

The logo for the Association of Conservation Engineers (ACE), consisting of the letters 'ACE' in a large, bold, green, sans-serif font.

ASSOCIATION OF
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Association of Conservation Engineers

53rd Annual Conference

Gird Creek Geosynthetic Reinforced Soil (GRS) Retaining Wall

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Problem Description

- Gird Creek Road (NFSR 8402)
 - Fill failure in 2011 spring due to high runoff and combination of fill saturation and overland flow
 - Loss of road width and forest access
- Clayey sand with gravel
 - USCS: SC
 - PI~25-30
 - < #200: 36-44%
- Site showed signs of high in-situ moisture



Gird Creek, B-D NF Site Location





Gird Creek, B-D NF Site Location





05.21.2012 13:33



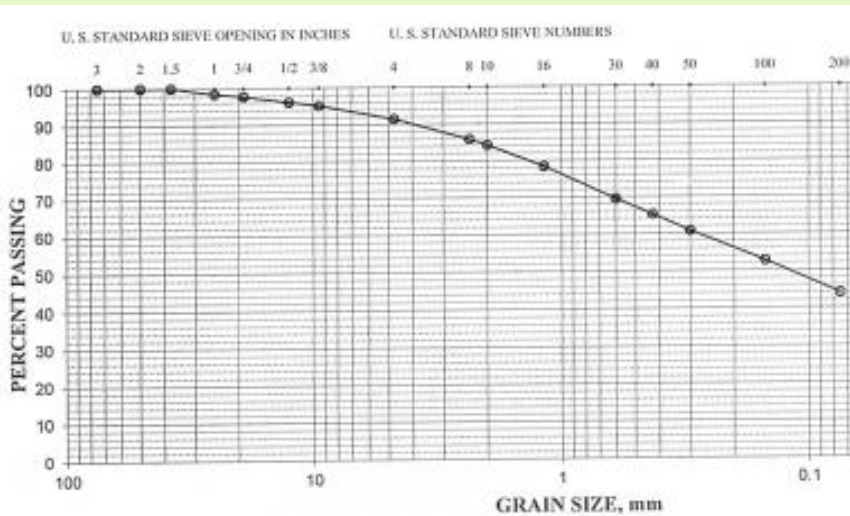
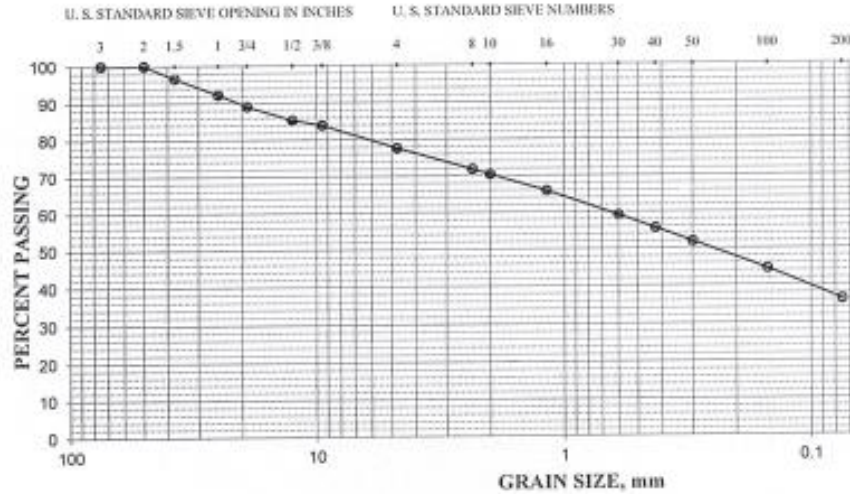
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11.03.2011 10:04



On Site Material





Solution

- Needs
 - Regain original road width
 - Facilitate drainage to prevent future failure
 - Improve soil strength
 - On site material declared unsuitable
- Solution decided upon was GRS wall
 - Wall materials are not proprietary or costly
 - Easy construction with minimum crew
 - Drainage system easily incorporated
 - Works with a variety of material gradations

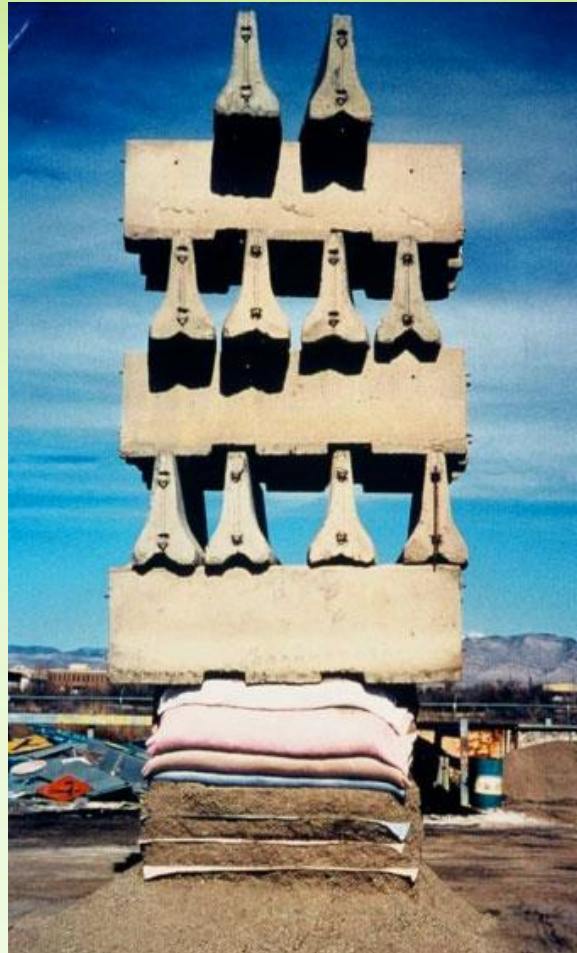


GRS Concept

- Originally developed by the Forest Service, commonly known as “Burrito Walls” in the 1970’s
- Further researched by CTI and CDoT in the 1980’s
- Refined by FHWA in 1995
- Adopted as an “Everyday Counts” initiative by FHWA in 2010 for GRS-IBS system
- A type of Mechanically Stabilized Earth (MSE) Wall
- 8 inch lifts as opposed to 1.5’ to 2’ lifts
- Small lifts allow only small horizontal pressures to develop which in turn allows for
 - No connection necessary between blocks and geotextile
 - Lower strength geotextile
 - The structure to act as one discrete unit (think bedsheets)
- Can have CMU block or burrito wrap facing
 - Facing is to only prevent raveling and erosion, does not contribute to structural strength
- Imperative to keep reinforced soil dry and remove water from the system

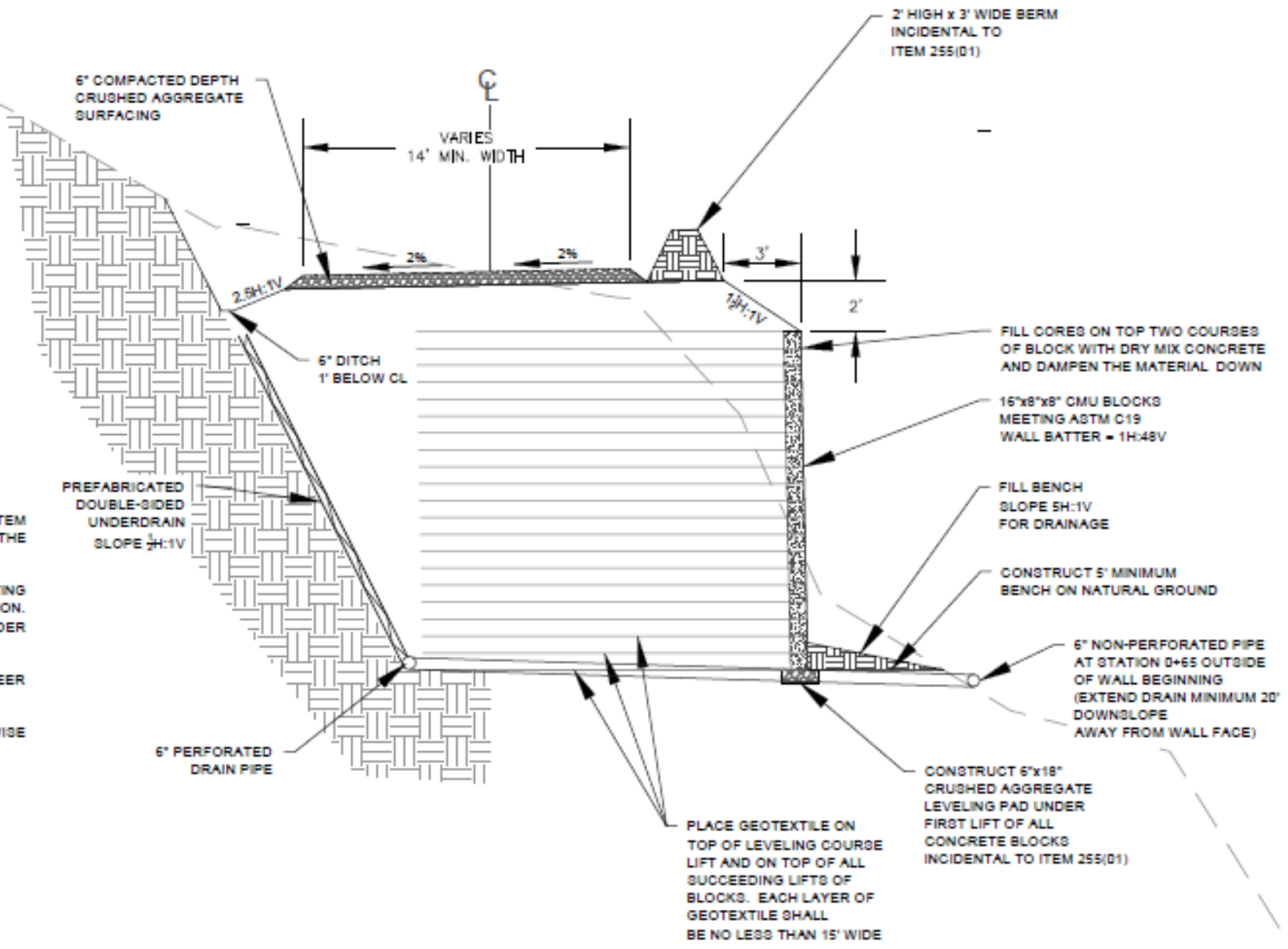


Bedsheets?



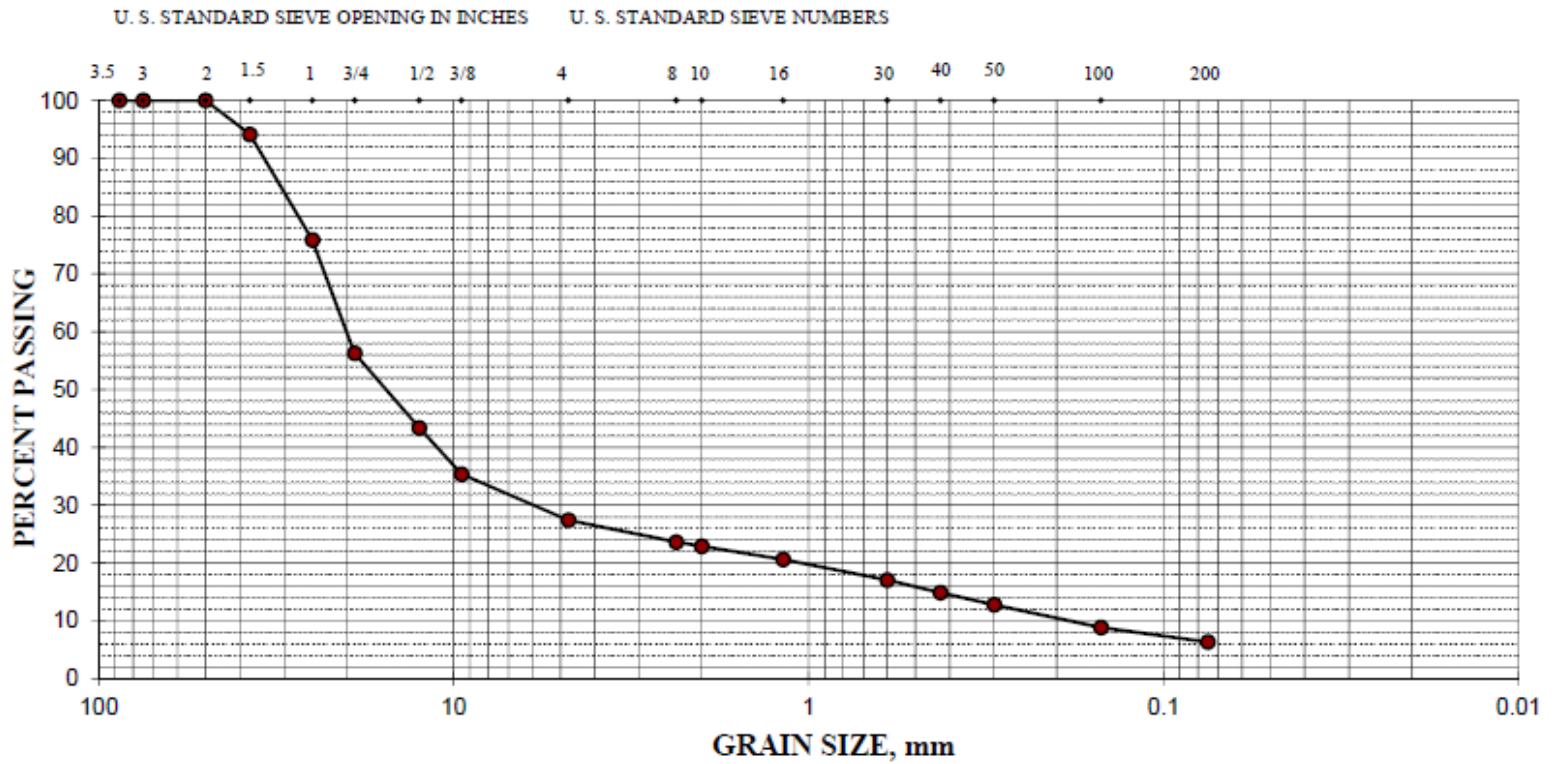
-180.

CONTROL SYSTEM
CONFORM TO THE
IMPACTION TESTING
L. CONSTRUCTION.
PROVIDED UNDER
BY THE ENGINEER
LESS OTHERWISE
IFICATIONS.





Fill





First and Subsequent Lifts- Compaction, Compaction, Compaction!





09.25.2012 09:32



09.25.2012 10:05



09.25.2012 09:32



09.25.2012 10:56



09.25.2012 12:19



09.25.2012 14:30



09.25.2012 11:25



09.25.2012 16:15



09.26.2012 10:01



09.27.2012 09:35



10.01.2012 14:37



10.01.2012 14:52



07.24.2014 10:07



Highlights of Design and Construction

- Site changes during winter season due to further runoff and erosion
- CMU blocks aren't 8"x8"x16" but are 7.5"x7.5"x15.5"
- Be careful of overcompacting edges
- Get the right roller for the right material
- Leveling in the first few lifts is critical
- Import fill when needed



GRS-IBS





Special Thanks To

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- Mark Libby- Contracting Officer's Representative
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- Lisa Rakich- Contracting Officer
- Robert Lewis- Cat Tracks Excavation
- David Hilgendorf- WFL ERFO Coordinator
- Amy Thomas- FS-WFL Liaison



Thank you!

Questions?