

**Amelia Island, Nassau County, FL
Marine Geological Field Investigation for
Offshore Geologic Model Support**

10 May 2016

**APPENDIX C
ARC Surveying & Mapping, Inc. – Surveyor’s Report**



Arc Surveying & Mapping, Inc.
5202 San Juan Avenue
Jacksonville, Florida 32210

SURVEYOR'S REPORT
Hydrographic Survey - Amelia Island
Offshore Shoals (B4/B5) – Multibeam Survey
Survey No. ARC 15-12-10
BOEM NA15-001

Report of Survey: Richard J. Sawyer, PSM, ACSM Certified Hydrographer, Arc Surveying and Mapping, Inc., 5202 San Juan Ave., Jacksonville, Florida - 32210.

Project: Amelia Island, Offshore Shoals (B4/B5)

Location: Nassau County, Amelia Island, Florida

Date of Survey: 07 March, 2016

Right of Access: There were no issues of access for this project.

Personnel: Hydrographic Crew Chief: Richard Dunnington
Survey Technician: Jason Villarreal

Datum: Horizontal coordinates are referenced to the State Plane Coordinate System, Florida East Zone 0901, North American Datum of 1983 (NAD83). Elevations were referenced to the National Geodetic Vertical Datum of 1988 (NAVD88).

Field Instrumentation:

Survey Vessel:	Grey Witch – 24' Monarch
Data Acquisition Software:	HYPACK and HYSWEEP version 2015
Multibeam Sounder:	Teledyne Reson 7125 (Multibeam) operating @ 400 kHz
Vessel Positioning:	Applanix PosMV WaveMaster Trimble R-8 Base Receiver / TT 450s Base Radio
IMU:	Applanix PosMV WaveMaster

Survey Site: The survey consisted of two sites. The North site was approximately 1 square mile in size and was located approximately 6 miles southwest of the St. Mary's River Entrance. The South site was approximately 2 square miles in size and was located approximately 10 miles southwest of the St. Mary's River Entrance.



Figure 1 North and South Survey Site Location Map

**NORTH AREA SURVEY AREA
EASTING, NORTHING, DEPTH**

543952.0, 2289161.0, -41.8
 546283.0, 2295470.0, -44.3
 550362.0, 2295495.0, -41.9
 547955.0, 2289186.0, -43.4
 543952.0, 2289161.0, -41.8
 Area: just under 1 square mile

**SOUTH AREA SURVEY AREA
EASTING, NORTHING, DEPTH**

541726.0, 2267000.0, -50.0
 544000.0, 2276800.0, -48.0
 550124.0, 2276800.0, -47.5
 548083.0, 2270570.0, -43.4
 545189.0, 2267000.0, -42.2
 541726.0, 2267000.0, -50.0
 Area: just under 2 square miles

Field Procedures: The survey was performed utilizing Real-Time Kinematic (RTK) GPS surveying procedures. The base receiver occupied survey point PID: BBCB08 "BATH HOUSE ARP" for the duration of the survey. Positional accuracy verification were documented at the beginning and end of each day of survey data acquisition. A water surface verification was performed at the beginning of each day of data acquisition. Swath width was set to 140 degrees and line spacing maintained at an interval to assure 100% bottom coverage.

PID: BBCB08
Designation: BATH HOUSE ARP
Stamping: N/A
Stability:
Setting: Unspecified setting
Description: To reach from Post Office in Fernandina Beach, go east on Centre St for 0.15 miles to Rte A1A (Atlantic Ave). Continue east 1.45 miles to the entrance to Fort Clinch State Park. Turn left and go north on Fort Clinch road 1.9 miles to road leading to Pier-Jetty. Turn right and go 0.4 miles to road on right leading to fishing pier. Turn right and go 0.4 miles to parking area at pier. Take boardwalk leading to fishing pier to restroom building. Point is a GPS antenna attached to north side of bldg.
Observed: 2010-08-12T18:14:00Z [See Also Original](#)
Source: OPUS - page5 1209.04



Close-up View

REF_FRAME: NAD_83(2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS
LAT: 30° 41' 59.95938" ± 0.002 m					
LON: -81° 25' 45.63337" ± 0.001 m					
ELL HT: -20.035 ± 0.016 m					
X: 818024.424 ± 0.002 m					
Y: -5427733.137 ± 0.014 m					
Z: 3237328.054 ± 0.008 m					
ORTHO HT: 8.494 ± 0.031 m					
		UTM 17	SPC 901(FL E)		
		NORTHING: 3396432.569m	705541.316m		
		EASTING: 458884.409m	158870.376m		
		CONVERGENCE: -0.21920083°	-0.21920083°		
		POINT SCALE: 0.99962085	0.99996204		
		COMBINED FACTOR: 0.99962400	0.99996519		

CONTRIBUTED BY
[francis.m.woodward](#)
 US Army Corps of Engineers

Horizon View

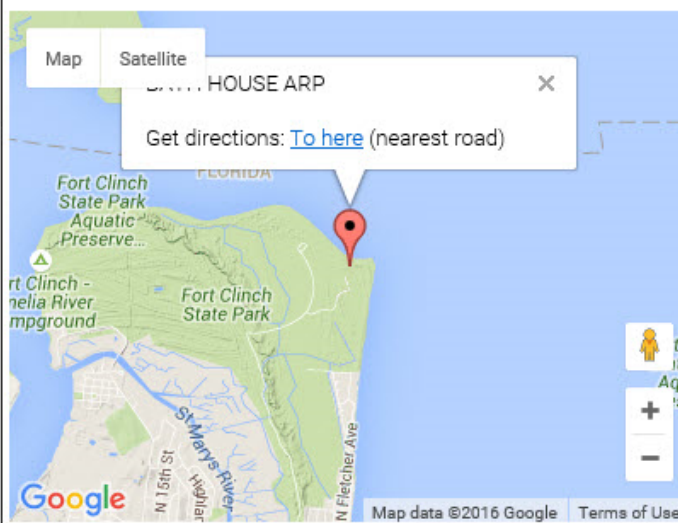


Figure 2 - Base Station Location "Bathhouse"

Data Processing: The survey data was processed upon completion of the survey. Sounding spikes were removed and quality assurance was performed during HYSWEEP processing by examining differences in overlapping lines as well as overlapping segments.

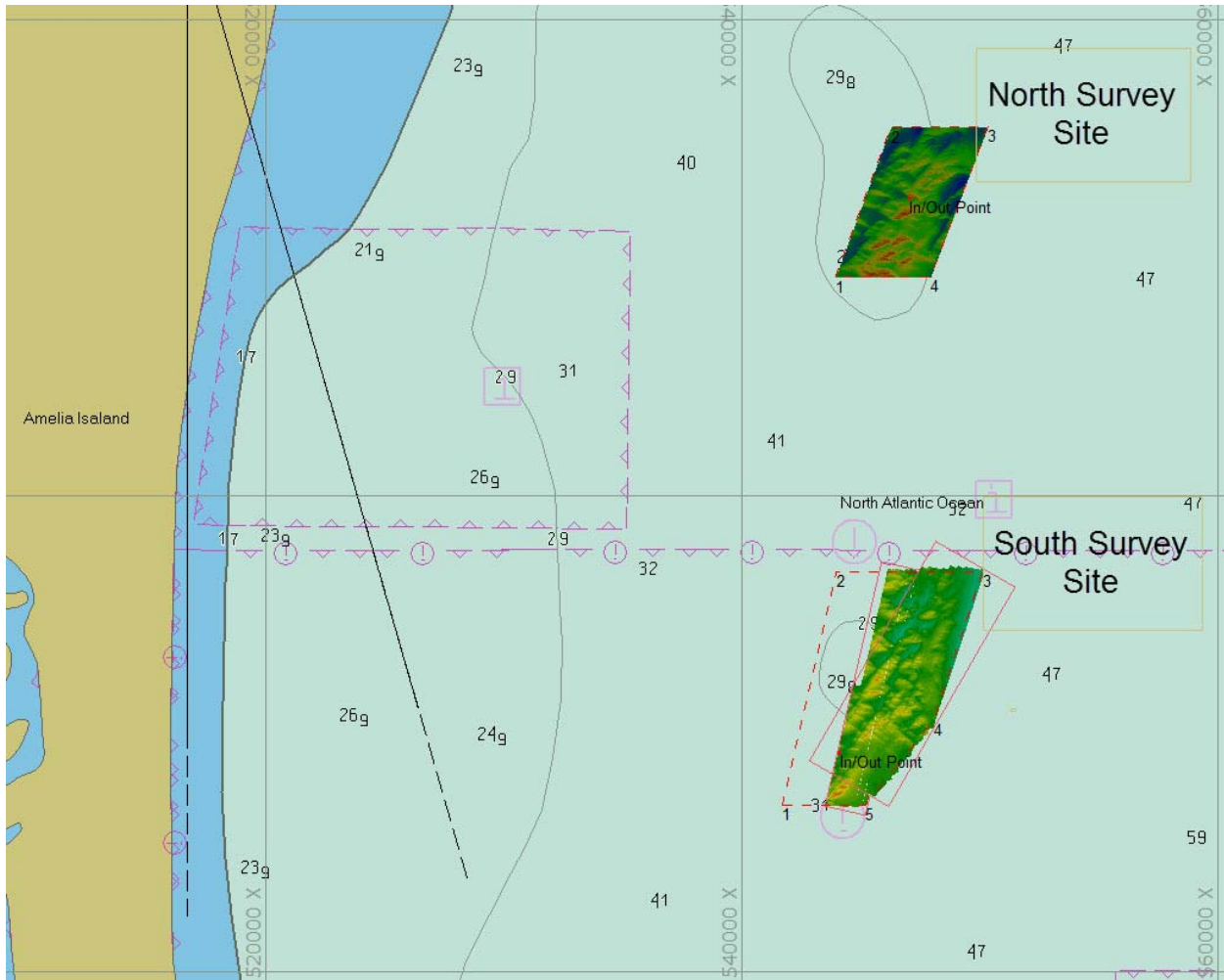


Figure 3- Survey Coverage

SURVEYOR'S NOTES:

1. ELEVATIONS DEPICTED BY THIS SURVEY ARE REFERENCED TO NAVD88.
2. TIDAL REDUCTIONS WERE OBTAINED UTILIZING REAL-TIME KINEMATIC (RTK) GPS PROCEDURES.
3. PLANE COORDINATES ARE BASED ON THE FLORIDA STATE PLANE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983(NAD83), TRANSVERSE MERCATOR PROJECTION.
4. BEARING STRUCTURE NOTED HEREON IS REFERENCED TO GRID AS DETERMINED BY THE RECORD STATE PLANE COORDINATES (NAD83 FL EAST).
5. ALL MEASUREMENTS AND POSITIONS ARE IN U.S. SURVEY FEET AND TENTHS AND WERE MADE WITH GPS, REAL TIME KINEMATIC (RTK) POSITIONING WITH CORRECTIONS ORIGINATING FROM BASE LOCATED AT "BATHHOUSE ARP" (OPUS PID: BBCB08).
6. SUBAQUEOUS MEASUREMENTS WERE MADE WITH A TELEDYNE RESON MULTIBEAM MODEL 7125 OPERATING AT A FREQUENCY OF 400 KHZ AND CONFIGURED WITH A APPLANIX POS MV WAVEMASTER INERTIAL MOTION UNIT.
7. THIS SURVEY WAS COMPLETED ON MARCH 01, 2016.
8. THIS SURVEY MAP DOES NOT REFLECT OR DETERMINE OWNERSHIP.
9. THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
10. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING GENERAL CONDITIONS EXISTING AT THAT TIME.
11. SURVEY ACCURACY PERFORMANCE STANDARDS, QUALITY CONTROL, AND QUALITY ASSURANCE REQUIREMENTS WERE FOLLOWED IN ACCORDANCE WITH USACE EM 1110-2-1003, HYDROGRAPHIC SURVEYING, 1 JAN. 02.

Richard J. Sawyer, ACSM Certified Hydrographer No. 194

Professional Surveyor and Mapper No. 6131

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED

SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

SURVEYORS NOTES: