ECOLOGICAL DUE DILIGENCE

VESTCOR TITUSVILLE
BREVARD COUNTY, FLORIDA

SEPTEMBER 2020

For

TVC Development, Inc.
3030 Hartley Road, Suite 310
Jacksonville, Florida 32257

HK207304

ENVIRONMENTAL SERVICES, INC.
A Terracon COMPANY

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I. INTRODUCTION

Environmental Services, Inc., a Terracon Company (ESI) has conducted a wetland and protected species assessment to assess the likelihood that specific regulated wildlife species or wetlands occur on the approximately 15.40-acre subject property. The property is located on the west side of Barna Avenue approximately 0.10-mile south of the Barna Avenue and Harrison Street intersection in Brevard County, Florida (Figure 1). The property is further located in Section 16, Township 22 South, Range 35 East, at the approximate central coordinates of 28.5835° N latitude, 80.8204° W longitude. ESI assessed the project site for federal and state protected wildlife species that have the potential to occur within the project area based upon published data collected from the US Fish and Wildlife Service (FWS), the Florida Fish and Wildlife Conservation Commission (FWC), and the Florida Natural Area Inventory (FNAI) websites. Wetland evaluations were performed to determine the presence and extent of jurisdictional wetlands on the subject property pursuant to the rules and regulations of the following agencies:

St. Johns River Water Management District (SJRWMD). (SJRWMD Florida Unified Wetland Delineation Methodology, Chapter 62-340, F.A.C.)

U.S. Army Corps of Engineers (USACE). (33 Code of Federal Regulations 320 through 330), (*Corps 1987 Wetlands Delineation Manual* [1987 Manual] and the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*).

ESI's methodology for assessing the subject property included a review of existing published information including: The United States Geological Survey (USGS) topographic map (Titusville, Florida Quadrangle 1988), the *Soil Survey of City of Brevard County, Florida* [United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)], SJRWMD permit search webpage retrieved from: (http://webapub.sjrwmd.com/agws10/sjrwmdpermit), and true color aerial photographs (USDA and USGS). The site visit was conducted by Shane Fahey of ESI on 02 September 2020.

II. EXISTING SITE CONDITIONS

A. Topography and Hydrology

A review of the USGS topographical maps for this parcel (Titusville Florida, 1988), and elevation data from Google Earth indicate the parcel gently undulates between 20-27 feet with hydrology typically flowing from northeast to southwest.

B. Soils

The *Soil Survey of Brevard County, Florida.* (U.S. Department of Agriculture, Soil Conservation Service) and the USDA, NRCS web soil survey identifies six different soil types within the project boundaries (Figure 2). The soils map appears to be generally accurate based upon desktop review and on-site conditions. A description of each soil type can be found below:

1. Canaveral-Urban land complex (10). Canaveral-Urban land complex has slopes between 0 to 2 percent and consists of Canaveral sand and Urban land. This soil if located on ridges, marine terraces, and coastal plains and is generally moderately well-draining. This soil has a seasonal high water table is typically around 45 inches and is not classified as a hydric soil.

2. Everglades mucky peat, drained (34). Everglades mucky peat, drained, is a poorly drained soil with slopes between 0 to 2 percent. This soil is typically located on depressions within marine terraces on coastal plains. This soil is not flooded, though is frequently ponded with a seasonal high water table around 0 inches for the summer months. This soil meets hydric criteria.

3. Myakka sand, 0 to 2 percent slopes (36). Myakka sand, 0 to 2 percent slopes is a poorly draining soil located on flatwoods of marine terraces on coastal plains. This soil is not typically flooded, or ponded, and has a seasonal high water table around 12 inches for the summer months. This is not classified as a hydric soil.

4. Pomello sand, 0 to 5 percent slopes (49). Pomello sand, 0 to 5 percent slopes is a somewhat poorly drained soil with slopes between 0 to 5 percent typically located on ridges on marine terraces within coastal plains. This soil is not typically flooded or ponded and has a seasonal high water table around 30 inches for the summer and fall months. This soil does not meet hydric criteria.

5. Quartzipsamments, smoothed (52). Quartzipsamments, smoothed, is a moderately well-draining soil with slopes between 0 to 5 percent. This soil is generally located on flats within marine terraces on coastal plains. Quartzipsamments soil is typically not flooded, or ponded, and contains a seasonal high water table around 42 inches for the summer months. This soil does not meet hydric criteria.

6. Tavares fine sand, 0 to 5 percent slopes (63). Tavares fine sand, 0 to 5 percent slopes, is a moderately well drained soil typically located on hills within marine terraces on coastal plains. Generally, this soil type is not flooded or ponded and the seasonal high water table is around 30 inches for the summer months. This soil does not meet hydric criteria.

C. Existing Habitat Types

Five generalized vegetative communities or land uses, as defined by the Florida Land Use, Cover and Forms Classification System (FLUCFCS), characterize the project area. These communities are described below.

1. Open Land (FLUCFCS 190). The open land vegetative community is located in the southwestern corner of the site. This area is entirely void of canopy or shrub species

and is dominated by opportunistic grasses and forbs.

2. Pine Mesic Oak (FLUCFCS 414). The pine mesic oak community consists of slash pine (*Pinus elliottii*), longleaf pine (*P. palustris*), laurel oak (*Quercus laurifolia*), live oak (*Q. virginiana),* cabbage palm (*Sabal palmetto*) and a small percentage of camphor (*Cinnamomum camphora*) and black cherry (*Prunus serotina*); with the western most boundary having a lower percentage of canopy cover. The shrub strata consist of gallberry (*Ilex glabra*), rusty lyonia (*Lyonia ferruginea*), deer berry (*Vaccinium stamineum*) shiny blueberry (*V. myrsinites*), and sporadic saw palmetto (*Serenoa repens*). The ground cover species include Boston fern (*Nephrolepis exaltata*), bracken fern (*Pteridium aquilinum*), sporadic gopher apple (*Licania michauxii*) and wiregrass (*Aristida stricta*), along with various opportunistic grasses and forbs.

3. Upland Scrub, Pine and Hardwoods (FLUCFCS 436). The upland scrub, pine and hardwoods vegetative community is located in the eastern half of the site. This community is densely vegetated in the shrub layer with virtually no open areas. The canopy is patchy with sporadic live oak, slash pine, and longleaf pine. The majority of the community consists of the dense shrub layer with saw palmetto being dominant; also including deer berry, rusty lyonia, and tallow wood (*Ximenia americana*). The herbaceous layer was scarce due to the high density of the shrub layer with species including bracken fern and gopher apple. The northeastern corner of the parcel contains a slightly less dense area of this community which includes the above species along with Brazilian pepper (*Schinus terebinthifolia*), winged sumac (*Rhus copallina*), and showy rattlebox (*Crotalaria spectabilis*) in the shrub layer, while this sections herbaceous layer includes rag weed (*Ambrosia artemisiifolia*), slimleaf paw paw (*Asimina angustifolia*), Spanish needles (*Bidens alba*), and horsemint (*Monadra punctata*).

4. Exotic Wetland Hardwoods (FLUCCS 619). The exotic wetland hardwoods community is isolated to the small wetland system located along the southern boundary of the site. The canopy within this community is dominated by Chinese tallow (*Triadica sebifera*), and Brazilian pepper in the sub canopy. The remaining canopy consists of red maple (*Acer rubrum*), cabbage palm, and sugar berry (*Celtis laevigate*). The shrub layer contains button bush (*Cephalanthus occidentalis*), and Brazilian pepper. The herbaceous layer was scarce with species including primrose willow (*Ludwigia pilosa*), Mexican petunia (*Ruellia simplex*), and Virginia chain fern (*Woodwardia virginica*).

5. Roads and Highways (FLUCFCS 814). The roads and highways land use on site refers to a small one-lane paved roadway within the western half of the site. The road enters the site in the southwest corner of the site and travels in an eastern protruding semi-circle before leaving the site along the western boundary.

III. ON-SITE WETLANDS

ESI's methodology for assessing the subject property included reviewing the pertinent literature and maps as reported above. As part of our internal investigation, ESI reviewed any past Environmental Resource Permits (ERP) issued, the National Wetlands Inventory (NWI) maps, the USDA NRCS web soil survey, and historic aerials of the site. While the NWI maps are not approved for identification of USACE and SJRWMD jurisdictional wetlands, they often offer insight into potential wetland conditions.

Wetlands are defined by the state and federal government as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation that is typically adapted for life in saturated soil conditions" (40 Code of Federal Regulations [CFR] 230.3(t)), Florida Statutes (F.S.) 373.019(17), and F.A.C. 62.340.20.

Pursuant to the 1987 USACE Wetland Delineation Manual and Chapter 62-340, F.A.C, key criteria for determining the presence of wetlands are: (a) sufficient hydrology as determined by inundation or saturation, (b) a prevalence of vegetation typically adapted for life in saturated soil conditions (i.e., hydrophytic vegetation), (c) saturated soils for a sufficient time in the growing season, and (d) normal circumstances. Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. The major variance between the state and federal agencies is that the USACE requires all three parameters while the state agencies [Florida Department of Environmental Protection (FDEP) and SJRWMD] require only two of the three criteria.

Plant species are characterized in groups indicating their affinity for wet soil conditions by both the State of Florida and federal delineation methods. Our following text refers to these groups of plants in the delineation methodologies pertaining to vegetation:

- Obligate – almost always is a hydrophyte
- Facultative wetland (wet) – usually is a hydrophyte
- Facultative – commonly occurs as wetland and upland species
- Facultative upland – usually occurs as an upland species; occasionally as a wetland species
- Upland – almost always is an upland species; rarely is a hydrophyte

The concept of the definition by FDEP/SJRWMD and USACE is essentially the same. The state list is defined in 62-340.450, F.A.C., and the USACE definition is provided in *Atlantic and Gulf Coast Plain 2014 Regional Wetland Plant List* (Lichvar et al., 2014).

After reviewing all available resource materials, including topographic maps, soil survey information, aerial photographs of the parcel and permits issued to abutting parcels, Shane Fahey of ESI inspected the parcel on 02 September 2020. During the site visit, ESI utilized the Routine On-site Determination Method described in the above methodologies in order to verify the extent of the wetlands on property. ESI identified one small wetland system located along the southern boundary of the site. ESI did not delineate the extent of the wetlands, and the extents depicted on Figure 3 are estimated. Should the wetland be delineated pursuant to state and federal

methodologies, ESI expects this wetland system to be between 0.10 and 0.20-acre. The wetland is of low ecological quality due to its isolated nature, size, surrounding development, and the high quantity of exotic flora within the system.

IV. PROTECTED SPECIES

The survey was initiated with a literature search of the specific listed species being assessed for this parcel. The literature consulted includes lists and species information supplied by the FWC, FWS and FNAI websites. ESI scientist and Authorized Gopher Tortoise Agent Shane Fahey reviewed the property on 02 September 2020 by walking the property and inspecting all vegetative community types for any signs of the specific protected species. A list of all Brevard County protected species can be seen in Table 1 located in Appendix 1. A synopsis of the listed species of Brevard County, FL with potential or marginal potential to occur on site can be found below:

A. Wood Stork (*Mycteria americana*), Little Blue Heron (*Egretta caerulea*), and Tricolored Heron (*Egretta tricolor*)

The wood stork is listed as a threatened species at the state and federal level. FWS has not designated critical habitat for the wood stork but does designate Core Foraging Areas (CFA) for the species. In Central Florida, the CFA includes any suitable foraging habitat within a 15-mile radius of a colony. Suitable foraging habitat is described as a wetland or open water areas that are relatively calm, uncluttered by dense thickets of aquatic vegetation, and has a water depth between two and fifteen inches. Based on published colony maps, the property does fall within the CFA of the Orlando Wetlands Park colony located approximately 10.5-miles west-southwest of the property. While the property does fall within the CFA, the on-site wetland is much too small and isolated in nature for this species to adequately utilize. According to Section B of the USACE/FWS Central and North Peninsular Florida Wood Stork Determination Key, the development of this parcel would result in "no effect" to this species because, while there is a small wetland on-site, it does not meet the definition of suitable foraging habitat for this species.

Similarly, the tricolored heron and the little blue heron are listed as threatened species at the state level and are not federally protected. The tricolored heron prefers coastal environments but may also be found in inland wetland systems. The little blue heron is commonly found nesting in coastal areas, but the species prefers to utilize freshwater wetland systems for foraging. The wetland on site is marginally suited for these species to utilize as foraging habitat, though, it is unlikely due to the isolated nature and small size of the wetland, and the dense overhead canopy. At no point during the site investigation were any, wood stork, tricolored heron or little blue heron observed on site, and the completion of the intended project is not anticipated to adversely affect these species or their favored habitats.

B. Gopher Tortoise (*Gopherus Polyphemus*)

The gopher tortoise is listed as threatened by the State of Florida and is therefore afforded protection via FWC. Specifically, any development within 25 feet of a potentially occupied

burrow requires a permit from FWC. The permit types vary, but proposed development within an area with known gopher tortoise burrows would result in the need for a permit from FWC. A number of costs are associated with the acquisition of an FWC permit and the associated relocation activities. Gopher tortoise burrows were not observed on site during the due diligence site visit, though, the site contains highly suited soils, and adequate food sources for the species in some locations on the site. For this reason, a 100 percent gopher tortoise survey is recommended to obtain an accurate gopher tortoise population (if any) within the potentially suitable areas on the site. Subsequent permitting with FWC to excavate and relocate gopher tortoise could be necessary if construction will take place within a 25-foot buffer to any gopher tortoise burrow. ESI can assist with all gopher tortoise surveying and permitting needs and a proposal for these services will be provided upon request.

C. Eastern Indigo Snake (*Drymarchon couperi*) and Florida Pine Snake (*Pituophis melanoleucus migitus*)

The Eastern Indigo Snake is listed as a threatened species at both the federal and state level and the Florida pine snake is listed as threatened at the state level, though is not listed at the federal level. Both species are typical commensal species of the gopher tortoise and generally inhabit areas where they can utilize gopher tortoise burrows as refugia. The eastern indigo snake is considered a habitat generalist, as it may inhabit a wide variety of communities. This species is known to utilize Gopher Tortoise burrows, though may spend a great deal of time foraging within hydric communities and requires very large tracts of land to survive. This parcel contains both hydric communities and potentially refugia due to the suitability for gopher tortoise in some areas; therefore, further action is required to ensure no adverse effect occurs on this species. According to section E of the Eastern Indigo Snake Programmatic Effect Determination Key, all gopher tortoise burrows within the construction area must be excavated prior to any site manipulation in order for the project to result in a "Not Likely to Adversely Affect (NLAA)" determination for this species. If an indigo snake is observed at any point, all work must cease until the snake has completely vacated the work area. If no gopher tortoise burrows are located during the 100 percent gopher tortoise survey, then no further action would be anticipated for this species.

Similarly, the Florida pine snake requires dry upland habitats such as sandhills and scrubby flatwoods in order to thrive. There is marginal habitat on-site within the property within the upland scrub, pine and hardwoods community and due to the potential for gopher tortoise on-site, though at no point during the site visits was the Florida pine snake, or evidence thereof, observed. In addition, the high shrub layer density and absence of open areas for the species to utilize make the utilization of the property by this species unlikely.

D. Additional Concerns

The site was also reviewed for the presence of bald eagle (*Haliaeetus leucocephalus*), and osprey (*Pandion haliaetus*), and the occurrence of any nests. At no point during the site investigation were any bald eagle, osprey, or associated nests observed within the site

boundary or adjacent properties. In addition, ESI reviewed the FWC Bald Eagle nesting data which concluded that there are no bald eagle nests, active or inactive, within a 1-mile radius of the site, therefore no further action is anticipated.

V. SUMMARY

Based upon ESI's analysis of the vegetation, hydric soil conditions, hydrology, and the rules and regulations of USACE, SJRWMD and FDEP; ESI has determined that the site contains one small wetland system along the southern boundary of the property that is approximately 0.10 to 0.20-acre in size, as depicted in Figure 3. This wetland will need to be delineated and surveyed in order to obtain an accurate size and location. Any impacts to the on-site wetland will require an Environmental Resource Permit (ERP) from SJRWMD. ESI anticipates no mitigation to be required for impacts to the on-site wetland as it appears the wetland is physically isolated in less than 0.5 acres in size.

Further, this wetland is anticipated to meet the definition of non-jurisdictional waters per the recently revised Navigable Waters Protection Rule (33 CFR § 328.3 (b)(1)), and therefore no federal permitting or potential mitigation would be required. A No Permit Required (NPR) determination can be prepared to ensure this activity is not under the jurisdiction of ACOE.

Due to the highly suitable soils and food resources within some areas of the site, ESI recommends a 100-percent gopher tortoise survey be conducted to obtain an accurate population of gopher on site, along with the locations of their burrows for further project design use. Subsequent gopher tortoise burrows that occur within 25-feet of any intended site manipulation will require FWC permitting and relocation before site manipulation can take place. There is also action required to ensure no adverse effect occurs to the Eastern Indigo Snake species. As stated previously, following section E of the Eastern Indigo Snake Effect Determination Key will ensure no adverse effect occurs on the species.

ESI would be pleased to assist TVC Development, Inc. with the delineation of the on-site wetland, and any subsequent permitting for proposed impacts to the wetland that may be required. Similarly, ESI can perform the 100 percent gopher tortoise survey including any subsequent permitting and excavation for the gopher tortoise burrows that may be required following the survey. ESI can provide proposals for these tasks at your request.

This report was prepared for the exclusive reliance of TVC Development, Inc ("client"). Use or reliance by any other party is prohibited without the written authorization of the client and ESI.

We trust that this information will assist you in your evaluation of the site. If you have questions concerning this report, or if we can assist you in other matters, please contact us.

Sincerely,

Brett Anderson
Senior Project Manager

Gary K. Howalt, PWS
Principal/Department Manager

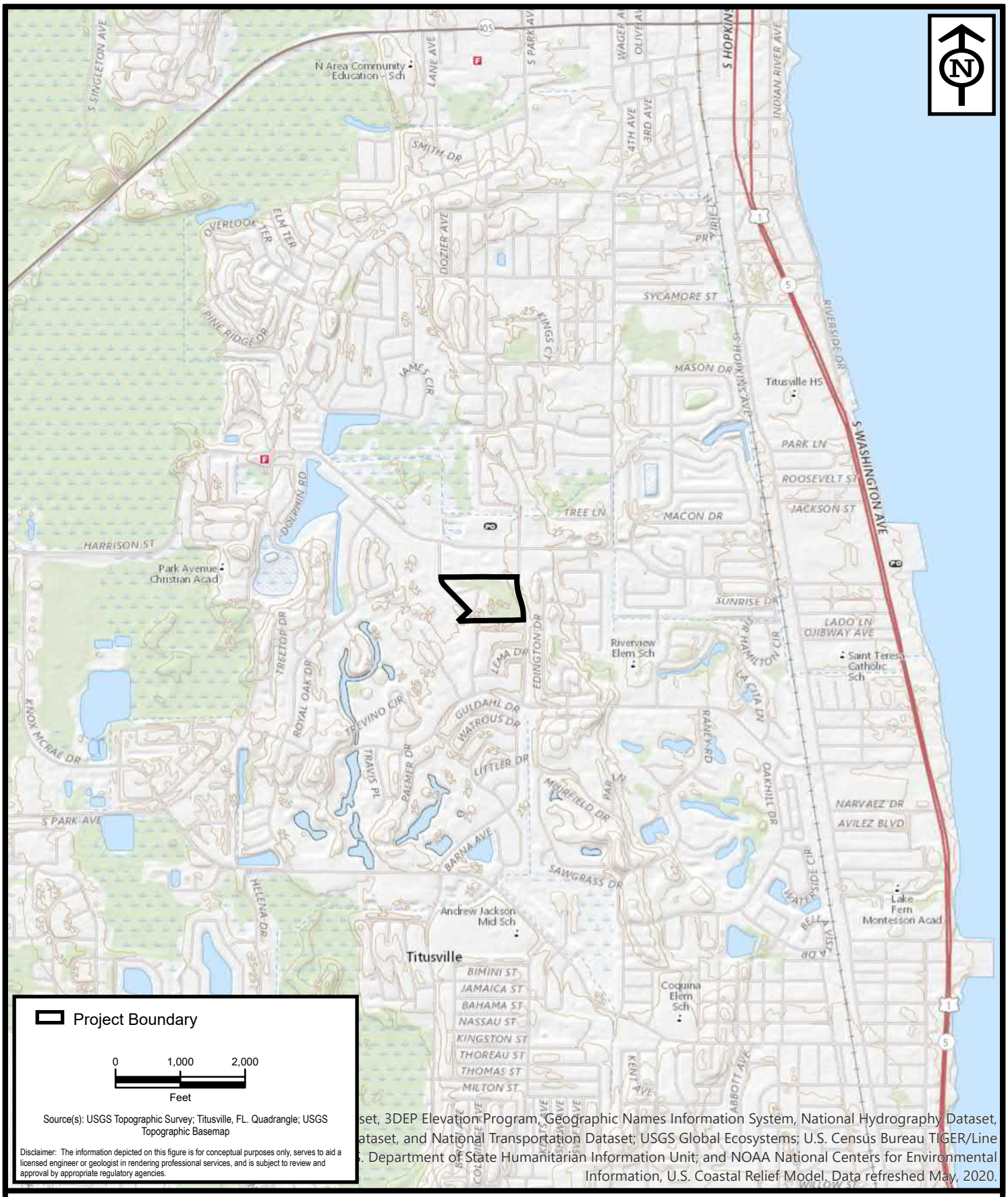
APPENDICES

Figures

Table 1

Wood Stork Effect Determination Key

Eastern Indigo Snake Effect Determination Key



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Project Location

Vestcor - Titusville

Brevard County, Florida

Project No.	HK207304
Date	Sep 2020
Drawn By	AA
Checked By	JRN
Approved By	BAA
Figure No.	**1**

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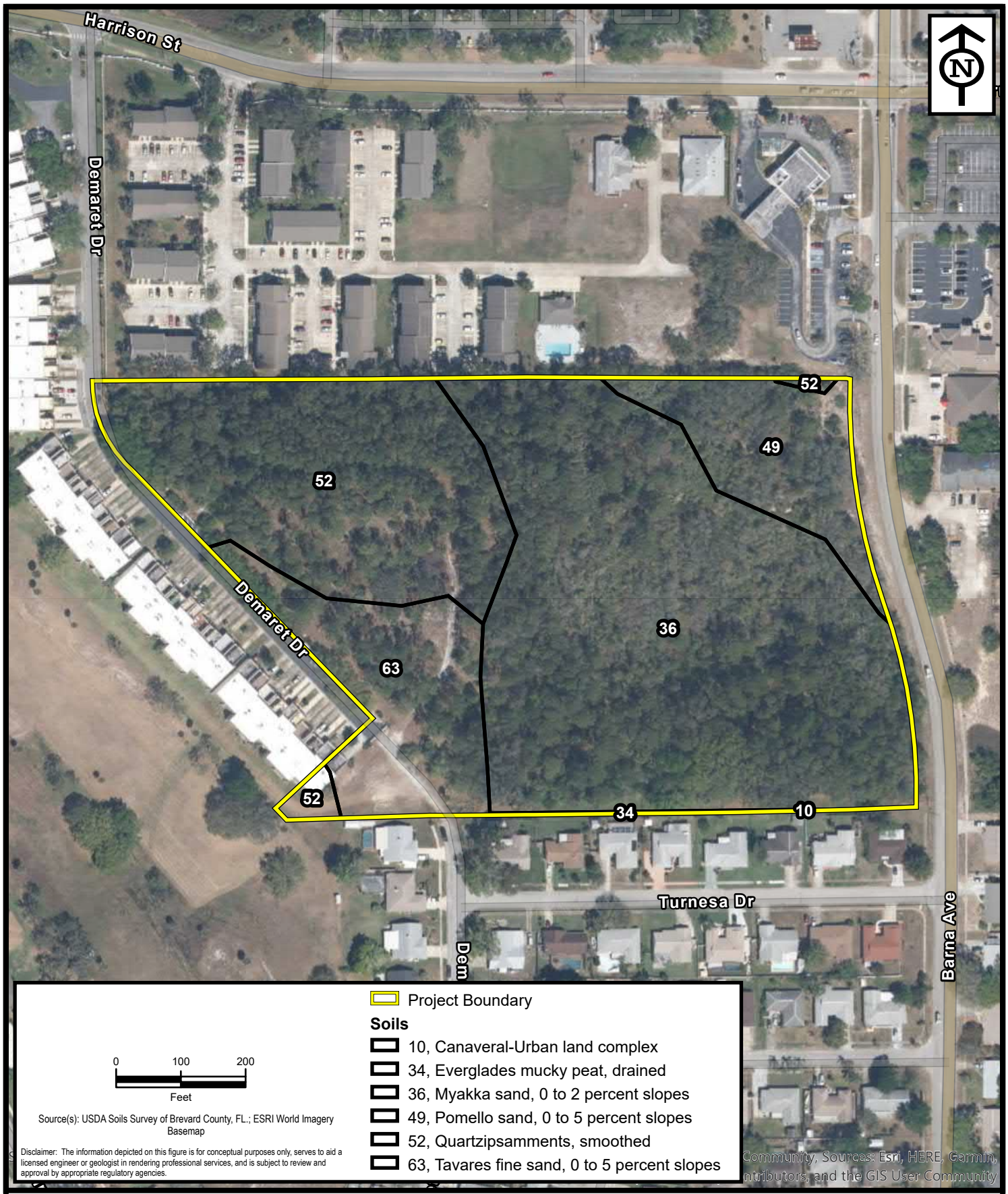

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NRCS Soils

Vestcor - Titusville

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Figure No.	**2**

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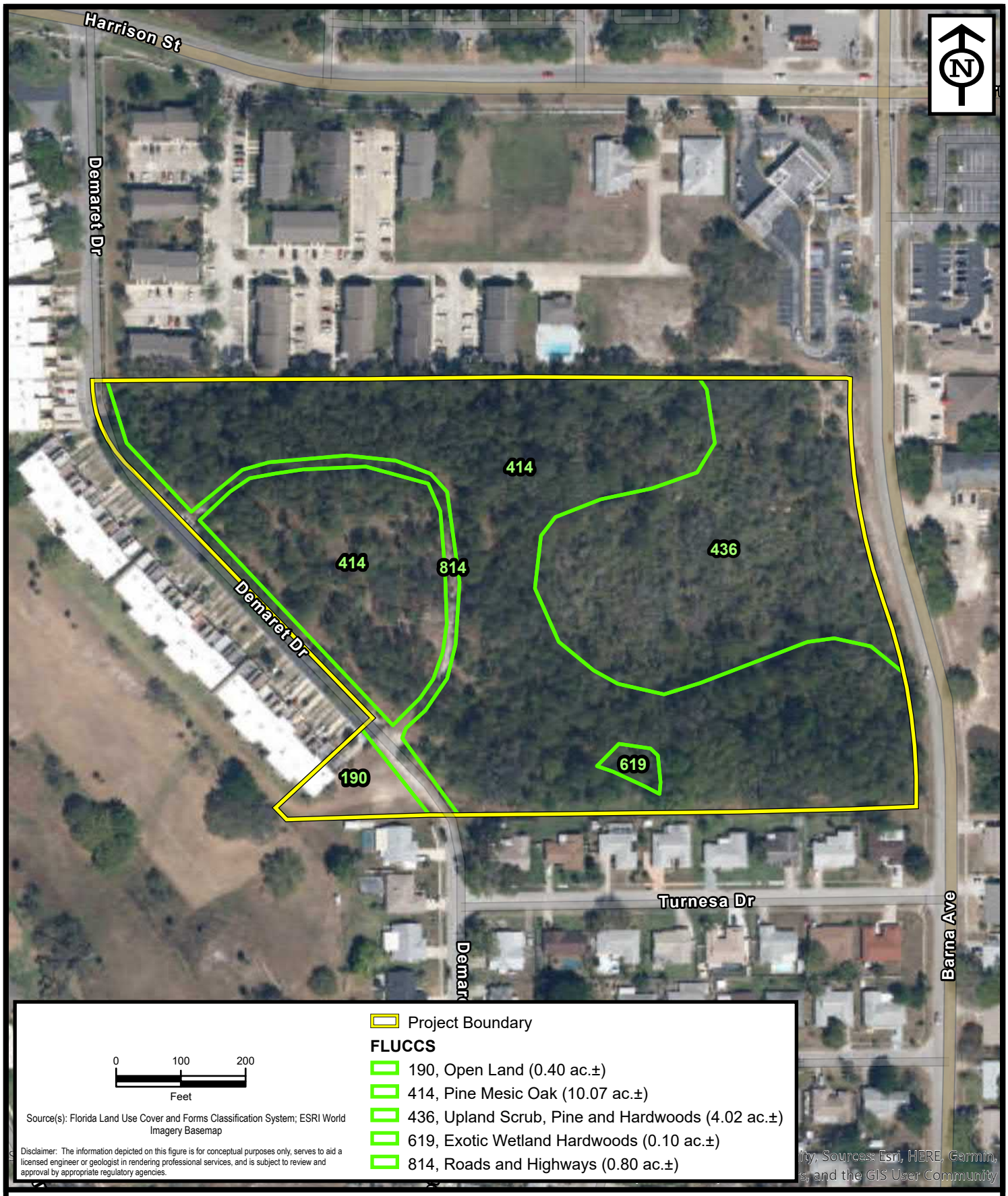

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Existing Site Conditions

Vestcor - Titusville

Brevard County, Florida

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Figure No.	**3**

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Preliminary Assessment

Vestcor - Titusville

Brevard County, Florida

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Figure No.	**4**

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Potential Gopher Tortoise Habitat

Vestcor - Titusville

Brevard County, Florida

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Figure No.	**5**

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