

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Salt Marsh

Tree Stratum (Plot size: 30' radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus virginiana</u>	<u>2</u>	Yes	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

2 = Total Cover

50% of total cover: 1 20% of total cover: 0.4

Sapling Stratum (Plot size: 30' radius)

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

0 = Total Cover

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30' radius)

1. <u>Baccharis halimifolia</u>	<u>4</u>	Yes	FACW
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

4 = Total Cover

50% of total cover: 2 20% of total cover: 0.8

Herb Stratum (Plot size: 30' radius)

1. <u>Borrchia frutescens</u>	<u>40</u>	Yes	OBL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____

40 = Total Cover

50% of total cover: 20 20% of total cover: 8

Woody Vine Stratum (Plot size: _____)

1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

0 = Total Cover

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

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OCT 23 2017

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Hydrophytic Vegetation Present?

Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Salt Marsh

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12+	10 YR 2/1	100					muck	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

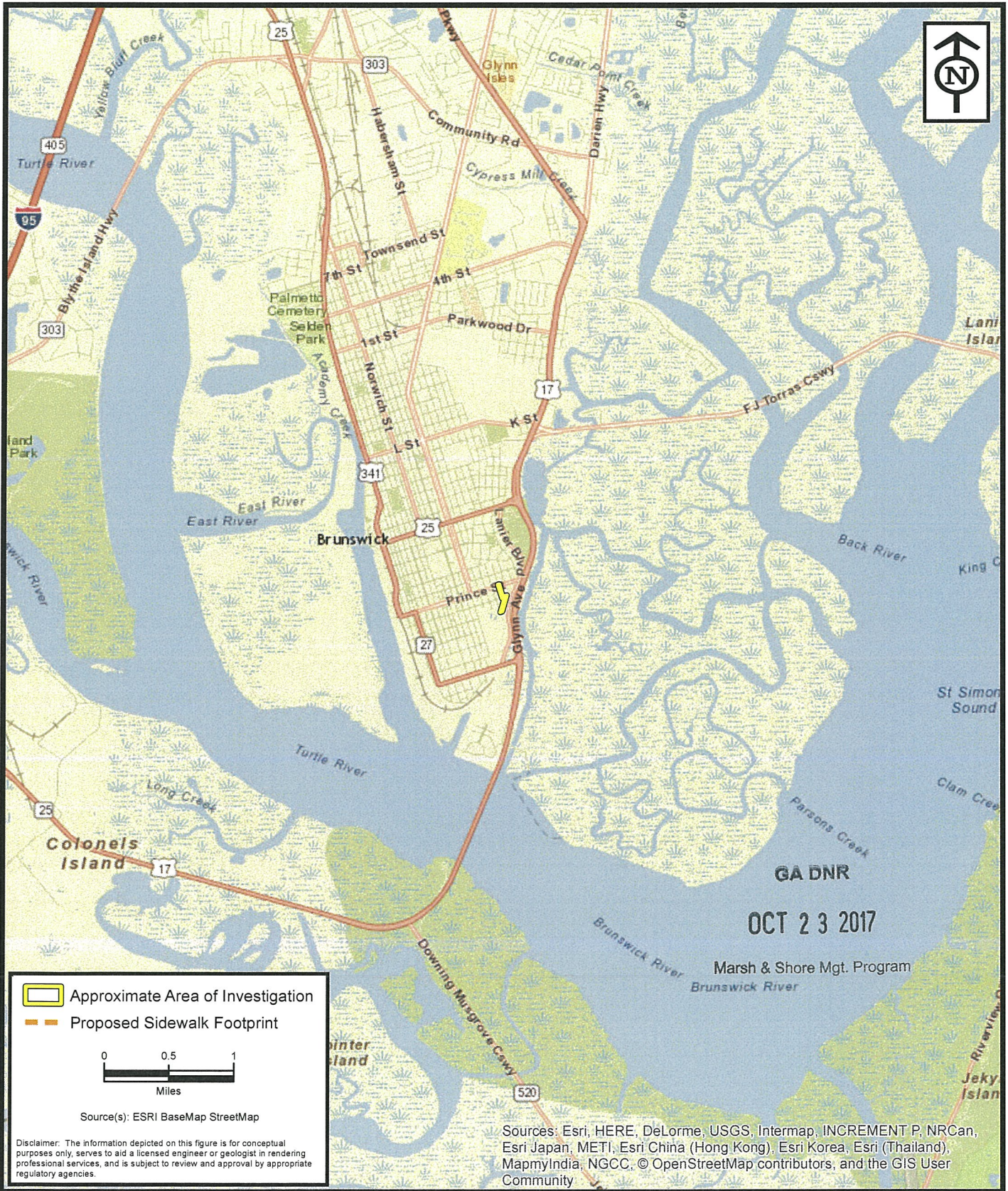
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input checked="" type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

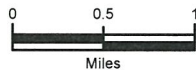
Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

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OCT 23 2017
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- Approximate Area of Investigation
- Proposed Sidewalk Footprint



Source(s): ESRI BaseMap StreetMap

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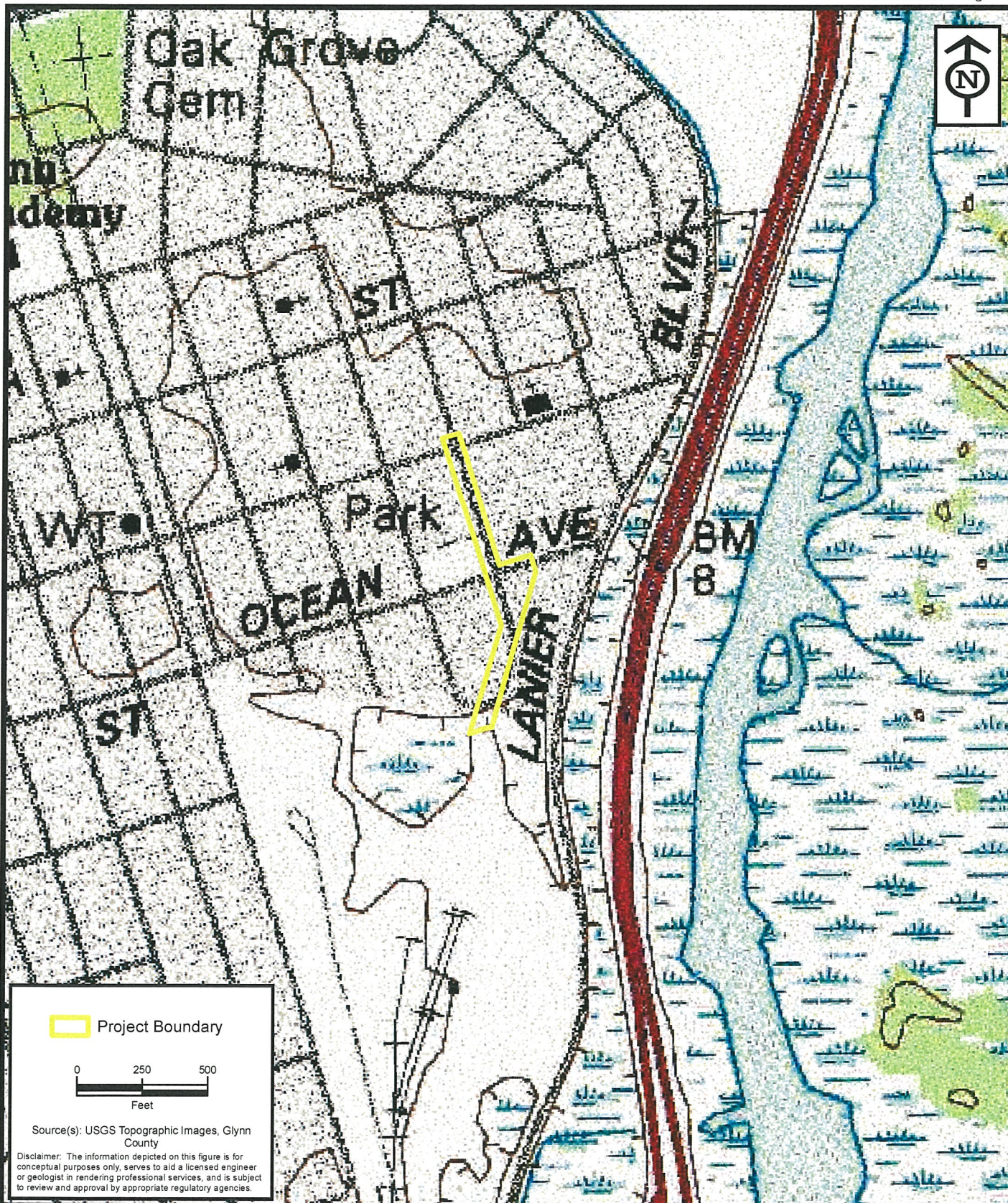
Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



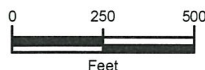
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Project Vicinity
City of Brunswick - Glynn Middle Sidewalk
 Glynn County, Georgia

Project:	ES16007.00
Date:	Jan. 2017
Drwn/Chkd:	KHS/MJD
Figure:	1



Project Boundary



Source(s): USGS Topographic Images, Glynn County

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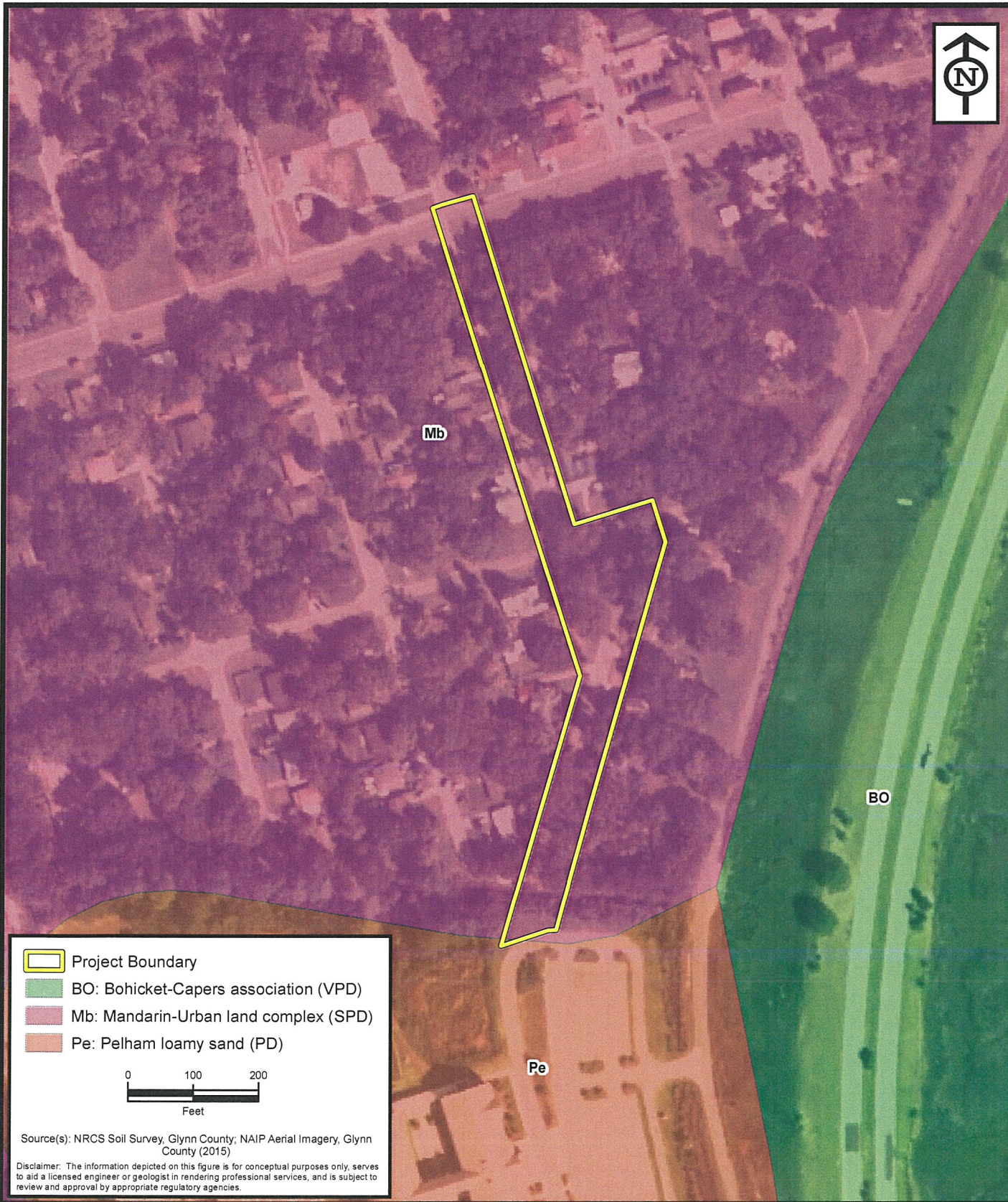
USGS Topographic Images
City of Brunswick - Glynn Middle Sidewalk
Glynn County, Georgia





Project: ES16007.00

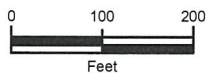
Date: July 2017

Drwn/Chkd: KHS/MJD

Figure: 2



-  Project Boundary
-  BO: Bohicket-Capers association (VPD)
-  Mb: Mandarin-Urban land complex (SPD)
-  Pe: Pelham loamy sand (PD)



Source(s): NRCS Soil Survey, Glynn County; NAIP Aerial Imagery, Glynn County (2015)

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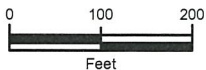
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NRCS Soil Survey
City of Brunswick - Glynn Middle Sidewalk
Glynn County, Georgia

Project:	ES16007.00
Date:	July 2017
Drwn/Chkd:	KHS/MJD
Figure:	3



-  Project Boundary
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland



Source(s): USFWS NWI Data, Georgia; NAIP Aerial Imagery, Glynn County (2015)

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National Wetland Inventory (NWI) Data
City of Brunswick - Glynn Middle Sidewalk
Glynn County, Georgia


Project: ES16007.00


Date: July 2017


Drwn/Chkd: KHS/MJD

Figure: 4



 Project Boundary

 AE (100 Year Flood Zone)

 VE (Coastal Flooding within Velocity Hazard/Wave Action)

0 200 400
Feet

Source(s): FEMA Q3 Flood Data, Glynn County (2009); NAIP Aerial Imagery, Glynn County (2015)

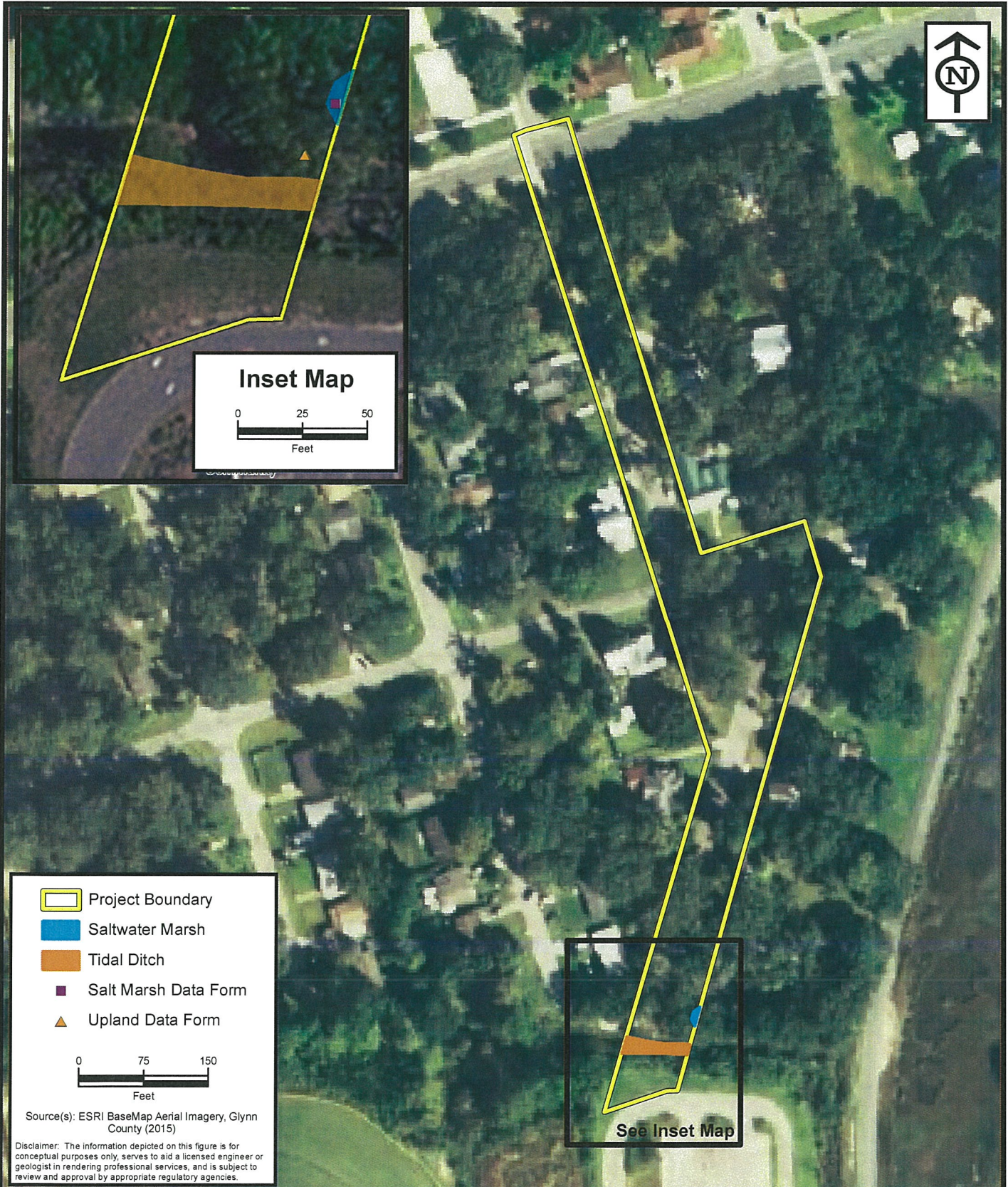
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FEMA Flood Zone Data
City of Brunswick - Glynn Middle Sidewalk
Glynn County, Georgia

Project:	ES16007.00
Date:	July 2017
Drwn/Chkd:	KHS/MJD
Figure:	5



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Approximate Wetland Sketch
City of Brunswick - Glynn Middle Sidewalk
 Glynn County, Georgia

Project:	ES16007.00
Date:	July 2017
Drwn/Chkd:	KHS/MJD
Figure:	6



GA DNR

OCT 23 2017

Marsh & Shore Mgt. Program

Photo 1: Tidal Ditch



Photo 2: Saltwater Marsh



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Photo Sheet 1

City of Brunswick - Glynn Middle Sidewalk

Chatham County, Georgia

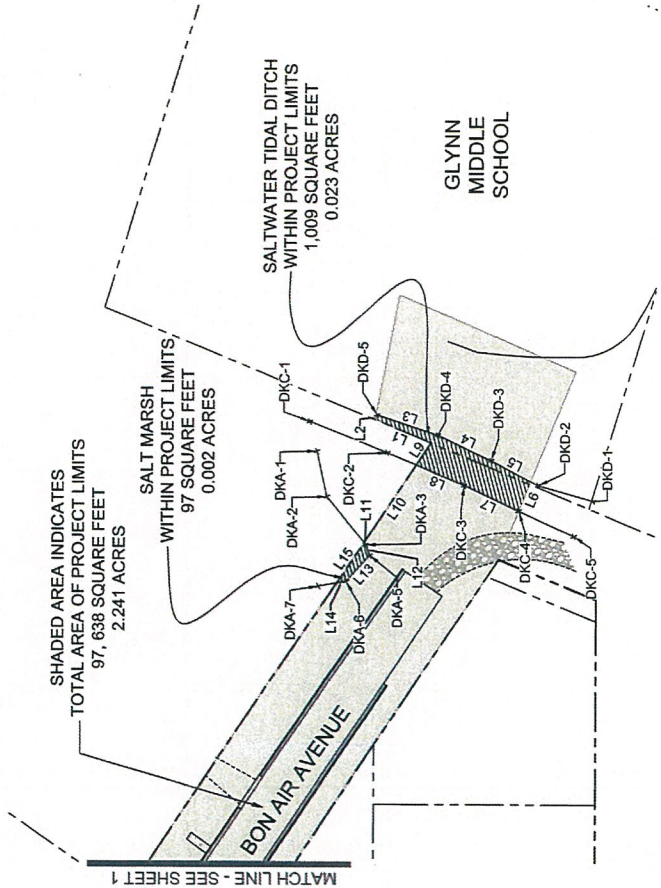
Project: ES16007.00

Date: July 2017

Drwn/Chkd: KHD/MJD

Figure: **PS-1**

LINE TABLE		
LINE#	DIRECTION	LENGTH
L1	S85° 08' 20"E	30.05
L2	S08° 40' 15"E	2.37
L3	N89° 31' 58"W	32.28
L4	N82° 46' 52"W	29.27
L5	N80° 37' 25"W	22.26
L6	N04° 34' 53"E	15.64
L7	S83° 13' 26"E	29.96
L8	S85° 08' 20"E	25.79
L9	S16° 06' 33"W	13.06
L10	N16° 06' 33"E	45.85
L11	N57° 31' 38"W	1.39
L12	N37° 44' 59"W	5.62
L13	N24° 22' 17"E	17.33
L14	N62° 00' 45"E	4.72
L15	S16° 06' 33"W	24.14



SURVEYOR'S CERTIFICATE
 TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS SURVEY WAS PREPARED
 IN CONFORMITY WITH THE TECHNICAL STANDARDS FOR TOPOGRAPHIC/SPECIAL
 SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-07-07 OF THE
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 ENGINEERS AND LAND SURVEYORS. THIS SURVEY DOES NOT CONSTITUTE A
 BOUNDARY SURVEY AND IS NOT TO BE RECORDED OR USED TO CONVEY
 PROPERTY.

CHRISTOPHER M. YOUNG, RLS
 GEORGIA L.S. REG. NO. 3356

DATE 07/26/17



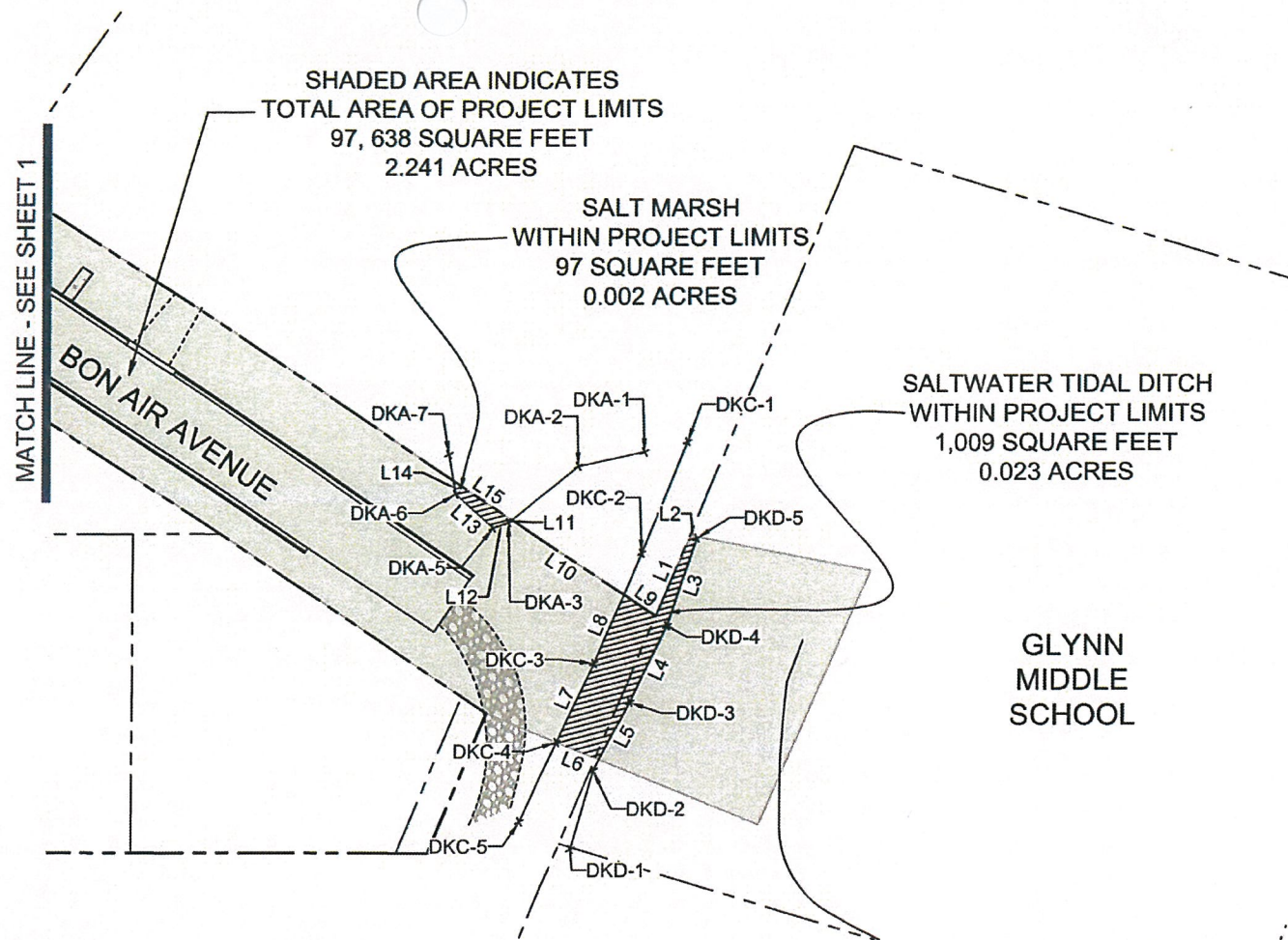
SURVEY NOTES

1. BASIS OF BEARINGS AND HORIZONTAL CONTROL WAS OBTAINED UTILIZING GPS (GLOBAL POSITIONING SYSTEMS). THE EQUIPMENT USED TO OBTAIN THIS DATA WAS A CHAMPION TKO RECEIVER WITH A SCREPTER II DATA COLLECTOR RECEIVING RTK CORRECTIONS VIA A VERIZON JETPACK MIFI 6620L FROM THE eGPS SOLUTIONS REAL TIME NETWORK. THE TECHNIQUE USED WAS RTK CORRECTED MEASUREMENTS FROM A TRIMBLE VRS REAL TIME NETWORK OPERATED BY eGPS SOLUTIONS, INC.
2. THIS PROJECT IS LOCATED IN ZONE AE13.0, A SPECIAL FLOOD HAZARD AREA PER THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP NO. 13127C; PANEL 0238F; EFFECTIVE DATE: SEPTEMBER 06, 2006.
3. THE TERM "CERTIFICATION" AS USED IN BOARD RULE 180-6-.09(2) AND (3) AND RELATING TO PROFESSIONAL SURVEYING SERVICES AS DEFINED IN O.C.G.A. 43-15-2(6) AND (11) SHALL MEAN A SIGNED STATEMENT BASED UPON FACTS AND KNOWLEDGE KNOWN TO THE REGISTRANT AND IS NOT A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED.
4. THIS SURVEY IS VALID ONLY IF PRINT HAS THE ORIGINAL SIGNATURE OF THE SURVEYOR.
5. THE WETLAND DELINEATION FLAGS AS SHOWN HEREON WERE PLACED BY KRISTEN DEASON, ENVIRONMENTAL SERVICES, INC. (ESI) OF SAVANNAH, GA. ON JANUARY 12, 2017.
6. ALL WETLANDS ARE UNDER THE JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS AND/OR THE STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES. LOT OWNERS ARE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE PROTECTED AREAS WITHOUT PROPER PERMIT APPLICATION AND APPROVAL.

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 BRUNSWICK, GA 31520
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Prepared for:
 GLYNN MIDDLE SCHOOL SIDEWALK CONNECTOR
 26TH GA MILITIA DISTRICT
 BRUNSWICK, GLYNN COUNTY, GEORGIA
 CITY OF BRUNSWICK

PROJECT NO:	17-003
DRAWN BY:	DMY
CHECKED BY:	DMY
SURVEYED BY:	DMY
SURVEY DATE:	07/20/17
SCALE:	AS SHOWN
DATE:	07/26/17



LINE TABLE		
LINE#	DIRECTION	LENGTH
L1	S85° 08' 20"E	30.05
L2	S06° 40' 15"E	2.37
L3	N89° 31' 56"W	32.28
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L13	N24° 22' 17"E	17.33
L14	N62° 00' 45"E	4.72
L15	S16° 06' 33"W	24.14

NO.	REVISION DESCRIPTION	BY	DATE

GRAPHIC SCALE: 1" = 115'

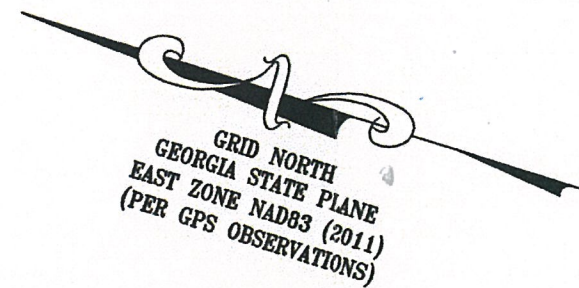
EMC ENGINEERING SERVICES, INC.
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 Brunswick, GA 31520
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 Fax: (912) 265-4566
 Email: info@emc-eng.com
 www.emc-eng.com

CIVIL
MARINE
ENVIRONMENTAL

OFFICE LOCATIONS: ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO, AND VALDOSTA.

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Christopher M. Young 07/26/17
 CHRISTOPHER M. YOUNG, RLS DATE
 GEORGIA L.S. REG. NO. 3356



SURVEY NOTES

1. BASIS OF BEARINGS AND HORIZONTAL CONTROL WAS OBTAINED UTILIZING GPS (GLOBAL POSITIONING SYSTEMS). THE EQUIPMENT USED TO OBTAIN THIS DATA WAS A CHAMPION TKO RECEIVER WITH A SCEPTER II DATA COLLECTOR RECEIVING RTK CORRECTIONS VIA A VERIZON JETPACK MIFI 6620L FROM THE eGPS SOLUTIONS REAL TIME NETWORK. THE TECHNIQUE USED WAS RTK CORRECTED MEASUREMENTS FROM A TRIMBLE VRS REAL TIME NETWORK OPERATED BY eGPS SOLUTIONS, INC.
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SALTWATER WETLAND EXHIBIT

GLYNN MIDDLE SCHOOL SIDEWALK CONNECTOR
 26TH GA MILITIA DISTRICT
 BRUNSWICK, GLYNN COUNTY, GEORGIA

Prepared for:
 CITY OF BRUNSWICK

PROJECT NO.:	17-5001
DRAWN BY:	CMY
DESIGNED BY:	N/A
SURVEYED BY:	CMY
SURVEY DATE:	01/30/2017
CHECKED BY:	CMY
SCALE:	NTS
DATE:	07/26/2017

SHEET
2
 OF 2

GA DNR

OCT 23 2017

Marsh & Shore Mgt. Program

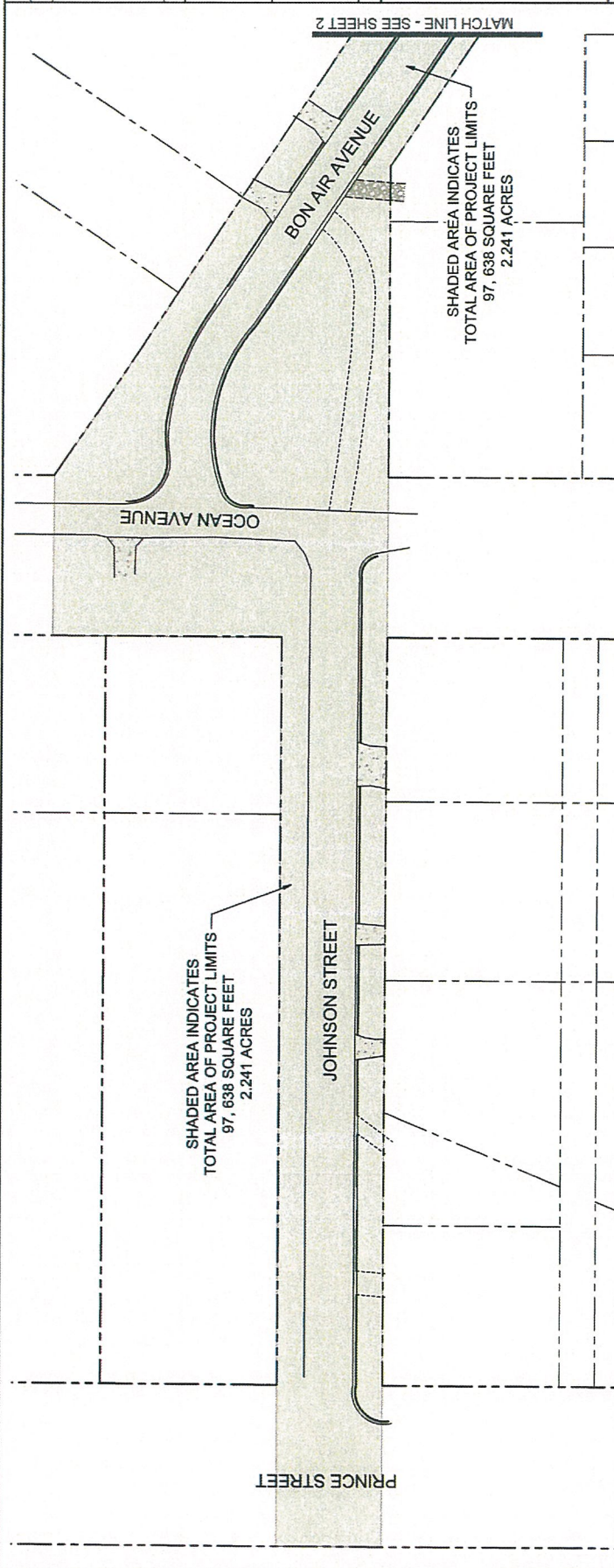
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT LOCATION: MARSH, ATLANTA, METRO AREA, BRUNSWICK, GA
 DRAWN BY: EMC
 CHECKED BY: EMC
 DATE: 07/26/17

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 Atlanta, GA 30309
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 Fax: (404) 233-7826
 Email: info@emceng.com
 Website: www.emceng.com

SALTWATER WETLAND EXHIBIT
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 26TH GA MILITIA DISTRICT
 BRUNSWICK, GLYNN COUNTY, GEORGIA
 Prepared for:
 CITY OF BRUNSWICK

PROJECT NO.: 17-003
 DRAWN BY: EMC
 CHECKED BY: EMC
 SURVEY DATE: 07/26/17
 DATE: 07/26/17
 SCALE: AS SHOWN
 SHEET 1 OF 2



**GRD NORTH
 GEORGIA STATE PLANE
 EAST ZONE NAD83 (2011)
 (PER GPS OBSERVATIONS)**

SURVEYOR'S CERTIFICATE
 TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS SURVEY WAS PREPARED IN CONFORMITY WITH THE TECHNICAL STANDARDS FOR TOPOGRAPHIC/SPECIAL SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-07-07 OF THE RULES OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS. THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY AND IS NOT TO BE RECORDED OR USED TO CONVEY PROPERTY.

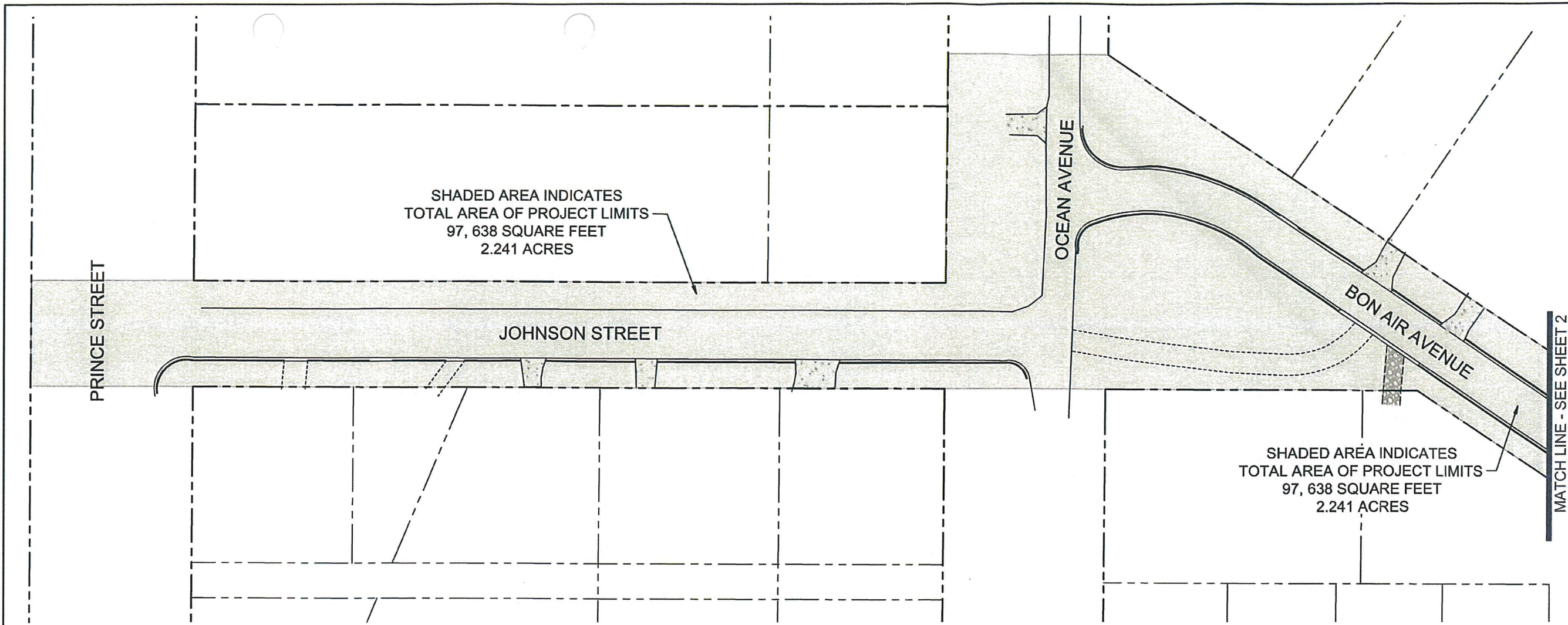
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 DATE: 07/26/17

- SURVEY NOTES**
1. BASIS OF BEARINGS AND HORIZONTAL CONTROL WAS OBTAINED UTILIZING GPS (GLOBAL POSITIONING SYSTEMS). THE EQUIPMENT USED TO OBTAIN THIS DATA WAS A CHAMPION TKO RECEIVER WITH A SCEPTER II DATA COLLECTOR RECEIVING RTK CORRECTIONS VIA A VERIZON JETPACK MFI 6620L FROM THE eGPS SOLUTIONS REAL TIME NETWORK. THE TECHNIQUE USED WAS RTK CORRECTED MEASUREMENTS FROM A TRIMBLE VRS REAL TIME NETWORK OPERATED BY eGPS SOLUTIONS, INC.
 2. THIS PROJECT IS LOCATED IN ZONE AE13.0, A SPECIAL FLOOD HAZARD AREA PER THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP NO. 13127C, PANEL 0238F; EFFECTIVE DATE: SEPTEMBER 06, 2006.
 3. THE TERM "CERTIFICATION" AS USED IN BOARD RULE 180-6-.09(2) AND (3) AND RELATING TO PROFESSIONAL SURVEYING SERVICES AS DEFINED IN O.C.G.A. 43-15-2(6) AND (11) SHALL MEAN A SIGNED STATEMENT BASED UPON FACTS AND KNOWLEDGE KNOWN TO THE REGISTRANT AND IS NOT A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED.
 4. THIS SURVEY IS VALID ONLY IF PRINT HAS THE ORIGINAL SIGNATURE OF THE SURVEYOR.
 5. THE WETLAND DELINEATION FLAGS AS SHOWN HEREON WERE PLACED BY KRISTEN DEASON, ENVIRONMENTAL SERVICES, INC. (ES) OF SAVANNAH, GA, ON JANUARY 12, 2017.
 6. ALL WETLANDS ARE UNDER THE JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS AND/OR THE STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES. LOT OWNERS ARE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE PROTECTED AREAS WITHOUT PROPER PERMIT APPLICATION AND APPROVAL.

GA DNR

OCT 23 2017

Marsh & Shore Mgt. Program



NO.	REVISION DESCRIPTION	BY	DATE

GRAPHIC SCALE: 1" = 100'

EMC ENGINEERING SERVICES, INC.
 504 Gloucester Street
 Brunswick, GA 31520
 Ph: (912) 265-7836
 Fax: (912) 233-4580
 www.emc-eng.com

CIVIL
MARINE
ENVIRONMENTAL

OFFICE LOCATIONS: ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO, AND VALDOSTA

SURVEYOR'S CERTIFICATE
 TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS SURVEY WAS PREPARED IN CONFORMITY WITH THE TECHNICAL STANDARDS FOR TOPOGRAPHIC/SPECIAL SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-07-.07 OF THE RULES OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS. THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY AND IS NOT TO BE RECORDED OR USED TO CONVEY PROPERTY.

Christopher M. Young
 CHRISTOPHER M. YOUNG, RLS
 GEORGIA L.S. REG. NO. 3356

07/26/17
 DATE



GRD NORTH
 GEORGIA STATE PLANE
 EAST ZONE NAD83 (2011)
 (PER GPS OBSERVATIONS)

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SALTWATER WETLAND EXHIBIT

GLYNN MIDDLE SCHOOL SIDEWALK CONNECTOR
 26TH GA MILITIA DISTRICT
 BRUNSWICK, GLYNN COUNTY, GEORGIA

Prepared for:
 CITY OF BRUNSWICK

PROJECT NO:	17-5201
DRAWN BY:	CMY
DESIGNED BY:	N/A
SURVEYED BY:	JN/JH
SURVEY DATE:	01/30/2017
CHECKED BY:	CMY
SCALE:	NTS
DATE:	07/26/2017

SHEET
1
 OF 2

GA DNR

OCT 23 2017

Marsh & Shore Mgt. Program