



Coastal Armoring

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FSBPA 2019



What is Armoring?



Armoring Definition

- **“Armoring” is a manmade structure designed to either prevent erosion of the upland property or protect structures from the effects of coastal wave and current action.**
- **Armoring includes certain rigid coastal structures such as:**
 - Geotextile bags or tubes
 - Seawalls
 - Revetments
 - Bulkheads
 - Retaining walls
 - Similar structures



Armoring Definition (2)

- **Armoring does not include:**
 - **Jetties**
 - **Groins**
 - **Other construction with the purpose of adding sand to the beach and dune system, altering the natural coastal current, or stabilizing inlet shorelines**



Governing Statute

Section 161.085, F.S.

- **Rigid Armoring Structure**

(2) “...(T)he department, pursuant to s. 161.041 or s. 161.053, may issue permits for the **present or future installation of rigid coastal armoring structures** or other emergency response measures to protect private structures, public infrastructure, and private and public property.”

- **Present Installation**

(a) Permits for **present installations** may be issued if it is determined that private structures or public infrastructure is vulnerable to damage from frequent coastal storms.

- **Future Installation**

(b) Permits for **future installations** of coastal armoring structures may be issued contingent upon the occurrence of specified changes to the coastal system which would leave upland structures vulnerable to damage from frequent coastal storms.



Governing Statute (2)

Section 161.085, F.S.

■ Gap Closure

(c) Permits for present installations of coastal armoring may be issued where such installation is between and adjoins at both ends rigid coastal armoring structures, follows a continuous and uniform armoring structure construction line with existing coastal armoring structures, and is no more than 250 feet in length.



Governing Rule

62B-33.0051, F.A.C.

- **62B-33.0051 Coastal Armoring and Related Structures.**

(1) General Armoring Criteria.

- (a) Construction of armoring shall be authorized under the following conditions:**
- 1. The proposed armoring is for the protection of an eligible structure; and**
 - 2. The structure to be protected is vulnerable.**



Governing Rule (2)

62B-33.0051, F.A.C.

- a. **If it is projected that the eligible structure will become vulnerable at some future date which falls within the authorized time limit of a permit, then the permit shall authorize the construction of armoring once the anticipated site condition changes occur and the structure becomes vulnerable. The permit shall allow additional time to allow for construction operations and appropriate timing to avoid construction during the marine turtle nesting season.**

3. **A gap exists, that does not exceed 250 feet, between a line of rigid coastal armoring that is continuous on both sides of the unarmored property.**



Eligible Structures

- (12) “Eligible Structures” are public infrastructure and private structures qualified for armoring as follows:**
- (a) Public infrastructure includes those roads designated as public evacuation routes, public emergency facilities, bridges, power facilities, water or wastewater facilities, other utilities, hospitals, or structures of local governmental, state, or national significance**



Eligible Structures (2)

(b) Private structures include:

- 1. Non-conforming habitable structures,**
- 2. Major non-habitable structures which are not expendable,**
- 3. Expendable major structures which are amenities necessary for occupation of the major structure; and,**
- 4. Expendable major structures whose failure would cause an adjacent upland non-conforming habitable structure or major non-habitable structure, which is not expendable, to become vulnerable.**



Eligible Structures (3)

(39) “Nonconforming Structure” is any major habitable structure which was not constructed pursuant to a permit issued by the Department pursuant to section 161.052 or 161.053, F.S., on or after March 17, 1985.



Vulnerable

- **“Vulnerable” is when an eligible structure is subject to either direct wave attack or to erosion from a 15-year return interval storm which exposes any portion of the foundation.**
- **Notes:**
 - **Wave attack – more applicable to low lying areas**
 - **Erosion – more applicable to higher topography**



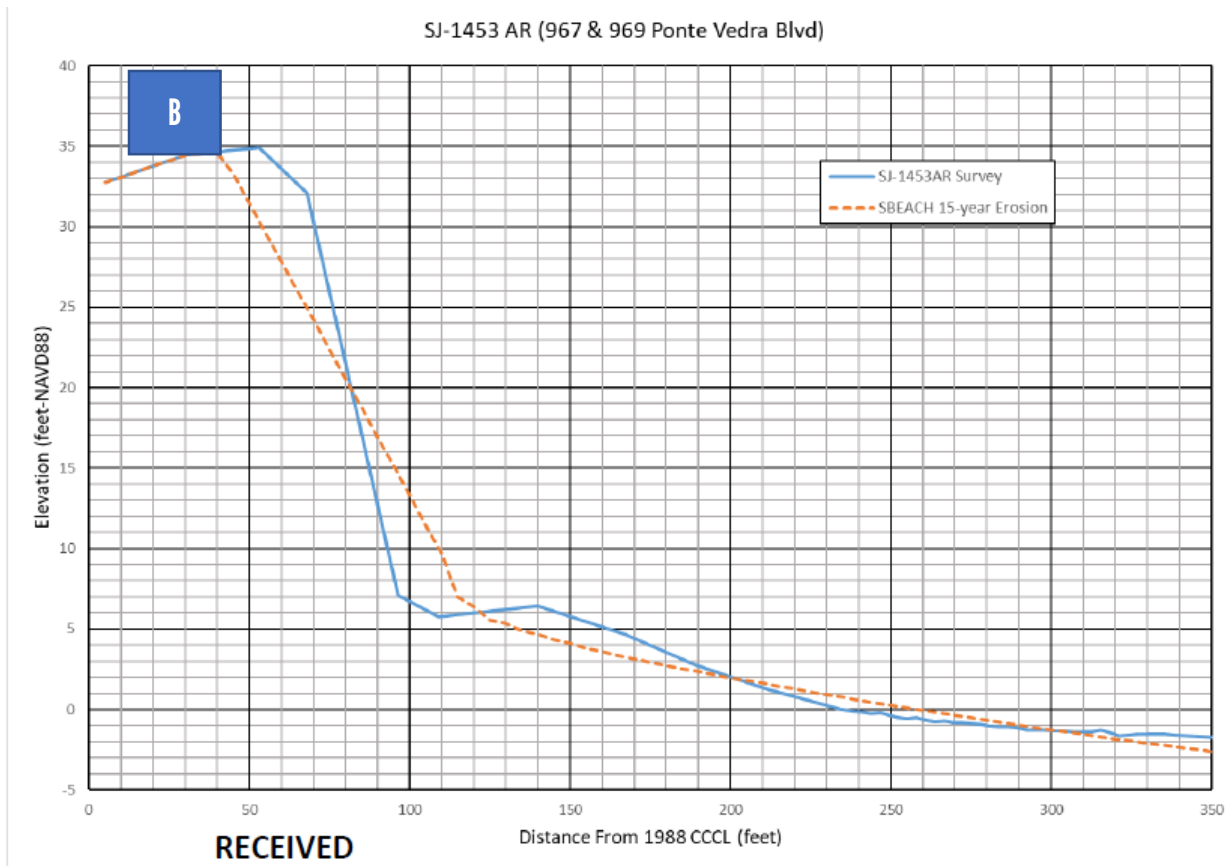
Presently Vulnerable

Determined by Inspection





Vulnerability from Model Results





Future Vulnerability

Not Presently Vulnerable





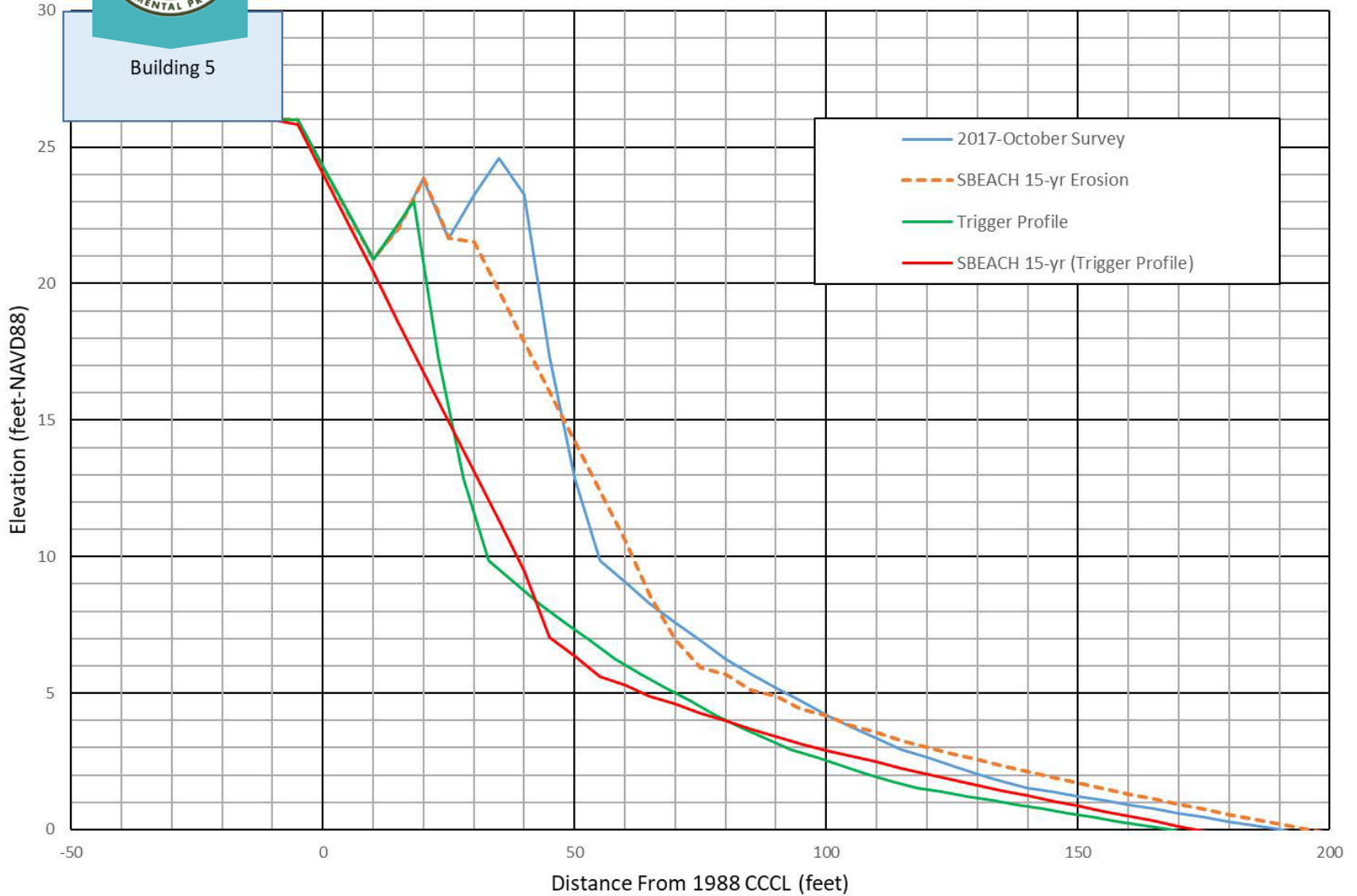
Future Installation

Not Presently Vulnerable





SJ-1369 AR (Serenata, Building #5)





Gap Closure

Law

- **Permits for present installations of coastal armoring may be issued where such installation is between and adjoins at both ends rigid coastal armoring structures, follows a continuous and uniform armoring structure construction line with existing coastal armoring structures, and is no more than 250 feet in length.**



Gap Closure (2)

Rule

- **A gap exists that does not exceed 250 feet, between a line of rigid coastal armoring that is continuous on both sides of the unarmored property.**
- **Such adjacent armoring shall not be deteriorated, dilapidated, or damaged to such a degree that it no longer provides adequate protection to the upland property.**
- **The top of the adjacent armoring must be at or above the still water level, including setup, for the design storm of a 15-year return interval storm plus the breaking wave calculated at its highest achievable level based on the maximum eroded beach profile and the highest surge level combination.**



Multiple Properties





Hybrid Permit

Present Installation and Gap Closure

Project Description

- **Anchored timber-framed and vinyl sheet pile bulkhead
3095 through 3099 S. Ponte Vedra Boulevard, Ponte Vedra Beach**
 - **Perpendicular location relative to control line: A maximum of 57.0 feet**
 - **Length of the bulkhead: Approximately 270 feet**
- **Anchored timber-framed vinyl sheet pile bulkhead
3101 through 3107 S. Ponte Vedra Boulevard, Ponte Vedra Beach**
 - **Perpendicular location relative to control line: Varies from a maximum of 57.0 feet at the north property line of 3101 to a maximum of 64 feet seaward at the south property (3107)**
 - **Length of the bulkhead: Approximately 451.8 feet**



Hybrid Permit

Present Installation and Gap Closure

Project Description

- **Anchored timber-framed and vinyl sheet pile bulkhead**
3109 through 3115 S. Ponte Vedra Boulevard, Ponte Vedra Beach
 - **Perpendicular location relative to control line: A maximum of 64.0 feet seaward**
 - **Length of the bulkhead: Approximately 299.3 feet**
- **Anchored timber-framed vinyl sheet pile bulkhead (Closing the Gap)**
3115B S. Ponte Vedra Boulevard, Ponte Vedra Beach
 - **Perpendicular location relative to control line: A maximum of 64.0 feet**
 - **Length of the bulkhead: Approximately 100 feet**



Hybrid Permit

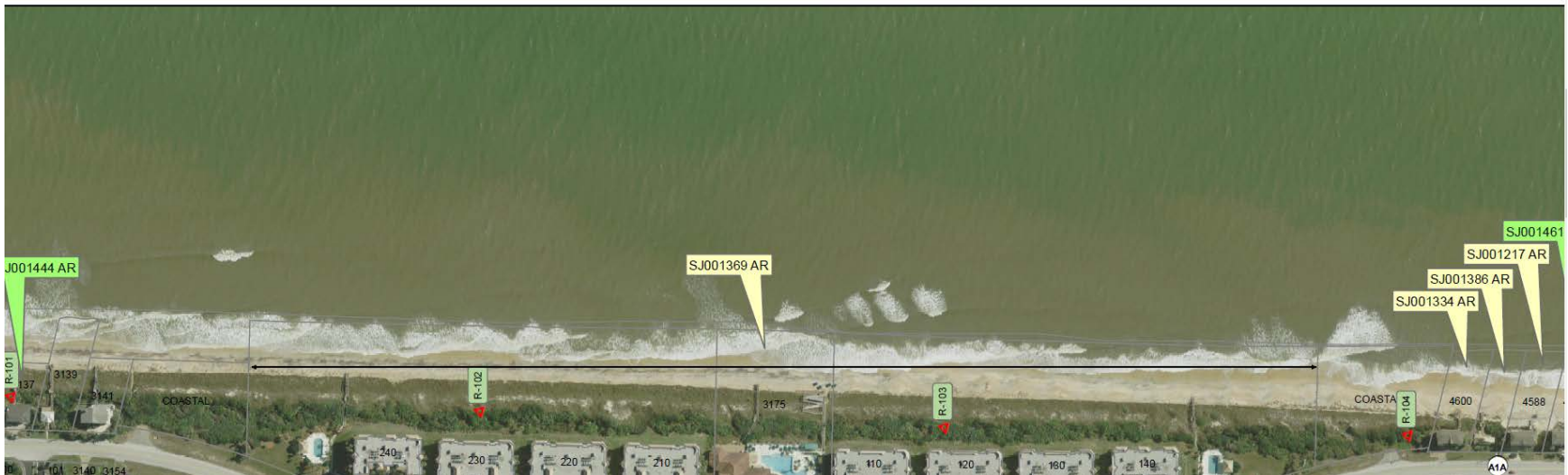
Present Installation and Gap Closure

Project Description

- **Anchored timber-framed and vinyl sheet pile bulkhead, reinforced concrete panels (Trueline), and timber-framed bulkhead, or reinforced concrete 3117 through 3119 S. Ponte Vedra Boulevard, Ponte Vedra Beach**
 - **Perpendicular location relative to control line: A maximum of 64.0 feet**
 - **Length of the bulkhead: Approximately 160.1 feet**
- **Permit Condition: Construction activities authorized by this permit at 3115B S. Ponte Vedra Boulevard shall not commence until after the completion or the commencement of construction of the authorized bulkheads on the adjacent properties.**

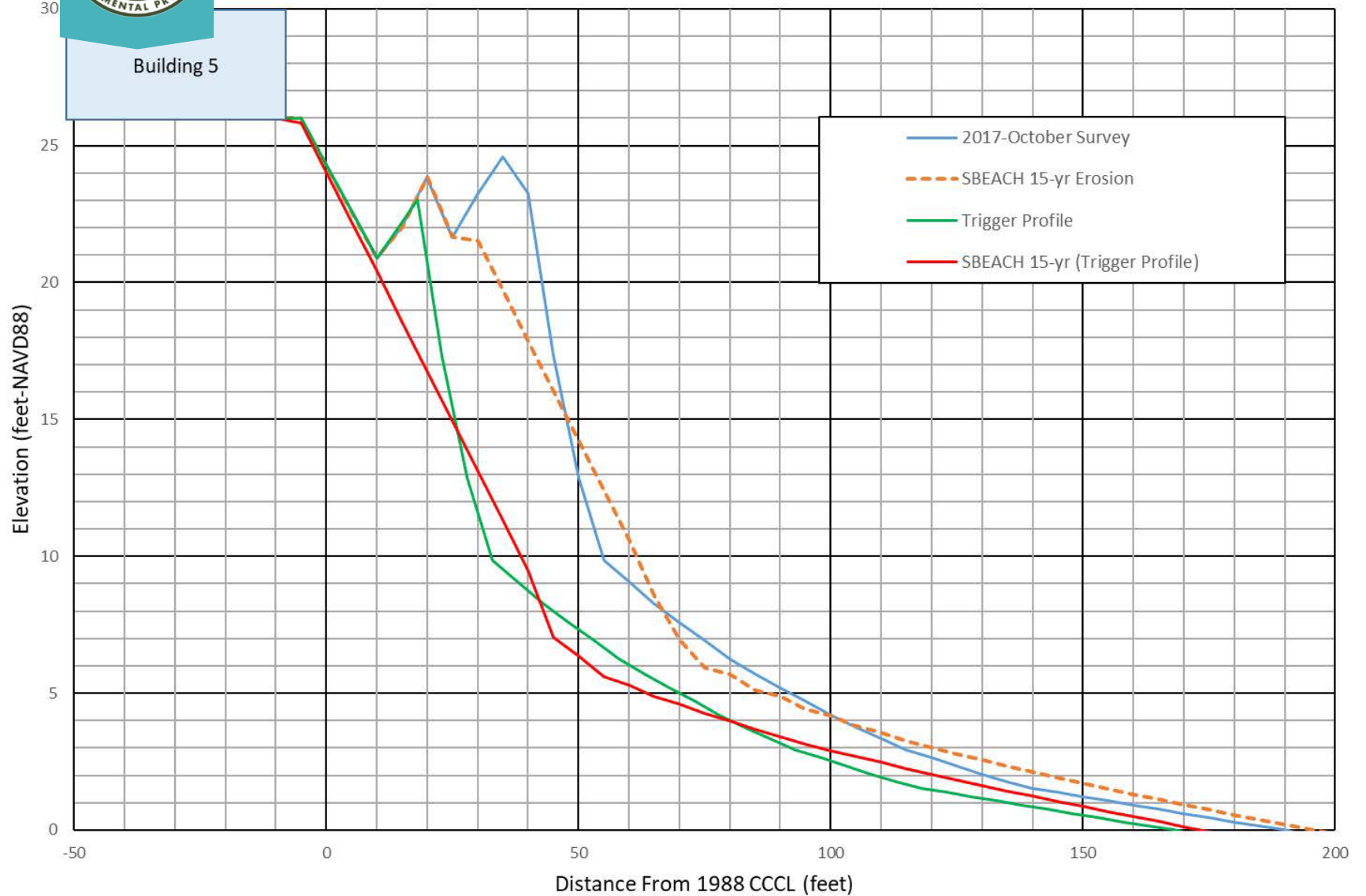


Future Trigger and Gap Closure





SJ-1369 AR (Serenata, Building #5)





Trigger: Future Installation and Gap Closure Permit

- **Anchored steel sheet pile bulkhead – North Segment (Buildings 5, 6, 7, 8)**
 - **Perpendicular location of sheet pile relative to control line: Approximately from 29 feet to 27 feet seaward at the north and south ends, respectively (See Special Permit Condition 2.1)**
 - **Length of the bulkhead: Approximately 773 feet**
- **Anchored steel sheet pile bulkhead – South Segment (Buildings 1, 2, 3, 4)**
 - **Perpendicular location relative to control line: Approximately from 22 feet to 34 feet seaward at the north and south ends, respectively (See Special Permit Condition 2.2)**
 - **Length of the bulkhead: Approximately 776 feet**
- **Anchored steel sheet pile bulkhead (Close the Gap)**
 - **Location relative to control line: Varies from 25 feet to 23 feet seaward at the north and south ends, respectively**
 - **Length of the wall: Approximately 250 linear feet**



Notice to Proceed

Special Permit Conditions

2. Construction activities authorized by this permit shall not commence until after the permittee has received written Notice(s) to Proceed from the Department. The Notice(s) to Proceed shall be issued after the Department receives documentation of the following for each segment of the bulkhead to be constructed:

- **2.1. North Segment – The top of bluff or escarpment is located within 24 feet of the foundation for the dwellings, or the toe of the bluff or escarpment is within 38 feet of the foundation for the dwellings. The bulkhead shall be sited no farther seaward than the toe of the dune.**
- **2.2. South Segment – The top of bluff or escarpment is located within 20 feet of the foundation for the dwellings, or the toe of the bluff or escarpment is within 37 feet of the foundation for the dwellings. The bulkhead shall be sited no farther seaward than the toe of the dune.**



Notice to Proceed (2)

Special Permit Conditions

3. Construction activities authorized by this permit for the “Close the Gap” segment shall not commence until after the substantial completion of construction of the authorized bulkheads along both the north and south segments. The bulkhead shall be sited no farther seaward than the north and south segments.



Siting

(2) Armoring shall be sited and designed to minimize adverse impacts to the beach and dune system, marine turtles, native salt-tolerant vegetation, and existing upland and adjacent structures and to minimize interference with public beach access, in accordance with the following criteria:

(a) Siting. Armoring shall be sited as far landward as practicable to minimize adverse impacts while still providing protection to the vulnerable structure. In determining the most landward practicable location, the following criteria apply:



Siting (2)

- 1. Excavation shall be the minimum required to properly install the armoring and shall not result in the destabilization of the beach and dune system seaward of the armoring or have an adverse impact on upland structures.**
- 2. If armoring must be located close to the dune escarpment in order to meet the criteria listed above and such siting would result in destabilization of the dune causing damage to the upland structure, the armoring shall be sited seaward of, and as close as practicable to, the dune escarpment.**



Design

- 1. Coastal armoring structures shall be designed for the anticipated runup, overtopping, erosion, scour, and water loads of the design storm event. Design procedures are available in the latest edition of the Department of the Army Corps of Engineers' Coastal Engineering Manual (EM 1110-2-1100), or other similar professionally recognized publications.**
- 2. To minimize adverse impacts to the beach and dune system, adjacent properties, and marine turtles, the shore-normal extent of armoring which protrudes seaward of the dune escarpment, vegetation line, or onto the active beach shall be limited to minimize encroachment on the beach. In areas with viable marine turtle habitat, the highest part of any toe scour protection shall be located to minimize encroachment into marine turtle nesting habitat.**



Design (2)

- 3. All armoring shall be designed to remain stable under the hydrodynamic and hydrostatic conditions for which they are proposed. Armoring shall provide a level of protection compatible with existing topography, not to exceed a 50-year design storm.**
- 4. Armoring shall be designed to minimize interference with public access along the beach.**



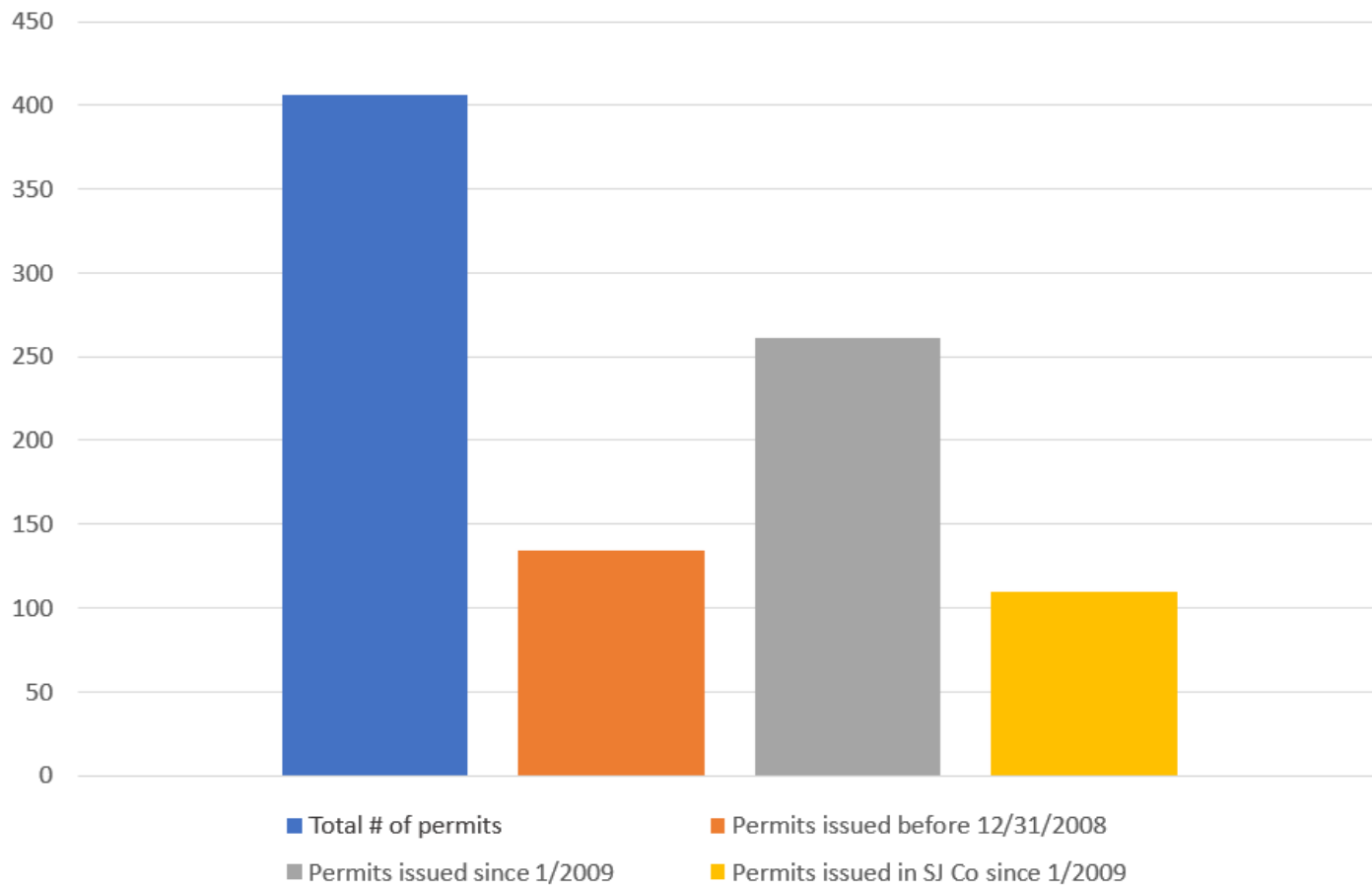
Challenges to Armoring Permitting

- **Eligibility – Structure must be eligible**
- **Vulnerability – Structure must be vulnerable to damage from high-frequency storm**
- **Siting – Structure must be sited as far landward as practicable**
- **Marine Turtles – Structure cannot cause a TAKE of a turtle habitat
(Florida Fish and Wildlife Conservation Commission determination)**
- **Multiple Properties – Compliance with above criteria and managing workload**



Number of Permits Issued

Armoring Permit Issued 1985 – Present





Division of
Water Resource Management

Northeast Atlantic Coast
St. Johns Beaches
Duval-St. Johns County Line
to R-15 in Flagler County

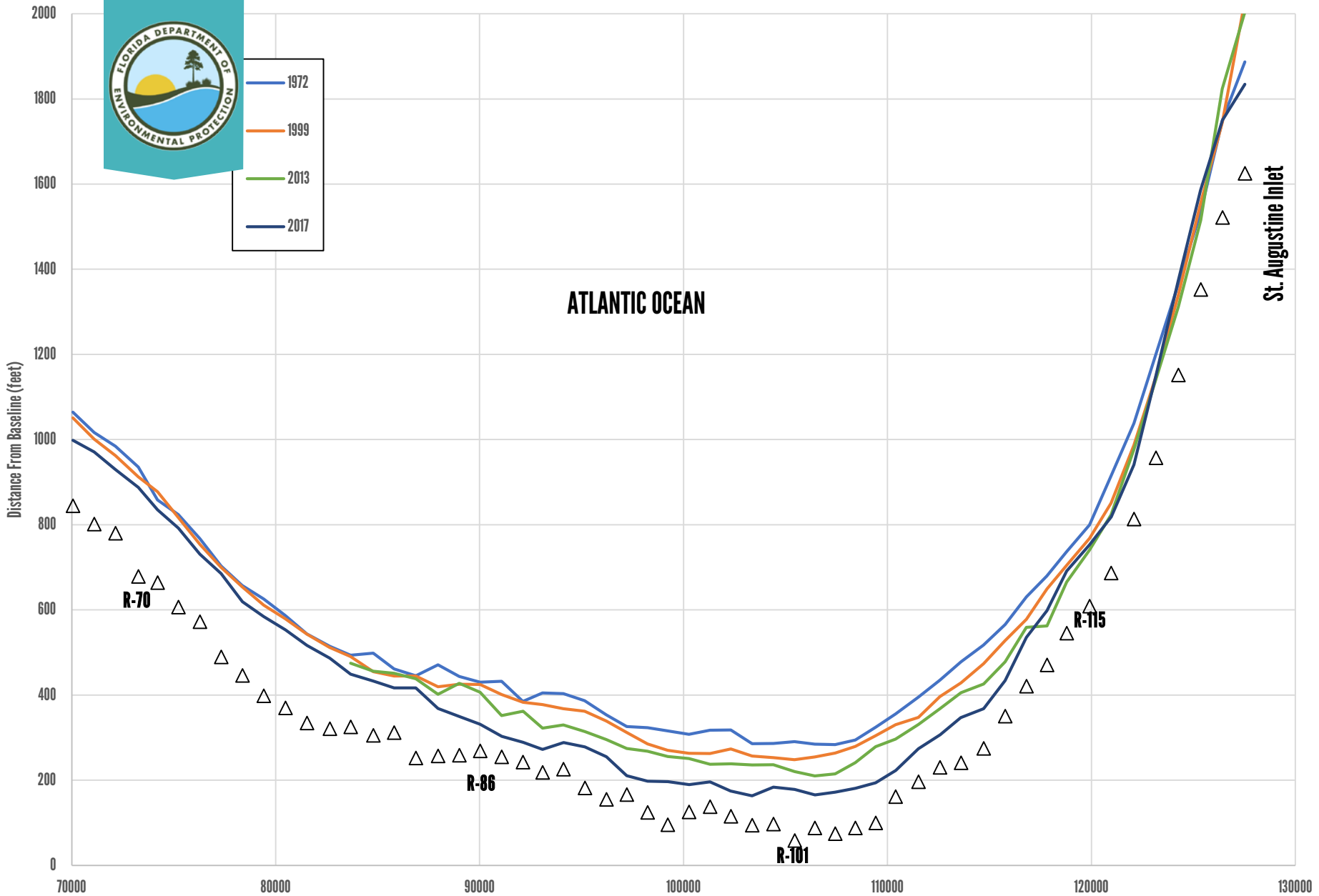
- Subregion Boundary
- R-20 Range Monument
- Critically Eroded Beach
- Beach Projects



ATLANTIC
OCEAN



BASELINE ORIGIN: N 2153050, E 534081 (SP83), 13 Deg. E of S

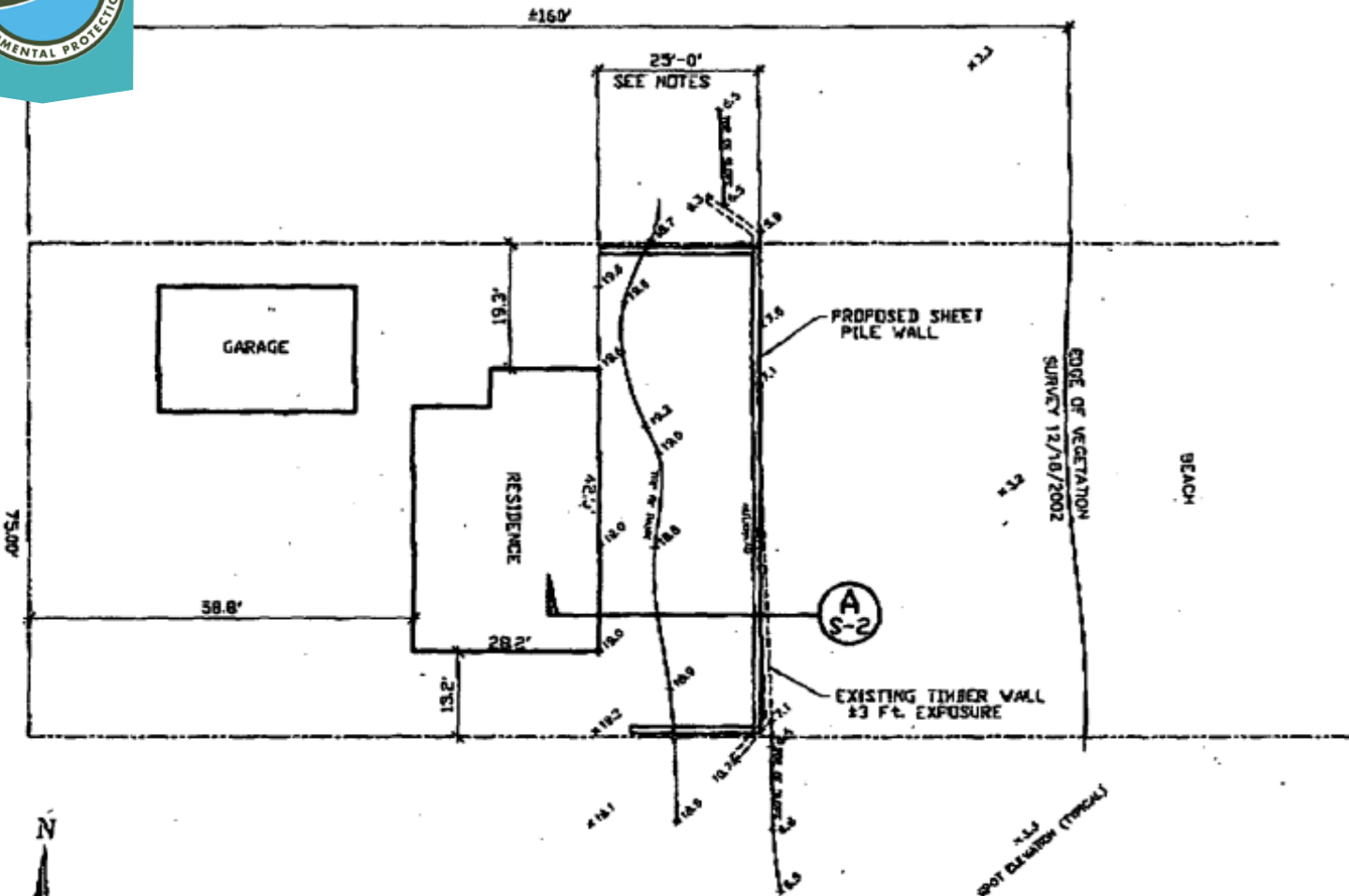


Distance Along Baseline (feet)
North St. Johns County - Plan View MHW Shorelines

Created: Dec 21, 2018
Mike Manausa



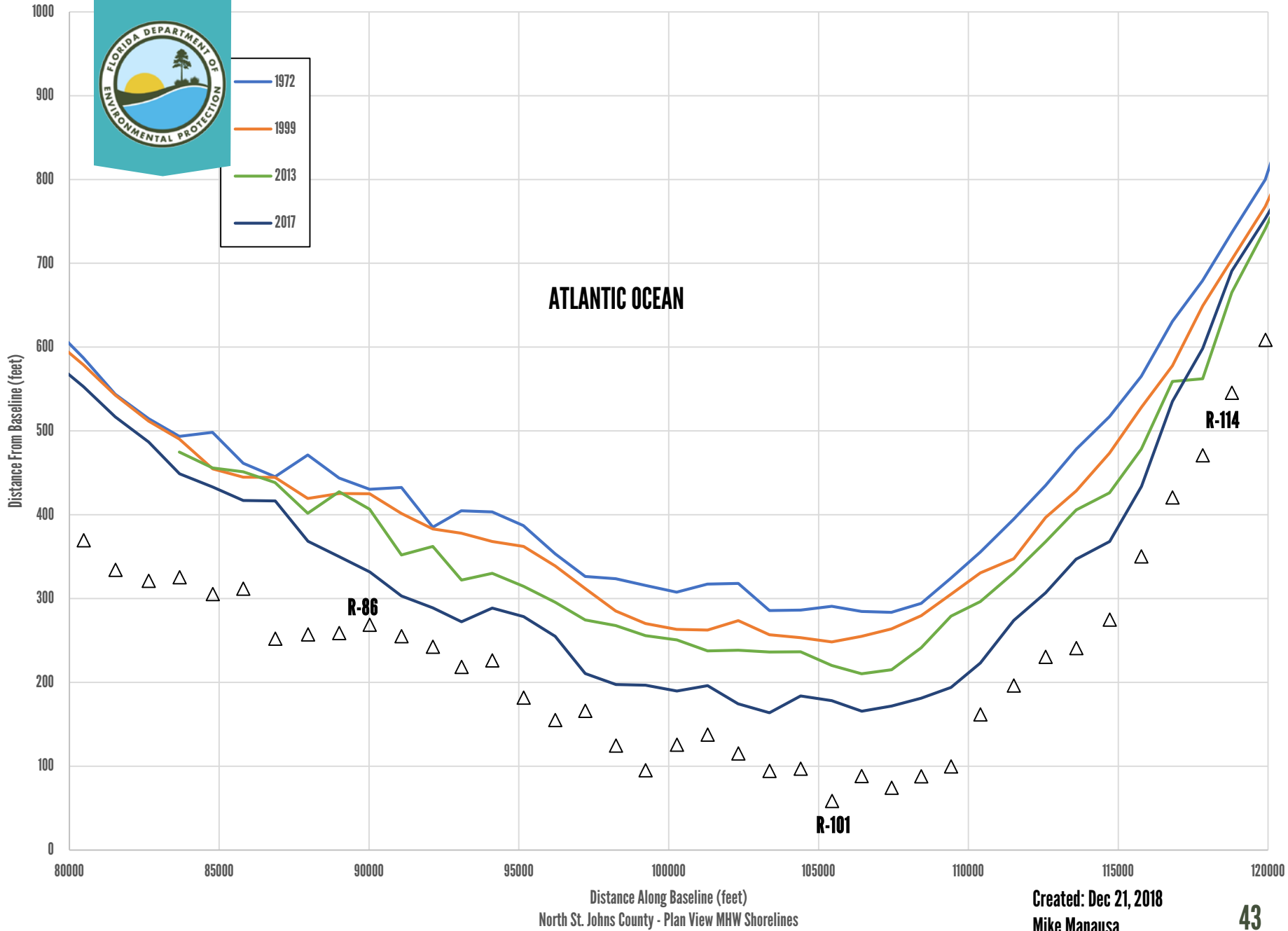
STATE ROAD NO. A-1-A



SITE PLAN

NOTES: 1. ELEVATIONS - N.G.M.D. 1928 SURVEY 5/31/2007

BASELINE ORIGIN: N 2153050, E 534081 (SP83), 13 Deg. E of S



- 1972
- 1999
- 2013
- 2017

ATLANTIC OCEAN

R-86

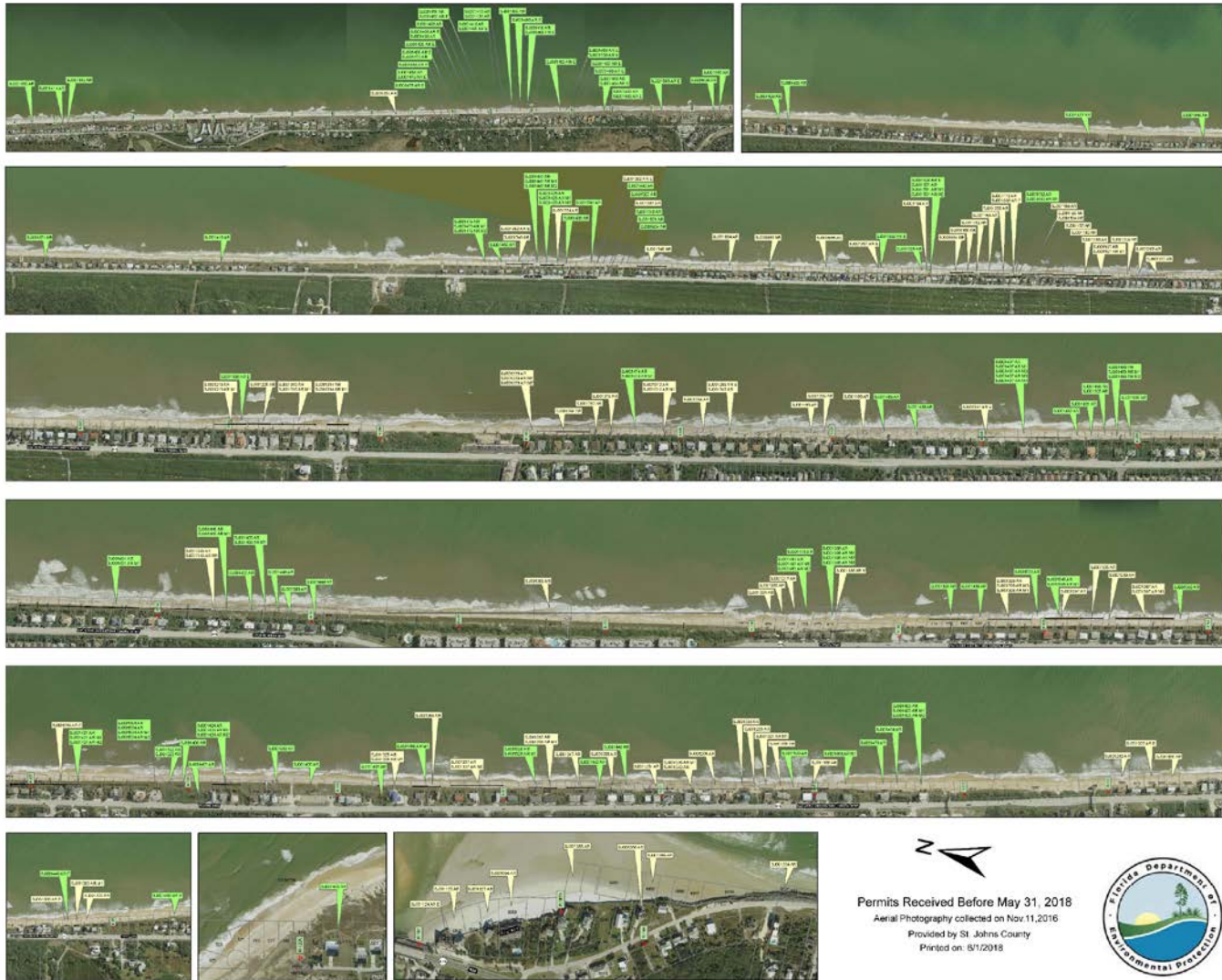
R-101

R-114

Created: Dec 21, 2018
Mike Manusa

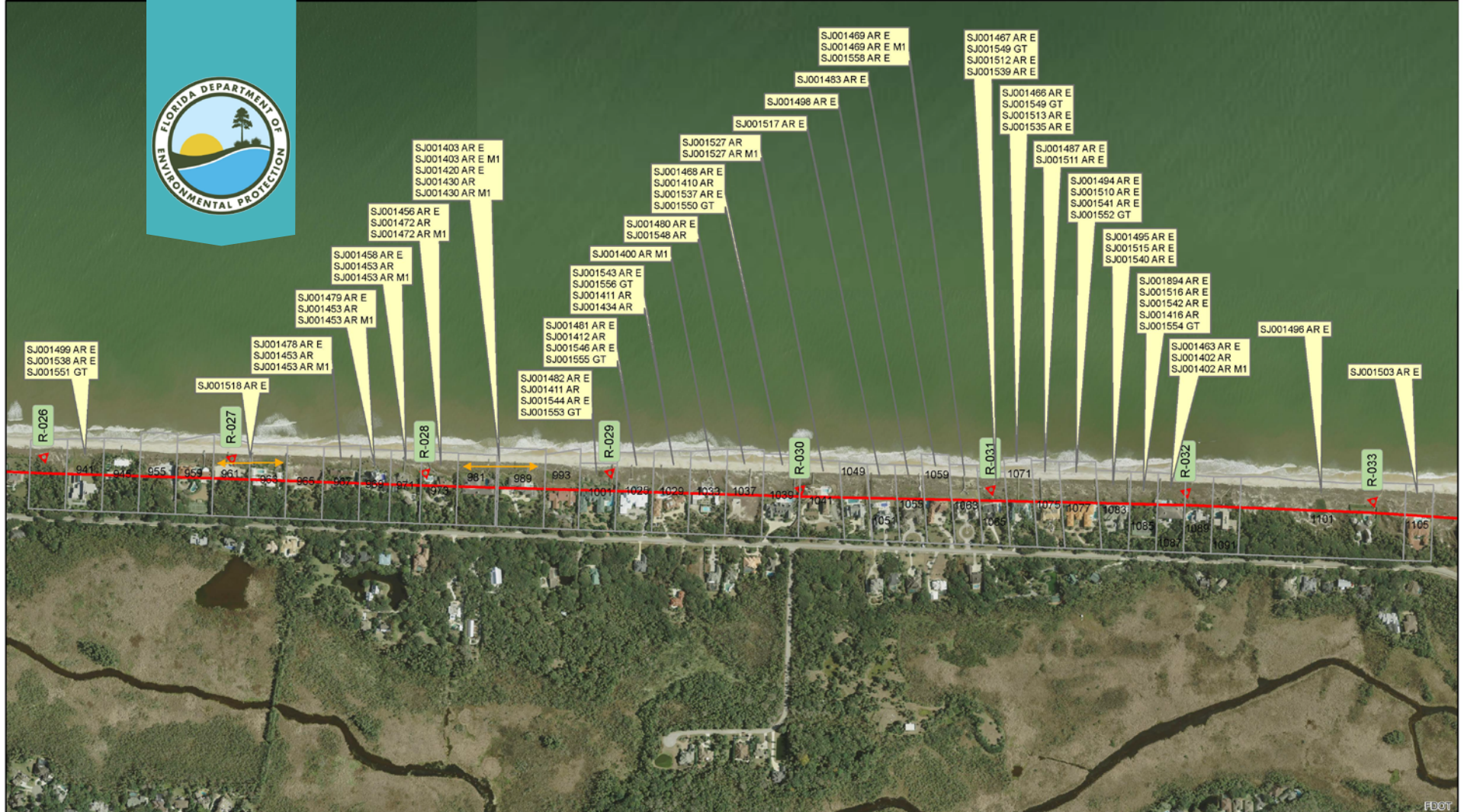


St. Johns Armoring Permits



Permits Received Before May 31, 2018
Aerial Photography collected on Nov 11, 2016
Provided by St. Johns County
Printed on: 6/1/2018





▲ Range Monuments
 — Coastal Construction Control Line
 □ 2016 Cadastral

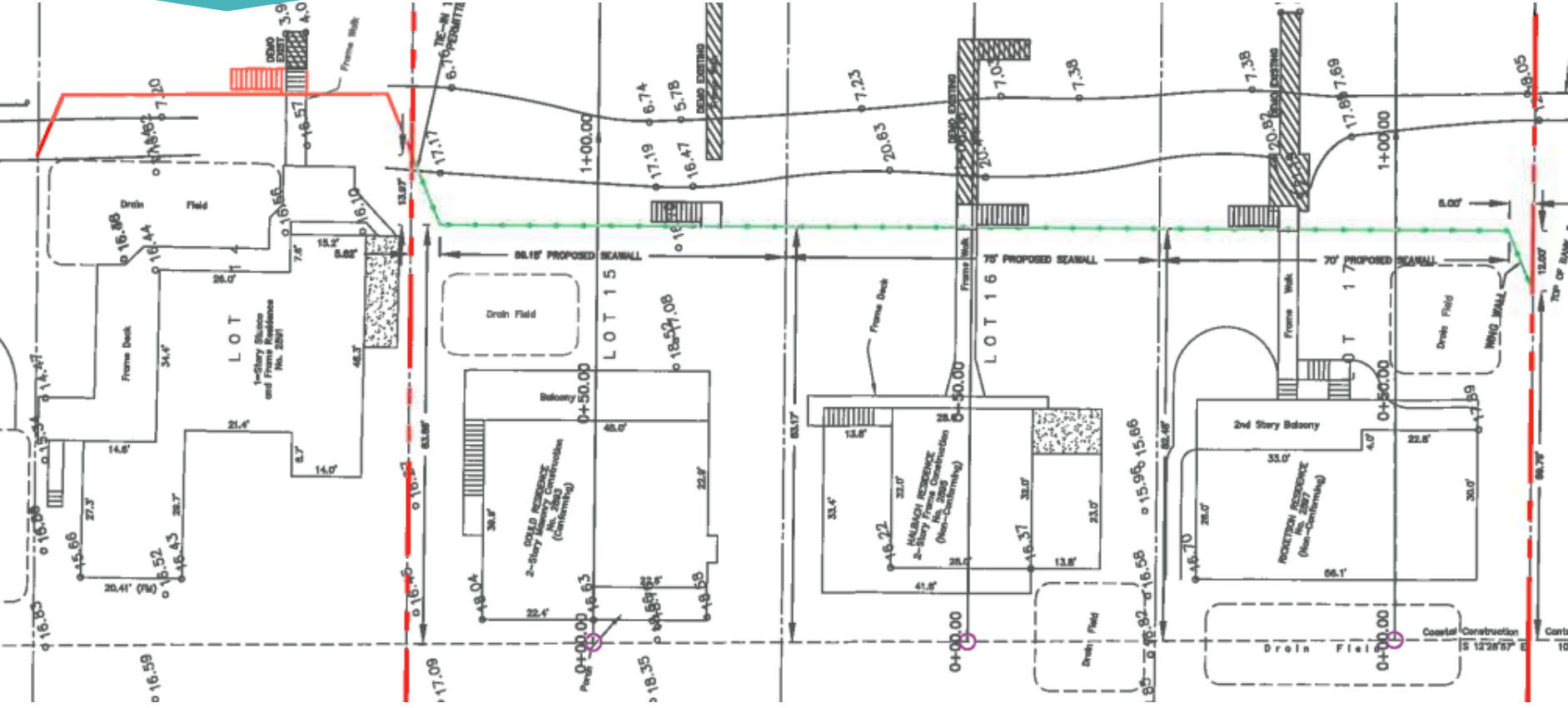
St. Johns County

Pending Applications & Issued Permits

R-026 Through R-033

Aerial Date: 2016







09/18/2017



09/16/2017



09/16/2017









Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

St. Johns County

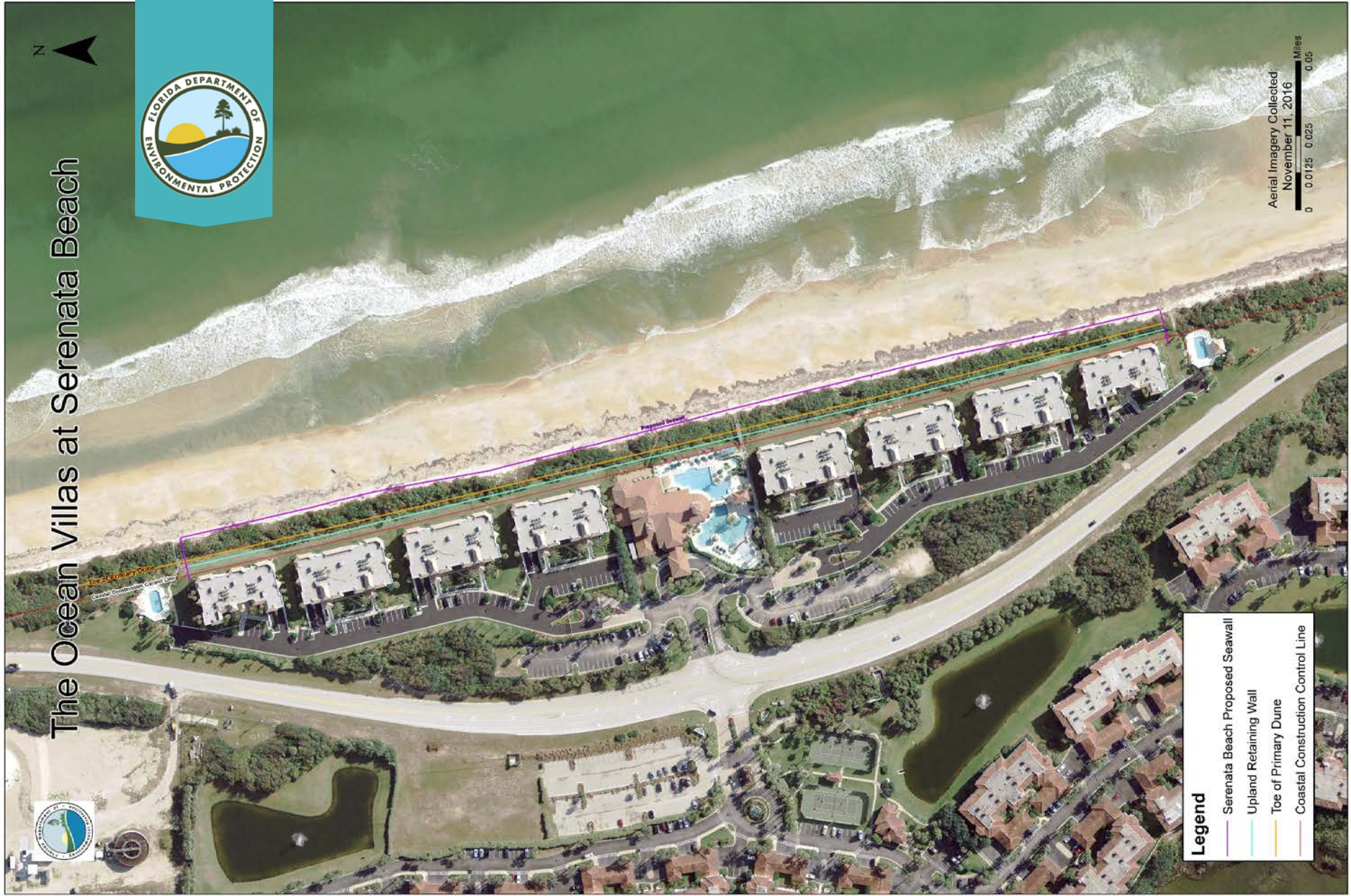
Pending Applications & Issued Permits

R-098 Through R-104

Aerial Date: 2016



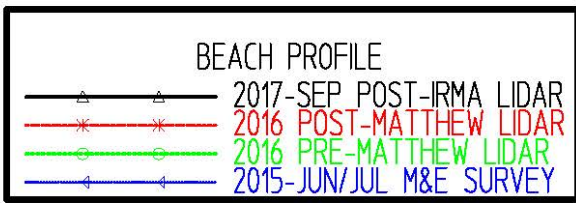
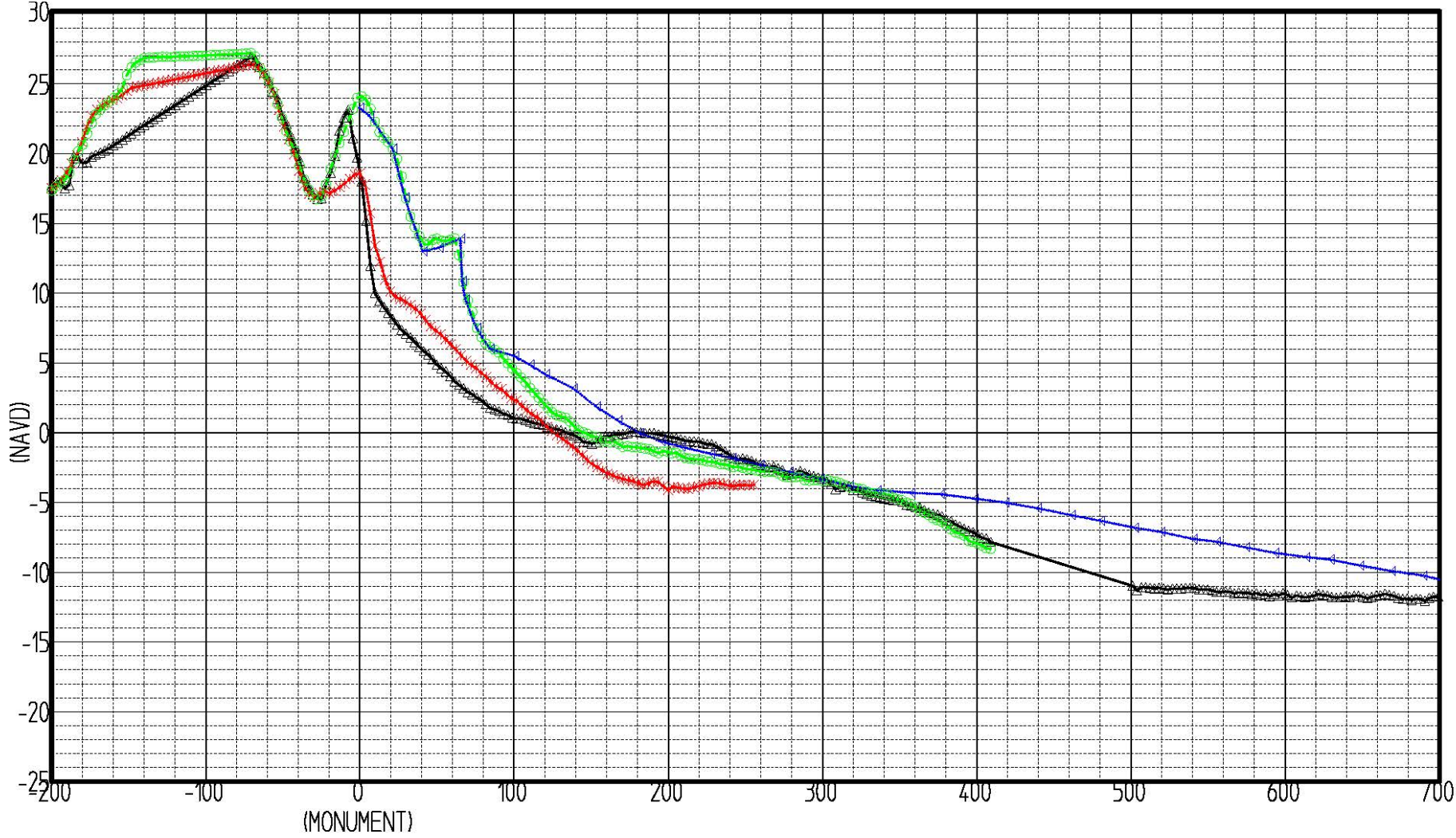
The Ocean Villas at Serenata Beach



- Legend**
- Serenata Beach Proposed Seawall
 - Upland Retaining Wall
 - Toe of Primary Dune
 - Coastal Construction Control Line

Aerial Imagery Collected
November 11, 2016

Miles
0 0.0125 0.025 0.05



ST JOHNS

Division of Water Resource Management
 FL Dept. of Environmental Protection

Range: R-102 1/4

Mon. Est.: FEB1995

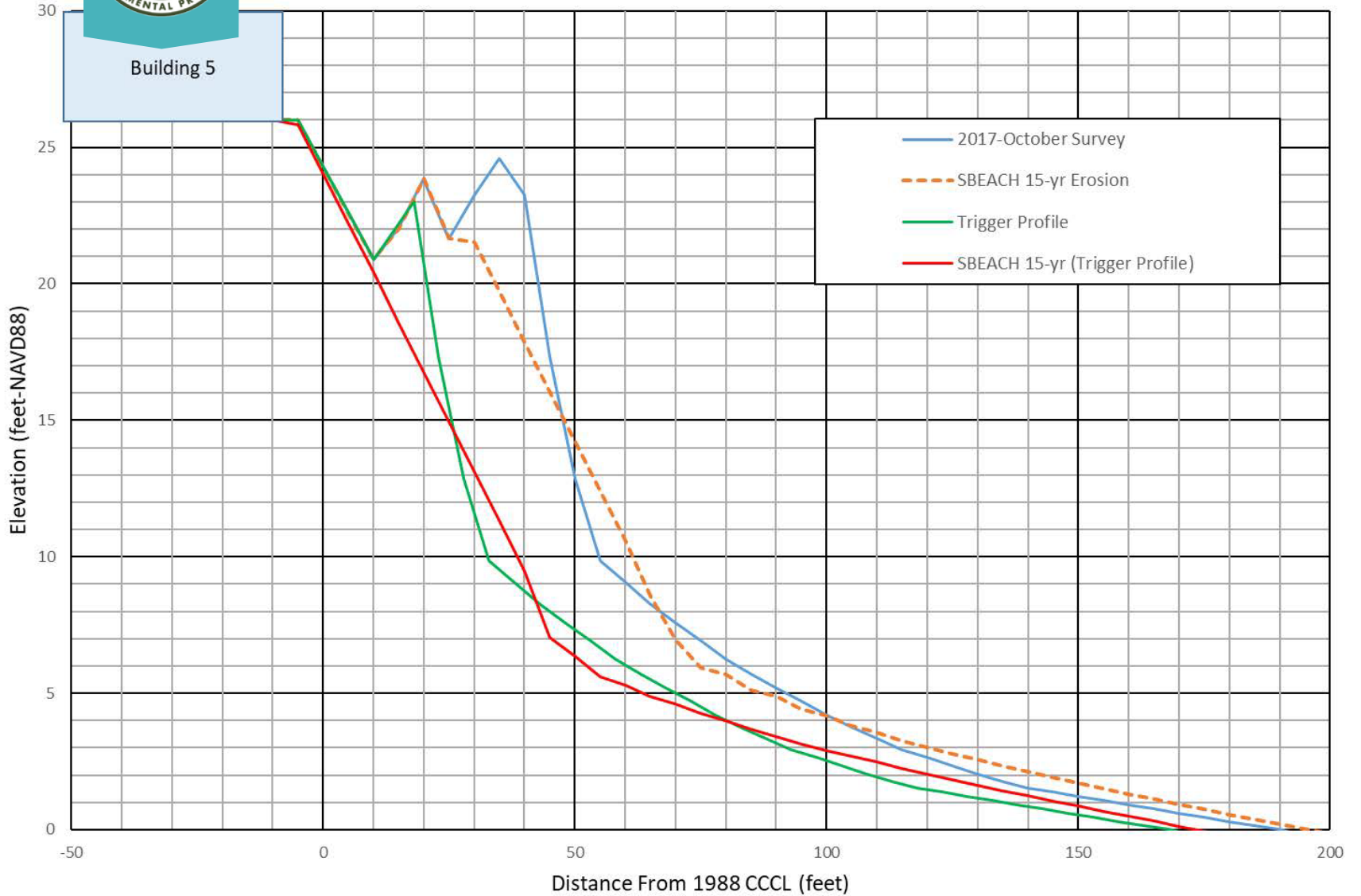
DOT DATE:

BEACH DATE: 00SEP17

OFFSHORE DATE:



SJ-1369 AR (Serenata, Building #5)



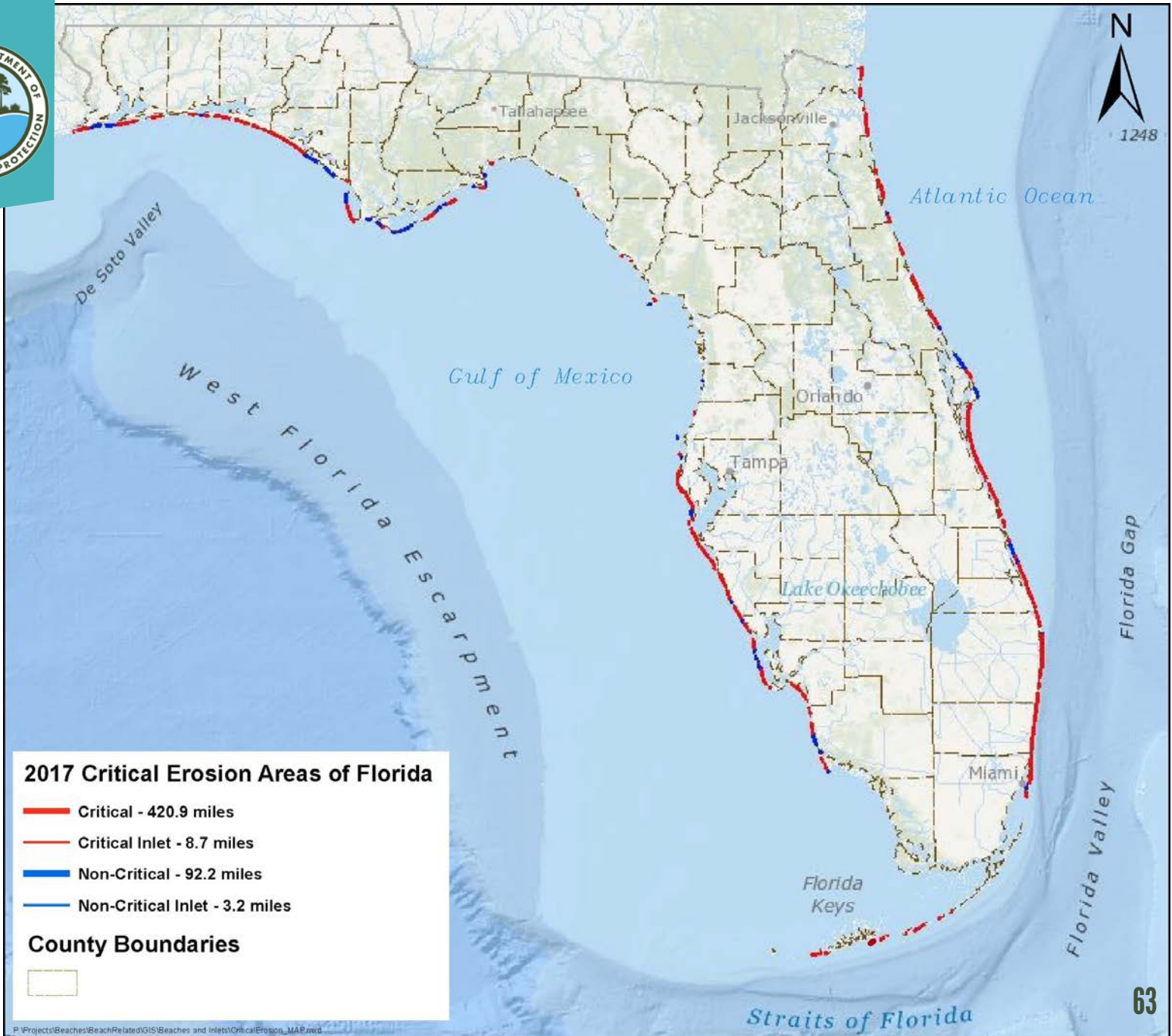


Division of
Water Resource Management

Northeast Atlantic Coast
St. Johns Beaches
Duval-St. Johns County Line
to R-15 in Flagler County

- Subregion Boundary
- R-20 Range Monument
- Critically Eroded Beach
- Beach Projects





2017 Critical Erosion Areas of Florida

-  Critical - 420.9 miles
-  Critical Inlet - 8.7 miles
-  Non-Critical - 92.2 miles
-  Non-Critical Inlet - 3.2 miles

County Boundaries





Contact Information

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