



Case Study: Stewart Middle School Living Shoreline



Photo of the project 15 years after installation

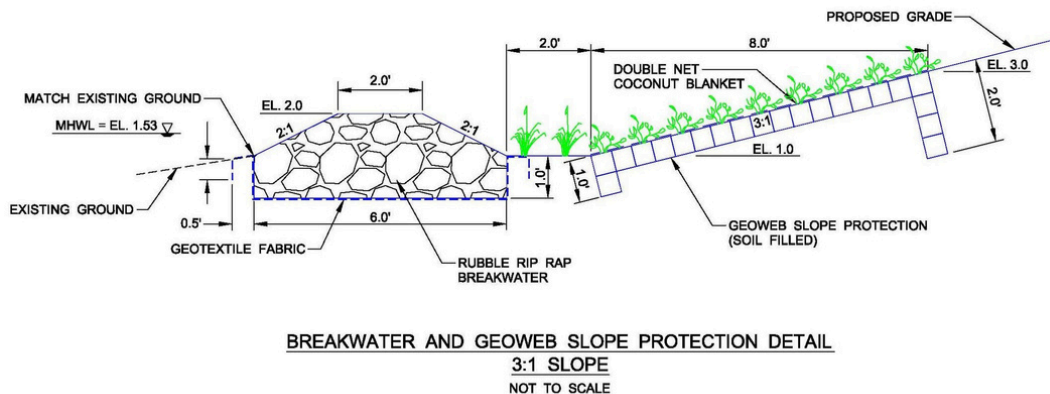
Problem: The project site at the school was an area previously covered in invasive plants, including non-native trees originating from Southeast Asia, *Leucaena leucocephala* (commonly called lead trees). There was also a very eroded shoreline with a 4-foot escarpment (a very steep and sudden drop off).

The Solution/Project: Staff from Stewart Middle School wanted to create student access to the location by turning the space into a living classroom while simultaneously stabilizing the shoreline. They worked with multiple groups — including the local school district, Pinellas County, the Southwest Florida Water Management District, and Ecosphere Restoration Institute — to see the living shoreline come to fruition, and the project has become a broader example of a successful nature-based solution for the area.

Project Description: The living shoreline is 2000 feet long. The area was regraded with slopes ranging from 1:2 to 1:4 (ratio of vertical rise to horizontal run). Places with the steeper 1:2 slope required the addition of fencing for student safety and geotextile fabric made from biodegradable coconut fiber to stabilize the soil.

A limestone sill to serve as a breakwater was included in the project, with final dimensions of 1 foot above ground level and 2 feet wide. A notch was dug in the ground, and rock was placed in this trench. A degrading sidewalk was removed from the site, and a new, wider one was poured for student access. The material from the old sidewalk was used as foundational material for the sill, which was then capped with native limestone.

Marsh grasses, including *Spartina alterniflora* (salt marsh cord grass), were planted and thrived. No additional plantings were needed beyond these initial plantings. While the site currently has 6 to 8-foot-tall mangroves, none were planted during construction. They have recruited naturally and become established within the project footprint over time. Educational signage was also placed on site.



Successes and Lessons Learned: The living shoreline has met project objectives. The area is now used for education purposes and is a very effective living classroom space. The project has also shown resiliency against years of erosional force including exposure to boat wakes which has increased along with boat traffic over time. There are no wake zones at either end of this location with vessels coming on and off plane that also introduce significant increased erosional force at the terminal ends of the project.

The project has not needed any additional maintenance in terms of replanting or the addition of any other elements. However, the living shoreline is very effective as capturing refuse transported by the Hillsborough River. So, trash removals are done 3-4 times a year, with 40-50 bags of garbage removed each time.

One of the project lessons learned is to expect and be adaptive to the unexpected in your process. Though a geotechnical investigation was done, it only detected dirt at the site. But when digging began for the sill placement, a significant amount of garbage including construction debris was unearthed. Debris removal was not included in the original project budget, but the school district helped fund disposal fees.

Additional Details



Specific Location: 1125 Spruce St. Tampa, FL 27.9606°
Latitude, -82.4705° Longitude

Cost & Funding Sources: Funding was provided by the South West Florida Water Management District (SWFWMD), National Fish and Wildlife Foundation (NFWF) (administered by a former initiative called the Pinellas County Environmental Foundation (PCEF)), and School District Hillsborough County (SDHC).



Permitting cost \$50,000. Implementation of the project cost \$180,000.

Please note: The costs for projects completed in past years may not reflect present-day costs for the same type of project. Also, there may be significant regional variation in the price of materials and services.



Project Partners: SWFWMD, PCEF, SDHC, & Ecosphere Restoration Institute.

Timeframe: The project was completed between 2009-2010. The project design took about three months and was completed in 2009. Permitting took 4-5 months, and construction was completed in 3 weeks.



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Additional Resources:

- Thomas Ries' presentation for the Working with Nature December 2024 symposium – [Living Shorelines: Can They Withstand Hurricane-Force Winds?](#), starts at 1 hour, 5 minutes
- [Living Laboratory Opens at Stewart Middle School](#)
- [Florida Living Shorelines Project Profile](#)

Progress pictures of project:
pre, during, 3-months post, 1 year post