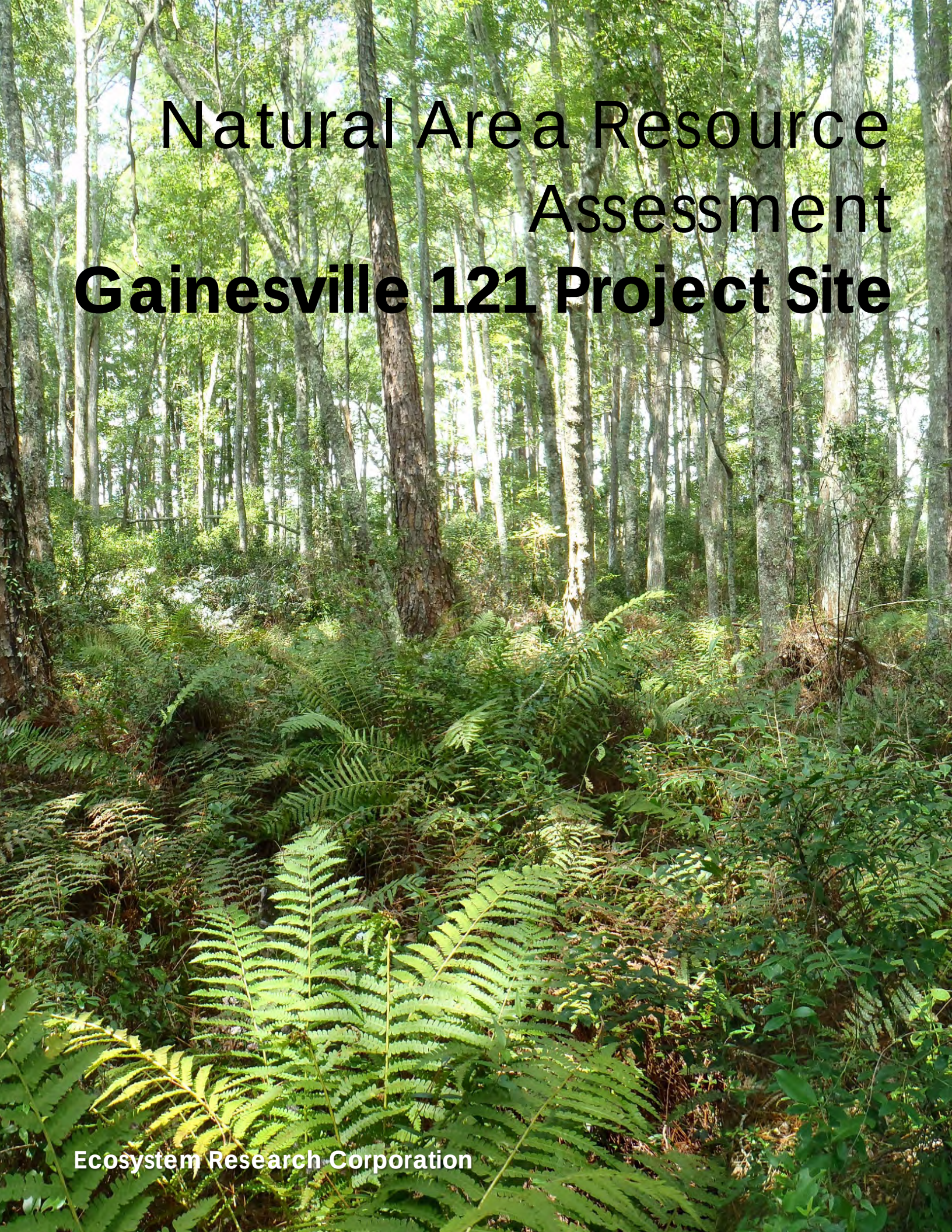

Natural Area Resource Assessment

Gainesville 121 Project Site

Ecosystem Research Corporation

5/22/2017

Natural Area Resource Assessment of the Gainesville 121 Project Site

Provided in support of a current application for Planned Development

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Natural Area Resource Assessment of the Gainesville 121 Project Site

City of Gainesville, Florida

Prepared for

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May 22, 2017

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1.0 Introduction and Physical Site Description

Ecosystem Research Corporation (ERC) was contracted by Weyerhaeuser NR Company to perform a Natural Areas Resource Assessment (NARA) of the Gainesville 121 Project Site (Project Site). The Project Site lies in north central Gainesville along State Road (SR) 121 (NW 22nd Street) 0.88 miles north of the intersection with US 441 (**Figure 1**). The Project Site extends north 3.00 miles along both sides of SR 121 from more or less the location of NW 77th Avenue past the intersection of County Road CR 231 and SR 121. The site varies in width from 1.00 miles in the north area at the Gainesville Regional Utilities Easement crossing at SR 121 to 1.55 miles in the area of the southern boundary line (Figure 1). The Project Site totals **1778.77** acres as determined by professional survey (Figure 1).

The Project Site spans eight (8) different sections of land (**Figure 2**) geographically described from north to south as follows:

Section	Township (South)	Range (East)
25	8	19
30	8	20
36	8	19
31	8	20
01	9	19
06	9	20
12	9	19
07	9	20

The Project Site is composed of eight (8) Alachua County Tax Parcels that range in size from **64.98** acres to **349.35** acres. The Alachua County parcel boundaries are shown overlain on a 2014 aerial photograph on **Figure 3**. Because parcel boundaries extend across SR 121 for three (3) of the eastern parcels, the parcels are shown in schematic form on **Figure 4** for clarification purposes. The tax parcel numbers and associated acreages are provided as follows:

Tax Parcel Number	Acreage
05882-000-000	64.98
05946-000-000	230.98
05973-000-000	349.35
06013-000-000	309.14
07777-000-000	236.17
07781-000-000	229.36
07813-000-000	223.38
07814-000-000	135.41
TOTAL	**1778.77**

As shown on Figure 3, the individual parcel boundaries extend on both east and west sides of SR 121. To clarify legal boundaries in relation to SR 121, the boundary survey of the Project Site has described the Project Site in relation to three (3) parcel areas: "**A,**" "**B,**" and "**C**" as shown on **Figure 4**. Parcel "A" consists of all lands located west of SR 121 and consists of **1060.79** acres. Parcel "B" is described as all lands located east of SR 121 and CR 231 that are situated within the northeast section of the Project Site. The parcel is bisected by the east-west oriented Gainesville Regional Utilities (GRU) power line easement and consists of **362.84** acres. Parcel "C" consists of the southeast area of the Project Site located east of SR 121 and consists of **355.14** acres. The Project Site Boundary Survey is provided as **Figure 5 (Sheets 1–6)**.

There are five (5) legally described utility easements that occur within the Project Site boundary (**Figure 6; Figure 5 [Sheets 4 and 5])**. The easement documents are provided in **Attachment 1** and are listed and described, as follows:

Description	Width (ft)	Legal Record
GRU Electric Distribution/Transmission	100	O.R. Book 1495, page 362; assigned in O.R. Book 1575, page 1248
Florida Gas Transmission	50	O.R. Book 48, page 205 O.R. Book 52, page 126
Lateral Ditch Drainage Easement	30	O.R. Book 287, page 246
Lateral Ditch Drainage Easement	40	O.R. Book 144, page 376
Lateral Ditch Drainage Easement	40	O.R. Book 144, page 376
Lateral Ditch Drainage Easement	30	O.R. Book 144, page 376

The current land use within the Project Site is silviculture. Surrounding land uses include agriculture, agriculture based single family residences, residential subdivisions, small industrial and commercial uses, electric power supply facilities, and Alachua County solid waste transfer facilities. The Project Site currently has **NO** developed areas except for utilities as previously defined and unimproved forest management roadways. Access to the site is currently via locked gates located on the utility easements and forest roads at the various intersections with CR 231 and SR 121.

The NARA is provided in support of a current application for a Planned Development Application for a ±**743.99** acres located within the southern **41.82%** of the Project Site. The applicant is as follows:

Weyerhaeuser NR Company
c/o Tim Jackson, P.E., AICP
13005 SW 1st Road, Suite 241
Newberry, FL 32609
(352) 415-4532

The NARA is provided to satisfy criteria as outlined within ***Division 4: Regulated Natural and Archeological Resources, Section 30-310 (e) Level of Review (3) Level 2 Review*** of the City of Gainesville Land Development Code (LDC) and ***Policy 4.3.4 of the Future Land Use Element*** of the City of Gainesville Comprehensive Plan. For the purposes of this NARA, the entire Project Site is defined as the Resource Assessment Area (RAA). The major intent of this NARA is to define and describe the existing Natural Resources that occur; define and delineate the Regulated Natural Resources that are present pursuant to **Section 30-310** to include Significant Natural Communities, Listed Species and Listed Species Habitats, Significant Geologic Resources Features, and Strategic Ecosystem Resources; and describe and define Conservation Management Areas pursuant to criteria outlined in **Policy 4.3.4** and defined within **Section 30-310.3(a)(1)–(9)** of the City of Gainesville Land Development Regulations. To this end, the document describes the existing natural resources occurring on the Gainesville 121 Planned Development Project Site.

2.0 Formal Delineation of Wetlands and Surface Waters

A formal determination of the wetlands and surface waters occurring on the Project Site was obtained by Weyerhaeuser NR Company with the Suwannee River Water Management District (SRWMD) and US Army Corps of Engineers (ACOE) in 2016. The wetlands delineation was performed by DRMP Engineers • Surveyors • Planners • Scientists (Orlando, Florida) and was not part of the NARA assessment conducted by ERC. The formal wetland delineation approval received from the SRWMD is provided as **Attachment 2**. The approved jurisdictional determination received from the ACOE is provided as **Attachment 3**. The Specific Purpose Survey of the wetland boundaries is provided as **Attachment 4**. Sheet 1 of the Specific Purpose Survey of the jurisdictional wetlands as defined by the SRWMD is provided as **Figure 7**.

The ACOE does not exert jurisdiction over wetlands occurring within the Turkey Creek Drainage Basin, therefore, the total extent of ACOE wetlands onsite totals **607.61** acres as compared to **792.14** acres determined to be state jurisdictional wetlands. Pursuant to ***Section 30-300 Regulated Surface Waters & Wetlands*** of the City of Gainesville Land Development Regulations and, in addition, provisions of ***Chapter 62-340 Delineation of the Landward Extent of Wetlands and Surface Waters***, the City must regulate wetlands pursuant to the boundary determined by the State of Florida. Except for the Turkey Creek Drainage Basin, the ACOE and SRWMD agreed to the same wetland boundary on all other areas of the Project Site. During review of the ArcGIS™ and AutoCAD™ projects related to the approved wetland boundary, ERC determined that two minor issues existed with the GIS coverage of the wetland boundaries. First, wetland Area E2 (Sheet 11 of 29, Attachment 4) consisting of 3.66 acres was analyzed as an individual polygon in the GIS coverage and counted twice toward the total wetland acreage coverage. In addition, in some areas of the site, the wetland boundary extended beyond the property line. These issues were corrected in the current GIS coverages and these modifications were discussed with the District and the ACOE. No modifications to the wetland boundary

were made. Therefore, the total onsite acreage of wetlands and surface waters totals **788.04** acres (44% of the total site acreage) as determined by the State of Florida, with the total upland acreage equaling **990.73** acres (56% of the total site acreage).

During formal jurisdictional determinations, there is no differentiation made between surface waters and wetlands and they are represented by a single boundary. The majority of the onsite jurisdictional features are wetlands. The surface water features on the site are represented by excavated ditches constructed in both historical wetlands and historical uplands. If these features are separated for permitting purposes, then total site wetlands equal **778.89** acres and man-made surface waters total **9.16** acres. All surface waters onsite are excavated areas associated with roadside ditches or ditches or small borrow areas excavated for drainage purposes.

The composite wetland and surface water boundary which includes **788.04** acres as shown on a 2014 color aerial photograph is provided as **Figure 8**, with designated shaded upland and wetland polygons. The wetland boundary is shown as hollow polygons on a 2014 color aerial (**Figure 9**) and 2013 false color infrared aerial (**Figure 10**) to allow for review of the underlying aerial signature. The composite wetlands and surface waters and uplands map is provided as **Figure 11**, with the surface waters separated from the wetland coverage.

3.0 Environmental Resource Assessment Methodology

3.1 Field Review

An extensive field review of the Project Site was initially performed from August 2015 through October 2015. This was followed by a second period of review conducted April–May 2017. The Project Site was field surveyed on the following dates:

14 Aug 15	27 Aug 15	4 Sep 15	12 Sep 15	29 Sep 15	14 Apr 17
17 Aug 15	28 Aug 15	8 Sep 15	14 Sep 15	1 Oct 15	18 Apr 17
18 Aug 15	31 Aug 15	9 Sep 15	15 Sep 15	2 Oct 15	25 Apr 17
25 Aug 15	2 Sep 15	10 Sep 15	17 Sep 15	22 Oct 15	1 May 17
26 Aug 15	3 Sep 15	11 Sep 15	18 Sep 15	26 Oct 15	

All surveys were performed by Peter M. Wallace, MS (Authorized Gopher Tortoise Agent #GTA-14-00037) and Robert A. Garren, MS (Authorized Gopher Tortoise Agent #GTA-09-00057D) of Ecosystem Research Corporation. A survey of the Project Site was performed by repeatedly traversing the site with a series of pedestrian transects. Observations regarding plant species composition have been recorded at **6,291** locations within the Project Site and adjacent areas. At each location, plant species, plant community habitat type, observations of animal occurrences, and GPS position coordinates were recorded with a hand-held Garmin GPSMap76CSx unit. The site surveys have been specifically performed to assess the general ecological condition of the

property, determine the existing plant community composition, and survey for the presence or occurrence of listed plant and animal species.

The August–October 2015 surveys were performed during a period of extensive rainfall events. Although total rainfall during 2015 was near the 30-year rainfall average, rains during August, September, and the first half of October 2015 were at record high totals as compared to the 30-year average for this seasonal period. During this period, all wetlands were inundated to what is considered to be seasonal high levels which would be expected for comparison to 1 in 2.33-year flood event. The water surface in areas was landward of the wetland–upland boundary and water was flowing across the top surface of forest roads in areas where culverts do not exist or in areas where the culverts could not contain the floodwaters. This hydrologic condition allowed ERC to observe and document normal flow areas such as ditches and low areas between wetlands as well as flows that occur in overflow areas that would be impossible to define during periods of low flow. Due to the bedding of pine plantation areas in uplands, wetlands, and transitional habitats, as well as the historical construction of very large earthen "windrows" throughout the site, general flow patterns are impossible to determine at normal or low water periods even through performance of professional topographic survey efforts conducted on 100-ft or 200-ft grid patterns. This is due to the occurrence of very shallow sheet flow patterns that occur within the bedded plantation areas.

The survey conducted in April–May 2017 occurred during a period of record low rainfall. At this time, **NO** wetland area onsite or any excavated surface water ditch had any surface water present. The surficial water table was 1–2 feet below the wetland surface. Therefore, the site surveys conducted during the very wet and very dry survey periods allowed for the conditions of the site at seasonal high and seasonal low water table elevations to be evaluated.

Pursuant to **Sections 30-310(g) and 30-310(k)(1)**, a Binding Methodology Agreement was executed with the City of Gainesville 18 December 2015. The Binding Methodology Agreement describes the boundaries and methodology of the proposed assessment. The Agreement was established with Mr. John Hendricks, the Environmental Resources Coordinator with the City at the time of the execution of the Agreement. The site was reviewed by ERC with Mr. Hendricks in January 2016. The site was again reviewed by ERC with Mr. Mark Brown, the current City Environmental Resources Coordinator, in April and May 2017. The executed Binding Methodology Agreement is included as **Attachment 5**.

3.2 Review of Existing Published Database Records

To complement the data obtained from the field survey, several existing GIS databases were queried to obtain available published site-specific GIS data for the site and surrounding areas. These databases include the following:

1. USGS Topographic Quadrangle Map
2. Alachua County 2001 LiDAR Topography
3. Natural Resources Conservation Service (NRCS) Soils
4. Federal Emergency Management Agency (FEMA)
5. City of Gainesville Natural and Regulated Resources Databases
6. Alachua County Natural and Regulated Resources Databases
7. 1937–1974 Historical Aerial Photographs
8. Alachua County Strategic Ecosystems Overlay Database
9. KBN Golder Ecological Inventory
10. Alachua County Hazardous Materials Storage Facilities Database
11. Alachua County Historical Structures Database
12. Florida Fish and Wildlife Conservation Commission (FWC) Eagle Nest Locator
13. FWC Wading and Waterbird Rookery Nest Sites
14. Florida Natural Areas Inventory (FNAI) Element Occurrence Database
15. USFWS Florida Wood Stork Core Foraging Areas
16. Florida Natural Areas Inventory *Guide to the Natural Communities of Florida*

4.0 Results of Data Review

4.1 Published Geographic and Hydrologic Data Review

4.1.1 USGS Topographic Quadrangle Maps

The USGS Quad Map coverage for the Project Site and surrounding area is shown on **Figure 12** in relation to the SRWMD approved wetland boundary. The quad coverage shown indicates that the Project Site area includes sections of the Gainesville East, Gainesville West, Monteocha, and Alachua quadrangle maps. The quad maps show that the central area of the site generally slopes from south to north from an elevation of ±195 ft to an elevation of ±155 ft. This 40-ft change in elevation represents a major headwater tributary drainage of Rocky Creek that flows to the Santa Fe River.

The south area of the site slopes in elevation from 195 ft to 185 ft and represents a headwater area of Turkey Creek that flows southwest from the site into Sanchez Prairie located within the San Felasco State Preserve. The southeast area of the site ranges in elevation from 190 ft to 175 ft and represents a headwater tributary area to Hatchet Creek which flows into Newnans Lake. The northwest area of the site flows northwest from a wetland area encompassed more or less by the 175-ft contour then north and northeast across SR 121 to a tributary of Rocky Creek.

In general, the Project Site is a broad, gently sloping North Florida Flatwoods community which represents the apex of a set of Regional Drainage Basins. The site at elevations of 195 ft represents one of the highest elevation areas in the County for the North Florida Flatwoods community. In addition, the site represents a headwater tributary area to Turkey Creek, Hatchet Creek, and multiple sub-basin drainages to Rocky Creek.

4.1.2 Drainage Basins

There are several published databases which provide information regarding the nomenclature of the mapped drainage basins which show the onsite and offsite extent of the mapped drainage basin areas. The database coverage obtained from the Florida Department of Environmental Protection (FDEP) that was constructed by the GeoPlan Center at the University of Florida is shown on **Figure 13** and shows the major onsite drainage basins to include the Alachua Slough, Rocky Creek, and Hatchet Creek. Alachua County has prepared an Alachua County Watershed Map as shown on **Figure 14**. This map more effectively illustrates the named drainage basins within and adjacent to the Project Site and illustrates the locations of named creek channels which are defined within the individual basins. Both maps illustrate that the Project Site lies within a gently sloping plain that extends across a 3-way drainage divide and constitutes the headwater area of several drainages of Rocky Creek, Turkey Creek, and Hatchet Creek.

4.1.3 Alachua County 2001 LiDAR Topography

The Alachua County 2001 LiDAR coverage provides 1 foot contour interval coverage for the Project Site and surrounding areas (**Figure 15**). Review of the topo supports the general drainage areas defined on the USGS Quad Map (Figure 12). The LiDAR topo shows two very distinct characteristics of the site. First, the general appearance of all topo contours is very jagged in all areas of the site. This contour shape is typical where the ground is disturbed as a result of silvicultural activities in which bedding of the landscape has occurred. Second, within the very broad wetland depressions there are a number of small closed contour intervals. This distribution of contours is more prominent in areas of wetlands that have been logged. In certain circumstances regeneration of a dense evergreen catbrier, fetterbush, or bay cover within the wetland appears to cause the LiDAR imagery to show small hills as occurring within the depressions. However, much of the in-wetland expression of irregular contours is a result of historical bedding and soil disturbance activities.

4.1.4 Soils

The NRCS soil survey map of the Project Site displaying each mapping unit and associated acreages is shown on **Figure 16**. There are seventeen (17) different mapping units found within the boundaries of the Project Site. The general characteristics of each mapping unit are provided in **Table 1**.

There are six (6) soil mapping units which have well-defined spodic horizons. Spodic horizons are cemented layers of organic material which on this site occurs 12-30 inches below the soil surface. Spodosols (soils with spodic horizons) have high water tables that are defined by the depth of the spodic horizon. Spodic horizons are typically less permeable than the overlying soils and will retard downward movement of rainwater falling on the surface and facilitate lateral movement of water at shallow depths below the soil surface. The general distribution of the onsite spodosols is shown on **Figure 17**.

There are thirteen (13) onsite soil mapping units which have a well-defined Argillic horizon which is a layer formed from clays. The Argillic horizon significantly affects the percolation of water through the top profile of the soils. The onsite soils have an Argillic horizon (Table 1) which extends from 28 to 84 inches below the surface. These surficial clay lenses coupled with the spodic horizon typically force belowground lateral movement of water across the uplands and into wetland areas. For this reason, there are significant acreages of transitional seepage slopes occurring around and between wetlands in which shallow subsurface flows occur parallel with the land surface. In addition, high near surface water levels result across the site where these soils occur. The distribution of Argillic soils within the Project Site is shown on **Figure 18**.

The NRCS soils map shows there is a small area of onsite wetlands mapped as organic soils having an organic horizon extending to 21 inches below the surface (**Figure 19**). The majority of onsite wetlands have a much more shallow depth of muck and are underlain by an Argillic horizon covered with black sand. Based upon the field review, it appears that the coverage of organic soils is greater than that shown on Figure 19. There are seven (7) soil mapping units onsite designated as being hydric soils (**Figure 20**). Although these soils are mapped to occur primarily in the wetland areas, not all wetlands shown on the map are totally covered with hydric soils. This is related to a mapping error by the NRCS and does not accurately define the surface characteristics of the wetland soils.

Table 1. General drainage and physical characteristics of soil mapping units that occur within the Project Site.

Mapping Unit	Mapping Unit Name	Hydric?	Drainage Class	Hydrologic Group*	Spodic Horizon (inches)	Clay (Inches) Below Surface
13	Pelham sand	No	Poorly Drained	B/D	Not present	29–69
14	Pomona sand	No	Poorly Drained	A/D	16–24	43–69
15	Pompano sand	Yes	Poorly Drained	A/D	Not present	None
16	Surrency sand	Yes	Very Poorly Drained	A/D	Not present	28–80
17	Wauchula sand	No	Poorly Drained	C/D	12–34	34–44
19	Monteocha loamy sand	Yes	Very Poorly Drained	A/D	18–27	48–85
21	Newnan sand	No	Somewhat Poorly Drained	A	12–16	55–82
22	Floridana sand, Depressional	Yes	Very Poorly Drained	C/D	Not present	30–42
23	Mulat sand	No	Poorly Drained	C/D	Not present	30–47
25	Pomona sand, Depressional	Yes	Very Poorly Drained	A/D	16–24	43–69
28	Chipley sand	No	Somewhat Poorly Drained	A	Not present	None
34	Placid sand, Depressional	Yes	Very Poorly Drained	A/D	Not present	None
48	Myakka sand	No	Poorly Drained	A/D	24–30	None
49	Lochloosa fine sand, 0 to 2 percent slopes	No	Somewhat Poorly Drained	A	Not present	34–57
50	Sparr fine sand	No	Somewhat Poorly Drained	A	Not present	56–84
51	Plummer fine sand	No	Poorly Drained	A/D	Not present	42–64
53	Shenks muck	Yes	Very Poorly Drained	D	Organic Horizon: 0–21 Clay Loam: 21–82	Organic Horizon: 0–21 Clay Loam: 21–82

* There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas while the second is for undrained areas.

Group A: Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B: Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C: Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Certain wet soils are placed in Group D based solely on the presence of a water table within 60 centimeters [24 inches] of the surface, even though the saturated hydraulic conductivity may be favorable for water transmission. If these soils can be adequately drained, they are assigned to dual hydrologic soil groups (A/D, B/D, and C/D) based on their saturated hydraulic conductivity and the water table depth when drained.

The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high water table is kept at least 60 centimeters [24 inches] below the surface in a soil where it would be higher in a natural state.

4.1.5 Federal Emergency Management Area (FEMA)

The FEMA Flood Zone Map for the Project Site is shown in relation to the wetland boundary and surface water boundary on **Figure 21**. The Project Site contains **840.01** acres which are mapped as Flood Zone "X" which are areas outside of the flood hazard area. There are **3.73** acres that are outside of the 100-year flood event but within the 500-year flood hazard area (0.2% chance flood hazard). There are **850.98** acres that occur within Zone "A" or the 100-year flood zone (1.0% chance flood hazard). Within the northeast corner of the site, **84.05** acres are mapped within Flood Zone "AE." This is a 100-year flood hazard area in which a Base Flood Elevation (BFE) has been established.

The FEMA Flood Prone Area that occurs totally within the onsite wetlands is shown on **Figure 22**. Based on this analysis, the wetlands include the following mapped flood zones:

Zone	Acres
A	571.99
AE	63.77
X	150.58
0.2% Chance Flood	1.70

The FEMA Flood Prone Areas that occur totally within upland areas outside of the wetland boundary are shown on **Figure 23**. Within the upland area, the acreages of the Upland Flood Zone are provided, as follows:

Zone	Acres
A	278.99
AE	20.28
X	689.43
0.2% Chance Flood	2.02

4.1.6 National Wetlands Inventory Map (NWI)

The National Wetlands Inventory Map (NWI) for the Project Site and surrounding area is presented on **Figure 24**. The NWI Map as shown is compared to the formal wetland and surface water boundary which has been established for the site. Comparison of the two boundaries clearly shows that the NWI coverage significantly underestimates the total wetland acreage occurring on the site. The total NWI acreage that occurs within the Project Site boundary totals **443.35** acres as compared to the wetlands determined by the state delineation methodology which equals **788.04** acres which totals only **56.26%** of existing onsite wetlands (**Figure 25**).

4.1.7 Alachua County Composite Wetlands Database

The wetlands mapped within the Alachua County Composite Wetlands Database include wetland areas as mapped by the Water Management Districts and includes areas with mapped hydric soils mapping units. As shown on **Figure 26**, the composite wetlands coverage includes greater wetland area as compared to the NWI coverage. In several areas of the site, the composite coverage extends landward of the field determined wetland boundaries; however, in general includes less wetland acreage than naturally occurs on the Project Site.

4.1.8 Murphree Wellfield Travel Time and Protection Zones

The Murphree Wellfield is the primary source of drinking water for the City of Gainesville area and areas of Alachua County which receive selected urban services. The wellfield has three protection zones defined by travel times and development within these zones is specifically regulated. The protection zones are shown in relation to the Project Site and surrounding area on **Figure 27**. The protection zones are defined as follows:

Zone	Travel Time
Primary	2-year
Secondary	10-year
Tertiary	25-year

The eastern and southern area of the Project Site is located within the Tertiary (25-year) Protective Zone (**Figure 28**).

4.1.9 Alachua County Aquifer Protection and Vulnerability Zones

The Alachua County Floridan Aquifer High Recharge Area Map is provided as **Figure 29**. The Project Site is located within an area that is underlain by dense Hawthorn clays and therefore the aquifer is considered to be in a confined condition and vulnerability to adverse contamination is considered to be “low” with the site mapped in the “low vulnerability” zone. The Project Site also lies within the “stream to sink” region and flows originating in the southwest area of the site flow into Turkey Creek with the ultimate destination being a sinkhole within Sanchez Prairie. The potentiometric surface of the Floridan Aquifer in the area of the Project Site occurred at about the 45-ft contour as shown on the USGS map prepared in 1980 (**Figure 30**) and was determined by Alachua County in 2010 as shown on **Figure 31** to be about 40 feet BLS. Both potentiometric surface maps show an area of “groundwater capture” of “cone of depression” associated with the Murphree Wellfield. The depression in the potentiometric surface potentially extends to the eastern boundary of the Project Site as supported by the Murphree Wellfield zones shown on Figure 27. The Project Site is located within a low aquifer recharge area where recharge to the Santa Fe River springshed is estimated to be

0–3.9 inches per year.[1] The Project Site is underlain by dense surficial clays as well as deeper Hawthorn clays and precipitation falling on the site primarily leaves the site via surficial stream flows. Although the Project Site lies in an area of a primarily confined aquifer, the site lies along the east boundary of the zone where the confining layer is considered to be perforated. Flows from the site within the Turkey Creek drainage flow west into the perforated zone and stream-to-sink zone. Flows from the west area of the GRU site adjacent to the Project Site flow west into the Cellon Creek drainage, ultimately into Lee Sink.

The Project Site is located along the boundary of the confined and perforated hydrologic regions of the Floridan Aquifer (**Figure 23**). In this zone, the aquifer is expected to be primarily confined by the Hawthorne Formation; however, perforations in the confining layer may be present in the form of sinkholes or relic sinkholes in which direct recharge to the Floridan can occur. The Project Site lies along the boundary of the Northern Highlands Marginal Zone Physiographic Zone of Western Alachua County and the Northern Highlands Physiographic Zone in north central Alachua County.[2] (The following discussion is primarily taken from information contained in this document.) Along this boundary, the Hawthorne layer transitions from continuous to discontinuous, resulting in areas where substantial inflows to the underlying karst topography represented by the Crystal River Formation occur. The western boundary of this physiographic region is the Cody Escarpment, which represents the boundary of the confined versus un-confined regions of the Floridan Aquifer. All streams that cross the Cody Escarpment disappear into the ground except the Suwannee River. The unique ecological feature of this region is that the headwaters of several major local streams begin at the eastern boundary of this zone, which is the boundary with the Northern Highlands Plateau. Turkey Creek, Beveille Creek, for example, begin within this confined region located on the City of Gainesville Deerhaven properties and the west areas off the Project Site. The western boundary of this zone is characterized by a number of drainage sinks where streams disappear belowground into sinkholes. The Cody Escarpment is a westward facing escarpment that represents the erosional edge of the Miocene Hawthorne Formation. **Figure 32** shows the general southeast to northwest orientation of the distribution of the major stream to sink systems (karst solution features) within the County. This fracture zone within the County begins at the Orange Lake Sink in the southeast part of the County and extends approximately 45 miles northwest to where the Santa Fe River disappears at O'Leno State Park. Included in this system of drainage sinks are Alachua Sink, Lake Alice, The Devil's Millhopper, Lee Sink, Sanchez Prairie, and the Mill Creek Sink. The Mill Creek Sink is part of a network of stream to sink systems termed the Alachua Stream System.[2] This system includes the tributaries of

[1] *Source of Nitrate and Estimated Groundwater Travel Time to Springs of the Santa Fe River Basin* (2013), AMEC.

[2] Williams, K. E., D. Nicol, and A. Randazzo. 1977. The Geology of the Western Part of Alachua County, Florida. Report of Investigations No. 85. Bureau of Geology, Division of Resource Management, Florida Department of Natural Resources. Tallahassee, FL.

Mill Creek, Townsend Branch, Turkey Creek, Blues Creek, Sanchez Prairie, and Burnett's Lake. The distribution of this system is shown in **Figure 33**. Within this network there are at least 10 major drainage sinks where surface waters disappear. Although **NO** sinkholes exist on the Project Site, all flows originating from the sink ultimately flow into Floridan sinkhole features.

4.2 Published Ecological and Conservation Overlays

4.2.1 Strategic Ecosystem Overlay Map

The City of Gainesville pursuant to ***Section 30-310.2(c) Strategic Ecosystems*** of the Land Development Regulations has adopted the Strategic Ecosystem Overlay Areas established by KBN, A Golder Associates Company (1996).[3] In 1996, Strategic Ecosystem areas of the County were delineated as part of the Alachua County Ecological Inventory Project. At the time of the mapping, the term "strategic ecosystem" was not used by the County. This term was not commonly used until the term was defined within ***Chapter 406 Natural and Historic Resources Protection Article 5 Strategic Ecosystems*** which was adopted 8 December 2005. Within the context of the KBN Golder report, the designated overlay areas were generally described as "Significant Natural Biological Communities", not Strategic Ecosystems. On August 2, 2012, the City of Gainesville adopted ***Division 4 Regulated Natural and Archeological Resources*** and implemented the Strategic Ecosystem provisions within the Land Development Regulations. The original designations of the proposed boundaries of the Significant Natural Biological Communities was performed in 1986 and modified in 1996.

The City more or less adopted general rules provided in **Chapter 406** of the County Code pursuant to protection of these Regulated Natural Resources. The City adopted the Strategic Ecosystem Overlay Areas that had been established by KBN Golder and adopted by the County. It must be stated that the City did change some of the language that the County had employed in implementation of the set-asides required within the Strategic Ecosystem Overlay Areas. The text, in the City code, is so confusing that it almost defies understanding of how the set-asides will be determined and is at odds with the County's method of establishing the set-aside areas with respect to the same Project Site area. For the Gainesville 121 Project Site, the required Upland Set-Aside is mandated by ***Comprehensive Plan Policy 4.3.4(a)(9),*** which states:

> 9. Maintain and enhance plant and animal species habitat and distribution by protecting significant plant and animal habitats, provide for habitat corridors, prevent habitat fragmentation by requiring a detailed survey of listed species, identify habitat needs for maintaining species diversity and sustainability; preserve wetlands and at least forty percent (40%) and up to fifty percent (50%) of the upland area, inclusive of the wetland buffers established pursuant to 4.3.4.a.4 above. Listed species are those species of plant and animals listed as endangered, threatened, rare,

[3] *Alachua County Ecological Inventory Project* (1996), Alachua County Growth Management and KBN, A Golder Associates Company.

> or species of special concern by the state and federal plant and wildlife agencies, or species ranked as S1, S2, or S3 [by] the Florida Natural Areas Inventory (FNAI).

The provisions above require a minimum set-aside of 40% of the upland area of the Project with a maximum required set-aside equaling 50% of the upland area of the Project. The Strategic Ecosystem Land Development Regulations of both the City and County require set-asides in the range of 0–50% of the total Project Site upland area.

The Project Site that lies east of SR 121 is overlain by the Buck Bay Flatwoods Strategic Ecosystem (**Figure 34**). The entire area of the Project Site west of SR 121 is encumbered by the Hague Flatwoods Strategic Ecosystem (Figure 34). Both of these Strategic Ecosystem overlays are contiguous to the Rocky Creek Strategic Ecosystem which lies just north of the Project Site and extends to the Santa Fe River. The southwest property boundary lies adjacent to the Millhopper Flatwoods Strategic Ecosystem. In both the Hague Flatwoods and Buck Bay Flatwoods areas, KBN Golder realized that the majority of these areas were managed for timber production. In consideration of this, they recommended that private landowners should be allowed to continue to manage these areas as timber lands. Conservation strategies and Best Management strategies should be directed at establishing, maintaining, and enhancing the natural multiple drainage areas that exist in these areas.

The KBN Golder Ecological Inventory Map of the Project Site is shown on **Figure 35**. The results they provided very generally identified the plant associations that occur on the site. There was no differentiation of flatwoods habitats from planted pine plantations and the areas of hydric flatwoods on the site are generally absent from their mapping effort. KBN Golder first mapped the Strategic Ecosystem areas in 1986 with re-mapping occurring in 1996. At this time, no digital aerials were available and the best available maps would have been USGS maps, 1984 NHAP false color infrared aerials, and Alachua County black and white property appraiser aerials. Since KBN Golder had only about six (6) weeks to complete their report and habitat determinations, therefore, the wetland map as shown on Figure 35 contains substantially less wetland acreage than currently exists. Based on the appearance of the wetland boundary, it would have probably been determined using a combination of NWI maps, USGS quad maps, and false color infrared aerials in which the deciduous canopy of many wetlands is readily apparent based on the plant community shown on Figure 35. There are **NO** Significant Upland Plant Communities mapped for the area.

4.2.2 Parks, Recreation, and Conservation Areas

City parks, County parks, and Municipal and District Conservation Areas located in the vicinity of the Project Site are shown on **Figure 36**. The GRU Murphree Wellfield Conservation Easement (#40) lies along the entire east boundary of the Project Site. There is an unnamed Suwannee River Water Management District property (#112) located along the south boundary of the northeast area of the site. Several small parcels

lie south of the site within the City and County to include Northside (#84), San Felasco County Park (#102), Possum Creek Park (#92), and other small parcels south of the site.

4.3 Alachua County Special Protection and Monitoring Areas

4.3.1 Alachua County Hazardous Waste Storage Facilities

The locations of the hazardous materials storage facilities that are monitored by Alachua County are shown on **Figure 37**. The map shows that there is one facility located within a parcel surrounded by the Project Site. In addition, there are a host of storage facilities located within the industrial parcels that lie south of the Project Site.

4.3.2 Alachua County Historic Structures Database

The locations of Historic Structures listed in the Alachua County Historic Structures Database are shown on **Figure 38**. There are **NO** Historic Structures or structures of any kind located within the boundary of the Project Site. There are several old historic houses and other buildings located immediately north of the Project Site. This result emphasizes the historical rural nature of the north area of Alachua County.

4.4 Listed and Imperiled Species Summary Information and Tracking Databases

4.4.1 Summary Information Regarding Threatened and Endangered Species in Florida

There are several agencies that have been delegated the authority to protect and preserve the threatened and endangered flora and fauna that occur within the State of Florida. The United States Fish and Wildlife Service (USFWS) maintains a list of species afforded special protection by the ***Endangered Species Act of 1973 (16 U.S.C. 1531)***. The list is published in the ***List of Endangered and Threatened Wildlife and Plants, 50 CFR 17.11-12***. The Florida Fish and Wildlife Conservation Commission maintains a list of the protected animals occurring within the state by authority of the ***Florida Endangered and Threatened Species Act of 1977 (Section 372.072, Florida Statutes [FS])*** and ***Chapter 68A-27, Florida Administrative Code (FAC), Rules Relating to Endangered and Threatened Species***. The specific policy of the Florida Endangered and Threatened Species Act of 1977 is declared as follows:

> **Subsection 2: Declaration of Policy**—The Legislature recognizes that the State of Florida harbors a wide diversity of fish and wildlife and that it is the policy of this state to conserve and wisely manage these resources, with particular attention to those species defined by the Florida Fish and Wildlife Conservation Commission, the Department of Environmental Protection, or the U.S. Department of Interior, or successor agencies, as being endangered or threatened. As Florida has more endangered and threatened species than any other continental state, it is the intent of the Legislature to provide for research and management to conserve and protect these species as a natural resource.

The list of threatened and endangered animals protected by these laws is published in ***Section 68-27.003, .004, and .005, FAC***. The regulation of listed marine animals was historically delegated to the Florida Department of Natural Resources (FDNR); however, has since been reorganized into the Florida Department of Environmental Protection. The ***Preservation of Native Flora of Florida Act (Sections 581.185, 581.186 [in part] and 581.201, FS)*** passed in 1978 declares a public policy of the State of Florida with regard to native flora, as follows:

> **Subsection 1: Legislative Declaration**—The Legislature finds and declares that it shall be the public policy of this state to: provide recognition of those plant species native to the state that are endangered, threatened, or commercially exploited; protect the native flora from unlawful harvesting on both public and privately owned lands; provide an orderly and controlled procedure for restricted harvesting of native flora from the wild, thus preventing wanton exploitation or destruction of native plant populations; encourage the propagation of native species of flora; and provide the people of this state with the information necessary to legally harvest native plants so as to ultimately transplant those plants with the greatest possible chance of survival.

To this end, the Florida Department of Agriculture and Consumer Services (FDACS) regulates the threatened and endangered plant species occurring within the state. As specifically authorized by ***Chapter 5B-40, Preservation of Native Flora of Florida, FAC,*** the ***Regulated Plant Index*** is published in ***Section 5B-40.0055***. The Game Commission periodically releases a publication that summarizes animal species that are regulated by the Florida Fish and Wildlife Conservation Commission and the USFWS. The publication is titled *Florida's Endangered Species, Threatened Species, and Species of Special Concern*. The federal lists of plants and animals are published in ***50CFR 17.11-12*** and the list of Florida's federally listed plant species is also published by the Florida Division of Forestry.

Alachua County, by authority of ***Article 3, Significant Plant and Wildlife Habitat,*** and ***Article 4, Listed Plant and Animal Species Habitat***, of the Unified Land Development Code (ULDC) regulates development in habitats where listed species occur or could potentially occur. Provisions within Articles 3 and 4 allow the County to require that up to 25% of the upland portion may be required to be protected and set aside as primary conservation areas. Areas protected under Articles 3 and 4 are designated as Conservation Management Areas and are further regulated via rules outlined in ***Article 17, Conservation Management Areas (ULDC)*** and potentially require that the property owner establish a conservation easement for the specific areas within the parcel. The owner is further responsible for development of a management plan and perpetual management of the area.

The City of Gainesville via provisions of ***Sections 30-310.1(c)(11) and 30-310.2(b)*** (2-August-2012) has adopted the County's template for listed species protection and

provides protection of listed species and listed species habitats. Protective mechanisms include provision of Conservation Management Areas with associated management plans as described in ***Section 30-310.3(a–i)***, LDC. Neither the County's nor the City's land development codes describes the protections warranted for individual species or habitats. These protections are defined on a case-by-case basis often in cooperation with the responsible federal or state regulatory entity.

Several other lists of the endangered and threatened fauna and flora are maintained for the State of Florida. The Florida Natural Areas Inventory (FNAI) maintains a list that summarizes the status and distribution of both plant and animal species as well as natural communities occurring within the State of Florida. The FNAI is managed by The Nature Conservancy in cooperation with the Florida Department of Environmental Protection. The lists compiled by the FNAI contain many species that do not occur on the State or Federal lists. The FNAI list as compiled is not subjected to the time-consuming administrative process that is required for listing for State and Federal protection. Therefore, these lists often reflect the up-to-date true status of species that may be in immediate peril. The FNAI species that are not State or Federally listed are not given legal protection.

An inventory of the statewide distribution of potentially threatened and endangered species was initiated in 1973 by the Florida Committee on Rare and Endangered Plants and Animals (FCREPA). The group published a several-volume series that contains detailed descriptions, distributions, and academic evaluations of species considered to be in peril. The FCREPA list contains many species in addition to the State and Federal lists; however, these additional species are afforded no legal protection. The FCREPA series offers the best compiled review of the biology of the imperiled biota of Florida to date. Beginning in 1986, revisions of the FCREPA volumes were initiated and continue to date.

To aid in review of the imperiled species that occur in Florida and the State and Federal Regulations that govern their management, the following publications are available:

- Endangered and Threatened Species Act of Florida, Chapter 372.072, FS
- Rules Relating to Endangered and Threatened Species, Chapter 68A-27, FAC
- The Preservation of Native Flora of Florida, Chapter 581.185, FS
- Preservation of Native Flora of Florida, Chapter 5B-40, FAC
- Florida Endangered Species, Threatened Species, and Species of Special Concern, January 2013

4.4.2 Results of Searches of Listed Species Overlays and Occurrence Records

The results of the search of the Florida Natural Areas Inventory (FNAI) Element Occurrence Records are provided on **Figure 39**. The database indicates that a single

imperiled species record is located within the vicinity of the Project Site as noted by the record of the canebreak or timber rattlesnake (*Crotalus horridus*). The timber rattlesnake has been found within the Rocky Creek drainage and the Project Site is located within the southernmost distribution range of this species. It is likely to occur on the site and has FNAI Global and State Ranks of G4/S3.

There are several other species that may have been historically present in the area of the Project Site and adjacent areas or may be potentially present. However, the habitat requirements for many of these species no longer exist in the area or the site is outside of the current species' range. These species are listed, as follows:

- **Short-tailed Snake (*Stilosoma extenuatum*):** The short-tailed snake inhabits xeric habitats, primarily Longleaf Pine-Turkey Oak Sandhills. This Project Site has remnant areas of this habitat type but it has been poorly managed and exists as a remnant of what was historically present. It is unlikely that this species occurs on site or that a population can be sustained on site given the present and past land management practices.
- **Little Blue Heron (*Egretta caerulea*; G5/S4):** There are few natural marsh wading bird habitats on the Project Site but there is a high probability of widespread use of the numerous excavated ditches by this species.
- **Florida Sandhill Crane (*Grus canadensis pratensis*; G5T2T3/S2S3):** Sandhill cranes were seen on the Project Site. There is minimal nesting habitat for this species remaining on site but forage habitat is available.
- **Florida Pine Snake (*Pituophis melanoleucus mugitus*; G4/S3):** The pine snake is a rare inhabitant of xeric communities. There are no preferred habitat types for this species on site. Pine snakes prefer pocket gopher burrows and, less frequently, gopher tortoise burrows, for refuge. There are few tortoises on site and no pocket gophers were seen.
- **Sherman's Fox Squirrels (*Sciurus niger shermani*; G5T3/S3):** The fox squirrel typically occupies xeric areas that are frequently burned and have numerous mature oaks and pines distributed throughout the habitat. There are no known fox squirrels in this area and there is **NO** suitable habitat present to support this species.
- **Florida Black Bear (*Ursus americanus floridanus*; G5T2/S2):** The Florida black bear is a transient inhabitant of this site. There were no signs of black bear present on the site during the field surveys. No tracks were observed or any evidence of bear foraging, however, local onsite hunters reported numerous sitings over the past several years.
- **Tricolored heron (*Egretta tricolor*; G5/S4; State Threatened):** the tricolor heron, generally less common inland in recent years, is described by FNAI as

"*…generally becoming less numerous in northern tier of counties (Alachua County northward).*" This would suggest less likelihood for this species to currently occur on the Project Site though it may have used the area in the past.

- **White ibis (*Eudocimus albus*; G5/S4):** this species would be expected to use the numerous onsite ditches for foraging.
- **Striped Newt (*Notophthalmus perstriatus*; G2G3/S2) and Gopher Frog (*Rana capito*; G3/S3):** The striped newt and gopher frog are xeric-adapted species that typically inhabit scrubby flatwoods, sandhill, and scrub habitats. These species are commonly associated with gopher tortoise habitat and are frequently found within burrows. Both species depend on ephemeral, isolated wetlands for breeding and reproduction. These species are extremely sensitive to the impacts that are cosmopolitan on this site, which include extensive soil disturbance, fire suppression, road construction, and disturbance of gopher tortoise burrows. It is unlikely that these species occur on the site due to the absence of inundated, isolated wetlands.
- **Southern Hognose Snake (*Heterodon simus*; G2/S2):** the primary habitat for the southern hognose snake is Sandhill and sandy soil, open hammocks and scrub. These habitat types minimally occur on the Project Site. This species has not been reported for the immediate area of the site and it is unlikely that a breeding population is present.
- **Eastern Indigo Snake (*Drymarchon couperi*; G3Q/S3):** the Eastern Indigo Snake occurs in a wide variety of habitats and especially is present in areas with extensive gopher tortoise populations. The snake is extremely difficult to census, so for site development it is assumed that the species is present. There are federally mandated precautions to be employed during construction on any site where Eastern Indigo Snakes are potentially present. These precautions are discussed within the ***Standard Protection Measures for the Eastern Indigo Snake*** (USFWS August 13, 2013). In addition, during FWS review of the proposed development plan, the site would be evaluated with respect to the ***Eastern Indigo Snake Programmatic Effect Determination Key*** (addendum USFWS/USACOE 13 August 2013) to determine the potential effects of the proposed project on the potential Eastern Indigo Snake population.
- **Gopher tortoise (*Gopherus polyphemus*; G3/S3; State Threatened):** in Florida, the gopher tortoise and its burrow are protected under state law. Gopher tortoises generally occur in sandy, dry habitats with sparse canopy and abundant low growing herbaceous vegetation. They are commonly found in sandhills, pine flatwoods, scrub, scrubby flatwoods, dry prairies, and a number of other generally drier habitats. On sites where natural fire has been suppressed, growth of dense woody trees and shrubs make it difficult for gopher tortoises to move about as well as find suitable food sources. Because gopher tortoises share their burrows with

over 350 other species of animals, they are considered a keystone species. During the course of the field surveys, several active gopher tortoise burrows, (including one juvenile) were recorded within the northeast area of the Project Site.

- **Variable-leaf crownbeard (*Verbesina heterophylla*; G2/S2; State Endangered):** this listed plant species, a member of the Asteraceae (composite) family, is found in mesic flatwoods and dry woods in several north central and northeast Florida counties and is considered endemic to northeast Florida. It is listed as Facultative Wet by both the USFWS and the FDEP. During the 2015 field surveys, this species was encountered within the Project Site on the eastern side of SR 121 north of the GRU easement in mesic to wet flatwoods dominated by gallberry (*Ilex glabra*) and rabbiteye blueberry (*Vaccinium virgatum*). A single voucher specimen of variable-leaf crownbeard was collected and provided to the University of Florida Herbarium as a permanent record.
- **Florida spiny-pod (*Matelea floridana*; G2/S2; State Endangered):** this vine species, a member of the dogbane family (Apocynaceae), is typically found in mesic habitats. Florida spiny-pod was encountered on the Project Site during the 2015 field surveys.
- **Angularfruit milkvine (*Gonolobus suberosus;* State Threatened):** also in the dogbane family, this species is a vine often found in the same habitats as Florida spiny-pod (they are, in fact, both very morphologically similar when not in flower). While it has not been recorded on the Project Site to date, the potential certainly exists for its presence.
- **Cardinalflower (*Lobelia cardinalis*; State Threatened):** this species was recorded on the site during field surveys in 2015. It is found in wetland areas and is listed as Facultative Wet (USFWS) and Obligate (FDEP). This imperiled species is rare within Alachua County.
- **Hooded pitcherplant (*Sarracenia minor*; State Threatened):** this species was recorded on the site during the 2015 field surveys. It is a wetland taxon and is listed as Obligate (USFWS) and Facultative Wet (FDEP) by the federal and state regulatory agencies.
- **Florida toothachegrass (*Ctenium floridanum*; G2/S2; State Endangered):** this grass has been recorded and vouchered in several northeast Florida counties including Alachua County, which appears to be the southwestern limit of its range. It is a wetland species and is classified as Facultative Wet by both the USFWS and FDEP. It has not been observed on the Project Site.
- **Eastern sweetshrub (*Calycanthus floridus*; G5/S2; State Endangered):** this small shrub has been found on one site a few miles west of the Project Site but was associated with an old homesite or other structures no longer present. It grows in dry to mesic woods, however, has not been recorded onsite.

- **Silver buckthorn (*Sideroxylon alachuense*; G1/S1; State Endangered):** silver buckthorn occurs in upland hardwood forests around lime sinks and on shell mounds. Lack of suitable habitat greatly reduces the probability of this species occurring onsite.
- **Flyr's nemesis (*Brickellia cordifolia*; G2G3/S2; State Endangered):** this upland species has been recorded within several miles of the Project Site; however, has not been observed to date onsite. It grows in dry, upland pine-oak woods but it does not thrive in areas which have been clearcut and converted to pine plantations as are common on the Project Site.
- **Redmargin zephyrlily (*Zephyranthes simpsonii*; G2G3/S2S3; State Threatened):** this species has not been vouchered for Alachua County, however, has the potential to occur along roadside ditches and other damp grassy areas and has been reported as far north as Marion County. It is listed as Facultative by the USFWS.
- **Rainlily (*Zephyranthes atamasca*; State Threatened):** this wetland species is classified as Facultative Wet by both the USFWS and FDEP and has been vouchered in Alachua County; however, has not been recorded onsite. This taxon also includes the formerly separate species Treat's rainlily (*Z. treatiae*), which has been taxonomically subsumed into *Z. atamasca*.
- **Cinnamon fern (*Osmunda cinnamomea*; State Commercially Exploited):** Cinnamon fern is found in many of the wetland areas on the site and is a commonly found plant species in north Florida wetlands and wet flatwoods. This is not an imperiled species; however, is listed as Commercially Exploited in the Regulated Plant Index (Chapter 5B-40.0055 FAC).
- **Royal fern (*Osmunda regalis*; State Commercially Exploited):** Royal fern is equally as common as cinnamon fern and occurs in a number of onsite wetland areas. This is not an imperiled species; however, is listed as Commercially Exploited in the Regulated Plant Index (Chapter 5B-40.0055 FAC).
- **Needle palm (*Rhapidophyllum hystrix*; State Commercially Exploited):** needle palm is a wetland taxon that occurs in hydric hammocks and forested wetlands. It is classified as Facultative wet by the USFWS and the FDEP. It has not been recorded on the Project Site to date; however, the large unlogged onsite wetlands provide habitat to support this species. This is not an imperiled species; however, is listed as Commercially Exploited in the Regulated Plant Index (Chapter 5B-40.0055 FAC).

The results obtained from the query of the Eagle Nest Locator Database, Water and Wading Bird Breeding Habitat Database, the River Styx Wood Stork Regulated Buffer, and general distributions of imperiled species is provided on **Figure 40**. The entire Project Site is located within the habitat and occurrence range of the eastern indigo snake.

The indigo snake has been reported in the vicinity of the Project Site along NW 142nd Avenue more or less within 1.5 miles of the site by ERC. As previously mentioned, the snake almost certainly occurs on the site and protective measures onsite should be employed as if encounters with the snake are present.

The Historical Regulated Foraging Buffer of the River Styx Wood Stork colony extends within the 5-mile radius of the Project Site. The River Styx colony is no longer active and is considered as extirpated by the Fish and Wildlife Service. The Project Site has many shallow emergent habitats to include roadside ditches that provide transient forage habitats for wood storks. However, there is very minimal roosting or nesting habitat available on the site.

The Project Site is located within 5 miles of a Red-cockaded Woodpecker Consultation Area. The red-cockaded woodpecker historically occurred within Alachua County, however, the last colony located near the Gainesville Airport is no longer present and no populations are currently known for the County. The birds were last seen in the County in 1997. The Project Site is located ±10 miles from a designated Black Bear Secondary Forage Range. Reports from many residents adjacent and around the project support that the black bear is a transient visitor to the area.

There are two eagle nests and four wading bird rookery sites located within a 5-mile radius of the Project Site. The status of each of the occurrence records are described as follows:

Eagle nest	AL056	Unoccupied; last known occurrence was 2006.
	AL063	Nest was unoccupied in 2007, 2008, 2011, and 2014.
Rookery sites	605113	This is a historical little blue heron colony that was located in the Deerhaven Power Plant. The colony has not been active since the 1980s.
	605004	This is a wading bird rookery that was last occupied in the 1980s.
	605012	This is a great egret rookery that was active when last evaluated in 1999.
	605003	This was a wading bird rookery site that was last occupied in the 1970s.

4.5 Historical Land Use and Historical Aerial Photograph Review

4.5.1 Historical Land Use and Ownership

The Project Site has been historically used for native pasture, improved pasture, and timber operations for the past 80 years. In general, the timber operations have been conducted by several entities, briefly described as follows:

Ownership History for the Gainesville 121 Project	
1940	Lands acquired by Owens-Illinois from McCloskey Brothers and Paradise Naval Stores by respective Deeds in September 4, 1940 and April 26, 1940, respectively.
1988	Great Northern Nekoosa purchased Owens-Illinois lands.
1990	Georgia Pacific acquired Great Northern Nekoosa.
1997	Stepped lands down from Great Northern Nekoosa into NPC Timber as part of The Timber Company.
2001	Plum Creek acquired The Timber Company.
2016	Weyerhaeuser merged with Plum Creek Timber Company and retained Weyerhaeuser name.

4.5.2 Review of Land Use as Determined from Historical Photograph Review

Historical aerial photographs were obtained from the University of Florida George H. Smathers Historical Map Library which date from 1937 to 1974. A brief review of the general site conditions as shown on each historical aerial is provided overlain with the existing wetland boundary, as follows:

1937 Historical Aerial (Figure 41)

Within the Project Site and the immediate vicinity, the wetlands existed in unlogged, undrained natural conditions. Current areas described as wet pine plantations existed as natural wet prairie habitats. There are areas of native flatwoods present in 1937 but many areas were being maintained as native pasture. SR 121 and CR 231 were in place but no utility corridors were present. Within the view of the aerial photo, only one (1) single family agricultural residence is present. Within the Project Site, only one constructed forest road is present in the southwest corner of the site.

1949 Historical Aerial (Figure 42)

From 1937 to 1949 there has been significant growth of all flatwoods trees and other vegetation. No logging of wetlands is apparent and no ditching of wetlands is apparent. There has been a substantial increase in the construction of unimproved vehicle trails within the flatwoods area. No public utilities are obvious. There is an apparent field crop production that has been created south of the northeast section of the property. This may be a blueberry operation based on information obtained from local residents. In addition, these rabbiteye blueberries were introduced into the Santa Fe River drainage from 1920–1940. Rabbiteye blueberries escaped from cultivation and now comprise the dominant shrub cover throughout much of the wetter planted pine areas that occur onsite. There are small areas within the Project Site and surrounding areas that have been converted to improved pasture.

1955 Historical Aerial (Figure 43)

In 1955, perimeter fencing of boundary lines is apparent and much of the flatwoods habitats have been cleared and converted to improved pasture. There is some evidence of ditches in adjacent properties. Clearing of wetland boundaries is widespread but logging of wetlands for timber has not occurred. Significant widening of SR 121 has occurred since 1949.

1961 Aerial Photograph (Figure 44)

In 1961 significant conversion of flatwoods to improved pasture has occurred. The Florida Gas Line has been constructed since 1955 and the footprint is clearly seen. Wetlands have not been logged and there is no evidence of planted pine plantations having been constructed at this time.

1968 Aerial Photograph (Figure 45)

In 1968 the west side of the site has been converted to pine plantations. There are large, long windrows present and significant ditching of wetland areas has taken place. There are small areas of the site still in use for improved pasture. Logging of smaller wetlands which connect larger wetlands has taken place but extensive logging of the larger wetland basins has not occurred.

1974 Aerial Photograph (Figure 46)

In 1974 almost the entire Project Site has been converted to pine plantations. The internal road network is more extensive. Logging of the drier wet flatwood wetlands has occurred; however, most of the prominent basin wetlands have intact canopies. Significant management of plantation areas is apparent. Remaining flatwood areas in the northeast part of the site have been cleared and are being converted to plantations.

5.0 Results of Field Verification of Existing Natural Resources

In general, the uplands on the Project Site have been extensively managed for slash pine and loblolly pine production. The plantation areas consist of linear rows of planted pine in various stages of development. The pines have been bedded resulting in a landscape of sometimes very deep furrows and narrow beds. The plantation areas have been placed well within the boundary of historically forested wetlands and have completely altered the historical wet prairie areas where shallow water flows would have occurred between contiguous forested systems. This landscape alteration began from 1961 to 1968 (Figures 44–45) and has continued to date. The furrows (troughs) are very deeply cut in many areas providing hazard to pedestrian travel and severely altering the direction of historical surface water flows.

Past logging activities have resulted in stockpiling of both mineral soils and vegetation debris and very large windrows. The original windrow locations are readily apparent on

the 1968 historical aerial photograph (Figure 45). These brush/soil piles are distributed throughout the site in upland as well as wetland areas. In many areas, these debris piles severely altered the direction of historical surface water flows. All forested wetlands on the site have been logged at some time in the past. Recent logging activities have resulted in clearcutting of many of the forested wetlands on site and has dramatically altered the type, nature, and function of these areas by converting once deeply shaded, large canopy tree areas to essentially a mix of oldfield, herbaceous, and shrub and briar dominated wetlands. The historical logging has resulted in deep trenches in the surface peats, which has severely altered surface inundation characteristics and flow direction. Logging in all areas has been consistent with Best Management Practices. In vast areas of many once-forested areas, regrowth of bamboo-vine (*Smilax laurifolia* L.) and fetterbush (*Lyonia lucida* [Lam.] D. Don) has been so dense as to completely preclude pedestrian travel. In addition, these vast jungles of bamboo-vine seem to seriously interfere with LiDAR topography, rendering erroneous elevations in some wetland areas.

The wetlands and uplands onsite have been hydrologically altered by several activities, described briefly, as follows:

1. *Bedding of pine plantations*: Much of the area of the site consists of historically very broad flatwoods dissected by a number of shallow depressions and sloughs. The surfaces of these flow ways have been dramatically altered by bedding, resulting in diversions of surface water flows.
2. *Raised bed roads, power utility easements, and gas transmission line easements*: The site is transected by a number of raised bed roads, power utility easements, and a gas transmission line easement. Construction of these utilities has been through wetlands, which have restricted, impeded, or diverted surface flow patterns as a result of the construction. This situation has been aggravated by a network of improperly installed and infrequently maintained culvert and ditch systems. These are historical issues which have existed on the site for many years. The disruption of surface flows and the lack of properly placed culverts within historical flow-ways is especially problematic in areas associated with the natural gas transmission line.
3. *Ditching of the tributaries of Rocky Creek and Turkey Creek*: Many of the wetland tributary areas to Rocky Creek and Turkey Creek have been ditched. These ditches have not resulted in problematic drainage of the wetlands, which affects vegetation health, but probably tend to move peak flows off the site faster to drain the fringing planted pine areas more quickly. Despite this drainage network, these wetlands appear to be regularly and periodically inundated and hold water for long periods of time. These wetlands are probably the least hydrologically disturbed wetland areas currently within the City limits of Gainesville. However, all onsite wetlands have mean water levels less than what was historically present and hydroperiods that are reduced

as compared to the historical condition. Despite the effects of historical drainage and silvicultural activities on the natural wetland ad upland habitats, the Project Site is a well managed silvicultural operation. During the course of the site survey, the entire area was found to be free of trash, construction debris, and a local primitive hunt club controls all un-authorized access and keeps the area free of typical pedestrian abuses which often occur in these areas. There was no evidence of misuse of off-road vehicles or any activities not associated with the silvicultural operation.

5.1 Survey Methodology

To delineate the plant communities occurring on the site and generally census the occurrence of threatened and endangered species potentially present, a series of pedestrian transects was traversed. All parcels on the site were surveyed over the course of the following dates:

14 Aug 15	27 Aug 15	4 Sep 15	12 Sep 15	29 Sep 15	14 Apr 17
17 Aug 15	28 Aug 15	8 Sep 15	14 Sep 15	1 Oct 15	18 Apr 17
18 Aug 15	31 Aug 15	9 Sep 15	15 Sep 15	2 Oct 15	25 Apr 17
25 Aug 15	2 Sep 15	10 Sep 15	17 Sep 15	22 Oct 15	1 May 17
26 Aug 15	3 Sep 15	11 Sep 15	18 Sep 15	26 Oct 15	

All surveys were conducted by Peter M. Wallace, MS, and Robert A. Garren, MS, of Ecosystem Research Corporation. As in most ecological surveys, this was a time-limited and budget-limited survey. All areas of the site were visited; however, more time was spent in areas considered to be critical for conservation or where delineation of the plant community boundary was problematic. The total Project Site consisting of **1778.77** acres was surveyed in approximately **29 days**, indicating an average daily survey of **61.34** acres. In this type of survey, there is not a lot of time or energy available for clearing of trails (chopping of vegetation with a machete); therefore, dense vine and brier-tangled, impassable areas were avoided to the degree that was professionally prudent. The cosmopolitan distribution of planted pine throughout the site over upland, transitional, and wetland areas made photointerpretation of the underlying plant community in these areas impractical. Historic aerials were used to further refine the boundaries in many of these areas. The following extant and historical aerial photographs were used to refine the boundaries in these areas as well as provide information on historical land use and successional community development, where applicable (**Table 2**):

Table 2. Aerial photographs used in determination of wetland boundaries occurring on the Project Site.

Date	Photo Type
November 2016	Color photo
December 2014	Color photo
January 2013	False Color Infrared
December 2011	Color photo
December 2008	Color photo
December 2005	Color photo
December 2005	False Color Infrared
March 2004	Color photo
January 1999	False Color Infrared
April 7, 1979	B&W photo
February 4, 1974	B&W photo
November 19, 1968	B&W photo
February 11, 1961	B&W photo
December 31, 1955	B&W photo
March 8, 1949	B&W photo
December 20, 1937	B&W photo

To facilitate production of as accurate of a community map as possible, observations of plant species occurrences and physical structures were recorded at **6,477** locations throughout the site. These locations are referred to as data points or GPS points. The data points with associated plant community nomenclature are shown on **Figure 47**. At each location, the community type or plant community boundary type was recorded using a Garmin GPSMap76 CSx hand-held global positioning system (GPS) unit. Photo stations were established at **355** data collection points located throughout the site. Photo stations are shown on **Figure A-1** and reference locations of 575 photographs provided in **Appendix 1**. The photographs in Appendix 1 show the general existing condition of the various plant communities occurring within the Project Site.

As was previously described within Section 1.1, a Formal Delineation of the Surface Waters and Wetlands occurring on the site was performed and approval from the Suwannee River Water Management District and USACOE was obtained (**Attachments 2 and 3**). The wetlands and surface water boundaries are described on Figures 7 through 11 on various aerial photographs and maps. The site currently has the following breakdown of hydrologic habitats:

Habitat	Acres	% of Project Site
Total Site	**1778.77**	
Wetlands	778.88	43.79
Surface Waters (Excavated ditches in uplands)	9.16	0.51
Wetlands/Surface Waters	788.04	44.30
Uplands	990.73	55.70

The plant community map was produced by using the information obtained from the data points collected as well as interpretation of aerial photography, where appropriate. The Alachua County 2001 LiDAR 1-ft topography was used to further interpolate boundaries between data points, where appropriate. This was accomplished by matching data points of known community boundaries with specific elevations, followed by interpolation of the boundary using the known elevation contour. A plant community polygon map was created by delineating the boundaries of all *wetland and upland community types* occurring on the site. The Plant Community Map for the entire Project Site is shown as **Figure 48**. The Plant Community Map is subdivided into the north, central, and south areas of the site (**Figures 49, 50, and 51**) to allow for a more detailed review of the individual polygons and associated numerical designations. The plant communities as shown represent a Total of **229** individual polygons representing eleven (11) general Plant Community Associations. Six (6) of the onsite communities are described as wetland habitats; two (2) of the onsite communities are upland habitats; and three (3) mapped areas are plant communities and constructed roads associated with easements, forest roads, and other site access areas.

The acreages for the Mapped Communities and Physical Features occurring on the Project Site are provided as follows:

Plant Community Type	FLUCCS Code†	Acreage
Upland		**962.07**
Pine Flatwoods–Mesic	411	14.92
Planted Pine Plantation	441	947.15
Wetlands		**788.04**
Cypress–Hardwood–Bay (logged)	631	261.99
Cypress–Hardwood–Bay (unlogged)	630	172.63
Slash pine–Cypress–Hardwood–Bay	627	75.14
Marsh	641	3.89
Excavated Surface Waters	510	9.15
Shrub Swamp	632	0.10
Planted Pine Plantation	625	265.14

Plant Community Type	FLUCCS Code†	Acreage
Physical Features		28.66
Easement Road/Oldfield	817/830	9.76
Improved Forest Road and Ditches	814	18.90
Total Project Site		**1778.77**

†Florida Land Use and Cover Classifications System, FDOT, 1999.

The total acreages for all mapped polygons is provided in Table 3 and summarized for each of the eleven (11) major mapping designations.

The Plant Community polygon map was created using the GPS points shown in Figure 47. However, the nomenclature of the GPS data collection point may not correspond exactly with the name of the plant community type given to the polygon. For example, the GPS point may have been established in a cypress-dominated area that is part of a larger Slash Pine–Cypress–Mixed Hardwood–Bay Swamp system. The GPS point name would indicate cypress was dominant in the GPS area whereas the plant community polygon would be labeled as Slash pine–Cypress–Hardwood–Bay. The data point nomenclature is a tool used to provide reference for field data. These points will not correlate directly with the plant community map. These data (Figure 47) are provided to detail the level of the field survey effort.

The accuracy of the Plant Community maps produced is affected by many factors. First, all community boundaries could not be traversed with this level of effort. Time was a constraint and, in addition, because of time limitations, surveys through dense, impassable areas were limited. It was also very difficult to delineate a wetland/upland boundary in plantation areas where there was very little difference between the distribution of groundcover species between the upland and wetland sides of the line. In these areas, soils were disturbed and the only variable that could be used to establish a line is subtle changes in hydrologic indicators or vegetation distribution. To say that there is a great amount of professional judgment and decision making required in these areas in an understatement.

Second, the accuracy of the GPS unit varies from ±9 ft to ±30 ft at this site. This would generally establish the accuracy to be within the approximate crown coverage of a large laurel oak tree. Flagging of the wetland boundary with sequentially numbered flags followed by survey of each numbered flag was performed by others to establish the wetland boundary. The boundaries of the plant communities are much less accurate but the accuracy presented in this report is more than sufficient to serve as a land use planning tool for the requirements of an NARA.

Within the planted pine plantations, there exists mosaics of mesic, hydric, and transitional historical flatwoods habitats. Areas currently designated as upland by delineation of the wetland boundary will have areas of hydric planted pine flatwoods and transitional

planted pine flatwoods. Similarly, areas mapped as wetland will have areas of mesic planted pine flatwoods. These habitats were differentiated to the greatest degree possible in the field using the GPS data points. However, the delineation of many of these habitats was not possible on the Plant Community Polygon Map. In this coverage, preference was given to the established location of the jurisdictional boundary in defining upland and wetland habitats. However, the GPS points show the variability of the plantation areas. The differentiation of mesic, hydric, and transitional plantations can only be done during on-ground surveys and cannot be done via interpretation of the aerial photograph signature.

5.2 Descriptions of Plant Communities Occurring on the Project Site

A description of the general plant communities occurring on the Project Site is provided in **Sections 4.2.1** through **4.2.3** and communities are defined on **Figures 48 through 51**. In certain plant community descriptions, there is a distinction made between "logged" and "unlogged" wetlands. These terms, as applied, relate to recent logging events that are readily apparent on extant aerial photographs. It should be noted that all wetlands and uplands have been logged at some time in the past. The wetlands that currently appear with intact canopies on current aerial photographs historically had the large hardwood, pine, and cypress removed but regeneration has occurred since this distant past logging.

The wetland nomenclature also distinguishes between wetland pine plantations and unplanted natural large pine which dominate many areas of the Mixed Hardwood Wetlands. The pine dominated areas were specifically mapped as separate wetland polygons to show areas where future logging of pine in wetlands would likely or potentially occur. The botanical name, common name, USFWS classification, FDEP classification, and floristic classification of all plant species encountered during the field surveys are provided as **Table 3**.

5.2.1 Upland Communities

Planted Pine Plantation

Total Acreage: 947.15 FLUCCS 441

The Project Site parcels are part of the North Florida Flatwoods Ecological Community. Historically, this area was dominated by broad areas of Pine Flatwoods with a mixed canopy of slash pine (*Pinus elliottii* Engelm.), longleaf pine (*Pinus palustris* Mill.), with loblolly pine (*Pinus taeda* L.) occurring along several areas of the headwater tributaries. The characteristic understory of this system would have a diverse association of flatwood shrubs and grasses to include saw palmetto (*Serenoa repens* [Bartr.] Small), gallberry (*Ilex glabra* [L.] Gray), shiny blueberry (*Vaccinium myrsinites* Lam.), dangleberry (*Gaylussacia frondosa* var. *nana* [A. Gray] Small), wiregrass (*Aristida stricta* Michx.), lopsided Indian grass (*Sorghastrum secundum* [Elliott] Nash), and tarflower (*Bejaria racemosa* Vent.). These communities burn naturally in 3 to 5 year cycles, which keeps vegetation low, diverse and provides a wonderful habitat for a host of rare plant and animal species.

The Planted Pine Plantation Upland communities on the Project Site are presently the mesic-managed remnant of this once diverse community type. Presently, in this community association, slash pine (*Pinus elliottii* Engelm.) and loblolly pine (*Pinus taeda* L.) are planted in dense, plantation-style, linear rows and the trees are large enough in many areas that substantial shading of the groundcover species has occurred. Generally, gallberry (*Ilex glabra* [L.] Gray) and saw palmetto (*Serenoa repens* [Bartr.] Small) are the dominant groundcover species; however, ruderal species such as bushy bluestem (*Andropogon glomeratus* [Walt.] BSP var. *pumilus* [Vasey] Vasey ex. L.H. Dewey) or broomsedge (*Andropogon virginicus* L.) are common. In many areas, a very sparse groundcover is present being dominated instead by a dense cover of pine straw. Generally, diversity is low with less than 10 species being present in many areas. The areas are deeply furrowed with substantial raised beds. There is no evidence of any prescribing burning maintenance program being employed.

Within the mapped Planted Pine Plantation areas, there are several community types that occur. All of these types have the dominant feature of having been bedded and prepped for pine plantation but the groundcover and associated canopy species are not indicative of a historical flatwoods community. These communities are indicated by the GPS icons shown on Figure 47 and are briefly described as follows:

1. Planted Pine Plantation-Oldfield (FLUCCS 411/443)

The Planted Pine-Oldfield upland community is a historical mesic flatwood area that has recently been clearcut and replanted with pines. The canopy cover of pines has not reached a coverage that affects groundcover growth; therefore, the groundcover tends to be the dominant stratum in these areas. Due to soil disturbance, groundcover diversity is generally very low. In most areas, bushy bluestem (*Andropogon glomeratus* [Walt.] BSP var. *pumilus* [Vasey] Vasey ex. L.H. Dewey) is so dense that pedestrian travel is difficult. A dense tangle of sand blackberry (*Rubus cuneifolius* Pursh) and saw greenbrier (*Smilax bona-nox* L.) in many areas forms almost impenetrable barriers. Broomsedge (*Andropogon virginicus* L.) is more common in drier areas. Most areas in this community type display almost 100% *Andropogon* cover. In all areas, the bedding activities have resulted in the creation of very deep furrows that have severely altered the local surface water flows and the resulting vegetation.

2. Mesic Hammock (FLUCCS 425)

There are no true examples of high-quality Mesic Hammock communities remaining on the Project Site. Remnant areas exist, primarily around the margins of the larger wetlands and the upper tributaries to Rocky Creek and especially Turkey Creek. However, these are marginal areas in which the majority of the canopy trees have been previously logged. For the purposes of this study, this community nomenclature is used to describe areas where there is a mix of primarily water oak (*Quercus nigra* L.), laurel oak (*Quercus hemisphaerica* Bartr.), and live oak (*Quercus virginiana* Mill.) with occasional individuals of sugarberry (*Celtis laevigata* Willd.), black cherry (*Prunus serotina* Ehrh.),

pignut hickory (*Carya glabra* [Mill.] Sweet), flowering dogwood (*Cornus florida* L.), sweetgum (*Liquidambar styraciflua* L.), slash pine (*Pinus elliottii* Engelm.), loblolly pine (*Pinus taeda* L.), and southern magnolia (*Magnolia grandiflora* L.) being present. Common understory species include saw palmetto (*Serenoa repens* [Bartr.] Small), cabbage palm (*Sabal palmetto* [Walt.] Lodd. ex J. & J. Schultes), gallberry (*Ilex glabra* [L.] Gray), and highbush blueberry (*Vaccinium corymbosum* L.).

3. Oldfield (FLUCCS 311)

The Oldfield communities are roadside or ditch-side areas or other areas where disturbance has occurred that are presently dominated by a host of ruderal groundcover species. Common species include bahiagrass (*Paspalum notatum* Fluegge.), bushy bluestem (*Andropogon glomeratus* [Walt.] BSP var. *pumilus* [Vasey] Vasey ex. L.H. Dewey), broomsedge (*Andropogon virginicus* L.), small dog-fennel (*Eupatorium capillifolium* [Lam.] Small), dwarf horseweed (*Conyza canadensis* [Torr. & Gray] Gray var. *pusilla* [Nutt.] Cronq.), bermudagrass (*Cynodon dactylon* [L.] Pers.), sea myrtle (*Baccharis halimifolia* L.), wax myrtle (*Myrica cerifera* L.), muscadine grape (*Vitis rotundifolia* Michx.), and sand blackberry (*Rubus cuneifolius* Pursh). This community type is commonly found along the perimeter of plantation areas or within plantations where previous log prepping and de-limbing activities have occurred.

4. Mixed Oaks-Hardwoods-Successional (FLUCCS 439)

The plant community designated as Mixed Oak-Hardwoods-Successional are historically Mesic Pine Flatwood areas that are currently disturbed, not planted with pine, and dominated by a mix of water oak (*Quercus nigra* L.), laurel oak (*Quercus hemisphaerica* Bartr.), live oak (*Quercus virginiana* Mill.), loblolly pine (*Pinus taeda* L.), and slash pine (*Pinus elliottii* Engelm.). Fire in these areas has been suppressed, resulting in a community type that naturally was not common in the area. These communities are common along the plantation areas that border larger headwater wetland communities.

5. Mixed Shrubs and Vines (FLUCCS 329)

The Mixed Shrubs and Vines upland area is a disturbed successional community dominated by bahiagrass (*Paspalum notatum* Fluegge.), bermudagrass (*Cynodon dactylon* [L.] Pers.), bushy bluestem (*Andropogon glomeratus* [Walt.] BSP var. *pumilus* [Vasey] Vasey ex. L.H. Dewey), small dog-fennel (*Eupatorium capillifolium* [Lam.] Small), sand blackberry (*Rubus cuneifolius* Pursh), muscadine grape (*Vitis rotundifolia* Michx.), sea myrtle (*Baccharis halimifolia* L.), wax myrtle (*Myrica cerifera* L.), and water oak (*Quercus nigra* L.). This habitat is widespread in areas that have recently been disturbed and is also common along fence rows, windrows, and areas where substantial tree fall has occurred as a result of storms, disease, or timber operations.

6. Planted Pine Plantation: Rabbit-eye Blueberry Groundcover (FLUCCS 4413)

There are large portions of the upland planted pine plantation areas that have a shrubby cover dominated almost entirely by rabbit-eye blueberry (*Vaccinium virgatum* Aiton).

This blueberry is a common late summer fruiting blueberry that has been sold commercially in Florida for almost 100 years. This blueberry plant is a very large shrub species that spreads by both rhizomes and stolons and forms very large multi-stem clumps that, where a large population occurs, is almost impassable to walk through. This blueberry possibly escaped from a blueberry farm located in the area. Rabbit-eye blueberries were outplanted in this area circa 1920s as part of an agricultural program. This blueberry forms dense thickets with maleberry (*Lyonia ligustrina* [L.] DC. var. *foliosiflora* [Michx.] Fernald), fetterbush (*Lyonia lucida* [Lam.] D. Don), sweet gallberry (*Ilex coriacea* [Pursh] Chapm.), and gallberry (*Ilex glabra* [L.] A. Gray). This community spans mesic to transitional to hydric habitats and is more prolific where the water table is very close to the surface. For jurisdiction purposes, this species is often confused with highbush blueberry (*Vaccinium corymbosum* L.) as well as potentially mayberry (*Vaccinium elliottii* Chapm.), which in areas where it is dominant caused confusion during the wetland delineation process.

Mesic Pine Flatwoods

Total Acreage: **14.92** **FLUCCS 411**

The Mesic Pine Flatwoods community is dominated by loblolly pine (*Pinus taeda* L.) and slash pine (*Pinus elliottii* Engelm.); however, water oak (*Quercus nigra* L.), laurel oak (*Quercus hemisphaerica* Bartr.), live oak (*Quercus virginiana* Mill.), sweetgum (*Liquidambar styraciflua* L.), red maple (*Acer rubrum* L.), and sweetbay (*Magnolia virginiana* L.) are occasionally seen. Groundcover species include highbush blueberry (*Vaccinium corymbosum* L.), deerberry (*Vaccinium stamineum* L.), Walter's viburnum (*Viburnum obovatum* Walter), sweet pinxter azalea (*Rhododendron canescens* (Michx.) Sweet), gallberry (*Ilex glabra* [L.] Gray), wax myrtle (*Myrica cerifera* L.), and saw palmetto (*Serenoa repens* [Bartr.] Small). There are only three (3) polygons that were described as Mesic Pine Flatwoods. These are either small areas that border Planted Pine areas that were not planted or are associated with a habitat located within the northwest area of the site. These were the only flatwood areas onsite which had a natural association of bracken (*Pteridium aquilinum* [L.] Kuhn.), shiny blueberry (*Vaccinium myrsinites* Lam.), saw palmetto (*Serenoa repens* [Bartr.] Small), and other groundcover species associated with mature flatwoods.

5.2.2 Wetland Communities

Planted Pine Plantation-Wetland

Total Acreage: **265.14** **FLUCCS 625**

The Planted Pine Plantation-Wetland communities are Slash Pine or Loblolly Pine plantation areas that have been placed within the historical wetland boundaries. It should be noted that plantation areas which occur within the currently defined wetland boundaries were established as far back as 1968. At this time and until 1995, the majority of the wetland plantation areas were not areas that would be defined as wetlands based on the rules in existence at that time. The wetland plantation areas were primarily

established on mineral soils that exhibit a water table near the ground surface. Prior to 1995, these areas were not regulated as jurisdictional wetlands by the State of Florida.

These communities typically occur along the outer fringes of all wetlands on site and specifically within the shallow overflow wetland areas that exist between all contiguous deep-water forested wetland systems. The areas are deeply furrowed and vegetation typically consists of Virginia chain fern (*Woodwardia virginica* [L.] Smith), redroot (*Lachnanthes caroliniana* [Lam.] Dandy), cinnamon fern (*Osmunda cinnamomea* L.), maidencane (*Panicum hemitomon* Schult.), blue maidencane (*Amphicarpum muhlenbergianum* [J. A. Schultes] A. Hitchc.) and a host of rushes and sedges. In this community, the planted pines are of sufficient size to create a canopy with a shaded groundcover. The degree of canopy closure is highly variable; however, these areas would appear as forested on aerial photographs. Pine trees in this community association are generally smaller than those found in the upland variant of this community type, which is the Planted Pine Plantation-Upland community.

There are several variants of this community type that were recorded during the field survey and documented within the GPS point database (Figure 47). These community variations as mapped occur in both wetland and upland areas as defined by the delineated wetland boundary. The general descriptions of each variation are as follows:

1. Hydric Planted Pine Flatwoods (FLUCCS 6251)

This community type is characterized by deeply bedded plantation areas with dense populations of Virginia chain fern (*Woodwardia virginica* [L.] Smith) occurring within the deeply incised furrows. These areas are very open and park-like, with few species other than Virginia chain fern occurring within the groundcover. These habitats occur within the Seasonal High Water Elevation but generally occur above the elevation of the Mean Seasonal Water Level.

2. Transitional Planted Pine Flatwoods (FLUCCS 6252)

These habitats typically occur upslope of the Hydric Planted Pine Flatwoods habitats and occur at the general boundary of the wetland jurisdiction line. Unlike the more hydric variant, these habitats have a very dense groundcover of fetterbush (*Lyonia lucida* [Lam.] D. Don) which is impassable in many areas. There is a notable paucity of gallberry (*Ilex glabra* [L.] A. Gray) in these areas. On this site, gallberry is primarily limited to the Mesic Flatwoods areas. In many areas of this habitat, there is a significant population of maleberry (*Lyonia ligustrina* [L.] DC. var. *foliosiflora* [Michx.] Fernald) and rabbit-eye blueberry (*Vaccinium virgatum* Aiton) as was previously described in detail above. This habitat occurs at the outer boundary of the Seasonal High Water Elevation.

3. Planted Pine Plantation-Marsh (FLUCCS 626)

This is the wettest of the Planted Pine Plantation habitats. Water depths in these habitats often exceed depths of 1.5-2.0 ft during seasonal high rain events. Without the planted

pine, these areas would be classified as marshes. The habitats are often bedded but the integrity of the beds is not intact in many areas due to the water levels. Common groundcover species include Virginia chain fern (*Woodwardia virginica* [L.] Smith), Carolina yelloweyedgrass (*Xyris caroliniana* Walt), tall yelloweyedgrass (*Xyris platylepis* Chapm.), southern club-moss (*Lycopodiella appressa* [Chapm.] Cranfill), conecup spikerush (*Eleocharis tuberculosa* [Michx.] Roem. & Schult.), needle spikerush (*Eleocharis acicularis* [L.] Roem. & Schult.), sphagnum moss (*Sphagnum* sp.), soft-rush (*Juncus effusus* [L.] subsp. *solutus* [Fernald & Weigand] Hamet-Ahti), and occasionally broad-leaf emergents such as pickerelweed (*Pontederia cordata* L.), bulltongue arrowhead (*Sagittaria lancifolia* L.), and bandana-of-the-everglades (*Canna flaccida* Salisb.). In many areas pond cypress (*Taxodium ascendens* Brongn.) and red maple (*Acer rubrum* L.) are common invading tree species.

4. Planted Pine-Mixed Hardwoods (FLUCCS 6253)

This community type consists of large bedded plantation pines along primarily riparian habitats. The largest extent of this habitat is found in the northeast section of the site east of CR 231 along a broad floodplain of a tributary to Rocky Creek. These areas are co-dominated by large individuals of laurel oak (*Quercus hemisphaerica* Bartr.), water oak (*Quercus nigra* L.), and occasionally Virginia live oak (*Quercus virginiana* Mill.). Groundcover species are dominated by Virginia chain fern (*Woodwardia virginica* [L.] Smith) and small individuals of the canopy species. There are small areas of Mixed Hardwood Swamp habitat included in this mapped polygon which include areas dominated by pond cypress (*Taxodium ascendens* Brongn.), swamp blackgum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), red maple (*Acer rubrum* L.), and sweetbay (*Magnolia virginiana* L.).

Emergent Marsh

Total Acreage: 3.89 FLUCCS 641

The conditions of the Emergent Marsh areas are quite variable throughout the project site. The typical historical emergent marsh onsite generally had a circular to irregular-shaped depression dominated by a mix of maidencane (*Panicum hemitomon* Schult.) and Virginia chain fern (*Woodwardia virginica* [L.] Smith). All onsite marshes have been disturbed by some type of vehicular traffic. Due to historical drainage and silviculture, there is a paucity of marsh habitat located on the site as compared to the historical conditions.

Many of the historical marsh areas have additionally been disturbed by extensive hog feeding activities. There are many additional areas around the site that could potentially have been mapped as Emergent Marsh on the plant community map. Most of the logged hardwood swamps are now generally dominated by herb and grass species. However, if enough of the canopy remained to estimate the future successional direction of the areas or to determine the community type prior to logging, then the nomenclature of Cypress Swamp Association (Logged) or Mixed Hardwood Swamp Association (Logged), etc.,

was used. In addition, there are many emergent marsh zones that extend around all forested wetland systems due to vehicular traffic as a result of logging. These marsh areas would be included in the forested wetland polygons. There are many small marsh areas distributed throughout the pine plantations. These areas tend to be very shallowly inundated and most have been severely disturbed by bedding and vehicular traffic and are included in the Planted Pine Plantation polygons.

Cypress-Hardwood-Bay

Cypress-Hardwood-Bay Swamp (unlogged)	**Total Acreage: 172.63**	**FLUCCS 630**
Cypress-Hardwood-Bay Swamp (logged)	**Total Acreage: 201.99**	**FLUCCS 631**

The Cypress Swamp community was historically dominated by pond cypress (*Taxodium ascendens* Brongn.) with swamp blackgum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), dahoon holly (*Ilex cassine* L.), red maple (*Acer rubrum* L.), sweetbay (*Magnolia virginiana* L.), swamp red-bay (*Persea palustris* [Raf.] Sarg.), and loblolly bay (*Gordonia lasianthus* [L.] Ellis.) being distributed in the canopy and subcanopy. Within the project site, these areas are generally deep water habitats with a dense understory of fetterbush (*Lyonia lucida* [Lam.] K. Koch) distributed throughout the wetland on large hummocks. Throughout the site, this habitat type has been recently clear-cut. In these areas, few canopy trees are often left and deep trenches are left in the peat by the logging equipment. These trenches typically can be a dominant feature in the wetland area.

In many areas, the resulting logged plant community has developed into a dense tangle of bamboo-vine (*Smilax laurifolia* L.) and fetterbush (*Lyonia lucida* [Lam.] K. Koch). The bamboo-vine (*Smilax laurifolia* L.) is so dense as to severely limit the regrowth of any coppicing cypress or bays. The trenches are obvious on aerial photographs, appearing as areas of parallel disturbance on historical photographs. Due to historical logging activities within the wetlands, there is often no clear distinction between areas historically dominated by pond cypress (*Taxodium ascendens* Brongn.), swamp blackgum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), or sweetbay (*Magnolia virginiana* L.) and loblolly bay (*Gordonia lasianthus* [L.] Ellis.). There are areas included within this mapping polygon that are dominated by cypress and associated hardwood species. These tend to be the deepwater habitats. A general description of these habitats is provided as follows:

1. Cypress-Mixed Hardwood Swamp (FLUCCS 621)

The Cypress-Mixed Hardwood Swamp plant communities on the project site exist in various states of disturbance. The most natural areas consist of a mix of pond cypress (*Taxodium ascendens* Brongn.), bald cypress (*Taxodium distichum* [L.] L. Rich.), swamp blackgum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), red maple (*Acer rubrum* L.), American elm (*Ulmus americana* L.), slash pine (*Pinus elliottii* Engelm.), swamp laurel oak (*Quercus laurifolia* Michx.), swamp red-bay (*Persea palustris* [Raf.] Sarg.), and dahoon holly (*Ilex cassine* L.). The understory consists of a host of shrubs, herbs and grasses to include swamp doghobble (*Leucothoe racemosa* [L.] A. Gray), common

buttonbush (*Cephalanthus occidentalis* L.), fetterbush (*Lyonia lucida* [Lam.] K. Koch), Virginia willow (*Itea virginica* L.), cinnamon fern (*Osmunda cinnamomea* L.), royal fern (*Osmunda regalis* L.), and maidencane (*Panicum hemitomon* Schult.). These wetlands typically display flowing surface water for extended periods during normal rain years.

2. Blackgum Swamp (FLUCCS 613)

The Blackgum Swamps on site are typically small, circular to irregular-shaped wetland areas in which swamp black gum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.) is the dominant canopy species. Canopy species such as red maple (Acer rubrum L.) are occasionally present. Many of these wetland areas have very open canopies and a dense emergent groundcover dominated by maidencane (*Panicum hemitomon* Schult.) and Virginia chain fern (*Woodwardia virginica* [L.] Smith) is present. The Blackgum Swamps on site often have large areas of Emergent Marsh with a sparse swamp blackgum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.) canopy. These areas could reasonably also be mapped as Emergent Marsh, but the occurrence of swamp blackgum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.) is the defining characteristic.

3. Wetland-Mixed Shrubs and Vines (FLUCCS 632)

This community type is a successional plant community that has developed as a result of clearcutting of large, historic bay wetlands. The bay community typically had a dense canopy dominated by sweetbay (*Magnolia virginiana* L.), loblolly bay (*Gordonia lasianthus* [L.] Ellis.), swampbay (*Persea palustris* [Raf.] Sarg.), pond cypress (*Taxodium ascendens* Brongn.), and slash pine (*Pinus elliottii* Engelm.). Presently the canopy has almost entirely been removed. The understory is presently very densely covered with fetterbush (*Lyonia lucida* [Lam.] K. Koch) and bamboo-vine (*Smilax laurifolia* L.) with some resprouting bays emerging throughout the dense blanket of vines and shrubs. The surface of these wetlands has been severely altered by logging vehicles as is apparent from the numerous vehicle tracks seen on aerial photographs. This is a commonly occurring variation of the Cypress-Hardwood-Bay wetlands.

The Mixed Shrubs habitat is a disturbed successional community that has regenerated in previously excavated or disturbed areas. The predominately shrubby vegetation includes wax myrtle (*Myrica cerifera* L.), eastern false-willow (*Baccharis halimifolia* L.), coastal-plain willow (*Salix caroliniana* Michx.), and scattered red maple (*Acer rubrum* L.). In addition, individuals of popcorntree (*Sapium sebiferum* [L.] Roxb.) may be present. Groundcover is dominated by a host of ruderal oldfield species to include bushy bluestem (*Andropogon glomeratus* [Walt.] BSP var. *pumilus* [Vasey] Vasey ex. L.H. Dewey).

Slash Pine-Cypress-Hardwood-Bay

Total Acreage: **75.14** **(FLUCCS 627)**

The Slash Pine-Cypress-Hardwood-Bay habitat is a densely forested area with a dominant canopy cover of slash pine (*Pinus elliottii* Engelm.); however, pond cypress (*Taxodium ascendens* Brongn.), sweetbay (*Magnolia virginiana* L.), swamp red-bay

(*Persea palustris* [Raf.] Sarg.), and loblolly bay (*Gordonia lasianthus* [L.] Ellis.) are common. The shrub layer is typically woody characterized by a dense cover of fetterbush (*Lyonia lucida* [Lam.] K. Koch), sweet gallberry (*Ilex coriacea* [Pursh] Chapm.), and highbush blueberry (*Vaccinium corymbosum* L.). The herbaceous groundcover is dominated by Virginia chain fern (*Woodwardia virginica* [L.] Smith), cinnamon fern (*Osmunda cinnamomea* L.), and royal fern (*Osmunda regalis* L.).

5.2.3 Miscellaneous Polygon Designations

Excavated Surface Waters

Total Acreage: **9.50** **FLUCCS 510**

There are many ditches that have been constructed within the Project Site. The ditches that are jurisdictional features that were excavated within historical uplands are included in this mapping polygon. The ditches are primarily associated with roadways and excavated areas created for drainage.

Easement Road/Oldfield

Total Acreage: **9.76** **FLUCCS 817/830**

There are two (2) large easements that have been constructed within the Project Site. These are associated with the GRU Electric Transmission Line and Florida Natural Gas Transmission Line. These easements have large, raised grade fill roads with limerock fill associated with the access areas. The unused areas of the raised road grades are colonized by oldfield ruderal vegetation to include broomsedge (*Andropogon virginicus* L. var. *virginicus*), bushy bluestem (*Andropogon glomeratus* [Walt. BSP var. *pumilus* [Vasey] Vasey ex L.H. Dewey), rustweed (*Polypremum procumbens* L.), and more.

Improved Forest Roads and Ditches

Total Acreage: 18.90 **FLUCCS 814**

There are several above-grade and at-grade forest roads that provide access for silvicultural activities. This polygon includes the footprint of the roads and associated shallow ditches that were not included within the formal wetland and surface water delineation.

5.3 Delineation of Plant Communities Occurring within the Planned Development

The Gainesville SR 121 Planned Development (PD) Design Plan is provided as **Figure 52**. The PD incorporates **743.91** acres of the southern **41.82%** of the total area of the Project Site. The PD Plan acreage does not include the Conservation Land Use polygons shown on the Future Land Use Map. The PD Plan is based on the Plum Creek 121 Future Land Use Map adopted within **Policy 4.3.4** of the Comprehensive Plan (**Figure 53**). The specifics of the PD are discussed in detail under separate cover. The wetland and upland plant communities which occur within the PD area with associated acreages are described on **Figure 54**. The total area shown on Figure 54 which includes the PD and Future Land Use Conservation Areas totals **1244.75** acres.

5.4 Results of Field Surveys for Listed Species and Listed Species Habitats

A list of plant species that were encountered on the Project Site is provided as **Table 3**. A list of the animal species that were encountered during the current survey or in previous surveys is provided is provided as **Table 4**. There were nine (9) gopher tortoise burrows found during the field surveys as shown on **Figure 55**. All burrows were located within the northeast area of the site with only one general population area found. These burrows represent a remnant population of tortoises within the driest area of the Project Site. This habitat area is not considered as a manageable gopher tortoise habitat in that the quality of the habitat is significantly degraded. As planted pines mature, tortoises will be forced to migrate from the area. Without significant habitat restoration, this area will continue to decline in the future. There were several listed waterbird and wading bird species seen as shown on Table 4. Since **1161.01** acres of onsite wetlands and buffers are being placed into conservation, the future conservation needs of the onsite species are adequately addressed.

There were four (4) imperiled plant species found on the Project Site as shown on **Figure 56**. All listed plant species observations were recorded in the northeast area of the Project Site. These include Florida spiny pod (*Matelea floridana* [Vail] Woodson; **State Endangered**), cardinalflower (*Lobelia cardinalis* L.; **State Threatened**), and hooded pitcherplant (*Sarracenia minor* Walt.; **State Threatened**). The locations of these species are shown on Figure 56. ERC did identify diverseleaf crownbeard (*Verbesina heterophylla* [Chapm.] A. Gray), a **State Endangered** species, in the general area shown on Figure 56. This plant was collected during a random sampling of plants for identity verification and was an unknown specimen at the time of collection. Therefore, the exact location cannot be verified. The possible occurrence of other listed plant and animal species is discussed within **Section 3.4.2**.

Table 3. Species code, scientific name, common name, USFWS classification, FDEP classification, and floristic classification of plant species observed on the Gainesville 121 Project Site during field surveys conducted from August 2015 through May 2017.

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
ACE RUB	*Acer rubrum* L.	Red maple	FAC	FACW	NC
ACM REP	*Acmella oppositifolia* (Lam.) R.K. Jansen var. *repens* (Walter) R.K. Jansen	Oppositeleaf spotflower	FACW	FACW	NC
AGA PUR	*Agalinis purpurea* (L.) Pennell	Gerardia	FACW	FACW	NC
ALB JUL	*Albizia julibrissin* Durazz.	Mimosa	NL	UPL	EW
ALE LUT	*Aletris lutea* Small	Yellow colic-root	FACW+	FAC	NC
ALT PHI	*Alternanthera philoxeroides* (Mart.) Griseb	Alligatorweed	OBL	OBL	EW
AMB ART	*Ambrosia artemisiifolia* L.	Common ragweed	FACU	UPL	NW
AMP ARB	*Ampelopsis arborea* (L.) Koehne	Peppervine	FAC+	---	NC
AMP MUH	*Amphicarpum muhlenbergianum* (Schult.) Hitchc.	Blue maidencane	FACW	FACW	NC
AND GCP	*Andropogon glomeratus* (Walt.) BSP var. *glaucopsis* (Ell.) Mohr	Purple bluestem	FACW+	FACW	NP
AND PUM	*Andropogon glomeratus* (Walt.) BSP var. *pumilus* (Vasey) Vasey ex L.H. Dewey	Bushy bluestem	FACW+	FACW	NP
AND GLA	*Andropogon virginicus* L. var. *glaucus* Hackel	Chalky bluestem	FACU	FAC	NC
AND VIR	*Andropogon virginicus* L. var. *virginicus*	Broomsedge	FAC-	FAC	NP
API AME	*Apios americana* Medik.	Groundnut	FACW	---	NC
ARI TRI	*Arisaema triphyllum* (L.) Schott	Jack-in-the-pulpit	FACW-	FACW	NC
ARI SPI	*Aristida spiciformis* Ell.	Bottlebrush threeawn	FAC	FAC	NP
ARU GIG	*Arundinaria gigantea* (Walter) Walter ex Muhl.	Switchcane	FACW	FACW	NC
ASC PER	*Asclepias perennis* Walter	Swamp milkweed	OBL	OBL	NC
ASI ANG	*Asimina angustifolia* Raf.	Slimleaf pawpaw	NL	UPL	NC
ASP PLA	*Asplenium platyneuron* (L.) Britton et al.	Ebony spleenwort	FACU	UPL	NC
AXO FIS	*Axonopus fissifolius* (Raddi) Kuhlm.	Common carpetgrass	FACW-	FAC	NP
AXO FUR	*Axonopus furcatus* (Fluegge) Hitchc.	Big carpetgrass	OBL	FAC	NP
BAC HAL	*Baccharis halimifolia* L.	Sea myrtle	FAC	FAC	NP
BAC GLO	*Baccharis glomeruliflora* Pers.	Groundsel tree	FACW	FAC	NC
BAC CAR	*Bacopa caroliniana* (Walt.) Robins.	Lemon bacopa	OBL	OBL	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
BEJ RAC	*Bejaria racemosa* Vent.	Tarflower	FAC-	UPL	NC
BOE CYL	*Boehmeria cylindrica* (L.) Sw.	False nettle	FACW+	OBL	NC
BOT PER	*Bothriochloa pertusa* (L.) A. Camus	Pitted beardgrass	NL	UPL	EW
BUC AME	*Buchnera americana* L.	Blueheart	FAC	UPL	NC
BUL BAR	*Bulbostylis barbata* (Rottb.) C.B. Clarke	Watergrass	FAC-	UPL	EW
BUL CIL	*Bulbostylis ciliatifolia* (Ell.) Fern.	Capillary hairsedge	FACU	UPL	NC
CAL AME	*Callicarpa americana* L.	Beautybush	FACU-	UPL	NC
CAN FLA	*Canna flaccid* Salisb.	Bandana-of-the-everglades	OBL	OBL	NC
CAR BRO	*Carex bromoides* Schkuhr	Bromelike sedge	FACW	FACWC	NC
CAR GLC	*Carex glaucescens* Elliott	Clustered sedge	OBL	FACW	NC
CAR INT	*Carex intumescens* Rudge	Greater bladder sedge	FACW	FACW	NC
CAR STR	*Carex striata* Michx.	Walter's sedge	OBL	FACW	NC
CAR COR	*Carphephorus corymbosus* (Nutt.) Torr. & Gray	Large-headed carphephorus	FACU	UPL	NC
CAR ODO	*Carphephorus odoratissimus* (J.F. Gmel.) Herb.	Vanilla plant	FACW	FAC	NC
CAR CAR	*Carpinus caroliniana* Walter	American hornbeam	FAC	FACW	NC
CEN SPI	*Cenchrus spinifex* Cav.	Coastal sandbur	NL	UPL	NW
CEN ASI	*Centella asiatica* (L.) Urban	Coinwort	FACW	FACW	NP
CEN VIR	*Centrosema virginianum* (L.) Benth.	Spurred butterfly pea	NL	UPL	NC
CEP OCC	*Cephalanthus occidentalis* L.	Common buttonbush	OBL	OBL	NC
CER CAN	*Cercis canadensis* L.	Eastern redbud	FACU	UPL	NC
CHA NIC	*Chamaecrista nictitans* (L.) Moench	Wild sensitive plant	FACU	UPL	NP
CHA LAX	*Chasmanthium laxum* var. *laxum* (L.) Yates	Slender woodoats	FACW-	FACW	NC
CHA SES	*Chasmanthium laxum* var. *sessiliflorum* (Poir.) Wipff & S.D. Jones	Longleaf chasmanthium	FAC+	FAC	NC
CIC MAC	*Cicuta maculata* L.	Spotted water hemlock	OBL	OBL	NC
CIR HOR	*Cirsium horridulum* Michx.	Yellow thistle	FAC+	UPL	NP
CIR NUT	*Cirsium nuttallii* DC	Nuttall's thistle	FAC	FACW	NP
CLA EVA	*Cladina evansii* (Abbayes) Hale & Culb.	Evans' reindeer lichen	---	---	NC
CLA JAM	*Cladium jamaicense* Crantz	Saw-grass	OBL	OBL	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
CNI STI	*Cnidoscolus stimulosus* (Michx.) Engelm. & A. Gray	Tread-softly	NL	UPL	NC
CON CAN	*Conyza canadensis* (L.) Cronq. var. *pusilla* (Nutt.) Cronq.	Dwarf horseweed	FACU	UPL	NW
COR LEA	*Coreopsis leavenworthii* Torr. & A. Gray	Leavenworth's tickseed	FACW	FACW	NC
COR FOE	*Cornus foemina* Mill.	Swamp dogwood	FACW-	FACW	NC
CRO DIV	*Croptilon divaricatum* (Nutt.) Raf.	Slender scratchdaisy	UPL	UPL	NP
CRO ROT	*Crotalaria rotundifolia* (Walt.) Gmel.	Rabbit-bells	FACU	UPL	NC
CRO SPE	*Crotalaria spectabilis* Roth	Rattlebox	NL	UPL	EW
CRO MIC	*Croton michauxii* G.L. Webster	Michaux's croton	NL	UPL	NC
CYP CRO	*Cyperus croceus* Vahl	Baldwin's flatsedge	FAC	FAC	NP
CYP DIS	*Cyperus distinctus* Steud.	Swamp flatsedge	FACW	OBL	NP
CYP ESC	*Cyperus esculentus* L.	Yellow nutgrass	FAC	FAC	EW
CYP HAS	*Cyperus haspan* L.	Haspan flatsedge	OBL	OBL	NP
CYP LEC	*Cyperus lecontei* Torr.	Leconte's flatsedge	FACW	FACW	NP
CYP ODO	*Cyperus odoratus* L.	Rusty flatsedge	FACW	FACW	NC
CYP OVA	*Cyperus ovatus* Baldwin	Pinebarren flatsedge	FACU+	FAC	NP
CYP POL	*Cyperus polystachyos* Rottb.	Manyspike flatsedge	FACW	FACW	NP
CYP RET	*Cyperus retrorsus* Chapm.	Pinebarren flatsedge	FACU+	FAC	NP
CYP STE	*Cyperus stenolepis* Torr.	Flatsedge	OBL	UPL	NP
CYP SUR	*Cyperus surinamensis* Rottb.	Tropical flatsedge	FACW	FACW	NP
CYR RAC	*Cyrilla racemiflora* L.	TiTi	FACW	FAC	NC
DAC AEG	*Dactyloctenium aegyptium* (L.) Beauv.	Crowfootgrass	NL	UPL	EW
DIC ACI	*Dichanthelium aciculare* (Desvaux ex Poiret) Gould & Clark	Needle-leaf witchgrass	FACU	UPL	NP
DIC ACU	*Dichanthelium acuminatum* (Swartz) Gould & Clark	Tapered witchgrass	FAC	UPL	NC
DIC COM	*Dichanthelium commutatum* (Schultes) Gould	Variable witchgrass	FAC	FAC	NC
DIC DIC	*Dichanthelium dichotomum* (L.) Gould	Cypress witchgrass	FAC	FACW	NC
DIC LAX	*Dichanthelium laxiflorum* (Lam.) Gould	Openflower witchgrass	FAC	UPL	NC
DIC CAR	*Dichondra caroliniensis* Michx.	Pony-foot	FACW-	FAC	NP
DIG CIL	*Digitaria ciliaris* (Retz.) Koel	Southern crabgrass	NL	UPL	NW

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
DIG SER	*Digitaria serotina* (Walter) Michx.	Blanket crabgrass	FAC	FAC	NW
DIO TER	*Diodia teres* Walt.	Poor joe	FACU-	UPL	NP
DIO VIR	*Diodia virginiana* L.	Virginia buttonweed	FACW	FACW	NC
DIO BUL	*Dioscorea bulbifera* L.	Air-potato	NL	---	EA
DIO VRG	*Diospyros virginiana* L.	Common persimmon	FAC	FAC	NC
ELE ACI	*Eleocharis acicularis* (L.) Roem. & Schult.	Needle spikerush	OBL	OBL	NC
ELE cf. MON	*Eleocharis* cf. *montevidensis* Kunth (sterile)	Sand spikerush	FACW+	OBL	NC
ELE TUB	*Eleocharis tuberculosa* (Michx.) Roem. & Schult.	Conecup spikerush	OBL	OBL	NC
ELE ELA	*Elephantopus elatus* Bertol.	Florida elephant's-foot	NL	UPL	NC
ELE IND	*Eleusine indica* (L.) Gaertn.	Goosegrass	FACU	UPL	EW
ERA ELL	*Eragrostis elliottii* S. Wats.	Elliott lovegrass	FACW	FAC	NP
ERA VIR	*Eragrostis virginica* (Zucc.) Steud.	Coastal lovegrass	FACW	FAC	NP
ERE HIE	*Erechtites hieracifolia* (L.) Raf.	Fireweed	FAC-	FAC	NW
ERE OPH	*Eremochloa ophiuroides* (Munro) Hack.	Centipedegrass	NL	UPL	EA
ERI VER	*Erigeron vernuus* (L.) Torr. & Gray	Early whitetop fleabane	OBL	FACW	NC
ERI COM	*Eriocaulon compressum* Lam.	Flattened pipewort	OBL	OBL	NC
ERI DEC	*Eriocaulon decangulare* L.	Tenangle pipewort	OBL	OBL	NC
ERY BAL	*Eryngium baldwinii* Spreng.	Baldwin's eryngo	FACW+	FAC	NC
EUP CAP	*Eupatorium capillifolium* (Lam.) Small	Dog fennel	FACU	FAC	NW
EUP COM	*Eupatorium compositifolium* Walter	Yankeeweed	FAC-	FAC	NP
EUP MOH	*Eupatorium mohrii* Greene	Mohr's eupatorium	FACW-	FAC	NC
EUP ROT	*Eupatorium rotundifolium* L.	False hoarhound	FAC	FAC	NC
EUS PET	*Eustachys petraea* (Sw.) Desv.	Pinewoods fingergrass	FACU-	UPL	NP
EUT CAR	*Euthamia caroliniana* (L.) Greene ex Porter & Britton	Slender goldenrod	FAC	FAC	NP
FIM PUB	*Fimbristylis puberula* (Michx.) Vahl	Vahl's hairy fimbry	OBL	FACW	NC
FRA PEN	*Fraxinus pennsylvanica* Marshall	Green ash	FACW	OBL	NC
FUI BRE	*Fuirena breviseta* (Cov.) Cov.	Umbrellagrass	OBL	OBL	NC
FUI SCI	*Fuirena scirpoidea* Michx.	Southern umbrella-sedge	OBL	OBL	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
GAU ANG	*Gaura angustifolia* Michx.	Southern beeblossom	NL	UPL	NP
GAY NAN	*Gaylussacia frondosa* var. *nana* (A. Gray) Small	Dangleberry	FAC	FAC	NC
GEL SEM	*Gelsemium sempervirens* (L.) J. St. Hil.	Yellow jessamine	FAC	---	NC
GOR LAS	*Gordonia lasianthus* (L.) J. Ellis	Loblolly bay	FACW	FACW	NC
GRA HIS	*Gratiola hispida* (Benth.) Pollard	Scrub hedgehyssop	NL	FAC	NC
GRA PIL	*Gratiola pilosa* Michx.	Shaggy hedgehyssop	FACW-	FACW	NC
HEL COR	*Helianthemum corymbosum* Michx.	Clustered rock-rose	NL	UPL	NC
HIE MEG	*Hieracium megacephalon* Nash	Coastalplain hawkweed	NL	UPL	NC
HYD UMB	*Hydrocotyle umbellata* L.	Manyflower marshpennywort	OBL	FACW	NP
HYP BRA	*Hypericum brachyphyllum* (Spach) Steud.	Coastalplain St.-John's-wort	FACW	FACW	NC
HYP CIS	*Hypericum cistifolium* Lam.	Round-pod St.-John's-wort	FACW	FACW	NC
HYP FAS	*Hypericum fasciculatum* Lam.	Sandweed	FACW+	OBL	NC
HYP GEN	*Hypericum gentianoides* (L.) BSP.	Pineweeds	FACU	UPL	NC
HYP HYP	*Hypericum hypericoides* (L.) Crantz	St. Andrew's-cross	FAC	FAC	NC
HYP MYR	*Hypericum myrtifolium* Lam.	Myrtle-leaf St.-John’s-Wort	FACW	FACW	NC
HYP TET	*Hypericum tetrapetalum* Lam.	Heart-leaved St. Peter's-wort	FACW	FAC	NC
HYP ALA	*Hyptis alata* (Raf.) Shinners	Musky mint	OBL	FACW	NP
ILE CAS	*Ilex cassine* L.	Dahoon holly	FACW	OBL	NC
ILE COR	*Ilex coriacea* (Pursh) Chapm.	Sweet gallberry	FACW	FACW	NC
ILE GLA	*Ilex glabra* (L.) A. Gray	Gallberry	FACW	UPL	NC
ILE MYR	*Ilex cassine* var. *myrtifolia* (Walter) Sarg.	Myrtle dahoon	FACW	OBL	NC
ILE OPA	*Ilex opaca* var. *opaca* Aiton	American holly	FAC-	FAC	NC
ILE VOM	*Ilex vomitoria* Aiton	Yaupon	FAC	FAC	NC
IPO COR	*Ipomoea cordatotrilobata* Dennst.	Tievine	NL	---	NW
IPO HED	*Ipomoea hederifolia* L.	Scarletcreeper	FACW	---	NC
IPO QUA	*Ipomoea quamoclit* L.	Cypressvine	FACU+	---	EW
ITE VIR	*Itea virginica* L.	Virginia willow	FACW+	OBL	NC
JUN COR	*Juncus coriaceus* Mack.	Leathery rush	FACW	OBL	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
JUN DIC	*Juncus dichotomus* Ell.	Forked rush	FACW	OBL	NP
JUN EFF	*Juncus effusus* (L.) subsp. *solutus* (Fernald & Weigand) Hamet-Ahti	Soft rush	FACW+	OBL	NP
JUN MAR	*Juncus marginatus* Rostk.	Grassleaf rush	FACW	FACW	NP
JUN SCI	*Juncus scirpoides* Lam.	Needle-pod rush	FACW+	OBL	NP
JUN VIR	*Juniperus virginiana* L.	Red cedar	FACU-	UPL	NC
KUM STR	*Kummerowia striata* (Thunb.) Schindler	Japanese clover	FACU	UPL	EW
KYL BRE	*Kyllinga brevifolia* Rottb.	Shortleaf spikesedge	FACW	FACW	EW
LAC CAR	*Lachnanthes caroliniana* (Lam.) Dandy	Bloodroot	OBL	FAC	NP
LAC ANC	*Lachnocaulon anceps* (Walt.) Morong	Bog-buttons	OBL	FACW	NC
LEC TOR	*Lechea torreyi* (Chapm.) Legg. ex Britton	Piedmont pinweed	FACU	UPL	NC
LEE HEX	*Leersia hexandra* Sw.	Southern cutgrass	OBL	OBL	NC
LEM SP.	*Lemna* sp.	Duckweed	OBL	Aquatic	NC
LEP VIR	*Lepidium virginicum* L.	Poorman's pepper	FACU	UPL	NW
LIA TEN	*Liatris tenuifolia* Nutt.	Fine leaf blazing-star	NL	UPL	NC
LIC MIC	*Licania michauxii* Prance	Gopher apple	NL	UPL	NC
LIM SPO	*Limnobium spongia* (Bosc) Rich. ex Steud.	Frog’s-bit	OBL	OBL	NC
LIP NOD	*Lippia nodiflora* (L.) Michx.	Frog-fruit	FACW	FAC	NP
LIQ STY	*Liquidambar styraciflua* L.	Sweetgum	FAC+	FACW	NC
LOB CAR	*Lobelia cardinalis* L. †	Cardinalflower	FACW+	OBL	NC
LUD ALA	*Ludwigia alata* Elliott	Winged primrosewillow	OBL	OBL	NC
LUD LIN	*Ludwigia linearis* Walter	Narrowleaf primrosewillow	OBL	OBL	NC
LUD MAR	*Ludwigia maritima* Harper	Seaside seedbox	FACW	FACW	NP
LUD OCT	*Ludwigia octovalvis* (Jacq.) Raven	Mexican primrosewillow	OBL	OBL	NP
LUD PER	*Ludwigia peruviana* (L.) Hara	Primrose willow	OBL	OBL	NW
LUD REP	*Ludwigia repens* J.R. Forst.	Creeping seedbox	OBL	OBL	NC
LUD SUF	*Ludwigia suffruticosa* Walt.	Shrubby seedbox	OBL	FACW	NC
LUZ FLU	*Luziola fluitans* (Michx.) Terrell & H. Rob.	Southern watergrass	OBL	OBL	NC
LYC APP	*Lycopodiella appressa* (Chapm.) Cranfill	Southern club-moss	OBL	FACW	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
LYO FRU	*Lyonia fruticosa* (Michx.) Torr.	Staggerbush	FAC	UPL	NC
LYO LIG	*Lyonia ligustrina* (L.) DC. var. *foliosiflora* (Michx.) Fernald	Maleberry	FACW	FAC	NC
LYO LUC	*Lyonia lucida* (Lam.) D. Don	Fetterbush	FACW	FACW	NC
LYT ALA	*Lythrum alatum* Pursh var. *lanceolatum* (Elliott) Torr. & A.Gray ex Rothr.	Winged loosestrife	OBL	OBL	NC
MAG GRA	*Magnolia grandiflora* L.	Southern magnolia	FAC+	UPL	NC
MAG VIR	*Magnolia virginiana* L.	Sweetbay	FACW+	OBL	NC
MAT FLO	*Matelea floridana* (Vail) Woodson ‡	Florida spiny pod	NL	---	NC
MEC ACU	*Mecardonia acuminata* (Walter) Small	Axilflower	FACW	FACW	NC
MEL AZE	*Melia azedarach* L.	Chinaberrytree	NL	UPL	EW
MIK SCA	*Mikania scandens* (L. f.) Willd.	Climbing hempweed	FACW+	---	NP
MIT REP	*Mitchella repens* L.	Partridgeberry	FACU+	---	NC
MIT PET	*Mitreola petiolata* (J.F. Gmel.) Torr. & A. Gray	Lax hornpod	FACW+	FACW	NC
MOM CHA	*Momordica charantia* L.	Balsampear	NL	---	EW
MUR NUD	*Murdannia nudiflora* (L.) Brenan	Nakedstem dewflower	FAC	FAC	EW
MYR CER	*Myrica cerifera* L.	Wax myrtle	FAC+	FAC	NP
NEP COR	*Nephrolepis cordifolia* (L.) C. Presl	Tuberous sword fern	NL	FAC	EA
NYS BIF	*Nyssa sylvatica* Marsh. var. *biflora* (Walt.) Sarg.	Swamp blackgum	OBL	OBL	NC
NYS SYL	*Nyssa sylvatica* Marsh. var. *sylvatica*	Blackgum	FAC	UPL	NC
OLD UNI	*Oldenlandia uniflora* L.	Clustered mille graines	FACW	FACW	NC
OSM CIN	*Osmunda cinnamomea* L.	Cinnamon fern	FACW+	FACW	NC
OSM REG	*Osmunda regalis* L. var. *spectabilis* (Willd.) A. Gray	Royal fern	OBL	OBL	NC
OXA COR	*Oxalis corniculata* L.	Common yellow woodsorrel	FACU	UPL	NW
OXY FIL	*Oxypolis filiformis* (Walt.) Britt.	Water dropwort	FACW+	OBL	NC
PAN ANC	*Panicum anceps* Michx.	Beaked panicum	FAC-	FAC	NC
PAN DIC	*Panicum dichotomiflorum* Michx.	Fall panicum	FACW	FACW	NP
PAN HEM	*Panicum hemitomon* Schult.	Maidencane	OBL	OBL	NC
PAN MAX	*Panicum maximum* Jacq.	Guineagrass	FAC-	UPL	EW
PAN REP	*Panicum repens* L.	Torpedograss	FACW-	FACW	EA

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
PAN RIG	*Panicum rigidulum* Nees	Redtop panicum	FACW	FACW	NC
PAN VER	*Panicum verrucosum* Muhl.	Warty panicum	FACW	FACW	NC
PAR BAL	*Paronychia baldwinii* (Torr. & A.Gray) Fenzl ex Walp.	Baldwin's nailwort	NL	UPL	NC
PAS CON	*Paspalum conjugatum* Bergius	Sour paspalum	FAC	FAC	NW
PAS FLO	*Paspalum floridanum* Michx.	Florida paspalum	FACW-	FACW	NC
PAS LAE	*Paspalum laeve* Michx.	Field paspalum	FACW-	FACW	NC
PAS NOT	*Paspalum notatum* Fluegge	Bahiagrass	FACU+	UPL	EA
PAS SET	*Paspalum setaceum* Michx.	Thin paspalum	FAC	FAC	NP
PAS URV	*Paspalum urvillei* Steud.	Vaseygrass	FAC	FAC	EW
PEL VIR	*Peltandra virginica* (L.) Schott & Endl.	Green arrow arum	OBL	OBL	NC
PER PAL	*Persea palustris* (Raf.) Sarg.	Swampbay	FACW	OBL	NC
PHY URI	*Phyllanthus urinaria* L.	Chamber bitter	FAC	FAC	EW
PIN ELL	*Pinus elliottii* Engelm.	Slash pine	FACW	UPL	NC
PIN GLA	*Pinus glabra* Walter	Spruce pine	FACW	FACW	NC
PIN PAL	*Pinus palustris* Mill.	Longleaf pine	FACU+	UPL	NC
PIN TAE	*Pinus taeda* L.	Loblolly pine	FAC	UPL	NC
PIT GRA	*Pityopsis graminifolia* (Michx.) Nutt.	Grass-leaf golden aster	UPL	UPL	NC
PLE POL	*Pleopeltis polypodioides* (L.) E.G. Andrews & Windham	Resurrection fern	NL	UPL	NC
PLU BAC	*Pluchea baccharis* (Mill.) Pruski	Rosy camphorweed	FACW	FACW	NC
PLU ODO	*Pluchea odorata* (L.) Cass.	Saltmarsh fleabane	FACW	FACW	NC
POL LUT	*Polygala lutea* L.	Wild batchelor's button	FACW+	FACW	NC
POL HYD	*Polygonum hydropiperoides* Michx.	Mild water-pepper	OBL	OBL	NP
POL PUN	*Polygonum punctatum* Ell.	Dotted smartweed	FACW+	OBL	NP
PLY SET	*Polygonum setaceum* Baldwin	Bog smartweed	FACW	OBL	NC
POL PRO	*Polypremum procumbens* L.	Rustweed	FACU-	FAC	NP
POL COM	*Polytrichum commune* Hedw.	Common haircap moss	---	---	NC
PON COR	*Pontederia cordata* L.	Pickerelweed	OBL	OBL	NC
PRO PEC	*Proserpinaca pectinata* Lam.	Mermaid-weed	OBL	OBL	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
PSE OBT	*Pseudognaphalium obtusifolium* (L.) Hilliard & B.L.Burtt	Sweet everlasting	NL	UPL	NP
PTE AQU	*Pteridium aquilinum* (L.) Kuhn.	Bracken	FACU	UPL	NC
PTE PYC	*Pterocaulon pycnostachyum* (Michaux) Elliott	Blackroot	FAC-	UPL	NP
PTI CAP	*Ptilimnium capillaceum* (Michx.) Raf.	Mock bishop's-weed	OBL	FACW	NP
PYR CAR	*Pyrrhopappus carolinianus* (Walter) DC.	Carolina desertchicory	NL	UPL	NW
QUE GEM	*Quercus geminata* Small	Sand live oak	NL	UPL	NC
QUE HEM	*Quercus hemisphaerica* Bartr.	Laurel oak	NL	UPL	NC
QUE LAU	*Quercus laurifolia* Michx.	Swamp laurel oak	FACW	FACW	NC
QUE MIN	*Quercus minima* (Sarg.) Small	Dwarf live oak	NL	UPL	NC
QUE MYR	*Quercus myrtifolia* Willd.	Myrtle oak	NL	UPL	NC
QUE NIG	*Quercus nigra* L.	Water oak	FAC	FACW	NC
QUE PUM	*Quercus pumila* Walter	Running oak	NL	UPL	NC
QUE VIR	*Quercus virginiana* Mill.	Virginia live oak	FACU+	UPL	NC
RHE MAR	*Rhexia mariana* L.	Pale meadowbeauty	FACW+	FACW	NC
RHE NUT	*Rhexia nuttallii* James	Nuttall's meadow-beauty	FACW+	FACW	NC
RHO VIS	*Rhododendron viscosum* (L.) Torr.	Swamp azalea	FACW+	FACW	NC
RHU COP	*Rhus copallina* L.	Winged sumac	NI	UPL	NC
RHY CAD	*Rhynchospora caduca* Ell.	Falling beaksedge	OBL	FACW	NC
RHY COL	*Rhynchospora colorata* (L.) H. Pfeiff.	Starrush whitetop	FACW	FACW	NC
RHY COR	*Rhynchospora corniculata* (Lam.) A. Gray	Short-bristle beaksedge	OBL	OBL	NC
RHY FAS	*Rhynchospora fascicularis* (Michx.) Vahl	Fasciculate beaksedge	FACW+	FACW	NC
RHY FIL	*Rhynchospora filifolia* A. Gray	Threadleaf	FACW-	FACW	NC
RHY MIC	*Rhynchospora microcephala* (Britton) Britton ex Small	Small bunched beaksedge	OBL	FACW	NC
RHY MIL	*Rhynchospora mileacea* (Lam.) A. Gray	Millet beaksedge	OBL	OBL	NC
RHY PLU	*Rhynchospora plumosa* Ell.	Plumed beaksedge	FACW	FACW	NC
RUB CUN	*Rubus cuneifolius* Pursh	Sand blackberry	FACU	---	NP
RUB PEN	*Rubus pensilvanicus* Poir.	Sawtooth blackberry	FACU+	---	NP
SAB MIN	*Sabal minor* (Jacq.) Pers.	Bluestem palm	FACW	FACW	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
SAB BRE	*Sabatia brevifolia* Raf.	Short-leaf rosegentian	FACW	FACW	NC
SAB DIF	*Sabatia difformis* (L.) Druce	Lanceleaf rosegentian	OBL	FACW	NC
SAC GIG	*Saccharum giganteum* (Walter) Pers.	Sugarcane plumegrass	FACW	OBL	NC
SAC IND	*Sacciolepis indica* (L.) Chase	India cupscale	FAC	FAC	EW
SAC STR	*Sacciolepis striata* (L.) Nash	American cupscale	OBL	OBL	NC
SAG GRA	*Sagittaria graminea* Michx. var. *graminea*	Grassy arrowhead	OBL	OBL	NC
SAG LAN	*Sagittaria lancifolia* L.	Bulltongue arrowhead	OBL	OBL	NC
SAL CAR	*Salix caroliniana* Michx.	Carolina willow	OBL	OBL	NP
SAL LYR	*Salvia lyrata* L.	Lyreleaf sage	FAC-	UPL	NC
SAP SEB	*Sapium sebiferum* (L.) Roxb.	Popcorntree	FAC	FAC	EA
SAR MIN	*Sarracenia minor* Walt. †	Hooded pitcherplant	OBL	FACW	NC
SAU CER	*Saururus cernuus* L.	Lizard's tail	OBL	OBL	NC
SCH SCO	*Schizachyrium scoparium* (Michx.) Nash	Little bluestem	FACU	FAC	NC
SCH TAB	*Schoenoplectus tabernaemontani* (C.C.Gmel.) Palla	Softstem bulrush	OBL	OBL	NC
SCI CYP	*Scirpus cyperinus* (L.) Kunth	Woolgrass	OBL	OBL	NC
SCL TRI	*Scleria triglomerata* Michx.	Tall nutgrass	FACU+	FACW	NC
SEN OBT	*Senna obtusifolia* (L.) H.S. Irwin & Barneby	Sicklepod	NL	UPL	NW
SER REP	*Serenoa repens* (Bartr.) Small	Saw palmetto	FACU	UPL	NC
SER TOR	*Sericocarpus tortifolius* (Michx.) Nees	Whitetop aster	NL	UPL	NC
SES HER	*Sesbania herbacea* (Mill.) McVaugh	Danglepod	NI	FAC	NW
SET PAR	*Setaria parviflora* (Poir.) Kerguelen	Knotroot foxtail	FAC	FAC	NP
SEY CAS	*Seymeria cassioides* (G.F. Gmel.) S.F. Blake	Yaupon blacksenna	FAC	FAC	NC
SID RHO	*Sida rhombifolia* L.	Cuban jute	FACU	UPL	NW
SMI BON	*Smilax bona-nox* L.	Greenbrier	FAC	---	NC
SMI GLA	*Smilax glauca* Walt.	Wild sarsaparilla	FAC	---	NC
SMI LAU	*Smilax laurifolia* L.	Bamboo vine	FACW+	---	NC
SOL SCA	*Solidago canadensis* L. var. *scabra* T. & G.	Canada goldenrod	FACU	UPL	NP
SOL LEA	*Solidago leavenworthii* Torr. & A.Gray	Leavenworth's goldenrod	FAC+	FACW	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
SOL ODO	*Solidago odora* var. *odora* Aiton	Sweet goldenrod	NL	UPL	NC
SOR HAL	*Sorghum halapense* (L.) Pers.	Johnsongrass	FACU	UPL	EW
SPH TRI	*Sphagneticola trilobata* (L.) Pruski	Creeping oxeye	FAC	FAC	EW
SPH SP.	*Sphagnum* sp.	Moss	Aquatic	OBL	NC
SPO IND	*Sporobolus indicus* (L.) R. Br.	Smutgrass	FACU+	UPL	EW
SPO JUN	*Sporobolus junceus* (Michx.) Kunth	Pineywoods dropseed	NL	UPL	NC
STA FLO	*Stachys floridana* Shuttlew. ex Benth.	Florida betony	FAC	UPL	NP
STE SEC	*Stenotaphrum secundatum* (Walter) Kuntze	St.Augustinegrass	FAC	UPL	NW
STI SYL	*Stillingia sylvatica* L.	Queen's delight	NL	FAC	NC
STR UMB	*Strophostyles umbellata* (Muhl. ex Willd.) Britton	Pink fuzzybean	FAC-	---	NC
SYM ELL	*Symphyotrichum elliottii* (Torr. & A.Gray) G.L. Nesom	Elliott's aster	OBL	OBL	NC
SYN FLA	*Syngonanthus flavidulus* (Michx.) Ruhland	Yellow hatpins	FACW+	FACW	NC
TAX ASC	*Taxodium ascendens* Brongn.	Pond cypress	OBL	OBL	NC
TAX DIS	*Taxodium distichum* (L.) Rich.	Bald cypress	OBL	OBL	NC
THE KUN	*Thelypteris kunthii* (Desv.) C.V. Morton	Southern shield fern	FACW	FACW	NC
THE PAL	*Thelypteris palustris* Schott var. *pubescens* (G. Lawson) Fern.	Marsh fern	NL	FACW	NC
TOX RAD	*Toxicodendron radicans* (L.) Kuntze	Poison ivy	FAC	---	NC
TRA OHI	*Tradescantia ohiensis* Raf.	Ohio spiderwort	FAC-	UPL	NP
TRI VIR	*Triadenum virginicum* (L.) Raf.	Virginia marsh St. John's-wort	OBL	OBL	NC
TRI DAC	*Tripsacum dactyloides* (L.) L.	Eastern gamagrass	FAC+	FAC	NC
TYP LAT	*Typha latifolia* L.	Common cattail	OBL	OBL	NW
ULM AME	*Ulmus americana* L.	American elm	FACW	FACW	NC
VAC ARB	*Vaccinium arboreum* Marshall	Sparkleberry	FACU	UPL	NC
VAC COR	*Vaccinium corymbosum* L.	Highbush blueberry	FACW	FACW	NC
VAC ELL	*Vaccinium elliottii* Chapm.	Mayberry	FAC+	FAC	NC
VAC MYR	*Vaccinium myrsinites* Lam.	Shiny blueberry	FACU	UPL	NC
VAC STA	*Vaccinium stamineum* L.	Deerberry	FACU	UPL	NC
VAC VIR	*Vaccinium virgatum* Aiton	Rabbit-eye blueberry	NL	UPL	NC

Species Code	Scientific Name	Common Name	USFWS[1] Classif.	FDEP[2] Classif.	Floristic[3] Classif.
VER BRA	*Verbena brasiliensis* Vell.	Brazilian vervain	FAC-	UPL	EW
VER HAL	*Verbena officinalis* ssp. *halei* (Small) S.C. Barber	Texas vervain	FACU-	UPL	NP
VER SCA	*Verbena scabra* Vahl.	Harsh vervain	FACW+	FACW	NC
VER HET	*Verbesina heterophylla* (Chapm.) A. Gray ‡	Diverseleaf crownbeard	FACW	FACW	NC
VER ANG	*Vernonia angustifolia* Michx.	Tall ironweed	FACU-	UPL	NC
VIT ROT	*Vitis rotundifolia* Michx.	Muscadine	FAC	---	NP
WOO ARE	*Woodwardia areolata* (L.) Moore	Netted chain fern	OBL	OBL	NC
WOO VIR	*Woodwardia virginica* (L.) Smith	Virginia chain fern	OBL	FACW	NC
XYR BRE	*Xyris brevifolia* Michx.	Shortleaf yelloweyed grass	OBL	OBL	NC
XYR CAR	*Xyris caroliniana* Walt.	Carolina yelloweyed grass	FACW+	FACW	NC
XYR PLA	*Xyris platylepis* Chapm.	Tall yelloweyed grass	OBL	OBL	NC
XYR SP.	*Xyris* sp.	Yelloweyed grass	---	FACW	---

[1] USFWS (United States Fish and Wildlife Service) Classifications: OBL = obligate wetland species; FACW = facultative wetland species; FAC = facultative species (neither wetland nor upland); UPL = upland species; NL = not listed in the federal list; NI = non-indicator species

[2] FDEP (Florida Department of Environmental Protection) Classifications: OBL = obligate wetland species; FACW = facultative wetland species; FAC = facultative species (neither wetland nor upland); UPL = upland species; "---" = vine (non-indicator species)

[3] Floristic Classifications (a measure of relative desirability): NC = Native Characteristic species (highly desirable); NP = Native Pioneer species (highly desirable); NW = Native Weedy species (slightly desirable); EW = Exotic Weedy species (undesirable); EA = Exotic Aggressive species (very undesirable)

† Listed as **Threatened-State** in the *Preservation of Native Flora of Florida Act*. Defined as species of plants native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

‡ Listed as **Endangered-State** in the *Preservation of Native Flora of Florida Act*. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

Table 4. Common animal species observed on the Gainesville 121 Project Site.

Common Name	Scientific Name
Herpetofauna	
Water Moccasin	*Agkistrodon piscivorous conanti*
Green Anole	*Anolis carolinensis*
Six-Lined Racerunner	*Cnemidophorus sexlineatus sexlineatus*
Southern Black Racer	*Coluber constrictor priapus*
Eastern Diamondback Rattlesnake	*Crotalus adamanteus*
Corn Snake	*Elaphe guttata*
Yellow Rat Snake	*Elaphe obsoleta quadrivittata*
Broadhead Skink	*Eumeces laticpes*
Gopher Tortoise	*Gopherus polyphemus*
Green Treefrog	*Hyla cinerea*
Southern Spring Peeper	*Hyla crucifer bartramiana*
Eastern Coral Snake	*Micrurus fulvius fulvius*
Eastern Fence Lizard	*Sceloporus undulates*
Ground Skink	*Scincella lateralis*
Florida Box Turtle	*Terrapene carolina bau*
Mammals	
Nine-banded armadillo	*Dasypus novemcinctus*
Opossum	*Didelphis virginiana*
Southern flying squirrel	*Glaucomys volans*
Bobcat (scat)	*Lynx rufus floridanus*
White-tailed deer	*Odocoileus virginianus*
Raccoon	*Procyon lotor*
Gray squirrel	*Sciurus caroliniensis*
Feral hogs	*Sus scrofa*
Eastern cottontail	*Sylvilagus floridanus*
Gray fox	*Urocyon cinereoargenteus*
Birds	
Red-winged blackbird	*Agelaius phoeniceus*
Ruby-throated hummingbird	*Archilochus colubris*
Great egret	*Ardea alba*
Great blue heron	*Ardea herodias*

Common Name	Scientific Name
Cedar waxwing	*Bombycilla cedrorum*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Chuck-will's-widow	*Caprimulgus carolinensis*
Northern cardinal	*Cardinalis cardinalis*
American goldfinch	*Carduelis tristis*
Turkey vulture	*Cathartes aura*
Hermit thrush	*Catharus guttata*
Common nighthawk	*Chordeiles minor*
Northern harrier	*Circus cyaneus*
Northern flicker	*Colaptes auratus*
Black vulture	*Coragyps atratus*
American crow	*Corvus brachyrhynchos*
Blue jay	*Cyanocitta cristata*
Black-throated blue warbler	*Dendroica caerulescens*
Pileated woodpecker	*Dryocopus pileatus*
Little blue heron	*Egretta caerulea*
Swallow-tailed kite	*Elanoides forficatus*
White ibis	*Eudocimus albus*
American kestrel	*Falco sparverius*
Sandhill crane	*Grus canadensis*
Bald eagle	*Haliaeetus leucocephalus*
Mississippi kite	*Ictinia mississippiensis*
Loggerhead shrike	*Lanius ludovicianus*
Red-bellied woodpecker	*Melanerpes carolinus*
Red-headed woodpecker	*Melanerpes erythrocephalus*
Wild turkey	*Meleagris gallopavo*
Northern mockingbird	*Mimus polyglottos*
Brown-headed cowbird	*Molothrus ater*
Great-crested flycatcher	*Myiarchus crinitus*
Osprey	*Pandion haliaetus*
Northern parula	*Parula americana*
Tufted titmouse	*Parus bicolor*

Common Name	Scientific Name
Carolina chickadee	*Parus carolinensis*
Indigo bunting	*Passerina cyanea*
Downy woodpecker	*Picoides pubescens*
Summer tanager	*Piranga rubra*
Blue-gray gnatcatcher	*Polioptila caerulea*
Common grackle	*Quiscalus quiscula*
American redstart	*Setophaga ruticilla*
Yellow-bellied sapsucker (evidence)	*Sphyrapicus varius*
Chipping sparrow	*Spizella passerina*
Barred owl	*Strix varia*
Carolina wren	*Thryothorus ludovicianus*
American robin	*Turdus migratorius*
Yellow-throated vireo	*Vireo flavifrons*
White-eyed vireo	*Vireo griseus*
Red-eyed vireo	*Vireo olivaceus*
Mourning dove	*Zenaida macroura*

5.5 Flow-Ways and Drainage Basins

The observed and probable flow-ways that exist on the Project Site are shown on **Figure 57**. In addition, the major hydrologic drainage basins and sub-basins that occur onsite are defined on Figure 57. Flows that were observed in the field are differentiated from areas where probable surface flows have been estimated from topographic data. All flows and basins are shown in relation to the wetland boundary. As previously described in Section 3.1.2 (Figures 13 and 14), the site is part of the headwater tributary for rocky Creek, Hatchet Creek, and Turkey Creek. For review, the site has been divided into ten (10) sub-basins for Turkey Creek, fourteen (14) Rocky Creek sub-basins, and three (3) Hatchet Creek sub-basins. The basis for the delineation of sub-basins is related to the occurrence of flows in relation to onsite roadways, topographic breaks in contour intervals, onsite ditches, and locations of onsite windrows. Areas where water flows across roadways due to lack of culverts or inadequate culvert sizing are also shown on Figure 57. The basin number has no special relevance except for basin nomenclature. ERC are biologists with hydrology training and are not hydrologists. The major reason for construction of this map is to represent the actual onsite flow-ways and flow directions that were noted during extreme rain events occurring from August to September 2015.

For review, the flow-ways and drainage basins are shown on a 2013 false color infrared photo (**Figure 58**), 2008 color aerial (**Figure 59**), 2000 color aerial (**Figure 60**), and

1968 black and white aerial (**Figure 61**). Based on previous field surveys performed on the GRU Deerhaven and City of Gainesville Annexation properties, the drainage basins that occur on these properties that are contiguous to the Project Site are shown on **Figure 62**. Within the area shown on Figure 58, there are the following numbers of definable drainage basins:

Drainage	Number of Basins
Hatchet Creek	3
Rocky Creek	21
Turkey Creek	21
Cellon Creek	2
Unknown Developed Area Basins	3

Within the Project Site, there are six (6) areas where significant impoundment of surface water and groundcover occurs (**Figure 63**). In these areas, the gas line easement and forest roads impound water due to the absence of sufficient culverts or lack of culverts to allow water flow to occur from each impoundment. Water flows across the top of the easement and roads as shown on Figure 63. The impoundment of water in these areas has led to a significant increase in the elevation and duration of the groundwater and surface water tables in the areas of the impoundment and in habitats immediately upstream of the impounded areas. This has additionally resulted in landward expansion of the wetland boundary as compared to the historical condition.

6.0 Delineation of Conservation Management Areas (CMAs)

Based on the results of the field survey performed to verify and ground truth the existing natural resources, twenty-two (22) individual Conservation Management Areas were defined within the Project Site (**Figure 64**). The total CMA acreage equals **1161.01** acres, with **387.64** acres composed of upland and **773.37** acres composed of wetland habitat (Figure 61). Pursuant to **Policy 4.3.4 of the City Comprehensive Plan**, all onsite wetlands and wetland buffers are encumbered by the CMA except for areas where roads cross wetlands to provide connectivity between isolated or segregated upland areas.

All flow-ways and drainages on the site are protected within the designated CMA. There are **NO** Significant Natural Upland Communities that remain on the Project Site as defined in **Sections 30-310(c)(10) and 30-310.2(a)**. There are **NO** Significant Areas of Upland Listed Species Habitats remaining onsite as defined in **Sections 30-310.2(b) and 30-310.1(c)(11)**.

Wetland buffers are the most significant upland areas of the site that require protection. Although wetlands are specifically excluded from the provisions of **Sections 30-310.2**

and 30-310.3, pursuant to the definitions provided in **Section 30-23(c) Definitions. Regulated Natural and Archeological Resources**, they are required to be set-aside by **Policy 4.3.4**. Buffers are provided in three ways, as follows:

1. Buffers of defined width are established around all isolated and contiguous wetlands;
2. Upland areas occurring along flow-ways and between large contiguous wetlands have been set-aside and expanded in width greater than the general required widths of 50 feet and 75 feet; and
3. Areas of contiguous upland occurring between adjacent wetlands and along the outer boundaries of the property are established to provide space between onsite development areas and adjacent areas of residential development. In addition, large buffers are established along the east boundaries to add to adjacent conservation easements.

The upland areas onsite have all been managed for pine plantations. There are **NO** Natural Upland Communities remaining on the site as described by the FNAI *Guide to the Natural Communities of Florida.* Within the KBN Golder 1996 report, the descriptions of the Hague and Buck Bay Flatwoods Strategic Ecosystems specifically noted that the primary management of the plant communities occurring in these areas was for silviculture and timber management. The described management scenario for these areas was suggested as protection of tributaries and flow-ways and protection of the drainage basins occurring within the Strategic Ecosystem areas. To this end, the Conservation Management Areas on the Project Site have been established for perpetual management of the onsite wetlands and flow-ways.

6.1 Plant Communities Occurring within the Conservation Management Areas

The upland and wetland plant communities occurring within the CMA areas are shown on **Figure 65** with tabulated acreages for each plant community type. The most extensive upland and wetland community types are Planted Pine Plantation–Upland and Planted Pine Plantation–Wetland consisting of **375.28** acres and **261.98** acres, respectively.

The plant communities as shown for the CMA uplands only are provided on **Figure 66** and the wetland communities designated within the CMA areas is provided on **Figure 67**. The wetland communities as described are dominated by Planted Pine Plantations (261.98 acres), however, there is considerable acreage of Cypress–Hardwood–Bay Swamps which exist both in a logged condition (**259.90** acres) and unlogged condition (**170.93** acres). The wetland community in which slash pine (*Pinus elliottii* Engelm.) is a dominant canopy species is the Slash Pine–Cypress–Hardwood–Bay association and totals **74.71** acres.

The Total Project Site acreage equals **1778.77** acres, of which **65.27%** (**1161.01** acres) is designated as set-aside within Conservation Management Areas. The remaining area of the site consists of (1) "Available Development Areas" which totals **566.17** acres (**Figure 68**), (2) Non-CMA Upland Set-Aside areas which total **33.60** acres (**Figure 69**), and (3) GRU Electric Transmission Easement and Florida Gas Transmission Easement which total **18.06** acres (**Figure 70**). The plant communities occurring in these areas are defined on Figures 67 through 69. The non-CMA Upland Set-Aside areas shown on Figure 69 include upland areas mapped on the Future Land Use Map as Conservation Areas and includes required development buffer offsets from both SR 121 and CR 231. The utility easements are not included in the CMA because they have existing management easements associated with the existing footprint. **Policy 4.3.4** of the Future Land Use Element requires between **40% and 50%** of the upland area of the Project Site to be incorporated in a set-aside. The set-aside summary for the site is tabulated as follows:

Set-Aside	Acreage	Set-Aside %
Total Project Site Uplands	**990.73**	
CMA Upland Set-Aside	387.64	39.13%
Non-CMA Upland Set-Aside	33.60	
Cumulative Total	**421.24**	**42.52%**
Easement Upland	7.97	
Cumulative Total	**429.21**	**43.52%**

Based on the PD Plan and the extent of the available development area for the entire Project Site, the total development will result in **4.13** acres of wetland impacts and impacts to **2.29** acres of created surface waters (Figure 68, **Figure 71**). The development plan for the entire site results in impacts to **89.82** acres of FEMA Flood Zone, which is **9.57%** of the **938.75** acres existing on site (**Figure 72**).

Figure 1. Project location map of the Gainesville 121 Project Site in relation to local access roadways.

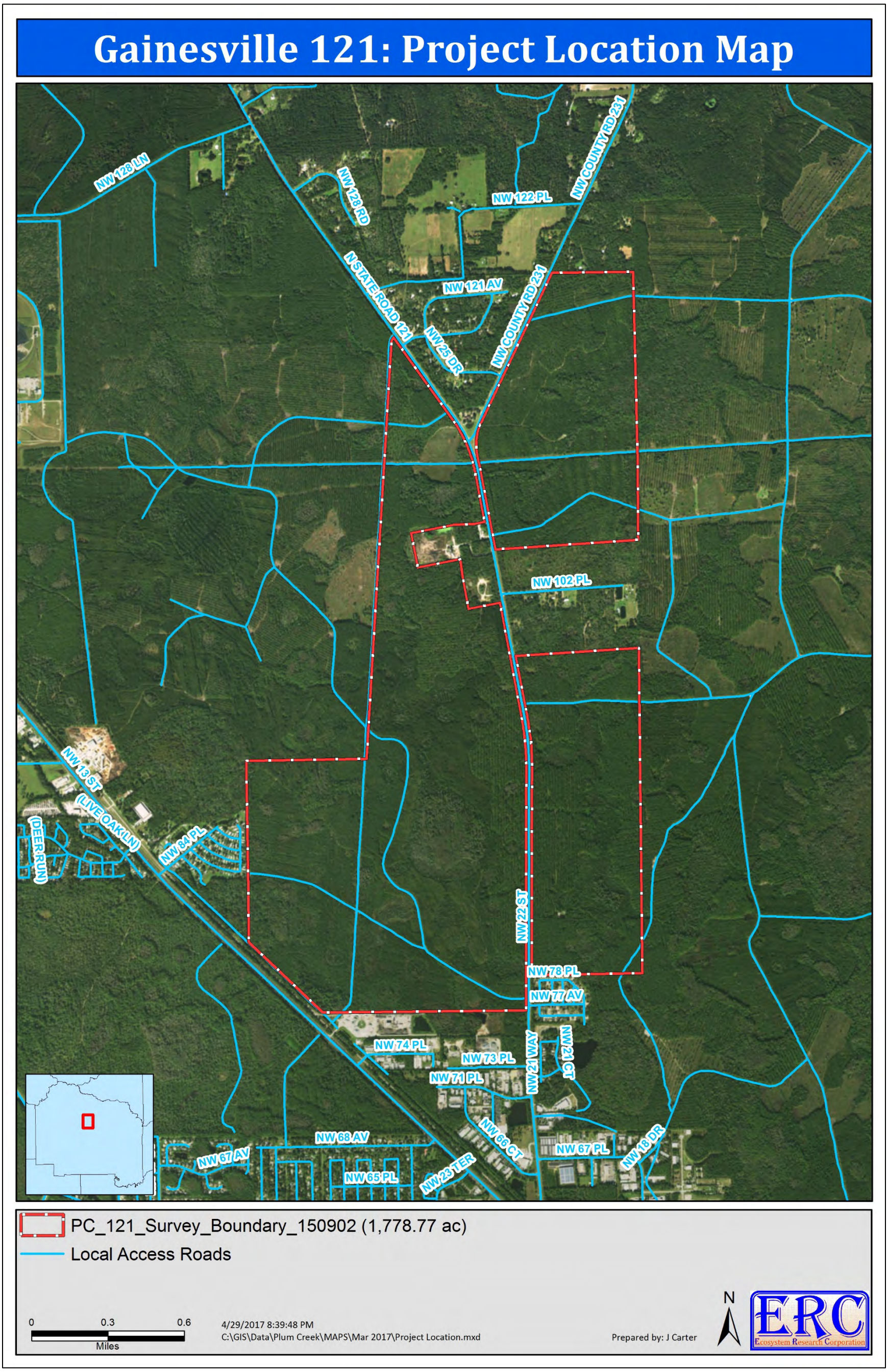


Figure 2. Section, Township, and Range map of the Gainesville 121 Project Site.

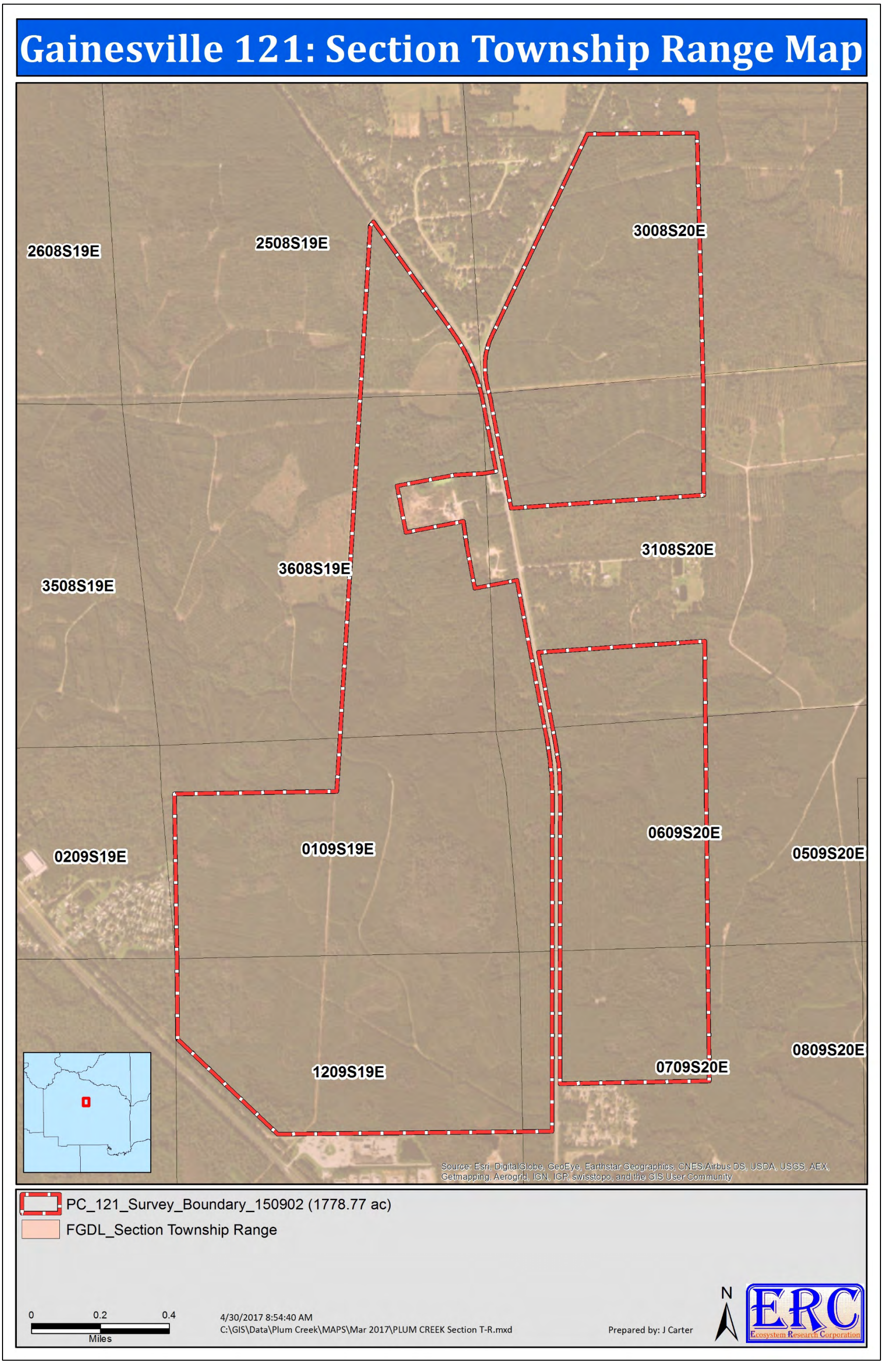


Figure 3. Parcel location map for the Gainesville 121 Project Site.

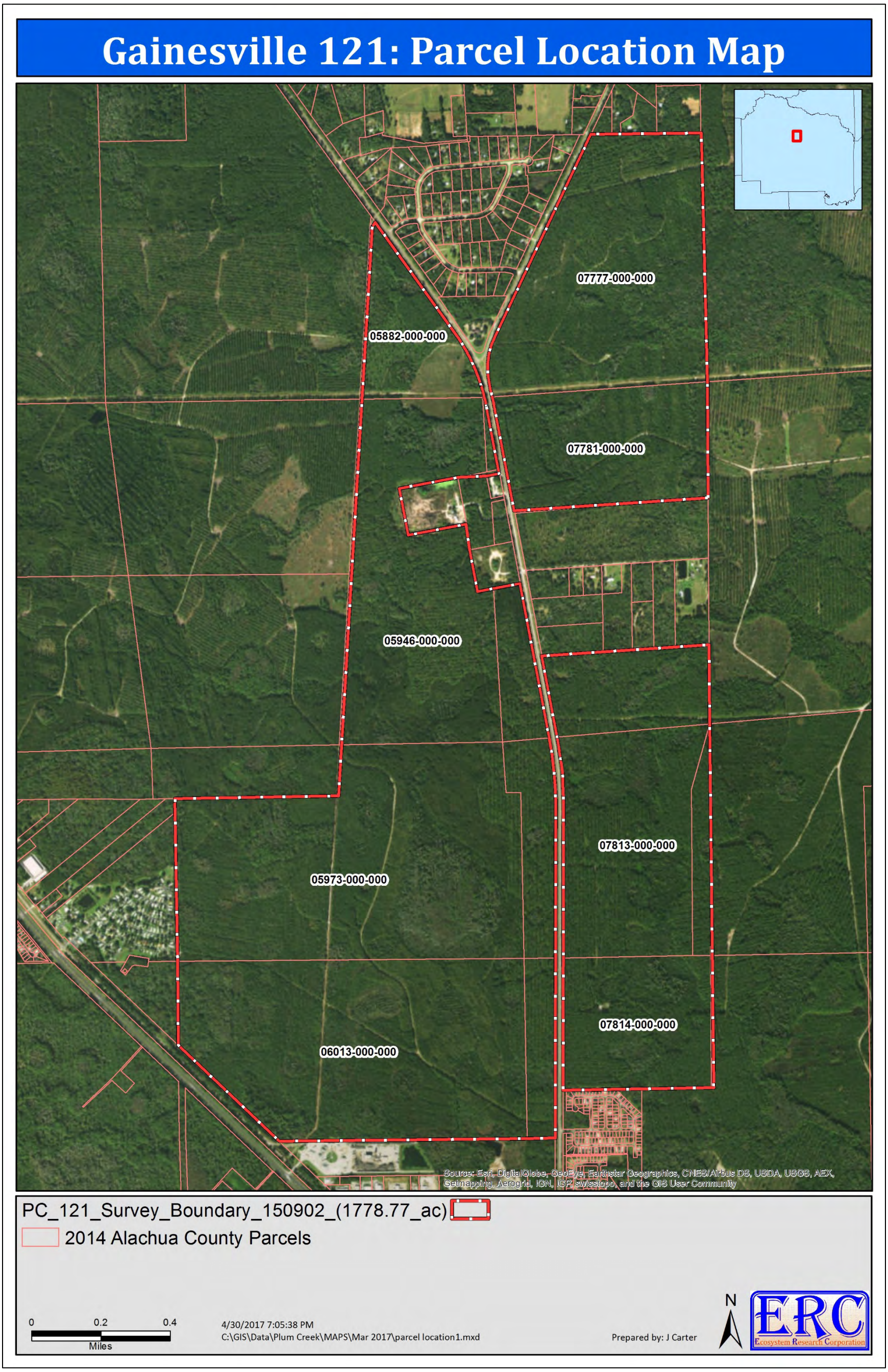


Figure 4. Parcel location map for the Gainesville 121 Project Site with associated acreages.

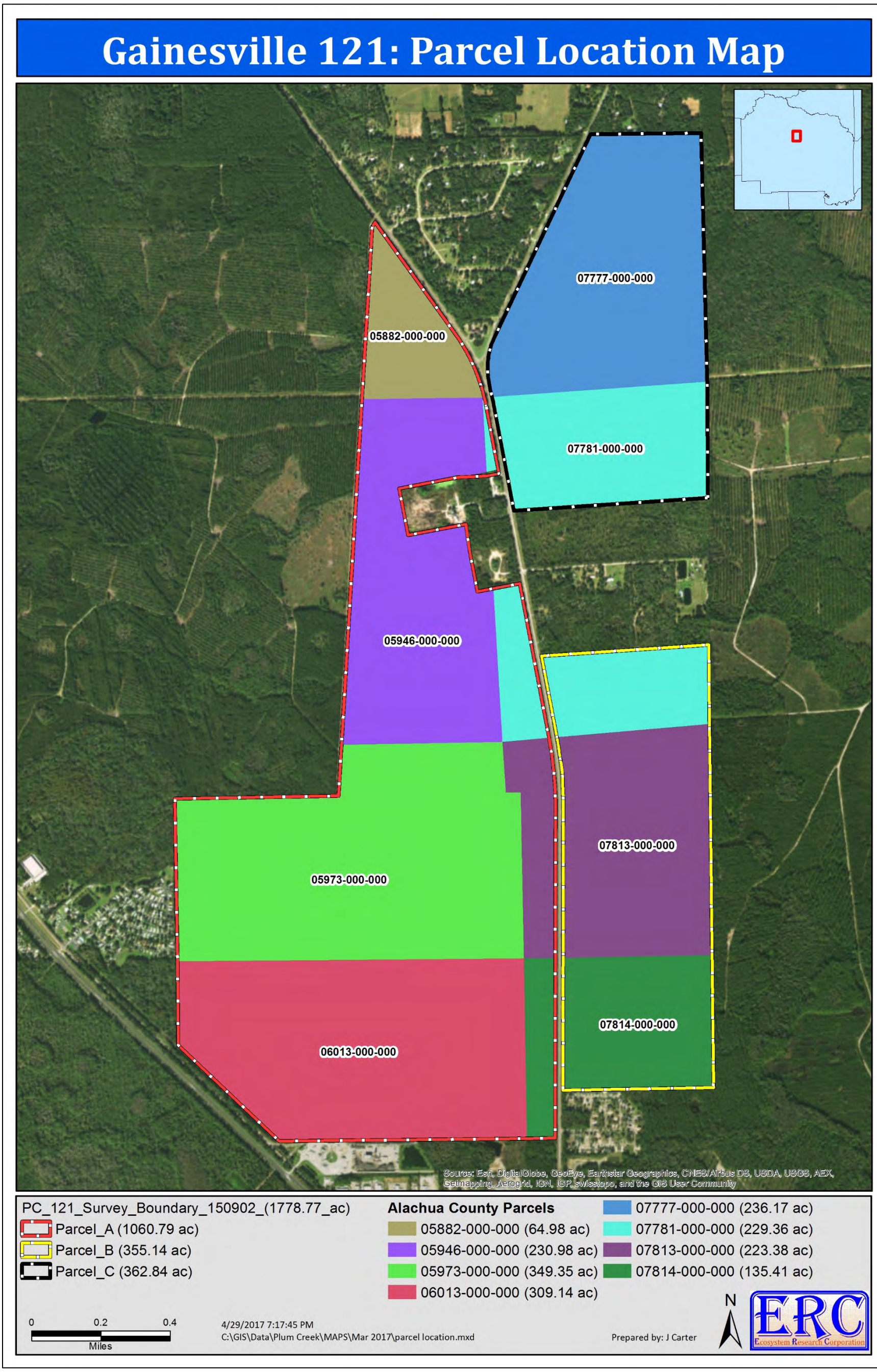
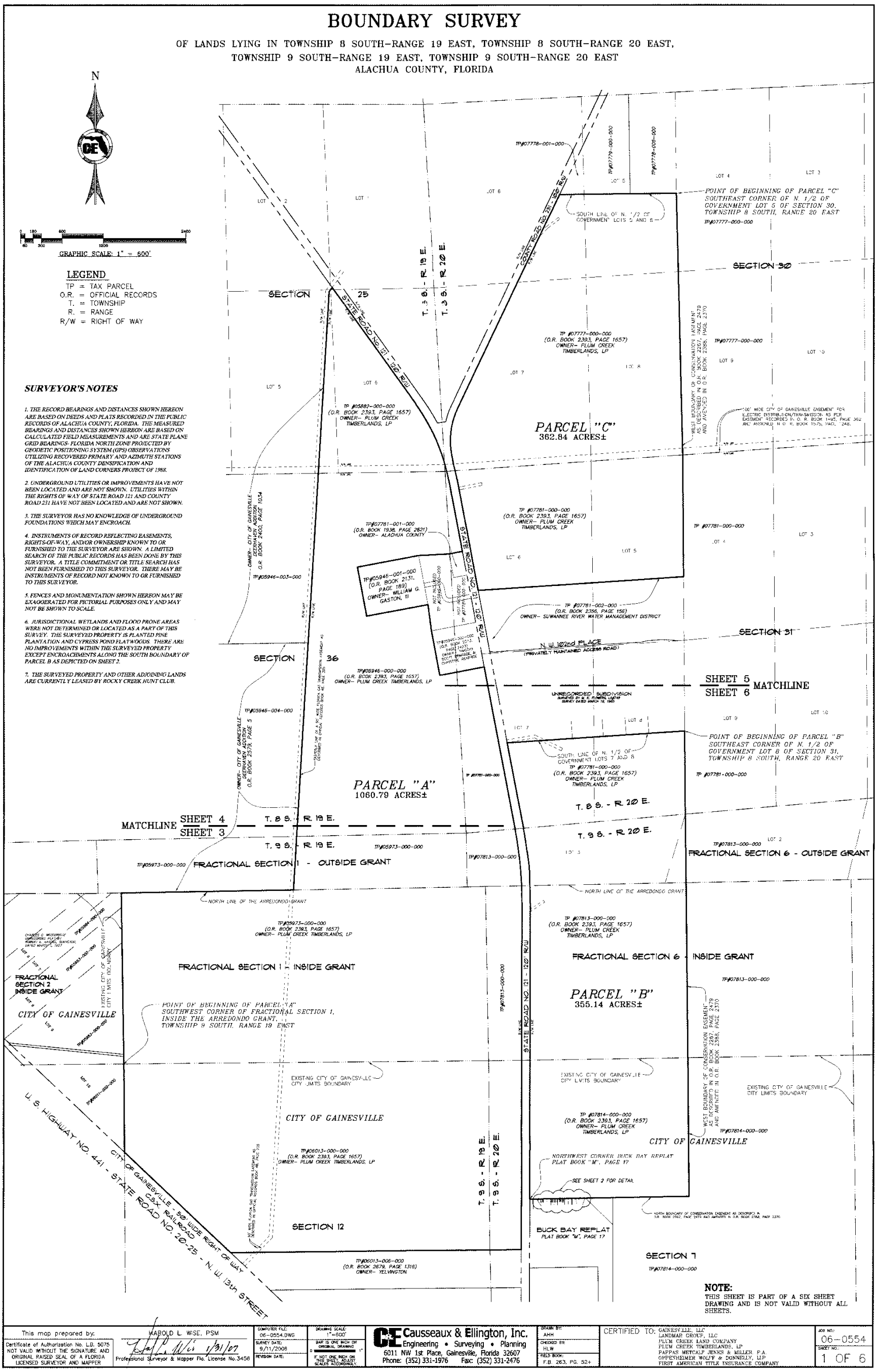


Figure 5. Boundary survey of the Gainesville 121 Project Site.



BOUNDARY SURVEY

OF LANDS LYING IN TOWNSHIP 8 SOUTH-RANGE 19 EAST, TOWNSHIP 8 SOUTH-RANGE 20 EAST,
TOWNSHIP 9 SOUTH-RANGE 19 EAST, TOWNSHIP 9 SOUTH-RANGE 20 EAST
ALACHUA COUNTY, FLORIDA

LEGAL DESCRIPTIONS (AS PREPARED BY THIS SURVEYOR)

PARCEL A

A tract of land situated in Fractional Sections 1, inside and outside the Arredondo Grant, and Section 12, Township 9 South, Range 19 East, and in Fractional Sections 6, inside and outside the Arredondo Grant, and Section 7, Township 9 South, Range 20 East, and in Sections 25 and 36, Township 8 South, Range 19 East, and in Sections 30 and 31, Township 8 South, Range 20 East, Alachua County, Florida, being more particularly described as follows:

BEGIN at a 4" square unidentified concrete monument at the Southwest corner of the aforementioned Fractional Section 1, inside the Arredondo Grant, Township 9 South, Range 19 East and run N.00°59'38"W. (State Plane Grid Bearings, Florida North Zone), along the West line of said Fractional Section 1, a distance of 2485.62 feet to a 4" square concrete monument and cap stamped N. T. & P. Co. at the Northwest corner of said Fractional Section 1 on the North line of the Arredondo Grant; thence run N.89°01'39"E., along said North line of the Arredondo Grant, a distance of 2499.63 feet to a 4" square concrete monument and cap stamped GFY LB021 on the Easterly line of a 50' wide Florida Gas Transmission Easement as described in Official Records Book 48, page 205 of the Public Records of Alachua County, Florida; thence run N.03°23'37"E., along said Easterly line, and along the Easterly line of the City of Gainesville Property described in deed recorded in Official Records Book 2579, page 5 of said Public Records, a distance of 3601.83 feet to a 4" square concrete monument and cap stamped GFY LB021; thence run N.03°23'40"E., along said Easterly line of a 50' wide Florida Gas Transmission Easement, and along the Easterly line of the City of Gainesville Property described in deed recorded in Official Records Book 2400, page 1034 of said Public Records, a distance of 5109.84 feet to a 4" square concrete monument and cap stamped GFY LB021; thence run N.35°57'50"E., along said Easterly line of a 50' wide Florida Gas Transmission Easement, and along said Easterly line of the City of Gainesville Property, a distance of 78.21 feet to a 4" square concrete monument and cap stamped GFV LB021 on the Westerly right of way line of State Road No. 121 (120 foot wide right of way); thence run S.35°42'38"E., along said right of way line, a distance of 2085.01 feet to a 5/8" iron rod and cap stamped FDOT at the beginning of a curve concave Southwesterly and having a radius of 2804.79 feet; thence run Southeasterly, along said right of way line, with said curve, through an arc angle of 24°59'18", an arc distance of 1223.25 feet (chord bearing and distance of S.23°12'40"E, 1213.58 feet respectively) to a 5/8" iron rod and cap stamped FDOT at the end of said curve; thence run S.10°43'21"E., along said right of way line, a distance of 1045.16 feet to a 4" square concrete monument marked SRD R/W at the Northeast corner of the Alachua County property as described in deed recorded in Official Records Book 1938, page 2821 of said Public Records; thence run S.79°16'39"W., along the Northerly line of said Alachua County property, a distance of 200.00 feet to a 5/8" iron rod and cap stamped C&E INC. LB5075 at the Northwest corner of said Alachua County property; thence run S.87°01'15"W., a distance of 443.04 feet to a 4" square concrete monument and cap stamped C&E INC. LB5075 at the Northeast corner of the Gaston property as described in Official Records Book 2131, page 189 of said Public Records; thence run Westerly, Southerly, and Easterly along the Northerly, Westerly and Southerly boundaries of said Gaston property the following three courses: (1) thence S.79°16'39"W., a distance of 900.00 feet to a 4" square concrete monument and cap stamped C&E INC. LB5075; (2) thence S.10°43'21"E., a distance of 726.00 feet; (3) thence run N.79°16'39"E., a distance of 900.00 feet to a 4" square concrete monument and cap stamped C&E INC. LB5075 at the Southeast corner of said Gaston property; thence run S.07°35'33"E., a distance of 384.59 feet to the Northwest corner of the Renfroe property as described in Official Records Book 2313, page 2423 of said Public Records; thence run Southerly and Easterly, along the Westerly and Southerly boundaries of said Renfroe property the following two courses: (1) thence S.10°43'21"E., a distance of 660.00 feet to a 4" square concrete monument and cap stamped C&E INC. LB5075; (2) thence N.79°16'39"E., a distance of 660.00 feet to a 4" square concrete monument and cap stamped C&E INC. LB5075 at the Southeast corner of said Renfroe property and lying on the aforementioned Westerly right of way line of State Road No. 121; thence run S.10°43'21"E., along said right of way line, a distance of 2409.72 feet to a 5/8" iron rod and cap stamped FDOT at the beginning of a curve concave Westerly and having a radius of 5669.58 feet; thence run Southerly, along said right of way line, with said curve, through an arc angle of 10°47'22", an arc distance of 1067.65 feet (chord bearing and distance of S.05°19'39"E, 1066.07 feet respectively) to a 5/8" iron rod and cap stamped FDOT at the end of said curve; thence run S.00°03'52"W., along said right of way line, a distance of 5042.15 feet to a 4" square concrete monument and cap stamped C&E INC. LB5075 at the Northeast corner of the Yelvington property as described in deed recorded in Official Records Book 2679, page 1316 of said Public Records, thence run Westerly, along the North line of said Yelvington property the following two courses: (1) thence S.88°54'31"W., a distance of 429.96 feet to a 1/2" iron rod and cap stamped LS1824; (2) thence S.89°25'18"W., a distance of 3788.60 feet to a 1/2" iron rod and cap stamped LS1824 at the Northwest corner of said Yelvington property lying on the Northeasterly right of way line of a 50 foot wide strip of City of Gainesville land as described in deed recorded in Official Records Book 634, page 164 of said Public Records; thence run N.46°30'35"W., along said Northeasterly right of way line, a distance of 2124.79 feet to a 4" square concrete monument and cap stamped PRM 3456 on the West line of the aforementioned Section 12, Township 9 South, Range 19 East; thence run N.00°28'44"W., along said West line, a distance of 1284.65 feet to the POINT OF BEGINNING.

PARCEL B

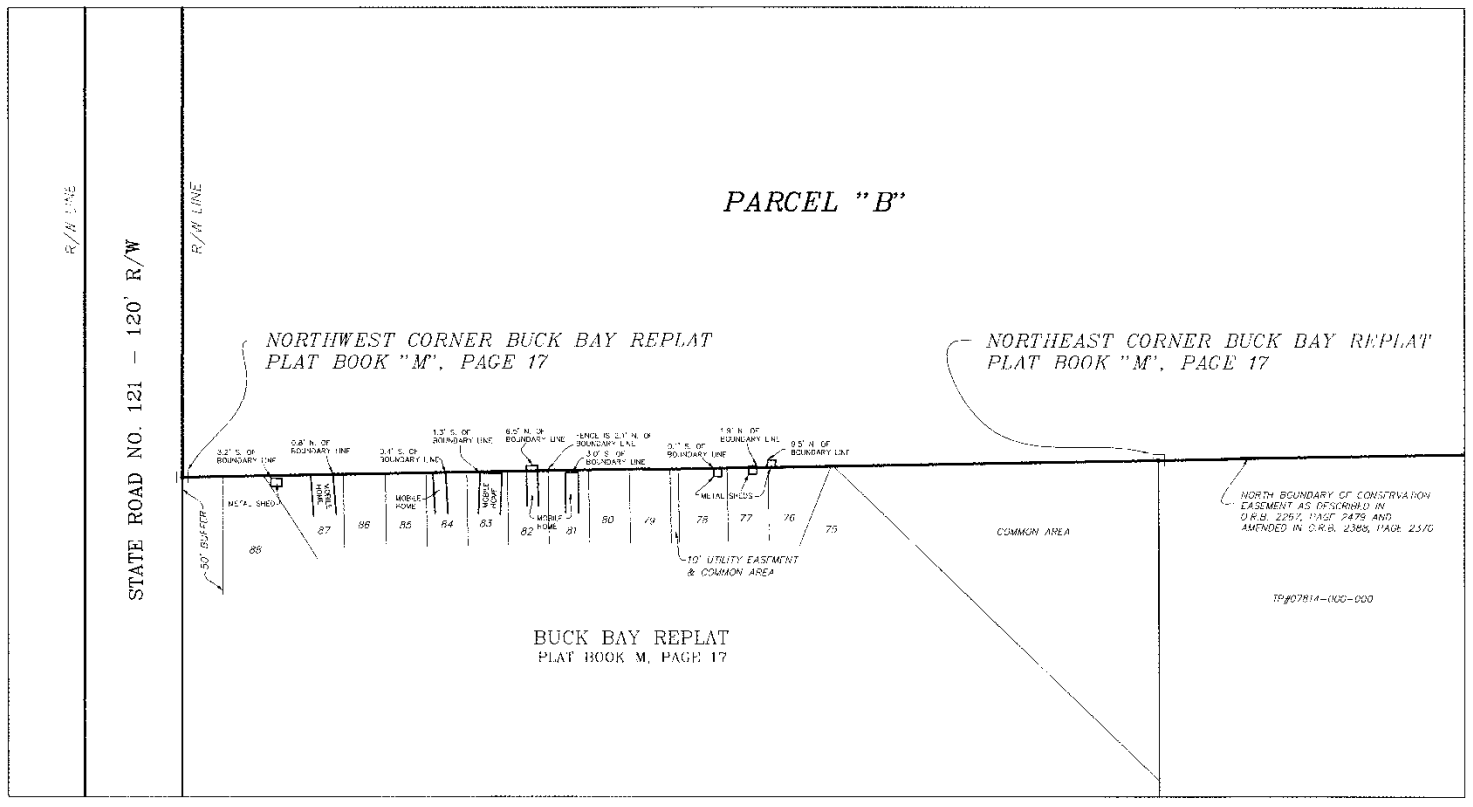
A tract of land situated in Fractional Sections 6, inside and outside the Arredondo Grant, Township 9 South, Range 20 East, and in Section 31, Township 8 South, Range 20 East, Alachua County, Florida, being more particularly described as follows:

BEGIN at an unidentified 4" square concrete monument at the Southeast corner of the North half (N 1/2) of Government Lot 8 of the aforementioned Section 31, Township 8 South, Range 20 East and run S.00°24'49"E. (State Plane Grid Bearings, Florida North Zone), along the West boundary of the Conservation Easement as described in Official Records Book 2267, page 2479 and amended in Official Records Book 2388, page 2370 of the Public Records of Alachua County, Florida, a distance of 1209.61 feet to a 4" square concrete monument and cap stamped GFY LB021 on the South line of said Section 31; thence run S.00°37'30"E., along said West boundary of the Conservation Easement, a distance of 5555.45 feet to a 4" square concrete monument and cap stamped GFY LB021; thence run S.88°57'41"W., along the North boundary of said Conservation Easement, a distance of 1098.71 feet to a 3"x5" concrete monument and cap stamped PRM LS2742 at the Northeast corner of Buck Bay Replat, as per plat thereof recorded in Plat Book "M", Page 17 of said Public Records; thence run S.88°57'10"W., along the North boundary of said Buck Bay Replat, a distance of 1200.04 feet to a 4" square concrete monument and cap stamped PRM LS2742 on the Easterly right of way line of State Road No. 121, thence run N.00°03'52"E., along said right of way line, a distance of 4311.44 feet to a 5/8" iron rod and cap stamped FDOT at the beginning of a curve concave Westerly and having a radius of 5789.58 feet; thence run Northerly, along said East right of way line, through an arc angle of 03°22'05", an arc distance of 340.33 feet (chord bearing and distance of N.01°37'01"W., 340.28 feet respectively) to a 4" square concrete monument and cap stamped C&E INC LB5075 at the end of said curve; thence run N.00°04'02"E., along said East right of way line, a distance of 20.58 feet to a 4" square concrete monument and cap stamped C&E INC LB5075 at the beginning of a curve concave Westerly and having a radius of 1959.86 feet; thence run Northerly, along said East right of way line, with said curve, through an arc angle of 10°47'22", an arc distance of 369.06 feet (chord bearing and distance of N.05°19'39"W., 368.52 feet respectively) to the end of said curve; thence run N.10°43'20"W., along said East right of way line, a distance of 20.58 feet to a 4" square concrete monument and cap stamped C&E INC LB5075 at the beginning of a curve concave Westerly and having a radius of 5789.58 feet; thence run Northerly, along said East right of way line, with said curve, through an arc angle of 03°22'05", an arc distance of 340.33 feet (chord bearing and distance of N.09°02'18"W., 340.28 feet) to a 5/8" iron rod and cap stamped FDOT at the end of said curve; thence run N.10°43'21"W., along said East right of way line, a distance of 1261.90 feet to a 4" square concrete monument and cap stamped C&E INC LB5075 on the South line of the North Half (N 1/2) of Government Lot 7 of said Section 31; thence run N.86°10'18"E., along said South line and along the South line of said North Half (N 1/2) of Government Lot 8 of said Section 31, a distance of 2565.78 feet to the POINT OF BEGINNING.

PARCEL C

A tract of land situated in Sections 30 and 31, Township 8 South, Range 20 East, Alachua County, Florida, being more particularly described as follows:

BEGIN at a 4" square concrete monument and cap stamped H. H. GREEN O-I PROP. COR. at the Southeast corner of the North half (N 1/2) of Government Lot 5 of the aforementioned Section 30, Township 8 South, Range 20 East and run S.01°24'26"E. (State Plane Grid Bearings, Florida North Zone), along the West boundary of the Conservation Easement as described in Official Records Book 2267, page 2479 and amended in Official Records Book 2388, page 2370 of the Public Records of Alachua County, Florida, a distance of 3803.04 feet to a 4" square concrete monument and cap stamped GFY LB021 on the North line of said Section 31; thence run S.00°24'27"E., along said West boundary of the Conservation Easement, a distance of 1770.12 feet to a 1/2" iron rod and cap stamped GFY LB021 at the Northeast corner of the Suwannee River Water Management District property as described in deed recorded in Official Records Book 2356, page 156 of said Public records; thence run S.86°09'32"W., along the North line of said Suwannee River Water Management District property, a distance of 2970.84 feet to a 4" square concrete monument and cap stamped GFY LB021 on the Easterly right of way line of State Road No. 121; thence run N.10°43'21"W., along said right of way line, a distance of 1647.36 feet to a 5/8" iron rod and cap stamped FDOT at the beginning of a curve concave Westerly and having a radius of 2924.79 feet; thence run Northerly, along said right of way line, with said curve, through an arc angle of 04°44'41", an arc distance of 242.21 feet (chord bearing and distance of N.13°05'32"W., 242.14 feet respectively) to a 4" square concrete monument and cap stamped C&E INC LB5075 at the intersection of said Easterly right of way line of State Road No. 121 with the Easterly right of way line of County Road No. 231; thence run N.10°43'21"W., along said Easterly right of way line of County Road No. 231, a distance of 121.98 feet to a 4" square concrete monument and cap stamped C&E INC LB5075 at the beginning of a curve concave Easterly and having a radius of 1096.28 feet; thence run Northerly, along said Easterly right of way line of County Road No. 231, with said curve, through an arc angle of 36°03'13", an arc distance of 689.84 feet (chord bearing and distance of N.07°18'15"E., 678.51 feet respectively) to a 4" square concrete monument and cap stamped C&E INC LB5075 at the end of said curve; thence run N.25°19'52"E., along said East right of way line, a distance of 3436.21 feet to a 4" square concrete monument and cap stamped H. H. GREEN O-I PROP.COR. on the South line of the North Half (N 1/2) of Government Lot 6 of said Section 30; thence run N.89°23'55"E., along said South line and along the South line of said North Half (N 1/2) of Government Lot 5, a distance of 1685.87 feet to the POINT OF BEGINNING.



DETAIL OF ENCROACHMENTS ALONG BOUNDARY LINE
SCALE 1"=100'

NOTE:
THIS SHEET IS PART OF A SIX SHEET DRAWING AND IS NOT VALID WITHOUT ALL SHEETS.

CERTIFIED TO: GAINESVILLE, LLC
A FLORIDA LIMITED LIABILITY COMPANY
PLUM CREEK TIMBERLANDS, L.P.
PLUM CREEK TIMBERLANDS, LLC
FIRST AMERICAN TITLE INSURANCE COMPANY
DRIVER, MCAFEE, HAWTHORNE & DIEGEL, P.A.
OPPENHEIMER WOLFF & DONNELLY, LLP

JOB NO.: 06-0554
SHEET NO.: 2 OF 6

DRAWN BY: AMH
CHECKED BY: HLW
FILE BOOK: F.B. 2053, PG. 52+

DRAWING SCALE: 1" = 100'
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

SURVEY DATE: COMPLETED FIELD WORK DATE
9/21/2006
REVISION DATE:

This map prepared by
HAROLD L. WISE, PSM
Professional Surveyor & Mapper Fla. License No. 3456

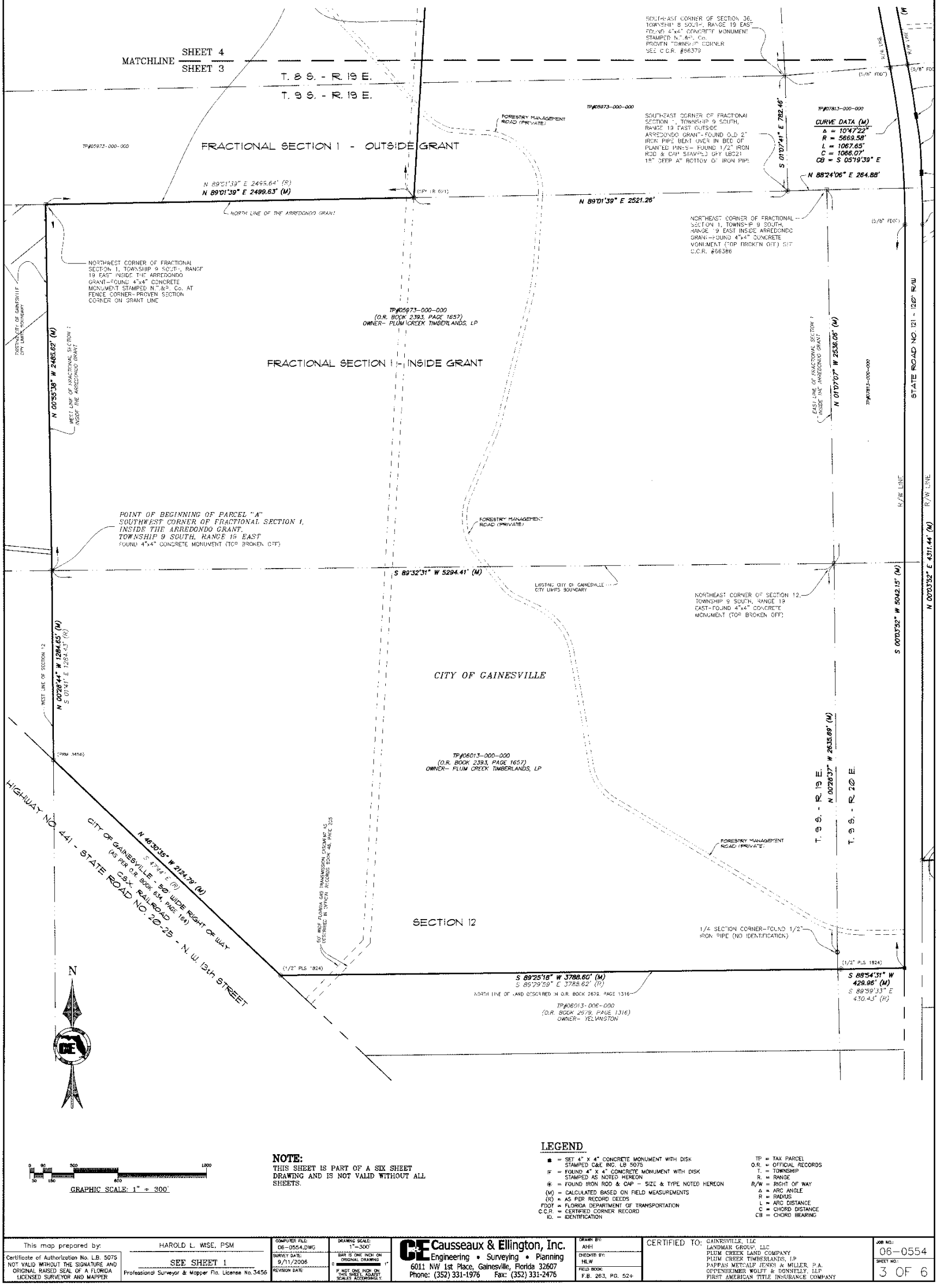
SEE SHEET 1

Certificate of Authorization No. L.B. 5075
NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

C&E Causseaux & Ellington, Inc.
Engineering • Surveying • Planning
6011 NW 1st Place, Gainesville, Florida 32607
Phone: (352) 331-1976 Fax: (352) 331-2476

BOUNDARY SURVEY

OF LANDS LYING IN TOWNSHIP 8 SOUTH–RANGE 19 EAST, TOWNSHIP 8 SOUTH–RANGE 20 EAST,
TOWNSHIP 9 SOUTH–RANGE 19 EAST, TOWNSHIP 9 SOUTH–RANGE 20 EAST
ALACHUA COUNTY, FLORIDA



GRAPHIC SCALE: 1" = 300'

NOTE:
THIS SHEET IS PART OF A SIX SHEET DRAWING AND IS NOT VALID WITHOUT ALL SHEETS.

LEGEND

- ■ = SET 4" X 4" CONCRETE MONUMENT WITH DISK STAMPED C&E INC. LB 5075
- IF = FOUND 4" X 4" CONCRETE MONUMENT WITH DISK STAMPED AS NOTED HEREON
- ⊕ = FOUND IRON ROD & CAP – SIZE & TYPE NOTED HEREON
- (M) = CALCULATED BASED ON FIELD MEASUREMENTS
- (R) = AS PER RECORD DEEDS
- FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION
- C.C.R. = CERTIFIED CORNER RECORD
- ID. = IDENTIFICATION
- TP = TAX PARCEL
- O.R. = OFFICIAL RECORDS
- T. = TOWNSHIP
- R. = RANGE
- R/W = RIGHT OF WAY
- Δ = ARC ANGLE
- R = RADIUS
- L = ARC DISTANCE
- C = CHORD DISTANCE
- CB = CHORD BEARING

This map prepared by:
Certificate of Authorization No. L.B. 5075 NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

HAROLD L. WISE, PSM
SEE SHEET 1
Professional Surveyor & Mapper Fla. License No. 3456

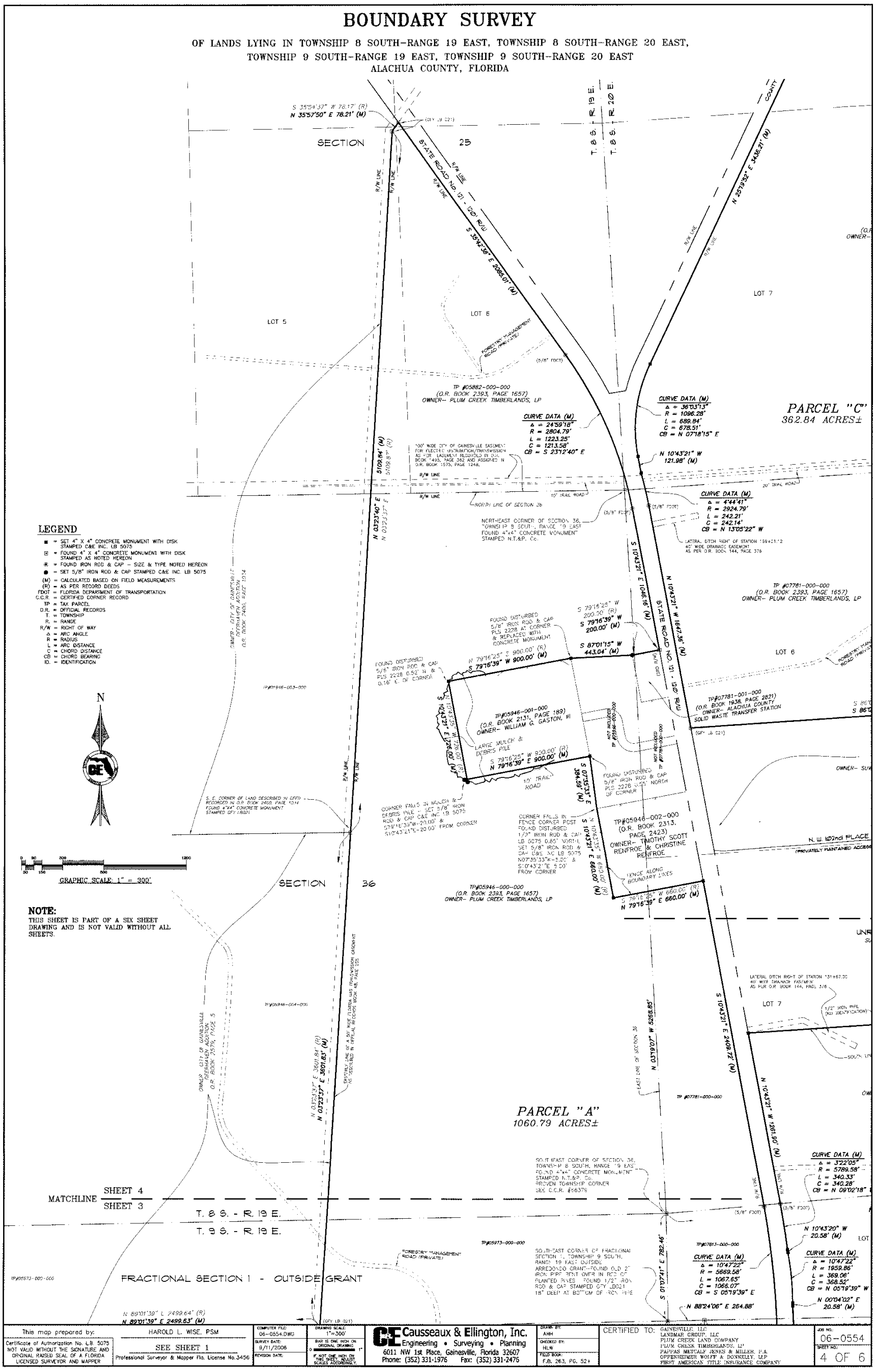
COMPUTER FILE: 06-0554.DWG
SURVEY DATE: 9/11/2006
REVISION DATE:
DRAWING SCALE: 1"=300'
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Causseaux & Ellington, Inc.
Engineering • Surveying • Planning
6011 NW 1st Place, Gainesville, Florida 32607
Phone: (352) 331-1976 Fax: (352) 331-2476

DRAWN BY: AHH
CHECKED BY: HLW
FIELD BOOK: F.B. 263, PG. 52+

CERTIFIED TO: GAINESVILLE, LLC
LANDMAR GROUP, LLC
PLUM CREEK LAND COMPANY
PLUM CREEK TIMBERLANDS, LP
PAPPAS METCALF JENKS & MILLER, P.A.
OPPENHEIMER WOLFF & DONNELLY, LLP
FIRST AMERICAN TITLE INSURANCE COMPANY

JOB NO.: 06-0554
SHEET NO.: 3 OF 6


BOUNDARY SURVEY
OF LANDS LYING IN TOWNSHIP 8 SOUTH–RANGE 19 EAST, TOWNSHIP 8 SOUTH–RANGE 20 EAST,
TOWNSHIP 9 SOUTH–RANGE 19 EAST, TOWNSHIP 9 SOUTH–RANGE 20 EAST
ALACHUA COUNTY, FLORIDA
SECTION 25
T. 8 S. - R. 19 E.
T. 8 S. - R. 20 E.
STATE ROAD NO. 121 - 120' R/W
S 35°42'36" E 2085.01' (M)
N 25°19'32" E 3438.21' (M)
S 35°54'37" W 78.17' (R)
N 35°57'50" E 78.21' (M)
LOT 5
LOT 6
LOT 7
TP #05882-000-000
(O.R. BOOK 2393, PAGE 1657)
OWNER– PLUM CREEK TIMBERLANDS, LP
CURVE DATA (M)
Δ = 24°59'18"
R = 2804.79'
L = 1223.25'
C = 1213.58'
CB = S 23°12'40" E
CURVE DATA (M)
Δ = 36°03'13"
R = 1096.28'
L = 689.84'
C = 678.51'
CB = N 07°18'15" E
N 10°43'21" W
121.98' (M)
PARCEL "C"
362.84 ACRES±
5109.84' (M)
5109.87' (R)
N 03°23'40" E
N 03°23'33" E
NORTH LINE OF SECTION 36
NORTHEAST CORNER OF SECTION 36, TOWNSHIP 8 SOUTH, RANGE 19 EAST FOUND 4"x4" CONCRETE MONUMENT STAMPED N.T.&P. Co.
CURVE DATA (M)
Δ = 4°44'41"
R = 2924.79'
L = 242.21'
C = 242.14'
CB = N 13°05'22" W
S 10°43'21" E 1046.16' (M)
N 10°43'21" W 1647.36' (M)
STATE ROAD NO. 121 - 120' R/W
S 79°16'25" W 200.00' (R)
S 79°16'39" W 200.00' (M)
S 87°01'15" W 443.04' (M)
FOUND DISTURBED 5/8" IRON ROD & CAP PLS 2228 AT CORNER & REPLACED WITH CONCRETE MONUMENT
N 79°16'25" E 900.00' (R)
S 79°16'39" W 900.00' (M)
FOUND DISTURBED 5/8" IRON ROD & CAP PLS 2228 0.52' N & 0.16' E. OF CORNER
TP#05946-001-000
(O.R. BOOK 2131, PAGE 189)
OWNER– WILLIAM G. GASTON, III
LARGE MULCH & DEBRIS PILE
S 79°16'25" W 900.00' (R)
N 79°16'39" E 900.00' (M)
S 10°43'21" E 1226.00' (M)
10' TRAIL ROAD
S 07°35'33" E 384.59' (M)
FOUND DISTURBED 5/8" IRON ROD & CAP PLS 2228 0.55' NORTH OF CORNER
CORNER FALLS IN MULCH & DEBRIS PILE – SET 5/8" IRON ROD & CAP C&E INC. LB 5075 S79°16'39"W–20.00' & S10°43'21"E–20.00' FROM CORNER
CORNER FALLS IN FENCE CORNER POST FOUND DISTURBED 1/2" IRON ROD & CAP LB 5075 0.65' NORTH, SET 5/8" IRON ROD & CAP C&E INC LB 5075 N07°35'33"W–5.00' & S10°43'21"E–5.00' FROM CORNER
TP#05946-002-000
(O.R. BOOK 2313, PAGE 2423)
OWNER– TIMOTHY SCOTT RENFROE & CHRISTINE RENFROE
FENCE ALONG BOUNDARY LINES
S 79°16'25" W 660.00' (R)
N 79°16'39" E 660.00' (M)
TP#05946-000-000
(O.R. BOOK 2393, PAGE 1657)
OWNER– PLUM CREEK TIMBERLANDS, LP
TP #07781-000-000
(O.R. BOOK 2393, PAGE 1657)
OWNER– PLUM CREEK TIMBERLANDS, LP
TP#07781-001-000
(O.R. BOOK 1938, PAGE 2821)
OWNER– ALACHUA COUNTY SOLID WASTE TRANSFER STATION
N. W. 102nd PLACE
(PRIVATELY MAINTAINED ACCESS)
LATERAL DITCH RIGHT OF STATION 131+67.30
40' WIDE DRAINAGE EASEMENT AS PER O.R. BOOK 144, PAGE 376
1/2" IRON PIPE (NO IDENTIFICATION)
S 10°43'21" E 2409.72' (M)
N 10°43'21" W 1261.90' (M)
N 03°59'07" W 5268.85'
EAST LINE OF SECTION 36
CURVE DATA (M)
Δ = 3°22'05"
R = 5789.58'
L = 340.33'
C = 340.28'
CB = N 09°02'18" E
N 10°43'20" W
20.58' (M)
CURVE DATA (M)
Δ = 10°47'22"
R = 5669.58'
L = 1067.65'
C = 1066.07'
CB = S 05°19'39" E
S 01°07'41" E 782.46'
N 88°24'06" E 264.88'
CURVE DATA (M)
Δ = 10°47'22"
R = 1959.86'
L = 369.06'
C = 368.52'
CB = N 05°19'39" W
N 00°04'02" E
20.58' (M)
PARCEL "A"
1060.79 ACRES±
SOUTHEAST CORNER OF SECTION 36, TOWNSHIP 8 SOUTH, RANGE 19 EAST FOUND 4"x4" CONCRETE MONUMENT STAMPED N.T.&P. Co. PROVEN TOWNSHIP CORNER SEE O.C.R. #56378
SOUTHEAST CORNER OF FRACTIONAL SECTION 1, TOWNSHIP 9 SOUTH, RANGE 19 EAST OUTSIDE ARREDONDO GRANT FOUND OLD 2" IRON PIPE 2" BENT OVER IN MOUTH OF PLANTED PINES FOUND 1/2" IRON ROD & CAP STAMPED CITY LD021 18" DEEP AT BOTTOM OF IRON PIPE
FRACTIONAL SECTION 1 - OUTSIDE GRANT
SECTION 36
N 89°01'39" W 2499.64' (R)
N 89°01'39" E 2499.63' (M)
N 03°23'37" E 3601.64' (R)
N 03°23'37" E 3601.83' (M)
EASTERLY LINE OF A 300' WIDE FLORIDA GAS TRANSMISSION EASEMENT AS DESCRIBED IN OFFICIAL RECORDS BOOK 48, PAGE 255
OWNER– CITY OF GAINESVILLE TIDERHAVEN ADDITION O.R. BOOK 2576, PAGE 1014
TP#05946-003-000
TP#05946-004-000
TP#05973-000-000
TP#07813-000-000
FORESTRY MANAGEMENT ROAD (PRIVATE)
S. E. CORNER OF LAND DESCRIBED IN OFFD RECORDED IN O.R. BOOK 2400, PAGE 1014 FOUND 4"x4" CONCRETE MONUMENT STAMPED GFY LB021
MATCHLINE SHEET 4 / SHEET 3
T. 8 S. - R. 19 E.
T. 9 S. - R. 19 E.
LEGEND
■ = SET 4" X 4" CONCRETE MONUMENT WITH DISK STAMPED C&E INC. LB 5075
⊡ = FOUND 4" X 4" CONCRETE MONUMENT WITH DISK STAMPED AS NOTED HEREON
◉ = FOUND IRON ROD & CAP – SIZE & TYPE NOTED HEREON
● = SET 5/8" IRON ROD & CAP STAMPED C&E INC. LB 5075
(M) = CALCULATED BASED ON FIELD MEASUREMENTS
(R) = AS PER RECORD DEEDS
FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION
C.C.R. = CERTIFIED CORNER RECORD
TP = TAX PARCEL
O.R. = OFFICIAL RECORDS
T. = TOWNSHIP
R. = RANGE
R/W = RIGHT OF WAY
Δ = ARC ANGLE
R = RADIUS
L = ARC DISTANCE
C = CHORD DISTANCE
CB = CHORD BEARING
ID. = IDENTIFICATION
N
GRAPHIC SCALE: 1" = 300'
NOTE:
THIS SHEET IS PART OF A SIX SHEET DRAWING AND IS NOT VALID WITHOUT ALL SHEETS.
This map prepared by:
Certificate of Authorization No. L.B. 5075
NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER
HAROLD L. WISE, PSM
SEE SHEET 1
Professional Surveyor & Mapper Fla. License No.3456
COMPUTER FILE: 06-0554.DWG
SURVEY DATE: 9/11/2006
REVISION DATE:
DRAWING SCALE: 1"=300'
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.
Causseaux & Ellington, Inc.
Engineering • Surveying • Planning
6011 NW 1st Place, Gainesville, Florida 32607
Phone: (352) 331-1976 Fax: (352) 331-2476
DRAWN BY: AHH
CHECKED BY: HLW
FIELD BOOK: F.B. 263, PG. 52+
CERTIFIED TO: GAINESVILLE, LLC
LANDMAR GROUP, LLC
PLUM CREEK LAND COMPANY
PLUM CREEK TIMBERLANDS, LP
PAPPAS METCALF JENKS & MILLER, P.A.
OPPENHEIMER WOLFF & DONNELLY, LLP
FIRST AMERICAN TITLE INSURANCE COMPANY
JOB NO.: 06-0554
SHEET NO.: 4 OF 6

BOUNDARY SURVEY

OF LANDS LYING IN TOWNSHIP 8 SOUTH–RANGE 19 EAST, TOWNSHIP 8 SOUTH–RANGE 20 EAST,
TOWNSHIP 9 SOUTH–RANGE 19 EAST, TOWNSHIP 9 SOUTH–RANGE 20 EAST
ALACHUA COUNTY, FLORIDA

N

GRAPHIC SCALE: 1" = 300'

NOTE:
THIS SHEET IS PART OF A SIX SHEET DRAWING AND IS NOT VALID WITHOUT ALL SHEETS.

LEGEND

- ■ = SET 4" X 4" CONCRETE MONUMENT WITH DISK STAMPED C&E INC. LB 5075
- ⊡ = FOUND 4" X 4" CONCRETE MONUMENT WITH DISK STAMPED AS NOTED HEREON
- ◉ = FOUND IRON ROD & CAP – SIZE & TYPE NOTED HEREON
- ● = SET 5/8" IRON ROD & CAP STAMPED C&E INC. LB 5075
- (M) = CALCULATED BASED ON FIELD MEASUREMENTS
- (R) = AS PER RECORD DEEDS
- FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION
- C.C.R. = CERTIFIED CORNER RECORD
- TP = TAX PARCEL
- O.R. = OFFICIAL RECORDS
- T. = TOWNSHIP
- R. = RANGE
- R/W = RIGHT OF WAY
- Δ = ARC ANGLE
- R = RADIUS
- L = ARC DISTANCE
- C = CHORD DISTANCE
- CB = CHORD BEARING
- ID. = IDENTIFICATION

LOT 6 · LOT 5 · LOT 4 · LOT 7 · LOT 8 · LOT 9 · LOT 6 · LOT 5 · LOT 4

TP #07779-000-000 · TP #07776-005-000 · TP #07778-001-000 · TP #07777-000-000

N 89°23'35" E 1685.87' (M)

POINT OF BEGINNING OF PARCEL "C"
SOUTHEAST CORNER OF N. 1/2 OF GOVERNMENT LOT 5 OF SECTION 30, TOWNSHIP 8 SOUTH, RANGE 20 EAST
FOUND 4"x4" CONCRETE MONUMENT STAMPED H.H. GREEN C.C. PROP. COR.

H.H. GREEN C.C. PROP. COR. · SOUTH LINE OF N. 1/2 OF GOVERNMENT LOTS 5 AND 6

TP #07777-000-000

LATERAL DITCH RIGHT OF STATION 454+22.0
30' WIDE DRAINAGE EASEMENT
AS PER DEED BOOK 287, PAGE 248

FORESTRY MANAGEMENT ROAD (PRIVATE)

R/W LINE · COUNTY ROAD NO. 231 - 100' R/W · R/W LINE

SECTION 30

T. 8 S. + R. 19 E. · T. 8 S. + R. 20 E.

N 25°19'52" E 3436.21' (M)

S 01°24'28" E 3803.04' (M)
N 01°24'25" W 3803.18' (R)

TP #07777-000-000
(O.R. BOOK 2393, PAGE 1657)
OWNER– PLUM CREEK TIMBERLANDS, LP

WEST BOUNDARY OF CONSERVATION EASEMENT AS UNDERBID IN O.R. BOOK 2393, PAGE 2278 AND AMENDED IN O.R. BOOK 2388, PAGE 2370

100' WIDE CITY OF GAINESVILLE EASEMENT FOR ELECTRIC DISTRIBUTION/TRANSMISSION AS PER EASEMENT RECORDED IN O.R. BOOK 1495, PAGE 362 AND ASSIGNED IN O.R. BOOK 2610, PAGE 1248.

R/W LINE · R/W LINE

(CITY LB 021)

NORTH LINE OF SECTION 31

S 35°42'38" E 2085.01' (M)

(5/8" FDOT)

FORESTRY MANAGEMENT ROAD (PRIVATE)

TP#05882-000-000
(O.R. BOOK 2393, PAGE 1657)
PLUM CREEK TIMBERLANDS, LP

CURVE DATA (M)
Δ = 24°59'18"
R = 2804.79'
L = 1223.25'
C = 1213.58'
CB = S 23°12'40" E

CURVE DATA (M)
Δ = 36°03'13"
R = 1096.28'
L = 689.84'
C = 678.51'
CB = N 07°18'15" E

PARCEL "C"
362.84 ACRES±

N 10°43'21" W
121.98' (M)

20' TRAIL ROAD

CURVE DATA (M)
Δ = 4°44'41"
R = 2924.79'
L = 242.21'
C = 242.14'
CB = N 13°05'22" W

NORTH LINE OF SECTION 36

(5/8" FDOT) · (5/8" FDOT)

NORTHEAST CORNER OF SECTION 36, TOWNSHIP 8 SOUTH, RANGE 19 EAST
FOUND 4"x4" CONCRETE MONUMENT STAMPED N.T.&P. Co.

LATERAL DITCH RIGHT OF STATION 168+01.12
40' WIDE DRAINAGE EASEMENT
AS PER O.R. BOOK 144, PAGE 376

S 10°43'21" E 1046.16' (M)

N 10°43'21" W 1647.36' (M)

STATE ROAD NO. 121 - 120' R/W

TP #07781-000-000
(O.R. BOOK 2393, PAGE 1657)
OWNER– PLUM CREEK TIMBERLANDS, LP

S 79°16'25" W 200.00' (R)
S 79°16'39" W 200.00' (M)

FOUND DISTURBED 5/8" IRON ROD & CAP PLS 2228 AT CORNER & REPLACED WITH CONCRETE MONUMENT

S 87°01'15" W 443.04' (M)

N 79°16'25" E 900.00' (R)
S 79°16'39" W 900.00' (M)

TP#05946-001-000
(O.R. BOOK 2131, PAGE 189)
OWNER– WILLIAM G. GASTON, III

LARGE MULCH & DEBRIS PILE

S 79°16'25" W 900.00' (R)
N 79°16'39" E 900.00' (M)

10' TRAIL ROAD

S 07°35'33" E 984.59' (M)

NOT INCLUDED TP #05946-000-000

NOT INCLUDED TP #07781-000-000

FOUND DISTURBED 5/8" IRON ROD & CAP PLS 2228 0.55' NORTH OF CORNER

CORNER FALLS IN FENCE CORNER POST FOUND DISTURBED 1/2" IRON ROD & CAP LB 5375 0.65' NORTH, SET 5/8" IRON ROD & CAP C&E INC LB 5075 N07°35'33"W–5.00' & S10°43'21"E–5.00' FROM CORNER

TP#05946-002-000
(O.R. BOOK 2313, PAGE 2423)
OWNER– TIMOTHY SCOTT RENFROE & CHRISTINE RENFROE

FENCE ALONG BOUNDARY LINES

S 10°43'21" E 660.00' (M)

S 79°16'25" W 660.00' (R)
N 79°16'39" E 660.00' (M)

TP#05946-000-000
(O.R. BOOK 2393, PAGE 1657)
PLUM CREEK TIMBERLANDS, LP

TP #07781-001-000
(O.R. BOOK 1938, PAGE 2821)
OWNER– ALACHUA COUNTY SOLID WASTE TRANSFER STATION

S 86°05'06" W 2970.82' (R)
S 86°09'32" W 2970.84' (M)

(CITY LB 021)

TP #07781-002-000
(O.R. BOOK 2356, PAGE 156)
OWNER– SUWANNEE RIVER WATER MANAGEMENT DISTRICT

S 00°24'27" E 1770.12' (M)
N 00°24'32" W 1769.60' (R)

N. W. 102nd PLACE
(PRIVATELY MAINTAINED ACCESS ROAD)

SECTION 31

SHEET 5
SHEET 6
MATCHLINE

UNRECORDED SUBDIVISION
SURVEYED BY M. K. FLOWERS, LS#748

This map prepared by:
Certificate of Authorization No. L.B. 5075 NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

HAROLD L. WISE, PSM
SEE SHEET 1
Professional Surveyor & Mapper Fla. License No. 3456

COMPUTER FILE: 06-0554.DWG
SURVEY DATE: 9/11/2006
REVISION DATE:

DRAWING SCALE: 1"=300'
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Causseaux & Ellington, Inc.
Engineering • Surveying • Planning
6011 NW 1st Place, Gainesville, Florida 32607
Phone: (352) 331-1976 Fax: (352) 331-2476

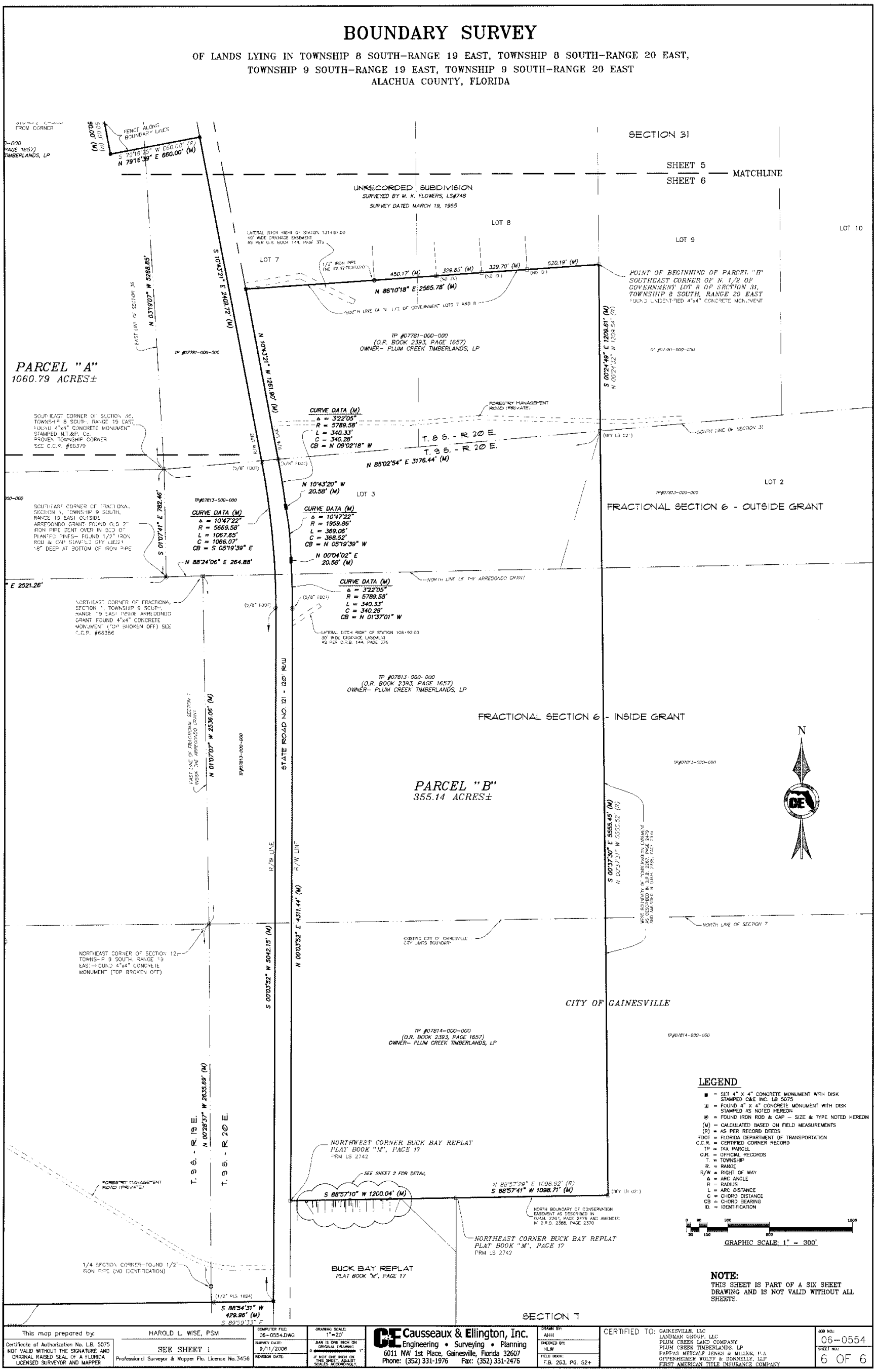
DRAWN BY: AHH
CHECKED BY: HLW
FIELD BOOK: F.B. 263, PG. 52+

CERTIFIED TO: GAINESVILLE, LLC
LANDMAR GROUP, LLC
PLUM CREEK LAND COMPANY
PLUM CREEK TIMBERLANDS, LP
PAPPAS METCALF JENKS & MILLER, P.A.
OPPENHEIMER WOLFF & DONNELLY, LLP
FIRST AMERICAN TITLE INSURANCE COMPANY

JOB NO.: 06-0554
SHEET NO.: 5 OF 6

BOUNDARY SURVEY

OF LANDS LYING IN TOWNSHIP 8 SOUTH–RANGE 19 EAST, TOWNSHIP 8 SOUTH–RANGE 20 EAST,
TOWNSHIP 9 SOUTH–RANGE 19 EAST, TOWNSHIP 9 SOUTH–RANGE 20 EAST
ALACHUA COUNTY, FLORIDA



This map prepared by:
Certificate of Authorization No. L.B. 5075
NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

HAROLD L. WISE, PSM.
SEE SHEET 1
Professional Surveyor & Mapper Fla. License No. 3456

COMPUTER FILE: 06-0554.DWG
SURVEY DATE: 9/11/2006
REVISION DATE:
DRAWING SCALE: 1"=20'
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Causseaux & Ellington, Inc.
Engineering • Surveying • Planning
6011 NW 1st Place, Gainesville, Florida 32607
Phone: (352) 331-1976 Fax: (352) 331-2476

DRAWN BY: AHH
CHECKED BY: HLW
FIELD BOOK: F.B. 253, PG. 52+

CERTIFIED TO: GAINESVILLE, LLC
LANDMARK GROUP, LLC
PLUM CREEK LAND COMPANY
PLUM CREEK TIMBERLANDS, LP
PAPPAS METCALF JENKS & MILLER, P.A.
OPPENHEIMER WOLFF & DONNELLY, LLP
FIRST AMERICAN TITLE INSURANCE COMPANY

JOB NO.: 06-0554
SHEET NO.: 6 OF 6

Figure 6. Utility easements located within the Gainesville 121 Project Site.

Figure 7. Specific purpose survey of the Gainesville 121 Project Site wetlands.

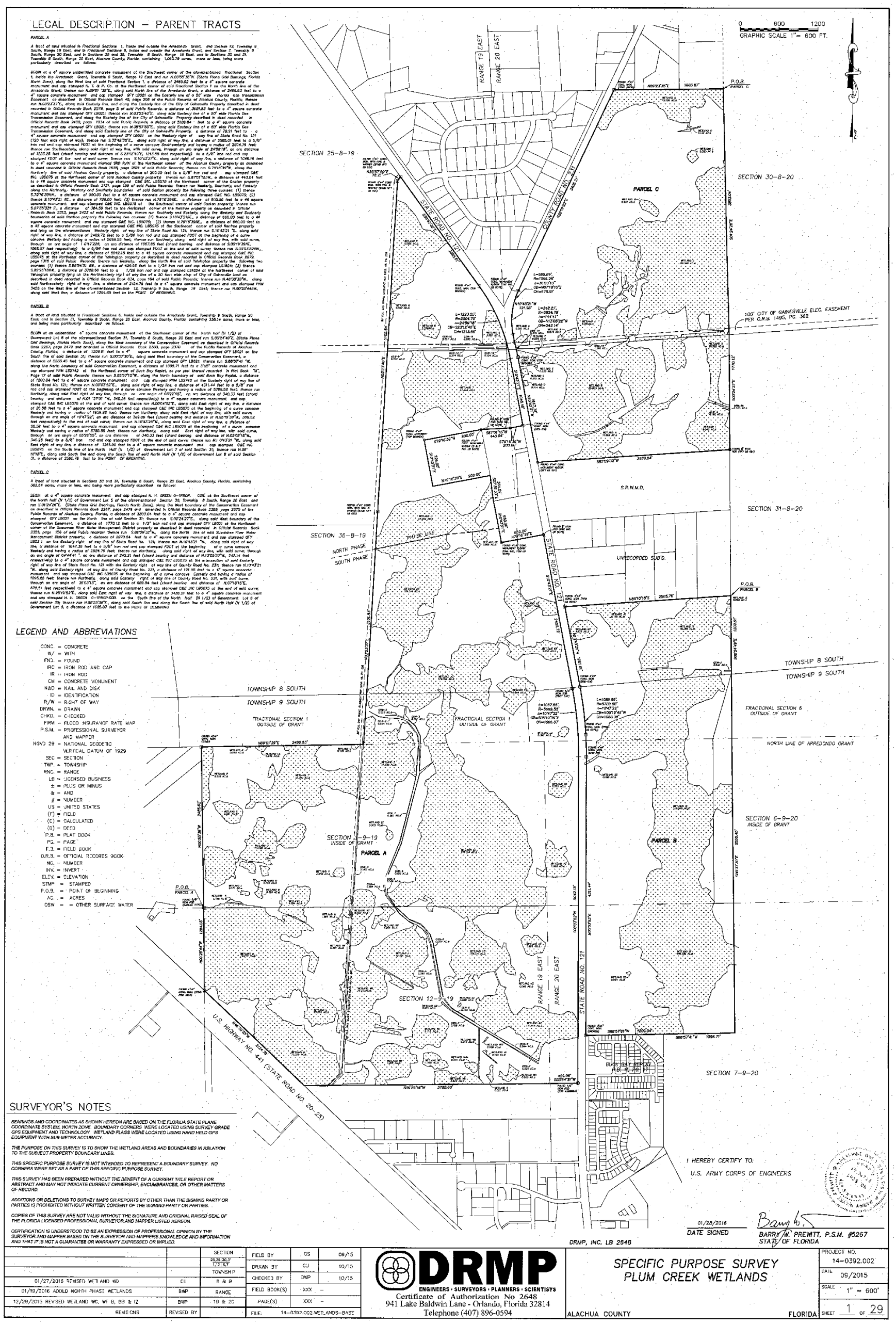


Figure 8. Wetlands and uplands map of the Gainesville 121 Project Site.

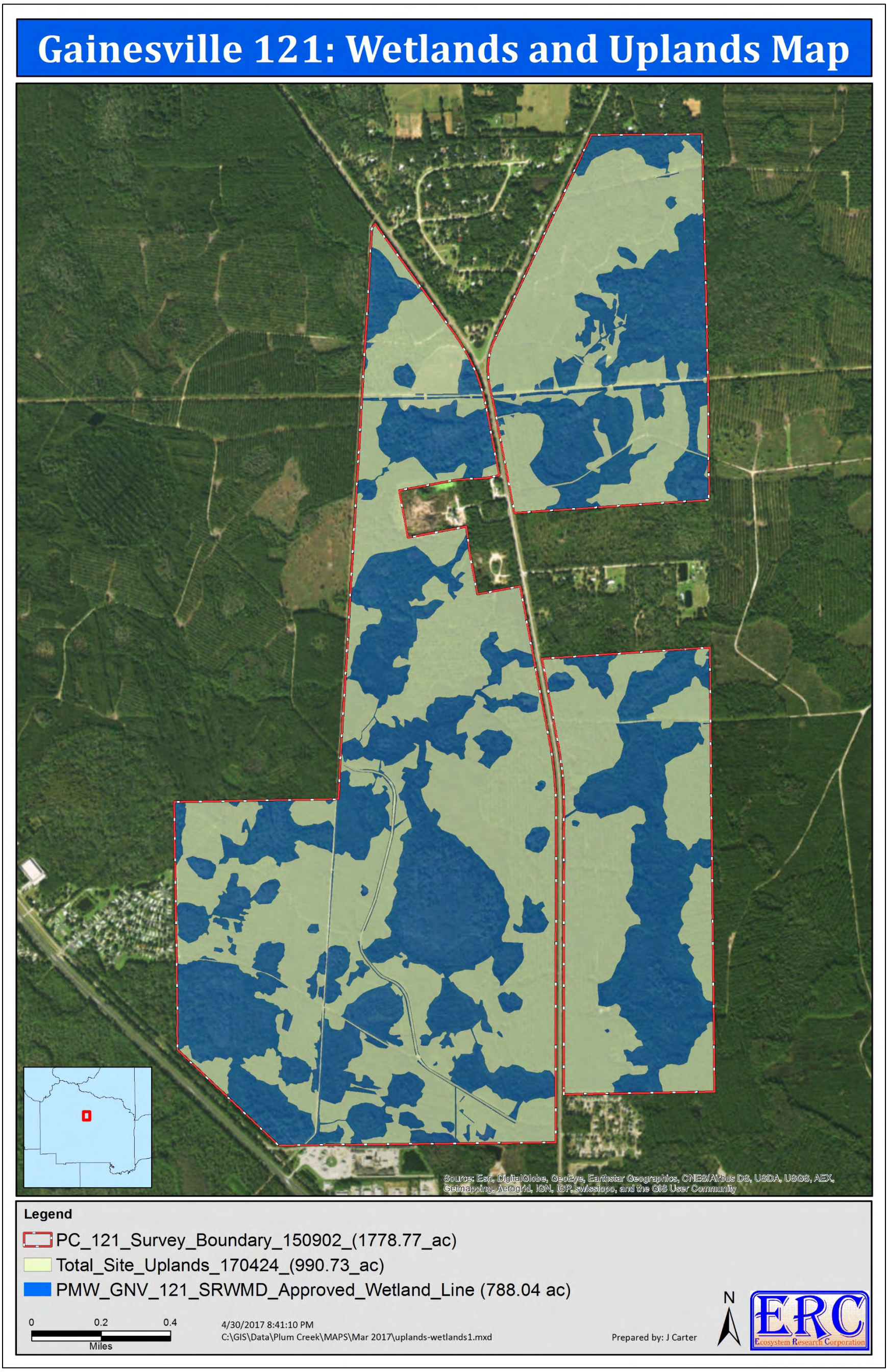


Figure 9. Wetlands and uplands map of the Gainesville 121 Project Site as overlain on a 2014 aerial photograph.

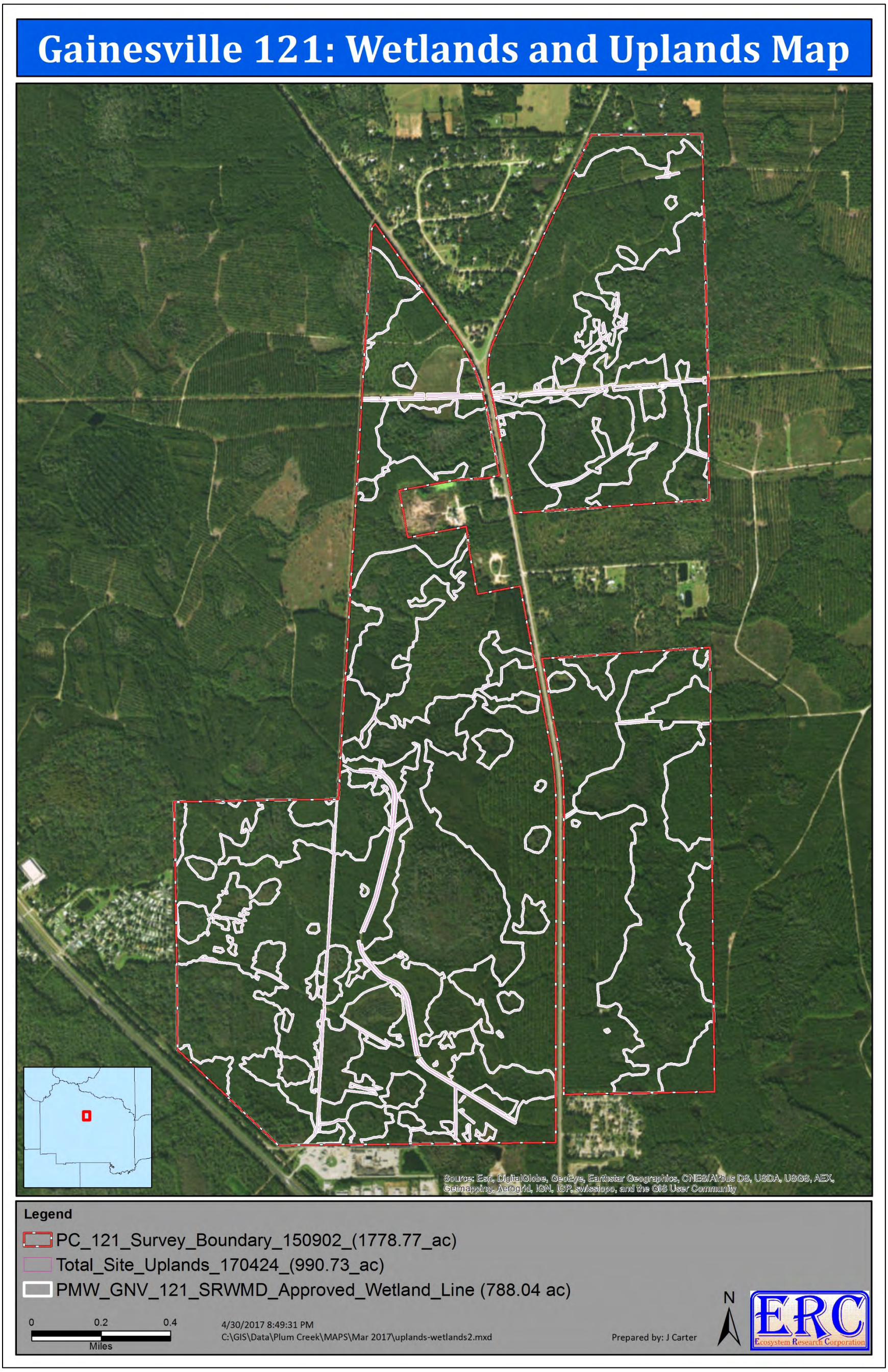


Figure 10. Wetlands and uplands map of the Gainesville 121 Project Site as shown on a 2013 false color infrared aerial.

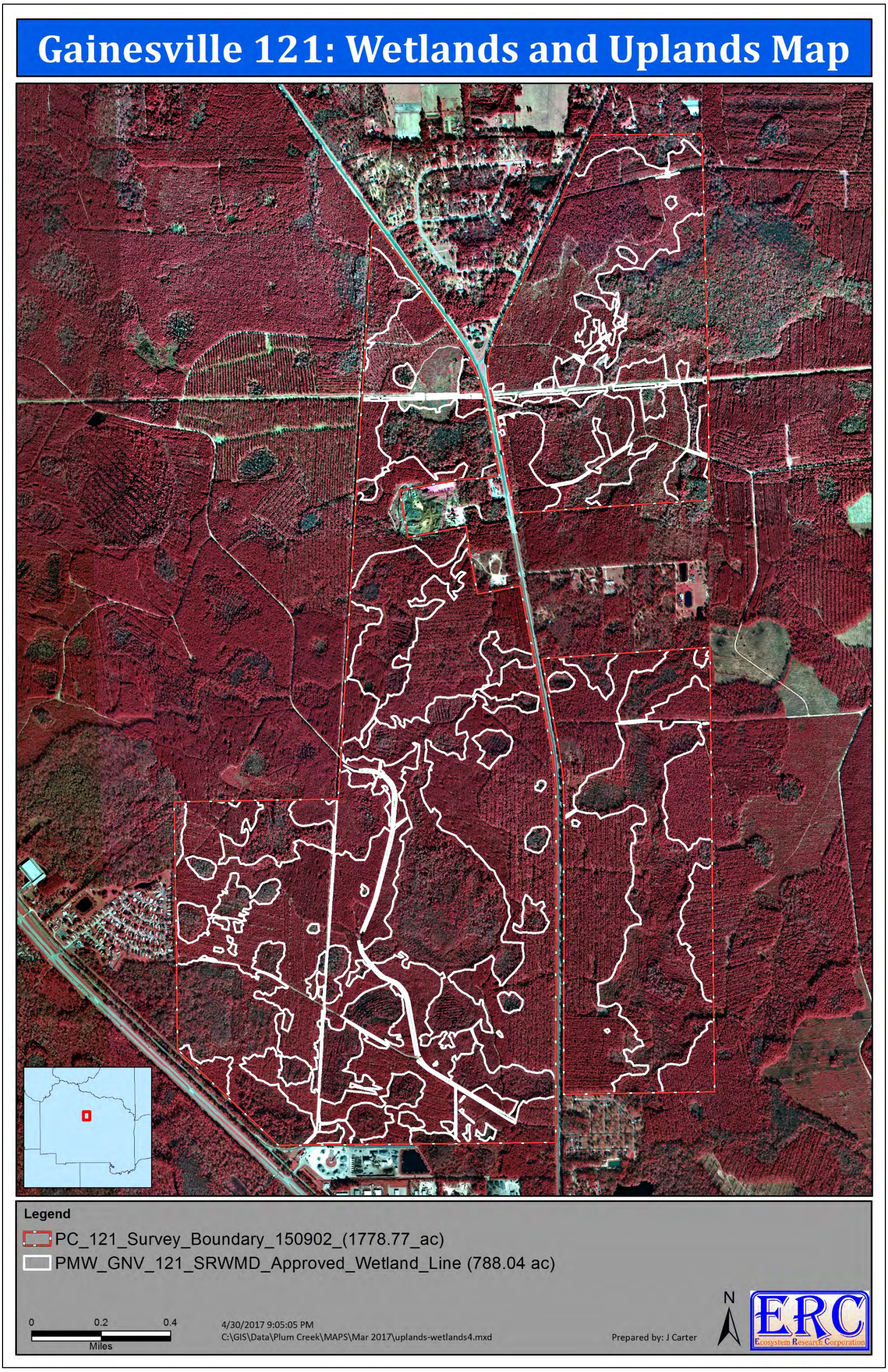


Figure 11. Wetlands, surface waters, and uplands map of the Gainesville 121 Project Site.

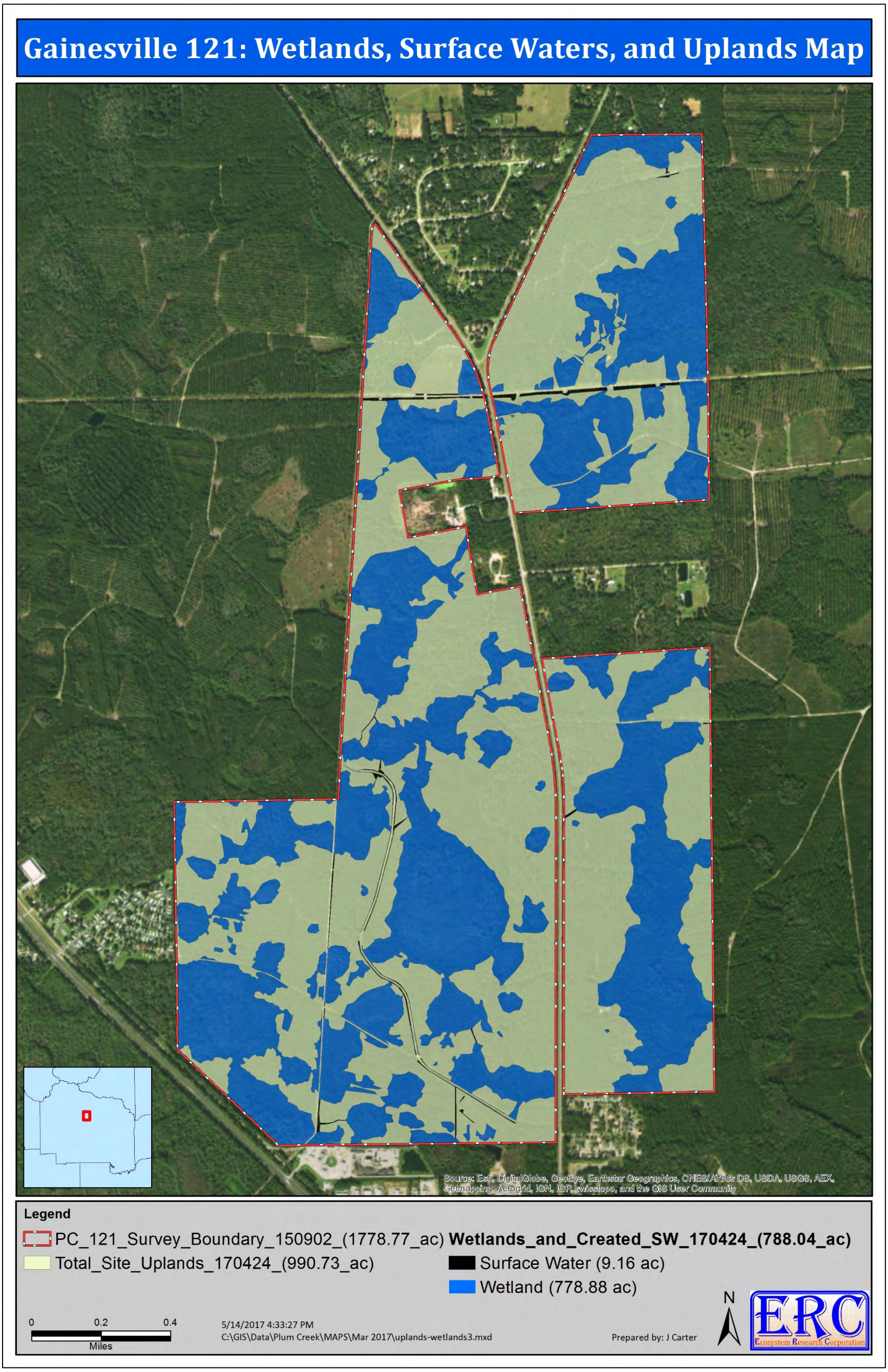


Figure 12. USGS Gainesville East, Gainesville West, Alachua, and Monteocha quadrangle maps showing the Project Site and surrounding areas.

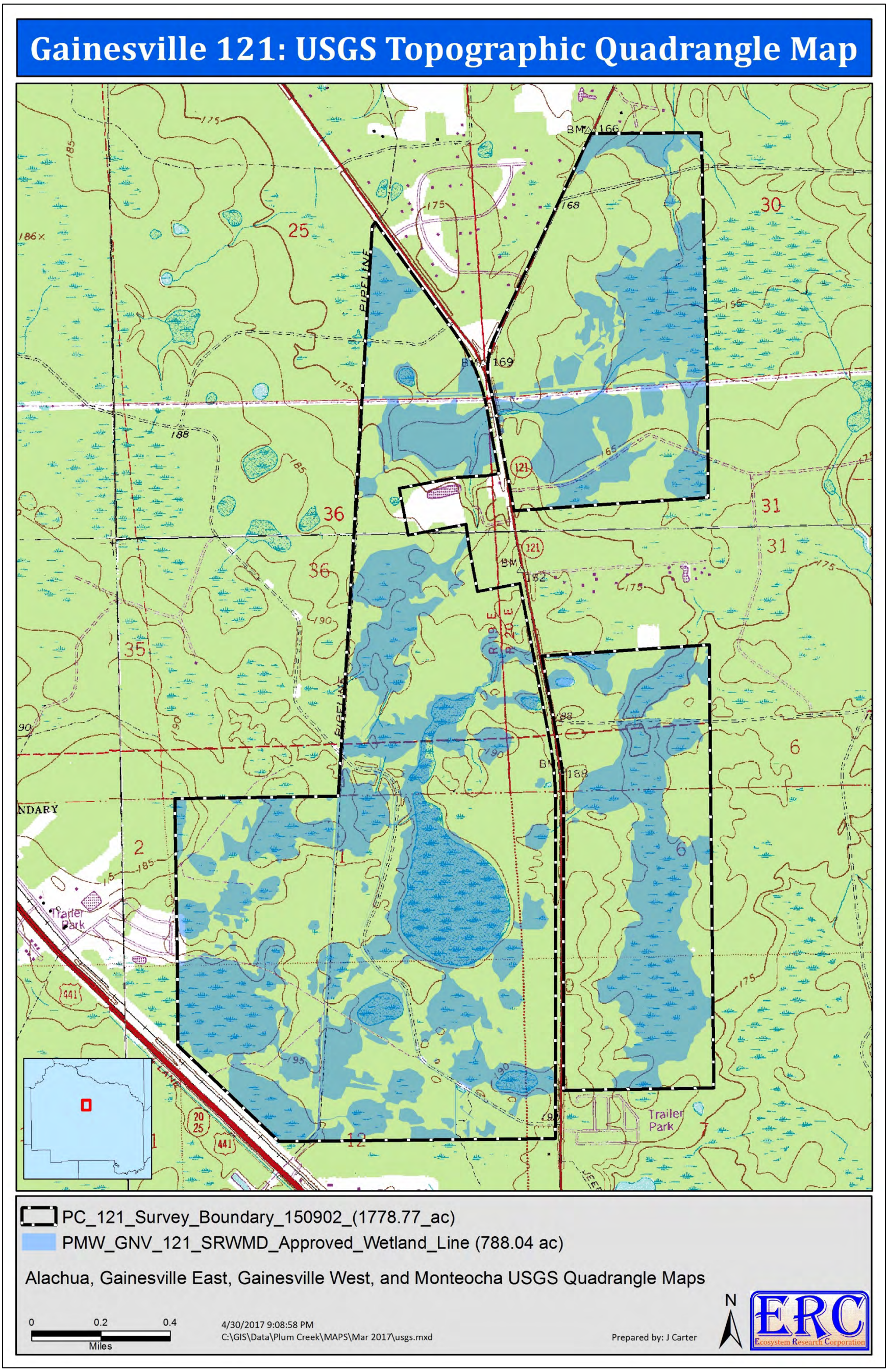


Figure 13. Drainage basins located within the Project Site and surrounding areas. Drainage basins prepared by the GeoPlan Center (UF) for Florida Department of Environmental Protection (www.geoplan.ufl.edu).

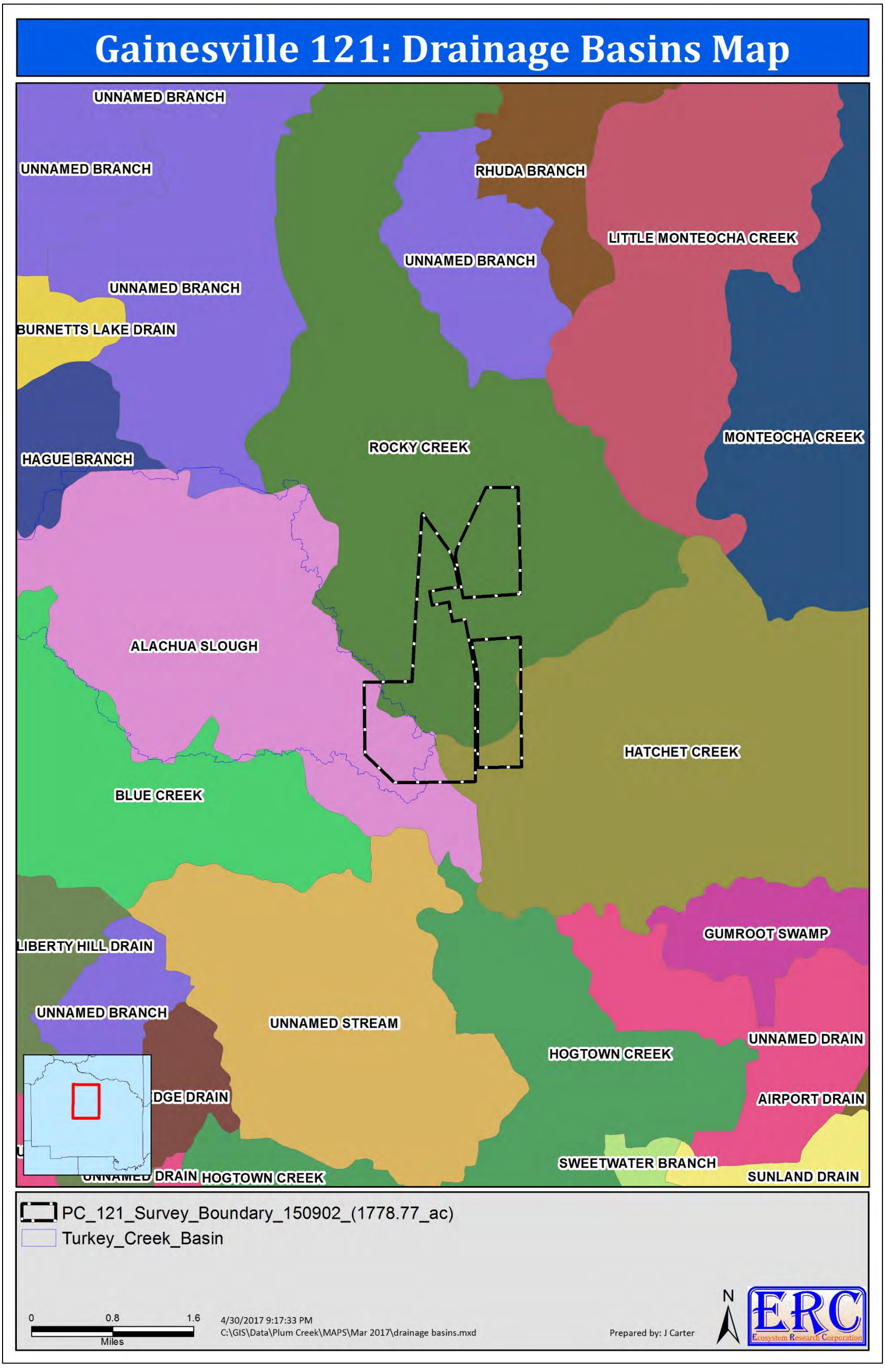
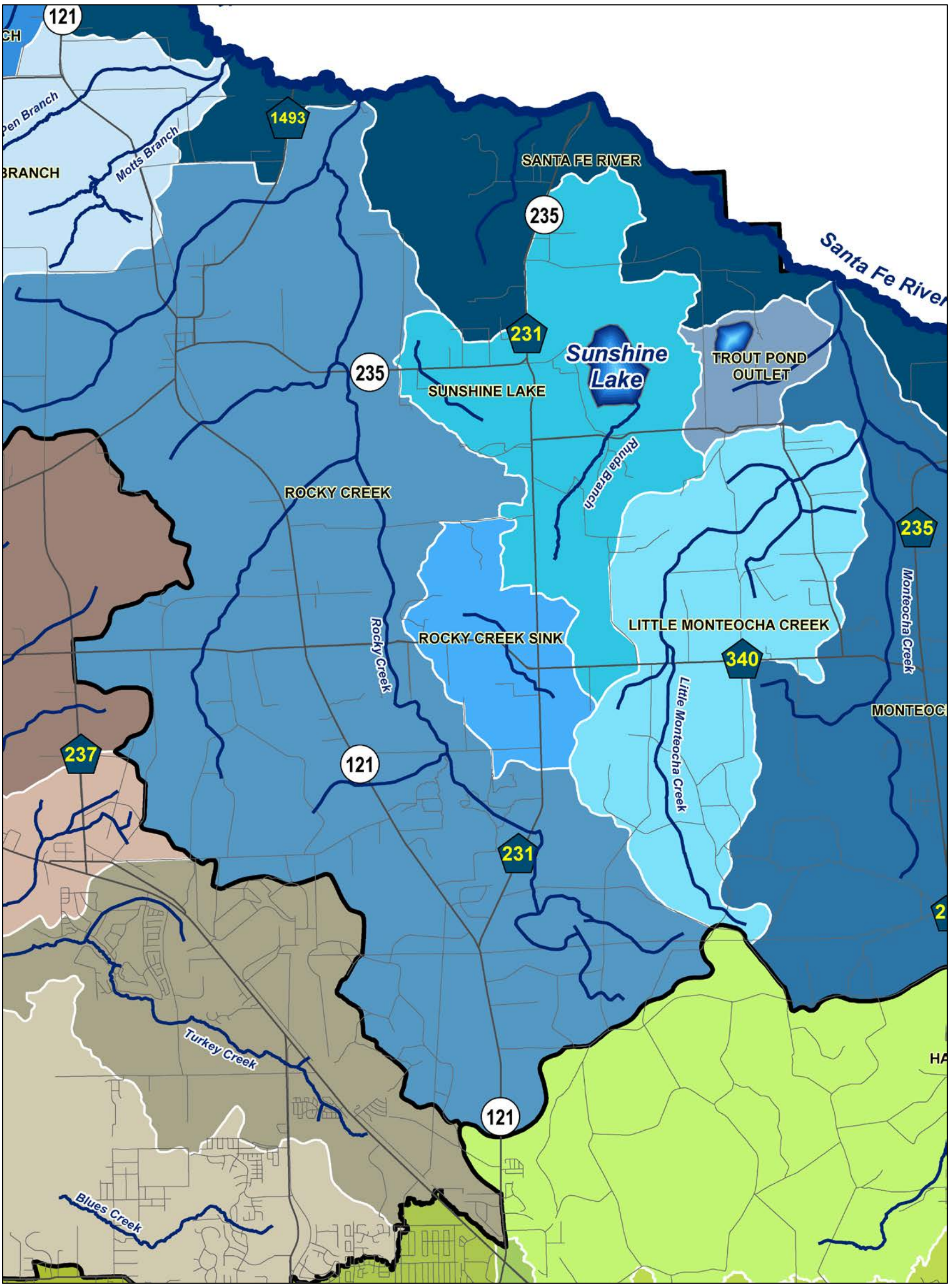


Figure 14. Alachua County watersheds located within the Project Site and surrounding areas.



Source: http://www.alachuacounty.us/Depts/EPD/WaterResources/CreeksAndLakes/Reports%20and%20Maps%20Documents/Watersheds5x5.pdf

Figure 15. LiDAR topography map of the Gainesville 121 Project Site and surrounding area.

Figure 16. Natural Resources Conservation Service (NRCS) soils map for the Project Site.

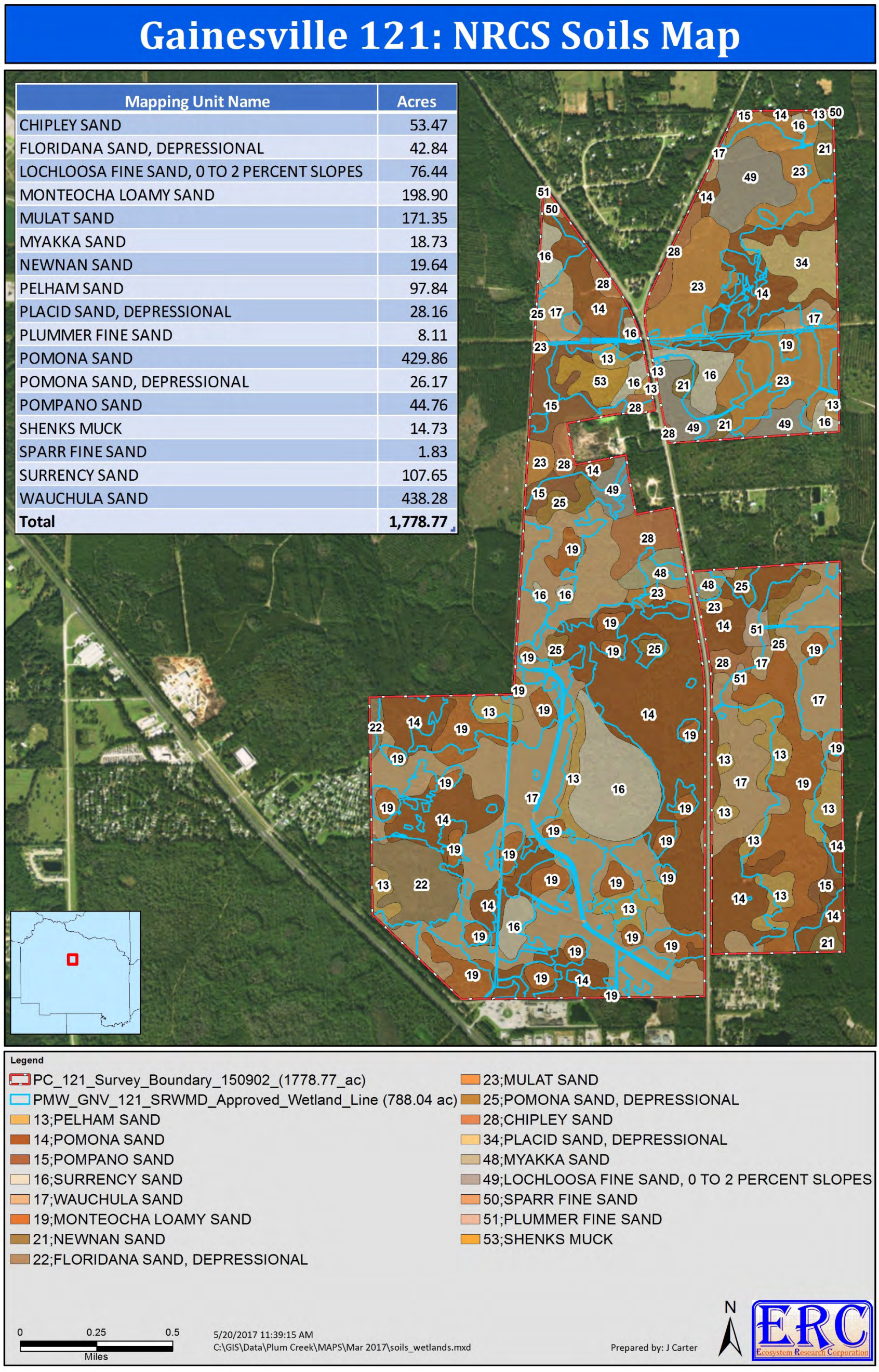


Figure 17. Natural Resources Conservation Service (NRCS) soils map for the Project Site showing soils with spodic horizons.

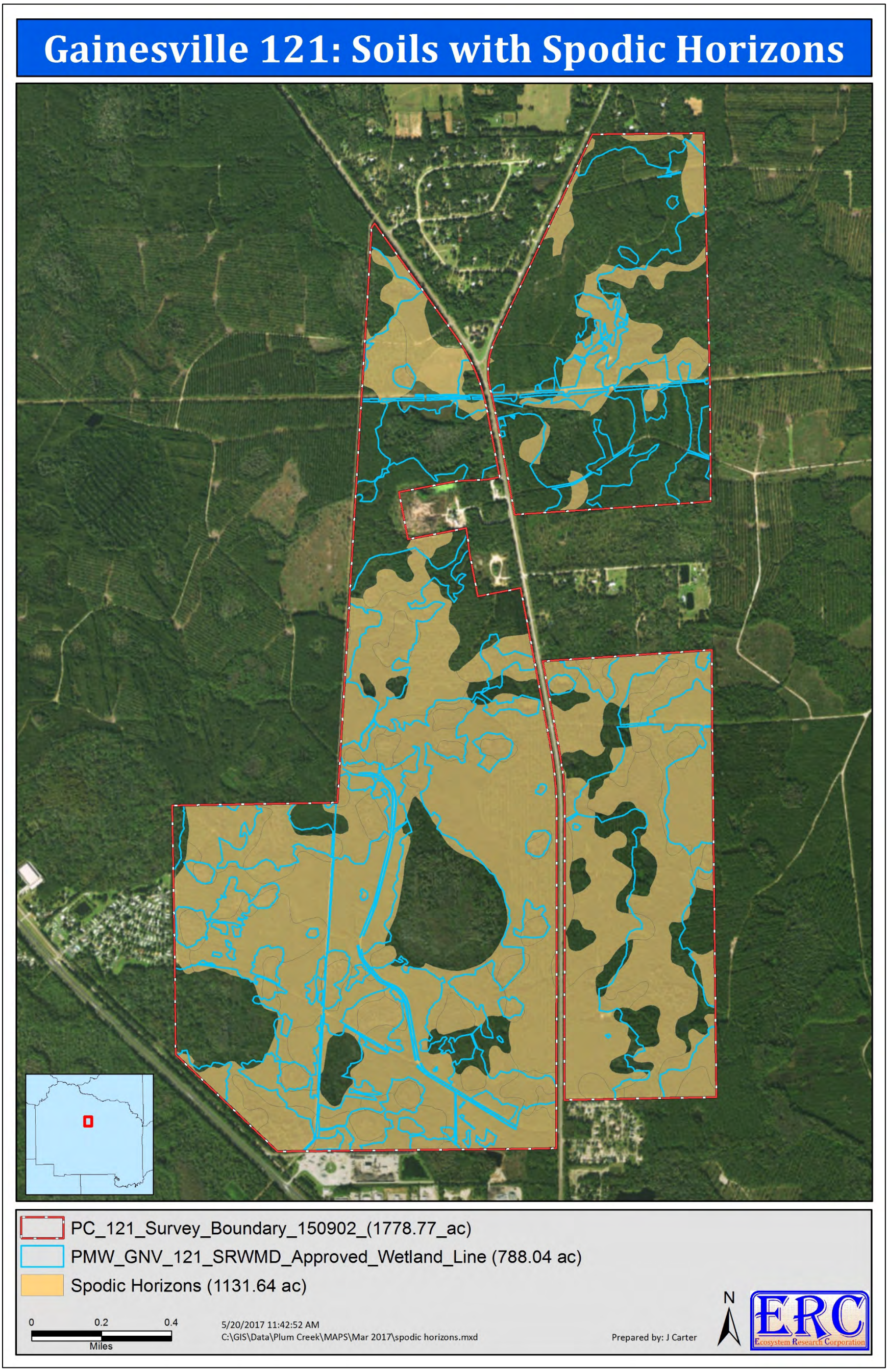


Figure 18. Natural Resources Conservation Service (NRCS) soils map for the Project Site showing soils with surficial clays.

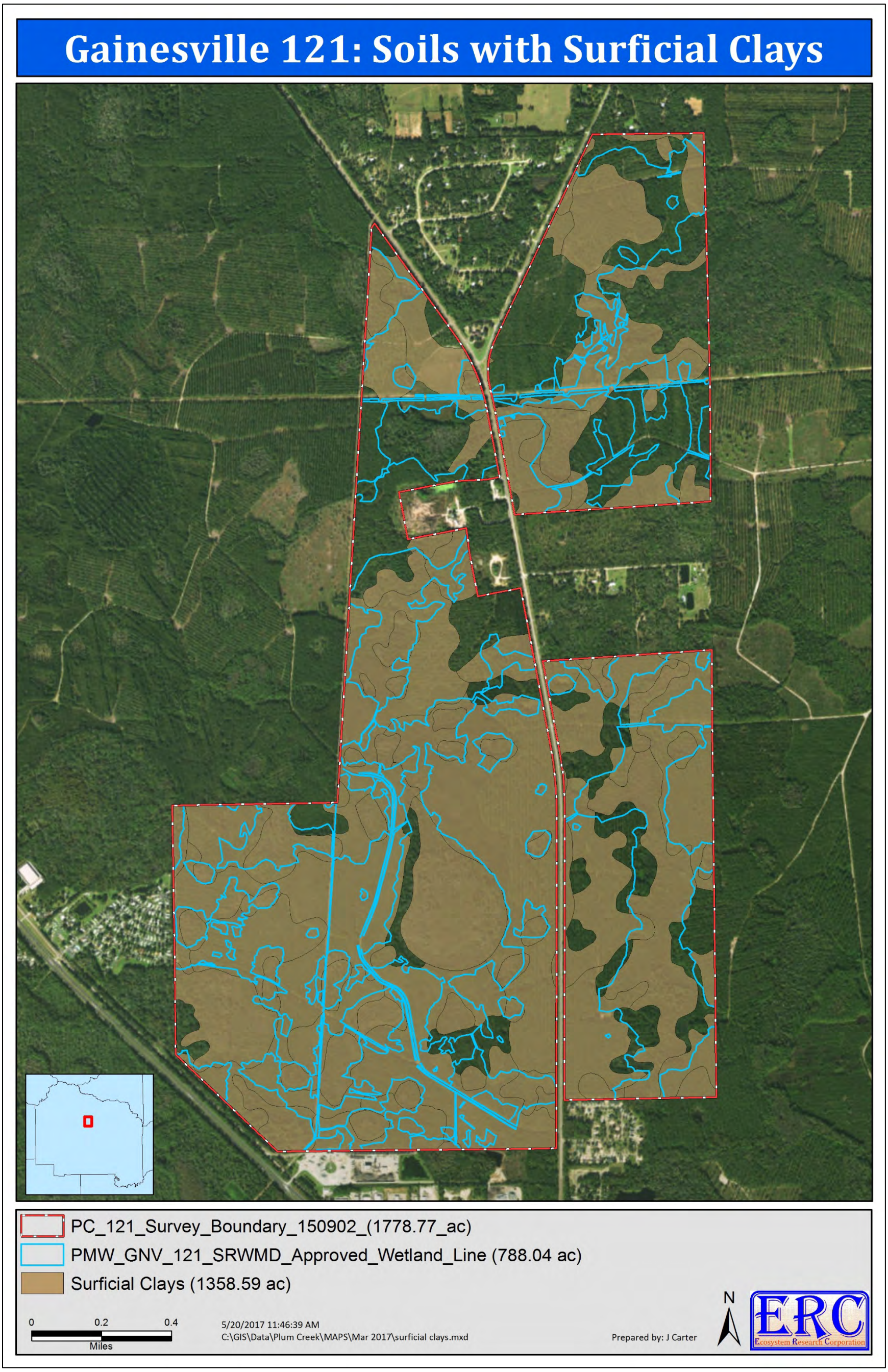


Figure 19. Natural Resources Conservation Service (NRCS) soils map for the Project Site showing organic soils.

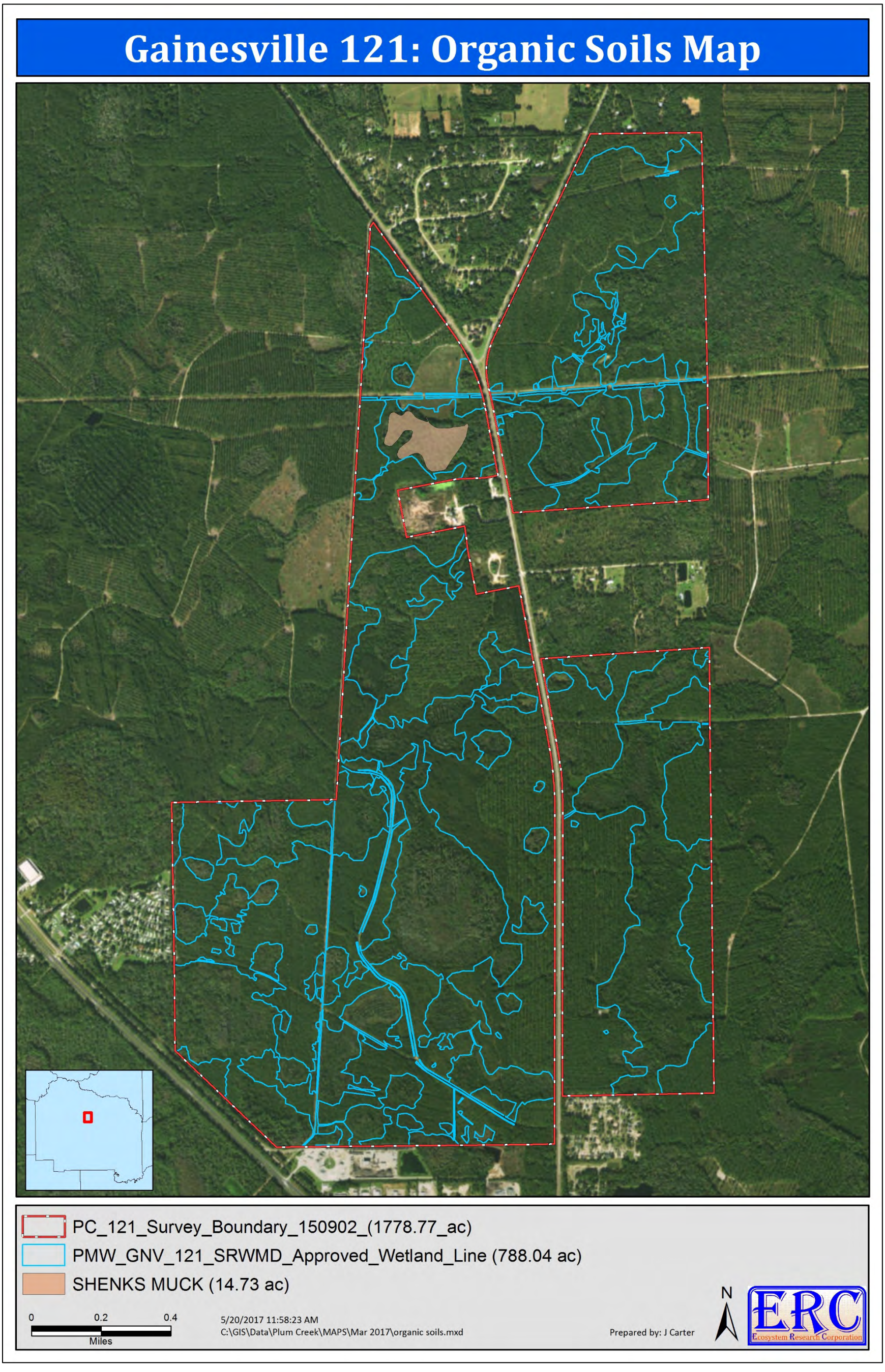


Figure 20. Natural Resources Conservation Service (NRCS) soils map for the Project Site showing hydric soils.

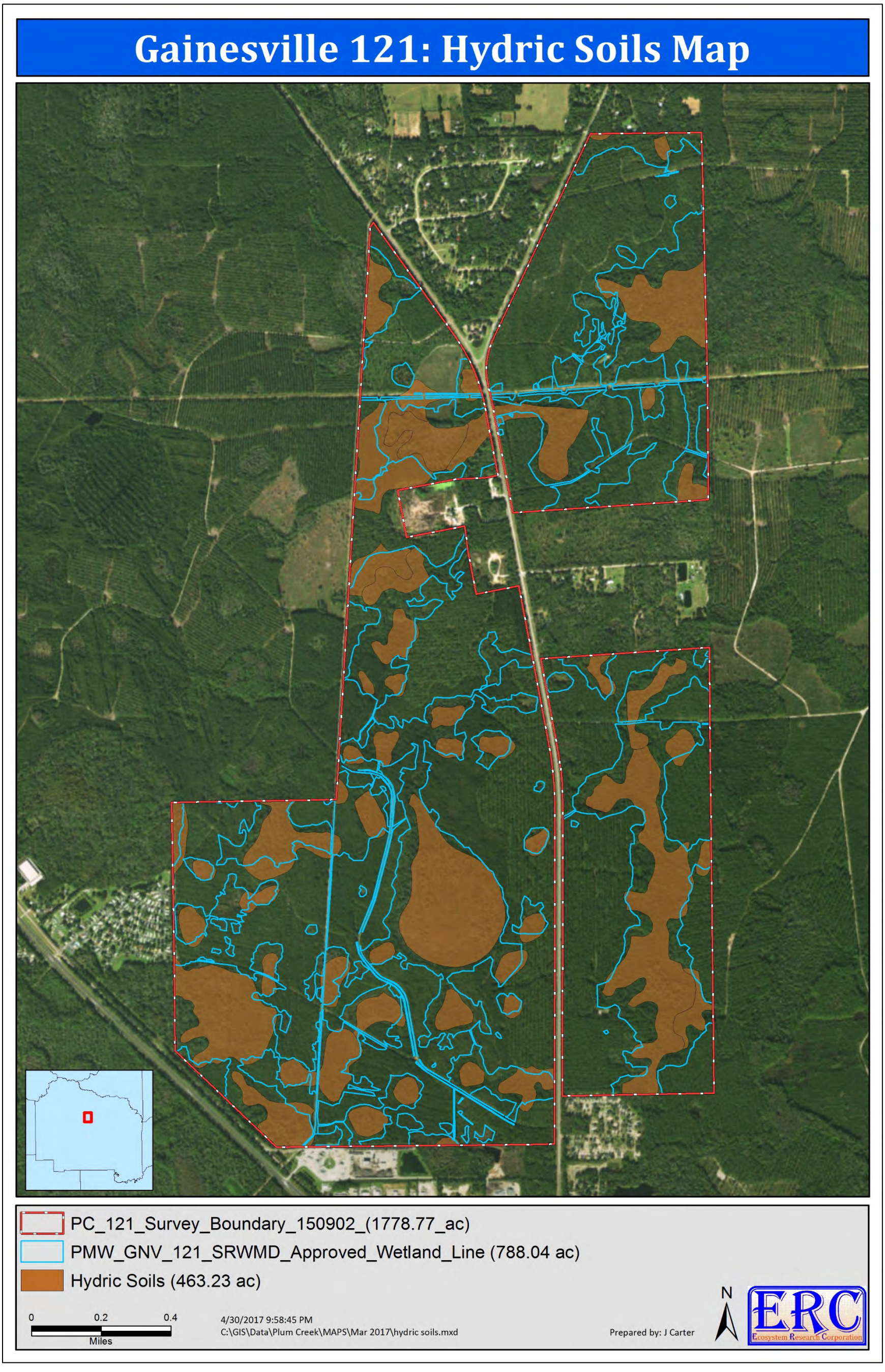


Figure 21. Federal Emergency Management Agency (FEMA) 2013 flood zone map of the Gainesville 121 Project Site.

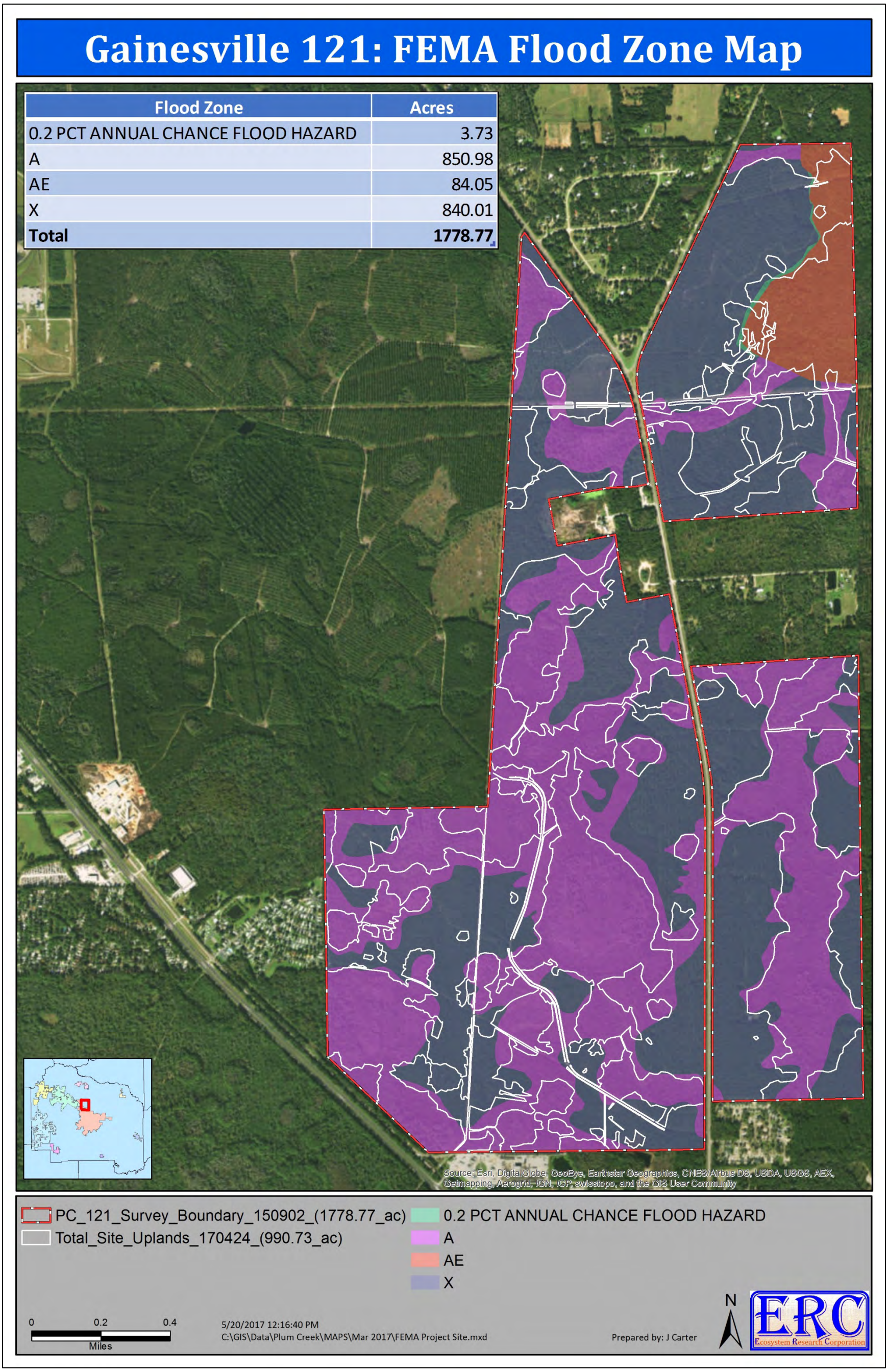


Figure 22. Federal Emergency Management Agency (FEMA) 2013 flood zone map of the wetlands and surface waters within the Gainesville 121 Project Site.

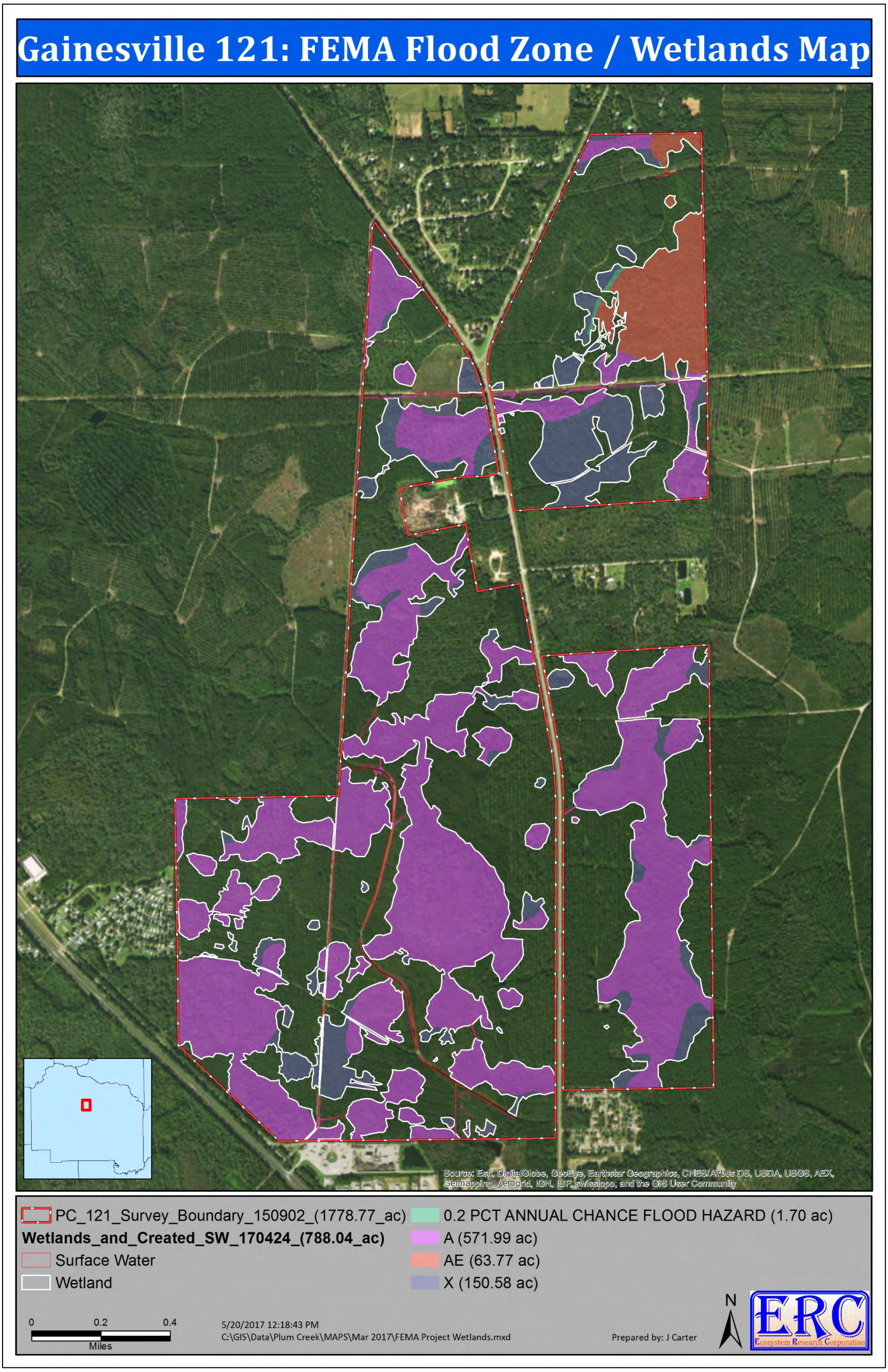


Figure 23. Federal Emergency Management Agency (FEMA) 2013 flood zone map of the uplands within the Gainesville 121 Project Site.

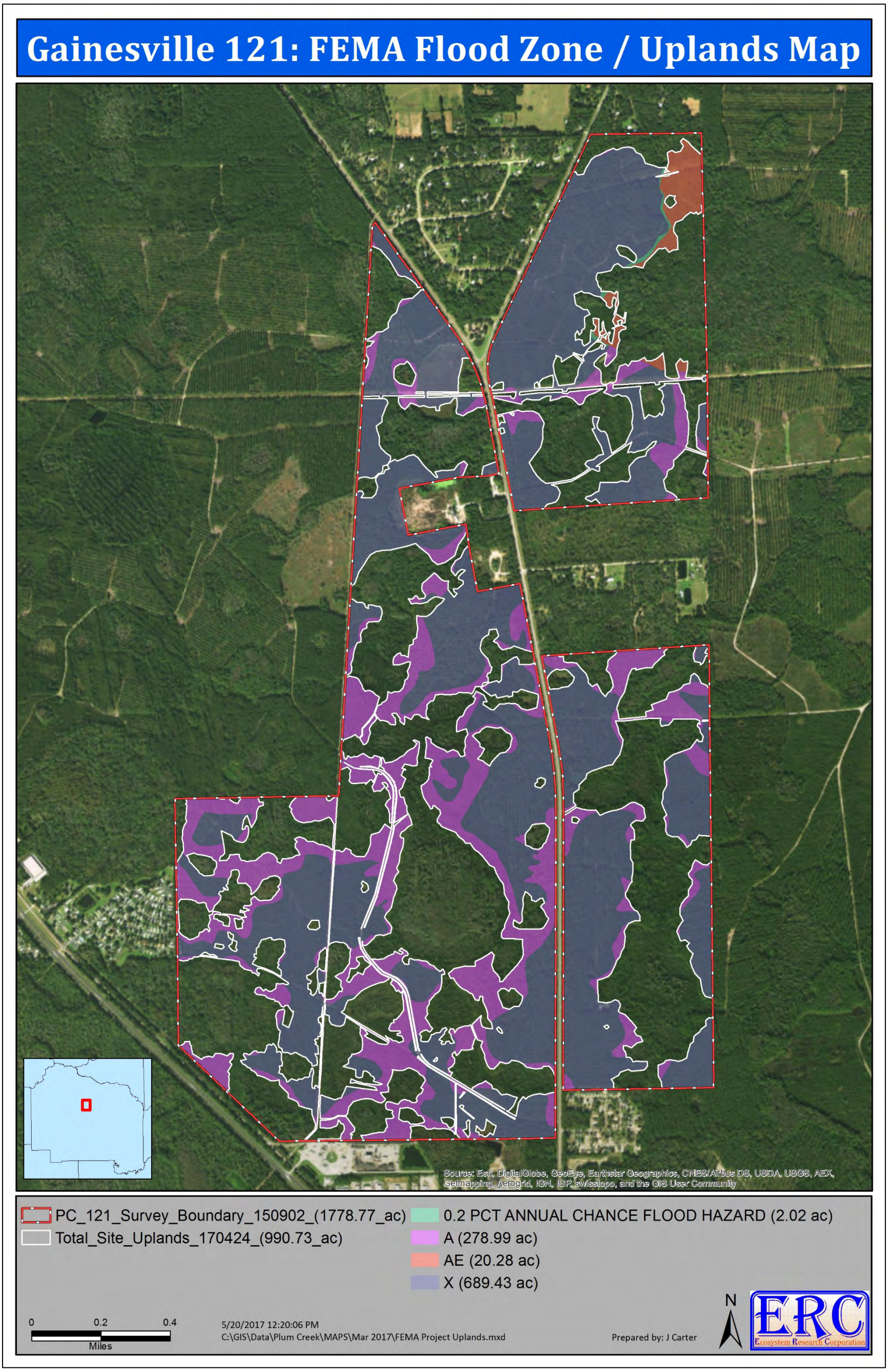


Figure 24. National Wetlands Inventory map of the Gainesville 121 Project Site and surrounding area.

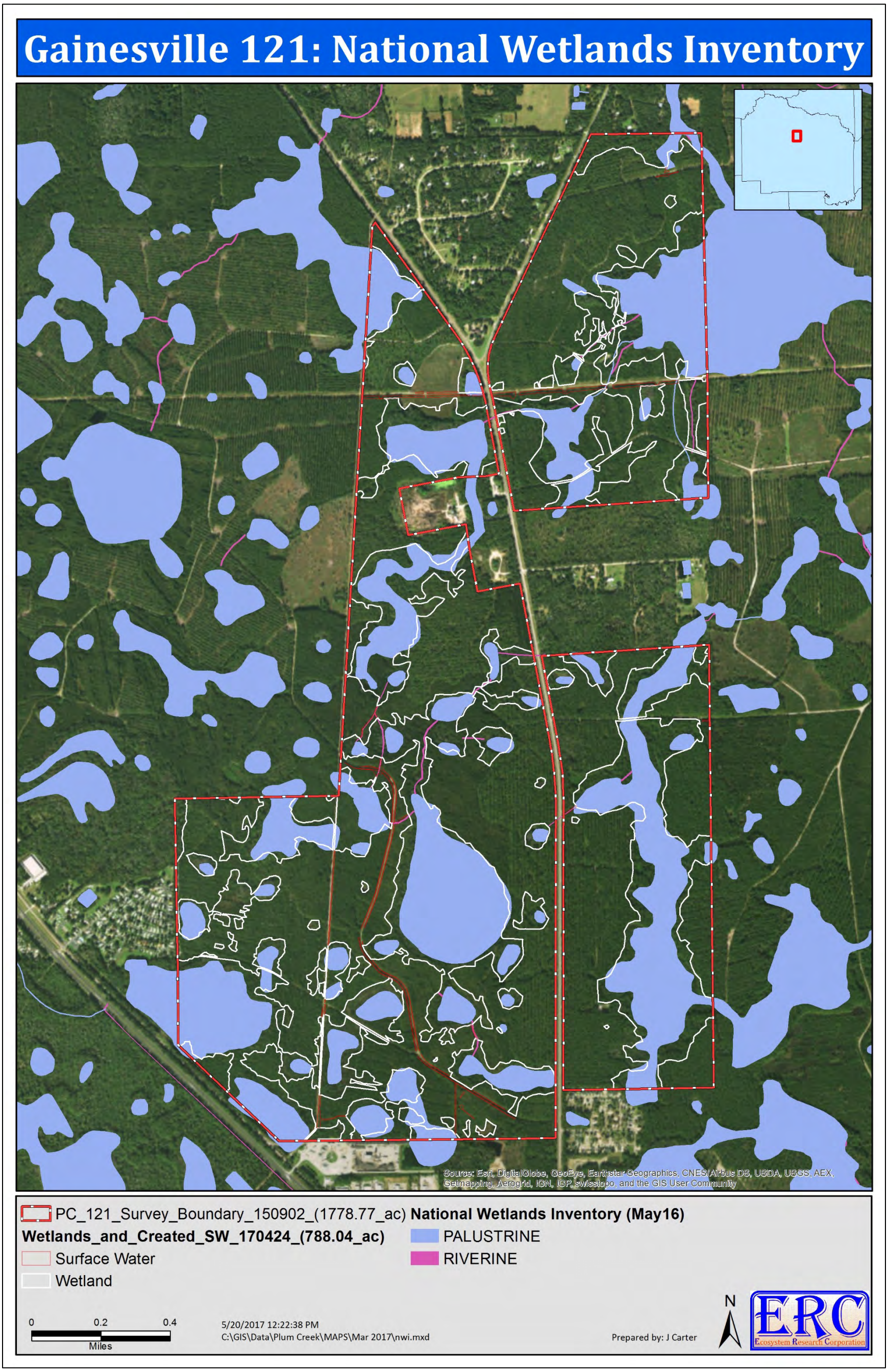


Figure 25. National Wetlands Inventory map of the Gainesville 121 Project Site.

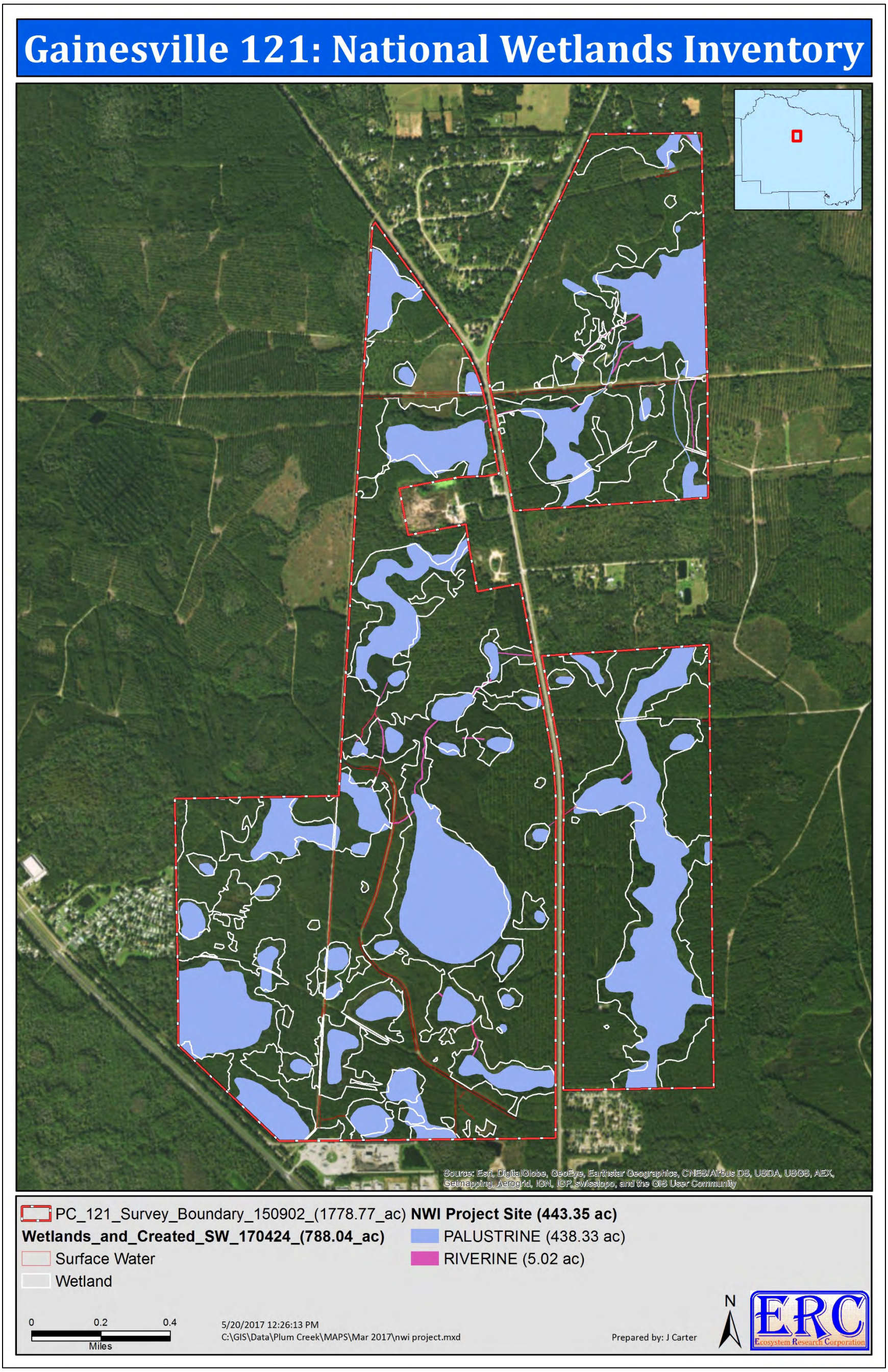


Figure 26. National Wetlands Inventory and Alachua County composite wetlands map of the Gainesville 121 Project Site and surrounding area.

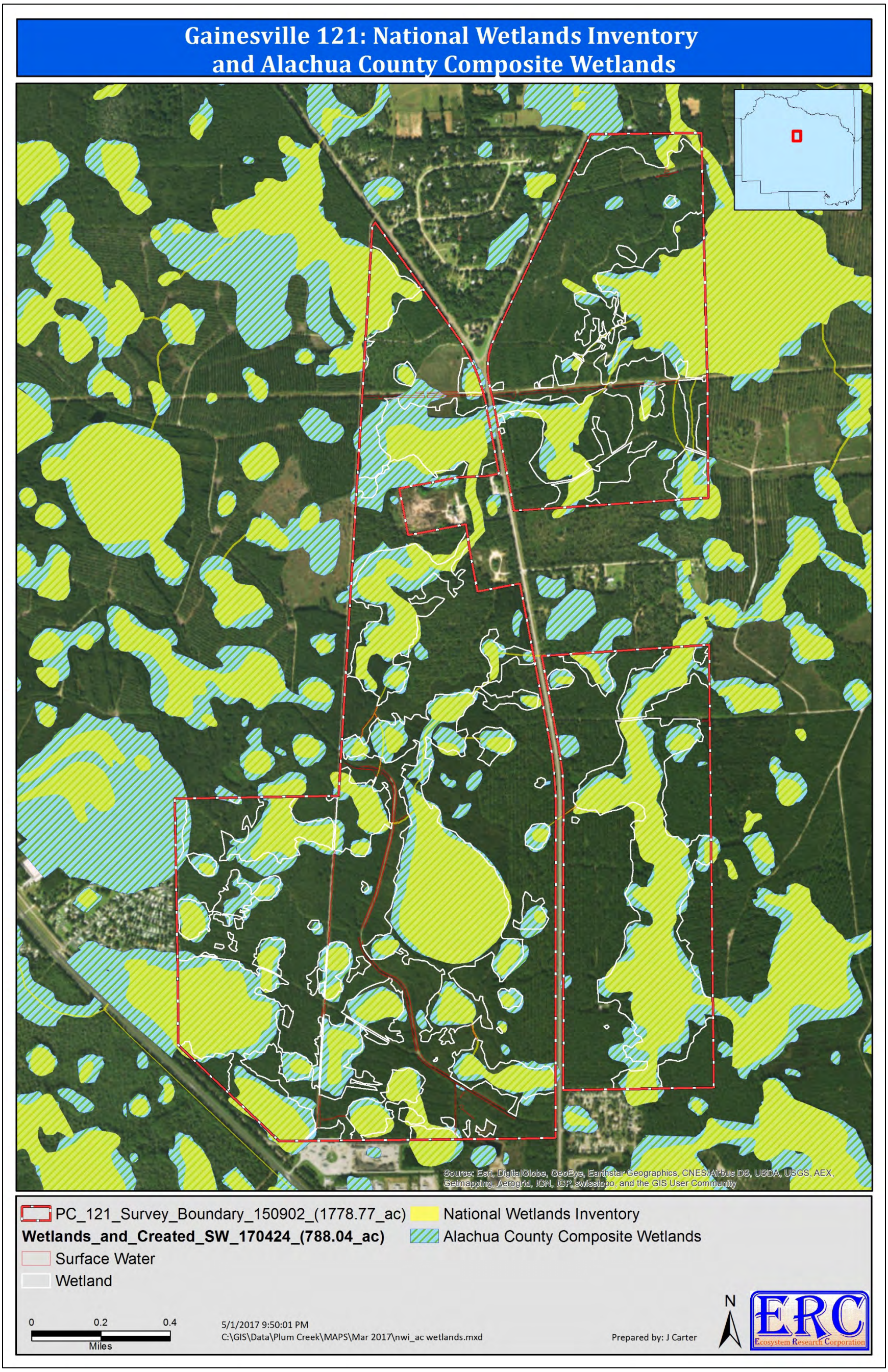


Figure 27. Murphree Wellfield protection zone in relation to the Gainesville 121 Project Site.

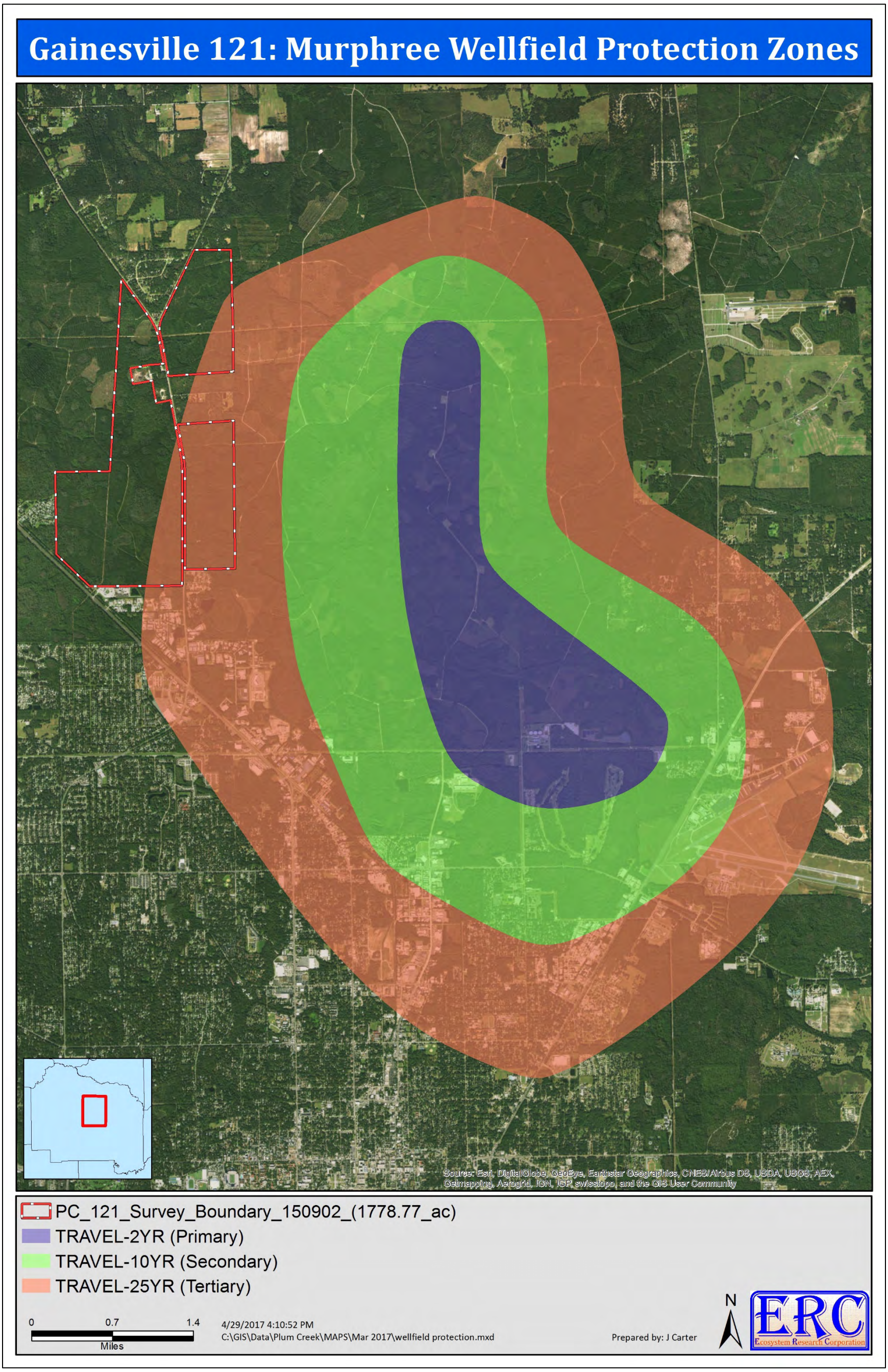


Figure 28. Murphree Well travel time within the Gainesville 121 Project Site.

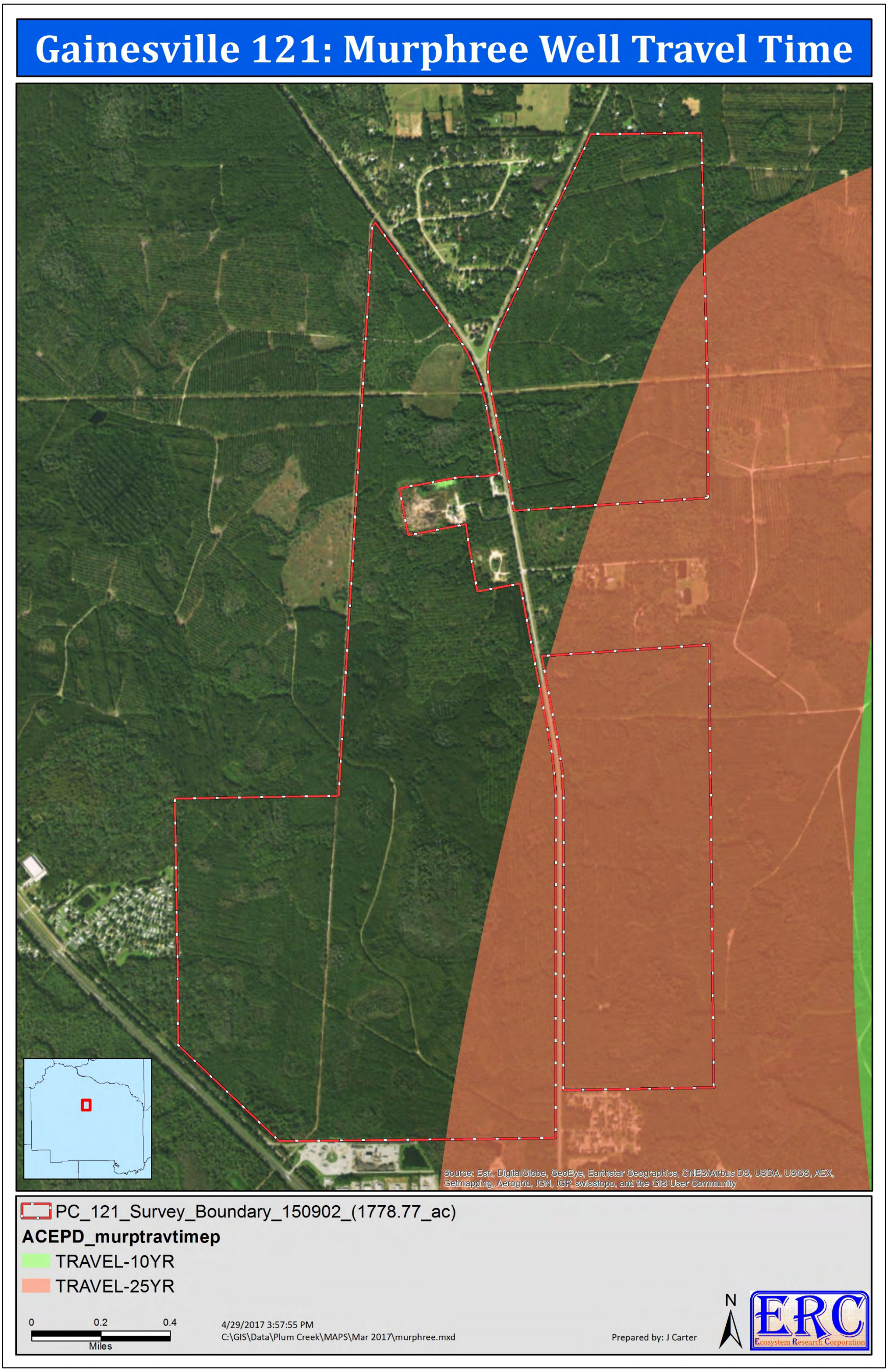


Figure 29. Alachua County Florida aquifer high recharge area map.

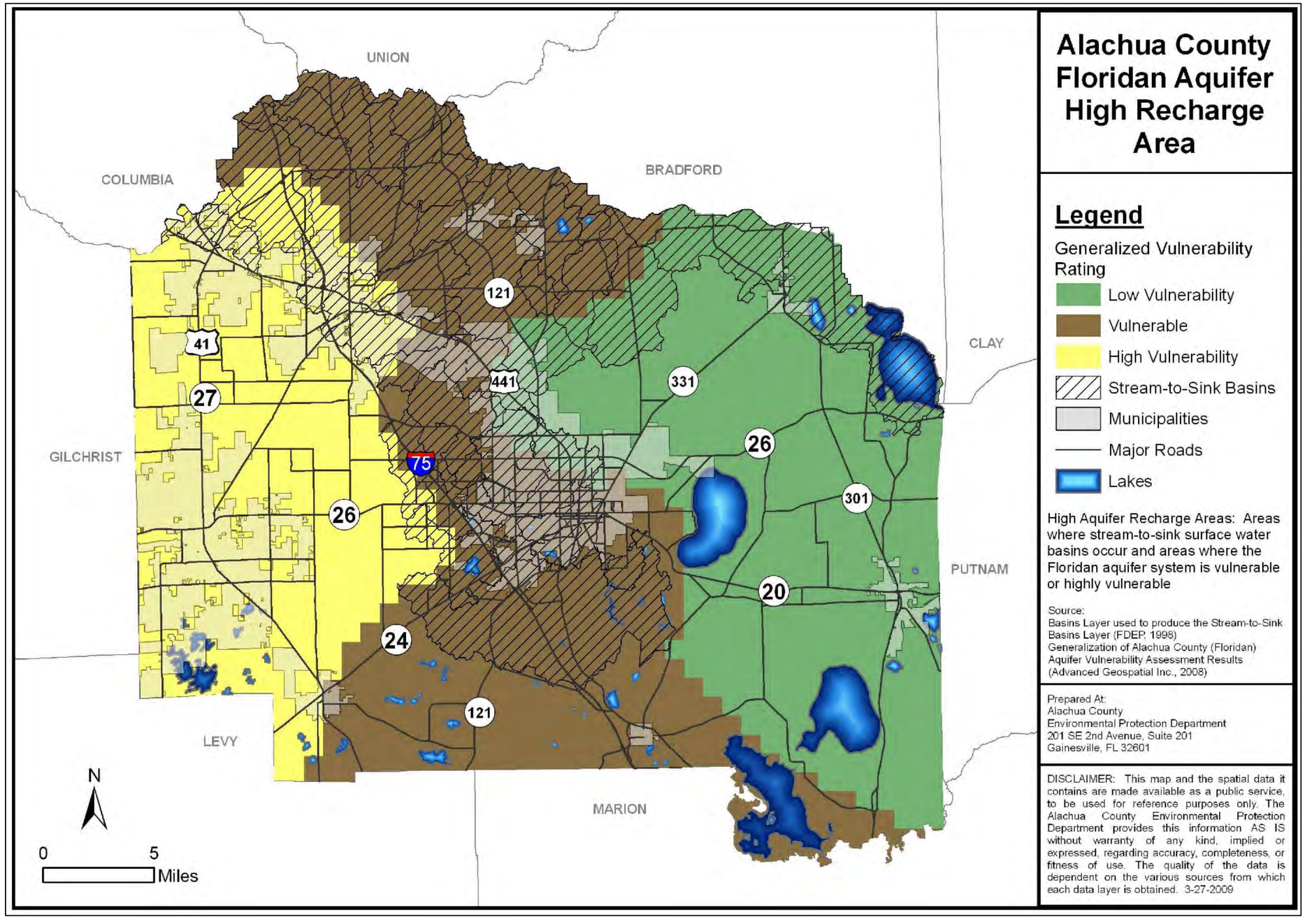


Figure 30. Potentiometric surface map of the Floridan aquifer in Alachua County, Florida, May 1980.

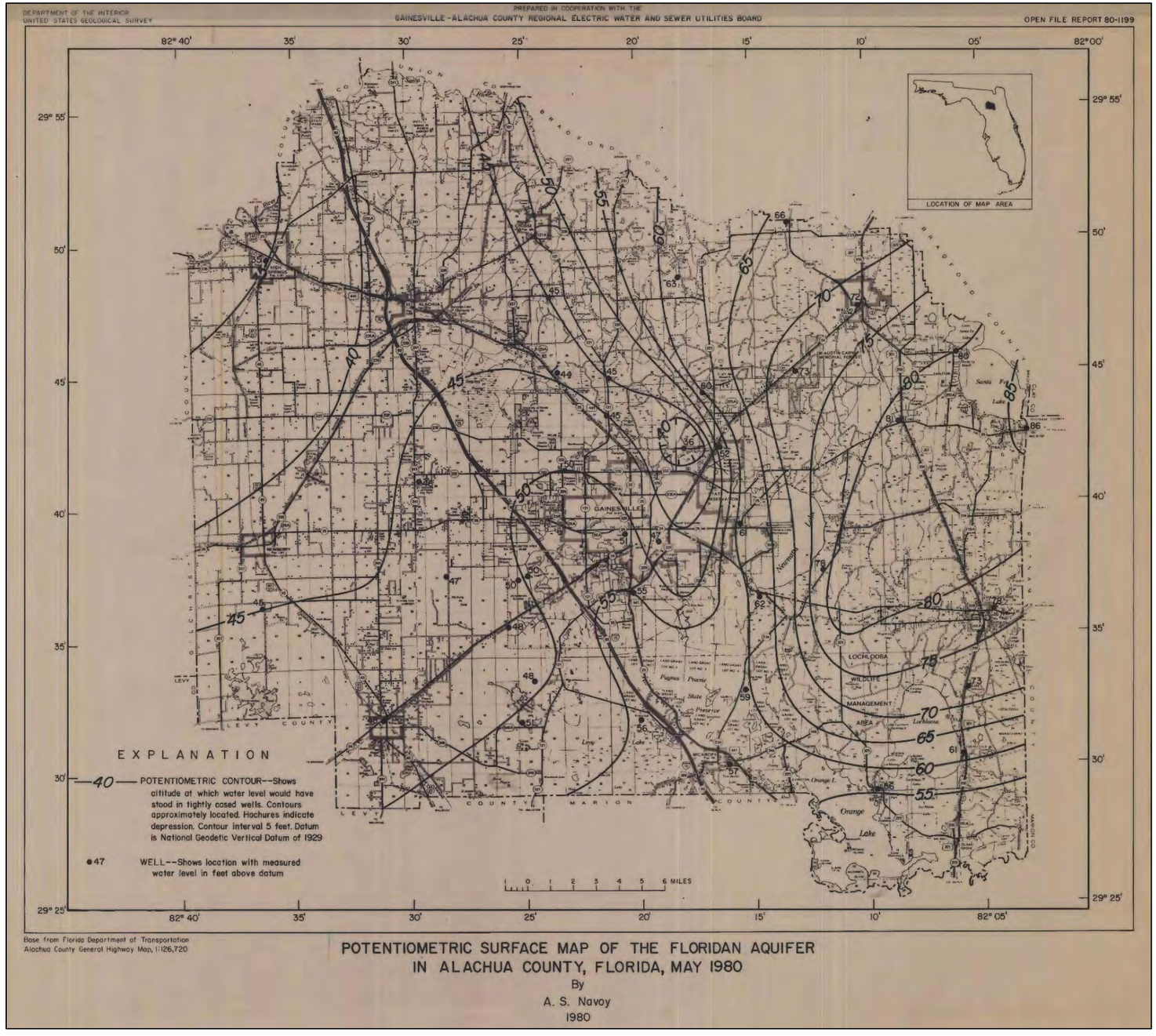


Figure 31. Potentiometric surface map of the Floridan aquifer in Alachua County, Florida, May 2010.

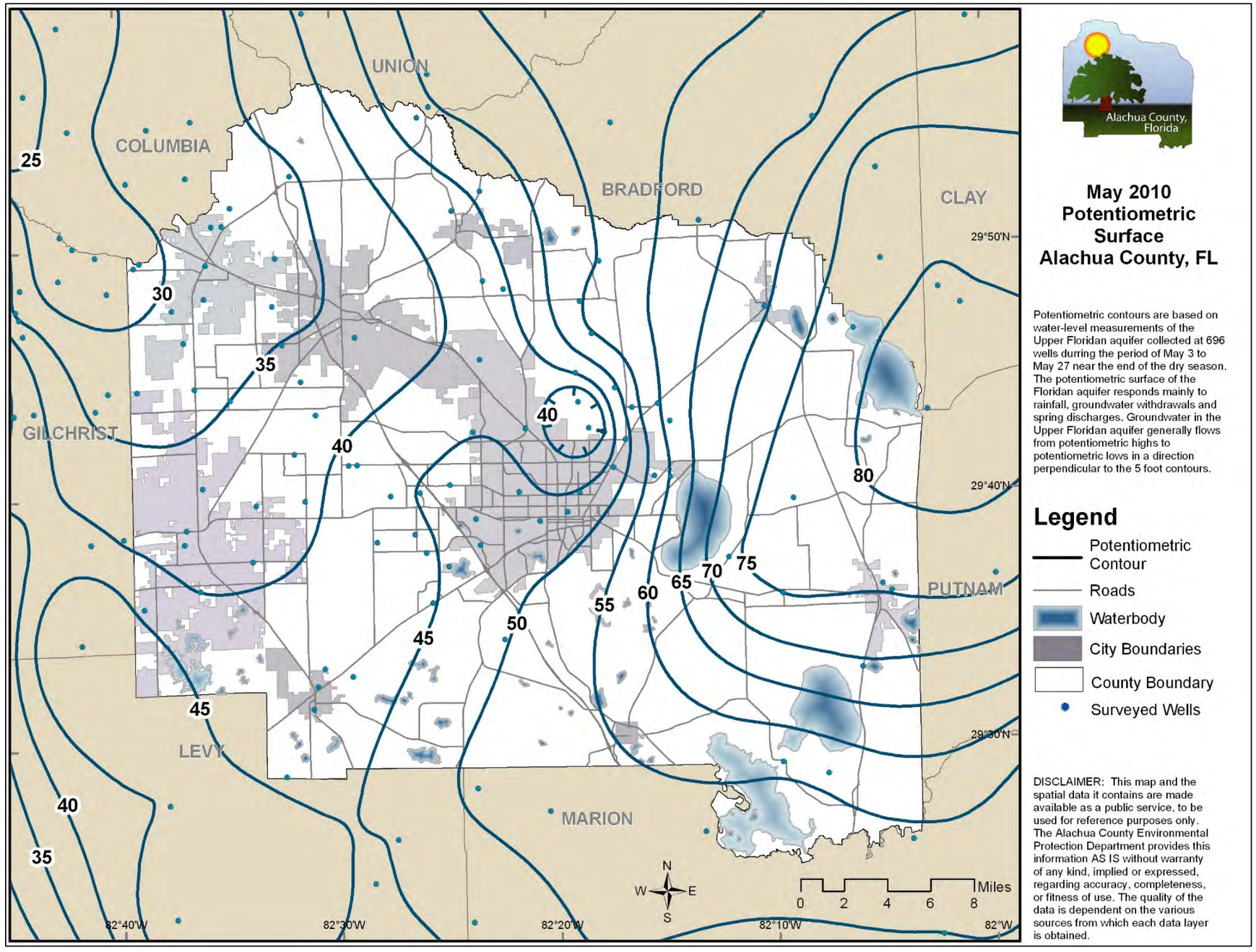
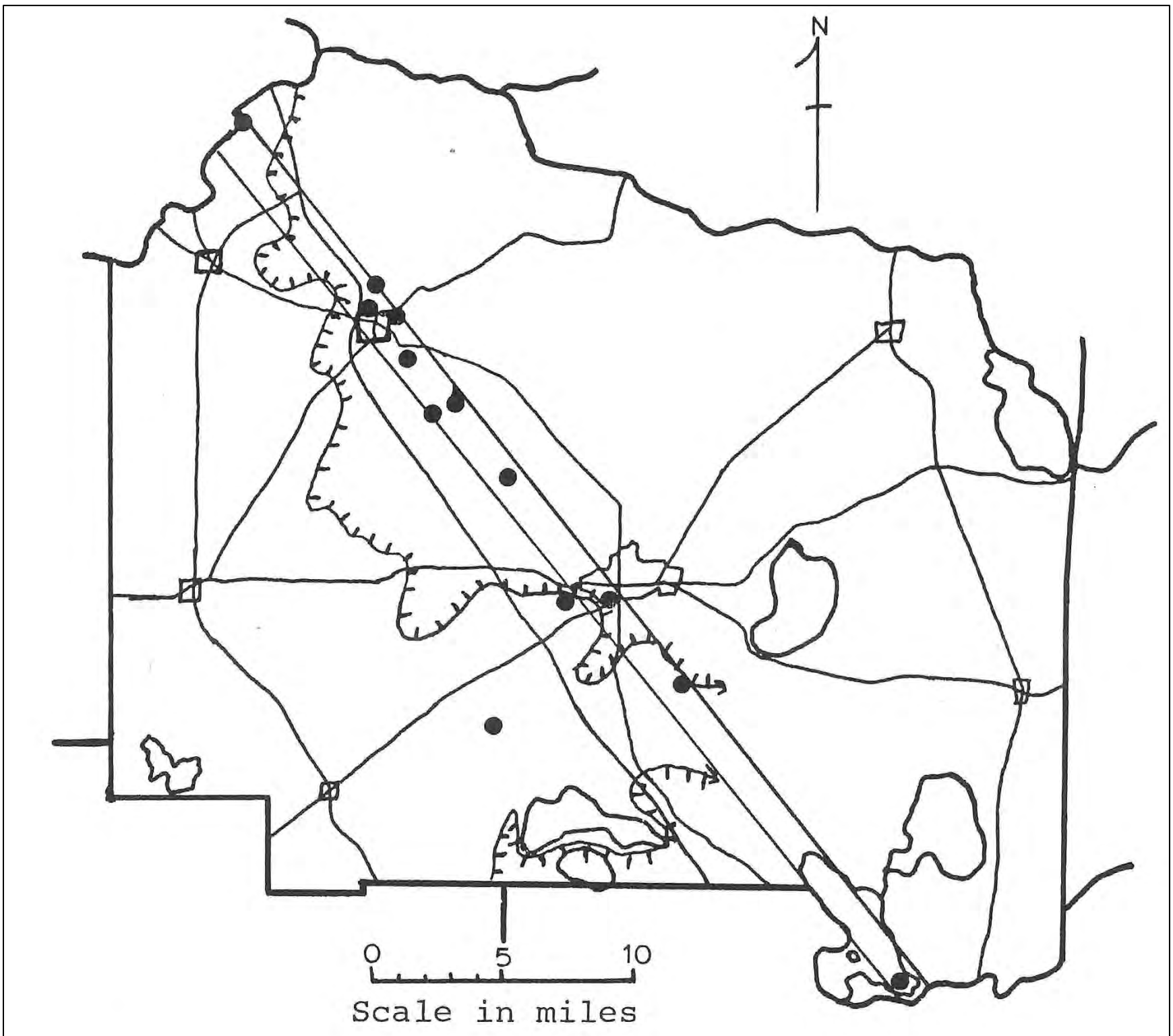


Figure 32. Cross county fracture zone. This image is a scanned image of Figure 10: Cross County Fracture Zone (pg 30) obtained from The Geology of the Western Part of Alachua County, Florida.



Legend

- Drainage sink.
- Covered area.
- Extensively fractured zone.

Figure 33. The drainage of the Alachua Stream System. This image is a scanned image of Figure 6: Alachua Stream System (pg 15) obtained from The Geology of the Western Part of Alachua County, Florida.

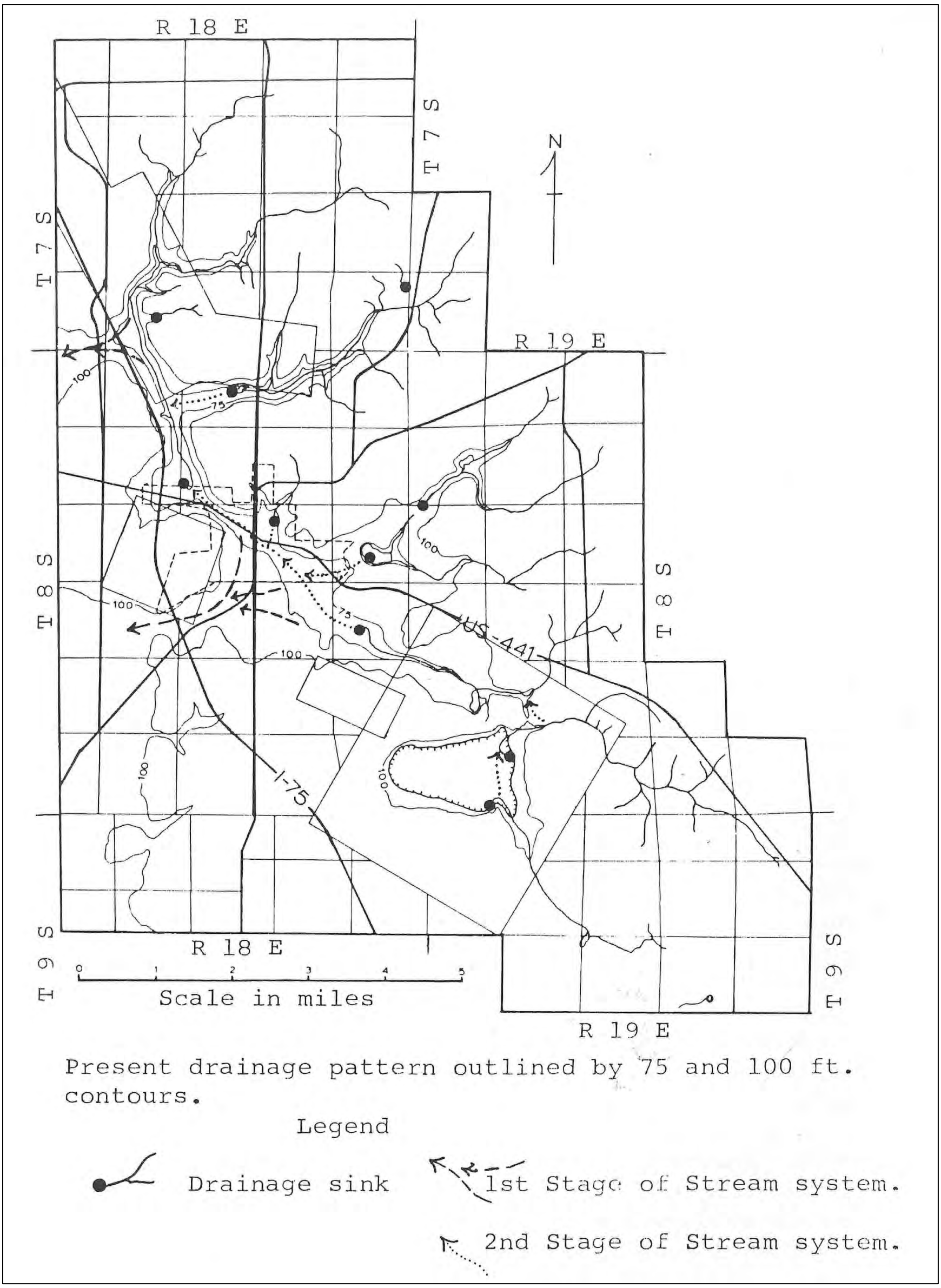


Figure 34. Strategic Ecosystem overlay map of the Gainesville 121 Project Site and surrounding area.

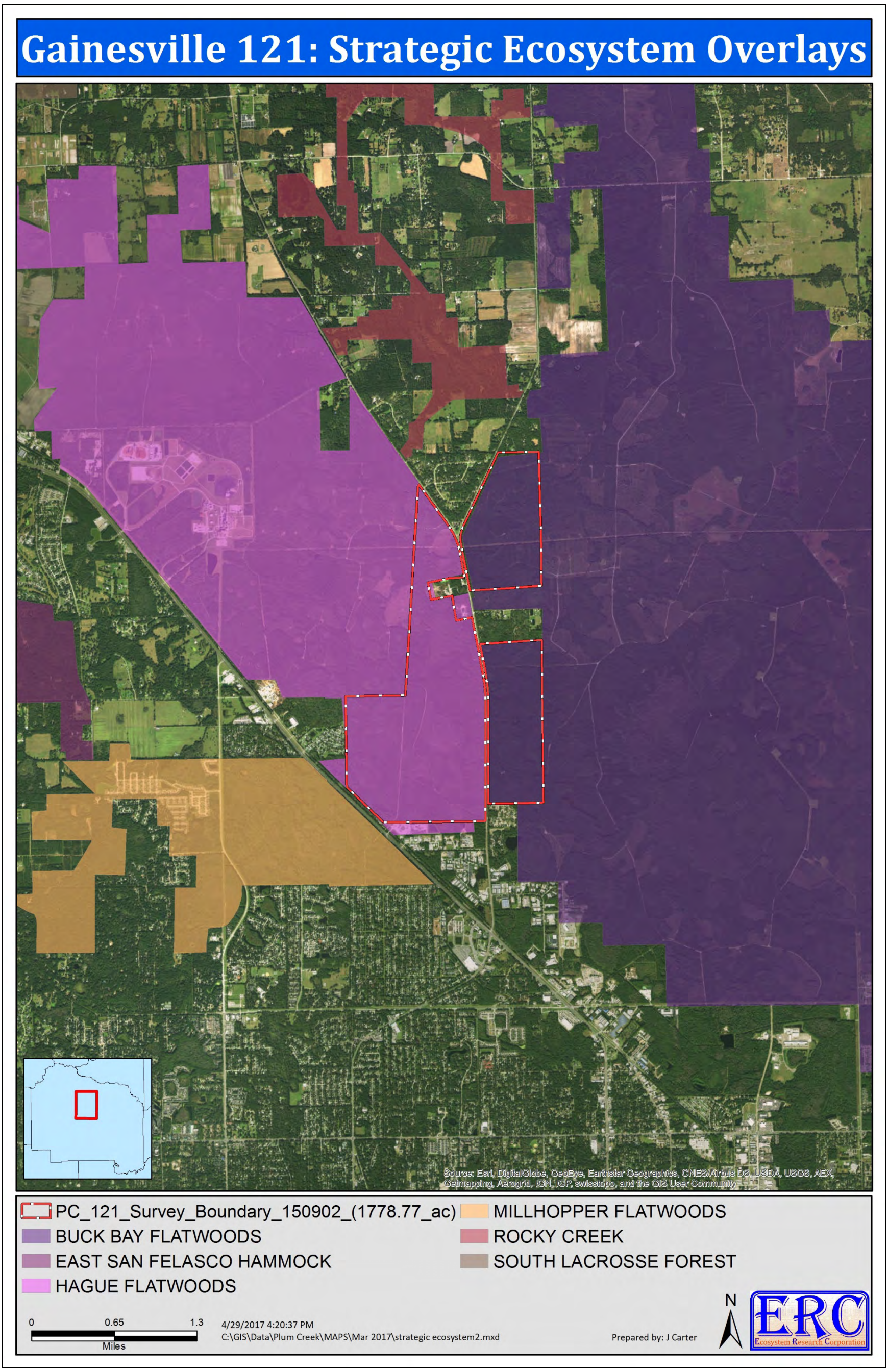


Figure 35. KBN-Golder Ecological Inventory map of the Gainesville 121 Project Site.

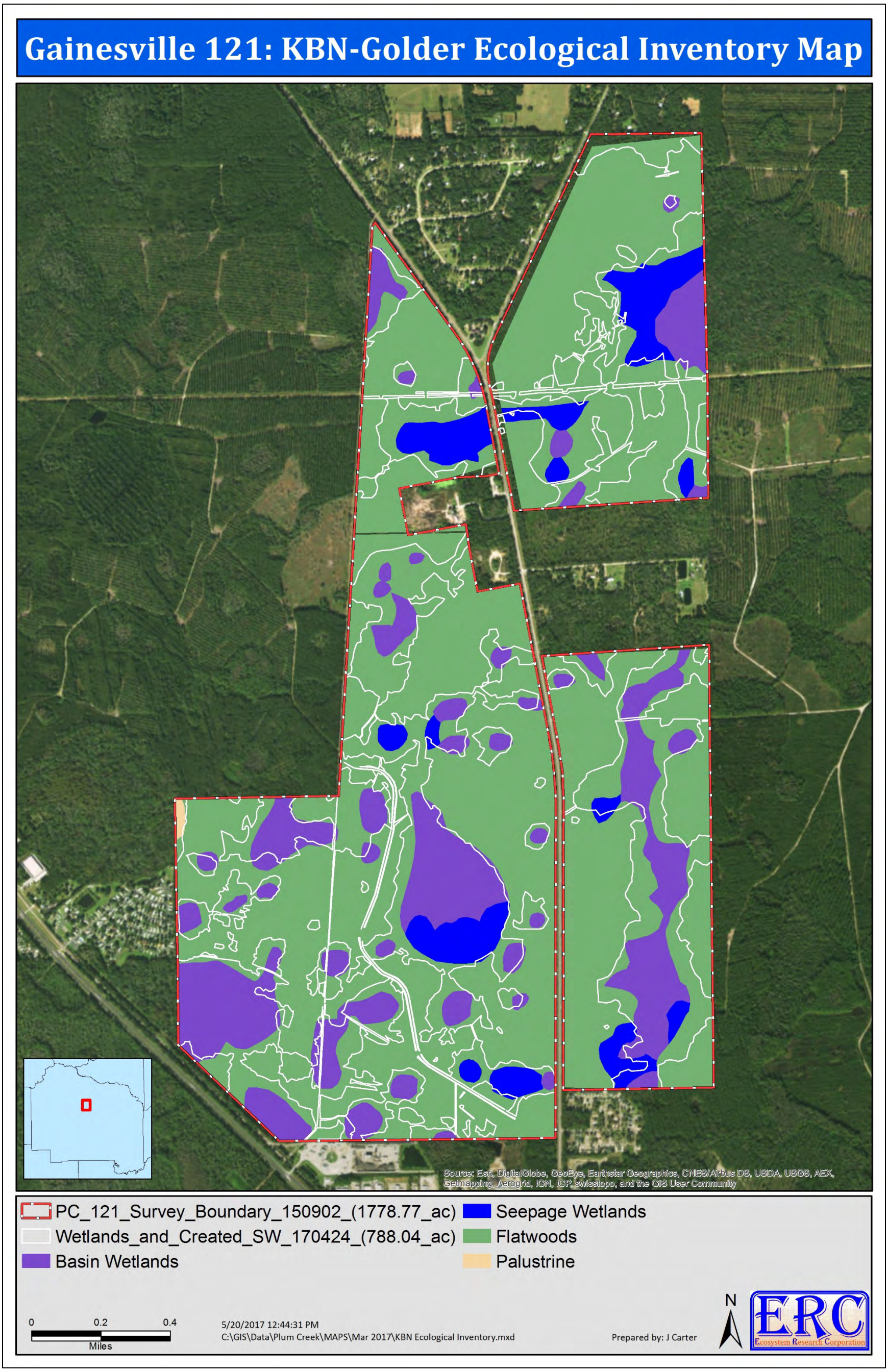


Figure 36. Parks, recreation, and conservation areas shown in relation to the Gainesville 121 Project Site and surrounding area.

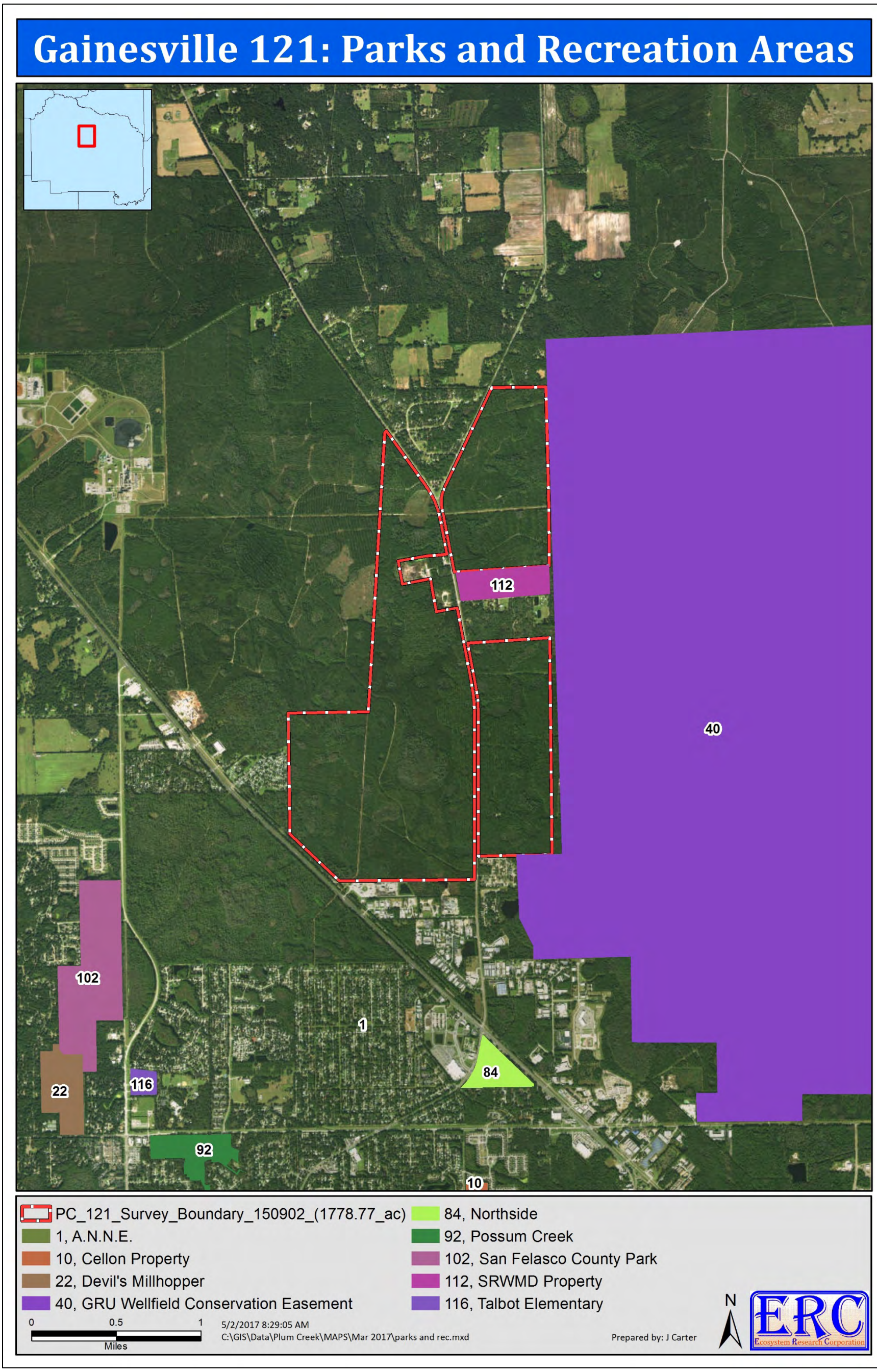


Figure 37. Alachua County hazardous materials storage facilities shown in relation to the Gainesville 121 Project Site and surrounding area.

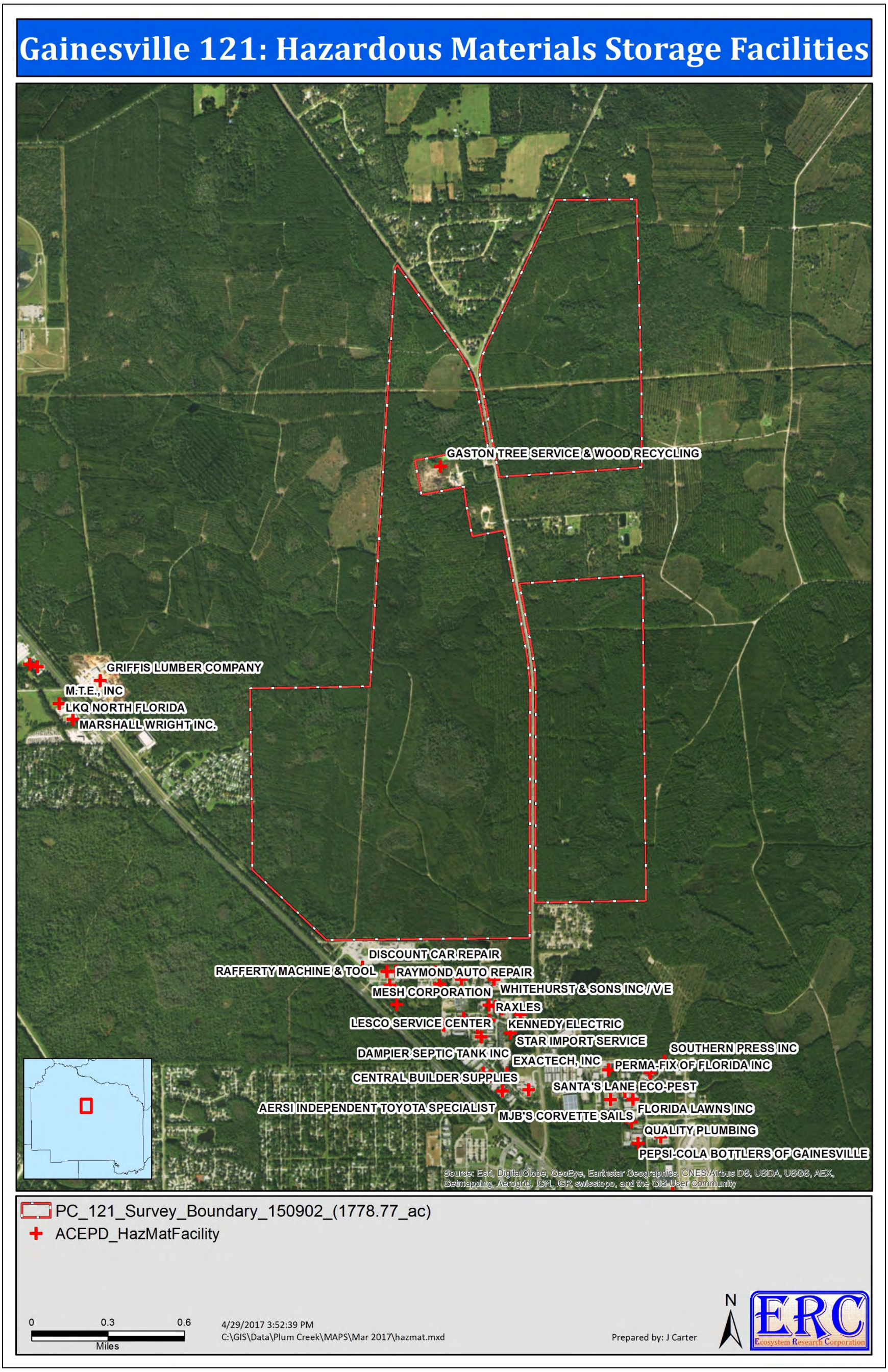


Figure 38. Historic structures shown in relation to the Gainesville 121 Project Site and surrounding area.

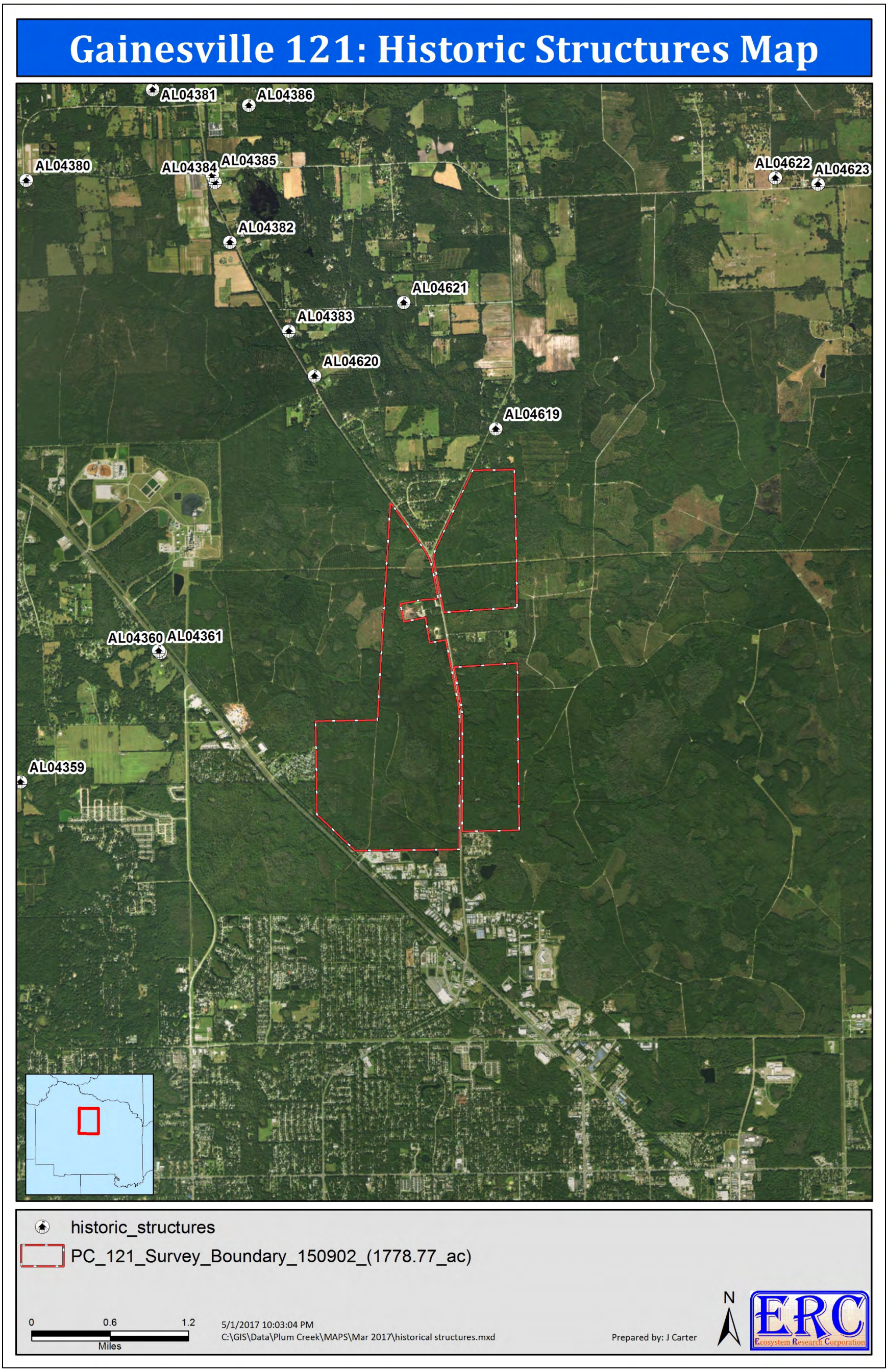


Figure 39. Florida Natural Areas Inventory element occurrence records for the Gainesville 121 Project Site and surrounding area.

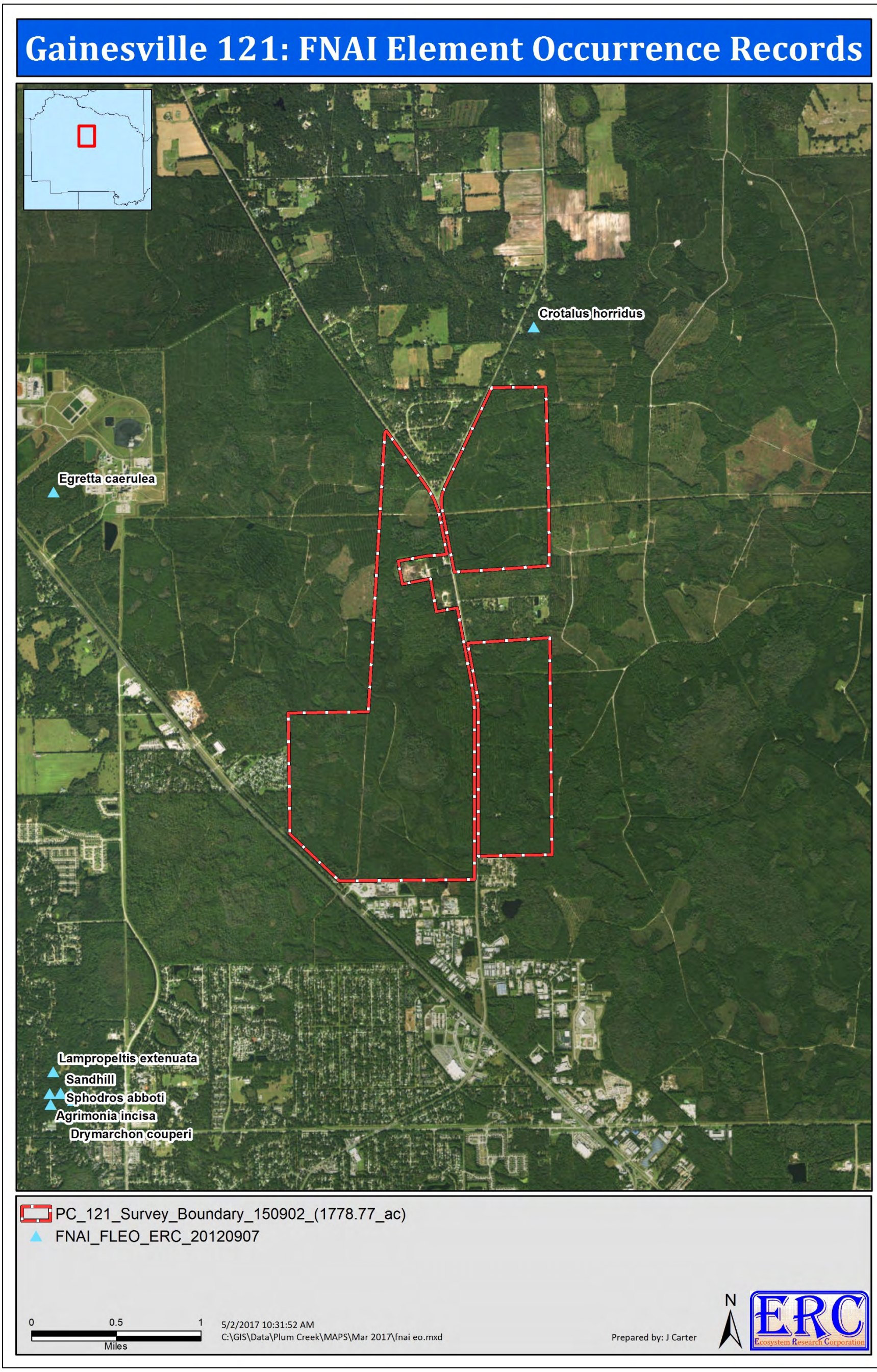


Figure 40. Listed species overlays shown in relation to the Gainesville 121 Project Site and surrounding area.

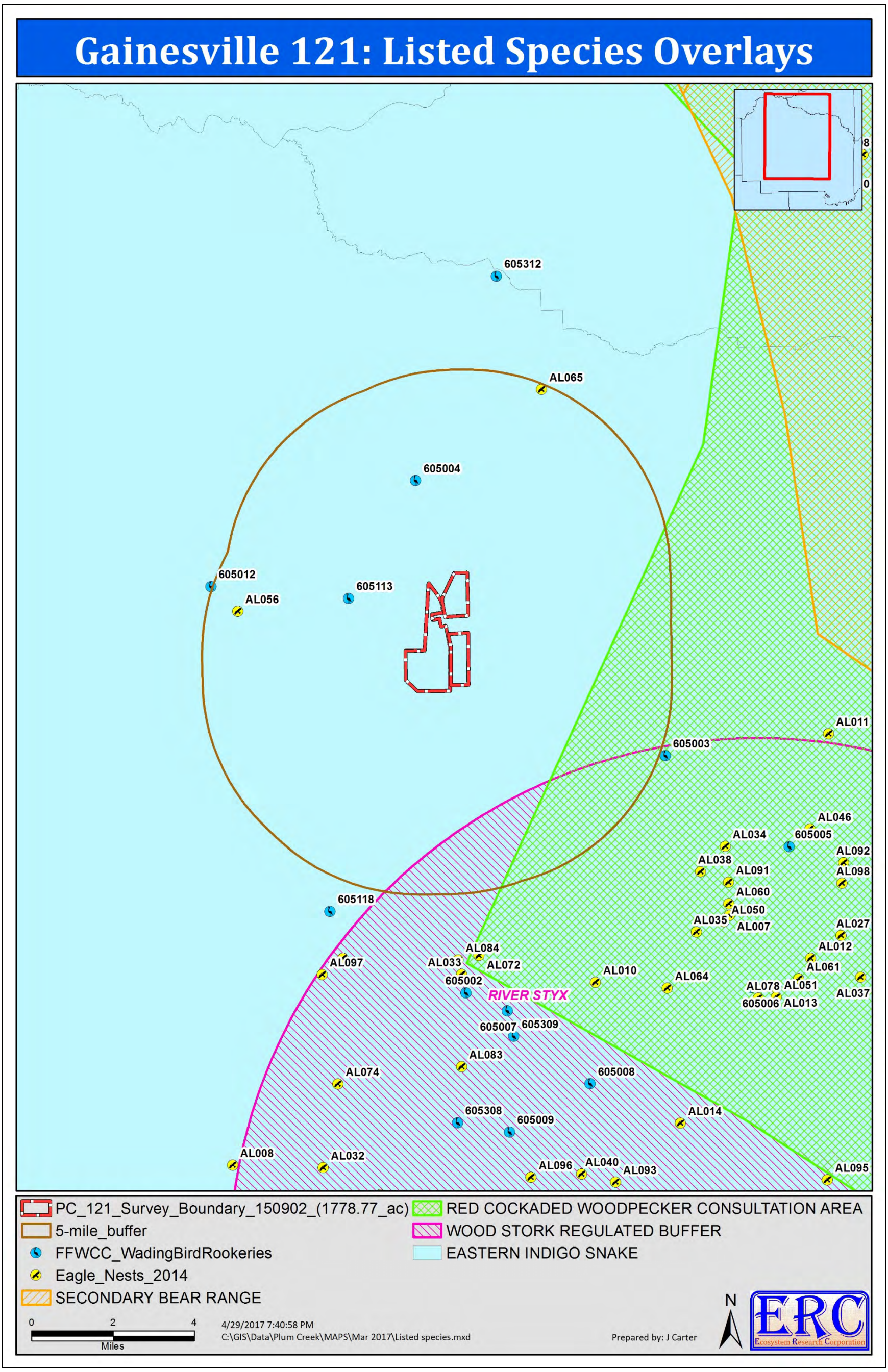


Figure 41. 1937 historical aerial photograph showing the wetlands lines within the Gainesville 121 Project Site.

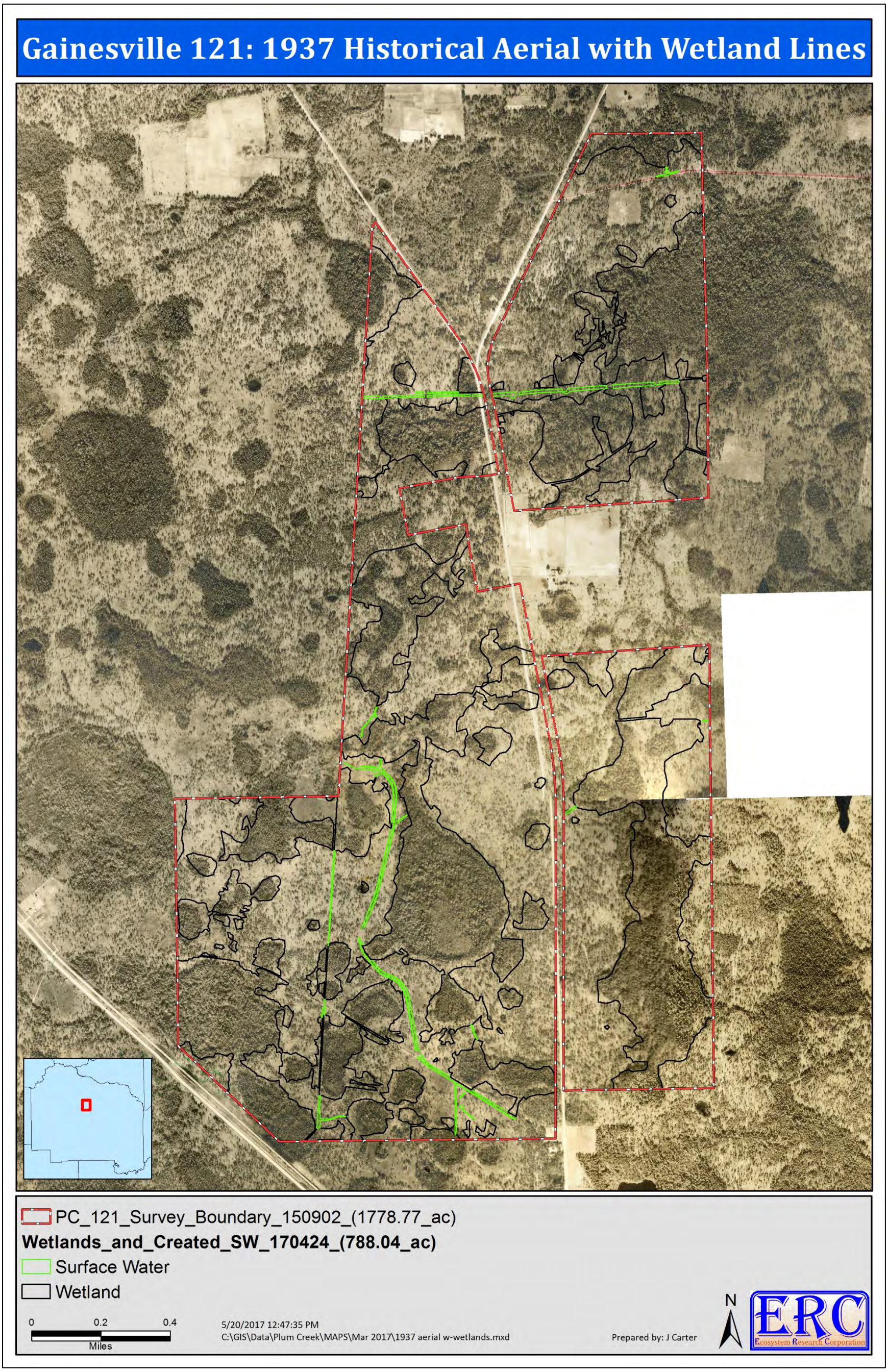


Figure 42. 1949 historical aerial photograph showing the wetlands lines within the Gainesville 121 Project Site.

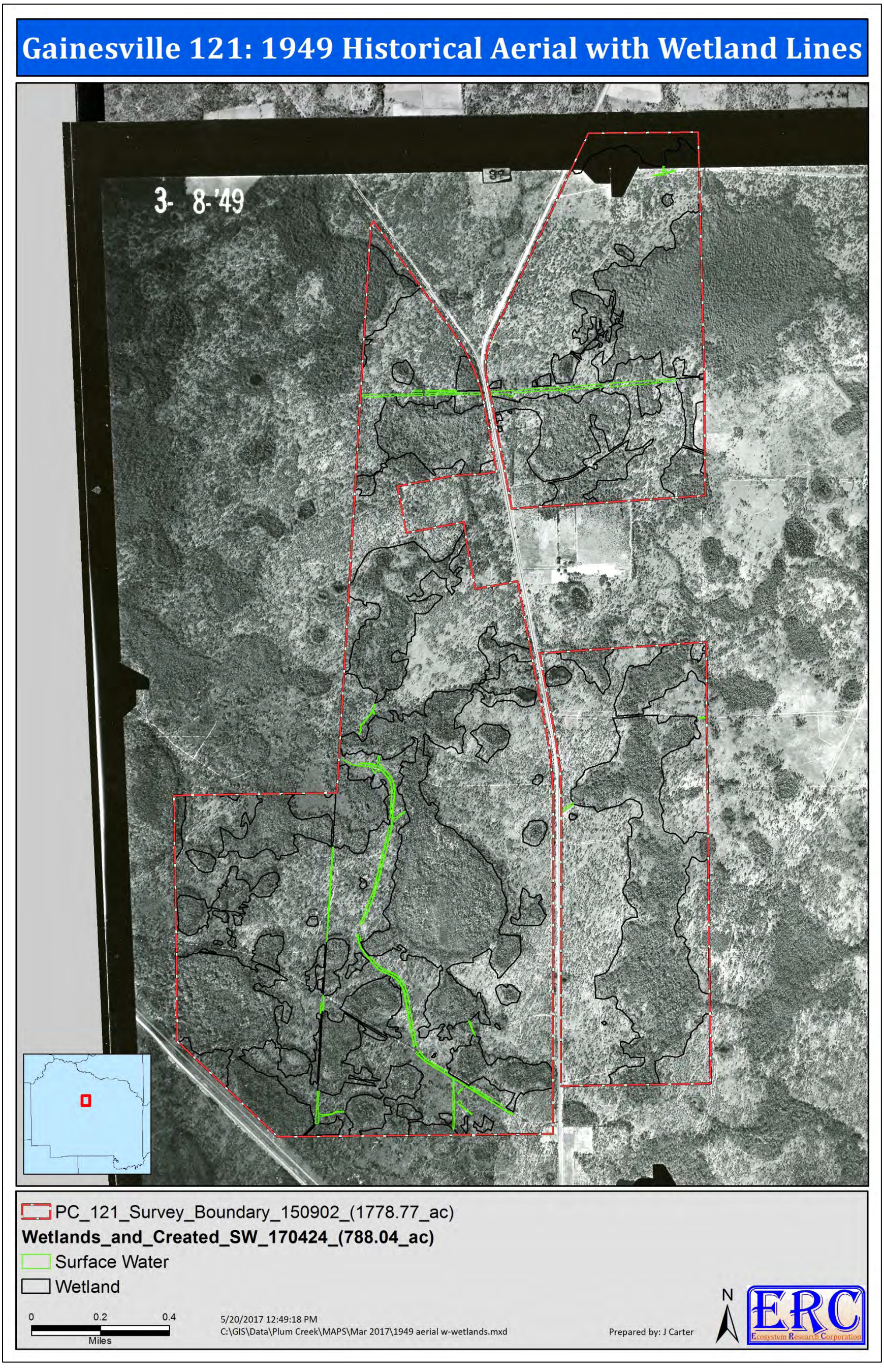


Figure 43. 1955 historical aerial photograph showing the wetlands lines within the Gainesville 121 Project Site.

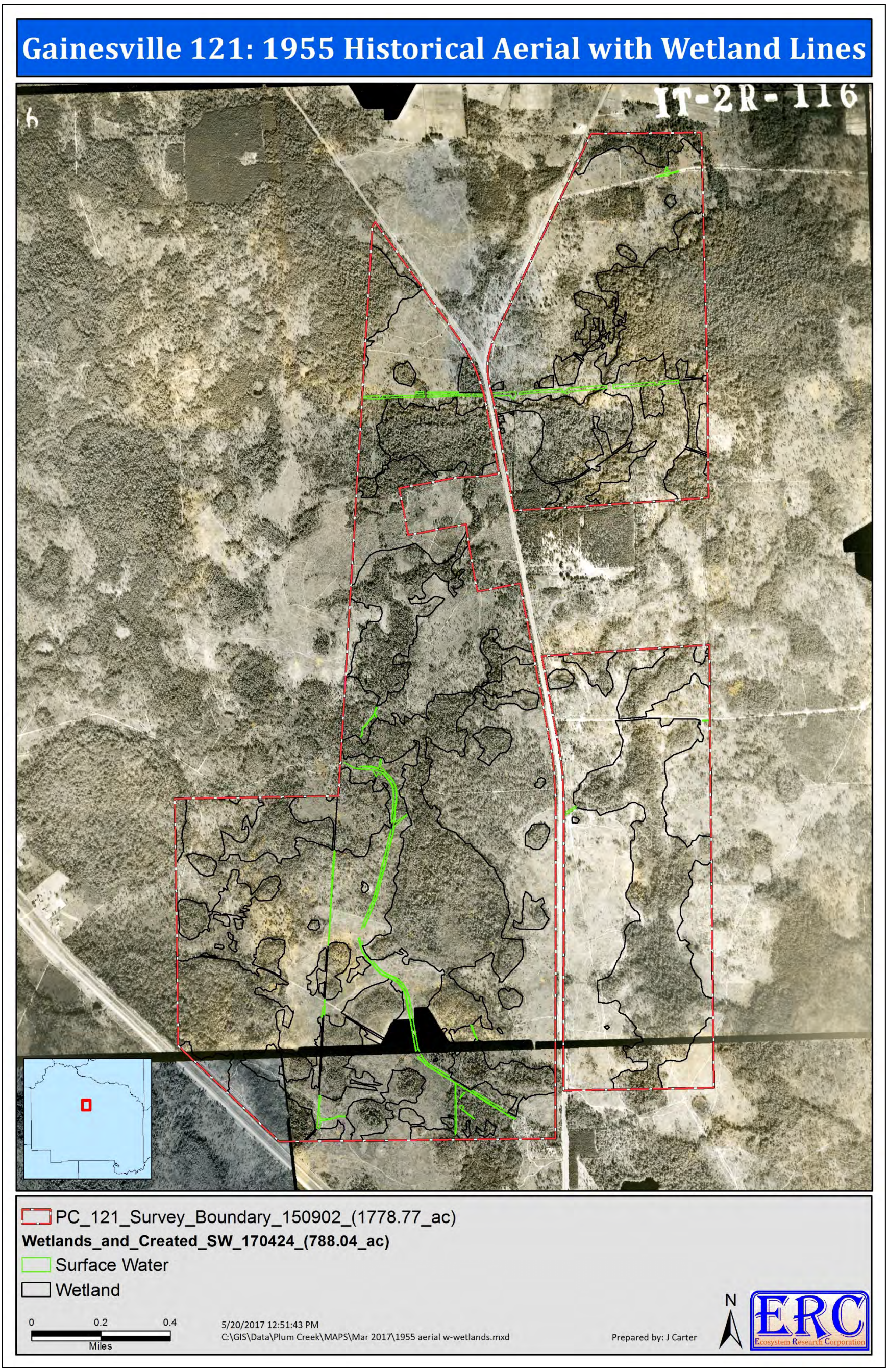


Figure 44. 1961 historical aerial photograph showing the wetlands lines within the Gainesville 121 Project Site.

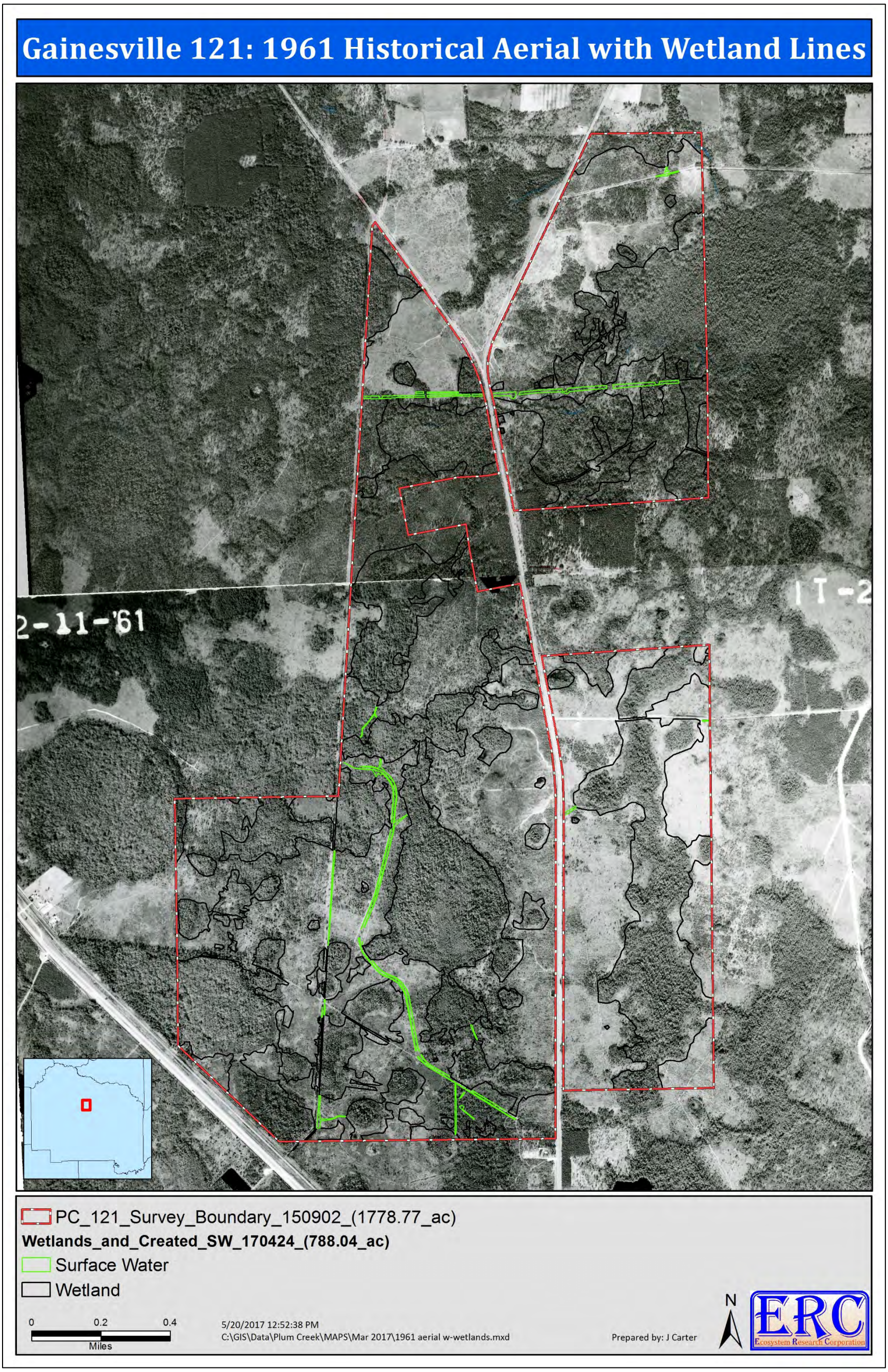


Figure 45. 1968 historical aerial photograph showing the wetlands lines within the Gainesville 121 Project Site.

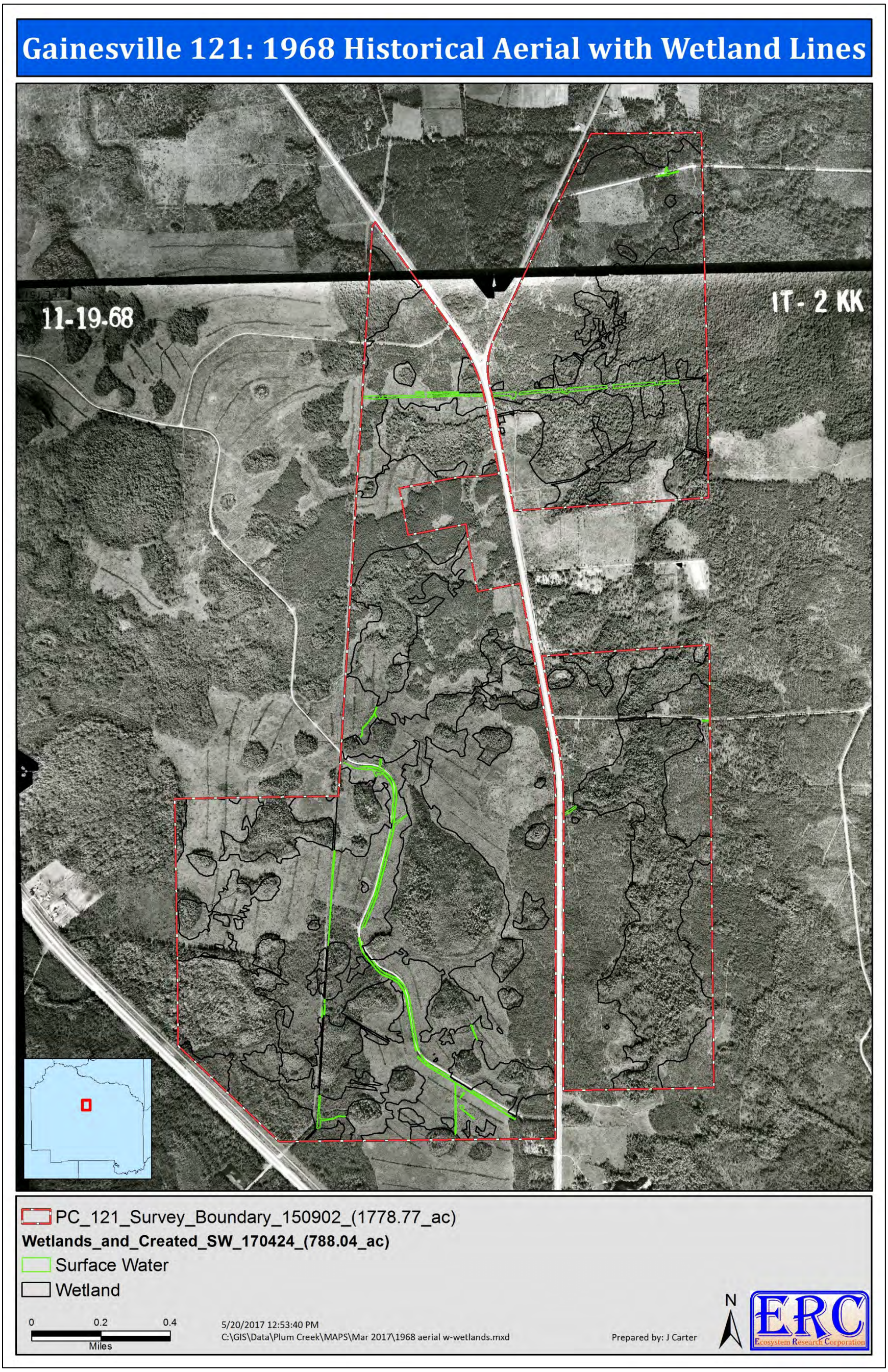


Figure 46. 1974 historical aerial photograph showing the wetlands lines within the Gainesville 121 Project Site.

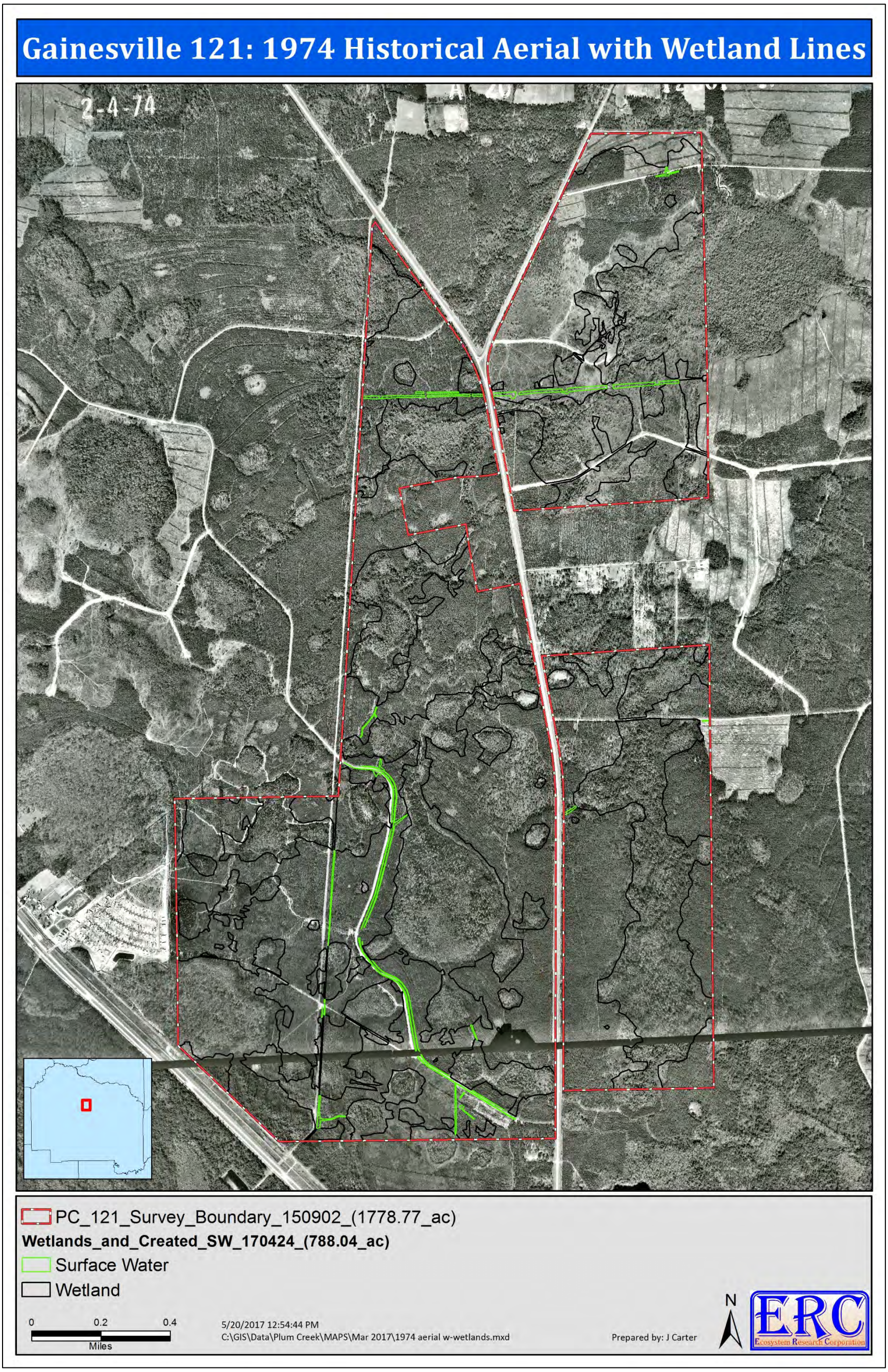


Figure 47. Locations where site-specific data were collected during the field surveys of the Project Site.

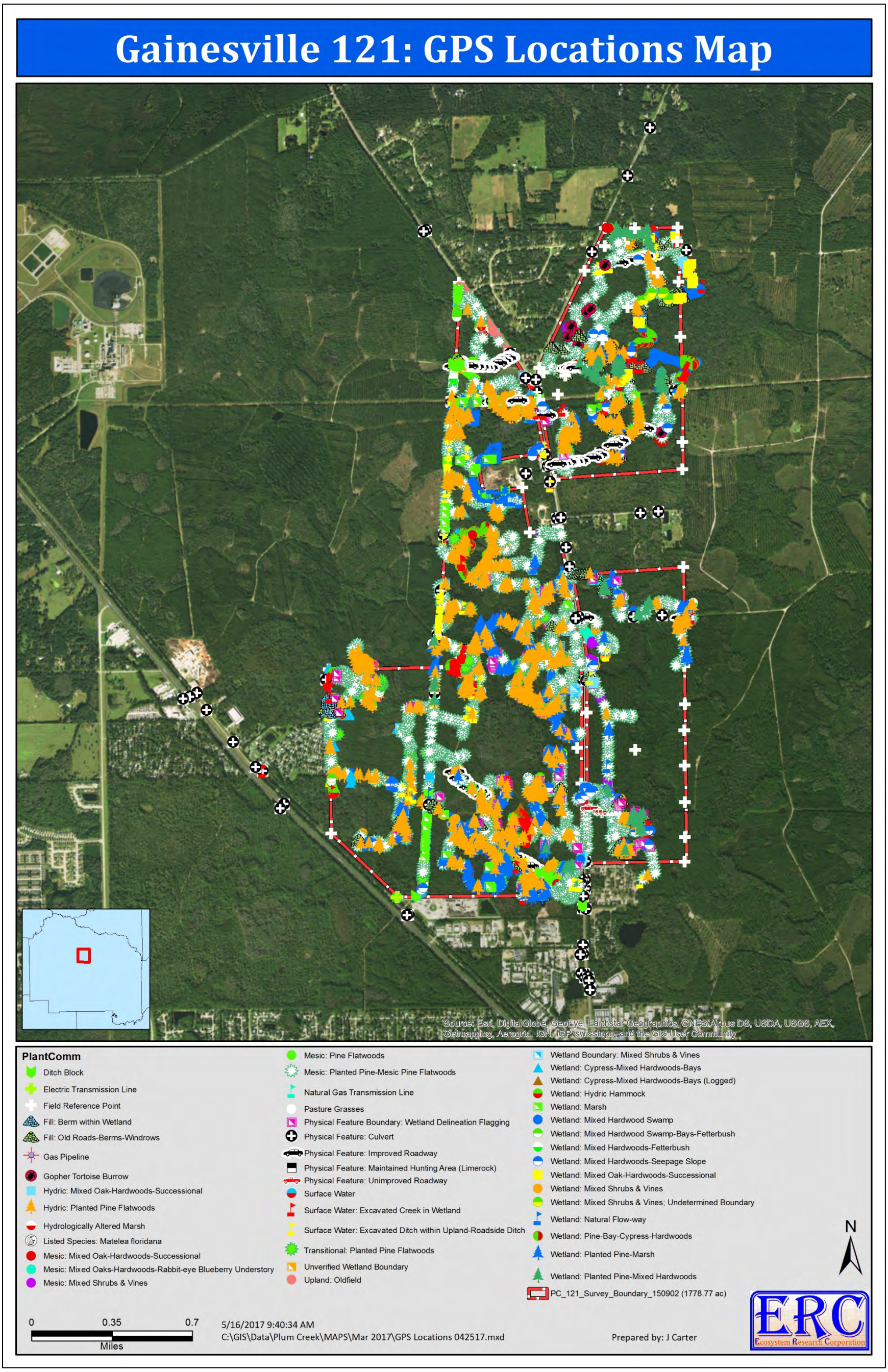


Figure 48. Plant communities existing on the Project Site.

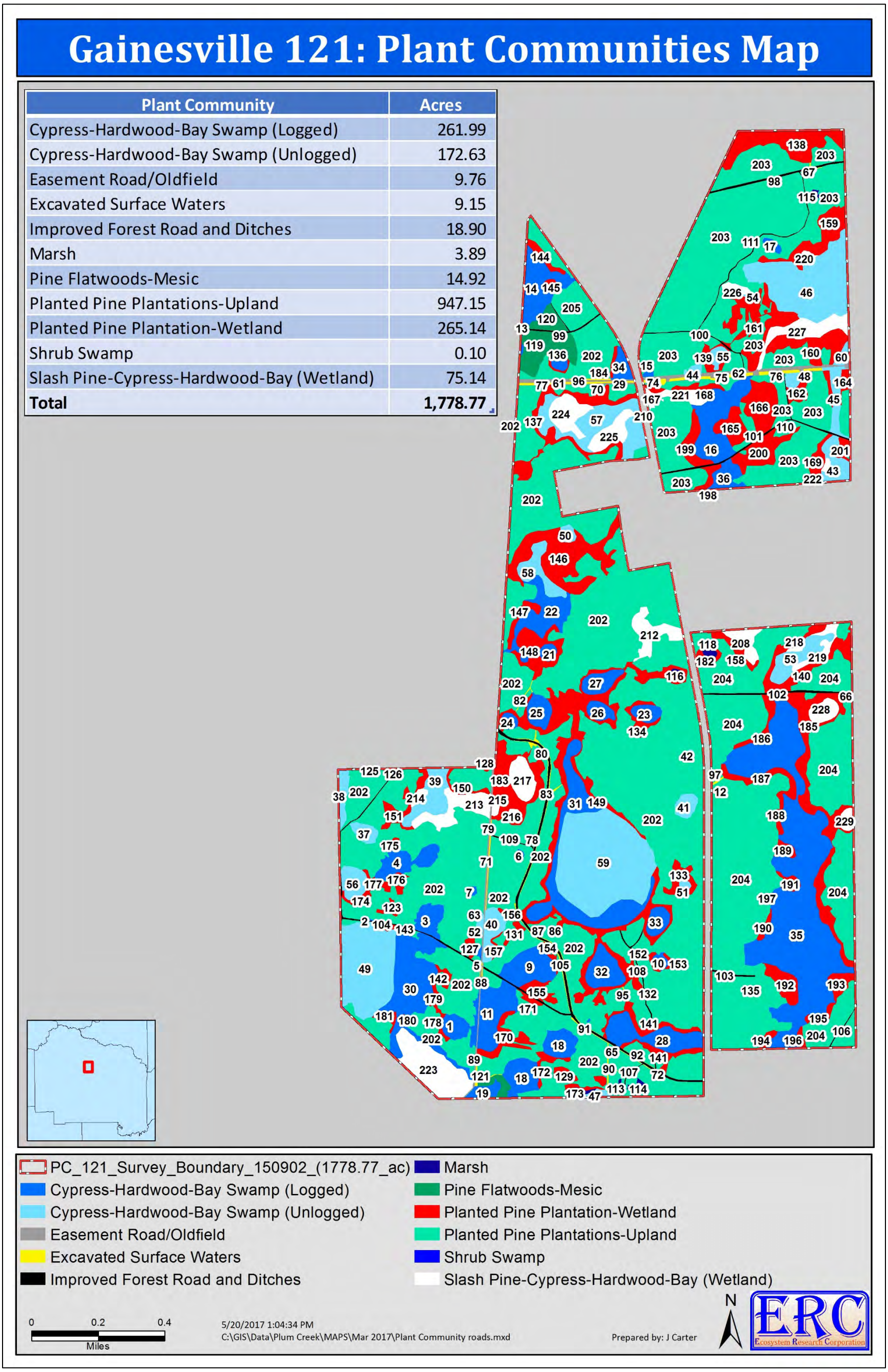


Figure 49. Plant communities occurring within the northern area of the Project Site.

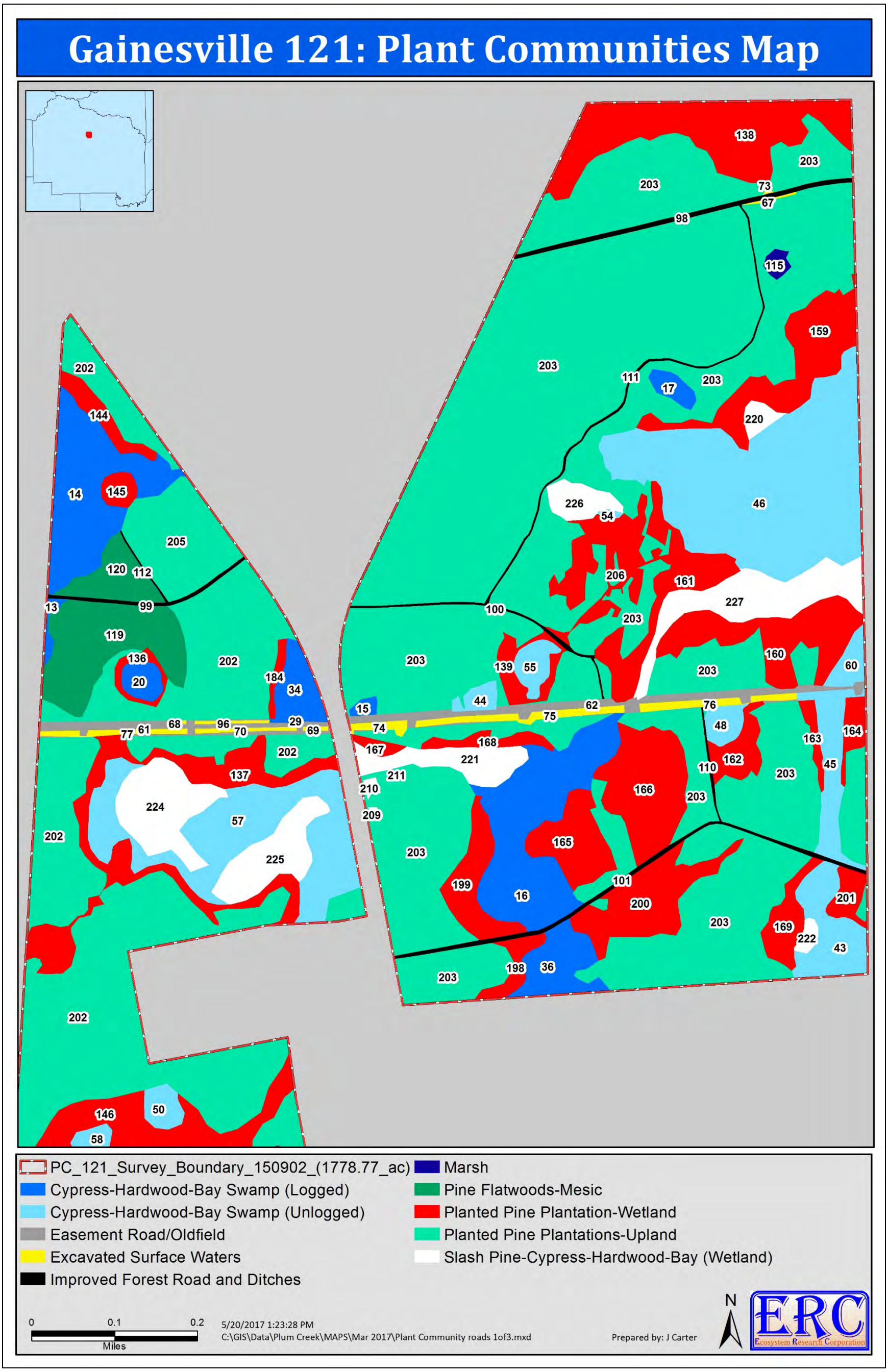


Figure 50. Plant communities occurring within the central area of the Project Site.

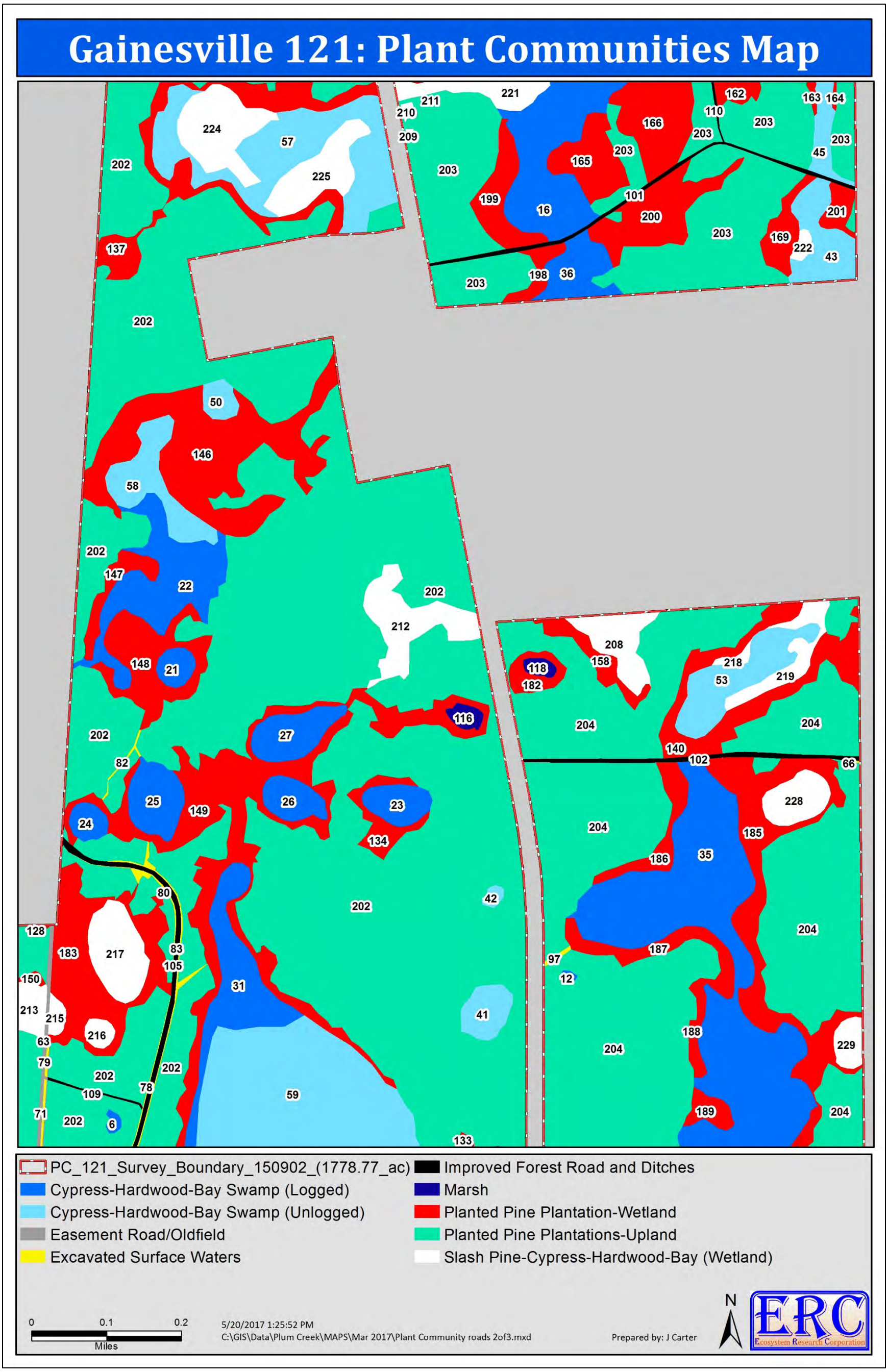


Figure 51. Plant communities occurring within the southern area of the Project Site.

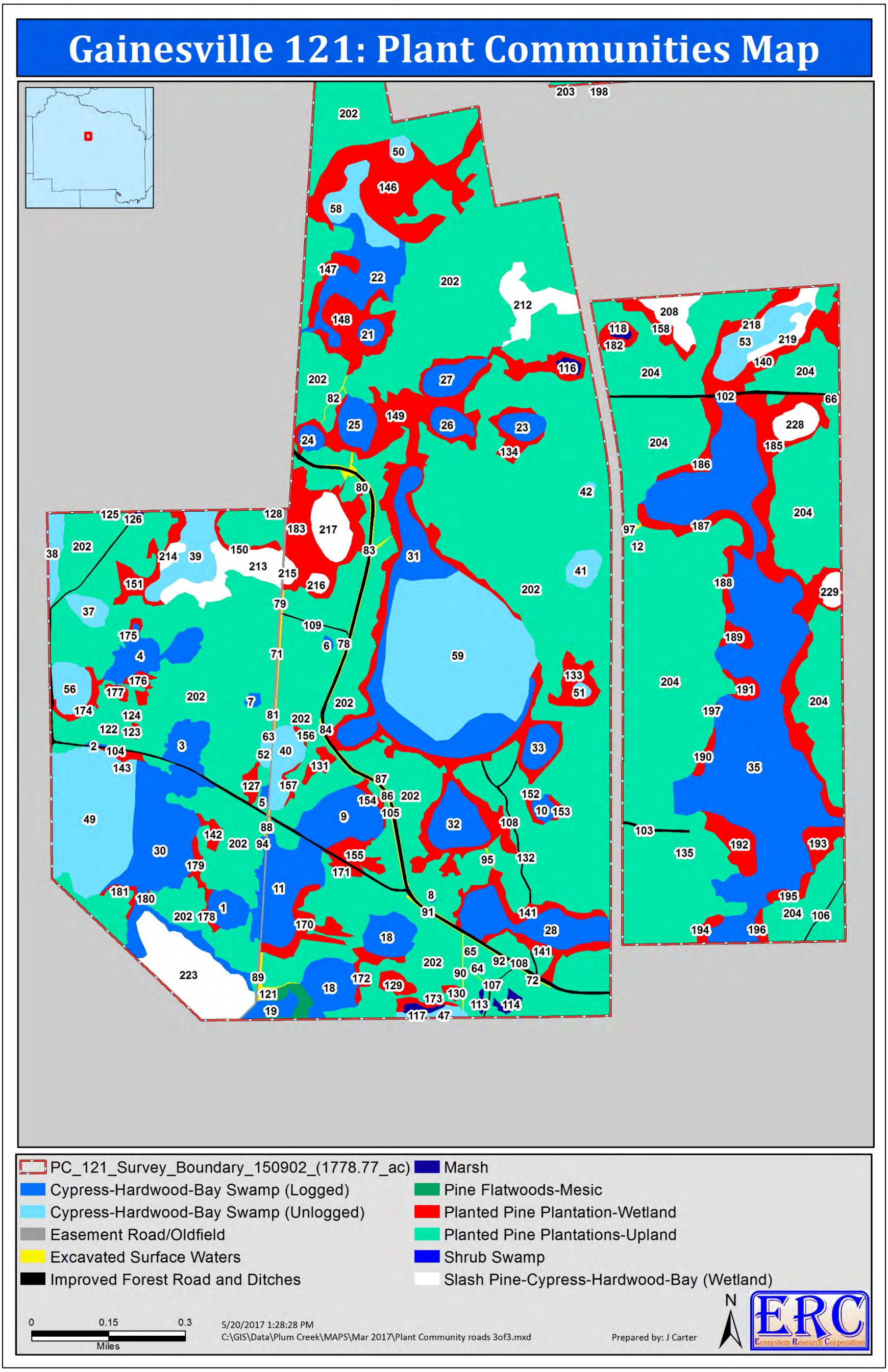


Figure 52. Gainesville SR 121 Planned Development plan.

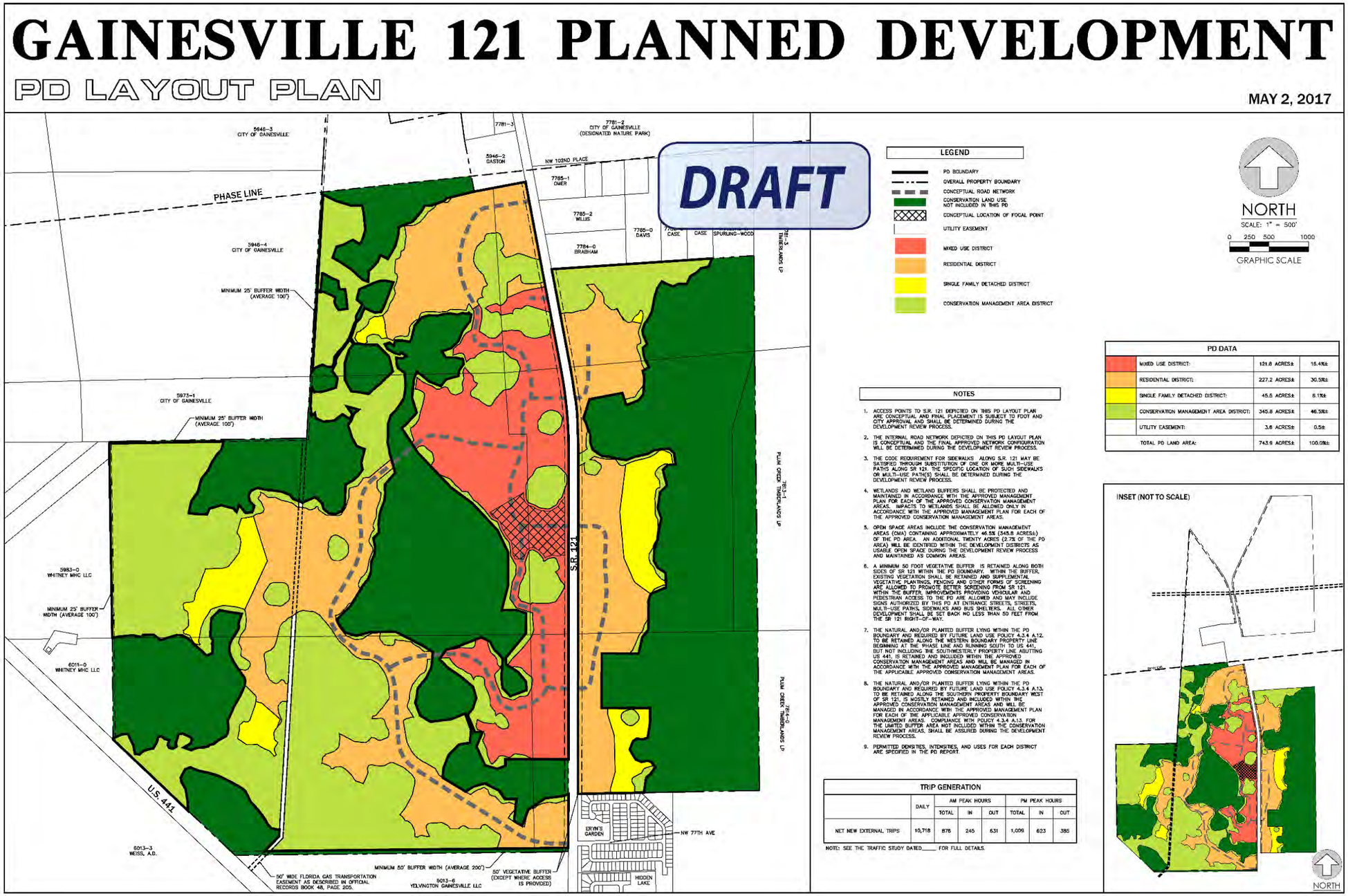


Figure 53. Future Land Use of the Plum Creek SR-121 Overall Site as defined in Policy 4.3.4 of the Future Land Use Element of the City of Gainesville Comprehensive Plan.

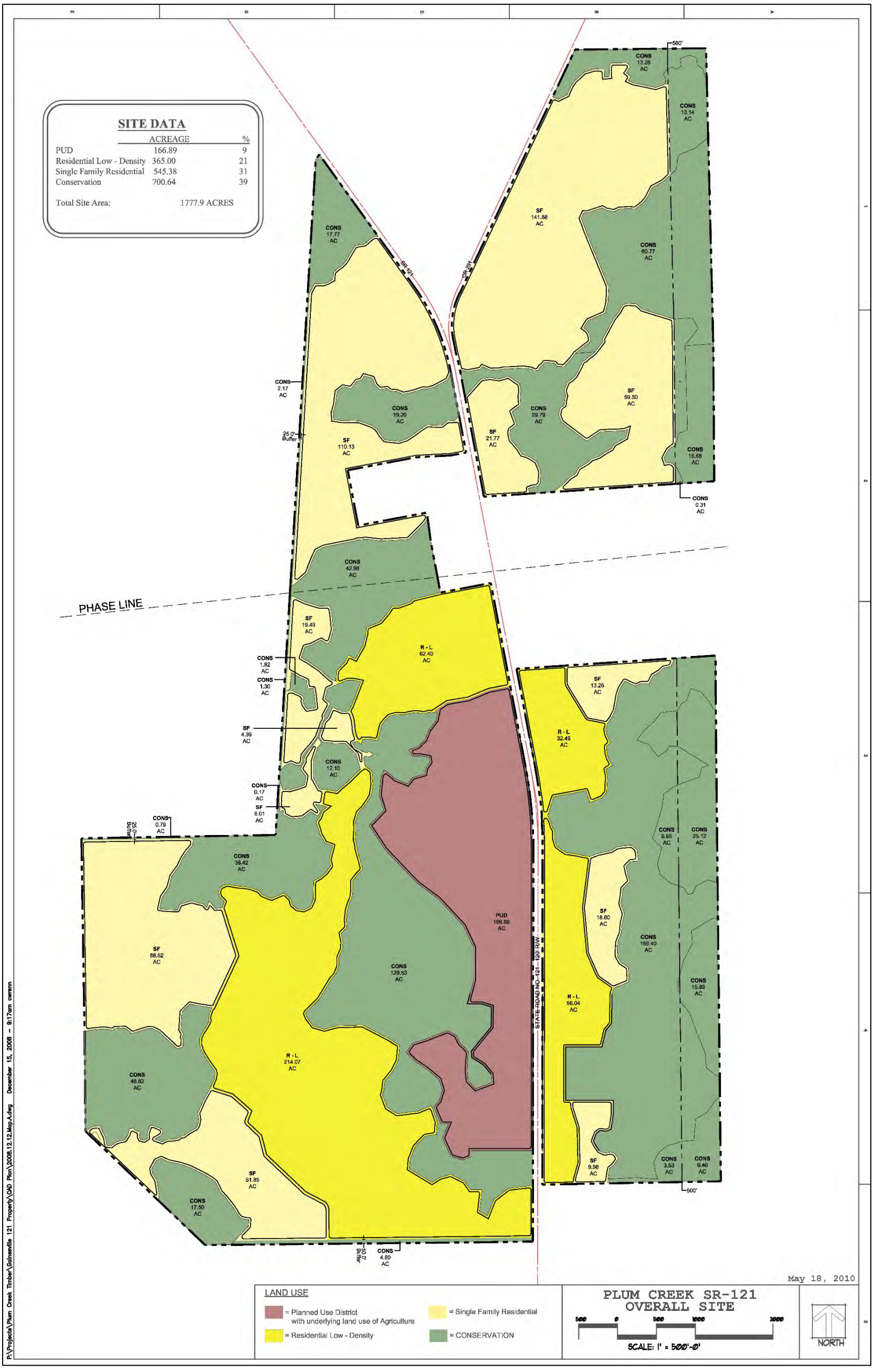


Figure 54. Plant communities occurring within the Planned Development and adjacent Future Land Use Conservation Areas.

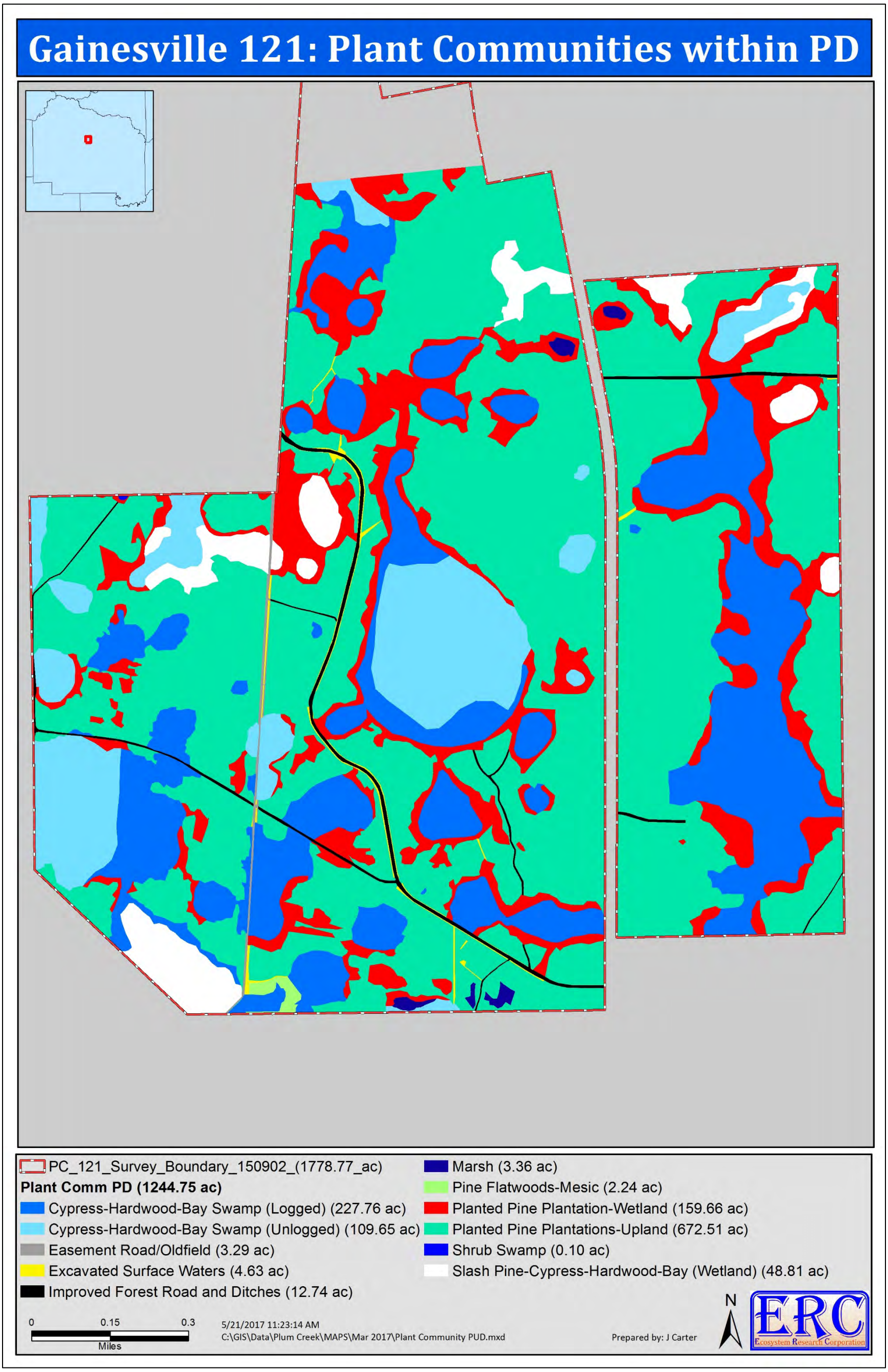


Figure 55. Location of gopher tortoise burrows within the Project Site.

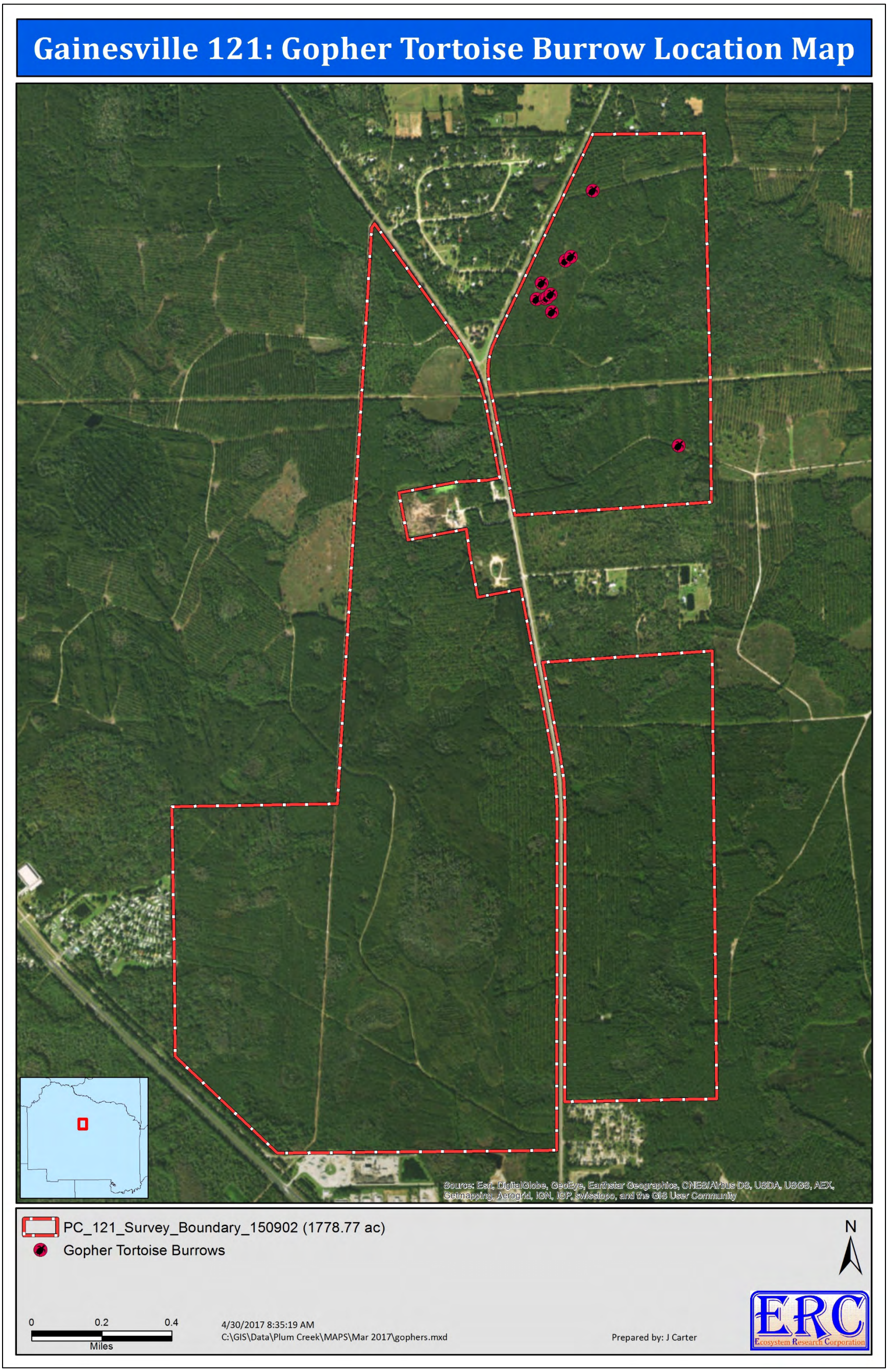


Figure 56. Distribution of listed plant species on the Project Site.

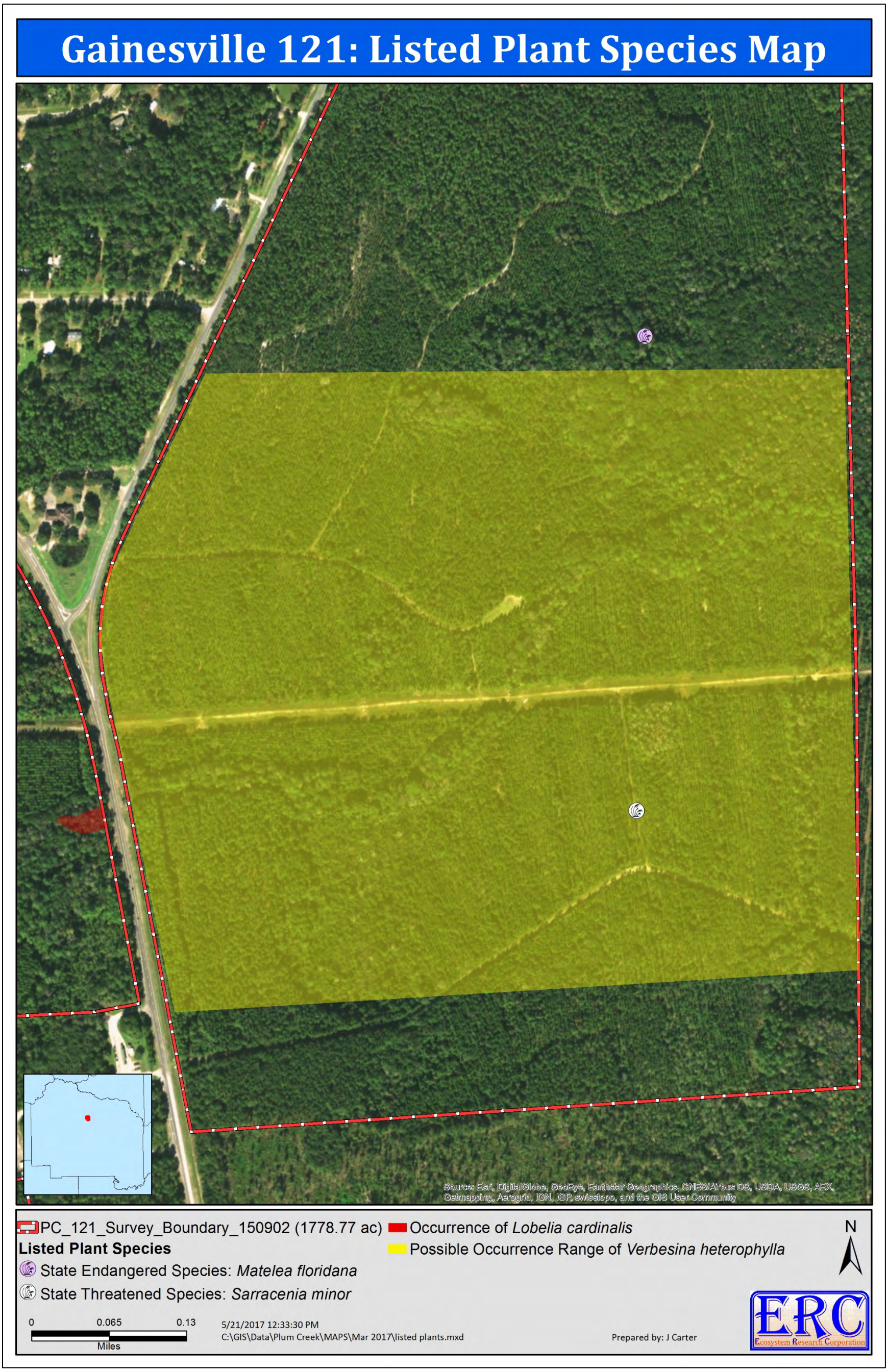


Figure 57. Schematic of flow-ways and drainage basins occurring on the Project Site.

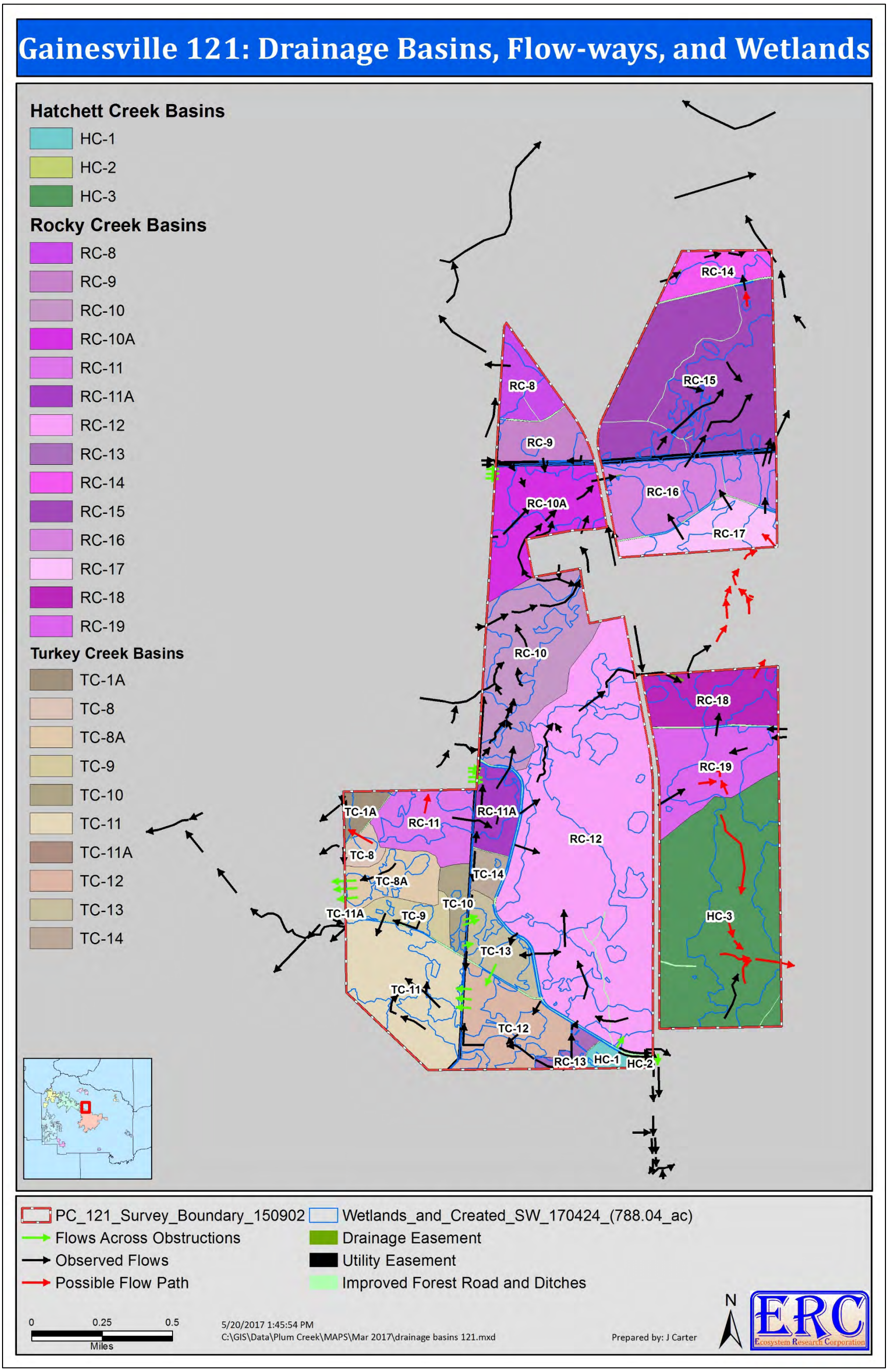


Figure 58. Flow-ways and drainage basins occurring on the Project Site as shown on a 2013 false color infrared aerial photograph.

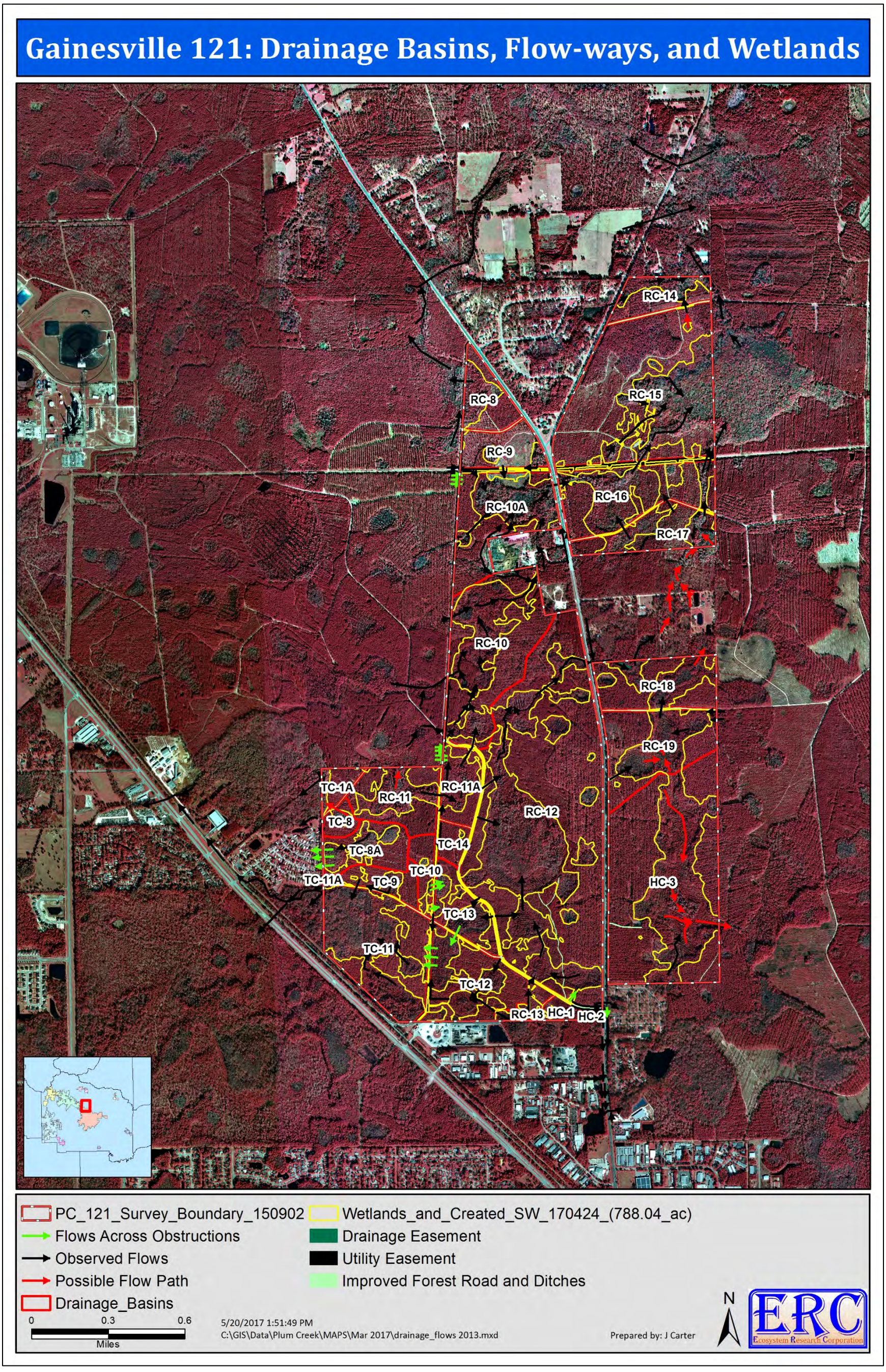


Figure 59. Flow-ways and drainage basins occurring on the Project Site as shown on a 2008 color aerial photograph.

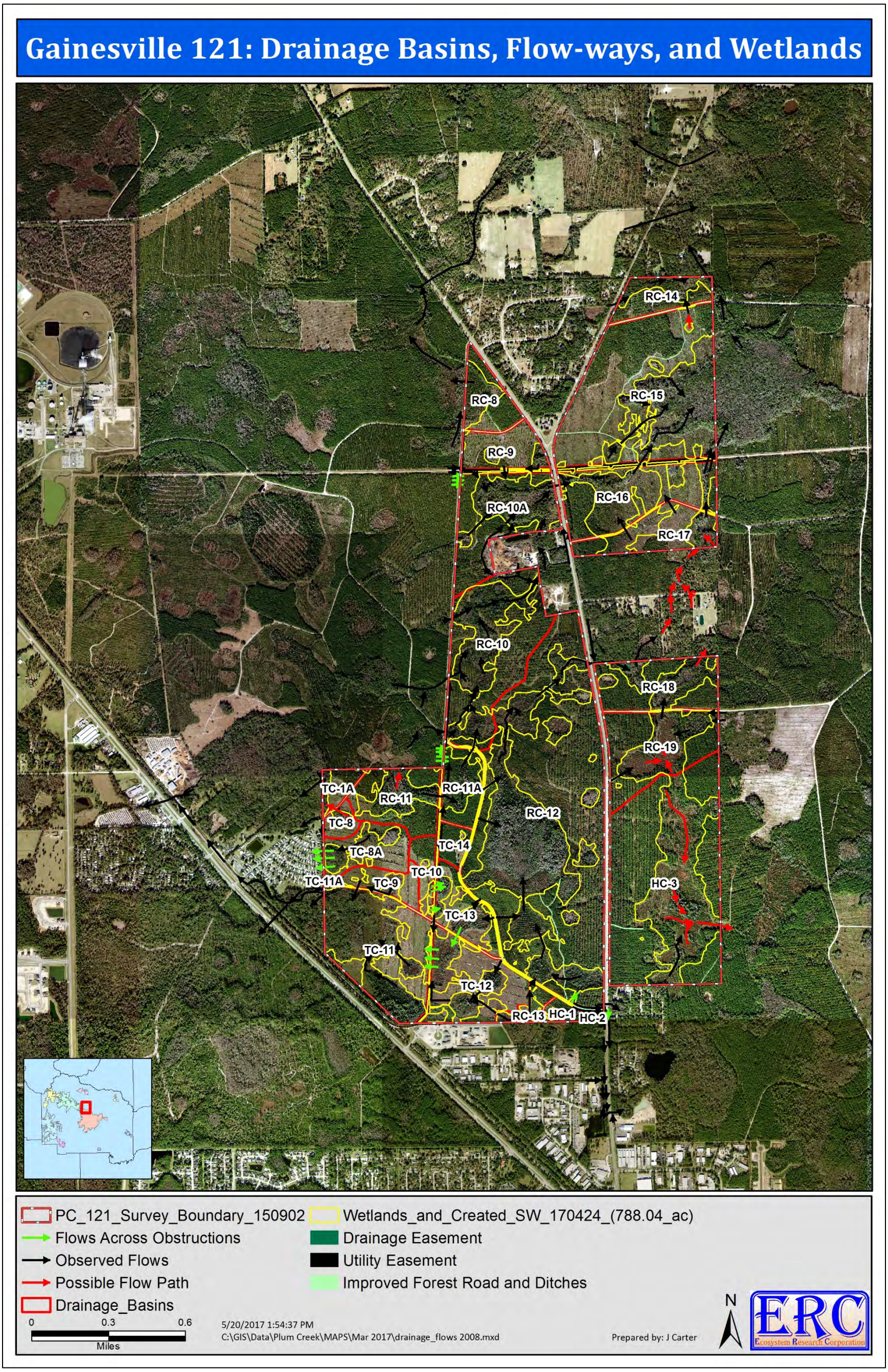


Figure 60. Flow-ways and drainage basins occurring on the Project Site as shown on a 2000 color aerial photograph.

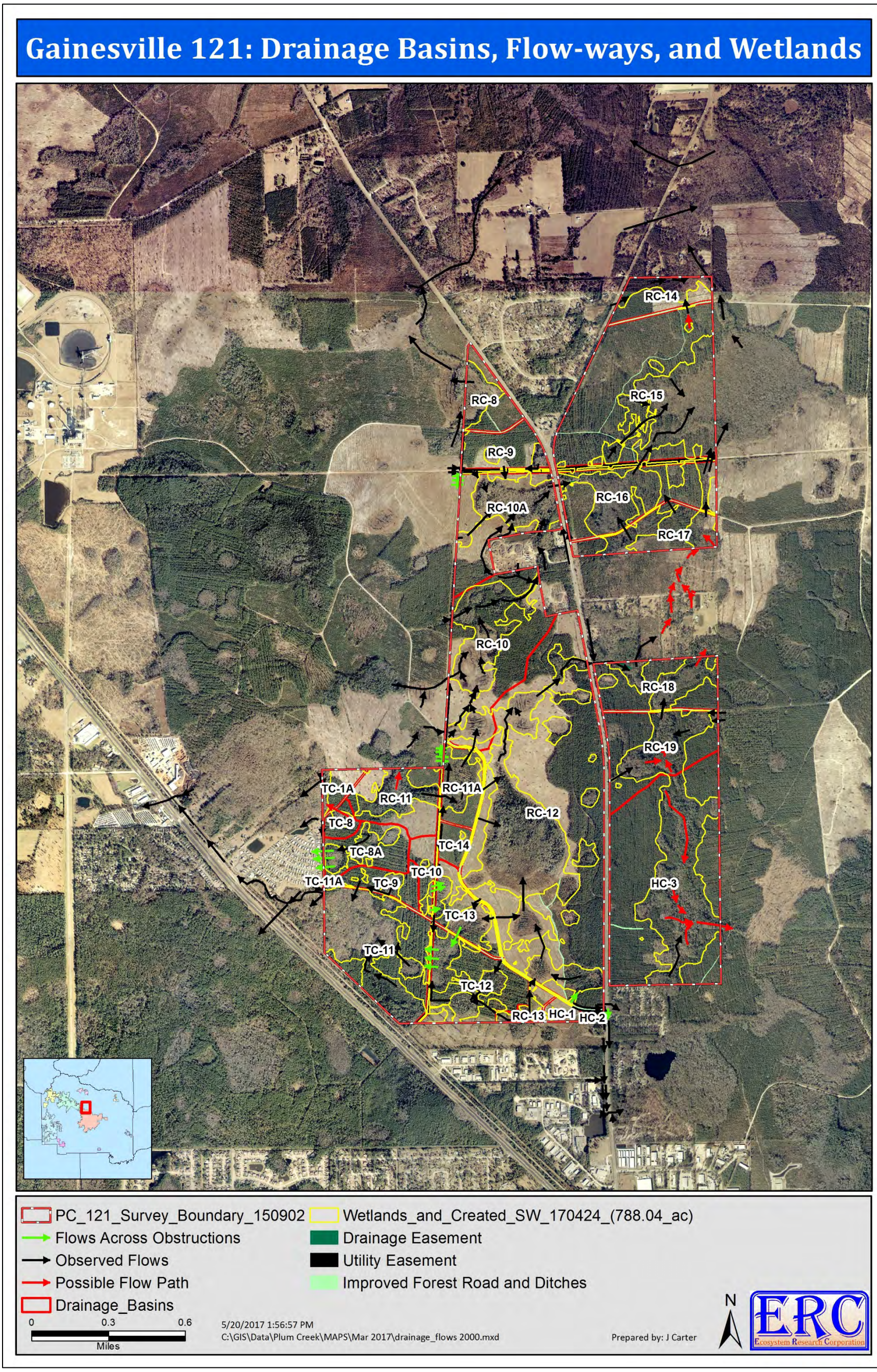


Figure 61. Flow-ways and drainage basins occurring on the Project Site as shown on a 1968 black and white aerial photograph.

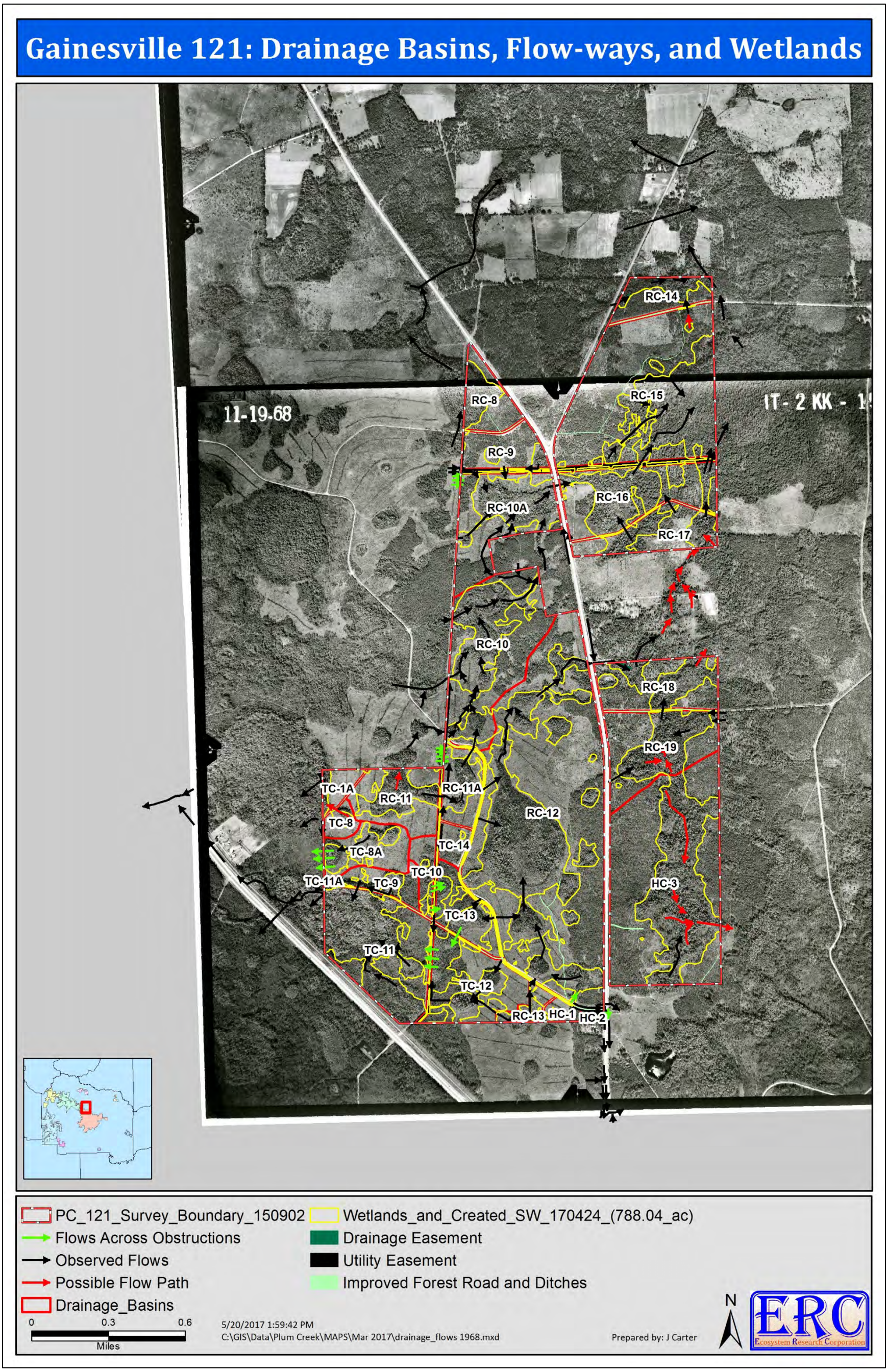


Figure 62. Drainage basins and flow-ways that occur on the Project Site and adjacent areas of the City of Gainesville Annexation Property and Deerhaven Power Plant site.

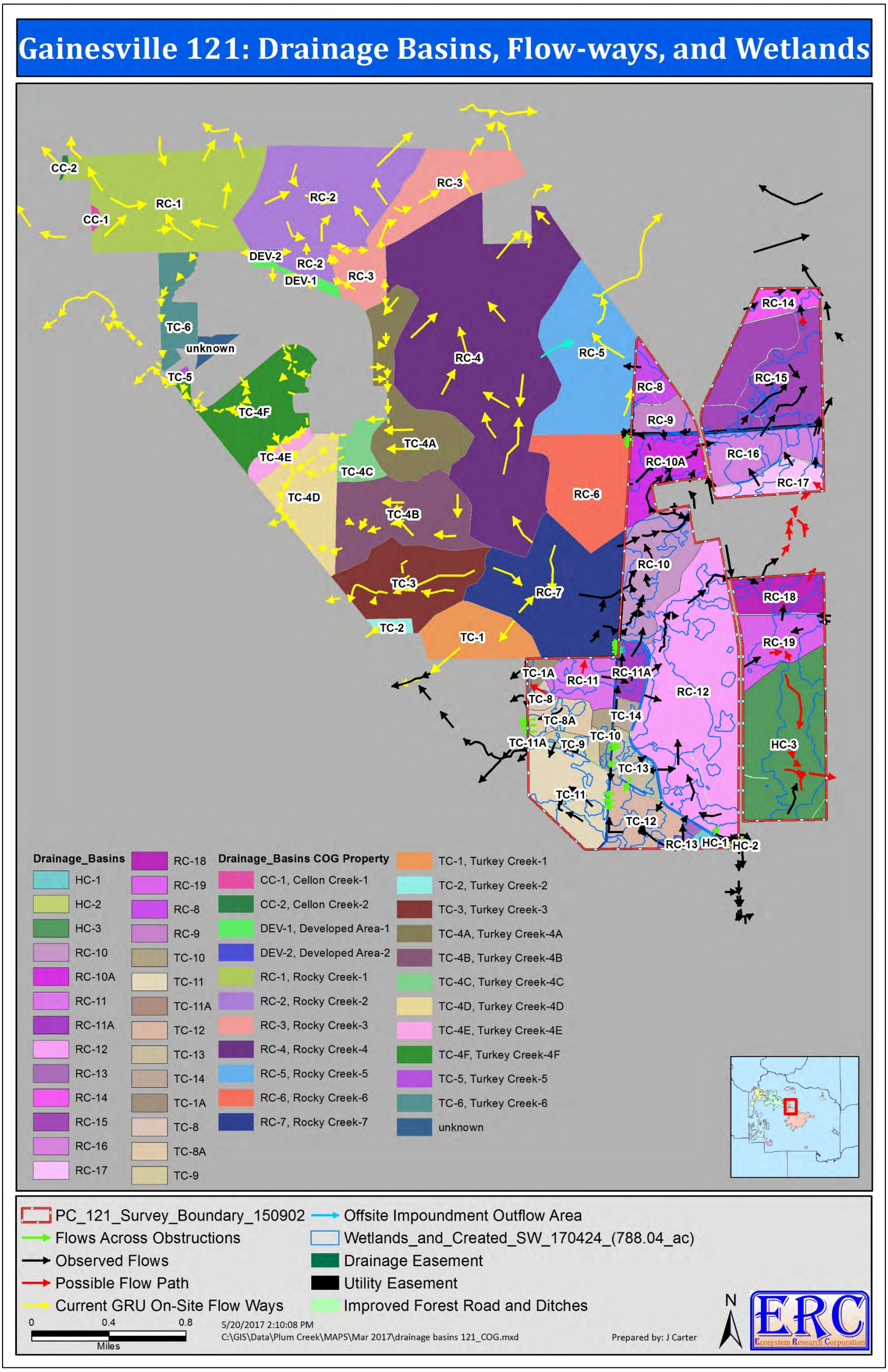


Figure 63. Impoundment and outflow areas on the Project Site.

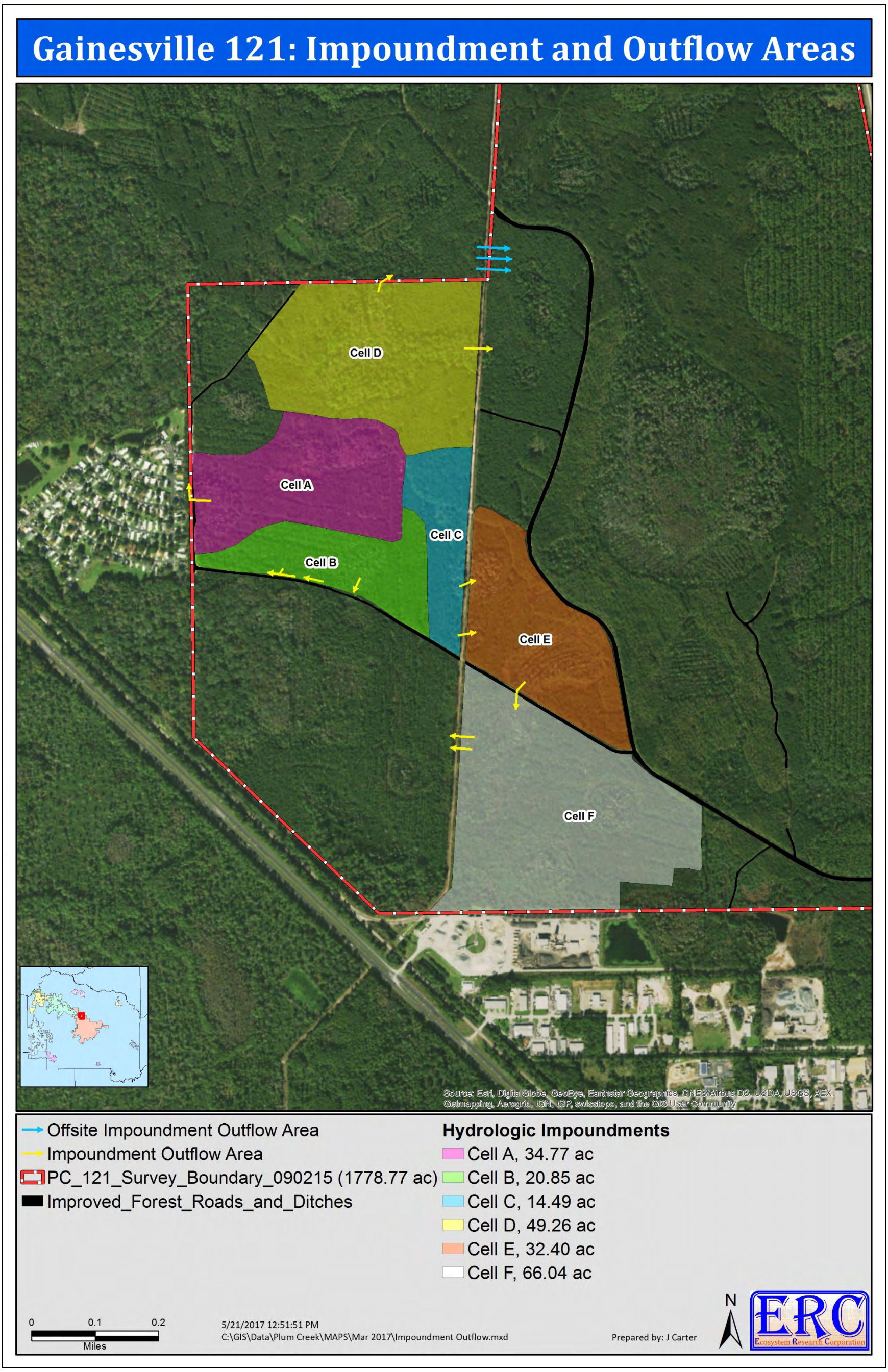
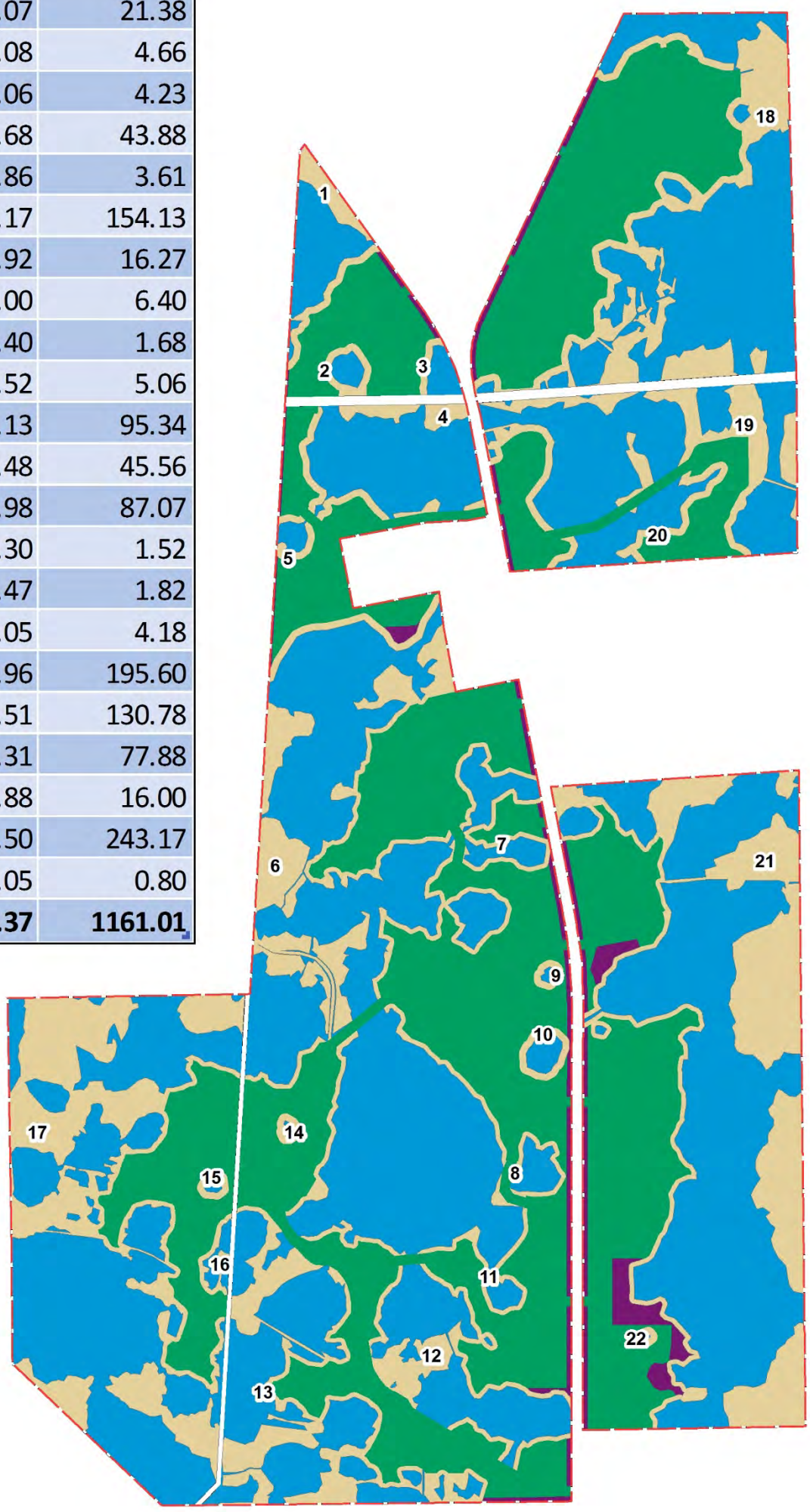
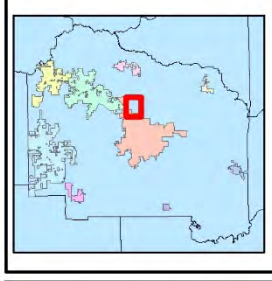


Figure 64. Wetlands and uplands occurring within twenty-two (22) Conservation Management Areas occurring on the Project Site.

Gainesville 121: CMA Wetlands and Uplands

CMA No.	Upland	Wetland	Total
1	7.31	14.07	21.38
2	2.58	2.08	4.66
3	1.17	3.06	4.23
4	9.20	34.68	43.88
5	1.76	1.86	3.61
6	51.97	102.17	154.13
7	6.35	9.92	16.27
8	2.41	4.00	6.40
9	1.29	0.40	1.68
10	2.54	2.52	5.06
11	12.21	83.13	95.34
12	15.08	30.48	45.56
13	33.09	53.98	87.07
14	1.21	0.30	1.52
15	1.34	0.47	1.82
16	2.13	2.05	4.18
17	76.64	118.96	195.60
18	42.27	88.51	130.78
19	24.57	53.31	77.88
20	5.12	10.88	16.00
21	86.67	156.50	243.17
22	0.74	0.05	0.80
Total	**387.64**	**773.37**	**1161.01**





PC_121_Survey_Boundary_090215 (1778.77 ac)
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Available_Development_Area_(566.17_ac)
Easement
CMA_Uplands_170424_(387.64_ac)
CMA_Wetlands_170424_(773.37_ac)

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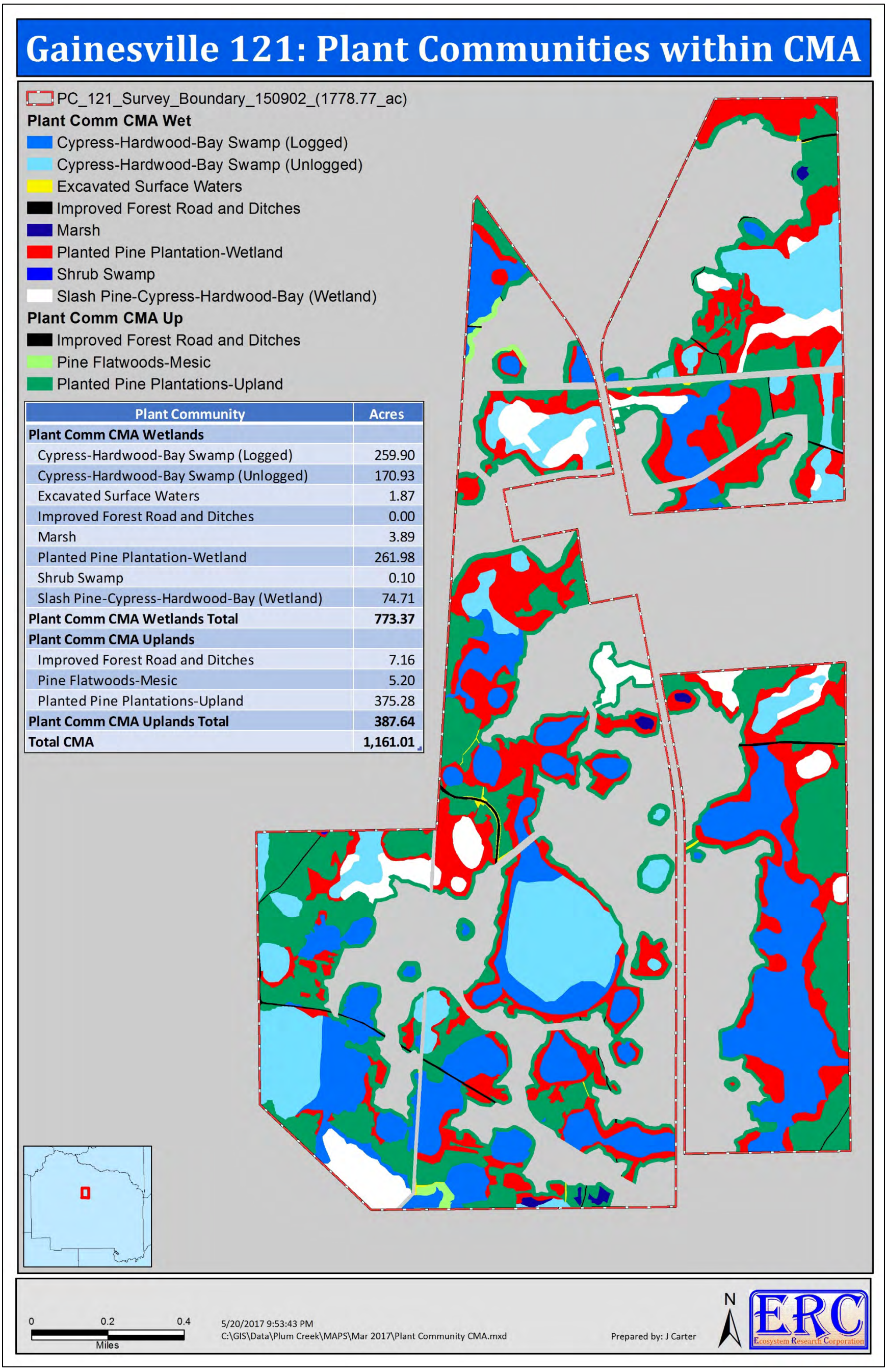
Prepared by: J Carter

N

ERC
Ecosystem Research Corporation

Figure 65. Plant communities occurring within Conservation Management Areas designated on the Project Site.



Plant Community	Acres
Plant Comm CMA Wetlands	
Cypress-Hardwood-Bay Swamp (Logged)	259.90
Cypress-Hardwood-Bay Swamp (Unlogged)	170.93
Excavated Surface Waters	1.87
Improved Forest Road and Ditches	0.00
Marsh	3.89
Planted Pine Plantation-Wetland	261.98
Shrub Swamp	0.10
Slash Pine-Cypress-Hardwood-Bay (Wetland)	74.71
Plant Comm CMA Wetlands Total	**773.37**
Plant Comm CMA Uplands	
Improved Forest Road and Ditches	7.16
Pine Flatwoods-Mesic	5.20
Planted Pine Plantations-Upland	375.28
Plant Comm CMA Uplands Total	**387.64**
Total CMA	**1,161.01**

Figure 66. Plant communities occurring within the upland areas of the Conservation Management Areas.

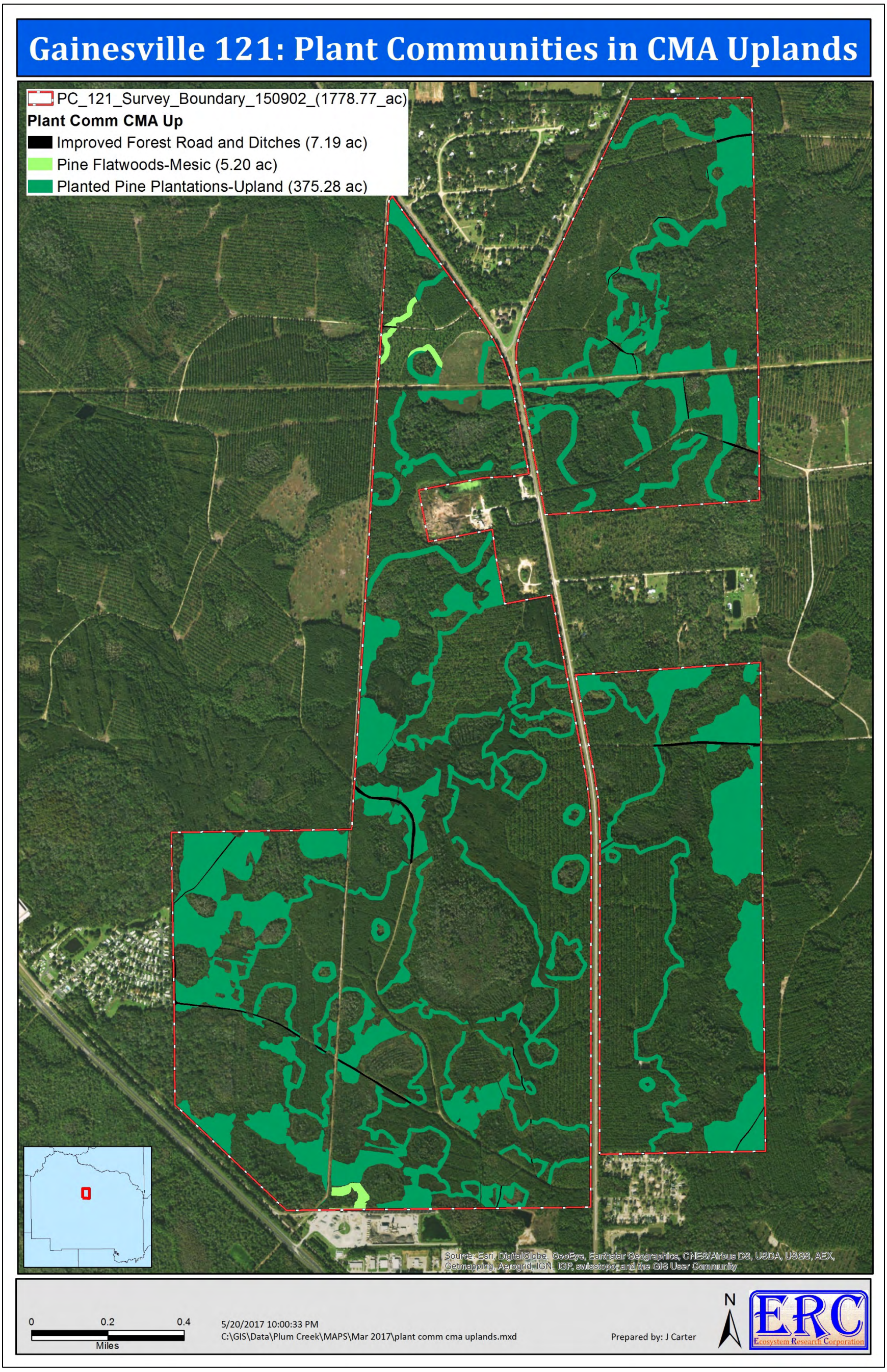


Figure 67. Plant communities occurring within the wetland areas of the Conservation Management Areas.

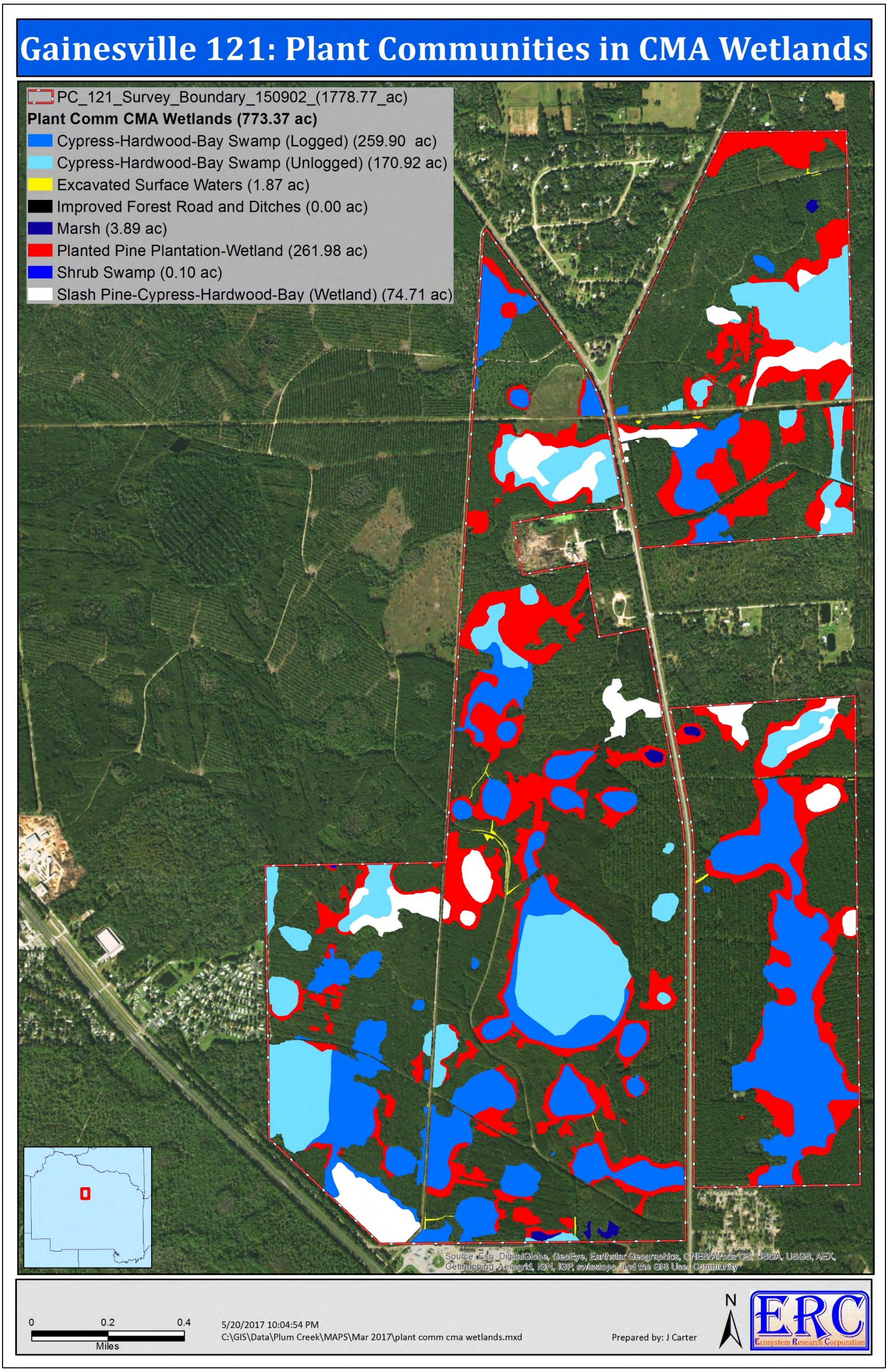


Figure 68. Plant communities occurring within the available development area of the Project Site.

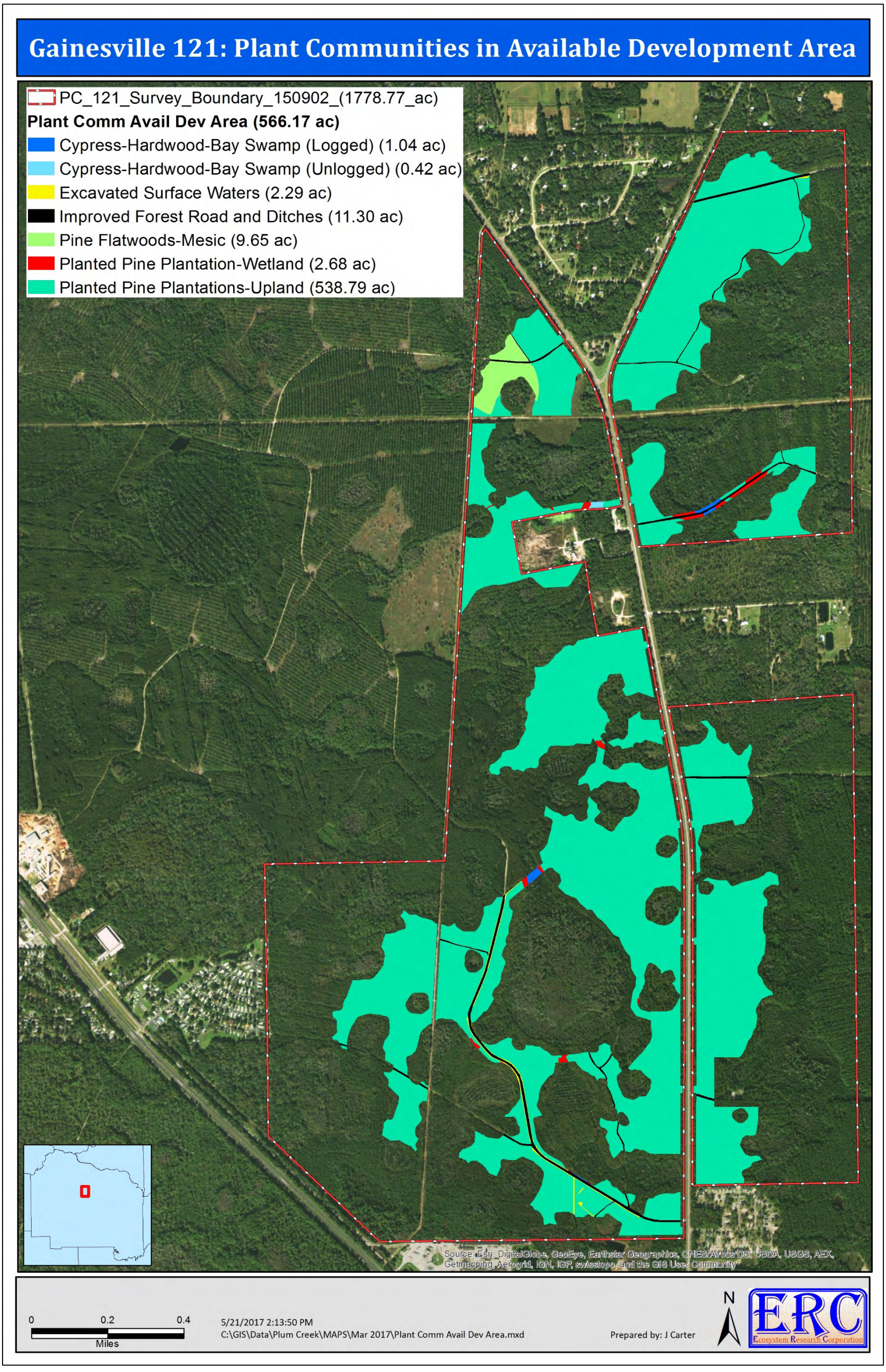


Figure 69. Plant communities occurring within the non-CMA upland set aside areas.

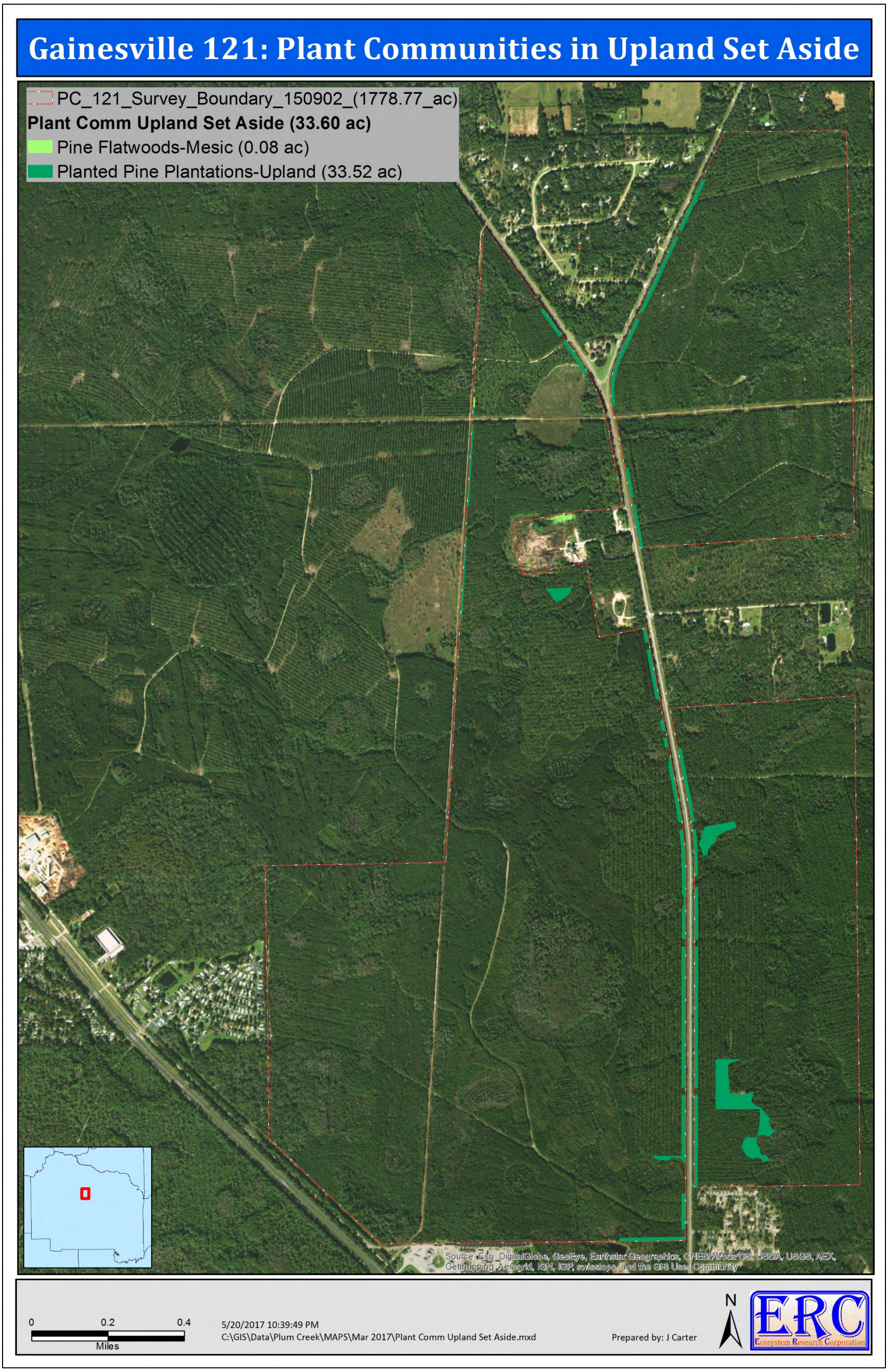


Figure 70. Plant communities occurring within the GRU electric transmission line easement and Florida Natural Gas transmission line easement occurring on the Project Site.

Figure 71. Wetland and surface water impacts that result from the proposed development of the Project Site.

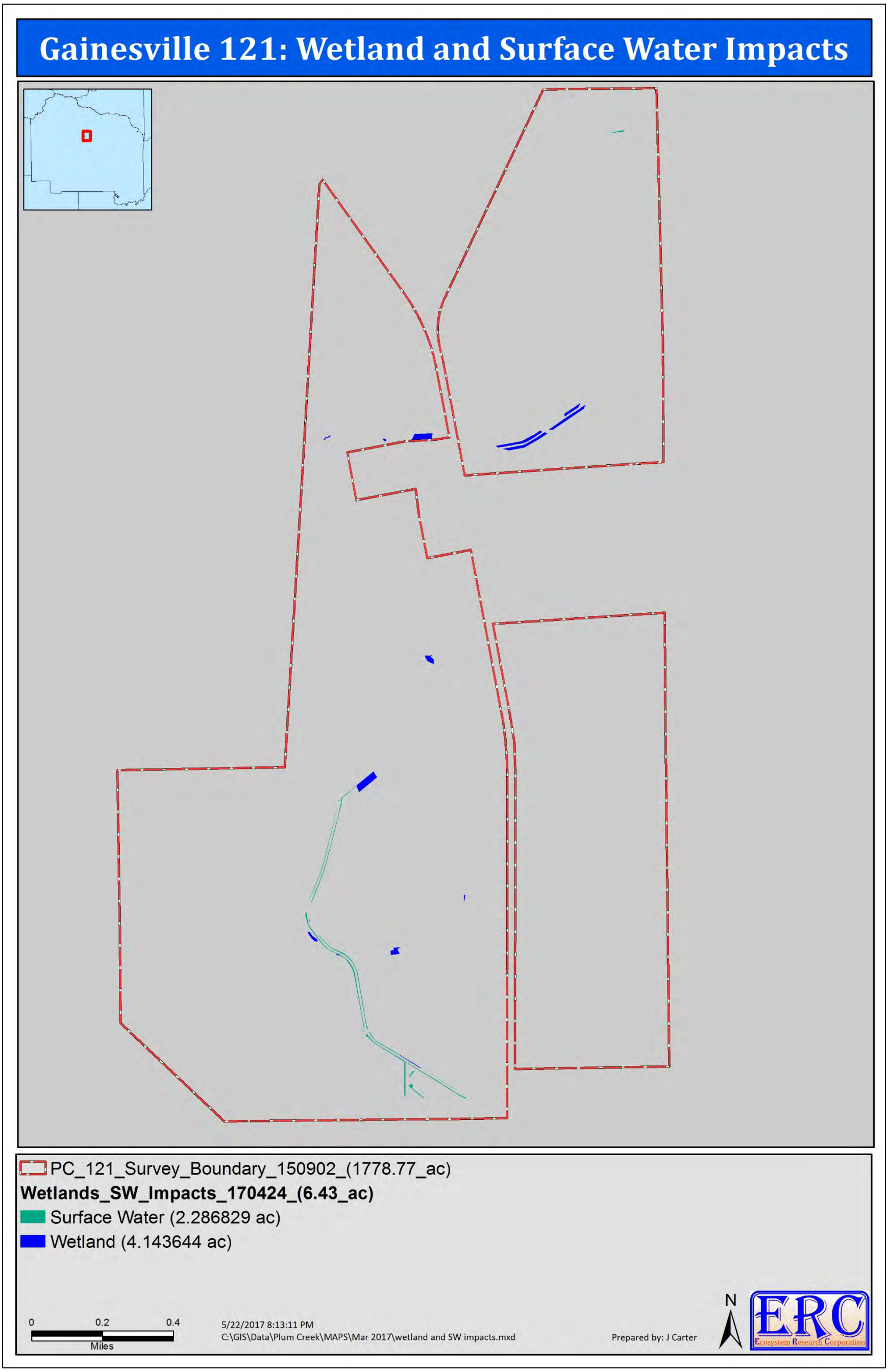
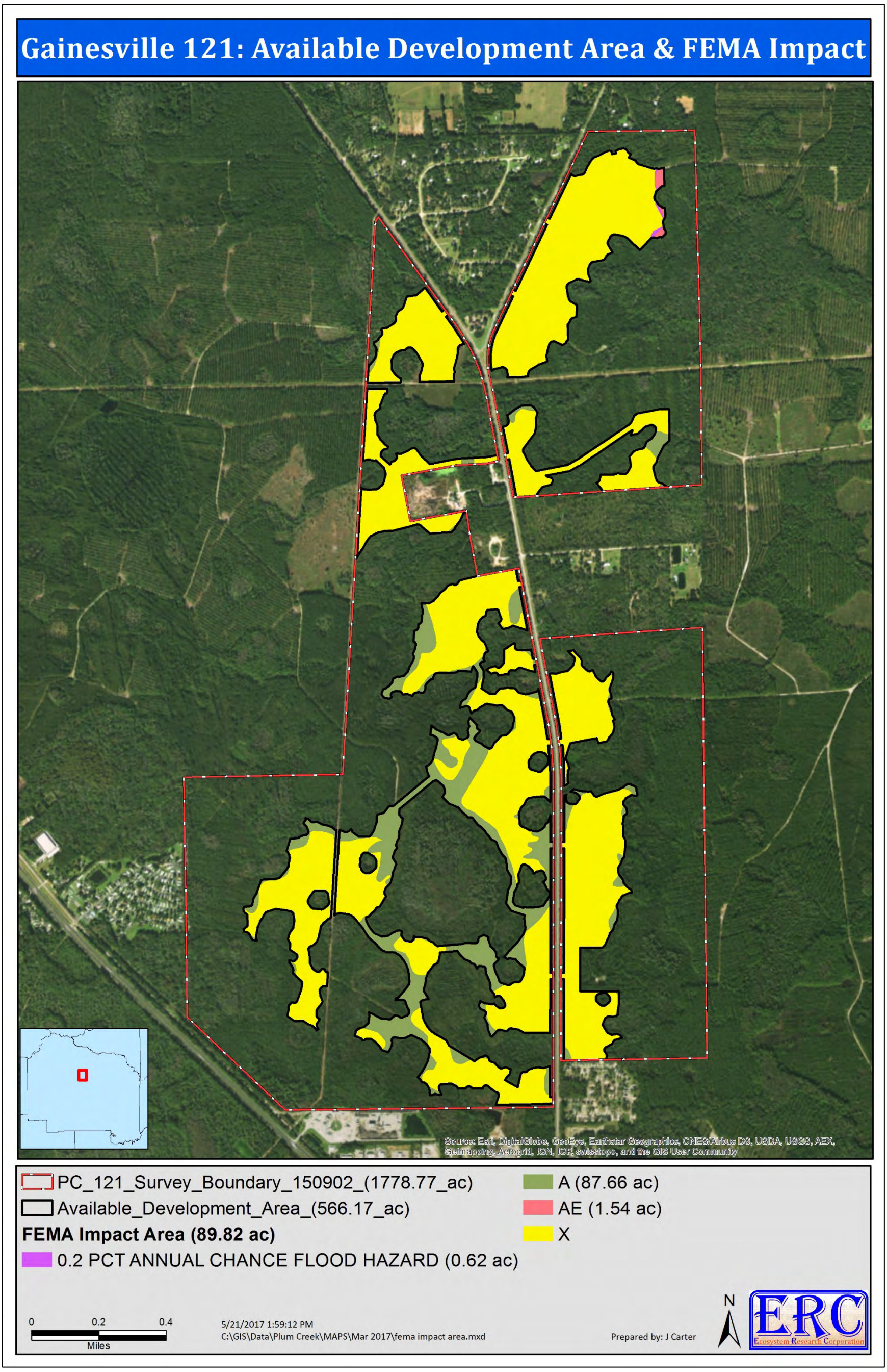


Figure 72. FEMA impacts that occur within the available development area of the total Project Site.



Attachment 1: Easement Documents

21.00
450.00

EASEMENT

KNOW ALL MEN BY THESE PRESENTS: THAT, OWENS-ILLINOIS, INC., an Ohio corporation qualified to do business in the State of Florida, (hereinafter called "Grantor"), in consideration of the payment of One Dollar ($1.00) and other good and valuable considerations to it in hand paid, the receipt of which is hereby acknowledged, does hereby grant and convey unto FLORIDA POWER & LIGHT COMPANY (hereinafter called "Grantee"), a Florida corporation, whose post office address is Box 029100, Miami, Florida 33102, its successors and assigns, a non-exclusive easement for an electric distribution/transmission line system(s) with all the necessary and/or desirable appurtenances thereto and with the right to erect, construct, maintain, operate, inspect, repair, patrol and remove such poles, electric distribution/transmission lines, guy wires, stubs, conduits and other usual fixtures necessary for the maintenance and operation of said system(s) with all necessary braces and anchors to properly support the same upon, over and across the following described easement land area situated in Alachua County, Florida, to-wit:

TOWNSHIP 8 SOUTH, RANGE 19 EAST

Section 26: The south 100.0 feet of the SE¼, containing 6.14 acres, more or less.

Section 25: The south 100.0 feet of the S½, containing 13.22 acres, more or less.

TOWNSHIP 8 SOUTH, RANGE 20 EAST

Section 30: The south 100.0 feet of the S½ LESS and EXCEPT State Road Number 121 right-of-way, containing 19.73 acres, more or less.

Section 29: The south 100.0 feet of the S½, containing 12.57 acres, more or less.

Containing in the aggregate, 51.66 acres, more or less.

DOC. ST.: AMT $ 450.00
A. CURTIS POWERS, Clerk of Circuit Court
Alachua County, By

FILED
1993 JUN 24 AM 11:53
CLERK CIRCUIT COURT
ALACHUA COUNTY, FL

Return To:

6385136

OR 1495 PAGE 302

This Instrument Prepared by:
W.D. Girvin
Florida Power & Light Co.
P.O. Box 151
Daytona Beach, FL. 32015

TO HAVE AND TO HOLD said easement unto Grantee, its successors and assigns, subject to the following terms and conditions:

1. Installation and Construction. Grantee shall install said electric distribution/transmission line(s) and all other appurtenances thereto entirely within the above-described easement area and such construction, maintenance, replacement and/or removal shall be done in a good, safe and workmanlike manner in accordance with good construction and engineering principles. Grantee covenants and agrees by exercise of any of the rights granted herein that it shall maintain said distribution/transmission line(s) and all appurtenances thereto in a state of good and safe condition and repair at all times.

If it shall be necessary for Grantee in the course of constructing, installing, improving or disturbing the area subject to this easement to dig, remove, grade or otherwise alter the surface or subsurface of the area herein described or to interfere with any improvements situated thereon, including landscaping, roadways, gates and fences, Grantee shall restore the property and/or improvements to at least the same condition which they were prior to such alteration, including the replacement of all topsoil, to the extent that this is reasonably possible.

2. Ingress and Egress. Grantee shall have the right of ingress and egress to and from said easement area over present existing and/or future roads and over such part of Grantor's property as is reasonably necessary to exercise its rights granted hereunder and comply with the terms and conditions set out herein.

3. Failure to Construct and Abandonment. In the event Grantee shall fail to construct said electric distribution/transmission line system within two (2) years from the date hereof, or if after construction of said system Grantee abandons and ceases to use the same for a period of two (2) years, with written notice

OR 1495 PAGE 393

to the Grantor which Grantee shall provide in the event of any such failure to construct and/or abandonment then in either event, Grantee shall, by properly executed and recordable instrument, release all rights herein granted and revest same in Grantor, its successors and/or assigns. Upon such abandonment and/or termination of this easement, Grantee shall, within one hundred twenty (120) days remove any and all items from the easement area, including lines, poles, machinery, equipment and other appurtenances. Failure to comply with the aforementioned requirement shall give Grantor the right to conclusively presume that Grantee has abandoned its electric distribution/transmission line system and Grantee shall, at Grantor's option, be subject to liability for the expense of removal of the same.

4. Reservation of Use. Grantor for itself, its successors and assigns, reserves the right to cross and/or construct a road or roads across the easement area, and to use said easement area for any other purpose which will not unreasonably interfere with the rights herein granted to Grantee.

5. Right to Cut. Grantor for itself, its successors and assigns, reserves title to, and the right to remove, any and all merchantable timber located on the easement area. Grantee shall have the right to cut and trim those trees growing within the easement area, after the initial clearing, that are of such height as to be a potential hazard to said electric distribution/transmission line(s).

6. Indemnification. Grantee shall indemnify and hold Grantor, its successors and/or assigns, harmless from and against (a) any and all damage(s) to the property of Grantor, including but not limited to crops, fences, timber, livestock and improvements situated on or off the easement area, and (b) any and all liability or claim(s) of liability to Grantee, Grantor, or any of their employees, agents, contractors, subcontractors, or to any third

party, for damage or injury to or death of any person(s) or damage to any property that may arise out of or be connected with the use of Grantor's property by Grantee, its employees, agents, contractors or subcontractors and/or the exercise by Grantee of any of the rights herein granted.

7. Breach and Termination. In the event Grantee shall breach any of the terms and conditions set out herein in the opinion of Grantor, Grantor shall give written notice thereof to Grantee within thirty (30) days of such breach. Grantee shall have one hundred twenty (120) days after receipt of such notice to remove or correct such breach, or to commence removal or correction of such breach if the same cannot be reasonably completed within such time period. Failure of Grantee to comply with this paragraph shall allow Grantor to immediately terminate this easement by written notice to Grantee, and all rights herein shall revert to and revest in Grantor thereupon.

8. Mineral Rights. This grant does not convey any interest in any oil, gas, timber or other minerals in, on, or under the above-described easement area and is subject to all other such mineral rights existing in Grantor and/or any third party, whether or not recorded.

9. Notification. All notices shall be in writing and sent by registered mail to Grantor:

Owens-Illinois, Inc.
Plant 78
P. O Box 1048
Valdosta, Georgia 31601
Attention: Manager, Woodlands Services

and to Grantee:

Florida Power & Light Company
P. O. Box 151
Daytona Beach, Florida 32015
Attention: Manager, Right-of-Way and
Land Department

or to whatever other address as Grantor or Grantee may designate in writing.

O.R. 1495 PAGE 395

10. Headings. This instrument's heading and all paragraph headings are for quick reference and convenience only, and do not alter, amend, or otherwise affect the terms and conditions appearing herein.

11. Superior Title of Grantor. This grant is subject to the superior title of Grantor to said aforementioned property and to all other outstanding and superior rights, if any, and Grantee shall not, by reason of the rights hereby granted, acquire or assert title to said property adverse to the title of Grantor.

12. Successors and Assigns. All provisions of this instrument shall inure to the benefit of and be binding upon the parties specified herein, and their respective successors and assigns.

IN WITNESS WHEREOF, the undersigned has set its hand and seal this 20th day of June, 1983.

OWENS-ILLINOIS, INC.

By C.G. Nielsen
Vice President
Forest Products Group

IN THE PRESENCE OF:

Edith P. Lang

Harvey V. Leasel

ATTEST:

Thomas L. Gaines
Assistant Secretary

STATE OF OHIO)
) SS:
COUNTY OF LUCAS)

On this 20th day of June, 1983, before me appeared C.G. Nielsen and Thomas L. Gaines to me personally known, who being by me duly sworn, did say that they are the Vice President, Forest Products Group and Assistant Secretary of Owens-Illinois, Inc., respectively, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and that said persons acknowledged said instrument to be their free act and deed on behalf of said corporation.

O.R. 1495 PAGE 366

Notary Public

My Commission Expires:

RECORDED
OFFICIAL RECORDS

'84 SEP 26 AM 9 02

CLERK CIRCUIT COURT
ALACHUA COUNTY FL

ASSIGNMENT OF EASEMENTS

ON THIS the 20th day of September, 1984, FLORIDA POWER & LIGHT COMPANY, a Florida corporation, hereinafter called "FPL", for and in consideration of Ten Dollars and other good and valuable considerations to it in hand paid by the CITY OF GAINESVILLE, a municipal corporation organized and existing under the laws of the State of Florida, hereinafter called "Gainesville," whose address is P.O. Box 490, Gainesville, Florida 32602, does hereby grant, bargain, sell, transfer, deliver, set over, assign and convey to Gainesville, its successors and assigns, the following properties located in Alachua and Bradford Counties, Florida, to-wit:

1. All the easement rights and privileges held by FPL under certain easement agreements described on Exhibit A attached hereto as a part hereof.

2. The easement rights and privileges held by FPL in and to that certain parcel of land described on Exhibit B attached hereto as a part hereof, which easement rights and privileges are a portion of the easement rights and privileges held by FPL under that certain easement datad July 5, 1983, and recorded in Official Record Book 220, Page 235, of the Public Records of Bradford County, Florida.

TOGETHER WITH all rights and appurtenances belonging or in anywise appertaining to said easement rights and privileges hereby assigned.

SUBJECT to applicable reservations, terms and provisions, if any, set forth in the above described easement agreements and the terms hereof, and further subject to restrictions, easements, conditions, and other limitations of record without intending to reimpose the same.

FPL hereby covenants with Gainesville that, except as noted above, at the time of the delivery of this instrument the easement rights herein conveyed and assigned were free from all encumbrances made by FPL, and FPL will defend the same against the lawful claims of all persons claiming by, through or under FPL, but against none other.

This Instrument Prepared By
THOMAS J. MAHONY, Esq.
STEEL, HECTOR & DAVIS
4000 S. E. Financial Center
Miami, FL 33131-2393

689248

OR BOOK 1575 PAGE 1248

TO HAVE AND TO HOLD the same unto Gainesville, its successors and assigns, forever.

IN WITNESS WHEREOF, FPL has caused these presents to be properly executed and its corporate seal to be hereunto affixed as of the date and year first above written.

Witnesses:

FLORIDA POWER & LIGHT COMPANY

By: _____
Senior Vice President

Attest: _____
Assistant Secretary
(CORPORATE SEAL)

STATE OF FLORIDA)
) SS
COUNTY OF DADE)

The foregoing instrument was acknowledged before me this 20th day of September, 1984, by R. J. Gardner and J. E. Moore as Senior Vice President and Asst. Secretary, respectively, of FLORIDA POWER & LIGHT COMPANY, a Florida corporation, on behalf of said corporation.

_____
Notary Public, State of Florida at Large

My commission expires:

Notary Public, State of Florida
My Commission Expires Aug. 2, 1987.
Bonded Thru Troy Fain & Insurance, Inc.

5645M

O.R. BOOK 1575 PAGE 1249

-2-

EXHIBIT A TO
ASSIGNMENT OF EASEMENTS

EASEMENT DATE	COUNTY RECORDED	O. R. BOOK	PAGE
7/5/83	Alachua	1499	372
2/17/83	"	1489	37
5/27/83	"	1489	32
"	"	1489	30
9/26/83	"	1523	650
5/25/83	"	1489	34
2/11/83	"	1483	634
2/28/83	"	1483	629
9/3/83	"	1523	664
4/29/83	"	1489	42
6/7/83	"	1493	306
8/19/83	"	1523	656
3/1/83	"	1483	636
3/10/83	"	1483	638
6/9/83	"	1493	308
3/14/83	"	1483	640
12/16/83	"	1540	696
3/21/83	"	1483	642
11/14/83	"	1538	532
6/20/83	"	1495	362

O.R. 1575 PAGE 1250

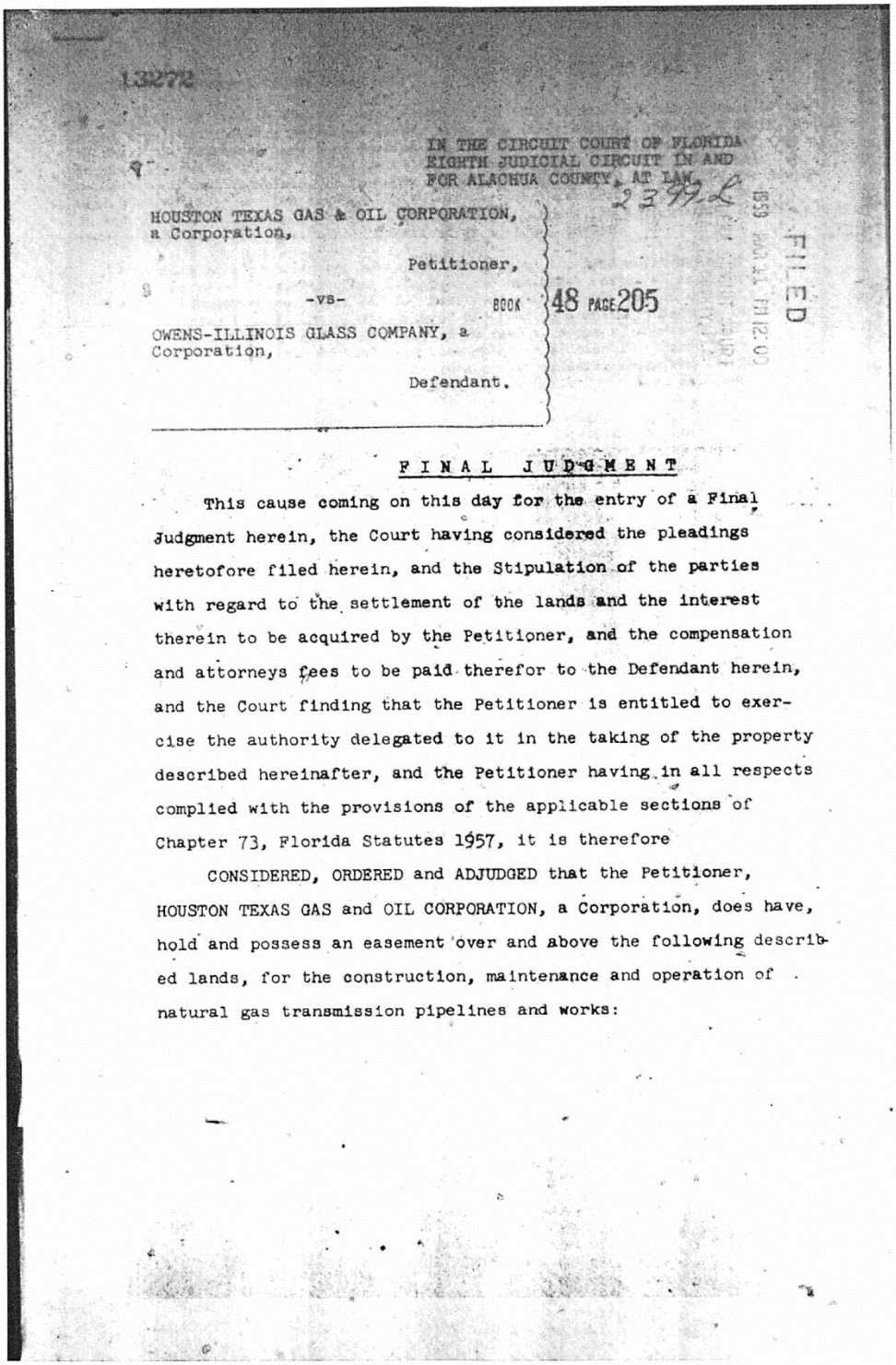
EXHIBIT B TO
ASSIGNMENT OF EASEMENTS

A parcel of land lying in Section 34, Township 7 South, Range 21 East, Bradford County, Florida and being more particularly described as follows:

The South 100 feet of the SE 1/4 of NE 1/4 of said Section 34 lying North and East of the Santa Fe River, less and except the East 210 feet thereof.

OR 1575 PAGE 1251

-4-



13272

IN THE CIRCUIT COURT OF FLORIDA
EIGHTH JUDICIAL CIRCUIT IN AND
FOR ALACHUA COUNTY, AT LAW.

2399-L

HOUSTON TEXAS GAS & OIL CORPORATION,
a Corporation,

Petitioner,

-vs-

OWENS-ILLINOIS GLASS COMPANY, a
Corporation,

Defendant.

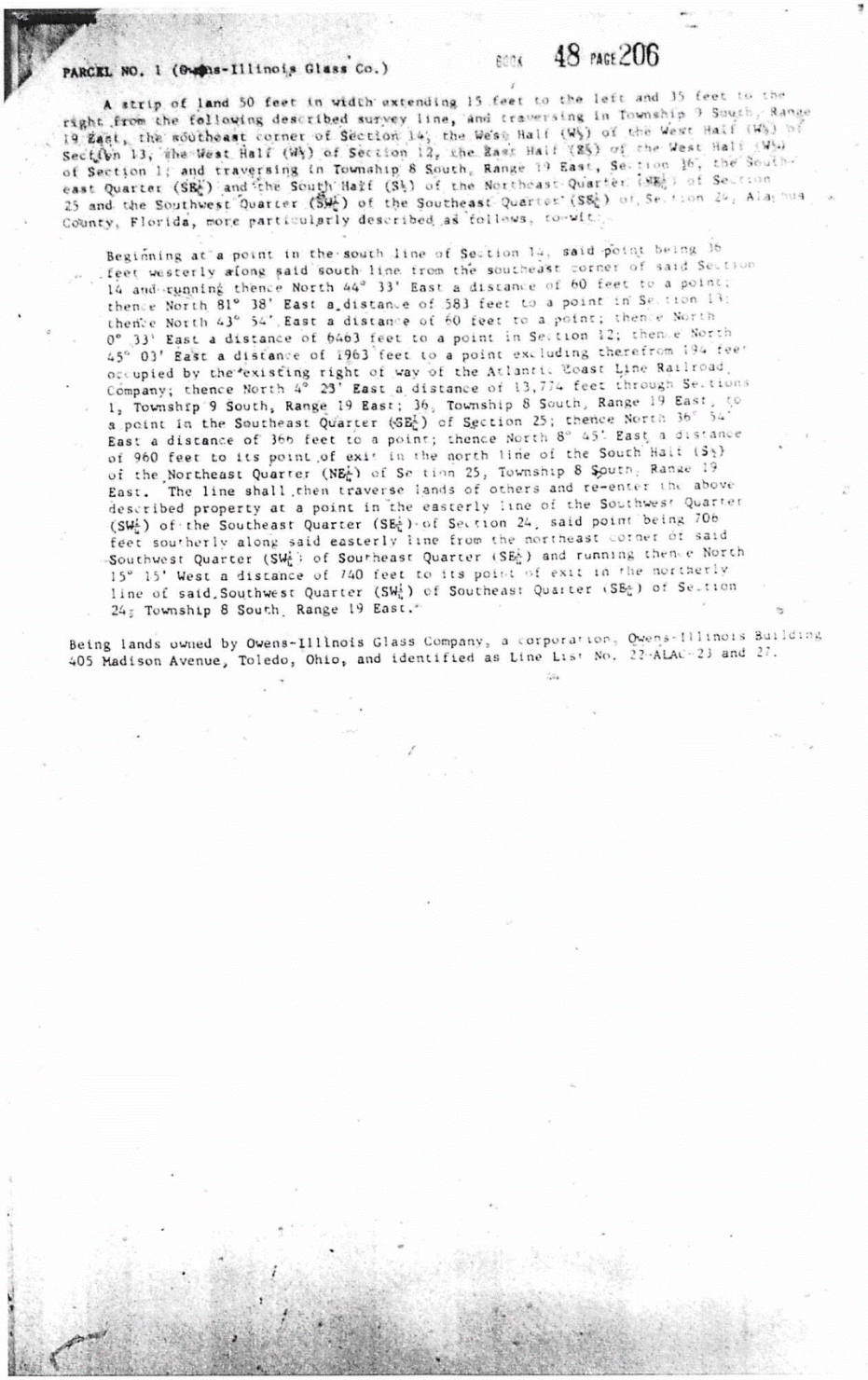
BOOK 48 PAGE 205

FILED

FINAL JUDGMENT

This cause coming on this day for the entry of a Final Judgment herein, the Court having considered the pleadings heretofore filed herein, and the Stipulation of the parties with regard to the settlement of the lands and the interest therein to be acquired by the Petitioner, and the compensation and attorneys fees to be paid therefor to the Defendant herein, and the Court finding that the Petitioner is entitled to exercise the authority delegated to it in the taking of the property described hereinafter, and the Petitioner having in all respects complied with the provisions of the applicable sections of Chapter 73, Florida Statutes 1957, it is therefore

CONSIDERED, ORDERED and ADJUDGED that the Petitioner, HOUSTON TEXAS GAS and OIL CORPORATION, a Corporation, does have, hold and possess an easement over and above the following described lands, for the construction, maintenance and operation of natural gas transmission pipelines and works:



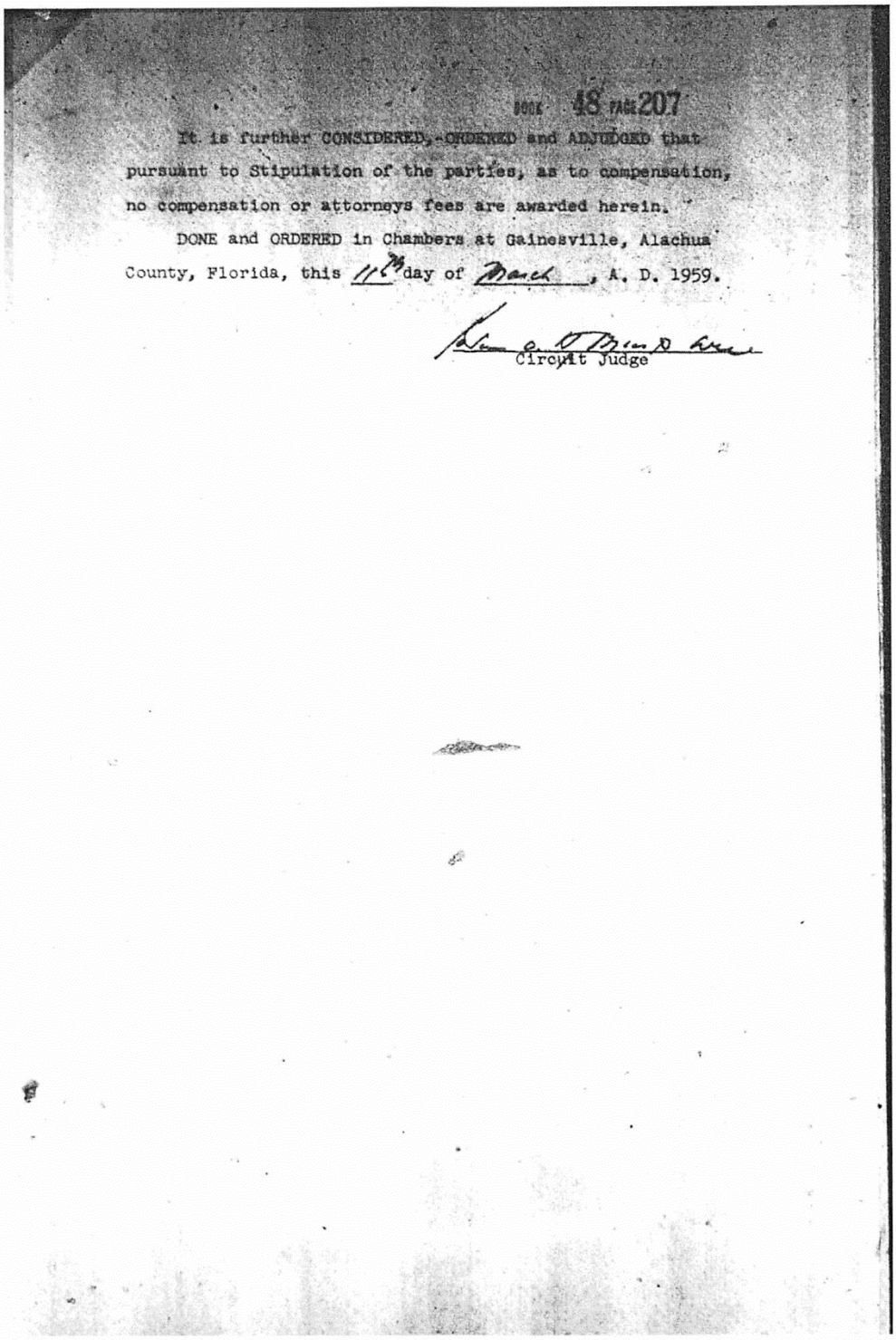
BOOK 48 PAGE 206

PARCEL NO. 1 (Owens-Illinois Glass Co.)

A strip of land 50 feet in width extending 15 feet to the left and 35 feet to the right from the following described survey line, and traversing in Township 9 South, Range 19 East, the southeast corner of Section 14; the West Half (W½) of the West Half (W½) of Section 13, the West Half (W½) of Section 12, the East Half (E½) of the West Half (W½) of Section 1; and traversing in Township 8 South, Range 19 East, Section 36, the Southeast Quarter (SE¼) and the South Half (S½) of the Northeast Quarter (NE¼) of Section 25 and the Southwest Quarter (SW¼) of the Southeast Quarter (SE¼) of Section 24, Alachua County, Florida, more particularly described as follows, to-wit:

Beginning at a point in the south line of Section 14, said point being 36 feet westerly along said south line from the southeast corner of said Section 14 and running thence North 44° 33' East a distance of 60 feet to a point; thence North 81° 38' East a distance of 583 feet to a point in Section 13; thence North 43° 54' East a distance of 60 feet to a point; thence North 0° 33' East a distance of 6463 feet to a point in Section 12; thence North 45° 03' East a distance of 1963 feet to a point excluding therefrom 194 feet occupied by the existing right of way of the Atlantic Coast Line Railroad Company; thence North 4° 23' East a distance of 13,774 feet through Sections 1, Township 9 South, Range 19 East; 36, Township 8 South, Range 19 East, to a point in the Southeast Quarter (SE¼) of Section 25; thence North 36° 54' East a distance of 366 feet to a point; thence North 8° 45' East a distance of 960 feet to its point of exit in the north line of the South Half (S½) of the Northeast Quarter (NE¼) of Section 25, Township 8 South, Range 19 East. The line shall then traverse lands of others and re-enter the above described property at a point in the easterly line of the Southwest Quarter (SW¼) of the Southeast Quarter (SE¼) of Section 24, said point being 706 feet southerly along said easterly line from the northeast corner of said Southwest Quarter (SW¼) of Southeast Quarter (SE¼) and running thence North 15° 15' West a distance of 740 feet to its point of exit in the northerly line of said Southwest Quarter (SW¼) of Southeast Quarter (SE¼) of Section 24, Township 8 South, Range 19 East.

Being lands owned by Owens-Illinois Glass Company, a corporation, Owens-Illinois Building 405 Madison Avenue, Toledo, Ohio, and identified as Line List No. 22-ALAC-23 and 27.



BOOK 48 PAGE 207

It is further CONSIDERED, ORDERED and ADJUDGED that pursuant to Stipulation of the parties, as to compensation, no compensation or attorneys fees are awarded herein.

DONE and ORDERED in Chambers at Gainesville, Alachua County, Florida, this 11th day of March, A. D. 1959.

Circuit Judge

Form Mill 2906

OWENS-ILLINOIS

GENERAL OFFICES (1) TOLEDO 1, OHIO

MILL DIVISION

LAND DISPOSAL

EASEMENT OR LEASE GRANTED

Lot Number	Georgia District No. Land	Militia	Section	Township	Range	Town	County	State
			24	8 S	19 E		ALACHUA	FLORIDA

Description — Acreage: 28.35

A strip of land 50 feet in width extending 15 feet to the left and 35 feet to the right from the following described survey line, and traversing in Township 9 South, Range 19 East, the southeast corner of Section 14, the West Half (W 1/2) of the West Half (W 1/2) of Section 13, the West Half (W of Section 12, the East Half (E 1/2) of the West Half (W 1/2) of Section 1; and traversing in Township 8 South, Range 19 East, Section 36, the Southeast Quarter (SE 1/4) and the South Half (S 1/2) of the Northeast Quarter (NE 1/4) of Section 25 and the Southwest Quarter (SW 1/4) of the Southeast Quarter (SE 1/4) of Section 24, Alachua County, Florida, more particularly described as follows, to-wit:

Beginning at a point in the south line of Section 14, said point being 36 feet westerly along said south line from the southeast corner of said Section 14 and running thence North 44 degrees 33' East a distance of 60 feet to a point; thence North 81 degrees 38' East a distance of 503 feet to a point in Section 13; thence North 43 degrees 54' East a distance of 60 feet to a point; thence North 0 degrees 33' East a distance of 6463 feet to a point in Section 12; thence North 45 degrees 03' East a distance of 1963 feet to a point excluding therefrom 194 feet occupied by the existing right of way of the Atlantic Coast Line Railroad Company; thence North 4 degrees 23' East a distance of 13,774 feet through Sections 1, Township 9 South, Range 19 East; 36, Township 8 South, Range 19 East, to a point in the Southeast Quarter (SE 1/4) of Section 25; thence North 36 degrees 54' East a distance of 366 feet to a point; thence North 8 degrees 45' East a distance of 960 feet to its point of exit in the north line of the South Half (S of the Northeast Quarter (NE 1/4) of Section 25, Township 8 South, Range 19 East. The line shall then traverse lands of others and re-enter the next described property at a point in the easterly line of the Southwest Quarter (SW 1/4) of the Southeast Quarter (SE 1/4) of Section 24, said point being 706 feet southerly along said easterly line from the northeast corner of said Southwest Quarter (SW 1/4) of Southeast Quarter (SE 1/4) and running thence North 15 degrees 15' West a distance of 740 feet to its point of exit in the northerly line of said Southwest Quarter (SW 1/4) of Southeast Quarter (SE 1/4) of Section 24, Township 8 South, Range 19 East.

Being lands owned by Owens-Illinois Glass Company, a corporation, Owens-Illinois Building, 405 Madison Avenue, Toledo, Ohio, and identified as Line List No. 22-ALAC-23 and 27.

NOTE: The above description is the same as in "Order of Taking" dated 2/7/59, recorded 4-10-59 in Book 52 Page 126.

Exceptions or Restrictions

An EASEMENT over and above the above described lands, for the construction, maintenance and operation of natural gas transmission pipelines and works.

NOTE: O-I LEASES AND OWNS NOTHING IN SECTION 14, T. 9 S., R. 19 E. ALTHOUGH DESCRIPTION IS NOT LISTED IT APPEARS THAT THIS PIPELINE EASEMENT WOULD ALSO TRAVERSE THROUGH FRL. SEC. 1, OF FRL. TWP. 9 S., R. 19 E.
O-I to get all of the timber from the land in this easement.

NOTE: Per letter dated 2-22-65, "Florida Gas Transmission Co., is the successor to Houston Texas Gas and Oil Corporation." (letter in City of Gainesville File).

Title Insurance Company

Policy No.

Abstract File No. | Prepared by | Toledo File No.

Highway Right of Way | Job or SRD No. | Section | Highway No.

Grantee: Houston Texas Gas & Oil Corporation

Kind of Instrument: Final Judgment | Our File No.

Consideration: $250.00 per acre ($7,087.50) * | Date: 3-11-59

Public Record | Date Recorded | Volume: 48 and 52 | Page: 205 126

Plat | Volume | Page

* $600.00 collected - damages in the injunction suit.

Form 2-A Revised

BOOK 287 PAGE 246

25307

OUTFALL DITCH EASEMENT DEED

Section 2652-101 (2623)
State Road S-329 SRD No. 45

KNOW ALL MEN BY THESE PRESENTS that W. H. Hunter and Mary Hunter, his wife, as Grantors, in consideration of One Dollar and other valuable considerations to them in hand paid, receipt whereof is acknowledged, do hereby grant and convey unto the STATE OF FLORIDA as Grantee, and its assigns, the easement, license and right to excavate, construct and maintain outfall and drainage ditches and drains, upon and through the following described lands situate in Alachua County, Florida, to-wit:

LATERAL DITCH RIGHT STATION 45 + 22.0

That part of:

SE¼ of Government Lot 6, in Section 30, Township 8 South, Range 20 East,

lying within 15 feet each side of the following described ditch centerline: Commence on the North boundary of Government Lot 5 Section 30, Township 8 South, Range 20 East at a point 2604.1 feet East of Northwest corner of said Section 30, thence run South 26°28'30" West 2208.84 feet to a point on survey line of State Road S-329, Section 2652 designated as Station 45 + 22.0 the POINT OF BEGINNING of ditch centerline, thence run South 63°31'30" East 50 feet, thence run North 44°58'30" East 133 feet, thence run North 53°24'30" East 217 feet to end of ditch centerline; containing .24 acre, more or less.

DOCUMENTARY STAMPS
STATE
FEDERAL

RECORDED:
STATE ROAD DEPARTMENT OF FLORIDA
DIVISION OF RIGHT OF WAY
BY FCP MAY 25 1951

RECEIVED
1951 JUN -7 PM 2:44
CLERK CIRCUIT COURT
ALACHUA COUNTY, FLA.

TO HAVE AND TO HOLD the same unto said Grantee and its assigns, together with immunity unto said Grantee from all claims for damage to Grantors' contiguous lands, if any, arising from or growing out of such construction and/or maintenance aforesaid.

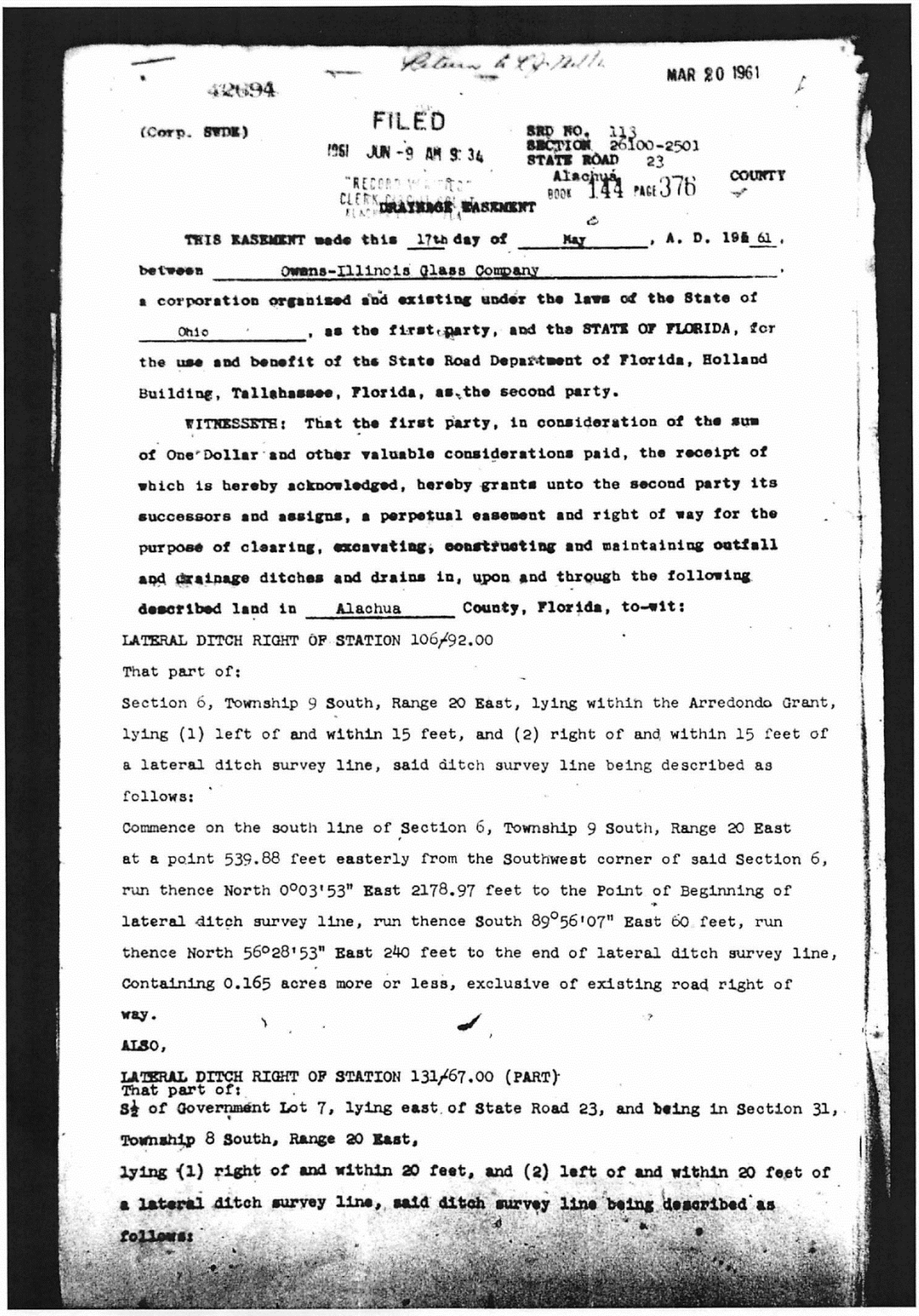
IN WITNESS WHEREOF the Grantors have hereunto set their hands and seals this 7th day June, 1951.

Signed, sealed and delivered in presence of:

W H Hunter (Seal)
Mrs. Mary J. Hunter (Seal)

Signatures of witnesses

NOTE—Sec required above by Florida law.



42694

MAR 20 1961

(Corp. SWDE)

FILED

1961 JUN -9 AM 9:34

"RECORD VERIFIED"
CLERK CIRCUIT COURT
ALACHUA FLA.

SRD NO. 113
SECTION 26100-2501
STATE ROAD 23
Alachua COUNTY
BOOK 144 PAGE 376

DRAINAGE EASEMENT

THIS EASEMENT made this 17th day of May, A. D. 1961, between Owens-Illinois Glass Company, a corporation organized and existing under the laws of the State of Ohio, as the first party, and the STATE OF FLORIDA, for the use and benefit of the State Road Department of Florida, Holland Building, Tallahassee, Florida, as the second party.

WITNESSETH: That the first party, in consideration of the sum of One Dollar and other valuable considerations paid, the receipt of which is hereby acknowledged, hereby grants unto the second party its successors and assigns, a perpetual easement and right of way for the purpose of clearing, excavating, constructing and maintaining outfall and drainage ditches and drains in, upon and through the following described land in Alachua County, Florida, to-wit:

LATERAL DITCH RIGHT OF STATION 106/92.00

That part of:

Section 6, Township 9 South, Range 20 East, lying within the Arredondo Grant, lying (1) left of and within 15 feet, and (2) right of and within 15 feet of a lateral ditch survey line, said ditch survey line being described as follows:

Commence on the south line of Section 6, Township 9 South, Range 20 East at a point 539.88 feet easterly from the Southwest corner of said Section 6, run thence North 0°03'53" East 2178.97 feet to the Point of Beginning of lateral ditch survey line, run thence South 89°56'07" East 60 feet, run thence North 56°28'53" East 240 feet to the end of lateral ditch survey line, Containing 0.165 acres more or less, exclusive of existing road right of way.

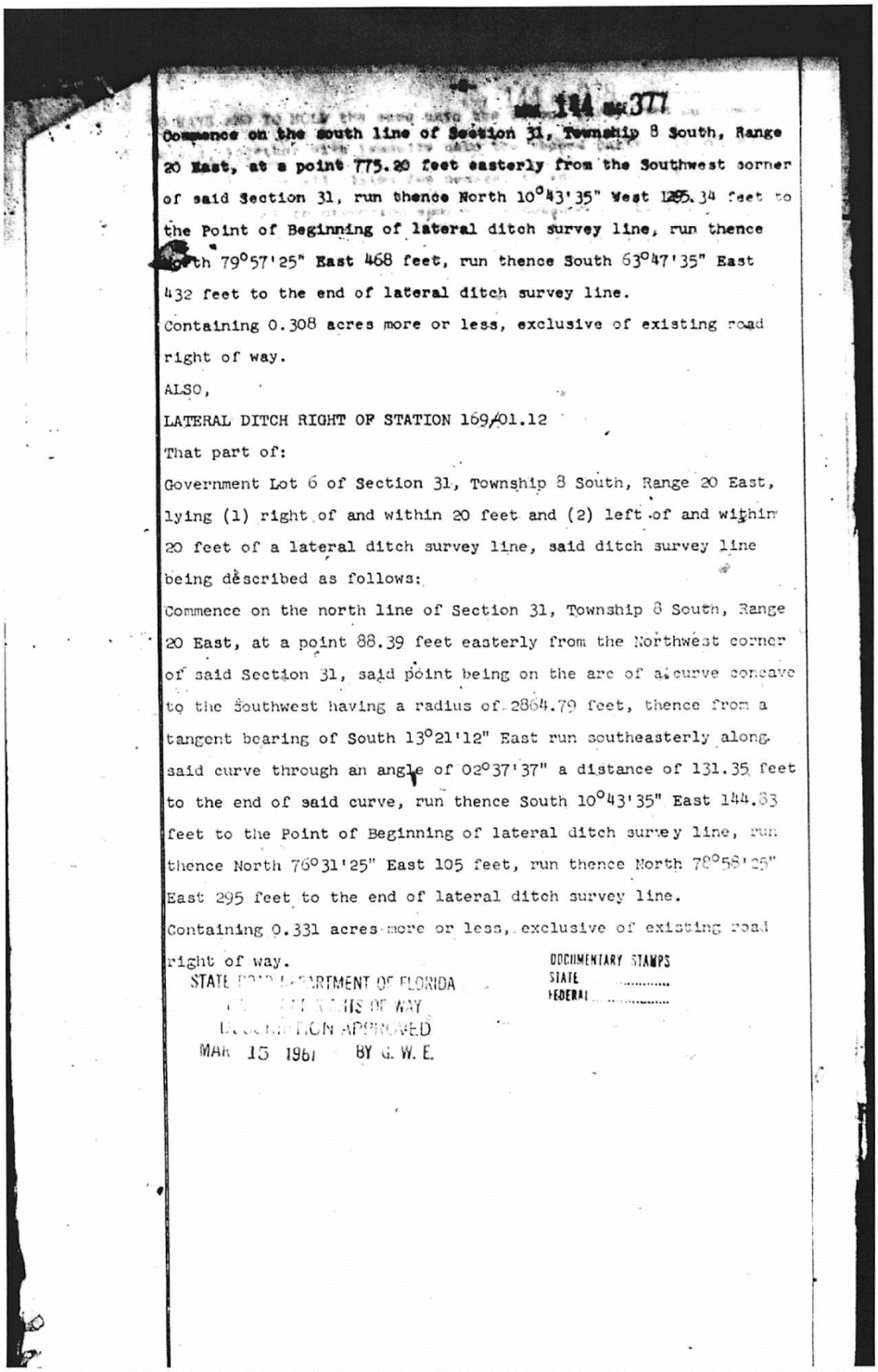
ALSO,

LATERAL DITCH RIGHT OF STATION 131/67.00 (PART)

That part of:

S½ of Government Lot 7, lying east of State Road 23, and being in Section 31, Township 8 South, Range 20 East,

lying (1) right of and within 20 feet, and (2) left of and within 20 feet of a lateral ditch survey line, said ditch survey line being described as follows:



144 377

Commence on the south line of Section 31, Township 8 South, Range 20 East, at a point 775.20 feet easterly from the Southwest corner of said Section 31, run thence North 10°43'35" West 1295.34 feet to the Point of Beginning of lateral ditch survey line, run thence North 79°57'25" East 468 feet, run thence South 63°47'35" East 432 feet to the end of lateral ditch survey line.

Containing 0.308 acres more or less, exclusive of existing road right of way.

ALSO,

LATERAL DITCH RIGHT OF STATION 169/01.12

That part of:

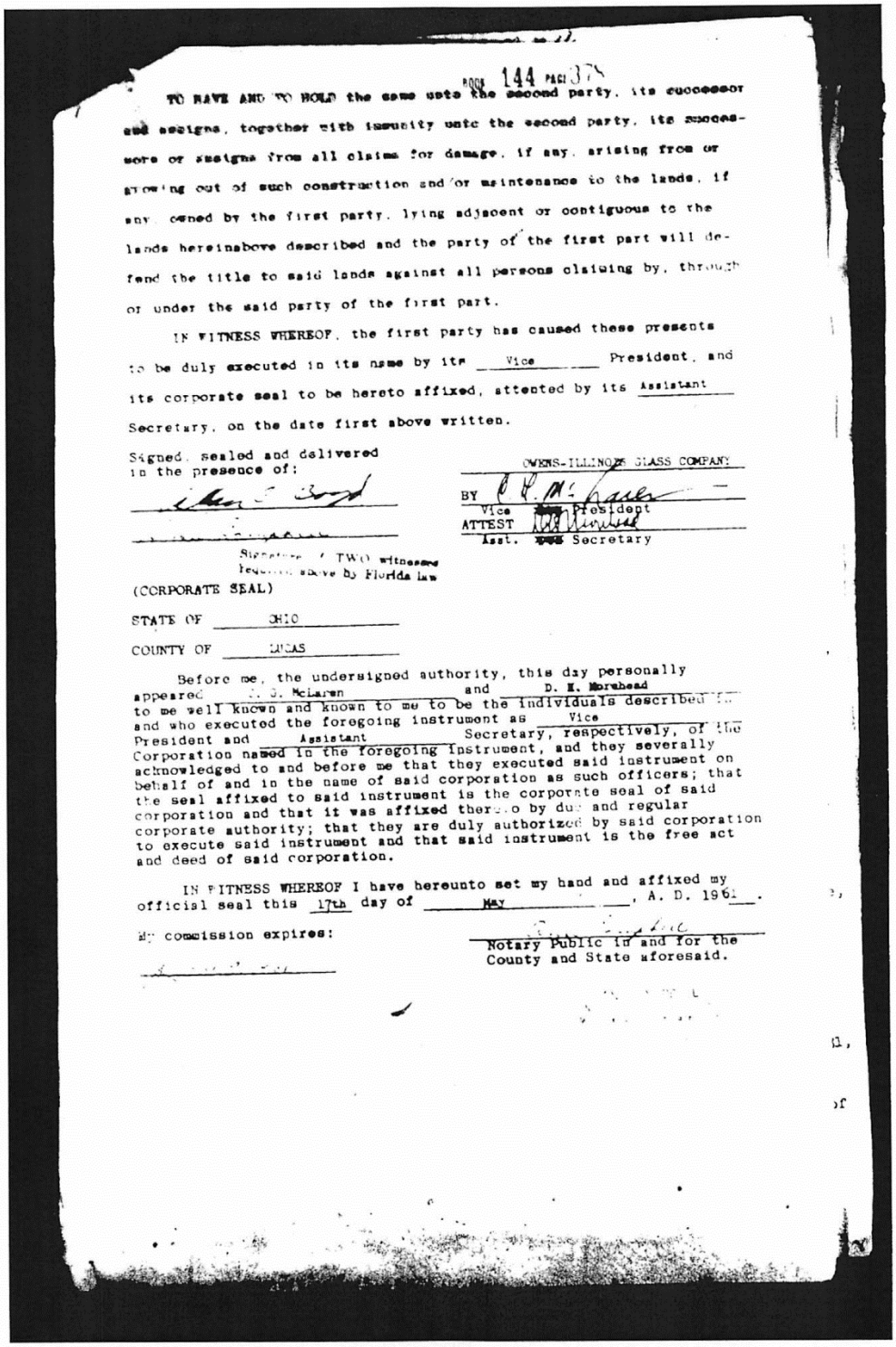
Government Lot 6 of Section 31, Township 8 South, Range 20 East, lying (1) right of and within 20 feet and (2) left of and within 20 feet of a lateral ditch survey line, said ditch survey line being described as follows:

Commence on the north line of Section 31, Township 8 South, Range 20 East, at a point 88.39 feet easterly from the Northwest corner of said Section 31, said point being on the arc of a curve concave to the Southwest having a radius of 2864.79 feet, thence from a tangent bearing of South 13°21'12" East run southeasterly along said curve through an angle of 02°37'37" a distance of 131.35 feet to the end of said curve, run thence South 10°43'35" East 144.83 feet to the Point of Beginning of lateral ditch survey line, run thence North 76°31'25" East 105 feet, run thence North 78°58'25" East 295 feet to the end of lateral ditch survey line.

Containing 0.331 acres more or less, exclusive of existing road right of way.

STATE ROAD DEPARTMENT OF FLORIDA
RIGHTS OF WAY
DESCRIPTION APPROVED
MAR 15 1961 BY G. W. E.

DOCUMENTARY STAMPS
STATE .....
FEDERAL .....



BOOK 144 PAGE 378

TO HAVE AND TO HOLD the same unto the second party, its successor and assigns, together with immunity unto the second party, its successors or assigns from all claims for damage, if any, arising from or growing out of such construction and/or maintenance to the lands, if any owned by the first party, lying adjacent or contiguous to the lands hereinabove described and the party of the first part will defend the title to said lands against all persons claiming by, through or under the said party of the first part.

IN WITNESS WHEREOF, the first party has caused these presents to be duly executed in its name by its Vice President, and its corporate seal to be hereto affixed, attested by its Assistant Secretary, on the date first above written.

Signed, sealed and delivered in the presence of:

OWENS-ILLINOIS GLASS COMPANY

BY [signature]
Vice President

ATTEST [signature]
Asst. Secretary

Signatures of TWO witnesses required above by Florida law

(CORPORATE SEAL)

STATE OF OHIO

COUNTY OF LUCAS

Before me, the undersigned authority, this day personally appeared [illegible] and D. K. Morehead to me well known and known to me to be the individuals described in and who executed the foregoing instrument as Vice President and Assistant Secretary, respectively, of the Corporation named in the foregoing instrument, and they severally acknowledged to and before me that they executed said instrument on behalf of and in the name of said corporation as such officers; that the seal affixed to said instrument is the corporate seal of said corporation and that it was affixed thereto by due and regular corporate authority; that they are duly authorized by said corporation to execute said instrument and that said instrument is the free act and deed of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal this 17th day of May, A. D. 1961.

My commission expires:

[signature]
Notary Public in and for the County and State aforesaid.

Attachment 2: SRWMD Formal Wetland Delineation Approval

FORMAL DETERMINATION OF THE LANDWARD EXTENT OF WETLANDS AND OTHER SURFACE WATERS

ERP-001-210495-3 GNV 121 - FORMAL WETLAND DETERMINATION

SUWANNEE RIVER WATER MANAGEMENT DISTRICT

June 28, 2016

TABLE OF CONTENTS

FINAL REPORT

Site Location

The formal determination was conducted on property owned by Plum Creek Timber and known as GNV 121 in Alachua County. The GNV 121 site is comprised of 1,779 acres and is within both the Suwannee River Water Management District (SRWMD) and the St. Johns River Water Management District (SJRWMD). The SJRWMD Governing Board transferred jurisdiction of the project to the SRWMD through an Interagency Agreement.

The GNV 121 property is in the following sections, townships, and ranges.

- Section 01, 12; Township 09 South; Range 19 East
- Section 06, 07; Township 09 South; Range 20 East
- Section 30 and 31; Township 08 South; Range 20 East
- Section 25 and 36, Township 08 South; Range 19 East

Maps provided by the engineering firm Dyer, Riddle, Mills and Precourt (DRMP) are included as attachments to this document. Figure 1 depicts the project boundaries, Figure 2 depicts the Natural Resource Conservation Service (NRCS) soils classification, Figure 4 depicts the classification of wetlands on the property in accordance with United States Fish and Wildlife Service (USFWS) methodology and Figure 5 depicts surface water flow across the site. Figure 3 was prepared by the District and depicts the recognized formal wetland boundaries on the Plum Creek property.

The above-referenced maps are included in Attachment A of this document.

DRMP Wetland Delineation

The wetland boundaries of the GNV 121 property were delineated by DRMP wetland scientists in 2015 following Chapter 62-340 and 62-330 Florida Administrative Codes. Additionally, wetland scientists with the United States Army Corps of Engineers (USACE) worked with DRMP to assist in establishing wetland boundaries on the GNV 121 property.

Formal Determination

The District conducted the field portion of the formal determination process with DRMP wetland scientists Logan Shappell and Chuck Smith at the GNV 121 property on April 8, 2016. The District reviewed the wetland boundaries while on site and compared the established wetland boundaries to the Specific Purpose Survey (SPS) prepared by Allen L. Quickle, a Professional Land Surveyor P.L.S. (PLS #6481) in September 2015.

Findings

The property contains approximately 1,779 acres of undeveloped land with a total of 792.14 acres of wetlands. The site is characterized as a pine plantation with wetlands interspersed. The most common upland habitat type is Coniferous Plantations and forest regeneration areas. Wetland habitats include Wetland Mixed Forest and Mixed Scrub-shrub Wetlands.

Conclusion

The District agrees with the wetland boundaries as depicted in the SPS submitted to the District by DRMP on April 16, 2016. Figure 3 prepared by the District outlines the wetlands boundaries using the SPS shapefile and the SPS submitted by DRMP depicting the wetland boundaries on the property has been included as part of this Formal Determination thereby confirming the wetland locations on the property as defined by DRMP, the USACE, and Suwannee River Water Management District.

FORMAL DETERMINATION OF THE LANDWARD EXTENT OF WETLANDS AND OTHER SURFACE WATERS

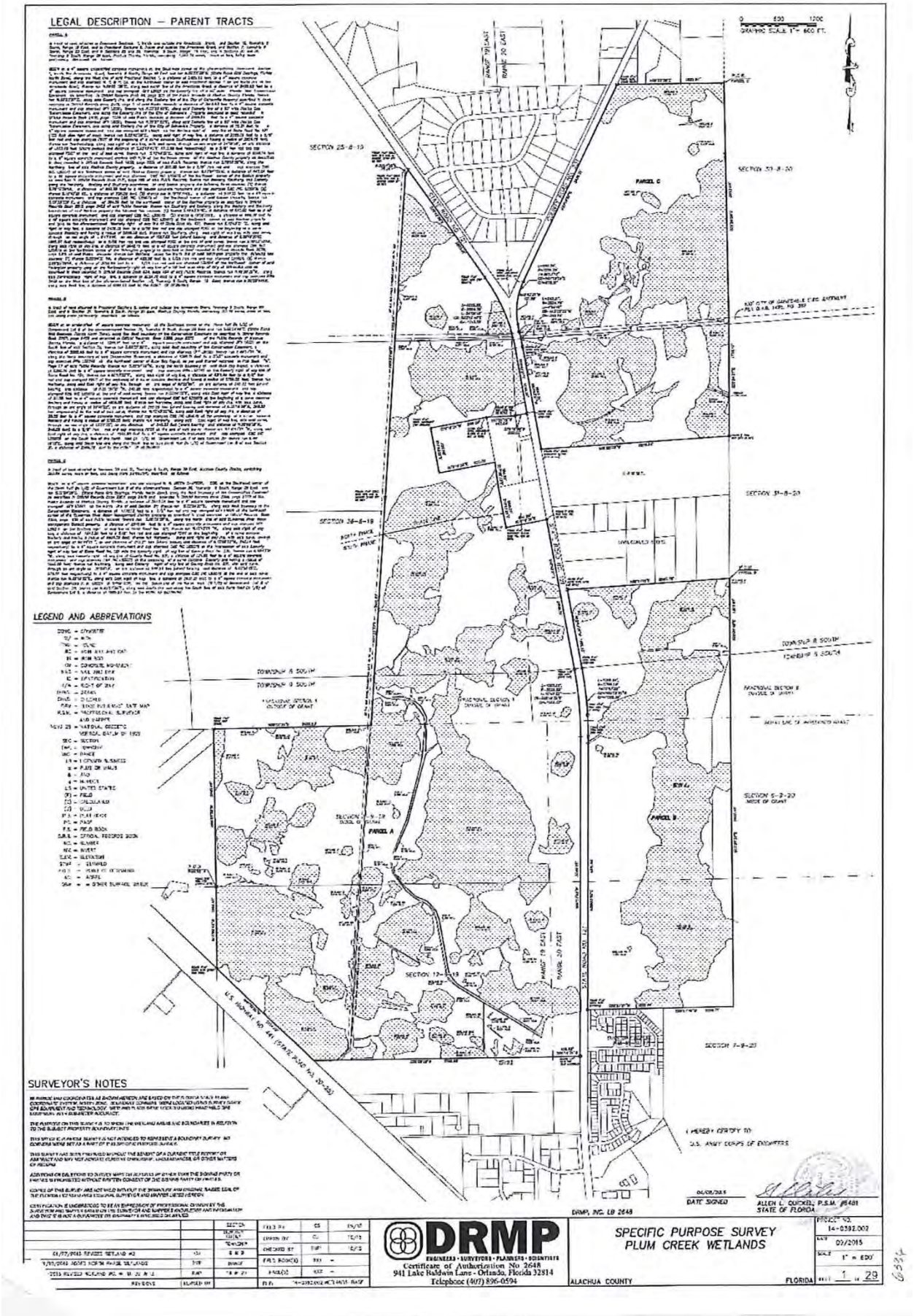
ERP-001-210495-3 GNV 121

Suwannee River Water Management District

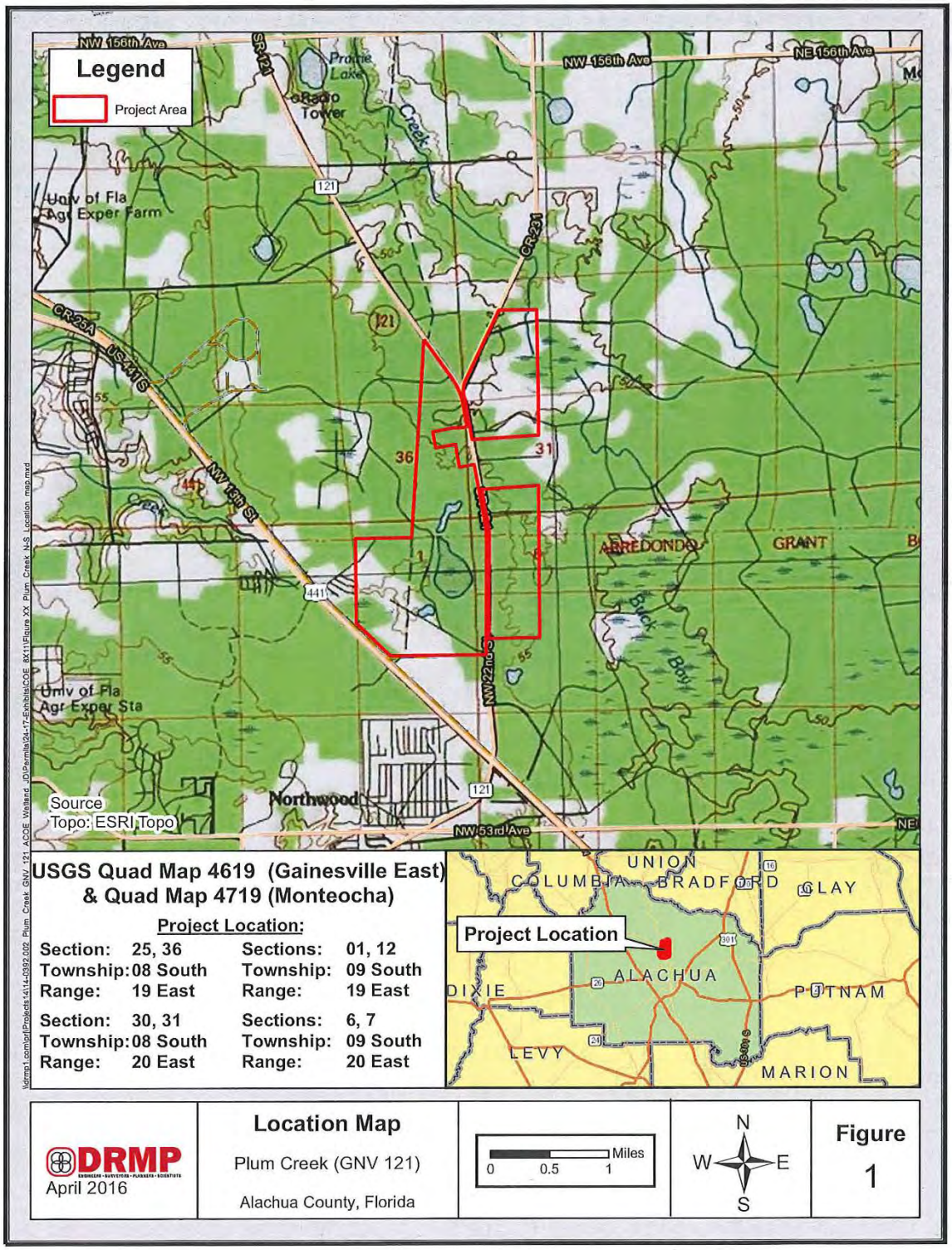
Approved by Michael T. Collier Date Approved 6/28/2016

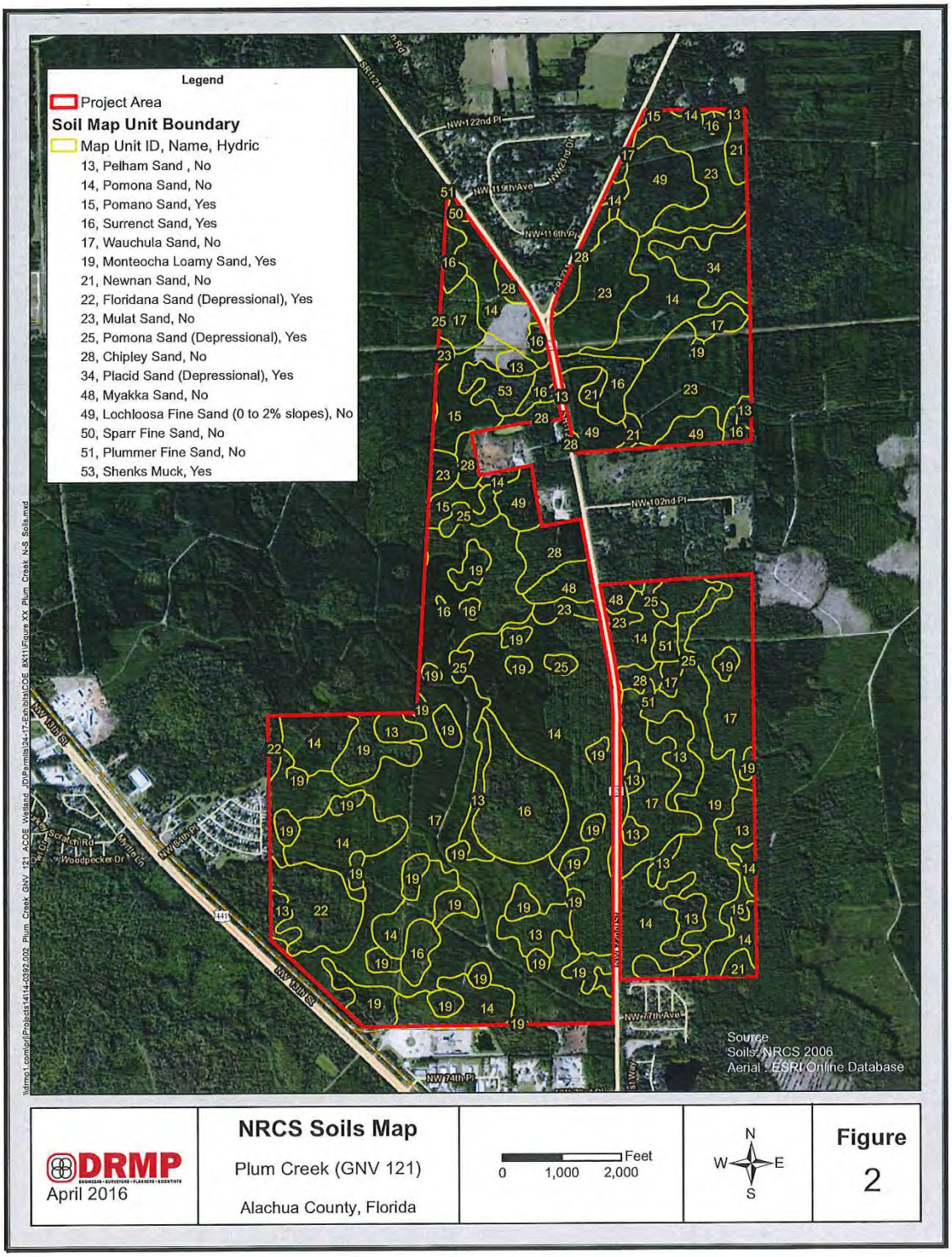
Clerk

Executive Director


LEGAL DESCRIPTION – PARENT TRACTS
LEGEND AND ABBREVIATIONS
SURVEYOR'S NOTES
I HEREBY CERTIFY TO:
U.S. ARMY CORPS OF ENGINEERS
DRMP, INC. LB 2648
DATE SIGNED
ALLEN L. QUICKEL, P.S.M. #6481
STATE OF FLORIDA
DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
Certificate of Authorization No 2648
941 Lake Baldwin Lane - Orlando, Florida 32814
Telephone (407) 896-0594
SPECIFIC PURPOSE SURVEY
PLUM CREEK WETLANDS
ALACHUA COUNTY
FLORIDA
14-0382.002
02/2015
1" = 600'
1 of 29

ATTACHMENTS
(MAPS)


Legend
Project Area
NW 156th Ave
NE 156th Ave
SR 121
Prairie Lake
Radio Tower
Creek
121
Univ of Fla Agr Exper Farm
CR 231
CR 25A
US 441 S
NW 16th St
441
36
31
ARREDONDO
GRANT
Black Bear
NW 22nd Ter
Univ of Fla Agr Exper Sta
Northwood
NW 53rd Ave
Source
Topo: ESRI Topo
USGS Quad Map 4619 (Gainesville East)
& Quad Map 4719 (Monteocha)
Project Location:
Section: 25, 36
Township: 08 South
Range: 19 East
Sections: 01, 12
Township: 09 South
Range: 19 East
Section: 30, 31
Township: 08 South
Range: 20 East
Sections: 6, 7
Township: 09 South
Range: 20 East
UNION
COLUMBIA
BRADFORD
CLAY
Project Location
ALACHUA
DIXIE
PUTNAM
LEVY
MARION
DRMP
April 2016
Location Map
Plum Creek (GNV 121)
Alachua County, Florida
Miles
0
0.5
1
N
W
E
S
Figure
1


Legend
Project Area
Soil Map Unit Boundary
Map Unit ID, Name, Hydric
13, Pelham Sand , No
14, Pomona Sand, No
15, Pomano Sand, Yes
16, Surrenct Sand, Yes
17, Wauchula Sand, No
19, Monteocha Loamy Sand, Yes
21, Newnan Sand, No
22, Floridana Sand (Depressional), Yes
23, Mulat Sand, No
25, Pomona Sand (Depressional), Yes
28, Chipley Sand, No
34, Placid Sand (Depressional), Yes
48, Myakka Sand, No
49, Lochloosa Fine Sand (0 to 2% slopes), No
50, Sparr Fine Sand, No
51, Plummer Fine Sand, No
53, Shenks Muck, Yes
NW 122nd Pl
NW 119th Ave
NW 116th Pl
NW 102nd Pl
NW 83rd St
NW 77th Ave
NW 74th Pl
Source
Soils: NRCS 2006
Aerial : ESRI Online Database
DRMP
April 2016
NRCS Soils Map
Plum Creek (GNV 121)
Alachua County, Florida
Feet
0 1,000 2,000
N
W E
S
Figure
2

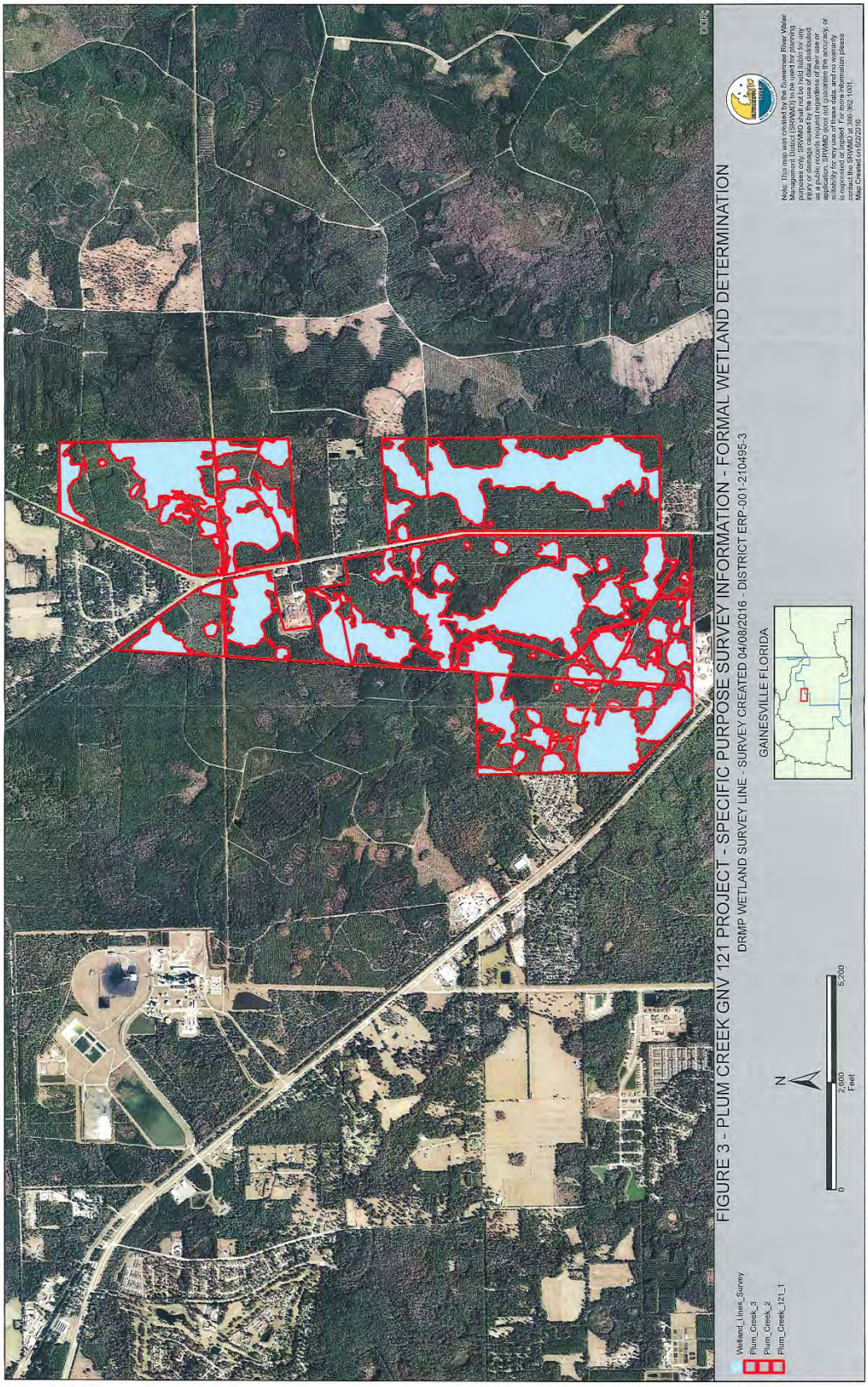
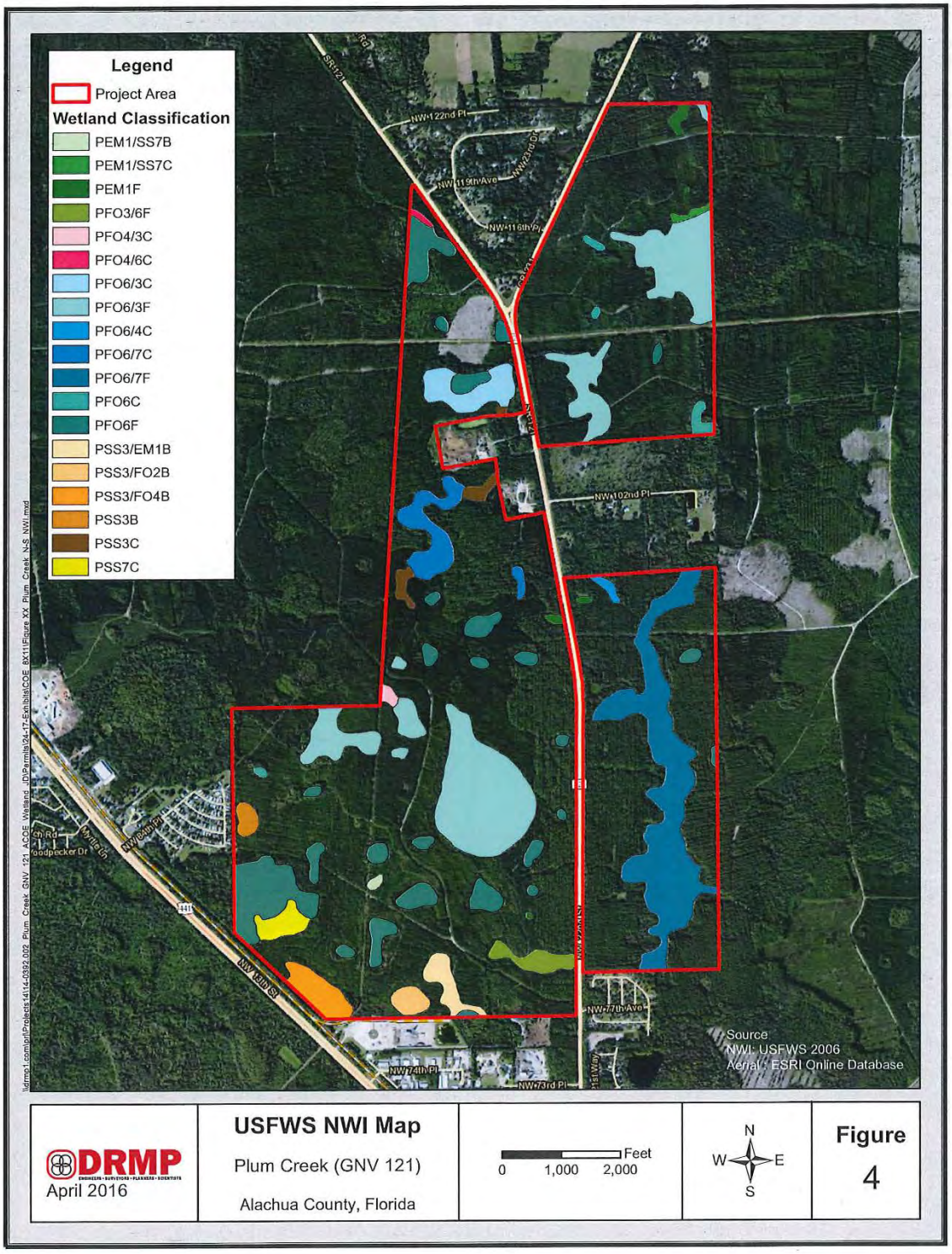
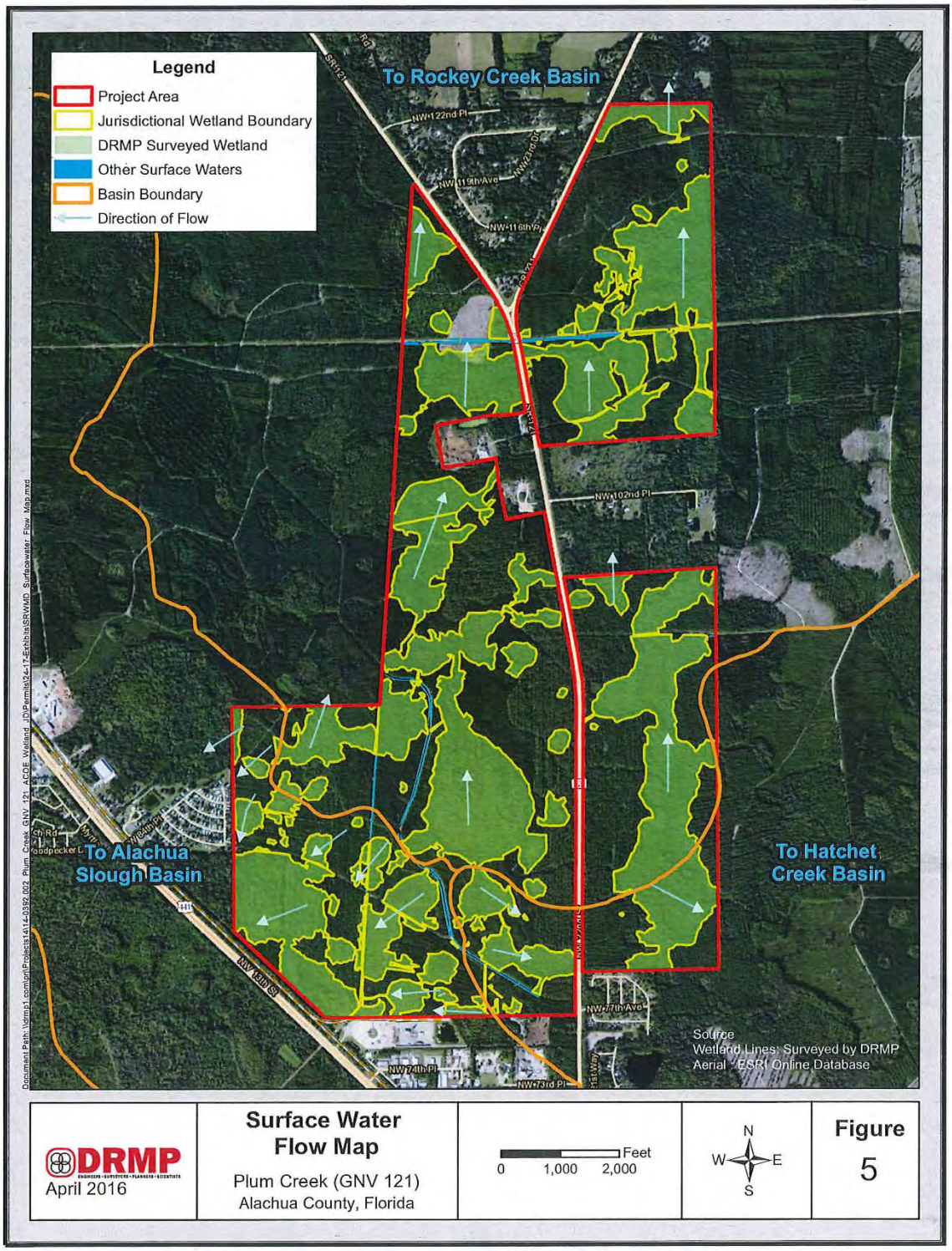


FIGURE 3 - PLUM CREEK GNV 121 PROJECT - SPECIFIC PURPOSE SURVEY INFORMATION - FORMAL WETLAND DETERMINATION
DRMP WETLAND SURVEY LINE - SURVEY CREATED 04/08/2016 - DISTRICT ERP-001-210495-3
GAINESVILLE FLORIDA
Wetland_Liner_Survey
Plum_Creek_3
Plum_Creek_2
Plum_Creek_121_1
N
0
2,600
5,200
Feet
Note: This map was created by the Suwannee River Water Management District (SRWMD) to be used for planning purposes only. SRWMD shall not be held liable for any injury or damage caused by the use of data distributed as is. SRWMD does not guarantee the accuracy, or suitability for any use of these data, and no warranty is expressed or implied. For more information please contact the SRWMD at 386-362-1001
Map Created on 6/2/2016


Legend
Project Area
Wetland Classification
PEM1/SS7B
PEM1/SS7C
PEM1F
PFO3/6F
PFO4/3C
PFO4/6C
PFO6/3C
PFO6/3F
PFO6/4C
PFO6/7C
PFO6/7F
PFO6C
PFO6F
PSS3/EM1B
PSS3/FO2B
PSS3/FO4B
PSS3B
PSS3C
PSS7C
SR 121
NW 122nd Pl
NW 119th Ave
NW 116th Pl
NW 102nd Pl
NW 77th Ave
NW 74th Pl
NW 73rd Pl
NW 76th Pl
NW 75th Ln
Woodpecker Dr
441
NW 16th St
Source
NWI: USFWS 2006
Aerial: ESRI Online Database
DRMP
April 2016
USFWS NWI Map
Plum Creek (GNV 121)
Alachua County, Florida
Feet
0
1,000
2,000
N
W
E
S
Figure
4


Legend
Project Area
Jurisdictional Wetland Boundary
DRMP Surveyed Wetland
Other Surface Waters
Basin Boundary
Direction of Flow
To Rockey Creek Basin
To Alachua Slough Basin
To Hatchet Creek Basin
NW122nd Pl
NW115th Ave
NW116th Pl
NW102nd Pl
NW77th Ave
NW74th Pl
NW73rd Pl
NW 188th St
SR 121
Source
Wetland Lines: Surveyed by DRMP
Aerial : ESRI Online Database
DRMP
April 2016
Surface Water Flow Map
Plum Creek (GNV 121)
Alachua County, Florida
Feet
0 1,000 2,000
N
W E
S
Figure
5

Attachment 3: ACOE Approved Jurisdictional Determination

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
2833 NW 41ST STREET, UNIT 130
GAINESVILLE, FLORIDA 32606

REPLY TO
ATTENTION OF

September 16, 2016

Regulatory Division
North Permits Branch
Jacksonville Permits Section
SAJ-2008-01477 (JD-SCW)
JURISDICTIONAL VERIFICATION

Plum Creek Timberlands
13005 SW 1st Road, Suite 241
Newberry, Florida 32669

Ladies and Gentlemen:

Reference is made to information submitted to the U.S. Army Corps of Engineers (Corps) regarding the potential extent of Federal jurisdiction in Sections 1 and 12, Township 9 South, Range 19 East, in Sections 6 and 7, Township 9 South, Range 20 East, in Sections 25 and 36, Township 8 South, Range 19 East, and in Sections 30 and 31, Township 8 South, Range 20 East. Gainesville, Alachua County, Florida. The evaluation of this jurisdictional determination involved many factors and may have included a field visit, review of aerial photographs, geological quad sheets, county soils maps, and site specific information provided by you. A copy of the approved jurisdictional determination form and depiction of the geographic extent of Federal jurisdiction are enclosed. A Department of the Army permit may be required for work in areas identified as waters of the United States.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the South Atlantic Division Office at the following address: If you object to this determination, you may request an administrative appeal under Corps' regulations at 33 CFR Part 331. If you request to appeal this determination, you must submit a completed RFA form to the South Atlantic Division Office at the following address:

Mr. Jason Steele
South Atlantic Division
U.S. Army Corps of Engineers
CESAD-CM-CO-R, Room 9M15
60 Forsyth St., SW.
Atlanta, Georgia 30303-8801.

Mr. Steele can be reached by telephone number at 404-562-5137, or by facsimile at 404-562-5138.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division office within 60 days of the date of the RFA. Should you decide to submit an RFA form, it must be received at the above address by **November 14, 2016.** It is not necessary to submit a RFA form to the Division Office if you do not object to the determination in this letter.

The determination shown on the enclosed information represents the upland/wetland boundary for purposes of determining the Corps jurisdictional line. As depicted on the enclosed drawing, it has been determined you have waters of the United States onsite, which are subject to regulation by the Corps, and/or you have wetlands onsite which are considered to be isolated, and thus not subjected to regulation by the Corps. Please be advised that the jurisdictional determination shown is based on the Corps of Engineers Wetlands Delineation Manual (1987) or current regional supplement, and is valid for a period no longer than 5 years from the date of this letter unless new information warrants a revision of the determination before the expiration date. If, after the 5-year period, the Corps has not specifically revalidated this jurisdictional determination, it shall automatically expire. Any reliance upon this jurisdictional determination beyond the expiration date may lead to possible violation of current Federal laws and/or regulations. You may request revalidation of the jurisdictional determination prior to the expiration date. Any revalidation or updating will be considered under the method of jurisdictional determination and other applicable regulations in use at the time of the request. Additionally, this determination has been based on information provided by you or your agent; should we determine that the information was incomplete or erroneous this delineation would be invalid.

This determination has been conducted to identify the limits of the Corps Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

You are cautioned that work performed below the mean high water line or ordinary high water line in waters of the United States, or the discharge of dredged or fill material into adjacent wetlands, without a Department of the Army permit could subject you to enforcement action. Receipt of a permit from the Department of Environmental

Protection or the Water Management District does not obviate the requirement for obtaining a Department of the Army permit for the work described above prior to commencing work.

The Corps' Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to visit http://per2.nwp.usace.army.mil/survey.html and complete our automated Customer Service Survey. Your input is appreciated – favorable or otherwise. Please be aware this Internet address is case sensitive and should be entered as it appears above.

Thank you for your cooperation with our permit program. If you have any questions concerning this matter please contact Shannon White by mail at the letterhead address, by electronic mail at shannon.c.white@ usace.army.mil, or by telephone at 904-232-1681.

Sincerely,

Shannon White

FOR
Donald W. Kinard
Chief, Regulatory Division

Enclosures

Copy Furnished:

DRMP, Inc., 941 Lake Baldwin Lane, Orlando, FL 32814

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Plum Creek	File Number: SAJ-2008-01477	Date: 9/16/2016
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- *ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.*
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- *ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.*
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- *ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.*
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT		
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)		
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.		
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:		
If you have questions regarding this decision and/or the appeal process you may contact: **Project Manager as noted in letter**	If you only have questions regarding the appeal process you may also contact: **Jason Steele** **404-562-5137**	
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 8/11/2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:Jacksonville District; Plum Creek Timberlands/CR-121 SAJ-2008-01477-SCW

C. PROJECT LOCATION AND BACKGROUND INFORMATION: The proposed project is located in Sections 1 and 12, Township 9 South, Range 19 East, in Sections 6 and 7, Township 9 South, Range 20 East, in Sections 25 and 36, Township 8 South, Range 19 East, and in Sections 30 and 31, Township 8 South, Range 20 East.

State: FL County/parish/borough: Alachua City: Gainesville
Center coordinates of site (lat/long in degree decimal format): Lat. 29.743754° Pick List, Long. -82.356030° Pick List.
Universal Transverse Mercator:
Name of nearest waterbody: Rocky Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Santa Fe River
Name of watershed or Hydrologic Unit Code (HUC): Santa Fe River subbasin (03110206), Ocklawaha River subbasin (03080102), River Rise- Santa Fe River watershed (0311020605), Rocky Creek-Santa Fe River watershed (0311020603), Paynes Prairie watershed (0308010211), Rocky Creek-Santa Fe River subwatershed (031102060302), Hatchet Creek subwatershed (030801021102), and Sanchez Prairie subwatershed (031102060501)

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 8/1/2016
☒ Field Determination. Date(s): 4/1/2014, 3/9/2016, 4/29/2016, 6/10/2016, 8/12/2015, and 8/27/2015

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are and are not** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: 607.608 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The subject wetlands A (0.880 acre), B (2.822 acres), C (1.560 acres), D (5.718 acres), E (7.005 acres), G (18.292 acres), H (73.275 acres), I (0.177 acre), J (4.294 acre), K (0.158 acre), M (0.310 acre), N (0.139 acre), O (14.506 acres), P (2.873 acres), Q (2.331 acres), R (0.249 acre), S (0.045 acre), V (0.5 acre), BB (0.319 acres), DD (0.071 acre), FF (0.039 acre), HH (0.514 acre), and JJ (0.104 acre) are located in the Turkey Creek subwatershed drainage basin. The subject wetlands drain westward along the railroad grade parallel to US Highway 441 to culverts underneath US Highway 441. Culverts under US Highway 441 drain directly into Turkey Creek. Turkey Creek is not navigable, RPW that flows approximately 5 miles from spring headwaters to a sink hole located in Sanchez Prairie within the San Felasco Hammock Preserve State Park. The subject wetlands do not appear to be chemically, physically or biologically connected to other waters of the U.S., are not adjacent to a TNW and do not appear to meet the significant nexus standard. The closest TNW is the Santa Fe River, located 10 miles north of the subject wetlands. The subject wetlands do not appear to be used for recreational, fishing or industrial purposes for interstate commerce. See Section III F below and Attachment 1.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: 16296 **acres**
   Drainage area: 16296 **acres**
   Average annual rainfall: 52 inches
   Average annual snowfall: 0 inches

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) Physical Characteristics:

(a) Relationship with TNW:

☒ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **5-10** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: N/A.

Identify flow route to TNW[5]: The headwaters of Rocky Creek originate in the nothern review area east of County Road 121. Rocky Creek flows east from the northern portion of the review area then turns north to the Santa Fe River.
Tributary stream order, if known: N/A.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 15 feet
Average depth: 3 feet
Average side slopes: **3:1**.

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The tributary condition within the review area is stable with minimal bank erosion..
Presence of run/riffle/pool complexes. Explain: N/A.
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 0.00185 feet/mile rather than %

(c) Flow:

Tributary provides for: **Perennial flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Rocky Creek is an RPW with continous flow during normal precipitation years.
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: Rocky Creek has defined bed and banks.

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☒ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☒ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- ☒ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☒ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: Rocky Creek flows into the Santa Fe River, an Outstanding Florida Waterbody. Rocky Creek flows .

Identify specific pollutants, if known: Due to the rural nature of the review area, nutrients from agriculture and septic systems likely contribute minimal pollutants to the Rocky Creek.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☒ Habitat for:

☒ Federally Listed species. Explain findings: Federally listed Endangered Oval Pigtoe (Pleurobema pyriforme) freshwater mussel and Federally proposed for listing Suwannee moccassinshell (Medionidus walkeri) freshwater mussel. The Santa Fe River is designated critical habitat for the Oval pigtoe. Both the listed oval pigtoe and proposed for listing Suwannee moccassinshel require a geomorphically stable stream channel, a predominately sand, gravel and/or cobble stream substrate with low to moderate amounts of silt and clay, permanently flowing water, water quality (including temperature, turbidity, dissolved oxygen and chemical constituents) that meets or exceeds the current aquatic life criteria established under the Clean Water Act, and fish hosts (such as largemouth bass, sailfin shiner, brown darter) that support larval life stages. Maintaining water supply and water quality in the tributaries of Santa Fe River is necessary to support the Oval pigtoe and Suwannee moccassinshell freshwater mussels.

- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: The review area provides the nutrient and pollutant filtration necessary for maintenance of water quality in the TNW (Santa Fe River). The floodwater storage and nutrient/pollutant filtration functions of the RPW (Rocky Creek) and wetlands within the review area are important to maintain the water quality and the aquatic flora and fauna of TNW (Santa Fe River). The uplands and wetlands within review area provides habitat and foraging opportunities for a variety of invertebrates, birds, reptiles, amphibians and mammals.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: 607.608 acres

Wetland type. Explain: Hydric Pine Flatwoods, Mixed Forested Wetlands and freshwater herbaceous wetlands.

Wetland quality. Explain: The majority of the review area is in pine plantation. According to aerial photographs, the majority of the review area has not been actively managed since 2008, allowing recruitment vegetation other than slash pine. The wetland quality is moderate to high.

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: Due to the ground surface elevation precipitation that does not percolate vertically into the soil flows horizontally overland into the RPW.

Surface flow is: **Overland sheetflow**

Characteristics: .

Subsurface flow: **Yes**. Explain findings: Evidence of shallow subsurface flow from wetlands within the review area to the RPW was supported by soil properties. The average water table in areas surrounding wetlands is 12 inches or less, indicating a shallow groundwater table. An indicator of shallow groundwater flow is the pond reservior area rating. Pond reservoir area ratings are both verbal and numerical and indicate the potential for a soil map unit to be used to hold water behind a dam or embankment. The Natural Resource Conservation Service (NRCS) and the U.S. Department of Agriculture (USDA) list all of the soil map units within the review area as "very limited" for the water management use of pond reservoir areas or storage of water behind a dam or embankment. The numberical rating assigned by the USDA to indicate the severity of this limitation is reported based on a scale that ranges from not limited (0.01) to very limited (1.00). All of the soil map units present within the review area are rated a 1.00 indicating the "very limited" ability of the soil to store water behind an embankment due to seepage or water movement throught the soil.

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting
☒ Not directly abutting
☒ Discrete wetland hydrologic connection. Explain: Due to the ground surface elevation precipitation that does not percolate vertically into the soil, flows horizontally overland into the RPW. Evidence of shallow subsurface flow from the wetlands within the review area to the RPW was indicated by soil properties discussed previously.
☒ Ecological connection. Explain: Wetlands and uplands within the review area provide habitat and foraging opportunities for invertebrates, birds, mammals, amphibians and reptiles. The floodwater storage and nutrient/pollutnat filtration/sequestration functions of the review area wetlands are important to maintain the water quality and flora and fauna associated with the TNW (Santa Fe River).
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **5-10** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: During multiple site inspections in 2015 no poor water quality indicators were observed.
Identify specific pollutants, if known: Due to the rural nature of the review area, nutrients from agriculture and septic systems likely contribute minimal pollutants to the wetlands within the review area.

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/percent cover. Explain: Provided on attached wetland data sheets.
☒ Habitat for:
☒ Federally Listed species. Explain findings:Federally listed Endangered Oval Pigtoe (Pleurobema pyriforme) freshwater mussel and Federally proposed for listing Suwannee moccassinshell (Medionidus walkeri) freshwater mussel. The Santa Fe River is designated critical habitat for the Oval pigtoe. Both the listed oval pigtoe and proposed for listing Suwannee moccassinshel require a geomorphically stable stream channel, a predominately sand, gravel and/or cobble stream substrate with low to moderate amounts of silt and clay, permanently flowing water, water quality (including temperature, turbidity, dissolved oxygen and chemical constituents) that meets or exceeds the current aquatic life criteria established under the Clean Water Act, and fish hosts (such as largemouth bass, sailfin shiner, brown darter) that support larval life stages. Maintaining water supply and water quality in the headwater wetlands and wetlands adjacent to tributaries of Santa Fe River is necessary to support the Oval pigtoe and Suwannee moccassinshell freshwater mussels.

☐ Other environmentally-sensitive species. Explain findings: .
☒ Aquatic/wildlife diversity. Explain findings:The review area provides the nutrient and pollutant filtration necessary for maintenance of water quality in the RPW (Rocky Creek) and TNW (Santa Fe River). The floodwater storage and nutrient/pollutant filtration functions of the RPW (Rocky Creek) and wetlands within the review area are important to maintain the water quality and the aquatic flora and fauna of TNW (Santa Fe River). The uplands and wetlands within review area provides habitat and foraging opportunities for a variety of invertebrates, birds, reptiles, amphibians and mammals.

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: **30 (or more)**
Approximately (607.608) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	1.864	N	0.301
N	5.209	N	12.091
N	0.096	N	4.028
N	0.188	N	1.984
N	0.303	N	4.844
N	0.398	N	5.195
N	2.176	N	0.104
N	0.215	N	0.030
N	0.054	N	0.381
N	3.207	N	0.874
N	0.991	N	0.523.
N	2.079	Y	1.204
Y	0.048	Y	179.014
Y	2.523	Y	148.159
Y	21.160	Y	0.169
Y	17.935	Y	3.656

Y	18.359	Y	0.806
Y	35.803	Y	11.802
Y	9.040	Y	10.322
Y	72.687	Y	0.127
Y	13.606	Y	13.586
Y	0.467		

Summarize overall biological, chemical and physical functions being performed: Headwater wetlands of Rocky Creek.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Surface water monitoring data is lacking within the review area; however, flow in the RPW was observed during multiple site visits between 2014 and 2016.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands RZ, SZ, AZ, GZ, IZ, T, U, BZ, EZ, U, CZ, B, A, I, H, J, O, N, and P directly abut Rocky Creek. Aerial photography, wetland delineation surveys and FEMA floodzone maps show the subject wetlands directly abut Rocky Creek.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: **560.473** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **47.135** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☒ Wetlands: 136.181 acres.

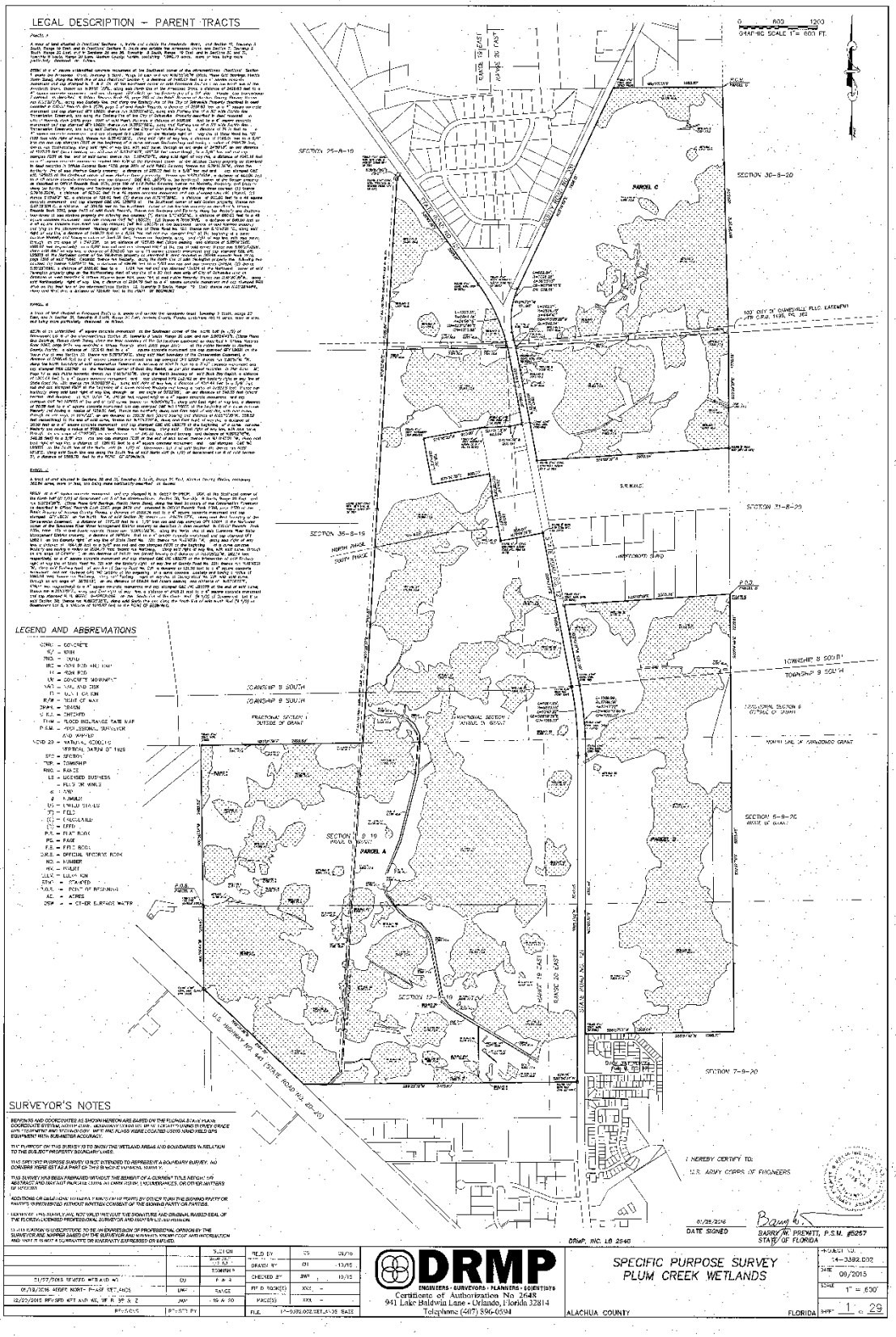
Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

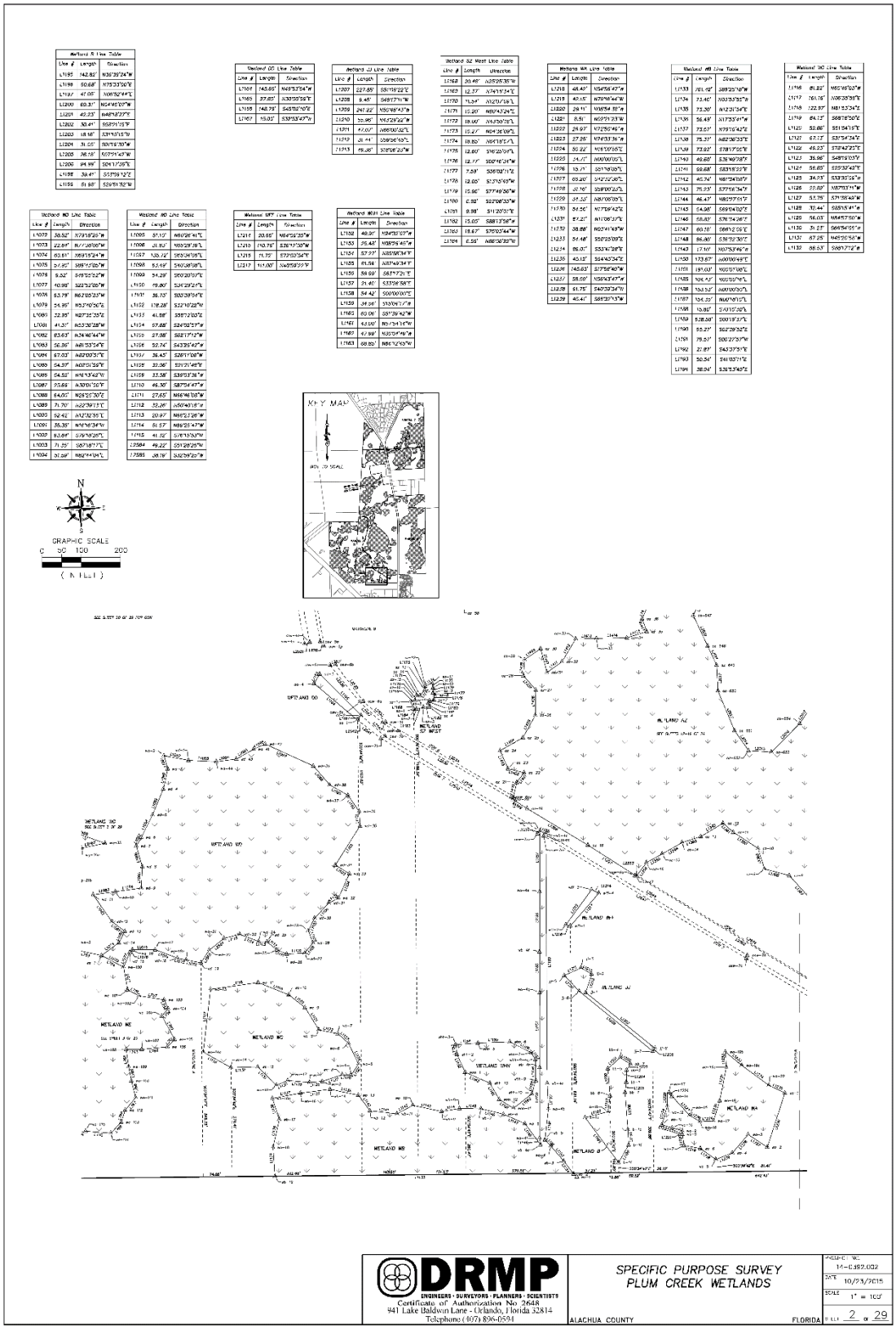
SECTION IV: DATA SOURCES.

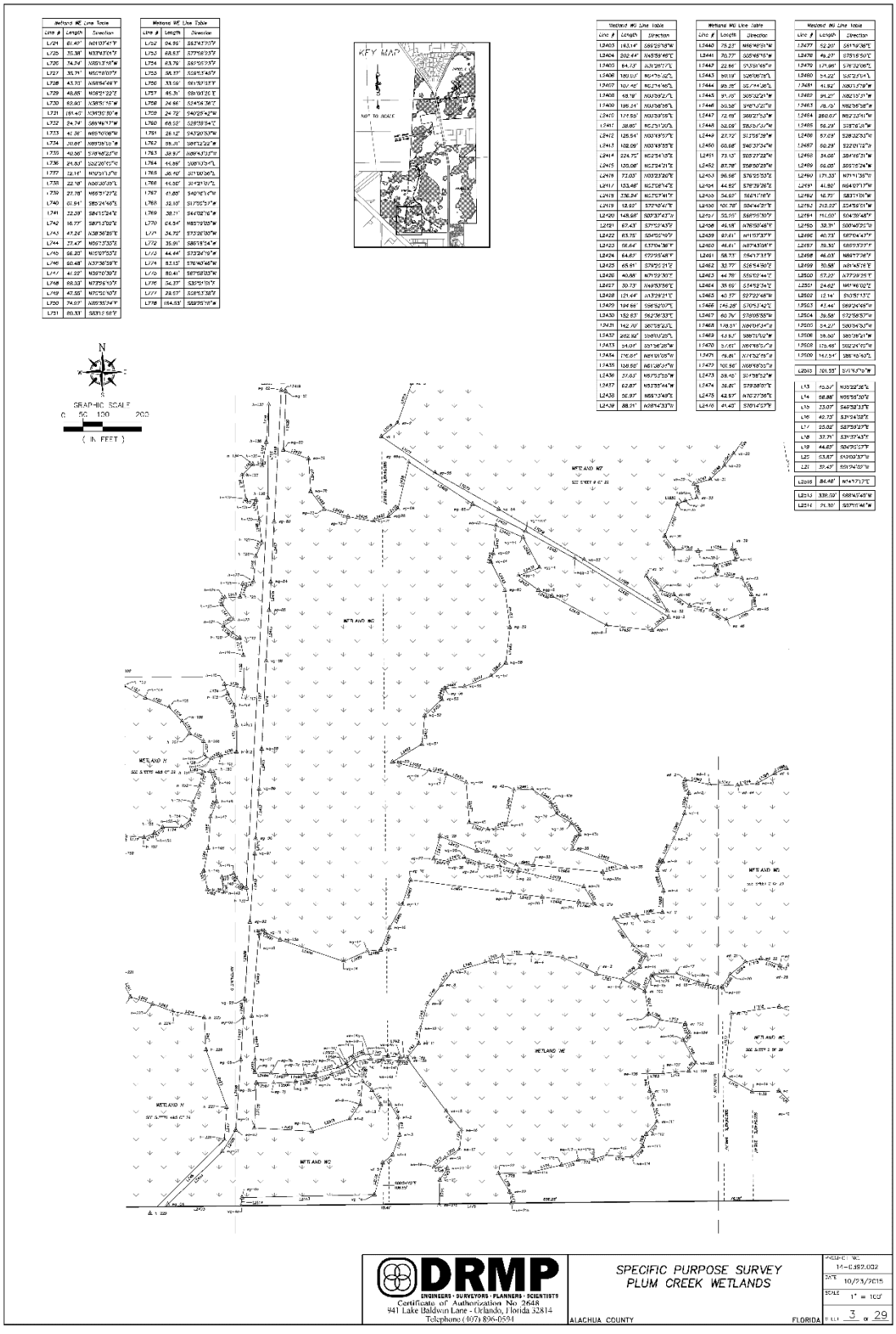
A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas: .
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Monteocha, FLA and 1:24,000 Gainesville East, FLA.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soils Survey .
☒ National wetlands inventory map(s). Cite name: National Wetlands Inventory.
☐ State/Local wetland inventory map(s): .
☒ FEMA/FIRM maps: Floodplain map.
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):Google Earth 8/1/2016 and University of Florida Aerial Library Historic Aerial Photographs.
or ☐ Other (Name & Date): .
☒ Previous determination(s). File no. and date of response letter: SAJ-2008-01477 all wetlands within proposed project area determined to be Corps jurisdictional by letter dated September 5, 2008.
☐ Applicable/supporting case law: .
☒ Applicable/supporting scientific literature: Suwannee River Water Management District. 1995. Santa Fe River Surface Water Improvement and Management Plan.
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Attachment 4: Specific Purpose Survey


LEGAL DESCRIPTION – PARENT TRACTS
LEGEND AND ABBREVIATIONS
SURVEYOR'S NOTES
I HEREBY CERTIFY TO:
U.S. ARMY CORPS OF ENGINEERS
DATE SIGNED
BARRY W. PREWITT, P.S.M. #5267
STATE OF FLORIDA
DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS
Certificate of Authorization No. 2648
941 Lake Baldwin Lane · Orlando, Florida 32814
Telephone (407) 896-0594
SPECIFIC PURPOSE SURVEY
PLUM CREEK WETLANDS
ALACHUA COUNTY
FLORIDA
SHEET 1 of 29


KEY MAP
GRAPHIC SCALE
0 50 100 200
(IN FEET)
DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
Certificate of Authorization No. 2648
941 Lake Baldwin Lane - Orlando, Florida 32814
Telephone (407) 896-0594
SPECIFIC PURPOSE SURVEY
PLUM CREEK WETLANDS
ALACHUA COUNTY
FLORIDA
14-0.992.002
10/23/2015
1" = 100'
2 of 29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WETLAND NE
WETLAND NC
DRMP
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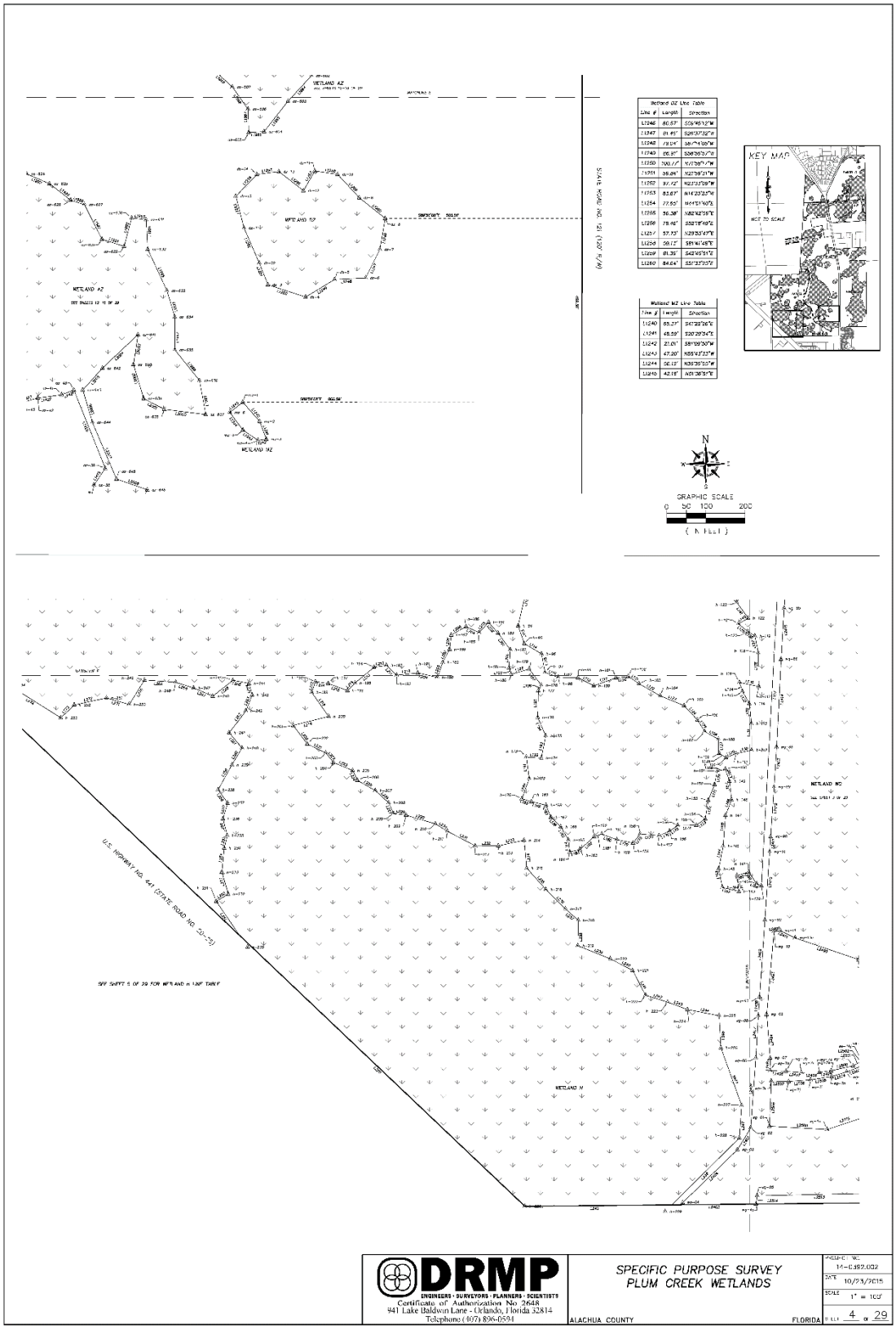
ALACHUA COUNTY
FLORIDA
14-0.992.002
10/23/2015
1" = 100'
3 of 29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SWEETBAY - 30.0 SF
SWEETBAY - 60.0 SF
SILVER MOSS RD. (SR 121) (100' R/W)
KEY MAP
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(IN FEET)
U.S. HIGHWAY NO. 441 (STATE ROAD NO. 25-A)
SEE SHEET 5 OF 29 FOR WETLAND A LINE TABLE
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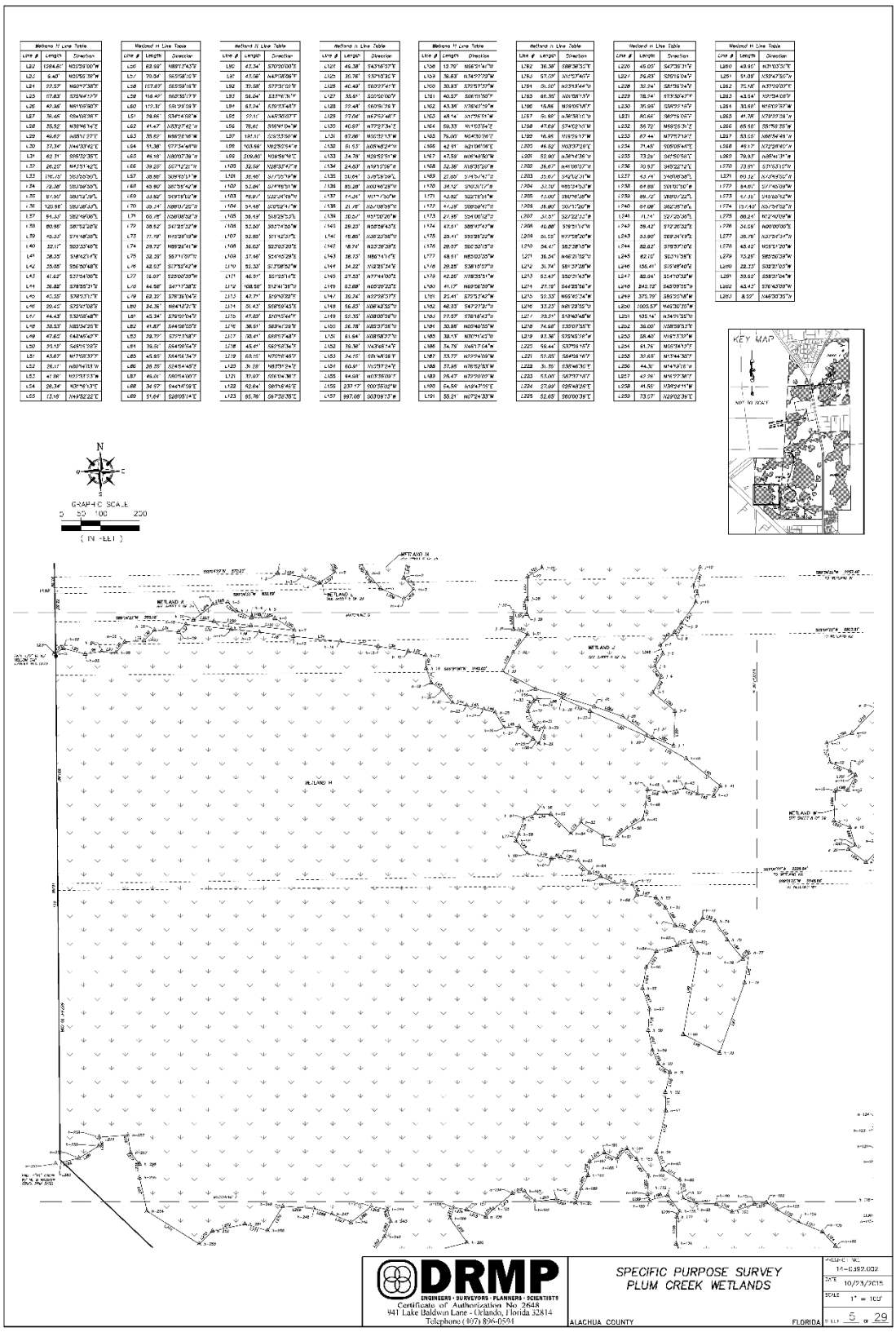
JOB # 14-0.992.002
DATE 10/23/2015
SCALE 1" = 100'
SHEET 4 OF 29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WETLAND K
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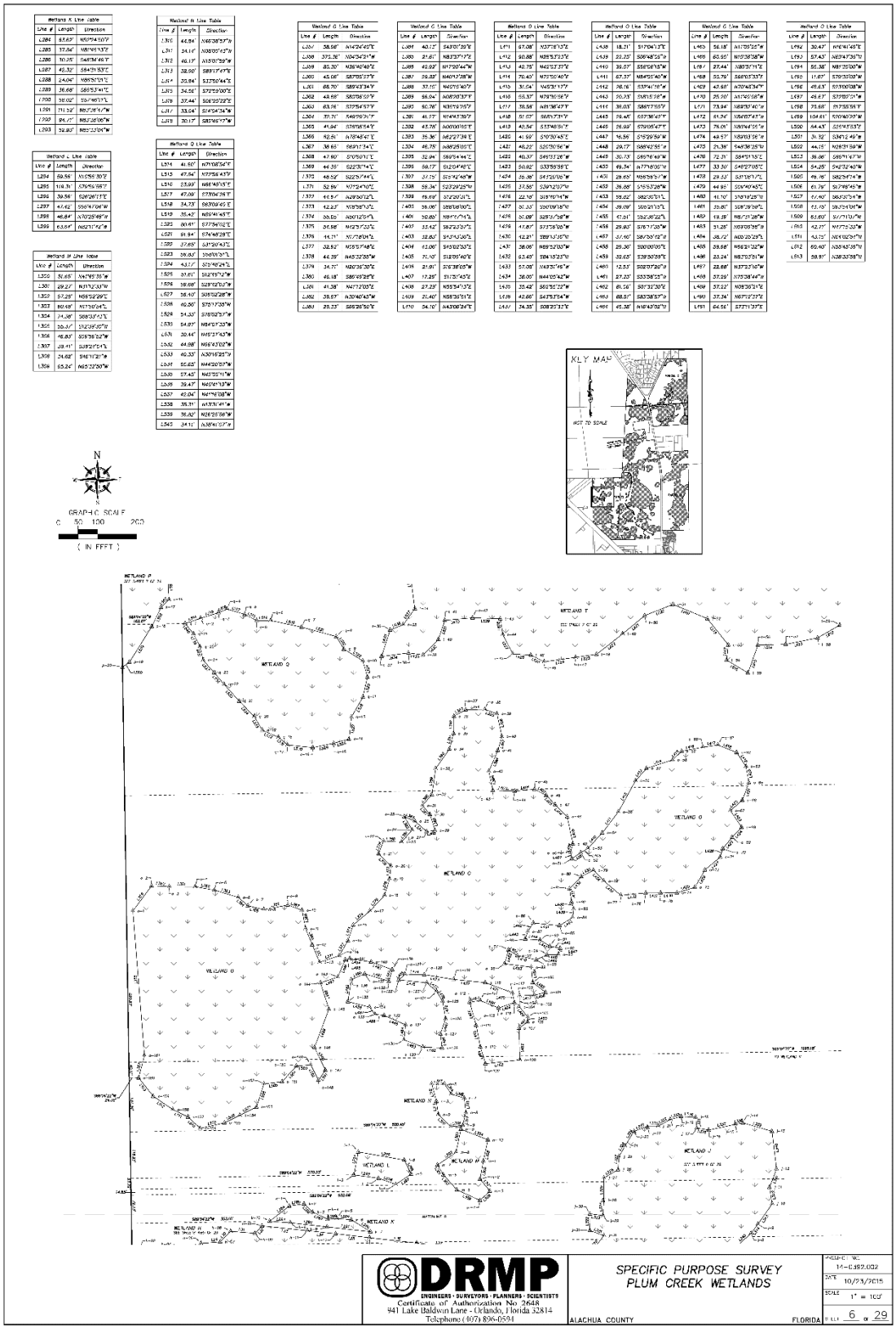
DATE 10/23/2015
SCALE 1" = 100'
SHEET 5 OF 29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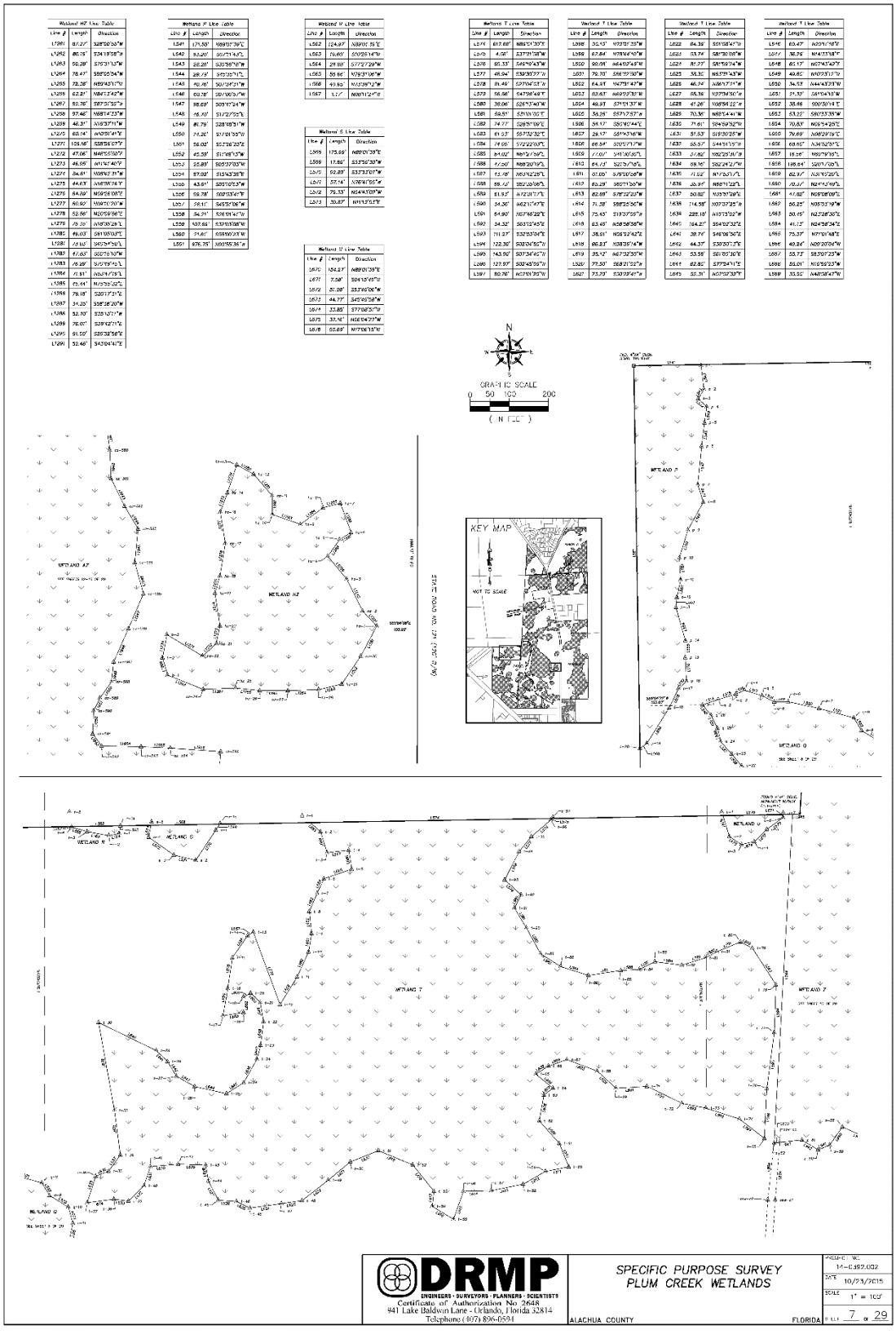
FLORIDA
JOB-DC WL
14-0.992.002
DATE 10/23/2015
SCALE 1" = 100'
SHEET 6 OF 29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WETLAND U
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FLORIDA
JOB # 14-0392.002
DATE 10/23/2015
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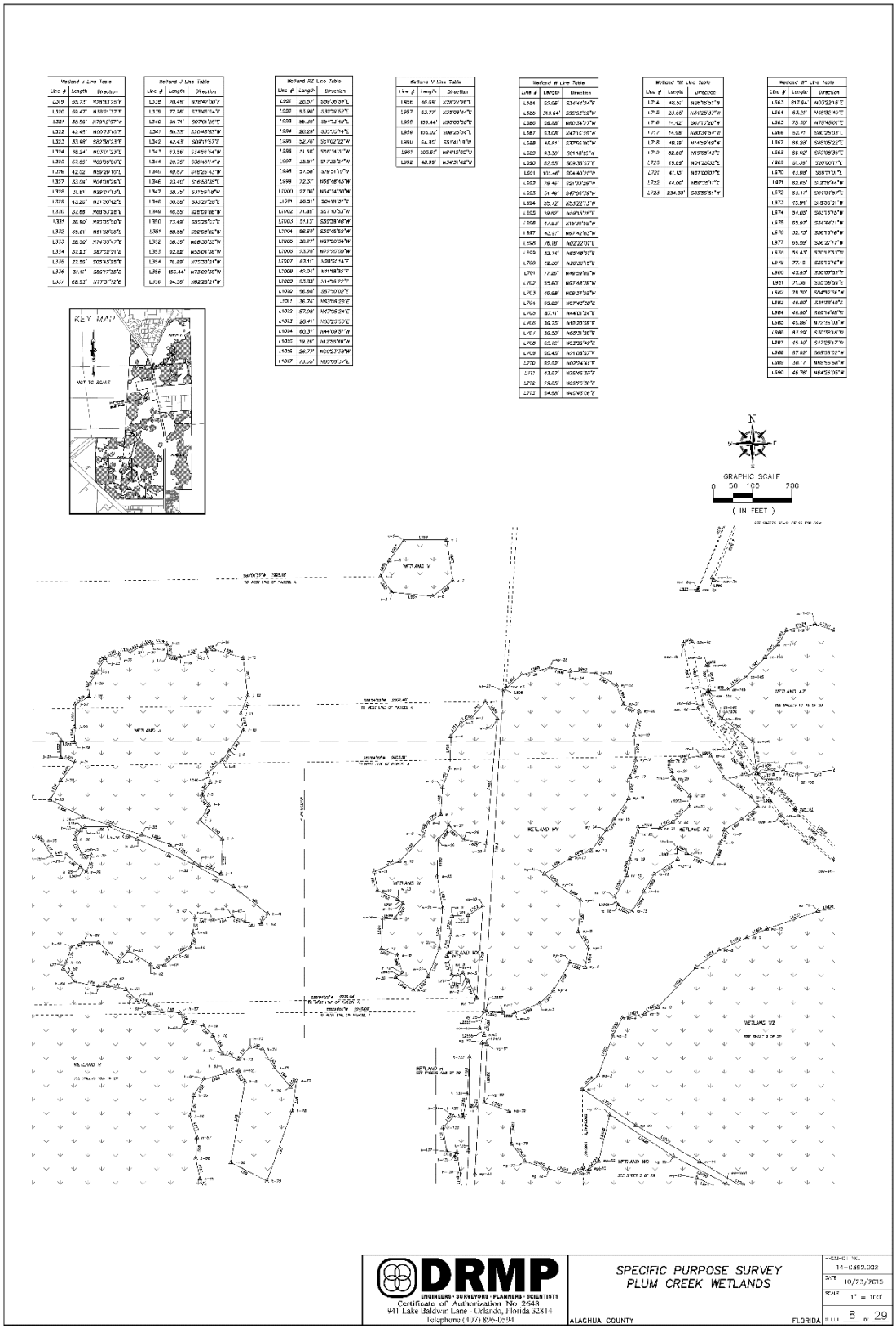
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FLORIDA
14-0.992.002
10/23/2015
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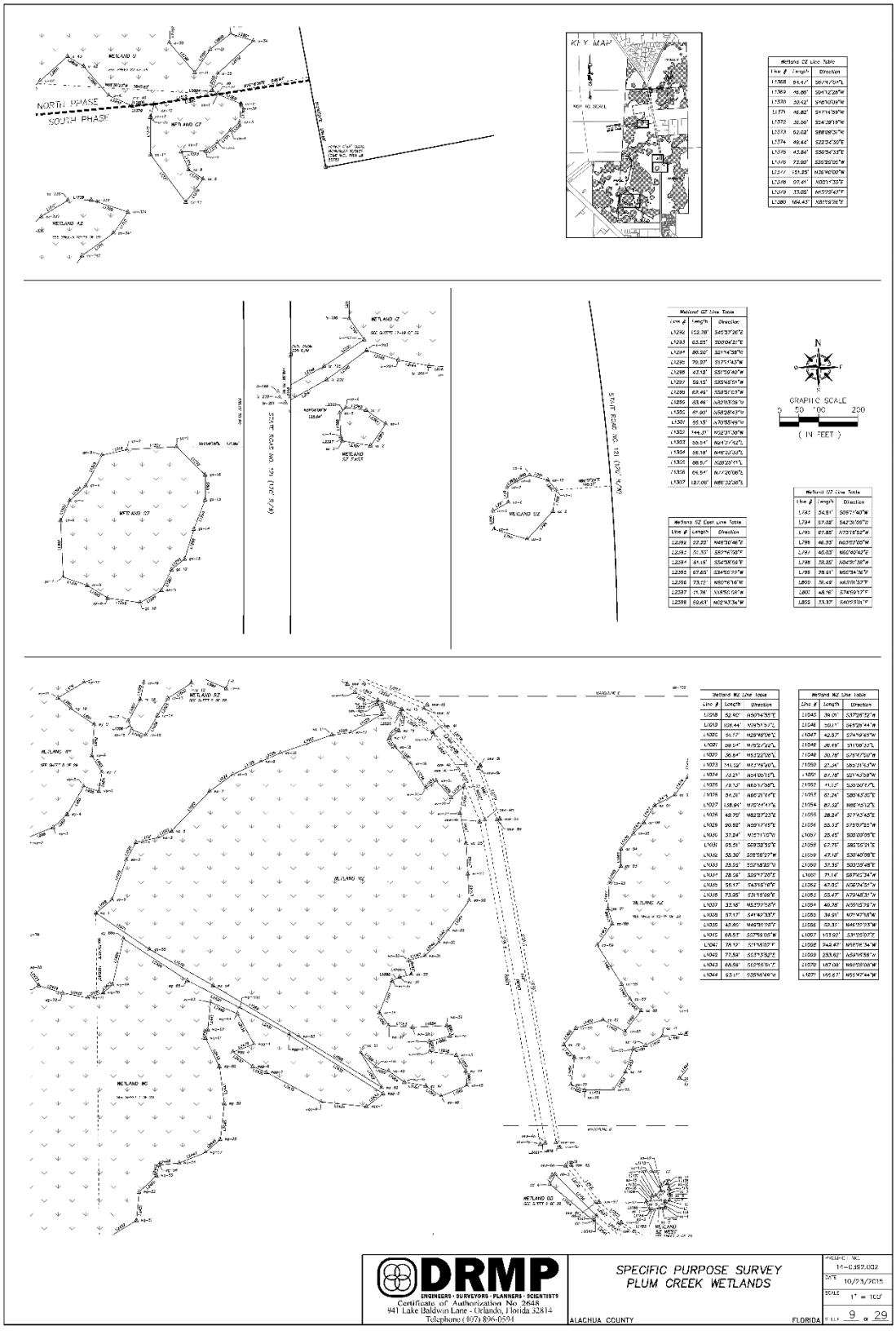
8 of 29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KEY MAP
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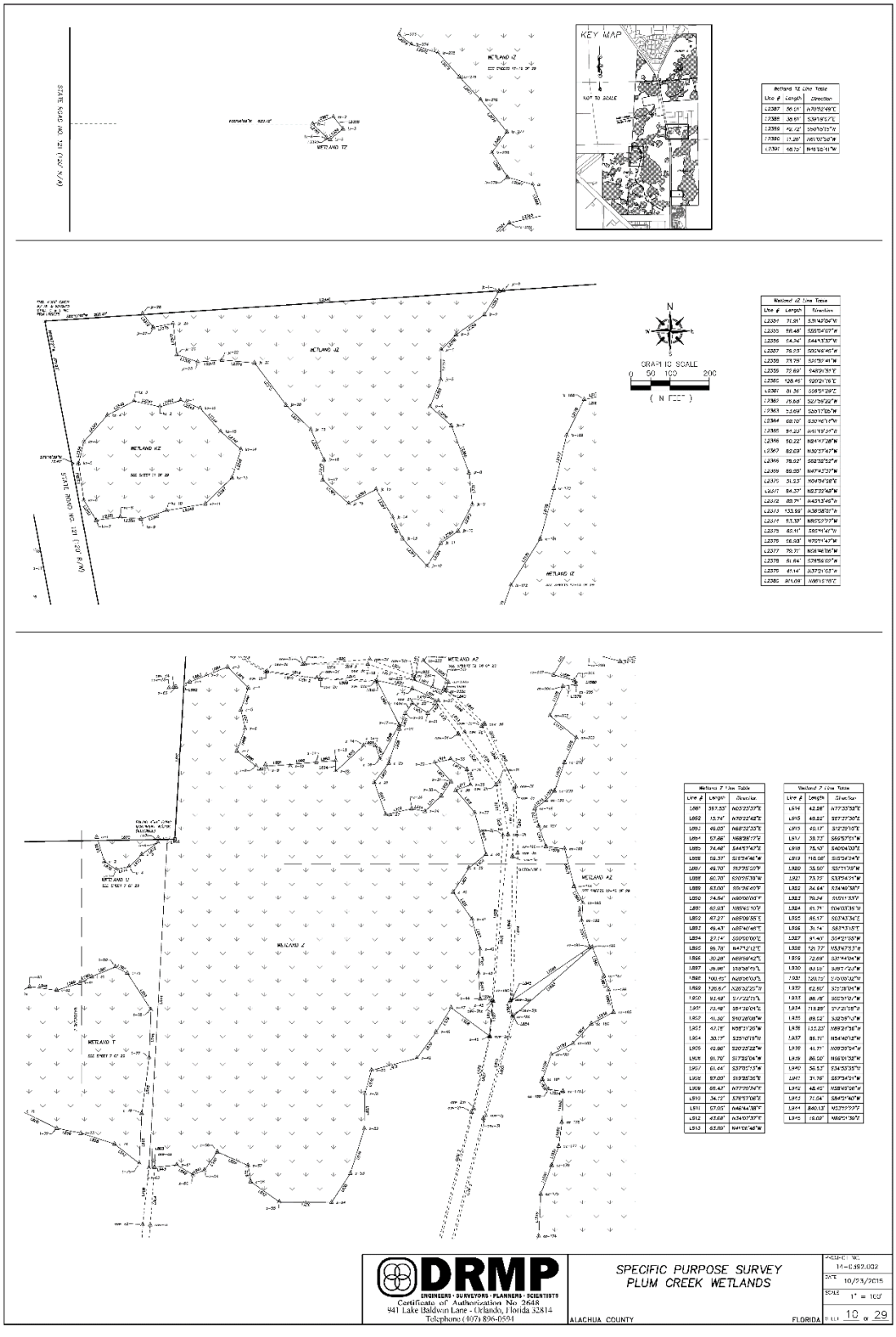
FLORIDA
14-0.992.002
10/23/2015
1" = 100'
9 of 29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(IN FEET)
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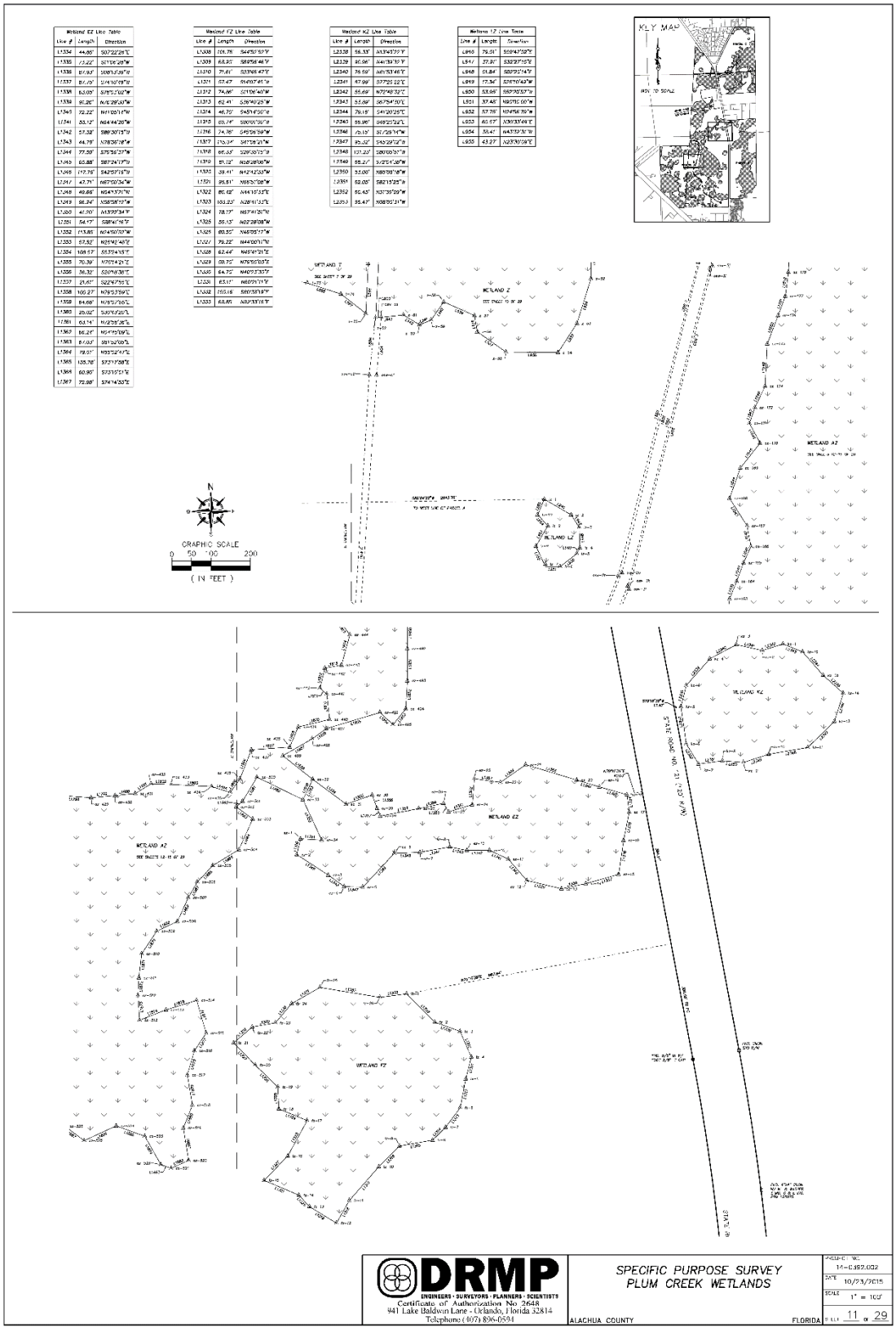
ALACHUA COUNTY
FLORIDA
14-0.992.002
10/23/2015
1" = 100'
SHEET 10 OF 29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GRAPHIC SCALE
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(IN FEET)
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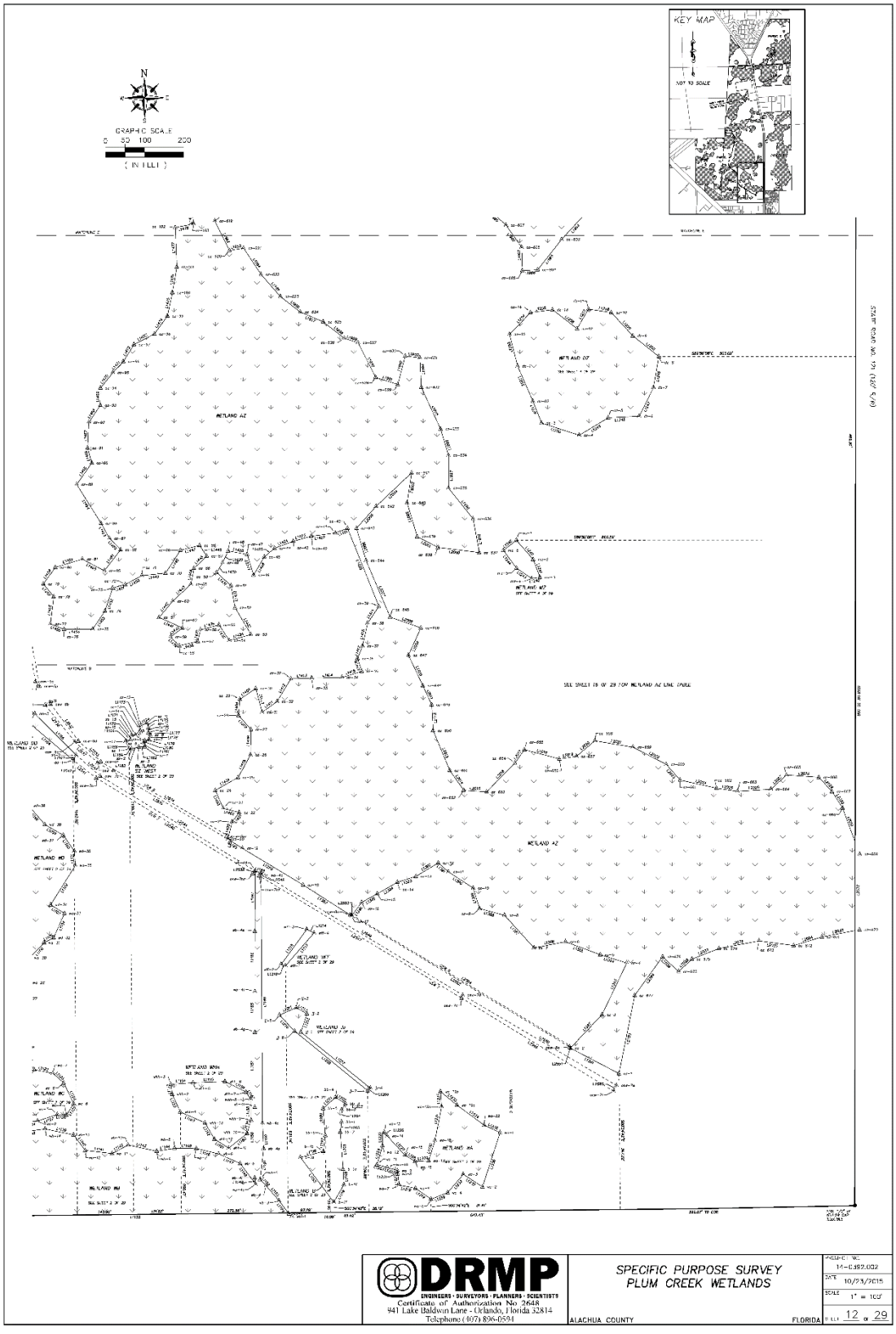
FLORIDA
14-0.992.002
10/23/2015
1" = 100'
11 of 29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WETLAND D2
WETLAND A7
WETLAND A2
SEE SHEET 19 OF 29 FOR WETLAND A2 LINE TABLE
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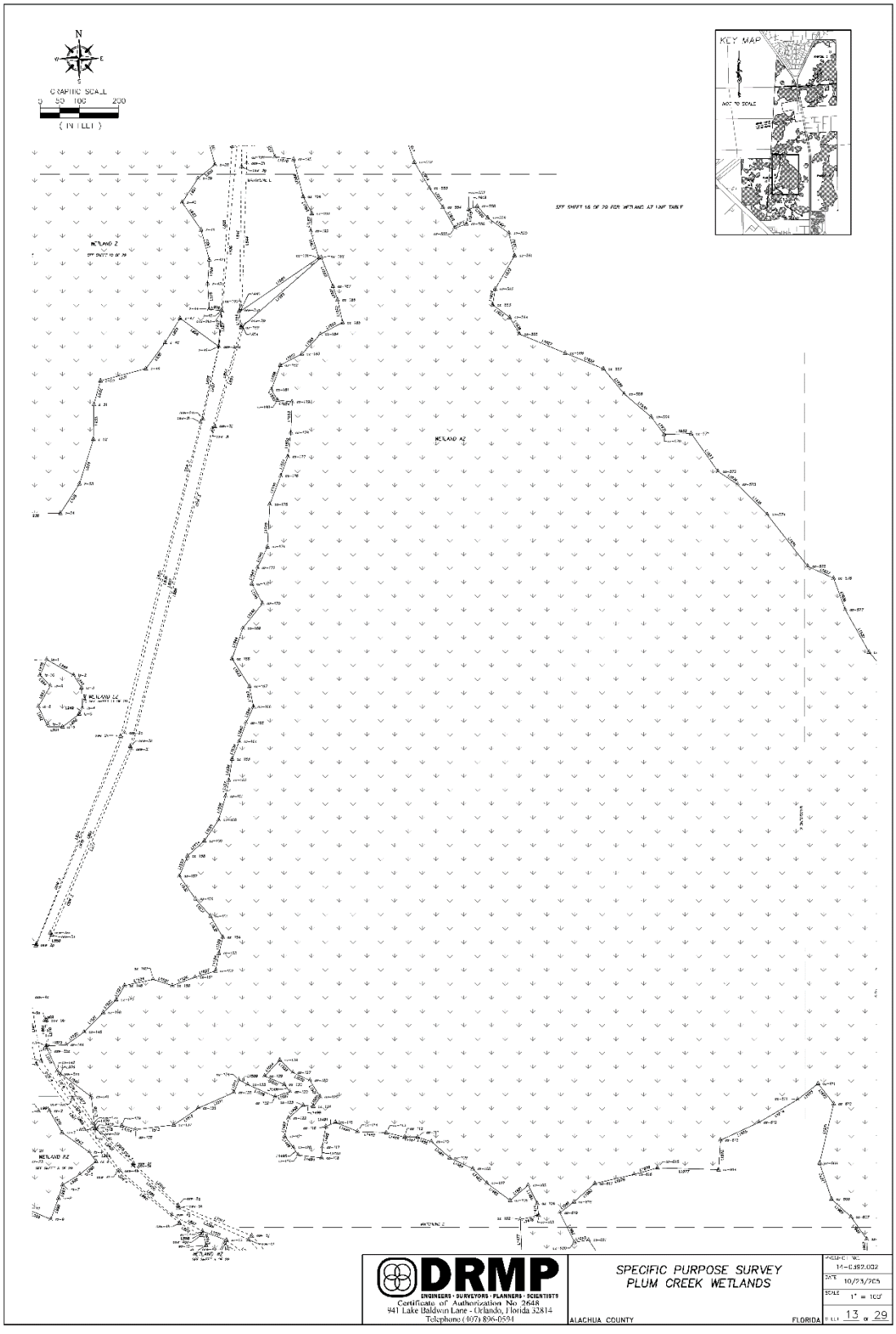
FLORIDA
JOB-DWG NO. 14-0392.002
DATE 10/23/2015
SCALE 1" = 100'
SHEET 12 OF 29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SEE SHEET 16 OF 29 FOR WETLAND A7 LINE TABLE
WETLAND Z
SEE SHEET 15 OF 29
WETLAND A2
WETLAND A4
WETLAND A5
WETLAND A6
WETLAND A7
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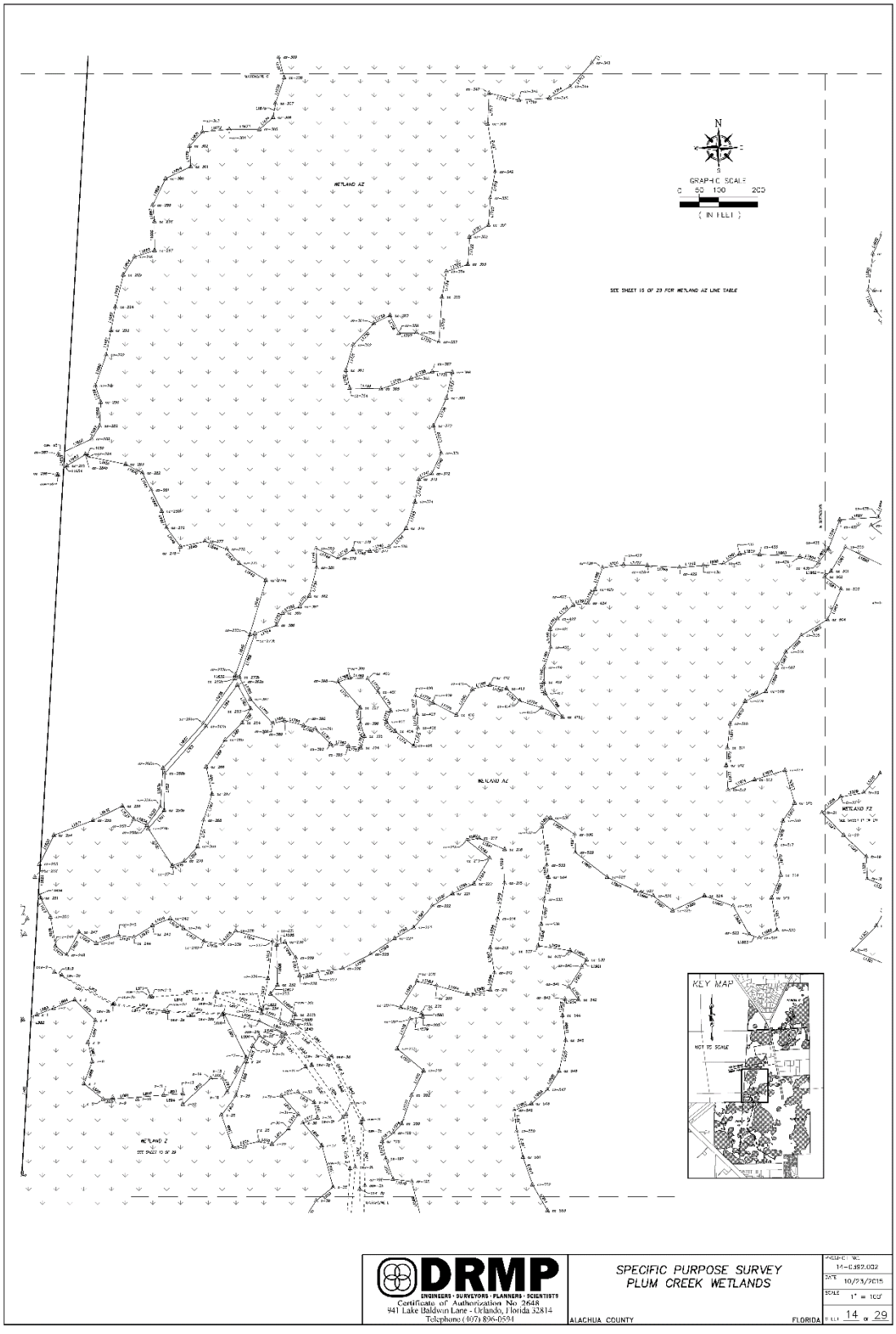
FLORIDA
JOB-DIR. NO.
14-0392.002
DATE
10/23/2015
SCALE
1" = 100'
SHEET
13 of 29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SEE SHEET 15 OF 29 FOR WETLAND A2 LINE TABLE
WETLAND A2
WETLAND A2
WETLAND A2
SEE SHEET 15 OF 29
KEY MAP
NOT TO SCALE
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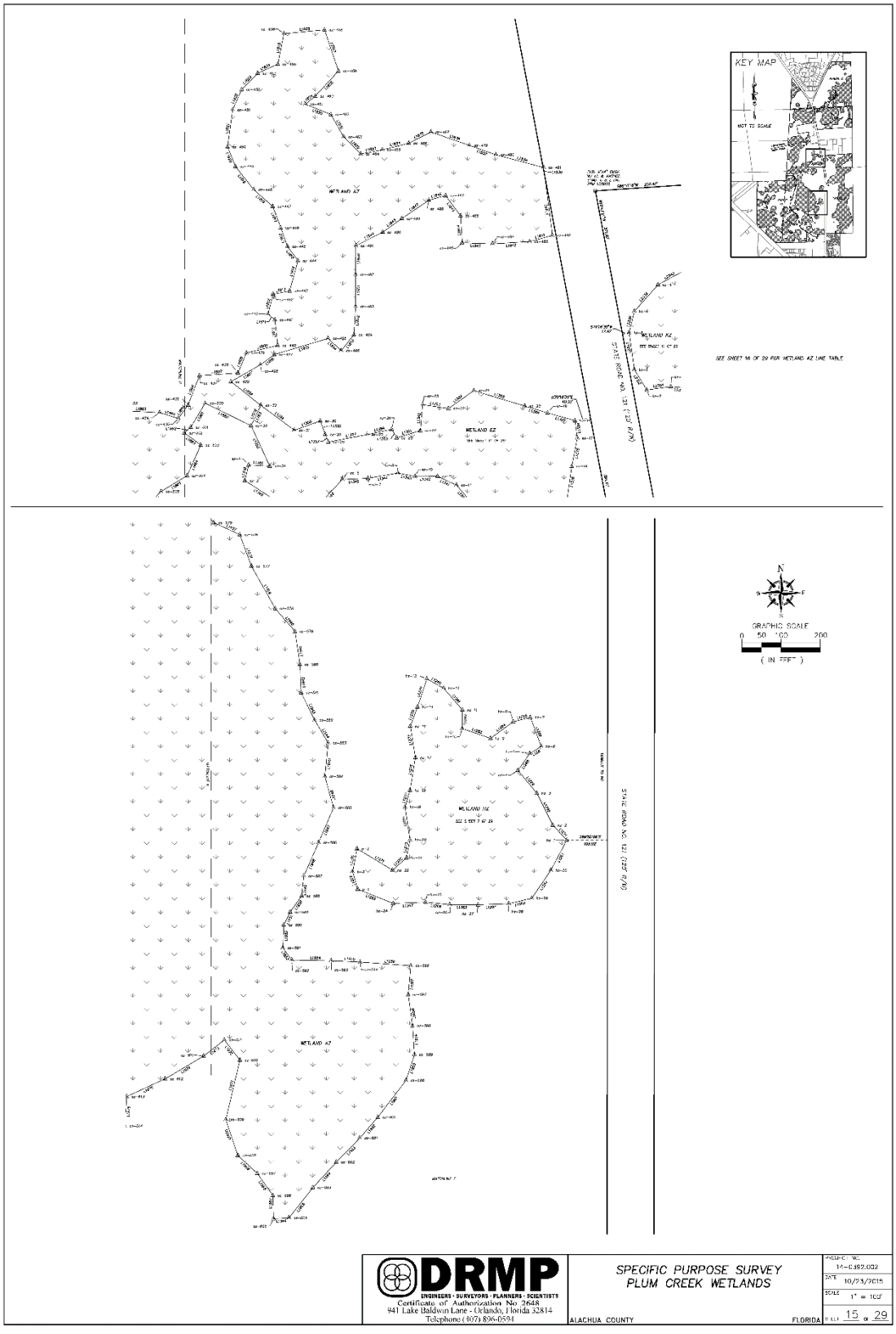
FLORIDA
14-0.992.002
10/23/2015
1" = 100'
14 of 29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STATE ROAD NO. 121 (S.R. 24)
SEE SHEET 16 OF 29 FOR WETLAND A2 LINE TABLE
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0 50 100 200
(IN FEET)
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ALACHUA COUNTY
FLORIDA
14-0.992.002
10/23/2015
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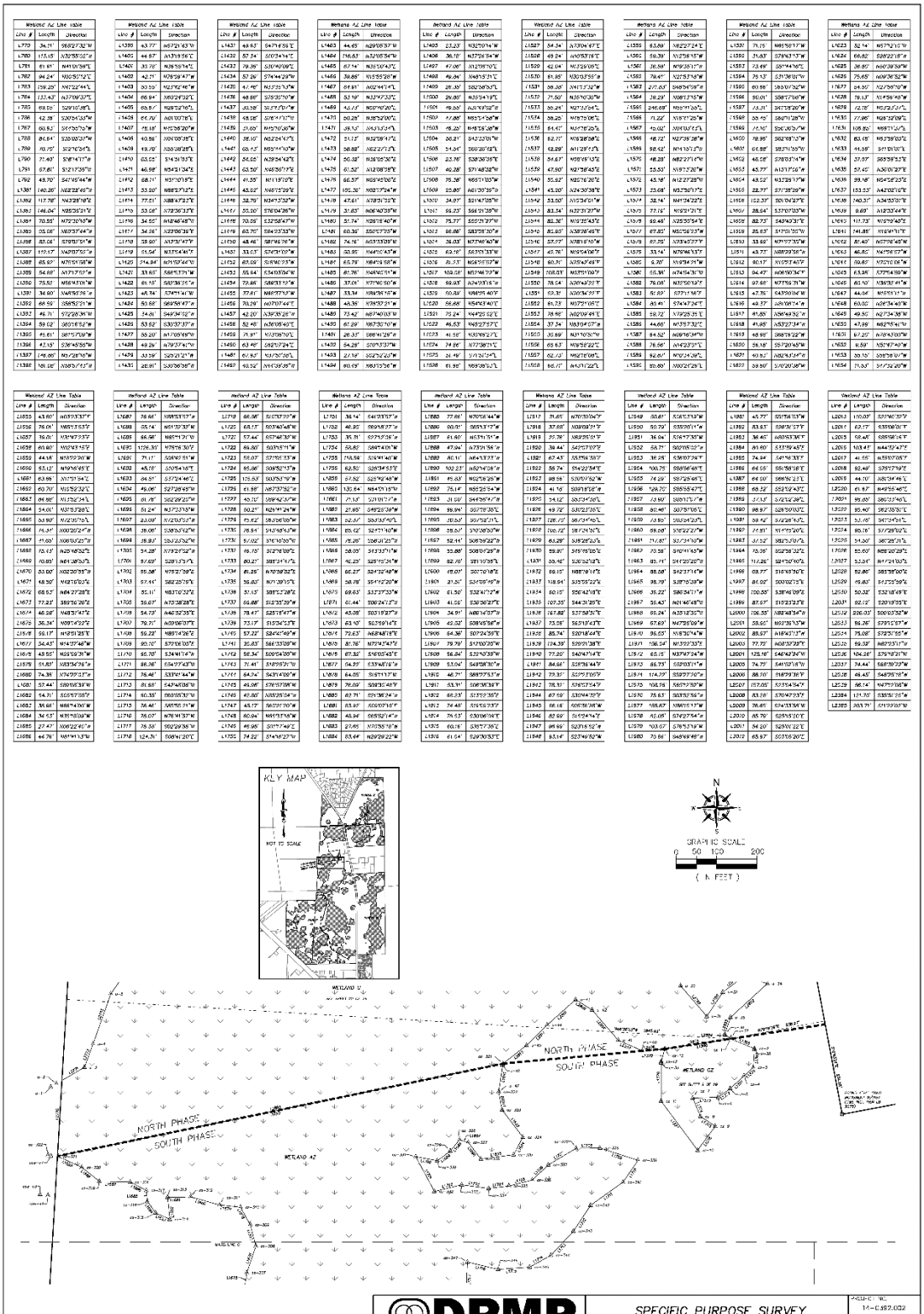
15 of 29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(IN FEET)
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S
NORTH PHASE
SOUTH PHASE
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WETLAND C2
WETLAND D
DRMP
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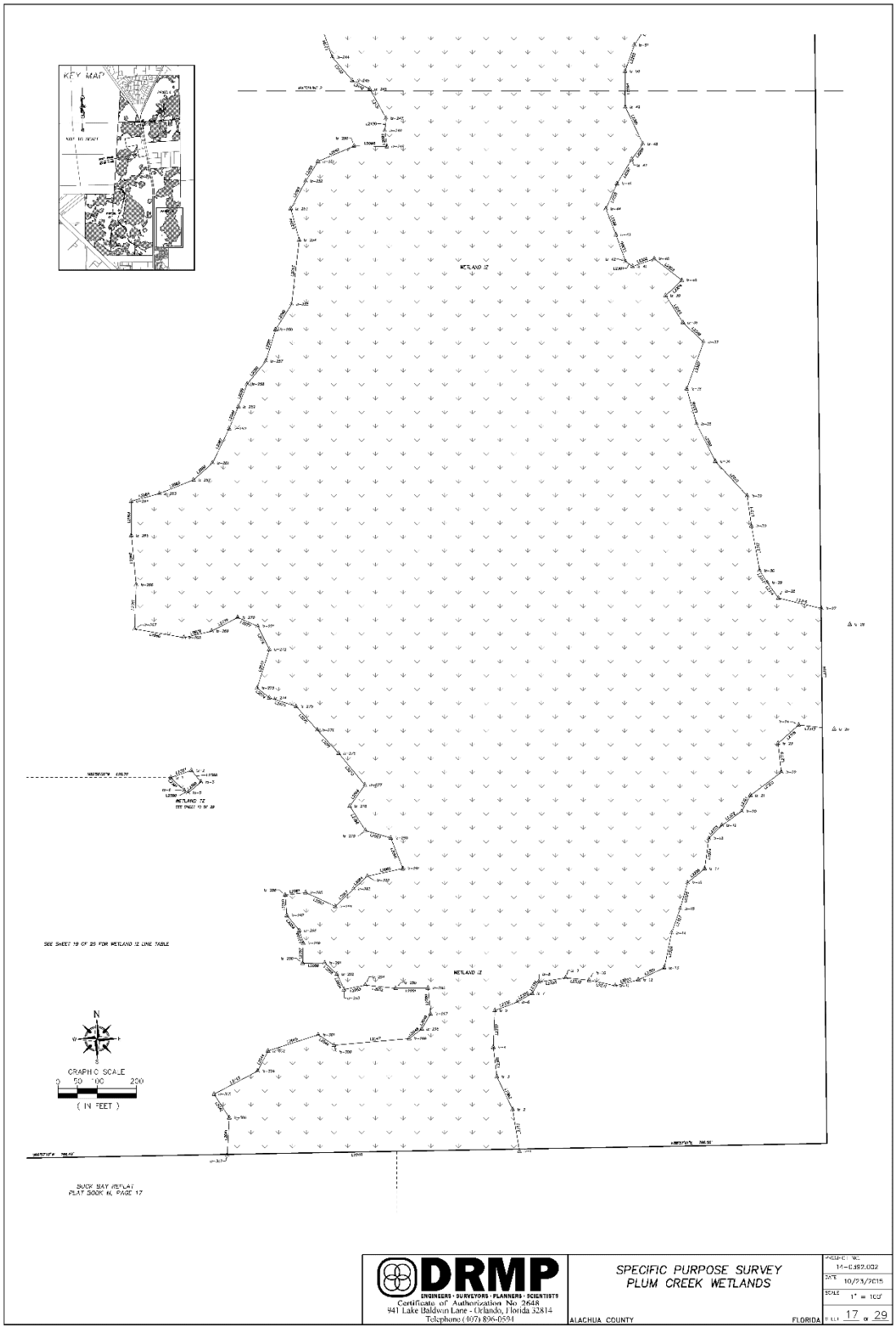
PLUM CREEK WETLANDS
ALACHUA COUNTY
FLORIDA
PROJECT NO. 14-0.992.002
DATE 10/23/2015
SCALE 1" = 100'
SHEET 16 of 29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WETLAND 12
SEE SHEET 19 OF 29 FOR WETLAND 12 LINE TABLE
WETLAND 12
SEE SHEET 19 OF 29
N
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(IN FEET)
SUCK SAY REPLAT
PLAT BOOK M, PAGE 17
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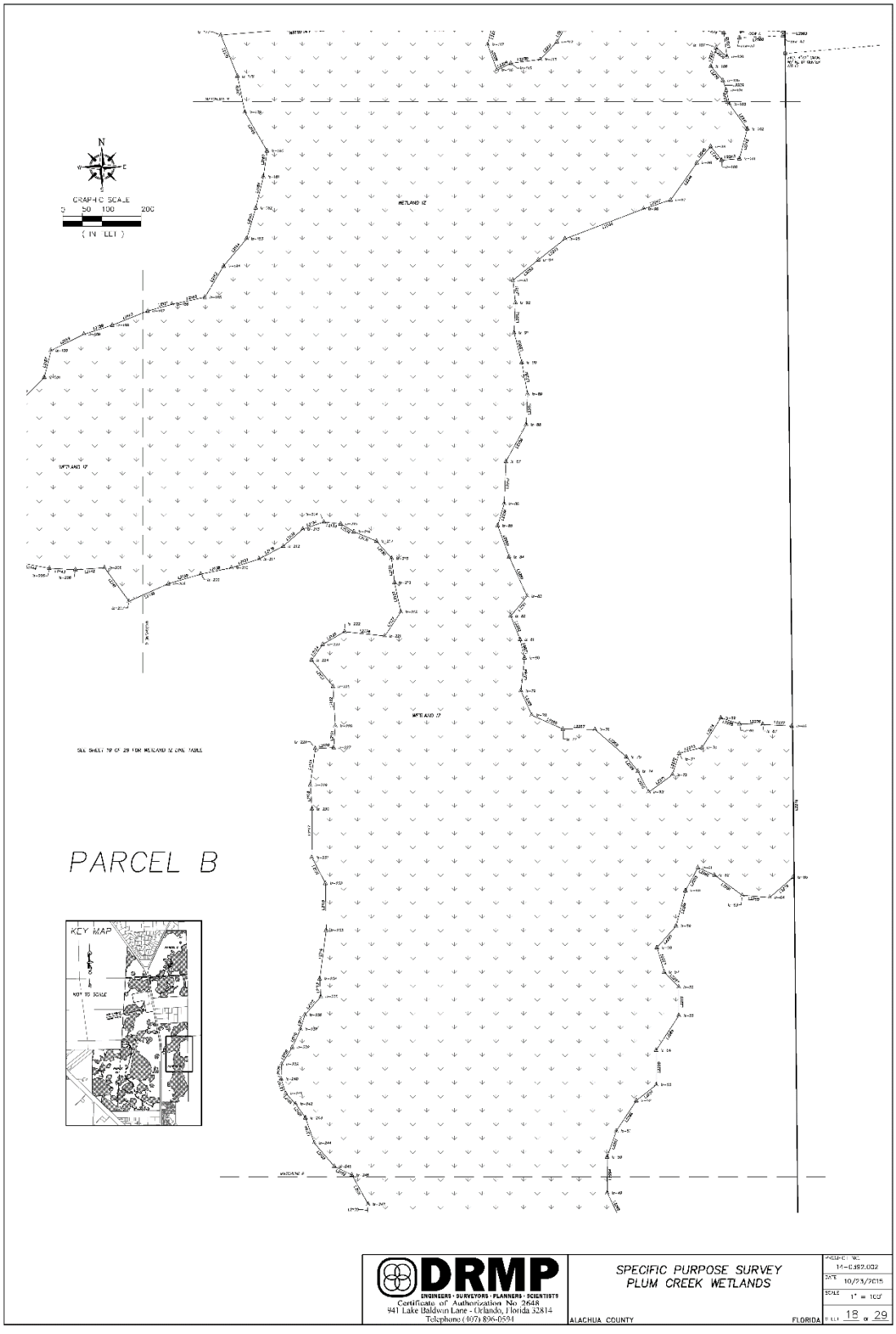
14-0.992.002
10/23/2015
1" = 100'
ALACHUA COUNTY
FLORIDA
17 of 29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ALACHUA COUNTY
FLORIDA
14-0.992.002
10/23/2015
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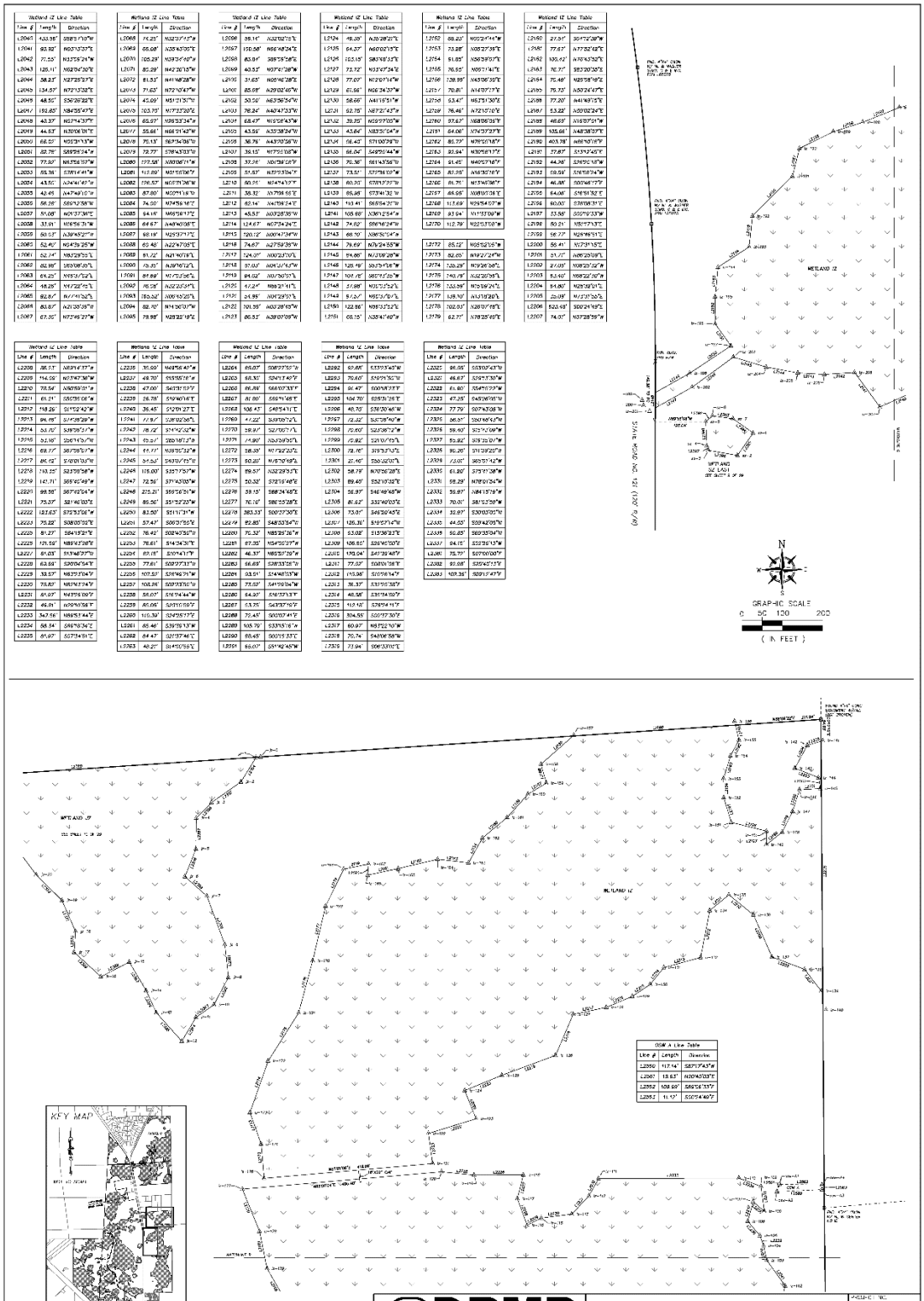
18 of 29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(IN FEET)
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FLORIDA
14-0.992.002
10/23/2015
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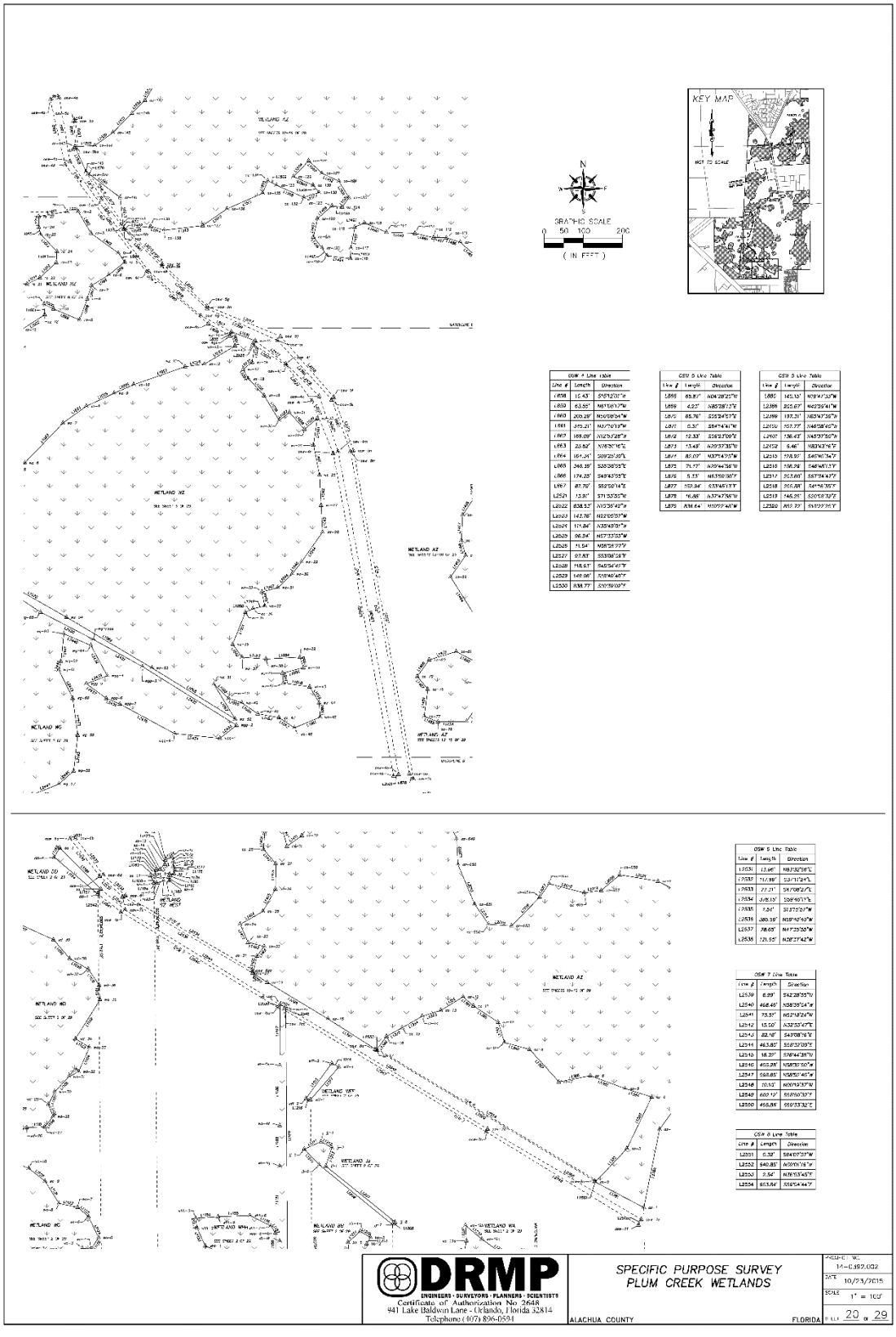


CSW 4 Line Table		
Line #	Length	Direction
L858	10.43'	S12°12'01"E
L859	63.55'	N81°08'17"W
L860	200.28'	N09°08'54"W
L861	345.21'	N37°01'19"W
L862	169.09'	N12°52'28"E
L863	23.89'	N76°37'16"E
L864	164.31'	S09°20'05"E
L865	240.39'	S30°38'55"E
L866	174.25'	S49°43'55"E
L867	85.76'	S52°09'16"E
L2521	13.91'	S71°53'55"W
L2522	838.53'	N10°36'42"E
L2523	142.76'	N82°05'57"W
L2524	171.84'	N38°43'01"E
L2525	96.24'	N67°33'03"W
L2526	11.54'	N38°58'27"E
L2527	97.83'	S53°08'28"E
L2528	118.63'	S40°54'47"E
L2529	149.06'	S18°40'45"E
L2530	838.77'	S10°59'09"E

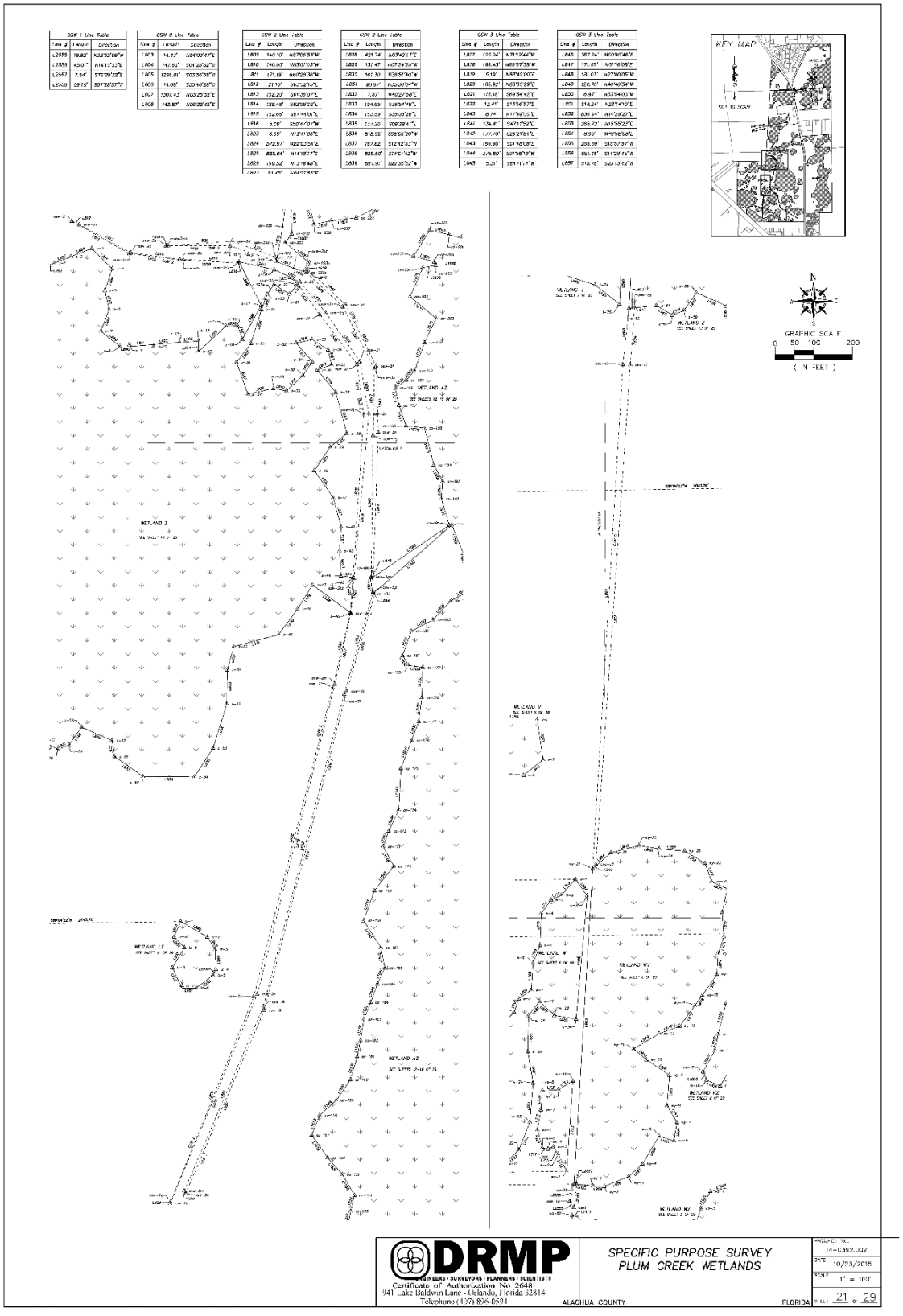
CSW 5 Line Table		
Line #	Length	Direction
L866	85.82'	N04°28'23"W
L869	4.23'	N85°08'13"E
L870	85.76'	S52°24'53"E
L871	0.31'	S84°44'41"W
L872	12.33'	S54°37'09"E
L873	13.49'	N20°37'35"E
L871	87.07'	N37°47'57"W
L873	71.17'	N39°44'36"E
L876	5.73'	N85°50'30"E
L877	153.94'	S33°45'13"E
L878	76.98'	N37°47'56"E
L879	R98.64	N10°59'48"W

CSW 5 Line Table		
Line #	Length	Direction
L880	145.13'	N78°47'32"W
L2388	205.07'	N42°29'41"W
L2389	197.31'	N85°47'35"W
L2390	157.77'	N46°58'45"W
L2401	136.43'	N83°37'50"W
L2402	6.46'	N83°43'16"E
L2510	578.91'	S40°46'34"E
L2516	156.28'	S48°48'13"E
L2517	205.66'	S67°54'47"E
L2518	205.68'	S41°46'30"E
L2519	146.25'	S20°58'32"E
L2520	R59.73'	S11°27'31"E

CSW 5 Line Table		
Line #	Length	Direction
L2531	13.96'	N83°32'56"E
L2532	711.98'	S31°12'24"E
L2533	77.21'	S41°08'27"E
L2534	378.15'	S38°40'11"E
L2535	7.24'	S13°22'07"W
L2536	380.28'	N39°40'40"W
L2537	78.65'	N47°25'55"W
L2538	121.55'	N28°27'42"W

CSW 7 Line Table		
Line #	Length	Direction
L2539	8.99'	S42°28'55"W
L2540	468.46'	N38°39'24"W
L2541	73.37'	N52°18'24"W
L2542	13.00'	N32°53'47"E
L2543	82.18'	S43°08'16"E
L2544	463.85'	S52°53'09"E
L2545	18.27'	S76°44'38"W
L2546	463.28'	N58°31'50"W
L2547	568.85'	N58°51'45"W
L2548	70.10'	N20°49'37"W
L2549	469.13'	S59°50'30"E
L2550	468.84'	S59°33'32"E

CSW 8 Line Table		
Line #	Length	Direction
L2551	0.39'	S84°07'33"W
L2552	540.85'	N09°19'16"W
L2553	7.54'	N76°53'40"E
L2554	653.64'	S56°54'44"E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WETLAND WZ
WETLAND XZ
WETLAND YZ
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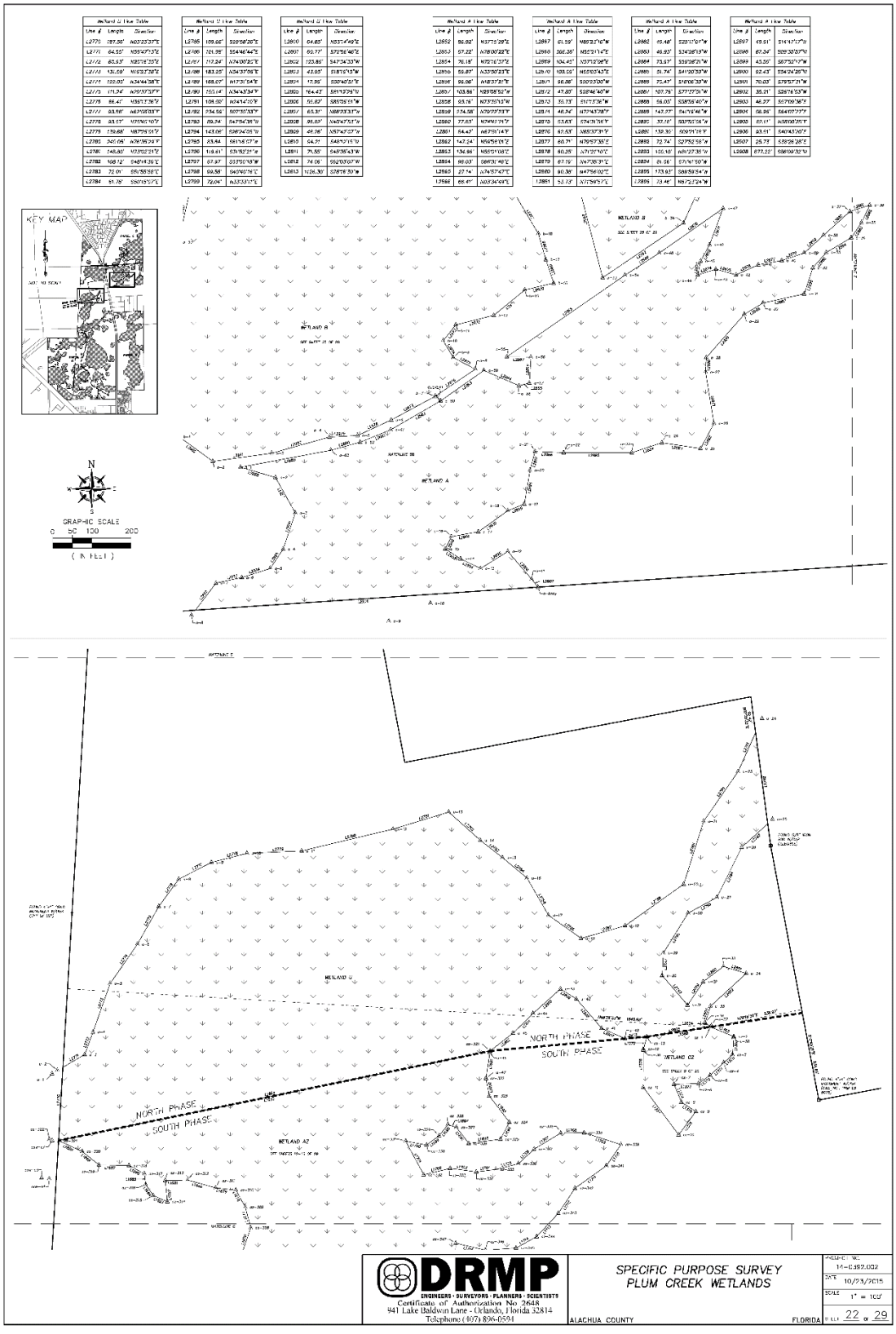
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WETLAND B
WETLAND C
WETLAND C2
WETLAND A2
NORTH PHASE
SOUTH PHASE
DRMP
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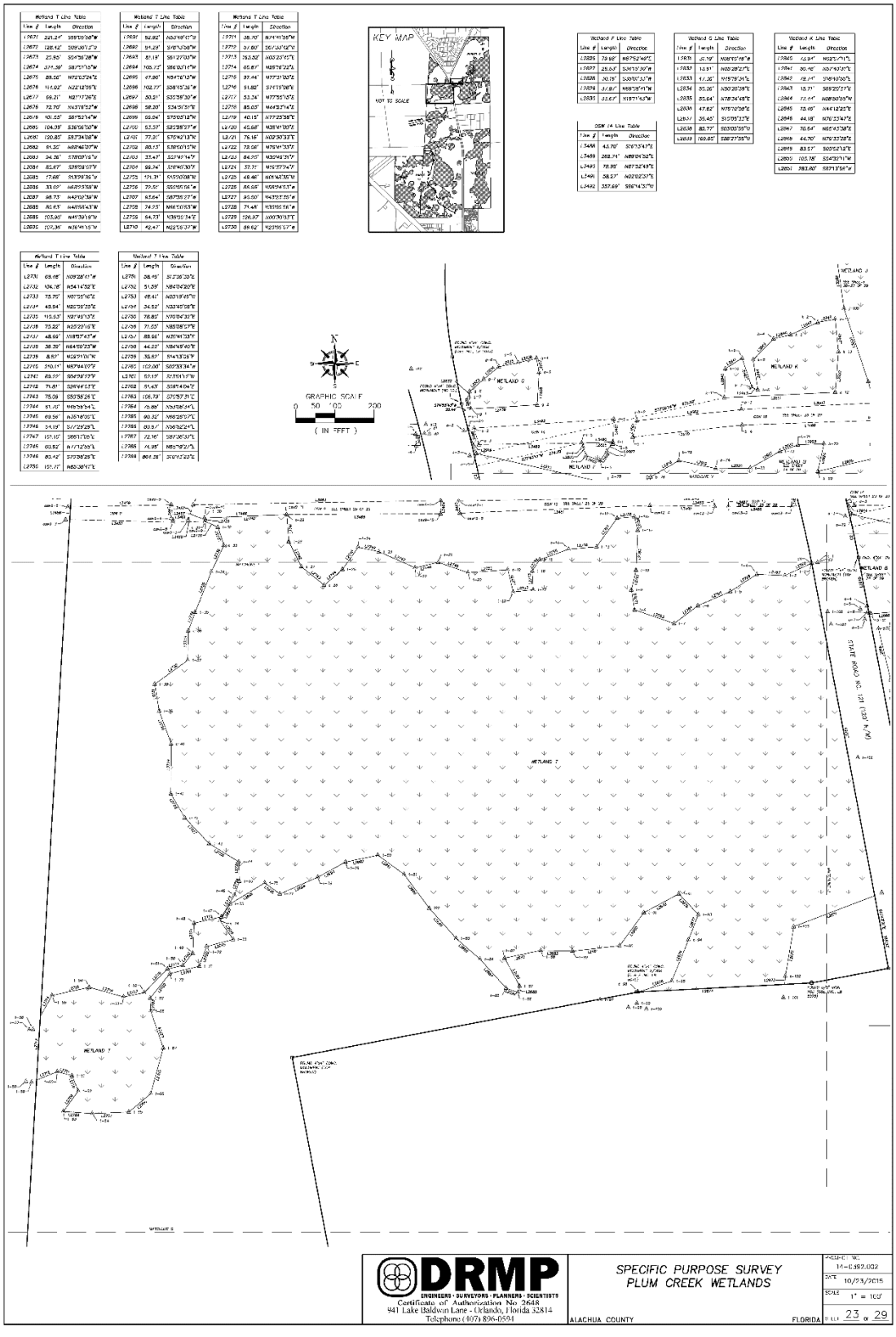
22 of 29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SPECIFIC PURPOSE SURVEY
PLUM CREEK WETLANDS
ALACHUA COUNTY
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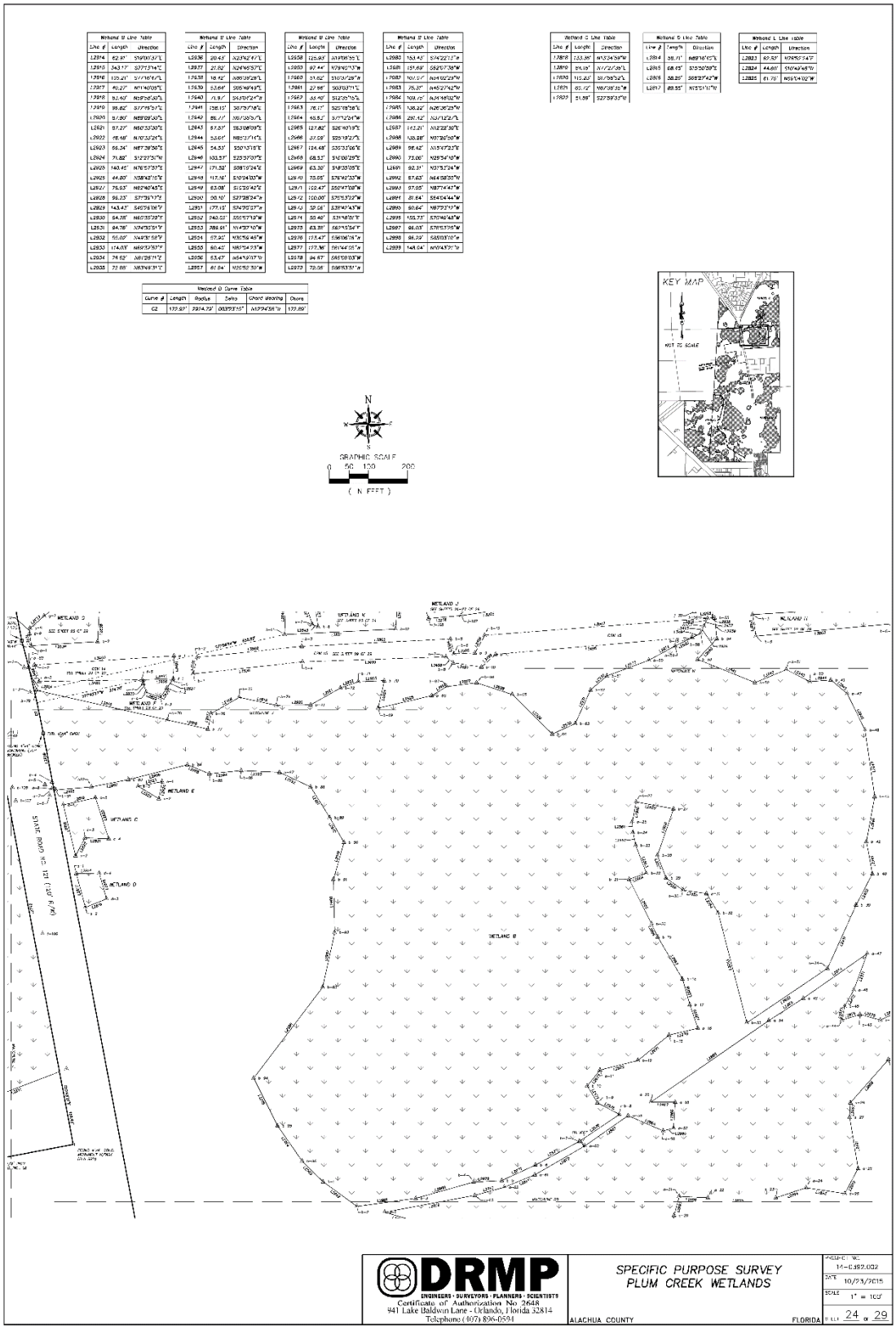
23 of 29


Wetland B Line Table
Line # | Length | Direction
L2936 | 20.43' | N25°52'4"E
L2937 | 27.52' | N24°45'37"E
L2938 | 18.42' | N85°28'28"E
L2939 | 53.64' | S05°48'49"E
L2940 | 73.97' | S43°02'47"E
L2941 | 158.15' | S67°57'18"E
L2942 | 86.77' | N87°35'01"E
L2943 | 97.57' | S83°08'09"E
L2944 | 53.61' | N85°27'41"E
L2945 | 54.53' | S50°15'18"E
L2946 | 103.57' | S25°37'01"E
L2947 | 171.52' | S08°19'24"E
L2948 | 117.16' | S10°04'03"W
L2949 | 63.08' | S15°39'42"E
L2950 | 98.10' | S27°28'24"E
L2951 | 177.15' | S74°55'37"E
L2952 | 240.53' | S85°57'12"E
L2953 | 386.61' | N14°57'10"W
L2954 | 177.52' | N35°56'45"W
L2955 | 80.45' | N85°54'23"W
L2956 | 63.47' | N64°49'17"W
L2957 | 61.84' | N35°52'10"W
Wetland B Line Table
Line # | Length | Direction
L2958 | 125.83' | N19°35'55"E
L2959 | 87.44' | N79°42'13"W
L2960 | 31.82' | S80°37'28"W
L2961 | 27.98' | S03°03'11"E
L2962 | 33.46' | S12°05'15"E
L2963 | 76.11' | S25°58'58"E
L2964 | 46.52' | S71°12'04"W
L2965 | 127.82' | S26°40'19"E
L2966 | 37.08' | S25°19'27"E
L2967 | 124.48' | S30°33'06"E
L2968 | 68.12' | S10°00'29"E
L2969 | 63.20' | S19°35'05"E
L2970 | 72.05' | S76°42'33"W
L2971 | 102.47' | S50°47'08"W
L2972 | 100.09' | S75°53'32"W
L2973 | 59.56' | S38°49'43"W
L2974 | 53.46' | S31°48'01"E
L2975 | 83.39' | S62°15'56"E
L2976 | 173.47' | S86°06'16"W
L2977 | 177.36' | S81°44'55"W
L2978 | 84.67' | S85°08'03"W
L2979 | 72.06' | S86°43'51"W
Wetland B Line Table
Line # | Length | Direction
L2980 | 153.43' | S74°22'13"W
L2981 | 151.69' | S82°07'36"W
L2982 | 101.11' | N64°02'29"W
L2983 | 75.31' | N45°27'42"W
L2984 | 103.75' | N34°48'02"W
L2985 | 136.22' | N26°36'23"W
L2986 | 290.42' | N31°22'2"E
L2987 | 162.21' | N12°22'30"E
L2988 | 120.28' | N07°26'50"W
L2989 | 98.42' | N15°47'23"E
L2990 | 73.06' | N28°54'40"W
L2991 | 92.31' | N31°57'24"W
L2992 | 87.63' | N64°08'05"W
L2993 | 97.05' | N87°14'47"W
L2994 | 81.64' | S84°04'44"W
L2995 | 60.64' | N87°57'0"W
L2996 | 155.73' | S70°46'48"W
L2997 | 86.03' | S79°57'06"W
L2998 | 96.29' | S85°03'10"W
L2999 | 148.64' | N70°43'7"W
Wetland C Line Table
Line # | Length | Direction
L2878 | 233.36' | N43°34'56"W
L2879 | 96.19' | N72°27'08"E
L2880 | 110.25' | S81°58'52"E
L2881 | 85.12' | N80°38'35"E
L2882 | 21.58' | S27°59'35"W
Wetland G Line Table
Line # | Length | Direction
L2814 | 38.71' | N69°16'15"E
L2815 | 68.15' | S15°50'58"E
L2816 | 58.25' | S69°37'42"W
L2817 | 89.35' | N15°51'17"E
Wetland L Line Table
Line # | Length | Direction
L2823 | 69.53' | N76°50'54"E
L2824 | 44.61' | S70°49'46"E
L2825 | 61.76' | N69°54'02"W
Wetland D Curve Table
Curve # | Length | Radius | Delta | Chord Bearing | Chord
C2 | 173.93' | 3974.79' | 002°30'10" | N13°34'58"W | 173.89'
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PROJECT NO. 14-0.992.002
DATE 10/23/2015
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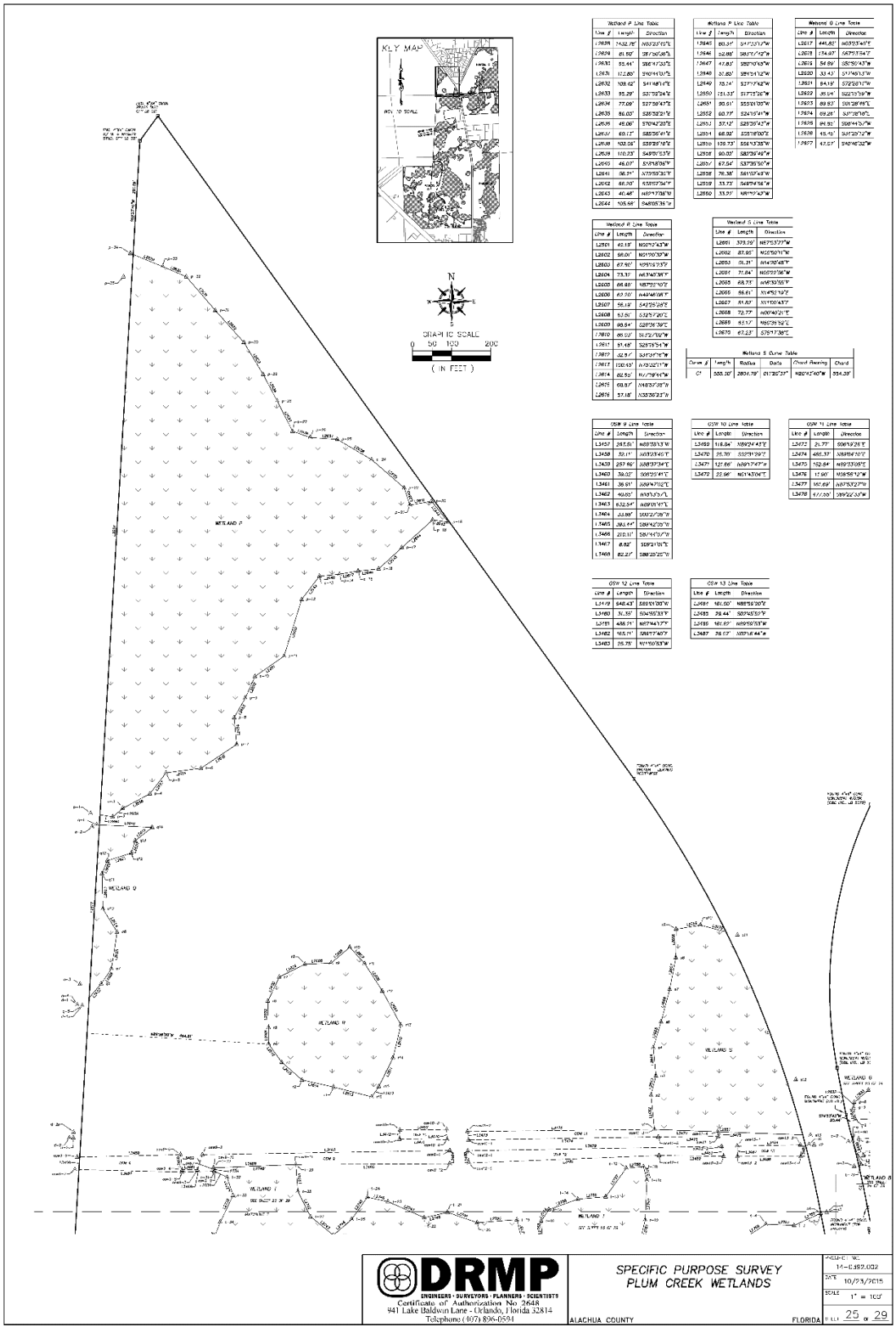
SHEET 24 OF 29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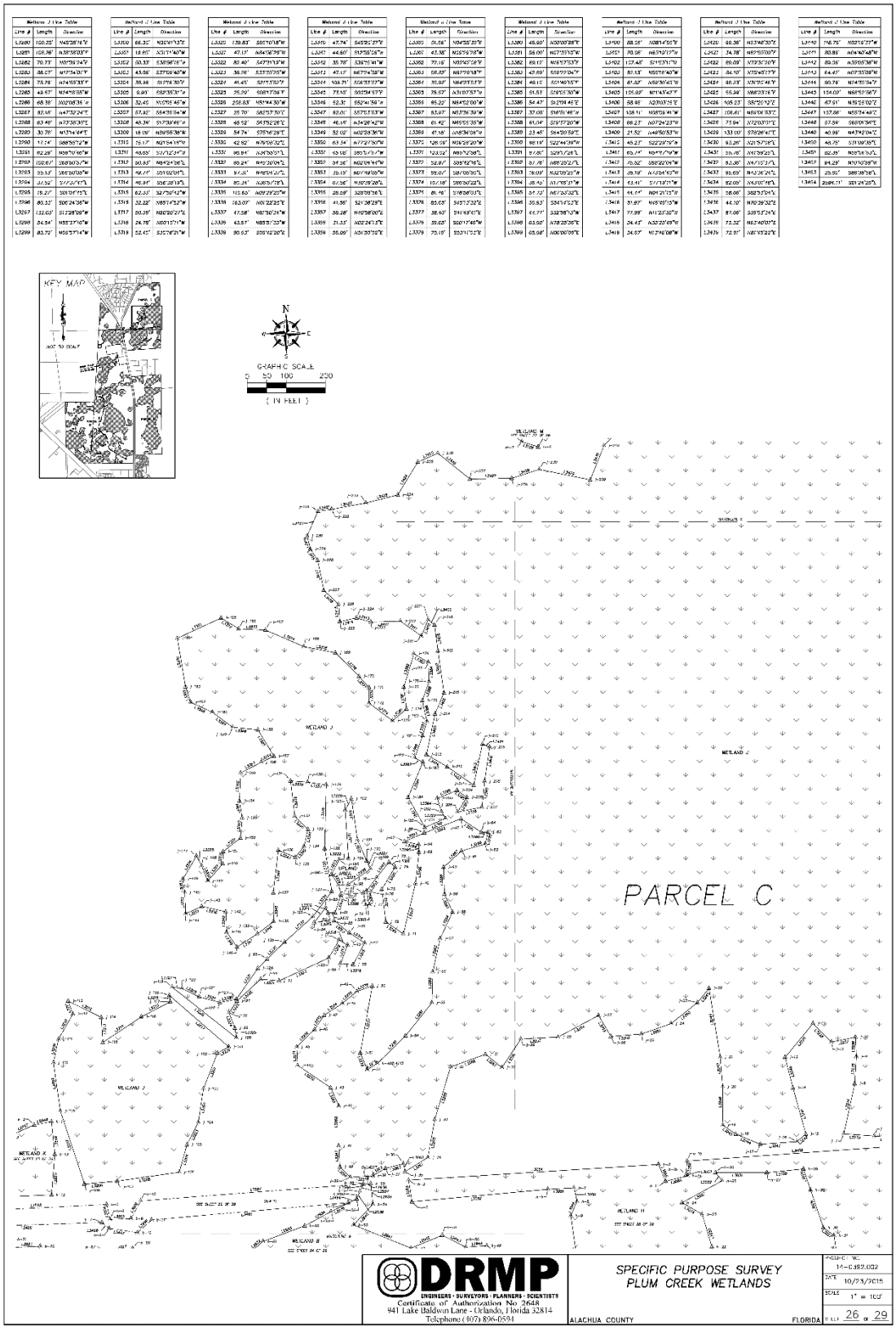
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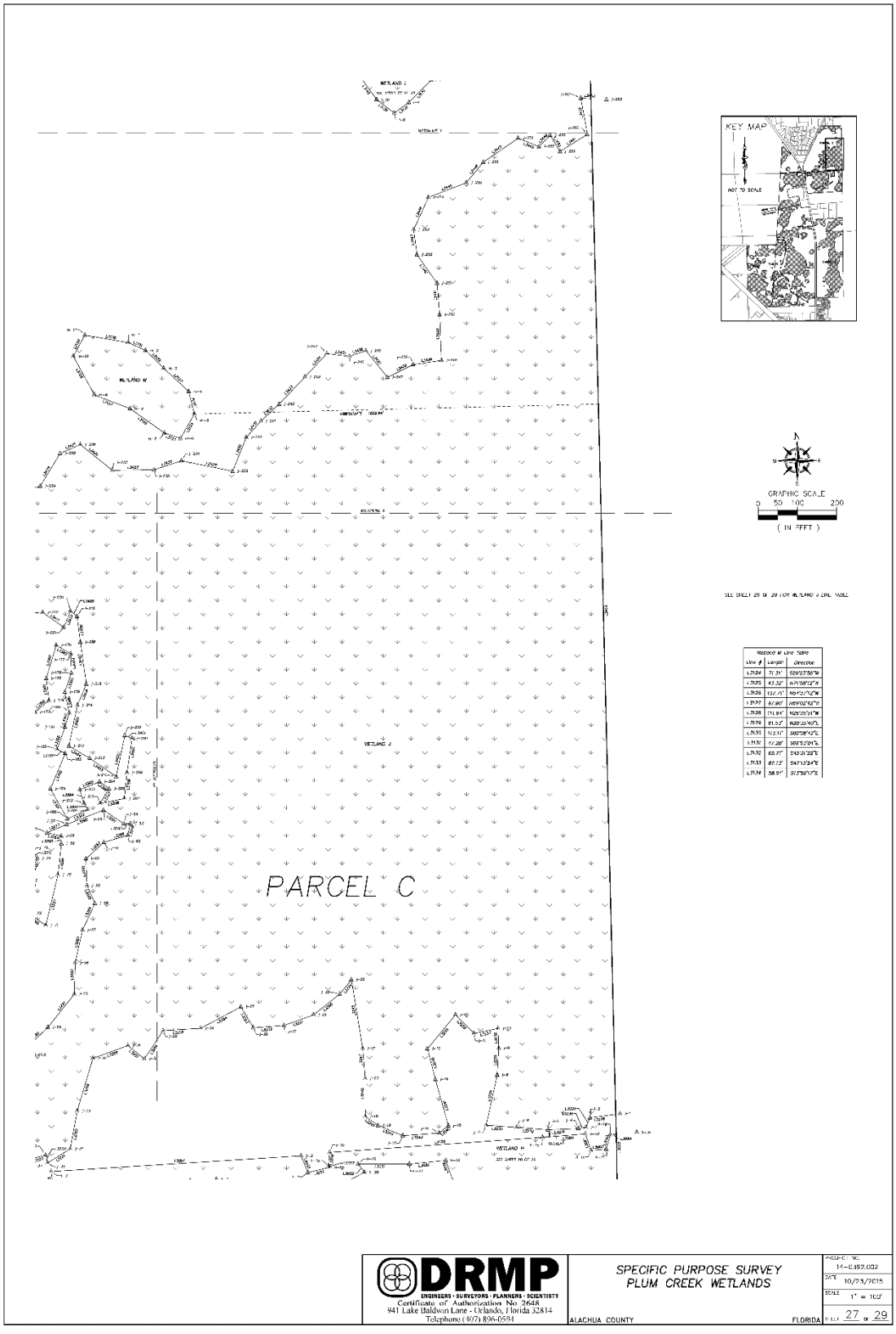
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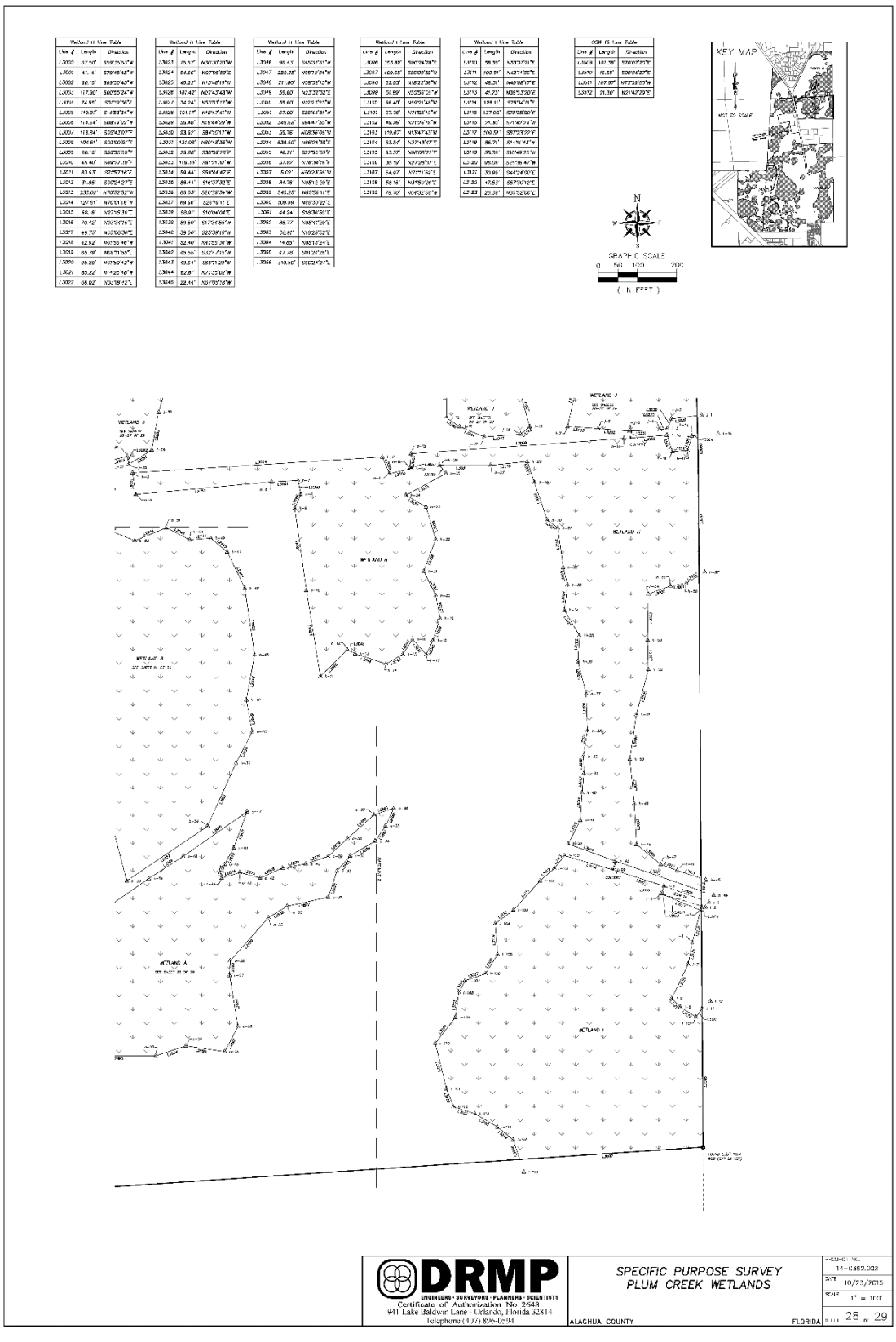
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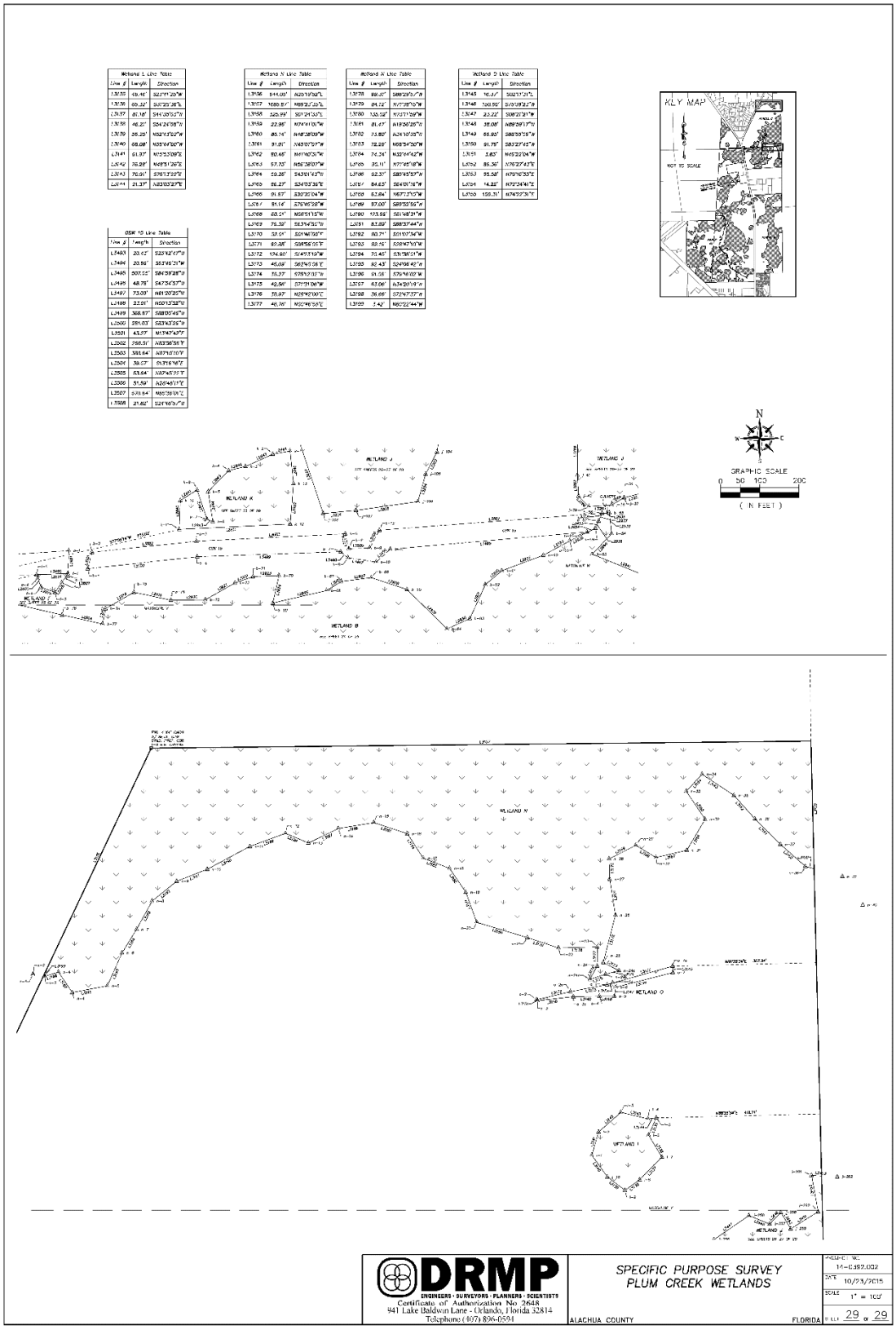
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1" = 100'
29 of 29

Attachment 5: Binding Methodology Agreement

2906 NW 142nd Avenue
Gainesville, FL 32609

MEMORANDUM

18 December 2015

TO: John W. Hendrix, Environmental Resources Coordinator, City of Gainesville, FL

FROM: Pete Wallace

RE: Plum Creek SR121 Development Binding Methodology Agreement

Ecosystem Research Corporation was contracted by Plum Creek Land Company to perform a Natural Areas Resource Assessment of parcels designated for the Plum Creek SR121 Development. Currently, amendments to the land use and zoning are requested and an application for these amendments is being prepared.

The Project Site boundary is shown on **Figure 1** in relation to local and regional access roads. The Project Site is located in northwest Gainesville within Sections 25 and 30, Township 8 South, Range 19 East; Sections 30 and 31, Township 8 South, Range 20 East; Sections 1 and 12, Township 9 South, Range 19 East; and Sections 6 and 7, Township 9 South, Range 20 East Access to the Project Site is provided via State Road 121 (Figure 1).

The Planning Parcel for the project is equivalent to the Development Site boundary and consists of nine (9) Alachua County tax parcels, which total ±1778.77 acres (**Figure 2**). The proposed Development Site and Planning Parcel is contained within the following parcels described with associated acreages, as follows:

Tax Parcel Number	Acreage
06013-000-000	309.14
05973-000-000	304.75
05973-000-000	44.60
05946-000-000	230.98
05882-000-000	64.98
07777-000-000	236.17
07781-000-000	229.36
07813-000-000	223.38
07814-000-000	135.41
TOTAL	**1778.77**

The applicant is as follows:

Plum Creek Land Company
13005 SW 1st Road, Suite 241
Newberry, FL 32669
Contact: Allison Megrath, AICP
Manager Real Estate

The purpose of this correspondence is to establish a Binding Methodology Agreement between the applicant and City of Gainesville, which establishes the survey area and the review process to which the application will be subjected, and includes the following information:

1. Boundary of the Planning Parcel;
2. Boundary of the proposed activity;

386-462-5005
Pete@EcoSysFl.com
386-462-7748 (f)
352-538-0755 (c)

3. Boundary of the Geographic Study Area for the Resource Assessment; and
4. The level of environmental review.

For the current application, the boundary of the proposed request is equivalent to the Development Site Boundary, which equals the total acreage of the Planning Parcel. The Resource Assessment will be conducted on the entire extent of the Planning Parcel.

The Binding Methodology Agreement procedure is defined in **Section 30-310(g)**, City of Gainesville Land Development Regulations.

Specific Methodology
The applicant proposes to perform a Level 1 Review (as specifically described in **Section 30-310(e)(2)**) of the entire Planning Parcel, which includes all parcels owned and/or controlled by the applicant located within and adjacent to the proposed development parcel within the City of Gainesville. For this project, the Resource Assessment Area (RAA) is equal to the total extent of all contiguous City of Gainesville parcels owned by the applicant. The review will be conducted within the ±1778.77-acre area shown in Figures 1 and 2. The Level 1 Review as proposed is consistent with the requirements as described in **Section 30-310(e)(1)**. Within the RAA, the following activities will be conducted.

1. Review and description of wetland resources with mapping of wetland and surface water jurisdiction lines based on state methodologies;
2. Survey for presence of listed species;
3. Database review for reported listed species occurrence;
4. Delineation of listed species habitats, if present;
5. Delineation of significant natural communities, if present;
6. Description of other regulated natural or archaeological resources, if applicable;
7. Delineation of Significant Geologic Resources, if present;
8. Description of Regulated Creeks and other Flow-ways; and
9. Description of Strategic Ecosystem Resources (SER) with general recommendations for set-aside based on site-specific SER values.

The Environmental Assessment will be conducted by Ecosystem Research Corporation (ERC). If applicable, ERC will provide recommendations for Avoidance, Minimization, Mitigation, and Monitoring as per guidelines defined in **Section 30-310.4**.

The Planning Parcel has been delineated based on the occurrence of contiguous parcels owned by the applicant within the City of Gainesville. The Natural Areas Resource Assessment report will detail the results of past and current field surveys conducted within the RAA. The extent of resources occurring on the site will be determined based on the boundaries of each resource as determined from previous certified surveys and locations established from coordinates taken with hand-held GPS units during all pedestrian surveys.

CITY OF GAINESVILLE

12/30/15
By: John W. Hendrix Date

Applicant:
PLUM CREEK LAND COMPANY

12/18/15
By: Allison Megrath, AICP Date

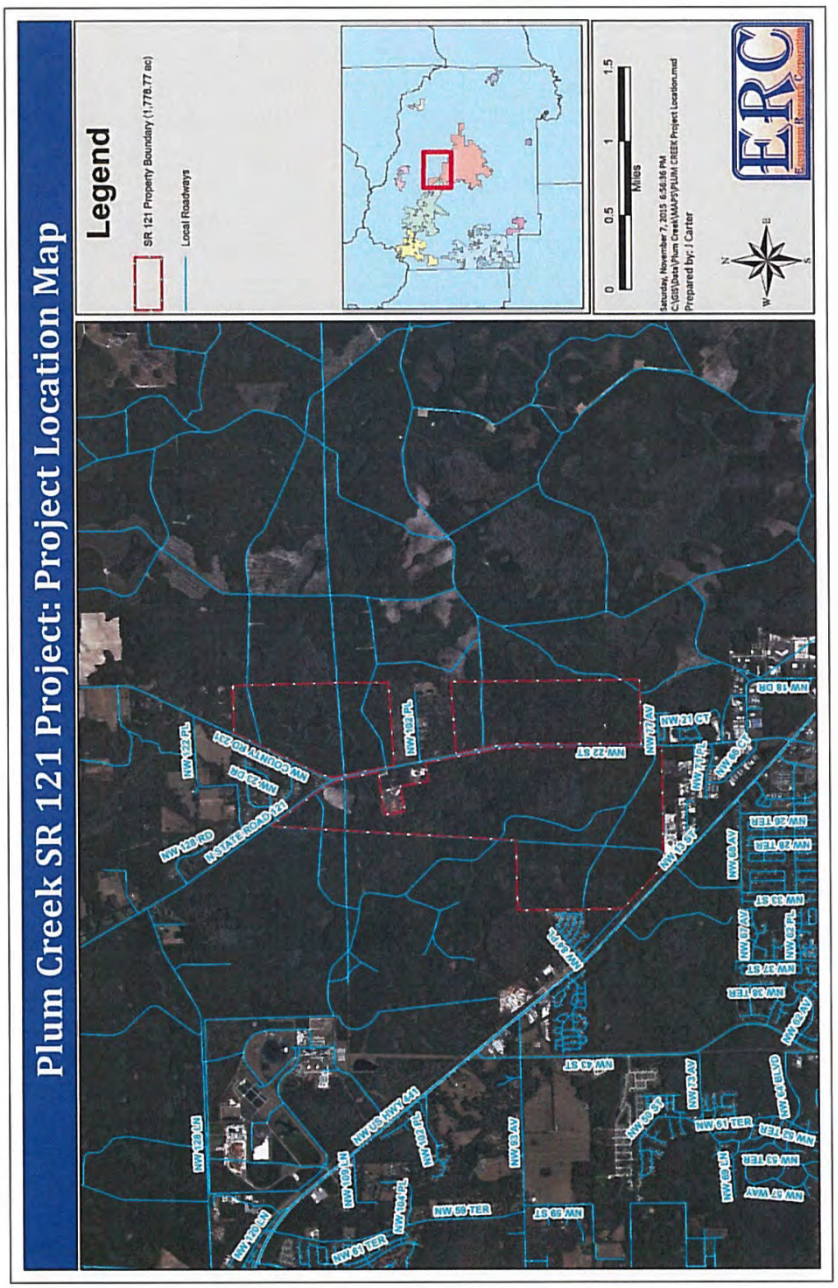
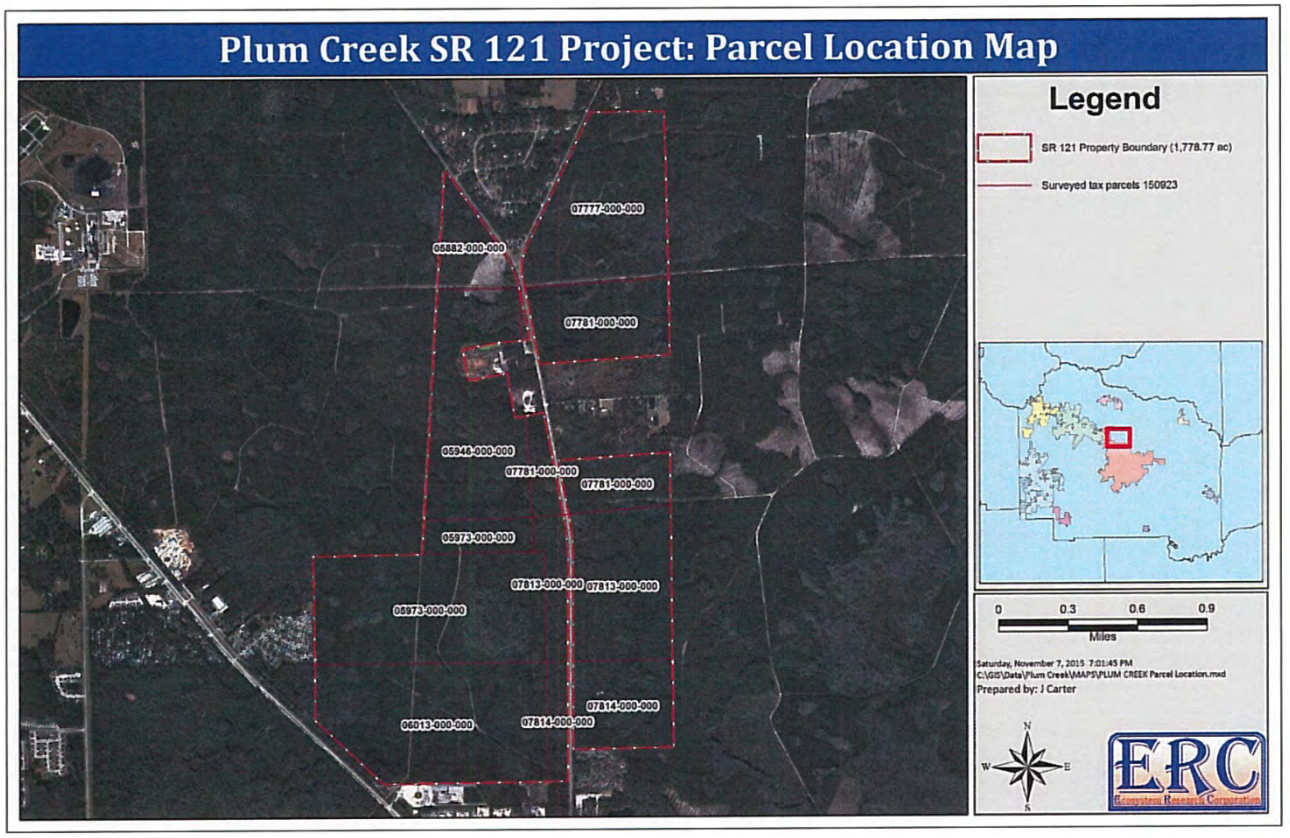


Figure 1. Location of the Plum Creek SR121 Development project site in relation to local and regional access roads.

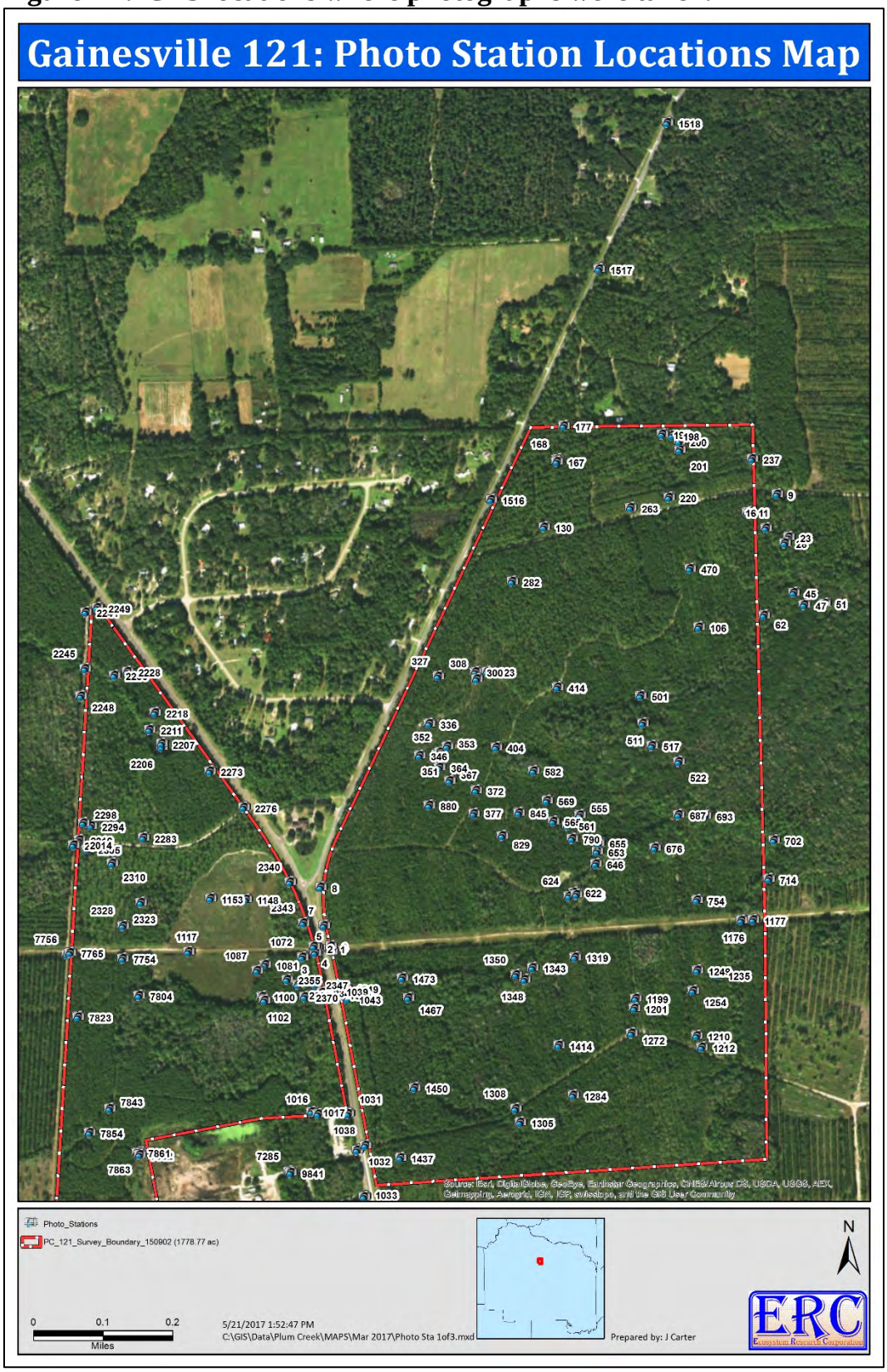
Figure 2. **Parcel location map for the Plum Creek SR121 Development project site. The Resource Assessment Area and Planning Parcel are represented by the Project Site boundary.**

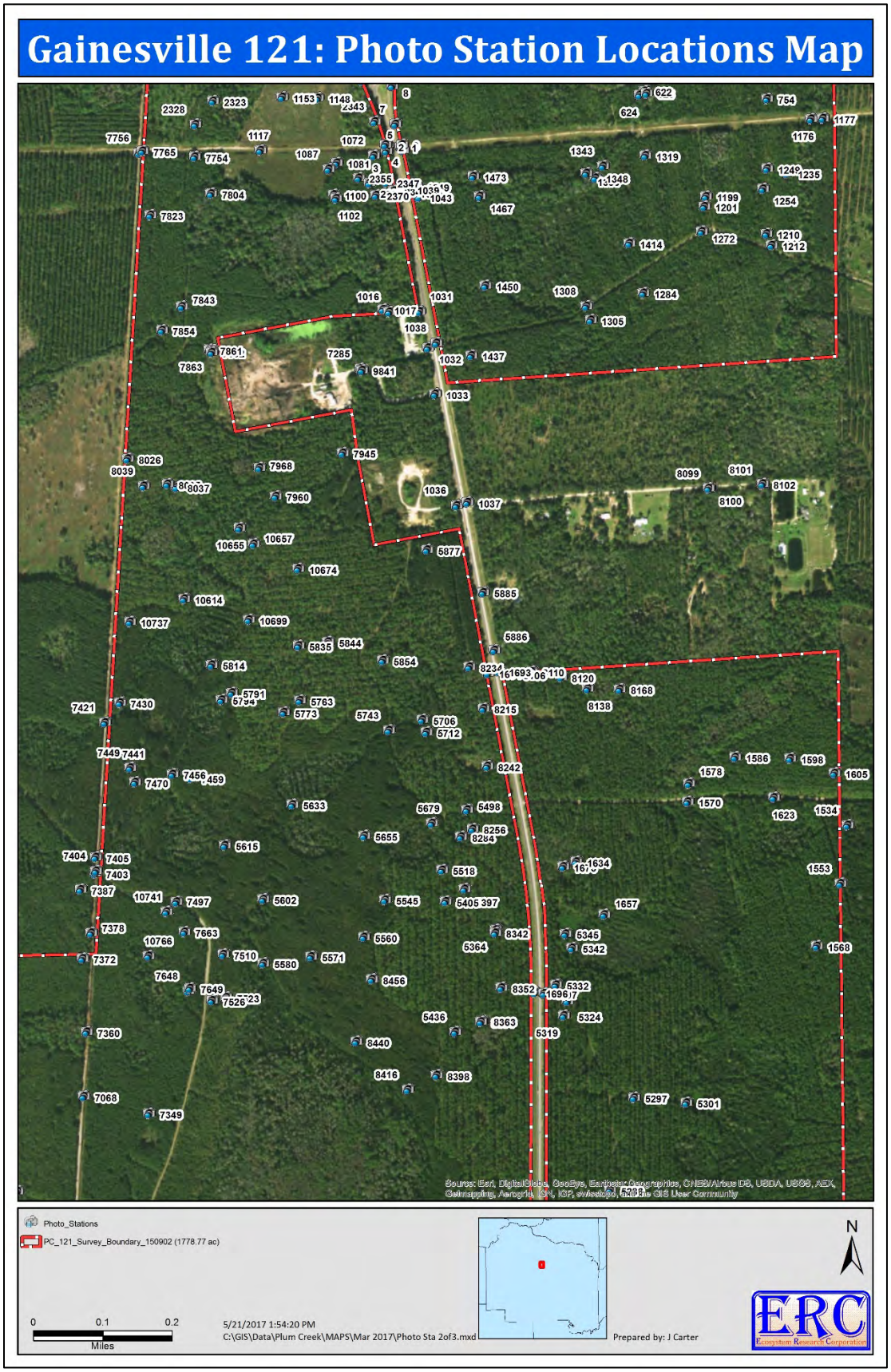


Appendix 1: Photographic Atlas of the Project Site

Appendix 1: Photographic Atlas of the Project Site

Figure A1. GPS locations where photographs were taken.

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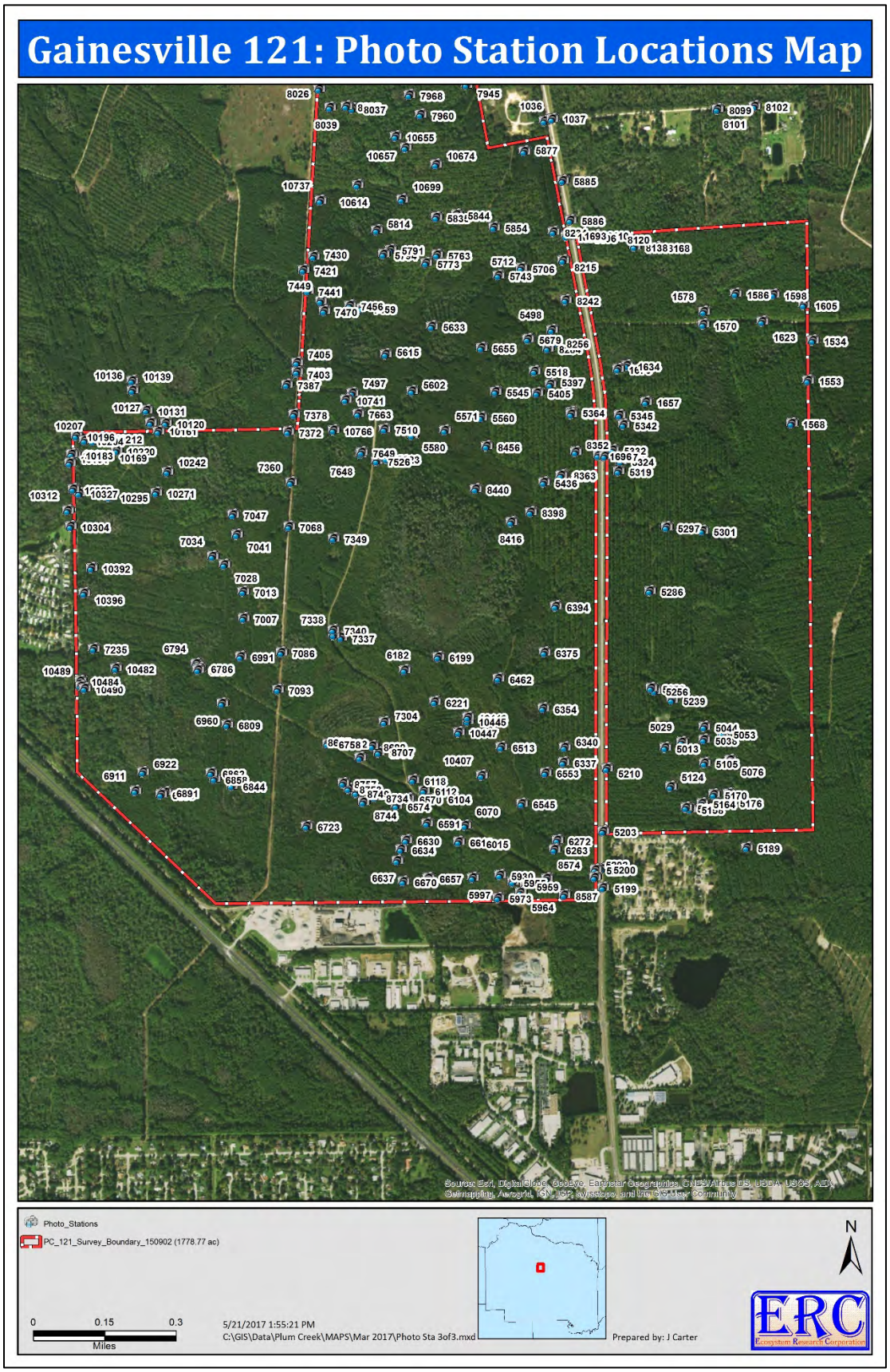
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Ecosystem Research Corporation

Photo 1. Berm located at GPS location 4 (Frame 7355; 08/14/15).

Photo 2. Power line ditch located at GPS location 4 (Frame 7356; 08/14/15).

Photo 3. Berm (ditch block) located at GPS location 3 (Frame 7357; 08/14/15).

Photo 4. Power line ditch located at GPS location 3 (Frame 7358; 08/14/15).

Photo 5. Power line easement as seen looking west from GPS locations 3 and 4 (Frame 7359; 08/14/15).

Photo 6. Culvert located on south side of GPS location 2 (Frame 7360; 08/14/15).

Photo 7. Culvert and ditch located on north side of GPS location 2 (Frame 7361; 08/14/15).

Photo 8. Culvert located on south side of GPS location 1 (Frame 7362; 08/14/15).

Photo 9. Culvert and ditch located on north side of GPS location 1 (Frame 7363; 08/14/15).

Photo 10. Berm (ditch block) located at GPS location 5 as seen looking south (Frame 7364; 08/14/15).

Photo 11. Power line ditch as seen looking east from GPS location 5 (Frame 7365; 08/14/15).

Photo 12. Berm as seen looking north from GPS location 6 (Frame 7366; 08/14/15).

Photo 13. Power line ditch as seen looking east from GPS location 6 (Frame 7367; 08/14/15).

Photo 14. Power line easement as seen looking east from GPS locations 5 and 6 (Frame 7368; 08/14/15).

Photo 15. Culvert as seen looking south from GPS location 7 (Frame 7369; 08/14/15).

Photo 16. Culvert and ditch as seen looking north from GPS location 7 (Frame 7370; 08/14/15).

Photo 17. Culvert headwall as seen looking north from GPS location 8 (Frame 7371; 08/14/15).

Photo 18. Culvert headwall at GPS location 8 (Frame 7372; 08/14/15).

Photo 19. Ditch as seen looking south from GPS location 8 (Frame 7373; 08/14/15).

Photo 20. Ditch as seen looking north from GPS location 8 (Frame 7374; 08/14/15).

Photo 21. Excavated canal within Wetland: Mixed Oak-Hardwoods-Successional community located south of GPS location 9 (Frames 1486-1487; 08/14/15).

Photo 22. Excavated canal within Wetland: Mixed Oak-Hardwoods-Successional community located north of GPS location 9 (Frames 1488-1489; 08/14/15).

Photo 23. View of three culverts as seen at GPS location 9 (Frame 1490; 08/14/15).

Photo 24. View of Planted Pine-Mesic Pine Flatwoods as seen looking southwest from GPS location 11 (Frames 1491-1492; 08/14/15).

Photo 25. View of Hydric: Mixed Oak-Hardwoods-Successional community as seen looking southwest from GPS location 16 (Frames 1493-1494; 08/14/15).

Photo 26. View of Surface Water: Excavated Creek in Wetland as seen looking east from GPS location 23 (Frames 1495-1496; 08/14/15).

Photo 27. View of Wetland: Mixed Oak-Hardwoods-Successional community as seen looking east from GPS location 28 (Frames 1497-1498; 08/14/15).

Photo 28. View of Wetland: Mixed Oak-Hardwoods-Successional community as seen looking southwest from GPS location 45 (Frames 1499-1500; 08/14/15).

Photo 29. View of lichen line seen in the Wetland: Mixed Oak-Hardwoods-Successional community at GPS location 45 (Frame 1501; 08/14/15).

Photo 30. View of Wetland: Mixed Hardwood Swamp as seen looking east from GPS location 47 (Frames 1502-1503; 08/14/15).

Photo 31. View of Surface Water: Excavated Creek in Wetland as seen looking east from GPS location 51 (Frames 1504-1505; 08/14/15).

Photo 32. View of Surface Water: Excavated Creek in Wetland as seen looking north from GPS location 51 (Frame 1506; 08/14/15).

Photo 33. View of Wetland: Mixed Shrubs & Vines community as seen looking northwest from GPS location 62 (Frames 1507-1508; 08/14/15).

Photo 34. View of Planted Pine-Mesic Pine Flatwoods as seen looking southwest from GPS location 106 (Frames 1509-1510; 08/14/15).

Photo 35. View of Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 106 (Frames 1511-1512; 08/14/15).

Photo 36. View of Planted Pine-Mesic Pine Flatwoods as seen looking southeast from GPS location 130 (Frames 1513-1514; 08/17/15).

Photo 37. View of Surface Water: Excavated Creek in Wetland as seen looking north from GPS location 168 (Frames 1515-1516; 08/17/15).

Photo 38. View of Wetland: Planted Pine-Mixed Hardwoods as seen at GPS location 168 looking east toward GPS location 167 (Frames 1517-1518; 08/17/15).

Photo 39. View of Wetland: Planted Pine-Mixed Hardwoods community as seen looking northwest from GPS location 177 (Frames 1519-1520; 08/17/15).

Photo 40. View of Wetland: Planted Pine-Mixed Hardwoods community as seen looking east from GPS location 197 (Frames 1521-1522; 08/17/15).

Photo 41. View of Surface Water: Excavated Creek in Wetland as seen looking northwest from GPS location 198 (Frames 1523-1524; 08/17/15).

Photo 42. View of Surface Water: Excavated Creek in Wetland as seen looking west from GPS location 200 (Frames 1525-1526; 08/17/15).

Photo 43. View of Surface Water: Excavated Creek in Wetland as seen looking south from GPS location 200 (Frames 1527-1528; 08/17/15).

Photo 44. View of Mixed Hardwood Swamp as seen looking east from GPS location 201 (Frames 1529-1530; 08/17/15).

Photo 45. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 220 (Frames 1531-1533; 08/17/15).

Photo 46. View of Surface Water: Excavated Creek in Wetland as seen looking north from GPS location 237 (Frames 1534-1535; 08/17/15).

Photo 47. View of Wetland: Mixed Shrubs & Vines, Undetermined Boundary, as seen looking east from GPS location 263 (Frames 1536-1537; 08/17/15).

Photo 48. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 282 (Frames 1530-1532; 08/17/15).

Photo 49. View of Mesic: Mixed Shrubs & Vines community as seen looking southwest from GPS location 300 (Frames 1542-1543; 08/18/15).

Photo 50. View of gopher tortoise burrow (Inactive, Juvenile) located at GPS location 308 (Frame 1540; 08/18/15).

Photo 51. View of gopher tortoise burrow (Potentially Occupied) located at GPS location 323 (Frame 1541; 08/18/15).

Photo 52. View of Planted Pine-Mesic Pine Flatwoods as seen looking northwest from GPS location 327 (Frames 1544-1545; 08/18/15).

Photo 53. View of gopher tortoise burrow (Active) located at GPS location 336 (Frame 1546; 08/18/15).

Photo 54. View of gopher tortoise burrow (Active) located at GPS location 346 (Frame 1547; 08/18/15).

Photo 55. View of gopher tortoise burrow (Active) located at GPS location 351 (Frame 1548; 08/18/15).

Photo 56. View of gopher tortoise burrow (Active) located at GPS location 352 (Frame 1549; 08/18/15).

Photo 57. View of gopher tortoise burrow (Active, Juvenile) located at GPS location 353 (Frame 1550; 08/18/15).

Photo 58. View of Planted Pine-Mesic Pine Flatwoods as seen looking west-northwest from GPS location 364 (Frames 1551-1552; 08/18/15).

Photo 59. View of gopher tortoise burrow (Active, Juvenile) located at GPS location 367 (Frame 1553; 08/18/15).

Photo 60. View of Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 372 (Frames 1554-1555; 08/18/15).

Photo 61. View of Hydric: Planted Pine Flatwoods as seen looking northeast from GPS location 377 (Frames 1556-1557; 08/18/15).

Photo 62. View of Wetland: Mixed Hardwoods-Seepage Slope community as seen looking east from GPS location 404 (Frames 1558-1559; 08/18/15).

Photo 63. View of Wetland: Mixed Hardwoods-Seepage Slope community as seen looking south from GPS location 404 (Frames 1560-1561; 08/18/15).

Photo 64. View of Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 414 (Frames 1562-1563; 08/18/15).

Photo 65. View of Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 414 (Frames 1564-1565; 08/18/15).

Photo 66. View of roadway and habitat as seen looking east from GPS location 9 (Frames 1566-1567; 08/18/15).

Photo 67. View of Wetland: Planted Pine-Marsh as seen looking northwest from GPS location 470 (Frames 1568-1569; 08/18/15).

Photo 68. View of Wetland: Mixed Hardwoods-Seepage Slope as seen looking southeast from GPS location 501 (Frames 1570-1571; 08/18/15).

Photo 69. View of Wetland: Hydric Hammock as seen looking south from GPS location 511 (Frames 1572-1573; 08/18/15).

Photo 70. View of Wetland: Hydric Hammock as seen looking south from GPS location 517 (Frames 1574-1575; 08/18/15).

Photo 71. View of Wetland: Hydric Hammock as seen looking west from GPS location 517 (Frames 1576-1677; 08/18/15).

Photo 72. View of Wetland: Mixed Hardwood Swamp as seen looking southwest from GPS location 522 (Frames 1578-1579; 08/18/15).

Photo 73. View of Surface Water: Excavated Creek in Wetland as seen looking west from GPS location 555 (Frame 1580; 08/18/15).

Photo 74. View of wetland flagging over stream as seen looking west from GPS location 561 (Frame 1581; 08/18/15).

Photo 75. View of Hydric: Planted Pine Flatwoods as seen looking north from GPS location 565 (Frames 1582-1583; 08/18/15).

Photo 76. View of Wetland: Planted Pine-Marsh as seen at GPS location 569 (Frame 1584-1585; 08/18/15).

Photo 77. View of Wetland: Mixed Hardwood Swamp as seen looking northeast from GPS location 582 (Frames 1586-1587; 08/18/15).

Photo 78. View of Surface Water: Excavated Creek in Wetland as seen looking south from GPS location 622 (Frames 1650-1651; 08/21/15).

Photo 79. View of Wetland: Mixed Hardwoods-Seepage Slope as seen looking west from GPS location 624 (Frames 1652-1653; 08/21/15).

Photo 80. View of Wetland: Mixed Oak-Hardwoods-Successional community as seen looking east from GPS location 625 (Frames 1659-1660; 08/21/15).

Photo 81. View of old cat-faced stump located at GPS location 646 (Frame 1656; 08/21/15).

Photo 82. View of old cat-faced stump located at GPS location 646 (Frame 7396; 08/21/15).

Photo 83. View of old cat-faced stump located at GPS location 646 (Frame 7397; 08/21/15).

Photo 84. View of old cat-faced stump located at GPS location 646 (Frame 7398; 08/21/15).

Photo 85. View of Wetland: Natural Flow-way as seen looking east from GPS location 653 (Frames 1657-1658; 08/21/15).

Photo 86. View of Surface Water: Excavated Creek in Wetland as seen looking east from GPS location 655 (Frames 1659-1660; 08/21/15).

Photo 87. View of Surface Water: Excavated Creek in Wetland as seen looking west from GPS location 655 (Frames 1661-1662; 08/21/15).

Photo 88. View of Wetland: Mixed Hardwood Swamp as seen looking northwest from GPS location 676 (Frames 1665-1666; 08/21/15).

Photo 89. View of Wetland: Natural Flow-way as seen looking north from GPS location 687 (Frames 1667-1668; 08/21/15).

Photo 90. View of old cat-faced pine as seen at GPS location 687 (Frame 1669; 08/21/15).

Photo 91. View of Wetland: Mixed Hardwood Swamp as seen looking north from GPS location 693 (Frames 1670-1671; 08/21/15).

Photo 92. View of Wetland: Mixed Hardwood Swamp as seen looking southeast from GPS location 693 (Frames 1672-1673; 08/21/15).

Photo 93. View of Wetland: Hydric Hammock as seen looking northeast from GPS location 702 (Frames 1674-1675; 08/21/15).

Photo 94. View of Wetland: Hydric Hammock as seen looking southwest from GPS location 702 (Frames 1676-1677; 08/21/15).

Photo 95. View of Surface Water: Excavated Creek in Wetland as seen looking northeast from GPS location 714 (Frames 1678-1679; 08/21/15).

Photo 96. View of Surface Water: Excavated Creek in Wetland as seen looking northwest from GPS location 714 (Frames 1680-1681; 08/21/15).

Photo 97. View of Surface Water: Excavated Creek in Wetland as seen looking southwest from GPS location 714 (Frames 1682-1683; 08/21/15).

Photo 98. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 754 (Frames 1684-1685; 08/21/15).

Photo 99. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 790 (Frames 1686-1687; 08/21/15).

Photo 100. View of Wetland: Planted Pine-Marsh as seen looking northeast from GPS location 829 (Frames 1688-1689; 08/21/15).

Photo 101. View of Hydric: Planted Pine Flatwoods as seen looking east from GPS location 845 (Frames 1690-1691; 08/21/15).

Photo 102. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 880 (Frames 1692-1693; 08/21/15).

Photo 103. View of Surface Water: Excavated Creek in Wetland located on east side of the gas line right-of-way as seen looking south down gas line from GPS location 2013 (Frames 1695-1696; 08/25/15).

Photo 104. View of Wetland: Mixed Hardwood Swamp as seen looking south from GPS location 2014 (Frames 1697-1698; 08/25/15).

Photo 105. View of Wetland: Mixed Hardwood Swamp as seen looking north from GPS location 2019 (Frames 1699-1700; 08/25/15).

Photo 106. View of Wetland: Mixed Hardwoods-Fetterbush as seen looking southeast from GPS location 2206 (Frames 1705-1706; 08/25/15).

Photo 107. View of Hydrologically Altered Marsh as seen looking northeast from GPS location 2207 (Frames 1703-1704; 08/25/15).

Photo 108. View of Wetland: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking west from GPS location 2211 (Frames 1707-1708; 8/25/15).

Photo 109. View of Hydric: Planted Pine Flatwoods as seen looking southwest from GPS location 2218 (Frames 1709-1710; 08/25/15).

Photo 110. View of Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 2228 (Frames 1711-1712; 08/25/15).

Photo 111. View of Hydric: Planted Pine Flatwoods as seen looking west from GPS location 2230 (Frames 1713-1714; 08/25/15).

Photo 112. View of Florida Gas right-of-way as seen looking south from GPS location 2241 (Frames 1715-1716; 08/25/15).

Photo 113. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking south down gas line right-of-way from GPS location 2245 (Frames 1717-1718; 08/25/15).

Photo 114. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking south from GPS location 2248 (Frames 1719-1720; 08/25/15).

Photo 115. View of Upland: Oldfield as seen looking south from GPS location 2249 (Frames 1721-1722; 08/25/15).

Photo 116. View of Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 2273 (Frames 1723-1724; 08/25/15).

Photo 117. View of Physical Feature: Culvert as seen looking north from GPS location 2276 (Frames 1725-1726; 08/25/15).

Photo 118. View of Physical Feature: Culvert as seen looking south from GPS location 2276 (Frames 1727-1728; 08/25/15).

Photo 119. View of Mesic: Pine Flatwoods as seen looking northwest from GPS location 2283 (Frames 1729-1730; 08/25/15).

Photo 120. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking northwest from GPS location 2294 (Frames 1731-1732; 08/25/15).

Photo 121. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking northwest from GPS location 2298 (Frames 1733-1734; 08/25/15).

Photo 122. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking southwest from GPS location 2305 (Frames 1735-1736; 08/25/15).

Photo 123. View of Mesic: Pine Flatwoods as seen looking southeast from GPS location 2310 (Frames 1737-1738; 08/25/15).

Photo 124. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking east from GPS location 2323 (Frames 1739-1740; 08/25/15).

Photo 125. View of Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 2328 (Frames 1741-1742; 08/25/15).

Photo 126. View of Physical Feature: Culvert as seen looking west from GPS location 2340 (Frames 1743-1744; 08/26/15).

Photo 127. View of Physical Feature: Culvert at GPS location 2340 (Frame 1745; 08/26/15).

Photo 128. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 2343 (Frames 1746-1747; 08/26/15).

Photo 129. View of Physical Feature: Culvert as seen looking west from GPS location 2344 (Frames 1748-1749; 08/26/15).

Photo 130. View of Physical Feature: Culvert at GPS location 2344 (Frame 1750; 08/26/15).

Photo 131. View of Wetland: Mixed Hardwood Swamp as seen looking west from GPS location 2347 (Frames 1751-1752; 08/26/15).

Photo 132. View of Planted Pine-Mesic Pine Flatwoods as seen looking northwest from GPS location 2355 (Frames 1753-1754; 08/26/15).

Photo 133. View of Hydric: Planted Pine Flatwoods as seen looking east from GPS location 2363 (Frames 1755-1756; 08/26/15).

Photo 134. View of *Lobelia cardinalis* within the Wetland: Cypress-Mixed Hardwoods-Bays community located at GPS location 2370 (Frame 1757; 08/26/15).

Photo 135. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 2370 (Frames 1761-1762; 08/26/15).

Photo 136. View of Mesic: Mixed Oak-Hardwoods-Successional as seen looking east from GPS location 1016 (Frames 1765-1766; 08/26/15).

Photo 137. View of Wetland Boundary: Mixed Shrubs & Vines as seen looking west from GPS location 1017 (Frames 1767-1768; 08/26/15).

Photo 138. View of Physical Feature: Culvert as seen looking south from GPS location 1031 (Frames 1769-1670; 08/26/15).

Photo 139. View of Physical Feature: Culvert as seen looking south from GPS location 1032 (Frames 1771-1772; 08/26/15).

Photo 140. View of Physical Feature: Culvert as seen looking south from GPS location 1033 (Frames 1773-1774; 08/26/15).

Photo 141. View of Physical Feature: Culvert as seen looking south from GPS location 1036 (Frames 1777-1778; 08/26/15).

Photo 142. View of Physical Feature: Culvert as seen looking south from GPS location 1037 (Frames 1779-1780; 08/26/15).

Photo 143. View of Physical Feature: Culvert as seen looking south from GPS location 1038 (Frames 1781-1782; 08/26/15).

Photo 144. View of Physical Feature: Culvert as seen looking south from GPS location 1039 (Frames 1783-1784; 08/26/15).

Photo 145. View of Physical Feature: Culvert as seen looking north from GPS location 1040 (Frames 1785-1786; 08/26/15).

Photo 146. View of Physical Feature: Culvert as seen looking south from GPS location 1040 (Frame 1787; 08/26/15).

Photo 147. View of Wetland: Mixed Hardwood Swamp as seen looking southeast from GPS location 1043 (Frames 1788-1789; 08/26/15).

Photo 148. View of Surface Water: Excavated Creek in Wetland as seen looking east from GPS location 1049 (Frames 1790-1791; 08/26/15).

Photo 149. View of Hydric: Planted Pine Flatwoods as seen looking south from GPS location 1072 (Frames 1792-1793; 08/26/15).

Photo 150. View of wetland marsh lying within GRU easement as seen looking east from GPS location 1072 (Frames 1794-1795; 08/26/15).

Photo 151. View of Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 1081 located along wetland boundary (Frames 1796-1797; 08/26/15).

Photo 152. View of Hydric: Planted Pine Flatwoods as seen looking west from GPS location 1081 (Frames 1798-1799; 08/26/15).

Photo 153. View of Hydric: Planted Pine Flatwoods as seen looking east from GPS location 1087 (Frames 1800-1801; 08/26/15).

Photo 154. View of Hydric: Planted Pine Flatwoods as seen looking west from GPS location 1100 (Frames 1804-1805; 08/26/15).

Photo 155. View of Wetland: Mixed Hardwoods-Seepage Slope as seen looking southeast from GPS location 1102 (Frames 1802-1803; 08/26/15).

Photo 156. View of Physical Feature: Culvert located at GPS location 1117 (Frame 1806; 08/26/15).

Photo 157. View of Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 1148 (Frames 1808-1809; 08/26/15).

Photo 158. View of Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 1153 (Frames 1810-1811; 08/26/15).

Photo 159. View of *Sabatia brevifolia* located within the Planted Pine-Mesic Pine Flatwoods at GPS location 1153 (Frame 1812; 08/26/15).

Photo 160. View of culverts on north side of power line easement within the Planted Pine-Mesic Pine Flatwoods located at GPS location 9000 (Frame 1813; 08/27/15).

Photo 161. View of culverts on south side of power line easement within the Planted Pine-Mesic Pine Flatwoods located at GPS location 9000 (Frame 1814; 08/27/15).

Photo 162. View of Physical Feature: Culvert located on north side of power line easement at GPS location 1176 (Frame 1815; 08/27/15).

Photo 163. View of Physical Feature: Culvert located on south side of power line easement at GPS location 1176 (Frame 1816; 08/27/15).

Photo 164. View of Physical Feature: Culvert located on north side of power line easement at GPS location 1177 (Frame 1817; 08/27/15).

Photo 165. View of Physical Feature: Culvert located on south side of power line easement at GPS location 1177 (Frame 1818; 08/27/15).

Photo 166. View of Hydric: Planted Pine Flatwoods as seen looking northeast from GPS location 1199 (Frames 1819-1820; 08/27/15).

Photo 167. View of Hydric: Planted Pine Flatwoods with *Sarracenia minor* as seen looking west from GPS location 1201 (Frames 1821-1822; 08/27/15).

Photo 168. View of Hydric: Planted Pine Flatwoods as seen looking east from GPS location 1201 (Frames 1823-1824; 08/27/15).

Photo 169. View of Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS location 1210 (Frames 1825-1826; 08/27/15).

Photo 170. View of gopher tortoise burrow (Potentially Occupied) located at GPS location 1212 (Frame 1827; 08/27/15).

Photo 171. View of Wetland Boundary: Mixed Shrubs & Vines as seen looking east from GPS location 1235 (Frame 1828-1829; 08/27/15).

Photo 172. View of Transitional: Planted Pine Flatwoods as seen looking southeast from GPS location 1249 (Frames 1830-1831; 08/27/15).

Photo 173. View of Wetland: Mixed Hardwoods-Fetterbush as seen looking northeast from GPS location 1254 (Frames 1832-1833; 08/27/15).

Photo 174. View of Physical Feature: Culvert located on north side of road at GPS location 1272 (Frame 1835; 08/27/15).

Photo 175. View of Surface Water as seen looking west from GPS location 1284 (Frames 1836-1837; 08/27/15).

Photo 176. View of Surface Water: Excavated Creek in Wetland as seen looking southwest from GPS location 1305 (Frames 1838-1839; 08/27/15).

Photo 177. View of Physical Feature: Culvert located on south side of road at GPS location 1308 (Frame 1840; 08/27/15).

Photo 178. View of Hydric: Planted Pine Flatwoods as seen looking south from GPS location 1319 (Frames 1844-1845; 08/28/15).

Photo 179. View of Surface Water: Excavated Creek in Wetland as seen looking north from GPS location 1343 (Frame 1846; 08/28/15).

Photo 180. View of Surface Water: Excavated Creek in Wetland as seen looking south from GPS location 1343 (Frame 1847; 08/28/15).

Photo 181. View of Surface Water: Excavated Creek in Wetland as seen looking north from GPS location 1343 (Frame 1852; 08/28/15).

Photo 182. View of Surface Water: Excavated Creek in Wetland as seen looking south from GPS location 1343 (Frame 1853; 08/28/15).

Photo 183. View of Wetland: Mixed Hardwood Swamp as seen looking south from GPS location 1348 (Frames 1848-1849; 08/28/15).

Photo 184. View of Wetland: Hydric Hammock as seen looking north from GPS location 1350 (Frames 1850-1851; 08/28/15).

Photo 185. View of Transitional: Planted Pine Flatwoods as seen looking west from GPS location 1414 (Frames 1854-1855; 08/28/15).

Photo 186. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 1437 (Frames 1856-1857; 08/28/15).

Photo 187. View of Hydric: Planted Pine Flatwoods as seen looking southwest from GPS location 1450 (Frames 1858-1859; 08/28/15).

Photo 188. View of Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 1467 (Frames 1860-1861; 08/28/15).

Photo 189. View of Surface Water: Excavated Creek in Wetland as seen looking west from GPS location 1473 (Frame 1862; 08/28/15).

Photo 190. View of Surface Water: Excavated Creek in Wetland as seen looking east from GPS location 1473 (Frame 1863; 08/28/15).

Photo 191. Rocky Creek: view to south of east side of culverts at CR 231 at GPS location 1516 (Frame 7406; 08/28/15).

Photo 192. Rocky Creek: view to south of box culvert on east side CR 231 at GPS location 1516 (Frame 7407; 08/28/15).

Photo 193. Rocky Creek: view to south of box culverts on west side of CR 231 at GPS location 1516 (Frame 7408; 08/28/15).

Photo 194. Rocky Creek: view to east (downstream) of CR 231 culverts located at GPS location 1517 (Frame 7410; 08/28/15).

Photo 195. Rocky Creek: view to south of culverts located at GPS location 1517 on east side of CR 231 at GPS location 1517 (Frame 7411; 08/28/15).

Photo 196. Rocky Creek: view to south of culvert at west side of CR 231 at GPS location 1517 (Frame 7412; 08/28/15).

Photo 197. View to east (upstream) of major branch of Rocky Creek at culvert located at GPS location 1518 (Frame 7414; 08/28/15).

Photo 198. View to south of box culverts on east side (upstream) of CR 231 in Rocky Creek at GPS location 1518 (Frame 7416; 08/28/15).

Photo 199. Rocky Creek: view to west (downstream) of major branch of Rocky Creek at culvert located at GPS location 1518 (Frame 7419; 08/28/15).

Photo 200. Rocky Creek: view to north along CR 231 of west side of box culverts located at GPS location 1518 (Frame 7420; 08/28/15).

Photo 201. View of Wetland: Planted Pine-Marsh as seen looking southeast from GPS location 1534 (Frames 1864-1865; 08/31/15).

Photo 202. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 1553 (Frames 1866-1867; 08/31/15).

Photo 203. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 1568 (Frames 1868-1869; 08/31/15).

Photo 204. View of Wetland: Mixed Hardwood Swamp as seen looking southwest from GPS location 1578 (Frames 1870-1871; 08/31/15).

Photo 205. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking east from GPS location 1586 (Frames 1872-1873; 08/31/15).

Photo 206. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking west from GPS location 1586 (Frames 1874-1875; 08/31/15).

Photo 207. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 1598 (Frames 1876-1877; 08/31/15).

Photo 208. View of Wetland: Planted Pine-Marsh as seen looking east from GPS location 1605 (Frames 1878-1879; 08/31/15).

Photo 209. View of Physical Feature: Culvert located on north side of road at GPS location 1623 (Frame 1880; 08/31/15).

Photo 210. View of Physical Feature: Culvert located on south side of road at GPS location 1570 (Frame 1881; 08/31/15).

Photo 211. View of Mesic: Mixed Oaks-Hardwoods-Rabbit-eye Blueberry (*Vaccinium virgatum*) Understory as seen looking east from GPS location 1634 (Frames 1882-1883; 08/31/15).

Photo 212. View of *Vaccinium virgatum* roots, stolon, and rhizomes as seen at GPS location 1634 (Frame 1884; 08/31/15).

Photo 213. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking south from GPS location 1657 (Frames 1886-1887; 08/31/15).

Photo 214. View of Mesic: Mixed Oaks-Hardwoods-Rabbit-eye Blueberry Understory as seen looking north from GPS location 1676. View is of inundated forestry road (Frames 1888-1889; 08/31/15).

Photo 215. View of Physical Feature: Culvert located on east side of road as seen at GPS location 1693 (Frame 1890; 08/31/15).

Photo 216. View of Physical Feature: Culvert located on west side of road as seen at GPS location 1694 (Frame 1891; 08/31/15).

Photo 217. View of Physical Feature: Culvert located on west side of road as seen at GPS location 1696 (Frame 1892; 08/31/15).

Photo 218. View of Physical Feature: Culvert located on east side of road as seen at GPS location 1697 (Frame 1893; 08/31/15).

Photo 219. View of Wetland: Mixed Hardwood Swamp as seen looking east from GPS location 5013 (Frames 1897-1898; 09/02/15).

Photo 220. View of Hydric: Planted Pine Flatwoods as seen looking west from GPS location 5029 (Frames 1899-1900; 09/02/15).

Photo 221. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking east from GPS location 5038 (Frames 1901-1902; 09/02/15).

Photo 222. View of Physical Feature Boundary: Wetland Delineation Flagging as seen looking northeast from GPS location 5044 (Frames 1903-1904; 09/02/15).

Photo 223. View of Physical Feature Boundary: Wetland Delineation Flagging as seen looking southwest from GPS location 5044 (Frames 1905-1906; 09/02/15).

Photo 224. View of Wetland: Mixed Hardwood Swamp as seen looking northeast from GPS location 5053 (Frames 1907-1908; 09/02/15).

Photo 225. View of Surface Water: Excavated Creek in Wetland as seen looking south from GPS location 5076 (Frame 1909; 09/02/15).

Photo 226. View of Surface Water: Excavated Creek in Wetland as seen looking north from GPS location 5076 (Frame 1910; 09/02/15).

Photo 227. View of Mesic: Mixed Oak-Hardwoods-Successional as seen looking northwest from GPS location 5105 (Frames 1911-1912; 09/02/15).

Photo 228. View of Mesic: Mixed Oak-Hardwoods-Successional as seen looking east from GPS location 5124 (Frames 1913-1914; 09/02/15).

Photo 229. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking southeast from GPS location 5138 (Frame 1915-1916; 09/02/15).

Photo 230. View of Hydric: Planted Pine Flatwoods as seen looking southeast from GPS location 5158 (Frames 1917-1918; 09/02/15).

Photo 231. View of Mesic: Pine Flatwoods as seen looking northeast from GPS location 5164 (Frames 1919-1920; 09/02/15).

Photo 232. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking north from GPS location 5170 (Frames 1921-1922; 09/02/15).

Photo 233. View of Wetland: Natural Flow-way as seen looking northeast from GPS location 5176 (Frames 1923-1924; 09/02/15).

Photo 234. View of Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS location 5189 (Frames 1925-1926; 09/02/15).

Photo 235. View of Physical Feature: Culvert located on east side of road as seen looking north from GPS location 5199 (Frame 1927; 09/02/15).

Photo 236. View of Physical Feature: Culvert located on east side of road as seen looking north from GPS location 5200 (Frame 1928; 09/02/15).

Photo 237. View of Physical Feature: Culvert located on west side of road as seen looking north from GPS location 5201 (Frame 1929; 09/02/15).

Photo 238. View of Physical Feature: Culvert located on west side of road as seen looking north from GPS location 5202 (Frame 1930; 09/02/15).

Photo 239. View of Physical Feature: Culvert located on east side of road as seen looking north from GPS location 5203 (Frame 1931; 09/02/15).

Photo 240. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 5210 (Frames 1932-1933; 09/02/15).

Photo 241. View of Wetland: Mixed Hardwood Swamp as seen looking west from GPS location 5239 (Frames 1934-1935; 09/03/15).

Photo 242. View of Wetland: Mixed Hardwood Swamp as seen looking east from GPS location 5256 (Frames 1936-1937; 09/03/15).

Photo 243. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking southwest from GPS location 5259 (Frames 1938-1939; 09/03/15).

Photo 244. View of Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 5286 (Frames 1940-1941; 09/03/15).

Photo 245. View of Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 5297 (Frames 1942-1943; 09/03/15).

Photo 246. View of Wetland: Mixed Shrubs & Vines as seen looking east from GPS location 5301 (Frames 1944-1945; 9/03/15).

Photo 247. View of Planted Pine-Mesic Pine Flatwoods as seen looking southwest from GPS location 5319 (Frames 1946-1947; 09/03/15).

Photo 248. View of Hydric: Mixed Oak-Hardwoods-Successional as seen looking east from GPS location 5324 (Frames 1948-1949; 09/03/15).

Photo 249. View of Surface Water: Excavated Ditch within Upland as seen looking north from GPS location 5332 (Frames 1950-1951; 09/03/15).

Photo 250. View of Surface Water: Excavated Ditch within Upland as seen looking east from GPS location 5332 (Frame 1952; 09/03/15).

Photo 251. View of Surface Water: Excavated Ditch within Upland as seen looking west from GPS location 5332 (Frame 1953; 09/03/15).

Photo 252. View of Wetland: Mixed Shrubs & Vines as seen looking east from GPS location 5342 (Frames 1954-1955; 09/03/15).

Photo 253. View of Mesic: Mixed Shrubs & Vines as seen looking north from GPS location 5345 (Frames 1956-1957; 09/03/15).

Photo 254. View of Wetland: Mixed Hardwood Swamp as seen looking northeast from GPS location 5364. Wetland was historically excavated (Frames 1958-1959; 09/03/15).

Photo 255. View of Hydric: Planted Pine Flatwoods as seen looking southwest from GPS location 5364 (Frames 1960-1961; 09/03/15).

Photo 256. View of Hydric: Planted Pine Flatwoods as seen looking north from GPS location 5397 (Frames 1962-1963; 09/03/15).

Photo 257. View of Wetland: Mixed Hardwoods-Fetterbush as seen looking north from GPS location 5405 (Frames 1964-1965; 09/03/15).

Photo 258. View of Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 5436 (Frames 1966-1967; 09/03/15).

Photo 259. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 5498 (Frames 1969-1970; 09/04/15).

Photo 260. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking west from GPS location 5518 (Frames 1971-1972; 09/04/15).

Photo 261. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 5545 (Frames 1973-1974; 09/04/15).

Photo 262. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northwest from GPS location 5560 (Frames 1975-1976; 09/04/15).

Photo 263. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 5571 (Frames 1971-1978; 09/04/15).

Photo 264. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking southwest from GPS location 5580 (Frames 1979-1980; 09/04/15).

Photo 265. View of Wetland: Natural Flow-way as seen looking east from GPS location 5602 (Frames 1981-1983; 09/04/15).

Photo 266. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 5615 (Frames 1984-1985; 09/04/15).

Photo 267. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 5633 (Frames 1986-1987; 09/04/15).

Photo 268. View of Physical Feature Boundary: Wetland Delineation Flagging within Hydric: Planted Pine Flatwoods as seen looking southeast from GPS location 5655 (Frames 1988-1989; 09/04/15).

Photo 269. View of Physical Feature Boundary: Wetland Delineation Flagging within Hydric: Planted Pine Flatwoods as seen looking northwest from GPS location 5655 (Frames 1990-1991; 09/04/15).

Photo 270. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking southwest from GPS location 5679 (Frames 1992-1993; 09/04/15).

Photo 271. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking northeast from GPS location 5706 (Frames 1994-1995; 09/04/15).

Photo 272. View of Hydric: Planted Pine Flatwoods as seen looking southeast from GPS location 5712 (Frames 1996-1997; 09/04/15).

Photo 273. View of Wetland: Natural Flow-way as seen looking west from GPS location 5743 (Frame 1998; 09/04/15).

Photo 274. View of Wetland: Natural Flow-way as seen looking east from GPS location 5743 (Frame 1999; 09/04/15).

Photo 275. View of Hydric: Planted Pine Flatwoods as seen looking north from GPS location 5763 (Frames 2000-2001; 09/04/15).

Photo 276. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking southwest from GPS location 5773 (Frames 2002-2003; 09/04/15).

Photo 277. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 5791 (Frames 2004-2005; 09/04/15).

Photo 278. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 5794 (Frames 2006-2007; 09/04/15).

Photo 279. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking west from GPS location 5814 (Frames 2008-2009; 09/04/15).

Photo 280. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking northwest from GPS location 5814 (Frames 2010-2011; 09/04/15).

Photo 281. View of Hydric: Planted Pine Flatwoods as seen looking north from GPS location 5835 (Frames 2012-2013; 09/04/15).

Photo 282. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 5844 (Frames 2014-2015; 09/04/15).

Photo 283. View of Wetland: Mixed Hardwood Swamp as seen looking east from GPS location 5854 (Frames 2016-2017; 09/04/15).

Photo 284. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking southeast from GPS location 5877 (Frames 2020-2021; 09/04/15).

Photo 285. View of Physical Feature: Culvert as seen looking east from GPS location 5885 (Frame 2022; 09/04/15).

Photo 286. View of Physical Feature: Culvert as seen looking southeast from GPS location 5886 (Frame 2023; 09/04/15).

Photo 287. View of Hydric: Planted Pine Flatwoods as seen looking southwest from GPS location 5930 (Frames 2024-2025; 09/08/15).

Photo 288. View of Physical Feature Boundary: Wetland Delineation Flagging within the Wetland: Planted Pine-Marsh as seen looking west from GPS location 5955 (Frame 2026; 09/08/15).

Photo 289. View of Physical Feature Boundary: Wetland Delineation Flagging within the Wetland: Planted Pine-Marsh as seen looking northwest from GPS location 5955 (Frames 2027-2028; 09/08/15).

Photo 290. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 5959 (Frames 2029-2030; 09/08/15).

Photo 291. View of Wetland: Planted Pine-Marsh as seen looking south-southwest from GPS location 5964 (Frames 2031-2032; 09/08/15).

Photo 292. View of Wetland: Planted Pine-Marsh as seen looking northwest from GPS location 5973 (Frames 2037-2038; 09/08/15).

Photo 293. View of Wetland: Planted Pine-Marsh as seen looking northeast from GPS location 5997 (Frames 2043-2044; 09/08/15).

Photo 294. View of Wetland: Planted Pine-Marsh as seen looking southwest from GPS location 6015 (Frames 2045-2046; 09/08/15).

Photo 295. View of Physical Feature: Culvert as seen looking north from GPS location 6070 (Frame 2047; 09/08/15).

Photo 296. View of Wetland: Planted Pine-Marsh as seen looking east from GPS location 6104 (Frames 2048-2049; 09/08/15).

Photo 297. View of Wetland: Planted Pine-Marsh as seen looking north from GPS 6112 (Frames 2050-2051; 09/08/15).

Photo 298. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS location 6118 (Frames 2052-2053; 09/08/15).

Photo 299. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 6182 (Frames 2054-2055; 09/08/15).

Photo 300. View of Wetland: Natural Flow-way as seen looking east from GPS location 6199 (Frames 2056-2057; 09/08/15).

Photo 301. View of Wetland: Natural Flow-way as seen looking west from GPS location 6199 (Frames 2058-2059; 09/08/15).

Photo 302. View of Wetland: Planted Pine-Marsh as seen looking southeast from GPS location 6221 (Frames 2060-2061; 09/18/15).

Photo 303. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS location 6263 (Frames 2062-2063; 09/09/15).

Photo 304. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking north from GPS location 6272 (Frames 2064-2065; 09/09/15).

Photo 305. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking southwest from GPS location 6272 (Frames 2066-2067; 09/09/15).

Photo 306. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 6337 (Frames 2072-2073; 09/09/15).

Photo 307. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 6340 (Frames 2074-2075; 09/09/15).

Photo 308. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 6354 (Frames 2076-2077; 09/09/15).

Photo 309. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking northwest from GPS location 6375 (Frames 2078-2079; 09/09/15).

Photo 310. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking west from GPS location 6394 (Frames 2080-2081; 09/09/15).

Photo 311. View of Wetlands: Mixed Hardwood Swamp-Bays-Fetterbush as seen looking east from GPS location 6394 (Frames 2082-2083; 09/09/15).

Photo 312. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 6462 (Frames 2084-2085; 09/09/15).

Photo 313. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 6513 (Frames 2086-2087; 09/09/15).

Photo 314. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking east from GPS location 6545 (Frames 2088-2089; 09/09/15).

Photo 315. View of Wetland: Planted Pine-Mixed Hardwoods as seen looking west from GPS location 6545 (Frames 2090-2091; 09/09/15).

Photo 316. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 6553 (Frames 2092-2093; 09/09/15).

Photo 317. View of Hydric: Planted Pine Flatwoods as seen looking south from GPS location 6570 (Frames 2094-2095; 09/10/15).

Photo 318. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 6574 (Frames 2096-2097; 09/10/15).

Photo 319. View of Wetland: Planted Pine-Marsh as seen looking south from GPS location 6574 (Frames 2098-2099; 09/10/15).

Photo 320. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 6574 (Frames 2100-2101; 09/10/15).

Photo 321. View of Transitional: Planted Pine Flatwoods as seen looking southeast from GPS location 6591 (Frames 2102-2103; 09/10/15).

Photo 322. View of Surface Water: Excavated Creek in Wetland as seen looking south from GPS location 6613 (Frames 2104-2105; 09/10/15).

Photo 323. View of Wetland: Marsh as seen looking north from GPS location 6630 (Frames 2106-2107; 09/10/15).

Photo 324. View of Wetland: Marsh as seen looking east from GPS location 6630 (Frames 2108-2109; 09/10/15).

Photo 325. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 6634 (Frame 2110; 09/10/15).

Photo 326. View of Wetland: Planted Pine-Marsh as seen looking east from GPS location 6634 (Frame 2111; 09/10/15).

Photo 327. View of Wetland: Planted Pine-Marsh as seen looking south from GPS location 6634 (Frame 2112; 09/10/15).

Photo 328. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 6634 (Frame 2113; 09/10/15).

Photo 329. View of Wetland: Planted Pine-Marsh as seen looking southeast from GPS location 6637 (Frames 2114-2115; 09/10/15).

Photo 330. View of Wetland: Planted Pine-Marsh as seen looking southeast from GPS location 6657 (Frames 2116-2117; 09/10/15).

Photo 331. View of Wetland: Marsh as seen looking north from GPS location 6670 (Frames 2118-2119; 09/10/15).

Photo 332. View of Wetland: Marsh as seen looking south from GPS location 6670 (Frames 2120-2121; 09/10/15).

Photo 333. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 6723 (Frames 2122-2123; 09/10/15).

Photo 334. View of Wetland: Natural Flow-way occurring across the top of the improved forest road as seen looking northwest from GPS location 6758 (Frames 2125-2126; 09/10/15).

Photo 335. View of Wetland: Natural Flow-way that occurs across the top of the improved forest road as seen looking east from GPS location 6786 (Frames 2130-2131; 09/11/15).

Photo 336. View of Wetland: Mixed Hardwoods-Seepage Slope as seen looking south from GPS location 6793 (Frames 2132-2133; 09/11/15).

Photo 337. View of Wetland: Mixed Shrubs & Vines as seen looking north from GPS location 6794 (Frames 2134-2135; 09/11/15).

Photo 338. View of Wetland: Planted Pine-Marsh as seen looking south from GPS location 6809 (Frames 2136-2137; 09/11/15).

Photo 339. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 6844 (Frames 2138-2139; 09/11/15).

Photo 340. View of Wetland: Natural Flow-way as seen looking northwest from GPS location 6858 (Frame 2140; 09/11/15).

Photo 341. View of Wetland: Natural Flow-way as seen looking southeast from GPS location 6858 (Frame 2141; 09/11/15).

Photo 342. View of Wetland: Natural Flow-way at GPS location 6862 (Frame 2142; 09/11/15).

Photo 343. View of Wetland: Natural Flow-way as seen looking downstream (northwest) from GPS location 6862 (Frame 2143; 09/11/15).

Photo 344. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northwest from GPS location 6891 (Frames 2144-2145; 09/11/15).

Photo 345. View of Wetland: Natural Flow-way as seen at GPS location 6893 (Frame 2146; 09/11/15).

Photo 346. View of Wetland: Natural Flow-way as seen looking west from GPS location 6893 (Frames 2147-2148; 09/11/15).

Photo 347. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 6911 (Frames 2149-2150; 09/11/15).

Photo 348. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking north from GPS location 6922 (Frames 2151-2152; 09/11/15).

Photo 349. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 6960 (Frames 2153-2154; 09/11/15).

Photo 350. View of Wetland Boundary: Mixed Shrubs & Vines as seen looking northwest from GPS location 6991 (Frames 2155-2156; 09/11/15).

Photo 351. View of Transitional: Planted Pine Flatwoods as seen looking north from GPS location 7007 (Frames 2157-2158; 09/11/15).

Photo 352. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking southeast from GPS location 7013 (Frames 2159-2160; 09/11/15).

Photo 353. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 7028 (Frames 2161-2162; 09/11/15).

Photo 354. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking northwest from GPS location 7034 (Frames 2163-2164; 09/11/15).

Photo 355. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 7041 (Frames 2165-2166; 09/11/15).

Photo 356. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northwest from GPS location 7047 (Frames 2167-2168; 09/11/15).

Photo 357. View of Ditch Block within ditch located along east boundary of gas line easement as seen looking east from GPS location 7068. Water is pooled to the south at this location (Frames 2169-2170; 09/11/15).

Photo 358. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking east from GPS location 7086 (Frames 2171-2172; 09/11/15).

Photo 359. View of Wetland: Marsh as seen looking west from GPS location 7093 (Frames 2173-2174; 09/11/15).

Photo 360. View to south (upstream) of culverts located in Rocky Creek at GPS location 9841 (Frame 7490; 09/15/15).

Photo 361. View to south (upstream) of culverts located in Rocky Creek at GPS location 9841 (Frame 7491; 09/15/15).

Photo 362. View of downstream area of Rocky Creek south of culverts located at GPS location 7285 (Frame 7492; 09/15/15).

Photo 363. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 7304 (Frame 7494; 09/15/15).

Photo 364. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 7304 (Frame 7495; 09/15/15).

Photo 365. View of Wetland: Mixed Shrubs & Vines as seen looking east from GPS location 7337 (Frame 7496; 09/15/15).

Photo 366. View of Wetland: Mixed Shrubs & Vines as seen looking southeast from GPS location 7337 (Frame 7497; 09/15/15).

Photo 367. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northwest from the jurisdiction line located south of GPS location 7338 (Frame 7498; 09/15/15).

Photo 368. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 7340 (Frame 7499; 09/15/15).

Photo 369. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS location 7340 (Frame 7500; 09/15/15).

Photo 370. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking west from GPS location 7349 (Frame 7501; 09/15/15).

Photo 371. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS location 7349 (Frame 7502; 09/15/15).

Photo 372. View to south of gas line through Wetland: Cypress-Mixed Hardwoods-Bays as seen at culvert location at GPS location 7360 (Frame 7503; 09/15/15).

Photo 373. View of Physical Feature: Culvert as seen looking at east end (downstream) of culvert at GPS location 7360 (Frame 7504; 09/15/15).

Photo 374. View of Wetland: Cypress-Mixed Hardwoods-Bays from Physical Feature: Culvert as seen looking at west end (upstream) of culvert at GPS location 7360 (Frame 7506; 09/15/15).

Photo 375. View of wetland shrubs and marsh area of Wetland: Cypress-Mixed Hardwoods-Bays community from Physical Feature: Culvert as seen looking west (upstream) from GPS location 7360 (Frame 7507; 09/15/15).

Photo 376. View of cypress, pine, and disturbed vines and shrubs area of the Wetland: Cypress-Mixed Hardwoods-Bays community located west of Physical Feature: Culvert at GPS location 7360 (Frame 7508; 09/15/15).

Photo 377. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 7372 (Frames 7509-7510; 09/15/15).

Photo 378. View of gas line as seen looking south from GPS location 7378 Wetland: Natural Flow-way, which occurs from west to east across top of gas line extending from GPS locations 7375–7380 (Frame 7511; 09/15/15).

Photo 379. View of gas line as seen looking north from GPS location 7378 Wetland: Natural Flow-way, which occurs from west to east across top of gas line extending from GPS locations 7375–7380 (Frame 7512 (09/15/15).

Photo 380. View of Wetland: Planted Pine-Marsh as seen looking west from GPS location 7387 (Frames 7513-7314; 09/15/15).

Photo 381. View of gas line (right) and forest road (left) that accesses property to the east. This photo is taken from GPS location 7403 looking southeast to south. There are several Physical Feature: Culverts at this location that route water north and east through this intersection (Frame 7515; 09/15/15).

Photo 382. View of north end of Physical Feature: Culvert that runs north from GPS location 7403 to 7404 and routes water in this direction (Frame 7516; 09/15/15).

Photo 383. View to north of gas line as seen from Physical Feature: Culvert at GPS location 7404 (Frame 7517; 09/15/15).

Photo 384. View of area at west end of Physical Feature: Culvert located at GPS location 7405. This is upstream area west of gas line (Frame 7518; 09/15/15).

Photo 385. View of east area at east end (downstream) of Physical Feature: Culvert located at GPS location 7405. Water flows here from GRU property, north into ditch along gas line, then east into a large wetland area (Frame 7519; 09/15/15).

Photo 386. View of flow-way at east end of Physical Feature: Culvert located in gas line right-of-way at GPS location 7421 (Frame 7520; 09/15/15).

Photo 387. View of flow-way at west end of Physical Feature: Culvert located in gas line right-of-way at GPS location 7421 (Frame 7521; 09/15/15).

Photo 388. View of Physical Feature: Culvert area within gas line right-of-way as seen looking south from GPS location 7421 (Frame 7522; 09/15/15).

Photo 389. View of Wetland: Planted Pine Flatwoods as seen looking east from the jurisdictional boundary at GPS location 7430 (Frame 7524; 09/15/15).

Photo 390. View of Hydric: Planted Pine Flatwoods as seen looking west from the jurisdictional boundary at GPS location 7430 (Frame 7525; 09/15/15).

Photo 391. View of upland as seen looking south from Mesic: Planted Pine-Mesic Pine Flatwoods located at GPS location 7441 (Frame 7526; 09/15/15).

Photo 392. View of Hydric: Planted Pine Flatwoods as seen looking west from GPS location 7449 (Frames 7527-7528; 09/15/15).

Photo 393. View of Surface Water: Excavated Ditch within Upland within a Transitional: Planted Pine Flatwoods as seen at GPS location 7456 (Frame 7529; 09/15/15).

Photo 394. View of Surface Water: Excavated Ditch within Upland within a Transitional: Planted Pine Flatwoods as seen looking north (downstream) from GPS location 7456 Frame 7530 (09/15/15).

Photo 395. View of Surface Water: Excavated Ditch within Upland within a Transitional: Planted Pine Flatwoods as seen looking south (upstream) from GPS location 7456 (Frame 7531; 09/15/15).

Photo 396. View of boundary between wet flatwoods and transitional flatwoods within the Hydric: Planted Pine Flatwoods community as seen looking east from GPS location 7459 (Frame 7532; 09/15/15).

Photo 397. View of Hydric: Planted Pine Flatwoods as seen looking south from GPS location 7470 (Frame 7533; 09/15/15).

Photo 398. View of Hydric: Planted Pine Flatwoods as seen looking north from GPS location 7470 (Frame 7534; 09/15/15).

Photo 399. View of Physical Feature: Culvert as seen looking north (downstream) from GPS location 7497 (Frame 7535; 09/15/15).

Photo 400. View of Physical Feature: Culvert as seen looking south (upstream) from GPS location 7497 (Frame 7536; 09/15/15).

Photo 401. View of Hydric: Planted Pine Flatwoods as seen looking northeast from GPS location 7510 (Frame 7537; 09/15/15).

Photo 402. View of Hydric: Planted Pine Flatwoods as seen looking east from GPS location 7510 (Frame 7538; 09/15/15).

Photo 403. View of Surface Water: Excavated Ditch within Upland-Roadside Ditch within the Mesic: Planted Pine-Mesic Pine Flatwoods community at GPS location 7523 (Frame 7539; 09/15/15).

Photo 404. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north from GPS location 7526 (Frame 7540; 09/15/15).

Photo 405. View of Wetland: Planted Pine-Marsh as seen at GPS location 7648 (Frame 7624; 09/17/15).

Photo 406. View of Wetland: Planted Pine-Marsh as seen at GPS location 7649 (Frame 7625; 09/17/15).

Photo 407. View of Hydric: Planted Pine Flatwoods as seen at GPS location 7663 (Frame 7626; 09/17/15).

Photo 408. View of stream flow into Wetland: Planted Pine-Mixed Hardwoods as seen looking south from GPS location 7754 (Frames 2175-2176; 09/18/15).

Photo 409. View of stream inflow into Wetland: Planted Pine-Mixed Hardwoods as seen looking west from GPS location 7754 (Frames 2177-2178; 09/18/15).

Photo 410. View of flow-way across top of gas line access road as seen looking south from GPS location 7756. Flow-way extends from GPS location 7756 south to 7757, a distance of 325 ft (Frames 2183-2184; 09/18/15).

Photo 411. View of wetland marsh on south side of power line easement as seen looking east from Physical Structure: Culvert located at GPS location 7756 (Frame 2185; 09/18/15).

Photo 412. View of wetland marsh located south of power line access road as seen looking west from culvert located at GPS location 7756 (Frame 2186; 09/18/15).

Photo 413. View of gas line easement as seen looking north from culvert located at GPS location 7765 (Frames 2179-2180; 09/18/15).

Photo 414. View of wetland marsh on north side of power line access road as seen looking east from culvert at GPS location 7765 (Frame 2181; 09/18/15).

Photo 415. View of wetland marsh on north side of power line access road as seen looking west from culvert located at GPS location 7765 (Frame 2182; 09/18/15).

Photo 416. View of natural flow-way area within Wetland: Mixed Hardwood Swamp as seen looking southeast from GPS location 7804 (Frames 2187-2188; 09/18/15).

Photo 417. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking southwest from GPS location 7823 (Frames 2189-2190; 09/18/15).

Photo 418. View of Surface Water: Excavated Ditch within Upland as seen looking east from GPS location 7843 (Frame 2191; 09/18/15).

Photo 419. View of Surface Water: Excavated Ditch within Upland as seen looking west from GPS location 7843 (Frame 2192; 09/18/15).

Photo 420. View of Wetland: Marsh as seen looking southwest from GPS location 7854 (Frames 2193-2194; 09/18/15).

Photo 421. View of Upland: Oldfield as seen looking east from GPS location 7861 (Frames 2195-2196; 09/18/15).

Photo 422. View of Wetland: Marsh as seen looking south from GPS location 7862 (Frames 2197-2198; 09/18/15).

Photo 423. View of Wetland: Natural Flow-way as seen looking north from GPS location 7863 (Frames 2199-2200; 09/18/15).

Photo 424. View of Wetland: Natural Flow-way as seen looking southwest from GPS location 7945 (Frames 2201-2202; 09/18/15).

Photo 425. View of Wetland: Natural Flow-way as seen looking northwest from GPS location 7945 (Frames 2203-2204; 09/18/15).

Photo 426. View of Wetland: Natural Flow-way as seen looking southeast from GPS location 7945 (Frames 2205-2206; 09/18/15).

Photo 427. View of Wetland: Natural Flow-way as seen looking west from GPS location 7945 (Frames 2207-2208; 09/18/15).

Photo 428. View of Hydric: Planted Pine Flatwoods as seen looking south from GPS location 7960 (Frames 2209-2210; 09/18/15).

Photo 429. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking west from GPS location 7968 (Frames 2211-2212; 09/18/15).

Photo 430. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking east from GPS location 8026 (Frames 2213-2214; 09/18/15).

Photo 431. View of Hydric: Planted Pine Flatwoods as seen looking northeast from GPS location 8035 (Frames 2217-2218; 09/18/15).

Photo 432. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking east from GPS location 8037 (Frames 2215-2216; 09/18/15).

Photo 433. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking northeast from GPS 8039 (Frames 2219-2220; 09/18/15).

Photo 434. View of eroded Physical Feature: Culvert as seen looking east from GPS locations 8099-8100 (Frame 7646; 09/29/15).

Photo 435. View of eroded Physical Feature: Culvert as seen looking north from GPS location 8100 (Frame 7647; 09/29/15).

Photo 436. View of eroded Physical Feature: Culvert as seen looking south from GPS location 8099 (Frame 7648; 09/29/15).

Photo 437. View of flow at Physical Feature: Culvert at GPS location 8099. View is to north on south side of road. Flow has eroded south side of road (Frame 7652; 09/29/15).

Photo 438. View of flow at Physical Feature: Culvert at GPS location 8100. Flow is to north on north side of road (Frame 7649; 09/29/15).

Photo 439. View of Physical Feature: Culvert at GPS locations 8101-8102. View is of north side of culvert (Frame 7650; 09/29/15).

Photo 440. View of south side of Physical Feature: Culvert at GPS locations 8101-8102 (Frame 7651; 09/29/15).

Photo 441. View of offsite excavated ditch through an upland as seen from the Fill: Old Roads-Berms-Windrows at GPS location 8106 (Frame 7653; 09/29/15).

Photo 442. View of berm on south side of Fill: Old Roads-Berms-Windrows as seen looking east from GPS location 8106 (Frame 7654; 09/29/15).

Photo 443. View of berm on south side of excavated ditch as seen looking east from GPS location 8110 (Frame 7655; 09/29/15).

Photo 444. View of Wetland: Wetland Shrubs-Rabbit-eye Blueberry (*Vaccinium virgatum* Understory as seen looking south from GPS location 8120 (Frames 7656-7657; 09/29/15).

Photo 445. View of buttonbush dominated area of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking northeast from GPS location 8138. This area is excavated (Frame 7658; 09/29/15).

Photo 446. View of south boundary of buttonbush dominated, excavated Wetland: Cypress-Mixed Hardwoods-Bays as seen looking southeast from GPS location 8138 (Frame 7660; 09/29/15).

Photo 447. Viewed of drained Wetland: Cypress-Mixed Hardwoods-Bays that lies along southwest boundary of excavated buttonbush and cypress area. View is southwest from GPS location 8138 (Frames 7661-7662; 09/29/15).

Photo 448. View of Wetland: Natural Flow-way that occurs at GPS locations 8166–8173. View is at GPS location 8168 (Frame 7663; 09/29/15).

Photo 449. View of Wetland: Natural Flow-way that occurs at GPS locations 8166–8173. View is at GPS location 8168 (Frame 7665; 09/29/15).

Photo 450. View of Wetland: Natural Flow-way that occurs at GPS locations 8166–8173. View is at GPS location 8168 (Frame 7666; 09/29/15).

Photo 451. View of Wetland: Natural Flow-way that occurs at GPS locations 8166–8173. View is at GPS location 8168 (Frame 7667; 09/29/15).

Photo 452. View of Wetland: Mixed Hardwood Swamp as seen looking east from GPS location 8215 (Frame 7668; 09/29/15).

Photo 453. View of Wetland: Natural Flow-way as seen looking west (upstream) from GPS location 8234 (Frame 7669; 09/29/15).

Photo 454. View of Wetland: Natural Flow-way as seen looking east (downstream) toward SR 121 from GPS location 8234 (Frame 7670; 09/29/15).

Photo 455. View of Wetland: Marsh dominated by *Panicum hemitomon* as seen looking west from GPS location 8242 (Frames 7671-7673; 10/01/15).

Photo 456. View of lichen and moss lines as seen within Wetland: Marsh at GPS location 8242 (Frame 7674; 10/01/15).

Photo 457. View of Hydric: Planted Pine Flatwoods in area of GPS location 8256 (Frame 7675; 10/01/15).

Photo 458. View of Hydric: Planted Pine Flatwoods in area of GPS location 8256 (Frame 7676; 10/01/15).

Photo 459. View of surface water in Hydric: Planted Pine Flatwoods at GPS location 8256 (Frame 7677; 10/01/15).

Photo 460. View of Sphagnum moss in Hydric: Planted Pine Flatwoods at GPS location 8256 (Frame 7678; 10/01/15).

Photo 461. View of Hydric: Planted Pine Flatwoods at GPS location 8256 (Frame 7679; 10/01/15).

Photo 462. View of buttressed *Pinus elliottii* in Hydric: Planted Pine Flatwoods at GPS location 8256 (Frame 7680; 10/01/15).

Photo 463. View of Hydric: Planted Pine Flatwoods at GPS location 8284 (Frame 7681; 10/01/15).

Photo 464. View of Hydric: Planted Pine Flatwoods at GPS location 8284 (Frame 7682; 10/01/15).

Photo 465. View of Wetland: Mixed Hardwood Swamp within excavated wetland at GPS location 8342 (Frame 7683; 10/01/15).

Photo 466. View of Wetland: Mixed Hardwood Swamp within excavated wetland at GPS location 8342 (Frame 7684; 10/01/15).

Photo 467. View of Wetland: Mixed Hardwood Swamp within excavated wetland at GPS location 8342 (Frame 7685; 10/01/15).

Photo 468. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north to southeast from GPS location 8352 (Frame 7686; 08/31/15).

Photo 469. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking north to southeast from GPS location 8352 (Frames 7687-7688; 10/01/15).

Photo 470. View of Mesic: Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 8352 (Frame 7689; 10/01/15).

Photo 471. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking southeast from GPS location 8363 (Frame 7690; 10/01/15).

Photo 472. View of moss and lichen lines on *Taxodium ascendens* at GPS location 8363 (Frame 7691; 10/01/15).

Photo 473. View of Wetland: Planted Pine-Marsh as seen looking southwest from GPS location 8364 (Frame 7692; 10/01/15).

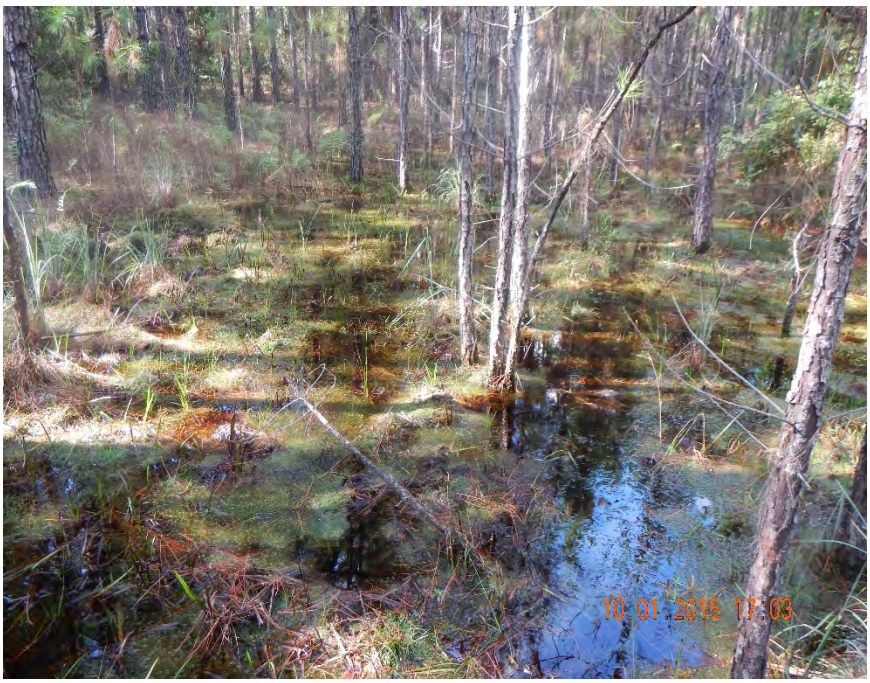


Photo 474. View of Wetland: Planted Pine-Marsh as seen looking northeast from GPS location 8364 (Frame 7693; 10/01/15).

Photo 475. View of Hydric: Planted Pine Flatwoods as seen at GPS location 8398 (Frame 7694; 10/01/15).

Photo 476. Pooled surface water and moss within the Hydric: Planted Pine Flatwoods at GPS location 8398 (Frame 7695; 10/01/15).

Photo 477. Buttressed slash pine and moss with the Hydric: Planted Pine Flatwoods as seen at GPS location 8398 (Frame 7696; 10/01/15).

Photo 478. Boundary of Hydric: Planted Pine Flatwoods and Transitional: Planted Pine Flatwoods as seen at GPS location 8416 (Frame 7697; 10/01/15).

Photo 479. *Lyonia lucida* and *Woodwardia virginiana* ground cover occurring at GPS location 8416 (Frame 7698; 10/01/15).

Photo 480. Dense dead and live *Lyonia lucida* occurring at GPS location 8416 (Frame 7699; 10/01/15).

Photo 481. View to northeast of Hydric: Planted Pine Flatwoods as seen from GPS location 8416 (Frame 7700; 10/01/15).

Photo 482. View of Hydric: Planted Pine Flatwoods as seen looking northwest from GPS location 8440 (Frame 7701; 10/01/15).

Photo 483. View of Hydric: Planted Pine Flatwoods as seen looking east from GPS location 8440 (Frame 7702; 10/01/15).

Photo 484. View of Hydric: Planted Pine Flatwoods at GPS location 8456 (Frame 7703; 10/01/15).

Photo 485. View of excavated pond occurring at GPS location 8574 (Frame 7708; 10/02/15).

Photo 486. View of excavated pond occurring at GPS location 8574 (Frame 7709; 10/02/15).

Photo 487. View of excavated pond occurring at GPS location 8574 (Frame 7710; 10/02/15).

Photo 488. View of Planted Pine-Mesic Pine Flatwoods as seen looking northwest from GPS location 8587 (Frame 7712; 10/02/15).

Photo 489. View of Planted Pine-Mesic Pine Flatwoods as seen looking south from GPS location 8587 (Frame 7713; 10/02/15).

Photo 490. View of Wetland: Cypress-Mixed Hardwoods-Bays as seen looking north from GPS location 8682 (Frame 7714; 10/02/15).

Photo 491. View of Wetland: Mixed Shrubs & Vines as seen looking south from GPS location 8682 (Frame 7715; 10/02/15).

Photo 492. View of Wetland: Planted Pine-Marsh as seen looking northeast from GPS location 8685 (Frame 7716; 10/02/15).

Photo 493. View of dense *Panicum hemitomon* in groundcover at GPS location 8685 (Frame 7717; 10/02/15).

Photo 494. View of moss line on *Pinus elliottii* at GPS location 8685 (Frame 7718; 10/02/15).

Photo 495. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 8699 (Frame 7719; 10/02/15).

Photo 496. View of Wetland: Planted Pine-Marsh as seen looking southeast from GPS location 8699 (Frame 7721; 10/02/15).

Photo 497. View of Wetland: Planted Pine-Marsh as seen looking south from GPS location 8699 (Frame 7722 (10/02/15).

Photo 498. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 8704 (Frame 7723; 10/02/15).

Photo 499. View of Wetland: Planted Pine-Marsh as seen looking northeast from GPS location 8704 (Frame 7724; 10/02/15).

Photo 500. View of Wetland: Planted Pine-Marsh as seen looking southeast from GPS location 8704 (Frame 7725; 10/02/15).

Photo 501. View of boundary of Hydric: Planted Pine Flatwoods and Wetland: Planted Pine-Marsh as seen looking north from GPS 8707 (Frame 7726; 10/02/15).

Photo 502. View of Wetland: Planted Pine-Marsh as seen looking north from GPS location 8734 (Frame 7728; 10/02/15).

Photo 503. View of Wetland: Planted Pine-Marsh as seen looking south from GPS location 8734 (Frame 7729; 10/02/15).

Photo 504. View of Hydric: Planted Pine Flatwoods as seen looking west from GPS location 8744 (Frame 7730; 10/02/15).

Photo 505. View of Hydric: Planted Pine Flatwoods as seen looking northwest from GPS location 8749 (Frame 7731; 10/02/15).

Photo 506. View of Hydric: Planted Pine Flatwoods as seen looking northwest from GPS location 8753 (Frame 7732; 10/02/15).

Photo 507. View of Hydric: Planted Pine Flatwoods as seen looking southeast from GPS location 8753 (Frame 7733; 10/02/15).

Photo 508. View of typical Hydric: Planted Pine Flatwoods groundcover and surface water as seen at GPS location 8757 (Frame 7734; 10/02/15).

Photo 509. View of typical Hydric: Planted Pine Flatwoods groundcover and surface water as seen at GPS location 8757 (Frame 7735; 10/02/15).

Photo 510. View of typical Hydric: Planted Pine Flatwoods groundcover and surface water as seen at GPS location 8757 (Frame 7736; 10/02/15).

Photo 511. View to north of road through wetland shrubs as seen at GPS location 10120 (Frame 1415; 04/14/17).

Photo 512. View of Hydric Planted Pine-Flatwoods community as seen at GPS location 10127 (Frame 1417; 04/14/17).

Photo 513. View of Transitional Flatwoods community as seen at GPS location 10131 (Frame 1418; 04/14/17).

Photo 514. View of Transitional Planted Pine Flatwoods community as seen at GPS location 10136 (Frame 1419; 04/14/17).

Photo 515. View of Mesic Planted Pine Flatwoods community as seen at GPS location 10139 (04/14/17).

Photo 516. View of Hydric Pine Flatwoods community as seen at GPS location 10161 (Frame 1421; 04/14/17).

Photo 517. View of boundary of Mesic and Hydric Plant Pine Flatwoods communities as seen at GPS location 10164 (Frame 1422; 04/14/17).

Photo 518. View of Mesic Planted Pine Flatwoods community as seen at GPS location 10169 (Frame 1423; 04/14/17).

Photo 519. View of Mesic Planted Pine Flatwoods community as seen at GPS location 10169 (Frame 1424; 04/14/17).

Photo 520. Panoramic view of excavated ditch within the unlogged Cypress-Mixed Hardwood-Bay Swamp as seen looking south to southwest at GPS location 10183 (Frames 1425–1427; 04/14/17).

Photo 521. View of ditch located within the Cypress-Mixed Hardwood-Bay Swamp as seen looking north at GPS location 10183 (Frame 1428; 04/14/17).

Photo 522. View of culvert located in old ditch that intercepts deeper, more recent excavation at GPS location 10184 (Frame 1431; 04/14/17).

Photo 523. View of unlogged Cypress-Mixed Hardwood-Bay Swamp as seen at GPS location 10191 (Frame 1433; 04/14/17).

Photo 524. View of Cypress-Mixed Hardwood-Bay Swamp as seen looking east at GPS location 10196 (Frame 1434; 04/14/17).

Photo 525. View of Cypress-Blackgum Swamp as seen looking nortwest from GPS location 10196 (Frame 1435; 04/14/17).

Photo 526. View of Hydric Hammock-Mixed Hardwood wetland as seen at GPS location 10204 (Frame 1436; 04/14/17).

Photo 527. View of Transitional Planted Loblolly Pine Flatwoods community as seen at GPS location 10207 (Frame 1437; 04/14/17).

Photo 528. View of Mesic Planted Pine Flatwoods community as seen at GPS location 10212 (Frame 1438; 04/14/17).

Photo 529. View of Mesic Planted Pine Flatwoods community as seen at GPS location 10220 (Frame 1440; 04/14/17).

Photo 530. View of Hydric Planted Pine Flatwoods community as seen at GPS location 10242 (Frame 1441; 04/14/17).

Photo 531. View of Bay-dominated area of Hydric Hammock habitat found at GPS location 10251 (Frame 1442; 04/14/17).

Photo 532. View of dense evergreen vegetation at boundary of pine-dominated wetland and Hydric Plant Pine Flatwoods community at GPS location 10251 (Frame 1443; 04/14/17).

Photo 533. View of dense evergreen vegetation at boundary of pine-dominated wetland and Hydric Plant Pine Flatwoods community at GPS location 10251 (Frame 1444; 04/14/17).

Photo 534. Panoramic view of boundary of dense shrub-covered, logged Bay wetland and adjacent Hydric Planted Pine Flatwoods community as seen at GPS location 10271 (Frames 1445-1447; 04/14/17).

Photo 535. View of red maple (*Acer rubrum* L) dominated understory in Hydric Planted Pine Flatwoods as seen at GPS location 10295 (Frame 1449; 04/14/17).

Photo 536. View of collapsed culvert and roadway at offsite drainage divide as seen looking west from GPS location 10304 (Frame 1451; 04/14/17).

Photo 537. View of ditch south of drainage divide as seen looking south from GPS location 10304 (Frame 1452; 04/14/17).

Photo 538. View of sweetgum-red maple (*Liquidambar styraciflua-Acer rubrum*) dominated Hydric Hammock as seen at GPS location 10312 (Frame 1453; 04/14/17).

Photo 539. View of sweetgum-red maple (*Liquidambar styraciflua-Acer rubrum*) dominated Hydric Hammock as seen at GPS location 10312 (Frame 1454; 04/14/17).

Photo 540. View of berm (left side [west]) and excavated ditch that flows north within the Cypress-Mixed Hardwood-Bay Swamp community as seen at GPS location 10322 (Frame 1456; 04/14/17).

Photo 541. View to northwest of Hydric Hammock community as seen from south end of ditch at GPS location 10322 (Frame 1457; 04/17/17).

Photo 542. View of oak-dominated Hydric Hammock as seen at GPS location 10327 (Frame 1458; 04/14/17).

Photos 543 through 549 show dilapidated structures remaining in an historical disturbed cypress dome located at GPS location 10356. This dome was a study site for experimental sewage disposal in wetlands that was conducted by the Center for Wetlands at the University of Florida from 1973 to 1979. This wetland is referred to as the sewage dome in *Cypress Swamps* by K. C. Ewel and H. T. Odum (editors), University of Florida Presses (1984; see page 70). ERC staff visited this wetland in 1980. The wetland was one of three (3) cypress domes in the area used to study the effects of effluent from the Whitney Trailer Park on the wetland systems.

Photo 543. Experimental tower.

Photo 544. Sewage line.

Photo 545. Boardwalk.

Photo 546. Lichen lines in wetland.

Photo 547. Moss lines in wetland.

Photo 548. Tower.

Photo 549. Work platform.

Photo 550. View of transitional Planted pine Flatwoods as seen at GPS location 10392 (Frame 1466; 04/14/17).

Photo 551. View of very disturbed historical cypress habitat with minimal pine and cypress canopy and very dense shrubs and briers as seen at GPS location 10396 (Frame 1467; 04/14/17).

Photo 552. View of very disturbed historical cypress habitat with minimal pine and cypress canopy and very dense shrubs and briers as seen at GPS location 10396 (Frame 1468; 04/14/17).

Photo 553. View of very disturbed historical cypress habitat with minimal pine and cypress canopy and very dense shrubs and briers as seen at GPS location 10396 (Frame 1469; 04/14/17).

Photo 554. View of forest road located in area of GPS location 7235 (Frame 1489; 04/18/17).

Photo 555. View of excavated ditch located at GPS location 10407 (Frame 592; 04/18/17).

Photo 556. View of excavated ditch located at GPS location 10407 (Frame 593; 04/18/17).






Photo 557. Views of logged Cypress-Mixed Hardwood-Bay Swamp community showing marsh creation within larger skidder tracts and dense shrub understory regeneration in areas where surface was not disturbed (GPS locations 10445–10447; 04/18/17).

Photo 558. View of Mixed Hardwood Swamp as seen at GPS location 10482 (Frame 603; 04/18/17).

Photo 559. View of Mixed Hardwood Swamp as seen at GPS location 10482 (Frame 604; 04/18/17).

Photo 560. View of Mixed Hardwood Swamp as seen at GPS location 10482 (Frame 605; 04/18/17).

Photo 561. View of swamp laurel oak (*Quercus laurifolia*) Hydric Hammock habitat as seen at GPS location 10484 (Frame 1484; 04/18/17).

Photo 562. View of Hydric Hammock community as seen at GPS location 10489 (Frames 1485-1486; 04/18/17).

Photo 563. View of ironwood (*Carpinus caroliniana*) dominated Hydric Hammock habitat as seen at GPS location 10490 (Frame 1487; 04/18/17).

Photo 564. View of Hydric Planted Pine and Bay-dominated Flatwoods as seen at GPS location 10614 (Frame 1556; 05/01/17).

Photo 565. Panoramic view of deep water area within central area of Cypress Wetland as seen at GPS location 10657 (Frames 1557–1558; 05/01/17).

Photo 566. View of Cypress-Mixed Hardwood-Bay Swamp as seen at GPS location 10655 (Frame 1559; 05/01/17).

Photo 567. View of Cypress-Mixed Hardwood-Bay Swamp as seen at GPS location 10655 (Frame 1560; 05/01/17).

Photo 568. View of Hydric Planted Pine Flatwood habitat as seen at GPS location 10674 (Frame 1561; 05/01/17).

Photo 569. View of logged wetland area showing regeneration of dense shrub cover at GPS location 10699 (Frame 1562; 05/01/17).

Photo 570. View of Hydric Planted Pine Flatwoods community at GPS location 10699 (Frame 1563; 05/01/17).

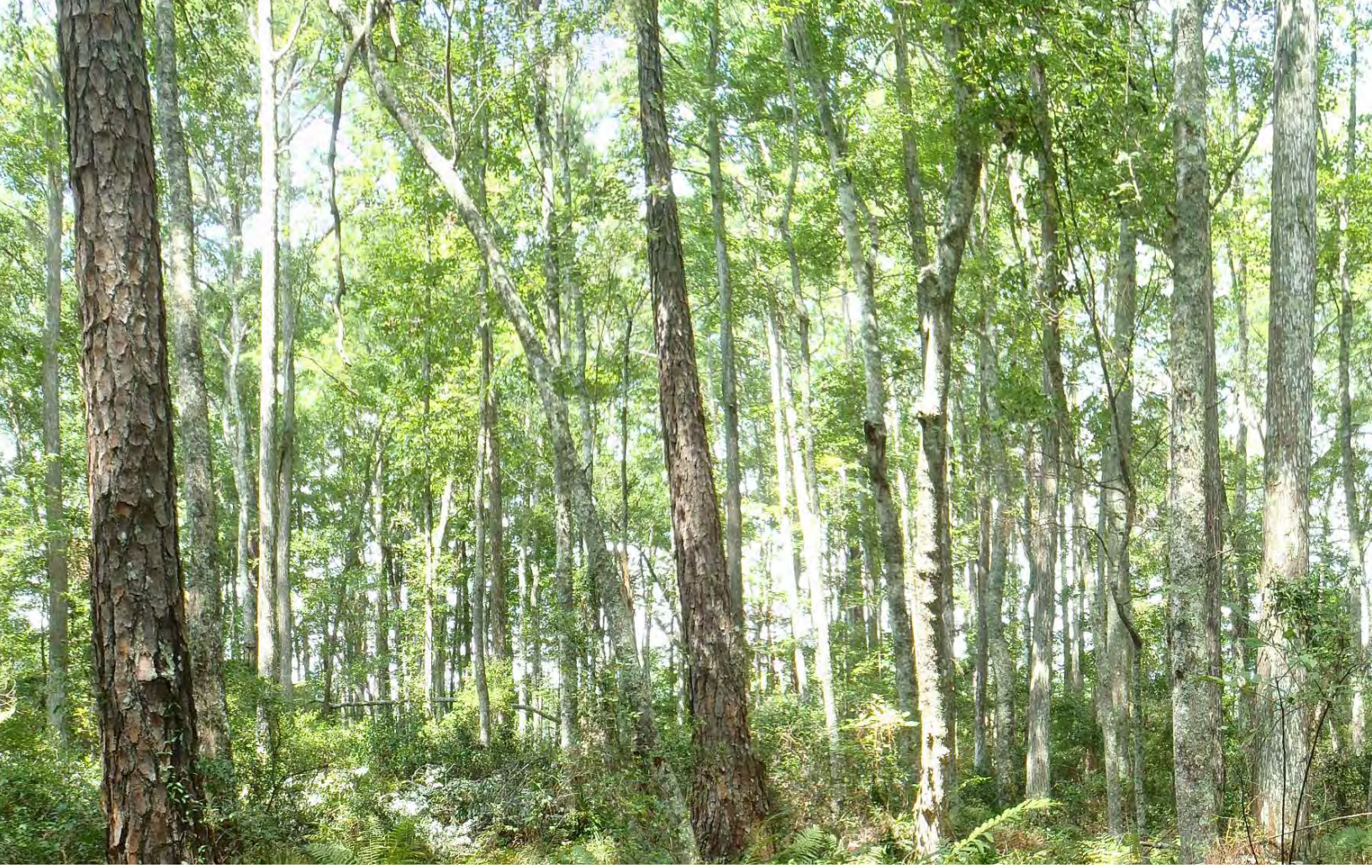
Photo 571. View of Hydric Planted Pine Flatwoods community at GPS location 10699 (Frame 1564; 05/01/17).

Photo 572. View of Mesic Plant Pine Flatwoods community as seen at GPS location 10737 (Frame 1566; 05/01/17).

Photo 573. View of Mesic Plant Pine Flatwoods community as seen at GPS location 10741 (Frame 1567; 05/01/17).

Photo 574. View of logged Cypress and Mixed Hardwood Wetland located at GPS location 10766 (Frame 1568; 05/01/17).

Photo 575. View of logged Cypress and Mixed Hardwood Wetland located at GPS location 10766 (Frame 1569; 05/01/17).



Natural Area Resource Assessment
Gainesville 121 Project Site

Wallace, P. M., R. A. Garren, and J. C. Carter. 2017. Natural Area Resource Assessment of the Gainesville 121 Project Site. Prepared for Weyerhaeuser NR Company in support of a current application for Planned Development. Ecosystem Research Corporation, Gainesville, FL. 550 pp.