

5480000 Retaining Wall Systems
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

Willie Henderson
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Comment: (6-10-13)

1. The attached table (in 548-9.6) needs to be modified to match the current definition of LOTS in 548.

Test Name	Quality Control (QC)	Verification
Maximum Density	One per soil type	One per soil type
Density	One set of tests per LOT	One set of tests per four LOTs for each type of QC test.
Gradation	One per Maximum Density	One per Maximum Density
LL&PI	One per Maximum Density	One per Maximum Density
Soil Classification	One per Maximum Density	One per Maximum Density
Organic Content	One per soil type	One per soil type
Direct Shear	Three per soil type when required by 548-9.5	One per soil type

Response:
Agree – Change made.

2. 548-9.2 gives acceptance for select backfill, but does not address coarse aggregate. Do we need an acceptance criteria for the coarse aggregate? Do we need a rolling pattern spelled out? Will one pass give us the strength we need?

<p>placement of backfill outside the limits of this specification at no cost to the Department.</p> <p><u>Perform all coarse aggregate compaction operations using a vibratory compactor (roller or plate compactor) with an operating weight of at least 600 lbs and which produces a centrifugal force of not less than 7,500 lb. Sheepsfoot, grid rollers or other types of equipment employing a foot are not allowed for any backfill type. Achieve compaction of all backfill types within 3 feet of the back of the wall face using a power operated roller or plate weighing less than 1,000 pounds. At a distance greater than 3 feet from the back of the wall, a vibratory roller may be used, provided that the frequency and amplitude combined with bulk weight of the roller has performed satisfactorily at a trial section of the same type of wall. A For select backfill, a smooth wheel or rubber tire roller is considered adequate. Ensure that the maximum lift thickness after compaction does not exceed 6 inches. Decrease the lift thickness if necessary, to obtain specified density.</u></p>
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Response: Agree Change made. The following was added to 548-9.4 for flowable fill and coarse aggregate backfill:

“For flowable fill, meet the requirements of 121-6. For coarse aggregate backfill, compact with a minimum of 3 passes of a vibratory compactor weighing between 600 and 1000 lbs or 2 passes of a vibratory compactor weighing over 1000 lbs. Use the highest vibration level that does not cause excessive fracture of the aggregate in the opinion of the Engineer. Continue compaction until there is no additional movement.”

Kevin Price
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Comment: (6-20-13)

548-2.6.2 requires backfill material be tested for Resistivity, Sulfate, & Chloride. Later in this same section it is stated that these results are not needed when non-metallic reinforcement is used. Can we restructure this section perhaps add a table outlining the testing and acceptability ranges? The PH range has been reduced. In previous versions of the specifications the range could be extended from 5 to 9, to 3 to 10. I can see why we would not want material with a range less than 4.5 but I cannot see why the range is not acceptable up to 11.

Response: Agree - the verbiage within 548-2.6.2 has been restructured. After restructuring, a table does not seem to be needed.

According to our State Materials Office, high pH has been found to cause accelerated loss of galvanization, however, we are researching whether these limits can be expanded safely.

DeLorenzo, Richard
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Comment: (7-1-13) The second paragraph of Section 548-2.1 requires the use of Section 347 concrete for the leveling pads with Section 346 testing requirements. Why have 346 testing requirements for 347, non-structural concrete? My comment/ suggestion would be to delete the second sentence. Section 347 concrete is accepted by certification but allows for the Engineer to sample the concrete if needed. **548-2.1 Concrete:** Ensure that concrete utilized for wall components is as specified in the Contract Documents and is consistent with the concrete class, environmental classification and admixture requirements for durability as stated in the Contract Documents. Produce and supply concrete for all wall components meeting the requirements of Section 346.

Produce and supply concrete for the leveling pad meeting the requirements of Section 347. ~~Assume responsibility for performance of all testing required by Section 346.~~ Use Department approved mix designs.

Response: Agree – change made.

Larry Jones
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Comment: (7-1-13) It has been brought to my attention by Richard DeLorenzo of the SMO that “ASTM A82 and A185 have been withdrawn and merged into one standard, ASTM A1064. This standard covers plain and deformed wire.” Therefore the following additional revision is needed:

548-2.3 Backfill Reinforcement: For walls utilizing backfill reinforcement, use reinforcement consisting of steel wire mesh, metal strips or structural geosynthetics as required for the wall system chosen. Use backfill reinforcement of the same length from top to bottom of wall at any section. For tiered walls, use backfill reinforcement of the same length within the height of each tier at any section.

Use plain steel wire mesh and embedded loops shop fabricated from cold drawn steel wire ~~meeting the minimum requirements of ASTM A82~~, and weld into the finished mesh fabric ~~in accordance with meeting the requirements of ASTM A185 A1064~~ Use longitudinal and transverse wires of equal and constant diameter within a given piece of mesh reinforcement. Use

Response: Change made.

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Comment: (11-06-13) 548-2.6 Ensure corrosivity testing (pH, resistivity, sulfate & chloride) is required for coarse aggregate backfill.

Response: Agree- Change made.

The following language similar to 548-2.6.2 was added to 548-2.6.4:

“Have all coarse aggregate backfill materials tested for pH, resistivity, sulfate and chloride content by a Department approved independent testing laboratory prior to placement. Provide certification to the Engineer that the results of these tests meet the requirements of 548-2.6.2 and are signed and sealed by a Professional Engineer, registered in the State of Florida.”