G. Sandra Sullivan

Seawalls, ***bulkheads***, and ***revetments*** are shore-parallel structures built, usually along the shoreline or at the base of a bluff, to act as retaining walls and to provide some degree of protection against high water levels, waves, and erosion. The degree of protection they afford depends on their design, construction, and maintenance. They do not prevent erosion of the beach, and in fact, can exacerbate ongoing erosion of the beach. The structures can impound upland sediments that would otherwise erode and nourish the beach, lead to ***passive erosion*** (eventual loss of the beach as a structure prevents landward migration of the beach profile), and lead to active erosion (localized scour waterward of the structure and on unprotected property at the ends of the structure).

Post-storm inspections show that the vast majority of privately financed seawalls, revetments, and erosion control devices fail during 1-percent-annual-chance, or lesser, events (i.e., are heavily damaged or destroyed, or withstand the storm, but fail to prevent flood damage to lands and buildings they are intended to protect—see Figures 3-32 and 3-45). Reliance on these devices to protect inland sites and residential buildings is not a good substitute for proper siting and foundation design. Guidance on evaluating the ability of existing seawalls and similar structures to withstand a 1-percent-annual-chance coastal flood event can be found in Walton et al. (1989).

Finally, some communities distinguish between erosion control structures constructed to protect existing development and those constructed to create a buildable area on an otherwise unbuildable site. Designers should investigate any local or State regulations and requirements pertaining to erosion control structures before selecting a site and undertaking building design.

SUPERVISOR/EMPLOYEE
PERFORMANCE EXPECTATION FORM

Employee's Name: Virginia Barker — Signature/ Date: Virginia Barker

Supervisor's Name: Conrad White — Signature/ Date: Conrad White 11-15-00

Inclusive Dates, From 11/01/00 To 11/01/01

Supervisory Instructions: List performance expectations or goals and objectives for upcoming year using the following guidelines:

- Identify the expectations of how duties are to be performed.
- Identify the principal duties of the employee's job and outline how results will be measured.

Outline special objectives or significant work or projects expected to be accomplished. Identify and address areas for employee development needs including an action plan for training so that knowledge, skills and abilities can be improved or expanded upon. Discuss these goals and objectives with the employee and use them to help evaluate the employee during the upcoming year. Once reviewed with the employee, both parties sign this form. Remember, where possible, performance expectations should be measurable.

Goal: Beach Nourishment-Shore Protection Project

To keep all necessary agencies and departments on task to facilitate construction of the North Reach Base Bid by April 30th 2001, start Option A this winter, construct Option B and the South Reach starting in Nov. 2001, and to address rock reef impediments through evaluating options and selecting a preferred alternative for the Satellite Beach area.

Tasks:

1. Assist the County Attorney's office in obtaining all necessary easements for the North and South Reaches by May 2001.
2. Obtain permits necessary for Space Coast Shoals by spring.
3. Collect and analyze data useful in planning and evaluating shore protection options in the area of rock reef outcroppings.
4. Set an Erosion Control Line through the South Reach in the spring.
5. Collect all post-construction biological monitoring data as required in the project permits.
6. Participate in the BCO in June, 2001 for providing detailed technical review of the plans and specifications for the South Reach before soliciting for construction bids.
7. Provide project information to the legislative delegation and other political interests to ensure continued federal and state funding for the project in FY2002.
8. Participate in numerous inter-agency meetings including TDC, ACOE, FDEP, PAFB and "Team Brevard" meetings.
9. Keep apace with technical, political, fiscal, and biological issues specific to the project.
10. Develop, present, and update educational materials to the public to increase their understanding of the benefits of this project. This will include presentations, flyers, street signs, web site expansion, an information hotline, and SCGTV infomercials.

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beach — would bury all 31 acres of rock reef along the Mid-Reach area. Instead, the Army Corps of Engineers proposes to add less sand using trucks.

Trucks would haul 655,000 cubic yards of sand onto the beach and rebuild 10 to 20 feet of shoreline, depending how much reef lies offshore. The rockiest stretch of Mid-Reach, from Hightower Beach Park northward, would only receive dune reconstruction.

"The project has been crafted with huge effort put into minimizing the amount of rock impact. The rock reefs are valuable habitat. And we would not argue that," McGarry said.

Photo 3. Turf algae, tunicates (*Didemnum* sp.), and bryozoans (*Schizoporella* sp.) encrusting coquina embedded in concrete mats at reef site 7 off the Brevard County Mid Reach shoreline.

Photo 12. Example of natural hardbottom reef off the Brevard County Mid Reach shoreline showing a dense stand of the green alga *Caulerpa prolifera* in a water depth of approximately 2 m.

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Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas (Fourth Edition)

FEMA P-55 / Volume I / August 2011

FEMA

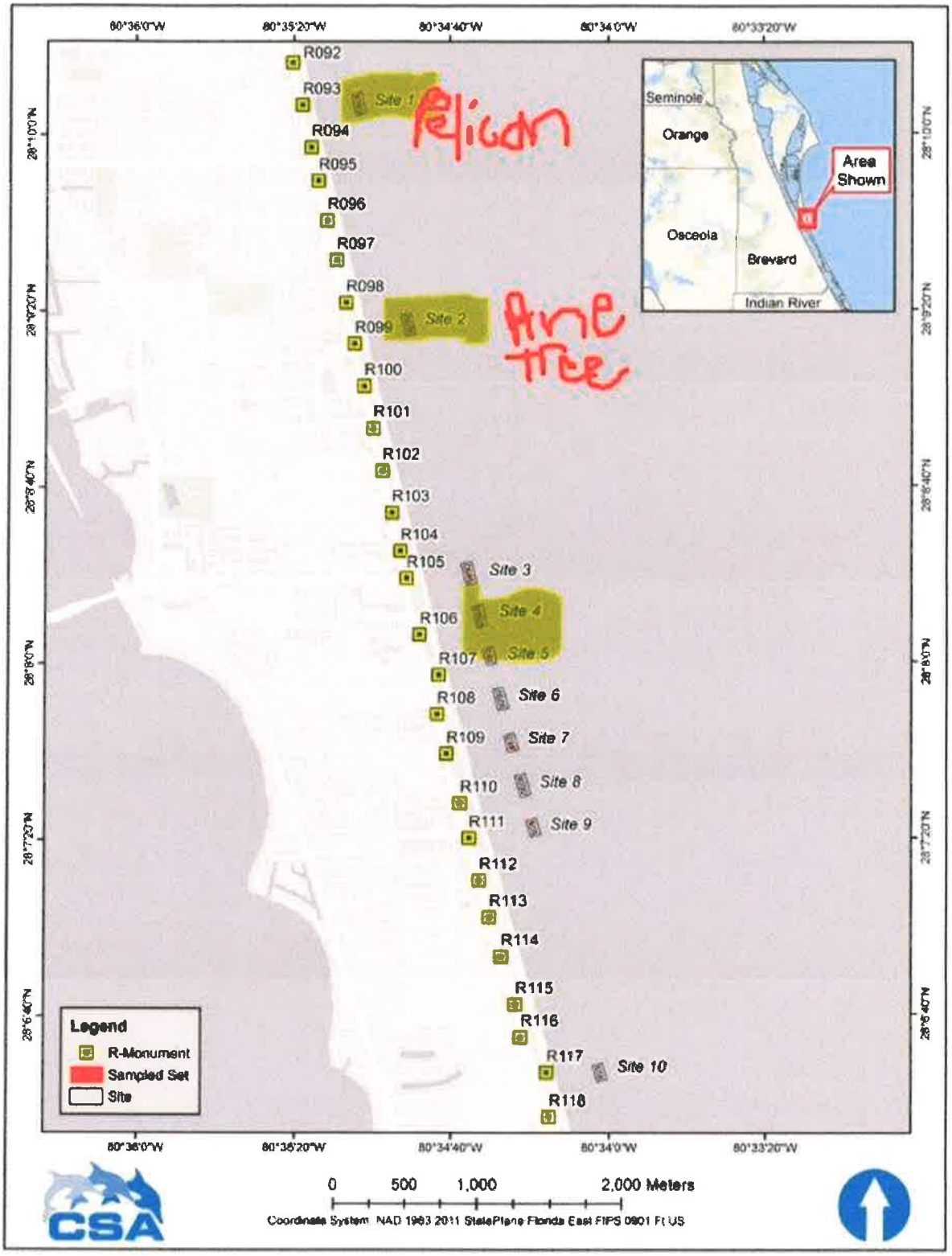

Figure 1. Locations of artificial reef sites relative to the Brevard County Mid Reach shoreline.

The Applicant used 2001 aerial photography, trained multi-spectral image classification, and ground-truthing to identify approximately 51.4 acres of exposed hardbottom along the Mid-Reach shoreline. The abundance of hardbottom decreases significantly from north to south along the project area, with the highest concentration of hardbottom located between R-74 and R-82.

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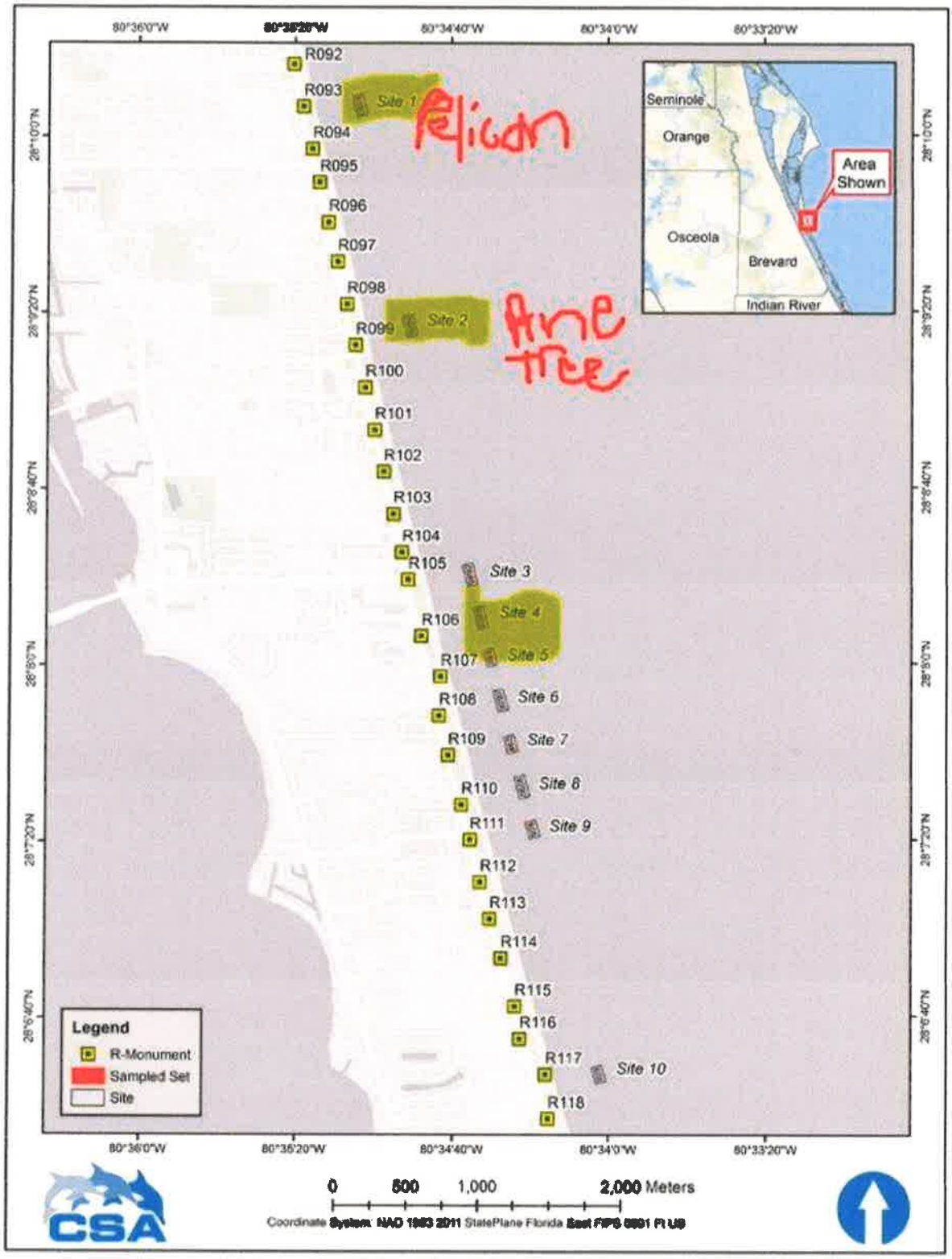

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