

From: [Hall, Danielle](#)
To: [Seiler, Ann](#); [SCO](#)
Subject: RE: ftp for Application Submittal
Date: Monday, March 7, 2022 1:57:07 PM

EXTERNAL MESSAGE

This email originated outside of DEP. Please use caution when opening attachments, clicking links, or responding to this email.

Ann,

Thank you for the ftp. I have uploaded the Cultural Resources Assessment Survey (CRAS) Addendum for the FPL Miami-Dade Clean Water Recovery Center Project. The original CRAS was submitted with the Site Certification Application, but it did not include the portion of the project within Biscayne National Park (BNP) as the archeological investigation permit required to perform the survey within BNP was pending. DHR responded on October 4, 2021 providing concurrence that the project will have no adverse effect to historic properties listed or eligible for listing on the National Register of Historic Places. This addendum completes the required cultural resource assessments for the FPL Miami-Dade Clean Water Recovery Center Project.

Thanks,

Danielle Hall, P.E.

Environmental Services Manager



700 Universe Blvd.
Juno Beach, FL 33408
Office 561-691-2406
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From: Seiler, Ann <Ann.Seiler@FloridaDEP.gov>
Sent: Monday, March 07, 2022 1:25 PM
To: Hall, Danielle <Danielle.Hall@fpl.com>
Subject: RE: ftp for Application Submittal

Hey Danielle.

Here you go Danielle.

<https://ftpportal.dep.state.fl.us/public/folder/93kDvtj56EGldiQvH-U1Pg/FPL>

Password is Siting

Thanks,

**Ann Seiler**

Florida Department of Environmental Protection
DARM/Siting Coordination Office
Environmental Consultant
ann.seiler@FloridaDEP.gov
Office: 850-717-9113
Cell: 850-228-6237

From: Hall, Danielle <Danielle.Hall@fpl.com>

Sent: Monday, March 7, 2022 1:19 PM

To: Seiler, Ann <Ann.Seiler@FloridaDEP.gov>

Subject: ftp for Application Submittal

EXTERNAL MESSAGE

This email originated outside of DEP. Please use caution when opening attachments, clicking links, or responding to this email.

Hi Ann,

Can you please provide us with your ftp for large file transfers? I'm preparing to submit the Cultural Resource Survey Report Addendum for the FPL Miami-Dade Clean Water Recovery Center Project.

Thank you,

Danielle Hall, P.E.

Environmental Services Manager



700 Universe Blvd.

Juno Beach, FL 33408

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Danielle.Hall@fpl.com

Dep Customer Survey





March 7, 2022

Ms. Cindy Mulkey
Office of Siting Coordination
Florida Department of Environmental Protection
2600 Blair Stone Road MS 5500
Tallahassee, FL 32399-2400

**RE: Florida Power & Light Company
Turkey Point Clean Energy Center (PA 03-45G)
FPL Miami-Dade Clean Water Recovery Center
Cultural Resources Assessment Survey (CRAS) Addendum for Biscayne National Park
(DHR Project File No.: 2021-5352)**

Ms. Mulkey:

Florida Power & Light Company (FPL) submits this Cultural Resources Assessment Survey (CRAS) Addendum for the FPL Miami-Dade Clean Water Recovery Center Project. The original CRAS was submitted with the Site Certification Application, but it did not include the portion of the project within Biscayne National Park (BNP) as the archeological investigation permit required to perform the survey within BNP was pending. DHR responded on October 4, 2021 providing concurrence that the project will have no adverse effect to historic properties listed or eligible for listing on the National Register of Historic Places. This addendum completes the required cultural resource assessments for the FPL Miami-Dade Clean Water Recovery Center Project.

Due to the file size of the report and supporting documentation, FPL has submitted via the petition electronically. Should you have any questions please do not hesitate to call me at 561-691-2406.

Sincerely,

A handwritten signature in blue ink, reading 'Danielle Hall', is written over a light blue horizontal line.

Danielle L. Hall P.E.
Environmental Services Manager

CC: Karl Bullock – Golder Associates

Ent D (FMSF only) _____



Survey Log Sheet

Florida Master Site File
Version 5.0 3/19

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Manuscript Information

Survey Project (name and project phase)

CRAS Addendum, Archaeological Survey of the Segment of the FPL Miami-Dade Clean Water Recovery Center (CWRC) Waterline within BISC

Report Title (exactly as on title page)

FPL Miami-Dade CWRC Project, CRAS Addendum: Archaeological Pedestrian Survey of the Segment of the FPL Miami-Dade Clean Water Recovery Center Waterline Within Biscayne National Park, Miami-Dade County, Florida, ARPA Permit BISC 2022-01

Report Authors (as on title page)

1. Janus Research 3. _____
2. _____ 4. _____

Publication Year 2022Number of Pages in Report (do not include site forms) 31

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)

Janus Research, 1107 N. Ward Street, Tampa FL 33607

Supervisors of Fieldwork (even if same as author) Names Kathleen S. HoffmanAffiliation of Fieldworkers: Organization Janus Research City Tampa

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. Clean 3. Recovery 5. Turkey Point 7. Energy
2. Water 4. Waterline 6. Biscayne 8. Center

Survey Sponsors (corporation, government unit, organization, or person funding fieldwork)

Clear Sponsor Values

Name Florida Power & Light Organization _____Address/Phone/E-mail 700 Universe Boulevard, Juno Beach FL 33408Recorder of Log Sheet Janus Research Date Log Sheet Completed 1-19-2022Is this survey or project a continuation of a previous project? ☐ No ☒ Yes: Previous survey #s (FMSF only) _____

Project Area Mapping

Clear Mapping Values

Counties (select every county in which field survey was done; attach additional sheet if necessary)

1. Dade 3. _____ 5. _____
2. _____ 4. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name ARSENICKER KEYS Year 1969 4. Name _____ Year _____
2. Name _____ Year _____ 5. Name _____ Year _____
3. Name _____ Year _____ 6. Name _____ Year _____

Field Dates and Project Area Description

Fieldwork Dates: Start 1-14-2022 End 1-14-2022 Total Area Surveyed (fill in one) _____ hectares 68.70 acresNumber of Distinct Tracts or Areas Surveyed 1If Corridor (fill in one for each) Width: 19 meters _____ feet Length: _____ kilometers 0.29 miles

Research and Field Methods

Types of Survey (select all that apply): ☒ archaeological ☐ architectural ☐ historical/archival ☐ underwater
☐ damage assessment ☐ monitoring report ☐ other(describe): _____

Scope/Intensity/Procedures

The pedestrian survey consisted of a visual inspection to examine the ground surface for artifacts and/or archaeological features. No ground disturbance took place during the survey.

Preliminary Methods (select as many as apply to the project as a whole)

☐ Florida Archives (Gray Building) ☐ library research- *local public* ☐ local property or tax records ☒ other historic maps ☒ LIDAR
☐ Florida Photo Archives (Gray Building) ☐ library-special collection ☐ newspaper files ☒ soils maps or data ☐ other remote sensing
☒ Site File property search ☐ Public Lands Survey (maps at DEP) ☒ literature search ☐ windshield survey
☒ Site File survey search ☐ local informant(s) ☐ Sanborn Insurance maps ☒ aerial photography
☒ other (describe): Janus Library

Archaeological Methods (select as many as apply to the project as a whole)

☐ Check here if **NO** archaeological methods were used.
☐ surface collection, controlled ☐ shovel test-other screen size ☐ block excavation (at least 2x2 m) ☐ metal detector
☐ surface collection, uncontrolled ☐ water screen ☐ soil resistivity ☐ other remote sensing
☐ shovel test-1/4" screen ☐ posthole tests ☐ magnetometer ☒ pedestrian survey
☐ shovel test-1/8" screen ☐ auger tests ☐ side scan sonar ☐ unknown
☐ shovel test 1/16" screen ☐ coring ☐ ground penetrating radar (GPR)
☐ shovel test-unscreened ☐ test excavation (at least 1x2 m) ☐ LIDAR
☒ other (describe): Desktop Analysis

Historical/Architectural Methods (select as many as apply to the project as a whole)

☒ Check here if **NO** historical/architectural methods were used.
☐ building permits ☐ demolition permits ☐ neighbor interview ☐ subdivision maps
☐ commercial permits ☐ windshield survey ☐ occupant interview ☐ tax records
☐ interior documentation ☐ local property records ☐ occupation permits ☐ unknown
☐ other (describe): _____

Survey Results

Resource Significance Evaluated? ☐ Yes ☒ No [Clear Check Boxes](#)

Count of Previously Recorded Resources 0 Count of Newly Recorded Resources 0

List Previously Recorded Site ID#s with Site File Forms Completed (attach additional pages if necessary)

List Newly Recorded Site ID#s (attach additional pages if necessary)

Site Forms Used: ☐ Site File Paper Forms ☒ Site File PDF Forms

REQUIRED: Attach Map of Survey or Project Area Boundary

SHPO USE ONLY

SHPO USE ONLY

SHPO USE ONLY

Origin of Report: ☐ 872 ☐ Public Lands ☐ UW ☐ 1A32 # _____ ☐ Academic ☐ Contract ☐ Avocational
☐ Grant Project # _____ ☐ Compliance Review: CRAT # _____
Type of Document: ☐ Archaeological Survey ☐ Historical/Architectural Survey ☐ Marine Survey ☐ Cell Tower CRAS ☐ Monitoring Report
☐ Overview ☐ Excavation Report ☐ Multi-Site Excavation Report ☐ Structure Detailed Report ☐ Library, Hist. or Archival Doc
☐ Desktop Analysis ☐ MPS ☐ MRA ☐ TG ☐ Other: _____
Document Destination: Plottable Projects Plotability: _____ 

**FLORIDA POWER & LIGHT COMPANY
MIAMI-DADE CLEAN WATER RECOVERY CENTER PROJECT**

**CULTURAL RESOURCES ASSESSMENT SURVEY ADDENDUM:
ARCHAEOLOGICAL PEDESTRIAN SURVEY OF THE SEGMENT OF THE FPL
MIAMI-DADE CLEAN WATER RECOVERY CENTER WATERLINE WITHIN
BISCAYNE NATIONAL PARK, MIAMI-DADE COUNTY, FLORIDA**

ARPA PERMIT BISC 2022-01

Prepared for:

Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

Prepared by:

Janus Research
1107 N. Ward Street
Tampa, Florida 33607

March 2022

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Appendix B: 2021 CRAS of the FPL Miami-Dade CWRC Project
Appendix C: October 2021 Unanticipated Discoveries Plan for the Segment of the FPL MD
CWRC Reclaimed Waterline Intersecting BISC in Miami-Dade County
Appendix D: Existing Conditions Within the Project APE Noted on an Aerial Photograph
Appendix E: Survey Log

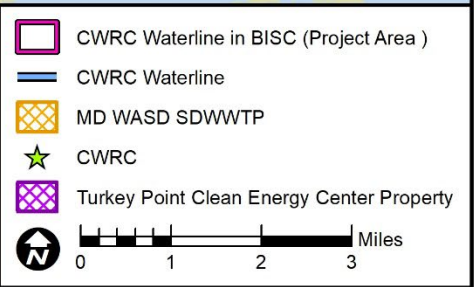
INTRODUCTION

On behalf of Florida Power & Light Company (FPL), Janus Research conducted an archaeological pedestrian survey of a segment of the proposed FPL Miami-Dade Clean Water Recovery Center (CWRC) Waterline route within Biscayne National Park (BISC) (Figure 1). The objective of the archaeological pedestrian survey was to identify archaeological sites within the project area of potential effect (APE) and to assess their significance in terms of eligibility for listing in the *National Register of Historic Places* (National Register) according to the criteria set forth in 36 CFR Section 60.4.

A Cultural Resources Assessment Survey (CRAS), which included both an archaeological and historic resources survey of the Miami-Dade CWRC Waterline project outside of BISC, was completed in 2021 (Janus Research 2021; Florida Division of Historical Resources [DHR] Project File No.: 2021-5352). The current archaeological pedestrian survey within BISC and this report represent an addendum to the previous archaeological survey and the resultant report. In a letter dated October 4, 2021, the Florida State Historic Preservation Officer (SHPO) concurred with the results of the CRAS report and the United States (U.S.) Army Corps of Engineers (USACE) determination of no adverse effect to historic properties (Appendix A). The 2021 report included background research regarding the cultural and historic contexts of the general project area, including the APE within BISC, as well as the general environmental setting of the surrounding area. As this information is available for reference in the *Cultural Resources Assessment Survey of the FPL Miami-Dade Clean Water Recovery Center Project, Miami-Dade County, Florida* (Janus Research 2021), a copy of which is included with the submittal of this report (Appendix B), this information is not repeated in the current document.

This addendum was conducted in support of the *FPL Miami-Dade Clean Water Recovery Center Florida Power & Light Company Petition for Modification of Turkey Point Unit 5 PA 03-45 Conditions of Certification* in consideration of Florida's Power Plant Siting Act (PPSA), Chapter 403, Part II, *Florida Statutes (F.S.)*. It was also conducted in support of a USACE Section 404 Permit and pursuant to Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 – *Protection of Historic Properties* (incorporating amendments effective August 5, 2004).

The pedestrian survey within BISC was conducted on January 14, 2022, pursuant to a U.S. Department of the Interior Permit for Archeological Investigations (BISC 2022-01) under the authority of the *Archaeological Resources Protection Act of 1979* (16 U.S.C. 470aa-mm) and its regulations (43 CFR 7). It was also conducted with respect to the revised Chapter 267, *F.S.*; the standards embodied in the FDHR's *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), Florida Administrative Code. Both the Principal Investigator, Kathleen S. Hoffman, Ph.D. and the Field Director, Clifford Jenks, M.A. meet the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716) for archaeology.



As a result of the pedestrian survey, no archaeological sites or archaeological occurrences were identified within the project APE, which was determined to exhibit low archaeological site potential. No additional archaeological survey is recommended within the BISC APE. FPL will conduct archaeological monitoring during trenching operations within BISC, which is currently scheduled to begin in 2023. At least 120 days prior to the start of these activities, FPL will submit an ARPA permit application specific to the monitoring. FPL will also coordinate with the National Park Service (NPS) to determine whether revisions to the October 2021 *Unanticipated Discoveries Plan, Segment of the FPL Miami-Dade CWRC Reclaimed Waterline Intersecting Biscayne National Park* are warranted (Appendix C).

Project Description

FPL, in partnership with Miami-Dade County, is developing an advanced reclaimed water treatment facility. The CWRC will further treat up to 15 million gallons per day of reclaimed water from the Miami-Dade County Water and Sewer Department's (MD WASD) South District Wastewater Treatment Plant (SDWWTP) for use at the Turkey Point Clean Energy Center Unit 5 for cooling purposes. The CWRC Project (Project) will consist of the advanced treatment facility located at the CWRC and an associated waterline corridor that will deliver the treated reclaimed water to the CWRC for further treatment prior to use in Unit 5 cooling towers.

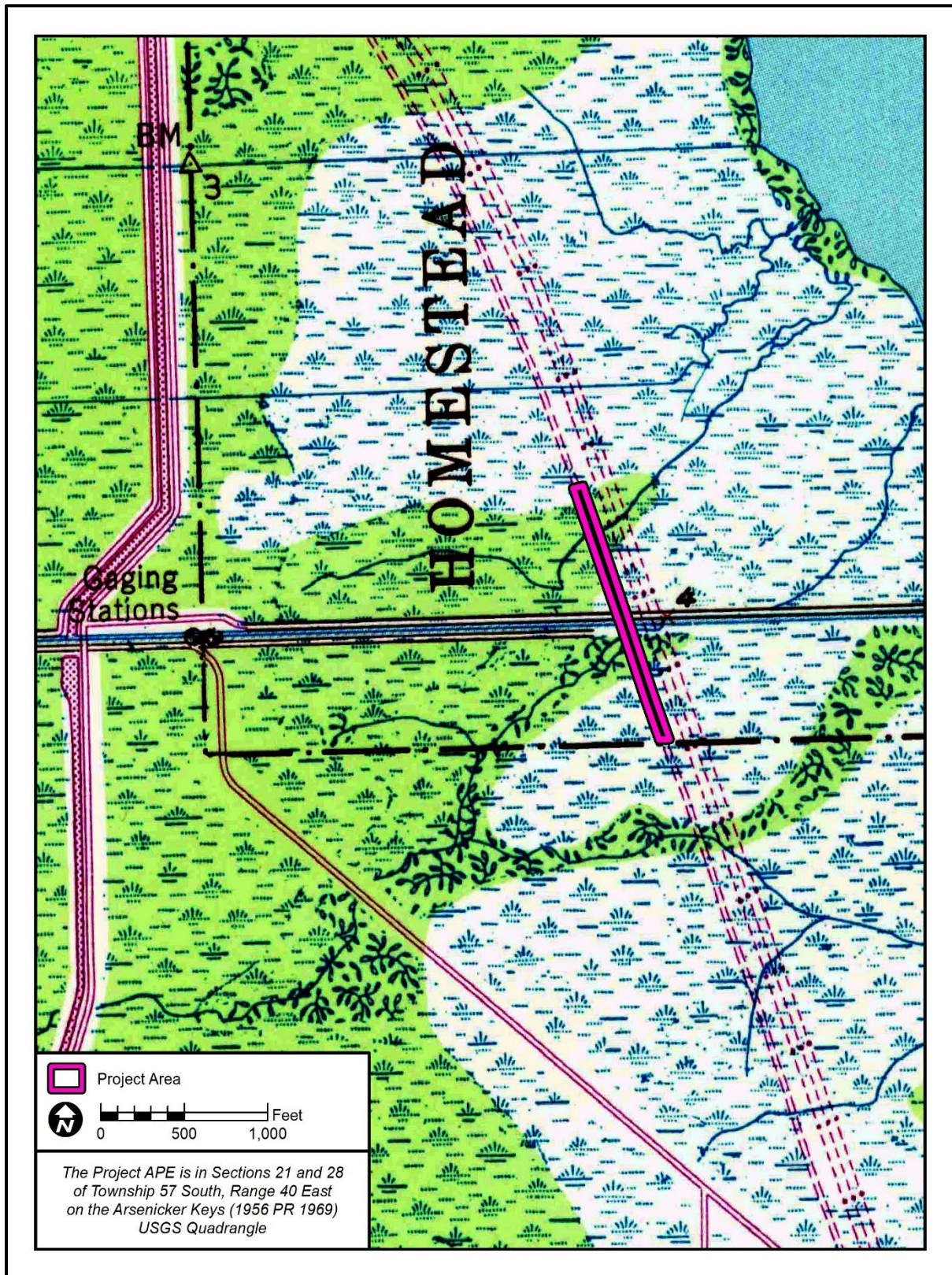
The CWRC Waterline corridor from the Miami-Dade County wastewater treatment system will originate from the MD WASD SDWWTP and end at the CWRC located on the FPL Turkey Point Clean Energy Center Property (Figure 1). The CWRC Waterline, which is approximately eight miles in length will consist of one 42-inch pipe installed below ground level the entire length. The CWRC Waterline corridor has an average width of approximately 60 feet. The segment within BISC is proposed to be installed within the existing FPL transmission line patrol road. The CWRC Waterline corridor will also include communication conduits that will be installed parallel to the waterline. The communication conduits will allow the installation of Supervisory Control and Data Acquisition (SCADA) and/or telephone between the SDWWTP and the CWRC

The portion of the CWRC Waterline corridor within BISC is approximately 0.29 miles in length and 60 feet in width (approximately 2.1 acres [8,506 square meters]). The waterline will be installed below the current grade using excavation and backfill techniques and or HDD methods. Within BISC, the waterline will be installed within an existing FPL easement containing a transmission line patrol road that has approximately 2 to 4 feet of fill over the natural muck. Geotechnical borings indicate the depth of the muck is approximately 7 feet below grade and underlain by limestone. Based on this, excavation of the waterline trench will extend through the muck to the limestone base. Temporary workspace will also be needed.

Project Location

The segment of the CWRC Waterline within BISC is in Sections 21 and 28 of Township 57 South, Range 40 East, on the Arsenicker Keys (1956 Photorevised [PR] 1969) U.S. Geological Survey (USGS) quadrangle map (Figure 2). The Federal lands associated with this permit application consist of a small corridor of land within BISC in Miami-Dade County, Florida. The national park is managed by the U.S. Department of the Interior, NPS. The corridor traversing Federal lands is approximately 0.29 miles (471 meters) long and 60 feet (18.5 meters) wide resulting in an area of approximately 2.1 acres (8,506 square meters). Approximate UTM coordinates (World Geodetic System 1984 [WGS 1984]) for the corners bounding the corridor are as follows:

- Northwest Corner
 - Range 17, 566308m E, 2814993m N
- Northeast Corner
 - Range 17, 566327m E, 2814997m N
- Southwest Corner
 - Range 17, 566455m E, 2814549m N
- Southeast Corner
 - Range 17, 566474m E, 2814549m N



AREA OF POTENTIAL EFFECT

According to 36 CFR 800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking considers the improvements that will be implemented as part of the proposed project and the extent of potential ground disturbance as well as the setting and character of the project area. For archaeological resources, the APE typically focuses on identifying and evaluating cultural resources within the geographic limits of the proposed action and its associated ground disturbing activities. Based on the proposed activities and the character of the surrounding area, the APE for this project includes the footprint of the existing transmission line access road and the adjacent temporary workspace within BISC, as shown in Figure 3.



Figure 3: Archaeological APE Within BISC

PHYSICAL ENVIRONMENT OF THE PROJECT AREA

Information relevant to the physical environment associated with the APE within BISC was reviewed to understand environmental changes within the APE over time and help determine archaeological potential.

General Land Office Records

A review of the General Land Office (GLO) historic plat map (Florida Department of Environmental Protection [FDEP] 1925) was conducted to examine past environmental conditions within the APE prior to development. No environmental information was included for the APE on the 1925 GLO historic plat map (Figure 4), which focused on submerged lands along the coast. No surveyor's notes were available for the APE.

USGS Quadrangle Maps and Aerial Photographs

The Arsenicker Keys (1949, 1956 PR 1969, and 1997) USGS quadrangle maps, as well as aerial photographs from 1938, 1940, 1944, 1963, 1968, 1978, 1985, and 1991 were reviewed to facilitate an understanding of the change in environment seen within the APE over time.

The 1949 topographic map shows the APE primarily within low, wet, areas of mangroves that are briefly intersected by the Florida City Canal, a roadway (possibly the former extension of Palm Drive), two drainageways, and an area of marsh (Figure 5). An intermittent unimproved roadway allowing access to the transmission line corridor, and large portions of the mangroves are illustrated as marsh, on the Arsenicker Keys (1956 PR 1969) USGS quadrangle map (see Figure 2). The APE remained unchanged on the Arsenicker Keys (1997) USGS quadrangle except for the inclusion of the boundary of the National Park.

A review of aerial photographs between 1938 and the present (FDOT, Office of Surveying and Mapping 1996-2021; University of Florida, George A. Smathers Libraries 2021; Google Earth 2021) determined the APE is low and wet in 1938 and is intersected by the Florida City Canal and its associated spoil berms, as well as two unnamed drainageways. The transmission line corridor and most of the associated access road are visible by 1968. In 2002, major modifications to the Florida City Canal are ongoing, and the access area to the transmission line crosses the canal. The portion of the APE not consisting of filled transmission line access still appears low and wet in 2021. The approximate location of the APE on select aerials from 1938, 1968, 2002, and 2021 is included for reference in Figures 6–9.

Soils

Miami-Dade County soil surveys (USDA 1958, 1996) were reviewed to help determine the drainage characteristics of associated soils., assess the level of modification, and identify natural features within the project APE indicative of increased archaeological site potential.

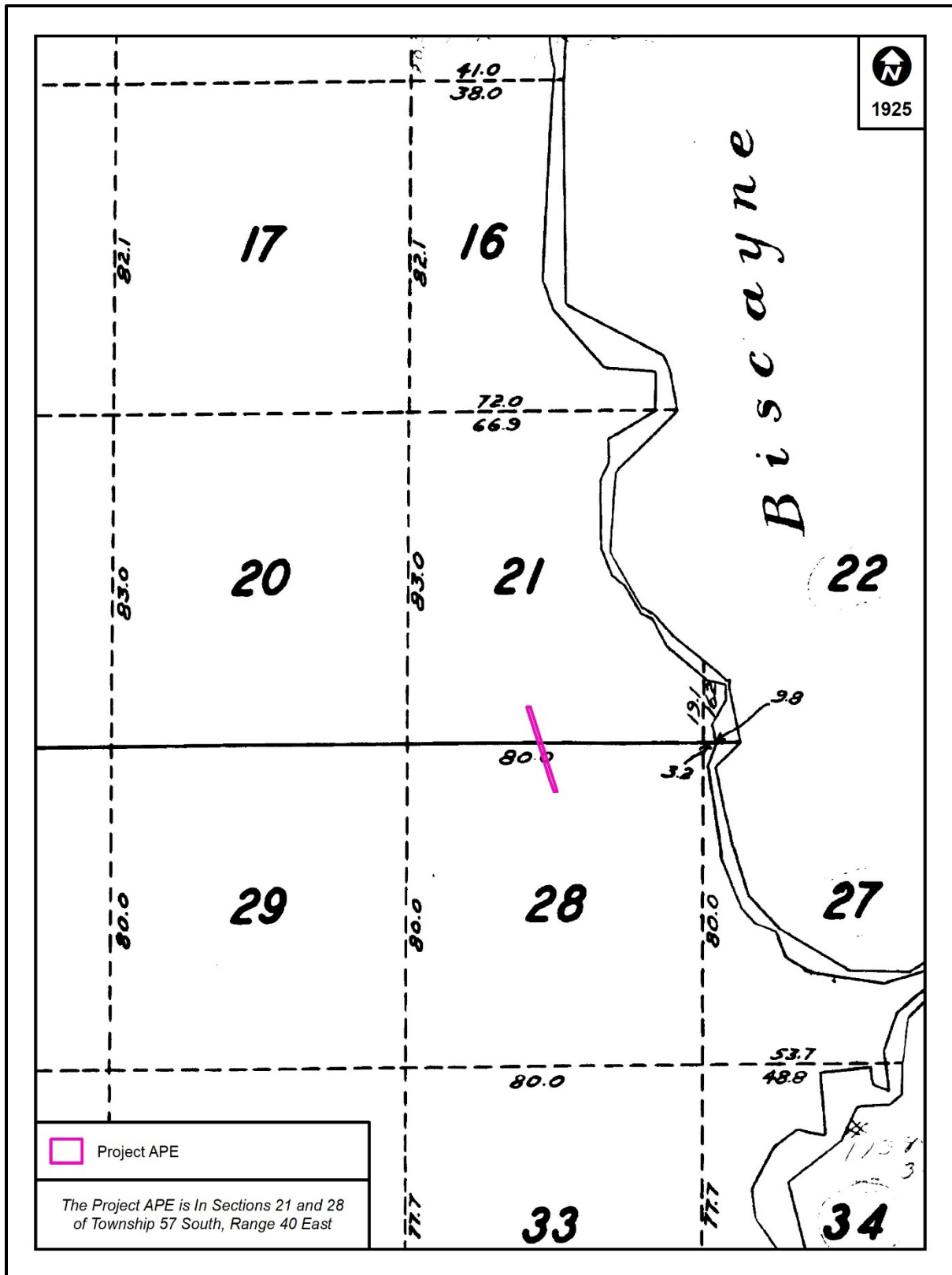


Figure 4: Approximate Location of the Project APE on a 1925 GLO Plat Map

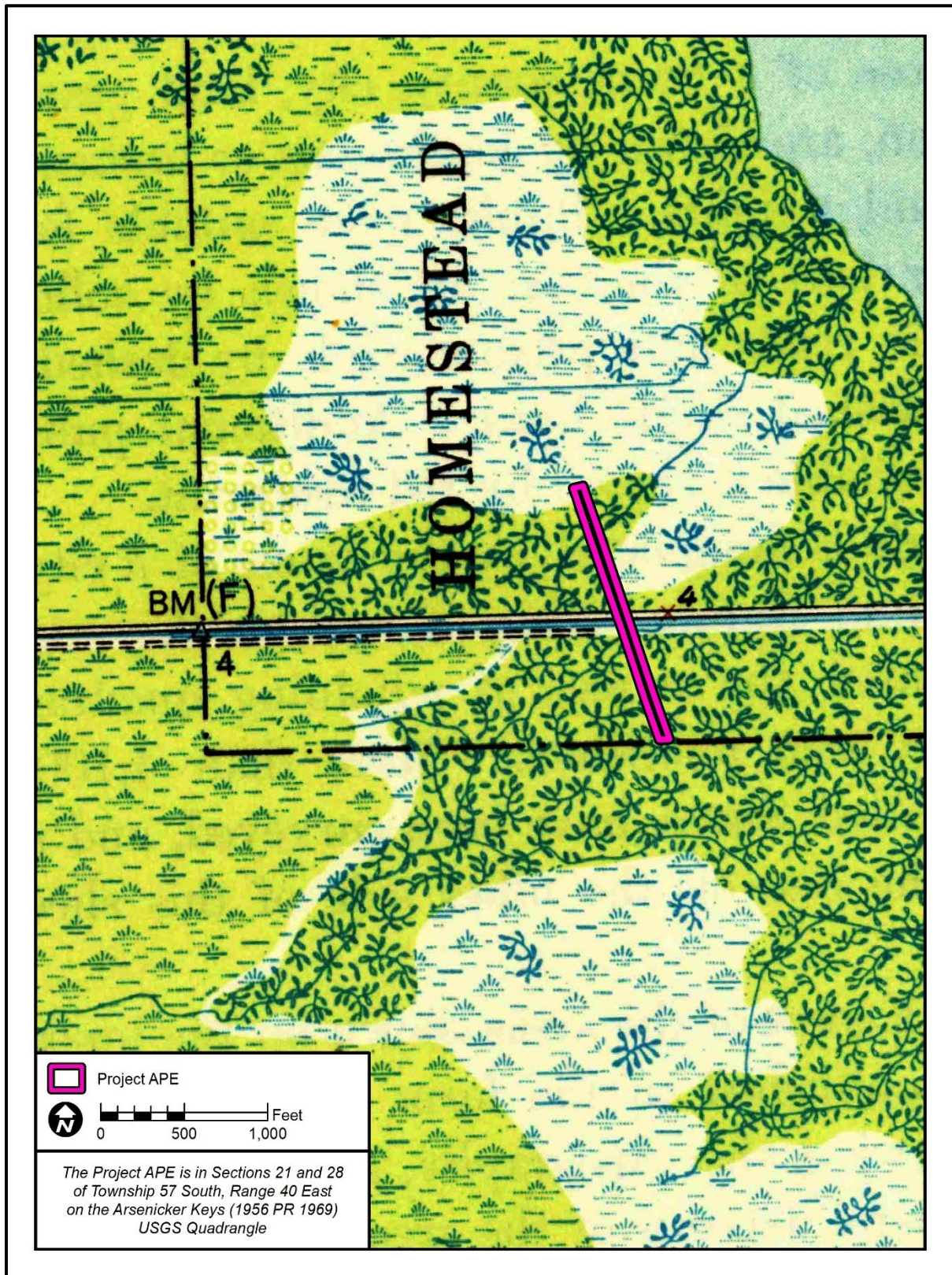


Figure 5: Approximate Location of the Project APE on a 1949 Topographic Map

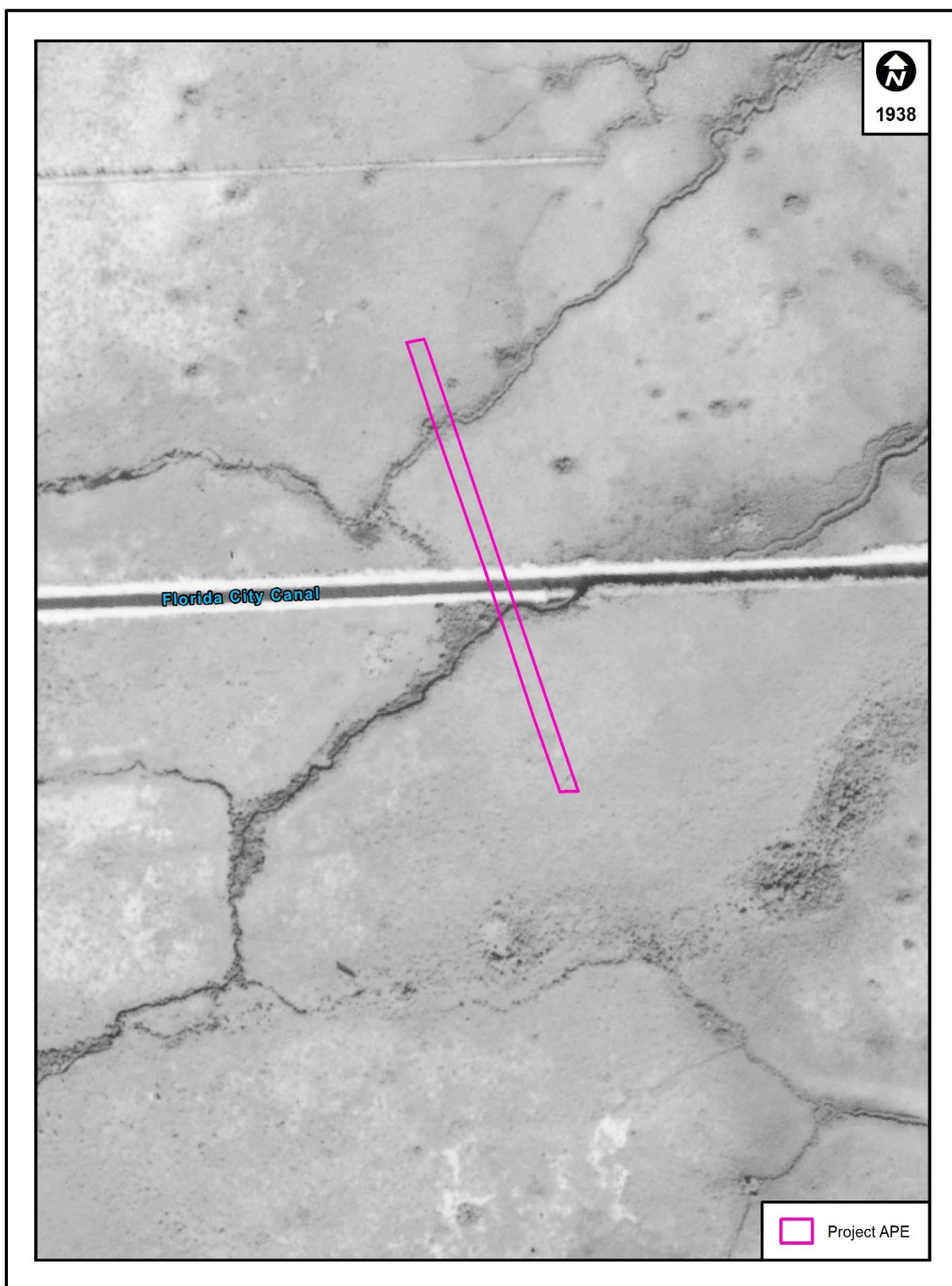


Figure 6: Approximate Location of the Project APE on a 1938 Aerial Photograph

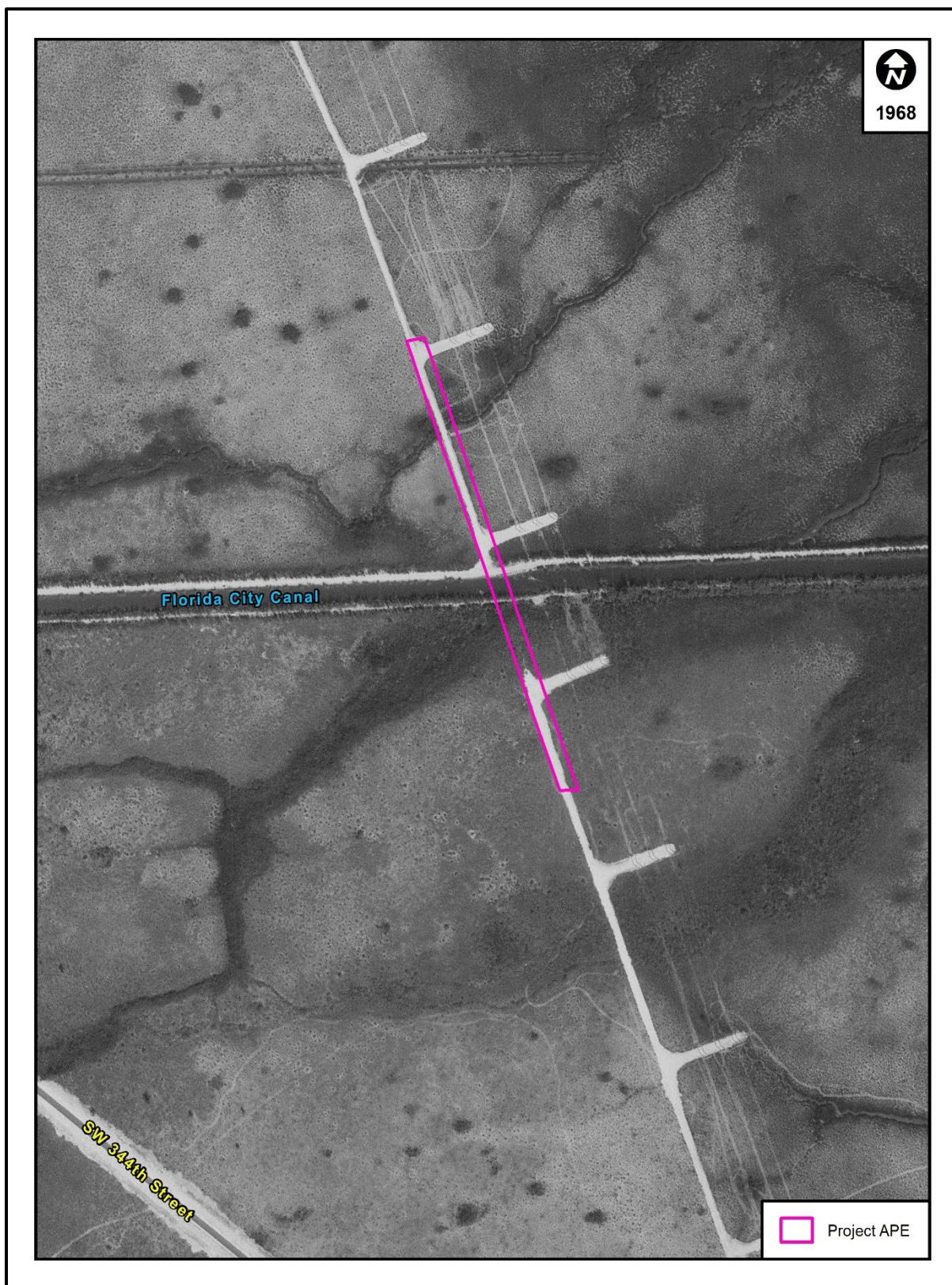


Figure 7: Approximate Location of the Project APE on a 1968 Aerial Photograph



Figure 8: Approximate Location of the Project Area on a 2002 Aerial Photograph



Figure 9: Approximate Location of the Project Area on a-2021 Aerial Photograph

The *Soil Survey (Detailed Reconnaissance), Dade County Florida*, which was primarily conducted in 1947 and published in 1958, identified the associated soil within the APE as Perrine marl, tidal phase detailed soil type (see 'Pg' map unit identified on the soil sheet excerpt in Figure 10), which is associated with mangrove swamps and covered with salt water during high tide (USDA 1958:27). Natural vegetation associated with this detailed soil type included salt-tolerant grasses and mangrove trees. The APE is outside of the limits of 1996 *Soil Survey of Dade County Area, Florida* (USDA 1996).

Elevation

The statewide Digital Elevation Model (DEM) available from the Florida Geographic Data Library (FGDL) notes the approximate elevation within the APE ranges from just below mean sea level (-0.36 feet) to 4.4 feet above mean sea level (Miami-Dade County 2019). The areas closer to 3 or 4 feet above mean sea level appear to be associated with portions of the FPL access road, secondary growth along portions of the access corridor and drainageways, and an area where the access crosses over the southernmost drainageway (Figure 11).

Florida Land Use, Cover, and Forms Classification System (FLUCCS) and National Wetlands Inventory Data

A review of Cooperative Land Cover/FLUCCS data identifies the APE as a combination of utilities, electrical power transmission lines, spoil areas, mangrove swamp, and salt marsh (Florida Fish and Wildlife Conservation Commission [FWC] 2019; University of Florida GeoPlan Center 2019). The identified land cover and FLUCCS codes within the APE are shown in Figures 12 and 13. A review of the National Wetlands Inventory identifies areas outside of the filled access road and modified canal as estuarine wetlands (USFWS 2020; see Figure 14).

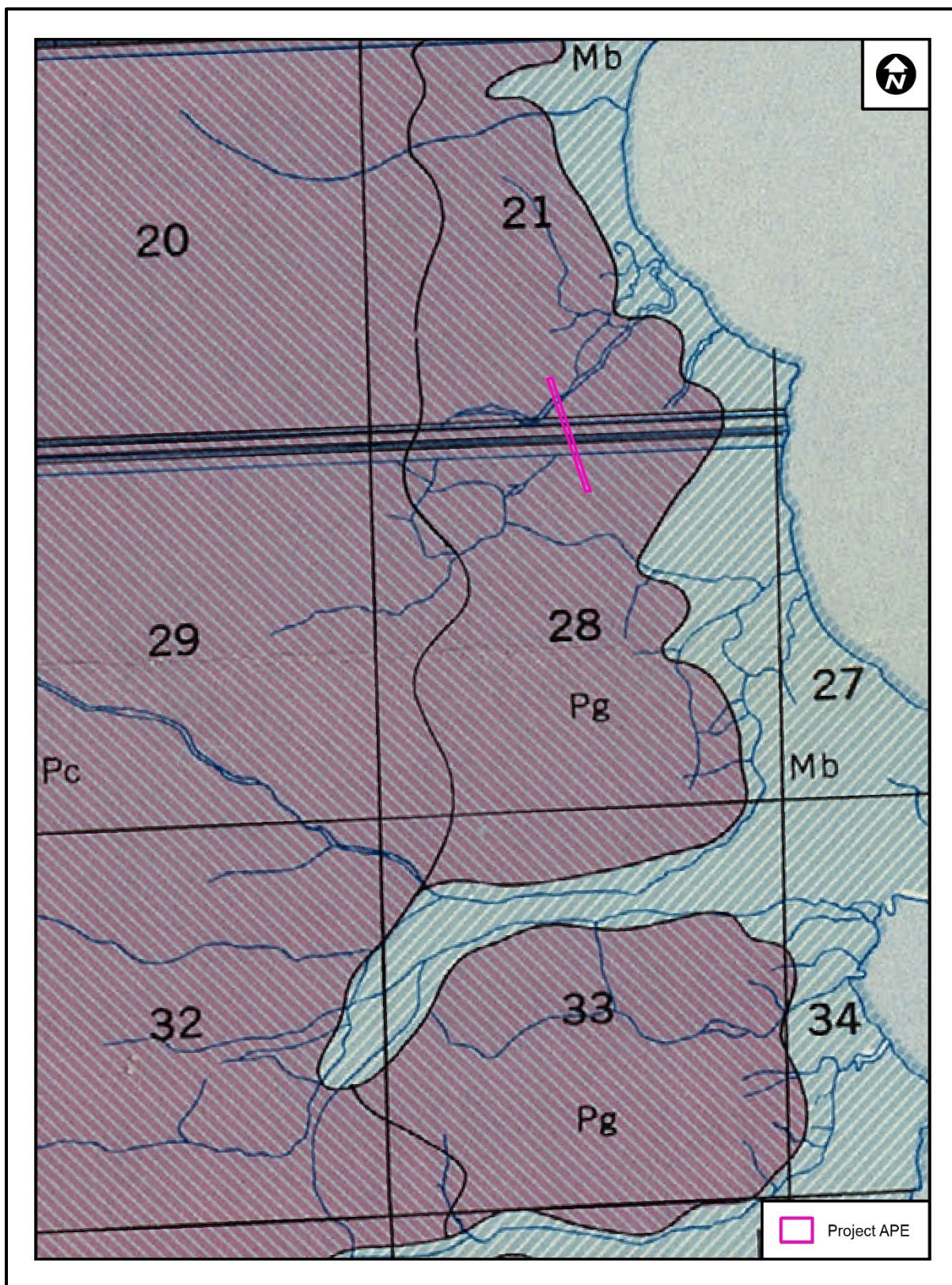


Figure 10: Approximate Location of the Project APE on 1947/1958 Soil Survey Sheet

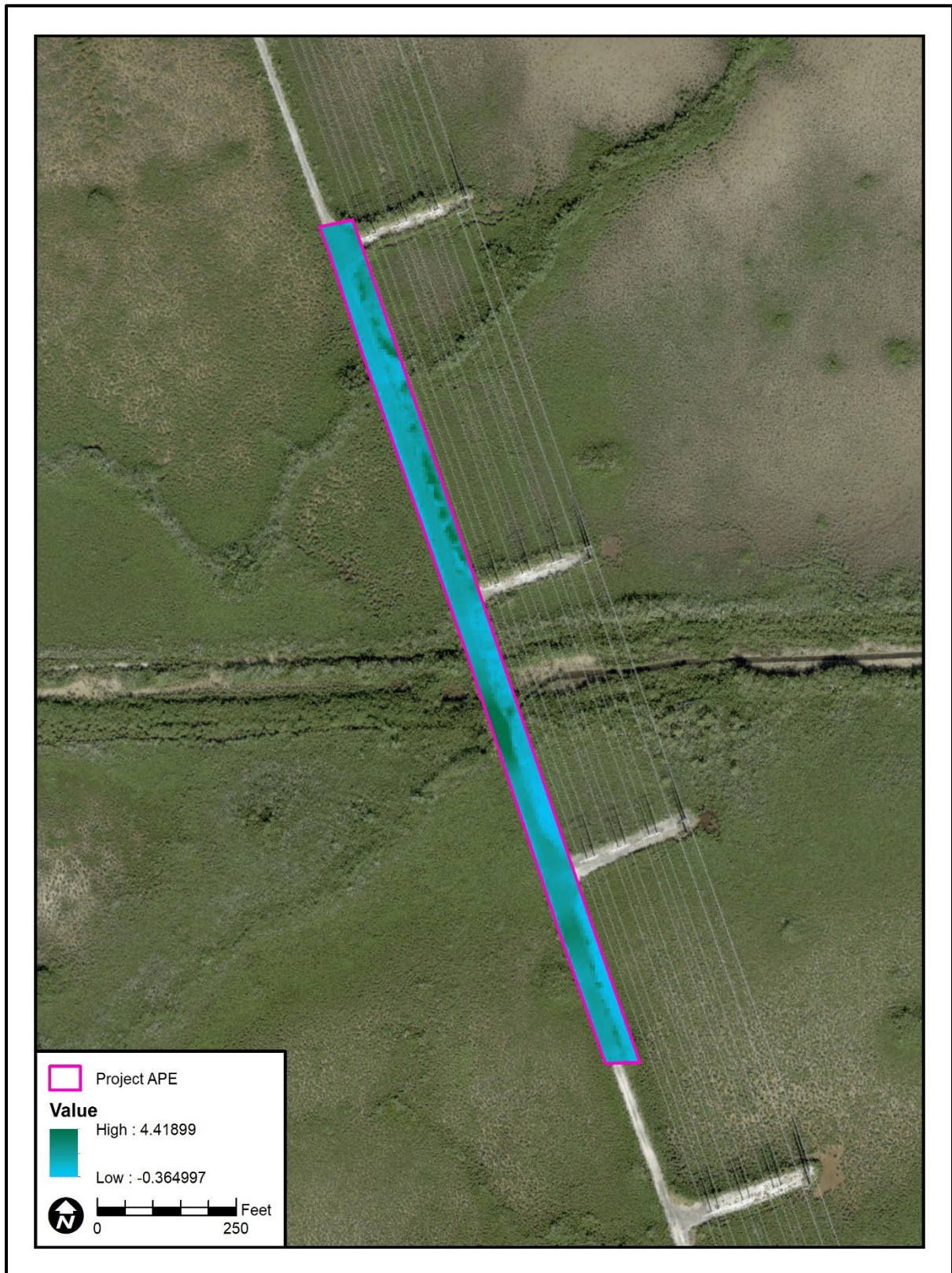


Figure 11: Location of the Project APE on Miami-Dade County DEM

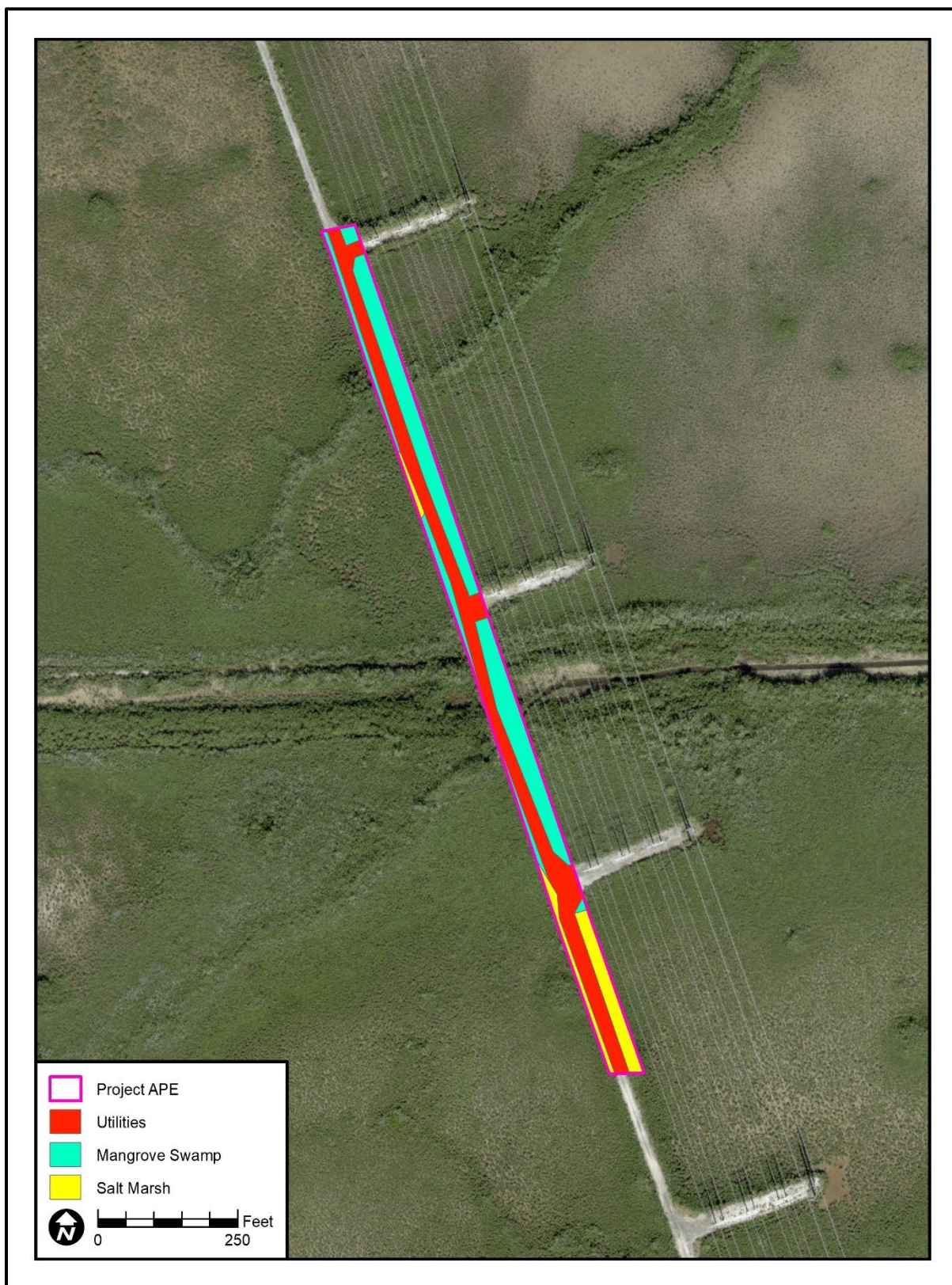


Figure 12: Cooperative Land Cover Classifications Relative to the Project APE

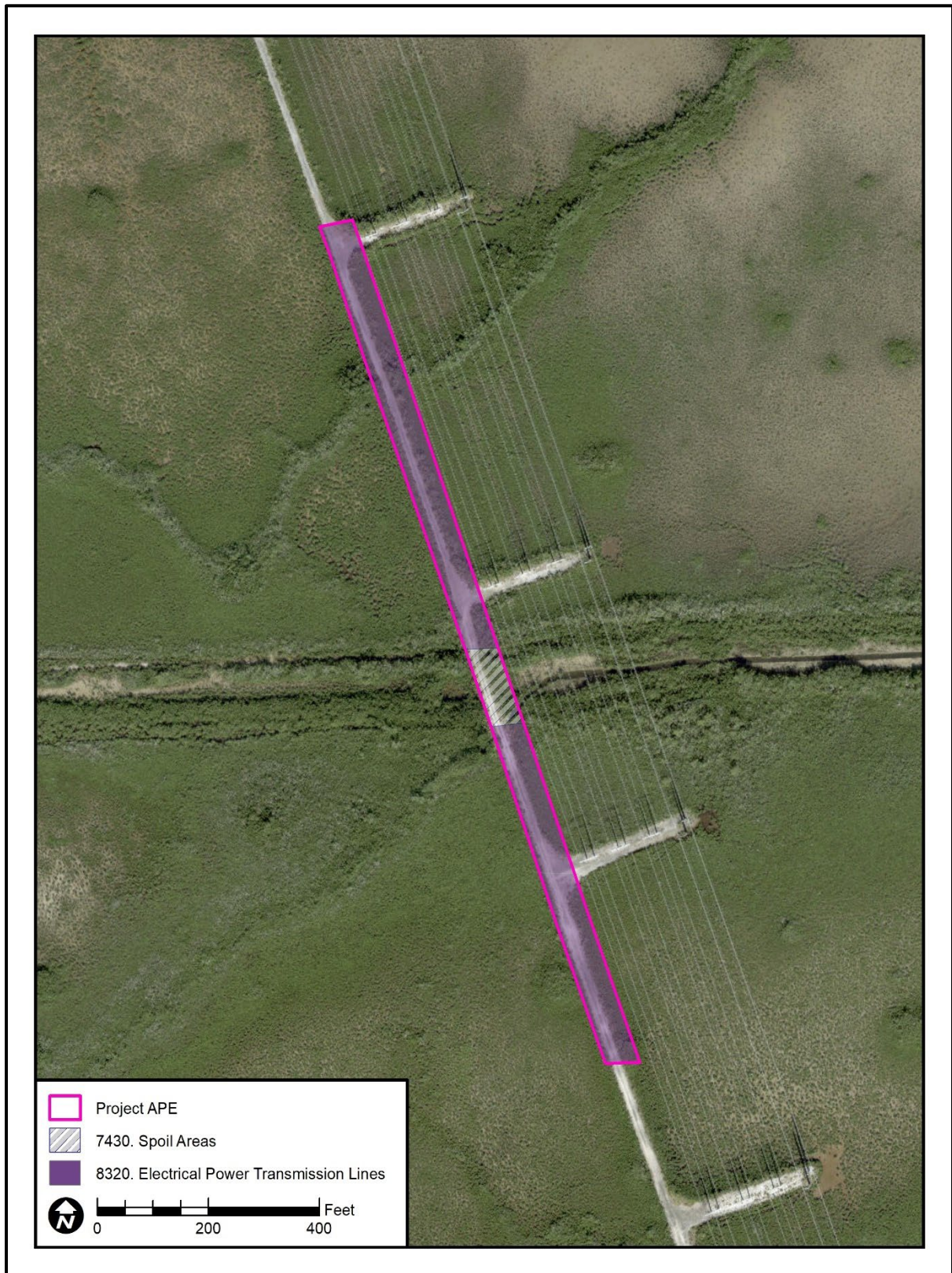


Figure 13: FLUCCS Codes Within the Project APE



Figure 14: National Wetlands Inventory Locations Relative to the Project APE

FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW

An archaeological literature and background information search of the FMSF pertinent to the APE was conducted to determine the types, chronological placement, and location of archaeological sites within the vicinity of the project area. The FMSF identified one previous county-wide survey conducted by the Metropolitan Dade County Office of Community and Economic Development Historic Preservation Division (MDCHPD) between 1978 and 1981. The survey resulted in an interim and a final report, the *Dade County Archaeological Survey Interim Report* completed in 1980 (FMSF Manuscript No. 340) and the *Dade County Historic Survey Final Report* completed in 1981 (FMSF Manuscript No. 602). This survey focused primarily on the developing areas within and surrounding Miami and Kendall and included no survey or assessment of archaeological sites within the boundaries of BISC (MDCHPD 1981:5).

No previously recorded sites were identified within or adjacent to the APE, but the FMSF GIS data indicates the potential for up to 61 archaeological resources (8DA11941–8DA11945, 8DA11947–8DA11958, 8DA11960–8DA11983, 8DA11985–8DA11989, 8DA11995, 8DA11996, 8DA14302–8DA14305, 8DA14308–8DA14312, 8DA14315, and 8DA14317–8DA14319) approximately one mile to the northeast of the APE (Figure 15). As the actual physical locations of these previously recorded archaeological sites have been withheld from the FMSF, it is not possible to determine their exact proximity to the APE. The resources have not been previously evaluated for National Register eligibility by the SHPO and consist of submerged materials ranging from isolated finds to broad scatters primarily related to shipwrecks, strandings, and airplane wrecks. Preliminary coordination with Joshua Marano, Maritime Archaeologist for the NPS, on June 8, 2021, suggested that no known archaeological sites were located within the immediate vicinity of the portion of the current project that traverses BISC.

The archaeological survey conducted for the segments of the waterline corridor (Janus Research 2021) proximate to the portion of the corridor within BISC also found no archaeological sites and confirmed the low archaeological site potential of the area. A search of in-house local data also determined that no Miami-Dade County-designated archaeological sites or zones are located within the vicinity of the project APE

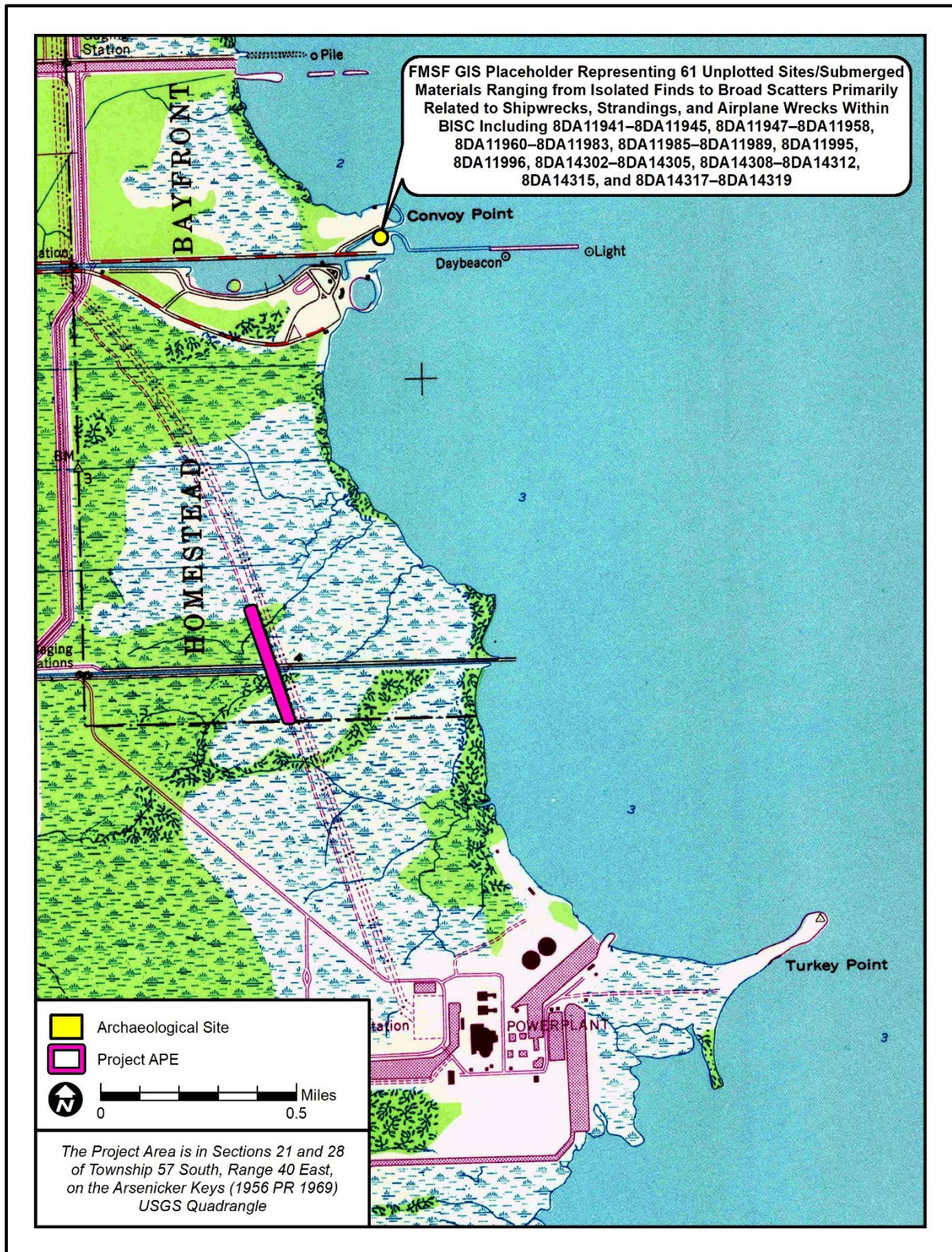


Figure 15: FMSF GIS Placeholder Location Representing the Presence of 61 Submerged Archaeological Resources Within BISC

PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL

Background research and a consideration of pertinent environmental variables, contributed to the formulation of project-specific field methods designed to locate and evaluate previously unrecorded archaeological sites. Zones of archaeological probability were based on the four pertinent environmental variables typically used to predict site potential: distance to fresh water, distance to hardwood hammocks, relative elevation, and soil drainage.

The project APE is within a filled transmission line access road, gravel structure pads, and surrounding areas of mangrove swamp and salt marsh that are flooded with salt water during high tide. No known sources of freshwater are located within or adjacent to the APE. Examination of available topographic mapping and aerial photographs identified no current or former tree islands or hammock vegetation within or adjacent to the project APE. In addition, the review of these maps, and available Miami-Dade County LiDAR data from 2019, identified no topographic rises or areas of increased elevation relative to the surrounding area. Finally, the review of soil survey data indicated that the project APE was within an area of poorly drained marl that is repeatedly inundated during high tides. Based on the low, wet, tidal, and often inundated nature of the APE, the absence of topographic relief, tree islands, and hammock vegetation, and the disturbance associated with the placement of 2 to 4 feet of fill material along the access road and the intersecting gravel fill beds atop the swamp, the project APE was considered to exhibit low archaeological site potential.

METHODS AND RESULTS

The pedestrian survey consisted of a visual inspection of the project APE to examine the ground surface for artifacts and/or archaeological features. No ground disturbance took place during the survey. Photographs were taken and the existing conditions were documented on an aerial map of the APE.

No artifacts or evidence of an archaeological site were identified during the survey. The APE includes a compact gravel FPL service road, which was inundated in many areas, and intersecting gravel transmission structure pads. Mangrove swamp, which was also inundated, comprised that part of the APE adjacent to the service road. Some sea grapes and Brazilian pepper were observed along the edge of the service road. Existing conditions are noted on an aerial photograph in Appendix D and representative photographs of the APE are included in Figures 17–22.

Based on the results of the archaeological pedestrian survey, no additional archaeological survey of the APE is recommended. FPL will conduct archaeological monitoring during trenching operations within BISC and at least 120 days prior to the start of these activities, FPL will submit an ARPA permit application specific to the monitoring. FPL will also coordinate with the NPS to determine whether revisions to the October 2021 *Unanticipated Discoveries Plan, Segment of the FPL Miami-Dade CWRC Reclaimed Waterline Intersecting Biscayne National Park* is warranted (Appendix C).

Janus Research will coordinate with the SEAC GIS Coordinator to help update the NPS Cultural Resource Inventory System (CRIS, formerly known as ASMIS) with the survey data resulting from this investigation. Upon receipt of comments and approval of the revised draft, two bound hard copies of the final report and one unbound will be provided to SEAC and Biscayne National Park. A final copy of the report will be produced and submitted to NPS as well as to the SHPO/FDHR. The submittal will also include a copy of the *Cultural Resources Assessment Survey of the FPL Miami-Dade Clean Water Recovery Center Project, Miami-Dade County, Florida* (Janus Research 2021) completed for the portion of the project outside of BISC. All project materials will be delivered to the NPS at no cost to the government at the conclusion of the project. A Survey Log is included in Appendix E.



Figure 16: Overview of Mangrove Swamp in and Surrounding the APE, Facing Southeast



Figure 17: FPL Gravel Access Road and APE, Facing North



Figure 18: Overview of Southern Portion of APE, Facing Northwest



Figure 19: Overview of the Northern End of APE, Facing East-Northeast



Figure 20: FPL Access Road and Mangrove, Southern Portion of APE, Facing Northwest



Figure 21: Inundated FPL Access Road and Mangrove Swamp, Central Portion of APE, Facing South

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APPENDIX A:

**SHPO CONCURRENCE LETTER FOR 2021 CRAS
(DHR PROJECT NO.: 2021-5352)**



FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

LAUREL M. LEE
Secretary of State

Kelly A. Egan, Project Manager
U.S.A.C.E. Palm Beach Gardens Field Office
4400 PGA Boulevard, Suite 500
Palm Beach Gardens, Florida 33410

October 4, 2021

RE: DHR Project File No.: 2021-5352

Received by DHR: September 3, 2021

Cultural Resources Assessment Survey of the FPL Miami-Dade Clean Water Recovery Center Project

Dear Ms. Egan:

Our office received and reviewed the above referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places* (NRHP). The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*. In June 2021, Janus Research (Janus) conducted the above referenced Phase I cultural resource assessment survey (CRAS) on behalf of Florida Power & Light (FPL). The project is subject to compliance with requirements for Department of the Army permit application SAJ-2004-00813.

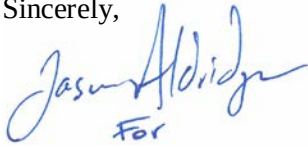
As a result of the CRAS, Janus identified no archaeological sites or archaeological occurrences within the project APE, which was determined to exhibit low archaeological site potential. The historic resources survey did not identify any historic resources within the CWRC APE. Segments of four previously recorded historic resources were identified within the CWRC Waterline corridor APE: the Gould Canal (8DA13149), C-102 (Princeton) Canal (8DA14988/8DA16466), C-103 Mowry Canal (8DA15002), and Florida City Canal (8DA16043). These four canal segments represent a common type of canal constructed during the 20th century and segments outside of the project APE have been previously documented as National Register-ineligible. The segments within the project APE are similar to these previously recorded segments and are thus considered ineligible within the current project APE. Additionally, Janus identified several unrecorded historic drainage canals intersected by the APE associated with the CWRC Waterline corridor. These canals include the L-31E Barrow Canal, the C-1 (Black Creek) Canal, the Military Canal, and North Canal. The unrecorded canals are common drainage canals, like the previously recorded historic resources, and thus are considered ineligible within the project APE. Florida Master Site File (FMSF) forms were not completed for any of the identified canals per FDHR guidance regarding ineligible historic canals (FDHR 2012). Based on the results of this investigation, Janus proposes that no historic properties will be affected within the portions of the Project outside of Biscayne National Park. The Corps reviewed this report and found it complete and the work sufficient. The Corps concurred with Janus' recommendations and finds that the proposed project will have no effect to historic properties and no further work is required.

Ms. Egan
DHR Project File No.: 2021-5352
October 4, 2021
Page 2

Based on the information provided, our office concurs with the presented survey results and recommendations. We concur with the Corps determination of no adverse effect to historic properties listed, or eligible for listing, on the NRHP. Further, we find the submitted report complete and sufficient in accordance with Chapter 1A-46, Florida Administrative Code.

If you have any questions, please contact Michael DuBose, Historic Sites Specialist, by email at Michael.DuBose@dos.myflorida.com or telephone at 850.245.6342.

Sincerely,

A handwritten signature in blue ink that reads "Jason Aldridge". Below the signature, the word "For" is written in a smaller, cursive script.

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
and State Historic Preservation Officer

APPENDIX B:

2021 CRAS OF THE FPL MIAMI-DADE CWRC PROJECT

**CULTURAL RESOURCES ASSESSMENT SURVEY OF THE
FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER PROJECT
MIAMI-DADE COUNTY, FLORIDA**

Prepared for:

Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

Prepared by:

Janus Research
1107 N. Ward Street
Tampa, Florida 33607

June 2021

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INTRODUCTION

A cultural resource assessment survey (CRAS) of the Florida Power & Light (FPL) Miami-Dade Clean Water Recovery Center (CWRC) Project (Project) was conducted for FPL in June 2021. The objective of this survey was to identify cultural resources located within the project area of potential effect (APE) and to assess their significance in terms of eligibility for listing in the *National Register of Historic Places* (National Register) according to the criteria set forth in 36 CFR Section 60.4.

The CRAS includes the CWRC reclaimed water treatment facility (CWRC) and associated Waterline corridor. The CWRC is located on the FPL Turkey Point Clean Energy Center Property, less than 500 feet west of Biscayne Bay and approximately nine-miles east of the City of Homestead. The CWRC Waterline corridor extends north from this location, for approximately 8 miles, to just north of the Black Creek Canal, approximately 915 feet south of the Town of Cutler Bay. Approximately 1,543 feet (0.29 miles) of the Waterline corridor traverses through Biscayne National Park via an existing FPL easement. Coordination with staff from the park and the National Park Service (NPS) is ongoing, and no archaeological or historic resources survey work was conducted within the boundaries of the park during the current survey effort.

This CRAS was conducted in support of the *FPL Miami-Dade Clean Water Recovery Center Florida Power & Light Company Petition for Modification of Turkey Point Unit 5 PA 03-45 Conditions of Certification* in consideration of Florida's Power Plant Siting Act (PPSA), Chapter 403, Part II, *Florida Statutes (F.S.)*. It was also conducted in support of a United States Army Corps of Engineers (USACE) Section 404 Permit.

This assessment complies with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004); the revised Chapter 267, *Florida Statutes (F.S.)*; the standards embodied in the Florida Division of Historical Resources (FDHR) *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. The Principal Investigators meet the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716) for archaeology, history, architecture, architectural history, or historic architecture.

As a result of the CRAS, no archaeological sites or archaeological occurrences were identified within the project APE, which was determined to exhibit low archaeological site potential. The historic resources survey did not identify any historic resources within the CWRC APE. Segments of four previously recorded historic resources were identified within the CWRC Waterline corridor APE: the Gould Canal (8DA13149), C-102 (Princeton) Canal (8DA14988/8DA16466), C-103 Mowry Canal (8DA15002), and Florida City Canal (8DA16043). These four canal segments represent a common type of canal constructed during the 20th century and segments outside of the project APE have been previously documented as National Register–ineligible. The segments within the project APE are similar to these previously recorded segments and are thus considered ineligible within the current project

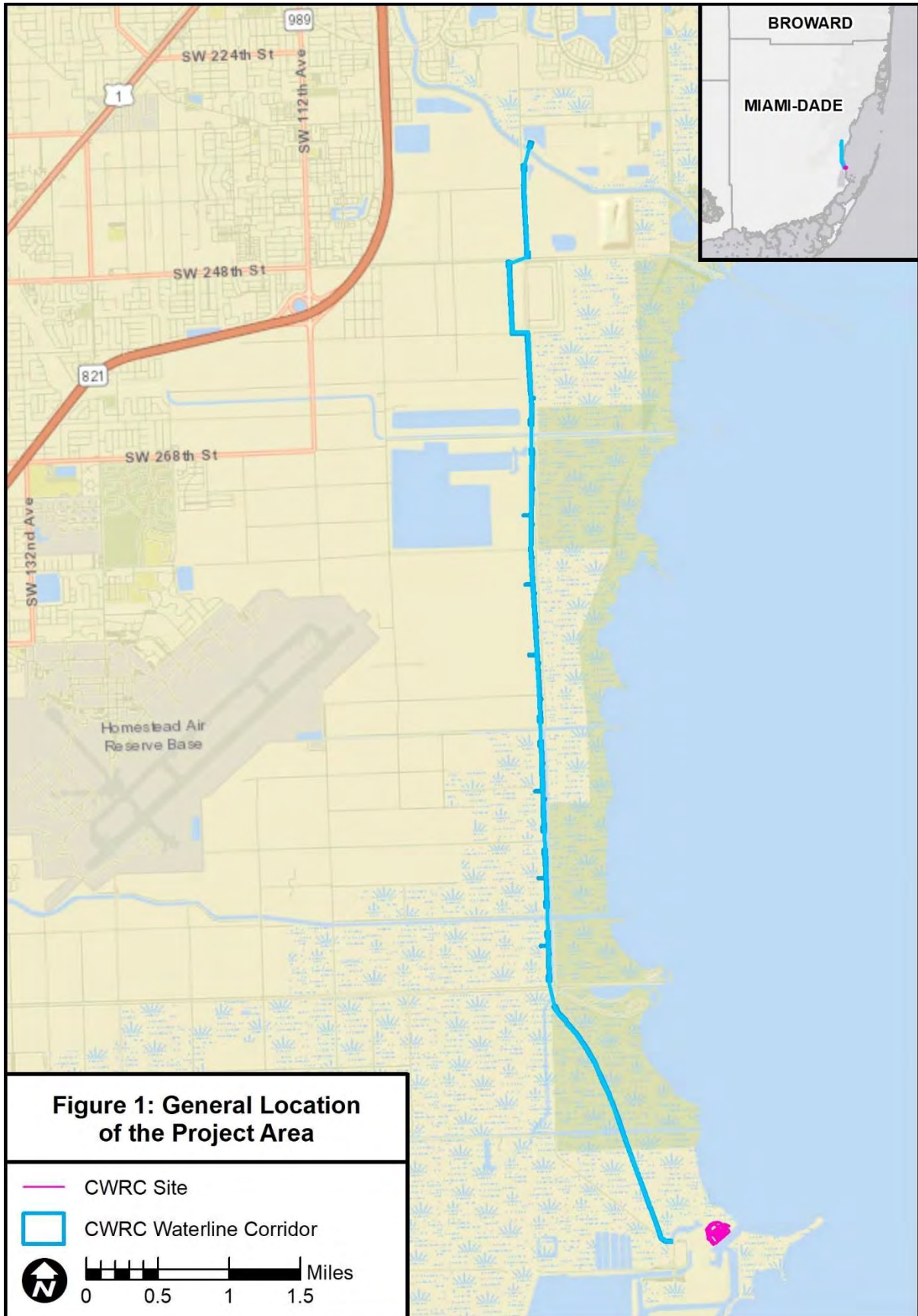
APE. Additionally, the CRAS identified several unrecorded historic drainage canals intersected by the APE associated with the CWRC Waterline corridor. These canals include the L-31E Barrow Canal, the C-1 (Black Creek) Canal, the Military Canal, and North Canal. The unrecorded canals are common drainage canals, like the previously recorded historic resources, and thus are considered ineligible within the project APE. Florida Master Site File (FMSF) forms were not completed for any of the identified canals per FDHR guidance regarding ineligible historic canals (FDHR 2012). Based on the results of this investigation, it is the recommendation of Janus Research that no historic properties will be affected within the portions of the Project outside of Biscayne National Park. Upon completion of the ongoing coordination with the NPS, a memorandum documenting the coordination, and any required investigations within Biscayne National Park, will be prepared and provided to the State Historic Preservation Officer (SHPO). Based on a desktop analysis, consisting of the review of FMSF data, topographic maps, historic and modern aerial photographs, soil survey data, Florida Land Use and Cover Classification System (FLUCCS) data, wetland inventory data, and digital elevation model (DEM) data, the portion of the project APE within Biscayne National Park exhibits a low potential for encountering archaeological deposits.

Project Description

FPL, in partnership with Miami-Dade County, is developing an advanced reclaimed water treatment facility. The CWRC will further treat up to 15 million gallons per day of reclaimed water from the Miami-Dade County Water and Sewer Department's (MD WASD) South District Wastewater Treatment Plant (SDWWTP) for use at the Turkey Point Clean Energy Center Unit 5 for cooling purposes. The CWRC Project (Project) will consist of the advanced treatment facility located at the CWRC and an associated waterline corridor that will deliver the treated reclaimed water to the CWRC for further treatment prior to use in Unit 5 cooling towers. Temporary construction parking and staging areas are confined to existing disturbed upland areas within the Turkey Point Clean Energy Center Property that have been historically used for parking and construction staging.

CWRC. The CWRC is proposed upon an approximately 12 acre previously developed area of the FPL Turkey Point Plant Property that formerly served as an oil storage tank area (Figure 1). Currently the area is cleared, graded, and devoid of any structures or natural vegetative communities. The proposed grade associated with the proposed CWRC Site will be approximately 14-feet above the present grade, and the maximum heights of any facilities within the CWRC Site will not exceed 35-feet above the finished grade.

CWRC Waterline Corridor. The CWRC Waterline corridor from the Miami-Dade County wastewater treatment system will originate from the MDWASD SDWWTP and end at the CWRC located on the FPL Turkey Point Clean Energy Center Property (Figure 1). The CWRC Waterline will deliver treated reclaimed water to the Unit 5 circulating cooling water system. The CWRC Waterline, which is approximately eight miles in length will consist of one 42-inch pipe installed below ground level the entire length. Most of the canals will be crossed using trenchless methods including horizontal directional drilling (HDD) or bore and jack. Some areas of remnant ditches may be crossed via open trenching or culverts.



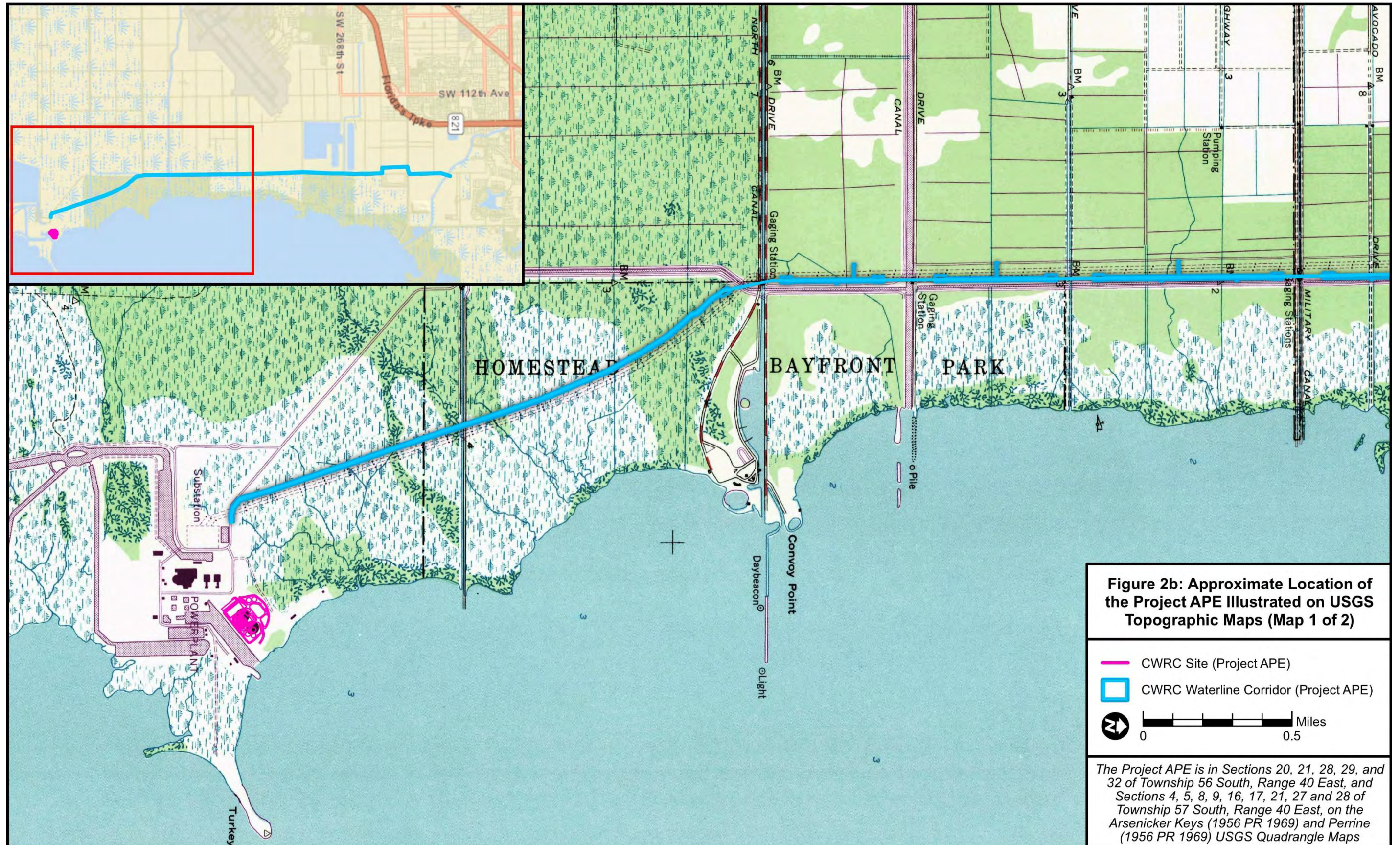
The corridor for the CWRC Waterline was selected to utilize existing infrastructure to the greatest extent practicable in order to minimize environmental impacts. Approximately 6.3 miles (78%) of the CWRC Waterline corridor is located within the existing FPL transmission line right-of-way. Within the FPL transmission line right-of-way north of SW 328th Street/North Canal Drive, the CWRC Waterline is proposed to be installed adjacent to the existing structure pads. South of SW 328th Street/North Canal Drive, the CWRC Waterline is proposed to be installed within the existing FPL transmission line patrol road.

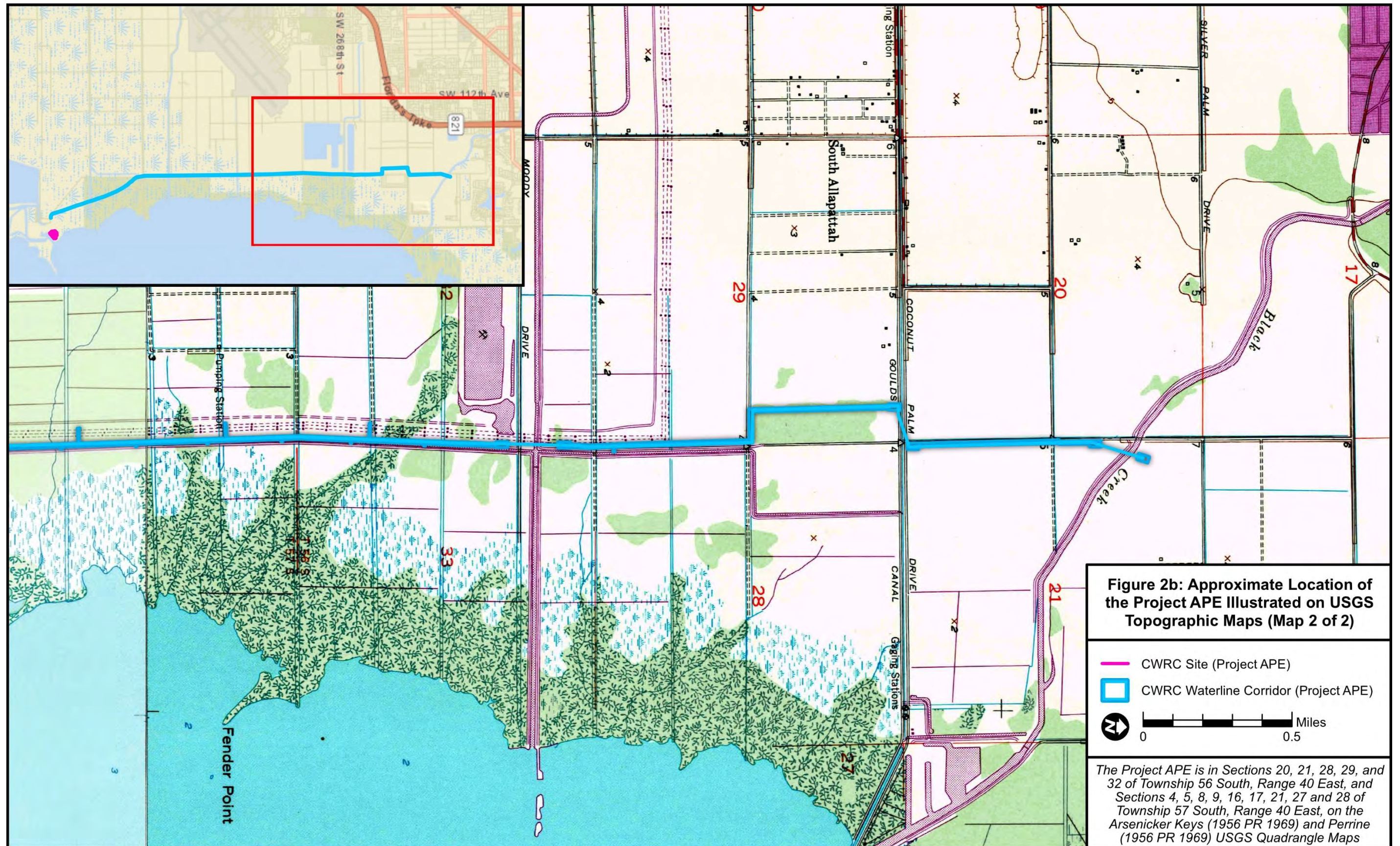
The CWRC Waterline corridor has an average width of approximately 60 feet. From the SDWWTP, the waterline exits south to the South Dade Landfill underneath the Black Creek (C-1) Canal. The corridor follows SW 97th Avenue south approximately 0.6 miles to the intersection with SW 248th Street/Coconut Palm Drive, crosses under SW 248th Street/Coconut Palm Drive and Goulds Canal and continues approximately 0.5 miles along the perimeter of a closed landfill cell (Plummer Drive), then south approximately 0.25 miles through an undeveloped parcel to reach the FPL transmission line corridor at SW 261st Street. The CWRC Waterline corridor continues south within the FPL transmission line corridor approximately 6.3 miles to reach the CWRC Site at the FPL Turkey Point Clean Energy Center Property. Along this segment, the CWRC Waterline corridor crosses the Princeton (C-102), Military, unnamed (SW 312th Street), Mowry (C-103), Homestead (North), and L-31E Canals. The total CWRC Waterline corridor length is approximately 8 miles in length.

The CWRC Waterline corridor will be located primarily within the existing FPL transmission line right-of-way and adjacent to existing road rights-of-way. Access manholes and air relief and isolation valves will be required. Access will be required about every 4,000 feet while air relief and isolation valves will be installed every 2,000 feet.

Project Location

The project area is located primarily within undeveloped portions of unincorporated southeastern Miami-Dade County. The CWRC is in Section 27 of Township 57 South, Range 40 East, on the Arsenicker Keys (1956 Photorevised [PR] 1969) U.S. Geological Survey (USGS) quadrangle map. The CWRC Waterline corridor traverses Sections 20, 21, 28, 29, and 32 of Township 56 South, Range 40 East and Sections 4, 5, 8, 9, 16, 17, 21, and 28 of Township 57 South, Range 40 East, on the Arsenicker Keys (1956 PR 1969) and Perrine (1956 PR 1969) USGS quadrangle maps. The locations of the CWRC and CWRC Waterline corridor are illustrated on topographic maps in Figures 2a and 2b.





AREA OF POTENTIAL EFFECT

36 CFR 800.16(d) defines the APE as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking as well as its geographical setting. The project APE, therefore, considers the improvements that will be implemented as part of the proposed project and the extent of potential ground disturbance as well as the setting and character of the project area.

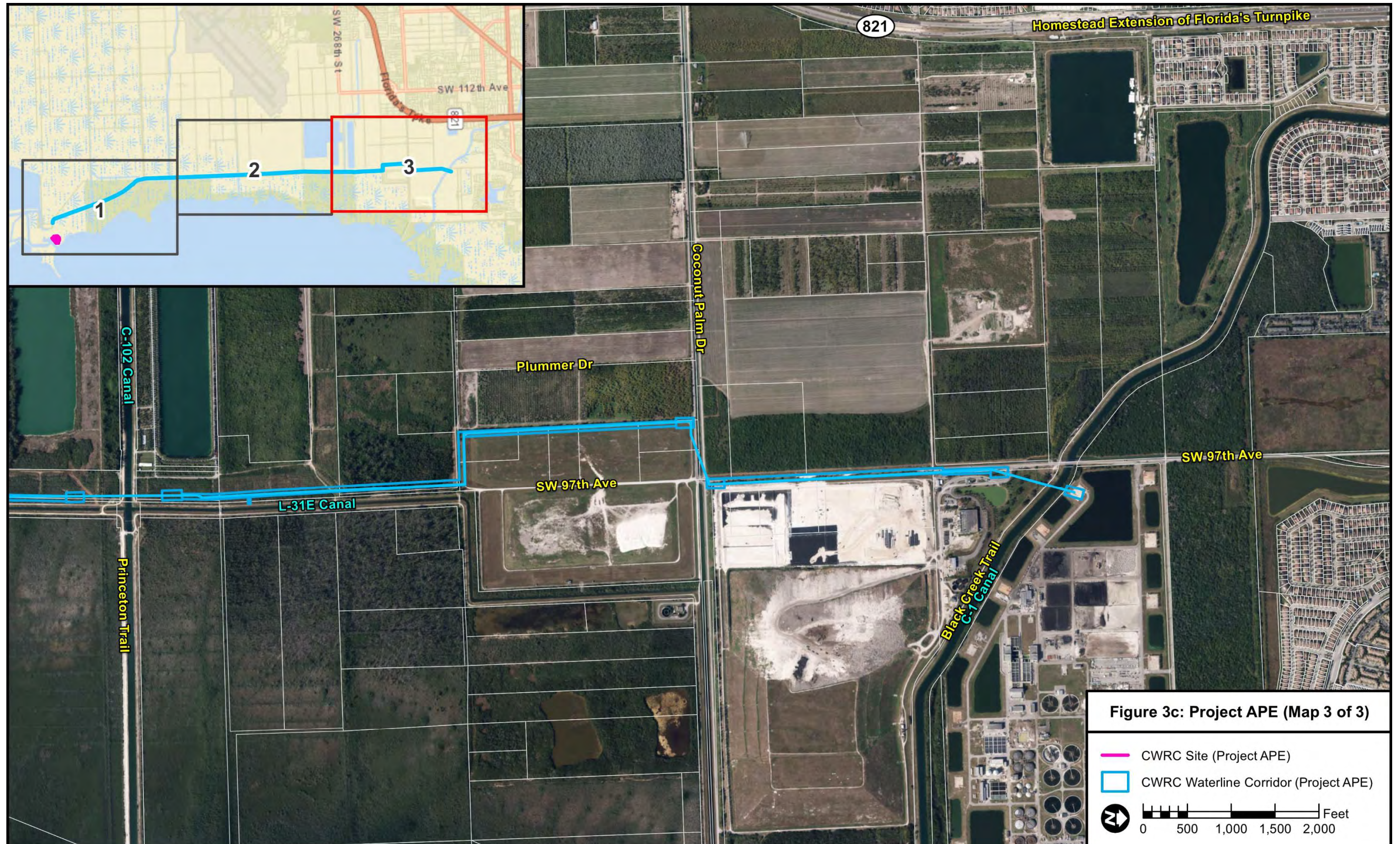
Normally, archaeological and other below-ground resources will be affected by ground disturbing activities and changes in ownership status. Therefore, survey for archaeological sites typically focuses upon identifying and evaluating resources within the geographic limits of the proposed action and its associated ground disturbing activities. The potential for ground disturbing activities associated with the Project is limited to the footprints of the proposed CWRC, CWRC Waterline, and CWRC Waterline corridor. In addition, all existing easements, potential easements, and right-of-way use permits needed for the canal crossings, road crossings, road segments, and South Florida Water Management District (SFWMD) ROW will be limited to the footprint of the proposed CWRC Waterline and associated CWRC Waterline corridor. Therefore, the archaeological APE for the Project was limited to the footprint of the CWRC and CWRC Waterline corridor (which contains the CWRC Waterline and adjacent work areas), as illustrated on an aerial mapping in Figures 3a–3c.

The identification and evaluation of historic resources normally also focuses on the geographic limits of the action, and may also include adjacent areas, depending on the character of the surrounding area, elevations, and the temporary or permanent nature of any proposed improvements or associated facilities. The CWRC is located in the northeastern corner of the FPL's Turkey Point Clean Energy Center Property in a vacant area that previously contained bulk oil storage tanks. The CWRC will be approximately 35 feet above the finished grade, and will not exceed the height of the tallest existing structures within FPL's Turkey Point Clean energy Center Property which range from 90 to 200 feet above grade. Therefore, indirect effects to the surrounding area are not anticipated, and the APE for historic resources associated with the CWRC is limited to the footprint of the CWRC Site (Figure 3a).

The CWRC Waterline will be primarily installed via open trench. Additional subsurface installation methods will be used at some canal and roadway crossings using trenchless methods such as HDD, jack and bore, or microtunneling. Based on the methods of installation, the improvements associated with the CWRC Waterline will be almost entirely below-grade. Intermittent air relief and isolation valves will also be installed within the CWRC Waterline corridor. While they may need to be raised slightly to be above the waterline, they will be installed near-grade. All additional work within the CWRC Waterline corridor is expected to be temporary in nature, with no elevated improvements proposed. All excavated areas associated with the CWRC Waterline and CWRC Waterline corridor will be restored to preconstruction contours and conditions, and any wetland topsoil will be replaced. Therefore, as there is no potential for any permanent visual impacts, the historic resources APE for the CWRC Waterline and CWRC Waterline corridor was limited to the footprint of these elements of the Project, as illustrated on the aerial mapping in Figures 3a–3c.







ENVIRONMENTAL SETTING

Environmental and ecological factors had a direct influence on the choice of areas used and occupied by precontact and historic period populations. These factors change over time and are used to reconstruct past conditions that influenced early human occupation of the APE.

Paleoenvironmental Overview

Although a comprehensive reconstruction of environmental change through time is beyond the scope of this report, a brief description of the large-scale climatic and hydrologic conditions that have occurred in Florida since 31,050 BC is provided. The descriptions given here provide some indication of the ecological context of precontact groups at different times, with particular emphasis on environmental conditions that affected human use of the landscape.

Since the termination of the Pleistocene Epoch at the end of the Wisconsin glaciation, approximately 11,550 BC, Florida has undergone significant climatic and environmental change. Notable changes in climate and subsequently in flora and fauna required human groups to adapt to their surroundings. These adaptations resulted in cultural changes in their hunting/foraging strategies and seasonal migration patterns. Within the archaeological record, these changes can be observed by differences in settlement patterns, midden composition, refuse disposal patterns, and artifact types.

Although Florida was not glaciated, the glacial conditions associated with the Laurentide ice sheet affected the paleoclimates of Florida. Paleobotanical evidence suggests that between 31,050 and 11,550 BC, Florida was dry, windy, and cool (Whitehead 1973). By the early Holocene, roughly 11,550 BC, the climate in west-central Florida had warmed and it is likely that precipitation increased; as a result, the shallow, perched lake levels rose. After 3050 BC, the environment in central Florida began to take on a more modern appearance. Large stands of slashpine (*Pinus elliottii*) became established, probably at the expense of oak in the wetter, low-lying areas. Rainfall increased and sea level rose, creating wetter conditions.

The earliest inhabitants of Florida accessed a permanent water supply from a number of solution lakes and ponds and a seasonal water supply from perched water ponds. Shallow water ponds and rivers fed by the Floridan Aquifer were dry during this period due to insufficient rainfall and the depressed level of the Aquifer. Settlement appears to have been limited to areas around sinkholes that penetrated the Floridan Miocene age limestones (Clausen et al. 1975, 1979) or areas within the Central Gulf Coast Karst Region where both solution lakes and perched water were available (Dunbar and Waller 1983).

By 8050 BC, the previously dry perched water systems began to retain water for longer periods of time as precipitation increased. By 6550 BC, the water levels in the perched water systems approached modern levels; however, the level of the Floridan Aquifer remained depressed due to lowered sea levels. By 4050 BC, the Floridan Aquifer reached modern levels. This resulted in freshwater discharge from springs, and spring-fed rivers.

Between 550 BC and AD 1700, the level of the Floridan Aquifer rose. This rise, in combination with higher than present rainfall conditions, probably resulted in seasonal flooding of low-lying regions (Dunbar 1982:102). Potable water was abundant during this period. It is likely that pre- Columbian site location at this time was more dependent on the proximity of plant and animal resources than on the availability of water.

The Holocene Climatic Optimum, a time of warmer and drier environmental conditions, occurred during the Middle Archaic period (5000 to 3000 BC). Pine species replaced oak as the dominant forest element (Watts 1975). This implies that the availability of acorns and the animals that fed on those acorns would have been more restricted. Water was more plentiful, but only in rivers and springs fed by the Floridan Aquifer or at sinkholes.

By Late Archaic times, the environment of the region approached present conditions. With the incipient development of the Everglades, Lake Okeechobee, Lake Kissimmee, swamps, wetlands, and other drainages, water was no longer the limiting factor to site and resource location. The choice of site location was probably more a matter of finding a reasonably dry spot rather than a nearby water supply (Almy 1976, 1978; Grange et al. 1979). Sea levels were still fluctuating, but were within one meter of current levels (Widmer 1983).

The climatic fluctuations that have occurred over the past 13,000 years have affected the way human groups were able to use the resources found within the project APE and surrounding area. The Paleoindian and Early Archaic inhabitants would have found the area drier and access to water restricted, possibly only seasonally available at perched water ponds, or in solution lakes (sinkholes). The Florida peninsula was wider as sea level was as much as 49 m (160 feet) lower than present level (Milanich 1994:38). The continental shelf was exposed in what is now the Gulf of Mexico. Mixed forests of oak and pine probably dominated the lower, riparian areas and the higher, arid locations were covered with rosemary scrub and grass species. Precontact groups exploited microhabitats that existed until modern logging, ranching, and land drainage practices were instituted.

Physiographic Regions

The CWRC is located within the Southern Slope physiographic region, and the CWRC Waterline corridor traverses both the Southern Slope and the Atlantic Coastal Ridge physiographic regions (White 1970). The portion of the Southern Slope containing the APE extends northeastward along the western shore of Biscayne Bay. In Miami-Dade County, the Atlantic Coastal Ridge consists of a narrow, gently sloping limestone ridge that extends from Hollywood south to Homestead. The bedrock is Miami Oolite (United States Department of Agriculture [USDA] 1996).

Pre-Development and Land Use History

CWRC

Government Land Office Records

A review of the 1925 Government Land Office (GLO) historic plat map for Township 57 South, Range 40 East (Florida Department of Environmental Protection [FDEP] 1925) did not indicate any cultural or natural features within the CWRC (see Figure 4). Field surveyor's notes for Township 57 South, Range 40 East, were not available for review.

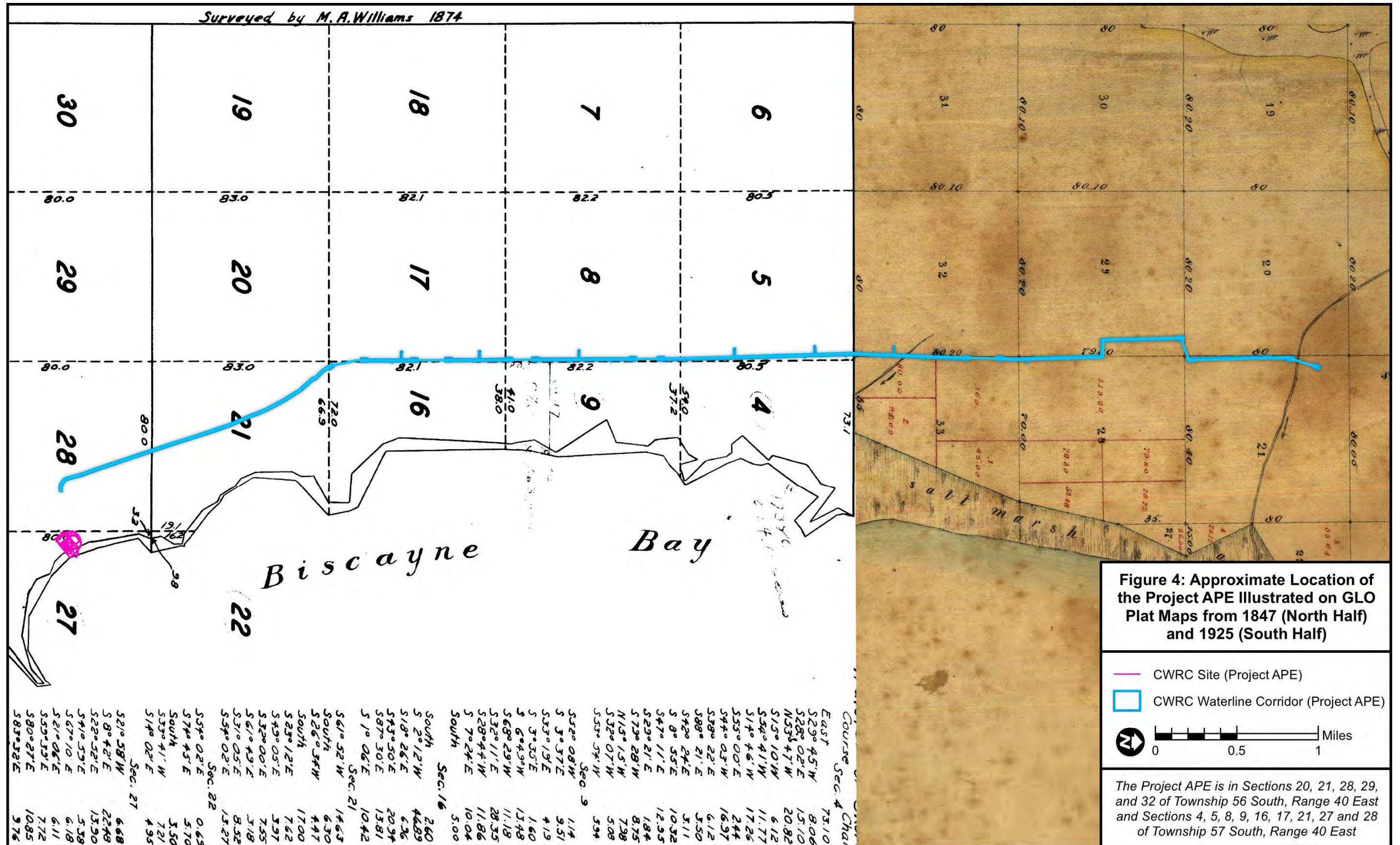
USGS Quadrangle Maps and Aerials

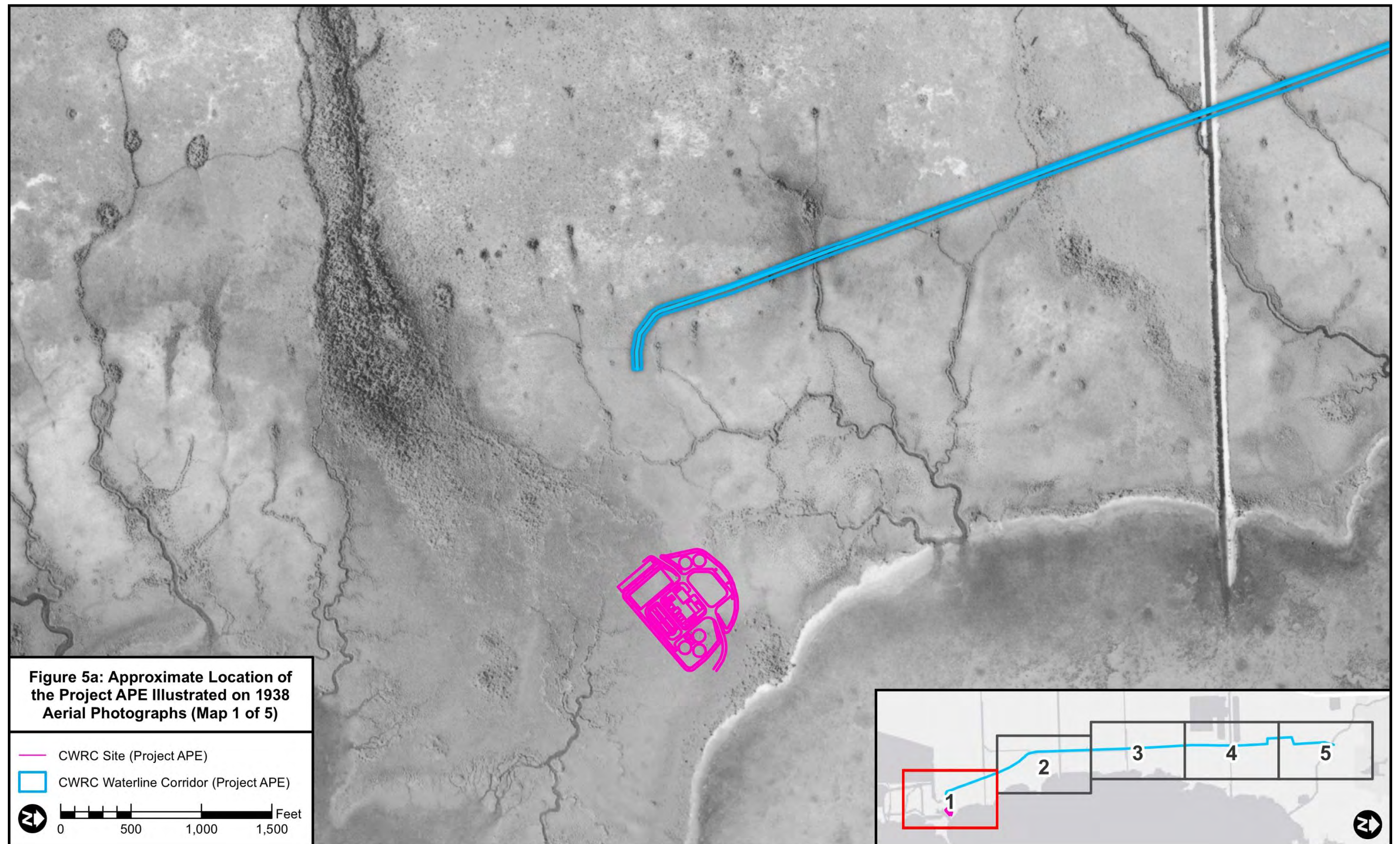
The Arsenicker Keys (1949, 1956 PR 1969), USGS quadrangle maps and aerial photographs from 1938, 1940, 1944, 1963, 1968, 1978, 1985, and 1991 (FDOT, Office of Surveying and Mapping 1996–2021; University of Florida, George A. Smathers Libraries 2021) were reviewed to facilitate an understanding of the change in environment seen within the APE over time. The review of the USGS quadrangle map from 1949 illustrates the area of the proposed CWRC is undeveloped. By 1969, the USGS quadrangle map (see Figures 2a and 6a) illustrates former storage containers associated with the FPL Turkey Point Plant Property.

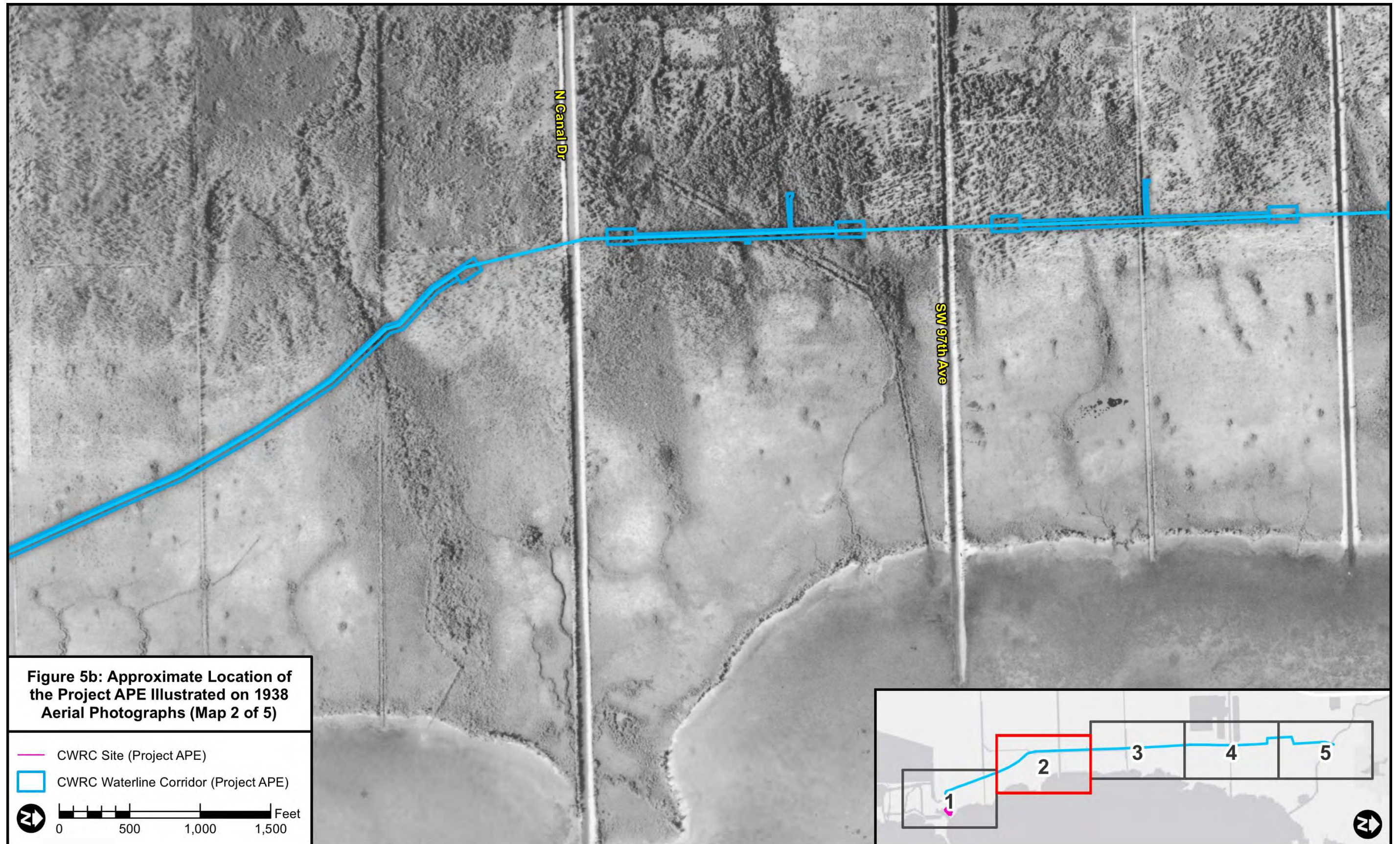
Aerial photographs revealed that the area surrounding the CWRC was undeveloped from 1938–1963, and consisted of a wetland environment with a mangrove fringe along the Atlantic coast. The location of the CWRC illustrated on a 1938 historic aerial is included for reference in Figure 5a. Land modification within the CWRC is first visible on the historic aerials in 1968 (see Figure 6a) and marks a drastic change in the landscape of both the CWRC and the surrounding area as evidenced by the construction of a levee to the southeast and multiple structures related to the FPL Turkey Point Clean Energy Center Property to the southwest. From 1968 through 1991 the area of the CWRC exhibits minimal change, while the surrounding area exhibits further development, including large cooling canals and numerous roadways and levees.

Soils

The 1947 (issued in 1958) and 1996 county soil surveys were also reviewed to help assess environmental characteristics and the level of previous land modification with the CWRC. The names of detailed soil types found within the CWRC, as well as their drainage characteristics and environmental associations, are listed in Table 1. The 1947 soil survey (USDA 1958) noted the CWRC was within Mangrove swamp, confirming the wet and undeveloped nature of the CWRC illustrated by the GLO historic plat map and aerial photographs (Figure 7). This soil type is frequently inundated by saltwater in the coastal areas of Miami-Dade County (USDA 1958:23). Generally, this soil supports a thick growth of mangrove trees. Small areas of salt-tolerant grasses, or tidal marshes, occur in the areas of mangrove trees.

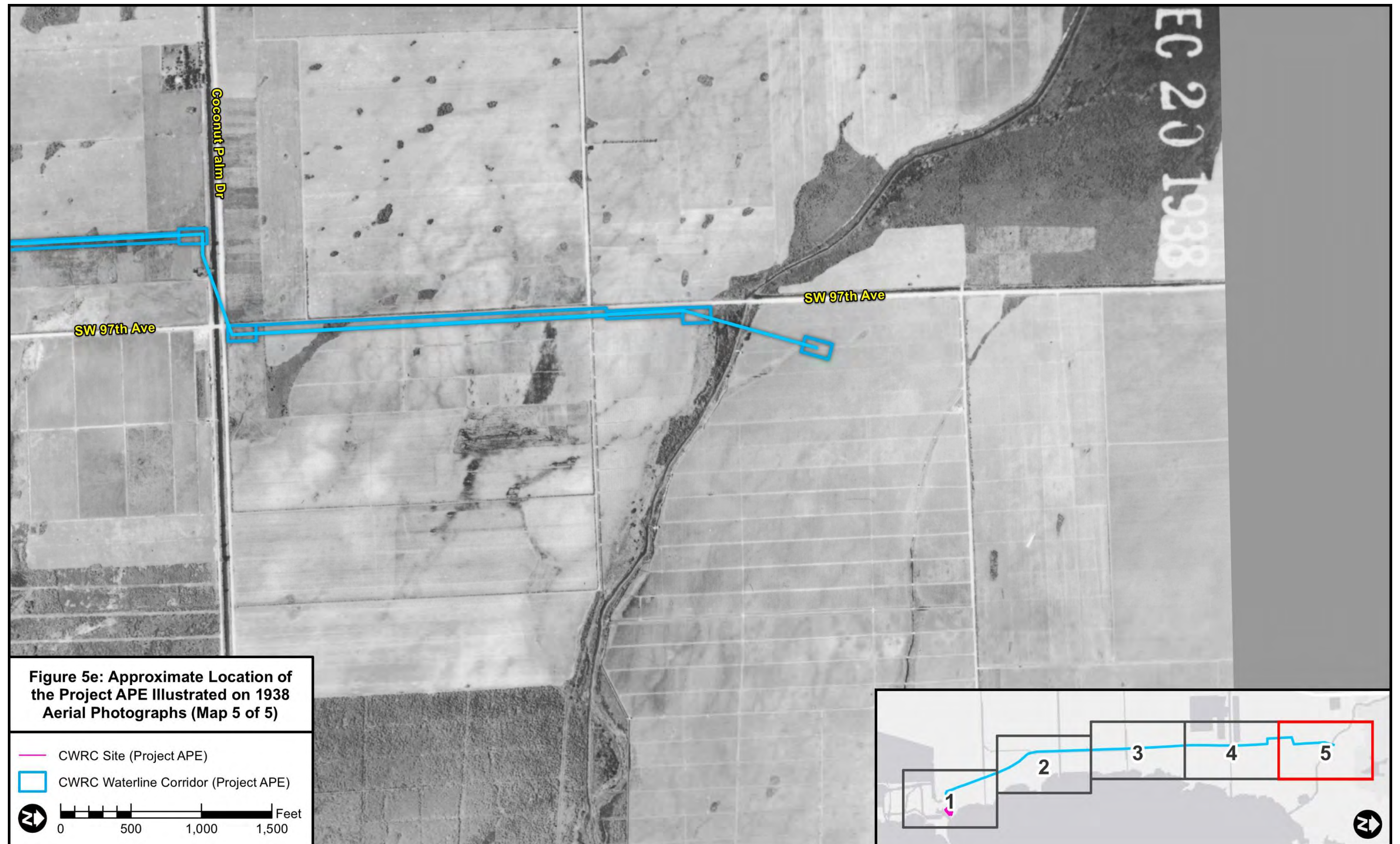




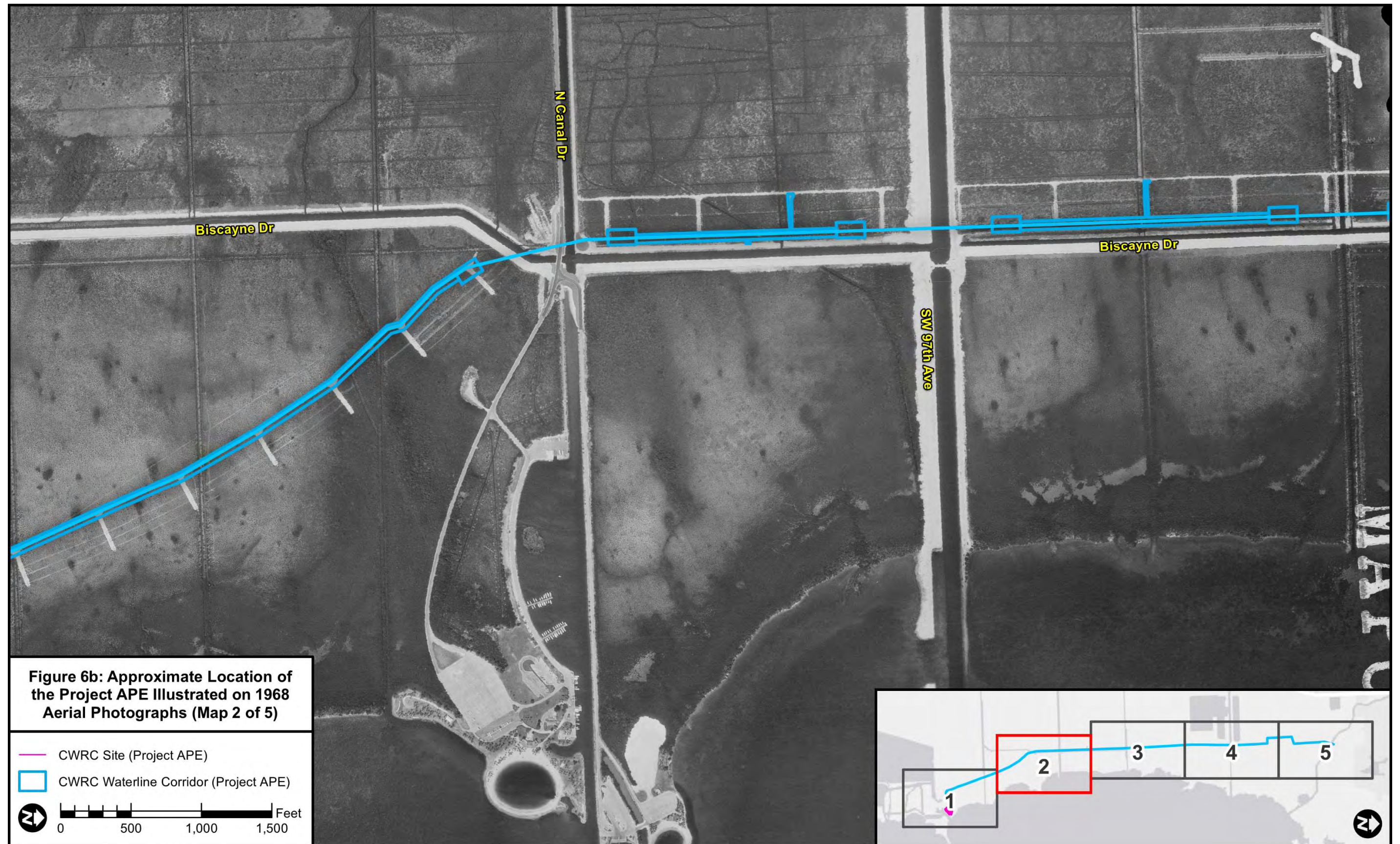


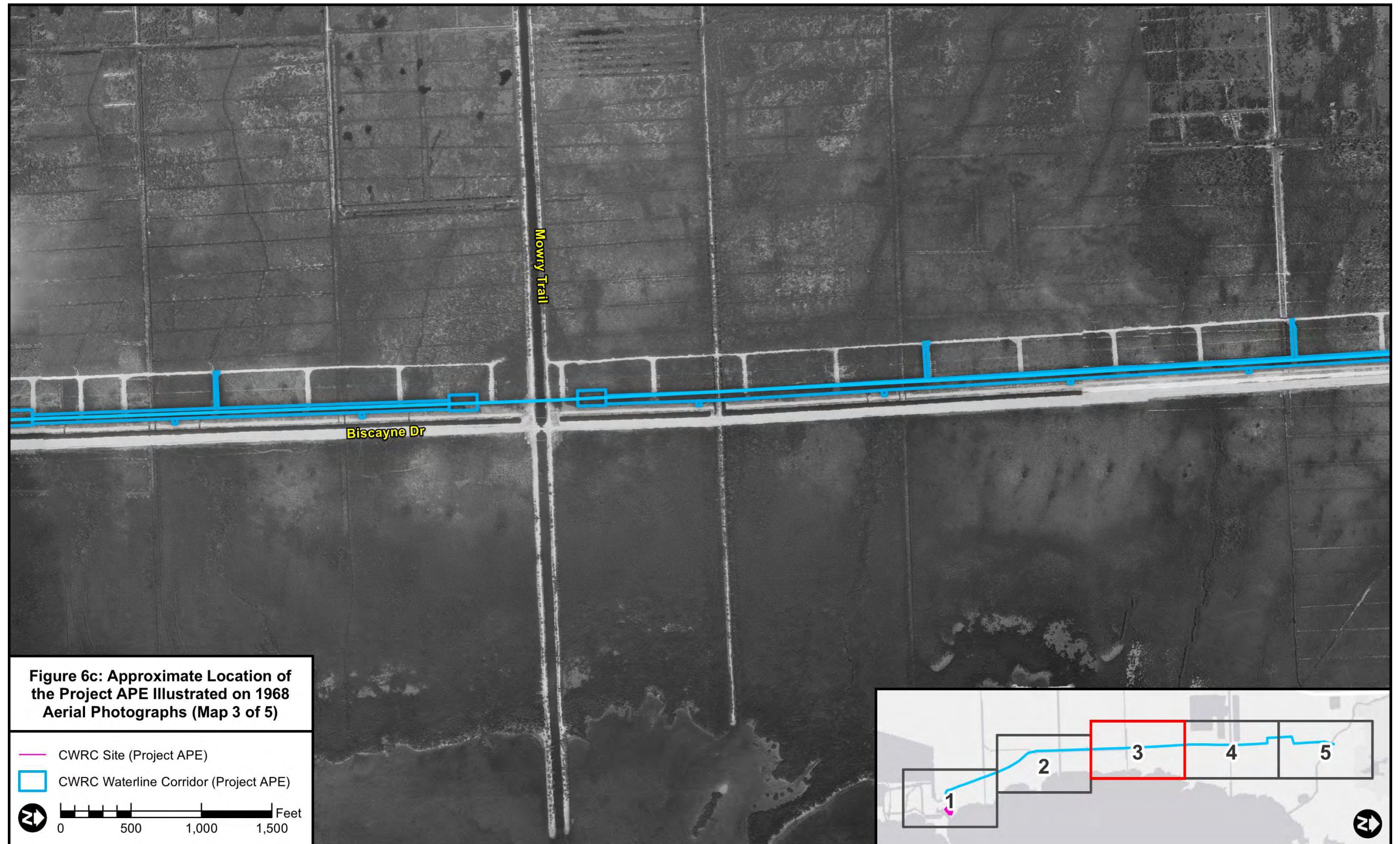














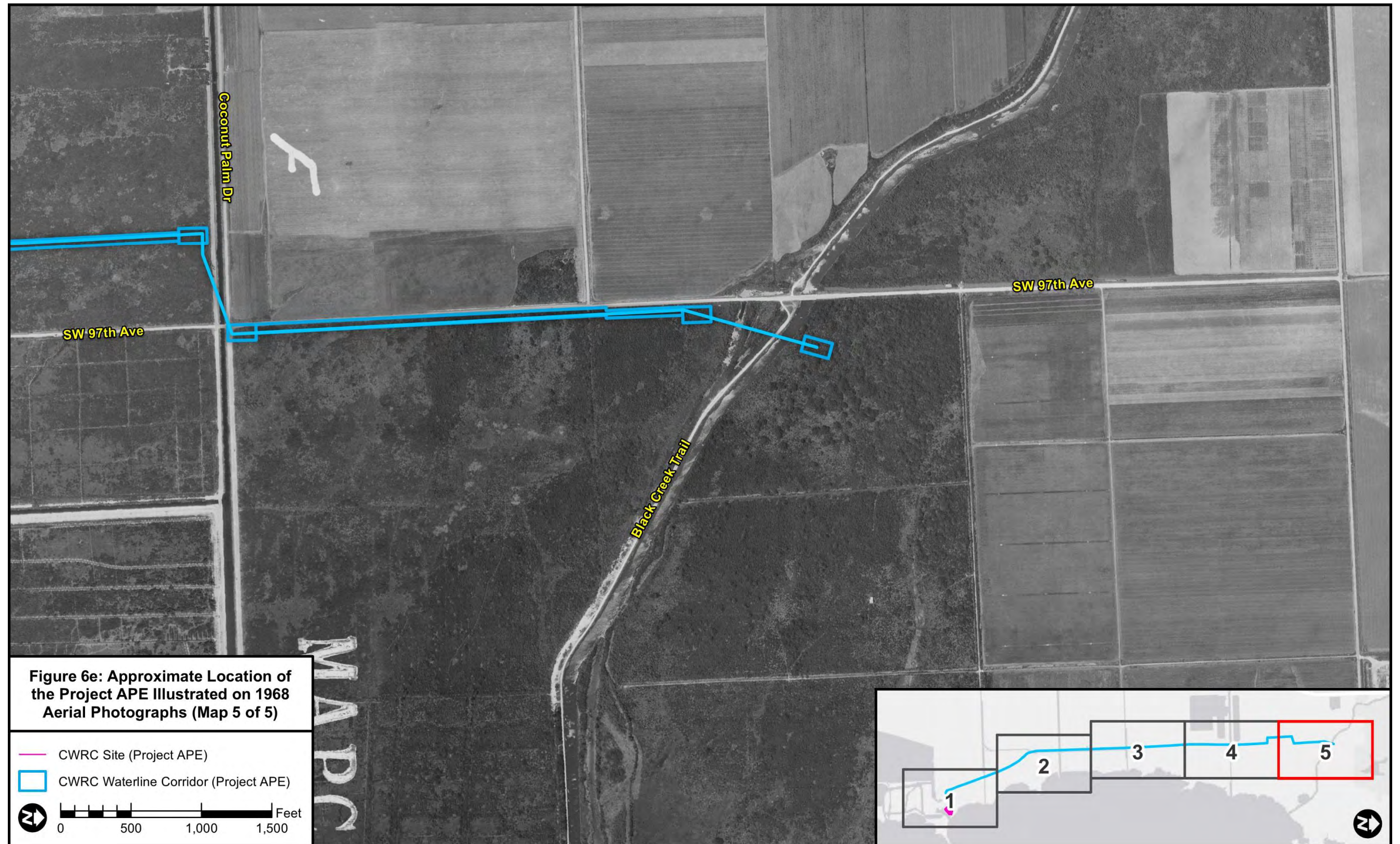


Table 1. Characteristics of Detailed Soil Types within the CWRC

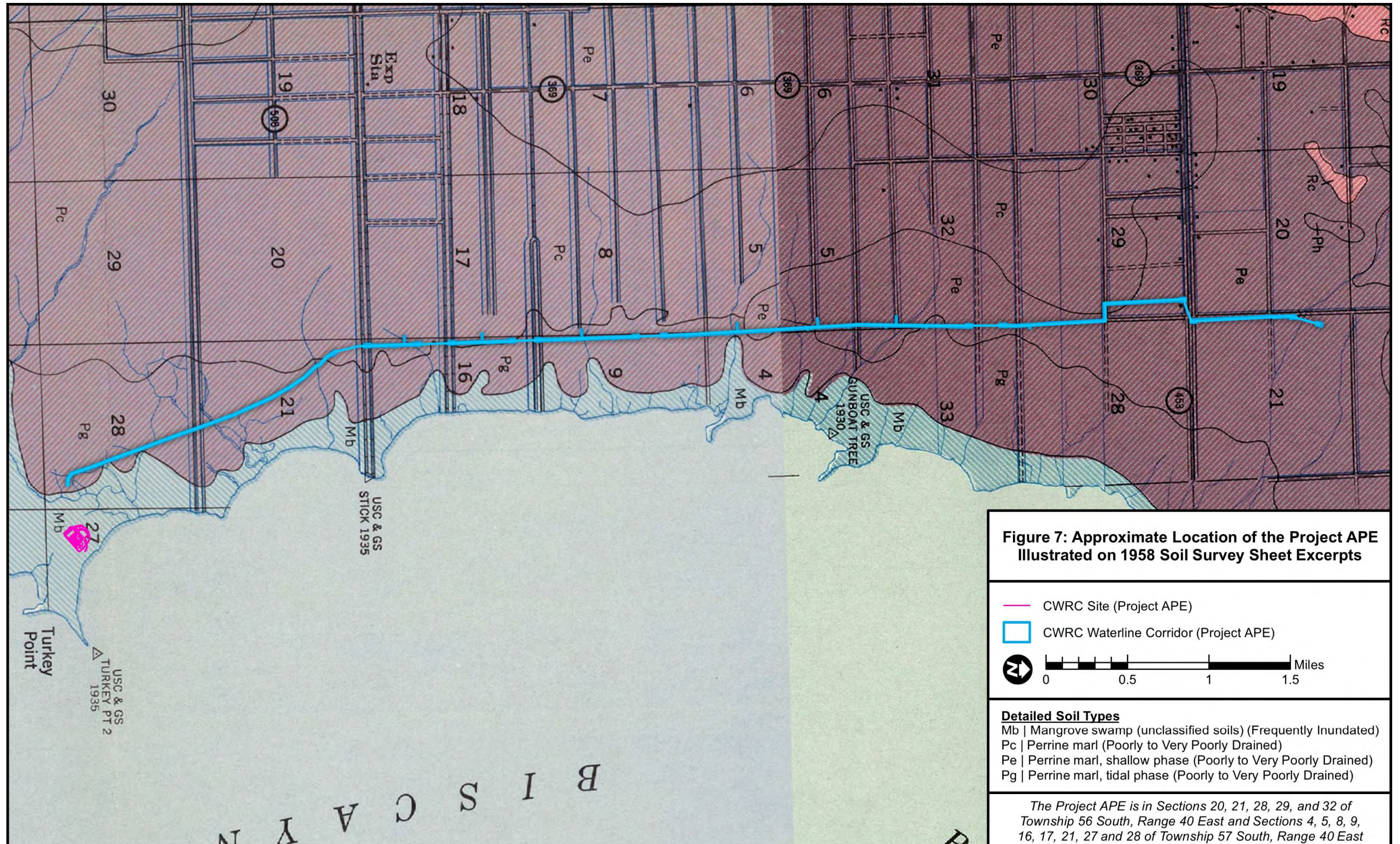
Drainage Characteristics	Soil Type	Environmental Association
1947 Soil Survey		
Unclassified	Mangrove Swamp	Frequently found in coastal areas of the county. All of this land has a cover of wild vegetation and serves as feeding and breeding areas for many birds and animals. Natural vegetation includes salt-tolerant grasses, or tidal marshes, that occur in the areas of mangrove trees. Mangrove trees are low to medium height.
1996 Soil Survey		
Very Poorly Drained	Terra Ceia muck, tidal	Found on deep, level, very poorly drained areas in saltwater swamps and marshes and is subject to tidal flooding. Slopes are less than 1 percent. Natural vegetation consists mainly of red and black mangroves. White mangrove grows in some areas.
Not Applicable	Urban Land	Found in areas where the surface is covered by shopping centers, parking lots, streets, sidewalks, airports, large buildings, houses, and other structures. The natural soil cannot be observed. The soils in open areas, mostly lawns, vacant lots, playgrounds, and parks, are mainly Udorthents.

USDA 1958:23, 1996:21, 22, 28

The 1996 Dade County Area Soil Survey (USDA 1996) confirms that a majority of the land within the CWRC boundaries has undergone development related to the FPL Turkey Point Clean Energy Center Property. The majority of the CWRC is located within an area classified as Urban land. Urban land is developed and modified land that is often covered with large standing structures or paved areas, which has been subjected to land grading and shaping (USDA 1996:21, 22). The CWRC also exhibited the Terra Ceia Muck, tidal soil in the northernmost portions of the footprint. This soil is subject to tidal flooding and typically exhibits muck to a depth of 80 inches or more that remains saturated under natural conditions. Natural vegetation prior to clearing would have consisted predominantly of red and black mangroves (USDA 1996:28).

Elevation

An analysis of the earliest available topographic map and historic aeriels, as well as a review available DEM data from the Florida Geographic Data Library (FGDL) was conducted to determine whether the CWRC exhibited any areas of higher elevation relative to the surrounding area. This review determined that the CWRC is in an artificially elevated area approximately 1 meter AMSL above the lower, natural elevations associated with the former mangrove swamp and salt marsh, with nearby wetlands at or below 1 meter AMSL. Based on the review of the topographic maps and historic aeriels, the area containing the CWRC did not exhibit increased elevation relative to the surrounding areas prior to development, as the surrounding area also formerly contained low, wet areas of mangrove and salt marsh. The CWRC is near the edge of a gentle slope that extends from 3 meters AMSL along the Atlantic Coastal Ridge until reach sea level near the Atlantic Ocean, near the current location of the CWRC.



CWRC Waterline Corridor

GLO Records

A review of the 1847 and 1925 GLO historic plat maps for Township 57 South, Range 40 East (FDEP 1847a, 1925) illustrated no cultural features or hammocks within the APE. Several creeks are shown crossing the APE and the field surveyor's notes (FDEP 1847b) describes the area as wet marsh and wet prairie. Although one scrub hammock was noted in the vicinity of the northern end of the APE associated with the CWRC Waterline corridor, it was located outside of the APE to the east, within an area where a landfill currently exists.

USGS Quadrangle Maps and Aerials

The Arsenicker Keys (1949, 1956 PR 1969, 1997) and Perrine (1949, 1956 PR 1969, 1994), USGS quadrangle maps, as well as aerial photographs from 1938, 1940, 1944, 1963, 1968, 1978, 1985, and 1991 (FDOT, Office of Surveying and Mapping 1996–2021; University of Florida, George A. Smathers Libraries 2021) were reviewed to facilitate an understanding of the change in environment seen within the APE over time. The review of the USGS quadrangle maps from 1949 show the CWRC Waterline corridor within an undeveloped wetland region with a mangrove swamp fringe along the Atlantic coast, east of the corridor. East-west drainages are visible on the map. By 1956, the FPL Turkey Point Clean Energy Cenert Property is visible and increased road construction to the west of the APE was evident. Portions of the APE north of North Canal Drive are no longer illustrated as wetlands by 1969. By 1997, there was an increase of development in the surrounding areas.

The 1938 aerial photographs noted southern three quarters of the CWRC Waterline corridor remained undeveloped and in a natural wetland state, while the northernmost quarter of the CWRC Waterline corridor exhibits signs of development (Figures 5a–5e). Conditions remain the same in 1940; however, in 1944 an increase in the development of land to the west of the corridor and an increase in the construction of canals running east to west across the CWRC Waterline corridor are both evident. In 1952 the area that would become the Biscayne National Park visitor center is constructed outside of the APE to the east. Conditions in 1963 remained relatively the same throughout the CWRC Waterline corridor, while the reclamation process continues to encroach from west to east. Land is cleared and drained along the Atlantic coast for the construction of the Dade County Marina, Black Point. In 1968, the Property and the transmission line corridor are (Figures 6a–6e). In 1978, the mangrove fringe to the east is all that remains undrained in the northern half of the CWRC Waterline corridor and large cooling canals can be seen to the southwest of the APE. No changes in the landscape are seen between 1985 and 1991, when the Miami Dade Landfill is constructed to the west of the marina, near the northern terminus of the CWRC Waterline corridor.

Soils

The review of the 1947 soil survey (issued in 1958) confirms the former wet and undeveloped nature of the CWRC Waterline corridor that was illustrated by the GLO historic plat map and aerial photographs (see Figure 7). The detailed soil types within the CWRC Waterline corridor noted in the 1947 survey are Perrine marl, Perrine marl, tidal phase, and Perrine marl, shallow phase (USDA 1958). The 1996 soil survey primarily indicated the presence of

modified or poorly to very poorly drained soils, identifying the udorthents water complex, Biscayne marl drained, Lauderhill muck frequently ponded, Terra Ceia muck tidal, Pennsuco marl tidal, and Perrine marl drained detailed soil types within the CWRC Waterline corridor (USDA 1996) (Table 2).

Table 2. Characteristics of Detailed Soil Types within the CWRC Waterline Corridor

Drainage Characteristics	Soil Type	Environmental Association
1947 Soil Survey		
Poorly or Very Poorly Drained	Perrine marl, tidal phase	Frequently found in narrow belts between the other Perrine marls and Mangrove swamp in the southern and western parts of the marl glades near Florida City. Natural vegetation consists of salt-tolerant grasses and mangrove trees.
	Perrine marl, shallow phase	This soil occurs in association with the other Perrine marls in the southeastern part of the county. In many places small areas extend into areas of the Rockdale soils-Limestone complex, which lie on the low ridge extending from Miami to Florida City. This shallow phase differs from Perrine marl chiefly in having underlying limestone at depths ranging from 12 to 24 inches.
	Perrine marl	This is the dominant soil in the marl glades, which lie mostly east of the rocky pinelands from Miami to south of Florida City. It was derived from unconsolidated, finely divided, calcareous sediments that are mainly of fresh-water origin. The areas of this soil are nearly flat and only a few feet above sea level.
1996 Survey		
Well Drained	Udorthents-water complex	Found in areas that consist of Udorthents and open bodies of water. They consist of unconsolidated or heterogeneous geologic material removed during excavation of ditches, canals, lakes, ponds, and quarries. Natural Vegetation consists of weeds and native grasses. Other areas support little or no vegetation.
Poorly Drained	Biscayne Marl, drained	On broad, low coastal flats and in transverse glades that extend into the Pineland Ridge. Individual areas are broad and irregularly shaped or are rectangular. Slopes are smooth or concave and are less than 2 percent. All areas have been drained or cultivated in the past. The native vegetation no longer remains.
	Perrine Marl, drained	Nearly flat and only a few feet above sea level. Natural vegetation is sedges and tall grasses, mainly switchgrass, reedgrass, needlegrass and sawgrass.

Drainage Characteristics	Soil Type	Environmental Association
Very Poorly Drained	Terra Ceia muck, tidal	Saltwater swamps and marshes that are subject to tidal flooding. Slopes are less than 1 percent. Natural vegetation consists mainly of red and black mangroves. White mangrove grows in some areas.
	Lauderhill Muck, frequently ponded	Narrow drainageways and broad open areas within sawgrass marshes. It is ponded for 9 to 12 months in most years. Slopes are smooth and concave and less than 2 percent. Most areas support natural vegetation, which consists of cattail and sawgrass.
	Pennsuco Marl, Tidal	Tidal mangrove swamps near the coast that are subject to tidal flooding. Slopes are smooth or concave and are less than 1 percent. The natural vegetation is scattered red mangrove.

USDA 58:23, 24, 25, 27, 1996:14, 15,18, 19, 21, 22, 28, 32

Elevation

An analysis of the earliest available topographic map and historic aerials, as well as a review available DEM data from the FGDL was also conducted to determine whether the CWRC Waterline corridor exhibited any areas of higher elevation relative to the surrounding area. Portions of the CWRC Waterline corridor run along filled access road and within low lying wetlands, with an average elevation of 0 meters AMSL. Based on the review of the topographic maps and historic aerials, as well as the DEM, the area containing the CWRC Waterline Corridor is located near the eastern edge of a very gradual slope extending from the Atlantic Coastal Ridge (approximately 3 meters AMSL) down to sea level along the coastline bordering the Atlantic Ocean. The corridor does not exhibit any predevelopment natural areas of increased elevation relative to the surrounding area.

PRECONTACT OVERVIEW

Native peoples have inhabited Florida for at least 14,000 years. The earliest cultural stages are pan-Florida in extent, while later cultures exhibited unique cultural traits. The following discussion of the precontact time period of the general project corridor is included in order to provide a framework within which the local archaeological record can be understood.

Paleoindian Period (12,000–7500 BC)

Human occupation of Florida began toward the end of the last glacial epoch of the Pleistocene. The earliest inhabitants of Florida are known archaeologically as “Paleoindians”. They are usually described as highly mobile hunter-gatherers who traveled in small family bands. The greatest density of known Paleoindian sites in Florida is associated with the rivers of northern and north-central Florida where distinctive lanceolate projectile points and bone pins have been found in abundance in and along the Santa Fe, Silver, and Oklawaha Rivers (Dunbar and Waller 1983). The majority of these have been found at shallow fords and river crossings where Native Americans presumably hunted Pleistocene mammals. The bones of extinct species such as mammoth, mastodon, and sloth are commonly found preserved in the highly mineralized waters of the area’s springs and rivers. Despite early claims to the contrary, present evidence strongly supports the contemporaneity of Paleoindians and these extinct mammals.

During Paleoindian times, the Florida peninsula was more than twice as wide as it is today with sea levels as much as 160 feet lower than present levels. The climate was windy, cool, and arid (Kutbach and Wright 1985:178–180; Wright 1981:121, 123). Modern hydrological features such as the Everglades, Lake Okeechobee, and the familiar swamps of southern Florida probably had not yet begun to form. However, the presence of low numbers of aquatic species, such as alligators, fish, and turtles, from fossil records dating to this time indicate that a few streams and water bodies did exist, although they may have been located mostly on the coast. Rising sea levels are assumed to have inundated many coastal sites dating to the Paleoindian and Early Archaic periods (Ruppe 1980; Goodyear and Warren 1972; Goodyear et al. 1980; Dunbar et al. 1988). It is difficult to determine the dependence of Paleoindian groups on estuarine and littoral resources because little is known of these submerged archaeological sites.

The prevailing view of the Paleoindian culture, a view based on the uniformity of the known tool assemblage and the small size of most of the known sites, is that of a nomadic hunting and gathering existence, in which now-extinct Pleistocene megafauna were exploited. Settlement patterns were restricted by availability of fresh water and access to high-quality stone from which the specialized Paleoindian tool assemblages were made. Waller and Dunbar (1977) and Dunbar and Waller (1983), from their studies of the distribution of known Paleoindian sites and artifact occurrences, have shown that most sites of this time period are found near karst sinkholes or spring caverns.

The majority of Paleoindian sites in Florida consist of surface finds. The most widely recognized Paleoindian tool in Florida is the Suwannee point, typically found along the springs and rivers of northern Florida. Other points, including Simpson and Clovis points, are found in lesser numbers. Other Paleoindian stone tools are known from the Harney Flats site (Daniel

and Wisenbaker 1987:41–97), the Silver Springs site in Marion County (Neill 1958), and other northern Florida sites (Purdy 1981:8–32). These Paleoindian tools tend to be unifacial and plano-convex, with steeply flaked, worked edges (Purdy and Beach 1980:114–118, and Purdy 1981). Bifacial and “hump-backed” unifacial scrapers, blade tools, and retouched flakes, including spokeshaves, have been found at these sites (Purdy 1981; Daniel and Wisenbaker 1987:62–81, 86–87). However, some tools are little more than flakes or blades that were struck from cores, used, and discarded (Milanich 1994:51).

By the end of the Paleoindian period, the climate had become warmer and wetter, and it is possible that the modern wetlands of southern Florida began to emerge. Sea levels began a fairly rapid rise, shrinking the available land mass through coastal inundation. These dramatic climate changes, and possible pressure from Paleoindian hunters, led to the extinction of the Pleistocene megafauna and other species.

Archaic Period (7500–500 BC)

During the Archaic period, climate and sea levels gradually stabilized and southern Florida began to take on its current appearance. The Archaic period is known for the adaptations made by Florida’s earliest inhabitants to the modernizing climate and landscape. At the beginning of the Archaic, lifeways in Florida were quite similar to those of the preceding Paleoindian period. However, by the end of the Archaic, Florida’s natives had developed more sedentary lifestyles, made many technological innovations, the most important of which was the invention of pottery, and began to differentiate themselves into distinct regional subcultures. Florida’s Archaic is divided into an Early, Middle, and Late sub-periods, each of which have recognized horizons that are limited to restricted geographic areas and/or times.

Early Archaic (7500–5000 BC)

By the beginning of the Early Archaic sub-period, the Pleistocene megafauna and other characteristic fauna had become extinct. The settlement patterns and tools of Early Archaic people in Florida were initially very similar to those of the preceding Paleoindian period. As the Early Archaic progressed, more wetland habitats within southern Florida began to emerge. The Windover Pond site in Brevard County provides dramatic evidence of Early Archaic material culture and burial practices, although, since the site has no correlates, it is unclear how representative it is of other Early Archaic sites in southern Florida (Dickel 2002). Within southern Florida, sites dating to this time period are extremely rare. The Cutler Fossil site (8DA2001) in the Deering Estate, Miami-Dade County, is one definite Early Archaic site in southern Florida (Carr 1986). Other possible Early Archaic sites in southern Florida include Sunset Lakes (8BD3176), Blue Cow (8BD2150) (Davis and Carr 1993), and Silver Lakes (8BD1873) (Carr et al. 1991).

By the end of the Early Archaic, local environments were more subtropical. Evidence from the Cutler Fossil Site (8DA2001) in Miami-Dade County suggests a forested environment surrounded by open, savannah-like grasslands and open marshes and wetlands (Emslie and Morgan 1995:81). Additionally, interior ponds had begun to form (Carr 2002:194–195; Wheeler 2004:7) although the Kissimmee River was probably not yet in existence (Austin 1996:67). Sea levels throughout the Early Archaic were also still lower than modern levels.

Most of what is known about Early Archaic subsistence comes from highly preserved materials recovered from the anaerobic muck of the Windover Pond site in Brevard County. The Windover analysis (Andrews et al. 2002) indicates that Early Archaic peoples utilized the fibers of sabal palm, saw palmetto, and other plants in the weaving of baskets and textiles. Windover also illustrates that at least some Early Archaic populations had developed an intensive exploitation strategy focused on inland aquatic resources supplemented by terrestrial game (Dickel and Doran 2002:54).

Artifacts typical of the Early Florida Archaic are extremely rare in southern Florida. It is unclear if this is because there was very little use of southern Florida during the Early Archaic or if there was a unique southern Florida toolkit for the Early Archaic that has yet to be defined.

Middle Archaic Period (5000–3000 BC)

The Middle Archaic can be seen as an environmental and cultural bridge between the Early Archaic and the Late Archaic. During the intervening Middle Archaic, the environment of southern Florida approached that of modern times, becoming increasingly moist, while the climate grew more stable. The human populations in turn began to develop distinct regional adaptations to the changing environmental conditions. For the first time, such distinct regional adaptations and cultures appeared across all of Florida, including the southern portion of the peninsula. Along the southwest coast, populations developed year-round adaptations to the developing estuaries, producing large shell middens and constructing shell mounds in the process. In northeastern Florida, the Middle Archaic Mt. Taylor culture represents an adaptation to the freshwater resources provided by interior waterbodies and waterways, such as the St. Johns River and its tributaries. Within southern Florida, Middle Archaic populations began to adapt to the developing Everglades ecosystem as well as the more dispersed wetland resources to the north of what is now Lake Okeechobee. The unique adaptation to the interior marshlands of southern Florida that can be seen developing during the Middle Archaic has been labeled the Glades or Everglades Archaic (Pepe 2000:32; Pepe and Jester 1995:19; Wheeler 2004; Wheeler et al. 2002:143–144) and is discussed in more detail in the following description of the Late Archaic Period.

During the Middle Archaic, the environment of southern Florida became less arid, thereby supporting a much broader range of animal and plant resources. Broad wetlands, lakes and rivers began to develop and sea levels began to stabilize. In fact, by the end of the Middle Archaic, sea levels had reached almost modern levels (Dixon 1999; Littman 2000). Large coastal shell middens dating to the Middle Archaic are known for the southwestern coast of Florida, providing ample evidence of fully developed estuaries there during these times (Russo 1991; Torrence 1996). Within the interior, peat formation became widespread toward the end of this period.

The Middle Archaic artifact assemblage is not well documented but includes Florida Archaic Stemmed (FAS) and related points. Thonotosassa points, related to, but larger, thicker, and more crudely made than, FAS points have also been found in southern Florida at sites dating to the Middle Archaic (David Dickel, personal communication with James Pepe 2007; Farr 2006:91). To date, Thonotosassa points seem to be a mostly west coast phenomenon, having been found mainly around the Tampa Bay area (Farr 2006). Within southern Florida, an

example of this point was noted at Ryder Pond (8LL1850). Wooden artifacts known from the Middle Archaic include dugout canoes and a variety of wooden stakes and other tools recovered from wet sites. Finally, although a variety of shell tool types are known from Middle Archaic sites, the main shell tool type known for southern Florida during this time is the *Strombus* celt (Wheeler 1994).

Several Middle Archaic sites have been identified on sandy ridges along the eastern edge of the Everglades. Sites such as Ranch Ridge (8BD1119) and Hiatus #2 (8BD3283) consist of scatters of lithic artifacts, including Middle Archaic point types and lithic debitage.

Other probable Middle Archaic sites located in the Everglades itself, such as Bass Creek/Blockbuster #1 (8BD2878) and Cheetum (8DA1058), may represent early manifestations of the aforementioned Glades Archaic culture. All are/were hammock tree island sites surrounded by what would have been marshlands before modern drainage and other disturbances. Bass Creek is a dense aceramic faunal bone midden (Carr, Davis, and Steele 1994). During shovel testing there, a Florida Archaic Stemmed Point was recovered near the base of the midden. It is unclear how much of the overlying midden dates to the Middle Archaic, but it seems clear that at least some of it does.

At Cheetum, a Middle Archaic cemetery was identified in the concretion layer at the base of a dense Glades period midden. Radiocarbon analysis dates this cemetery to the end of the Middle Archaic or beginning of the Early Archaic (Newman 1993).

As discussed in the section on the Early Archaic, mortuary, or charnel, pond sites are shallow ponds into which human interments were made. Because of the anaerobic muck that underlies these ponds, preservation of the burials is noteworthy. Although Windover provides a dramatic example of this site type for the Early Archaic period, most known mortuary pond sites date to the Middle Archaic. Examples in southern Florida include Bay West in Collier County, Republic Groves in Hardee County and Ryder Pond (8LL1850) (David Dickel, personal communication with James Pepe 2007).

Due to rising sea levels since the Middle Archaic, many sites dating to this period are now submerged beneath the waters of the Gulf of Mexico and Atlantic Ocean. One such site in St. Lucie County may be the Douglass Beach Midden (8SL17), from which artifacts predating the Late Archaic have been recovered (Murphy and Cummings 1990).

Late Archaic Period (3000–500 BC)

By the beginning of the Late Archaic, all of the modern physiographic regions and ecosystems of southern Florida were present in essentially their modern forms. This includes the entire Kissimmee-Lake Okeechobee-Everglades drainage system. Although the environment of southern Florida had achieved some sense of stability, the archaeological record of this period is much more dynamic. Different ideas and perhaps, human populations, were moving into the area during this time. As a result, there is a great deal of variability between Late Archaic sites in southern Florida.

At the beginning of the Late Archaic, pottery had not yet been invented. It is unclear how long this aceramic state persisted, what the earliest pottery types are, and how they vary over space and time.

Until recently, variations of Bullen's chronology for the Late Archaic Orange culture in northeastern Florida were generally used for the Late Archaic in southern Florida. Using this scheme, fiber-tempered pottery, the earliest pottery type known for all of North America, was considered to be a marker for the pottery portion of the Late Archaic. The generally accepted chronological sequence for the Late Archaic was expressly unilineal, with plain (undecorated) fiber-tempered pottery, followed by decorated fiber-tempered pottery, replaced finally by plain pottery that was not tempered with fibers (Bullen 1954, 1955, 1972). It was also understood that sand was eventually added as a tempering agent to fiber-tempered pottery. As the Late Archaic progressed, the amount of sand temper was supposed to have increased while the amount of fiber temper decreased. Orange pottery tempered with both fiber and sand is sometimes referred to as "semi-fiber tempered." The application of this chronology to southern Florida seemed to indicate that most of the area, especially the Everglades, was sparsely settled during the Late Archaic due to the general absence of Orange pottery at sites (Griffin 2002:146–149; Widmer 1988:201–201).

The use of the "standard" fiber-tempered sequence for the Late Archaic in southern Florida eventually came into question by several researchers. Based on his research in southwestern Florida, Widmer (1988:68) hypothesized that the earliest sites there "include untempered chalky pottery and limestone-tempered pottery as well as the usual fiber-tempered Orange pottery." Austin (1997:136) states that the "identification of a true Orange Horizon in south Florida is debatable." He points out that, in the Kissimmee River Valley, pure fiber-tempered components are rare. Instead, what is more common is the presence of "semi-fiber tempered" pottery in the basal levels of middens, "often in association with thick St. Johns Plain or Sand-tempered Plain sherds, and overlying either culturally sterile sands, or sparse scatters of lithic artifacts" (Austin 1996, 1997:136). Both Widmer and Austin agree that semi-fiber tempered components at sites throughout southern Florida are "ephemeral" and soon replaced in the archaeological record by components consisting of exclusively sand-tempered pottery (Austin 1997:136; Widmer 1988:72–73).

Russo investigated the Joseph Reed Shell Ring on Jupiter Island and calibrated radiocarbon dates indicated that the site was constructed sometime between 1577–796 BC (Russo and Heide 2002:73). This confirms that the site dates to the Late Archaic period. However, no fiber-tempered pottery was recovered from the site. Instead, excavations yielded only chalky (possible early St. Johns Plain) and plain sand-tempered pottery. This is an earlier appearance for these types of pottery than has been predicted for eastern Florida. Calibrated radiocarbon dates indicate that the chalky pottery appears at the Joseph Reed Shell Ring between 1550 and 1350 BC whereas sand-tempered pottery is hypothesized to appear around 1330 BC. Based on the evidence obtained from excavations at the Joseph Reed Shell Ring, Russo and Heide tentatively propose a new chronology for the Late Archaic in southeastern Florida. A period labeled Late Archaic I is proposed that is marked by fiber-tempered and/or semi-fiber tempered plain pottery. During the next proposed period, Late Archaic II, only chalky ware pottery, possibly early St. Johns Plain, is predicted to occur. This is based on the earliest pottery-bearing

levels from the Joseph Reed Shell Ring. The next proposed period, Late Archaic III, is distinguished by the presence of plain sand-tempered pottery along with the chalky pottery. This period is based on the latest levels from the Joseph Reed Shell Ring. Russo and Heide point out that this chronology is closest in resemblance to the chronology proposed by Widmer (1988) for southwestern Florida, suggesting, among other things, that non-fiber-tempered pottery was developed earlier in southern Florida than elsewhere in the state.

It is worth noting that all of these researchers mention in their Late Archaic chronologies the presence of St. Johns Plain, or plain “chalky ware” pottery. Specimens of this type are usually described as “thick” or “thick walled.” The same phenomenon has been mentioned for Late Archaic sites in the Everglades (Mowers and Williams 1972). Often, this pottery is described in reports as “early St. Johns Plain.”

Of perhaps equal interest to the reported early manifestations of St. Johns Plain are the early reports of Sand-tempered Plain pottery from some sites in southern Florida. In addition to the early examples of Sand-tempered Plain sherds from the Joseph Reed Shell Mound, early examples of this type are also reported from southwestern Florida. At the Mulberry Midden (8CR697), Sand-tempered Plain pottery was dated at about 1440 and 1480 BC (Lee et al. 1993:46; dates recalibrated by Russo and Heide 2002). Calibrated dates for Sand-tempered Plain from Heineken Hammock (8CR231) are even earlier, ranging from 2050 to 2550 BC (Lee et al. 1998; dates recalibrated by Russo and Heide 2002). Again, using the standard fiber-tempered sequence for southern Florida, Sand-tempered Plain pottery should not be present at such early dates, only fiber-tempered pottery.

Many of the ubiquitous faunal bone middens located in the interior wetlands of southern Florida date to Late Archaic times, despite the fact that many of them lack pottery of any kind. These sites are difficult to date because, not only do they often lack chronologically diagnostic artifacts, but most of the faunal bone at the sites lacks collagen, the datable material in bone samples sent to radiocarbon labs. Nevertheless, many sites clearly have aceramic components that underlie pottery-bearing strata, logically indicating that these aceramic components most likely date at least as far back as Late Archaic times. Indeed, a few radiocarbon dates have been obtained from some of these components, mostly from shell artifacts or ecofacts. For instance, Taylor’s Head (8BD74) yielded a radiocarbon date of 2890 +/- 210 BC from an aceramic stratum that lay beneath pottery-bearing strata, although no fiber-tempered pottery was identified (Masson et al. 1988:346). Additionally, calibrated radiocarbon dates from the lower, aceramic stratum at the Francis Groves Midden/Muhley site (8BD2911) are reported as ranging from 2010–1680 BC (Pepe and Elgart 2006), despite the fact that fiber-tempered pottery is known during this time elsewhere in Florida (Russo and Heide 2002). Research in the Big Cypress National Preserve and Everglades National Park has yielded dense aceramic faunal bone middens yielding radiocarbon dates between 2850 and 1550 BC (Michael Russo, personal communication with James Pepe 2007; Schwadron 2006).

To explain this dichotomy between Late Archaic Everglades area sites that lack fiber-tempered pottery and large, coastal shell mounds that have abundant examples of early pottery, Pepe and Jester (1995:19) propose that there are two, distinct Archaic traditions in southeastern Florida. In this model, the fiber-tempered pottery tradition is largely a coastal phenomenon associated

with shell mound building, while the aceramic Archaic or “Glades Archaic” is a more widespread tradition, perhaps giving rise to the distinctive regional culture of the Tequesta and their ancestors (Pepe 2000:29–32; Russo and Heide 2002:80; Wheeler et al. 2002:143–144).

Additionally, Austin suggests that the presence of “semi-fiber-tempered” pottery at sites in southern Florida may not actually date to the Late Archaic, but instead may signify the beginning of the subsequent post-Archaic Tradition (Austin 1997:138). In other words, Austin suggests that the ephemeral “semi-fiber-tempered” components in the basal levels of middens in southern Florida may better be incorporated into the initial periods of post-Archaic chronologies (i.e. Glades I Early, Okeechobee Basin I, etc.).

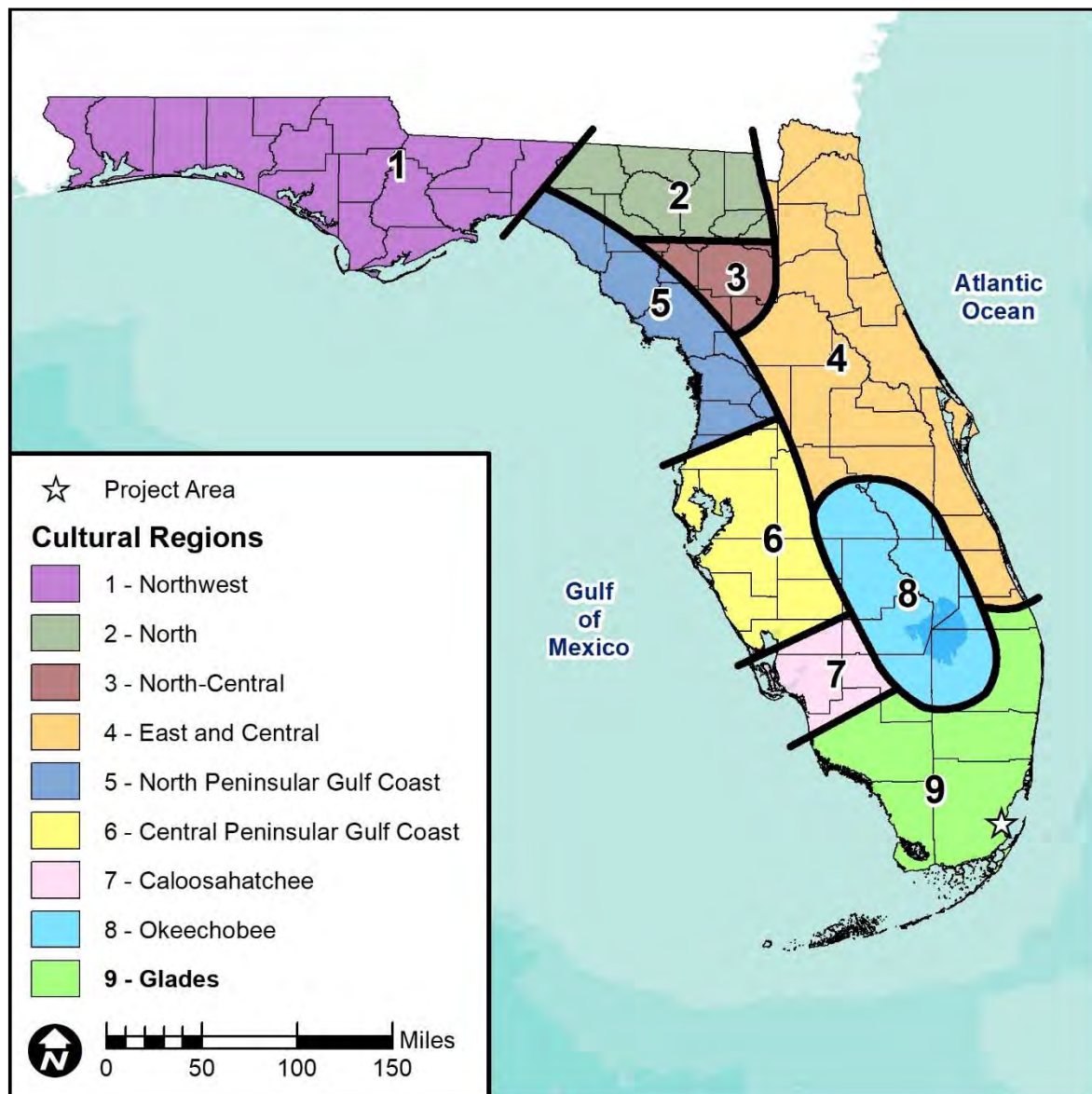
The preceding discussion illustrates that a lack of fiber-tempered pottery at a site in southern Florida does not necessarily mean that the site does not date to the Late Archaic. At some sites, or in some areas, the earliest pottery present may be Sand-tempered Plain or thick, chalky (possible St. Johns) wares. Finally, Austin holds out the possibility that fiber-tempered pottery in southern Florida may not date to the Late Archaic at all, but instead, may be markers of the earliest post-Archaic expressions in the region.

Formative Period (500 BC–AD 1513)

The Formative Period represents a time when changes in pottery and technology occurred throughout Florida. The specific changes in pottery traditionally used by archaeologists to mark the beginning of this period include the replacement of fiber-tempered pottery with sand-tempered, limestone-tempered, and chalky-paste ceramics. Three different projectile point styles (basally-notched, corner-notched, and stemmed) also occur in some areas in contexts contemporaneous with these new ceramic types. This profusion of ceramic and tool traditions suggests population movement and social interaction between culture areas. The earliest known major occupations of southern Florida date to this period (Bullen et al. 1968; Sears 1982).

The regional diversity that marked this period has been primarily attributed to local adaptation to varied ecological conditions within the state. Traditionally, it has been described archaeologically in terms of cultural periods based on variations in ceramic types. The ceramic tradition for southern Florida, characterized by sand-tempered bowls with incurvate rims, is known as the Glades or Everglades cultural tradition.

The project APE is located in the Glades (Milanich 1994:301). As defined by Milanich (1994:298), the Glades cultural region includes all of south Florida “east and south of the Caloosahatchee and Okeechobee regions. It includes most of St. Lucie County, “ the Everglades itself, a largely sawgrass marsh in Hendry, Palm Beach, Broward, Dade, and Monroe counties; the Big Cypress Swamp west of the Everglades in Collier County; and extensive saltwater marshes and mangrove forests once found along both coasts, now almost totally destroyed in Broward and Dade counties” (Figure 8).



**Figure 8: Approximate Location of the Project Area Within the Glades Cultural Region
(Adapted from Milanich 1994)**

Glades Culture

Environmentally, the interior portions of the Glades area are dominated by inundated or formerly inundated humic or peat soils which are drained by massive sheet-flow instead of river channeling. The Atlantic coast, which has developed from beach dune deposition, has a few rivers cutting through the Atlantic Coastal Ridge and a coast-parallel lagoon system.

John Goggin established a ceramic sequence for the Glades region on the basis of work he conducted from the 1930s to early 1950s (Goggin n.d.). Subsequent research has only served to refine his basic chronological framework. The most recent revision was presented by John Griffin (1988), who based his research on a series of radiocarbon dates from the Granada site in Dade County (Griffin et al. 1982) and research he conducted on the Bear Lake site in

Everglades National Park. In presenting his revisions, Griffin makes a point to emphasize that the Glades sequence represents a chronology of stylistic and technological changes in ceramics to which other cultural traits have been added. Table 3 is based on Griffin's 1988 work and presents the most thorough chronological framework for southern Florida. Summaries of the ceramic markers associated with each period are provided, as well.

Table 3. Glades Cultural Sequence

Period	Dates	Distinguishing Characteristics
Glades I early	500 BC–AD 500	First appearance of sand-tempered pottery; no decoration
Glades I late	AD 500–750	First appearance of decorated pottery: Fort Drum Incised, Fort Drum Punctated, Cane Patch Incised, Gordon's Pass Incised, Opa Locka Incised, Sanibel Incised; sand-tempered plain persists
Glades IIa	AD 750–900	Appearance of Key Largo Incised and Miami Incised; sand-tempered plain and Opa Locka Incised persist; none of the earlier decorated types are present
Glades IIb	AD 900–1100	Sand-tempered plain and Key Largo Incised persist; Matecumbe Incised appears; none of the earlier decorated types are present; certain rim modifications (incised lip arcs and lip crimping and grooving) also appear for the first time
Glades IIc	AD 1100–1200	Almost no decorated ceramics; some grooved lips but no more lip arcs or crimped rims; Plantation Pinched appears
Glades IIIa	AD 1200–1400	Plantation Pinched is no longer present; Sand-tempered plain and grooved lips persist; appearance of Surfside Incised and St. Johns Check Stamped
Glades IIIb	AD 1400–1513	Glades Tooled, sand-tempered plain and St. Johns Check Stamped are present, Surfside Incised and grooved lips are not present
Glades IIIc	AD 1513–ca. 1700	Same as previous period with the addition of historic artifacts

Griffin 1988:124–142

Glades period sites include those at Gordon's Pass (Goggin 1939), Goodland Point (Goggin 1950), Marco Island (Van Beck and Van Beck 1965), Useppa Island (Milanich et al. 1984), Horr's Island (McMichael 1982), Sanibel Island (Fradkin 1976), and the Turner River site (Sears 1956). An interesting feature of these large coastal sites is the progressive movement of habitation areas toward the water (Cushing 1896; Goggin 1950; Sears 1956), and indications are that dwellings may have been built to extend out over the water. Inland sites consist of shell and dirt middens along major watercourses (Laxson 1966) and small dirt middens containing animal bone and ceramic sherds in oak/palm hammocks or palm islands associated with freshwater marshes. The coastal Glades subsistence pattern is typified by the exploitation of fish and shellfish, wild plant food, and inland game, while Glades sites in the Big Cypress Swamp show a greater, if not exclusive, reliance on interior resources.

HISTORICAL OVERVIEW

The intent of this historical overview is to serve as a guide to field investigations by identifying the possible locations of any resources within the project APE and to provide expectations regarding the potential historic significance of any such resources. It also provides a context with which to interpret any historic resources encountered during the CRAS.

European Contact and Colonial Period (ca. 1513-1821)

Official credit for the discovery of Florida by Europeans is credited to Juan Ponce de León, whose voyage of 1513 took him along the East Coast of the peninsula (Tebeau 1971:21). Other Spanish explorers followed Juan Ponce de León's lead, and over the next 50 years the Spanish government and private individuals financed expeditions in hopes of establishing a colony in Florida. Jesuit missions were established in the Central Peninsular Gulf Coast and Glades archaeological regions, including the mission of Carlos at Charlotte Harbor, the mission of Tocobaga at Tampa Bay, and a mission at a Tequesta village at the mouth of the Miami River. By 1572, native groups in Florida were still resistant to Christian conversion, and Jesuit authorities decided to abandon their missionary efforts in Florida.

The Franciscan mission effort began in the 1570s and focused predominantly in northern areas of Florida. One possible reason may have been differences in Native American settlement patterns and economies. According to Milanich (1978:68), the failure of the Spanish missions among the south Florida native population was due partially to the groups' subsistence pattern, which required seasonal movement for maximum resource exploitation. Consequently, for the remainder of the First Spanish Period (1565-1763), the area surrounding the project APE was virtually ignored as the Spanish concentrated their efforts in the northern half of the peninsula.

By the beginning of the eighteenth century, the Native American population of South Florida had declined considerably as a result of disease, slave raids and intertribal warfare. Many who survived integrated into the Seminoles, descendants of Creek Indians who moved into Florida during the early eighteenth century to escape the political and population pressures of the expanding American colonies to the north (Wright 1986:218).

By the end of the eighteenth century, the Seminoles had become the dominant Native American group in the state. Groups of fugitive African American slaves had also settled among the Seminoles by the early nineteenth century (Brown 1991:5-19). Armed conflict with pioneers, homesteaders, and eventually the United States Army resulted in the removal of most Seminoles from Florida. This action forced the withdrawal of the remaining Seminole population to the harsh environment of the Everglades and Big Cypress Swamp by the late nineteenth century.

Territorial and Statehood Period (1821-1860)

In 1821, after several years of negotiations with Spain, the United States acquired Florida as a territory. The population of the territory at that time was still centered in the northern areas around Pensacola, St. Augustine, and Tallahassee. As more European-American settlers

moved into the region, conflicts arose with the Seminole people over available land. Pressure was brought to bear upon the government to remove the Seminoles from North Florida and relocate them farther south. The Treaty of Moultrie Creek (1823) restricted the Seminole people to approximately four million acres of land in the middle of the state, running south from Micanopy to just north of the Peace River (Mahon 1967: Rear foldout map). This treaty was unpopular with the Seminoles, as they were reluctant to move from their established homes to an area that they felt could not be cultivated. Equally unpopular were the later treaties of Paynes Landing (1832) and Fort Gibson (1833), which called for Seminole emigration to the western territories (Mahon 1967:75-76, 82-83). These three treaties helped foster Seminole resentment of settlers and outbreaks of hostility that culminated in the Second Seminole War in 1835.

At the beginning of the Second Seminole War, the conflict was centered near the Withlacoochee region. In 1838, U.S. troops moved south to pursue the retreating Seminoles into the Lake Okeechobee and Everglades regions. Colonel Zachary Taylor was sent to the area between the Kissimmee River and Peace Creek. Colonel Persifor Smith and his volunteers were dispatched to the Caloosahatchee River, and U.S. Navy Lt. Levi N. Powell was assigned the task of penetrating the Everglades (Mahon 1967:219-220). Powell's detachment had several skirmishes with Seminole people near Jupiter Inlet. Powell established a depot on the Miami River and erected Fort Dallas in the approximate location of present-day downtown Miami. For three months, Fort Dallas was a base of operations as Powell led his men into the Everglades in search of the Seminoles (Gaby 1993:47).

The Second Seminole War had a deleterious effect on new settlement in Florida. To encourage settlement in the middle portion of the territory after the war, the Armed Occupation Act of 1842 offered settlers 160 acres of land at no cost, provided they built a house, cleared five acres, planted crops, and resided on the land for five years. Any head of a family or single man over 18 years of age and able to bear arms was eligible to receive a homestead. This act, plus the end of the Second Seminole War, created a small wave of immigration by Anglo-American pioneers to Central Florida. Most of these immigrants were Anglo-American farmers and cattle ranchers, or crackers, from the southeast United States.

Civil War and Post-Civil War Period (1860-1898)

The onset of the Civil War disrupted serious development in Florida. Most of the State did not have daily contact with battles; however, Florida contributed 15,000 troops and supplies to the Confederate Army (Miller 1990). Florida cattlemen became an important supplier of beef to the Confederate Army after the occupation of Vicksburg on July 4, 1863. Florida's governor, John Milton, organized a commissary service under James McKay and supervised collections from south Florida ranges (Gannon 1996: 241). In addition, the State supplied salt for tanning and meat preservation from coastline salt works. Although Florida was not involved in many Civil War battles, Union forces established control of the Florida coastline in 1863 (Miller 1990).

Like the other former Confederate states, Florida suffered economic devastation at the Civil War's end. Six railroad lines in north Florida at the war's beginning were destroyed or fell into disrepair during the war. Florida's cotton industry had grown in the decade before the war; however, as a result of limited markets, short supply of men, and blocked ports, the industry declined. At this time, much of the state's agricultural production came to a halt (Miller 1990).

Settlement increased slightly in central and southern Florida, but development was limited by a lack of transportation to the state's interior and the state's internal debt. Although the economy was in ruins, tax-supported public school and university systems were established. Some industries including lumbering and cattle ranching emerged during this period. Despite some economic activity, the overall condition was hard for most residents (Miller 1990).

The presidential election of 1876 marked the end of Reconstruction. The Post-Reconstruction era ushered in economic growth, prosperity, and population expansion for Florida. Transportation routes, primarily through the railroad's expansion along both coasts, encouraged the state's overall development. Agricultural products were now more easily shipped to out-of-state markets and building materials were shipped into the state. By 1890, agricultural products included lumber, cigars, turpentine, fertilizers, printing, shipbuilding, cattle ranching, and citrus production. Several cities and six new counties were established during the Post-Reconstruction period (Miller 1990).

In the 1880s, interest in south Florida's resources intensified and was promoted by businessmen Hamilton Disston, Henry Plant, and Henry Flagler. By 1881, the State of Florida faced a financial crisis involving a title to public lands. On the eve of the Civil War, land had been pledged by the Internal Improvement Fund to underwrite railroad bonds. After the War, when the railroads failed, the land reverted to the State. Almost \$1 million was needed by the state to pay off the principal and accumulated interest on the debt, thereby giving clear title.

Hamilton Disston, son of a wealthy Philadelphia industrialist, contracted with the State of Florida in two large land deals: the Disston Drainage Contract and the Disston Land Purchase. The Drainage Contract was an agreement between Disston and the State in which Disston and his associates agreed to drain and reclaim all overflow lands south of present-day Orlando and east of the Peace River in exchange for one-half the acreage that could be reclaimed and made fit for cultivation.

The Disston Land Purchase was an agreement between Disston and the State in which Disston agreed to purchase Internal Improvement Fund Lands at \$1.25 an acre to satisfy the indebtedness of the fund. A contract was signed on June 1, 1881 for the sale of 4,000,000 acres for the sum of \$1 million, the estimated debt owed by the Improvement Fund. Disston was allowed to select tracts of land in lots of 10,000 acres, up to 3,500,000 acres. The remainder was to be selected in tracts of 640 acres (Davis 1938:206–207). Before he could fulfill his obligation, Disston sold half of this contract to a British concern, the Florida Land and Mortgage Company, headed by Sir Edward James Reed (Tischendorf 1954:123).

Disston changed Florida from a wilderness of swamps, heat, and mosquitoes into an area ripe for investment. This enabled Henry B. Plant to move forward with his plans to open the west coast of Florida with a railroad-steamship operation called the Jacksonville, Tampa & Key West Railway. Through the Plant Investment Company, he bought up defunct rail lines such as the Silver Springs, Ocala & Gulf Railroad, Florida Transit and Peninsular Railroad, South Florida Railroad, and Florida Southern Railroad to establish his operation (Mann 1983:68; Harner 1973:18–23). In 1902, Henry Plant sold all of his Florida holdings to the Atlantic Coast Line, which would become the backbone of the southeast (Mann 1983:68).

Julia Sturtevant Tuttle, a resident of Cleveland, Ohio, moved to Florida in 1891, and was so taken with the old Fort Dallas property that she purchased it from the Biscayne Bay Company for \$2,000.00. She also recognized the importance of transportation if the region was ever to progress. Consequently, she negotiated with railroad magnate Henry Flagler to transfer to him half of her acreage along the Miami River in exchange for bringing the Florida East Coast (F.E.C.) Railway to Miami. Flagler agreed, and by 1896 the railroad arrived. The City of Miami was incorporated three months after the construction of the railroad, with a population of 502 voters. Flagler extended his railway to Homestead in southern Miami-Dade County, completing the line by 1904 (Mann 1983).

Turn-of-the-Century Period/ World War I and Aftermath Period (1898-1920)

At the turn-of-the-century, Florida's history was marked by the outbreak of the Spanish-American War in 1898. As Florida was the closest state to Cuba, American troops were stationed and deployed from the state's coastal cities. Harbors in Tampa, Pensacola, and Key West were improved as ships were launched with troops and supplies. The war was short in duration, but evidence of the conflict remained in the form of improved harbors, expanded railroads, and military installations (Miller 1990).

In 1904, Governor Napoleon Bonaparte Broward initiated significant reforms in Florida politics. Broward's major issues included the Everglades drainage project, railroad regulation, and the construction of roads. During this time, railroads were constructed throughout the state and automobile use became more prevalent. Improved transportation in the state opened lines to export Florida's agricultural and industrial products. As various products such as fruits and vegetables were leaving the state, people were arriving in Florida. Some entered as new residents and others as tourists. Between 1900 and 1910, the state population increased from 528,542 residents to 752,619. At this time, St. Lucie and Palm Beach counties were established, indicative of the increasing numbers of people moving to the East Coast of the state (Miller 1990).

Rapid and widespread growth was the theme of this period in Florida history. Thousands of miles of railroad tracks were laid at this time. The Florida East Coast, Atlantic Coast Line, and Seaboard Air Line railroads each had systems running throughout the state. While agriculture, especially the citrus industry, was the main source of Florida's economy, manufacturing and industry grew during the beginning of the century. Fertilizer production, boat building, and lumber and timber products were large industries (Weaver et al. 1996:3).

The Town of Homestead, northwest of the project area, was platted in 1904 following the expansion of the F.E.C. Railway south from Miami. In 1905, the railroad continued to be expanded south to Key West, although the extension was short lived due to hurricane damage. Following the completion of the railroad in Homestead, homesteading claims in southern Miami-Dade County increased as settlers began to invest in real estate (Blakely 2019). The town of Florida City, which is located south of Homestead and west of the current project area, was settled during the same time. Florida City was originally named Detroit and developed by the Miami Land & Development Company as a planned agricultural community. Unlike Homestead to its north, the land which encompassed Florida City was designated as overflow land by the federal government and not eligible for homesteading. The developers instead subdivided the land into sections with broad avenues and streets and advertised Detroit in sales offices throughout the Midwest in an attempt to attract buyers (Blakely 2015). Both communities were centered west of the project area around the railroad corridor and route of future US 1. Royal Palm State Park, the early iteration of what would become Everglades National Park, was established in 1916 to the west of both Homestead and Florida City. The state park was organized in part by the Florida Federation of Women's Club and the Women's Industrial Club of the future Florida City (National Park Service 2015).

The World War I and Aftermath period of Florida's history starts with the United States' entry into World War I in 1917. Wartime activity required that several training facilities were set up in the state and protecting the coastlines was a priority at this time. Although the conflict only lasted until November of 1918, the economy was boosted by the war. Shipbuilding was accelerated. The war brought industrialization to Tampa and other port cities such as Jacksonville, where war ships were built. These cities also functioned as supply depots and embarkation points. As agricultural production increased, products such as beef, vegetables, and cotton were in great demand (Miller 1990). Immigration and housing development slowed during the war; however, tourism increased as the war in Europe forced Americans to vacation in the United States. At the conclusion of the war, railroad construction resumed. Railroad tycoons such as Henry Flagler and Henry Plant were not only building railroad facilities, but also erecting hotels for winter visitors. These magnates took an interest in the promotion and improvements in Florida in an effort to bring more people into the state.

Miami-Dade County experienced a tremendous amount of growth and development in the years following World War I. Beginning in 1916, promoters and developers placed advertisements about Miami in northern magazines and newspapers in hopes of attracting more buyers to the area. This advertising expanded yearly, and the demand for land gradually increased (Sessa 1950:47). Since many areas of South Florida were low-lying, and therefore prone to flooding during the rainy season, it was necessary to fill these areas to make them suitable for living (Sessa 1950:6). The communities of Homestead and Florida City remained less developed and more agricultural in nature during this time.

Florida Boom Period (1920-1930)

After World War I, Florida experienced unprecedented growth. Many people had relocated to Florida during the war to work in wartime industries or had been stationed in the state as soldiers. Bank deposits increased, real estate companies opened in many cities, and state and

county road systems expanded quickly. Earlier land reclamation projects had created thousands of new acres of land to be developed. Real estate activity increased steadily after the war's end and drove up property values. Prices on lots were inflated to appear more enticing to out-of-state buyers. Every city and town in Florida had new subdivisions platted and lots were selling and reselling for quick profits. Southeast Florida, including cities such as Miami and Palm Beach, experienced the most activity, although the boom affected most communities in central and south Florida (Weaver et al. 1996:3).

Building roads became a statewide concern as road building shifted from a local to a state function. These roads made all parts of the state accessible and allowed the boom to spread. Apparently, up to twenty thousand people were arriving in the state on a daily basis. Besides the cheap property, Florida legislation that prohibited income and inheritance taxes also encouraged more people to move to the state. In 1925, the FPL company was incorporated as a subsidiary of American Power and Light, a multi-state company which provided electrical services. Shortly after, the company began construction of a new power plant in Fort Lauderdale although expansion of the electric grid was halted by the end of the Florida Boom (Coastal Archaeology & History Research, Inc. 2014).

The Boom period began to decline in August 1925, when the Florida East Coast Railway placed an embargo on freight shipments to south Florida. Ports and rail terminals were overflowing with unused building materials. In addition, northern newspapers began to suggest fraudulent land deals were occurring in Florida. In 1926 and 1928, two hurricanes hit southeast Florida killing people and destroying thousands of buildings. The collapse of the real estate market and the subsequent hurricane damage effectively ended the boom. Further damaging Florida's economy was a Mediterranean fruit fly infestation in 1929 that devastated citrus groves throughout the state (Weaver et al. 1996:4).

By the time the stock market collapsed in 1929, Florida was already suffering from an economic depression. Construction activity had halted and industry dramatically declined. Subdivisions platted several years earlier remained empty and buildings stood on lots partially finished and vacant.

Depression and New Deal Period (1930-1940)

This era of Florida's history dates from the stock market crash of 1929. As previously discussed, there were several causes for the economic depression in Florida including the grossly inflated real estate market, the hurricanes, and fruit fly infestation. During the Great Depression, Florida suffered significantly. Between 1929 and 1933, 148 state and national banks collapsed, more than half of the state's teachers were owed back-pay, and one in four residents was receiving public relief (Miller 1990).

As a result of hard economic times, President Franklin D. Roosevelt initiated several national relief programs. Important New Deal-era programs in Florida were the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC). The WPA provided jobs for professional workers and laborers. Their work included the construction or improvement

of many roads, public buildings, parks and airports in Florida. The CCC improved and preserved forests, parks, and agricultural lands (Miller 1990).

Most areas of the state's economy were affected by the Depression. Beef and citrus production declined, manufacturing slowed, and development projects were stopped. Even the railroad industry felt the pressures of the 1930s; service was greatly reduced and personnel were let go. Also, the increasing use of the automobile lessened the demand for travel by rail. Despite the Depression, tourism remained an integral part of the Florida economy during this period. New highways made automobile travel to Florida easy and affordable and more middle-class families were able to vacation in the Sunshine State.

World War II and the Post War Period (1940-1950)

From the end of the Great Depression until after the close of the post-war era, Florida's history was inextricably bound with World War II and its aftermath. It became one of the nation's major training grounds for the various military branches including the Army, Navy, and Air Force. Up until that time, tourism had been the state's major industry and it was brought to a halt as tourist and civilian facilities such as hotels and private homes were placed into wartime service. The influx of thousands of servicemen and their families increased industrial and agricultural production in Florida, and also introduced these new residents to the warm weather and tropical beauty of Florida. Railroads once again profited, since servicemen, military goods and materials needed to be transported. However, airplanes were now becoming the new form of transportation, and Florida became a major airline destination. The highway system was also being expanded at this time. The State Road Department constructed 1,560 miles of highway during the war era (Miller 1990).

Following the outbreak of World War II, Miami-Dade County became a war camp and major training center for the Armed Forces. By the end of 1942, many of the area's once empty hotels had become barracks for the Army Air Force Officers Candidate School, an Officers Training School, and a basic training center. Other hotels were turned into hospitals, golf courses were transformed into drill fields, fancy restaurants and clubs became mess halls, and churches and synagogues were used for classrooms. Numerous military installations were located in southern Miami-Dade County during this time, including the Homestead Army Air Field which was activated in September 1942. Located north of the project area, the air field served as a staging facility for the Army Transport Command and was responsible for maintaining and dispatching aircraft to overseas locations. The base was made inactive in 1945 following sustained damage from a hurricane and the end of the war before reopening in 1953 as an air force base (Air Force Civil Engineer Center n.d.).

War agencies tripled the income of the entire state and added about 25 percent to the population. After the war, there was a huge influx of cash from federal agencies. The Federal Security Administration built roads, bridges and public improvements. The Veterans Administration began to disburse millions of dollars in benefits to ex-GIs. The Federal Housing Authority guaranteed the financing of 15,000 new homes each year (Barrons National Business and Financial Weekly 1950: 15). By 1944, tourists started returning to Miami as the war economy put an end to the Great Depression. The end of the war brought an influx of new

people to the area, as former soldiers who had trained in Miami decided to settle in south Florida. These new residents greatly increased the population during the late 1940s and 1950s.

While the communities of Homestead and Florida City continued to grow during this time, they remained largely agricultural in nature and were not subject to the rapid growth seen elsewhere in Miami-Dade County. The majority of development and growth remained focused inland and west of Biscayne Bay and the current project area. The former Royal Palm State Park was acquired by the National Park Service in 1947 and established as Everglades National Park (National Park Service n.d.). The Homestead Army Air Field, farm worker housing developments, and the Homestead Bayfront Park were some of the few areas developed east of Homestead and Florida City near Biscayne Bay.

Homestead Bayfront Park was dedicated in 1939 by James Sottile, an Italian immigrant in Florida City, and the land was donated to Dade County. The park property was leased to the military during this period and was not developed until the late 1940s. Homestead Bayfront Park, located north of the project area, was opened to the public in 1951 and featured a beach area, marina, restrooms, and buildings for refreshments, as well as a segregated beach for African American visitors with similar amenities north of the park (Blakely 2015). The project area was part of 1800 acres of land purchased by FPL during the post-war period to accommodate a new power station in Miami-Dade County. The land was known as Turkey Point and located east of Homestead and Florida City along Biscayne Bay approximately 24-miles south of Miami (Coastal Archaeology & History Research, Inc. 2014).

Modern Period (1950 to Present)

Road building in Miami-Dade County had been an endeavor since the turn-of-the-century. Road systems like the Tamiami Trail, the Overseas Highway (current US 1), Biscayne Boulevard, and even the series of Causeways connecting to Miami Beach helped catapult Miami into a metropolitan center by allowing an influx of people into the area. This trend continued in the 1950s when the Dwight D. Eisenhower System of Interstate and National Defense Highways was started under President Eisenhower in 1956. Commonly known as the Interstate Highway System, it is a system of highways that connects the United States that was fashioned after the German autobahn system. This immense transportation construction endeavor transformed the American landscape.

Miami experienced a substantial impact in the 1960s when construction of Interstate-95 (I-95) began in 1967 as part of the Interstate system. I-95 remains a major transportation artery servicing Miami, greater Miami, Miami-Dade and Broward Counties and continuing north. Although beneficial to national security and transportation, highway systems often impacted communities and areas traversed by the new construction. Despite this growth, southern Miami-Dade County remained agricultural in nature following World War II, and the production of crops increased to account for the growing population elsewhere in the county and throughout the state. An influx of migrant farmhands and laborers moved to the communities of Homestead and Florida City for work, coming from Puerto Rico, Jamaica, the Bahamas, Haiti and Mexico. The area also saw increased commercial growth to serve tourists

driving from Miami south to the Florida Keys or to visit the Everglades National Park with the addition of motels and restaurants (Nebhrajani 2016).

Construction at the FPL Turkey Point Plant Property began in the 1960s following the approval of permits to construct two oil-fired electric power generators. In 1965, FPL president McGregor Smith announced plans to construct two nuclear energy reactors at the Turkey Point plant. The embrace of nuclear energy in the 1960s followed several decades of the development of atomic energy generation after the destructive use of nuclear energy during World War II. At the time, nuclear energy was perceived to be “cheap, clean, unlimited, and safe” and was not considered “incompatible with the natural landscape of the Everglades whose abundance of water could be used to cool nuclear reactors.” The first two oil-fueled generators, units one and two, went into operation in 1967 and 1968, respectively. The nuclear reactors, units three and four, went into operation by 1972 (Coastal Archaeology & History Research, Inc. 2014).

Biscayne National Monument, later made a national park, was established east of Homestead in 1968 and encompassed several barrier islands. The park consisted mostly of water including Biscayne Bay to the west and reefs to the east of the islands. The legislation to establish a national monument followed several years of efforts by environmentalists to protect the northern keys from planned development (National Park Service 2017). The former segregated beach north of Homestead Bayfront Park was abandoned following the Civil Rights Act of 1964 and later acquired by the National Park Service to serve as the headquarters and visitor facilities for the park (Lowman 2012). Homestead Bayfront Park continued to operate as a county park with a marina and beach facilities. Both park visitor areas are located along Biscayne Bay north of the FPL Turkey Point Plant. A transmission line corridor associated with the FPL Turkey Point Plant passes through the parcel containing Homestead Bayfront Park. The right-of-way easement was established in 1964 and the transmission line corridor was installed between 1965 and 1967, west of the park facilities.

A portion of the FPL Turkey Point Plant Property outside of the plant was used for several additional recreational uses including a boy scout camp, girl scout camp, and wildlife refuge (Bloss 1967). Two camp sites, one each for boy scouts and girl scouts, were created in 1967 by FPL chairman McGregor Smith. The boy scout camp was constructed first and located southwest of the plant facilities, while the girl scout camp was located northeast of the plant along the bay in the area later designated as a wildlife refuge. Both camp grounds were planned and constructed following the 1965 Hurricane Betsy, when damaged construction material was littered throughout the plant property and Smith decided to salvage the materials. The boy scout camp opened first and featured an assembly hall, auxiliary structures, a totem pole, a lake, a manmade island and several hiking trails. The girl scout camp was sited along Biscayne Bay north of a public access beach and recreation area and featured an assembly hall, cupola topped pergolas hiking trails and a spiked wooden fence delineating its southern boundary. The structures for both camp grounds were mostly built from damaged lumber, shipping crates, downed utility poles, and leftover bricks found throughout the property. Scouts were also able to access canals and water trails for canoeing (Pennekamp 1967).

Much of the FPL property was designated as a wildlife refuge and existing mangroves and buttonwood trees were left in place. An additional recreational area was created by FPL along Biscayne Bay south of the girl scout camp. This area included a swimming lagoon, barbeque pits, and a recreational hall designed like a barn. An additional recreational area south of the beach along Turkey Point itself was designed for boaters. Turkey Point, a small segment of land that naturally extended into the bay east of the plant, was south of the channelized supply canal created for the nuclear plant operations. The boater recreation area included large trees for shade and a rock garden (The Miami News 1967). Land south of this supply canal and east of the plant was used by the Air Force Sea Survival School beginning in 1966. The Air Force leased the land from FPL for \$1 a year and constructed a few structures including a school building, tower used for training in jump landings, and docks for a boat fleet. The sea survival course trained members of the military, in addition to civilians, on how to survive possible disasters at sea including sinking ships, downed planes, parachute landings, or sea rescues (Petit 1966). Another nearby structure from this period was the Rangers House, located adjacent to and south of the Air Force tract and the supply canal and east of the plant, which was constructed in 1965 as a residence for a Florida Board of Conservation Ranger (Coastal Archaeology & History Research, Inc. 2014).

Several changes occurred to the Turkey Point plant following the 1972 installation of the nuclear reactors. As the plant expanded operations, the footprint was expanded to account for demand and several of the areas previously accessible to the public were made private. The boy scout camp was removed in 1972, as additional cooling canals were required for the continued operation of the reactors. Some of the associated structures were later repurposed into storage buildings within the plant property (The Miami Herald 1972). The girl scout camp was visible until circa 2004 at which time any remaining structures were removed for the installation of a new canal. The public recreational area south of the girl scout camp is now used as an employee picnic area for employees working at the plant. The Air Force Sea Survival School operated at Turkey Point until 1992, when the structures were damaged by Hurricane Andrew. The Homestead Air Force Base also suffered irreparable damage during the storm, and both the school and base were closed or relocated (Air Force Civil Engineer Center n.d.). The nearby Rangers House remains extant, although abandoned, and is not located near any proposed work areas. No extant historic resources are located within the areas where any proposed work will occur. Today, the property surrounding the plant continues to serve as a wildlife refuge, and FPL partners with federal and state conservation agencies to help with crocodile restoration efforts (FPL n.d.).

Like much of south Florida, both Homestead and Florida City suffered severe damage during Hurricane Andrew in 1992. The towns continue to operate as a hub for the agricultural industry, with a large portion of the population working in farms or facilitating the shipment of produce. Residential development increased between the 1970s and present day to meet the demand from a continually increasing population, although neither town is as densely developed as suburban communities further north in Miami-Dade County such as Kendall or Doral.

FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW

A review of FMSF data, previous surveys, property appraiser records, and historic mapping was conducted to determine the potential for cultural resources within the project APE that are listed, eligible, or considered eligible for listing in the National Register, or that have potential or confirmed human remains. The FMSF is an important planning tool that assists in identifying potential cultural resources issues and resources that may warrant further investigation and protection. It can be used as a guide but should not be used to determine the official position of the SHPO regarding the significance of a resource.

Previously Conducted Cultural Resource Surveys

A search of the FMSF GIS data identified 11 previous cultural resource surveys of various levels of effort that either intersected or contained portions of the project APE (Table 4). Over half of these surveys were related to the FGT Phase VIII expansion project, FPL's Turkey Point Plant Property, or a combination thereof (FMSF Manuscript Nos. 16464, 16532, 16938, 17490, 18069, and 18168).

Table 4. Previous Cultural Resources Surveys Intersecting or Containing Portions of the Project APE

FMSF Survey No.	Title	Author(s)	Publication Date
602	Dade County Historic Survey	Metropolitan Dade County	1981
2127	Dade County Historic Survey, Phase II	Metropolitan Dade County	1989
3669	Biscayne National Park: Historic Resource Study	Jennifer Brown Leynes and David Cullison	1998
16464	A Cultural Resource Survey of the Florida Gas Transmission Phase VIII Expansion Project Turkey Point Pipeline Corridor, Miami-Dade County, Florida	Archaeological and Historical Conservancy, Inc. (AHC) and R. Christopher Goodwin & Associates, Inc. (Goodwin & Associates)	2008
16532	Florida Gas Transmission Phase VIII First Addendum Report Related to Report Nos. 2008-07035 and 2008-07036	Goodwin & Associates	2009
16938	Florida Gas Transmission Phase VIII Second Addendum Report Related to Report Nos. 2008-07035 and 2008-07036	Goodwin & Associates	2010
17490	Cultural Resources Investigations Conducted for the Turkey Point Dewatering Area Locations located in Miami-Dade County, Florida, and Associated with the Planned Florida Gas Transmission Company (FGT) Phase VIII Expansion Project	Janus Research and Goodwin & Associates	2010

FMSF Survey No.	Title	Author(s)	Publication Date
18069	Cultural Resources Investigation Conducted for the Missing Coverage APE from Approximately One Half Mile South of the Military Canal to the Mowry Canal (No. C 103) in Miami-Dade County, Florida and Associated with the Planned Florida Gas Transmission Company (FGT) Phase VIII Expansion Project, FGT Phase VIII Twenty Fourth Addendum Report Related to Report Nos. 2008-07035 and 2008-07036	Janus Research and Goodwin & Associates	2010
18168	Cultural Resource Assessment Survey for the FPL Turkey Point Units 6 & 7 Site, Associated Non-Linear Facilities, and Spoil Areas on Plant Property	Janus Research	2009
21445	106 Statement: Biscayne National Park Underwater Archaeological Survey and Site Assessment	Southeastern Archaeological Center (SEAC)	1984
21977	Desktop Analysis and Field Reconnaissance for the Biscayne Trail Segment D from SW 137th Avenue to North Canal Drive/SW 328th Street Local Agency Program Project, Miami-Dade County, Florida	Janus Research	2015

Portions of the project corridor surveyed in 2008 by AHC and Goodwin & Associates during *A Cultural Resource Survey of the Florida Gas Transmission Phase VIII Expansion Project Turkey Point Pipeline Corridor, Miami-Dade County, Florida* (FMSF Manuscript No. 16464) intersect or run in close proximity to the CWRC Waterline Corridor in several locations. While all 15 shovel tests excavated in 2008 were negative for cultural material, a review of the mapping provided within the report determined that only one shovel test, Shovel Test (ST) 2, was excavated in close proximity to the current APE as a result of the 2008 survey (AHC and Goodwin & Associates 2008:18). The 2008 corridor exhibited similar characteristics to the current CWRC Waterline Corridor, and the subsurface testing and intermittent pedestrian survey conducted along the 2008 corridor, determined that it exhibited low archaeological site potential (AHC and Goodwin & Associates 2008:19). No historic resources were identified within the current APE as a result of the 2008 survey efforts. The SHPO concurred with the results of the survey in a letter dated May 12, 2009.

Additional access roads and extra workspaces associated with FGT Phase VIII Loop 11 (Turkey Point Lateral) were investigated by Goodwin & Associates in 2009 during the *Florida Gas Transmission Phase VIII First Addendum Report Related to Report Nos. 2008-07035 and 2008-07036* (Goodwin & Associates 2009; FMSF Manuscript No. 16532). It is unclear to exactly what degree this survey work overlapped with the current APE, as mapping related to the access roads and work areas included within the manuscript appendices (Goodwin &

Associates 2009:Appendix X:1–4) are small scale in nature. However, it is possible to confirm that no archaeological sites or occurrences, and no historic resources, were identified with the current APE (Goodwin & Associates 2009:211) as a result of the 2009 survey work. The SHPO concurred with the results of the survey in a letter dated June 24, 2009.

The eastern end of the single reroute along FGT Phase VIII Loop 11 addressed during the *Florida Gas Transmission Phase VIII Second Addendum Report Related to Report Nos. 2008-07035 and 2008-07036* (FMSF Manuscript No. 16938) terminated close to the northern end of the current APE related to the CWRC Waterline Corridor, to the south of the Black Creek Canal (Goodwin & Associates 2010:12, 87, Appendix X:1). As with the 2009 survey, no archaeological sites, occurrences, or historic resources were identified with the current APE as a result of the 2010 survey work (Goodwin & Associates 2010:87). The SHPO concurred with these findings in a letter dated January 21, 2010.

While the search of the FMSF GIS data noted the intersection of the current APE associated with the CWRC Waterline corridor with the *Cultural Resources Investigations Conducted for the Turkey Point Dewatering Area Locations located in Miami-Dade County, Florida, and Associated with the Planned Florida Gas Transmission Company (FGT) Phase VIII Expansion Project* (Janus Research and Goodwin & Associates 2010b; FMSF Manuscript No. 17490), the review of the manuscript noted that no archaeological or historic resources survey work occurred within the current APE during the 2010 survey. The survey work conducted with the 2010 document was limited to the footprints of the proposed dewatering areas, and the closest dewatering areas to the current APE, Dewatering Sites 4 and 5, were located outside of the current APE.

In 2010, Janus Research and Goodwin & Associates prepared the *Cultural Resources Investigation Conducted for the Missing Coverage APE from Approximately One Half Mile South of the Military Canal to the Mowry Canal (No. C 103) in Miami-Dade County, Florida and Associated with the Planned Florida Gas Transmission Company (FGT) Phase VIII Expansion Project, FGT Phase VIII Twenty Fourth Addendum Report Related to Report Nos. 2008-07035 and 2008-07036* (Janus Research and Goodwin & Associates 2010a; FMSF Manuscript No. 18069), which contained large portions of an approximately 0.8-mile segment of the CWRC Waterline Corridor APE starting on the north side of the Mowry Canal and extending to the north. No subsurface testing was conducted within the current APE during the 2010 survey due to the former wetland nature of the corridor and associated low archaeological site potential (Janus Research and Goodwin & Associates 2010a:4). No cultural resources were identified within the current APE as a result of the 2010 work, which also recommended no additional survey work within the parcel. The SHPO concurred with these findings in a letter dated October 6, 2010.

The CWRC was surveyed for historic resources by Janus Research in 2009 as part of a larger survey effort related to various elements of FPL's Turkey Point Plant Property (Janus Research 2009; FMSF Manuscript No. 18168). The portions of the CWRC not containing extant storage structures at that time were pedestrian surveyed and no indicators of increased archaeological site potential were encountered. No cultural resources were identified within the current APE associated with the CWRC as a result of the 2009 survey efforts, and the background research and the pedestrian survey both confirmed that the current APE associated with the CWRC exhibited low archaeological site potential (Janus Research 2009).

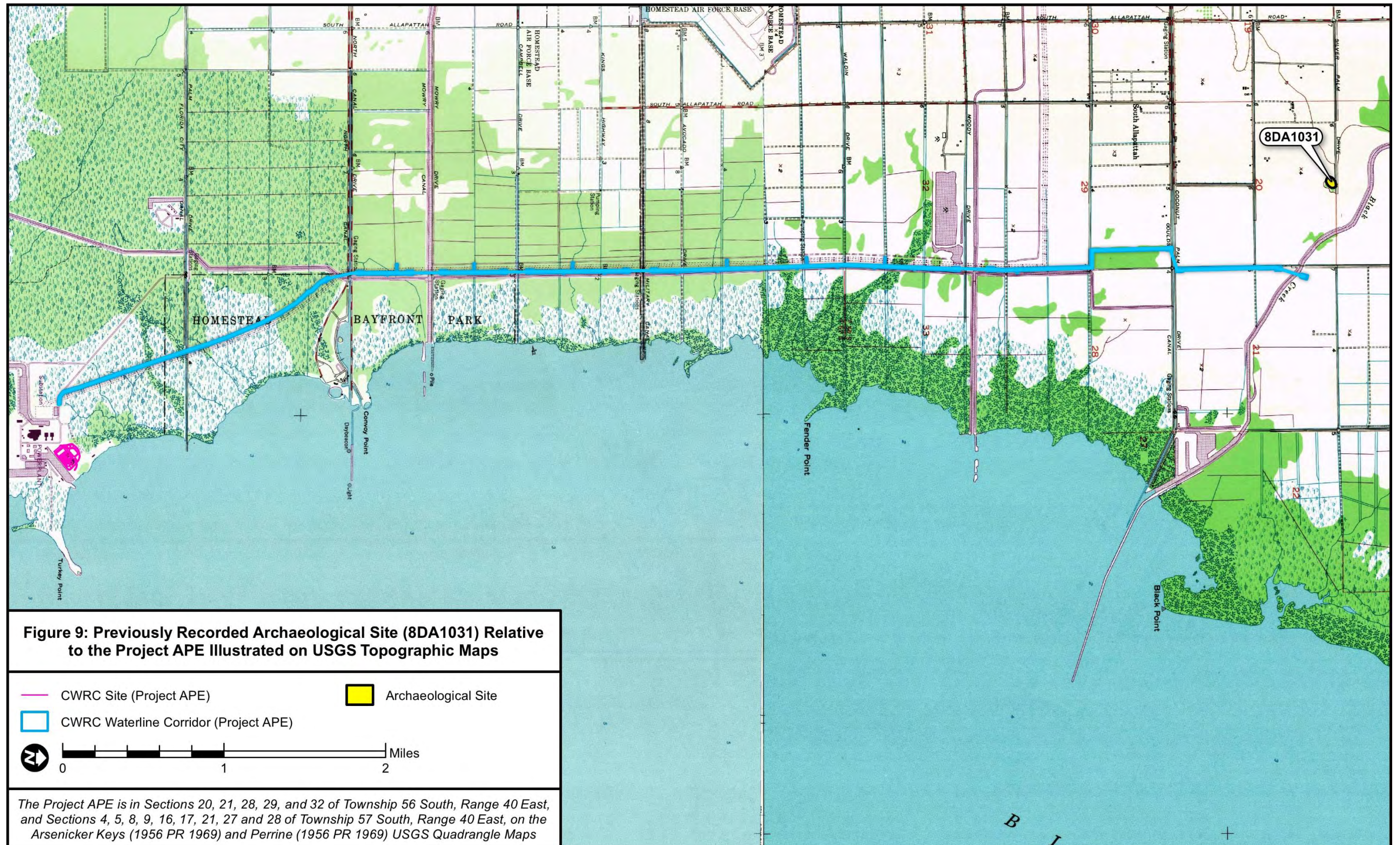
No archaeological or historic resources were recorded within the project APE as a result of the remaining five surveys that were unrelated to Turkey Point or FGT Phase VIII, and no evidence of subsurface testing within the current archaeological APE was evident during the review of these documents. The *Desktop Analysis and Field Reconnaissance for the Biscayne Trail Segment D from SW 137th Avenue to North Canal Drive/SW 328th Street Local Agency Program Project, Miami-Dade County, Florida* (Janus Research 2015) only briefly intersected the current APE related to the CWRC Waterline corridor in the vicinities of the Mowry (C-103) Canal and Military Canal and no archaeological testing was conducted in the vicinity. FMSF Manuscript Nos. 602 and 2127 were County-wide surveys that did not specifically address the current project APE. FMSF Manuscript Nos. 3669 and 21445 were NPS efforts related to a historic survey of Biscayne National Park from the late 1990s and a proposal regarding underwater archaeological survey work primarily related to shipwrecks.

The review of the previous work containing and intersecting the current APE determined that the current APE has not been recently surveyed for historic cultural resources. In addition, there were numerous segments of the archaeological APE where it was not possible to discern the actual previous level of archeological efforts performed within the current APE (largely along the CWRC Waterline corridor) or that were determined to have never been previously surveyed for archaeological resources.

Previously Recorded Archaeological Sites

A search of the FMSF determined that there are no previously recorded archaeological sites located within or adjacent to the archaeological APE for the CWRC or CWRC Waterline corridor. A search of in-house local data also determined that no Miami-Dade County-designated archaeological sites or zones are located within the vicinity of the project APE.

The search of the FMSF GIS data noted that the closest recorded site to the APE is Black Creek 2 (8DA1031). This National Register-eligible site, which consists of a Glades Period midden and potential Seminole component, is located well outside of the APE within the County-designated Black Creek Archaeological Zone, approximately 0.57 miles to the northwest of the northern terminus of the CWRC Waterline corridor. The location of this site relative to the archaeological APE is illustrated in Figure 9.



Previously Recorded and Potential Historic Resources

CWRC

A search of the FMSF data and review of past environmental documents identified no previously recorded historic resources within the historic resources APE associated with the CWRC. A search of the Miami-Dade County property appraiser data determined that the CWRC is located within a large parcel (located at 9700 SW 344th Street) with at least one structure indicative of a historic build date of c. 1969. However, background research, a review of aerial photographs, and the current field survey confirmed that no extant historic resources are located within the current historic resources APE associated with the CWRC.

CWRC Waterline Corridor

A search of the FMSF data and review of past environmental documents identified four segments of previously recorded historic canals within the historic resources APE associated with the CWRC Waterline corridor: the Gould Canal (8DA13149), C-102 (Princeton) Canal (8DA14988/8DA16466), C-103 Mowry Canal (8DA15002), and Florida City Canal (8DA16043). None of the canal segments within the historic resources APE have been previously surveyed or documented in the FMSF, but segments outside of the project area have been documented and recorded. Older canals constructed during the 19th century, large regional canals dug as part of early 20th century Everglades reclamation efforts, older transportation canals, or canals used in industry can be considered potentially eligible for listing in the National Register. However, 20th century drainage canals are commonplace in Florida and are often not considered significant according to the 2012 memorandum *Guidance on National Register Eligibility of Canals* written by the FDHR (FDHR 2012). While these canals are associated with land reclamation efforts in South Florida during the 20th century, they are not included among the major canals associated with the history of the Everglades. The four canal segments within the historic resources APE represent a common type of canal constructed during the 20th century, lack known historical associations, and are not included on the 2012 FDHR list of potentially eligible major canals in Miami Dade County (FDHR 2012). Furthermore, only a small segment of each canal is within the historic resources APE and most of the proposed work will occur at a subaqueous level beneath the canal. Therefore, the segments of previously recorded canals within the historic resources APE were not documented during this study.

In addition, the review of historic aerials and topographic maps noted several unrecorded historic drainage canals intersected by the CWRC Waterline corridor, most of which will be crossed via HDD. Like the unrecorded segments of previously documented canals, these canals represent a common type of canal constructed during the 20th century and lack known historical associations based on limited research. These include the L-31E Barrow Canal, the C-1 (Black Creek) Canal, Military Canal, and North Canal. Due to the limited nature of the historic resources APE and the fact that most of the canals will be crossed using HDD occurring at a subaqueous level, the small segments of the canals within the vicinity of the CWRC Waterline corridor were not documented during this study.

Several recorded and unrecorded historic bridges were noted within the vicinity of the CWRC Waterline corridor during the background research but are located outside of the historic resources APE. These included the previously recorded SW 328th Street / Canal C-107 Bridge (8DA12619) which was previously determined to be National Register–ineligible by the SHPO, as well as Bridge No. 874479 (c. 1967) carrying SW 256th Street over the L-31E Barrow Canal and Bridge No. 874480 (c. 1967) carrying an unnamed feature over the L-31E Barrow Canal to the north of the Princeton Canal and south of SW 261st Street. Each of these three bridges was confirmed to be located outside of the current historic resources APE associated with the CWRC Waterline corridor and will not be used for access to the corridor during construction.

The search of the Miami-Dade County property appraiser data noted that the CWRC Waterline corridor intersects one parcel with a historic actual year built (AYRB) date located at 9698 SW 328th Street (c. 1950). This parcel contains Homestead Bayfront Park, through which the existing transmission line corridor and proposed CWRC Waterline corridor travel. A review of aerial photographs confirmed that any historic resources associated with the park are outside of the APE and concentrated along the shore line of Biscayne Bay, to the east of where any work will be occurring.

PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL

Background research and a consideration of pertinent environmental variables, contributed to the formulation of project-specific field methods designed to locate and evaluate previously unrecorded archaeological sites. As no previously recorded archaeological sites were identified in close proximity to the APE, the establishment of zones of archaeological probability was based on the four pertinent environmental variables typically used to predict site potential: distance to fresh water, distance to hardwood hammocks, relative elevation, and soil drainage.

The majority of the project APE is primarily within areas of filled access road, structure pads, and existing transmission line corridor, as well as surrounding areas of mangrove swamp and salt marsh, that are flooded with salt water during high tide. The remaining portions of the project APE outside of those areas were either within areas of land modification or areas that still exhibit poorly to very poorly drained soils or intermittent standing water. Much of the project APE remains wet, or was wet prior to land modification. However, most of these wet areas are associated with tidal soils or are otherwise impacted by the proximity of the project APE to the Atlantic Ocean, limiting their potential as freshwater sources. Therefore, permanent sources of freshwater would have been scarce in the vicinity of the APE.

Hardwood hammocks provide a variety of resources that would have been exploited by the aboriginal inhabitants of this region. Hydric hardwood hammocks can contain abundant animal and plant life, particularly a variety of tubers. Mesic hardwood hammocks contain cabbage palms and other plants that produce edible foodstuffs. Often, areas of higher relative elevation correspond with better-drained soils or the presence of hardwood hammocks (xeric and mesic). Examination of topographic mapping and aerial photographs identified no extant tree islands or hammock vegetation within or adjacent to the project APE.

Relative elevation has the potential to identify potential areas of archaeological probability in what are otherwise wet and poorly drained areas. The review of available plat maps, topographic mapping, aerial photographs, and available DEM data, identified no natural topographic rises or areas of increased elevation relative to the surrounding area.

The characteristics of soils are often used in the formulation of predictive models for precontact site location. Areas with a low elevation relative to perched water systems tend to be wet or inundated. Although wet areas can contain abundant wildlife and plant resources, they make poorer habitation areas when better-drained locations are available. As described in the *Pre-Development and Land Use History* section of this document, soil survey data indicated that soil types within the project APE consisted of inundated mangrove swamp, very poorly drained muck and marl that are repeatedly inundated during high tides, poorly drained marls that have been artificially drained, frequently ponded muck, and areas that have been shaped and filled.

Based on the modified or low, wet, tidal, and often inundated nature of the majority of the project APE, the absence of topographic relief, tree islands, and hammock vegetation, and the disturbance associated with the placement of 2–4 feet of fill material along the access road and structure pads atop the surrounding swamp and marsh, the project APE exhibits a low archaeological site potential.

METHODS

A historic resources survey was conducted to identify historic buildings or districts 50 years of age or older as well as other historic features that would require documentation on a FMSF form and an evaluation of significance. Standard methods were used to identify any such features, including a review of historic aerials, county property appraiser data, and a visual survey. This visual survey excluded those portions of the APE within Biscayne National Park. The archaeological survey was conducted to assess and document existing conditions, confirm the low archaeological potential of the APE, and identify archaeological sites. As noted previously, coordination is ongoing with the NPS and this survey excluded the portion of the APE within the Biscayne National Park. Survey methods were consistent with Module 3 of the FDHR *Cultural Resource Management Standards and Operational Manual*, which recognizes that many factors influence the feasibility of subsurface testing and conditions within the APE, including the presence of wetlands, filled land, hardscape or compacted surfaces. As stated in Module 3:

Many factors influence survey field methodology, including the size of the study area, its location (rural/urban; uplands/wetlands; coastal/interior), vegetative cover, and land use during the past 100 years. Subsurface testing methodology should be related to the general size, kind, and character of the archaeological sites known or expected to be present in the project area. Thus, field methodology must be appropriate to the environment and expected site types. (FDHR 2003:14).

Conditions permitting, Module 3 recommends subsurface testing at 25-meter (82-foot) intervals within areas of high archaeological potential and subsurface testing at 50-meter (164-foot) intervals within moderate site potential zones. The Module 3 guideline also recommends subsurface testing within at least 10% of areas of low archaeological potential with judgmental shovel testing, as feasible.

Background research identified no previously recorded archaeological sites within or adjacent to the APE and identified no areas with a moderate or high potential for archaeological sites. The review of past environmental conditions and land use indicated that the APE associated with the CWRC was within an area that had been extensively disturbed by land alteration activities and currently consisted of a compact gravel surface, where testing was not possible. The majority of the APE associated with the CWRC Waterline corridor was within an existing transmission line corridor that was elevated above the surrounding mangroves by the addition of fill, or within current or former wetlands, or disturbed areas. Due to these conditions, the field survey focused on a visual inspection to identify any environmental or natural features suggestive of an archaeological site or potential, document existing conditions, and identify any areas where subsurface testing was possible.

Due to presence of wetlands, previously disturbed areas, hardscape or fill, the APE was not testable and subsurface testing was limited to a test within the CWRC Waterline corridor to confirm that the raised areas associated with the FPL patrol road and structure footers contained impenetrable fill. The shovel test was circular and approximately 20 inches (50

centimeters) in diameter. Excavation of the shovel test was inhibited by the presence of compact shell and gravel fill and all excavated soil was dry screened through ¼ inch (0.64 centimeter) hardware cloth suspended from portable wooden frames. Standard archaeological methods for recording field data were followed throughout the project. Existing conditions were noted on field aerial maps and the identification number, location, stratigraphic profile, and soil descriptions were recorded for the subsurface test. The location of the test was plotted on field aerial maps of the project APE and recorded with WAAS-enabled hand-held Global Positioning System (GPS) units (UTM-NAD83).

RESULTS

The historic resources survey identified no historic resources within the historic resources APE associated with the CWRC. Segments of four previously recorded historic canals were identified within APE associated with the CWRC Waterline corridor: the Gould Canal (8DA13149), C-102 (Princeton) Canal (8DA14988/8DA16466), C-103 Mowry Canal (8DA15002), and Florida City Canal (8DA16043). These canal segments represent a common type of canal constructed during the 20th century. Segments of these canals outside of the current APE have been previously documented as National Register–ineligible. The segments within the project APE are similar to the aforementioned previously recorded segments and are also considered ineligible within the current project APE. Several additional unrecorded historic drainage canals also intersect the APE associated with the CWRC Waterline corridor. The L-31E Barrow Canal, the C-1 (Black Creek) Canal, the Military Canal, and North Canal are also each unrecorded common drainage canals and thus are considered ineligible within the project APE. FMSF forms were not completed for any of the identified canals per FDHR guidance regarding ineligible historic canals (FDHR 2012).

A pedestrian survey and subsurface shovel testing were conducted in June 2021. The archaeological survey identified no archaeological sites and confirmed the low archaeological potential of the APE. Subsurface testing was not possible within most of the APE due to the presence of wetlands, hardscape, and compacted lime rock gravel or fill. One shovel test was excavated within the APE and confirmed that the structure footer exhibited compacted shell and gravel fill directly underneath the compacted roots and sandy muck at approximately 7 centimeters below the surface (cmbs) (Figure 10). No undisturbed natural soils or cultural materials were identified. The locations of shovel test and current conditions are illustrated in Appendix A. Current conditions with the APEs associated with the CWRC and CWRC are discussed in the following pages.

CWRC

The area containing the CWRC has been extensively modified and artificially filled. While the area formerly contained oil storage tanks which were demolished in or after 2017, this portion of the APE no longer contains any extant structures. The pedestrian survey confirmed that the area of the CWRC currently consists of a large paved/gravel area devoid of natural vegetation. Numerous large vehicles and other equipment were observed within this portion of the APE, and it was determined that subsurface testing was not feasible within this area based on the current conditions. The northern portion of the CWRC was within the boundary of a previous survey (Janus Research 2009), which noted this area exhibited low archaeological site potential due its location within a formerly wet environment. The current background research and pedestrian survey confirmed that testing was not feasible within the entirety of the CWRC due to the extent of land alteration activities.



Figure 10: Soil Profile of ST 1 Illustrating Shell/Gravel Fill Underlying Compacted Grass Roots and Sandy Muck Within a Typical Structure Footer within the APE Associated with the CWRC Waterline Corridor, Facing South

CWRC Waterline Corridor

The CWRC Waterline corridor is located primarily within existing transmission line right-of-way within existing/former wetland environments. Standing water, compact fill material, and underground utility corridors inhibited subsurface testing within the majority of the APE. As noted in the beginning of the *Results* section, Shovel Test 1 was excavated on a raised section of CWRC Waterline corridor, and confirmed the presence of compact fill, reaching a depth of only 7 cmbs. The CWRC Waterline corridor consisted largely of drained and or artificially raised areas dominated by Brazilian pepper and undrained wetlands dominated by mangrove forest. Representative photographs of the APE associated with the CWRC Waterline corridor are included for reference in Figures 11–14.



Figure 11: Representative View of Existing Transmission Line Corridor, Filled Patrol Road, Underground Utility Markers, and Adjacent Low Wet Areas within the APE Associated with the CWRC Waterline Corridor, Facing Northwest



Figure 12: Filled Raised Patrol Road and Adjacent Low Wet Areas Within the Existing Transmission Line Corridor Containing the Majority of the APE Associated with the CWRC Waterline Corridor, Facing Southeast



Figure 13: Raised Filled Area of Structure Footer and Adjacent Low Wet Areas of Within the Existing Transmission Line Corridor Containing the Majority of the APE Associated with the CWRC Waterline Corridor, Facing North



Figure 14: Representative Photograph of Existing Transmission Line Corridor Within a Disturbed Area of the APE Associated with the CWRC Waterline Corridor Adjacent to the Artificially Raised Landfill on the East Side of SW 97th Avenue, Facing North

CONCLUSIONS

No archaeological sites or occurrences were identified in the project APE, which was determined to exhibit low archaeological site potential. The historic resources survey did not identify any historic resources within the historic resources APE associated with the CWRC. Segments of four previously recorded historic resources were identified within the historic resources APE associated with the CWRC Waterline corridor: the Gould Canal (8DA13149), C-102 (Princeton) Canal (8DA14988/8DA16466), C-103 Mowry Canal (8DA15002), and Florida City Canal (8DA16043). These four canal segments represent a common type of canal constructed during the 20th century and segments outside of the project APE have been previously documented as National Register–ineligible. The segments within the project APE are similar to these previously recorded segments and are thus considered ineligible within the current project APE. Additionally, the historic resources survey identified several unrecorded historic drainage canals intersected by the APE associated with the CWRC Waterline corridor. These canals include the L-31E Barrow Canal, the C-1 (Black Creek) Canal, and the Military Canal. The unrecorded canals are common drainage canals, like the previously recorded historic resources, and thus are considered ineligible within the project APE. FMSF forms were not completed for any of the identified canals per FDHR guidance regarding ineligible historic canals (FDHR 2012). Based on the results of this investigation, it is the recommendation of Janus Research that no historic properties will be affected within the portions of the Project outside of Biscayne National Park. Background research indicates that the portion of the project APE within Biscayne National Park exhibits a low potential for encountering archaeological deposits. Upon completion of the ongoing coordination with the NPS, a memorandum documenting the coordination and any required investigations of the portion of the Project within Biscayne National Park will be prepared and provided to the SHPO.

Unanticipated Finds

Should construction activities uncover archaeological remains within the portion of the Project located outside of Biscayne National Park, it is recommended that activity in the immediate area of the remains be stopped while a professional archaeologist evaluates the remains. If human remains are found during construction or maintenance activities, the provisions of Chapter 872.05, *F.S.* will apply. Chapter 872.05 states that, when human remains are encountered, all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner or the State Archaeologist. The District Medical Examiner has jurisdiction if the remains are less than 75 years old or if the remains are involved in a criminal investigation. The State Archaeologist may assume jurisdiction if the remains are 75 years of age or older.

Curation

The Survey Log (Appendix B) and a copy of this report are curated at the FMSF in Tallahassee. Field notes and other pertinent project records related to the portion of the Project located outside of Biscayne National Park are temporarily stored at Janus Research and returned to the client, as appropriate.

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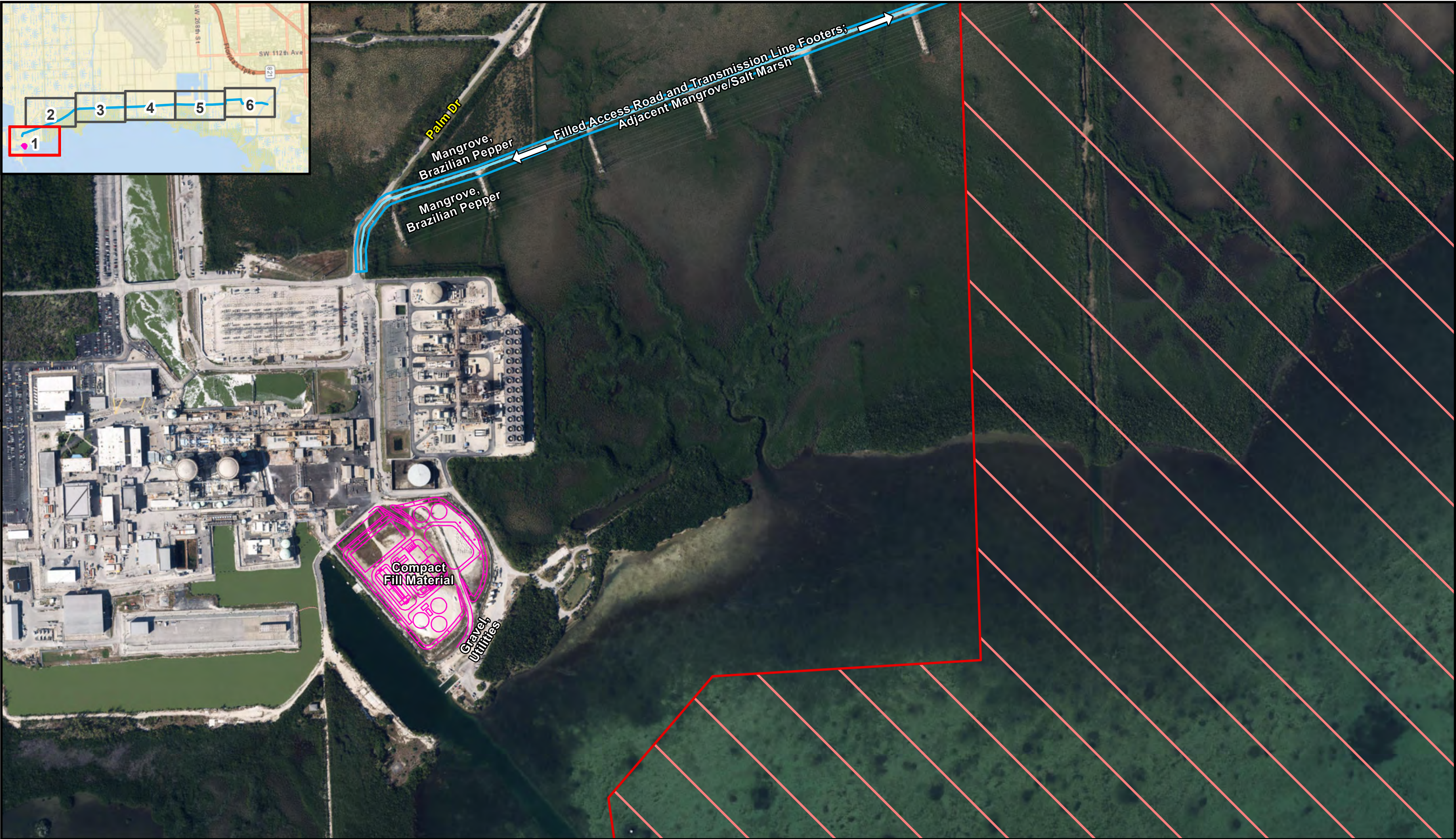
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APPENDIX A:
CURRENT CONDITIONS AND LOCATION OF SHOVEL TEST



Current Conditions and Shovel Test Location (Map 1 of 6)

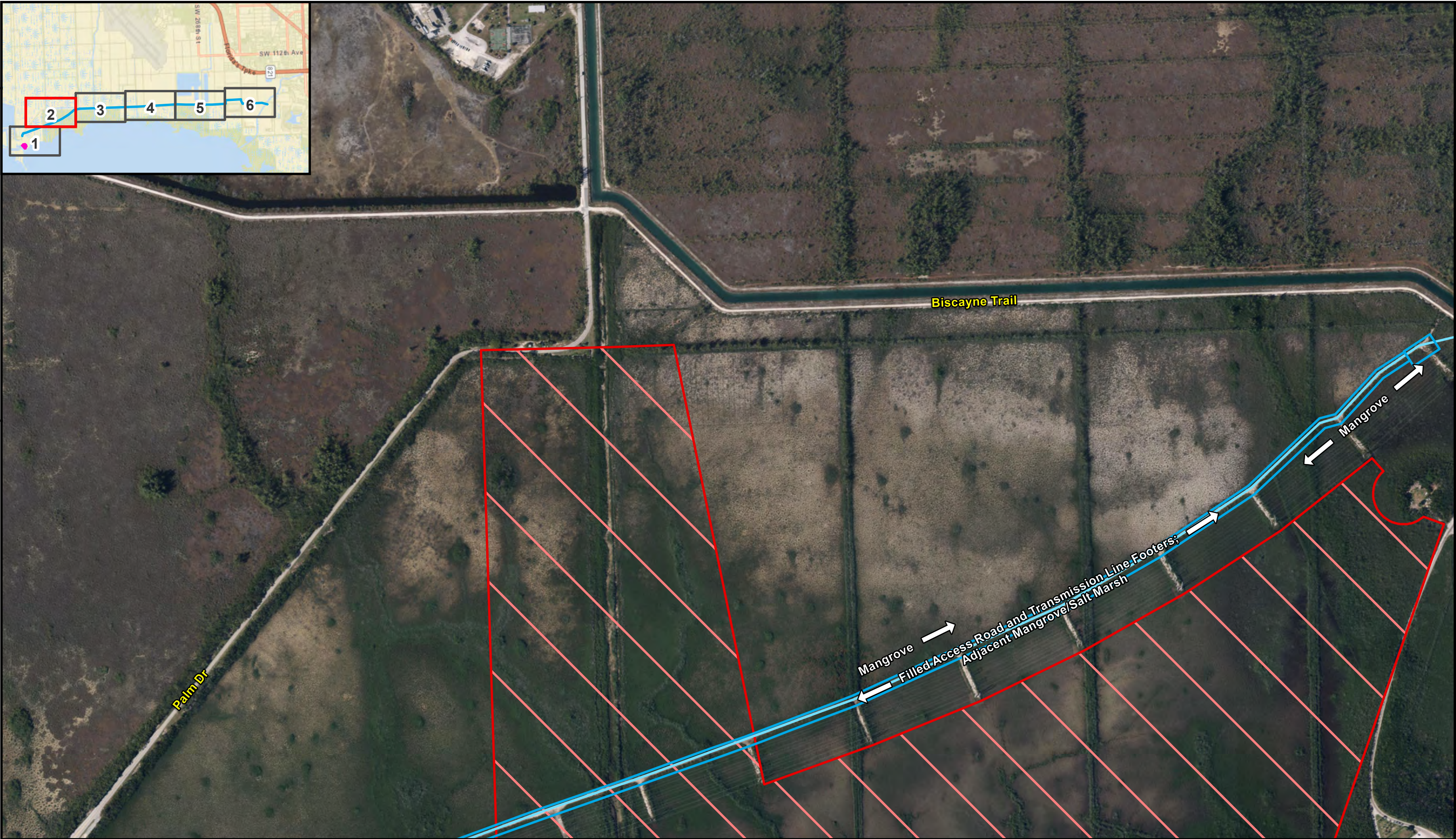
- CWRC Site (Project APE)
- CWRC Waterline (Project APE)
- CWRC Waterline Corridor (Project APE)
- Negative Shovel Test
- Biscayne National Park (No Survey Conducted in Park Boundaries)

Note: The Archaeological APE Exhibited Low Archaeological Site Potential

Miami-Dade County

0100200

Meters

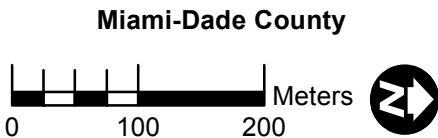


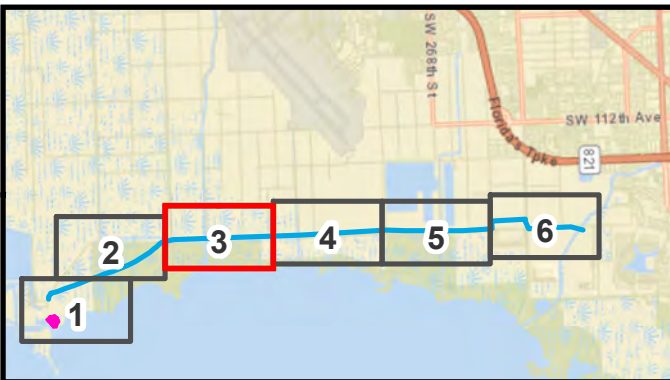
**Current Conditions and
Shovel Test Location
(Map 2 of 6)**

- CWRC Site (Project APE)
- CWRC Waterline (Project APE)
- CWRC Waterline Corridor (Project APE)

- Negative Shovel Test
- Biscayne National Park
(No Survey Conducted in Park Boundaries)

Note: The Archaeological
APE Exhibited Low
Archaeological Site Potential



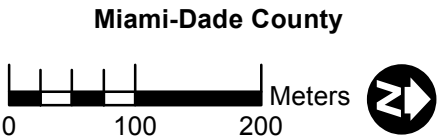


**Current Conditions and
Shovel Test Location
(Map 3 of 6)**

- CWRC Site (Project APE)
- CWRC Waterline (Project APE)
- CWRC Waterline Corridor (Project APE)

- Negative Shovel Test
- Biscayne National Park
(No Survey Conducted in Park Boundaries)

Note: The Archaeological
APE Exhibited Low
Archaeological Site Potential



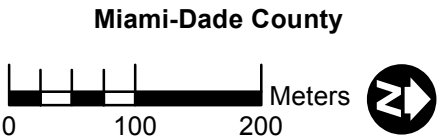


**Current Conditions and
Shovel Test Location
(Map 4 of 6)**

-  CWRC Site (Project APE)
-  CWRC Waterline (Project APE)
-  CWRC Waterline Corridor (Project APE)

-  Negative Shovel Test
-  Biscayne National Park
(No Survey Conducted in Park Boundaries)

Note: The Archaeological
APE Exhibited Low
Archaeological Site Potential



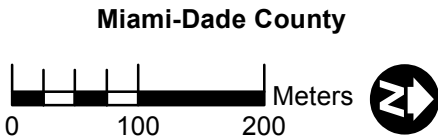


**Current Conditions and
Shovel Test Location
(Map 5 of 6)**

-  CWRC Site (Project APE)
-  CWRC Waterline (Project APE)
-  CWRC Waterline Corridor (Project APE)

-  Negative Shovel Test
-  Biscayne National Park
(No Survey Conducted in Park Boundaries)

Note: The Archaeological
APE Exhibited Low
Archaeological Site Potential



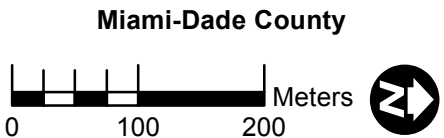


**Current Conditions and
Shovel Test Location
(Map 6 of 6)**

-  CWRC Site (Project APE)
-  CWRC Waterline (Project APE)
-  CWRC Waterline Corridor (Project APE)

-  Negative Shovel Test
-  Biscayne National Park
(No Survey Conducted in Park Boundaries)

Note: The Archaeological
APE Exhibited Low
Archaeological Site Potential



APPENDIX B:
SURVEY LOG

Ent D (FMSF only) _____



Survey Log Sheet

Florida Master Site File
Version 5.0 3/19

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Manuscript Information

Survey Project (name and project phase)

CRAS of the FPL Miami-Dade Clean Water Recovery Center (CWRC) Project

Report Title (exactly as on title page)

Cultural Resources Assessment Survey of the FPL Miami-Dade Clean Water Recovery Center Project, Miami-Dade County, Florida

Report Authors (as on title page)

1. Janus Research

3. _____

2. _____

4. _____

Publication Year 2021

Number of Pages in Report (do not include site forms) 78

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)

Janus Research, 1107 N. Ward Street, Tampa FL 33607

Supervisors of Fieldwork (even if same as author) Names Kathleen S. Hoffman and Amy Streelman

Affiliation of Fieldworkers: Organization Janus Research City Tampa

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. Clean

3. Recovery

5. Turkey Point

7. Energy

2. Water

4. Waterline

6. Biscayne

8. Center

Survey Sponsors (corporation, government unit, organization, or person funding fieldwork)

Name Florida Power & Light

Organization _____

Address/Phone/E-mail 700 Universe Boulevard, Juno Beach FL 33408

Recorder of Log Sheet Janus Research

Date Log Sheet Completed 6-21-2021

Is this survey or project a continuation of a previous project? ☒ No ☐ Yes: Previous survey #s (FMSF only)

Project Area Mapping

Counties (select every county in which field survey was done; attach additional sheet if necessary)

1. Dade

3. _____

5. _____

2. _____

4. _____

6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name ARSENICKER KEYS

Year 1969

4. Name _____

Year _____

2. Name PERRINE

Year 1969

5. Name _____

Year _____

3. Name _____

Year _____

6. Name _____

Year _____

Field Dates and Project Area Description

Fieldwork Dates: Start 6-7-2021 End 6-9-2021 Total Area Surveyed (fill in one) _____ hectares 68.70 acres

Number of Distinct Tracts or Areas Surveyed 2

If Corridor (fill in one for each) Width: _____ meters _____ feet Length: _____ kilometers _____ miles

Research and Field Methods

Types of Survey (select all that apply): ☒ archaeological ☒ architectural ☐ historical/archival ☐ underwater
☐ damage assessment ☐ monitoring report ☐ other(describe): _____

Scope/Intensity/Procedures

Pedestrian survey/visual inspection of APE outside of Biscayne National Park. Desktop analysis only in BNP. 1 shovel test excavated in APE due to filled patrol road/footers, mangrove swamp/salt marsh, etc. No cultural material identified.

Preliminary Methods (select as many as apply to the project as a whole)

☐ Florida Archives (Gray Building) ☐ library research- *local public* ☒ local property or tax records ☒ other historic maps ☒ LIDAR
☐ Florida Photo Archives (Gray Building) ☐ library-special collection ☐ newspaper files ☒ soils maps or data ☐ other remote sensing
☒ Site File property search ☐ Public Lands Survey (maps at DEP) ☒ literature search ☐ windshield survey
☒ Site File survey search ☐ local informant(s) ☐ Sanborn Insurance maps ☒ aerial photography
☒ other (describe): Janus Library

Archaeological Methods (select as many as apply to the project as a whole)

☐ Check here if **NO** archaeological methods were used.
☐ surface collection, controlled ☐ shovel test-other screen size ☐ block excavation (at least 2x2 m) ☐ metal detector
☐ surface collection, uncontrolled ☐ water screen ☐ soil resistivity ☐ other remote sensing
☒ shovel test-1/4" screen ☐ posthole tests ☐ magnetometer ☒ pedestrian survey
☐ shovel test-1/8" screen ☐ auger tests ☐ side scan sonar ☐ unknown
☐ shovel test 1/16" screen ☐ coring ☐ ground penetrating radar (GPR)
☐ shovel test-unscreened ☐ test excavation (at least 1x2 m) ☐ LIDAR
☒ other (describe): Desktop Analysis

Historical/Architectural Methods (select as many as apply to the project as a whole)

☐ Check here if **NO** historical/architectural methods were used.
☐ building permits ☐ demolition permits ☐ neighbor interview ☐ subdivision maps
☐ commercial permits ☐ windshield survey ☐ occupant interview ☐ tax records
☐ interior documentation ☐ local property records ☐ occupation permits ☐ unknown
☒ other (describe): Visual inspection of APE

Survey Results

Resource Significance Evaluated? ☐ Yes ☒ No

Count of Previously Recorded Resources 0 Count of Newly Recorded Resources 0

List Previously Recorded Site ID#s with Site File Forms Completed (attach additional pages if necessary)

List Newly Recorded Site ID#s (attach additional pages if necessary)

Site Forms Used: ☐ Site File Paper Forms ☒ Site File PDF Forms

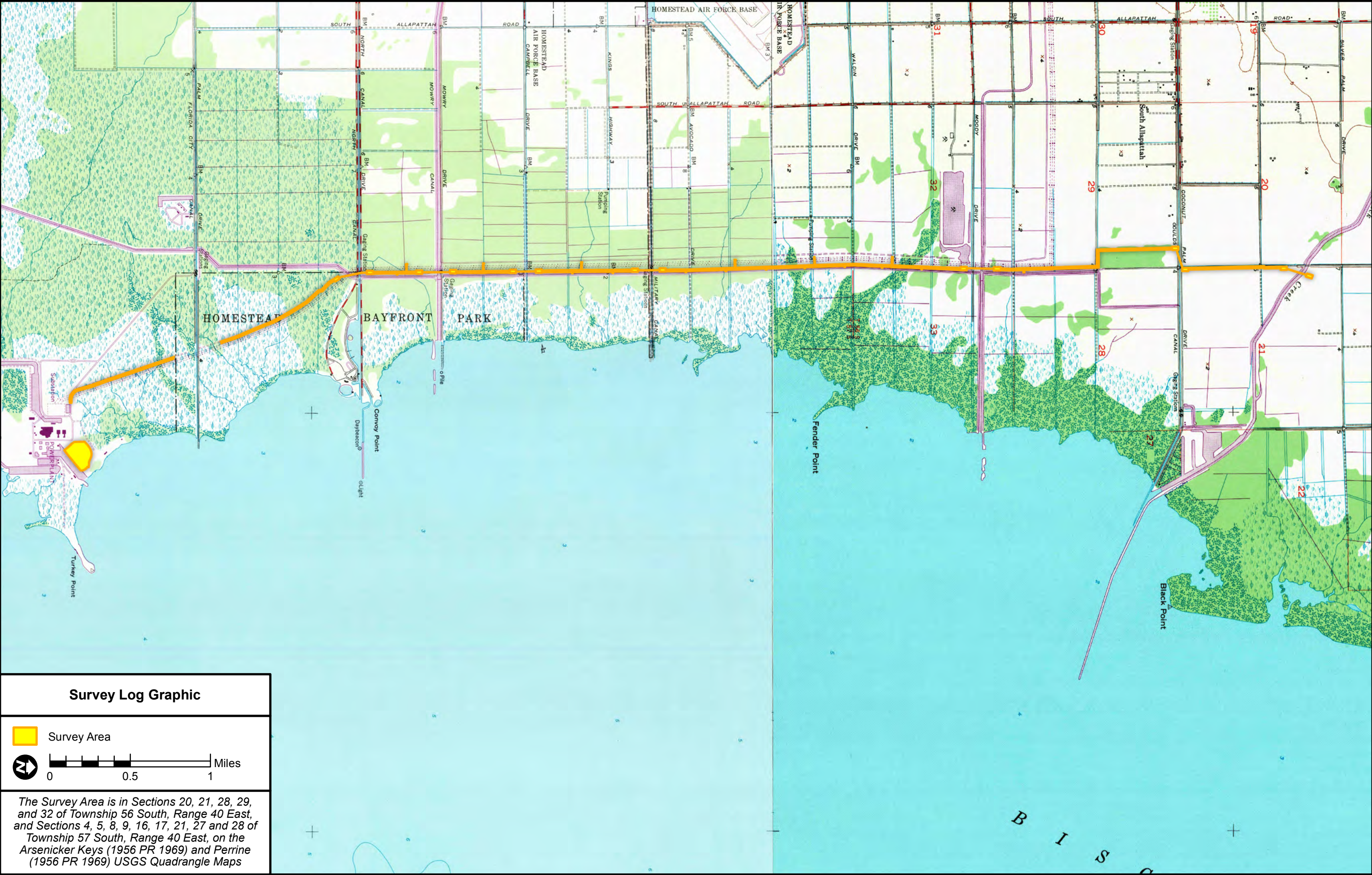
REQUIRED: Attach Map of Survey or Project Area Boundary

SHPO USE ONLY

SHPO USE ONLY

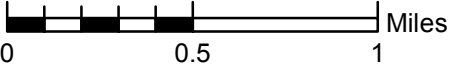
SHPO USE ONLY

Origin of Report: ☐ 872 ☐ Public Lands ☐ UW ☐ 1A32 # _____ ☐ Academic ☐ Contract ☐ Avocational
☐ Grant Project # _____ ☐ Compliance Review: CRAT # _____
 Type of Document: ☐ Archaeological Survey ☐ Historical/Architectural Survey ☐ Marine Survey ☐ Cell Tower CRAS ☐ Monitoring Report
☐ Overview ☐ Excavation Report ☐ Multi-Site Excavation Report ☐ Structure Detailed Report ☐ Library, Hist. or Archival Doc
☐ Desktop Analysis ☐ MPS ☐ MRA ☐ TG ☐ Other: _____
 Document Destination: Plottable Projects Plotability: _____



Survey Log Graphic

 Survey Area

The Survey Area is in Sections 20, 21, 28, 29, and 32 of Township 56 South, Range 40 East, and Sections 4, 5, 8, 9, 16, 17, 21, 27 and 28 of Township 57 South, Range 40 East, on the Arsenicker Keys (1956 PR 1969) and Perrine (1956 PR 1969) USGS Quadrangle Maps

APPENDIX C:

**OCTOBER 2021 UNANTICIPATED DISCOVERIES PLAN FOR THE
SEGMENT OF THE FPL MIAMI-DADE CLEAN WATER RECOVERY CENTER
RECLAIMED WATERLINE INTERSECTING BISCAYNE NATIONAL PARK
IN MIAMI-DADE COUNTY**

Unanticipated Discoveries Plan
Segment of the FPL Miami-Dade Clean Water Recovery Center Reclaimed Waterline
Intersecting Biscayne National Park
Miami-Dade County, Florida
October 14, 2021

This Unanticipated Discoveries Plan (UDP) provides the procedures and processes to follow in the event archaeological material or human remains are found during the archaeological survey or the archaeological monitoring of waterline trenching activities for the segment of the Florida Power & Light Company (FPL) Miami-Dade Clean Water Recovery Center (CWRC) Reclaimed Waterline project corridor (waterline corridor) that intersects the boundaries of Biscayne National Park (BISC). This portion of the waterline corridor is approximately 0.29 miles in length and 60 feet (ft.) in width (approximately 2.1 acres [8,506 square meters]) (Attachment 1). Included in this plan are 1) the process to follow should human remains be encountered and 2) the process to follow should archaeological material be discovered during the archaeological investigation or monitoring activities.

This plan was prepared in accordance with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004), *Archeological Resources Protection Act of 1979* (ARPA), (16 U.S.C. 470 et seq.) and its implementing regulations (43 CFR 7); Section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA) as implemented by 43 CFR 10.3 and 10.5(e), and Chapter 872.05, *Florida Statutes (F.S.) (Offenses Concerning Dead Bodies and Graves)*. A copy of this plan will be provided to the FPL Construction Manager, Environmental Project Manager (EPM), and Cultural Resources Manager (CRM) as well as the Archaeological Consultant responsible for the survey and monitoring activities. Contact information relevant to the notification process included in this plan is provided on page three of this document.

Discovery of Unanticipated Human Remains

In the event that human remains, including affiliated burial objects and artifacts, are found during the project, the National Park Service (NPS) will be responsible for implementing their procedures to ensure compliance with NAGPRA, ARPA, and Section 106 of the *NHPA*. The NPS will also coordinate with the Florida State Archaeologist (State Archaeologist), as required under Chapter 872.05, *F.S.*

The provisions of Chapter 872.05, *F.S.*, makes unauthorized disturbance of human remains, graves, and associated burial goods illegal on public and private property and requires the archaeologist conducting an investigation to notify the State Archaeologist. Within 24 hours of the discovery of human remains, the Archaeological Consultant, in coordination with FPL, will notify the State Archaeologist via email with copies to FPL and the NPS, noting that NPS has also been informed of the discovery. Under Chapter 872, 05 *F.S.*, the District Medical Examiner (DME) has jurisdiction if the remains are less than 75 years old or if the remains are involved in a criminal investigation. The State Archaeologist may assume jurisdiction if the remains are 75 years of age or more.

The specific procedure to follow is outlined below.

1. All human remains and associated objects or artifacts shall be treated with respect and dignity. No unauthorized removal, disturbance, photographs, or drawings are allowed.
2. All work within a maximum of 50 ft. that may disturb the human remains must stop immediately and efforts must be made to protect and secure the remains.
3. Should the human remains be found in a non-archaeological context, the Archaeological Consultant will immediately notify the FPL EPM and CRM and report the find to the Miami-Dade County Police Department (Police). The FPL EPM will notify the BISC Superintendent.
 - a. The Police will notify the Miami-Dade County DME.
 - b. If the DME assumes jurisdiction over the remains, no archaeological or construction work will resume within a maximum of 50 ft. until their investigations are completed and permission is granted to resume work.
 - c. FPL will request written authorization from the DME and the NPS to resume all work within a maximum of 50 ft. of the discovery.
4. If the Police or DME determines the remains are not part of a legal investigation, or the human remains are found in an archaeological context, the Archaeological Consultant will notify the FPL EPM and CRM, who will notify the NPS Chief of Cultural Resources, NPS Division Chief, and BISC Superintendent. The Archaeological Consultant will also notify the State Archaeologist.
 - a. The BISC Superintendent shall be responsible for notifying federally recognized Indian Tribes, if applicable, as well as the Florida State Historic Preservation Officer (SHPO) and the State Archaeologist. All notifications will take place within 24 hours of the determination/discovery.
 - b. The FPL CRM and Archaeological Consultant will work with BISC to protect the location of the discovery, including the establishment of 50 ft. maximum buffer and take measures to secure and protect the remains.
 - c. The NPS will provide status updates every 48 hours of coordination or consultation to the FPL EPM and CRM.
 - d. No work within a maximum of 50 ft. of the remains will resume until written authorization is received from the NPS and the State Archaeologist if jurisdiction is assumed.

Discovery of Unanticipated Archaeological Material

If archaeological discovery is found during the archaeological survey or monitoring, the following procedures will be followed:

1. If the discovery is determined by the Archaeological Consultant to be an Archaeological Occurrence the FPL CRM and the BISC Maritime Archaeologist will be notified within 24 hours of the find and the discovery will be documented in the daily

log within 48 hours of discovery. Once the notification and documentation are completed, construction may resume at the discovery location.

- a. An Archaeological Occurrence consists of one or two non-diagnostic artifacts, not known to be transported from their original context, which fit within a hypothetical cylinder of 30 meters (100 ft.) in diameter, regardless of depth below surface (see Florida Division of Historical Resources, *Cultural Resource Management Standards & Operational Manual* Module Four, page 30).
2. If the discovery is determined by the Archaeological Consultant to be an Archaeological Site, the Archaeological Consultant will work with FPL, and the BISC Superintendent and Maritime Archeologist, to take the necessary measures to secure and protect the archaeological material within 24 hours of the find. Work will cease within a maximum of 50 ft. of the Archaeological Site.
- a. NPS will provide initial notification to, coordinate with, and conduct consultation with the SHPO, Tribal Historic Preservation Officers (THPO), and Federally recognized Native American Tribes within 48 hours of discovery of unanticipated archaeological material.
 - b. The NPS will determine within 72 hours of discovery if the discovery warrants further investigation. If the NPS determines that the discovery does not warrant further investigation and project activities can resume, written notification will be provided to FPL immediately.
 - c. If the NPS determines that the Archaeological Site warrants further investigation, FPL will direct the Archaeological Consultant to develop and submit a Research Design to FPL within 72 hours of receipt of such request. FPL will have 72 hours to review and comment on the proposed work. The Archaeological Consultant will have 72 hours to address comments and submit a revised Research Design to FPL. Upon receipt of the approval from FPL, the Archaeological Consultant will submit the Research Design to the NPS along with an amended ARPA permit application. NPS shall review the Research Design and amended ARPA permit and request additional information within 48 hours or approve the Research Design. Once approved by the NPS, FPL will implement the Research Design.
 - d. Upon completion of the approved work, FPL will submit a Management Summary to NPS within five (5) calendar days. If no additional action is needed, the NPS will provide written notification that the survey or monitoring activities can resume within 72 hours of the Management Summary submittal.
 - e. If the NPS determines that additional action is required, the NPS will provide written notification to FPL within 72 hours outlining the actions required to resume project activities.

Contact Information

Miami-Dade County Police Department-South District Station

Major Patky Changkachith
10800 SW 211th Street
Miami, FL 33189
305-378-4300 (Office)
sta04info@mdpd.com

FPL Environmental Project Manager (EPM)

John Tessier
700 Universe Boulevard
Juno Beach, FL 33408
561-694-4131 (office)
561-309-9407 (mobile)
John.Tessier@fpl.com

FPL/NextEra Energy Archaeologist/Cultural Resources Manager (CRM)

Richard W. Estabrook, Ph.D.
700 Universe Boulevard
Juno Beach, FL 33408
561-691-3054 (office)
561-427-5483 (mobile)
Richard.Estabrook@nexteraenergy.com

NPS Chief of Cultural Resources

Jaci D. Wells
South Florida National Parks and Preserve (SOFL)
786-843-8096 (office)
305-242-7755 (mobile)
Jaci_Wells@nps.gov

NPS Division Chief, NAGPRA and Applied Sciences

Margo Schwadron, Ph.D.
Southeast Archeological Center
2035 E. Paul Dirac Drive
Johnson Building, Suite 120
Tallahassee, FL 32310
850-580-8458 (office)
Margo_Schwadron@nps.com

Biscayne National Park Superintendent

Penelope Del Bene
9700 SW 328th Street
Sir Lancelot Jones Way
Homestead, FL 33033
786-335-3634 (office)
786-610-9577 (mobile)
Penelope_DelBene@nps.gov

Biscayne National Park Maritime Archaeologist

Joshua L. Marano
9700 SW 328th Street
Sir Lancelot Jones Way
Homestead, FL 33033
305-224-4247 (office)
910-850-3955 (mobile)
Joshua.Marano@nps.gov

Florida State Historic Preservation Officer

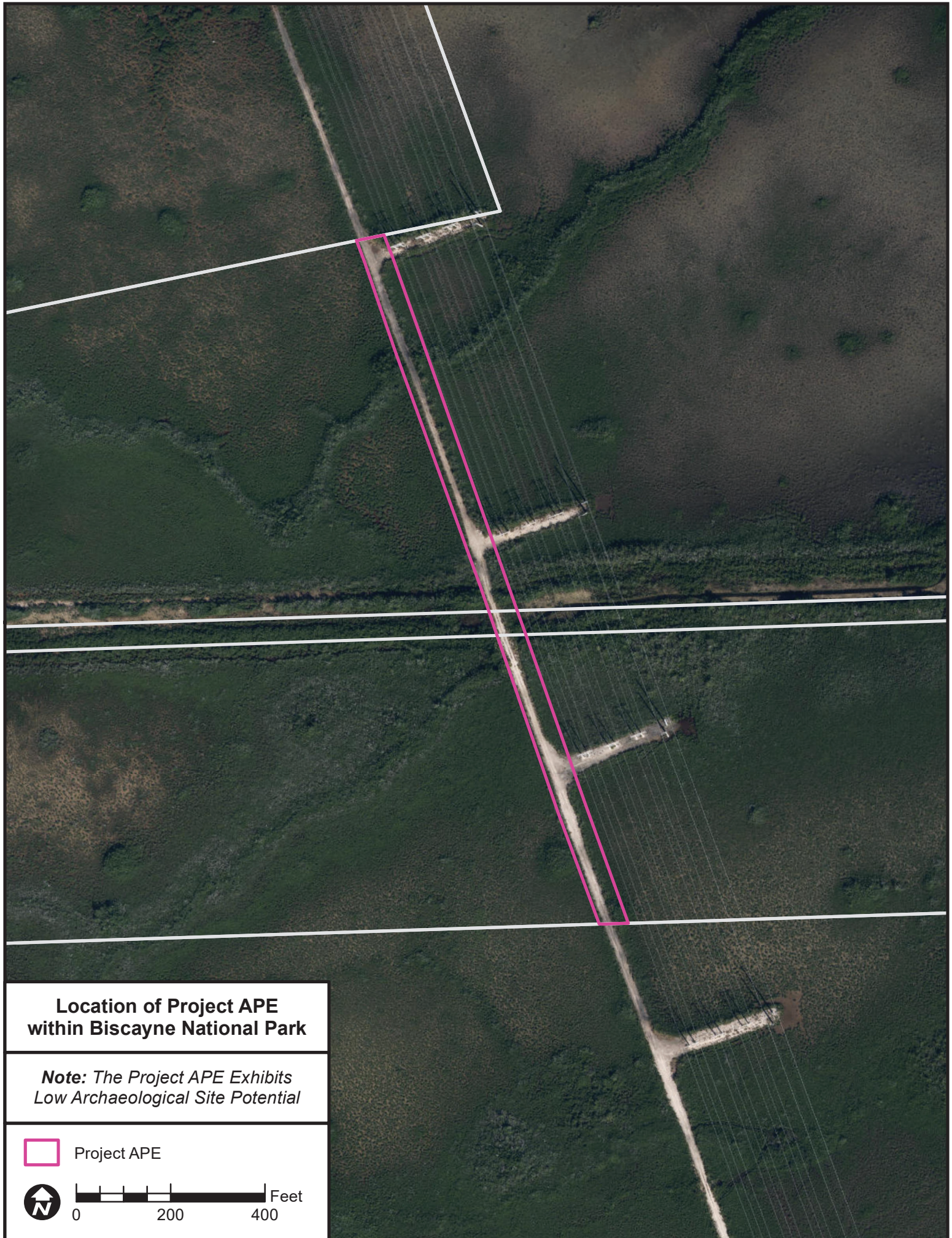
Timothy Parsons, Ph.D.
R.A. Gray Building, Room 305
500 S Bronough Street
Tallahassee, FL 32399
850-245-6357
timothy.parsons@dos.myflorida.com

Florida State Archaeologist

Kathryn Miyar, Ph.D.
R.A. Gray Building
500 S Bronough Street
Tallahassee, FL 32399
850-245-6319 (office)
Kathryn.Miyar@Dos.MyFlorida.com

Attachment 1:

**Location of Project Area of Potential Effect APE
Within Biscayne National Park**



**Location of Project APE
within Biscayne National Park**

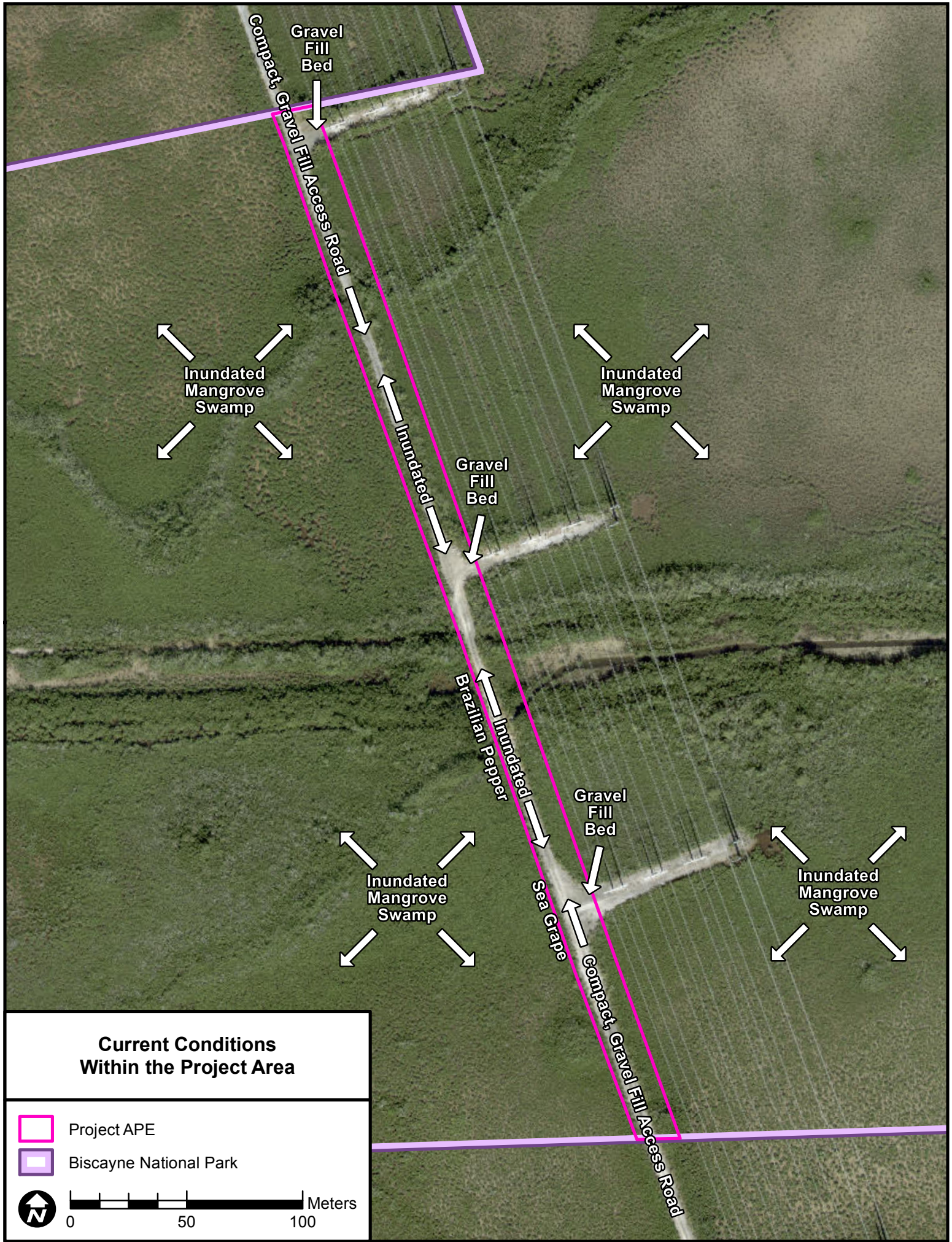
***Note:** The Project APE Exhibits
Low Archaeological Site Potential*

 Project APE

  Feet
0 200 400

APPENDIX D:

**EXISTING CONDITIONS WITHIN THE PROJECT APE
NOTED ON AN AERIAL PHOTOGRAPH**



APPENDIX E:
SURVEY LOG

Ent D (FMSF only) _____



Survey Log Sheet

Florida Master Site File
Version 5.0 3/19

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Manuscript Information

Survey Project (name and project phase)

CRAS Addendum, Archaeological Survey of the Segment of the FPL Miami-Dade Clean Water Recovery Center (CWRC) Waterline within BISC

Report Title (exactly as on title page)

FPL Miami-Dade CWRC Project, CRAS Addendum: Archaeological Pedestrian Survey of the Segment of the FPL Miami-Dade Clean Water Recovery Center Waterline Within Biscayne National Park, Miami-Dade County, Florida, ARPA Permit BISC 2022-01

Report Authors (as on title page)

1. Janus Research 3. _____
2. _____ 4. _____

Publication Year 2022

Number of Pages in Report (do not include site forms) 31

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)

Janus Research, 1107 N. Ward Street, Tampa FL 33607

Supervisors of Fieldwork (even if same as author) Names Kathleen S. Hoffman

Affiliation of Fieldworkers: Organization Janus Research City Tampa

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. Clean 3. Recovery 5. Turkey Point 7. Energy
2. Water 4. Waterline 6. Biscayne 8. Center

Survey Sponsors (corporation, government unit, organization, or person funding fieldwork)

Name Florida Power & Light Organization _____

Address/Phone/E-mail 700 Universe Boulevard, Juno Beach FL 33408

Recorder of Log Sheet Janus Research Date Log Sheet Completed 1-19-2022

Is this survey or project a continuation of a previous project? ☐ No ☒ Yes: Previous survey #s (FMSF only) _____

Project Area Mapping

Counties (select every county in which field survey was done; attach additional sheet if necessary)

1. Dade 3. _____ 5. _____
2. _____ 4. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name ARSENICKER KEYS Year 1969 4. Name _____ Year _____
2. Name _____ Year _____ 5. Name _____ Year _____
3. Name _____ Year _____ 6. Name _____ Year _____

Field Dates and Project Area Description

Fieldwork Dates: Start 1-14-2022 End 1-14-2022 Total Area Surveyed (fill in one) _____ hectares 68.70 acres

Number of Distinct Tracts or Areas Surveyed 1

If Corridor (fill in one for each) Width: 19 meters _____ feet Length: _____ kilometers 0.29 miles

Research and Field Methods

Types of Survey (select all that apply): ☒ archaeological ☐ architectural ☐ historical/archival ☐ underwater
☐ damage assessment ☐ monitoring report ☐ other(describe): _____

Scope/Intensity/Procedures

The pedestrian survey consisted of a visual inspection to examine the ground surface for artifacts and/or archaeological features. No ground disturbance took place during the survey.

Preliminary Methods (select as many as apply to the project as a whole)

☐ Florida Archives (Gray Building) ☐ library research- *local public* ☐ local property or tax records ☒ other historic maps ☒ LIDAR
☐ Florida Photo Archives (Gray Building) ☐ library-special collection ☐ newspaper files ☒ soils maps or data ☐ other remote sensing
☒ Site File property search ☐ Public Lands Survey (maps at DEP) ☒ literature search ☐ windshield survey
☒ Site File survey search ☐ local informant(s) ☐ Sanborn Insurance maps ☒ aerial photography
☒ other (describe): Janus Library

Archaeological Methods (select as many as apply to the project as a whole)

☐ Check here if **NO** archaeological methods were used.
☐ surface collection, controlled ☐ shovel test-other screen size ☐ block excavation (at least 2x2 m) ☐ metal detector
☐ surface collection, uncontrolled ☐ water screen ☐ soil resistivity ☐ other remote sensing
☐ shovel test-1/4" screen ☐ posthole tests ☐ magnetometer ☒ pedestrian survey
☐ shovel test-1/8" screen ☐ auger tests ☐ side scan sonar ☐ unknown
☐ shovel test 1/16" screen ☐ coring ☐ ground penetrating radar (GPR)
☐ shovel test-unscreened ☐ test excavation (at least 1x2 m) ☐ LIDAR
☒ other (describe): Desktop Analysis

Historical/Architectural Methods (select as many as apply to the project as a whole)

☒ Check here if **NO** historical/architectural methods were used.
☐ building permits ☐ demolition permits ☐ neighbor interview ☐ subdivision maps
☐ commercial permits ☐ windshield survey ☐ occupant interview ☐ tax records
☐ interior documentation ☐ local property records ☐ occupation permits ☐ unknown
☐ other (describe): _____

Survey Results

Resource Significance Evaluated? ☐ Yes ☒ No

Count of Previously Recorded Resources 0 Count of Newly Recorded Resources 0

List Previously Recorded Site ID#s with Site File Forms Completed (attach additional pages if necessary)

List Newly Recorded Site ID#s (attach additional pages if necessary)

Site Forms Used: ☐ Site File Paper Forms ☒ Site File PDF Forms

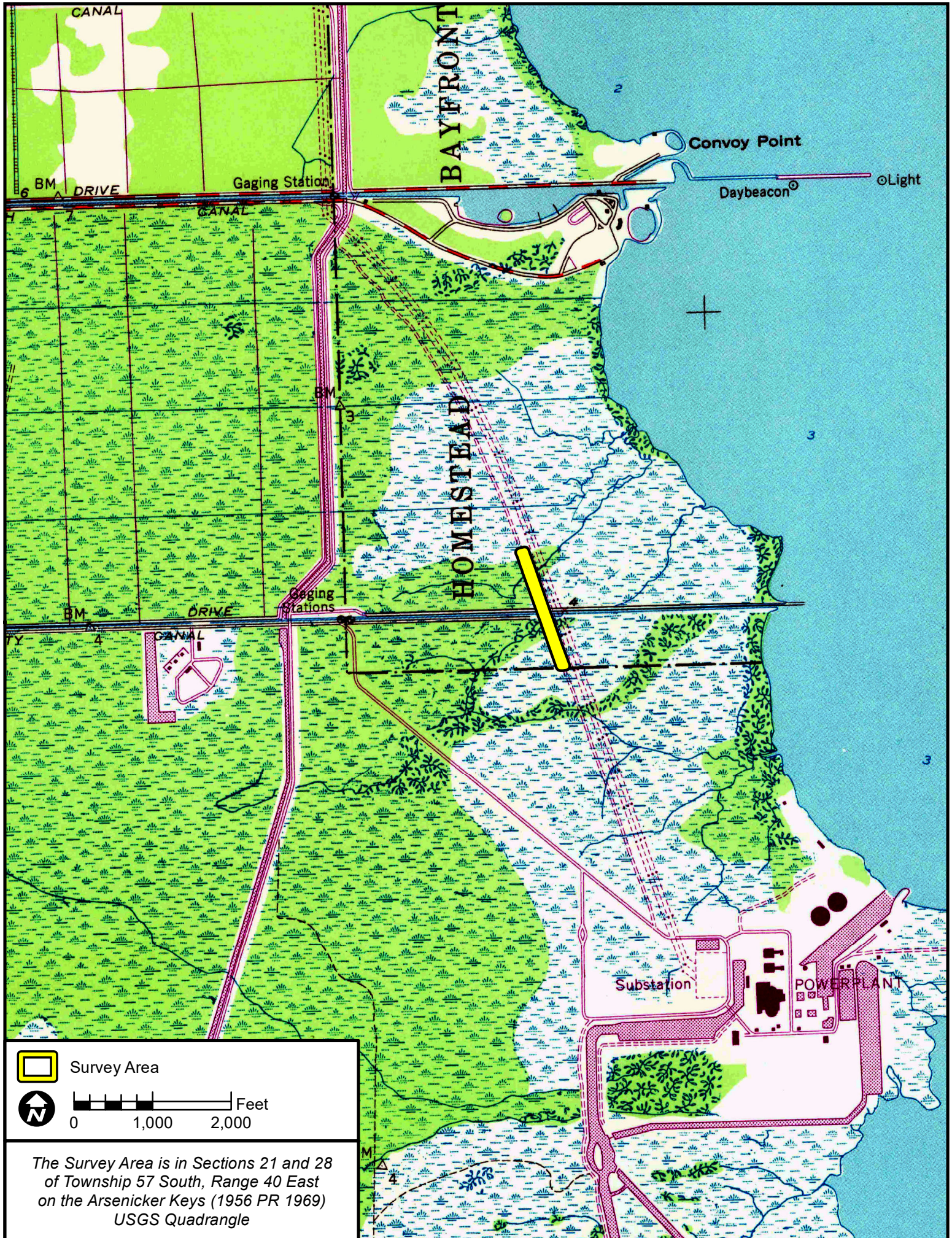
REQUIRED: Attach Map of Survey or Project Area Boundary

SHPO USE ONLY

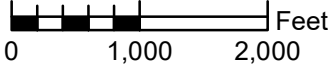
SHPO USE ONLY

SHPO USE ONLY

Origin of Report: ☐ 872 ☐ Public Lands ☐ UW ☐ 1A32 # _____ ☐ Academic ☐ Contract ☐ Avocational
☐ Grant Project # _____ ☐ Compliance Review: CRAT # _____
 Type of Document: ☐ Archaeological Survey ☐ Historical/Architectural Survey ☐ Marine Survey ☐ Cell Tower CRAS ☐ Monitoring Report
☐ Overview ☐ Excavation Report ☐ Multi-Site Excavation Report ☐ Structure Detailed Report ☐ Library, Hist. or Archival Doc
☐ Desktop Analysis ☐ MPS ☐ MRA ☐ TG ☐ Other: _____
 Document Destination: Plottable Projects Plotability: _____



 Survey Area

  Feet
0 1,000 2,000

The Survey Area is in Sections 21 and 28
of Township 57 South, Range 40 East
on the Arsenicker Keys (1956 PR 1969)
USGS Quadrangle