

Rapahannock Regional Jail

Stafford, VA



Client: Rapahannock Regional Jail Authority
Project Mgr: Downey & Scott, LLC
Engineer: Dewberry Davis

Scope: Design & Build 7,400 s.f. MSE wall

Problem: In December of 2006, Balfour Beatty approached GeoStructures (GSI) to develop design and build proposals for a 23 foot high retaining wall in cutting at the Rapahannock Regional Jail site in Stafford, Virginia. The wall was required to create space for expansion of the existing detention facility. The site investigation suggested that the existing hillside was composed predominantly of stiff marine clays overlying sedimentary rock formations exhibiting varying degrees of weathering. High groundwater was reported in some of the boring logs and shallow slope failures and perched water in the existing hillside were evident.



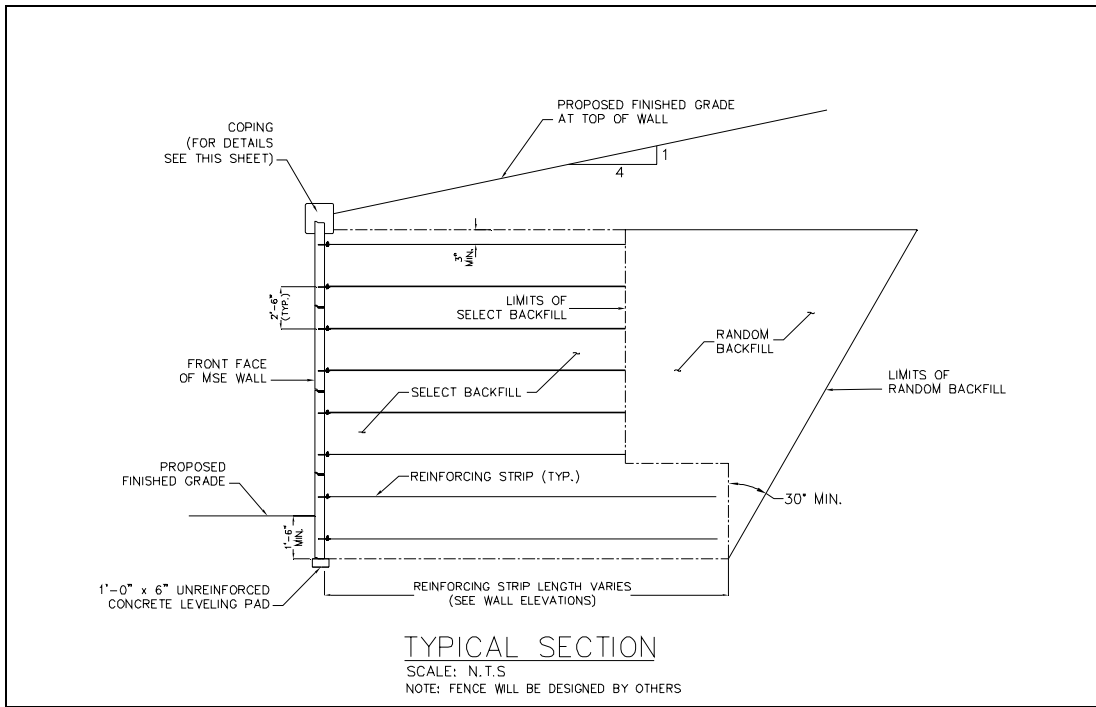
Alternatives: Working in partnership with GSI, EarthTec investigated a number of alternative solutions. In preliminary design, it became apparent that the low long-term strength of the marine clay would drive economic viability. EarthTec developed two options: a post and panel wall and an MSE solution using the EarthTrac HA™ system comprising precast panels and ribbed steel strips.

Innovative Design: To enhance stability while maintaining economy, EarthTec proposed an innovative L shaped cross section, with longer steel strips near the bottom of the structure. This design detail reduced the bearing intensity and enhanced sliding stability.

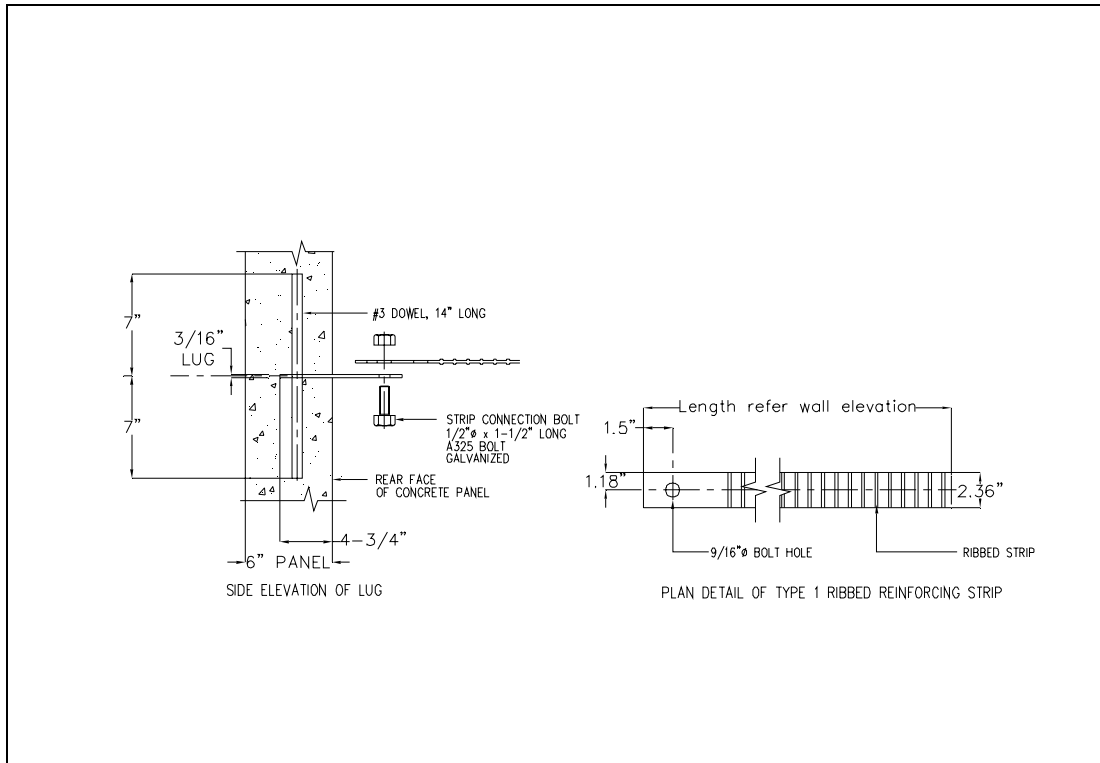
Cost Effective: Even after accounting for additional excavation and imported stone, EarthTec's MSE solution saved over \$300,000 compared with the post and panel or other traditional cut wall options.

The EarthTec Advantage:

- Engineers recognize that MSE walls are cost effective in fills. This project demonstrates that MSE walls are often a cost effective option in cut applications as well.
- EarthTec's innovative design coupled with its ability to deliver the structure, on a turn-key basis, through GeoStructures, proved critical to staying on schedule and on budget.



L - SHAPED CROSS SECTION



STRIP AND PANEL CONNECTION DETAILS

Let EarthTec's innovative solutions help you save time and money on your next project. For the best MSE Walls on Earth, please contact us.

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