EW Consultants, Inc.
Natural Resource Management, Wetland, and Environmental Permitting Services

BRIDGEVIEW

ATLANTIC RESIDENTIAL

ENVIRONMENTAL ASSESSMENT REPORT

Prepared by:

EW CONSULTANTS, INC.

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March 2020 (revised)

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INTRODUCTION –

This report provides an Environmental Assessment of a 15.9+/- acre parcel currently located in unincorporated Martin County, Florida. The property is located in the Hanson Grant, Township 38S, Range 41E. The property is bounded on the west by a mangrove forest associated with the South Fork of the St. Lucie River, on the north by the Riverland mobile home park, on the east by S.R. 76, and on the south by the Veterans Memorial Bridge. The Location Map provided as Figure 1 displays the site location in relation to the surrounding area. Additionally, a 2019 aerial photograph of the site is included as part of this report as Figure 2.

This report includes an inventory of the soil types and vegetative communities present, as well as an analysis of the presence and potential presence of listed species within the parcel. This environmental assessment is based on field reconnaissance on the subject property performed in June 2015, and July 2019.

GENERAL PROPERTY DESCRIPTION –

Based on a recent site assessment (July 2019), along with several previous site investigations, conducted by staff from EW Consultants, Inc., the dominant land cover of the subject property are undeveloped lands comprised of both upland and wetland habitats. As a result of previously permitted activities, a bridge construction (Veterans' Memorial Bridge) has been completed. Several areas have been disturbed by the activities associated with the construction of the bridge. These areas are returning to their pre-development conditions with minimal invasive exotic vegetation encroaching. Similarly, areas adjacent to the newly constructed roadway, and the existing roadway shoulders are regularly mowed. The remainder of the parcel remain in conditions similar to those existing and observed over the course of the past eleven years.

The site generally consists of upland pine, oak, and scrubby flatwoods, a mix of sand pine scrub habitat, a bay swamp and ditch wetland system, and a portion of disturbed lands present on-site. Detailed discussions of land cover types are described in subsequent sections of this report.

SOILS –

A Soils Report produced by the United States Department of Agriculture/Natural Resources Conservation Service is provided in the Appendix of this report. According to the NRCS Soil Survey, three different soil types are found on the subject property. A description of the soils are as follows:

#35 Salerno Sand - This soil is a nearly level, poorly drained soil in broad areas of flatwoods. The water table is typically at a depth of less than 10 inches for 2 to 4 months during wet seasons, and at a depth of greater than 40 inches during the dry season

 # 50 Wulfert and Durbin Mucks, Tidal - This soil is a very deep, very poorly drained, and rapidly permeable soil in tidal areas along the Coast. The soils were formed with well decomposed organic

material and underlying materials. Slopes range from 0 to 1 percent and are flooded during normal daily high tides.

#61 Hobe fine sand, 0 to 5 percent slopes - This nearly level to gently sloping soil is somewhat excessively drained. It is typically located on knolls and ridges in coastal areas of flatwoods. Often the surface layer is a grey fine sand. The water table is generally at a depth of 50 to 60 inches for brief periods, but is generally at a depth of 60 to 80 inches during the wet season, and below 80 inches the remainder of the year.

EXISTING LAND COVER TYPES –

Figure 3 provides an aerial view and nomenclature for the various types of land covers/FLUCCS codes which currently exist on-site. These vegetation types and coverage areas have been verified and checked over the course of the past seven years with the most recent verification conducted in July of 2019. The limits of these land cover types are general in nature; no surveying implements were used during the site investigation. This figure does not reflect a current wetland jurisdictional verification by any regulatory agency.

The land cover types found on the project include:

Wetland Communities –

#611 Bay Swamp – 5.4 acres
The site contains one wetland consisting of bay/maple swamp transitioning to a mangrove forest (off-site) to the west. The landward extent of the wetland area was verified by the South Florida Water Management District in 2008. The southern and western portions of the parcel contain a wetland system dominated by freshwater hardwood species such as red bay, loblolly bay and red maple. These areas remain in fair to good ecological condition, with some infestation of nuisance exotic plants such as *Lygodium* vine and Brazilian pepper.

The observed vegetation in these swamps predominantly includes the following species of note, as well as others that may not be specifically noted:

Loblolly bay	*Gordonia lasianthus*
Red bay	*Persea borbonia*
Dahoon holly	*Ilex cassine*
Red maple	*Acer rubrum*
Wax myrtle	*Myrica cerifera*
Gallberry	*Ilex glabra*
Saw palmetto	*Serenoa repens*
Smilax	*Smilax* spp.
Grapevine	*Vitis* spp.
Swamp fern	*Blechnum* spp.
Cinnamon fern	*Osmunda cinnamomea*
Strawberry guava	*Psidium cattleianum*
Red root	*Lachnanthes caroliniana*

Cabbage palm	*Sabal palmetto*
Leather fern	*Acrostichum* spp.
Brazilian pepper	*Schinus terebinthifolius*

Other Surface Waters (OSW) –

#510 Ditch – 0.1 acres
The project site contains a channelized ditch which is connected to the bay swamp described above. This ditch is located in the east-central portion of the site north of Veterans' Memorial Bridge. It connects to properties off-site to the east via a culvert below Kanner Highway. The ditch is overgrown with a dominance of exotic species such as Brazilian pepper and Old-world climbing fern.

Native Upland Communities –

There are five native upland community types found within the project area. Generally, the high point of the property is located adjacent to Kanner Highway, with the terrain gently sloping to the South Fork of the St. Lucie to the west.

A description of the upland habitat types follows and carry the following FLUCCS classifications:

#411 Pine Flatwoods – 5.0 acres
The flatwoods are located north and south of the central bay swamp feature. These areas contain a canopy of slash pines and bays with a dense understory of saw palmetto, gallberry and fetterbush up to eight feet in height. The ground cover is generally scarce due to the dense understory. This is likely the result of the long-term exclusion of fire from the site that allowed a dense saw palmetto understory to develop, thereby greatly reducing the ground cover density and diversity by preventing sunlight from reaching the forest floor. Some exotic vegetation is present in this area of flatwoods including Brazilian pepper, Old-world climbing fern, downy rose myrtle, earleaf acacia, and strawberry guava. The areas of pine flatwoods abutting the bay swamp contain more red bay and loblolly bay trees.

The observed vegetation in the flatwoods predominantly include the following species:

Slash pine	*Pinus elliottii*
Saw palmetto	*Serenoa repens*
Loblolly bay	*Gordonia lasianthus*
Red bay	*Persea borbonia*
Dahoon holly	*Ilex cassine*
Climbing fern	*Lygodium* spp.
Gallberry	*Ilex glabra*
Fetterbush	*Lyonia lucida*
Rusty lyonia	*Lyonia ferruginea.*
Smilax	*Smilax* spp.
Grapevine	*Vitis* spp.
Swamp fern	*Blechnum serrulatum*

Brazilian pepper	*Schinus terebinthifolius*
Wax myrtle	*Myrica cerifera*
Strawberry guava	*Psidium cattleianum*
Red root	*Lachnanthes caroliniana*
Coinvine	*Dalbergia ecastaphyllum*
Earleaf acacia	*Acacia auriculiformis*

#412 Scrubby flatwoods – 0.6 acres
This habitat occurs in the central portion of the site, adjacent to Kanner Highway and in the southern portion of the site adjacent to the bay swamp. These areas are characterized by a canopy of slash pines and scrub oak trees with a dense understory of scrub oaks, saw palmetto, and fetterbush up to eight feet in height.

The following vegetation types exist and were observed within this habitat:

Slash pine	*Pinus elliottii*
Saw palmetto	*Serenoa repens*
Sand live oak	*Quercus virginiana var. geminata*
Chapman oak	*Quercus chapmanii*
Reindeer moss	*Cladina evansii*
Rosemary	*Ceratiola ericoides*
Prickly pear	*Opuntia humifusa*
Gopher apple	*Licania michauxii*
Wire grass	*Aristida* spp.
Blazing star	*Liatrus chapmanii*
Deer tongue	*Carphephorus paniculatis*
Gallberry	*Ilex glabra*
Fetterbush	*Lyonia lucida*
Rusty lyonia	*Lyonia* spp.
Love vine	*Cassytha filiformis*
Grapevine	*Vitus* spp.

#413 Sand Pine Scrub – 0.2 acres
There is one area of sand pine scrub located north of the central bay swamp. The canopy in the sand pine/scrub consists of sand pines of various ages with scattered slash pines, as well. The scrub oaks present are above ten feet in height and form a sub-canopy along the eastern edge of the habitat. The dense canopy, combined with a coverage of mature grapevine, is shading out many of the normally occurring ground covers and wild flowers.

The observed vegetation in the sand pine scrub predominantly included the following species:

Sand pine	*Pinus clausa*
Saw palmetto	*Serenoa repens*
Sand live oak	*Quercus virginiana var. geminate*
Chapman oak	*Quercus chapmanii*
Reindeer moss	*Cladonia evansii*

Rosemary	*Ceratiola ericoides*
Prickly pear	*Opuntia humifusa*
Gopher apple	*Licania michauxii*
Wire grass	*Aristida* spp.
Blazing star	*Liatrus chapmanii*
Deer tongue	*Carphephorus paniculatis*
Gallberry	*Ilex glabra*
Fetterbush	*Lyonia lucida*
Rusty lyonia	*Lyonia* spp.
Love vine	*Cassytha filiformis*
Grapevine	*Vitus* spp.

#413/421 Sand Pine/Xeric Oak – 3.1 acres
There is one area of mixed sand pine and xeric oak located in the northeastern portion of the property. This area mainly consists of young scrub oak with an understory of palmetto and sparse sand pine. Sand pines found in this habitat type are generally immature saplings as many of the mature trees fell as a result of the 2004 and 2005 hurricanes. The scrub oak cover is sparse within this habitat type and as a result, there is a greater density and diversity of forbs and other ground cover vegetation typically found in a burned or managed scrub habitat.

The observed vegetation within the sand pine/xeric oak upland community predominantly included the following species of note as well as others that may not be specifically noted:

Sand pine	*Pinus clausa*
Saw palmetto	*Serenoa repens*
Chapman oak	*Quercus chapmanii*
Reindeer moss	*Cladina evansii*
Wire grass	*Aristida* spp.
Blazing star	*Liatris chapmanii*
Deer tongue	*Carphephorus paniculatis*
Tar flower	*Befaria racemosa*
Gallberry	*Ilex glabra*
Fetterbush	*Lyonia lucida*
Rusty lyonia	*Lyonia ferruginea*
Love vine	*Cassytha filiformis*
Grapevine	*Vitis* spp.

Non-Native Upland Communities –

#740 Disturbed Lands – 0.7 acres
There are several distinct areas of disturbed uplands on-site. These areas are associated with billboards along Kanner Highway, a strip of land used as a drainage swale along the property's north boundary adjacent to the Riverland development, previously cleared areas along Kanner Highway, and areas to the north of the Veterans' Memorial Bridge. Bahia grass and other stabilizing grasses dominate these areas, as well as grapevine, bamboo and Brazilian pepper.

These areas are subject to encroachment of invasive exotic species without proper maintenance activities.

#814 Roadway – 0.8 acres
There is a strip of land on-site north of and adjacent to the Veterans' Memorial Bridge which was utilized for the construction of the section of the bridge east of the St. Lucie River to Indian Street. This area is 0.8 acres and has been cleared and filled as part of the bridge construction. The Florida Department of Transportation is in the process of restoring this area to native habitats in accordance with the state permits issued for the bridge construction.

PRELIMINARY LISTED SPECIES SURVEY -

During the course of several site visits from 2006 to 2015, and again in July of 2019, observations were made for the potential presence of listed species of animals and plants on the site. With the diversity and condition of the habitat on the subject site, there is a potential for the presence of several listed species.

Upland Species -
A preliminary gopher tortoise survey was conducted on-site on January 23, 2008, which covered approximately 20% of the upland habitat in accordance with Florida Fish and Wildlife Conservation Commission protocol for tortoise population projection. No active or inactive burrows or signs (scat, tracks) of tortoises, which is a state Threatened species, were observed during this survey.

In February 2011, a second preliminary gopher tortoise survey was conducted and covered approximately 25% of the upland habitat on-site. No potentially occupied gopher tortoise burrows or evidence of tortoises (scat, tracks) were observed during this survey.

In June 2015, a gopher tortoise verification survey was performed to identify potential use of the property by listed species. Observations were made for listed species, and again, no listed species (or signs of listed species) were observed.

During the July 2019 site visit, which again covered approximately 20% of on-site gopher tortoise habitat, no evidence of tortoises (burrows, scat, tracks) were observed. However, it is likely that a survey covering more of the upland area may yield tortoise activity based on the habitat types on-site. It is recommended that a full survey in accordance with Florida Fish and Wildlife Conservation Commission protocol for tortoise population projection be conducted prior to land alteration.

There are several other species that may be associated with the upland habitats found on the site which are dependent on gopher tortoise burrows, including the gopher frog (Species of Special Concern) and the Eastern indigo snake (Threatened). These are commensal species commonly associated with gopher tortoise burrows. There were no individuals of these species observed during the field surveys.

Other listed faunal species associated with the upland habitat types on-site include the bald eagle (no longer listed but protected under the Bald and Golden Eagle Protection Act), and the Florida Scrub Jay (Threatened). There were no bald eagle nests or individuals observed on-site. An active nest has been identified on Martin County Kiplinger conservation parcel to the south. This nest is located approximately 3,000 feet from the southern boundary of the project site. The current U.S. Fish & Wildlife Service guidance suggests a protective zone of 660 feet for an active nest. Therefore, the project site is outside of this protective zone.

Based on the upland habitats present, a formal scrub jay survey per U.S. Fish & Wildlife guidelines was conducted on-site in March of 2011. No scrub jays or scrub jay activity was observed during this survey. The June 2019 observation was conducted outside of the U.S. Fish & Wildlife guidelines timeframe, therefore a formal scrub jay survey was not conducted. Observations were made to confirm the presence of scrub jays and note suitable habitat for their presence. There were no scrub jays observed on site during the July 2019 site visit, however suitable habitat was noted. It is recommended that a formal scrub jay survey be conducted during the U.S. Fish & Wildlife guidelines timeframes.

The assessments also included a review for upland listed species of plants. No upland species of listed plants were observed during the assessments. Based on habitat types present, air plants (*Tillandsia spp*) could potentially occur, however none were observed during surveys. Additionally, one upland species listed by the State as commercially exploited was observed – saw palmetto.

Wetland Species -
There are several listed animal species that are dependent on the types of wetland habitat present on-site and adjacent to the site. Field reconnaissance on the site included observations of white ibis (SSC) and little blue heron (SSC). It is possible that the bay swamp and associated mangrove swamp to the west (off-site) serve as foraging areas for other listed wading birds such as the snowy egret (SSC), tri-colored heron (SSC), roseate spoonbill (SSC), wood stork (Endangered), reddish egret (SSC), and brown pelican (SSC). There were no nesting pairs of the above species observed within the wetland areas on-site.

The assessments also included a review for wetland listed species of plants. One State threatened species was observed – golden leather fern (*Acrostichum aurem*); and one State commercially exploited species was observed – cinnamon fern (*Osmunda cinnamomea*).

PREVIOUS IMPACTS –

The project site shows very few signs of previous impacts other than those described under the FLUCCS code 740 and 814 categories. There are no established off-road trails, and trespassing appears to have been kept to a minimum over the years.

PROPOSED IMPACTS –

The portion of the existing ditch that falls within the development area will be replaced with a 36-inch culvert. The culvert will outfall into the remaining portion of the existing ditch west of the

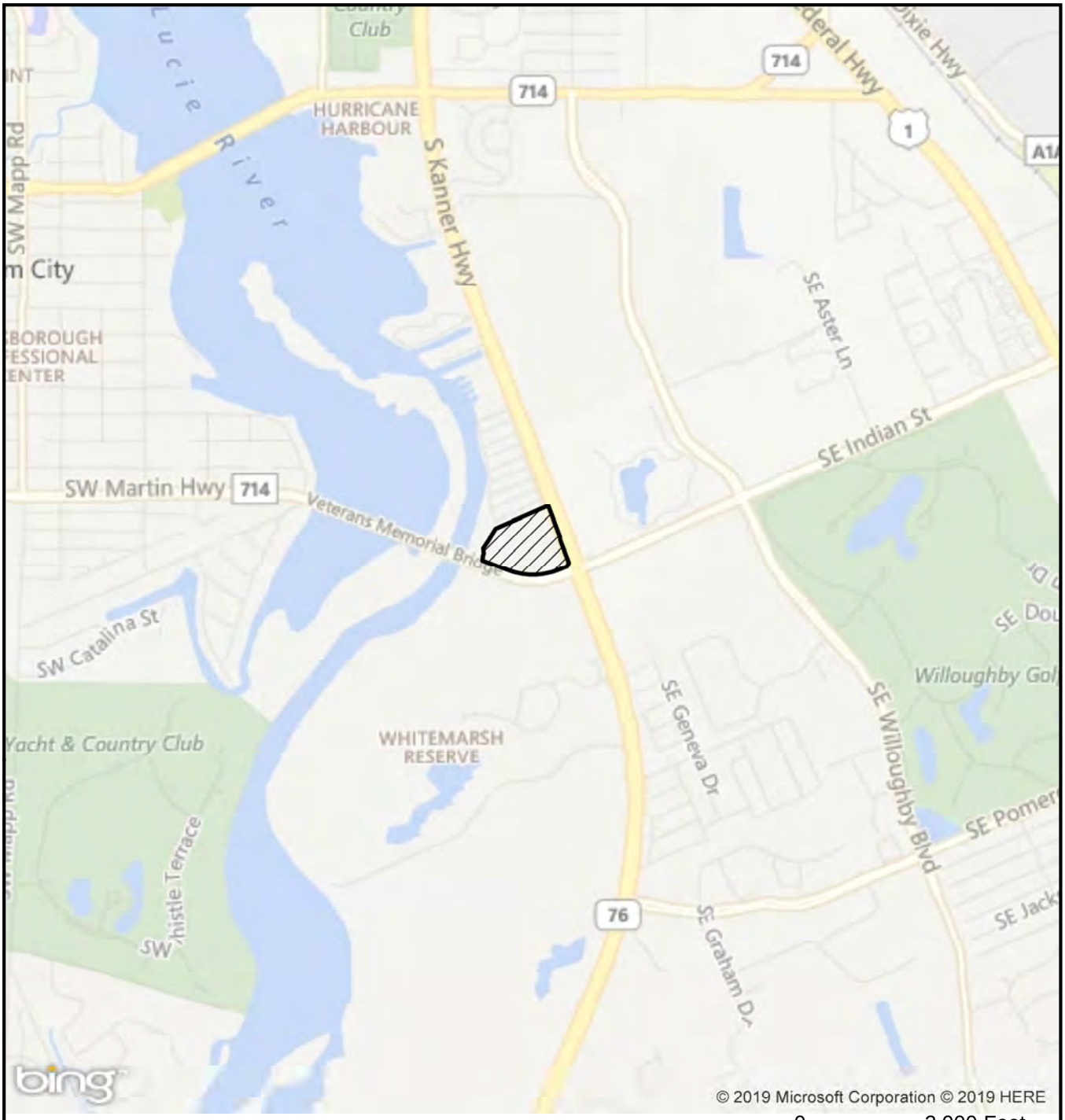
proposed parking area and just east of the upland buffer. Avoiding impacts to the ditch is not practical, as the ditch would run through the parking area. The culvert will allow for the conveyance of the water so there will be no change in hydrology to the wetland area. The ditch is currently overgrown with exotic species, which will be removed allowing for improved water flow and improved habitat quality.

The U.S. Fish and Wildlife Service (FWS) and Florida Fish and Wildlife Conservation Commission (FWC) will be consulted regarding potential for listed species on the site and recommended protection measures. Any correspondence will be provided to the City.

APPENDIX

Figure 1. Location Map
Figure 2. Quad Map
Figure 3. Aerial Map
Figure 4. FLUCFCS Map

Attachments:
Soils Report



0 2,000 Feet

LEGEND

▨ - SITE (15.9+/- AC)

N

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LOCATION MAP

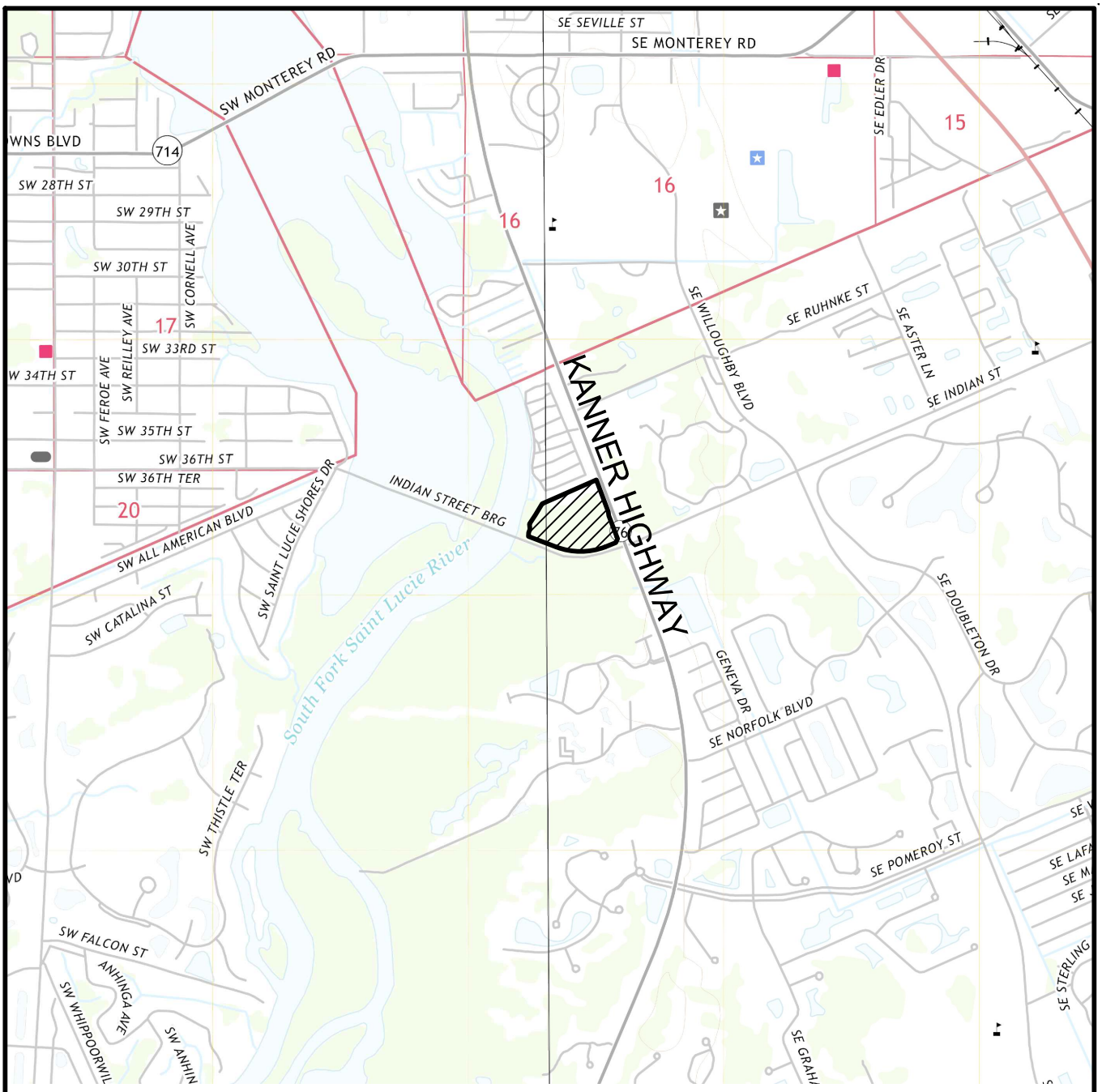
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FIGURE

1



USGS QUAD MAP "ST LUCIE INLET", HANSON GRANT, TOWNSHIP 38 SOUTH, RANGE 41 EAST, STUART, MARTIN COUNTY, FLORIDA, LATITUDE 27°09'32" LONGITUDE -80°14'57"

LEGEND

▨ - SITE (15.9± AC)

0 2000

SCALE IN FEET

BRIDGEVIEW/ATLANTIC RESIDENTIAL QUAD

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FIGURE

2

Bridgeview Site.dwg QUAD



MARTIN COUNTY AERIALS DATED 2019

0 400
SCALE IN FEET

BRIDGEVIEW/ATLANTIC RESIDENTIAL

AERIAL

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FIGURE
3

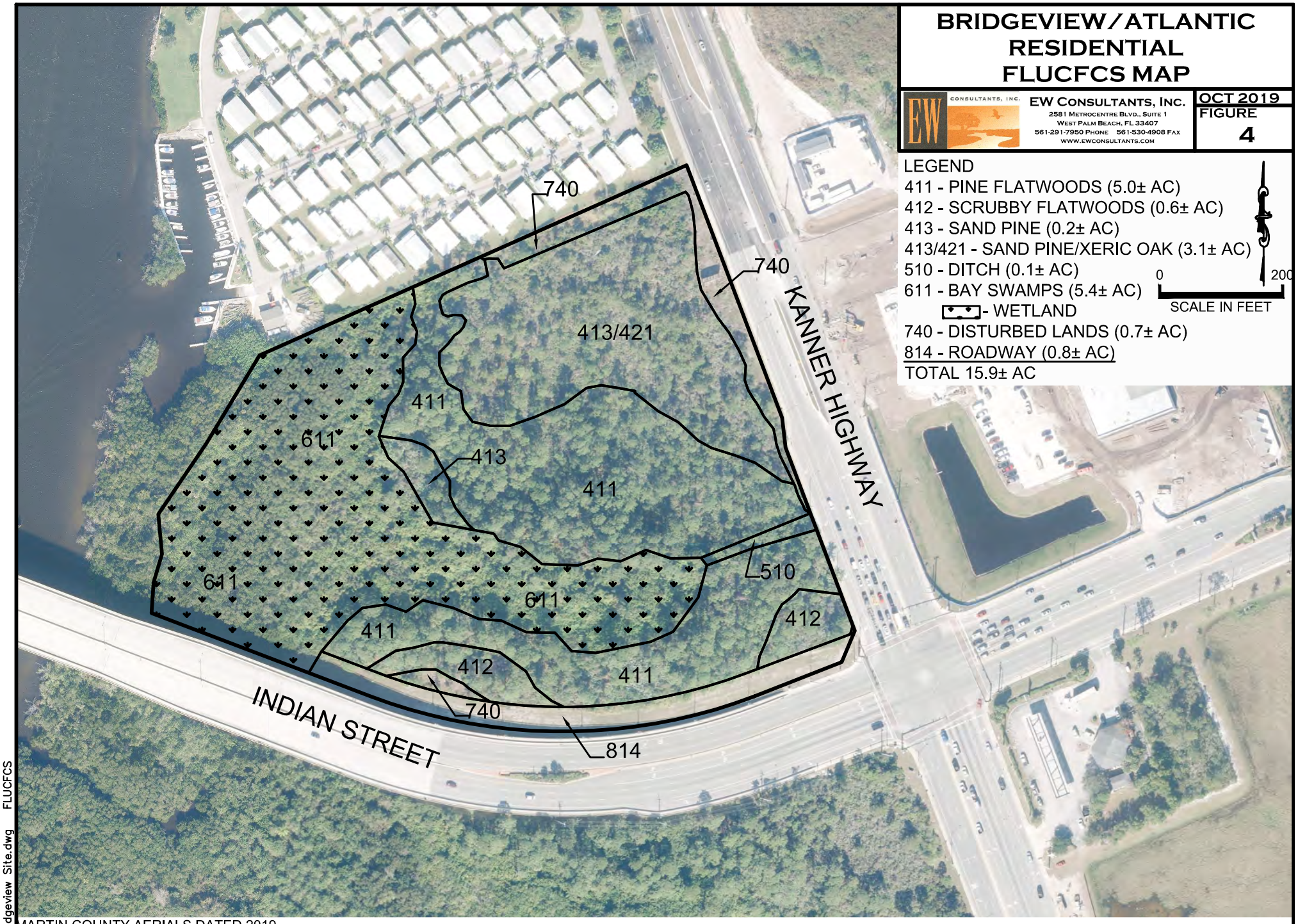
Bridgeview Site.dwg AERIAL

BRIDGEVIEW/ATLANTIC RESIDENTIAL FLUCFCS MAP

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FIGURE 4



LEGEND

411 - PINE FLATWOODS (5.0± AC)
412 - SCRUBBY FLATWOODS (0.6± AC)
413 - SAND PINE (0.2± AC)
413/421 - SAND PINE/XERIC OAK (3.1± AC)
510 - DITCH (0.1± AC)
611 - BAY SWAMPS (5.4± AC)
- WETLAND
740 - DISTURBED LANDS (0.7± AC)
814 - ROADWAY (0.8± AC)
TOTAL 15.9± AC

0 200
SCALE IN FEET

MARTIN COUNTY AERIALS DATED 2019

Bridgeview Site.dwg FLUCFCS

Soil Map—Martin County, Florida
(BRIDGEVIEW/ATLANTIC RESIDENTIAL)



Map Scale: 1:2,380 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Martin County, Florida
Survey Area Data: Version 17, Sep 17, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 14, 2015—May 8, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
23	Urban land, 0 to 2 percent slopes	0.0	0.0%
35	Salerno sand	6.7	42.1%
50	Wulfert and Durbin mucks, tidal	4.7	29.4%
61	Hobe fine sand, 0 to 5 percent slopes	4.5	28.4%
Totals for Area of Interest		**15.9**	**100.0%**