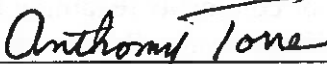


SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 11-001
Title: MECHANICALLY STABILIZED EARTH SYSTEM BACKFILL MATERIAL			
Target Audience: ☐ Manufacturers (18) ☐ Surveyors (33) ☒ Local Govt. (31) ☒ Consultants (34) ☒ Agencies (32) ☐ Contractors (39) ☐ _____ ()		Approved:  Anthony Torre, P.E., Acting Deputy Chief Engineer (Research) 02-28-2011 Date	

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of Sept. 1, 2011.
- Superseded issuance(s): This EI modifies the §733-02 portion of EI 09-027.
- The information transmitted by this issuance will be incorporated into a future revision to the Standard Specifications.

PURPOSE: The purpose of this EI is to revise the Basis of Acceptance section of §733-02 *Mechanically Stabilized Earth System Backfill Material*.

TECHNICAL INFORMATION:

- Geotechnical Control Procedure (GCP-20) *Procedure for Taking Random Samples of Backfill Material for Mechanically Stabilized Earth Systems* provides a uniform and non-biased method by which the Department will select locations to take samples of backfill material behind a MSES structure during construction. To connect the manual with the Standard Specifications, the Basis of Acceptance section of §733-02 *Mechanically Stabilized Earth System Backfill Material* was revised to incorporate a reference to the manual.
- Geotechnical Control Procedure (GCP-20) *Procedure for Taking Random Samples of Backfill Material for Mechanically Stabilized Earth Systems* is being issued concurrently via EB 11-004.

IMPLEMENTATION:

The Main Office Design Quality Assurance Bureau will insert these standard specification revisions into contract proposals beginning with projects submitted for the letting of Sept. 1, 2011.

TRANSMITTED MATERIALS:

Revisions to the Standard Specification §733-02 *Mechanically Stabilized Earth System Backfill Material*. Both metric and U.S. Customary revisions are attached.

BACKGROUND: Mechanically Stabilized Earth Systems (MSES) are internally stabilized fill structures comprised of natural select granular backfill (reinforced backfill), precast concrete panels (facing), subsurface drainage system, and high-strength, metallic or polymeric inclusions (reinforcement) to create a reinforced soil mass. Stability of these systems is achieved by the weight of the reinforced soil mass resisting the overturning and sliding forces generated by the lateral stresses from the retained soil behind

the reinforced mass.

MSES walls require a high quality backfill for durability, good drainage, constructability, and good soil reinforcement interaction which can be obtained from well graded, granular materials. The high quality backfill requirements provided in the MSES specification have established minimum or maximum electrochemical index properties to coincide with design procedures for the maximum corrosion rates associated with those properties. Backfills incorporated with buried steel elements of MSES walls which fall outside these ranges provide the potential for a reduced lifespan of the structure along with increased maintenance costs.

CONTACT: Questions or comments regarding this issuance should be directed to Randall J. Romer, P.E., of the Geotechnical Engineering Bureau at (518) 457-4714, rromer@dot.state.ny.us. Questions or comments regarding the technical aspects of the Geotechnical Control Procedure should be directed to James Curtis, of the Geotechnical Engineering Bureau at (518) 457-4735, jcurtis@dot.state.ny.us.

MECHANICALLY STABILIZED EARTH SYSTEM BACKFILL MATERIAL

Make the following changes to the Standard Specifications dated May 4, 2006 as modified by EI 09-027:

Delete the Basis of Acceptance of Section 733-02 and **Replace** it with the following:

BASIS OF ACCEPTANCE. Backfill material from approved stockpiles will be accepted on the contract site by delivery ticket. Each delivery ticket shall identify the Suppliers name, Suppliers granular source number (GSN), date, NYSDOT contract number, stockpile number, item number and quantity.

Backfill material from approved stockpiles will be accepted as part of the MSES upon confirmation that the material gradation type provided by the Contractor, outlined in §733-02B *Gradation*, conforms to the MSES submittal provided by the wall system designer-supplier and upon successful completion of the Quality Assurance (QA) program indicating that the material conforms to the specification. In addition to the requirements of Section 106 *Control of Material*, the Department will sample and test backfill taken from behind the newly-constructed wall to assure quality. The number of samples and their locations (plan and elevation) will be determined based on the quantity of material to be used in each MSES structure in accordance with the geotechnical control procedure "*Procedure for Taking Random Samples of Backfill Material for Mechanically Stabilized Earth Systems*". Results from chemical testing (i.e. resistivity, sulfate ion content, sulfide ion content, and chloride ion content) can take several weeks to obtain.

MECHANICALLY STABILIZED EARTH SYSTEM BACKFILL MATERIAL

Make the following changes to the Standard Specifications dated May 1, 2008 as modified by EI 09-027:

Delete the Basis of Acceptance of Section 733-02 and **Replace** it with the following:

BASIS OF ACCEPTANCE. Backfill material from approved stockpiles will be accepted on the contract site by delivery ticket. Each delivery ticket shall identify the Suppliers name, Suppliers granular source number (GSN), date, NYSDOT contract number, stockpile number, item number and quantity.

Backfill material from approved stockpiles will be accepted as part of the MSES upon confirmation that the material gradation type provided by the Contractor, outlined in §733-02B *Gradation*, conforms to the MSES submittal provided by the wall system designer-supplier and upon successful completion of the Quality Assurance (QA) program indicating that the material conforms to the specification. In addition to the requirements of Section 106 *Control of Material*, the Department will sample and test backfill taken from behind the newly-constructed wall to assure quality. The number of samples and their locations (plan and elevation) will be determined based on the quantity of material to be used in each MSES structure in accordance with the geotechnical control procedure "*Procedure for Taking Random Samples of Backfill Material for Mechanically Stabilized Earth Systems*". Results from chemical testing (i.e. resistivity, sulfate ion content, sulfide ion content, and chloride ion content) can take several weeks to obtain.