

CONSTRUCTION NOTES

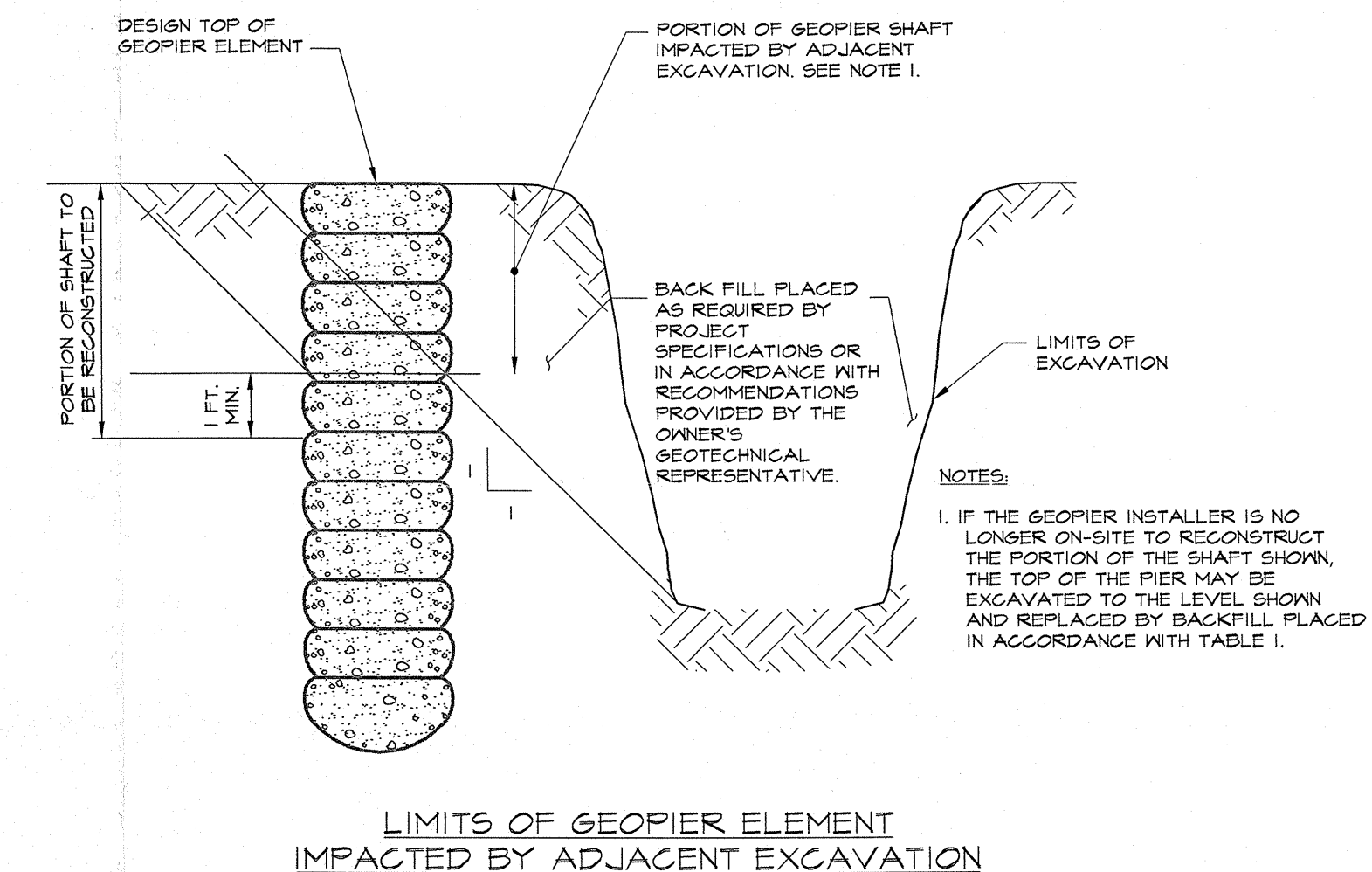
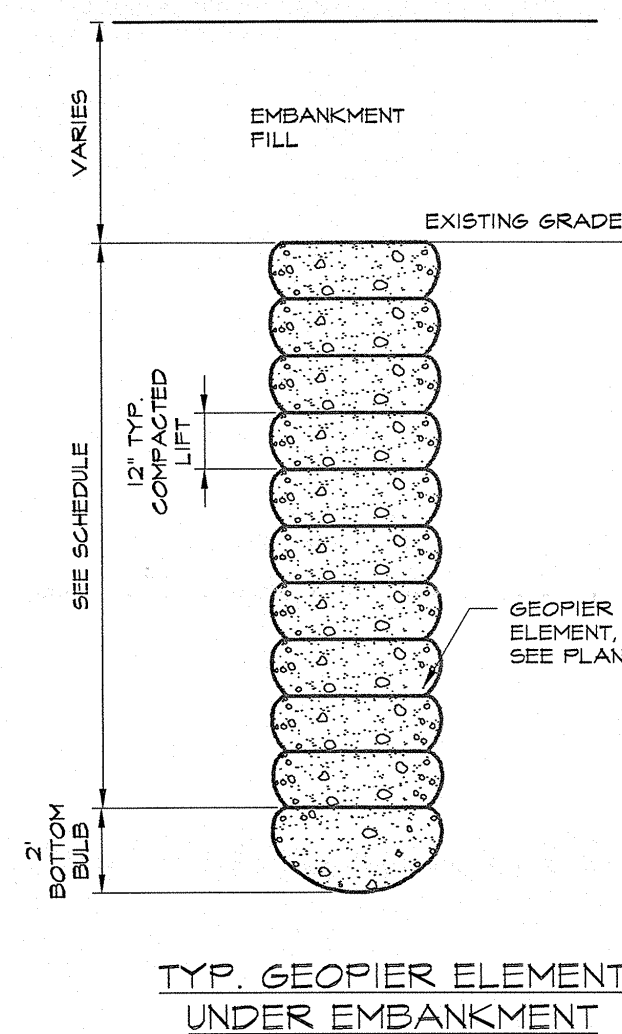
1. Immediately prior to placing embankment fill materials on the Geopier reinforced subgrade, the tops of Geopier elements and subgrade soils shall be thoroughly compacted with a standard, hand-operated impact compactor or twin drum vibratory roller. Compaction shall be performed on the same day that embankment fill is to be placed and shall extend over the entire subgrade to compact any loose surface soil and loose surface pier aggregate.
2. Excavation adjacent to a completed Geopier element shall not extend below a IH to IV line extending downward from the nearest edge of the top of the pier without written authorization from the Designer. In the event that excavation is carried beyond these limits, as shown in the Excavation Limits Adjacent to Geopier Elements Detail, the Contractor is responsible for the remedial measures shown in the detail that may include the reconstruction of the impacted portion of the pier or placement of structural fill to the limits shown in the detail.
3. Water shall not be allowed to accumulate on the prepared subgrade soils prior to placement of embankment fill materials.
4. The Geotechnical Consultant shall observe subgrade preparation immediately prior to placement embankment fill on Geopier elements. The Geotechnical Consultant's evaluations shall include assessing whether or not the subgrade protection layer has been kept free of water accumulation, and has been reasonably densified with a hand-held mechanical compactor or twin drum vibratory roller on the same day that the embankment fill was placed.
5. In the event that subgrade preparation, as described above, is not performed or documented in accordance with this section, any written or implied warranty with respect to Rammed Aggregate Pier embankment support Performance shall be considered void.

SPECIFICATIONS
Impact Rammed Aggregate Piers

1. Rammed Aggregate Pier layout is the responsibility of the General Contractor. Piers shall be installed in the field within 6" of locations shown on these plans.
2. Rammed Aggregate Pier design shall be confirmed by a full-scale modulus load test performed at the site.
3. A qualified, full-time Quality Control (QC) representative provided by the Rammed Aggregate Pier Installer (the Installer) shall be responsible for installation of the piers in accordance with the design, and shall report all Aggregate Pier foundation construction activities to the Designer. If authorized by the Owner, the QC representative shall coordinate QC activities with the Testing Agency hired by the Owner. Under no circumstance shall the Testing Agency direct Rammed Aggregate Pier installation procedures.
4. Rammed Aggregate Piers shall be accepted based on the following criteria unless otherwise approved in writing by the Designer:
 - a. Rammed Aggregate Piers shall be within 3-inches or deeper than the depths shown on the plans unless approved in writing by the Designer.
 - b. Average compacted lift thickness of the shaft shall be approximately 12 inches. During the mandrel removal phase of pier construction, the rate of withdrawal shall be less than the rate determined from flow testing to ensure sufficient aggregate flow to fill the resulting mandrel cavity and shall be no greater than six seconds per foot.
 - c. A Bottom Stabilization Performance Test (BST-P) shall be performed on the first 5 installed piers (including pre-production piers) to establish acceptance criteria for the maximum allowable deflection of the mandrel under the full-static crowd pressure. The proof test shall be performed in accordance with the following guidelines:
 - i. A BST-P should be performed by shutting the hammer energy off at the top of the compacted base of the pier.
 - ii. Once the hammer energy is off and the mandrel is resting on top of the last compacted lift, static crowd pressure should be applied to the pier for a period of three minutes. The corresponding deflection of the mandrel is then noted and recorded on the Quality Control forms.
 - iii. Results of the initial BST-Ps should be provided to the Designer for review and establishment of acceptance criteria and frequency of BST Proof Testing. BSTs. BST Proof testing shall be completed in accordance with the same procedures noted above for performance testing except that the full mandrel crowd pressure should be maintained for only 10 seconds. The frequency of BSTs may vary depending on the soil conditions; however, BSTs shall be performed on no less than 10% of the production piers.
 - d. Aggregate used to construct Impact Rammed Aggregate Piers shall be Type 1, Grade B in accordance with ASTM D-1241-69, except that particles passing the No. 40 sieve shall be eliminated, or shall be other uniform graded aggregate with particle sizes ranging from 0.5 to 1.5 inches selected by the Installer and successfully used in the modulus test.
5. When obstructions are encountered that cannot be removed with conventional Rammed Aggregate Pier installation equipment, the General Contractor shall be responsible for removing the obstructions. If the General Contractor does not do so in a timely manner that does not interrupt Rammed Aggregate Pier production, the Installer may remove the obstruction(s) and shall be reimbursed for costs incurred, including labor, equipment and materials.
6. Rammed Aggregate Piers not meeting the requirements defined in the design and modulus test shall be reinstalled to meet project requirements unless otherwise approved in writing by the Designer.
7. Ground surface elevations at all pier locations are the responsibility of the Contractor and shall be reported in writing in writing to the Installer's QC representative prior to installing piers.
8. Utility locations are the responsibility of the Contractor. The Designer should be notified of any conflicts with pier element locations shown on the plans.

SPECIFICATIONS (cont'd)

9. All Rammed Aggregate Piers have a minimum nominal compacted shaft diameter of 20 inches unless otherwise noted. All piers shall be constructed to the depths and termination criteria provided in the Design Submittal unless noted otherwise on these plans or otherwise agreed upon by the Designer and the Owner's representative. Estimated shaft lengths for each pier, based on evaluation of the available subsurface information, are included in the Geopier Schedule included in the Design Submittal Booklet.
10. These plans are based on Sheets 67 to 83 of 144, Boring Location and Boring Log sheets and sheet 87 of 144 outlining "Approximate limits of special provision (Impact Displacement Pier) installed under phase I", prepared by VAOT, and dated 2/5/2010 and 3/16/2010 respectively. The Rammed Aggregate Pier Layout Plan and Details are for pier numbering, location, and layout purposes only. Pier locations, sizes, and orientations shown on these plans are for information only.
11. The Rammed Aggregate Pier design is based on The Special Provisions "Impact Displacement Pier" of the contract documents dated March 14, 2010. Design/Build Geotechnical, LLC and Geopier Foundation Company, Inc. have relied on this information and have no reason to suspect any of the information in the report is in error. Design/Build Geotechnical, LLC and Geopier Foundation Company, Inc. are not responsible for errors or omissions in the report that may affect the parameter values in our design. If the subsurface or site conditions differ from those utilized in the design, The Designer shall be notified immediately.

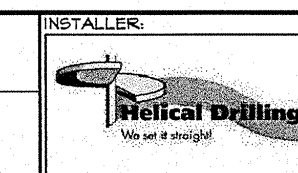


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"DELIVERING THE GEOPIER FOUNDATION SYSTEM"

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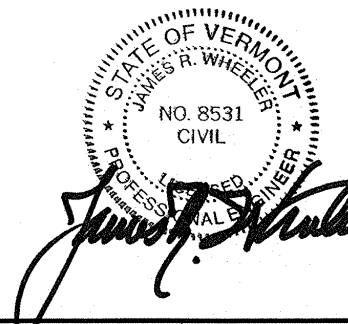


SCALE	DATE	SHEET	PLAN NO.	INSTALLER
N.T.S.	5/27/10	2 OF 2		
DRAWN BY	CHKD BY	APPD BY	DISK REF. NO.	
MH	CD	JH		



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BRAintree, MA 02184
TEL: (781) 848-2110

GEOPIER DETAILS
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Cornwall, VT



SHEET NO.
GNE-00231
GEO-2.0