

**RESOLUTION NUMBER 2020- 157**

**A RESOLUTION OF THE AMERICAN BEACH WATER AND SEWER DISTRICT OF NASSAU COUNTY, FLORIDA, RELATING TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) STATE REVOLVING FUND (SRF); ADOPTION OF THE WATER AND WASTEWATER FACILITY PLAN FOR THE IMPLEMENTATION OF POTABLE WATER AND GRAVITY SEWER SYSTEM IMPROVEMENTS; PROVIDING AN EFFECTIVE DATE**

**WHEREAS**, Florida Statutes provide for loans to local government agencies to finance the construction of water and wastewater facilities; and Florida Administrative Code requires the formal authorization by the American Beach Water and Sewer District (“District”) to formally adopt a facility plan outlining necessary potable water and gravity sewer system improvements to comply with State of Florida funding requirements; and

**WHEREAS**, formal adoption of the proposed Facility Plan is required for Nassau County to participate in the State Revolving Loan Fund Program; and

**WHEREAS**, the American Beach Water and Sewer District of Nassau County, Florida agrees with the findings and summary of necessary improvements as outlined in the Facility Plan for the purpose of constructing a new potable water distribution system and a new gravity sewer collection system;

**NOW THEREFORE BE IT RESOLVED** by the Governing Board of the District, the Board of County Commissioners (“Board”) of Nassau County, Florida formally approves and adopts the American Beach Facilities Plan as written and presented to the Board, attached herewith as Appendix A;

**SECTION 1. FINDINGS**

The foregoing findings are incorporated herein by reference and made a part hereof.

The Improvement District is authorized to approve the proposed Facility Plan.

The Board Chairperson is hereby designated as the authorized representative to provide the assurances and commitments that will be required by the Facility Plan.

The Board Chairperson is hereby designated as the authorized representative to execute the Facility Plan which will become the foundation of all activities related to the water and wastewater facility improvements. The Board Chairperson is authorized to represent the District in carrying out the District’s responsibilities under the Facility Plan. The Board Chairperson is authorized to delegate responsibility to appropriate Nassau County staff to carry out technical, financial, and administrative activities associated with the Facility Plan.

The legal authority for adoption of this facility plan is pursuant to the District's enabling County Ordinance.

All Resolutions or part of Resolutions in conflict with any of the provisions of this Resolution are hereby repealed.


If any section or portion of a section of this Resolution proves to be invalid, unlawful, or unconstitutional, it shall not be held to invalidated or impair the validity, force, or effect or any other section or part of this Resolution.

**SECTION 2. EFFECTIVE DATE**

This Resolution shall take effect upon its approval and adoption by the Improvement District.

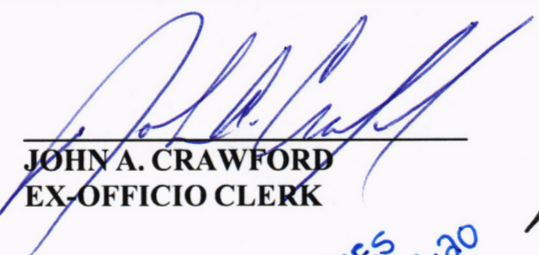
**APPROVED AND ADOPTION THIS 23<sup>RD</sup> DAY OF SEPTEMBER, 2020.**

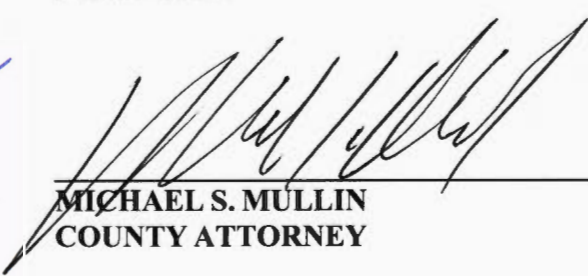
**AMERICAN BEACH WATER AND SEWER  
DISTRICT  
NASSAU COUNTY, FLORIDA**

  
**DANIEL B. LEEPER**  
CHAIRPERSON (SEAL)

**ATTEST:**

**APPROVED AS TO FORM AND LEGAL  
SUFFICIENCY:**

  
**JOHN A. CRAWFORD**  
EX-OFFICIO CLERK

  
**MICHAEL S. MULLIN**  
COUNTY ATTORNEY

MES  
09.24.20

# **American Beach Water & Sewer District Well and Septic Tank Phase-Out Program Facilities Plan**

Prepared For  
**The Florida Governmental Utility Authority (FGUA)**

On Behalf Of  
**The American Beach Water & Sewer District**

September 2020



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# American Beach Facilities Plan

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## 1.0 EXECUTIVE SUMMARY

### 1.1 INTRODUCTION

This Facilities Plan has been prepared to establish the eligibility of the American Beach Water and Sewer District for low-cost State Revolving Fund (SRF) loans to finance water and wastewater system improvements. The SRF program provides low interest loans to local governments for the planning, design, and construction of utility systems.

The Florida Department of Environmental Protection (FDEP) administers the Florida SRF program. Under the SRF program, local governments are required to submit a Facilities Plan containing detailed planning, financial, and technical information for the purpose of obtaining environmental clearance, identifying project alternatives and costs, and coordinating public participation for the proposed project.

This Facilities Plan was prepared to meet the requirements of the SRF loan program for drinking water and wastewater systems within the American Beach project area. The project area incorporates the American Beach neighborhood located in Nassau County which is bordered to the east by the Atlantic Ocean and to the west by First Coast Highway (also referred to as State Road A1A). Maps of the planning area and the project area are included in Section 2 as Exhibits 2-1 and 2-2, respectively.

Review of this planning document, consideration of public input, and adoption of the Facilities Plan by the American Beach Water and Sewer District (ABWS District) is required by the SRF program. Adoption of the plan by the ABWS District in no way commits the ABWS District to construct the project, nor does it commit the ABWS District to use SRF funding.

#### PROJECT AND APPROACH CLARIFICATION

The American Beach Water and Sewer District desires to submit this Facilities Plan for drinking water and wastewater collection SRF project funding consideration at the FDEP's November 2020 hearing. Due to the FDEP's recent announcement regarding current SRF Drinking Water Program funding limitations, the approach will be to include this Facilities Plan at the November 2020 hearing in pursuit of design funding for the wastewater project. Afterwards, per FDEP recommendation, this Facilities Plan will be resubmitted for the February 2021 hearing in pursuit of design funding for the drinking water project. For this reason, this version of the Facilities Plan has purposely not included the Drinking Water Business Plan as it will be included as part of the February 2021 submittal.

### 1.2 EXISTING DRINKING WATER SYSTEM

Nassau Amelia Utilities (NAU) provides American Beach the ability to connect to the NAU potable water system at four existing water main connection locations. According to GIS data provided by Nassau County, from the approximate 311 parcels within the American Beach Water and Sewer District, there are approximately 147 occupied parcels which are assumed to be serviced with individual onsite private



groundwater wells. The remaining 164 parcels consist of approximately 24 parcels currently connected to the NAU potable water system and 140 vacant parcels.

### 1.3 EXISTING WASTEWATER SYSTEM

Out of the approximate 311 parcels in the American Beach Water and Sewer District, there are approximately 147 occupied parcels assumed to be serviced by septic tanks and drain fields for disposal of their domestic wastewater.

The NAU wastewater collection system consists of a network of gravity sewer mains interconnected by sanitary sewer manholes which discharge into lift stations. A schematic of the existing wastewater collection and treatment infrastructure near the American Beach service area is provided in Exhibit 5-1.

The western section of Julia Street is currently provided with gravity sewer from the American Beach Community Center and Museum heading west approximately 944 linear feet before turning north towards the wastewater treatment plant. Located near the intersection of Lewis Street and 1<sup>st</sup> Coast Hwy (also referred to as Highway A1A) is an existing wastewater lift station which collects wastewater from nearby commercial properties and connects to the existing 8-inch force main on A1A.

### 1.4 NEED FOR THE WATER MAIN AND WASTEWATER COLLECTION PROJECTS

The water and wastewater project are needed to provide the American Beach community with safe drinking water, reliable fire protection and an environmentally safe means of wastewater disposal. The addition of potable water mains and centralized sewer system will allow the American Beach residents to abandon their existing private wells, septic tanks, and drain fields and benefit from a reliable and high quality public utility system that provides safe drinking water and centralized collection and wastewater treatment for homes using septic tanks.

### 1.5 THE SELECTED WATER AND WASTEWATER PROJECT ALTERNATIVES

#### **Drinking Water Project**

The selected drinking water project proposes the construction of approximately 1,500 linear feet (LF) of 4-inch PVC water main, 9,300 LF of 6-inch PVC water main, and 3,800 LF of 8-inch PVC water main. New water mains would connect to the existing NAU municipal water system at four locations to ensure a looped system and minimize water age issues. Service laterals will be installed to provide service from the water main to each of the 287 property boundaries. Under this project, water meters will be installed only at parcels of existing customers (147 parcels at the time of this writing). Private property connections will be the responsibility of the homeowner.

#### **Wastewater Project**

The selected clean water (wastewater) project proposes the installation of 37 sanitary sewer manholes, approximately 12,000 LF of 8-inch diameter PVC gravity mains, 219 LF of 2-inch PVC force main (FM), 567

LF of 3-inch PVC FM, and 1,186 LF of 4-inch PVC FM along the American Beach roadways. Additionally, this alternative includes the construction of two lift stations including wet well, submersible pumps, control panels, piping and other materials related to constructing a typical wastewater lift station. The proposed project would connect to the existing NAU collection system for subsequent treatment and disposal.

## 1.6 FINANCING THE IMPROVEMENT PROJECTS

The ABWS District is seeking consideration for low-interest SRF Loan funding, eligible for principal debt forgiveness, for approximately \$8,043,000 for both design and construction of the combined Drinking Water (\$2,572,000) and Clean Water (\$5,471,000) projects.

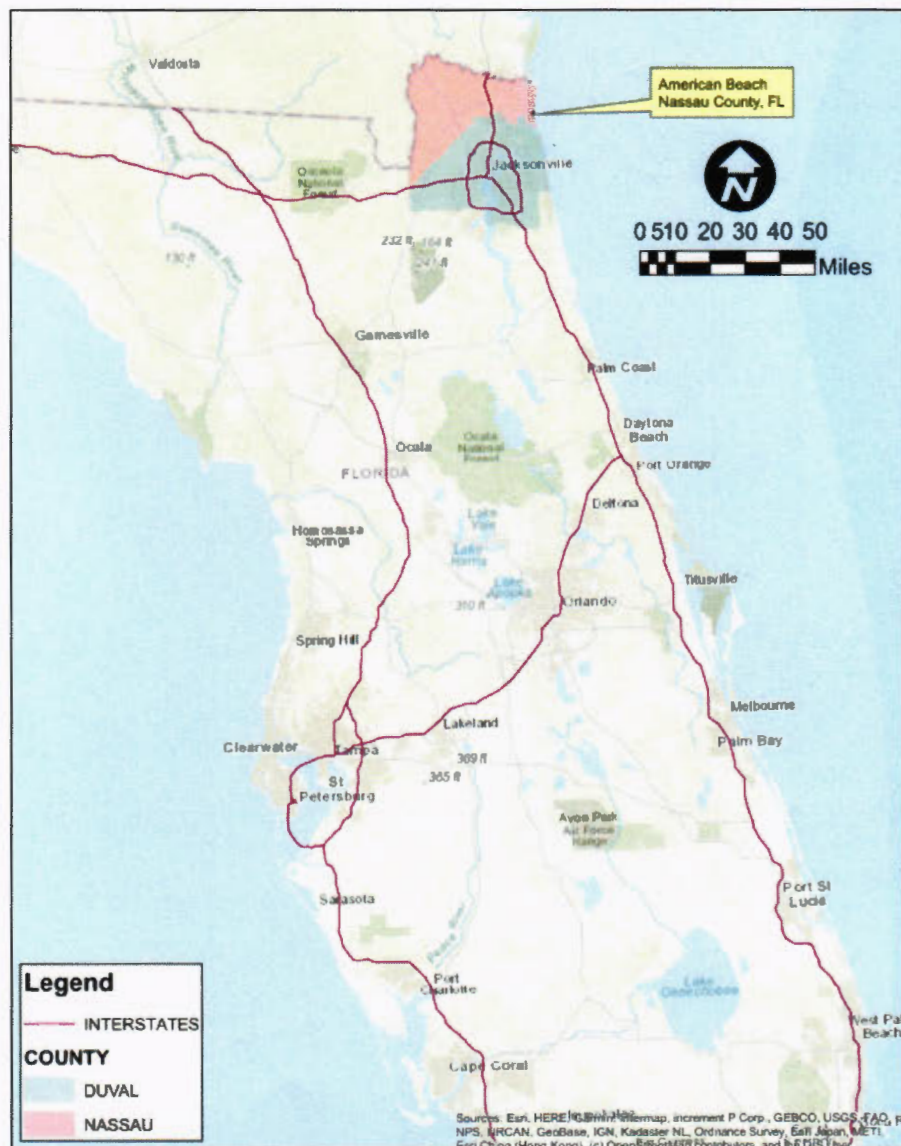
The amount for design funding from FDEP to include design, permitting, and project administration is approximately \$231,500 for Drinking Water and \$518,500 for Clean Water based upon preliminary planning estimates. The amount for construction funding from FDEP to include construction, contingency, and technical services is approximately \$2,340,500 for Drinking Water and \$4,952,500 for Clean Water based upon preliminary planning estimates. A detailed breakdown of the cost has been included in Appendices D and E.

It is important to note that while total project costs are being provided, the District's financial projections rely upon principal forgiveness of 70%.

## 2.0 INTRODUCTION

American Beach, located on Amelia Island in Nassau County as shown in Exhibit 2-1, is a historic African-American beach community. Founded in 1935 by Abraham Lincoln Lewis, American Beach was created as a vacation haven for African-Americans denied access to other resorts prior to desegregation. In the early 1930s, A.L. Lewis became president of Florida's first insurance company, the Afro-American Life Insurance Company in Jacksonville, and was Florida's first African-American millionaire. He bought 200 acres of prime Florida beachfront so his employees could enjoy the Florida shore. Over 70 years later, in January 2002, American Beach was placed on the National Register of Historic Places.

**Exhibit 2-1 American Beach Location Map**



To this day, American Beach continues to rely on groundwater wells and septic tanks for water and sewer service. Nassau Amelia Utility (NAU) and Nassau County (County) have identified a need to improve the level of water and sewer service for American Beach residents by constructing drinking water distribution and domestic sanitary sewer collection infrastructure. This undertaking would provide a safe and reliable water and sewer system, provide fire protection, improve the health and welfare of the community, and promote economic growth in the area.

The proposed American Beach Water and Sewer District incorporates approximately 311 parcels consisting of occupied or vacant residential dwellings, and a hotel—the American Beach Villas. According to available GIS data, approximately 140 parcels are vacant and 171 parcels are categorized as occupied (the majority on private wells and septic tanks). Exhibit 2-2 illustrates the overall American Beach area, major roads, and parcel designation. The north-west portion of American Beach and the area east of Ocean Boulevard shows gradual topographic changes in elevations. However, the area along Waldron Street and Ocean Boulevard depicts more significant topographic changes in elevations and is known as the "ridge" or "sand dune".

The identified Drinking and Clean Water projects in this Facilities Plan propose to provide water and sewer infrastructure to serve approximately 287 lots in the American Beach community. These projects will meet the following requirements:

- Provide a water and a sewer service connection to each parcel property line
- Deliver a minimum Fire Flow of 1,000 gallons per minute (gpm) for residential area and 1,500 gpm for Villa's Hotel (commercial)
- Maximize water distribution looping
- Represent a reasonable peaking factor for the sewer system that keeps the size of the sanitary sewer collection system to a minimum
- Provide guidelines for homeowners to connect to the proposed water and sewer system
- Resurface all existing paved roads impacted by these projects.

In accordance with FDEP requirements, this Facilities plan provides the following:

- an environmental assessment of the proposed project area,
- project alternatives (3 for Drinking Water and 3 for Clean Water),
- a detailed cost estimate for the project alternatives,
- a financing plan, and
- public participation meeting documentation







### 3.0 ENVIRONMENTAL REVIEW

#### 3.1 INTRODUCTION

The environmental aspects of both projects, drinking water and clean water, have been evaluated as described in this section. It is not anticipated that any site related environmental impacts will occur; however, the project design will mitigate any potential impacts and require appropriate mitigation measures via the project specifications.

Temporary adverse impacts anticipated during construction include gopher tortoises which are located throughout the community. A formal tortoise survey will be completed, and a permit obtained from FWC for the excavation of tortoise borrows that cannot be avoided by the project.

It is expected that review by various environmental agencies will establish that the proposed projects will not have a significant adverse effect upon flora, fauna, threatened or endangered plant or animal species, prime agricultural lands, wetlands, undisturbed natural areas, or the socioeconomic character of the area.

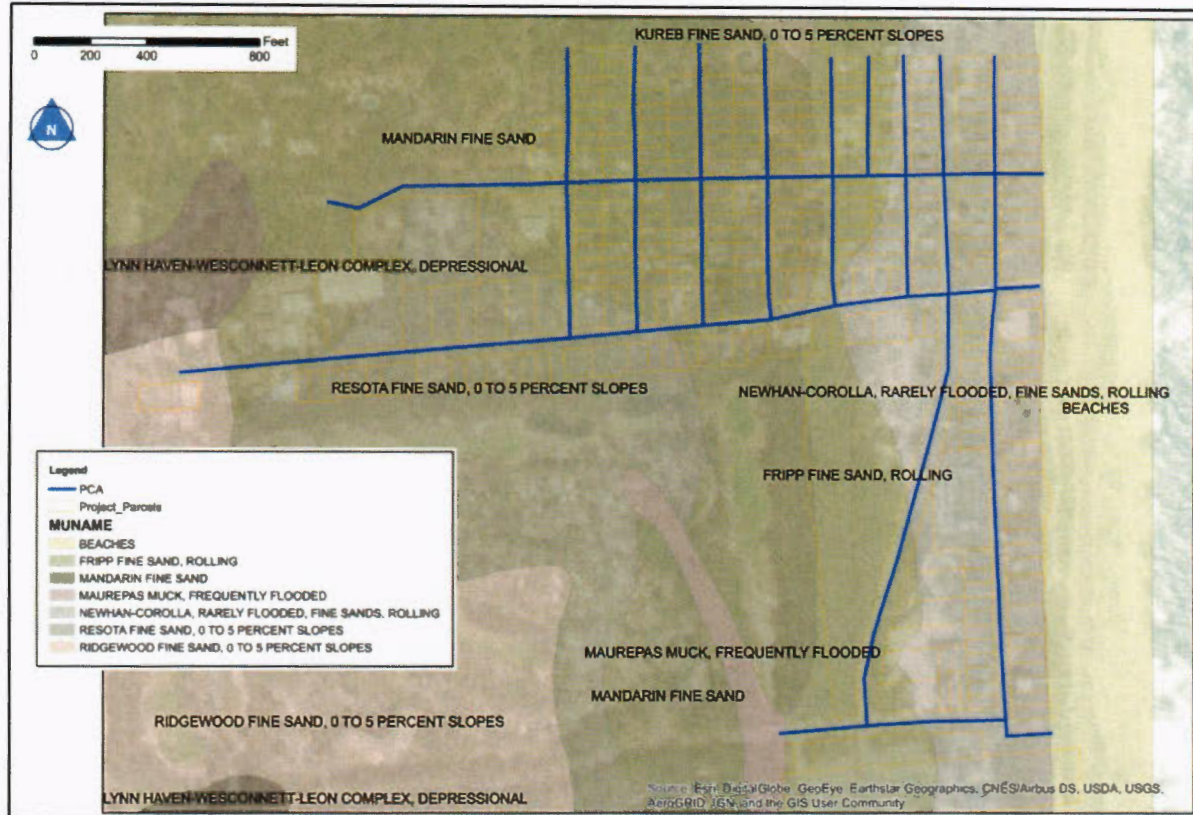
#### 3.2 SOILS

The region is mapped as having mostly upland soils comprised of the dune communities. There are some hydric soils in the region but only a very small amount of the Proposed Construction Area (PCA) intersects with mapped hydric (wetland) soils on the National Soil Conservation Service (NRCS) Soil Survey map. These findings could suggest that there is a small likelihood wetlands could occur in the PCA. Since all work will be within the current road Right-of-Way (ROW) no wetlands were anticipated. A total of seven soil types identified in the PCA are listed on Table 3-1 and depicted on Exhibit 3-1. A description of each soil type is provided in Section 3.2.1.

Table 3-1 Soils in the PCA		
Code	Name	Hydric
3	BEACHES	No
5	FRIPP FINE SAND, ROLLING	No
10	MANDARIN FINE SAND	No
12	NEWHAN-COROLLA, RARELY FLOODED, FINE SANDS, ROLLING	No
25	MAUREPAS MUCK, FREQUENTLY FLOODED	Yes
27	RESOTA FINE SAND, 0 TO 5 PERCENT SLOPES	No
29	RIDGEWOOD FINE SAND, 0 TO 5 PERCENT SLOPES	No

Field observations concluded that there are no hydric soils in the PCA.

Exhibit 3-1 NRCS Soils Survey Map



### 3.2.1 Soil Descriptions

The following paragraphs describe each soil type found in the PCA:

#### 3—Beaches

These soils are found on beaches on marine terraces. These soils are poorly drained and the depth to water table is typically 0 to 72 inches. There is very frequent flooding. These soils are not hydric.

#### 5—Fripp fine sand, rolling

These soils are ridges and dunes on marine terraces. These soils are excessively drained and the depth to water table is typically more than 80 inches. There is a very rare chance of flooding but no ponding. These soils are not hydric.

#### 10—Mandarin fine sand, 0 to 2 percent slopes

These soils are on rises. These soils are somewhat poorly drained and the depth to water table is typically 18 to 30 inches. There is no chance of flooding or ponding. These soils are not hydric.

**12—Newhan-Corolla, rarely flooded, fine sands, rolling**

These soils are on ridges, dunes, and marine terraces. These soils are excessively drained and the depth to water table is typically more than 80 inches. There is no chance of flooding or ponding. These soils are not hydric.

**25—Maurepas muck, frequently flooded**

These soils are flood plains on marine terraces. These soils are very poorly drained and the depth to water table is typically 0 inches. There is frequent flooding or ponding. These soils are hydric.

**27—Ridgewood fine sand, 0 to 5 percent slopes**

These soils are ridges and knolls on marine terraces. These soils are somewhat poorly drained and the depth to water table is typically 18 to 42 inches. There is no chance of flooding or ponding. These soils are not hydric.

**29—Resota fine sand, 0 to 5 percent slopes**

These soils are ridges and knolls on marine terraces. These soils are moderately well drained and the depth to water table is typically 42 to 60 inches. There is no chance of flooding or ponding. These soils are not hydric.

### 3.3 TOPOGRAPHIC ANALYSIS

The elevations and historic land use of the PCA were investigated by review of the historic USGS Amelia City topographic quadrangle (Exhibit 3-2). The USGS topographic data is expressed in 5-foot contours. The findings suggest the PCA was forested with mainly small residential structures. There are several apparent elevation contours ranging from 10 to 50 feet National Geodetic Vertical Datum of 1929 (NGVD 29).

To further investigate the topography, the Nassau County LiDAR, 2-foot contour data was reviewed (Exhibit 3-3). This data is referenced to the North American Vertical Datum of 1988 (NAVD 88) and is approximately 1.5 feet lower than the NGVD data. This data suggests that the elevations within the region range from 0 to 60 feet. The elevations within the PCA range from 8 to 26 feet.



Exhibit 3-2 USGS Topographic Map

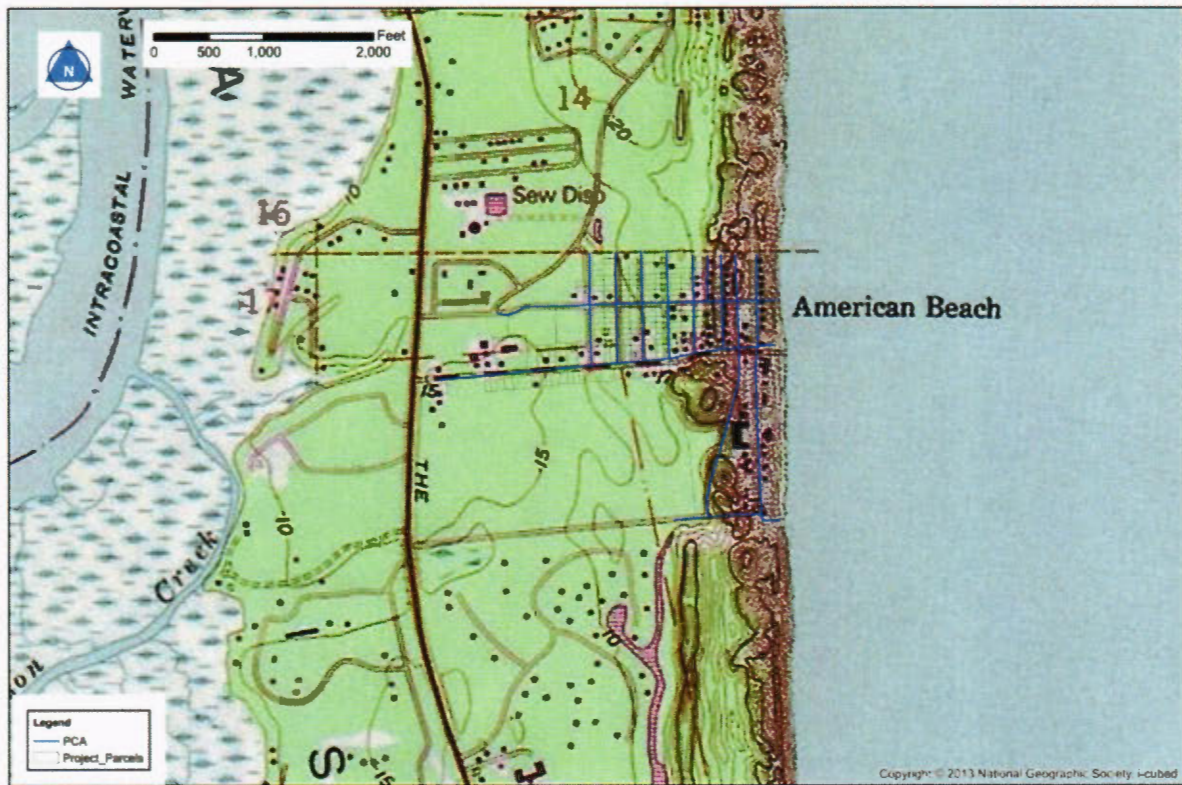
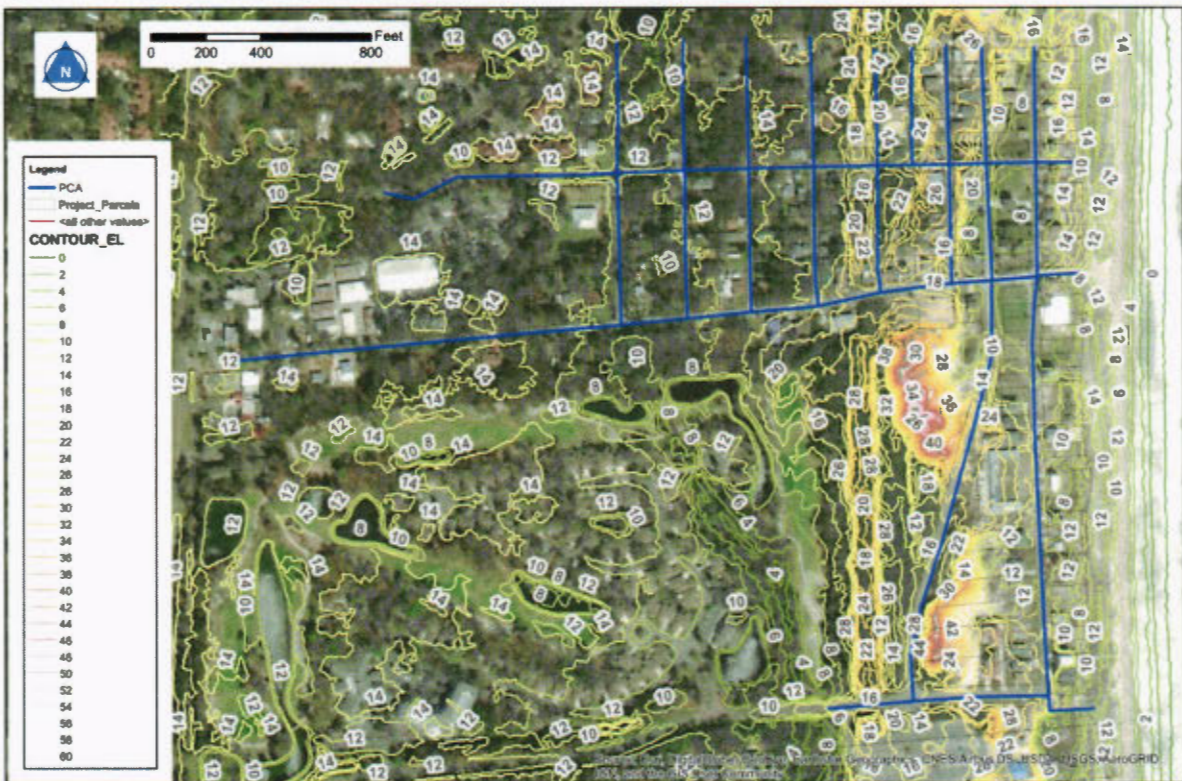


Exhibit 3-3 LIDAR Topographic Map





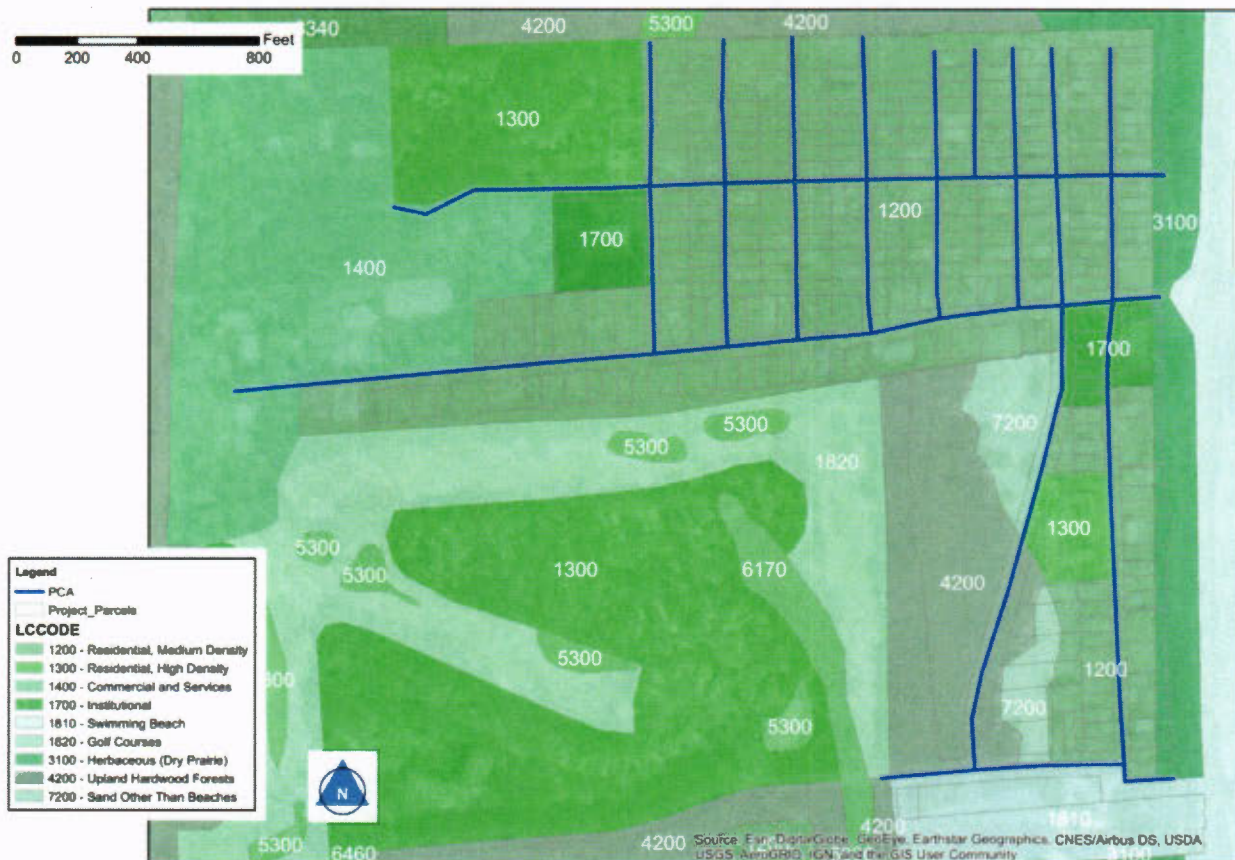
### 3.4 CURRENT LAND USE

Land use descriptions have been created for the entire state by the Florida Department of Transportation. These Florida Land Use, Cover, and Forms Classifications System (FLUCCS) codes are used to generally categorize land types by use and vegetative compositions. The descriptions that are closest to the habitats onsite are utilized to document the current land use. Modifications of categories are done to be more descriptive of conditions onsite.

GIS land use data (2014) from the St. Johns River Water Management District (SJRWMD) was compiled in the analysis of the PCA. The current land uses are presented in Exhibit 3-4. There are nine habitat types within the PCA (Table 3-2). Since the PCA is only in the road ROW, the potentially impacted areas are only small portions of the individual land use types.

It is expected that impacts within the ROW of the road will be minimal and that no mitigation or restoration will be required to offset the temporary impacts that the construction project would cause in these habitats. Construction that will occur in the shoulders of the ROW would be allowed to re-vegetate naturally after the completion of the construction activities. If structures are required (such as lift stations), they will be located in maintained, unnatural areas minimizing impacts to natural communities.

**Exhibit 3-4 Current Land Use Map**



**Table 3-2 Current Land Use of the PCA**

Code	Description	Acreage
1200	Residential, Medium Density	5.9
1300	Residential, High Density	0.4
1400	Commercial and Services	0.4
1700	Institutional	0.4
1810	Swimming Beach	0.3
1820	Golf Courses	< 0.1
3100	Herbaceous (Dry Prairie)	< 0.1
4200	Upland Hardwood Forests	0.4
7200	Sand Other Than Beaches	< 0.1

**1200 – Residential, Medium Density (5.9 acres)**

Much of this portion of the PCA is associated with residences and is not usually in a native condition. Some of these areas include swales that collect and convey storm waters offsite. Most of the vegetation in these areas is modified and maintained. The vegetation includes terrestrial grasses and weedy species. Some of the residential parcels include trees such as live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), sand live oak (*Quercus geminata*), slash pine (*Pinus elliotii*), loblolly pine (*Pinus taeda*), and cabbage palm (*Sabal palmetto*). There are also shrubs within some of these areas including saltbush (*Baccharis halimifolia*) and wax myrtle (*Morella cerifera*) with some saw palmetto (*Serenoa repens*). Some areas also have vines growing in them including peppervine (*Ampelopsis arborea*) and air potato (*Dioscorea bulbifera*). Some of the **1200 – Residential, Medium Density** land use also includes portions of the dune complex. This mainly occurred east of James Street, and areas approaching the beach. Some of the vegetation located in these areas includes blanket flower (*Gaillardia pulchella*), beach morning glory (*Ipomoea imperati*), railroad vine (*Ipomoea pes-caprae*), East Coast dune sunflower (*Helianthus debilis*), sea oats (*Uniola paniculata*), prickly pears (*Opuntia* spp.), Hercules' club (*Zanthoxylum clava-hercules*), Adam's needle (*Yucca filamentosa*), and sea purslane (*Sesuvium portulacastrum*).

**1300 – Residential, High Density (0.4 acres)**

This portion of the PCA is associated with residences and is not usually in a native condition. Some of these areas include swales that collect and convey storm waters offsite. Most of the vegetation in these areas is modified and maintained. The vegetation includes terrestrial grasses and weedy species. Some of the residential parcels include trees such as live oak, laurel oak, sand live oak, slash pine, loblolly pine, and cabbage palm. There are also shrubs within some of these areas including saltbush and wax myrtle. Some areas also have vines growing in them including peppervine and air potato. A portion of this land use designation also included native dune areas. These areas are vegetated by blanket flower, beach morning glory, railroad vine, East Coast dune sunflower, sea oats, prickly pears, Hercules' club, Adam's needle, and sea purslane.

**1400 – Commercial and Services (0.4 acres)**

This portion of the PCA is associated with commercial property and is not usually in a native condition. Some of these areas include swales that collect and convey storm waters offsite. Most of the vegetation in these areas is modified and maintained. The vegetation includes terrestrial grasses and weedy species. Some of the commercial parcels include trees such as live oak, laurel oak, sand live oak, slash pine, loblolly pine, and cabbage palm. There are also shrubs within some of these areas including saltbush and wax myrtle. Some areas also have vines growing in them including peppervine and air potato.

**1700 – Institutional (0.4 acres)**

This portion of the PCA is associated with institutional property and is not usually in a native condition. Most of the vegetation in these areas is modified and maintained. Most of the vegetation includes terrestrial grasses and weedy species. Some of the Institutional parcels include trees such as live oak, laurel oak, sand live oak, slash pine, loblolly pine, and cabbage palm. There are also shrubs within some of these areas including wax myrtle. Some areas also have vines growing in them including peppervine and air potato.

**1810 – Swimming Beach (0.3 acres)**

This portion of the PCA is associated with the park at the end of Burney Road. This Nassau County park includes parking and beach access. Portions of this land use are associated with the dune complex and are vegetated by blanket flower, beach morning glory, railroad vine, East Coast dune sunflower, sea oats, prickly pears, Hercules' club, Adam's needle, and sea purslane.

**1820 – Golf Courses (<0.1 acres)**

This portion of the PCA is associated with a golf course that is in the area. This land use makes comprises a very small portion of the PCA and is vegetated with terrestrial grasses.

**3100 – Herbaceous (Dry Prairie) (<0.1 acres)**

This portion of the PCA is associated with the most water-ward dunes near the beach. Typical vegetation would include herbaceous grasses such as sand cord grass (*Spartina bakeri*) or marsh hay grass (*Spartina patens*) and forbs with some saw palmetto. The portions of the PCA involved are located at the very ends of the streets, closest to the ocean.

**4200 – Upland Hardwood Forests (0.4 acres)**

This portion of the PCA is mainly associated with the Nana Dune complex and is, in places, near native condition. Some of the parcels include trees such as live oak, laurel oak, sand live oak, and cabbage palm. There are also shrubs within some of these areas including saltbush and wax myrtle. Some areas also have vines growing in them including peppervine and air potato.

**7200 – Sand Other Than Beaches (<0.1 acres)**

This portion of the PCA is associated with the Nana Dune complex and is, in places, near native condition. Most of the vegetation in these areas is associated with the dune. Some of the vegetation located here



includes blanket flower, beach morning glory, railroad vine, East Coast dune sunflower, sea oats, prickly pears, Hercules' club, Adam's needle, and sea purslane.

### 3.5 PROTECTED SPECIES

There is high potential that protected species could utilize habitats within the PCA. Many gopher tortoise burrows were observed within and surrounding the PCA. The region includes areas that are ideal tortoise habitat. Table 3-3 outlines which protected species are anticipated to occur within the PCA.

Table 3-3 Protected Species Potentially Occurring Within the PCA		
Common Name	Scientific Name	Status
Eastern Indigo Snake	<i>Dymarchon corais couperi</i>	Fed Threatened
Gopher Tortoise	<i>Gopherus polyphemus</i>	State Threatened

#### 3.5.1 Eastern Indigo Snake

The indigo snake is found in a wide array of habitats ranging from wetland edges to xeric upland dunes and ridges throughout Florida. The large snake is sometimes associated with gopher tortoise burrows. Potential impacts to indigo snakes are regulated by the U.S. Fish and Wildlife Service (USFWS). Avoidance of impacts is achieved by following general construction precautions that are outlined in USFWS documentation.

#### 3.5.2 Gopher Tortoise

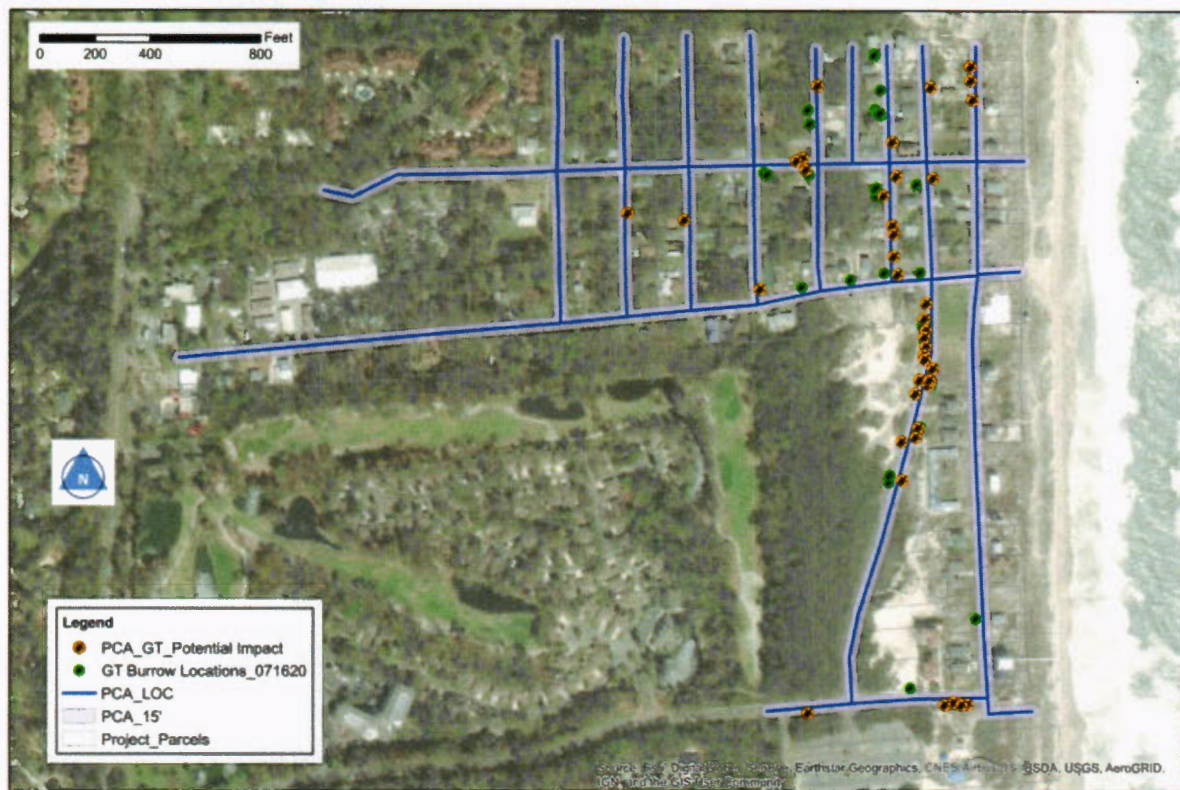
The gopher tortoise is found in mesic and xeric habitats throughout Florida. The tortoises prefer sandy areas in which they can excavate burrows for protection. Additionally, low herbaceous vegetation allows tortoises to forage, thrive, and reproduce. This region appears to have a healthy tortoise population with on-going reproduction.

Burrows that occur within 25 feet of construction activities are endangered of being impacted. Burrows can be in excess of 25 feet and can be at a depth of over 8 to 10 feet from ground level. Depending on the direction of the burrow it is possible that some burrows within the 25 feet would not be impacted. Several burrows are close to the road edge and would definitely be impacted by construction within the road ROW. **Exhibit 3-5** depicts the locations of burrows within 25 feet of the edge of the road. The burrows that are believed to be imperil of impact are depicted as orange symbols. Seventy-six burrows were observed within approximately 25 feet of the road edge. Of those, initially 30 to 40 burrows could be expected to be potentially impacted by the proposed construction. It is expected that this number can be reduced with PCA location adjustments.

Due to the number of gopher tortoise burrows located on site, this project will implement the Eastern Indigo Snake Standard Protection Measures as recommended by the U.S. Fish and Wildlife Service.

Additional information related to these protection measures can be found at :

[https://www.fws.gov/northflorida/IndigoSnakes/20130812\\_Eastern\\_indigo\\_snake\\_Standard\\_Protection\\_Measures.htm](https://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm)

**Exhibit 3-5 Gopher Tortoise Burrow Location Map**

Impacts to gopher tortoises are regulated by Florida Fish and Wildlife Conservation Commission (FWC). Tortoises or their burrows cannot be impacted in anyway without permits. Tortoises within construction areas must be relocated. Potentially, in the case of these temporary impacts to habitats, tortoises could be temporarily relocated to lands owned by State, Federal, County, or municipal government, safely excluding them from returning to the construction areas. These relocations would require agency coordination and a permit issued by FWC. Gopher tortoise surveys expire after 90 days. Therefore, several months prior to the start of construction activities a tortoise burrow survey will be completed and an FWC permit will have to be obtained. The burrow excavations could take place as construction is being initiated.

Coordination with FWC was initiated regarding the permitting and relocation options. A Temporary Exclusion Permit can be utilized since the project is a utility project. The details of the permit are explained below. Tortoises can be excavated from the burrows and temporarily removed from construction areas. The tortoises are held in pens and excluded from the project area until construction is concluded. There is an FWC fee per tortoise that is relocated and excluded from the construction areas. The fees are based on how long the tortoises are excluded. The fees are \$107 per tortoise for 2 months or less, \$217 per tortoise for 2 to 4 months, and \$326 per tortoise for 4 to 6 months. For example, if 40 burrows require relocation, with the estimated 50% burrow occupancy rate, 20 tortoises would have to be relocated. Twenty tortoises



excluded for up to four months would require a FWC fee of \$4,340. The project can be broken into sections to minimize the time tortoises would be excluded. Tortoises cannot be held for over six months under this permit. Temporary tortoise relocation areas could be established on government owned lands. If a burrow mouth is located on private property but is believed it will be impacted by construction activities, permission to excavate the burrow must be obtained from the private land owner and the tortoise must be excluded onto the property from where it was captured. It is anticipated that this coordination with land owners could be time consuming.

### 3.6 COMMUNITY LANDS AND RESOURCES

The American Beach community encompasses historic resources including several sites listed on the U.S. National Register of Historic Places. American Beach itself is designated as the American Beach Historic District. These sites have this designation in order to identify that they have historical significance. Since the proposed projects will be constructed within the ROWs, the construction will not cause impacts to these resources. A list of some of the registered sites is included in *Table 3-4*.

Table 3-4 Historic Register Sites within the American Beach Community		
Name	Description	Location
Ervin's Rest	House	5448 Gregg Street
Evan's Rendezvous	Social club	5500 Gregg Street
First House in American Beach	House	5472 Gregg Street
Hippard House	House	5406 Ervin Street
NaNa Dune	Sand Dune area	West of Ocean Boulevard

### 3.7 ENVIRONMENTAL REVIEW SUMMARY

There are no wetlands located within the PCA. The construction is proposed to be located within road ROWs which should minimize impacts to natural habitats. Some areas include shallow upland cut swales that collect and convey storm waters offsite. The location and alignment of the line installations can likely be adjusted to minimize potential habitat impacts.

A few protected species could temporarily be impacted by the construction project. Gopher tortoises occur throughout the community. Many burrows occur within 25 feet of the road ROW. A formal tortoise survey will be completed, and a permit will be obtained from FWC for relocation of the tortoises. There will be an estimated FWC fee of \$4,340. The permit will allow for the excavation of tortoise burrows that cannot be avoided by the project and exclude the tortoises from the construction area until the project is completed. The formal tortoise survey will be completed within 90 days prior to the start of the project. It is possible that indigo snakes could occur within the PCA. There are general indigo snake construction precautions from USFWS that can be displayed and utilized to avoid impacts to the snake.

The PCA is located within the *American Beach Historic District*. There are several sites that are included on the U.S. National Register of Historic Places located within the District. It is anticipated that if construction occurs only within the road ROWs there should be no impacts to the District or these sites. Additionally, if the project requires lift stations it is anticipated that locations can be designed to minimize any potential impacts.

Burney Beach Front Park is located on the southern end of the project area. There is also a parcel, owned by the National Park Service (NPS), that protects a section of the historic dune. This area is called NaNa Dune. There are many tortoise burrows located near the NaNa Dune kiosk, south of Lewis Street on Ocean Boulevard. The proposed construction will minimize impacts to this area of the project. The project will be cautiously designed to avoid impacts to these areas.

The goal of the project is to supply community residences with utility water and sanitary sewer services. This goal includes large environmental benefits by eliminating septic systems and water supply wells within the region. It is anticipated that many of the septic systems are relatively old and are probably not functioning optimally, potentially causing impacts to groundwater. Since the community utilizes wells for water and septic systems for waste treatment, the proposed project will have potential health benefits for individuals within the community. Construction of these projects will additionally help preserve this historic neighborhood by providing potable water, sewer and fire protection.

All of the impacts to habitats and protected wildlife species will be temporary in nature. The wildlife will be relocated out of the proposed construction areas and excluded until the project is completed. Temporarily impacted habitats will be allowed to re-vegetate and return to the current conditions onsite.

## 4.0 EXISTING AMERICAN BEACH DRINKING WATER SYSTEM

As depicted in Exhibit 4-1, Nassau Amelia Utilities (NAU) provides American Beach the ability to access to the NAU potable water system at the following four existing water main locations:

1. Existing 6-inch PVC water main on Julia Street
2. Existing 10" PVC water main on Lewis Street
3. Existing 6" PVC water main on Ocean
4. Existing 6" water main on Gregg

The benefit of having multiple connection points to the existing system will provide American Beach with the water looping necessary to provide good water quality with minimal concern for water age issues. According to GIS data provided by Nassau County, from the approximate 311 parcels within the American Beach Water and Sewer District, there are approximately 147 occupied parcels which are assumed to be serviced with individual onsite private groundwater wells. The remaining 164 parcels consist of approximately 24 parcels currently connected to the NAU potable water system and 140 vacant parcels.

### 4.1 NEED FOR FACILITIES

Many private residences throughout Amelia Island, including all of American Beach, is served by private wells. According to the Nassau County 2030 Comprehensive Plan approximately 51% of the Nassau County's total population obtains its potable water through small public systems or private wells. The American Beach Community is almost entirely serviced by private wells.

Drinking water can expose people to a variety of harmful pollutants and pathogens. Public water systems use water treatment and monitoring to protect consumers from such contaminants. Generally, private wells do not receive the same services that wells supplying the public do. According to the EPA, private wells can be contaminated by both naturally occurring sources and human activities such as:

- Microorganisms – including bacteria, viruses, and parasites
- Nitrate and nitrite – present in chemical fertilizers, human sewage, and animal waste
- Heavy metals – known to leach into drinking water from household plumbing and service lines
- Organic chemicals – found in many house-hold products
- Radionuclides – naturally present in ground water in some areas and known to cause toxic kidney effects

To improve the drinking water quality supply to the American Beach Community, this project proposes to install new potable water mains to service each of the 287 parcels not currently connected to the NAU potable water system. In addition, the existing service area currently has no supplemental water source for fire protection. This project proposes the installation of new fire hydrants to be located a maximum distance of 400 feet apart to provide the needed fire flow for protection of life and structures.







## 5.0 EXISTING AMERICAN BEACH WASTEWATER SYSTEM

Out of the approximate 311 parcels in the American Beach Water and Sewer District, there are approximately 147 occupied parcels assumed to be serviced by septic tanks and drain fields for disposal of their domestic wastewater.

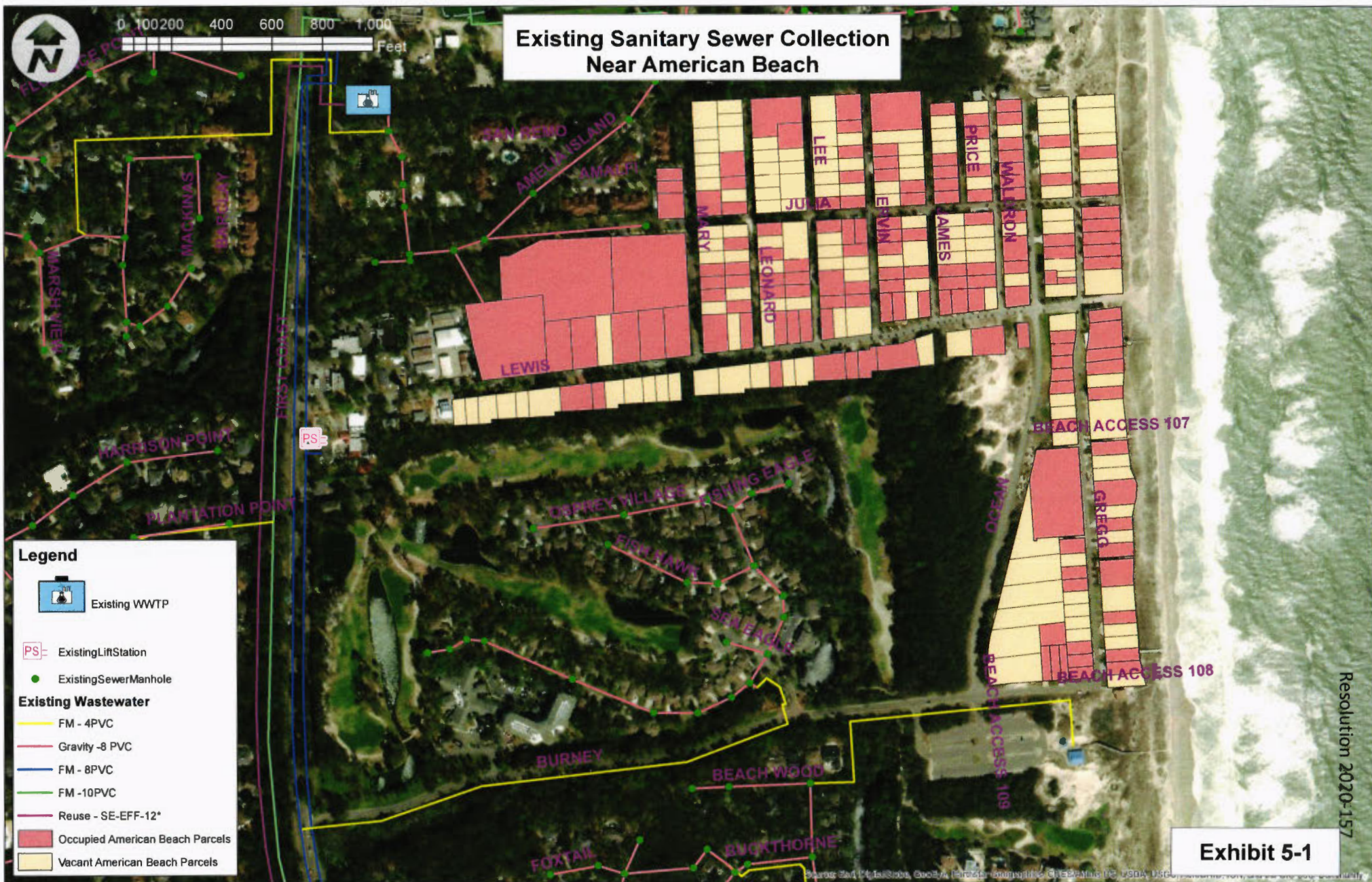
The NAU wastewater collection system consists of a network of gravity sewer mains interconnected by sanitary sewer manholes which discharge into lift stations. A schematic of the existing wastewater collection and treatment infrastructure near the American Beach service area is provided in Exhibit 5-1.

The western section of Julia Street is currently provided with gravity sewer from the American Beach Community Center and Museum heading west approximately 944 linear feet before turning north towards the wastewater treatment plant. Located near the intersection of Lewis Street and 1<sup>st</sup> Coast Hwy (also referred to as Highway A1A) is an existing wastewater lift station which collects wastewater from nearby commercial properties and connects to the existing 8-inch force main on A1A.

### 5.1 NEED FOR FACILITIES

The wastewater system improvements proposed in this Facilities Plan are needed to eliminate the usage of approximately 147 septic tanks from the American Beach community which sits adjacent to the Atlantic Ocean and nearby wetlands. Septic tanks have been proven to cause contamination of surface and groundwater resources, which leads to public health and pollution problems.







## 6.0 DRINKING WATER PROGRAM ALTERNATIVES

### 6.1 INTRODUCTION

To remove the 147 American Beach parcels from private wells and connect them to the municipal potable water system, the American Beach Water and Sewer District intends to make necessary improvements to install a looped water main distribution system within the American Beach Community. The proposed site plan for installation of a potable water system is provided in Exhibit 6-1. This site plan would apply to Alternatives 2 and 3.

### 6.2 DRINKING WATER ALTERNATIVES

The alternatives listed below have been evaluated and compared based on cost effectiveness, technical feasibility, permit requirements, constructability, and environmental soundness.

#### 6.2.1 Alternative 1 – No Action

This alternative consists of performing no action and continuing for residents of the American Beach Community to access drinking water through private wells. No infrastructure additions or modifications to the community are considered as part of this alternative.

#### 6.2.2 Alternative 2 – PVC Water Main

This alternative consists of the installation of approximately 1,500 linear feet (LF) of 4-inch PVC water main, 9,300 LF of 6-inch PVC water main, and 3,800 LF of 8-inch PVC water main. New water mains would connect to the existing NAU municipal water system at four locations to ensure a looped system and minimize water age issues.

A service lateral will be installed for all benefitted properties in the American Beach Community. Of those properties which are occupied, water meters will additionally be installed as part of this project. Installation of piping on private property is the responsibility of the homeowner.

To provide the residents of American Beach with fire protection, this alternative proposes the installation of 16 fire hydrants to be located a minimum distance of 400 feet apart. The system would be designed to provide a minimum fire flow of 1,000 gpm to each hydrant.

#### 6.2.3 Alternative 3 – Ductile Iron Water Main

This alternative consists of the installation of approximately 1,500 linear feet (LF) of 4-inch ductile iron water main, 9,300 LF of 6-inch ductile iron water main, and 3,800 LF of 8-inch ductile iron water main. New water mains would connect to the existing NAU municipal water system at four locations to ensure a looped system and minimize water age issues.

A service lateral will be installed for all benefitted properties in the American Beach Community. Of those properties which are occupied, water meters will additionally be installed as part of this project. Installation of piping on private property is the responsibility of the homeowner.

To provide the residents of American Beach with fire protection, this alternative proposes the installation of 16 fire hydrants to be located a minimum distance of 400 feet apart. The system would be designed to provide a minimum fire flow of 1,000 gpm to each hydrant.





Exhibit 6-1



### 6.3 COST COMPARISON OF THE ALTERNATIVES

The estimated present worth value associated with each drinking water alternative is listed below in Table 6-1. The present worth estimate is based on a planning period of 20 years and incorporates a discount interest rate of 2.3%. However, since the anticipated O&M and salvage values are zero, the present worth value equates to the capital cost estimate. The capital costs for Alternatives 2 and 3 include a per lot capacity availability impact fee which will be utilized for any necessary treatment plant modifications due to the increased water demands.

Table 6-1 Wastewater System Alternative Present Worth Comparison				
Name	Capital Cost	O&M Cost *	Salvage Value	Present Worth
Alternative 1 – No Action	\$0	\$0	\$0	\$0
Alternative 2 – PVC Water Main	\$2,572,000	\$0	\$0	\$2,572,000
Alternative 3 – Ductile Iron Water Main	\$2,855,000	\$0	\$0	\$2,855,000

\* O&M cost equates to estimated total over the 20-year life expectancy of equipment

### 6.4 SUMMARY OF ALTERNATIVES

The Drinking Water alternatives have been compared based on complexity, water quality improvement, availability, constructability, feasibility, environmental, and financial aspects. Table 6-2 below summarizes these comparisons.

Table 6-2 Drinking Water Alternatives Selection Comparison Matrix			
Criteria	Alternative 1 – Do Nothing	Alternative 2 – PVC Water Main	Alternative 3 – DI Water Main
Complexity	N/A	2	2
Water Quality Improvement		3	3
Availability		3	3
Constructability		3	3
Feasibility		3	2
Environmental		2	2
Financial		3	2
Total		19	17

1 = Poor, 2 = Acceptable, 3 = Excellent

## 7.0 WASTEWATER PROGRAM ALTERNATIVES

### 7.1 INTRODUCTION

To connect 287 American Beach parcels to the NAU centralized sewer system, the American Beach Water and Sewer District intends to make necessary improvements to collect sanitary sewer for treatment and disposal at the NAU WWTP.

### 7.2 WASTEWATER ALTERNATIVES

The alternatives listed below have been evaluated and compared based on cost effectiveness, technical feasibility, permit requirements, constructability, and environmental soundness.

#### 7.2.1 Alternative 1 – Gravity Sewer

Wastewater Alternative 1 consists of the installation of a gravity sewer system within the American Beach service area. Sewer service laterals will be provided for all beneficial parcels within the American Beach Water and Sewer District. For parcels currently occupied, those residents will be responsible for connecting to the collection system.

The gravity sewer system would consist of installing 8-inch diameter PVC gravity mains along each roadway to connect each parcel. Sanitary sewer manholes would be installed a minimum of 400 feet apart and at every change in direction. The proposed site plan for this alternative is presented in Exhibit 7-1.

Installation of the gravity mains would be via the open cut method which is a more cost-effective construction method. The intent would be to install the gravity mains in the center of the roadways while ensuring proper separation is maintained from the proposed water main. Upon completion of installation and testing, the asphalt surface of all paved roads impacted by this project would be milled and resurfaced. No roadway patches are to remain as part of this project.

Due to the high-grade elevation located near Waldron Street, this alternative proposes the installation of two lift stations at strategic low points. Wastewater collected from parcels east of Waldron Street will flow by gravity to proposed Lift Station 1 located on Gregg Street. Gravity flows to Lift Station 1 would be collected in an underground wet well and pumped via submersible pumps (one duty, one standby) to proposed manhole at the intersection of Prince Street and Julia Street to overcome the high point.

Wastewater collected from the western side of American Beach would flow by gravity down Julia Street to Lift Station 2 located at the low point in front of the American Beach Community Center. Lift Station 2 would then pump a short distance to interconnect with the existing NAU collection system for subsequent treatment and disposal at the NAU WWTP.

Finally, parcels located along Lewis Street would flow by gravity to the existing lift station on A1A. This lift station is connected to an existing force main on A1A which discharges into the NAU WWTP.







### 7.2.2 Alternative 2 – Low Pressure Sewer

Wastewater Alternative 2 consists of the installation of a low-pressure sewer system within the American Beach service area. The proposed site plan for this alternative is presented in Exhibit 7-2. In the low-pressure alternative, each parcel would be equipped with a grinder pump station and control panel located on the private property. In most situations, the control panel is attached to the structure and powered by the homeowner. Sanitary sewer would flow from the owner's structure to the grinder pump station and then be pumped via force main. All pumped wastewater would flow west on Julia Street and intersect with the existing 8-inch force main on A1A which would discharge at the NAU WWTP. In the American Beach project, this alternative would require the property owner to grant the NAU a permanent easement that would allow the NAU or their contractor to access the equipment for maintenance.

Installation of the low-pressure force mains would be via the horizontal directional drill (HDD) method which would eliminate the cost of road restoration other than at the location of the HDD bore pits. The force mains would be installed along one side of the road to ensure maximum separation from the proposed drinking water mains also being recommended under this facilities plan.

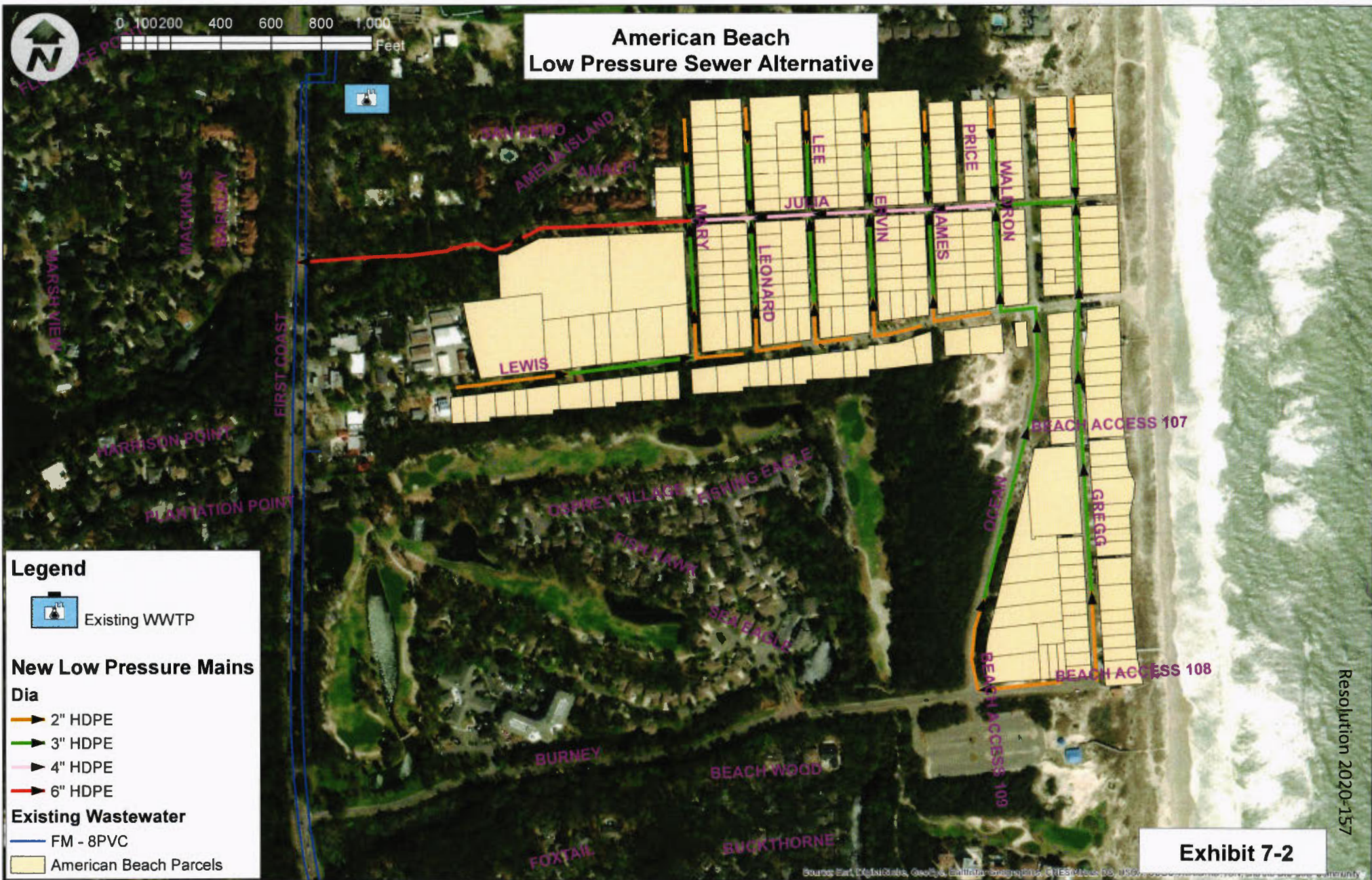
### 7.2.3 Alternative 3 – Vacuum Sewer

Wastewater Alternative 3 proposes the installation of a vacuum sewer system to collect the wastewater flows within the American Beach service area. The proposed site plan for this alternative is presented in Exhibit 7-3. In this alternative, wastewater flows from the property owner would gravity flow into a vacuum pit. One vacuum pit would be installed in the ROW along the dividing property line between two residential parcels. Upon the volume of collected wastewater reaching a setpoint elevation inside the vacuum pit, a valve would be activated to open and allow the collected volume to be withdrawn via negative pressure into the adjoining vacuum main which would convey the wastewater to a vacuum pump station located on Gregg Street.

Installation of the vacuum mains would be via the open cut method due to the need to install the mains at the proper slope and in a sawtooth pattern. The vacuum mains would be installed along one side of the road to ensure maximum separation from the proposed drinking water mains also being recommended under this facilities plan. Installation of the vacuum mains in one roadway lane will allow temporary traffic flow in the opposite lane.

The negative pressure in the vacuum mains would be obtained through vacuum pumps located at the vacuum pump station. Upon arriving at the vacuum pump station, wastewater is collected in a vacuum tank and then pump via force main. The force main would be aligned on Lewis Street and would tie into the existing 8-inch force main on A1A which would discharge at the NAU WWTP.









### Exhibit 7-3



### 7.3 COST COMPARISON OF THE ALTERNATIVES

The estimated present worth value associated with each alternative are listed below in Table 7-1. The present worth estimate is based on a planning period of 20 years and incorporates a discount interest rate of 2.3%. Capital costs include a per lot capacity availability impact fee which will be utilized for any necessary treatment plant modifications due to increased collection flows.

**Table 7-1 Wastewater System Alternative Present Worth Comparison**

Name	Capital Cost	O&M Cost *	Salvage Value	Present Worth
Alternative 1 – Gravity Sewer	\$5,471,000	\$53,000	\$10,000	\$5,514,000
Alternative 2 – Low Pressure Sewer	\$7,033,000	\$39,000	\$78,000	\$6,994,000
Alternative 3 – Vacuum Sewer	\$6,759,000	\$191,000	\$36,000	\$6,914,000

\* O&M cost equates to estimated total over the 20-year life expectancy of equipment

### 7.4 SUMMARY OF ALTERNATIVES

The Clean Water alternatives have been compared based on complexity, construction impact to community, availability, Inflow and Infiltration potential, feasibility, environmental, and financial aspects. Table 6-2 below summarizes these comparisons.

**Table 7-2 Wastewater Alternatives Selection Comparison Matrix**

Criteria	Alternative 1 – Gravity Sewer	Alternative 2 – Low Pressure Sewer	Alternative 3 – Vacuum Sewer
Ease of Operation	3	2	2
Construction Impact to Community	2	3	1
Required Maintenance	3	2	2
Inflow and Infiltration Prevention	1	3	3
Private Property Cost to Customers	3	2	3
Environmental	3	3	3
Financial	3	1	2
Total	18	16	16

1 = Poor, 2 = Acceptable, 3 = Excellent

## 8.0 THE SELECTED DRINKING WATER PLAN

### 8.1 INTRODUCTION

The American Beach Water and Sewer District in conjunction with Nassau Amelia Utilities have established that the improvements to the water system proposed in this plan are a necessary step to ensure proper water supply and quality are available to the American Beach Community.

### 8.2 SELECTED IMPROVEMENT

Based on the improvement of water quality to serve the American Beach Community and the lowest cost estimate, this facilities plan selects Drinking Water Alternative 2 corresponding to the installation of water mains constructed of PVC material.

The proposed project includes construction of the following: approximately 1,500 LF of 4-inch PVC water main, 9,300 LF of 6-inch PVC water main, 3,800 LF of 8-inch PVC water main, fittings, isolation gate valves, 16 fire hydrants, and associated appurtenances as well as paving and other restoration activities impacted by the primary water main construction. A service lateral will be installed for all benefitted properties in the American Beach Community. Of those properties which are occupied, water meters will additionally be installed as part of this project. These drinking water improvements will connect to the existing NAU water distribution system. Any necessary improvements to the NAU WTP will be completed utilizing the impact fees collected from this project.

### 8.3 SITE CONDITIONS

The project will be located along the roadways within the American Beach Community and connect to one of four existing water mains owned by Nassau Amelia Utilities.

The project will be constructed within the rights-of-way and off the paved roads to the maximum extent possible to minimize road restoration cost. A map of the proposed project area has been included in Section 6 as Exhibit 6-1. It is not anticipated that any site related environmental impacts will occur, however, the project design will mitigate any potential impacts and the specifications will appropriate mitigation measures.

### 8.4 SELECTED ALTERNATIVE COSTS

The conceptual cost estimate of the selected water main alternative is \$2,572,000. This cost includes capital costs, contractor profit, engineering and construction fees, and impact fees. Detailed cost estimates of each drinking water alternative are provided in Appendix D.

## 9.0 THE SELECTED WASTEWATER PLAN

### 9.1 INTRODUCTION

The American Beach Water and Sewer District in conjunction with Nassau Amelia Utilities have established that the improvements to the wastewater system proposed in this plan are a necessary step to protect its residents and the environment.

### 9.2 SELECTED IMPROVEMENT

Based on the minimal operations and maintenance effort to the American Beach community and the familiarity of County Staff with the existing collections technology, this facilities plan selects Wastewater Alternative 1 corresponding to the installation of a wastewater collection system utilizing the gravity sewer technology.

The proposed project includes construction of the following: approximately 37 sanitary sewer manholes, 12,000 LF of 8-inch PVC gravity pipe, 219 LF of 2-inch PVC force main (FM), 567 LF of 3-inch PVC FM, 1,186 LF of 4-inch PVC FM, fittings, and associated appurtenances as well as restoration to areas impacted by trench excavation during construction. Additionally, this alternative includes the material cost for two lift stations including wet well, submersible pumps, control panels, piping and other materials related to a typical wastewater lift station. Collected flows from this project will connect and discharge to the existing NAU collection system. Sewer service laterals will be provided for all beneficial parcels within the American Beach Water and Sewer District.

### 9.3 SITE CONDITIONS

The project will construct the alignment of the gravity sewer main in the center of each roadway utilizing the open cut construction method to minimize pipe installation cost. A map of the proposed project area has been included in Section 7 as Exhibit 7-1. It is not anticipated that any site related environmental impacts will occur, however, the project design will mitigate any potential impacts and the specifications will appropriate mitigation measures.

Upon completion of pipeline installation and testing, this project will include the milling and resurfacing of all paved roads affected by this work. Roadway patching will not be accepted by the County.

### 9.4 SELECTED ALTERNATIVE COSTS

The conceptual cost estimate of the selected wastewater alternative is \$5,471,000. This cost includes capital costs, contractor profit, engineering and construction fees, and impact fees. Detailed cost estimates of each clean water alternative are provided in Appendix E.



## 10.0 IMPLEMENTATION AND COMPLIANCE

### 10.1 PUBLIC PARTICIPATION MEETING

A Public Participation Meeting was held on September 19, 2020 to present this Facilities Plan to the public for review and comment prior to adoption of the Plan by the American Beach Water and Sewer District. The selected alternatives were discussed, and the environmental and cost impacts were presented. This public participation meeting allowed the public to participate in the evaluation of the alternatives as well as any potential financial impacts to the affected parties. Appendix B contains a copy of the Notice of Public Participation Meeting and a copy of the Resolution adopted by the Utilities District.

### 10.2 REGULATORY AGENCY REVIEW

#### 10.2.1 Florida Department of Environmental Protection

FDEP is the lead agency dealing with issues of environmental quality with regulatory authority encompassing large and small quantity hazardous waste generators, air pollution emissions, solid waste disposal, potable water usage, dredge and fill permitting, and development in environmentally sensitive areas. FDEP is the State agency with regulatory authority over the use of submerged lands and waters. FDEP is also charged with protecting and conserving Florida's natural resources and managing State owned land and aquatic preserves. The American Beach service area is located within the Northeast District of FDEP headquartered in Jacksonville.

#### 10.2.2 Florida Department of Health

The Florida Department of Health performs water tests for surface water quality and has the authority to issue health notices, advisories, and boil water orders when the potential for contamination exists in public water supply systems. It also issues health warnings and notices for surface water bodies and food sources that may place the public at a health risk.

#### 10.2.3 Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission (FWC) manages and regulates the State's fish and wildlife resources and enforces related laws. With regards to the State Revolving Fund Program, the FWC serves as a principle reviewer of the environmental assessment portion of each submitted Facilities Plan to protect endangered wildlife, flora, and the overall environmental welfare of protected areas.

#### 10.2.4 Saint Johns River Water Management District

The St. Johns Water Management District (SJRWMD) is one of five water management districts in Florida created by the Water Resources Act of 1972. SJRWMD is responsible for managing groundwater and surface water supplies in part or all of 18 counties in northeast and east-central Florida. The District contains 119 local governments spread over approximately 12,000 square miles. SJRWMD provides a variety of regulatory programs including programs regulating the consumptive use of water, construction of wells,

licensing water well contractors, surface water management facilities, stormwater management systems, and artificial recharge of ground water.

#### 10.2.5 United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) reviews the actions of other governmental agencies and retains the authority to veto permits under the provisions of Section 404 of the Clean Water Act. It also manages the collection of water supply quality information under the Information Collection Rule. Many EPA responsibilities have been delegated to State agencies for implementation.

#### 10.2.6 Clean Air Act

The Clean Air Act was amended in 1990. The Clean Air Act Amendments, Title I, address regional air quality for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulfur dioxide. If a particular area does not meet national ambient air quality standards it is established as a non-attainment area.

#### 10.2.7 Federal Water Pollution Control Act

The Federal Water Pollution Control Act, commonly known as the Clean Water Act, was passed by Congress in 1972 to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

#### 10.2.8 United States Army Corps of Engineers

The U.S. Army Corps of Engineer mission is to provide vital public engineering services in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters. The Jacksonville District of the Corps was established in 1884 and encompasses Florida, Puerto Rico, and the U.S. Virgin Islands. The Corps also has a Civil Works environmental mission that ensures all Corps projects, facilities and associated lands meet environmental standards. The program has four functions: compliance, restoration, prevention and conservation.

## 11.0 FINANCIAL PLANNING

The American Beach Water and Sewer District (ABWS District) is seeking to finance drinking water and wastewater improvements from the SRF loan program. The ABWS District is responsible for financing its drinking water and wastewater system improvements and plans to use SRF loan funding to minimize the financial impact of the project on the rate-payers. The pledged revenues supporting this debt issue will be generated by special assessments levied against approximately 287 parcels.

The ABWS District is seeking consideration for low-interest SRF Loan funding, eligible for principal debt forgiveness, for approximately \$8,043,000 for both design and construction of the combined Drinking Water (\$2,572,000) and Clean Water (\$5,471,000) projects.

The amount for design funding from FDEP to include design, permitting, and project administration is approximately \$231,500 for Drinking Water and \$518,500 for Clean Water based upon preliminary planning estimates. The amount for construction funding from FDEP to include construction, contingency, and technical services is approximately \$2,340,500 for Drinking Water and \$4,952,500 for Clean Water based upon preliminary planning estimates. A detailed breakdown of the cost has been included in Appendices D and E. It is important to note that while total project costs are being provided, the District's financial projections rely upon principal forgiveness of 70%.

The Capital Financing Plan for repayment of the overall proposed Clean Water SRF Loan Debt Service is provided in Appendix A. The Drinking Water Business Plan will be provided in a revised submittal at the FDEP February 2021 Funding Hearing.



## **APPENDIX A. CAPITAL FINANCING PLAN**

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## CAPITAL FINANCING PLAN

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The American Beach Water and Sewer District

(Project Sponsor)

Stephen Spratt, System Manager, FGUA

(Authorized Representative and Title)

Longwood, FL 32779

(City, State, and Zip Code)

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Mickey Joseph, Assistant Finance Director, FGUA

(Capital Financing Plan Contact, Title and Telephone Number)

280 Wekiva Springs Rd. Ste. 2070

(Mailing Address)

Longwood, FL 32779

(City, State, and Zip Code)

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The Department needs to know about the financial capabilities of potential State Revolving Fund (SRF) loan applicants. Therefore, a financial capability demonstration (and certification) is required well before the evaluation of the actual loan application.

The sources of revenues being dedicated to repayment of the SRF loan are Special Assessment Revenues

(Note: Projects pledging utility operating revenues should attach a copy of the existing/proposed rate ordinance)

### Estimate of Proposed SRF Loan Debt Service

Capital Cost*	<b>\$5,471,000.00</b>
Loan Service Fee (2% of capital cost)	<b>\$109,420.00</b>
Subtotal	<b>\$5,580,420.00</b>
Capitalized Interest**	<b>\$23,159.00</b>
Total Cost to be Amortized	<b>\$5,603,579.00</b>
Interest Rate***	<b>0.415%</b>
Annual Debt Service	<b>\$292,548.00</b>
Annual Debt Service Including Coverage Factor****	<b>\$336,430.00</b>

\* Capital Cost = Allowance + Construction Cost (including a 10% contingency) + Technical Services after Bid Opening.

\*\* Estimated Capitalized Interest = Subtotal times Interest Rate times construction time in years divided by two.

\*\*\*20 GO Bond Rate times Affordability Index divided by 200.

\*\*\*\* Coverage Factor is generally 15%. However, it may be higher if other than utility operating revenues are pledged.

## SCHEDULE OF PRIOR AND PARITY LIENS

List annual debt service beginning two years before the anticipated loan agreement date and continuing at least fifteen fiscal years. Use additional pages as necessary.

### IDENTIFY EACH OBLIGATION

#1 N/A	#2N/A	#3N/A
Coverage %	Coverage %	Coverage %
Insured (Yes/No)	Insured (Yes/No)	Insured (Yes/No)
#4	#5	#6
Coverage %	Coverage %	Coverage %
Insured (Yes/No)	Insured (Yes/No)	Insured (Yes/No)

[illegible]



**SCHEDULE OF ACTUAL REVENUES AND DEBT COVERAGE  
FOR PLEDGED REVENUE**

(Provide information for the two fiscal years preceding the anticipated date of the SRF loan agreement)

	<b>FY18</b>	<b>FY19</b>
(a) Operating Revenues (Identify)		
<u>Special Assessment Revenue</u>	<u>0.00</u>	<u>0.00</u>
_____	_____	_____
(b) Interest Income	<u>0.00</u>	<u>0.00</u>
(c) Other Incomes or Revenues (Identify)		
_____	<u>0.00</u>	<u>0.00</u>
_____	_____	_____
(d) Total Revenues	<u>0.00</u>	<u>0.00</u>
(e) Operating Expenses (excluding interest on debt, depreciation, and other non-cash items)	<u>0.00</u>	<u>0.00</u>
(f) <b>Net Revenues (f = d – e)</b>	<u>0.00</u>	<u>0.00</u>
(g) Debt Service (including coverage) Excluding SRF Loans	<u>0.00</u>	<u>0.00</u>
(h) Debt Service (including coverage) for Outstanding SRF Loans	<u>0.00</u>	<u>0.00</u>
(i) <b>Net Revenues After Debt     Service (i = f – g – h)</b>	<u>0.00</u>	<u>0.00</u>

Source: Board of County Commissioners of Nassau County Ordinance No. 2020-26

Notes: The American Beach Water and Sewer District was created on August 24, 2020, and did not have any operating activity, including revenues or expenses, for Fiscal Years 2018 and 2019.

**SCHEDULE OF PROJECTED REVENUES AND DEBT COVERAGE  
FOR PLEDGED REVENUE**

(Begin with the fiscal year preceding first anticipated semiannual loan payment)

	<u>FY 20</u>	<u>FY 21</u>	<u>FY 22</u>	<u>FY 23</u>	<u>FY 24</u>
(a) Operating Revenues (Identify) Special Assessment Revenue	<u>0.00</u>	<u>123,457.00</u>	<u>123,457.00</u>	<u>123,457.00</u>	<u>123,457.00</u>
(b) Interest Income	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(c) Other Incomes or Revenues (Identify)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(d) Total Revenues	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(e) Operating Expenses <sup>1</sup>	<u>0.00</u>	<u>16,537.00</u>	<u>16,537.00</u>	<u>16,537.00</u>	<u>16,537.00</u>
(f) <b>Net Revenues</b> (f = d - e)	<u>0.00</u>	<u>106,920.00</u>	<u>106,920.00</u>	<u>106,920.00</u>	<u>106,920.00</u>
(g) Existing Debt Service on Non-SRF Projects (including coverage)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(h) Existing SRF Loan Debt Service (including coverage)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(i) <b>Total Existing Debt Service</b> (i = g + h)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(j) Projected Debt Service on Non-SRF Future Projects (including coverage)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
(k) Projected SRF Loan Debt Service (including coverage)	<u>0.00</u>	<u>100,929.00</u>	<u>100,929.00</u>	<u>100,929.00</u>	<u>100,929.00</u>
(l) <b>Total Debt Service (Existing and Projected)</b> (l = i + j + k)	<u>0.00</u>	<u>100,929.00</u>	<u>100,929.00</u>	<u>100,929.00</u>	<u>100,929.00</u>
(m) <b>Net Revenues After Debt Service (m = f - l)</b>	<u>0.00</u>	<u>5,991.00</u>	<u>5,991.00</u>	<u>5,991.00</u>	<u>5,991.00</u>

Source:

Notes: (i.e. rate increases, explanations, etc.)

1. For existing and proposed facilities, excluding interest on debt, depreciation, and other non-cash items. There was no operating activity for Fiscal Year 2020. The projections are based on an anticipated 70% principal forgiveness. Nassau County will ensure timely debt service payments while the special district's cash flows from annual special assessments begin. Operating expenses are tied to administering the annual special assessments.

## **CERTIFICATION**

I, **David DiLena, CFO, FGUA**, certify that I have reviewed the information

\_\_\_\_\_  
Chief Financial Officer (please print)

included in the preceding capital financing plan worksheets, and to the best of my knowledge, this  
information accurately reflects the financial capability of **The American Beach Water and Sewer  
District**  
\_\_\_\_\_  
Project Sponsor

I further certify that **The American Beach Water and  
Sewer District**  
\_\_\_\_\_  
Project Sponsor has the financial capability to ensure

adequate construction, operation, and maintenance of the system, including this SRF project.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## **APPENDIX B. PUBLIC PARTICIPATION MEETING DOCUMENTATION**

---

**American Beach Community Meeting  
Well and Septic Tank Phase Out: Facilities Plan – Public Presentation  
Saturday, September 19, 2020  
Burney Park  
95570 Burney Road  
Fernandina Beach, FL 32034**

**County staff in attendance:**

Aaron Bell- County Commissioner for District Two  
Taco Pope – County Manager  
Thad Crowe- Planning Director  
Doug Podiak – Public Works Director  
Abby Weiss – Planner II/GIS Analyst  
Sabrina Robertson- Public Information Officer

**FGUA Representatives**

Steve Spratt – FGUA System Manager  
Oscar Duarte – Wade Trim (FGUA Consulting Engineer)  
Rob Dickson – FGUA Capital Program Manager

**Members of the Public**

See attached sign-in sheet

**Call to Order**

Steve Spratt called the meeting to order at 9:00 a.m.

**Welcome**

Steve Spratt welcomed everyone, introduced the presenting team, and provided a quick overview of the purpose of the meeting including a recap of water/sewer significant steps which brought us to this point.

**Facilities Plan Presentation**

Oscar Duarte provided highlights of the Facilities Plan including:

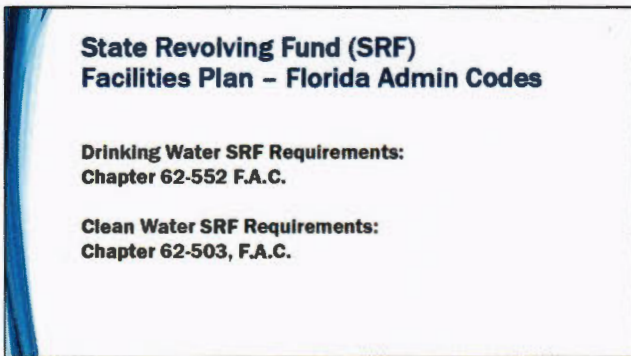
- Requirements
- Need for the project
- Environmental Review
- Project alternatives
- Alternative Costs Comparison
- Capital Financing Plan

## Appendix B

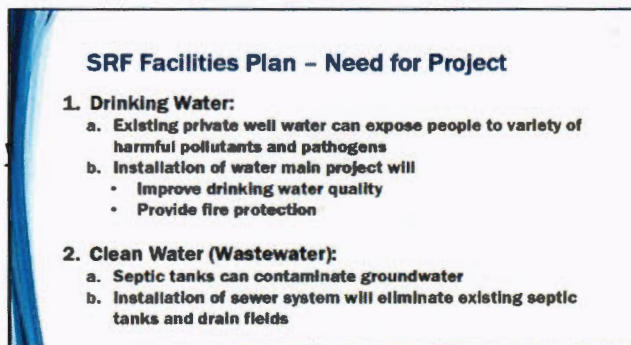
Mr. Duarte made the following PowerPoint presentation:



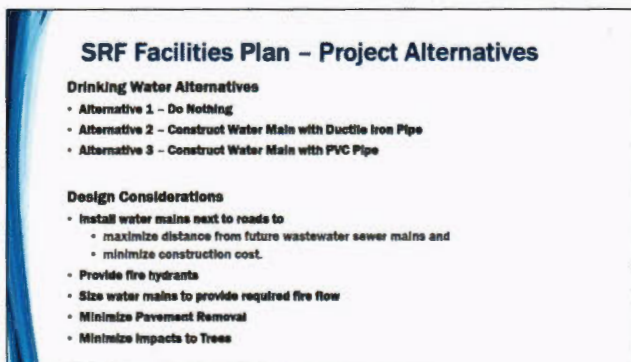
Recap of Water/Sewer Significant Events	
• GAI Master Plan for Water/Sewer Conversion	Sept 2012
• Nassau County engages FGUA to assist	Oct-Nov 2019
• FGUA- Nassau County Interlocal for Capital Improvements Approved	Dec 2019
• Household Income Survey Conducted	Feb 2020
• FDEP Grant Agreement Approved	Apr 2020
• FGUA Work Authorization for American Beach Approved by County	Apr 2020
• Requests for Inclusion into SRF Program to FDEP	May 2020
• FGUA Board Approval of engineering work for Facilities Plan	June 2020
• Community Meetings	June / July 2020
• Draft Facilities Plan Submitted to FDEP	August 7, 2020
• American Beach Water & Sewer District Formed	August 24, 2020
• Public Participation Meeting (Now)	Sept 19, 2020



SRF Facilities Plan - Requirements	
1. Define the Need for the Project	
2. Environmental Review (Impacts and Mitigation)	
3. Cost Comparison of 3 Alternatives	
a. 3 Drinking Water Alternatives	
b. 3 Clean Water (Wastewater) Alternatives	
c. Select Recommended Alternative(s)	
4. Financial Feasibility - How will loan be repaid?	
5. Public Participation	
6. Adopting Resolution - Commitments to Implement Planning Recommendations	



SRF Facilities Plan - Environmental Review	
Environmental Field Assessment conducted on July 16 <sup>th</sup>	
1. Primarily searching for:	
a. Threatened Species (red woodpeckers, gopher tortoises, Eastern Indigo Snakes and Florida Scrub Jays)	
b. Wetlands	
c. Endangered plant species	
d. Undisturbed natural features (i.e., Nana Dune)	
e. Determine any adverse human health or environmental effects caused by project on the community.	
f. Impact on Historical Areas	
2. Major concern noted:	
a. Area contains many gopher tortoises with some burrows extending under American Beach roads.	
b. Relocation of all tortoises and nests will be required before project begins.	
c. Project will implement Eastern Indigo Snake Standard protection measures.	





## Appendix B

## SRF Facilities Plan – Project Alternatives

## Wastewater Alternatives

- Alternative 1 – Gravity Sewer
- Alternative 2 – Vacuum Sewer
- Alternative 3 – Low Pressure Sewer

## Design Considerations

- Install wastewater collection mains in the roadway
- Mill and resurface all existing paved roads at the conclusion of construction.
- Minimize Repavement Costs
- Minimize Impacts to Trees



Road Patches will Not Be Allowed

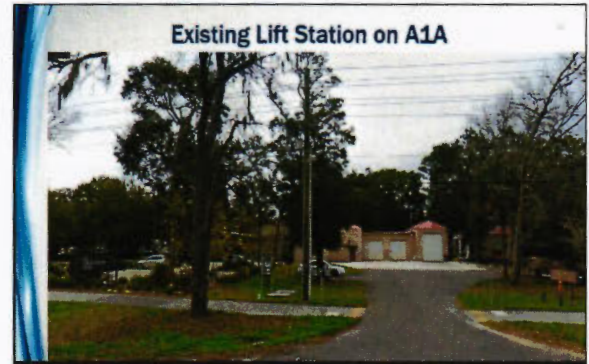


## Example of Gravity Sewer Pump Station Arrangement



## Typical Components Include:

- Under ground
  - Wet well
  - Submersible pumps
- Above ground
  - Pump Motors
  - Control Panel
  - Fencing

Proposed Location for Lift Station 1  
(Evans' Rendezvous Lot)Proposed Location for Lift Station 2 (if needed)  
(Community Center)

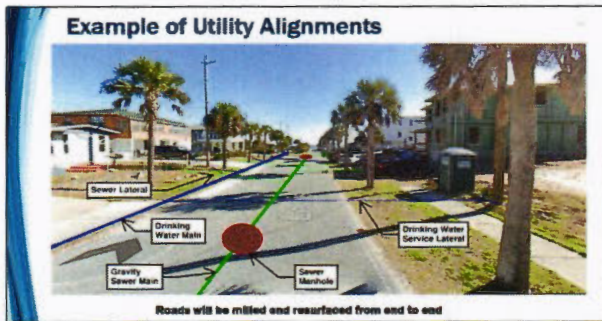
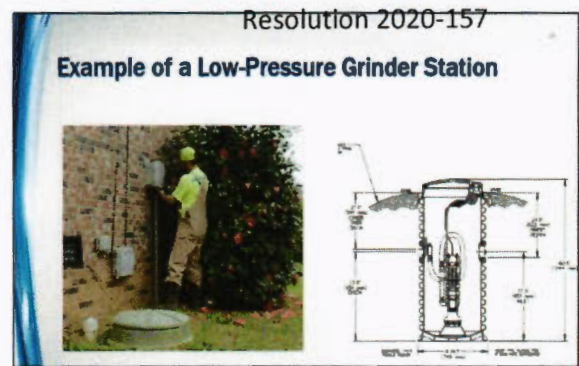
## Example of a Vacuum Pump Station



## Typical Components Include:

- Small Building Containing
  - Vacuum Pumps
  - Vacuum Tank
  - Sewage Transfer Pumps
- Outside of Building
  - Electrical Generator
  - Odor Control





**SRF Facilities Plan – Alternative Costs Comparison\***

<b>• Drinking Water *</b>	
• Alternative 1 – No Action:	\$0
• Alternative 2 – PVC WM:	\$2,572,000
• Alternative 3 – Ductile Iron WM:	\$2,855,000
<b>• Wastewater *</b>	
• Alternative 1 – Gravity Sewer:	\$5,471,000
• Alternative 2 – Low Pressure Sewer:	\$7,033,000
• Alternative 3 – Vacuum Sewer:	\$6,759,000

\* Costs include a 35% contingency.  
\* Costs do not include private onsite facilities.

**SRF Facilities Plan – Capital Financing Plan**

• PLAN – Utilize low cost SRF loans with Principal Forgiveness

• Total Capital Cost (Drinking and Clean Water):	\$8,043,000
• Clean Water (November 2020 FDEP Hearing):	\$5,471,000
• Design, Permitting, and Project Admin:	\$518,500
• Construction and Technical Services:	\$4,952,500
• Drinking Water (February 2021 FDEP Hearing):	\$2,572,000
• Design, Permitting, and Project Admin:	\$231,500
• Construction and Technical Services:	\$2,340,500

• Assumed Interest Rate = 0.415%  
• Assumed 70% Principal Forgiveness  
• Source of repayment are Special Assessment Revenues

Steve Spratt provided a timeline of future events including next steps and anticipated dates summarized as follows:

**Water/Sewer Schedule – Looking Forward**

• Public Participation Meeting (Now)	Sept 19, 2020
• American Beach Water/Sewer District Adoption of Facilities Plan	Sept 23, 2020
• Submit Final Facilities Plan to FDEP	Sept 27, 2020
• County BCC Adopts Notice of Intent for Assessment	Oct 26, 2020
• FDEP Funding Meeting (Clean Water – Design Phase)	Nov 11, 2020
• Optional Dates for Community Special Assessment Election	Dec 2, 8, and 15
• Target to Submit (Clean Water) Design Loan Application	Dec 2020
• Execute Clean Water Design Loan Agreement	Feb 2021
• Award Engineering Design Services	Feb 2021
• FDEP Funding Meeting (Drinking Water – Design Phase)	Feb 10, 2021
• Target to Submit (Drinking Water) Design Loan Application	Mar 2021
• Execute Drinking Water Design Loan Agreement	May 2021
• Design Phase	May – Dec 2021
• SRF Construction Funding Pursuit	Feb 2022
• Target to Start Construction	Summer 2022
• Target to Complete Construction	Spring 2023

Mr. Spratt also mentioned that for those interested who did not pick one up, information reflecting the NAU water and sewer rates and charges for typical customers based upon different water consumption levels is available at the sign-in table.

## Q&A Segment

Steve Spratt opened the floor for questions and answers.

- 1) Question: Can owners opt out?

Answer: Would need to be determined by the County and Department of Health. The governing State Statute provides that if there is a nearby connection available for wastewater, the property owner must connect with advance notice. However, there are waiver provisions for certain situations. Examples include adequate septic onsite, water source properly distanced from septic, etc. There is no mandatory connection requirement for water service although having adequate fire protection should be strongly considered.

2) Question: Who determines the exceptions (waivers)?

Answer: Would require a combination of County and DOH to review on a case by case basis. County Manager, Taco Pope, added the County would establish policies, procedures and criteria that outline standards for waivers and how they would be applied.

3) Question: If FDEP doesn't approve the State Revolving Fund (SRF) Funding in November, what happens?

Answer: County government would have to decide. This loss of funding would increase the local customer cost. They would reevaluate assessment costs (minus the SRF funding) and review them with the community to determine if they still want to move forward with the project.

4) Question: Can the project be broken down into two parts: (water first, sewer later)?

Answer: County could decide on a phased approach, however normally it is far more cost effective and less disruptive to have the lines for both laid at the same time. (in lieu of tearing the area up twice)

5) Question: Will County pave existing dirt roads?

Answer: Road paving within this project only includes the portions of roads which are excavated for installation of the new pipelines. SRF funding would not be allowable for other road work.

6) Question: What happens if the FDEP rejects the funding for the water portion at the February meeting?

Answer: The County would then need to begin looking at dropping the drinking water portion of the project or identify alternative funding.

7) Question: Why are residents being asked to vote in December as to whether or not to move forward even though FDEP won't determine final funding until February?

Answer: The December vote is primarily intended to determine if the community wants to move forward with the project and use of special assessments with the State's November funding prioritization as an indication of potential State funding. Unfortunately, there are specific steps required by FDEP for consideration of SRF funding.

8) Question: Will the County's connection policies and criteria be in place before the community makes a vote?



Appendix B

Answer: County says this is a fair request and will try to have them in place. However, it will require guidance from the Florida Department of Health.

Hearing no further questions on the FDEP-required Well and Septic Phase Out Facilities Plan, that portion of the meeting was concluded.

**Other Business:**

Planning Director, Thad Crowe, made a presentation about Zoning District update.

**Adjournment**

County Manager, Taco Pope, thanked everyone for attending. Adjourned at approximately 10:10 a.m.

## Appendix B

OWNER_NAME	ATTENDANCE	ADDRESS_1	CITY_NAME	STATE
ADAMS HENRY LEE JR & BERNICE E		5467 OCEAN BLVD	FERNANDINA BEACH	FL
ALBOHER HEATH MITCHEL		2601 ATLANTIC AVE	FERNANDINA BEACH	FL
ALEXANDER CAROL J TRUSTEE		9550 BEAUCLERC COVE RD	JACKSONVILLE	FL
ALEXANDER ETTER MAE		3832 W ADAMS ST	CHICAGO	IL
ALLEN CASSANDRA S & SAMUEL JR		923 RIDGEWALL CT	ORANGE PARK	FL
ALSTON ALTAMESE		1453 W 14TH ST	JACKSONVILLE	FL
AMERICAN BEACH HOLDINGS LLC		2380 JAMESTOWN ROAD	FERNANDINA BEACH	FL
ARIAS BERTA		563 SANTA MARIA DR	FERNANDINA BEACH	FL
ARTHUR DANETTE		4931 BUCHANAN ST	HOLLYWOOD	FL
AUSTIN CYNTHIA		5479 WALDRON ST	FERNANDINA BEACH	FL
BANKSTON KELLY A		105 PARK DRIVE	FORT MILL	SC
BARNETT MAURICE & CAROLYN		6610 SW 6TH ST	MARGATE	FL
BAZEMORE JEFFREY T & MARY		230 TYNEBRAE PL	ROSWELL	GA
BECK LINDA K		85050 MAJESTIC WALK BLVD	FERNANDINA BEACH	FL
BONES ROLANDO & LOUISA		18 LAKE DR	WILBRAHAM	MA
BONNER RUTH S REVOCABLE TRUST		PO BOX 17065	FERNANDINA BEACH	FL
BRAUN RICHARD A & MARY		P O BOX 279	ALACHUA	FL
BRAUN RICHARD A & MARY J		P O BOX 279	ALACHUA	FL
BRITTON VERNELL S		P O BOX 231	AVONDALE ESTATES	GA
BROADWAY TIMOTHY F & SARAH J		123 HICKORY STREET	ROSWELL	GA
BROOKS ANDRE & CHARMAINE W	XX	716 PINEY PLACE	SAINT JOHNS	FL
BROWN BRADLEY	XX	5491 LEONARD ST	FERNANDINA BEACH	FL
BROWN BRUCE H & CRESSIE		10050 HECKSHER DR	JACKSONVILLE	FL
BROWN TOBIAS L & ASHLEIGH R		1438 LEWIS STREET	FERNANDINA BEACH	FL
BROWN TONY T & LAWANDA M		PO BOX 15340	FERNANDINA BEACH	FL
BROWN WILSON C		N2473 FOREST REST LN	LAKE GENEVA	WI
BUNCUM PAMELA M LIVING TRUST		5428 PRICE STREET	FERNANDINA BEACH	FL

## Appendix B

DOBSEN ERIN C		6538 KINLOCK DR W	JACKSONVILLE	FL
DOBSON ERIN C		6538 KINLOCK DR W	JACKSONVILLE	FL
DOLLISON BOBBY		5553 GREGG STREET	FERNANDINA BEACH	FL
DOLLISON BOBBY		5553 GREGG STREET	FERNANDINA BEACH	FL
DRAHEIM JAMES R SR TRUSTEE		5 CAPRI LANE	HILTON HEAD	SC
EDWARDS CHARLES E & DOROTHY S		PO BOX 112	FOLKSTON	GA
EDWARDS JAMES W TRUSTEE		862620 NORTH HAMPTON CLUB WA	FERNANDINA BEACH	FL
ELTON-BARNES LLC		1525 DEMENS DR SOUTH	ST PETERSBURG	FL
EMORY EUGENE		5576 GREGG ST	FERNANDINA BEACH	FL
EMORY EUGENE K		5576 GREGG ST	FERNANDINA BEACH	FL
FELDER CAROLYN JULIA		P O BOX 15763	FERNANDINA BEACH	FL
FENN CALVIN J SR & REGINA	XX	1820 LEWIS ST	FERNANDINA BEACH	FL
FLUKER N E SR & JOHNNIE M		7027 ROSE LAKE CIR	DOUGLASVILLE	GA
FOLDEN DEREK I & CHERI N		P O BOX 65862	WEST DES MOINES	IA
FOSTER WENDELL A		5490 ERVIN ST	FERNANDINA BEACH	FL
FRANKLINTOWN COMMUNITY CHURCH		1415 LEWIS STREET	FERNANDINA BEACH	FL
FRAZIER VIVILORIA T		7772 LAKE PARK DRIVE	JACKSONVILLE	FL
FREDERICK NICKOLE E		6586 GENTLE OAKS DRIVE N	JACKSONVILLE	FL
FRIERSON ANN		1913 W 85TH ST	CHICAGO	IL
GIBBS NATHAN		2711 VIA LADO	SAN CLEMENTE	CA
GILCHRIST JAMES M & KATHY MAE		5 SOUTH ORTMAN DRIVE	ORLANDO	FL
GILL DUDLEY W & VALEDA D		459 NORTH SHORE DRIVE	OSPREY	FL
GILLIARD DELLYA		6426 WOODCREST AVENUE	PHILADELPHIA	PA
GILYARD ERVING & ALLEAN		PO BOX 354	FERNANDINA BEACH	FL
GRANT IAN R & TARANJI C		29383 LAKE PARK	FARMINGTON HILLS	MI
GREEN GEORGE N & FRANCES	XX	PO BOX 15185	FERNANDINA BEACH	FL
GREEN JOHN L		819 CHALET HILLS	MCDONOUGH	GA
GREEN THERESA		1097 REIMAN <sup>8</sup> ST	JACKSONVILLE	FL



## Appendix B

JONES EVELYN M	XX	1748 JULIA ST	FERNANDINA BEACH	FL
JONES FELIX B		228 SOUTH 10TH STREET	FERNANDINA BEACH	FL
JONES PHYLLIS D		1031 WEST 27TH STREET	JACKSONVILLE	FL
JONES THOMAS		2502 CAPTAIN HOOK DRIVE	FERNANDINA BEACH	FL
JONES-JACKSON CYNTHIA DEBORAH	XX	5381 HALA COURT	JACKSONVILLE	FL
JORDAN OTIS M & SHIRLEY ANN		P O BOX 1604	CALLAHAN	FL
JORDON CHARMAINE	XX	5478 MARY AVE	FERNANDINA BEACH	FL
JSW LLC		5400 MURDOCK CT	VIRGINIA BEACH	VA
K J C INVESTMENTS LLC		122 GLENWOOD DRIVE	BLACKSHEAR	GA
KING DIONE RENEE		6838 CLEVELAND RD	JACKSONVILLE	FL
KING FRANCINA C		12066 PROSPECT CREEK DRIVE	JACKSONVILLE	FL
KOTCE NERESSIA		6815 BOGATA DR S	JACKSONVILLE	FL
KRAMER CHRISTOPHER M		9825 GATE PARKWAY N APT 5305	JACKSONVILLE	FL
KRUGER RICHARD		9791 AUTUMN HAZE DRIVE	NAPLES	FL
LANGFORD SUSAN PEASE		1544 NISKEY LAKE TRAIL SW	ATLANTA	GA
LAWSON EVERETT W & LINDA F		9864 TIMMONS RD	THONOTOSASSA	FL
LAWSON JOYCELYN		5413 WALDRON ST	FERNANDINA BEACH	FL
LEROY BETTY J		11033 BRIDGES ROAD	JACKSONVILLE	FL
LEWIS STREET LLC		960194 GATEWAY BLVD STE 101	FERNANDINA BEACH	FL
LOWRIE CHARLES T		254 W 35TH STREET	MIAMI BEACH	FL
LUNSFORD ELIZABETH		4301 HAMMERSTONE COURT	NORCROSS	GA
LYMUS DOUGLAS		3652 FALLON OAKS DRIVE	JACKSONVILLE	FL
MACHACEK ROBERT C & GILLIAN D		9240 YUKON AVE S	BLOOMINGTON	MN
MADISON SHARAD D & SANDRA G		3 EMERALD CT	PRINCETON JUNCTION	NJ
MADRY JANIE C		1437 WEST 11TH ST	JACKSONVILLE	FL
MARSHALL JANIE B TRUSTEE		3122 GRACEFIELD RD APT 207	SILVER SPRING	MD
MATHURIN JEAN LUC & MARIE		PO BOX 112	COTUIT	MA
MATHURIN JEAN-LUC & MARIE J		27 N MUNROE TERRACE	DORCHESTER	MA

## Appendix B

OGLESBY FORT M & JANET P		205 E FRANKLIN ST	HARTWELL	GA
OLSON KURT		12664 MUIRFIELD BLVD N	JACKSONVILLE	FL
OSBORNE MARY E		2908 LAWRENCE RD	ST SIMONS	GA
OWEN RUTH A		5 LIVE OAK	FERNANDINA BCH	FL
OWENS LARNEY E III &		125 TRIAL POINT CIRCLE	FAYETVILLE	GA
PALMER, SHELLY	XX			
PARRY CONSTANCE A		9791 AUTUMN HAZE DR	NAPLES	FL
PATRICK DOROTHY		PO BOX 15004	FERNANDINA BEACH	FL
PATRICK ROBERT GENE JR		550 WESTBROOK DRIVE	CORTLANDT MANOR	NY
PERALES ALEJANDRO & KATHERINE		81744 MAINSHEET CT	FERNANDINA BEACH	FL
PERRY VIVIAN		1713 LEONARD ST	FERNANDINA BEACH	FL
PHELTS MICHAEL R & MARSHA L/E		5400 WALDRON ST	FERNANDINA BEACH	FL
POWELL BARBARA HOLMES	XX	2054 RIVERSIDE AVE APT #5402	JACKSONVILLE	XX+A164:E16
PRICE LEWIS & CARRIE		3139 MARTHA ST	JACKSONVILLE	FL
RANA AQEEL A		5733 CRESTVIEW RD	JACKSONVILLE	FL
RATCHFORD WARREN		PO BOX 1810	SPRINGFIELD	GA
REESE ANDRE B & CHERYL H		1942 CRANBOURNE CT	DUNWOODY	GA
REEVES DENISE JONES		108 ALEXANDER ST	WINDER	GA
ROBINSON EDWARD H & V W		3620 CLYDE DR	JACKSONVILLE	FL
ROBINSON JEANNETTE H		2064 GOLF COURSE DRIVE	RESTON	VA
ROBINSON JOYCE E		1725 LEWIS STREET	FERNANDINA BEACH	FL
ROBINSON W RUSSELL		208 CHAPEL VALLEY LANE	APEX	NC
ROWELL ROBERT A		5433 MARY AVE	FERNANDINA BEACH	FL
RUTH JAMES A L/E		11501 YOUNG ROAD	JACKSONVILLE	FL
SACHATELLO SCOTT A & JOANNA S		1732 N FLETCHER AVE	FERNANDINA BEACH	FL
SALTER BENJAMIN		5443 WALDRON ST	FERNANDINA BEACH	FL
SAUNDERS LARRY H & JUDITH M		2261 QUEEN WAY	NAPLES	FL
SEYMOUR LEROY R		7771 ROCK CREEK	AVON	IN



## Appendix B

WATERS RUTH L		5531 GREGG STREET	FERNANDINA BEACH	FL
WATERS RUTH L		5531 GREGG ST	FERNANDINA BEACH	FL
WATSON NINA L & NICAREN L &	XX	PO BOX 41493	JACKSONVILLE	FL
WATSON WILLIAM & HELEN		1837 JULIA STREET	FERNANDINA BEACH	FL
WAY ELIPHUS JEROME		1633 JULIA ST	FERNANDINA BEACH	FL
WHITFIELD LYNETTE		1472 COMPTON TERRACE	HILLSIDE	NJ
WILLIAMS A C EST	XX	70 WHITE HOUSE DR S W	ATLANTA	GA
WILLIAMS HARRY & PATRICIA ANN		3923 FAIRFAX ST	JACKSONVILLE	FL
WILLIAMS KATHERINE M & ROGER		9662 26TH BAY ST	NORFOLK	VA
WILLIAMS PEARL H & LINCOLN C		952 TURTLE CREEK DR NORTH	JACKSONVILLE	FL
WILLIAMS RUDOLPH B TRUST		11459 CYPRESS WOODS DR	SAN DIEGO	CA
WILLIAMS SOLOMON EST		706 TIBET AVENUE	SAVANNAH	GA
WILLIS FLOYD B & WANDA J		3949 CHARTER HOUSE DR	JACKSONVILLE	FL
WILLIS FLOYD B & WANDA J		3949 CHARTER HOUSE DR	JACKSONVILLE	FL
WILSON BETTY ANN	XX	P O BOX 151	FERNANDINA BEACH	FL
WILSON ELIJAH JR & RICHARD		1620 WEST 16TH STREET	JACKSONVILLE	FL
WILSON GLADYS J TRS	XX	205 HOGANS RUN	COLUMBIA	SC
WILSON MAXCELL SR EST		PO BOX 151	FERNANDINA BEACH	FL
WILSON SHERALD G SR & LOIS G D		165 EDGEHILL RD	SYRACUSE	NY
WOODWARD TIMOTHY A		1537 HERRINGTON PARK DR	JACKSONVILLE	FL
WRIGHT LATRICE TRUSTEE	XX	2933 N MYRTLE AVE STE 200	JACKSONVILLE	FL
WRIGHT LATRICE TRUSTEE		2933 N MYRTLE AVE STE 200	JACKSONVILLE	FL



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**NOTICE OF PUBLIC MEETING FOR THE STATE  
REVOLVING FUND (SRF) FACILITIES PLAN  
RELATED TO THE PROPOSED AMERICAN BEACH  
WELL AND SEPTIC TANK PHASE OUT PROJECT**

The Nassau County Board of County Commissioners gives notice that a public meeting will be held on **Saturday, September 19, 2020 commencing at 9 a.m.** to provide for public participation in review and evaluation of the facilities plan to be submitted to the State Revolving Fund (SRF) loan program in support of the proposed American Beach well and septic tank phase out project. The project provides for the design and construction of municipal water and sewer infrastructure within the American Beach community, located in Nassau County. The facilities plan, prepared by the engineering firm of Wade Trim, Inc., outlines the project alternatives considered, the financial and environmental impacts of the project, and the schedule for the recommended facilities.

All interested parties are invited to attend the public meeting, which will be held at Burney Park located at 1556 Gregg Street, Fernandina Beach, FL 32034 at the time identified above for this meeting. All persons wishing to speak will be given an opportunity to do so following a brief presentation.

Copies of the proposed facilities plan will be available for review on September 14, 2020 by visiting the American Beach Neighborhood Planning website at <https://www.nassaucountyfl.com/990/american-beach-neighborhood-planning>.

For additional information, or copies of the facilities plan, contact Robert Dickson at [rdickson@govmserv.com](mailto:rdickson@govmserv.com) or by calling (407) 629-6900. Any person requiring special accommodations at the meeting due to a disability or physical impairment should contact Amy Bell, County Manager's Office at (904) 530-8010.



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Broker GRI  
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## **APPENDIX C. ENVIRONMENTAL REVIEW DOCUMENTATION**

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## American Beach Utility Extension Project



Prepared for:  
Wade Trim  
Oscar Duarte, P.E.  
3790 Dixie Highway, NE, Palm Bay, FL 32905  
321.728.3389 office

Prepared by:



615 Mark and Randy Drive  
Satellite Beach, FL 32937  
321-536-1988

July 22, 2020





### **Project:**

American Beach Utility Extension Project

American Beach, Fernandina Beach, FL 32034

Sections: 0

Township: 2N

Range: 28E

Acres: Approximately 80 acres (Proposed Construction Area ~9.0 acres)

HE#: 20027

### **Introduction**

The American Beach community area was reviewed for potential environmental impacts related to a proposed utility extension project. The study area encompasses a region from Burney Road north to the ends of the north / south streets off of Julia Street and Lewis Street, *Figure 1*. The American Beach community is located on Amelia Island in Nassau County, Florida.

The project is a water main line and sewer line extension and potential lift stations. The line extension work is proposed to be completed in the current road Right of Ways (ROW) (*Figure 1*). Therefore the impacts to natural habitats will be minimized. The project will consist of the following:

- Potable water mains and sanitary sewer collection piping will be installed to service approximately 317 lots in the American Beach community.
- Water and Sewer service connections will be provided to each parcel at the residential property line. This project stops at the property line and does not encroach onto private residential properties.
- At this point the initial intent is to install all piping under the paved and unpaved roadways. However, there may be a possibility that some piping may be installed within 5 feet of the edge of pavement to minimize road restoration.
- Per code, the water and sewer pipes are required to be installed a minimum of 10 feet apart. Trenches excavated for each pipeline will be approximately 3 feet wide and approximately 5 feet deep.
- In the case of the sanitary sewer, there may be a need to construct lift stations. If lift stations are required, there are three proposed locations for the lift stations depicted in *Figure 1*.

A Geographic Information Systems (GIS) analysis was completed to develop an initial desk-top review. The results highlighted areas for further onsite investigation. A site visit was completed by Harnden Environmental (HE) staff on July 16, 2020. The study area was windshield reviewed and much of the Proposed Construction Area (PCA) was traversed on foot. The study area is a historic residential community that was constructed on the coastal dune complex. The following discussions are a summary of the findings of the review.

### **Soils**

The region is mapped as having mostly upland soils comprised of the dune communities. There are some hydric soils in the region but only a very small amount of the PCA intersects with mapped hydric (wetland) soils on the National Soil Conservation Service (NRCS) Soil Survey map. These findings could suggest that there is a small likelihood wetlands could occur in the PCA. Since all work will be within the current road ROW no wetlands were anticipated. The seven soil types were mapped and



depicted on **Figure 2**.

Field observations concluded that there are no hydric soils in the PCA.

Table 1. Soils in the PCA.

Code	Name	Hydric
3	BEACHES	NO
5	FRIPP FINE SAND, ROLLING	NO
10	MANDARIN FINE SAND	NO
12	NEWHAN-COROLLA, RARELY FLOODED, FINE SANDS, ROLLING	NO
25	MAUREPAS MUCK, FREQUENTLY FLOODED	YES
27	RESOTA FINE SAND, 0 TO 5 PERCENT SLOPES	NO
29	RIDGEWOOD FINE SAND, 0 TO 5 PERCENT SLOPES	NO

Below are brief descriptions of the soil types that are in the PCA:

#### **Soil Descriptions**

##### **3—Beaches**

These soils are found on beaches on marine terraces. These soils are poorly drained and the depth to water table is typically 0 to 72 inches. There is very frequent flooding. These soils are not hydric.

##### **5—Fripp fine sand, rolling**

These soils are ridges and dunes on marine terraces. These soils are excessively drained and the depth to water table is typically more than 80 inches. There is a very rare chance of flooding but no ponding. These soils are not hydric.

##### **10—Mandarin fine sand, 0 to 2 percent slopes**

These soils are on rises. These soils are somewhat poorly drained and the depth to water table is typically 18 to 30 inches. There is no chance of flooding or ponding. These soils are not hydric.

##### **12—Newhan-Corolla, rarely flooded, fine sands, rolling**

These soils are on ridges, dunes, and marine terraces. These soils are excessively drained and the depth to water table is typically more than 80 inches. There is no chance of flooding or ponding. These soils are not hydric.

##### **25—Maurepas muck, frequently flooded**

These soils are flood plains on marine terraces. These soils are very poorly drained and the depth to water table is typically 0 inches. There is frequent flooding or ponding. These soils are hydric.

##### **27—Ridgewood fine sand, 0 to 5 percent slopes**

These soils are ridges and knolls on marine terraces. These soils are somewhat poorly drained and the depth to water table is typically 18 to 42 inches. There is no chance of flooding or ponding. These soils are not hydric.

##### **29—Resota fine sand, 0 to 5 percent slopes**

These soils are ridges and knolls on marine terraces. These soils are moderately well drained and the





depth to water table is typically 42 to 60 inches. There is no chance of flooding or ponding. These soils are not hydric.

### Topographic Analysis

The elevations and historic land use of the PCA were investigated by review of the historic USGS Amelia City topographic quadrangle (**Figure 3**). The USGS topographic data is expressed in 5-foot contours. The findings suggest the PCA was forested with mainly small residential structures. There are several apparent elevation contours ranging from 10 to 50 feet National Geodetic Vertical Datum (NGVD).

To further investigate the topography, the Nassau County LiDAR, 2-foot contour data was reviewed (**Figure 4**). This data is referenced to the North American Vertical Datum (NAVD) and is approximately 1.5 feet lower than the NGVD data. This data suggests that the elevations within the region range from 0 to 60 feet. The elevations within the PCA range from 8 to 26 feet.

### Current Land Use

Land use descriptions have been created for the entire state by the Florida Department of Transportation. These Florida Land Use, Cover, and Forms Classifications System (FLUCCS) codes are used to generally categorize land types by use and vegetative compositions. The descriptions that are closest to the habitats onsite are utilized to document the current land use. Modifications of categories are done to be more descriptive of conditions onsite. GIS land use data (2014) from the St. Johns River Water Management District (SJRWMD) was compiled in the analysis of the PCA. The current land uses have been described in **Figure 5**. There are nine habitat types within the PCA (**Table 1**). Since the PCA is only in the road ROW the potentially impacted areas are only small portions of the individual land use types.

#### 1200 – Residential, Medium Density (5.9 acres)

Much of this portion of the PCA is associated with residences and is not usually in a native condition. Some of these areas include swales that collect and convey storm waters offsite. Most of the vegetation in these areas is modified and maintained. The vegetation includes terrestrial grasses and weedy species. Some of the residential parcels include trees such as live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), sand live oak (*Quercus geminata*), slash pine (*Pinus elliotii*), loblolly pine (*Pinus taeda*), and cabbage palm (*Sabal palmetto*). There are also shrubs within some of these areas including saltbush (*Baccharis halimifolia*) and wax myrtle (*Morella cerifera*) with some saw palmetto (*Serenoa repens*). Some areas also have vines growing in them including peppervine (*Ampelopsis arborea*) and air potato (*Dioscorea bulbifera*). Some of the **1200 – Residential, Medium Density** land use also includes portions of the dune complex. This mainly occurred east of James Street, and areas approaching the beach. Some of the vegetation located in these areas includes blanket flower (*Gaillardia pulchella*), beach morning glory (*Ipomoea imperati*), railroad vine (*Ipomoea pes-caprae*), East Coast dune sunflower (*Helianthus debilis*), sea oats (*Uniola paniculata*), prickly pears (*Opuntia* spp.), Hercules' club (*Zanthoxylum clava-hercules*), Adam's needle (*Yucca filamentosa*), and sea purslane (*Sesuvium portulacastrum*).

#### 1300 – Residential, High Density (0.4 acres)

This portion of the PCA is associated with residences and is not usually in a native condition. Some of these areas include swales that collect and convey storm waters offsite. Most of the vegetation in these





areas is modified and maintained. The vegetation includes terrestrial grasses and weedy species. Some of the residential parcels include trees such as live oak, laurel oak, sand live oak, slash pine, loblolly pine, and cabbage palm. There are also shrubs within some of these areas including saltbush and wax myrtle. Some areas also have vines growing in them including peppervine and air potato. A portion of this land use designation also included native dune areas. These areas are vegetated by blanket flower, beach morning glory, railroad vine, East Coast dune sunflower, sea oats, prickly pears, Hercules' club, Adam's needle, and sea purslane.

#### **1400 – Commercial and Services (0.4 acres)**

This portion of the PCA is associated with commercial property and is not usually in a native condition. Some of these areas include swales that collect and convey storm waters offsite. Most of the vegetation in these areas is modified and maintained. The vegetation includes terrestrial grasses and weedy species. Some of the commercial parcels include trees such as live oak, laurel oak, sand live oak, slash pine, loblolly pine, and cabbage palm. There are also shrubs within some of these areas including saltbush and wax myrtle. Some areas also have vines growing in them including peppervine and air potato.

#### **1700 – Institutional (0.4 acres)**

This portion of the PCA is associated with institutional property and is not usually in a native condition. Most of the vegetation in these areas is modified and maintained. Most of the vegetation includes terrestrial grasses and weedy species. Some of the Institutional parcels include trees such as live oak, laurel oak, sand live oak, slash pine, loblolly pine, and cabbage palm. There are also shrubs within some of these areas including wax myrtle. Some areas also have vines growing in them including peppervine and air potato.

#### **1810 – Swimming Beach (0.3 acres)**

This portion of the PCA is associated with the park at the end of Burney Road. This Nassau County park includes parking and beach access. Portions of this land use are associated with the dune complex and are vegetated by blanket flower, beach morning glory, railroad vine, East Coast dune sunflower, sea oats, prickly pears, Hercules' club, Adam's needle, and sea purslane.

#### **1820 – Golf Courses (<0.1 acres)**

This portion of the PCA is associated with a golf course that is in the area. This land use makes comprises a very small portion of the PCA and is vegetated with terrestrial grasses.

#### **3100 – Herbaceous (Dry Prairie) (<0.1 acres)**

This portion of the PCA is associated with the most water-ward dunes near the beach. Typical vegetation would include herbaceous grasses such as sand cord grass (*Spartina bakeri*) or marsh hay grass (*Spartina patens*) and forbs with some saw palmetto. The portions of the PCA involved are located at the very ends of the streets, closest to the ocean.

#### **4200 – Upland Hardwood Forests (0.4 acres)**

This portion of the PCA is mainly associated with the Nana Dune complex and is, in places, near native condition. Some of the parcels include trees such as live oak, laurel oak, sand live oak, and cabbage palm. There are also shrubs within some of these areas including saltbush and wax myrtle. Some areas also have vines growing in them including peppervine and air potato.



### 7200 – Sand Other Than Beaches (<0.1 acres)

This portion of the PCA is associated with the Nana Dune complex and is, in places, near native condition. Most of the vegetation in these areas is associated with the dune. Some of the vegetation located here includes blanket flower, beach morning glory, railroad vine, East Coast dune sunflower, sea oats, prickly pears, Hercules' club, Adam's needle, and sea purslane.

Table 1. Current Land Use of the PCA.

Code	Description	Acreage
1200	Residential, Medium Density	5.9
1300	Residential, High Density	0.4
1400	Commercial and Services	0.4
1700	Institutional	0.4
1810	Swimming Beach	0.3
1820	Golf Courses	<0.1
3100	Herbaceous (Dry Prairie)	<0.1
4200	Upland Hardwood Forests	0.4
7200	Sand Other Than Beaches	<0.1

It is Harnden Environmental's best professional judgement that impacts within the ROW of the road would be minimal and that no mitigation or restoration would be required to offset the temporary impacts that the construction project would cause in these habitats. Construction that will occur in the shoulders of the ROW would be allowed to re-vegetate naturally after the completion of the construction activities. It is anticipated that if lift stations are required they can be located in maintained, unnatural areas minimizing impacts to natural communities.

### Protected Species

There is high potential that protected species could utilize habitats within the PCA. **Many gopher tortoise burrows** were observed within and surrounding the PCA. The region does include areas that are ideal tortoise habitat. **Table 2** outlines which protected species are anticipated to occur within the PCA.

Tables 2. Protected species potentially occurring within the PCA.

Common Name	Scientific Name	Status
Eastern Indigo Snake	<i>Dymarchon corais couperi</i>	Fed Threatened
Gopher Tortoise	<i>Gopherus polyphemus</i>	State Threatened

### Eastern Indigo Snake

The indigo snake is found in a wide array of habitats ranging from wetland edges to xeric upland dunes and ridges throughout Florida. The large snake is sometimes associated with gopher tortoise burrows. Potential impacts to indigo snakes are regulated by the U.S. Fish and Wildlife Service (USFWS). Avoidance of impacts is achieved by following general construction precautions that are outlined in USFWS documentation.

### Gopher Tortoise

The gopher tortoise is found in mesic and xeric habitats throughout Florida. The tortoises prefer sandy areas in which they can excavate burrows for protection. Additionally, low herbaceous vegetation allows





tortoises to forage, thrive, and reproduce. This region appears to have a healthy tortoise population with on-going reproduction.

Burrows that occur within 25 feet of construction activities are endangered of being impacted. Burrows can be in excess of 25 feet and can be at a depth of over 8 to 10 feet from ground level. Depending on the direction of the burrow it is possible that some burrows within the 25 feet would not be impacted. Several burrows are very close to the road edge and would definitely be impacted by construction within the road ROW. **Figure 6** depicts the locations of burrows within 25 feet of the edge of the road. The burrows that are believed to be imperil of impact are depicted as orange symbols. Seventy-six burrows were observed within approximately 25 feet of the road edge. Of those, initially 30 to 40 burrows could be expected to be potentially impacted by the proposed construction. It is expected that this number can be reduced with PCA location adjustments.

Impacts to gopher tortoises are regulated by Florida Fish and Wildlife Conservation Commission (FWC). Tortoises or their burrows cannot be impacted in anyway without permits. Tortoises within construction areas must be relocated. Potentially, in the case of these temporary impacts to habitats, tortoises could be temporarily relocated to lands owned by State, Federal, County, or municipal government, safely excluding them from returning to the construction areas. These relocations would require agency coordination and a permit issued by FWC. Gopher tortoise surveys expire after 90 days. Therefore, several months prior to the start of construction activities a tortoise burrow survey will have to be completed and a FWC permit will have to be obtained. The burrow excavations could take place as construction is being initiated.

Coordination with FWC was initiated regarding the permitting and relocation options. A Temporary Exclusion Permit and can be utilized since the project is a utility project. The details of the permit are explained below. Tortoises can be excavated from the burrows and temporarily removed from construction areas. The tortoises are held in pens and excluded from the project area until construction is concluded. There is an FWC fee per tortoise that is relocated and excluded from the construction areas. The fees are based on how long the tortoises are excluded. The fees are \$107 per tortoise for 2 months or less, \$217 per tortoise for 2 to 4 months, and \$326 per tortoise for 4 to 6 months. For example, if 40 burrows require relocation, with the estimated 50% burrow occupancy rate, 20 tortoises would have to be relocated. Twenty tortoises excluded for up to four months would require a FWC fee of \$4,340. The project can be broken into sections to minimize the time tortoises would be excluded. Tortoises cannot be held for over six months under this permit. Temporary tortoise relocation areas could be established on government owned lands. If a burrow mouth is located on private property but it is believed it will be impacted by construction activities, permission to excavate the burrow must be obtained from the private land owner and the tortoise must be excluded onto the property from where it was captured. It is anticipated that this coordination with land owners could be time consuming.

### **Community Lands and Resources**

The American Beach community encompasses historic resources including several sites listed on the U.S. National Register of Historic Places. American Beach itself is designated as the American Beach Historic District. These sites have this designation in order identify that they have historical significance. A list of some of the registered sites is included in **Table 3**.

Table 3. Historic Register sites within the American Beach community.





Name	Description	Location
Ervin's Rest	House	5448 Gregg Street
Evan's Rendezvous	Social club	5500 Gregg Street
First House in American Beach	House	5472 Gregg Street
Hippard House	House	5406 Ervin Street
NaNa Dune	Sand Dune area	West of Ocean Boulevard

It is anticipated that since the proposed project would take place within the road ROWs the construction would not cause impacts to these resources.

### Summary

There are no wetlands located within the PCA. The construction is proposed to be located within road ROWs which should minimize impacts to natural habitats. Some areas include shallow upland cut swales that collect and convey storm waters offsite. The location and alignment of the line installations can likely be adjusted to minimize potential habitat impacts.

A few protected species could temporarily be impacted by the construction project. Gopher tortoises occur throughout the community. Many burrows occur within 25 feet of the road ROW. A formal tortoise survey will have to be completed and a permit will have to be obtained from FWC for relocation of the tortoises. There will be an estimated FWC fee of \$4,340. The permit will allow for the excavation of tortoise burrows that cannot be avoided by the project and exclude the tortoises from the construction area until the project is completed. The formal tortoise survey will have to be completed within 90 days prior to the start of the project. It is possible that indigo snakes could occur within the PCA. There are general indigo snake construction precautions from USFWS that can be displayed and utilized to avoid impacts to the snake.

The PCA is located within the *American Beach Historic District*. There are several sites that are included on the U.S. National Register of Historic Places located within the District. It is anticipated that if construction occurs only within the road ROWs there should be no impacts to the District or these sites. Additionally, if the project requires lift stations it is anticipated that locations can be designed to minimize any potential impacts.

Burney Beach Front Park is located on the southern end of the project area. There is also a parcel, owned by the National Park Service (NPS), that protects a section of the historic dune. This area is called NaNa Dune. There are many tortoise burrows located near the NaNa Dune kiosk, south of Lewis Street on Ocean Boulevard. It is suggested that the proposed construction minimize impacts to this area of the project. It is anticipated that the project can be cautiously designed avoiding impacts to these areas.

The goal of the project is to supply community residences with utility water and sanitary sewer services. This goal includes large environmental benefits by eliminating septic systems and water supply wells within the region. It is anticipated that many of the septic systems are relatively old and are probably not functioning optimally, potentially causing impacts to groundwater. Since the community utilizes wells for water and septic systems for waste treatment, the proposed project will have potential health benefits for individuals within the community.



All of the impacts to habitats and protected wildlife species will be temporary in nature. The wildlife will be relocated out of the proposed construction areas and excluded until the project is completed. Temporarily impacted habitats will be allowed to re-vegetate and return to the current conditions onsite.

If there any further questions please feel free to contact us.

A handwritten signature in black ink that reads 'Christopher W. Harnden'.

Chris Harnden  
Project Manager 321-536-988  
[chris@harndenenvironmental.com](mailto:chris@harndenenvironmental.com)



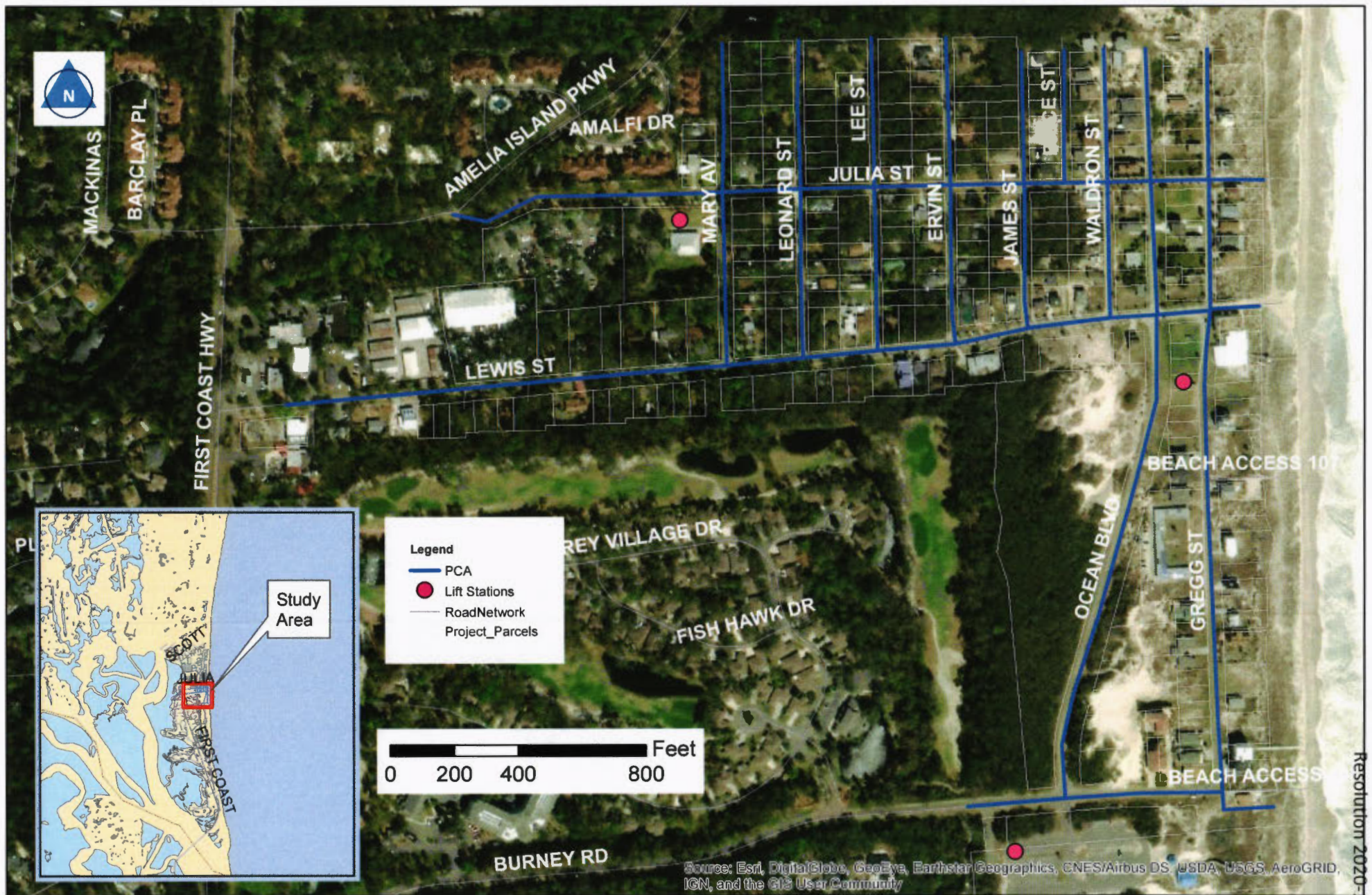
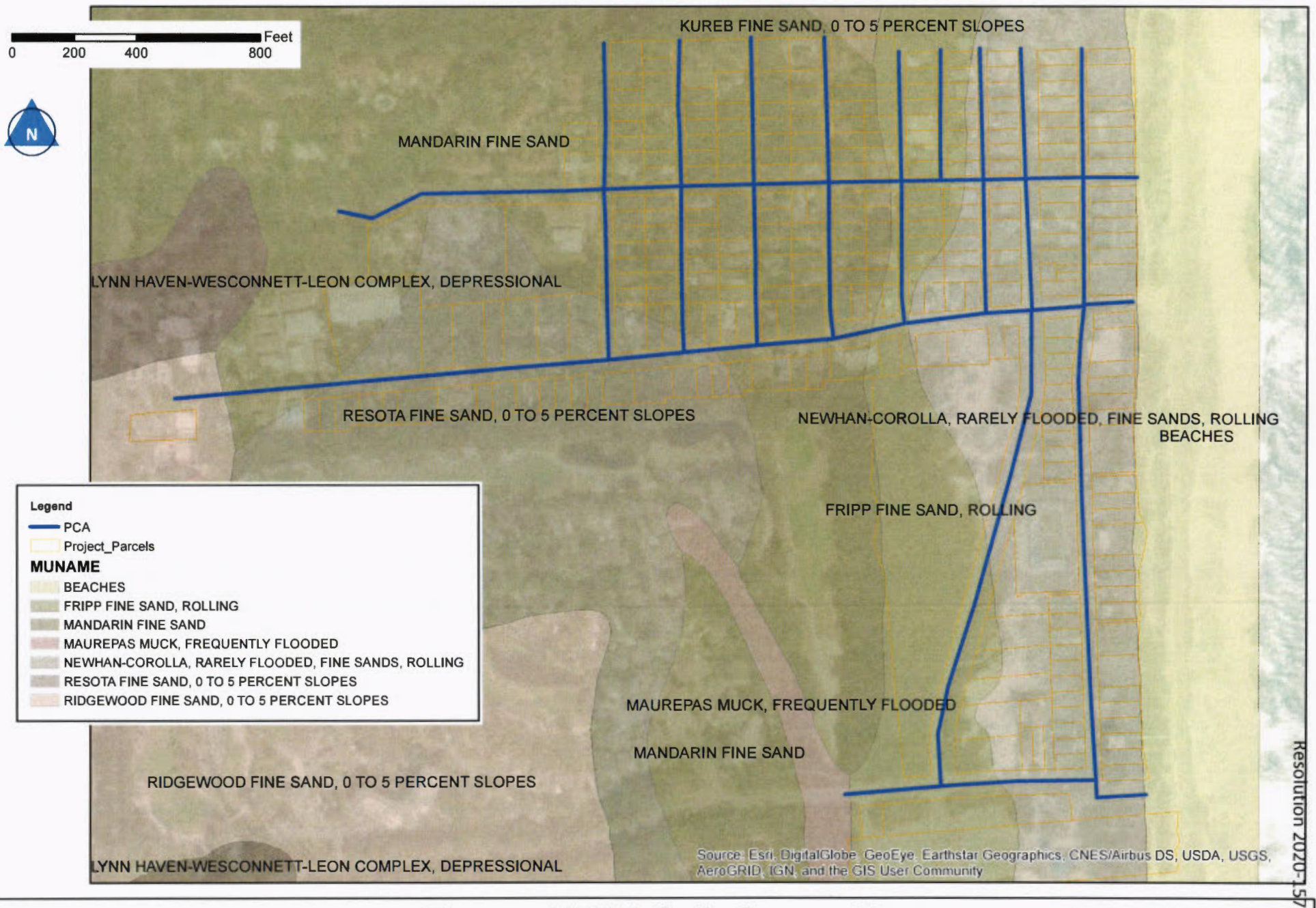


Figure: Project Location Map  
 Project: American Beach Utility Extension  
 Note: Boundaries are approximate

Figure  
 1





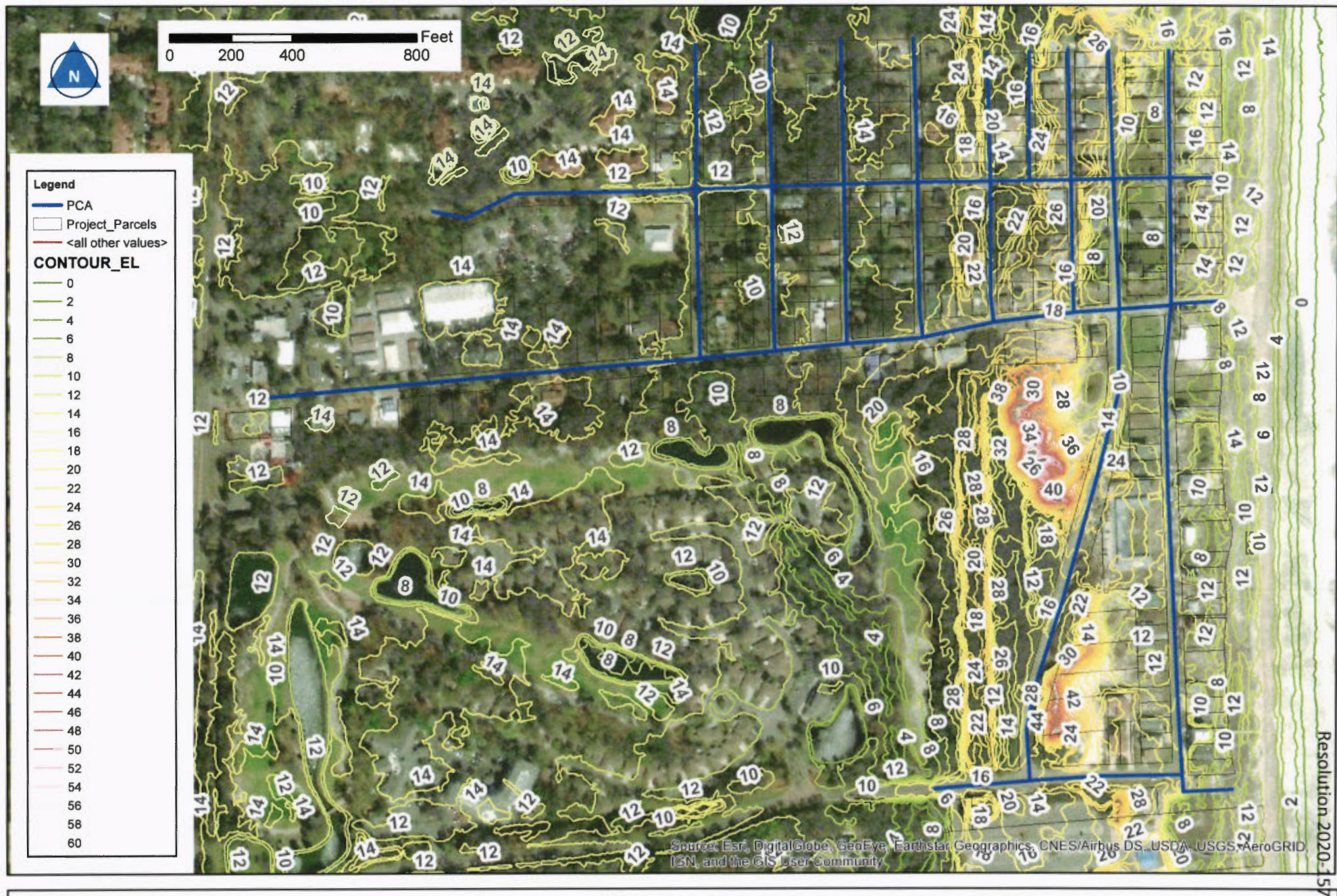
**Figure: NRCS Soils Survey Map**  
**Project: American Beach Utility Extension**  
**Note: Boundaries are approximate**

**Figure**  
**2**

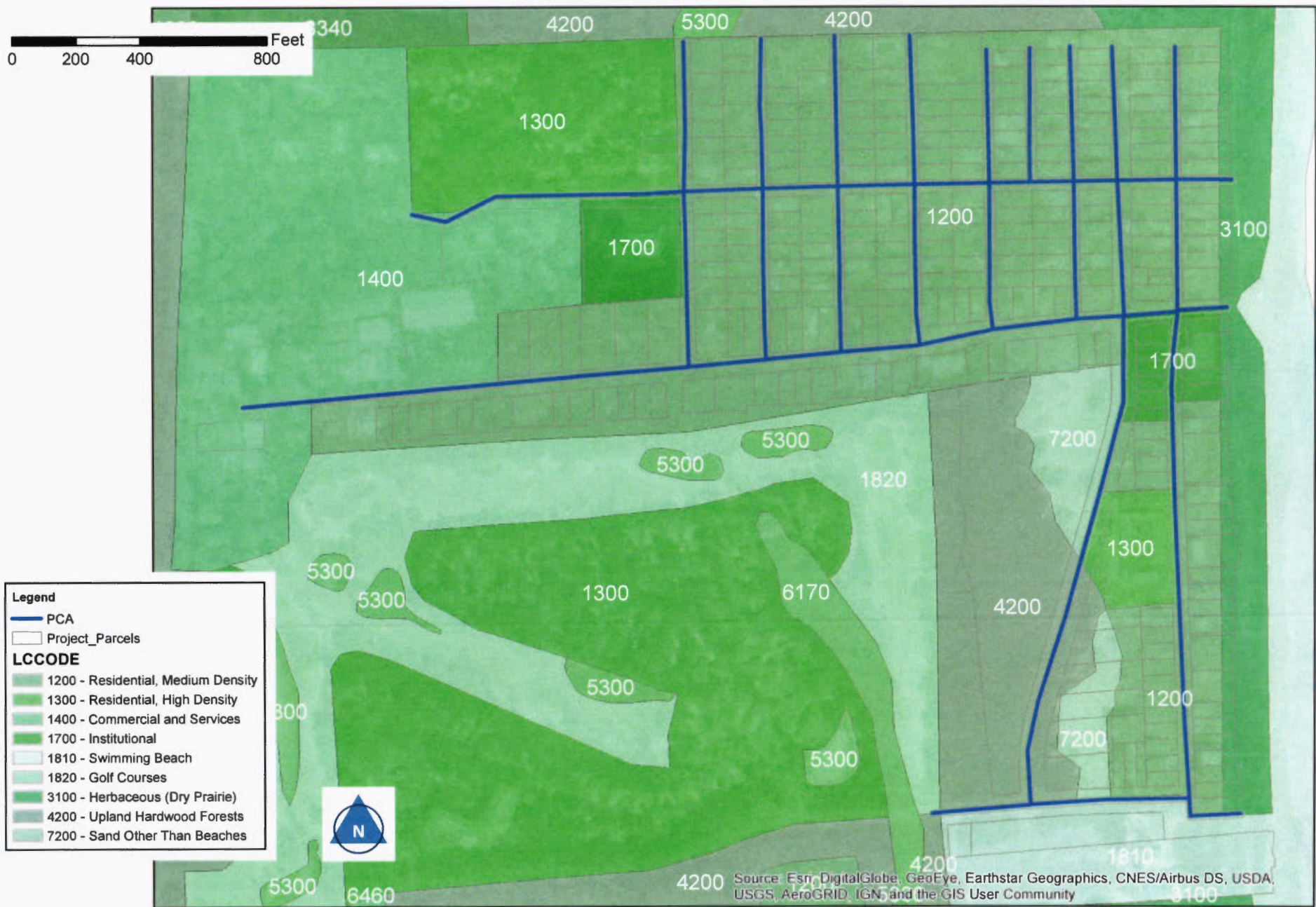












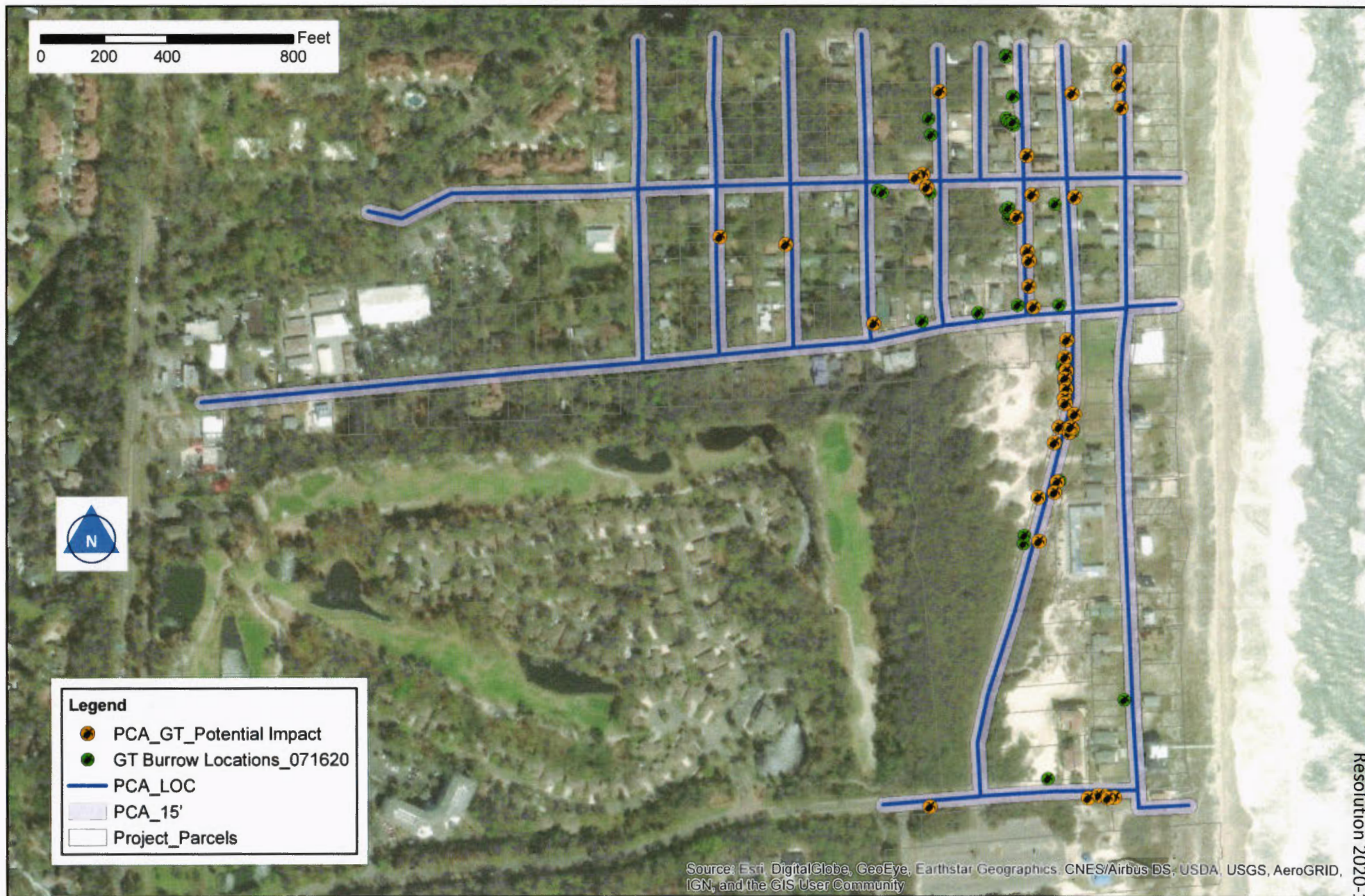
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**Figure: Current Land Use Map**  
**Project: American Beach Utility Extension**  
**Note: Boundaries are approximate**

**Figure  
5**

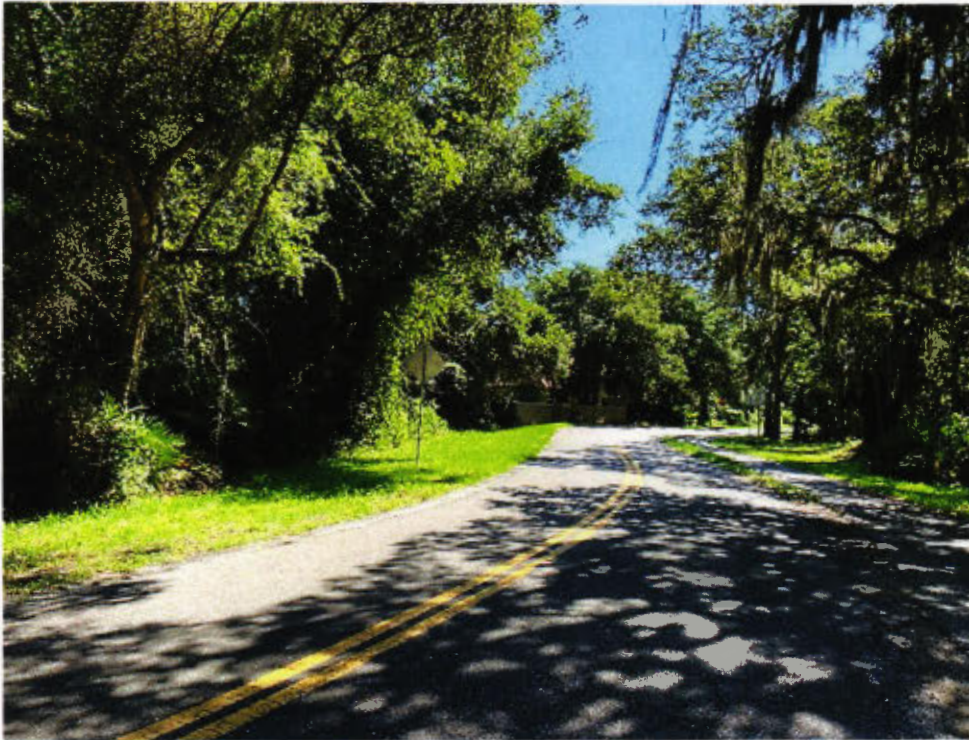




**Figure: Gopher Tortoise Burrow Location Map**  
**Project: American Beach Utility Extension**  
**Note: Boundaries are approximate**

**Figure  
6**





Photograph 1. The western end of Julia Street, facing east.



Photograph 2. The western end of Julia Street, facing west, out of the project area.





Photograph 3. The northern end of Mary Avenue, facing south.



Photograph 4. The southern end of Mary Avenue, facing north.





Photograph 5. Gopher tortoise burrow located east of Leonard Street.

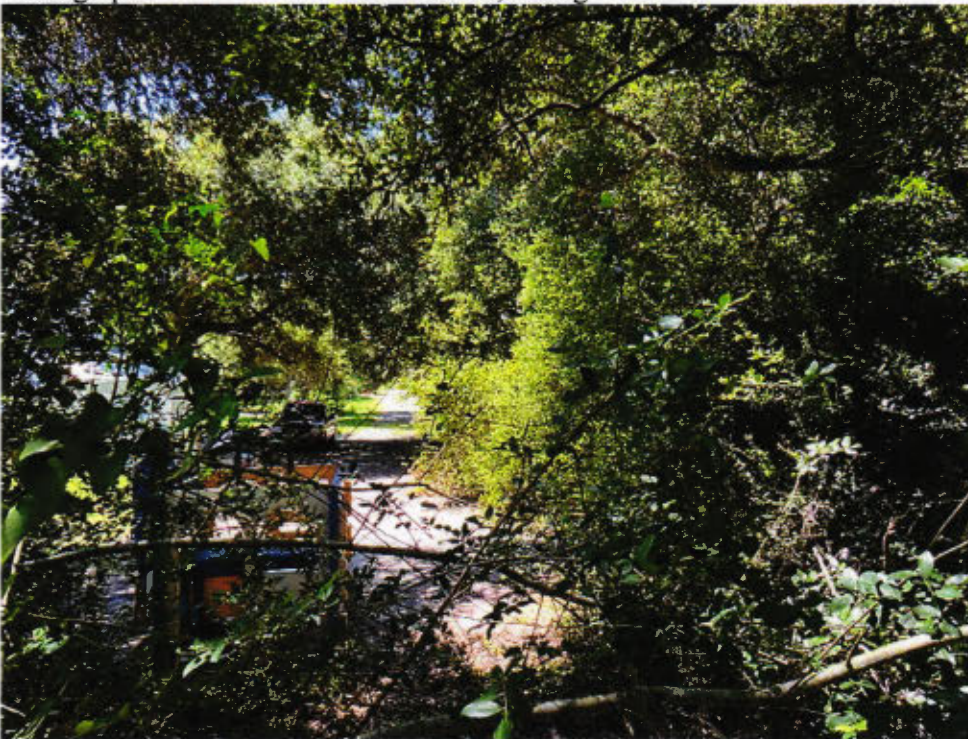


Photograph 6. Hippard House located on the east side, of the north end of Ervin Street.





Photograph 7. North end of Ervin Street, facing south.



Photograph 8. North end of James Street, facing south.





Photograph 9. North end of James Street, facing north. The ROW continues 300 feet.



Photograph 10. North end of Waldron Street, facing south.





Photograph 11. Corner of Ocean Blvd and Lewis Street, facing south.



Photograph 12. Corner of Ocean Blvd and Lewis Street, facing north.





Picture 13. View of the dunes and ocean from Waldron Street, facing east.



Picture 14. NaNa dune complex, facing west. This area has many tortoise burrows near the road.



Picture 15. Burney Road, facing east.



Picture 16. Burney Road, facing west. The park entrance is pictured.





Picture 17. Active tortoise near Burney Road.



Picture 18. Southern end of Gregg Street, facing north.





Picture 19. Southern end of Gregg Street, facing south.



Picture 20. Evan's Rendezvous, on east side of Gregg Street.





Picture 21. Corner of Julia Street and James Street, facing east.



Picture 22. Corner of Julia Street and James Street, facing west.



Picture 23. Typical gopher tortoise burrow located on the dunes.



## **APPENDIX D. DETAILED DRINKING WATER COST ESTIMATES**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: American Beach SRF Facilities Plan- Water Main - PVC Option

DATE:

08/31/20

LOCATION: Amelia Island, Florida

PROJECT NO.

GUA 2071; Task A.4

BASIS FOR ESTIMATE: ☒ CONCEPTUAL ☐ PRELIMINARY ☐ FINALWORK: Work includes open-cut installation of PVC water main and related work  
along the proposed ROW

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
	American Beach - PVC Water Main Option				
1	4" PVC Water Main	9,381	LF	\$ 45.00	\$423,000
2	4" Gate Valve with Box	20	EA	\$ 1,015.00	\$21,000
3	6" PVC Water Main	3,119	LF	\$ 54.00	\$169,000
4	6" Gate Valve with Box	6	EA	\$ 1,450.00	\$9,000
5	8" PVC Water Main	700	LF	\$ 60.00	\$42,000
6	8" Gate Valve with Box	2	EA	\$ 2,385.00	\$5,000
7	Fire Hydrant - 6"	12	EA	\$ 2,370.00	\$29,000
8	Fire Hydrant - 8"	4	EA	\$ 3,600.00	\$15,000
9	Short Single Service Laterals (50% of 287 parcels)	143	EA	\$ 700.63	\$101,000
10	Long Single Service Laterals (50% of 287 parcels)	144	EA	\$ 1,223.13	\$177,000
11	Water Meter and Meter Boxes (occupied parcels only)	147	EA	\$ 250.00	\$37,000
12	6" Connection to Existing 6" Water Main	3	EA	\$ 2,800.00	\$9,000
13	8" Connection to Existing 10" Water Main	1	EA	\$ 3,400.00	\$4,000
14	Topsoil - 4"	1,100	BCY	\$ 28.35	\$32,000
15	Seeding and Mulching	90	MSF	\$ 51.67	\$5,000
16	Gopher Tortoise Relocation (1/2 paid by W, 1/2 paid by WW)	0.5	LSUM	\$ 10,340.00	\$6,000
17	Maintaining Traffic (1/2 paid by W, 1/2 paid by WW)	0.5	LSUM	\$ 35,000.00	\$18,000
	<b>Subtotal of Estimated Construction Cost</b>				<b>\$1,102,000</b>
	General Conditions, Mobilization, Demobilization, Bonding, etc	1	LSUM	4%	\$45,000
	Contractor Overhead and Profit	1	LSUM	15%	\$166,000
	Contingency	1	LSUM	35%	\$386,000
	<b>Estimated Construction Cost</b>				<b>\$1,699,000</b>
	Engineering & Permitting			10%	\$170,000
	Inspection Services			5%	\$85,000
	Contract Project Administration (5% of Total Project Cost)			5%	\$123,000
	Engineering Services During Bidding & Construction			8%	\$136,000
	<b>Total Technical and Engineering Fees</b>				<b>\$514,000</b>
	Capacity Availability Impact Fee	287	Per Lot	\$ 1,105.00	\$318,000
	Meter Installation Fee	147	Per Lot	\$ 200.00	\$30,000
	Initial Connection Fee	147	Per Lot	\$ 70.00	\$11,000
	<b>Total Miscellaneous Fees</b>				<b>\$359,000</b>
	<b>Total Project Cost for PVC Water Main</b>				<b>\$2,572,000</b>



**ENGINEER'S OPINION OF CONSTRUCTION COST****PROJECT:** American Beach SRF Facilities Plan- Water Main - Ductile Iron Option**DATE:**

09/07/20

**LOCATION:** Amelia Island, Florida**PROJECT NO.**

GUA 2071; Task A.4

**BASIS FOR ESTIMATE:** ☒ CONCEPTUAL ☐ PRELIMINARY ☐ FINAL**WORK:** Work includes open-cut installation of ductile iron water main and related work along the proposed ROW

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
	American Beach - Ductile Iron Water Main				
1	4" Ductile Iron Water Main	9,381	LF	\$ 54.26	\$510,000
2	4" Gate Valve with Box	20	EA	\$ 1,015.00	\$21,000
3	6" Ductile Iron Water Main	3,119	LF	\$ 68.00	\$213,000
4	6" Gate Valve with Box	6	EA	\$ 1,450.00	\$9,000
5	8" Ductile Iron Water Main	700	LF	\$ 76.20	\$54,000
6	8" Gate Valve with Box	2	EA	\$ 2,385.00	\$5,000
7	Fire Hydrant - 6"	12	EA	\$ 2,370.00	\$29,000
8	Fire Hydrant - 8"	4	EA	\$ 3,600.00	\$15,000
9	Short Single Service Laterals (50% of 287 parcels)	143	EA	\$ 700.63	\$101,000
10	Long Single Service Laterals (50% of 287 parcels)	144	EA	\$ 1,223.13	\$177,000
11	Water Meter and Meter Boxes (occupied parcels only)	147	EA	\$ 250.00	\$37,000
12	6" Connection to Existing 6" Water Main	3	EA	\$ 2,800.00	\$9,000
13	8" Connection to Existing 10" Water Main	1	EA	\$ 3,400.00	\$4,000
14	Topsoil - 4"	1,100	BCY	\$ 28.35	\$32,000
15	Seeding and Mulching	90	MSF	\$ 51.67	\$5,000
16	Gopher Tortoise Relocation (1/2 paid by W, 1/2 paid by WW)	0.5	LSUM	\$ 10,340.00	\$6,000
17	Maintaining Traffic (1/2 paid by W, 1/2 paid by WW)	0.5	LSUM	\$ 35,000.00	\$18,000
	<b>Subtotal of Estimated Construction Cost</b>				<b>\$1,245,000</b>
	General Conditions, Mobilization, Demobilization, Bonding, etc	1	LSUM	4%	\$50,000
	Contractor Overhead and Profit	1	LSUM	15%	\$187,000
	Contingency	1	LSUM	35%	\$436,000
	<b>Estimated Construction Cost</b>				<b>\$1,918,000</b>
	Engineering & Permitting			10%	\$192,000
	Inspection Services			5%	\$96,000
	Contract Project Administration (5% of Total Project Cost)			5%	\$136,000
	Engineering Services During Bidding & Construction			8%	\$154,000
	<b>Total Technical and Engineering Fees</b>				<b>\$578,000</b>
	Capacity Availability Impact Fee	287	Per Lot	\$ 1,105.00	\$318,000
	Meter Installation Fee	147	Per Lot	\$ 200.00	\$30,000
	Initial Connection Fee	147	Per Lot	\$ 70.00	\$11,000
	<b>Total Miscellaneous Fees</b>				<b>\$359,000</b>
	<b>Total Project Cost for DIP Water Main</b>				<b>\$2,855,000</b>

## **APPENDIX E. DETAILED CLEAN WATER COST ESTIMATES**

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# ENGINEER'S OPINION OF CONSTRUCTION COST

PROJECT: American Beach SRF Facilities Plan- Sewer Collection - PVC - Option

DATE:

08/31/20

LOCATION: Amelia Island, Florida

PROJECT NO.

GUA 2071; Task A.5

BASIS FOR ESTIMATE: ☒ CONCEPTUAL ☐ PRELIMINARY ☐ FINAL

WORK: Work includes open-cut installation of 8-inch PVC sewer and related work in the center of existing roadway

All roadway restoration (for Water and Wastewater Projects) is included in the WW cost estimate

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
	American Beach - PVC Gravity Sewer				
1	Asphalt Milling (Entire pavement at conclusion of project)	22,864	SY	\$ 8.33	\$191,000
2	Erosion Control	3,634	LF	\$ 2.00	\$8,000
3	8" PVC-SDR 18 (4' to 6' Deep)	3,458	LF	\$ 66.87	\$232,000
4	8" PVC-SDR 18 (6' to 8' Deep)	7,350	LF	\$ 79.68	\$586,000
5	8" PVC-SDR 18 (8' to 10' Deep)	1,088	LF	\$ 92.43	\$101,000
6	4" PVC FM	1,186	LF	\$ 30.71	\$37,000
7	MH, Type D (4' Deep)	19	EA	\$ 5,500.00	\$105,000
8	MH, Type A (4' to 6' Deep)	6	EA	\$ 6,000.00	\$36,000
9	MH, Type A (6' to 8' Deep)	10	EA	\$ 7,500.00	\$75,000
10	MH, Type A (6' to 8' Deep) Line w/Spectra Shield	2	EA	\$ 5,520.00	\$12,000
11	Existing MH Rehab with Liner	1	EA	\$ 3,380.00	\$4,000
12	Service Laterals	287	EA	\$ 1,100.00	\$316,000
13	Duplex Lift Station	2	EA	\$ 150,000.00	\$300,000
15	6-Inch Aggregate Base (Sewer)	5,942	SY	\$ 16.48	\$98,000
16	3-Inch Asphalt Concrete Base	5,942	SY	\$ 27.92	\$166,000
17	1.5" Asphalt Concrete Surface Course	953	CY	\$ 83.08	\$80,000
18	6" Bank Run Gravel Surface - (Non-Paved Roads)	2,423	SY	\$ 6.40	\$16,000
19	Topsoil - 4"	1,100	BCY	\$ 28.35	\$32,000
20	Seeding and Mulching	287	MSF	\$ 51.67	\$15,000
21	Maintaining Traffic (1/2 paid by W, 1/2 paid by WW)	0.5	LSUM	\$ 35,000.00	\$18,000
22	Dewatering	15,066	LF	\$ 5.25	\$80,000
23	Gopher Tortoise Relocation (1/2 paid by W, 1/2 paid by WW)	0.5	EA	\$ 10,340.00	\$6,000
	<b>Subtotal of Estimated Construction Cost</b>				<b>\$2,514,000</b>
	General Conditions, Mobilization, Demobilization, Bonding, etc	1	LSUM	4%	\$101,000
	Contractor Overhead and Profit	1	LSUM	15%	\$378,000
	Contingency	1	LSUM	35%	\$880,000
	<b>Estimated Construction Cost</b>				<b>\$3,873,000</b>
	Engineering & Permitting			10%	\$388,000
	Inspection Services			5%	\$194,000
	Contract Project Administration (5% of Total Project Cost)			5%	\$261,000
	Engineering Services During Bidding & Construction			8%	\$310,000
	<b>Total Technical and Engineering Fees</b>				<b>\$1,153,000</b>
	Capacity Availability Impact Fee	287	Per Lot	\$ 1,548.00	\$445,000
	Meter Installation Fee	0	Per Lot	\$ -	\$0
	Service Installation Fee	0	Per Lot	\$ -	\$0
	<b>Total Miscellaneous Fees</b>				<b>\$445,000</b>
	<b>Total Project Cost for PVC Gravity Sewer Main</b>				<b>\$5,471,000</b>



# ENGINEER'S OPINION OF CONSTRUCTION COST

PROJECT: American Beach SRF Facilities Plan- Vacuum Sewer Alternative

DATE:

09/06/20

LOCATION: Amelia Island, Florida

PROJECT NO.

GUA 2071; Task A.5

BASIS FOR ESTIMATE: ☒ CONCEPTUAL ☐ PRELIMINARY ☐ FINAL

WORK: Work includes installation of a vacuum collection sewer system and related work along the proposed ROW

All roadway restoration (for Water and Wastewater Projects) is included in the WW cost estimate

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
	American Beach - Vacuum Sewer				
1	Asphalt Milling (Entire pavement at conclusion of project)	22,864	SY	\$ 8.33	\$191,000
2	Erosion Control	3,634	LF	\$ 2.00	\$8,000
3	8" Vacuum Main Furnish & Install	900	LF	\$ 66.87	\$61,000
4	6" Vacuum Main Furnish & Install	3,000	LF	\$ 55.00	\$165,000
5	4" Vacuum Main Furnish & Install	9,100	LF	\$ 47.00	\$428,000
6	3" Service Lateral Furnish & Install	2,583	LF	\$ 45.00	\$117,000
7	8" Isolation Valve Furnish & Install	1	EA	\$ 1,800.00	\$2,000
8	6" Isolation Valve Furnish & Install	4	EA	\$ 1,500.00	\$6,000
9	4" Isolation Valve Furnish & Install	13	EA	\$ 1,200.00	\$16,000
10	8" PVC Force Main (Vac Pump Station to Existing Lift Station)	3,430	FT	\$ 32.31	\$111,000
11	AirVac Valve Pit Complete w/2pc. Valve Pit and Air Terminals	127	EA	\$ 5,620.00	\$714,000
12	Single Buffer Tank Furnish & Install Complete w/Internal Parts Kit	2	EA	\$ 7,540.00	\$16,000
13	Vac STA - Site Work	1	LSUM	\$ 30,000.00	\$30,000
14	Vac STA - Lower Level ( Full Basement)	1	LSUM	\$ 100,000.00	\$100,000
15	Vac STA - Prefab Building	1	LSUM	\$ 130,000.00	\$130,000
16	AirVac PacVac 2-277M-7.5 - Ver 2	1	EA	\$ 195,000.00	\$195,000
17	Vac STA - Mechanical & Electrical Furnish & Install	1	LSUM	\$ 30,000.00	\$30,000
18	Generator	1	EA	\$ 60,000.00	\$60,000
19	Vac STA - Odor Control	1	LSUM	\$ 20,000.00	\$20,000
20	6-Inch Aggregate Base	5,942	SY	\$ 16.48	\$98,000
21	3-Inch Asphalt Concrete Base	5,942	SY	\$ 27.92	\$166,000
22	1.5" Asphalt Concrete Surface Course	953	CY	\$ 83.08	\$80,000
23	6" Bank Run Gravel Surface - (Non-Paved Roads)	2,423	SY	\$ 6.40	\$16,000
24	Topsoil - 4"	1,100	BCY	\$ 28.35	\$32,000
25	Seeding and Mulching	287	MSF	\$ 51.67	\$15,000
26	Maintaining Traffic (1/2 paid by W, 1/2 paid by WW)	0.5	LSUM	\$ 35,000.00	\$18,000
27	Land Acquisition	1	LSUM	\$ 250,000.00	\$250,000
28	Dewatering	15,066	LF	\$ 5.25	\$80,000
29	Gopher Tortoise Relocation (1/2 paid by W, 1/2 paid by WW)	0.5	EA	\$ 10,340.00	\$6,000
	<b>Subtotal Construction Cost</b>				<b>\$3,161,000</b>
	General Conditions, Mobilization, Demobilization, Bonding, etc	1	LSUM	4%	\$127,000
	Contractor Overhead and Profit	1	LSUM	15%	\$475,000
	Contingency	1	LSUM	35%	\$1,107,000
	<b>Estimated Construction Cost</b>				<b>\$4,870,000</b>
	Engineering & Permitting			10%	\$487,000
	Inspection Services			5%	\$244,000
	Contract Project Administration (5% of Total Project Cost)			5%	\$323,000
	Engineering Services During Bidding & Construction			8%	\$390,000
	<b>Total Service Fees</b>				<b>\$1,444,000</b>
	Capacity Availability Impact Fee	287	Per Lot	\$ 1,548.00	\$445,000
	Meter Installation Fee	0	Per Lot	\$ -	\$0
	Service Installation Fee	0	Per Lot	\$ -	\$0
	<b>Total Miscellaneous Fees</b>				<b>\$445,000</b>
	<b>Total Project Cost for Vacuum Sewer System</b>				<b>\$6,759,000</b>





# ENGINEER'S OPINION OF CONSTRUCTION COST

PROJECT: American Beach SRF Facilities Plan - Low Pressure Alternative

DATE:

09/07/20

LOCATION: Amelia Island, Florida

PROJECT NO.

GUA 2071; Task A.5

BASIS FOR ESTIMATE: ☒ CONCEPTUAL ☐ PRELIMINARY ☐ FINAL

WORK: Work includes installation of a Low Pressure sewer system and related work along the proposed ROW

All roadway restoration (for Water and Wastewater Projects) is included in the VVW cost estimate

Low pressure piping is assumed to be installed via HDD w/ bore pits located off pavement.

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
	American Beach - Low Pressure Sewer System				
1	Pavement Removal	0	SY	\$ 8.33	\$0
2	Erosion Control	3,634	LF	\$ 2.00	\$8,000
3	WH101-74 (Simplex Grinder Pump Station)	287	EA	\$ 8,500.00	\$2,440,000
4	2" HDPE	5,587	LF	\$ 30.00	\$168,000
5	3" HDPE	6,800	LF	\$ 38.00	\$259,000
6	4" HDPE	1,179	LF	\$ 45.00	\$54,000
7	6" HDPE	2,422	LF	\$ 53.00	\$129,000
8	Terminal Flushing Connection	16	EA	\$ 3,000.00	\$48,000
9	Inline Flushing Connection	8	EA	\$ 3,000.00	\$24,000
10	2" Isolation Valves	10	EA	\$ 1,000.00	\$10,000
11	3" Isolation Valves	5	EA	\$ 1,100.00	\$6,000
12	4" Isolation Valves	2	EA	\$ 1,200.00	\$3,000
13	6-Inch Aggregate Base	0	SY	\$ 16.48	\$0
14	3-Inch Asphalt Concrete Base	0	SY	\$ 27.92	\$0
15	1.5" Asphalt Concrete Surface Course	0	CY	\$ 83.08	\$0
16	6" Bank Run Gravel Surface - (Non-Paved Roads)	0	SY	\$ 6.40	\$0
17	Topsoil - 4"	1,100	BCY	\$ 28.35	\$32,000
18	Seeding and Mulching	287	MSF	\$ 51.67	\$15,000
19	Maintaining Traffic (1/2 paid by W, 1/2 paid by VVW)	0.5	LSUM	\$ 35,000.00	\$18,000
20	Dewatering	15,066	LF	\$ 5.25	\$80,000
	Gopher Tortoise Relocation (1/2 paid by W, 1/2 paid by VVW)	0.5	EA	\$ 10,340.00	\$6,000
	<b>Subtotal Construction Cost</b>				<b>\$3,300,000</b>
	General Conditions, Mobilization, Demobilization, Bonding, etc	1	LSUM	4%	\$132,000
	Contractor Overhead and Profit	1	LSUM	15%	\$495,000
	Contingency	1	LSUM	35%	\$1,155,000
	<b>Estimated Construction Cost</b>				<b>\$5,082,000</b>
	Engineering & Permitting			10%	\$509,000
	Inspection Services			5%	\$255,000
	Contract Project Administration (5% of Total Project Cost)			5%	\$335,000
	Engineering Services During Bidding & Construction			8%	\$407,000
	<b>Total Technical and Engineering Fees</b>				<b>\$1,506,000</b>
	Capacity Availability Impact Fee	287	Per Lot	\$ 1,548.00	\$445,000
	Meter Installation Fee	0	Per Lot	\$ -	\$0
	Service Installation Fee	0	Per Lot	\$ -	\$0
	<b>Total Miscellaneous Fees</b>				<b>\$445,000</b>
	<b>Total Project Cost for Low Pressure Sewer Alternative</b>				<b>\$7,033,000</b>