Lessons Learned in the Repair of Failed Walls

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Mechanically Stabilized Earth (MSE) Wall Failures
Crossgate Shopping Center
Nashville, TN
Competitively Bid Repair
Snowmass, CO
Deer Ridge Lane
Parking Lot 6, TOSV
US 421 in NC
major artery
Rapid drawdown during a heavy rainfall
global failure
SNLI Representatives were on site the following morning to assess the damage.
SNLI engineers used back-analysis methods to generate a repair scheme to allow equipment to enter the area. This design process took less than 6 hours. The target FOS was 1.2.
Crews and equipment were mobilized to the site at approximately 10 PM on the 28th. The crews worked through the night. By the end of the 29th, the roadway was reopened to partial traffic.
During phase II, SNLI staff engineers targeted getting the road back open to partial traffic. The target FOS was 1.5.
scarp was stabilized
traffic was again running on the road
NCDOT on-call excavation contractors worked with SNLI to reshape the areas below.
phase III - to provide a stable base for new wall construction.
During phase III, SNLI staff engineers designed a reticulated micropile foundation for a new retaining wall. Phase IV was the rebuild of the retaining wall on the reticulated micropile foundation. Target FOS was 1.5. At this point, SNLI engineers had better geotechnical data from the site.
Rebuilding Retaining Wall
Retaining Wall Was then Shotcreted (Due to NCDOT Aesthetic Requirements)
US 421 Project Highlights

• 24 hour response time for site visit.
• 36 hour mobilization, concurrent modeling.
• Roadway open in less than 4 days.
• Total project time: Less than 6 weeks
Large Tension Crack
60’L x 4’D
30” Grid Spacing

¾” Max Specified Particle Size
Non-Failed Sections
Water Flow Through Blocks
Slurry Consistency Soil Encountered
21-feet from top of wall
Oregon - Jefferson Marion Bridge Repair
No reinforcement in upper levels
Kentucky
Historic abutments
Railroad Rail Failures
Concrete Wall Failures
Pile Wall Failures
Gabion Basket Wall Failures

Indiana
West Virginia
Rock Wall Repair

Rock Wall Remediation
Near Fries, VA
Wall Nearing Completion with Decorative Stone Guardrail Installed
Questions?

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