

NORTHWEST AVENUE , MSE STRUCTURE ORLANDO, FL, USA

RIVER BANK PROTECTION

Product: Terramesh[®], Gabions

Problem

Seminole County Public Works, Stormwater Division, had observed erosion to many key channels and streams within the Little Wekiva watershed. Many of these problems had been solved with gabion retaining and channeling structures. A steep and very tall embankment on the Little Wekiva River, adjacent to Northwestern Avenue, had experienced critical erosion, and city service pipes within the channel banks had been exposed. Furthermore, properties adjacent to the river were in danger of losing their properties if erosion was allowed to continue.

Solution

Project designer, Singhofen and Associates Inc., approached Maccaferri Inc for assistance in the design of gabion retaining structures that would retain the embankment and provide erosion control and river training. Some of the structures would be up to 30ft tall. As gabion structures tend to be uneconomic at this height due to the volume of gabion stone fill, Maccaferri offered the Terramesh[™] mechanically stabilized earth (MSE) system for the tallest embankments.

Terramesh[™] consists of a gabion fascia unit with an integral soil reinforcement 'tail' manufactured from Maccaferri double twist woven steel wire mesh with a PVC coating. This 'tail' is compacted within the structural backfill, reinforcing it. Testing revealed that the on-site sandy embankment material could be **re-used** as structural backfill to the MSE walls. This sustainable approach to construction dramatically reduced the environmental impact and cost of the solution.

Terramesh[™] forms MSE structures that are permeable, durable and can sustain large differential settlements without sustaining damage. This is a crucial capability in channeling works where erosion can cause settlement.



Client:

SEMINOLE COUNTY, ORLANDO, FL

Main contractor:

SCHULLER CONTRACTING, ORLANDO, FL

Designer:

SINGHOFEN & ASSOCIATES, WINTER PARK, FL

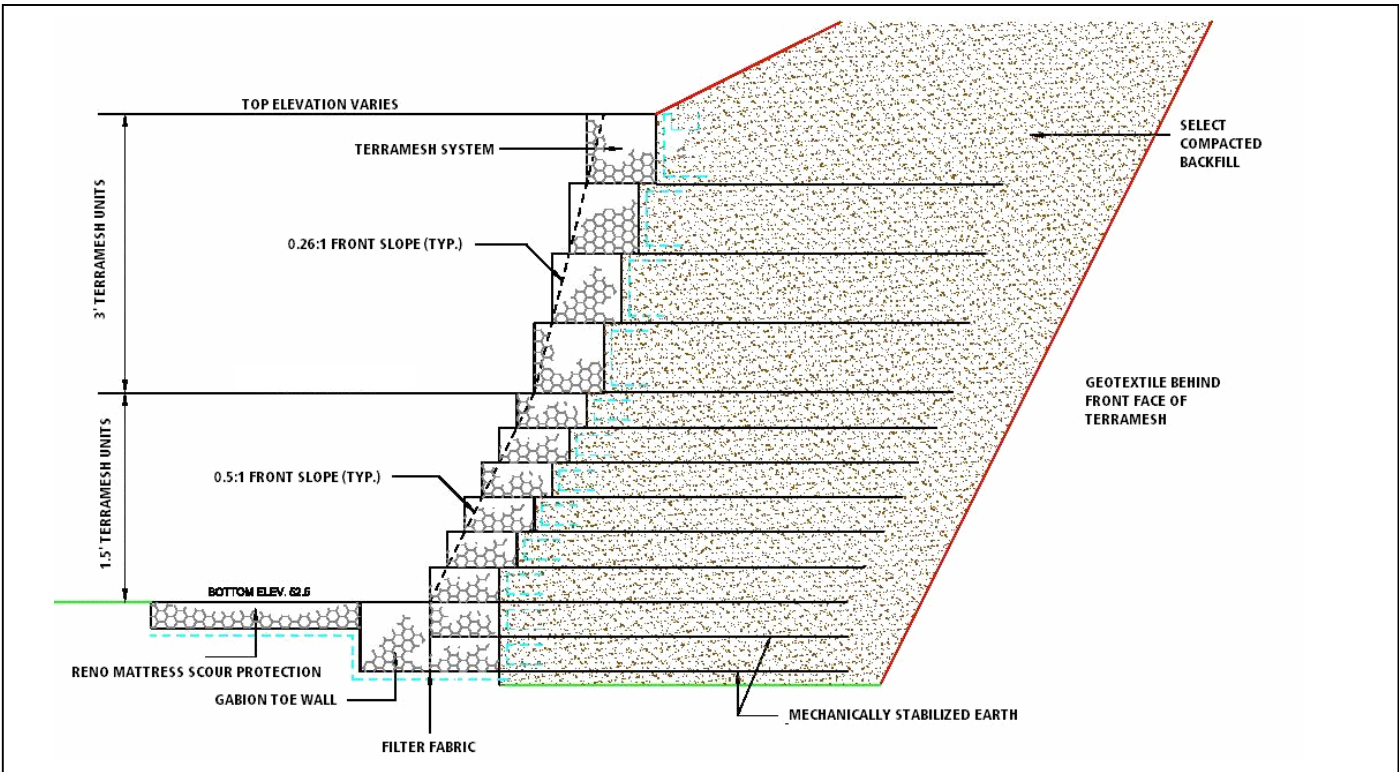
Products used:

TERRAMESH[®], GABION, RENO MATTRESS

Date of construction

FALL 2001, BUILT FALL 2003





Project section

The lower height walls were designed and built as traditional gabion retaining structures.

A Reno mattress scour protection apron and gabion toe was installed at the base of the structure to limit erosion undermining the structure.

General contractor, Schuller Contracting Inc., began by supporting the existing embankment, installing temporary works and diverting the city services. The Little Wekiva River was also diverted and extensive ground de-watering installed, to facilitate construction of the wall foundation in the dry.

Following construction, the land above the wall was landscaped and returned to the home owners, who were no longer in danger of losing their properties.

Maccaferri Terramesh™ has been evaluated by HITEC, an independent organization created through collaboration of the FHWA, TRB and ASCE to assess innovative solutions for use in public sector Civil Engineering projects. This report is available from the HITEC website at www.certf.org/hitec



Completed construction



Completed construction

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