wildlight

East Nassau Community Planning Area
Appendix A
Natural Resources Protection Report

October 23, 2023

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Natural Resources Protection
DSAP2

Sector Plans: F.S. § 163.3245

Pursuant to F.S. § 163.3245, a sector plan must include the adoption of a long-term master plan (LTMP) and two or more detailed specific area plans (DSAP) whose purpose is implementation of the LTMP. The LTMP includes the future land uses and basic patterns of development throughout the sector plan; this Natural Resources Protection document is in support of the Future Land Use Map (FLUM) amendment to refine the land use categories established in the LTMP and the East Nassau Community Planning Area DSAP 2. An approved LTMP must include the following components for the purposes of natural resource identification and protection: 163.3245(3)(a)(1) "*a framework map that, at a minimum, generally depicts areas of urban, agricultural, rural and conservation land use*"; 163.3245(3)(a)(5) "*a general identification of regionally significant natural resources within the planning area based on the best available data and policies setting forth the procedures for protection or conservation of specific resources consistent with the overall conservation and development strategy for the planning area*"; and 163.3245(3)(a)(6) "*general principles and guidelines addressing…the protection and, as appropriate, restoration and management of lands identified for permanent preservation through recordation of conservation easements… [and] general principles and guidelines addressing [the protection of] wildlife and natural areas.*"

Pursuant to F.S. § 163.3245, the development plan must include conditions and commitments that provide for natural resource protection, including: 163.3245(3)(b)(7) "*detailed analysis and identification of specific measures to ensure the protection and, as appropriate, restoration and management of lands within the boundary of the DSAP identified for permanent preservation through recordation of conservation easements consistent with s. 704.06*; and 163.3245(3)(b)(8) "*detailed principles and guidelines…[for the purpose of] protecting wildlife and natural areas...*"

Breedlove, Dennis & Associates, Inc. (BDA) confirms that information included herein meets the requirements for the natural resources elements of F.S. § 163.3245. Other portions of the request for the FLUM amendment and DSAP 2 address the remaining elements of F.S. § 163.3245.

Nassau County Comprehensive Plan: East Nassau Community Planning Area (ENCPA)

The ENCPA Master Land Use Plan (Master Plan) was adopted as an amendment to the Nassau County (County) Comprehensive Plan (Comp Plan) on October 18, 2010. The ENCPA Master Plan is a LTMP, pursuant to the Florida sector plan statute (F.S. 163.3245).

The primary goal of the ENCPA Master Plan is to promote sustainable and efficient regional land use. One of the guiding principles includes the protection of natural resources through the establishment of the Conservation Habitat Network (CHN). The CHN was designed to include a mosaic of wetlands, surface waters and uplands to provide for landscape connectivity and protection of significant natural resources within the 24,000 (±) acre ENCPA. The CHN within the overall ENCPA contains the majority (~80%) of large connected wetland strands and a majority (~80%) of the mapped 100-year floodplain. The protection of large wetland strands and contiguous upland areas within the CHN will provide long-term benefits for the aquatic, wetland dependent, and terrestrial wildlife that currently utilize these habitats. This will also ensure that conserved wetlands and contiguous uplands will be protected in perpetuity. Preserving this mix of wetlands and uplands within the CHN conservation corridors will provide a variety of habitats needed by listed wildlife, connect major habitats allowing indigenous wildlife to move across the property

without interference from development, and contribute to the long-term sustainability of the wildlife communities.

The CHN will consist of wetland preservation areas, wetland restoration areas, upland preservation areas, and upland restoration areas. The restoration areas are currently in active silviculture; FL.13.07.A allows for silviculture and this land use will continue until the final boundary of the CHN is established. When the final boundary of any CHN area is established per FL.13.07.A, a silvicultural management plan will be developed in accordance with BMPs to protect the overall conservation objective of the applicable area. Such management plan may include restoration of the CHN areas by thinning of pines to a natural density, restoration of topography and natural hydrology (bed restoration), recruitment of native species, and treatment of nuisance/exotic vegetation. The approximate extent of these resources is depicted on Figure A.1.1. In addition, upland buffers will also provide additional protection of these resources. Note that these are approximate since there are wetlands within the site that have not been delineated, so the actual acreage of wetlands and uplands may change, but the extent of the CHN will remain the same. Figure A.1.1 also contains the conceptual locations of the proposed wildlife crossings to maintain connectivity for wildlife.

Areas that are targeted for preservation are high-quality systems in the current condition and will be subject to maintenance to conserve the high-quality characteristics of the systems. Areas that are planned for restoration are currently of poor to moderate quality due to silviculture activities; restoration as described above will reestablish native vegetation and natural hydrology resulting in high-quality systems to be conserved.

An important component of identifying the CHN was the location in the region to provide a conservation corridor linking surrounding conservation areas to the ENCPA and the St. Marys River (Figure A.2.1). The preservation and restoration activities noted above, along with the corridor provided by the CHN, result in large areas of high-quality connected habitat that prevent habitat fragmentation.

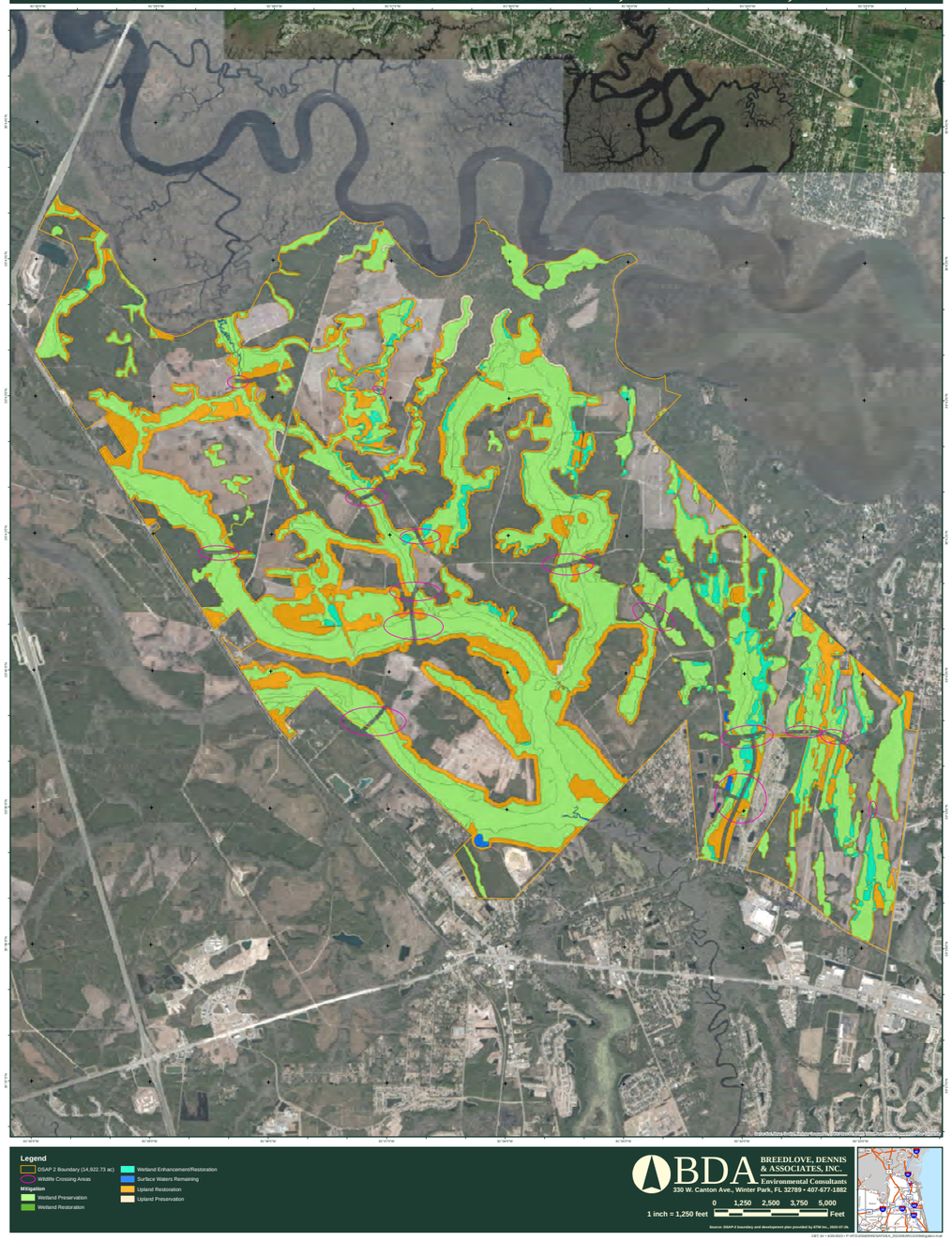
Consistent with F.S. 163.3245(3)(a)(1), the adopted Comp Plan Future Land Use Map (FLUM or Map FLUM-6) includes the ENCPA boundary which "*generally depicts areas of urban, agricultural, rural and conservation land use.*" Consistent with F.S. 163.3245(3)(a)(5), the FLUM depicts the adopted CHN which *"[identifies] regionally significant natural resources within the planning area…".* The CHN is generally subject to the following guidelines [consistent with F.S. 163.3245(3)(a)(6), and 163.3245(3)(b)(7) and (8), and FLUE; Policy FL. 13.07(A)]:

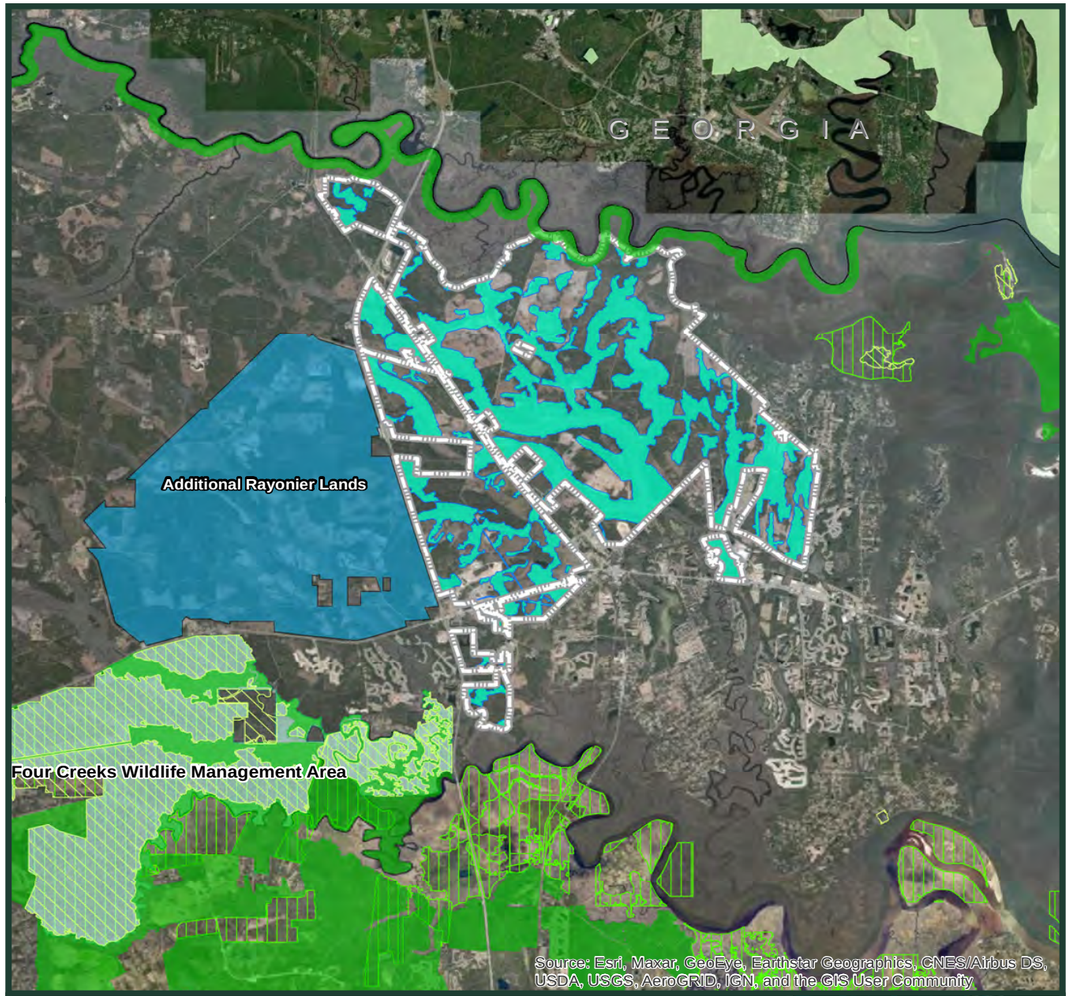
- Prior to development of portions of the ENCPA that abut boundaries of the CHN which preserve wildlife habitat, a management plan shall be developed that promotes maintenance of native species diversity in such areas and which may include provision for controlled burns.

- New roadway crossings of wildlife corridors within the CHN for development activity shall be permitted in conjunction with the design of the internal road network, but shall be minimized to the greatest extent practical.

- Road crossings within the CHN will be sized appropriately and incorporate fencing or other design features as may be necessary to direct species to the crossing and enhance effectiveness of such crossings.

FIGURE A.1.1 PROPOSED REGIONALLY SIGNIFICANT MITIGATION PLAN ON THE E. NASSAU COMMUNITY PLANNING AREA DSAP-2 PROJECT SITE, NASSAU COUNTY, FL.





Legend

- East Nassau Community Planning Area (ENCPA)
- ENCPA Conservation Habitat Network (CHN)
- Wildlife Management Areas (WMA)
- Florida Forever Acquisition
- Florida Forever BOT & SOR Lands
- Florida Managed Areas
- Georgia Conservation Lands (2011)
- Additional Rayonier Lands

Source: ENCPA boundary recieved from Vanasse Hangen Brustlin, Inc.; 2010-09-28.

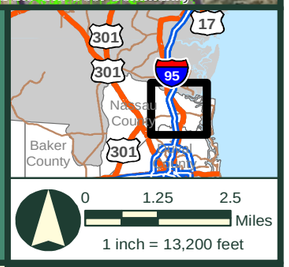


FIGURE A.2.1
REGIONAL LANDS IN THE VICINITY OF THE EAST NASSAU COMMUNITY PLANNING AREA, NASSAU COUNTY, FLORIDA.

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- Prior to commencement of development within the ENCPA, an environmental education program shall be developed for the CHN and implemented in conjunction with a property owners association, environmental group or other community association or governmental agency so as to encourage protection of the wildlife and natural habitats incorporated within the CHN.

- The boundaries of the CHN are identified on Map FLUM-6. The boundaries of the CHN shall be formally established as conservation tracts or placed under conservation easements pursuant to the following criteria:

    - the final boundary of wetland edges forming the CHN boundary shall be consistent with the limits of the jurisdictional wetlands and associated buffers as established in the applicable St. Johns River Water Management District (SJRWMD) permit;

    - the final boundary of upland edges forming the CHN boundary shall be established generally consistent with the Map FLUM-6, recognizing that minor adjustments may be warranted based on more or refined data and any boundary adjustments in the upland area shall 1) continue to provide for an appropriate width given the functions of the CHN in that particular location (i.e., wetlands species or habitat protection), the specific site conditions along such boundary and the wildlife uses to be protected and 2) ensure that the integrity of the CHN as a wildlife corridor and wetland and species habitat protection area is not materially and adversely affected by alteration of such boundary; and

    - boundary modifications meeting all of the criteria described in FL.13.07.A shall be incorporated into the CHN and the ENCPA Master Land Use Plan upon issuance of the applicable SJRWMD permits and shall be effective without the requirement for an amendment to the FLUM, ENCPA FLUE policies or any other Comp Plan Elements defined in Chapter 163, F.S.

- Silvicultural and agricultural activities allowed in the Agricultural classification of the FLUE of the Comp Plan, excluding residential land uses, shall continue to be allowed within the CHN. When the final boundaries of any portion of the CHN are established as described above, a silvicultural management plan will be developed in accordance with best management practices to protect the overall conservation objective of such portion of the CHN.

In addition to compliance with the guidelines listed above, all development within the ENCPA must also comply with all goals, objectives and policies within the Comprehensive Plan Conservation Element (CS).

The CHN, with both wetlands and uplands, serves as a wildlife corridor throughout the ENCPA. Where roadways cross the CHN, wildlife crossings will be provided and may include appropriately sized culverts, fencing to direct wildlife to the crossing, and lighting for greater visibility by motorists, or other design elements to protect both wildlife and motorists.

Local, State and Federal Natural Resources Regulations

Wetlands and Surface Waters

The extent of wetlands and surface waters, consistent with 62-340, F.A.C., within DSAP2 area are based on (1) areas approved on August 10, 2010, through the Florida Department of Environmental Protection

(FDEP) Formal Wetland Determination (FD) Process (DEP File No. 45-282311-002-FD); (2) areas approved by SJRWMD under Environmental Resource Permit (ERP) No. 145638-1; (3) areas that were field delineated and recorded with a GPS; and (4) areas that were photo-interpreted and will be field delineated in accordance with the Florida unified wetland delineation methodology (Chapter 62-340, Florida Administrative Code [F.A.C.]) prior to permitting with SJRWMD. The FD was reissued by FDEP to extend the expiration date to January 19, 2026. The Property includes approximately 5,328.5 acres of wetlands and surface waters (Figure A.3.1, Table A.4.1).

Wetland protection within the Property is regulated by the SJRWMD, FDEP and/or the Department of the Army, Corps of Engineers (ACOE), and Nassau County. Dredge and fill activities and mitigation for these activities, are regulated by the state through the ERP program, and implemented jointly by the FDEP and the five water management districts. The FDEP and/or ACOE regulates the placement of dredged or fill material within "waters of the United States" through the Clean Water Act § 404 permitting process. Since retained waters are present within the Property, coordination with ACOE is underway for the Clean Water Act § 404 permitting. Further, issuance of an ERP from the SJRWMD/FDEP will serve as state water quality certification required under § 401 of the Clean Water Act.

In addition to state and federal regulations, wetland protection within the Property is also regulated by Nassau County. Field-verified jurisdictional wetlands are designated as Conservation I on the County FLUM. Development must be directed away from wetlands *"…by clustering the development to maintain the largest contiguous wetland area practicable and to preserve the pre-development wetland conditions"* in accordance with the Comp Plan. As described above, provisions for wetland protection are also included within the CHN guidelines and standards described in Policy FL.13.07(A) of the Comp Plan. The CHN not only includes wetlands and surface waters, but also a network of adjacent uplands depicted as Conservation on the ENCPA Master Plan. Uplands designated as Conservation areas in the CHN will serve as a separation between jurisdictional wetlands and developable tracts. The final boundaries of wetlands and upland buffers within the CHN will be formally determined when an abutting development parcel undergoes permitting in accordance with requirements of the SJRWMD. As described in Policy FL.13.07, any modifications to the CHN boundary as depicted on the ENCPA Master Plan which result in a reduction in the upland Conservation area shall provide for an appropriate width, given the functions of the CHN in that particular location (i.e., wetland, species, or habitat protection), the specific site conditions along such a boundary and the wildlife uses to be protected. This compensation will ensure that the integrity of the CHN as a wildlife corridor and habitat protection area is not materially or adversely affected by the alteration of the CHN boundary. Impacts to jurisdictional wetlands will be avoided, except in cases where no other feasible or practical alternatives exist that will permit a reasonable use of the land or where there is an overriding public benefit. In such cases, final determination of impacts due to wetland encroachment, alteration, or removal will be coordinated, mitigated, and permitted through completion of state and federal regulatory authority approvals and permitting. Mitigation requirements for unavoidable impacts to wetlands will be determined using the Uniform Mitigation Assessment Method functional analysis. Stormwater runoff generated on the Property will be treated by an extensive Surface Water Management System that will incorporate retention and detention ponds. Final impact and mitigation boundaries and acreages will be determined through state and federal permitting processes, and will be consistent with County goals, objectives and policies.

Natural Resource Management

F.S. 163.3245(3)(b)(7) requires the *"identification of specific measures to ensure the protection, and as appropriate, restoration and management of lands"*. Consistent with this requirement, areas designated

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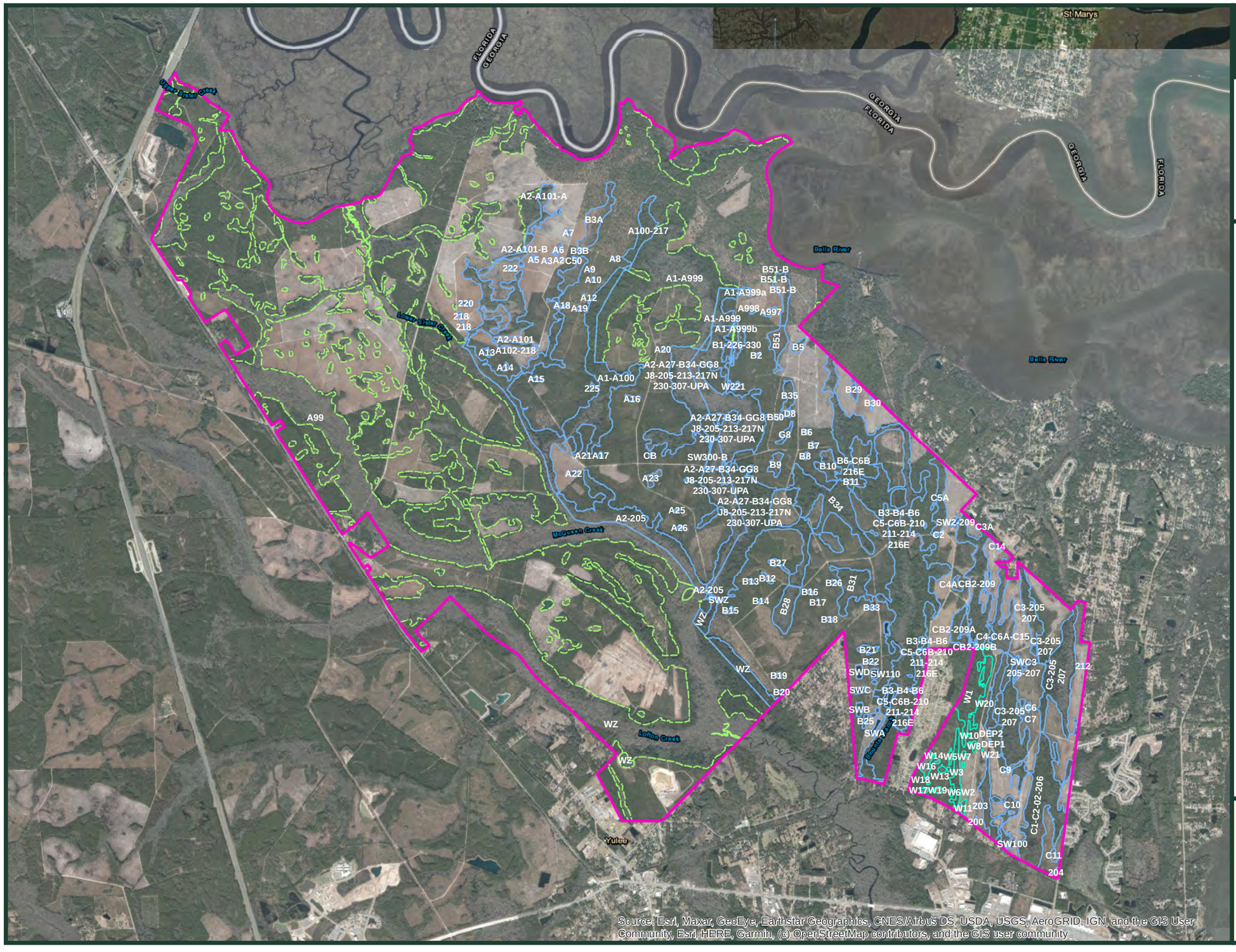

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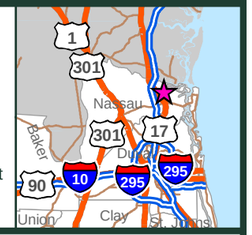
0 2,000 4,000 Feet
1 inch = 4,000 feet



Legend

- Project Boundary
- DEP Approved and Surveyed Wetland Limits (2,663.19 ac)
- SJRWMD Approved Wetland Limits (99.38 ac)
- Photo-interpreted (2,565.93 ac)

Source: Breedlove, Dennis & Associates, Inc. and other various sources.

FIGURE A.3.1

WETLANDS AND SURFACE WATERS ON THE EAST NASSAU COMMUNITY PLANNING AREA DSAP 2 PROJECT AREA, NASSAU COUNTY, FLORIDA.

Table A.4.1 Florida Land Use, Cover and Forms Classification System, Representative Acreage for Wetlands within DSAP2, Nassau County, Florida.

FLUCFCS[1]	Acreage
510 - Streams and Waterways	8.22
516 - Ditches and Streams	1.43
530 - Reservoirs	31.86
611 - Bay Swamps	118.10
617 - Mixed Wetland Hardwoods	1,233.48
620 - Wetland Coniferous Forests	8.26
621 - Cypress	153.76
625 - Hydric Pine Flatwoods	777.47
630 - Wetland Forested Mixed	2,472.33
630L - Wetland Forested Mixed (Logged)	0.33
641 - Freshwater Marshes	14.98
642 - Saltwater Marshes	7.89
643 - Wet Prairies	17.61
644 - Emergent Aquatic Vegetation	3.64
646 - Treeless Hydric Savanna	89.84
W441 - Wet Coniferous Plantations	386.11
W814 - Dirt Road in Wetland	3.19
Totals	**5,328.51**

[1] Florida Land Use, Cover and Forms Classification System.

as CHN within the approved LTMP will be included in one or more management plans that will be developed at the time of filing with the County a Preliminary Development Plan application for the Property or portion thereof. The specific management plan will take into consideration the type, location and ecological condition of wetlands and other vegetative communities, as well as the needs of any listed species that occur on the Property or portions thereof. In accordance with F.S. 163.3245 and Comp Plan Policy FL. 13.07.A, wetlands within the Property that are located within the approved CHN will be placed under conservation easements. Consistent with this, development has an emphasis placed on the conservation, enhancement, and long-term management of natural features and interconnectivity between land uses. The lands to be developed are primarily uplands managed as active timber lands under intensive silviculture operations, with extensive preservation of both wetland and upland areas outside of the development. Planning has emphasized the conservation and management of key natural areas, providing an important interconnected corridor of habitat for indigenous wildlife, and providing a system of natural areas within the CHN that will facilitate use, enjoyment, recreation, and educational value of the natural ecosystems.

Ecological Communities

Land use and vegetative cover types within the Property were classified based on Florida Land Use Cover and Forms Classification System data obtained from the SJRWMD Geographic Information System (GIS) database, along with selective photointerpretation and ground-truthing (Figure A.5.1). Botanical nomenclature is per Wunderlin and Hansen (28).

Wetlands and Surface Waters

Wetland and surface water communities on the Property consist of Bay Swamps (611), Mixed Wetland Hardwood (617), Wetland Coniferous Forests (620), Cypress (621), Hydric Pine Flatwoods (625), Wetland Forested Mixed (630), Wetland Forested Mixed (Logged) (630L), Freshwater Marshes (641), Saltwater Marshes (642), Wet Prairies (643), Emergent Aquatic Vegetation (644), Treeless Hydric Savanna (646), Wet Coniferous Plantation (W441), Streams and Waterways (510), Ditches (516), and Reservoirs (530) (Figure A.5.1, Table A.4.1). All wetland acreages are preliminary and are subject to change based on agency review of wetland boundaries on the western portion of the Property. Note that the cover type Dirt Road in Wetland (W814) spans several community types.

Bay Swamps (611)
The bay swamps were interior to the Wetland Forested Mixed (630) cover type and contained similar vegetation except that the canopy was dominated by lobolly bay *(Gordonia lasianthus*) and swamp bay *(Persea palustris*).

Mixed Wetland Hardwood (617)
This cover type contained vegetation similar to Wetland Forested Mixed (630) but with a predominance of hardwoods and very little slash pine *(Pinus elliottii*) in the canopy.

Wetland Coniferous Forests (620) and Hydric Pine Flatwoods (625)
The canopy stratum of these cover types was generally comprised of slash pine, with scattered cypress *(Taxodium* sp.), red maple *(Acer rubrum*), laurel oak *(Quercus laurifolia*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), and swamp bay. The sub-canopy included slash pine, laurel oak, swamp bay, loblolly bay, red maple, swamp tupelo, sweetgum (*Liquidambar styraciflua*), cypress, and dahoon (*Ilex cassine* var. *cassine*). The shrub layer was comprised of loblolly bay, slash pine, wax myrtle (*Myrica cerifera*), swamp

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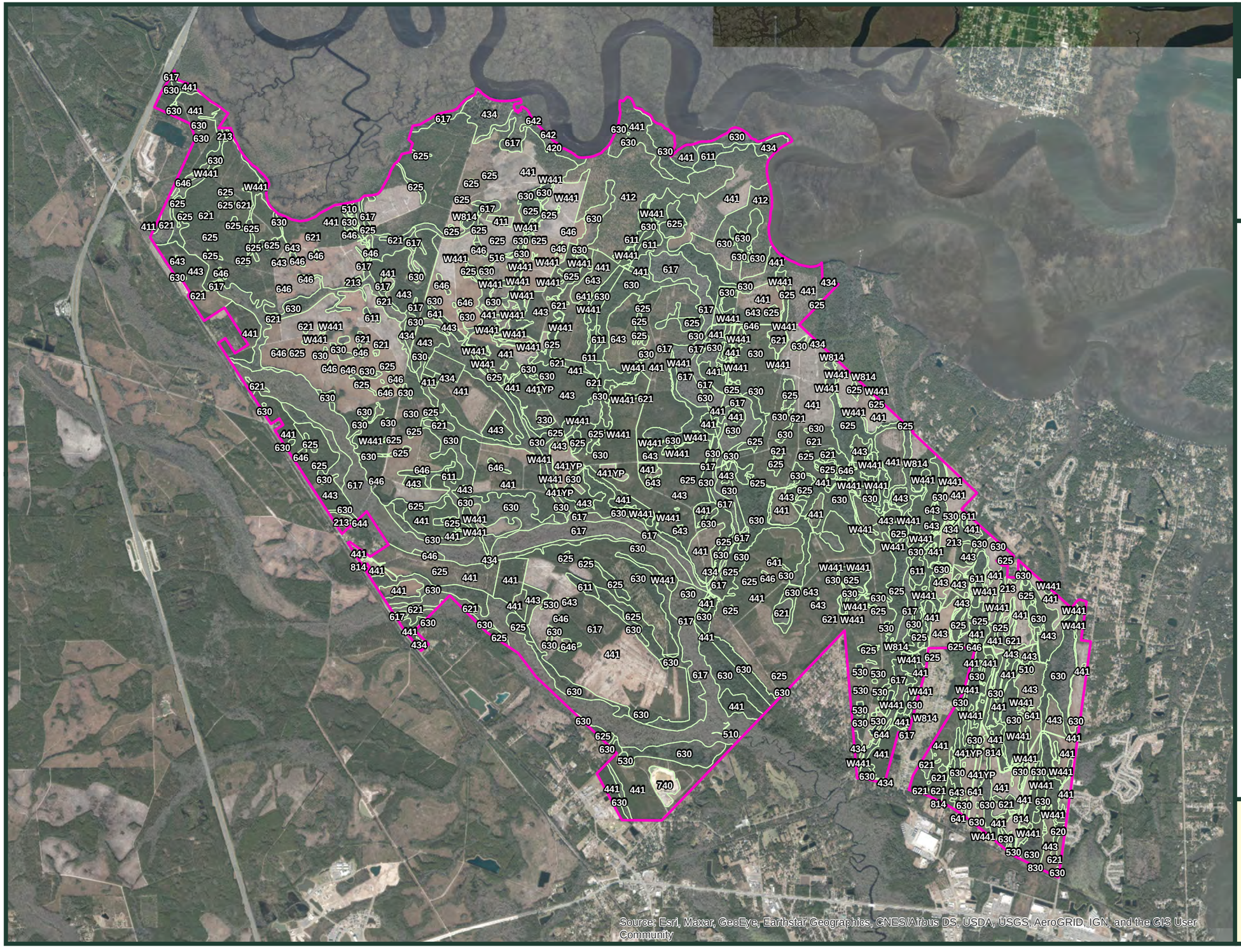

Legend

- Project Boundary

FLUCFCS

- 213 - Woodland Pastures
- 330 - Mixed Rangeland
- 411 - Pine Flatwoods
- 412 - Longleaf Pine - Xeric Oak
- 420 - Upland Hardwood Forests
- 427 - Live Oak
- 434 - Hardwood - Coniferous Mixed
- 441 - Coniferous Plantations
- 441YP - Coniferous Plantations (Young Pine)
- 443 - Forest Regeneration Area
- 510 - Streams and Waterways
- 516 - Ditches and Streams
- 530 - Reservoirs
- 611 - Bay Swamps
- 617 - Mixed Wetland Hardwoods
- 620 - Wetland Coniferous Forests
- 621 - Cypress
- 625 - Hydric Pine Flatwoods
- 630 - Wetland Forested Mixed
- 630L - Wetland Forested Mixed (Logged)
- 641 - Freshwater Marshes
- 642 - Saltwater Marshes
- 643 - Wet Prairies
- 644 - Emergent Aquatic Vegetation
- 646 - Treeless Hydric Savanna
- 740 - Disturbed Land
- 814 - Dirt Roads
- 830 - Utilities
- W441 - Wet Coniferous Plantations
- W814 - Dirt Road in Wetland

Source: Breedlove, Dennis & Associates, Inc.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FIGURE A.5.1

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP OF THE EAST NASSAU COMMUNITY PLANNING AREA DSAP 2 PROJECT AREA, NASSAU COUNTY, FLORIDA.

bay, saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and fetterbush (*Lyonia lucida*). The herbaceous stratum included sandweed (*Hypericum fasciculatum*), manyflower marshpennywort (*Hydrocotyle umbellata*), cabbage palm (*Sabal palmetto*), sweetgum (*Liquidambar styraciflua*), warty panicgrass (*Panicum verrucosum*), soft rush (*Juncus effusus* subsp. *solutus*), purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), Virginia chain fern (*Woodwardia virginica*), netted chain fern (*Woodwardia areolata*), sugarcane plumegrass (*Saccharum giganteum*), sawtooth blackberry (*Rubus argutus*), swamp bay, Virginia iris (*Iris virginica*), blue maidencane (*Amphicarpum muhlenbergianum*), and maidencane (*Panicum hemitomon*).

Cypress (621)
The canopy of cypress swamps was comprised of cypress with occasional slash pine, and swamp tupelo, red maple, and loblolly bay in the sub-canopy. The shrub stratum included groundsel tree (*Baccharis halimifolia*), Virginia willow (*Itea virginica)*, and gallberry (*Ilex glabra*). Groundcover species included sugarcane plumegrass, ellow jessamine (*Gelsemium sempervirens*), purple bluestem, spadeleaf (*Centella asiatica*), maidencane, and netted chain fern.

Wetland Forested Mixed (630)
The mixed forested wetlands included a canopy of slash pine, red maple, loblolly bay, sweetbay (*Magnolia virginiana*), cypress, water oak (*Quercus nigra*), swamp tupelo, and dahoon. The sub-canopy and shrub strata were comprised of red maple, sweetgum, slash pine, cypress, sweetbay, wax myrtle, saw palmetto, fetterbush (*Lyonia lucida*), highbush blueberry (*Vaccinium corymbosum*), common buttonbush, and winged-sumac (*Rhus copallinum*). Herbaceous groundcover species often included sandweed (*Hypericum fasciculatum*), manyflower marshpennywort, cabbage palm, sweetgum, warty panicgrass, soft rush, purple bluestem, Virginia chain fern, netted chain fern, sugarcane plumegrass, sawtooth blackberry (*Rubus argutus*), swamp bay, Virginia iris (*Iris virginica*), blue maidencane, and maidencane. Note that small areas of this cover type were logged and are called 630L.

Freshwater Marshes (641)
Freshwater marshes contained groundcover vegetation including sand cordgrass (*Spartina bakeri*), grassleaf rush (*Juncus marginatus*), yelloweyed grass (*Xyris* sp.), sandweed, bushy bluestem, fireweed (*Erechtites hieraciifolius*), witchgrass (*Dichanthelium* sp.), slender flattop goldenrod (*Euthamia caroliniana*), and lovegrass (*Eragrostis* sp.), with scattered swamp bay, dahoon, wax myrtle, and slash pine.

Saltwater Marshes (642)
The salt marsh areas were dominated by smooth cord grass (*Spartinus alterniflorus*), with likely occurrences of marshhay cordgrass (*Spartina patens*), needlerush (*Juncus roemerianus*), and glassworts (*Salicornia* spp.).

Wet Prairies (643)
Wet prairies were characterized by maidencane, halky bluestem (*Andropogon virginicus* var. *glaucus*), slender flattop goldenrod, velvet witchgrass (*Dichanthelium scoparium*), soft rush, sawtooth blackberry, bushy bluestem, spadeleaf, turkey tangle fogfruit (*Phyla nodiflora*), and occasional slash pine.

Emergent Aquatic Vegetation (644)
This cover type was primarily comprised of American white waterlily (*Nymphaea odorata*) and bladderwort (*Utricularia* sp.)

Treeless Hydric Savanna (Mixed Scrub-Shrub Wetland) (646)
The shrub stratum within this cover type was generally comprised of fetterbush, slash pine, highbush blueberry, red maple, gallberry, and loblolly bay. Groundcover species generally included marshpennywort, cabbage palm, sweetgum, warty panicgrass, soft rush, purple bluestem, Virginia chain fern, netted chain fern, sugarcane plumegrass, sawtooth blackberry (*Rubus argutus*), swamp bay, Virginia iris, blue maidencane, and maidencane.

Wet Coniferous Plantation (W441)
Wet coniferous plantations were comprised of planted slash pine (various stand ages), with occurrences of red maple, loblolly bay, sweetgum, dahoon, cabbage palm, and swamp bay. The sub-canopy stratum was comprised of wax myrtle, gallberry, swamp bay, groundsel tree, and red cedar (*Juniperus virginiana*). Herbaceous groundcover vegetation consisted of a variety of species including soft rush, sugarcane plumegrass, creeping primrosewillow (*Ludwigia repens*), other primrosewillow (*Ludwigia* sp.) species, Carolina redroot (*Lachnanthes caroliana*), sundew (*Drosera* sp.), camphorweed (*Cinnamomum camphora*), spikerush (*Eleocharis* sp.), maidencane, yelloweyed grass, velvet witchgrass, slash pine seedlings, rush (*Juncus* sp.), beaksedge, bushy bluestem, purple bluestem, cudweed (*Pseudognaphalium* sp.), dogfennel, witchgrass, pipewort (*Eriocaulon* sp.), bogbutton (*Lachnocaulon* sp.), bog white violet, blue maidencane, maidencane, and sandweed.

Streams and Waterways (510)
The streams and waterways consisted of natural flow-ways, typically interior to wetland cover types.

Ditches (516)
Ditches contained laurel oak, slash pine, wax myrtle, *Itea virginica*, maidencane (*Panicum hemitomon*), cinnamon fern, Virginia chain fern, and open areas.

Reservoirs (530)
Vegetation along the edges of the reservoirs include sandweed (*Hypericum fasciculatum*), warty panicgrass, beaksedge (*Rhynchospora* sp.), slender flattop goldenrod (*Euthamia caroliniana*), camphorweed, spadeleaf, spikerush (*Eleocharis* sp.), Carolina redroot (*Lacnanthes caroliniana*), and grassleaf rush (*Juncus marginatus*). Slash pine, wax myrtle and loblolly bay were also present on the banks of the reservoir.

Uplands

The Property contains approximately 64.3% upland communities, which are dominated by Coniferous Plantations (441). The areas mapped as Woodland Pastures (213) and Mixed Rangeland (330) consisted of remnant and sapling slash pine, common pawpaw, grape (*Vitis* sp.) vine, blackberry, rustweed (*Polypremum procumbens*), American pokeweed (*Phytolacca americana*), blackroot (*Pterocaulon pycnostachyum*), shiny blueberry, saw palmetto, and American beautyberry (*Callicarpa americana*) with scattered gallberry, red cedar, and live oak. Other upland communities are included in Figure A.5.1 and Table A.6.1.

Pine Flatwoods (411)
The pine flatwoods contained a canopy of mixed slash pine and longleaf pine. The understory was relatively open, and the shrub layer contained saw palmetto, American beautyberry, gallberry, and pine saplings.

Table A.6.1 Florida Land Use, Cover and Forms Classification System, Representative Acreage for the Uplands on DSAP2, Nassau County, Florida.

FLUCFCS[1]	Acreage
213 - Woodland Pastures	26.39
330 - Mixed Rangeland	9.55
411 - Pine Flatwoods	15.71
412 - Longleaf Pine - Xeric Oak	415.35
420 - Upland Hardwood Forests	20.63
427 - Live Oak	2.38
434 - Hardwood - Coniferous Mixed	116.02
441 - Coniferous Plantations	7,448.108
441YP - Coniferous Plantations (Young Pine)	86.76
443 - Forest Regeneration Area	1,378.82
740 - Disturbed Land	29.80
814 - Dirt Roads	18.81
830 - Utilities	0.19
Totals	**9,568.49**

[1] Florida Land Use, Cover and Forms Classification System.

Longleaf Pine – Xeric Oak (412)
This cover type included a canopy of longleaf pine, live oak, and laurel oak. Understory and shrub taxa included live oak, sand pine, gallberry, and saw palmetto. Herbaceous taxa included wiregrass, woodoats (*Chasmanthium* sp.), pawpaw, and blackberry.

Upland Hardwood Forests (420)
Upland hardwood forests contained a canopy of sweetgum, live oak, water oak, and laurel oak. The sub-canopy was comprised of cabbage palm, red cedar, camphortree, and sapling-sized canopy species. The groundcover included greenbrier (*Smilax* sp.), blackberry, gallberry, cabbage palm seedlings, swamp bay (*Persea palustris*) seedlings, and ellow jessamine.

Live Oak (427)
The live oak cover type was similar to Upland Hardwood Forests (420) but with a canopy dominated by live oak, and very little sweetgum or water oak. Additional taxa included southern magnolia (*Magnolia grandiflora*) and cabbage palm. The shrub layer consisted of saw palmetto, wax myrtle, and sapling-sized canopy species. The herbaceous groundcover contained woodoats, woodsgrass (*Oplismenus hirtellus*), crabgrass (*Digitaria* sp.), and panicgrass (*Panicum* sp.).

Harwood-Coniferous Mixed (434)
The hardwood-coniferous mixed areas consisted of slash pine, sweetgum, live oak, water oak, and laurel oak. The sub-canopy was comprised of cabbage palm, red cedar, camphortree, and sapling-sized canopy species. The groundcover included greenbrier (*Smilax* sp.), blackberry, gallberry, cabbage palm seedlings, swamp bay seedlings, and ellow jessamine.

Coniferous Plantation (441) and Coniferous Plantation (Young Pine) (441YP)
The coniferous plantations consisted of actively managed silvicultural areas with a canopy primarily of planted slash pine with limited occurrences of naturally recruited sand live oak, cabbage palm, laurel oak, sweetgum, and red maple. Sub-canopy species include loblolly bay, laurel oak, and swamp bay. The shrub layer is generally comprised of saw palmetto, wax myrtle, and gallberry. The herbaceous groundcover is generally sparse, but where present is comprised of gallberry, Virginia chain fern, and cinnamon fern (*Osmunda cinnamomea*).

Forest Regeneration Area (443)
Forest regeneration areas were recently cleared of planted pine and were not re-planted. Species recruiting to the areas included slash pine, sweetgum, laurel oak, gallberry, swamp bay, bogbutton (*Lachnocaulon* sp.), blue maidencane, maidencane, and sandweed.

Disturbed Land (740)
This area was recently cleared with no known intent on the future land use. Some remnant and early recruiting vegetation was present and included slash pone, gallberry, and dogfennel.

Dirt Roads (814)
This cover type consisted of field roads located throughout the Property.

Utilities (830)
Powerline utilities are located within a portion of the southern boundary of the Property.

Natural Resources Conservation Service Soils

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey Geographic database for Nassau County, Florida, identifies the following soil types within the Property (Figure A.7.1): Arents, nearly level (2), Hurricane-Pottsburg fine sands, 0 to 5 percent slopes (6), Kingsland mucky peat, frequently flooded (7), Kureb fine sand, 0 to 5 percent slopes (8), Leon fine sand (9), Mandarin fine sand, 0 to 2 percent slopes (10), Chaires fine sand (11), Goldhead fine sand (13), Rutledge mucky fine sand, frequently flooded (14), Buccaneer clay, frequently flooded (15), Ellabelle mucky fine sand, frequently flooded (16), Lynn Haven-Wesconnett-Leon complex, depressional (18), Ortega fine sand, 0 to 5 percent slopes (20), Blanton fine sand, 0 to 5 percent slopes (21), Sapelo-Leon fine sand (22), Kingsferry fine sand (24), Maurepas muck, frequently flooded (25), Centenary fine sand, 0 to 5 percent slopes (26), Ridgewood fine sand, 0 to 5 percent slopes (27), Tisonia mucky peat, tidal (28), Resota fine sand, 0 to 5 percent slopes (29), Kureb-Resota fine sands, rolling (30), Kershaw fine sand, 2 to 8 percent slopes (31), Goldhead-Meadowbrook fine sands, depressional (33), Croatan muck, frequently flooded (34), Evergreen-Leon mucks, depressional (39), and Albany fine sand, 0 to 5 percent slopes (51). Water (99) was also noted within the Property.

Protected Wildlife and Plant Species

State and federal databases were reviewed to determine the likelihood of occurrence for protected wildlife and plant species that occur or are likely to occur within the Property and within Nassau County. Statewide GIS databases (CLIP, FNAI, etc.) of known locations and potential habitat models for rare and imperiled species were researched. Upland and wetland communities were also evaluated during field studies initiated in 2005 and continuing through 2021 to determine the occurrence or likelihood of occurrence for protected wildlife and plant species within the Property. Site reviews have been conducted in all seasons since 2005; see Table A.8.1 for estimated number of days reviewing the ENCPA. Please note that this reflects an estimate of field days and does not represent every day on the ENCPA. Species of wildlife and plants listed for protection under provisions of the Endangered Species Act (ESA) of 1973, as amended (7) and wildlife species listed for protection under provisions of the Florida Rule (10) (12) (Listed Species) known to occur within Nassau County, Florida, are represented in Table A.9.1. The likelihood of occurrence, listed within this table, is based on a comparison of known general habitat requirements by these species with the habitats found on or near the Property, the quantity, quality, and adjacency of these habitats, as well as any observations of these species during preliminary field investigations. The likelihood of occurrence for protected species was rated as observed (i.e., species presence documented), high, moderate, low, unlikely, or not applicable based on knowledge of a species' habitat preference and site conditions. A likelihood of occurrence given as "unlikely" indicates that no, or very limited, suitable habitat for this species exists on site, but the site is within the documented range of the species; "not applicable" indicates that the habitat for this species does not exist on or adjacent to the site and/or the site is not within the documented range of the species.

Fish

Atlantic sturgeon:

Atlantic sturgeon (*Acipenser oxyrinchus*) is listed as Endangered (E) by U.S. Fish and Wildlife Service (USFWS) and FE by FWC. Atlantic sturgeon live in rivers and coastal waters from Canada to Florida. Adult Atlantic sturgeon spawn in freshwater rivers. Larval Atlantic sturgeon drift down river to brackish waters

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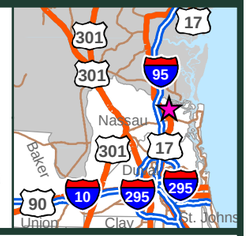
0 2,000 4,000 Feet

1 inch = 4,000 feet



Legend

Project Boundary

NRCS Soils

- 2 - Arents, nearly level
- 6 - Hurricane-Pottsburg fine sands, 0 to 5 percent slopes
- 7 - Kingsland mucky peat, frequently flooded
- 8 - Kureb fine sand, 0 to 5 percent slopes
- 9 - Leon fine sand
- 10 - Mandarin fine sand, 0 to 2 percent slopes
- 11 - Chaires fine sand
- 13 - Goldhead fine sand
- 14 - Rutlege mucky fine sand, frequently flooded
- 15 - Buccaneer clay, frequently flooded
- 16 - Ellabelle mucky fine sand, frequently flooded
- 18 - Lynn Haven-Wesconnett-Leon complex, depressional
- 20 - Ortega fine sand, 0 to 5 percent slopes
- 21 - Blanton fine sand, 0 to 5 percent slopes
- 22 - Sapelo-Leon fine sand
- 24 - Kingsferry fine sand
- 25 - Maurepas muck, frequently flooded
- 26 - Centenary fine sand, 0 to 5 percent slopes
- 27 - Ridgewood fine sand, 0 to 5 percent slopes
- 28 - Tisonia mucky peat, tidal
- 29 - Resota fine sand, 0 to 5 percent slopes
- 30 - Kureb-Resota fine sands, rolling
- 31 - Kershaw fine sand, 2 to 8 percent slopes
- 33 - Goldhead-Meadowbrook fine sands, depressional
- 34 - Croatan muck, frequently flooded
- 39 - Evergreen-Leon mucks, depressional
- 51 - Albany fine sand, 0 to 5 percent slopes
- 99 - Water

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FIGURE A.7.1

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) SOILS MAP OF THE EAST NASSAU COMMUNITY PLANNING AREA DSAP 2 PROJECT AREA, NASSAU COUNTY, FLORIDA.

Table A.8.1 Estimated days of field reviews for the East Nassau Community Planning Area conducted by Breedlove, Dennis & Associates, Inc., Nassau County, Florida.

Year	Months	Number of Field Days
2005	April	1
2007	September	2
2008	January, February, March, April, July, December	16
2009	January, May	6
2011	April, May, July, September	9
2012	February, March, April, August	8
2013	March, July	7
2015	October, November	6
2016	January, February, September, November	8
2017	July, November	5
2018	February	1
2019	November, December	10
2020	March, November	8
2021	June, July, October, November, December	17
	Total	**108**

Table A.9.1 Listed Species with Potential for Occurrence on the East Nassau Community Planning Area DSAP2 Project Site, Nassau County, Florida.

Species	Habitat of Occurrence	Likelihood of Occurrence	Designated Status[1]	
			USFWS[2]	FWC[3,4]
FISH				
Acipenser brevirostrum shortnose sturgeon	Rivers, estuaries.	Low	T	FT
Acipenser oxyrinchus Atlantic sturgeon	Rivers, estuaries, marine waters.	Low	E	FE
REPTILES				
Alligator mississippiensis American alligator	Freshwater marsh, cypress swamp, mixed hardwood swamp, shrub swamp, bottomland hardwoods, lakes, ponds, rivers, streams.	Moderate	T(S/A)	FT(S/A)
Caretta caretta loggerhead sea turtle	Marine coastal and oceanic waters, beaches.	Unlikely	T	FT
Chelonia mydas green sea turtle	Estuarine and marine coastal and oceanic waters, beaches.	Unlikely	E	FE
Dermochelys coriacea leatherback sea turtle	Oceanic waters, beaches.	Unlikley	E	FE
Drymarchon corais couperi eastern indigo snake	Xeric oak scrub, sand pine scrub, sandhill, pine flatwoods, pine rocklands, tropical hardwood hammock, hydric hammock, wet prairie, mangrove swamp.	Moderate	T	FT
Gopherus polyphemus gopher tortoise	Sandhill, sand pine scrub, xeric oak scrub, coastal strand, xeric hammock, dry prairie, pine flatwoods, mixed hardwood-pine forests, ruderal.	Observed	—	ST

Updated September 15, 2021

Table A.9.1 Continued.

Species	Habitat of Occurrence	Likelihood of Occurrence	Designated Status[1]	
			USFWS[2]	FWC[3,4]
Lepidochelys kempii Kemp's ridley sea turtle	Marine coastal waters.	Unlikely	E	FE
Pituophis melanoleucus mugitus Florida pine snake	Xeric oak scrub, sand pine scrub, sandhill, scrubby pine flatwoods, old fields on former sandhill and scrub sites.	Unlikely	—	ST
BIRDS				
Antigone canadensis pratensis Florida sandhill crane	Dry prairie, freshwater marsh, pasture.	Low to Moderate	—	ST
Charadrius melodus piping plover	Beaches, tidal mud flats.	Not Applicable	T	FT
Cistothorus palustris griseus Worthington's marsh wren	Salt marsh.	Low	—	ST
Dryobates (=Picoides) borealis red-cockaded woodpecker	Sandhill, pine flatwoods.	Low	E	FE
Egretta caerulea little blue heron	Freshwater marsh, various types of forested wetlands, lakes, streams, salt marsh, mangrove swamp, tidal mud flats.	Moderate	—	ST
Egretta tricolor tricolored heron	Salt marsh, mangrove swamp, tidal mud flats, tidal creeks, tidal ditches, freshwater marsh, various types of forested wetlands, lakes and ponds.	Moderate	—	ST

Table A.9.1 Continued.

Species	Habitat of Occurrence	Likelihood of Occurrence	Designated Status[1]	
			USFWS[2]	FWC[3,4]
Falco sparverius paulus southeastern American kestrel	Sandhill, pine flatwoods, dry prairie, pasture, old field.	Low	—	ST
Haematopus palliatus American oystercatcher	Beaches, sandbars, tidal mud flats, shellfish beds.	Not Applicable	—	ST
Mycteria americana wood stork	Freshwater marsh, various types of forested wetlands, ponds, salt marsh, mangrove swamp, tidal mud flats, lagoons, flooded pastures.	Moderate	T	FT
Rhynchops niger black skimmer	Beaches, tidal mud flats, sandbars, tidal creeks, estuarine bays and lagoons.	Low	—	ST
Sterna antillarum least tern	Beaches, tidal mud flats, estuarine and marine waters, lakes.	Unlikely	—	ST
MAMMALS				
Trichechus manatus latirostris Florida manatee	Estuarine bays and lagoons, seagrass beds, rivers, spring runs.	Low	E	FE

[1] Federal Designations: E = Endangered; T = Threatened; T(S/A) = Threatened Due to Similarity of Appearance; State Designations: ST = State-designated Threatened; SSC = State Species of Special Concern; ST(S/A) = State-designated Threatened Due to Similarity of Appearance; FE = Federally-designated Endangered; FT = Federally-designated Threatened; FT(S/A) = Federally-designated Threatened Due to Similarity of Appearance.
[2] U.S. Fish and Wildlife Service.
[3] Florida Fish and Wildlife Conservation Commission.
[4] Species are listed as "Federally-designated endangered or threatened species" on the Florida Endangered and Threatened Species list; however, regulatory authorizations for take are only provided by the federal agency administering the species under the Endangered Species Act of 1973, as amended.

where they remain until sub-adulthood. Sub-adult Atlantic sturgeon move to the sea, and ultimately return to their natal rivers to spawn when they reach adulthood. The USFWS designated critical habitat for the Atlantic sturgeon as detailed in the Federal Register 2017-17207 (FR). The physical habitat features considered essential for this species include: hard bottomed substrate in freshwater for spawning and development of early life stages; waters with a salinity gradient with soft substrate; waters of appropriate depth without barriers to movement from the mouth of the river to the spawning areas; and appropriate water quality conditions especially regarding temperature and dissolved oxygen. A portion of the St. Marys River is included in the critical habitat designation, which is adjacent to the DSAP 2 area. Per the FR, the ordinary high water mark (OHWM) on each bank of the river and shorelines is the lateral extent of the occupied critical habitat unit for the St. Marys River.

The portion of the river adjacent to DSAP 2 is tidally influenced; based on the mapped extent of Mean Higher High Water (MHHW), the reach of tidal influence is over 27 miles west of the mouth of the river. This indicates that the spawning grounds are not within the vicinity of DSAP 2 since freshwater is required for spawning and early life stages. The portion of the river near DSAP 2 likely meets the other physical features for the critical habitat designation. However, given the topography of the bluffs along the river, the OHWM is well below the elevation of DSAP 2. Any entity constructing structures (e.g., docks) within the river will coordinate with USFWS and/or the National Marine Fisheries Service (NMFS). Based on this, the likelihood of effects on the Atlantic sturgeon is low.

Amphibians and Reptiles

Gopher Tortoise:
The gopher tortoise *(Gopherus polyphemus)* is listed as T by the Florida Fish and Wildlife Conservation Commission (FWC) but is not listed as a T or E species by the U.S. Fish and Wildlife Service (USFWS) in this region of Florida. Gopher tortoises occur in a variety of natural and disturbed habitats characterized by well-drained loose soils in which to burrow, low-growing herbaceous vegetation used for food, and open sunlit areas for nesting (5, 16). Gopher tortoises typically inhabit sites with soils that support sandhill, scrub, and pine flatwoods habitats (9).

A partial survey of suitable habitat was conducted. Potentially occupied (active and inactive) gopher tortoise burrows were noted within the Property. A 100% survey of specific development areas will be conducted in accordance with the FWC gopher tortoise survey protocol (11) prior to site work on the portion of the property that is under review. All gopher tortoises within specific development areas will be relocated prior to construction in the applicable development area in accordance with FWC relocation permitting requirements and guidelines, which will include an updated survey no more than 90 days prior to permit application.

Eastern Indigo Snake:
The eastern indigo snake *(Dyrmarchon couperi)* is listed as a T species by USFWS. The primary reasons for this listing status are over-collection and habitat loss (15). Indigo snakes occur in a variety of habitats throughout Florida, including pine flatwoods, scrubby flatwoods, sandhill, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats (22). Indigo snakes often winter in the burrows of gopher tortoises in northern portions of the range, but they also may take shelter in hollowed root channels, hollow logs, stump holes, trash piles, or the burrows of rodents, nine-banded armadillos (*Dasypus novemcinctus*), or land crabs (*Cardisoma guanhumi*) in wetter habitats (22, 23). Eastern indigo snakes are capable of moving considerable distances in a short period of time as demonstrated by records of movements of 2.2 miles in 42 days and 2.4 miles in 176 days (22). One individual was observed to have moved 13.8 miles over a two-year period in a mark-recapture study in southeastern Georgia (18). Reported home range sizes of eastern indigo snakes in peninsular Florida range from 4 to 818 acres (23), and mean home range size reported from one Florida study was 292 acres (6). Radio-telemetry studies of indigo snakes in Georgia have revealed home ranges sizes of 87.5 to 8,885 acres for females and 350 to 3,825 acres for males (13). Indigo snakes apparently need a mosaic of habitats to complete their life cycle, often feeding along wetland edges (15). Population viability modeling suggests that indigo snake populations are susceptible to habitat fragmentation resulting from construction of roads and intensive human developments in occupied habitats, and that large areas protected from roads and human developments are needed to maintain viable snake populations (2).

Eastern indigo snakes have not been observed on Site, however, they have the potential to occur based upon the presence of a mix of habitats on and adjacent to the Site and the presence of underground refugia such as mammal and gopher tortoise burrows. Currently, the USFWS uses known observations of eastern indigo snakes and a 1.7-mile radius (above the frostline) to assess probability of occurrence. There are no known occurrences within 1.7 miles of the Project. However, the Applicant will implement the USFWS eastern indigo snake standard protection measures (25).

Birds

Bald Eagle:
Activities which affect bald eagle *(Haliaeetus leucocephalus)* are regulated by the USFWS under provisions of the Bald and Golden Eagle Protection Act (BGEPA) (1) and the Migratory Bird Treaty Act (14). Recovery goals have been achieved for this species; therefore, the bald eagle is no longer listed or protected as a "threatened" species under the ESA and is not designated as either endangered or threatened under Florida law or FWC rules. The USFWS has implemented National Bald Eagle Management Guidelines (National Guidelines) (May 2007) (21) to assist private landowners and others to plan land-use activities in proximity to active bald eagle nests by implementing measures that will minimize the likelihood of causing "disturbance" to nesting bald eagles, as defined under the BGEPA (Chapter 68A-27 F.A.C.) (12).

The FWC and Audubon's eagle watch bald eagle nest databases were reviewed to determine the historic location of all nests that are reported on or in close proximity to the Site. There are no historic bald eagle nests documented on the Site or within 660 feet of the Site. However, a new bald eagle nest has been documented on the Site. Coordination with USFWS has been initiated to avoid take of bald eagles.

Wood Stork:
The wood stork *(Mycteria americana)* is listed as a T species by USFWS. There are no records of a wood stork rookery on the Site based on the data available from the USFWS through 2019 (26). Wood storks typically return to the same rookery sites each year to nest and will travel up to 18.6 miles from rookeries to forage in wetlands and return food to incubating adults and nestlings during the nesting season. Wetlands within 13 miles of known rookeries are considered by USFWS to comprise core foraging areas for nesting wood storks in this area of north Florida (26). The nearest wood stork rookery is over 13 miles south of the Site (Figure A.10.1). The Site is not within the core foraging area of any wood stork rookeries that have been active within the last ten years. Therefore, development is not expected to have any adverse effects on wood storks.

Wading Bird Rookeries:
There are four State Threatened wading birds found in Florida which include the little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), roseate spoonbill (*Platalea ajaja*) and reddish egret (*Egretta*

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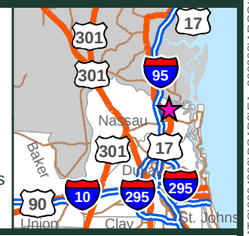

Legend

- Project Boundary
- Wood Stork Colonies (2019)
- Wading Bird Colonies (2019)
- Wood Stork Foraging Areas (2019)

Wading Bird Rookeries (1999)

- Active
- Inactive
- Not checked

Source: Florida Fish and Wildlife Commission (FFWC).

FIGURE A.10.1

WADING BIRD COLONIES IN THE VICINITY OF THE EAST NASSAU COMMUNITY PLANNING AREA DSAP 2 PROJECT AREA, NASSAU COUNTY, FLORIDA.

rufescens). All four species occur throughout the state although the reddish egret occurs almost exclusively in coastal areas. Wading birds typically nest in multi-species colonies though reddish egrets and tricolored herons may nest in small single species groups or build solitary nests. No wading bird nesting was observed on the Site. The FWC wading bird database (6) contains no records of colonies used by wading birds on the Site. Take of wading birds without a state or federal permit or authorization is prohibited. Take is broadly defined and in addition to direct actions it may also include significant habitat modification. Wetlands within 9.3 miles of wading bird colonies which provide foraging or sheltering are considered important to wading bird nesting success (3). The nearest documented active colony is located over 10 miles south of the Site (Figure A.10.1). Based on the absence of observed on Site nesting and the distance to the nearest active wading bird colony no impact on threatened wading birds is expected.

Florida Sandhill Crane:
The Florida sandhill crane (*Grus canadensis pratensis)* is listed as ST by the FWC. The Florida sandhill crane is a resident, breeding, non-migratory subspecies of sandhill crane (*Grus canadensis*). The greater sandhill crane (*Grus canadensis tabida*) also occurs in Florida as a wintering migrant, arriving in Florida during October and November and beginning spring migration in late February (19). Florida sandhill cranes nest in shallow, emergent palustrine wetlands, particularly those dominated by pickerelweed (*Pontederia cordata*) and maidencane. They feed in a variety of open, upland habitats, mostly prairies, but also human-manipulated habitats such as sod farms, ranchlands, pastures, golf courses, airports, and suburban subdivisions (17, 27). Home ranges of individual pairs overlap with those of adjacent pairs, and average approximately 1,100 acres. Core nesting territories within home ranges vary from approximately 300 acres to 625 acres and are aggressively defended from other cranes (*Grus* spp.) (27).

BDA scientists observed Florida sandhill cranes flying over the Site during preliminary field studies. Portions of the Site contain freshwater marsh that may provide potentially suitable nesting habitat for sandhill cranes. However, the nearest record for sandhill crane nesting is from 1987, located approximately 46.8 miles west of the project site in western Baker County in an area linked to the Okefenokee Swamp and Osceola National Forest. The 1987 nesting record also occurs within the nearest Breeding Bird Atlas block to the Site. Therefore, a low to moderate likelihood exists that Florida sandhill cranes may forage on the Site, and there is a low likelihood for potential nesting based on known nesting records for the species and location of suitable nesting habitat. A survey for nesting Florida sandhill cranes in accordance with the Florida Fish and Wildlife Conservation Commission (FWC) guidelines will be conducted if construction activities will be conducted during the nesting season. The FWC generally recommends maintaining a buffer (minimum 400 feet) around any active nests. In addition, if flightless young are present at a nest site, the FWC guidelines state that land conversion of uplands within 1,500 feet of the nest site should be avoided until after young are capable of sustained flight to prevent “take”.

Red-cockaded Woodpecker:
The red-cockaded woodpecker *(Picoides borealis)* is listed as an E species by the USFWS. Stands of pines >50 years of age comprise preferred foraging habitat, and red-cockaded woodpeckers usually forage within 0.5 mile of cavity trees (20). Average home range size of red-cockaded woodpeckers in central Florida has been reported as 319 acres (4). Female red-cockaded woodpeckers usually disperse no further than two miles to establish territories of their own in areas where populations are dense, but in areas where populations are sparsely distributed, females may disperse up to 15 miles (20).

FWC and Florida Natural Areas Inventory (FNAI) databases contain no records of red-cockaded woodpecker groups on or near the Site, and the Site was not mapped as potentially suitable habitat for this species by the FWC (8). In addition, the Site is not within the USFWS Consultation Area. Young pine plantations characterized by high stocking density dominate the uplands on the Site, and habitat conditions are unsuitable for red-cockaded woodpeckers. It is unlikely that red-cockaded woodpeckers occur on the Site based on the lack of suitable habitat conditions, the disturbed nature of the surrounding landscape, and the distance between the Site and known red-cockaded woodpecker cavity trees.

Southeastern American Kestrel:
The southeastern American kestrel *(Falco sparverius paulus)* is listed as T by FWC. No southeastern American kestrels or nesting cavities were observed during the field review. The likelihood of occurrence of southeastern American kestrels is low to moderate given their general presence in the region and the extent of suitable foraging habitat. Should any nesting southeastern American kestrels be documented on Site in the future, coordination/permitting with the FWC will be conducted as required based on survey results and the development plan. Generally, if an active nest is located on Site the nest tree/snag/power pole must be protected until the nest is no longer active. If the development plan must remove the inactive nest an Incidental Take Permit should be obtained from the FWC.

Protected Plant Species

No protected plant species were observed during preliminary field studies within the Property. The FWC WILDOBS database contains no records of rare and imperiled species of wildlife on or near the Property. The FNAI natural heritage database contains no records of rare or imperiled plants, animals, and natural communities on or near the Property.

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