

# EXPECTED IMPLEMENTATION JULY 2021

## 548 RETAINING WALL SYSTEMS (REV 11-3-20) (FA 12-30-20) (7-21)

SUBARTICLE 548-8.5.2 is deleted and the following substituted:

**548-8.5.2 Thick Lift Option for Compacted Select Backfill:** If through field tests, the Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, the backfill may be constructed in successive courses of not more than 10 inches compacted thickness.

Based on the results of a full-height test wall constructed by each Contractor or MSE wall sub-contractor, the Engineer will approve each Contractor's or MSE wall sub-contractor's specified compaction procedures. The length of the test wall shall be the length required to produce one LOT of 500 feet at the top of the wall. When all individual walls using this option are less than 500-feet long, the test wall may be broken into two segments comprising separate LOTs. Both segments must be accepted to determine the required percent compaction for the remaining walls. For each Contractor or MSE wall sub-contractor, the height of the test wall shall be 20 feet or the highest wall using this option, whichever is less. Lower height walls may be constructed using these procedures until a full height test wall is constructed. Notify the Engineer prior to beginning construction of a test wall.

Perform one set of QC density tests per thick lift of the test wall on the backfill within three feet behind the wall face and one set of QC density tests per thick lift of the test wall on the backfill placed beyond three feet behind the wall face, at random locations within each LOT. At each QC density test, the set will include testing the entire lift thickness and a dig down test of the bottom 6 inches. Excavate materials as needed to allow testing of the bottom 6 inches, at no expense to the Department. Maintain the exposed surface as close to undisturbed as possible; no further compaction will be permitted during the test preparation. The Department will perform verification testing of density for the bottom 6 inches and the entire lift thickness at the frequency indicated in 548-9.6. All QC tests and a Department Verification test must meet the density required by 548-9.4.

Identify the test wall with the required percent compaction effort and thickness in the Earthwork Records System (ERS) portion of the Department's database. If the thick lift density does not meet or exceed the thick lift density results during the test wall, perform dig-down density tests to verify the density of the bottom 6 inches of the lift. The Contractor may elect to place material in 6 inches compacted thickness at any time. Once approved, a change in the source of backfill material will require the construction of a new test wall. Do not change the compaction effort once the test wall is approved. The Engineer will periodically verify the density of the bottom 6 inches during thick lift operations. If unable to achieve the required density, remove and replace or repair the test wall to comply with the specifications at no additional expense to the Department. The Engineer may terminate the use of thick lift construction and instruct the Contractor to revert to the 6 inches maximum lift thickness if the Contractor fails to achieve satisfactory results or meet the requirements of this Section.

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SUBARTICLE 548-9.2 is deleted and the following substituted:

**548-9.2 Maximum Density Determination:** For select backfill, determine the maximum QC density in accordance with FM 1-T180. When compacting A-3 or A-2-4 materials to meet the alternate acceptance criteria in 548-9.4.1, determine the maximum density in accordance with FM 1-T099.

Perform gradation tests on the sample collected in accordance with AASHTO T27 and FM 1-T011. Classify soils in accordance with AASHTO M145 to determine compliance with embankment utilization requirements.

SUBARTICLE 548-9.3 is deleted and the following substituted:

**548-9.3 Density Testing Requirements:** Ensure compliance with the requirements of nuclear density testing in accordance with FM 1-T238. Determine the in-place moisture content for each density test. Use FM 1-T238, FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or FM 5-535 (Laboratory Determination of Moisture Content of Granular Soils by Use of a Microwave Oven) for moisture determination.

Perform these tests at a minimum frequency of one set of tests per LOT.

Determine test locations including stations and offsets, using the random number generator provided by the Engineer. Do not use notepads or worksheets to record data for later transfer to the ERS section of the Department's database. Notify the Engineer upon successful completion of QC testing on each LOT.