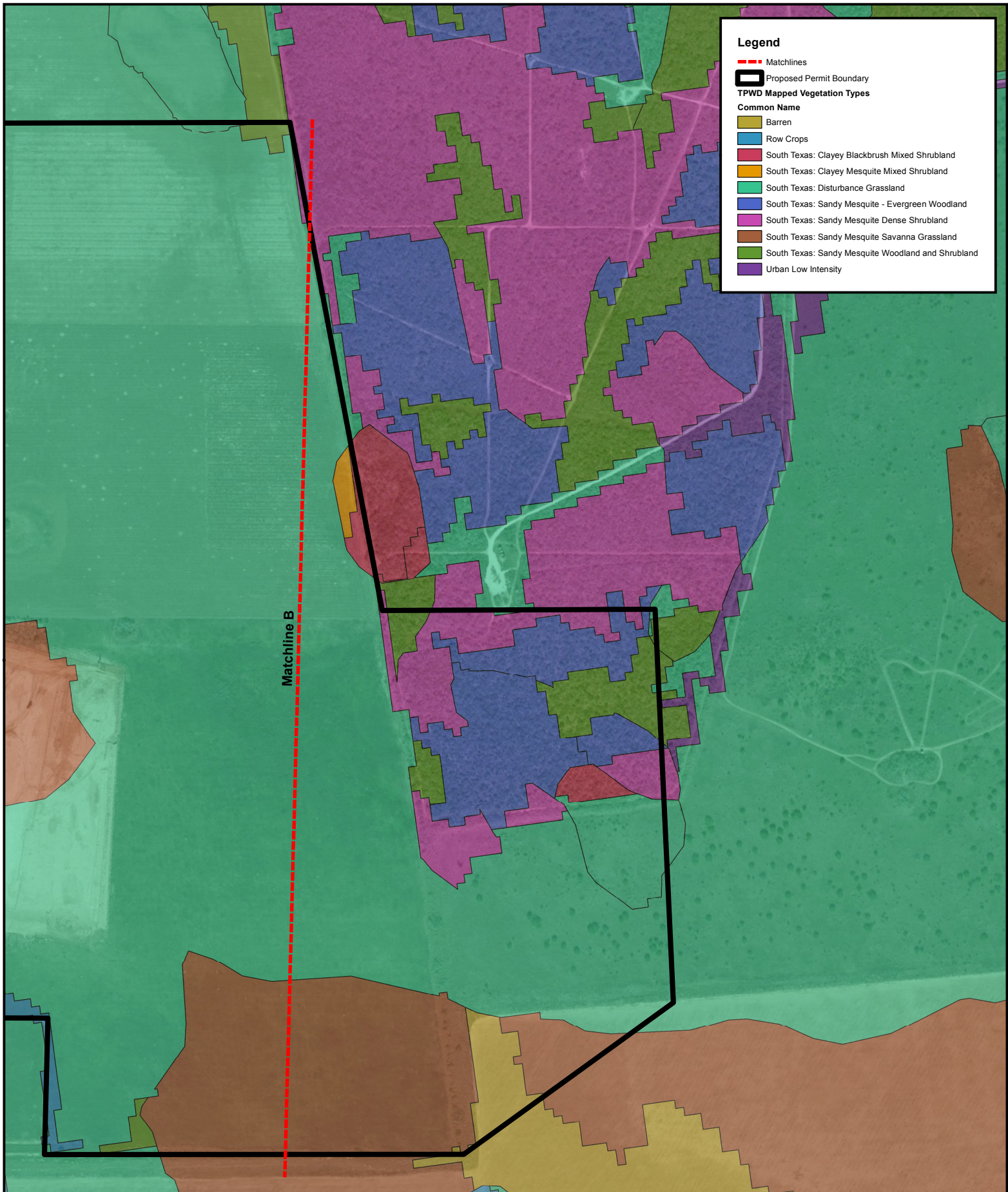
Naismith
Engineering, Inc.
TBPE Firm No. F-355

EXHIBIT 5A
ECOLOGICAL MAPPING SYSTEM OF TEXAS MAP
CITY OF EDINBURG
LANDFILL EXPANSION PROJECT
HIDALGO COUNTY, TEXAS

DATE: DECEMBER 2014
NEI JOB NO: 9323



0 100200 400
Feet



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EXHIBIT 5B
ECOLOGICAL MAPPING SYSTEM OF TEXAS MAP
CITY OF EDINBURG
LANDFILL EXPANSION PROJECT
HIDALGO COUNTY, TEXAS

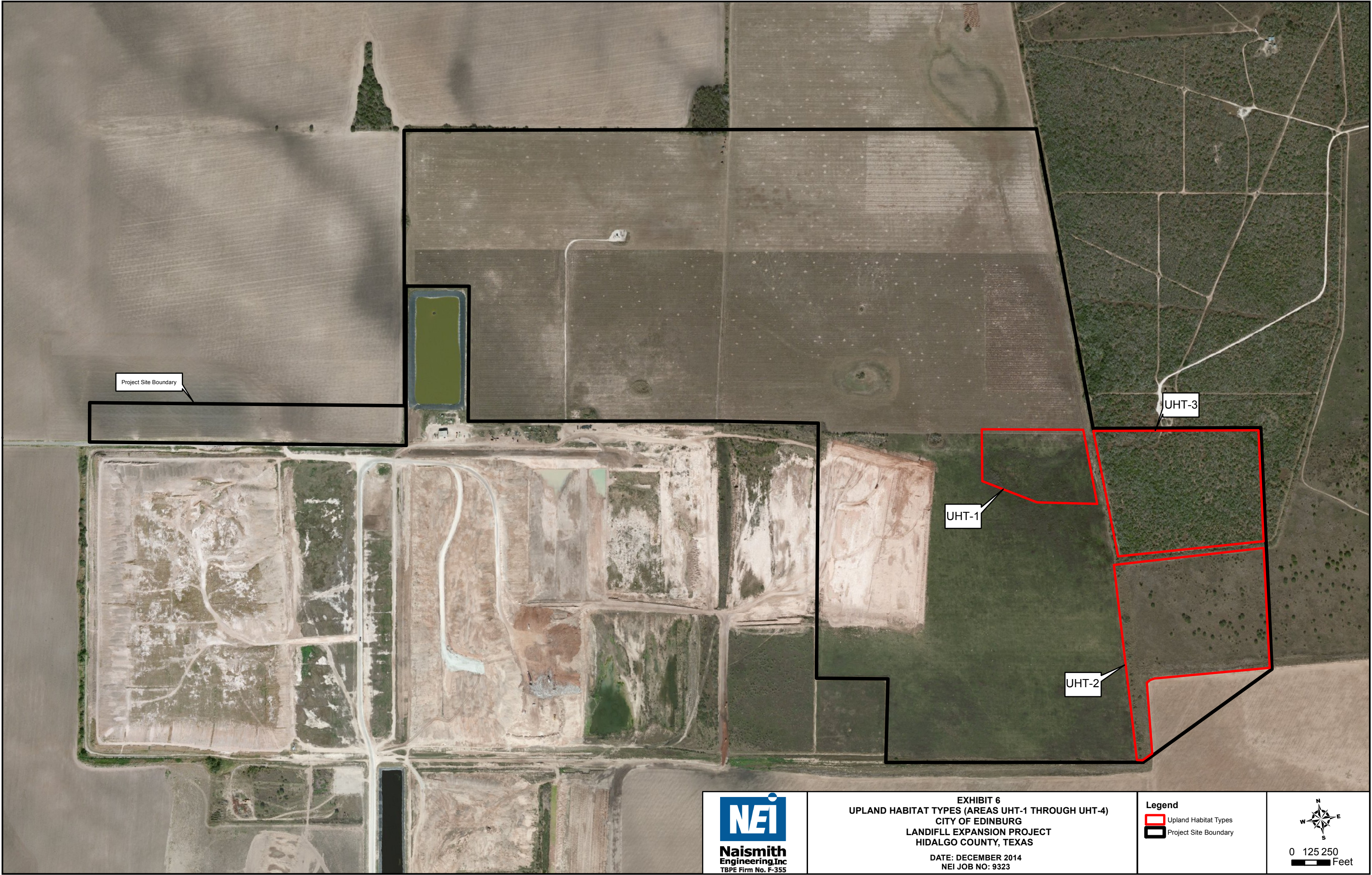
DATE: DECEMBER 2014
NEI JOB NO: 9323



0 125 250
Feet

EXHIBIT 6

UPLAND (TERRESTRIAL) HABITAT TYPES MAP



Project Site Boundary

UHT-3



UHT-1


UHT-2

NEI
Naismith
Engineering, Inc.
TBPE Firm No. F-355

EXHIBIT 6
UPLAND HABITAT TYPES (AREAS UHT-1 THROUGH UHT-4)
CITY OF EDINBURG
LANDFILL EXPANSION PROJECT
HIDALGO COUNTY, TEXAS

DATE: DECEMBER 2014
NEI JOB NO: 9323

Legend
 Upland Habitat Types
 Project Site Boundary


0 125 250
Feet

EXHIBITS 7

LARGE WOODLAND TRACTS LOCATED OUTSIDE THE PROJECT AREA

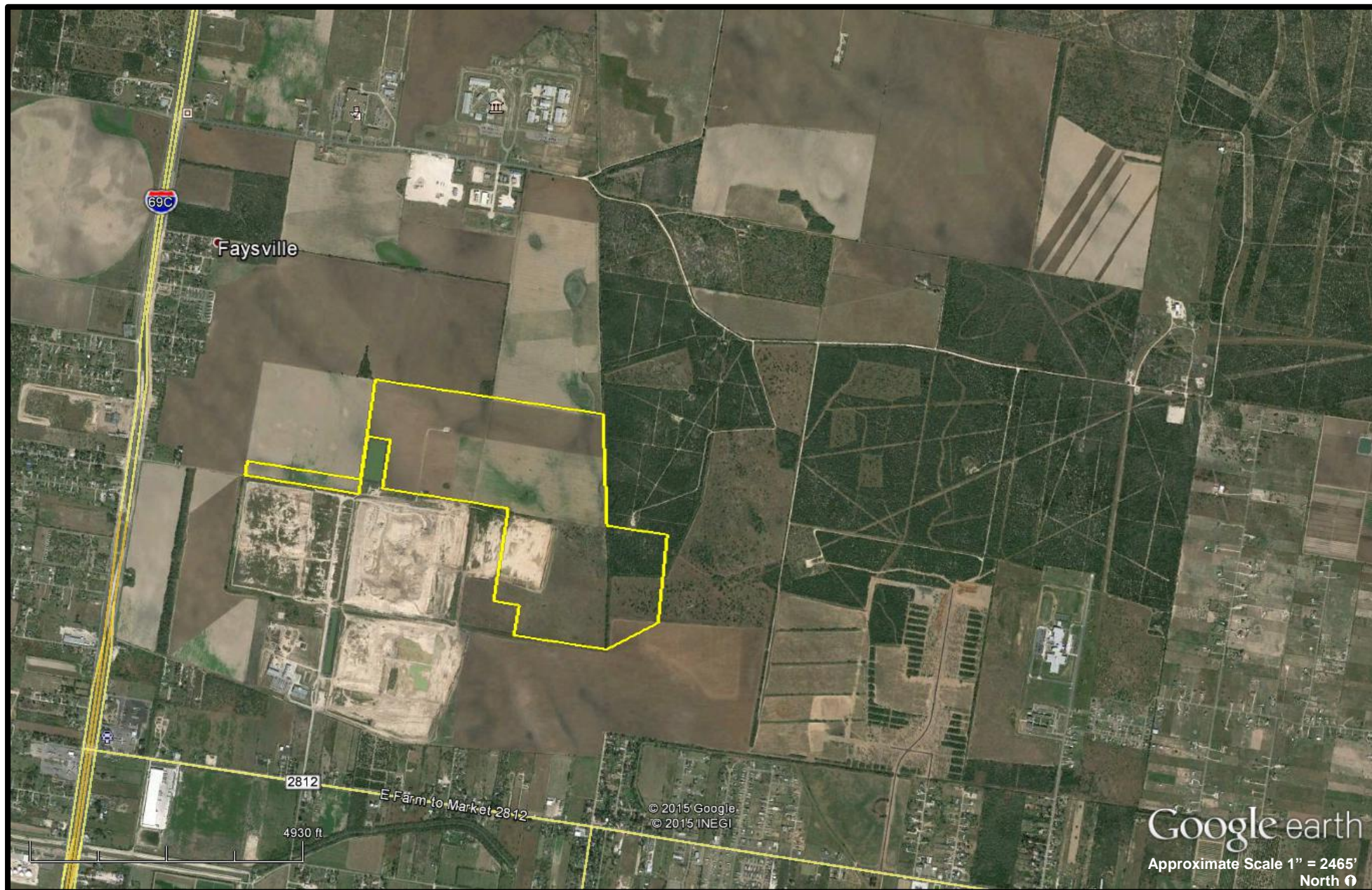


EXHIBIT 7
WOODLAND TRACTS LOCATED NORTH AND EAST OF THE PROJECT SITE
CITY OF EDINBURG
LANDFILL EXPANSION PROJECT
HIDALGO COUNTY, TEXAS

APPENDIX 1

PHOTO LOG



Photo 1 – Large lined pond near project site. While outside of the project area, this feature provides a valuable water source for a number of species and may increase the potential for some listed species' occurrence within the project area.



Photo 2 – Vegetated area near project site. Trees and dense vegetation within this area may provide habitat for a number of species and may increase the potential for some listed species' occurrence within the project area.



Photo 3 – Debris and plant litter found in vegetated area near project site. Densely vegetated areas and debris piles can provide habitat for a number of species and may increase the potential for some listed species' occurrence within the project area.



Photo 4 – Area UHT-1 habitat facing west.



Photo 5 – Area UHT-1 facing west. This photo depicts the secondary growth woody vegetation (such as huisache) and associated sparse understory.



Photo 6 – Area UHT-2 facing southeast.



Photo 7 – Area UHT-2. This photo depicts the habitat which is dominated by mature prickly pear cacti, huisache, and grasses.



Photo 8 – This photo was taken facing north along one of the berms which separates Area UHT-2 on the left and Area UHT-1 on the right.



Photo 9 – Area UHT-3 facing east. This photo illustrates the native thornscrub occurring throughout Area UHT-3.



Photo 10 – Area UHT-3 habitat.



Photo 11 – Area UHT-3 habitat. Many areas were impenetrable by walking.



Photo 12 – Animal burrows were common within and around Area UHT-3.



Photo 13 – White-tailed deer tracks observed in Area UHT-3



Photo 14 – Facing south. This photo depicts the vegetation occurring along a berm that separates Area UHT-3 on the left and UHT-1 on the right.



Photo 15 – Facing north. This wooded area is located just north of the project boundary and is dominated by Texas ebony trees. This vegetation can be used by a number of species and may increase the potential for some listed species' occurrence within the project area.



Photo 16 – Habitat within the ebony motte consists of vegetation which can be used by a number of species and may increase the potential for some listed species' occurrence within the project area.



Photo 17 – Excavated pond (PW-1) located on west side of property facing north.



Photo 18 – Northern project boundary facing west. The woodlands on the right are north of the project's boundary line. Area PW-1 is in the left of the photo within the project boundary.



Photo 19 – Northern project boundary facing east. Area PW-3 is located in the right of the photo.



Photo 20 – 0.358 acre wetland (PW-4) located in the open agricultural field.



Photo 21 – Area PW-4 facing southwest.

APPENDIX 2

PLANT LIST

City of Edinburg
Solid Waste Landfill Expansion Project
 Comprehensive List of Plants Observed During
 November 17 and 18, 2014 Site Visits

Taxon and Scientific Name	Common Names
Liliopsida (Monocots)	
Alismataceae (Water Plantain Family)	
<i>Sagittaria latifolia</i>	Broadleaf Arrowhead, Duck Potato, Arrowhead
Arecaceae (Palm Family)	
<i>Sabal mexicana</i>	Texas Palm, Mexican Palm, Rio Grande Palmetto
<i>Washingtonia robusta</i>	Washingtonia Palm, Washington Fan Palm
Cyperaceae (Sedge Family)	
<i>Cyperus rotundus</i>	Purple Nutsedge, Purple Nutgrass
<i>Cyperus spp.</i>	Unknown Sedge
Poaceae (Grass Family)	
<i>Aristida longespica</i>	Kearney's Threeawn, Slimspike Threeawn
<i>Cenchrus spinifex</i>	Coastal Sandbur, Southern Sandbur, Field Sandbur, Spiny Burrgrass
<i>Cynodon dactylon</i>	Bermudagrass
<i>Dichanthium annulatum</i>	Kleberg Bluestem
<i>Echinochloa crus-galli</i>	Barnyard Grass
<i>Eragrostis lugens</i>	Mourning Lovegrass
<i>Melinis repens</i>	Natal Grass, Sweet Natal Grass, Rose Natal Grass
<i>Pennisetum ciliare</i>	Buffelgrass
<i>Trichloris pluriflora</i>	Multiflower False Rhodesgrass
<i>Urochloa maxima</i>	Guineagrass
Magnoliopsida (Dicots)	
Anacardiaceae (Sumac Family)	
<i>Rhus microphylla</i>	Little Leaf Sumac, Desert Sumac, Agritos
Asteraceae (Aster Family)	
<i>Ageratina havanensis</i>	White Mistflower, White Shrub Mistflower, Havana Snakeroot, Shrubby Boneset
<i>Baccharis neglecta</i>	Roosevelt Weed, Poverty Weed, False Willow, Depression Weed
<i>Chromolaena odorata</i>	Crucita, Blue Mistflower, Fragrant Mistflower, Fragrant Boneset, Jack in the Bush
<i>Helianthus annuus</i>	Annual Sunflower, Common Sunflower, Mirasol
<i>Palafoxia texana</i> var. <i>ambigua</i>	Texas Doubtful Palafoxia, Texas Palafox
<i>Pseudognaphalium austrotexanum</i>	South Texas False Cudweed, Texas Rabbit-Tobacco
<i>Symphotrichum subulatum</i>	Annual Aster, Baby's Breath Aster, Eastern Annual Saltmarsh Aster, Blackland Aster
<i>Trixis inula</i>	Mexican Trixis, Tropical Threefold
<i>Verbesina encelioides</i>	Cowpen Daisy, Golden Crownbeard, Butter Daisy
Boraginaceae (Borage Family)	

City of Edinburg
Solid Waste Landfill Expansion Project
 Comprehensive List of Plants Observed During
 November 17 and 18, 2014 Site Visits

Taxon and Scientific Name	Common Names
<i>Cordia boissieri</i>	Mexican Olive, Anacahuita, Texas Wild Olive
Cactaceae (Cactus Family)	
<i>Cylindropuntia leptocaulis</i>	Tasajillo, Christmas Cactus, Christmas Cholla, Pencil Cactus, Desert Christmas Cactus
<i>Echinocereus berlandieri</i>	Berlandier's Hedgehog Cactus, Berlandier's Alicoche
<i>Opuntia engelmannii</i> var. <i>lindheimeri</i>	Texas Prickly Pear, Prickly Pear Cactus, Lindheimer's Prickly Pear, Nopal
Capparaceae (Caper Family)	
<i>Koeberlinia spinosa</i>	Spiny Allthorn, Crown of Thorns, Allthorn, Junco
Celastraceae (Bittersweet Family)	
<i>Schaefferia cuneifolia</i>	Desert Yaupon
Convolvulaceae (Morning Glory Family)	
<i>Ipomoea amnicola</i>	Red Center Morning Glory
Cucurbitaceae (Cucumber Family)	
<i>Citrullus lanatus</i> var. <i>citroides</i>	Wild Citron Melon
<i>Melothria pendula</i>	Meloncito, Speckled Gourd, Guadeloupe Cucumber
Euphorbiaceae (Spurge Family)	
<i>Croton incanus</i>	Torrey's Croton
<i>Ricinus communis</i>	Castor Bean
Fabaceae (Pea Family)	
<i>Acacia farnesiana</i>	Huisache, Sweet Acacia
<i>Acacia rigidula</i>	Blackbrush Acacia, Catclaw, Chaparro Prieto, Blackbrush
<i>Acacia schaffneri</i>	Twisted Acacia, Huisachillo, Schaffner's Wattle
<i>Ebenopsis ebano</i>	Texas Ebony, Ebano
<i>Leucaena leucocephala</i>	White Lead-Tree, Popinac, White Popinac Lead-Tree
<i>Parkinsonia aculeata</i>	Retama, Palo Verde, Mexican Palo Verde, Jerusalem Thorn
<i>Prosopis glandulosa</i>	Honey Mesquite
<i>Sophora secundiflora</i>	Texas Mountain Laurel, Mescal Bean, Mescal Bean Sophora, Mountain Laurel, Frijolito
Malvaceae (Mallow Family)	
<i>Abutilon trisulcatum</i>	Three Furrowed Indian Mallow, Anglestem Indian Mallow
Oleaceae (Olive Family)	
<i>Forestiera angustifolia</i>	Narrow Leaf Forestiera, Tanglewood, Desert Olive, Texas Swamp-Privet, Panalero

City of Edinburg
Solid Waste Landfill Expansion Project
 Comprehensive List of Plants Observed During
 November 17 and 18, 2014 Site Visits

Taxon and Scientific Name	Common Names
Polygonaceae (Buckwheat Family)	
<i>Polygonum pensylvanicum</i>	Pink Smartweed, Pennsylvania Smartweed
Polygonaceae (Buckwheat Family)	
<i>Rumex chrysocarpus</i>	Golden Fruited Dock, Amamastla
Ranunculaceae (Buttercup Family)	
<i>Clematis drummondii</i>	Texas Virgin's Bower, Old Man's Beard, Drummond's Clematis, Goat's Beard
Rhamnaceae (Buckthorn Family)	
<i>Colubrina texensis</i>	Texas Hogplum, Hogplum, Texas Colubrina, Texas Snakewood
<i>Condalia hookeri</i>	Bluewood Condalia, Brasil, Brazilian Bluewood, Brazilwood
<i>Condalia spathulata</i>	Knifefleaf Condalia, Squawbush
<i>Karwinskia humboldtiana</i>	Coyotillo, Humboldt Coyotillo
Rutaceae (Rue Family)	
<i>Zanthoxylum fagara</i>	Lime Prickly Ash, Colima
Sapindaceae (Soapberry Family)	
<i>Cardiospermum halicacabum</i>	Common Balloon Vine
Scrophulariaceae (Figwort Family)	
<i>Leucophyllum frutescens</i>	Cenizo, Purple Sage, Texas Barometer Bush, Texas Silverleaf, Texas Ranger, Texas Sage
Simaroubaceae (Quassia-Wood Family)	
<i>Castela erecta</i> spp. <i>texana</i>	Allthorn Goatbush, Goatbush, Amargoso
Solanaceae (Potato Family)	
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade, White Horse Nettle, Trompillo, Tomato Weed
<i>Solanum triquetrum</i>	Texas Nightshade, Hierba Mora
Tamaricaceae (Tamarisk Family)	
<i>Tamarix ramosissima</i>	Salt Cedar, Tamarisk
Ulmaceae (Elm Family)	
<i>Celtis ehrenbergiana</i>	Spiny Hackberry, Granjeno, Desert Hackberry, Shiny Hackberry
<i>Celtis laevigata</i>	Sugar Hackberry, Hackberry, Palo Blanco, Texas Sugarberry
Verbenaceae (Verbena Family)	
<i>Lantana urticoides</i>	Texas Lantana, Calico Bush

APPENDIX 3

STATE AND FEDERAL SPECIES LISTS FOR HIDALGO COUNTY AND TEXAS NATURAL DIVERSITY DATABASE

HIDALGO COUNTY

AMPHIBIANS

		Federal Status	State Status
Black-spotted newt	<i>Notophthalmus meridionalis</i>		T
can be found in wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods; Gulf Coastal Plain south of the San Antonio River			
Mexican treefrog	<i>Smilisca baudinii</i>		T
subtropical region of extreme southern Texas; breeds May-October coinciding with rainfall, eggs laid in temporary rain pools			
Sheep frog	<i>Hypopachus variolosus</i>		T
predominantly grassland and savanna; moist sites in arid areas			
South Texas siren (large form)	<i>Siren sp 1</i>		T
wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods, but does require some moisture to remain; southern Texas south of Balcones Escarpment; breeds February-June			
White-lipped frog	<i>Leptodactylus fragilis</i>		T
grasslands, cultivated fields, roadside ditches, and a wide variety of other habitats; often hides under rocks or in burrows under clumps of grass; species requirements incompatible with widespread habitat alteration and pesticide use in south Texas			

BIRDS

		Federal Status	State Status
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	DL	T
year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.			
Arctic Peregrine Falcon	<i>Falco peregrinus tundrius</i>	DL	
migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.			
Audubon's Oriole	<i>Icterus graduacauda audubonii</i>		
scrub, mesquite; nests in dense trees, or thickets, usually along water courses			
Brownsville Common Yellowthroat	<i>Geothlypis trichas insperata</i>		
tall grasses and bushes near ponds, marshes, and swamps; breeding April to July			

HIDALGO COUNTY

BIRDS

		Federal Status	State Status
Cactus Ferruginous Pygmy-Owl	<i>Glaucidium brasilianum cactorum</i>		T
riparian trees, brush, palm, and mesquite thickets; during day also roosts in small caves and recesses on slopes of low hills; breeding April to June			
Common Black-Hawk	<i>Buteogallus anthracinus</i>		T
cottonwood-lined rivers and streams; willow tree groves on the lower Rio Grande floodplain; formerly bred in south Texas			
Gray Hawk	<i>Asturina nitida</i>		T
locally and irregularly along U.S.-Mexico border; mature riparian woodlands and nearby semiarid mesquite and scrub grasslands; breeding range formerly extended north to southernmost Rio Grande floodplain of Texas			
Hook-billed Kite	<i>Chondrohierax uncinatus</i>		
dense tropical and subtropical forests, but does occur in open woodlands; uncommon to rare in most of range; accidental in south Texas			
Interior Least Tern	<i>Sterna antillarum athalassos</i>	LE	E
subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony			
Mountain Plover	<i>Charadrius montanus</i>		
breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous			
Northern Aplomado Falcon	<i>Falco femoralis septentrionalis</i>	LE	E
open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species			
Northern Beardless-Tyrannulet	<i>Camptostoma imberbe</i>		T
mesquite woodlands; near Rio Grande frequents cottonwood, willow, elm, and great leadtree; breeding April to July			
Peregrine Falcon	<i>Falco peregrinus</i>	DL	T
both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.			
Reddish Egret	<i>Egretta rufescens</i>		T
resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear			

HIDALGO COUNTY

BIRDS

		Federal Status	State Status
Rose-throated Becard	<i>Pachyramphus aglaiae</i>		T
riparian trees, woodlands, open forest, scrub, and mangroves; breeding April to July			
Sennett's Hooded Oriole	<i>Icterus cucullatus sennetti</i>		
often builds nests in and of Spanish moss (<i>Tillandsia unioides</i>); feeds on invertebrates, fruit, and nectar; breeding March to August			
Southeastern Snowy Plover	<i>Charadrius alexandrinus tenuirostris</i>		
wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats			
Sprague's Pipit	<i>Anthus spragueii</i>	C	
only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.			
Texas Botteri's Sparrow	<i>Aimophila botterii texana</i>		T
grassland and short-grass plains with scattered bushes or shrubs, sagebrush, mesquite, or yucca; nests on ground of low clump of grasses			
Tropical Parula	<i>Parula pitiaiyumi</i>		T
dense or open woods, undergrowth, brush, and trees along edges of rivers and resacas; breeding April to July			
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>		
open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows			
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>		
uncommon breeder in the Panhandle; potential migrant; winter along coast			
White-faced Ibis	<i>Plegadis chihi</i>		T
prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats			
White-tailed Hawk	<i>Buteo albicaudatus</i>		T
near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May			
Wood Stork	<i>Mycteria americana</i>		T
forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960			

HIDALGO COUNTY

BIRDS

		Federal Status	State Status
Zone-tailed Hawk	<i>Buteo albonotatus</i>		T
arid open country, including open deciduous or pine-oak woodland, mesa or mountain country, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions			

FISHES

		Federal Status	State Status
American eel	<i>Anguilla rostrata</i>		
coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters, metamorphose, then females move into freshwater; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes; can travel overland in wet areas; males in brackish estuaries; diet varies widely, geographically, and seasonally			
Rio Grande shiner	<i>Notropis jemezianus</i>		
Rio Grande and upper Pecos River basins; large, open, weedless rivers or large creeks with bottom of rubble, gravel and sand, often overlain with silt			
Rio Grande silvery minnow	<i>Hybognathus amarus</i>	LE	E
extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves			
River goby	<i>Awaous banana</i>		T
Southern coastal waters; clear water with slow to moderate current, sandy or hard bottom, and little or no vegetation; also enters brackish and ocean waters			

INSECTS

		Federal Status	State Status
A mayfly	<i>Campsurus decoloratus</i>		
TX and MX; possibly clay substrates; mayflies distinguished by aquatic larval stage; adult stage generally found in shoreline vegetation			
A Royal moth	<i>Sphingicampa blanchardi</i>		
woodland - hardwood; Tamaulipan thornscrub with caterpillar's host plant, Texas Ebony (<i>Pitheocellobium flexicaule</i>) an important element			
A tiger beetle	<i>Tetracha affinis angustata</i>		
most tiger beetles diurnal, open sandy areas, beaches, open paths or lanes, or on mudflats; larvae in hard-packed ground in vertical burrows			
Arroyo darner	<i>Aeshna dugesi</i>		
creek, high - moderate gradient; eggs laid in aquatic plants, larvae cling to bottom of pools of streams, adults forage widely in pools in streams, from desert up to pine-oak zone; invertivore, diurnal; larvae overwinter, flight season late June to early September			

HIDALGO COUNTY

INSECTS

Federal Status

State Status

Los Olmos tiger beetle

Cicindela nevadica olmosa

most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches

Manfreda giant-skipper

Stallingsia maculosus

most skippers are small and stout-bodied; name derives from fast, erratic flight; at rest most skippers hold front and hind wings at different angles; skipper larvae are smooth, with the head and neck constricted; skipper larvae usually feed inside a leaf shelter and pupate in a cocoon made of leaves fastened together with silk

Neojvenile tiger beetle

Cicindela obsoleta neojjuvenilis

bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas; peak adult activity in Jul

Rawson's metalmark

Calephelis rawsoni

moist areas in shaded limestone outcrops in central Texas, desert scrub or oak woodland in foothills, or along rivers elsewhere; larval hosts are *Eupatorium havanense*, *E. greggii*.

Subtropical blue-black tiger beetle

Cicindela nigrocoerulea subtropica

most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches

Tamaulipan agapema

Agapema galbina

Tamaulipan thornscrub with adequate densities of the caterpillar foodplant *Condalia hookeri hookeri* (= *obovata*); adults occur Sep - Oct; eggs hatch within two weeks and larvae mature 'rapidly'

MAMMALS

Federal Status

State Status

Cave myotis bat

Myotis velifer

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Coues' rice rat

Oryzomys couesi

T

cattail-bulrush marsh with shallower zone of aquatic grasses near the shoreline; shade trees around the shoreline are important features; prefers salt and freshwater, as well as grassy areas near water; breeds April-August

Ghost-faced bat

Mormoops megalophylla

colonially roosts in caves, crevices, abandoned mines, and buildings; insectivorous; breeds late winter-early spring; single offspring born per year

HIDALGO COUNTY

MAMMALS

		Federal Status	State Status
Jaguar	<i>Panthera onca</i>	LE	E
extirpated; dense chaparral; no reliable TX sightings since 1952			
Jaguarundi	<i>Herpailurus yaguarondi</i>	LE	E
thick brushlands, near water favored; 60 to 75 day gestation, young born sometimes twice per year in March and August, elsewhere the beginning of the rainy season and end of the dry season			
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>		
deep canyons where uses caves and mine tunnels as day roosts; also found in buildings and often associated with big-eared bats (<i>Plecotus</i> spp.); single TX record from Santa Ana NWR			
Ocelot	<i>Leopardus pardalis</i>	LE	E
dense chaparral thickets; mesquite-thorn scrub and live oak mottes; avoids open areas; breeds and raises young June-November			
Plains spotted skunk	<i>Spilogale putorius interrupta</i>		
catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie			
Southern yellow bat	<i>Lasiurus ega</i>		T
associated with trees, such as palm trees (<i>Sabal mexicana</i>) in Brownsville, which provide them with daytime roosts; insectivorous; breeding in late winter			
White-nosed coati	<i>Nasua narica</i>		T
woodlands, riparian corridors and canyons; most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade			

MOLLUSKS

		Federal Status	State Status
False spike mussel	<i>Quadrula mitchelli</i>		T
possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins			
Salina mucket	<i>Potamilus metnecktayi</i>		T
lotic waters; submerged soft sediment (clay and silt) along river bank; other habitat requirements are poorly understood; Rio Grande Basin			
Texas hornshell	<i>Popenaias popeii</i>	C	T
both ends of narrow shallow runs over bedrock, in areas where small-grained materials collect in crevices, along river banks, and at the base of boulders; not known from impoundments; Rio Grande Basin and several rivers in Mexico			

HIDALGO COUNTY

REPTILES

		Federal Status	State Status
Black-striped snake	<i>Coniophanes imperialis</i>		T
extreme south Texas; semi-arid coastal plain, warm, moist micro-habitats and sandy soils; proficient burrower; eggs laid April-June			
Northern cat-eyed snake	<i>Leptodeira septentrionalis</i> <i>septentrionalis</i>		T
Gulf Coastal Plain south of the Nueces River; thorn brush woodland; dense thickets bordering ponds and streams; semi-arboreal; nocturnal			
Reticulate collared lizard	<i>Crotaphytus reticulatus</i>		T
requires open brush-grasslands; thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils; often on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite			
Speckled racer	<i>Drymobius margaritiferus</i>		T
extreme south Texas; dense thickets near water, Texas palm groves, riparian woodlands; often in areas with much vegetation litter on ground; breeds April-August			
Spot-tailed earless lizard	<i>Holbrookia lacerata</i>		
central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground			
Texas horned lizard	<i>Phrynosoma cornutum</i>		T
open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September			
Texas indigo snake	<i>Drymarchon melanurus erebennus</i>		T
Texas south of the Guadalupe River and Balcones Escarpment; thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows, for shelter			
Texas tortoise	<i>Gopherus berlandieri</i>		T
open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November			

PLANTS

		Federal Status	State Status
Amelia's abronia	<i>Abronia ameliae</i>		
Occurs on deep, well-drained sandy soils of the South Texas Sand Sheet in grassy and/or herbaceous dominated openings within coastal live oak woodlands or mesquite-coastal live oak woodlands.			

HIDALGO COUNTY

PLANTS

Federal Status

State Status

Bailey's ballmoss

Tillandsia baileyi

epiphytic on various trees and tall shrubs, perhaps most common in mottes of Live oak on vegetated dunes and flats in coastal portions of the South Texas Sand Sheet, but also on evergreen sub-tropical woodlands along resacas in the Lower Rio Grande Valley; flowering (February-)April-May, but conspicuous throughout the year

Chihuahua balloon-vine

Cardiospermum dissectum

Thorn shrublands or low woodlands on well to excessively well drained, calcareous, sandy to gravelly soils in drier uplands of the Lower Rio Grande Valley, in areas underlain by the Goliad formation, Catahoula and Frio formations undivided, Jackson Group, and other Eocene formations; during drought conditions the normally inconspicuous slender twining vine turns a more conspicuous deep reddish-purple; flowering (April-) July-September, probably throughout the growing season in response to rainfall.

Falfurrias milkvine

Matelea radiata

Texas endemic; uncertain, only two known specimens; one from clay soil on dry gravel hills at altitude of approximately 45 m (150 ft); other from Falfurrias, no habitat description; probably flowering May-June

Gregg's wild-buckwheat

Eriogonum greggii

sparingly vegetated openings in thorn shrublands in shallow soils on xeric ridges along the Rio Grande; also on excessively drained, sandy soil over caliche and calcareous sandstone of the Goliad Formation and over sandstone or fossiliferous layers of the Jackson Group; flowering February-July, probably opportunistically during the growing season

Mexican mud-plantain

Heteranthera mexicana

wet clayey soils of resacas and ephemeral wetlands in South Texas and along margins of playas in the Panhandle; flowering June-December, only after sufficient rainfall

Runyon's cory cactus

Coryphantha macromeris var runyonii

gravelly to sandy or clayey, calcareous, sometimes gypsiferous or saline soils, often over the Catahoula and Frio formations, on gentle hills and slopes to the flats between, at elevations ranging from 10 to 150 m (30 to 500 ft); ?late spring or early summer, November, fruit has been collected in August

Runyon's water-willow

Justicia runyonii

margins of and openings within subtropical woodlands or thorn shrublands on calcareous, alluvial, silty or clayey soils derived from Holocene silt and sand floodplain deposits of the Rio Grande Delta; can be common in narrow openings such as those provided by trails through dense ebony woodlands and is sometimes restricted to microdepressions; flowering (July-) September-November

Small-leaved yellow velvet-leaf

Wissadula parvifolia

Occurs on sandy loams or clays in shrublands or woodlands on gently undulating terrain of the Holocene sand sheet over the Goliad Formation.

St. Joseph's staff

Manfreda longiflora

thorn shrublands on clays and loams with various concentrations of salt, caliche, sand, and gravel; rosettes are often obscured by low shrubs; flowering September-October

Star cactus

Astrophytum asterias

LE

E

HIDALGO COUNTY

PLANTS

Federal Status State Status

gravelly clays or loams, possibly of the Catarina Series (deep, droughty, saline clays), over the Catahoula and Frio formations, on gentle slopes and flats in sparsely vegetated openings between shrub thickets within mesquite grasslands or mesquite-blackbrush thorn shrublands; plants sink into or below ground during dry periods; flowering from mid March-May, may also flower in warmer months after sufficient rainfall, flowers most reliably in early April; fruiting mid April-June

Texas ayenia *Ayenia limitaris* LE E

Subtropical thorn woodland or tall shrubland on loamy soils of the Rio Grande Delta; known site soils include well-drained, calcareous, sandy clay loam (Hidalgo Series) and neutral to moderately alkaline, fine sandy loam (Willacy Series); also under or among taller shrubs in thorn woodland/thorn shrubland; flowering throughout the year with sufficient rainfall

Walker's manioc *Manihot walkerae* LE E

periphery of native brush in sandy loam; also on caliche cuestras?; flowering April-September (following rains?)

Notes for County Lists of Texas' Special Species

The Texas Parks and Wildlife (TPWD) county lists **include**:

Vertebrates, Invertebrates, and Vascular Plants identified as being of conservation concern by TPWD within Texas. These special species lists are comprised of species, subspecies, and varieties that are federally listed; proposed to be federally listed; have federal candidate status; are state listed; or carry a global conservation status indicating a species is critically imperiled, very rare, vulnerable to extirpation, or uncommon.

The TPWD county lists **do not include**:

Natural Plant Communities such as Little Bluestem-Indiangrass Series (native prairie remnant), Water Oak-Willow Oak Series (bottomland hardwood community), Saltgrass-Cordgrass Series (salt or brackish marsh), Sphagnum-Beakrush Series (seepage bog).

Other Significant Features such as bird rookeries, migratory songbird fallout areas, comprehensive migratory bird information, bat roosts, bat caves, invertebrate caves, and prairie dog towns.

These lists are not all inclusive for all rare species distributions. The lists were compiled, developed, and are updated based on field guides, staff expertise, scientific publications, and the TPWD Texas Natural Diversity Database (TXNDD) (formerly the Biological and Conservation Data System) occurrence data. Historic ranges for some state extirpated species, full historic distributions for some extant species, accidentals and irregularly appearing species, and portions of migratory routes for particular species are not necessarily included. Species that appear on county lists do not all share the same probability of occurrence within a county. Some species are migrants or wintering residents only. Additionally, a few species may be historic or considered extirpated within a county.

TPWD includes the Federal listing status for your convenience and makes every attempt to keep the information current and correct. However, the US Fish and Wildlife Service (FWS) is the responsible authority for Federal listing status. The TPWD lists do not substitute for contact with the FWS and federally listed species county ranges may vary from the FWS county level species lists because of the inexact nature of range map development and use.

Status Key:

LE, LT -	Federally Listed Endangered/Threatened
PE, PT -	Federally Proposed Endangered/Threatened
SAE, SAT -	Federally Listed Endangered/Threatened by Similarity of Appearance
C -	Federal Candidate for Listing; formerly Category 1 Candidate
DL, PDL -	Federally Delisted/Proposed for Delisting
NL -	Not Federally Listed
E, T -	State Listed Endangered/Threatened
NT -	Not tracked or no longer tracked by the State
“blank” -	Rare, but with no regulatory listing status

This information is specifically for your assistance only; due to continuing data updates, **please do not redistribute the lists**, instead refer all requesters to the web site at:

http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species/ or to our office for the most current information available. For questions regarding county lists, please call (512) 389-4571.

Please use the following citation to credit the source for this county level information:

Texas Parks and Wildlife Department, Wildlife Division, Diversity and Habitat Assessment Programs. County Lists of Texas' Special Species. [county name(s) and revised date(s)].



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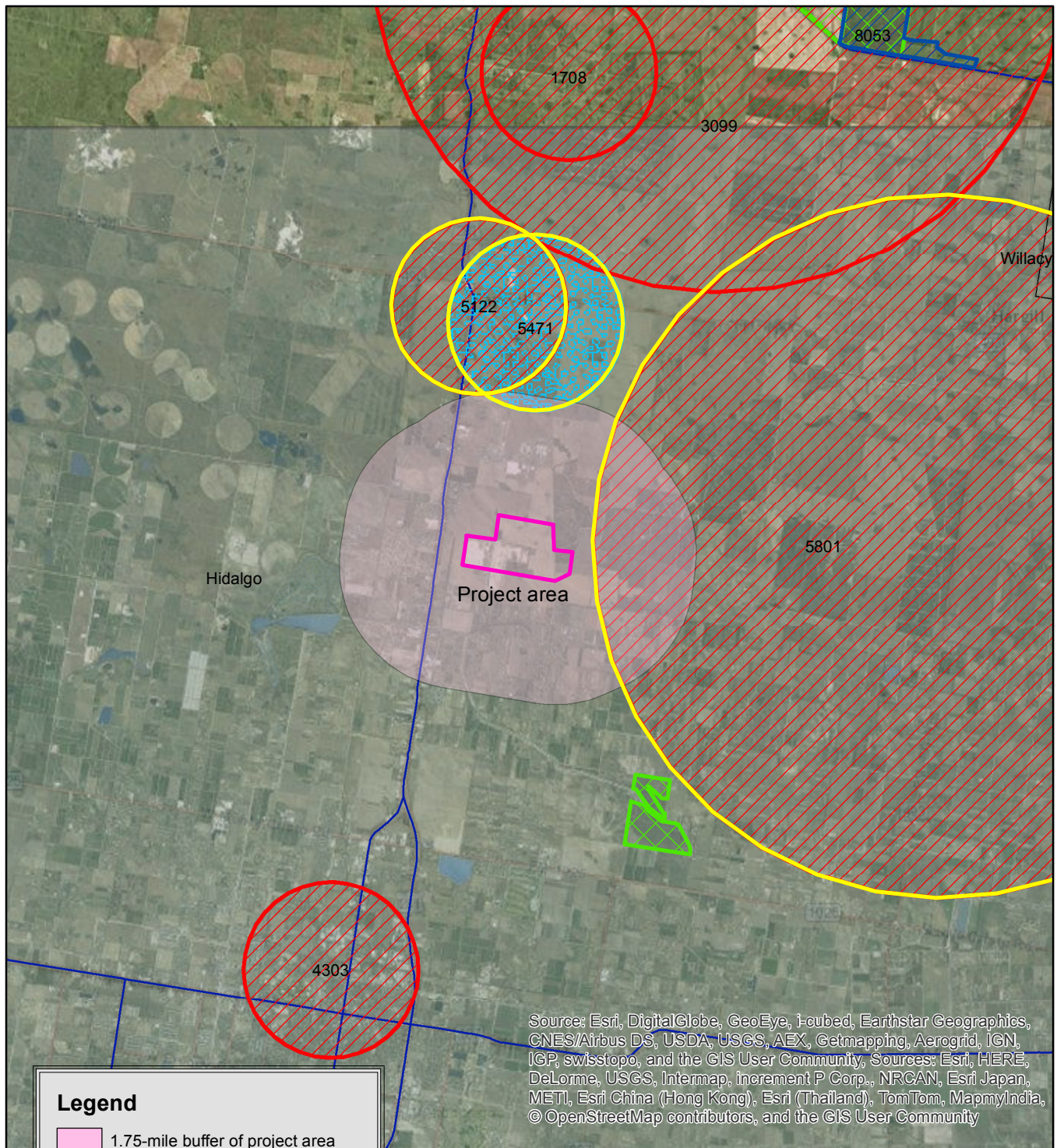
The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the [IPaC](#) application.

County: Hidalgo, TX

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Action Status	Recovery Plan Stage
Birds	Yellow-billed Cuckoo (Coccyzus americanus)	Western U.S. DPS	Threatened	Sacramento Fish And Wildlife Office	-	-	-
	northern aplomado falcon (Falco femoralis septentrionalis)	Entire, except where listed as an experimental population	Endangered	New Mexico Ecological Services Field Office	Aplomado Falcon (Northern)	View Implementation Progress	Final
	Sprague's pipit (Anthus spragueii)		Candidate	North Dakota Ecological Services Field Office	-	-	-
	Red-crowned parrot (Amazona viridigenalis)		Candidate	Austin Ecological Services Field Office	-	-	-
Flowering Plants	Star cactus (Astrophytum asterias)		Endangered	Texas Coastal Ecological Services Field Office	Star Cactus (Astrophytum asterias) Recovery Plan	View Implementation Progress	Final
	Walker's manioc (Manihot walkerae)		Endangered	Texas Coastal Ecological Services Field Office	Walker's Manioc (Manihot walkerae) Recovery Plan	View Implementation Progress	Final
	Texas ayeenia (Ayenia limitaris)		Endangered	Texas Coastal Ecological Services Field Office	Draft Recovery Plan for the Tamaulipan Kidney Petal (Texas Ayenia) (Ayenia limitaris)	Recovery efforts in progress, but no implementation information yet to display.	Draft
Mammals	Gulf Coast jaguarundi (Herpailurus (=Felis) yagouaroundi cacomitli)	U.S.A. (TX), Mexico	Endangered	Laguna Atascosa National Wildlife Refuge	GULF COAST JAGUARUNDI RECOVERY PLAN (Puma yagouaroundi cacomitli)	View Implementation Progress	Final
	Ocelot (Leopardus (=Felis) pardalis)	U.S.A. (AZ, TX) to Central and South America	Endangered	Laguna Atascosa National Wildlife Refuge	Ocelot (Leopardus pardalis) Recovery Plan, Draft First Revision	View Implementation Progress	Draft Revision 1

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Legend

1.75-mile buffer of project area

eorep_tracked

EO Type

- Animal Assemblage
- Internatl. Vegetation Classification
- Invertebrate Animal
- Nonvascular Plant
- Terrestrial Community
- Vascular Plant
- Vertebrate Animal
- managed_area
- Highways

0 0.5 1 2 3 4 Miles



This map was generated by TPWD-WHAP. No claims are made to the accuracy of completeness of the data or to its suitability for a particular use.

TEXAS
PARKS &
WILDLIFE

TXNDD Tracked Species in Project Area

Element Occurrence ID (EOID) 5471

Scientific Name Citharexylum spathulatum

Common Name Mission Fiddlewood

Global Rarity Rank G2G3Q

State Rarity Rank S2S3

Federal Status

State Status

First Observation Date 1944

Survey Date <null>

Last Observation Date 4/7/1944

EO Data

<null>

General Description

IN SCRUB

Protection Comments

<null>

Management Comments

<null>

General Comments

<null>

Element Occurrence ID (EOID) 3099

Scientific Name *Hypopachus variolosus*

Common Name Sheep Frog

Global Rarity Rank G5

State Rarity Rank S2

Federal Status

State Status

T

First Observation Date <null>

Survey Date <null>

Last Observation Date 7/3/1965

EO Data

<null>

General Description

<null>

Protection Comments

<null>

Management Comments

<null>

General Comments

COLLECTED 3 JULY 1965

Element Occurrence ID (EOID) 4303

Scientific Name *Hypopachus variolosus*

Common Name Sheep Frog

Global Rarity Rank G5

State Rarity Rank S2

Federal Status

State Status

T

First Observation Date 1933

Survey Date <null>

Last Observation Date 1936-05

EO Data

<null>

General Description

<null>

Protection Comments

<null>

Management Comments

<null>

General Comments

COLLECTED IN MAY (22 SPECIMENS)

Element Occurrence ID (EOID) 5122

Scientific Name *Hypopachus variolosus*

Common Name Sheep Frog

Global Rarity Rank G5

State Rarity Rank S2

Federal Status

State Status

T

First Observation Date 1934

Survey Date <null>

Last Observation Date 6/10/1935

EO Data

<null>

General Description

<null>

Protection Comments

<null>

Management Comments

<null>

General Comments

COLLECTED 10 AND 13 JUNE (UMMZ 79530-2; 25 SPECIMENS)

Element Occurrence ID (EOID) 5801

Scientific Name *Leopardus pardalis*

Common Name Ocelot

Global Rarity Rank G4

State Rarity Rank S1

Federal Status LE

State Status E

First Observation Date 1980

Survey Date <null>

Last Observation Date 1984

EO Data

2 CATS WERE FOUND DURING INTENSIVE LIVE TRAP EFFORT.

General Description

TAUMALIPAN THORN SCRUB. DENSE SCRUB OF MESQUITE, HUISACHE, AND TEXAS EBONY.

Protection Comments

<null>

Management Comments

<null>

General Comments

PROBABLY FEWER THAN 100 REMAIN IN TEXAS. THREAT IS HABITAT DESTRUCTION DUE TO LAND CLEARING.

Element Occurrence ID (EOID) 1708

Scientific Name Leptodeira septentrionalis septentrionalis

Common Name Northern Cat-eyed Snake

Global Rarity Rank G5

State Rarity Rank S2

Federal Status

State Status

T

First Observation Date <null>

Survey Date <null>

Last Observation Date 4/10/1971

EO Data

<null>

General Description

<null>

Protection Comments

<null>

Management Comments

<null>

General Comments

<null>

APPENDIX 4

ENDANGERED, THREATENED, AND RARE SPECIES FOR HIDALGO COUNTY AND POTENTIAL IMPACTS

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
AMPHIBIANS						
Black-spotted Newt (<i>Notophthalmus meridionalis</i>)	NL	T	Aquatic and semi aquatic environments including canals, arroyos, and ditches	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Mexican Tree Frog (<i>Smilisca baudinii</i>)	NL	T	Lowlands and foothills in subtropical regions of extreme southern Texas	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Sheep Frog (<i>Hypopachus variolosus</i>)	NL	T	Grasslands, savannas, and woodland margins under fallen trees, debris, and anything that may retain soil moisture	Yes	May impact	The project site contains suitable habitat including potentially wet areas within cultivated fields (PW 1-4) and potentially wet areas within brushland and grassland (UHT-1, UHT-2, and UHT-3). This species would be active after adequate rainfall events. There are three records of this species within 1.75 to 5 miles of the project area as shown in the TXNDD.
South Texas Siren (large form) (<i>Siren sp 1</i>)	NL	T	Aquatic and semi aquatic environments including canals, arroyos, and ditches	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
White-lipped Frog (<i>Leptodactylus fragilis</i>)	NL	T	Grasslands, cultivated fields, roadside ditches, and a variety of other habitats. Found under rocks, in burrows, and under grass clumps.	Yes	May impact	The project site contains suitable habitat including potentially wet areas within cultivated fields (PW 1-4) and potentially wet areas within open savanna and grassland (UHT-1 and UHT-2). This species would be active after adequate rainfall events within small pools, ponds, and inundated ditches.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
BIRDS						
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	DL	T	Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands	Yes	No impact	Suitable habitat for foraging is present within the project area, however due to the minimal habitat taken by this project and mobility of this species, no impacts are expected.
Arctic Peregrine Falcon (<i>Falco peregrinus tundrus</i>)	DL	R	Migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south	Yes	No impact	Suitable habitat for foraging is present within the project area. However due to the minimal habitat taken by this project and mobility of this species, no impacts are expected.
Audubon's Oriole (<i>Icterus graduacauda audubonii</i>)	NL	R	Resident of scrub and mesquite thickets of deep south Texas. Usually near water courses	Yes	May impact	Suitable habitat is present within the project area (UHT-3), however due to the minimal habitat taken by this project and mobility of this species, no impacts are expected during non-nesting season. During Audubon's Oriole nesting season (Mar-Aug), impacts may occur.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Brownsville Common Yellowthroat (<i>Geothlypis trichas insperata</i>)	NL	R	Endemic subspecies found in tall grasses and bushes near water features	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Cactus Ferruginous Pygmy-Owl (<i>Glaucidium brasilianum cactorum</i>)	NL	T	Found in riparian tree and brush thickets, roosting also in small caves, and recesses on hills.	Yes	May impact	Suitable habitat is present within the project area (UHT-3), however due to the minimal habitat taken by this project and mobility of species, no impacts are expected during non-nesting season. During cactus ferruginous pygmy-owl nesting season (Mar – June) impacts may occur.
Common Black-Hawk (<i>Asturina nitida</i>)	NL	T	Lower Rio Grande floodplain, along cottonwood-lined rivers and streams and in willow tree groves.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Gray Hawk (<i>Asturina nitida</i>)	NL	T	Mature riparian woodlands and nearby mesquite and scrub grasslands.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Hook-billed Kite (<i>Chondrohierax uncinatus</i>)	NL	R	Dense subtropical and tropical forests, occasionally in open woodlands	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Interior Least Tern (<i>Sterna antillarum athalassos</i>)	LE	E	Nests on sand and gravel bars within streams and rivers as well as on man-made structures.	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
Mountain Plover (<i>Charadrius montanus</i>)	NL	R	Nests on high plains or shortgrass prairie on ground, nonbreeding habitat shortgrass plains and bare plowed fields	Yes	No impact	Suitable habitat is present within the project area, however due to the minimal habitat taken by this project and mobility of this species, no impacts are expected.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Northern Aplomado Falcon (<i>Falco femoralis septentrionalis</i>)	LE	E	Open grassland, woodlands with sparse patches of shrubs, especially yucca, mesquite, and cacti, and barren areas. Nests in old stick nests of other species.	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
Northern Beardless Tyrannulet (<i>Camptostoma imberbe</i>)	NL	T	Mesquite woodlands and near cottonwood, willow, elm, and great leadtree near Rio Grande	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Peregrine Falcon (<i>Falco peregrinus</i>)	DL	T	Breeds in mountains of West Texas; uses arid grasslands, rivers, estuaries, and lakes during migration	Yes	No impact	Suitable habitat for foraging is present, however due to the minimal habitat taken by this project and mobility of this species, no impacts are expected.
Red-crowned Parrot (<i>Amazona viridigenalis</i>)	C	NL	Inhabits lush forests and deciduous woodlands in lowlands and dry open pine-oak woodlands on elevated ridges.	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
Reddish Egret (<i>Egretta rufescens</i>)	NL	T	Inhabits various freshwater and estuarine habitats such as brackish marshes, mudflats, marshes, and tidal ponds. Nests on ground or in trees or bushes on dry coastal islands with thickets of yucca and cacti	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Rose-throated Becard (<i>Pachyrhamphus aglaiae</i>)	NL	T	Trees, woodlands, open forest, scrub and mangroves in riparian areas.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Sennett's Hooded Oriole (<i>Icterus cucullatus sennetti</i>)	NL	R	Builds nests of Spanish moss in mesquite trees or yuccas	Yes	No impact	Though mesquites are located within the project site, nesting is not expected due to the lack of Spanish moss. Therefore, due to the minimal habitat taken by this project and mobility of this species, no impacts are expected.
Southeastern Snowy Plover (<i>Charadrius alexandrinus tenuirostris</i>)	NL	R	Wintering migrant along the Texas Gulf Coast beaches	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Sprague's Pipit (<i>Anthus spragueii</i>)	C	R	Only in Texas during migration and winter; strongly tied to native upland prairie but can be locally common in coastal grasslands	Yes	No effect	Suitable habitat is present within the project area, however, due to the minimal habitat taken by this project and mobility of this species no effects are expected.
Texas Botteri's Sparrow (<i>Aimophila botterii texana</i>)	NL	T	Grassland and shortgrass plains with scattered bushes, shrubs, and trees. Ground-nesting on low clumps of grasses	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Tropical Parula (<i>Parula pitiayumi</i>)	NL	T	Dense or open woods, undergrowth, brush and trees along edges of rivers and resacas	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Western Burrowing Owl (<i>Athene cunicularia hypugaea</i>)	NL	R	Inhabits open grasslands and bare fields and lots, occasionally in urban areas. Roosts in abandoned burrows, drainage culverts, and rubble piles.	Yes	No impact	Suitable open and/or bare fields are present for roost sites in the proposed project area and impacts to roost sites could occur; however, due to the mobility of this species, no direct effects are expected.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Western Snowy Plover (<i>Charadrius alexandrinus nivosus</i>)	NL	R	Uncommon breeder in the Texas panhandle; potential migrant, winters along coast	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
White-faced Ibis (<i>Plegadis chihi</i>)	NL	T	Generally an estuarine species but frequently observed in inland marshes, irrigated fields, and canals	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
White-tailed Hawk (<i>Buteo albicaudatus</i>)	NL	T	Inhabits undeveloped coastal grasslands, mesquite/live oak savannas and open chaparral of the South Texas Plains	Yes	May impact	Suitable habitat is present (UHT-1, UHT-2, croplands), and this species was confirmed visually soaring over the project site during 11-17-14 site visit. The project site may be used for foraging but minimal habitat will be taken, therefore no impacts are expected during non-nesting season. However, during white-tailed hawk nesting season (Jan – July) impacts may occur.
Wood Stork (<i>Mycteria americana</i>)	NL	T	Feeds in prairie ponds, flooded fields and drainages, and in forested wetlands	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	T	NL	Open woodlands and thickets with dense second growth. Sometimes in groves around marshes and near streams.	Yes	No effect	Suitable habitat is present in the project area, however, only the western subspecies of the yellow-billed cuckoo (which does not occur in Hidalgo County) is listed as Federally threatened.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Zone-tailed Hawk (<i>Buteo albonotatus</i>)	NL	T	Arid open country including open deciduous woodlands, often near watercourses, and wooded canyons and tree-lined rivers along desert mountains.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
FISHES						
American Eel (<i>Anguilla rostrata</i>)	NL	R	Coastal waterways below reservoirs to gulf; most waterways with access to ocean	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Rio Grande Shiner (<i>Notropis jemezianus</i>)	NL	R	Large, open, weedless rivers or large creeks with bottom of rubble, gravel, and sand often overlain with silt.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Rio Grande Silvery Minnow (<i>Hybognathus amarus</i>)	LE	E	Reintroduced in Big Bend area of Rio Grande. Pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
River Goby (<i>Awaous banana</i>)	NL	T	Clear water with slow to moderate current, sandy or hard bottom, and little or no vegetation	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
INSECTS						
A Mayfly (<i>Campsurus decoloratus</i>)	NL	R	In Texas and Mexico, possibly on clay substrates	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
A Royal Moth (<i>Sphingicampa blanchardi</i>)	NL	R	Tamaulipan thornscrub with the caterpillar's host plant, Texas Ebony important	Yes	No impact	Although suitable habitat and the host plant are present, this species is thought to be extirpated from Texas; therefore, its presence is unlikely.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
A Tiger Beetle (<i>Tetracha affinis angustata</i>)	NL	R	Open sandy areas, beaches, open paths or lanes, or on mudflats	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Arroyo Darner (<i>Aeshna dugesi</i>)	NL	R	Streams of high to moderate gradient with pools and aquatic vegetation from desert up to pine-oak zone	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Los Olmos Tiger Beetle (<i>Cicindela nevadica olmosa</i>)	NL	R	Burrows in soils of dry paths, fields, or sandy beaches	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Manfreda Giant-skipper (<i>Stallingsia maculosus</i>)	NL	R	Subtropical thorn and pine forests associated with the host plant - Texas tuberose (<i>Manfreda maculosa</i>) or spice lily	No	No impact	No suitable habitat or host habitat exists in the vicinity of the proposed project.
Neojuvénile Tiger Beetle (<i>Cicindela obsolete neojuvénilis</i>)	NL	R	Bare or sparsely vegetated dry, hard, saline soils, typically in previously disturbed areas and along Rio Grande delta	No	No impact	No suitable habitat or host habitat exists in the vicinity of the proposed project.
Rawson's Metalmark (<i>Calephelis rawsoni</i>)	NL	R	Desert scrub or oak woodland in foothills and along rivers. Hosts are <i>Eupatorium havanense</i> and <i>E. greggii</i>	No	No impact	No suitable habitat or host habitat exists in the vicinity of the proposed project.
Subtropical Blue-Black Tiger Beetle (<i>Cicindela nigrocoerulea subtropica</i>)	NL	R	Burrows in soils of dry paths, fields, or sandy beaches	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Tamaulipan Agapema (<i>Agapema galbina</i>)	NL	R	Tamaulipan thornscrub with adequate densities of the host plant <i>Condalia hookeri</i>	Yes	No impact	Although suitable habitat and the host plant are present, this species is thought to be extirpated from Texas; therefore, its presence is unlikely.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
MAMMALS						
Cave Myotis Bat (<i>Myotis velifer</i>)	NL	R	Large colonies in caves, rock crevices, and under bridges predominately, occasionally old buildings, carports, and abandoned cliff swallow nests. In south, found in habitat with creosote bush, brittle bush, and cacti. Often roosts with Mexican free-tailed bats.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Coues' Rice Rat (<i>Oryzomys couesi</i>)	NL	T	Cattail-bulrush marsh with shallow aquatic grasses near the shoreline. Also prefers shade trees and grassy areas near the shoreline	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Ghost-faced Bat (<i>Mormoops megalophylla</i>)	NL	R	Caves, crevices, abandoned mines and buildings	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Gulf Coast Jaguarundi (<i>Herpailurus yaguarondi cacomitli</i>)	LE	E	Large patches of dense thornshrub, near water	Yes	No effect	Suitable habitat is present within the project area, however, this species is extremely rare in south Texas and no confirmed sightings have been recorded for several decades.
Jaguar (<i>Panthera onca</i>)	LE	E	Dense chapparal	No	No effect	No suitable habitat exists in the vicinity of the proposed project. This species is also considered extirpated from Texas with no reliable sightings since 1952.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Mexican Long-tongued Bat (<i>Choeronycteris mexicana</i>)	NL	R	Deep canyons with caves and mine tunnels. Also found in buildings.	No	No impact	No suitable habitat exists in the vicinity of the proposed project. There is only one Texas record of this species which was from the Santa Ana NWR, approximately 20 miles south of the project area along the Mexico border.
Ocelot (<i>Leopardus pardalis</i>)	LE	E	Large patches of dense chaparral thickets, mesquite-thorn scrub and live oak mottes	Yes	May affect	Suitable, but non-critical, habitat is present within the project area (UHT-3) and two records of this species were found in the large tract of woodlands connected to the project area in the 1980s per the TXNDD results.
Plains Spotted Skunk (<i>Spilogale putorius interrupta</i>)	NL	R	Open fields, prairies, croplands, fence rows, farmyards, and forest edges. Prefers brushy areas and tallgrass prairie	Yes	May impact	Preferred habitat is present within UHT-1, UHT-2, and UHT-3. This species also utilizes rodent and other mammal burrows for cover and denning.
Southern Yellow Bat (<i>Lasiurus ega</i>)	NL	T	Roosts and pups in palm groves and other woodlands.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
White-nosed Coati (<i>Nasua narica</i>)	NL	T	Woodlands, riparian corridors, and thornscrub habitats	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
MOLLUSKS						
False Spike Mussel (<i>Quadrula mitchelli</i>)	NL	T	Medium to large rivers with substrates ranging from mud to sand, gravel and cobble.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Salina Mucket (<i>Potamilus metneckayi</i>)	NL	T	Flowing waters in submerged soft sediment along river banks	No	No impact	No suitable habitat exists in the vicinity of the proposed project.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Texas Hornshell (<i>Popenaias popeii</i>)	C	T	In rivers at ends of narrow shallow runs over bedrock where small-grained materials collect, along river banks, and at the base of boulders.	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
REPTILES						
Black-striped Snake (<i>Coniophanes imperialis</i>)	NL	T	Semi-arid coastal plain, warm, moist micro-habitats and sandy soils	Yes	May impact	Suitable habitat is present within the project area (UHT-1, UHT-2, UHT-3, PW 1-4). This species can be found under leaf litter or debris during periods of inactivity and is also able to burrow in sandy soils.
Northern Cat-eyed Snake (<i>Leptodeira septentrionalis septentrionalis</i>)	NL	T	Thorn brush woodland and dense thickets bordering ponds and streams. Semi-arboreal.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Reticulate Collared Lizard (<i>Crotaphytus reticulatus</i>)	NL	T	Open brush-grasslands, thorn-scrub vegetation usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils. Scattered flat rocks below escarpments or outcrops among scattered clumps of prickly pear and mesquite	Yes	May impact	Suitable habitat is present within the project area (UHT-2 and UHT-3). This species can be found under debris and in burrows during periods of inactivity.
Speckled Racer (<i>Drymobius margaritiferus</i>)	NL	T	Dense thickets near water. Texas palm groves and riparian woodlands with much vegetation litter on the ground	No	No impact	No suitable habitat exists in the vicinity of the proposed project.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Spot-tailed Earless Lizard (<i>Holbrookia lacerata</i>)	NL	R	Moderately open prairie-brushland and fairly flat areas free of vegetation or other obstruction, including disturbed areas, on dark clay and loamy clay soils.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Texas Horned Lizard (<i>Phrynosoma cornutum</i>)	NL	T	Open arid and semi-arid areas with sparse vegetation including grass, cacti and brush. Sandy to rocky soil, burrows into soil, rodent burrows, or under structures when inactive.	Yes	No impact	Suitable brushy, arid, sandy habitat is present, however, no harvester ant colonies (the main food source for the Texas horned lizard) were present in the project area, therefore this species would not be present.
Texas Indigo Snake (<i>Drymarchon melanurus erebennus</i>)	NL	T	South of Guadalupe River and Balcones Escarpment. Habitat includes thornbrush-chaparral woodlands, dense riparian corridors, and suburban croplands.	Yes	May impact	Preferred habitat includes moist areas within UHT-2 and UHT-3. This species also utilizes rodent and other mammal burrows as dens or during periods of inactivity.
Texas Tortoise (<i>Gopherus berlandieri</i>)	NL	T	Open brush with grass understory, rests near bases of cacti and bushes, occasionally in underground burrows or under objects	Yes	May impact	Suitable habitat is present in the project area (UHT-2 and UHT-3). This species utilizes existing mammal or rodent burrows as well as making small depressions or burrows themselves under brush or cacti during periods of inactivity. Prickly pear cacti is a preferred food source of the Texas tortoise.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
PLANTS						
Amelia's Abronia (<i>Abronia ameliae</i>)	NL	R	Deep, well-drained soil of South Texas Sand Sheet in grassy and/or herbaceous-dominated openings in coastal live oak woodlands or mesquite-coastal live oak woodlands	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Bailey's Ballmoss (<i>Tillandsia baileyi</i>)	NL	R	Epiphytic on trees and tall shrubs, most common on live oak from vegetated dunes and flats in coastal portions of the South Texas Sand Sheet, also on evergreen woodlands along resacas	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Chihuahua Balloon-vine (<i>Cardiospermum dissectum</i>)	NL	R	Thorn shrublands or low woodlands on well-drained calcareous sandy to gravelly soils underlain by various Eocene formations	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Falfurrias Milkvine (<i>Matela radiata</i>)	NL	R	Unclear, clay soil on elevated dry gravel hills	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Gregg's Wild-buckwheat (<i>Eriogonum greggii</i>)	NL	R	Sparingly vegetated openings in thorn shrublands in shallow soils along Rio Grande. Also sandy soil over caliche and calcareous sandstone of Goliad Formation and sandstone or fossiliferous layers of the Jackson Group	No	No impact	No suitable habitat exists in the vicinity of the proposed project.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Mexican Mud-plantain (<i>Heteranthera mexicana</i>)	NL	R	Wet clayey soils of resacas and ephemeral wetlands in South Texas and margins of playas in Panhandle	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Runyon's Cory Cactus (<i>Coryphantha macromeris var runyonii</i>)	NL	R	Gravelly to sandy or clayey calcareous soils often over the Catahoula and Frio formations.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Runyon's Water Willow (<i>Justicia runyonii</i>)	NL	R	Margins and openings within subtropical woodlands or thorn shrublands on calcareous, alluvial, silty, or clayey soils derived from silt and sand floodplain deposits from Rio Grande Delta. Can be common in trail openings through dense ebony woodlands.	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
Small-leaved Yellow Velvet-leaf (<i>Wissadula parvifolia</i>)	NL	R	Sandy loams or clays in shrublands or woodlands on gently undulating terrain of the Holocene sand sheet over the Goliad formation	No	No impact	No suitable habitat exists in the vicinity of the proposed project.
St. Joseph's Staff (<i>Manfreda longiflora</i>)	NL	R	Thorn shrublands on clays and loams with various concentrations of salt, caliche, sand, and gravel	No	No impact	No suitable habitat exists in the vicinity of the proposed project.

Threatened, Endangered, and Rare Species in Hidalgo County, Texas and Potential Impacts						
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Potential Effect/Impact	Justification
Star Cactus (<i>Astrophytum asterias</i>)	LE	E	Gravelly clays or loams over the Catahoula and Frio formations. On gentle slopes and flats in sparsely vegetated openings in shrub thickets within mesquite grasslands or mesquite-blackbrush thorn shrublands	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
Texas Ayenia (<i>Ayenia limitaris</i>)	LE	E	Subtropical thorn woodland or tall shrubland on loamy soils of the Rio Grande Delta.	No	No effect	No suitable habitat exists in the vicinity of the proposed project.
Walker's Manioc (<i>Manihot walkerae</i>)	LE	E	Periphery of native brush in sandy loam	No	No effect	No suitable habitat exists in the vicinity of the proposed project.

Federal Status: LE – Listed Endangered
 LT – Listed Threatened
 DL – De-listed
 C – Candidate
 NL – Not Listed

State Status: E – Endangered
 T – Threatened
 R – Rare

TXNDD: Texas Natural Diversity Database

APPENDIX IIE2-1
TPWD REVIEW REQUEST



July 28, 2015

Project No. 1401491

**SENT VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Clayton Wolf, Director
Texas Parks and Wildlife Department
Wildlife Diversity Program
4200 Smith School Road
Austin, TX 78744

**RE: THREATENED OR ENDANGERED SPECIES REVIEW
PERMIT AMENDMENT APPLICATION
EDINBURG REGIONAL DISPOSAL FACILITY, TCEQ PERMIT MSW-956C
HIDALGO COUNTY, TEXAS**

Dear Mr. Wolf:

On behalf of our client, City of Edinburg, we are preparing a Permit Amendment Application to be submitted to the Texas Commission on Environmental Quality (TCEQ) Solid Waste Permits Division for a proposed expansion to the Edinburg Sanitary Landfill, Permit No. MSW-956B. The existing 254-acre Type I facility is located in the City of Edinburg in Hidalgo, County Texas. Golder Associates Inc. is preparing the application for City of Edinburg to expand the permit boundary to approximately 603 acres.

In order to comply with current solid waste regulations, on behalf of City of Edinburg, we are requesting a review of the site for information on state-listed endangered or threatened species that may exist in this area. Also for your information, we have attached an Endangered Species Biological Assessment that was performed by Naismith Engineering, Inc. Maps showing the site location and both the existing and the proposed limits of the permit boundary are included in the report.

If further information or documentation is required by your department to aid in your review, please give me a call at (281) 821-6868.

Sincerely,

GOLDER ASSOCIATES INC.

Chad E. Ireland, PE
Senior Project Geological Engineer

Charles G. Dominguez, PE
VP Central Region / Principal

cc: Ramiro L Gomez, Jr., City of Edinburg, Director of Solid Waste Management
CEI/CGD/kjc

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Golder Associates Inc.
500 Century Plaza Drive, Suite 190
Houston, TX 77073 USA
Tel: (281) 821-6868 Fax: (281) 821-6870 www.golder.com



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APPENDIX IIE2-2
TPWD RECOMMENDATIONS



Life's better outside.®

September 14, 2015

Chad E. Ireland
Golder Associates, Incorporated
500 Century Plaza Drive, Suite 190
Houston, TX 77073

Commissioners

Dan Allen Hughes, Jr.
Chairman
Beeville

Ralph H. Duggins
Vice-Chairman
Fort Worth

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Lee M. Bass
Chairman-Emeritus
Fort Worth

Carter P. Smith
Executive Director

RE: Edinburg Regional Disposal Facility, rare species review for permit amendment application, TCEQ Permit MSW-956C, Hidalgo County, Texas

Dear Mr. Ireland:

This letter is in response to your request for Texas Parks and Wildlife Department (TPWD) staff to review the proposed project referenced above. On behalf of the City of Edinburg, Golder Associates, Inc. are preparing a Permit Amendment Application for the Texas Commission on Environmental Quality (TCEQ) Solid Waste Permits Division.

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency may be required by state law. For further guidance, please see the Texas Parks and Wildlife Code, §12.0011, which can be found online at <http://www.statutes.legis.state.tx.us/Docs/PW/htm/PW.12.htm#12.0011>. For tracking purposes, please refer to TPWD **Project #35005** in any return correspondence regarding this project.

Project Description

The City of Edinburg is proposing to expand the existing Sanitary Landfill. The boundary of the current 254-acre Type I facility would be expanded to approximately 603 acres. An Endangered Species Biological Assessment has been completed for the project.

TPWD staff reviewed the information provided and offers the following comments and recommendations.

Federal Regulations

Endangered Species Act (ESA)

Federally-listed animal species and their habitat are protected from "take" on any property by the ESA. Take of a federally-listed species can be allowed if it is "incidental" to an otherwise lawful activity and must be permitted in accordance with Section 7 or 10 of the ESA. Federally-listed plants are not protected from

take except on lands under federal/state jurisdiction or for which a federal/state nexus (i.e., permits or funding) exists. Any take of a federally-listed species or its habitat without the required take permit (or allowance) from the U.S. Fish and Wildlife Service (USFWS) is a violation of the ESA.

Although the most recently documented individuals/populations of ocelots (*Leopardus pardalis*) are located in the Lower Rio Grande Valley east of the project area, their absence from the project area cannot be presumed. The dense native woodland in the eastern part of the proposed boundary expansion could provide suitable habitat for ocelots. The tract of dense native woodland included in the expansion boundary is part of a larger tract of dense thornscrub woodland that extends to the north and east of the project and in which the occurrence of ocelots has been previously documented.

Recommendation: In order to preserve potential ocelot habitat and avoid and/or minimize potential negative impacts to ocelots, TPWD recommends avoiding or minimizing clearing potential ocelot habitat. At a minimum, TPWD recommends preserving a corridor of the dense native woodland, at least 300-feet wide, along the easternmost boundary of the property. Also, all lighting installed around the perimeter and within the expanded disposal facility should be down-shielded and directed into the property.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implicitly prohibits intentional *and unintentional* take of migratory birds, including their nests and eggs, except as permitted by the USFWS. This protection applies to most native bird species, including ground nesting species. Although not documented in the Texas Natural Diversity Database (TXNDD), many bird species which are not listed as *threatened* or *endangered* are protected by the MBTA and are known to be year-round or seasonal residents or seasonal migrants through the proposed project area. Additional information regarding the MBTA is available from the USFWS-Southwest Regional Office (Region 2) at (505) 248-7882.

During the winter, South Texas is the southernmost limit for many migratory birds and it is the northernmost extreme in the breeding season (spring-summer) for other species. Additionally, the proposed project area is in the middle of the Central Migratory Flyway through which millions of birds pass during spring and fall migration.

Biologically, this area of south Texas is highly productive and provides a range of habitats including large contiguous tracts of undeveloped land, grasslands, brush,

riparian woodlands, and freshwater habitats. The diversity of habitats is suitable to support a diversity of wildlife species. The range of habitats provides cover, feeding, nesting and loafing areas for many species of birds; grassland birds, Neotropical migrants, wading and shorebirds, and raptors in particular.

Aerial imagery of the property in the proposed boundary expansion area indicates that it is, for the most part, agricultural fields. Limited amounts of native woodlands occur on the expansion areas eastern boundary. Both habitat types (i.e., previously disturbed ag fields and native woodlands) may provide suitable nesting, feeding or loafing areas for birds.

TPWD agrees with the conclusion in the Biological Assessment that several species of birds may occupy the agricultural fields but would not likely be impacted by the project and that other species may occur in the woodlands that could be impacted, particularly if they are nesting.

Recommendation: For any project that involves clearing vegetation, TPWD recommends scheduling any necessary vegetation clearing to occur outside of the March 15-September 15 general migratory bird nesting season in order to fully comply with the MBTA. Contractors responsible for clearing vegetation should be made aware of the potential of encountering migratory birds (either nesting or wintering) on the property and be instructed to avoid negatively impacting them.

If vegetation clearing must be scheduled to occur during the nesting season, TPWD recommends the vegetation to be impacted should be surveyed for active nests by a qualified biologist in order to fully comply with the MBTA. If active nests are observed during surveys, TPWD recommends a 150-foot buffer of vegetation remain around the nests until the young have fledged or the nest is abandoned.

State Regulations

Parks and Wildlife Code

State law prohibits any take (incidental or otherwise) of state-listed species. Laws and regulations pertaining to state-listed endangered or threatened animals are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code; laws pertaining to endangered or threatened plants are contained in Chapter 88 of the TPW Code. There are penalties, which may include fines and/or jail time in addition to payment of restitution values, associated with take of state-listed species. Please see "Laws and Regulations Applicable to TPWD Review" at:

http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/habitat_assessment/laws.phtml.

In addition to state- and federally-protected species, TPWD tracks special features, natural communities, species of concern (SOC), and species of greatest conservation need (SGCN) and actively promotes their conservation. TPWD considers it important to evaluate and, if necessary, minimize impacts to rare species and their habitat to reduce the likelihood of endangerment

For purposes of relocation, surveys, monitoring, and research, terrestrial state-listed species may only be handled by persons permitted through the TPWD Wildlife Permits Program. For more information regarding Wildlife Permits, please visit TPWD's wildlife permit website at: **<http://www.tpwd.state.tx.us/business/permits/land/wildlife/>**. For the above-listed activities that involve aquatic species please contact the TPWD Kills and Spills Team (KAST) for the appropriate authorization. For more information on KAST please visit **http://www.tpwd.state.tx.us/landwater/water/environconcerns/kills_and_spills/regions**.

A great deal of information regarding sensitive natural resources is available on TPWD's Wildlife Habitat Assessment Program website. Resources on the website include information regarding rare, threatened and endangered species, location-specific data on rare species, state and federal laws pertaining to rare species, planning tools and best management practices to implement in various development projects. This information is available at: **http://tpwd.texas.gov/huntwild/wild/wildlife_diversity/habitat_assessment/**

TPWD agrees with the determination stated in the Biological Assessment that suitable habitat for several state-listed reptiles (black-striped snake, Texas tortoises, Texas indigo snake, and reticulate collared lizard) occurs in the project area. Small wildlife such as the Texas tortoise, lizards and snakes are susceptible to falling into open pits, trenches, bore holes, etc. left open and/or uncovered in a project area. Species that utilize burrows may be directly impacted during ground disturbing construction activities and all species are susceptible to collisions with vehicles.

Recommendation: TPWD recommends that any excavations created on site during initial clearing or construction associated with preparing the site as a disposal facility should not be left open overnight in order to prevent wildlife from potentially being trapped. If excavated holes or trenches must be left unfilled at the end of the work day, they should either be covered, have escape

ramps placed in them (fashioned from boards or soil), or fenced off with an exclusion fence. Any holes or trenches left open overnight should be inspected the following morning for wildlife that may have been trapped. If any state-listed species are trapped in trenches, they should be removed by personnel permitted by TPWD to handle state-listed species.

Contractors should also be made aware that reptiles, including the reticulate collared lizard, Texas horned lizard, Texas indigo snake and the Texas tortoise, become more active during the spring and may be more susceptible to being negatively impacted by construction activities. If possible, TPWD recommends scheduling initial clearing and construction activities involving grading or bulldozing to occur outside of the spring to avoid and or minimize potential impacts to these species. Also, completing major ground disturbing activities before late October when reptiles become inactive and could be utilizing burrows in areas subject to disturbance would further minimize potential negative impacts.

Reticulate collared lizard (*Crotaphytus reticulatus*), State-listed Threatened

The reticulate collared lizard is a large lizard that can occur in areas void of vegetation (i.e., bare rock, gravel) and in typical shrubland/chaparral habitat. They are often seen basking on dirt piles along unimproved roads throughout south Texas.

Recommendation: When approached, reticulate collared lizards will typically flee to the base of a shrub and remain motionless. Contractors should be made aware of the potential to encounter reticulate collared lizards in the project area. If encountered, contractors should allow the lizards to escape; contractors should also be instructed to avoid negatively impacting any lizards encountered.

Texas tortoise (*Gopherus berlandieri*), State-listed Threatened

The Texas tortoise has a home range of approximately five to ten acres. They may occur within the general project area.

Recommendation: TPWD recommends that contractors working in the disposal facility expansion area be made aware of the potential for the state-listed Texas tortoise to occur in the area. If a tortoise is located in the project area it should be permitted to leave the area on its own. If it must be relocated, it should only be moved as far from active construction activity as necessary to protect it from being negatively impacted but within a 5 to 10 acre area which is the typical home range of a tortoise. After tortoises are removed from the immediate project area, an exclusion fence should be

constructed with metal flashing or drift fence material; regular silt fence material may be used. The exclusion fence should be buried at least six-inches deep and be 24-inches high. The use of an exclusion fence is also effective in preventing other reptiles from entering an area in which they may be negatively impacted. Additional information regarding Texas tortoise best management practices is available on the TPWD website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/habitat_assessment/tools.phtml.

Black-striped snake (*Coniophanes imperialis*) and Texas indigo snake (*Drymarchon melanurus erebennus*), State-listed Threatened

Although the TXNDD does not contain any documented occurrence records for state-listed snakes in the proposed project area, suitable habitat may occur near the project area for the black-striped snake and the Texas indigo snake, as indicated in the biological assessment. The black-striped snake is often found in association with waterbodies but may also occur in thornscrub habitat and in piles of manmade debris. They have been documented occurring near buildings and in discarded trash and in construction debris.

The Texas indigo snake is also typically found in association with waterbodies. Although the Texas indigo snake is typically found in riparian corridors or near waterbodies, due to its large size and metabolism, it has a large home range in which it hunts for food so it may be encountered away from “typical” habitat.

Recommendation: Snakes in general are typically perceived as a threat and killed when encountered during vegetation clearing or site preparation activities. For snakes in general, contractors should be made aware of which species may occur in the area, be provided with species descriptions, and be informed that the black-striped snake and Texas indigo snake are not venomous. When working in areas near potential snake habitat (e.g., around debris piles, piles of vegetation/leaf litter, heavy vegetation near water bodies), contractors should be prepared to encounter snakes; most snakes will flee when humans approach.

For the safety of workers and preservation of a natural resource, attempting to catch, relocate and/or kill non-venomous or venomous snakes is discouraged by TPWD. If encountered, snakes should be permitted to safely leave project areas on their own. TPWD encourages construction sites to have a “no kill” policy in regard to wildlife encounters.

Mr. Chad E. Ireland
Page 7
September 14, 2015

TPWD appreciates the opportunity to review the proposed project. Please contact me at (361) 825-3240 or **russell.hooten@tpwd.texas.gov** if you have any questions regarding our comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Russell Hooten", with a stylized flourish at the end.

Russell Hooten
Wildlife Habitat Assessment Program
Wildlife Division

/rh 35005

APPENDIX IIE2-3
TPWD RESPONSE TO RECOMMENDATIONS

October 29, 2015

Project No. 1401491

Russell Hooten
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department-Wildlife Division
6300 Ocean Drive, NRC 2501
Unit 5846
Corpus Christi, TX 78412

**RE: RESPONSE TO RECOMMENDATIONS
THREATENED OR ENDANGERED SPECIES REVIEW
PERMIT AMENDMENT APPLICATION
EDINBURG REGIONAL DISPOSAL FACILITY, TCEQ PERMIT MSW-956C
HIDALGO COUNTY, TEXAS**

Dear Mr. Hooten:

This letter is in response to recommendations received from Texas Parks and Wildlife Department's (TPWD) rare species review for permit amendment application, TCEQ Permit MSW-956C, Hidalgo County, Texas dated September 14, 2015.

Federally-Listed Ocelot Recommendation:

In order to preserve potential ocelot habitat and avoid and/or minimize potential negative impacts to ocelots, TPWD recommends avoiding or minimizing clearing potential ocelot habitat. At a minimum, TPWD recommends preserving a corridor of the dense native woodland, at least 300-feet wide, along the easternmost boundary of the property. Also, all lighting installed around the perimeter and within the expanded disposal facility should be down-shielded and directed into the property.

Response:

A meeting between Ramiro L Gomez, Jr., Director of Solid Waste Management for the City of Edinburg and Ernesto Reyes, Director of the Wildlife Diversity Program for the U.S. Fish and Wildlife Service on September 25, 2015 regarding suitable habitat for federally listed ocelot (*Leopardus pardalis*). Attached is a letter received from Ernesto Reyes dated October 20, 2015 concurring that the project's determination of "not likely to adversely affect" the Gulf Coast jaguarundi and the ocelot. It was agreed to preserve a 200' wide corridor of dense native woodland along the northern property boundary, and establish a 200' wide corridor planted with native vegetation, connecting to the southern property boundary of dense native woodland owned by the City.

The Migratory Bird Treaty Act (MBTA) Recommendation:

For any project that involves clearing vegetation, TPWD recommends scheduling any necessary vegetation clearing to occur outside of the March 15 - September 15 general migratory bird nesting season in order to fully comply with the MBTA. Contractors responsible for clearing vegetation should be made aware of the potential of encountering migratory birds (either nesting or wintering) on the property and be instructed to avoid negatively impacting them.

If vegetation clearing must be scheduled to occur during the nesting season, TPWD recommends the vegetation to be impacted should be surveyed for active nests by a qualified biologist in order to fully comply with the MBTA. If active nests are observed during surveys, TPWD recommends a 150-foot buffer of vegetation remain around the nests until the young have fledged or the nest is abandoned.



Response:

The letter received from Ernesto Reyes, Director of the Wildlife Diversity Program for the U.S. Fish and Wildlife Service dated October 20, 2015 provided a recommendation. "To comply with the Migratory Bird Treaty Act and avoid impacts to avian species, the City proposes to complete all clearing activities during the non-nesting season (September-February) to avoid potential impacts with birds nesting within the ROW. If project activities must be conducted during nesting season, we recommend surveying for nests prior to commencing work and if a nest is found, and if possible, the Service recommends a buffer of vegetation (≥ 50 ft) remain around the nest until the young have fledged or the nest is abandoned."

State-Listed Species Recommendation:

TPWD recommends that any excavations created on site during initial clearing or construction associated with preparing the site as a disposal facility should not be left open overnight in order to prevent wildlife from potentially being trapped. If excavated holes or trenches must be left unfilled at the end of the work day, they should either be covered, have escape ramps placed in them (fashioned from boards or soil), or fenced off with an exclusion fence. Any holes or trenches left open overnight should be inspected the following morning for wildlife that may have been trapped. If any state-listed species are trapped in trenches, they should be removed by personnel permitted by TPWD to handle state-listed species.

Contractors should also be made aware that reptiles, including the reticulate collared lizard, Texas homed lizard, Texas indigo snake and the Texas tortoise, become more active during the spring and may be more susceptible to being negatively impacted by construction activities. If possible, TPWD recommends scheduling initial clearing and construction activities involving grading or bulldozing to occur outside of the spring to avoid and or minimize potential impacts to these species. Also, completing major ground disturbing activities before late October when reptiles become inactive and could be utilizing burrows in areas subject to disturbance would further minimize potential negative impacts.

When approached, reticulate collared lizards will typically flee to the base of a shrub and remain motionless. Contractors should be made aware of the potential to encounter reticulate collared lizards in the project area. If encountered, contractors should allow the lizards to escape; contractors should also be instructed to avoid negatively impacting any lizards encountered.

TPWD recommends that contractors working in the disposal facility expansion area be made aware of the potential for the state-listed Texas tortoise to occur in the area. If a tortoise is located in the project area it should be permitted to leave the area on its own. If it must be relocated, it should only be moved as far from active construction activity as necessary to protect it from being negatively impacted but within a 5 to 10 acre area which is the typical home range of a tortoise. After tortoises are removed from the immediate project area, an exclusion fence should be constructed with metal flashing or drift fence material; regular silt fence material may be used. The exclusion fence should be buried at least six inches deep and be 24-inches high. The use of an exclusion fence is also effective in preventing other reptiles from entering an area in which they may be negatively impacted.

Snakes in general are typically perceived as a threat and killed when encountered during vegetation clearing or site preparation activities. For snakes in general, contractors should be made aware of which species may occur in the area, be provided with species descriptions, and be informed that the black-striped snake and Texas indigo snake are not venomous. When working in areas near potential snake habitat (e.g., around debris piles, piles of vegetation/leaf litter, heavy vegetation near water bodies), contractors should be prepared to encounter snakes; most snakes will flee when humans approach. For the safety of workers and preservation of a natural resource, attempting to catch, relocate and/or kill non-venomous or venomous snakes is discouraged by TPWD. If encountered, snakes should be permitted to safely leave project areas on their own. TPWD encourages construction sites to have a "no kill" policy in regard to wildlife encounters.

Response:

The City will employ best management practices (BMPs) to minimize potential negative impacts to federally-listed and state-listed wildlife to include a "no kill" policy. Any state-listed reptile discovered will be permitted to leave the area on its own or relocated by persons permitted through the TPWD Wildlife Permit Program. In addition, fencing will be incrementally installed to inhibit reptiles from entering project areas.

Existing and proposed excavations and embankments are typically constructed with side slopes no steeper than 3 feet horizontal to 1 foot vertical; therefore providing wildlife an adequate escape. Any boreholes resulting from drilling activities and any shallow trenches with vertical walls left open overnight will be inspected the following morning.

The City cannot limit major ground disturbing activities because of ongoing operations throughout the year. However, prior to initial clearing and construction activities involving grading or bulldozing in the disposal facility expansion area, operators will be made aware of the potential for state-listed reptiles to occur and implement BMPs if discovered.

On behalf of City of Edinburg, we are requesting your concurrence in the adequacy of response recommendations provided by TPWD. If further information or documentation is required by your department, please give me a call at (281) 821-6868.

Sincerely,

GOLDER ASSOCIATES INC.



Chad E. Ireland, PE
Senior Project Geological Engineer



Charles G. Dominguez, PE
VP Central Region / Principal

cc: Ramiro L Gomez, Jr., City of Edinburg, Director of Solid Waste Management
Russell Hooten, Texas Parks and Wildlife Department, Wildlife Assessment Program, Wildlife Division

CEI/CGD/kjc

APPENDIX IIE3-1
USFWS REVIEW REQUEST

September 22, 2015

Project No. 1401491

**SENT VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Ernesto Reyes, Director
U.S. Fish & Wildlife Service
Wildlife Diversity Program
3325 Green Jay Road
Alamo, TX 78516

**RE: THREATENED OR ENDANGERED SPECIES REVIEW
PERMIT AMENDMENT APPLICATION
EDINBURG REGIONAL DISPOSAL FACILITY, TCEQ PERMIT MSW-956C
HIDALGO COUNTY, TEXAS**

Dear Mr. Reyes:

On behalf of our client, City of Edinburg, we are preparing a Permit Amendment Application to be submitted to the Texas Commission on Environmental Quality (TCEQ) Solid Waste Permits Division for a proposed expansion to the Edinburg Sanitary Landfill, Permit No. MSW-956B. The existing 254-acre Type I facility is located in the City of Edinburg in Hidalgo, County Texas. Golder Associates Inc. is preparing the application for City of Edinburg to expand the permit boundary to approximately 603 acres.

On behalf of City of Edinburg, we are requesting a review of the site for information on federally-listed endangered or threatened species that may exist in this area. Also for your information, we have attached an Endangered Species Biological Assessment that was performed by Naismith Engineering, Inc. Maps showing the site location and both the existing and the proposed limits of the permit boundary are included in the report.

If further information or documentation is required by your department to aid in your review, please give me a call at (281) 821-6868.

Sincerely,

GOLDER ASSOCIATES INC.



Chad E. Ireland, PE
Senior Project Geological Engineer



Charles G. Dominguez, PE
VP Central Region / Principal

cc: Ramiro L Gomez, Jr., City of Edinburg, Director of Solid Waste Management
CEI/CGD/kjc



APPENDIX E3-2
USFWS MEETING RESPONSE



October 12, 2015

Project No. 1401491

Ernesto Reyes, Director
U.S. Fish & Wildlife Service
Wildlife Diversity Program
3325 Green Jay Road
Alamo, TX 78516

**RE: RESPONSE TO MEETING
THREATENED OR ENDANGERED SPECIES REVIEW
PERMIT AMENDMENT APPLICATION
EDINBURG REGIONAL DISPOSAL FACILITY, TCEQ PERMIT MSW-956C
HIDALGO COUNTY, TEXAS**

Dear Mr. Reyes:

This letter is in response to a meeting between Ramiro L Gomez, Jr., Director of Solid Waste Management for the City of Edinburg and you on August 25, 2015 regarding suitable habitat for federally listed ocelot (*Leopardus pardalis*).

Texas Parks and Wildlife Department (TPWD) responded to a request for a rare species review for a permit amendment application to expand the 254-acre Type I facility to approximately 603 acres in a letter dated September 14, 2015. TPWD provided the following recommendation for the ocelot:

"In order to preserve potential ocelot habitat and avoid and/or minimize potential negative impacts to ocelots, TPWD recommends avoiding or minimizing clearing potential ocelot habitat. At a minimum, TPWD recommends preserving a corridor of the dense native woodland, at least 300-feet wide, along the easternmost boundary of the property. Also, all lighting installed around the perimeter and within the expanded disposal facility should be down-shielded and directed into the property."

As a result of the meeting's discussion, it was agreed to preserve a 200-ft wide corridor along the northern property boundary of dense native woodland and establish a 200-ft wide corridor connecting to southern property boundary as shown on Figure 1. Fencing will be added to the north side along the property line.

On behalf of City of Edinburg, we are requesting your concurrence in the proposed 200-ft wide wildlife corridor. If further information or documentation is required by your department, please give me a call at (281) 821-6868.

Sincerely,

GOLDER ASSOCIATES INC.

Chad E. Ireland, PE
Senior Project Geological Engineer

Charles G. Dominguez, PE
VP Central Region / Principal

cc: Ramiro L Gomez, Jr., City of Edinburg, Director of Solid Waste Management
Russell Hooten, Texas Parks and Wildlife Department, Wildlife Assessment Program, Wildlife Division

CEI/CGD/kjc





LEGEND

- PROJECT SITE BOUNDARY
- EXISTING LANDFILL PERMIT BOUNDARY
- CITY OWNED PROPERTY BOUNDARY
- 200 ft WIDE WILDLIFE CORRIDOR

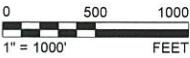
NOTE(S)

- THE PROPOSED 200-ft WIDE WILDLIFE CORRIDOR WILL BE LOCATED ALONG THE NORTHERN PROPERTY BOUNDARY AND EXTEND TO SOUTHERN BOUNDARY OF CITY OWNED PROPERTY AS SHOWN.
- FENCING WILL BE ADDED TO THE NORTH SIDE ALONG THE PROPERTY LINE.

REFERENCE(S)

BASE MAP TAKEN FROM NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) DIGITAL ORTHO PHOTO IMAGE PUBLISHED BY USDA-FSA-APFO DATED DECEMBER 16, 2014.

ISSUED FOR PERMITTING PURPOSES ONLY



0				2015-10-12	PERMIT AMENDMENT APPLICATION SUBMITTAL	CEI	CEI	CGD	CEI
REV.	YYYY-MM-DD	DESCRIPTION				DESIGNED	PREPARED	REVIEWED	APPROVED

SEAL

CLIENT

CITY OF EDINBURG
DEPARTMENT OF SOLID WASTE MANAGEMENT

CONSULTANT

HOUSTON OFFICE
500 CENTURY PLAZA DRIVE, SUITE 190
HOUSTON, TEXAS
USA
[+1] (281) 821 6868
www.golder.com

PROJECT

EDINBURG REGIONAL DISPOSAL FACILITY
PERMIT AMENDMENT APPLICATION TCEQ PERMIT MSW-249C
EDINBURG, HIDALGO COUNTY, TEXAS

TITLE

PROPOSED 200 ft WIDE WILDLIFE CORRIDOR

PROJECT NO.
1401491

APPLICATION SECTION
II-A-4

REV.
0

1 of 1

FIGURE
1

Path: I:\houston\edrf\2014\1401491 - City of Edinburg PRODUCTION - Permit Amendment Application\1 File Name: 1401491A131.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3/4

APPENDIX E3-3
USFWS DETERMINATION



United States Department of the Interior
FISH AND WILDLIFE SERVICE
Corpus Christi Office
Texas Coastal Ecological Service Field Office
3325 Green Jay Rd
Alamo, TX 78516

October 20, 2015

Chad E. Ireland, PE
Senior Project Geological Engineer
Golder Associates
500 Century Plaza Drive, Suite 190
Houston, TX 77073

Consultation No. 02ETCC00-2016-I-0030

Dear Mr. Ireland:

Thank you for your letter received October 13, 2015, regarding the effects of the proposed expansion of the Edinburg Sanitary Landfill on species federally listed species in Hidalgo County, Texas. In addition, your project was evaluated with respect to wetlands and other important fish and wildlife resources.

It is the Service's understanding that the City of Edinburg proposes to expand the existing Sanitary Landfill from 254 acres to approximately 603 acres. The expansion would incorporate 258.8 acres of agricultural and bare land and about 20 acres of dense Tamaulipan thornscrub habitat. On August 14, 2015, we met with Mr. Ramiro L. Gomez to discuss the project, and it was agreed to preserve a 200' wide corridor of dense native woodland along the northern property boundary, and establish a 200' wide corridor planted with native vegetation, connecting to the southern property boundary of dense native woodland owned by the City. This is shown on the enclosed Figure 1.

To comply with the Migratory Bird Treaty Act and avoid impacts to avian species, the City proposes to complete all clearing activities during the non-nesting season (September-February) to avoid potential impacts with birds nesting within the ROW. If project activities must be conducted during nesting season, we recommend surveying for nests prior to commencing work and if a nest is found, and if possible, the Service recommends a buffer of vegetation (≥ 50 ft) remain around the nest until the young have fledged or the nest is abandoned.

You made a "not likely to adversely affect" determination on Gulf Coast jaguarundi, and the ocelot. Based on project information submitted and above understanding, the Service concurs with your determination. We appreciate the opportunity to provide pre-planning information. If we can be of further assistance, please contact Ernesto Reyes at (956) 784-7560.

Enclosure

Sincerely,

Dawn Gardiner
Acting Field Supervisor

cc: Russell Hooten, Wildlife Habitat Assessment Program, Corpus Christi, TX



October 12, 2015

Project No. 1401491

Ernesto Reyes, Director
U.S. Fish & Wildlife Service
Wildlife Diversity Program
3325 Green Jay Road
Alamo, TX 78516

**RE: RESPONSE TO MEETING
THREATENED OR ENDANGERED SPECIES REVIEW
PERMIT AMENDMENT APPLICATION
EDINBURG REGIONAL DISPOSAL FACILITY, TCEQ PERMIT MSW-956C
HIDALGO COUNTY, TEXAS**

Dear Mr. Reyes:

This letter is in response to a meeting between Ramiro L Gomez, Jr., Director of Solid Waste Management for the City of Edinburg and you on August 25, 2015 regarding suitable habitat for federally listed ocelot (*Leopardus pardalis*).

Texas Parks and Wildlife Department (TPWD) responded to a request for a rare species review for a permit amendment application to expand the 254-acre Type I facility to approximately 603 acres in a letter dated September 14, 2015. TPWD provided the following recommendation for the ocelot:

"In order to preserve potential ocelot habitat and avoid and/or minimize potential negative impacts to ocelots, TPWD recommends avoiding or minimizing clearing potential ocelot habitat. At a minimum, TPWD recommends preserving a corridor of the dense native woodland, at least 300-feet wide, along the easternmost boundary of the property. Also, all lighting installed around the perimeter and within the expanded disposal facility should be down-shielded and directed into the property."

As a result of the meeting's discussion, it was agreed to preserve a 200-ft wide corridor along the northern property boundary of dense native woodland and establish a 200-ft wide corridor connecting to southern property boundary as shown on Figure 1. Fencing will be added to the north side along the property line.

On behalf of City of Edinburg, we are requesting your concurrence in the proposed 200-ft wide wildlife corridor. If further information or documentation is required by your department, please give me a call at (281) 821-6868.

Sincerely,

GOLDER ASSOCIATES INC.

A handwritten signature in blue ink that reads "Chad E. Ireland".

Chad E. Ireland, PE
Senior Project Geological Engineer

A handwritten signature in blue ink that reads "Charles G. Dominguez".

Charles G. Dominguez, PE
VP Central Region / Principal

cc: Ramiro L Gomez, Jr., City of Edinburg, Director of Solid Waste Management
Russell Hooten, Texas Parks and Wildlife Department, Wildlife Assessment Program, Wildlife Division

CEI/CGD/kjc

Golder Associates Inc.
500 Century Plaza Drive, Suite 190
Houston, TX 77073 USA
Tel: (281) 821-6868 Fax: (281) 821-6870 www.golder.com

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