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June 30, 2026

Ms. Brie Fortmuller

Project Development

BWC Wades Stream, LLC
116 Huntington Avenue, Suite 601

Boston, MA 02116

Subject: Phase I Geotechnical Report

Ground Mount Solar PV Development

190 Ridge Road, Worthington, Massachusetts

Dear Ms. Fortmuller:

WSP USA, Inc. (WSP) is pleased to provide this Phase I Geotechnical Report (Report) in support of BWC Wades Stream, LLC's proposed solar development (the Project) located at 190 Ridge Road in Worthington, Massachusetts (Site). WSP performed a Phase I geotechnical investigation and prepared this Report in accordance with WSP's Revised Proposal for Geotechnical Engineering Services dated December 12, 2025.

1.0 OVERVIEW

The following sections provide general descriptions of the Project, regional geologic setting, subsurface exploration and laboratory testing programs, and the subsurface conditions encountered as well as design and construction recommendations for the proposed solar arrays, equipment pads, and access roads.

Elevations reported herein are reported in units of feet (ft) and based on the North American Vertical Datum of 1988 (NAVD88), unless otherwise noted. The horizontal datum is the North American Datum of 1983 (NAD83), Massachusetts State Grid Coordinate System (2011), Mainland Zone.

Important information prepared by the Geoprofessional Business Association (GBA), regarding studies of the type performed, is included in Attachment A for reference.

1.1 PROJECT SUMMARY

The Site is located at 190 Ridge Road in Worthington, Massachusetts (Figure 1). The limit of work area is approximately 29 acres and generally consists of grassy farm fields. Existing site grades range from approximately 1620 to 1740 feet (ft) within the proposed solar footprint and generally slope downward from northwest to southeast at approximately 5 to 10%.

It is our understanding that BWC Wades Stream, LLC intends to construct approximately 6,372 ground-mounted solar photovoltaic (PV) panels, three equipment pads, and an access road (Figure 2).

BWC Wades Stream, LLC has not yet provided proposed foundation support information or loading conditions for the planned ground mount, but it is assumed that foundations will consist of either "C", "HP", "W", or pipe-shaped, relatively small, galvanized steel, driven piles with approximately 6 to 10-ft embedment. Pile foundations depths/sizes have been assumed for purposes of this evaluation and may not reflect actual foundations.

1.2 GEOLOGIC SETTING

Available surficial geologic mapping (DiGiacomo-Cohen, 2018) indicates the Site is underlain by a matrix of sand, silt, and clay (glacial till) and relatively shallow bedrock.

1.3 SUBSURFACE EXPLORATIONS

WSP completed 17 test pit excavations at the Site, designated TP-1 through TP-17 on March 25 and 26, 2026. Test pit locations were selected in relation to existing and proposed Site features and under the constraints of excavator access and utility conflicts. WSP subcontracted GPRS LLC to clear each test pit location of possible subsurface utilities and/or obstructions. The test pit locations were GPS surveyed by WSP and are depicted in Figure 2, overlaid on the proposed development.

- TP-1 through TP-14 were performed in proposed solar array areas;
- TP-15 and TP-16 were performed in proposed equipment pad areas; and
- TP-17 was performed adjacent to the proposed access road.

A WSP representative directed the test pit operations, collected soil samples, and logged subsurface conditions encountered. Seaboard Drilling LLC of Chicopee, Massachusetts provided excavation services using a Komatsu PC40 mini excavator, under contract with WSP. Each test pit was advanced to refusal or 10 ft below ground surface (bgs), whichever was encountered first.

Soil samples were collected in approximately one-foot depth intervals from each test pit, and soil samples were described in the field by the WSP representative. Soil samples were sealed in moisture-tight containers (i.e., one-gallon Ziploc® bags) and delivered to the geotechnical laboratory for testing.

Upon completion, each test pit was backfilled with soil cuttings and compacted to the extent practicable by tamping each lift with the excavator bucket. Ground surface was restored to pre-excavation conditions to the extent possible.

Test pit logs are provided in Attachment B.

1.4 LABORATORY TESTING

WSP subcontracted GeoTesting Express (GeoTesting) to conduct geotechnical laboratory testing of selected soil samples. Testing was performed in general accordance with the referenced procedures.

- Moisture Content (ASTM D2216) – 5 tests;
- Atterberg Limit (fine grained soil) (ASTM D4318) - 1 test;
- Grain Size Analysis (ASTM D6913) – 5 tests;
- Hydrometer (D7928) - 1 test;
- Specific Gravity (ASTM D854) – 1 test;
- Classification of Soil (ASTM D2487) – 1 test;
- Soil Electrical Resistivity (G57) - 4 tests;
- Thermal Resistivity, with dry-out curve (3 points) (ASTM D5334) - 2 tests; and
- Corrosion Suite – 2 tests each:
    - Soil pH (ASTM D4972);
    - Soluble Sulfates (ASTM D516);
    - Soluble Chlorides (ASTM D512); and
    - Oxidation-Reduction (Redox) Potential (ASTM G200).

Laboratory test reports and a summary table of results are provided in Attachment C.

1.5 SUBSURFACE CONDITIONS

The overburden soils encountered at the exploration locations are interpreted to be surficial topsoil approximately 1 ft thick overlying native glacial deposits. Native glacial deposits encountered were generally brown (olive or grayish) and consisted of the following:

- silty sand;
- silty sand with gravel;
- clayey sand with gravel;
- sandy silt;
- silt with gravel; or

- sandy clay.

The glacial soil is classified as SM, SC, ML, or CL in accordance with the Unified Soil Classification System (USCS). The soil was generally described as moist and contained occasional cobbles.

The results of laboratory testing on the glacial soils are summarized below. Laboratory test reports are provided in Attachment C.

- Moisture content of the soil ranged from 13.6% to 27.4%;
- Specific gravity was 2.74.
- Gravel content ranged from 2.8% to 18.1%;
- Sand content ranged from 39.4% to 51.4%;
- Fines (silt and clay sized particles) content ranged from 30.5% to 54.2%;
- Atterberg limits, as follows (from TP-3, 3 to 4 ft bgs):
    - Liquid limit (LL) of 25;
    - Plastic limit (PL) of 15;
    - Plasticity index (PI) of 10; and
    - Liquidity index (LI) of 0.
- pH of 4.2 and 4.8 (in distilled water);
- Thermal conductivity from 0.45 to 2.01 watts per meter-degree Kelvin (W/m°K) for moisture content between approximately 0% to 30%;
- Electrical resistivity from 49,660 to 83,802 ohm-centimeter (ohm-cm);
- Sulfate content less than 10 parts per million (ppm);
- Chloride content of 13 and 14 ppm; and
- Redox potential of 283.8 and 305.6 millivolts (mV)

Refusal to further penetration of the excavator bucket was encountered at nine of the test pits, ranging from 4.5 to 9.5 ft bgs. Refusal was interpreted as boulders or bedrock. Bedrock was not confirmed via coring at any of the test pit locations. Eight of the test pits were advanced to 10 ft bgs without encountering refusal.

Groundwater weeping was observed in 12 of the test pits between approximately 2 and 8 ft bgs. WSP anticipates that groundwater elevation generally mirrors Site topography and flows from northwest to southeast. Groundwater levels are subject to fluctuation due to seasonal precipitation, temperature, snow melt, and/or construction conditions, and therefore may vary from those observed at the time of this investigation.

2.0 DESIGN RECOMMENDATIONS

The following subsections provide WSP's preliminary foundation design recommendations, based on the results of the Phase I investigation.

2.1 GENERAL

Based on the subsurface conditions encountered, WSP believes that the proposed equipment can be supported on reinforced-concrete mat foundations bearing on Crushed Stone built up from properly prepared subgrade and that the solar array panels can generally be supported by driven pile foundations.

2.2 MAT FOUNDATIONS

Based on the subsurface conditions encountered at the exploration locations and our current understanding of the proposed development, the following recommendations are provided for mat foundations:

- Equipment can be supported on shallow mat foundations (approximately 40 ft by 50 ft, based on current plans) bearing directly on Crushed Stone overlying properly prepared subgrade.
- The 40-ft wide mat foundation may be designed using a maximum net allowable bearing

pressure of 1,200 pounds per square foot (psf). WSP must review the bearing capacity of the soil beneath the mat if designers change the size of the mat significantly.

- The mat foundation should be underlain by a minimum of 6 inches of Crushed Stone to provide a capillary break and a stable working surface.
- Resistance to net uplift loads can be provided by the mass of the foundation. The design engineer should evaluate the design uplift load and uplift resistance based upon the foundation configuration as the design progresses. It is recommended that the foundation be designed such that the foundation will always provide compressive forces on the subgrade (i.e., uplift forces do not cause a net unloading on one side of the foundation resulting in tensile forces between the foundation and subgrade).
- Resistance to lateral loads can be provided by frictional resistance along the base of the mat foundation. For a mat bearing on Crushed Stone built up from subgrade soils, an interface friction angle, δ, of 28 degrees is recommended, resulting in a coefficient of friction of 0.53.
- A modulus of vertical subgrade reaction, kvi, of 100 pounds per cubic inch (pci) should be available for structural design of the mat foundation, provided that the subgrade and Crushed Stone are prepared as recommended.
- Total post-construction settlement due to maximum net allowable bearing pressure (1,200 psf) is estimated to be on the order of approximately 1/2-inch considering elastic soil conditions. Consolidation settlement estimates for the fine-grained soil should be evaluated as the design progresses.
- Flexible piping/conduit connections (flexible boot, expansion foam, etc.) are recommended for the equipment that would allow for post-construction deflection/movement while maintaining serviceability of the system.

2.3 DRIVEN PILES

It is our understanding that piles for solar arrays are generally lightweight “C”, “HP”, “W”, or pipe shaped sections driven about 6 to 10 ft beneath finished grade. Based on the soil conditions encountered during Phase I, driven steel piles may be a feasible option for this project. Steel piles typically do not develop adequate side resistance (friction) in sandy soil required for axial and uplift loads unless they are driven deep; the designer should check for adequate capacity.

Driven piles generate load capacity from skin friction or end bearing in the soil underlying the Site. If the foundation designer uses driven steel piles, preliminary recommended allowable unit skin friction is approximately 0.1 to 0.2 ksf (1 ksf = 1,000 psf) based on the soil types encountered during the Phase I investigation. No reduction in axial capacity for group effects is necessary if pile spacing is at least three times the maximum diameter or width; axial capacity should be reduced for piles spaced closer than three times the maximum dimension of the pile. Load tests should be performed to 200% of the allowable design load, plus the negative skin friction load.

For driven piles, lateral load can be resisted using lateral soil-structure interaction with the lateral modulus of subgrade reaction. The preliminary recommended lateral modulus of subgrade reaction is 100 pci based on the soil encountered during Phase I. Lateral deflection criteria at the top of the pile should be established based upon racking equipment tolerances.

The recommended design values herein for driven piles are considered preliminary and should be refined following completion of Phase II geotechnical investigation. Where required skin friction and/or embedment depth cannot be achieved for driven piles due to shallow refusal/bedrock, piles should be socketed into underlying bedrock or alternative foundation support should be considered (i.e., ground screws, concrete ballasts, etc.). Recommendations for these alternative foundation options are not included herein.

2.4 FROST PROTECTION

Based on the laboratory testing results, the existing site soils are considered frost susceptible.

According to National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center Air Freezing Index Tables, the Air Freezing Index for the Worthington, MA area is approximately 1,220-degree days for a 35-year return period, which could result in a depth of frost penetration of about 5 ft in snow–free areas. The Northeast Regional Climate Center (DeGaetano et al., 1996) indicates maximum depth of freezing under snow-free bare soil of approximately 150 centimeters (5 ft) for a 35-year return period in the Worthington, MA area. The Massachusetts Building Code (10th Edition) indicates the minimum frost depth for footings is 48 inches (4 ft).

The following recommendations are provided for protection against frost and to reduce the potential for heaving of mat foundations:

- The mat foundations should be underlain by a minimum of 6 inches of Crushed Stone and 1-1/2 inches of rigid insulation buried a minimum of 10-inches below final grade. The rigid insulation should extend a minimum of 3.5 feet laterally beyond the edge of the mat foundations in all directions and slope downward to drain water away from the foundation. It is recommended that the structural engineer check that the contact pressure of the foundation does not exceed the compressive resistance of the insulation; or
- Alternatively, the mat foundations should be underlain by Crushed Stone (6-inch minimum) and non-frost susceptible backfill (Gravel Borrow). The Gravel Borrow should extend to a depth of at least 5 ft below final adjacent grade. Permanent perimeter drains should be installed at the base/bottom of the Gravel Borrow layer underlying the mat foundation. The drains should consist of 6-inch diameter perforated (slotted, 0.12-inch slot widths) drainpipe manufactured by Advanced Drainage System (ADS), or approved equal, surrounded by a minimum of 6-inches (all sides) of Crushed Stone. To mitigate the potential of fines clogging the drain, a non-woven geotextile fabric (Mirafi 140-N or approved equal) should be wrapped around the Crushed Stone. The underdrains should be installed such that positive drainage is maintained (1 percent slope minimum) from the foundation to the point where the drain daylights/outlets.

Soil in contact with foundations can freeze to the foundation, developing a substantial adfreeze bond and uplift forces to the foundation. Average adfreeze bond stresses, determined from field experiments, typically range from 1.36 ksf for soil frozen to concrete to 2.1 ksf for soil frozen to steel (Kibriya and Tahir, 2015). These recommended bond stresses do not include a factor of safety.

Adfreeze can be estimated based upon CGS (2006) for the general soil type found in the explorations. Frost load, F in kips, from adfreezing is given by $F = \pi * d * l * \alpha * 4.448$, where d is outside pile diameter (ft), l is frost depth (ft), α is adfreeze stress (ksf), and 4.448 metric correction factor. Safe pile resistance, R, may be estimated from $R = \pi \; d \; L \; \beta \; GF$, where d is outside pile diameter (ft), L is pile length below frost depth (ft), β is soil side resistance uplift stress (ksf), and GF is the appropriate geotechnical resistance factor taken from CGS (2006). From semi-empirical analysis, use GF of 0.3.

Finished site grades should be sloped away from the proposed development to promote positive drainage.

2.5 CORROSION

A summary table of the corrosion and resistivity test results is provided in Attachment C. Laboratory test reports are also provided in Attachment C. In general, the soil is considered potentially corrosive to steel and concrete based on acidic conditions (low pH soil).

2.5.1 CHLORIDE IONS

Chloride ions concentration affects corrosion rate of embedded steel. According to Decker et al. (2008), the relationship between corrosion rate and chloride concentration may be expressed as:

$$CR=16.28*Ln(CL)-83.8$$

where CL is the chloride concentration in ppm and CR is the corrosion rate of steel in µm/year.

For chloride concentrations less than 172 ppm, the CR is considered zero (non-corrosive).

2.5.2 ELECTRICAL RESISTIVITY

A general guide as to the degree of corrosiveness of soil based on soil resistivity, presented by EPRI (1997), is as follows in Table 1.

Table 1 - Corrosion Classification of Soil and Water (EPRI, 1997)

RESISTIVITY (OHM-CM)	CORROSION CLASSIFICATION
0-1,000	Extremely Corrosive
1,000 – 2,000	Very Corrosive
2,000 – 10,000	Corrosive
Greater than 10,000	Progressively Less Corrosive

The soil resistivity laboratory test results indicate that the environment is not corrosive.

2.5.3 ACIDITY (PH)

Acidity affects the corrosion of steel and concrete. In general, pH levels of 5 or below can lead to extreme corrosion rates and premature pitting of metallic objects. Based on NRCS (2017), Table 2 shows concrete corrosion potential for various pH values. The pH results indicate the soil is acidic and has high corrosion potential for steel and concrete.

Table 2 - Corrosion Potential for Concrete, Per NRCS Table 618.81 (2017)

SOIL TYPE	LOW POTENTIAL	MODERATE POTENTIAL	HIGH POTENTIAL
Sandy/organic soil	pH > 6.5	5.5 < pH > 6.5	pH < 5.5
Loamy/clayey soil	pH > 6.0	5.0 < pH > 6.0	pH < 5.0

2.5.4 SULFATE IONS

Sulfate ion concentration affects the corrosion of concrete. Sulfate Exposure Class is based upon ACI (2014) and summarized in Table 3. Based on limited analytical laboratory testing, it is concluded that sulfate concentrations do not pose a corrosion risk to concrete.

Table 3 - Sulfate Corrosion Scale, per ACI 318 Table 19.3.1.1 (2014)

CLASS	SULFATE (PPM)	CORROSION POTENTIAL	
S0	< 150	Not Applicable	Injurious sulfate attack is not a concern
S1	150 - 1,500	Moderate	Equal to seawater exposure, Type II cement
S2	1,500 – 10,000	Severe	Type V cement
S3	> 10,000	Very Severe	Type V cement + pozzolan or slag

2.6 THERMAL RESISTIVITY

The thermal resistivity (ρ) of a material tested per ASTM D5334 is a measure of its ability to resist conduction of heat and has units of °K-cm/ W (degrees Kelvin-centimeter per watt). When electricity is transferred through a cable, heat is produced; in the case of underground cables, soil thermal resistivity influences heat transference that may affect cable life or continuity. Soil thermal resistivity testing should be used by designers to determine the appropriate cable design and cable bedding properties to assure long-term cable life and efficient operation. The thermal resistance dry-out test reports are provided in Attachment C.

2.7 ACCESS ROAD

Permanent unpaved road should consist of 4 inches of Surfacing Material, a well-graded blend of gravel, sand, and fines (clay and silt). Surfacing Material should be selected to allow for sufficient compaction resulting in a firm, low permeable surface promoting surface drainage off the roadway surface.

Surfacing material should be underlain by 8 inches of Crushed Stone and 16-ounce nonwoven geotextile fabric placed between the Crush Stone and underlying subgrade.

Access road surfaces and subgrades should be sloped to promote proper surface drainage.

3.0 CONSTRUCTION RECOMMENDATIONS

Geotechnical engineering recommendations pertaining to the construction of the proposed development are provided in the following subsections.

3.1 SITE PREPARATION

- Stripping: The mat footprints should be cleared and stripped of all existing pavement, topsoil, root mat, and/or otherwise unsuitable materials.
- Excavation: Excavation of the encountered overburden soils should not prove difficult for heavy equipment. Raveling of excavations in response to moisture fluctuations and precipitation should be anticipated. Disturbed soil conditions are likely to develop in areas of excessive soil moisture. To aid in maintaining stable cut conditions, surface runoff should be diverted away from the top of excavation slopes.
- Protection of Structures: The Contractor shall be responsible for protecting all adjacent existing structures from deflection, vibration, and damage during all earthwork activities. ASCE (2017) indicates that residential structures should be greater than 52.5 ft from the pile driving site to be safe from damage due to vibration. Considering that several factors contribute to vibration attenuation, including pile driving hammer type/energy, soil type/density, etc., WSP recommends that the Contractor perform pre- and post-construction surveys by a third-party structural engineer on adjacent structures within 100 ft of the work and shall be responsible for any damage that has been incurred as a result of array construction.
- Dewatering: Excavations may extend below groundwater depth. Construction dewatering (to approximately 2 ft below subgrade elevation) should be provided which allows excavation, fill placement, and foundation construction to be completed in the dry. Dewatering should be continuous from the time of excavation until the foundations are installed and backfill has been placed.

3.2 SUBGRADE PREPARATION

Subgrade preparation should be performed in accordance with the following procedures:

- Existing soils contain substantial proportions of fine sand, silt, and/or clay-sized particles and may degrade and/or become unworkable when subjected to construction traffic or other disturbance during wet conditions. As such, site grading should be performed during a dry season, if possible.
- The final 1-foot, at a minimum, of excavation should be performed with a smooth-edged cutting bucket to minimize subgrade disturbance.
- The exposed subgrade soils should be proof rolled using a large smooth-drum static roller, with successive passes aligned perpendicularly. The proof rolling efforts, including the number of passes, should be directed by the on-site geotechnical engineer.

- Any loose, soft, wet, and/or otherwise unsuitable soils (typically evidenced by rutting, pumping, and/or deflection of the subgrade) should be further over-excavated to expose suitable soils, or other remedial measures should be taken, as approved by the on-site geotechnical engineer.
- Over-excavated areas should be backfilled with properly placed and compacted Gravel Borrow.
- Existing subsurface utilities, remnant foundations, and/or underground structures and obstructions should be removed from the proposed footprint and backfilled with properly placed and compacted Gravel Borrow.
- The Contractor should coordinate with the utility owner prior to relocating any utilities.
- The placement of fill materials to achieve design grades should not begin until the exposed subgrade soils have been directly observed and approved by the on-site geotechnical engineer.
- Prior to setting forms and placing reinforcing steel, a geotechnical engineer should directly observe foundation subgrades.
- Foundation subgrades should be level and free of standing water and/or debris.
- Loose, soft, wet, frozen, or otherwise unsuitable soils should either be re-compacted or over-excavated to a suitable subgrade and replaced with compacted Gravel Borrow, as approved by the on-site geotechnical engineer.
- Subgrade soils should be protected against physical disturbance, precipitation, and/or frost. Surface water run-on/run-off should be diverted away from open excavations.

3.3 FILL

The following are recommendations for Crushed Stone:

- Crushed Stone should be placed as fill or backfill below and adjacent to mat foundations, beneath Surfacing Material on access roads. and immediately surrounding permanent drains (if applicable).
- Crushed Stone should be free of construction and demolition debris, frozen soil, organic soil, peat, stumps, brush, trash, and refuse.
- Crushed Stone should not be placed on soft, saturated, or frozen subgrade soils.
- Crushed Stone should conform to Massachusetts Department of Transportation (MassDOT) Standard Specifications (MassDOT, 2026) Section M2.01.0 (Crushed Stone) and gradation M2.01.4 (Table M2.01.0-1):

Table 4 – Recommended Crushed Stone Gradation (M2.01.4)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1-inch	100
3/4-inch	90 - 100
1/2-inch	10 - 50
3/8-inch	0 - 20
No. 4	0 - 5

- Crushed Stone beneath mat foundations and access roads should be compacted with 2 to 3 passes of a large smooth-drum vibratory roller in perpendicular directions to a firm and unyielding condition.

The following are recommendations for Gravel Borrow:

- Gravel Borrow should be placed as backfill in over-excavations for debris removal and/or where unsuitable subgrade soils are encountered.
- Gravel Borrow should be free of construction and demolition debris, frozen soil, organic soil, peat, stumps, brush, trash, and refuse.
- Gravel Borrow should contain no frozen material or be placed in freezing weather.
- Gravel Borrow should have a maximum particle size of 3 inches; particles larger than 3 inches

should be removed prior to placement.

- Gravel Borrow should conform to MassDOT Standard Specifications (MassDOT, 2026) Section M1.03.0 (Gravel Borrow) and gradation Type b (Table M1.03.0-1).

Table 5 – Recommended Gravel Borrow Gradation (M1.03.0 Type b)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3-inch	100
1/2-inch	50 - 85
No. 4	40 - 75
No. 50	8 - 28
No. 200	0 - 10

Gravel Borrow should be conditioned to within 3 percent of its optimum moisture content and placed in maximum 12-inch-thick loose lifts (prior to compaction) if a heavy single- or double-drum vibratory roller is used. Loose lift thickness should be limited to 6 inches (prior to compaction) if hand-operated compaction equipment is used. Gravel Borrow should be compacted to at least 95 percent of maximum dry density, as determined by the Modified Proctor Test (ASTM D1557) or to at least 98 percent of maximum dry density, as determined by the Standard Proctor Test (ASTM D698).

Surfacing Material should consist of a well-graded blend of gravel, sand, and fines (clay and silt). The maximum size particle should not exceed 1 inch in diameter, and the gravel should be crushed with angular edges (not rounded). The Surfacing Material should also contain approximately 10 to 25 percent fines (silt and clay-sized particles passing the No. 200 sieve). The fines should exhibit low to moderate plasticity (plastic index less than 15) and will act as a binder to help reduce risk for wash boarding. If the fines content of a roadway Surfacing Material is comprised mostly of silt, the fines will be non-plastic and will not have the benefit of the binder or cohesive aspects. Aggregate surfacing material should be placed in a single 4-inch lift, conditioned to within 3 percent of its optimum moisture content, and compacted to a minimum of 95 percent of the maximum dry unit weight as determined by ASTM D1557.

Based on the laboratory test results for particle size analysis, existing Site soils are not expected to be suitable for reuse as Crushed Stone, Gravel Borrow, or Surfacing Material. Existing Site soils may be reused as general fill in landscaped and/or non-structural areas of the proposed development. Fill placed in landscaped and/or non-structural areas of the Site should be conditioned within 3 percent of its optimum moisture content and placed in maximum 12-inch-thick loose lifts (prior to compaction) if a heavy single- or double-drum vibratory roller is used. Loose lift thickness should be limited to 6 inches (prior to compaction) if hand-operated compaction equipment is used. General fill in landscaped and/or non-structural areas should be compacted to at least 90 percent of maximum dry density, as determined by the Modified Proctor Test (ASTM D1557) or to at least 92 percent of maximum dry density, as determined by the Standard Proctor Test (ASTM D698).

Quality control testing, including in-place field density and moisture tests, should be performed to confirm that the specified compaction is achieved.

3.4 EXCAVATION SLOPES

Safe excavation slopes are the responsibility of the Contractor and should be based on actual conditions during construction. It has been our experience that temporary unsupported cuts in similar soil types have been observed to be stable at 1.5H:1V (horizontal to vertical), if free from surface runoff and seepage. All excavation slopes should comply with current OSHA and other local applicable safety standards. If an excavation cannot be properly sloped or benched due to space limitations, adjacent structures, and/or seepage, the Contractor should install an engineered shoring system to support the temporary excavation.

4.0 REFERENCES

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5.0 CLOSING

The findings and recommendations presented herein were prepared in accordance with generally accepted geotechnical engineering principles and professional engineering practice, consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. We make no other warranty, either expressed or implied. The findings and recommendations presented herein are based on the results of the geotechnical explorations and laboratory testing, and assumed grading, preliminary loadings, and foundation types, combined with an interpolation of soil and groundwater conditions between and beyond the widely spaced explorations. The recommendations provided herein pertain only to the project described herein. If conditions are observed or encountered subsequent to this report that appear to be different from those presented herein, or if grades or loads assumed as part of this geotechnical assessment are different from final design conditions, we request that we be notified so that we may review and modify, if necessary, our recommendations.

Thank you for the continued opportunity to support BWC Wades Stream, LLC's Project at 190 Ridge Road in Worthington, Massachusetts. Should you have any questions, please contact Olivia Crosby at (978) 761-7934 or at olivia.crosby@wsp.com.

Sincerely,
WSP USA, Inc.

Nicholas D. Langlais

Nicholas D. Langlais, PE (ME)
Senior Geotechnical Engineer

Olivia A. Crosby, PE
Project Manager

DOUGLAS
E. TATE
CIVIL
No. 40908

Tate, Douglas
(USDT719545)

Digitally signed by Tate, Douglas (USDT719545)
DN: cn=Tate, Douglas (USDT719545), ou=WSPObjects, email=douglas.tate@wsp.com
Date: 2026.07.01 08:36:21 -05'00'

Douglas E. Tate, PE
Lead Consultant, Geotechnical Engineer
MA PE No. 40908, expires 6/30/2028

Attachments:

Figure 1 – Location Map

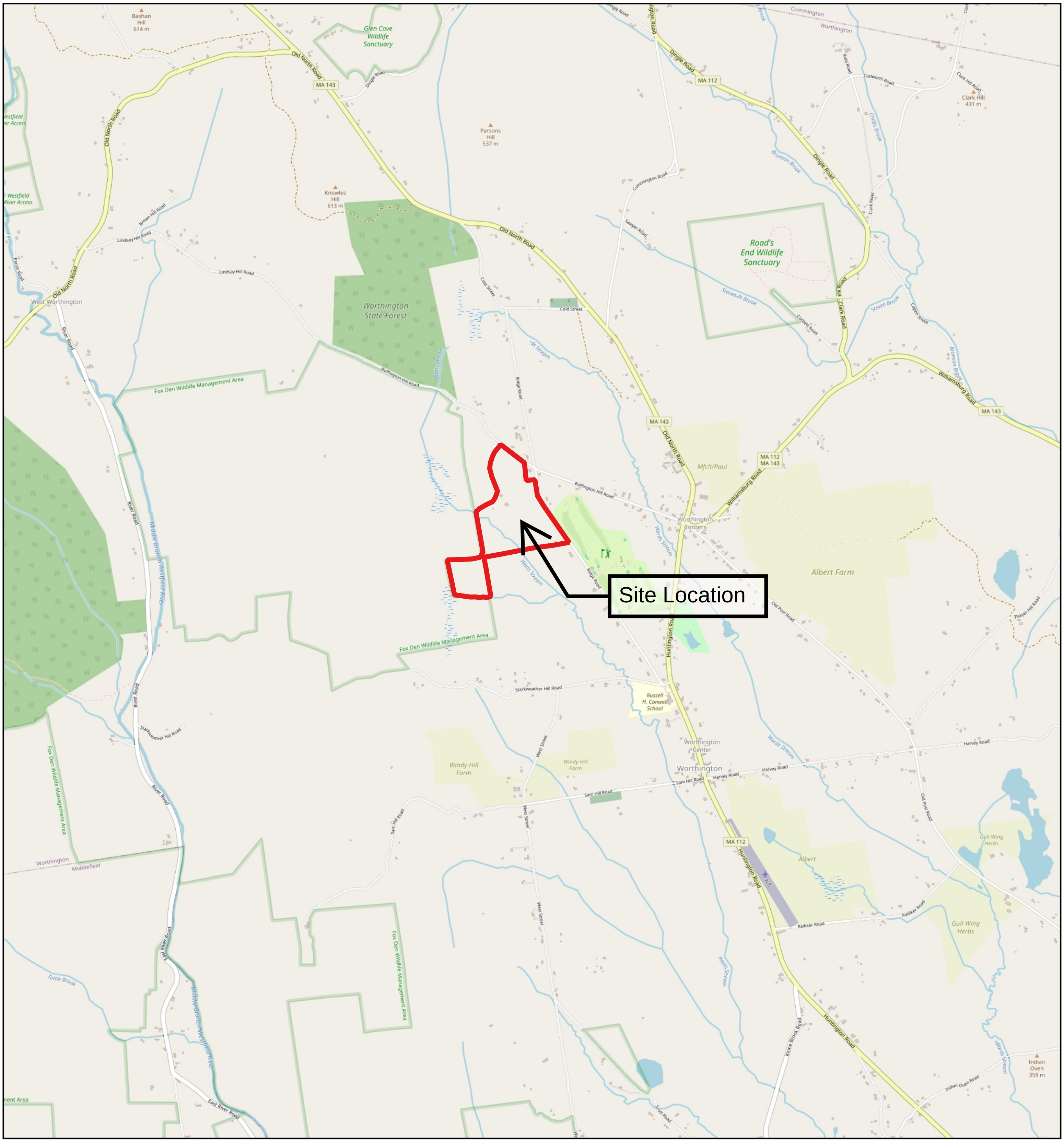
Figure 2 – Site Plan

Attachment A – Geoprofessional Business Association

Attachment B - Test Pit Logs

Attachment C – Laboratory Test Reports

FIGURES



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WSP USA, Inc
100 Apollo Drive, Suite 302
Chelmsford, MA 01824
(978) 692-9090

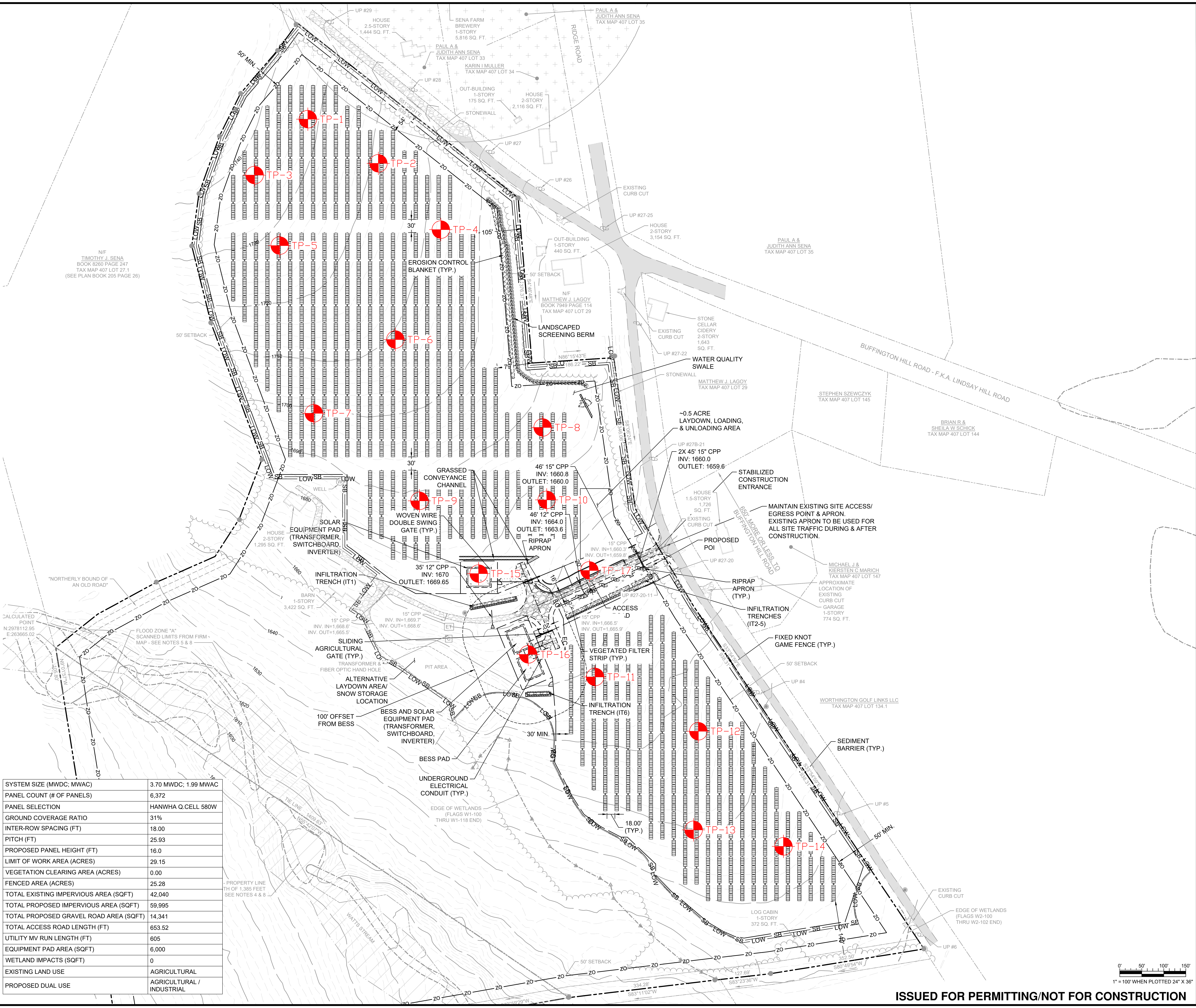
0 2,500 5,000 ft N

FIGURE 1
Location Map

BWC Wades Stream, LLC
190 Ridge Road,
Worthington, Massachusetts 01098

Prepared/Date: NN 04-28-2026

Data Layer Sources: Base layer aerial imagery is from QGIS Web OSM Standard.



LEGEND:

EXISTING:

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- INTERNAL PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- RIGHT OF WAY
- PROPERTY LINE SETBACK
- BUILDING
- ASPHALT
- GRAVEL
- STONE WALL
- EDGE OF VEGETATION
- EDGE OF GRASS
- TRAIL
- EDGE OF WETLAND
- WETLAND FLAG
- WATERBODY
- BUFFER
- FEMA FLOOD ZONE "A"
- IWPA
- OVERHEAD WIRE
- CULVERT
- UTILITY POLE
- BOUNDARY EVIDENCE
- CONTROL POINT

PROPOSED:

- LIMIT OF WORK
- MAJOR CONTOUR
- MINOR CONTOUR
- FIXED KNOT GAME FENCE
- DOUBLE SWING GATE
- SLIDING GATE
- OVERHEAD ELECTRIC
- SEDIMENT BARRIER
- EROSION CONTROL BLANKET
- ELECTRICAL CONDUIT
- ACCESS ROAD
- CONCRETE PAD
- SOLAR PV ARRAY
- UTILITY POLE
- CULVERT
- INFILTRATION TRENCH
- PERVIOUS BERM
- VEGETATED FILTER STRIP
- CONVEYANCE CHANNEL
- RIPRAP APRON
- LANDSCAPE SCREENING
- TEST PIT

SYSTEM SIZE (MWDC; MWAC)	3.70 MWDC; 1.99 MWAC
PANEL COUNT (# OF PANELS)	6,372
PANEL SELECTION	HANWHA Q.CELL 580W
GROUND COVERAGE RATIO	31%
INTER-ROW SPACING (FT)	18.00
PITCH (FT)	25.93
PROPOSED PANEL HEIGHT (FT)	16.0
LIMIT OF WORK AREA (ACRES)	29.15
VEGETATION CLEARING AREA (ACRES)	0.00
FENCED AREA (ACRES)	25.28
TOTAL EXISTING IMPERVIOUS AREA (SQFT)	42,040
TOTAL PROPOSED IMPERVIOUS AREA (SQFT)	59,995
TOTAL PROPOSED GRAVEL ROAD AREA (SQFT)	14,341
TOTAL ACCESS ROAD LENGTH (FT)	653.52
UTILITY MV RUN LENGTH (FT)	605
EQUIPMENT PAD AREA (SQFT)	6,000
WETLAND IMPACTS (SQFT)	0
EXISTING LAND USE	AGRICULTURAL
PROPOSED DUAL USE	AGRICULTURAL / INDUSTRIAL

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

WSP USA INC.
100 APOLLO DRIVE, SUITE 302
CHELMSFORD MASSACHUSETTS 01824
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.WSP.COM

REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED	APPROVED
5	05/05/2026	GEOTECHNICAL INVESTIGATION TEST PIT LOCATIONS	NN	OAC
4	02/18/2026	RESPONSE TO COMMENTS	MRB	OAC
3	02/03/2026	RESPONSE TO COMMENTS	MRB	OAC
2	01/05/2026	RESPONSE TO COMMENTS	MRB	OAC
1	10/21/2025	RESVISED PER TOWN OF WORTHINGTON PLANNING BOARD COMMENTS	MRB	OAC
0	09/23/2025	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	MRB	OAC

PROJECT:
2.0 MW AC GROUND-MOUNT SOLAR PV DEVELOPMENT
190 RIDGE ROAD
WORTHINGTON, MA 01098

TITLE:
GEOTECHNICAL INVESTIGATION TEST PIT LOCATIONS

CLIENT:
BWC WADES STREAM, LLC

SEAL:
DRAFT

DESIGNED BY: OAC
DRAWN BY: MRB
CHECKED BY: APV
SCALE: AS SHOWN
PROJECT NUMBER: US-EI-365230438
DRAWING NUMBER: **FIGURE 2**
SHEET NUMBER: **SITE PLAN**

D:\- CAD Projects\BlueWave\US-EI-3652230437 - Ridge Rd Worthington\4 Permitting\Sheets\Test Pits Location Site Plan.dwg - C-102 - May. 12, 2026 12:40pm - USNN133798

ATTACHMENT A

Geoprofessional Business Association

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept* *responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are <u>Not</u> Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are <u>not</u> building-envelope or mold specialists.***

GEOPROFESSIONAL
BUSINESS
ASSOCIATION

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ATTACHMENT B

Test Pit Logs

KEY TO SYMBOLS AND DESCRIPTIONS

MAJOR DIVISIONS			GROUP SYMBOLS	GENERAL DESCRIPTIONS
COARSE GRAINED SOILS (More than 50% RETAINED on No. 200 sieve)	GRAVELS (More than 50% of coarse fraction RETAINED on No. 4 sieve)	CLEAN GRAVELS (Less than 5% fines)	GW	Well graded gravels or gravel-sand mixtures; trace or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures; trace or no fines.
		GRAVELS WITH FINES (More than 12% fines)	GM	Silty gravels or gravel-sand-silt mixtures.
			GC	Clayey gravels or gravel-sand-clay mixtures.
	SANDS (50% or more of coarse fraction PASSES the No. 4 sieve)	CLEAN SANDS (Less than 5% fines)	SW	Well graded sands or sand-gravel mixtures; trace or no fines.
			SP	Poorly graded sands or sand-gravel mixtures, trace or no fines.
		SANDS WITH FINES (More than 12% fines)	SM	Silty sands or sand-gravel-silt mixtures.
			SC	Clayey sands or sand-gravel-clay mixtures.
FINE GRAINED SOILS (50% or more PASSES the No. 200 sieve)	SILTS AND CLAYS (Liquid Limit LESS than 50)		ML	Inorganic silts or rock flour. Non-plastic or very slightly plastic. PI < 4 or plots below "A" line.
			CL	Inorganic lean clay. Low to medium plasticity. PI > 7 and plots on or above "A" line.
			OL	Organic silts, clays, and silty clays. Low to medium plasticity.
	SILTS AND CLAYS (Liquid Limit of 50 or GREATER)		MH	Inorganic elastic silt. PI plots below "A" line.
			CH	Inorganic fat clay. High plasticity. PI plots on or above "A" line.
			OH	Organic silts and clays. High plasticity.
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils. Decomposed vegetable tissue. Fibrous to amorphous texture.

<u>BOUNDARY CLASSIFICATIONS:</u> Soils possessing characteristics of two groups are designated by combinations of group symbols.

SILT OR CLAY	SAND			GRAVEL		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

No.200 No.40 No.10 No.4 3/4" 3" 12"

U.S. STANDARD SIEVE SIZE

<u>References:</u> ASTM D 2487 (Unified Soil Classification System) and ASTM D 2488 (Visual-Manual Procedure).

TYPICAL SYMBOLS

▮	Shelby Tube	▮	Auger Cuttings
☒	Standard Split Spoon Sample	☒	3" Split Spoon Sample
▮	Rock Core	▼	Dynamic Cone Penetrometer
▯	Vane Shear	✋	Bulk/Grab Sample
▨	Geoprobe Sample	▩	Sonic or Vibro-Core Sample
▽	Water Table at time of drilling	▼	Water Table after 24 hours

CORRELATION OF STANDARD PENETRATION TEST (SPT) WITH RELATIVE DENSITY AND CONSISTENCY

GRAVEL, SAND, & SILT (NON-PLASTIC)		SILT (PLASTIC) & CLAY		
N or N_{60}	Relative Density	N or N_{60}	Su (psf)	Consistency
0 - 4	Very Loose	0 - 2	0 - 250	Very Soft
5 - 10	Loose	3 - 4	250 - 500	Soft
11 - 30	Medium Dense	5 - 8	500 - 1000	Medium Stiff
31 - 50	Dense	9 - 15	1000 - 2000	Stiff
Over 50	Very Dense	16 - 30	2000 - 4000	Very Stiff
		Over 30	Over 4000	Hard

SPT Notes: WR = Weight of Rods; WH = Weight of Hammer

TERMS DESCRIBING SOILS (excludes particles > 3", organics, debris, etc.)		TERMS DESCRIBING MATERIALS (i.e. particles > 3", organics, debris, etc.)	
Trace:	Particles present, but < 5%	Occasional:	Particles present, but < 10%
Few:	5% to 15%	Some:	10% to 25%
Little:	15% to 25%	Frequent:	> 25%
Some:	25% to 50%		

TERMS DESCRIBING MOISTURE		TERMS DESCRIBING STRUCTURE	
Dry:	Absence of moisture; dusty	Layer:	> 3" thick
Moist:	Damp, but no visible water	Seam:	1/16" to 3" thick
Wet:	Visible/free water	Parting:	< 1/16" thick

SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

PL (%) ● — NM (%) ○ — LL (%) ●
▲ FINES (%) ✿ ORG (%)

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES RECOV. (%)	10 20 30 40 50 60 70 80 90	DEPTH (ft)
0	Topsoil/organics		1732.0					0
	Brown, silty SAND / sandy SILT, few gravel, SM/ML, moist							
				GS-1-2	✋			
				GS-2-3	✋			
	Brown, sandy CLAY / clayey SAND, few gravel, SC/CL, moist							
				GS-3-4	✋			
5			1727.0					5
				GS-8-9	✋			
	End of test pit at 9' bgs; refusal							
10			1722.0					10
15			1717.0				0 10 20 30 40 50 60 70 80 90 100	15

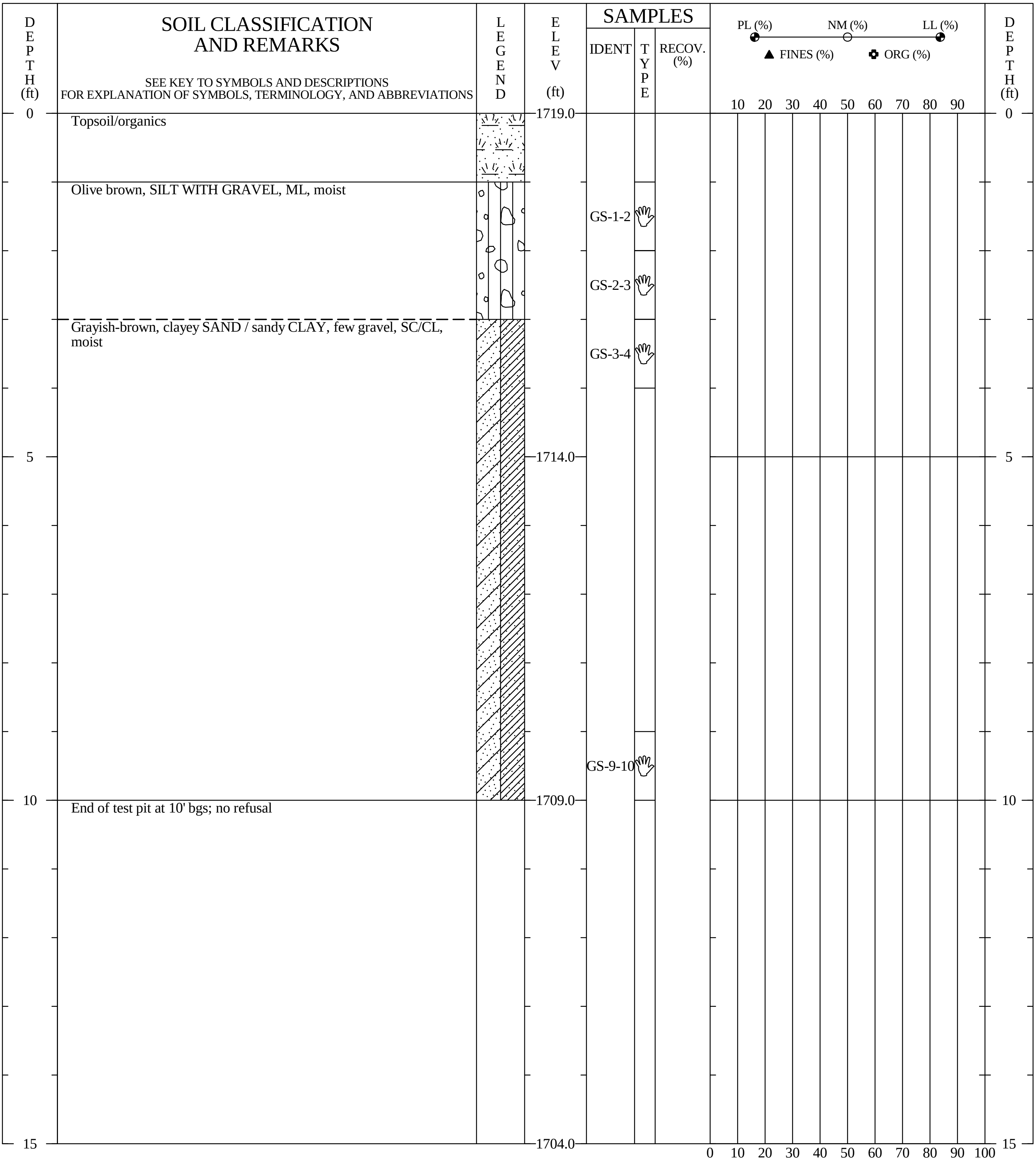
CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-1
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	ELEV (ft)	IDENT	TYPE	RECOV. (%)
0	Topsoil/organics	1719.0			
1	Olive brown, SILT WITH GRAVEL, ML, moist		GS-1-2	✋	
2			GS-2-3	✋	
3	Grayish-brown, clayey SAND / sandy CLAY, few gravel, SC/CL, moist		GS-3-4	✋	
5		1714.0			
9			GS-9-10	✋	
10	End of test pit at 10' bgs; no refusal	1709.0			
15		1704.0			

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

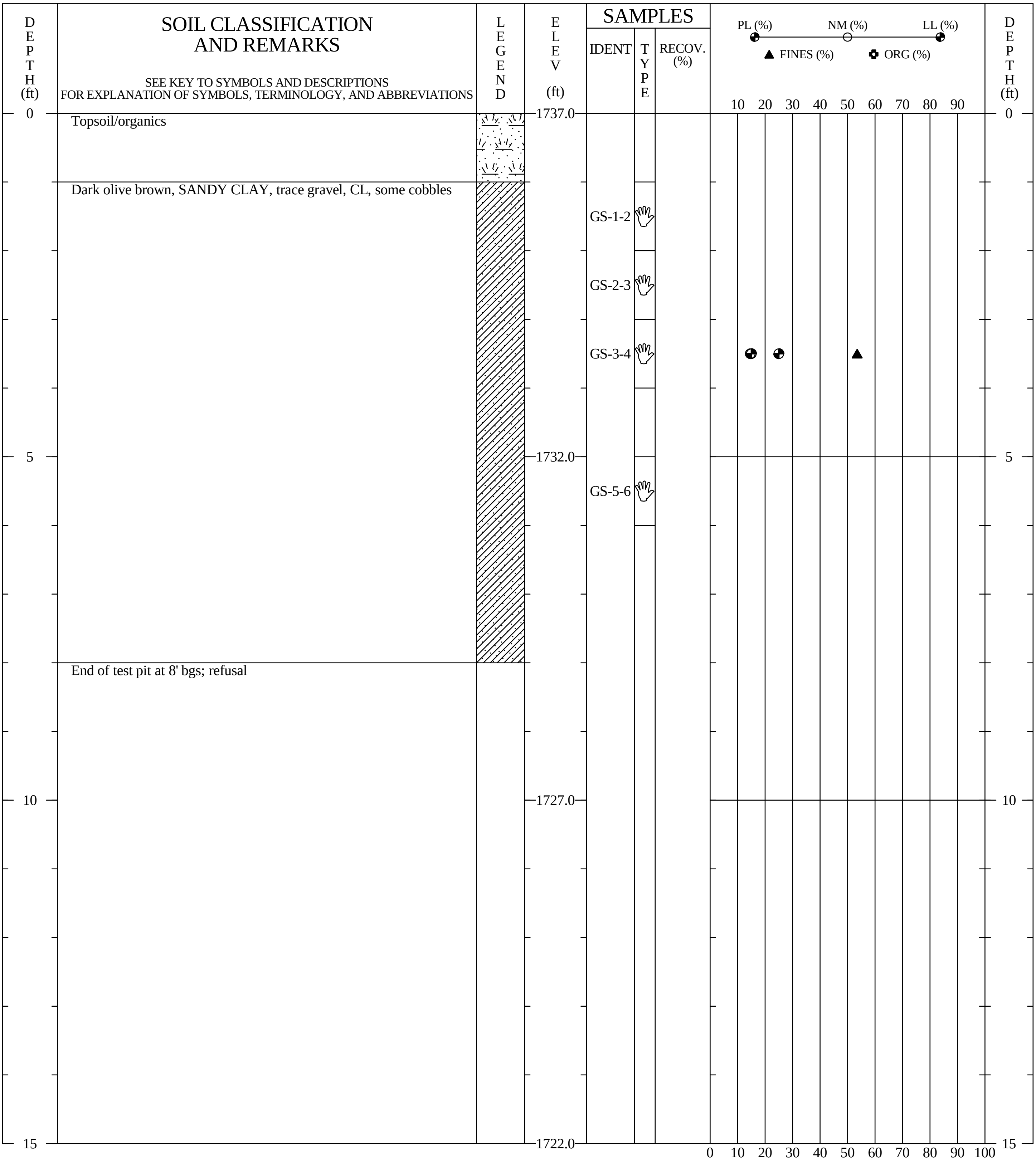
LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-2
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

wsp



CONTRACTOR:	Seaboard Drilling
EQUIPMENT:	PC40 Mini
METHOD:	
REMARKS:	Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-3
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

wsp

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES RECOV. (%)	PL (%) NM (%) LL (%) ▲ FINES (%) ✿ ORG (%)
0	Topsoil/organics	1707.0				
	Brown, silty SAND / sandy SILT, few gravel, SM/ML, moist, occasional cobbles		GS-1-2	✋		
			GS-2-3	✋		
	Brown, clayey SAND / sandy CLAY, few gravel, SC/CL, moist		GS-3-4	✋		
5		1702.0				
			GS-8-9	✋		
	End of test pit at 9' bgs; refusal					
10		1697.0				
15		1692.0				

10 20 30 40 50 60 70 80 90

0 10 20 30 40 50 60 70 80 90 100

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner   CHECKED BY/DATE: NDL/5-11-26

TEST PIT RECORD

TEST PIT NO.: TP-4
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800

wsp

PL (%) NM (%) LL (%)

▲ FINES (%) ✿ ORG (%)

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES RECOV. (%)	10 20 30 40 50 60 70 80 90
0	Topsoil/organics		1728.0				
	Brown, clayey SAND / sandy CLAY, little gravel, SC/CL, moist, occasional cobbles			GS-1-2	✋		
				GS-2-3	✋		
				GS-3-4	✋		
	End of test pit at 4.5' bgs; refusal						
5			1723.0				
10			1718.0				
15			1713.0				0 10 20 30 40 50 60 70 80 90 100

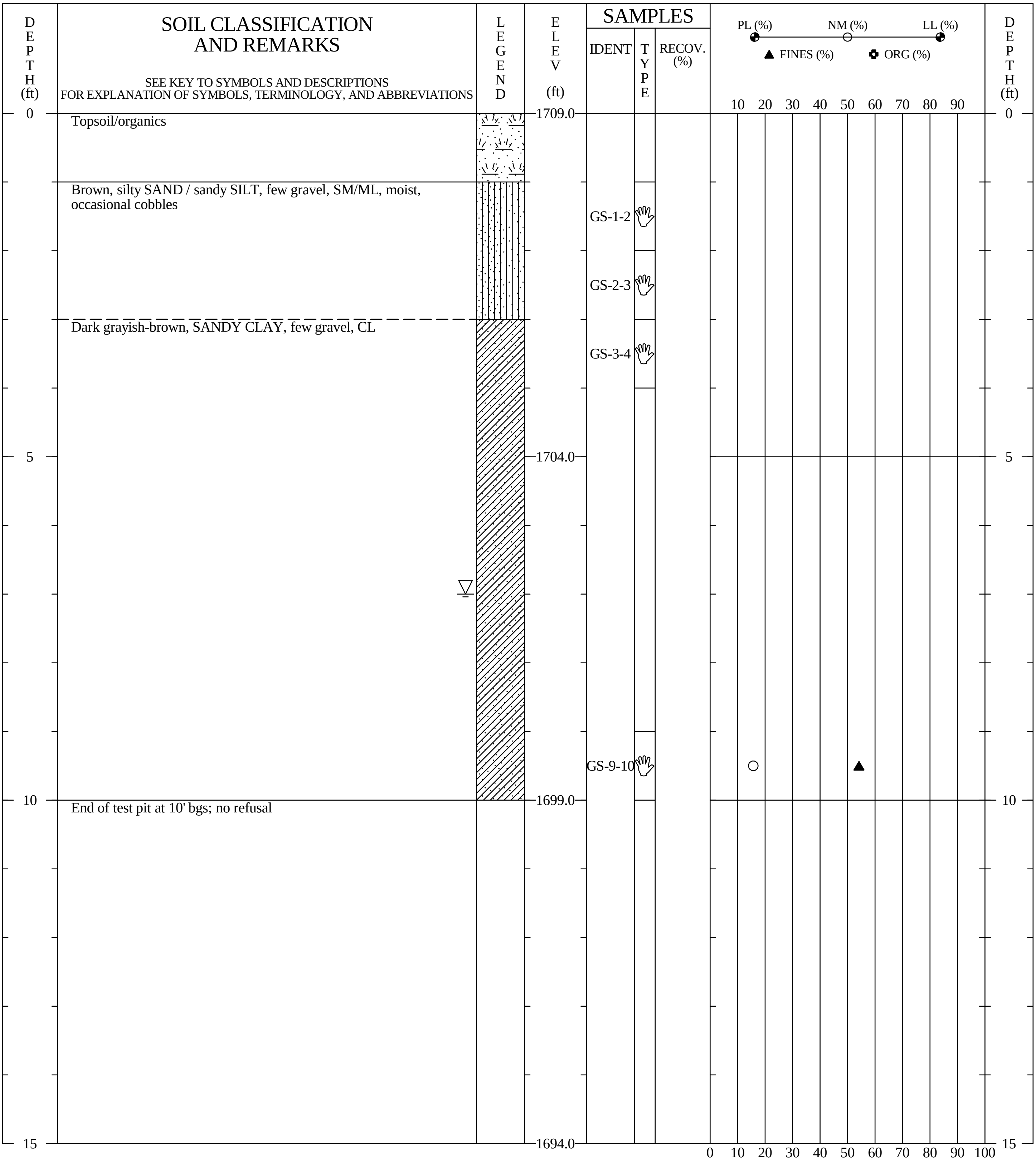
CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-5
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	ELEV (ft)
0	Topsoil/organics	1709.0
	Brown, silty SAND / sandy SILT, few gravel, SM/ML, moist, occasional cobbles	
	Dark grayish-brown, SANDY CLAY, few gravel, CL	
10	End of test pit at 10' bgs; no refusal	1699.0

IDENT	TYPE	RECOV. (%)
GS-1-2	✋	
GS-2-3	✋	
GS-3-4	✋	
GS-9-10	✋	

TEST PIT: PID; DATA GRAPH BLUEWAVE_RIDGE-RD-WORTHINGTON.GPJ 2007_12-12_PORT_DTMPLT.GDT 5/18/26

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

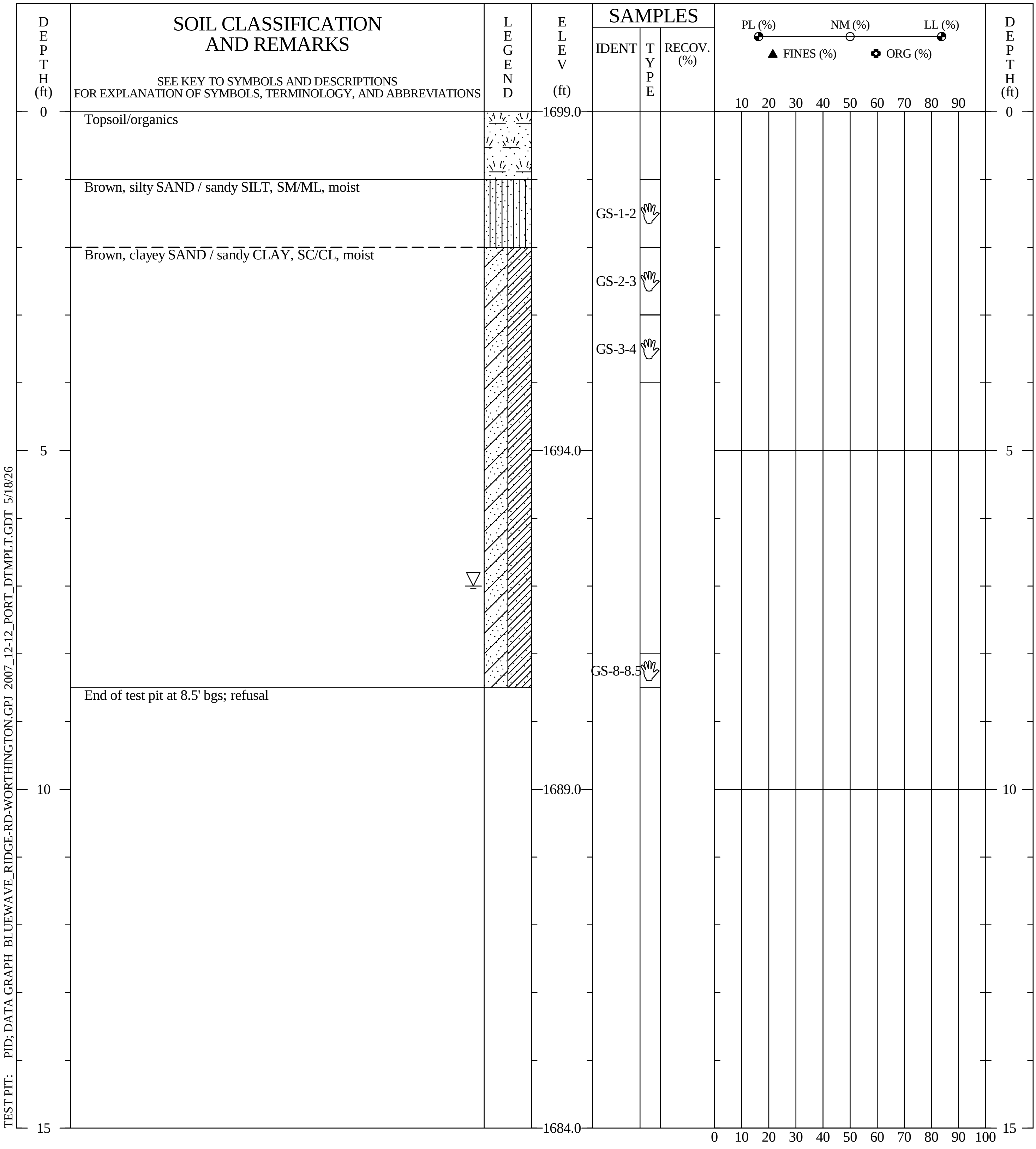
LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-6
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

wsp



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	ELEV (ft)	IDENT
0	Topsoil/organics	1699.0	
1	Brown, silty SAND / sandy SILT, SM/ML, moist		GS-1-2
2	Brown, clayey SAND / sandy CLAY, SC/CL, moist		GS-2-3 GS-3-4 GS-8-8.5
8.5	End of test pit at 8.5' bgs; refusal		

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-7
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

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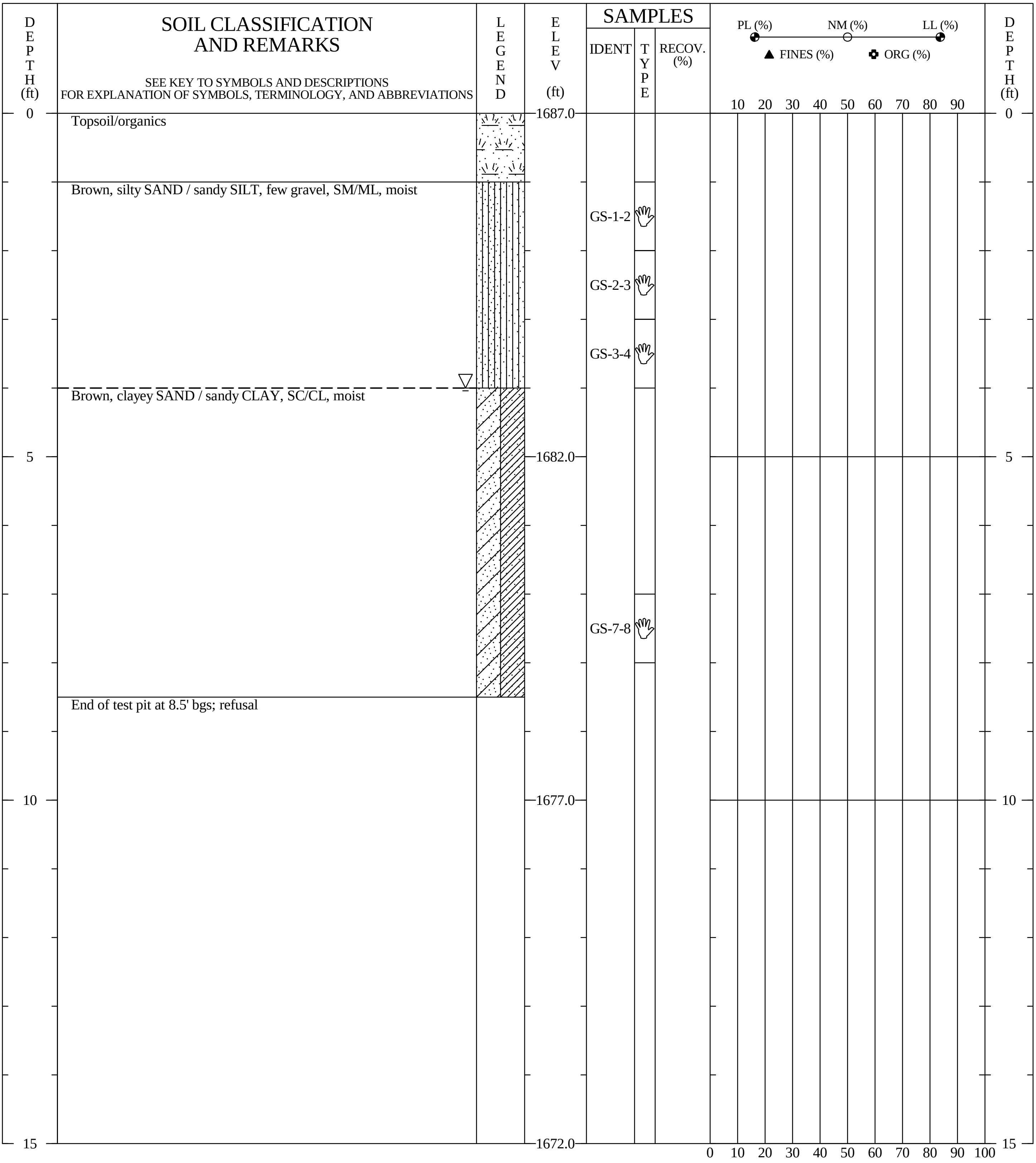
TEST PIT: PID; DATA GRAPH BLUEWAVE_RIDGE-RD-WORTHINGTON.GPJ 2007_12-12_PORT_DTMPLT.GDT 5/18/26



SOIL CLASSIFICATION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS
FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	ELEV (ft)	SAMPLES IDENT	TYPE	RECOV. (%)	DEPTH (ft)
0	Topsoil/organics	1687.0				0
	Brown, silty SAND / sandy SILT, few gravel, SM/ML, moist					
			GS-1-2	✋		
			GS-2-3	✋		
			GS-3-4	✋		
	▽ Brown, clayey SAND / sandy CLAY, SC/CL, moist					
5		1682.0				5
			GS-7-8	✋		
	End of test pit at 8.5' bgs; refusal					
10		1677.0				10
15		1672.0				15

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

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TEST PIT RECORD

TEST PIT NO.: TP-8
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

SOIL CLASSIFICATION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS
FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

PL (%) ● NM (%) ○ LL (%) ●
▲ FINES (%) ✿ ORG (%)

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	LEGEND	ELEV (ft)	SAMPLES IDENT	TYPE	RECOV. (%)	10 20 30 40 50 60 70 80 90	DEPTH (ft)
0	Topsoil/organics		1689.0					0
	Brown, silty SAND / sandy SILT, few gravel, SM/ML, moist, occasional cobbles			GS-1-2	✋			
				GS-2-3	✋			
				GS-3-4	✋			
	Brown, clayey SAND / sandy CLAY, SC/CL, moist							
5			1684.0					5
		▽						
				GS-9-10	✋			
10	End of test pit at 10' bgs; no refusal		1679.0					10
15			1674.0				0 10 20 30 40 50 60 70 80 90 100	15

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

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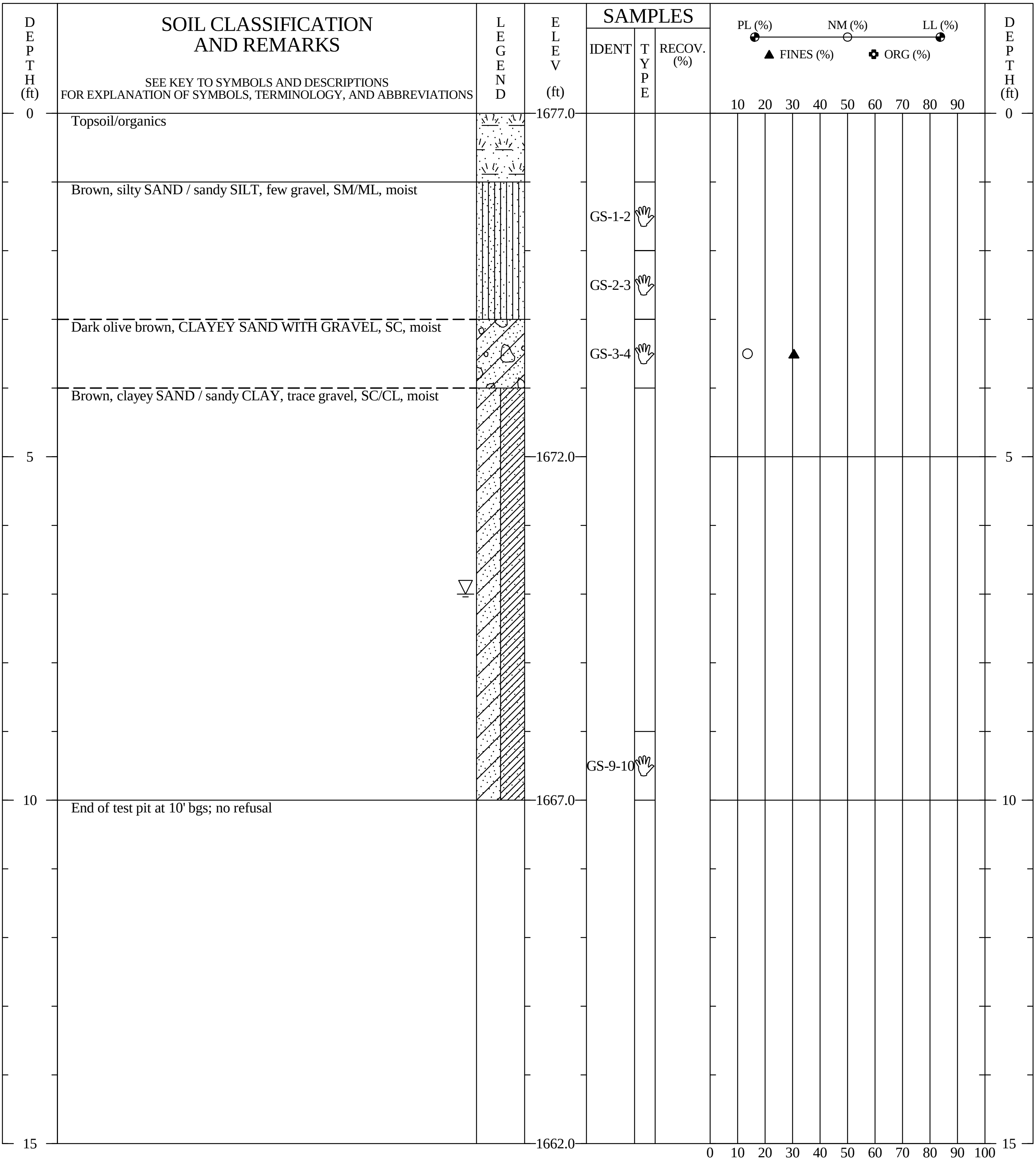
TEST PIT RECORD

TEST PIT NO.: TP-9
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

TEST PIT: PID; DATA GRAPH BLUEWAVE_RIDGE-RD-WORTHINGTON.GPJ 2007_12-12_PORT_DTMPLT.GDT 5/18/26



DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	ELEV (ft)	SAMPLES IDENT	TYPE	RECOV. (%)
0	Topsoil/organics	1677.0			
	Brown, silty SAND / sandy SILT, few gravel, SM/ML, moist		GS-1-2	✋	
			GS-2-3	✋	
	Dark olive brown, CLAYEY SAND WITH GRAVEL, SC, moist		GS-3-4	✋	
	Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist				
5		1672.0			
			GS-9-10	✋	
10	End of test pit at 10' bgs; no refusal	1667.0			
15		1662.0			

TEST PIT: PID; DATA GRAPH BLUEWAVE_RIDGE-RD-WORTHINGTON.GPJ 2007_12-12_PORT_DTMPLT.GDT 5/18/26

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner   CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-10
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800   **PAGE** 1 **OF** 1

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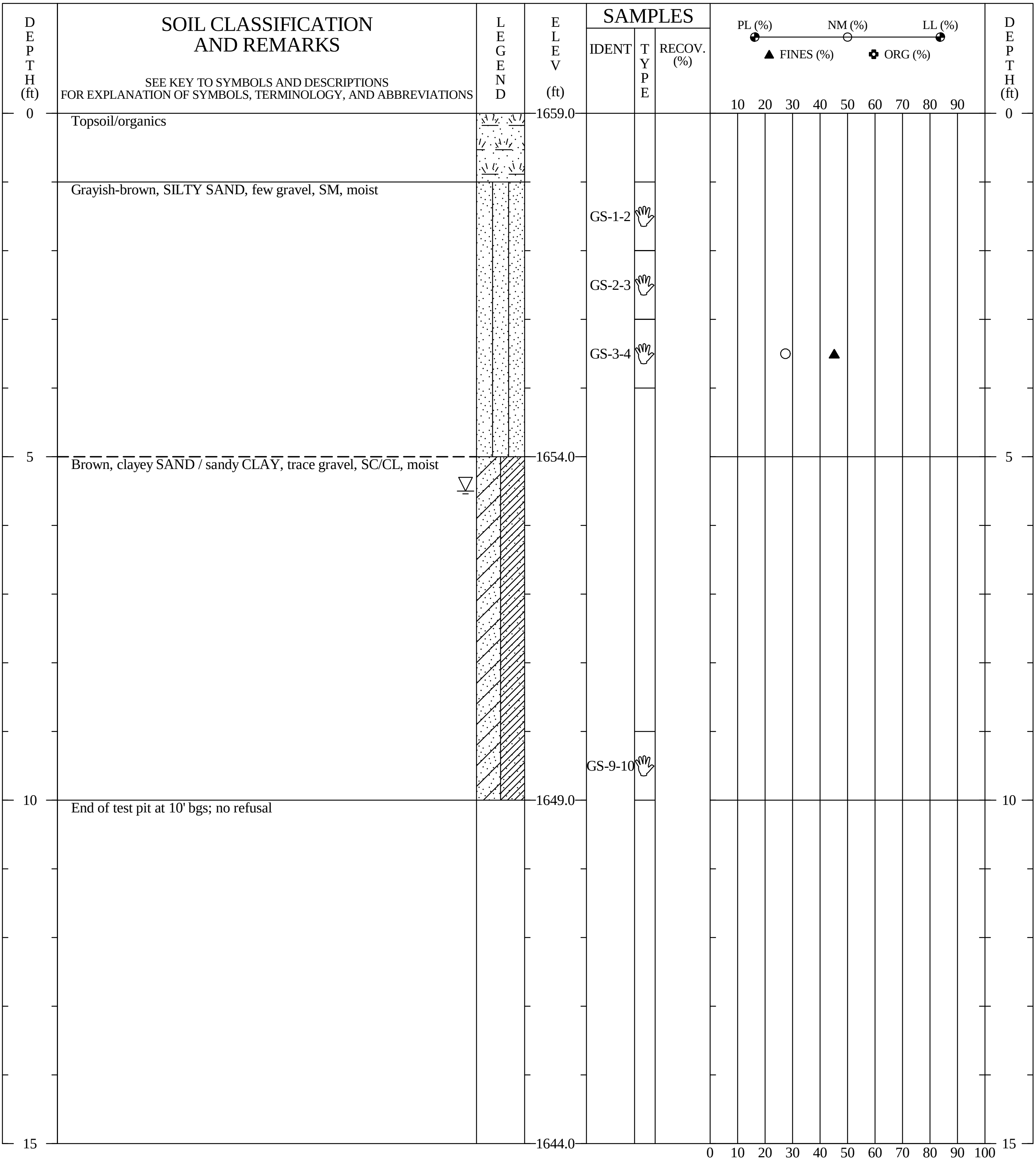

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	ELEV (ft)	IDENT
0	Topsoil/organics	1659.0	
1	Grayish-brown, SILTY SAND, few gravel, SM, moist		GS-1-2 GS-2-3 GS-3-4
5	Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist	1654.0	GS-9-10
10	End of test pit at 10' bgs; no refusal	1649.0	
15		1644.0	

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

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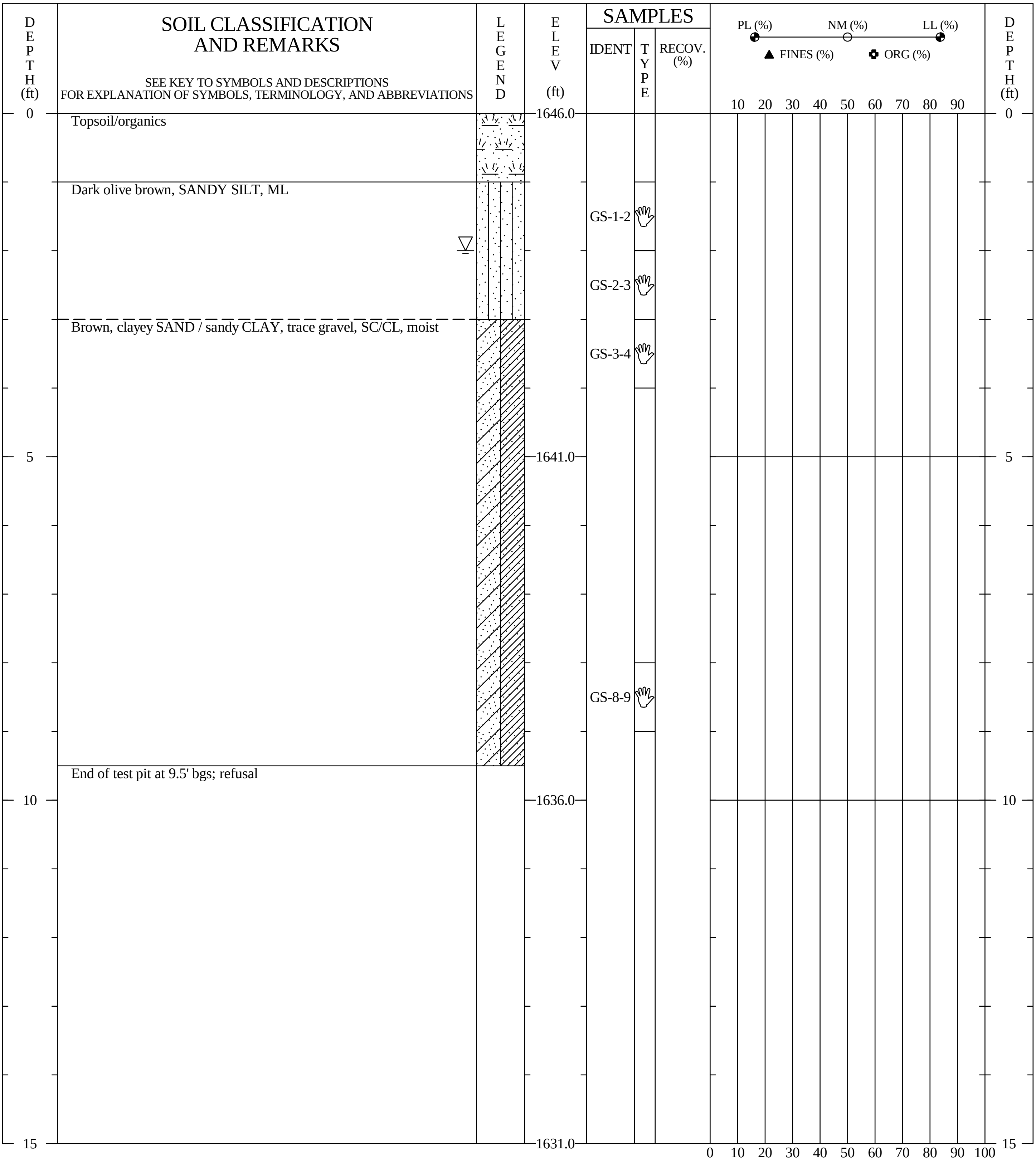
TEST PIT RECORD

TEST PIT NO.: TP-11
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1



CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

TEST PIT RECORD

TEST PIT NO.: TP-12
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES RECOV. (%)	PL (%) NM (%) LL (%) ▲ FINES (%) ✿ ORG (%) 10 20 30 40 50 60 70 80 90	DEPTH (ft)
0	Topsoil/organics		1640.0					0
	Brown, silty SAND / sandy SILT, trace gravel, SM/ML, moist							
				GS-1-2	✋			
				GS-2-3	✋			
				GS-3-4	✋			
	Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist							
5			1635.0					5
		▽						
				GS-9-10	✋			
10	End of test pit at 10' bgs; no refusal		1630.0					10
15			1625.0				0 10 20 30 40 50 60 70 80 90 100	15

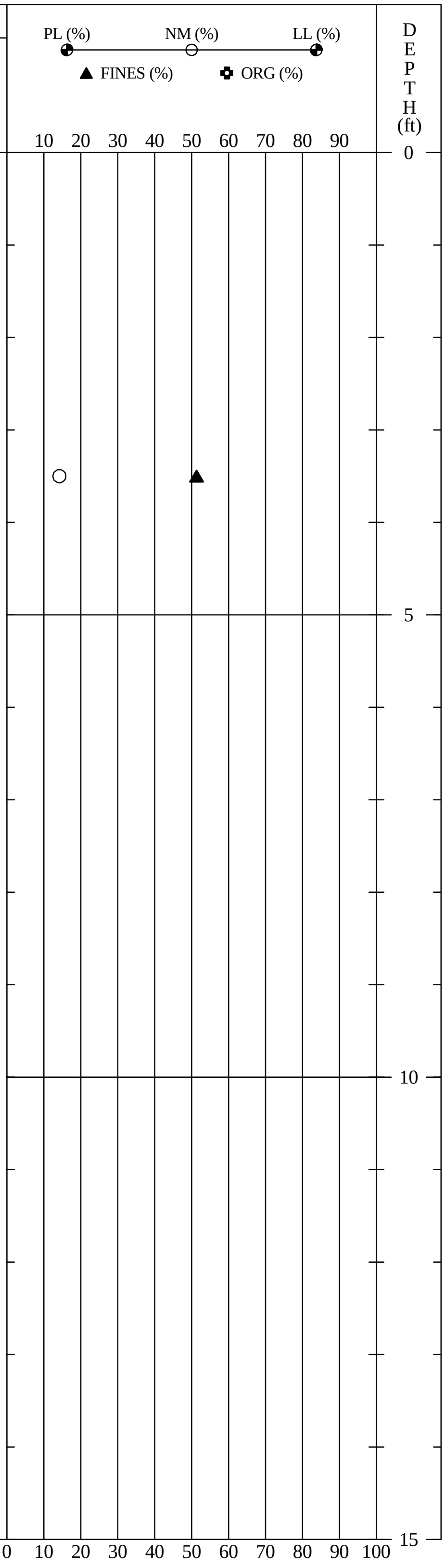
CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

TEST PIT RECORD

TEST PIT NO.: TP-13
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	LEGEND	ELEV (ft)	SAMPLES IDENT	TYPE	RECOV. (%)
0	Topsoil/organics		1634.0			
	Dark olive brown, SANDY SILT, trace gravel, ML, moist					
				GS-1-2	✋	
				GS-2-3	✋	
				GS-3-4	✋	
5	Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist		1629.0			
		∇				
				GS-8-9	✋	
	End of test pit at 9' bgs; refusal					
10			1624.0			
15			1619.0			



CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

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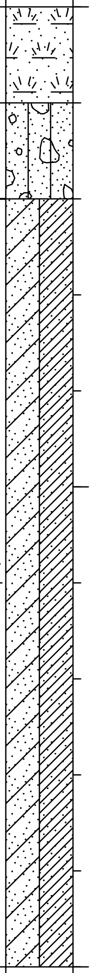
TEST PIT RECORD

TEST PIT NO.: TP-14
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS	ELEV (ft)	SAMPLES IDENT	TYPE	RECOV. (%)
0	Topsoil/organics	1678.0			
	Olive brown, SILTY SAND WITH GRAVEL, SM, occasional cobbles		GS-1-2	✋	
	Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist		GS-2-3	✋	
			GS-3-4	✋	
5		1673.0			
	∇				
			GS-9-10	✋	
10	End of test pit at 10' bgs; no refusal	1668.0			
15		1663.0			



PL (%) NM (%) LL (%)

▲ FINES (%) ✿ ORG (%)

0 10 20 30 40 50 60 70 80 90 100

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

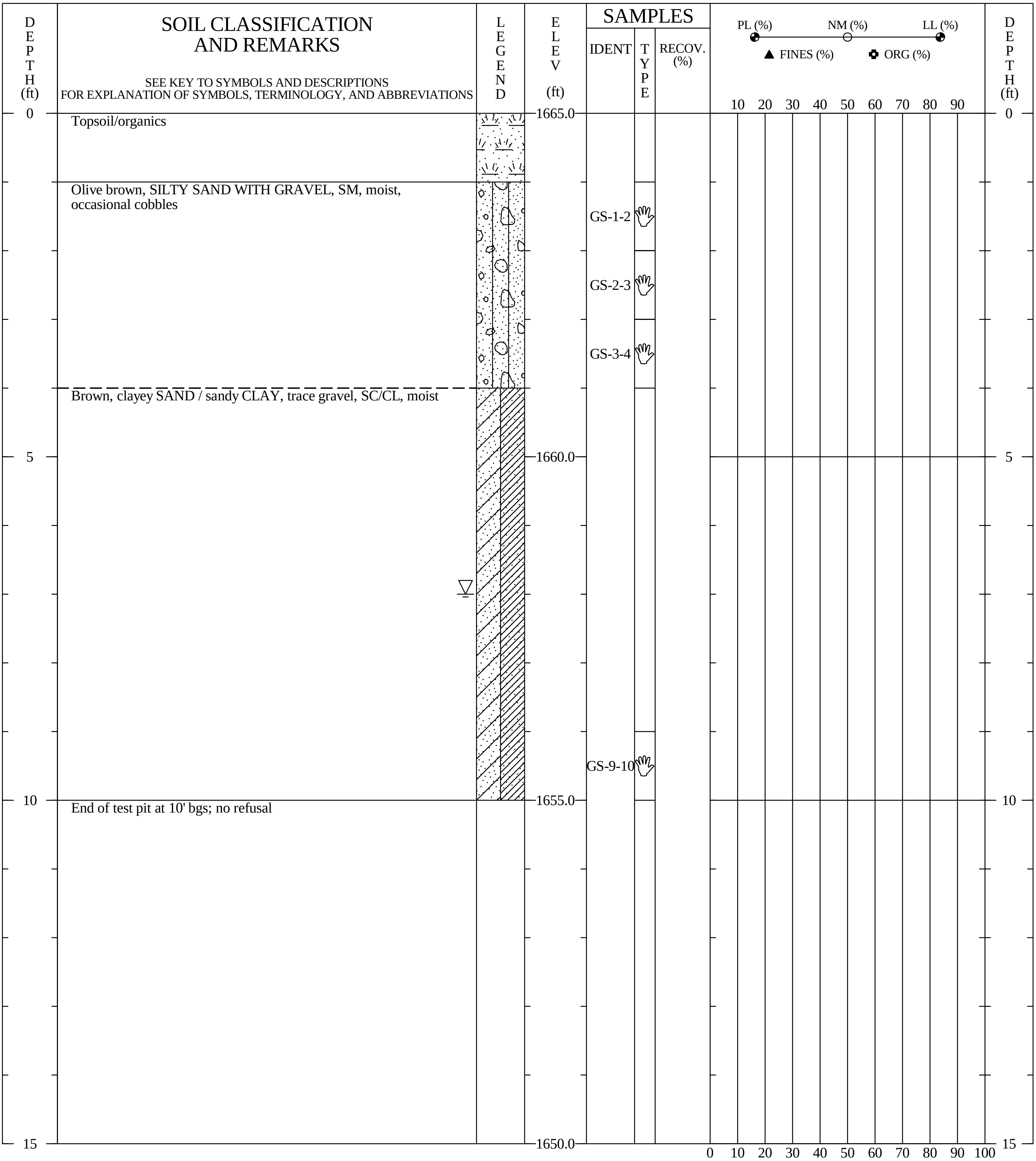
THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-15
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

SOIL CLASSIFICATION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS



Topsoil/organics

Olive brown, SILTY SAND WITH GRAVEL, SM, moist, occasional cobbles

Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist

End of test pit at 10' bgs; no refusal

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-16
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800 **PAGE** 1 **OF** 1

SOIL CLASSIFICATION AND REMARKS

SEE KEY TO SYMBOLS AND DESCRIPTIONS FOR EXPLANATION OF SYMBOLS, TERMINOLOGY, AND ABBREVIATIONS

PL (%) NM (%) LL (%)

▲ FINES (%) ✿ ORG (%)

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	ELEV (ft)	SAMPLES IDENT	TYPE	RECOV. (%)
0	Topsoil/organics	1667.0			
1	Brown, silty SAND / sandy SILT, trace gravel, SM/ML, moist, occasional cobbles		GS-1-2	✋	
			GS-2-3	✋	
			GS-3-4	✋	
5	Brown, clayey SAND / sandy CLAY, trace gravel, SC/CL, moist	1662.0			
	▽				
			GS-7-8	✋	
8	End of test pit at 8' bgs; refusal				
10		1657.0			
15		1652.0			

0 10 20 30 40 50 60 70 80 90 100

TEST PIT: PID; DATA GRAPH BLUEWAVE_RIDGE-RD-WORTHINGTON.GPJ 2007_12-12_PORT_DTMPLT.GDT 5/18/26

CONTRACTOR: Seaboard Drilling
EQUIPMENT: PC40 Mini
METHOD:
REMARKS: Test pit backfilled with excavated materials and compacted with excavator bucket. Surface conditions restored to the extent practicable.

LOGGED BY: M. Turner CHECKED BY/DATE: NDL/5-11-26

THIS TEST PIT RECORD PRESENTS A REASONABLE INTERPRETATION OF THE SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS MAY DIFFER. STRATA INTERFACES (AS SHOWN) ARE APPROXIMATE. ACTUAL TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

TEST PIT RECORD

TEST PIT NO.: TP-17
EXCAVATED: 3/25/26-3/26/26
PROJECT: BlueWave
LOCATION: 190 Ridge Rd, Worthington, MA
PROJECT NO.: 3653230438-800

ATTACHMENT C

Laboratory Test Reports

Summary of Geotechnical Laboratory Testing Data
Phase 1 Geotechnical Investigation
190 Ridge Rd, Worthington, Massachusetts

Test Pit No.	Sample Information					Laboratory Testing Results																			
	Sample ID	Sample Type	Sample Interval	USCS D 2487 / D 2488		Moisture Content D 2216	Particle-Size Analysis & Hydrometer D 6913 / 7928				Atterberg Limits D 4318						Specific Gravity D 854	Soil Resistivity G 57	Thermal Conductivity D 5334			pH D 4972	Sulfate D 516	Chloride D 512	Oxidation-Reduction Potential G 200
				Description	Symbol		Gravel	Sand	Silt	Clay	LL			PL	PI	LI			Moisture Content	Bulk Density	Thermal Conductivity				
											Wet Prep.	Oven Dried	ODLL WPLL Ratio												
			(ft bgs)			(%)	(%)	(%)	(%)	(%)							(-)	(ohm-cm)	(%)	(pcf)	(W/m°K)	(-)	(ppm)	(ppm)	(mV)
TP-2	RR-TP-2	Bulk	2 - 3	silt with gravel	ML	-	-	-	-	-	-	-	-	-	-	-	-	83,802	-	-	-	4.2	<10	14	305.6
TP-3	RR-TP-3	Bulk	3 - 4	sandy clay	CL	14.6	4.4	42.1	53.5		25	-	-	15	10	0.0	-	-	-	-	-	-	-	-	-
TP-6	RR-TP-6	Bulk	9 - 10	sandy clay	CL	15.7	6.4	39.4	54.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-10	RR-TP-10	Bulk	3 - 4	clayey sand with gravel	SC	13.6	18.1	51.4	30.5		-	-	-	-	-	-	2.74	-	-	-	-	-	-	-	-
TP-11	RR-TP-11	Bulk	3 - 4	silty sand	SM	27.4	10.6	44.2	45.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-12	RR-TP-12	Bulk	2 - 3	sandy silt	ML	-	-	-	-	-	-	-	-	-	-	-	-	49,660	-	-	-	4.8	<10	13	283.8
TP-14	RR-TP-14	Bulk	3 - 4	sandy silt	ML	14.2	2.8	45.9	51.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-15	RR-TP-15	Bulk	1 - 2	silty sand with gravel	SM	-	-	-	-	-	-	-	-	-	-	-	-	56,665	0.4	115.0	0.46	-	-	-	-
																			15.0	115.0	1.44				
																			28.7	117.3	2.01				
TP-16	RR-TP-16	Bulk	1 - 2	silty sand with gravel	SM	-	-	-	-	-	-	-	-	-	-	-	-	59,813	0.4	115.0	0.45	-	-	-	-
																			15.8	115.0	1.73				
																			22.9	115.0	1.74				

Prepared/Date: NDL/4-21-26
Checked/Date: RSE/5-15-26

Client:	WSP USA, Inc.				
Project:	Ridge Road				
Location:	Worthington, MA			Project No:	GTX-322996
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	04/14/26	Checked By:	ank
Depth :	---	Test Id:	862798		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
TP-3	RR- TP-3	3-4	Moist, dark olive brown sandy clay	14.6
TP-6	RR- TP-6	9-10	Moist, dark grayish brown sandy clay	15.7
TP-10	RR- TP-10	3-4	Moist, dark olive brown clayey sand with gravel	13.6
TP-11	RR- TP-11	3-4	Moist, grayish brown silty sand	27.4
TP-14	RR- TP-14	3-4	Moist, dark olive brown sandy silt	14.2

Notes: Temperature of Drying : 110º Celsius

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GeoTesting EXPRESS
A Sercel Business

Client:	WSP USA, Inc.				
Project:	Ridge Road				
Location:	Worthington, MA			Project No:	GTX-322996
Boring ID:	TP-3	Sample Type:	Bag	Tested By:	ajl
Sample ID:	RR-TP-3	Test Date:	04/15/26	Checked By:	ank
Depth :	3-4	Test Id:	862793		

Test Comment: ---
Visual Description: Moist, dark olive brown sandy clay
Sample Comment: ---

USCS Classification - ASTM D2487

Boring ID	Sample ID	Depth	Group Name	Group Symbol	Gravel, %	Sand, %	Fines, %
TP-3	RR-TP-3	3-4	Sandy Lean CLAY	CL	4.4	42.1	53.5

Remarks: Grain Size analysis performed by ASTM D 6913 results enclosed
Atterberg Limits performed by ASTM D4318, results enclosed

Client:	WSP USA, Inc.		
Project:	Ridge Road		
Location:	Worthington, MA	Project No:	GTX-322996

Boring ID:	TP-10	Sample Type:	Bag	Tested By:	ajl
Sample ID:	RR-TP-10	Test Date:	04/14/26	Checked By:	ank
Depth :	3-4	Test Id:	862799		

Test Comment: ---
Visual Description: Moist, dark olive brown clayey sand with gravel
Sample Comment: ---

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity
TP-10	RR- TP-10	3-4	Moist, dark olive brown clayey sand with gravel	2.74

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS
A Sercel Business

Client: WSP USA, Inc.
Project: Ridge Road
Location: Worthington, MA
Project No: GTX-322996

Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	04/14/26	Checked By:	ank
Depth :	---	Test Id:	862811		

pH of Soil by ASTM D4972

Boring ID	Sample ID	Depth	Visual Description	pH of Soil in Distilled Water	pH of Soil in Calcium Chloride
TP-2	RR-TP-2	2-3	Moist, olive brown silt with gravel	4.2	4.0
TP-12	RR-TP-12	2-3	Moist, dark olive brown sandy silt	4.8	4.7

Notes: Sample Preparation: screened through #10 sieve

Method A, pH meter used

GeoTesting EXPRESS
A Sercel Business

Client:	WSP USA, Inc.
Project:	Ridge Road.
Location:	Worthington, MA
GTX#:	322996
Test Date:	04/15/26
Tested By:	NMK
Checked By:	ank

Laboratory Measurement of Soil Resistivity Using the Wenner Four-Electrode Method by ASTM G57 (Laboratory Measurement)

Boring ID	Sample ID	Depth, ft.	Sample Description	Electrical Resistivity, ohm-cm	Electrical Conductivity, $(\text{ohm-cm})^{-1}$
TP-12	RR-TP-12	2-3'	Moist, dark olive brown sandy silt	49,660	2.01E-05
TP-15	RR-TP-15	1-2'	Moist, olive brown silty sand with gravel	56,665	1.76E-05
TP-16	RR-TP-16	1-2'	Moist, olive brown silty sand with gravel	59,813	1.67E-05
TP-2	RR-TP-2	2-3'	Moist, dark olive brown silt with gravel	83,802	1.19E-05

Notes:

Test Equipment: Nilsson Model 400 Soil Resistance Meter, MC Miller Soil Box

Water added to sample to create a thick slurry prior to testing (saturated condition).

Electrical Conductivity is calculated as inverse of Electrical Resistivity (per ASTM G57)

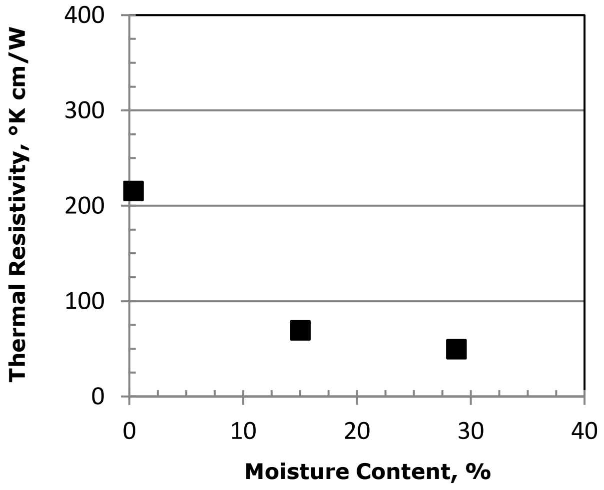
Test conducted in standard laboratory atmosphere: 68-73 F

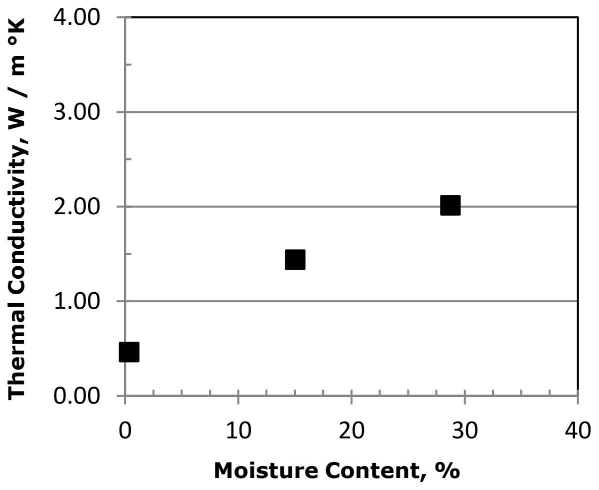
Client:	WSP USA, Inc.
Project Name:	Ridge Road
Project Location:	Worthington, MA
GTX #:	322996
Start Date:	04/14/26
End Date:	04/17/26
Tested By:	ges
Checked By:	ank
Preparation:	Tested on a 3 point curve. Specimens compacted to 115 pcf bulk density, at dry, as-received, and saturated moisture contents. Unable to meet compaction at the saturated moisute content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth, ft	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m^\circ K}$	Thermal Resistivity, $^{^\circ K\ cm}/_{W}$
TP-15	RR-TP-15	1-2	Moist, olive brown silty sand with gravel	0.36	115.0	114.6	0.46	216
TP-15	RR-TP-15	1-2	Moist, olive brown silty sand with gravel	15.03	115.0	100.0	1.44	69
TP-15	RR-TP-15	1-2	Moist, olive brown silty sand with gravel	28.73	117.3	91.1	2.01	50

Notes:
$^{W}/_{m^\circ K}$ = Watts per Meter °Kelvin
$^{^\circ K\ cm}/_{W}$ = °Kelvin Centimeter per Watt





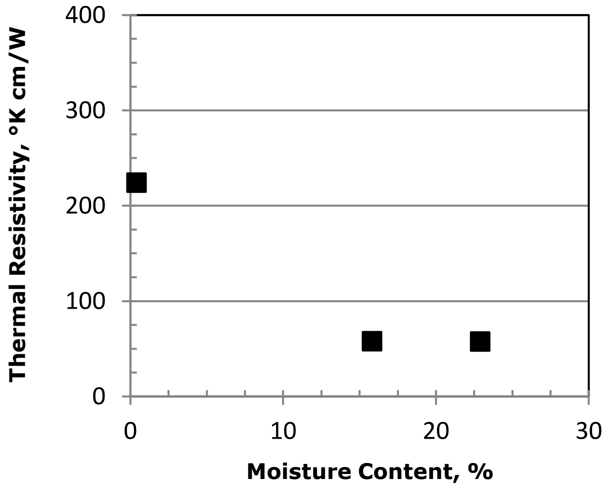
Client:	WSP USA, Inc.
Project Name:	Ridge Road
Project Location:	Worthington, MA
GTX #:	322996
Start Date:	04/14/26
End Date:	04/17/26
Tested By:	ges
Checked By:	ank
Preparation:	Tested on a 3 point curve. Specimens compacted to 115 pcf bulk density, at dry, as-received, and saturated moisture contents. Needle was pushed into specimen.

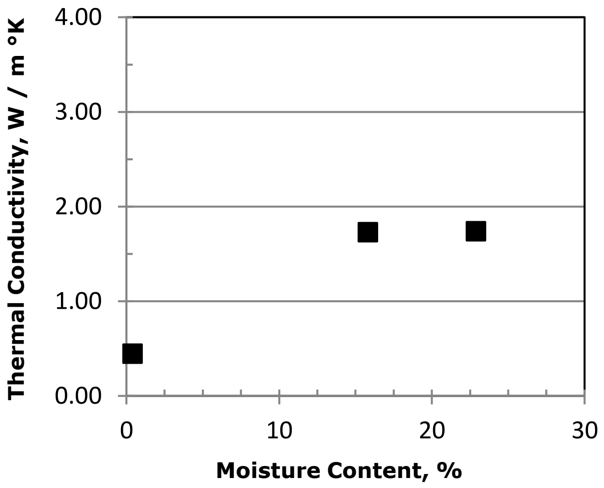
Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth, ft	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
TP-16	RR-TP-16	1-2	Moist, olive brown silty sand with gravel	0.39	115.0	114.6	0.45	224
TP-16	RR-TP-16	1-2	Moist, olive brown silty sand with gravel	15.82	115.0	99.3	1.73	58
TP-16	RR-TP-16	1-2	Moist, olive brown silty sand with gravel	22.89	115.0	93.6	1.74	57

Notes: $^{W}/_{m°K}$ = Watts per Meter °Kelvin

$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt



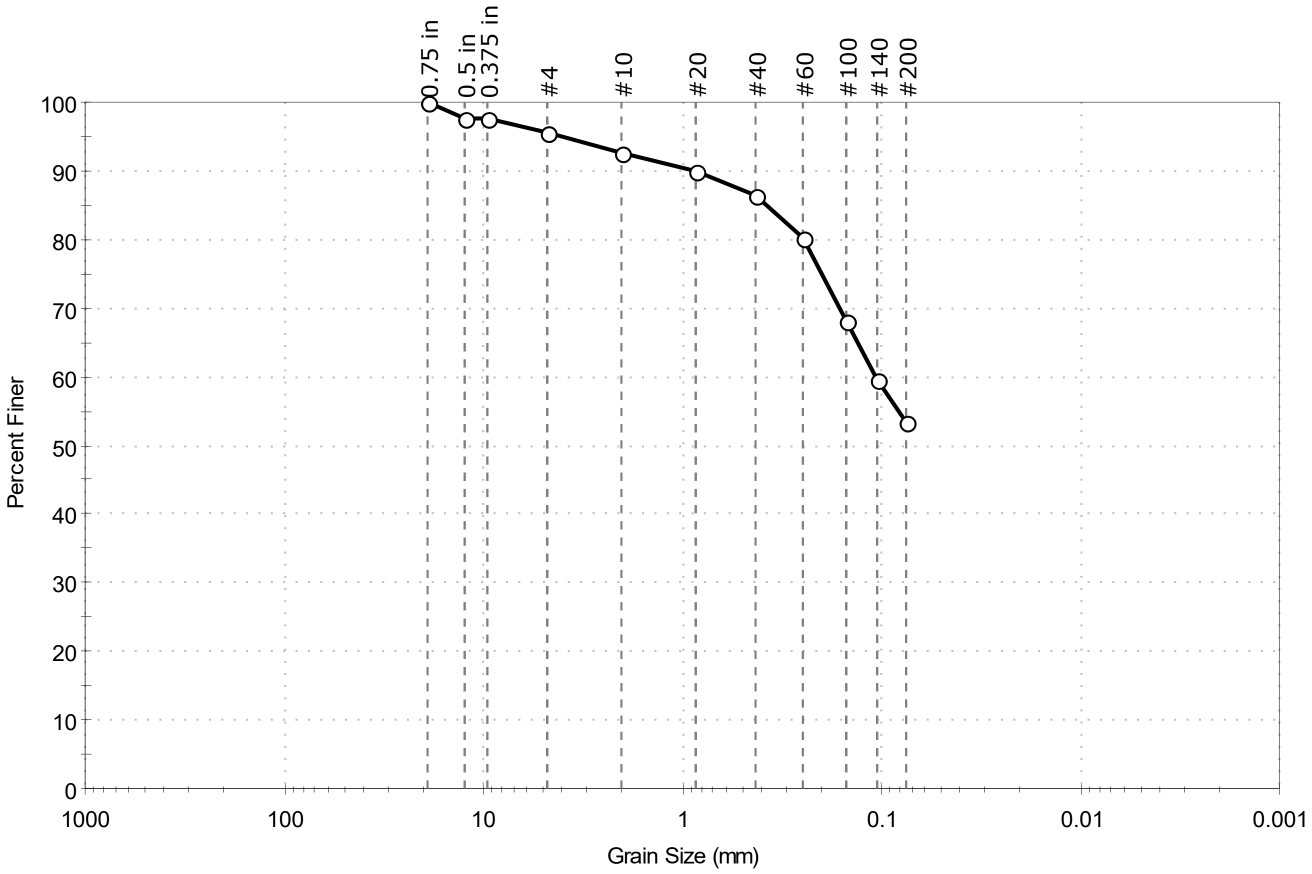


Client: WSP USA, Inc.
Project: Ridge Road
Location: Worthington, MA
Project No: GTX-322996

Boring ID: TP-3
Sample ID: RR-TP-3
Depth : 3-4
Sample Type: Bag
Test Date: 04/13/26
Test Id: 862788
Tested By: ajl
Checked By: ank

Test Comment: ---
Visual Description: Moist, dark olive brown sandy clay
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.4	42.1	53.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	98		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	93		
#20	0.85	90		
#40	0.42	86		
#60	0.25	80		
#100	0.15	68		
#140	0.11	60		
#200	0.075	53		

Coefficients

D_{85} =0.3802 mm
D_{30} =N/A
D_{60} =0.1074 mm
D_{15} =N/A
D_{50} =N/A
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM	Sandy Lean CLAY (CL)
AASHTO	Silty Soils (A-4 (2))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

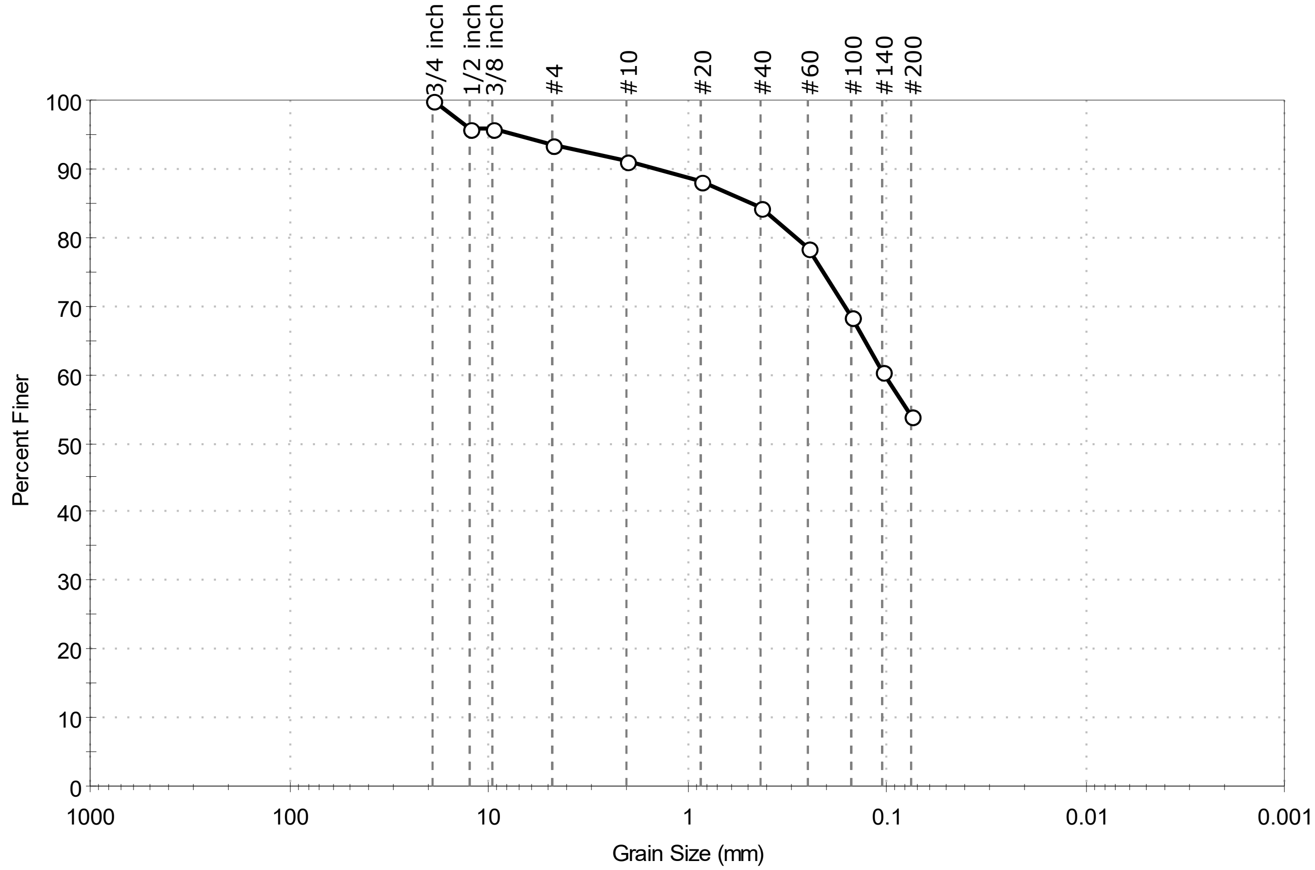
Client:	WSP USA, Inc.			
Project:	Ridge Road			
Location:	Worthington, MA		Project No:	GTX-322996
Boring ID:	TP-6	Sample Type: Bag	Tested By:	ajl
Sample ID:	RR-TP-6	Test Date: 04/10/26	Checked By:	ank
Depth :	9-10	Test Id: 862789		

Test Comment: ---

Visual Description: Moist, dark grayish brown sandy clay

Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	6.4	39.4	54.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3/4 inch	19.00	100		
1/2 inch	12.50	96		
3/8 inch	9.50	96		
#4	4.75	94		
#10	2.00	91		
#20	0.85	88		
#40	0.42	84		
#60	0.25	78		
#100	0.15	68		
#140	0.11	61		
#200	0.075	54		

Coefficients

D_{85} =0.4861 mm	D_{30} =N/A
D_{60} =0.1029 mm	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

<u>ASTM</u> N/A

<u>AASHTO</u> Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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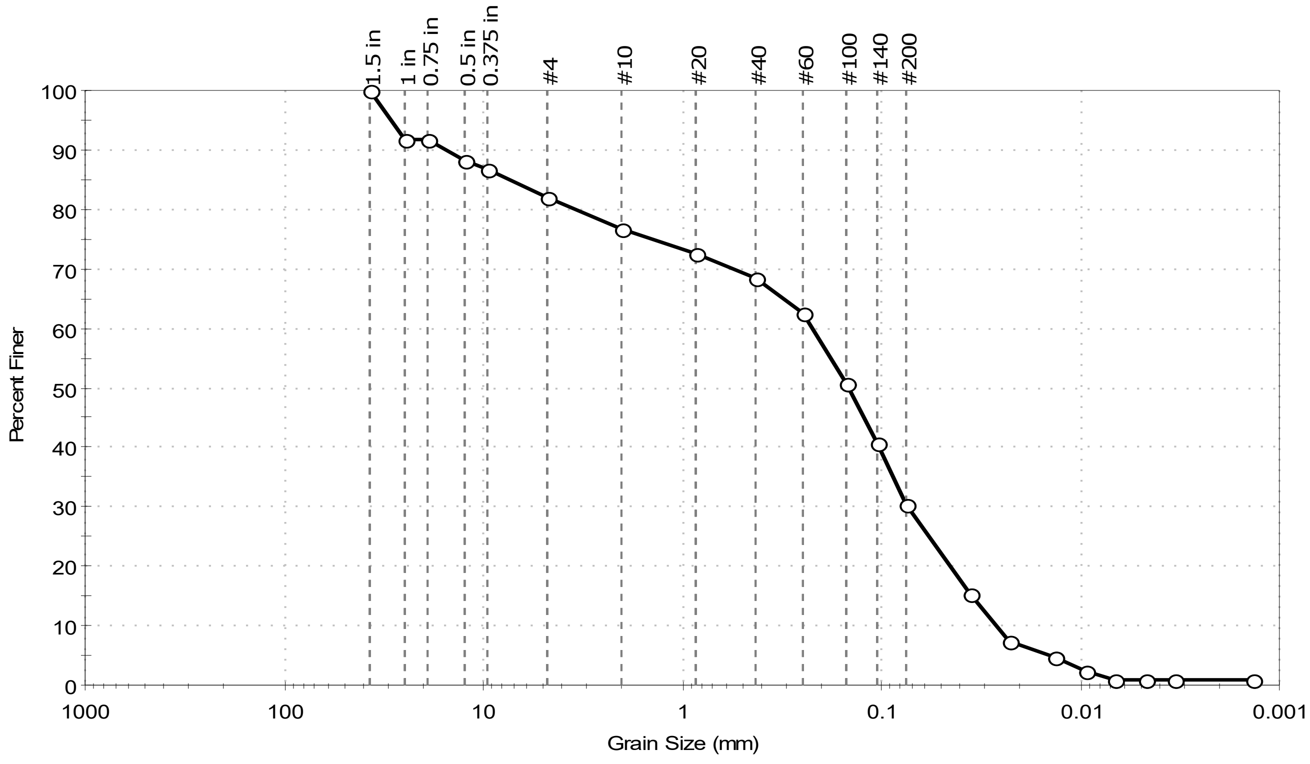
GeoTesting EXPRESS
A Sercel Business

Client:	WSP USA, Inc.				
Project:	Ridge Road				
Location:	Worthington, MA			Project No:	GTX-322996
Boring ID:	TP-10	Sample Type:	Bag	Tested By:	ajl
Sample ID:	RR-TP-10	Test Date:	04/14/26	Checked By:	ank
Depth :	3-4	Test Id:	862792		

Test Comment: ---
Visual Description: Moist, dark olive brown clayey sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	18.1	51.4	30.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	92		
0.75 in	19.00	92		
0.5 in	12.50	88		
0.375 in	9.50	87		
#4	4.75	82		
#10	2.00	77		
#20	0.85	73		
#40	0.42	69		
#60	0.25	62		
#100	0.15	51		
#140	0.11	41		
#200	0.075	30		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0357	15		
---	0.0230	7		
---	0.0133	5		
---	0.0095	2		
---	0.0067	1		
---	0.0048	1		
---	0.0034	1		
---	0.0014	1		

Coefficients

D_{85} =7.4619 mm	D_{30} =0.0733 mm
D_{60} =0.2253 mm	D_{15} =0.0350 mm
D_{50} =0.1468 mm	D_{10} =0.0266 mm
C_u =8.470	C_c =0.897

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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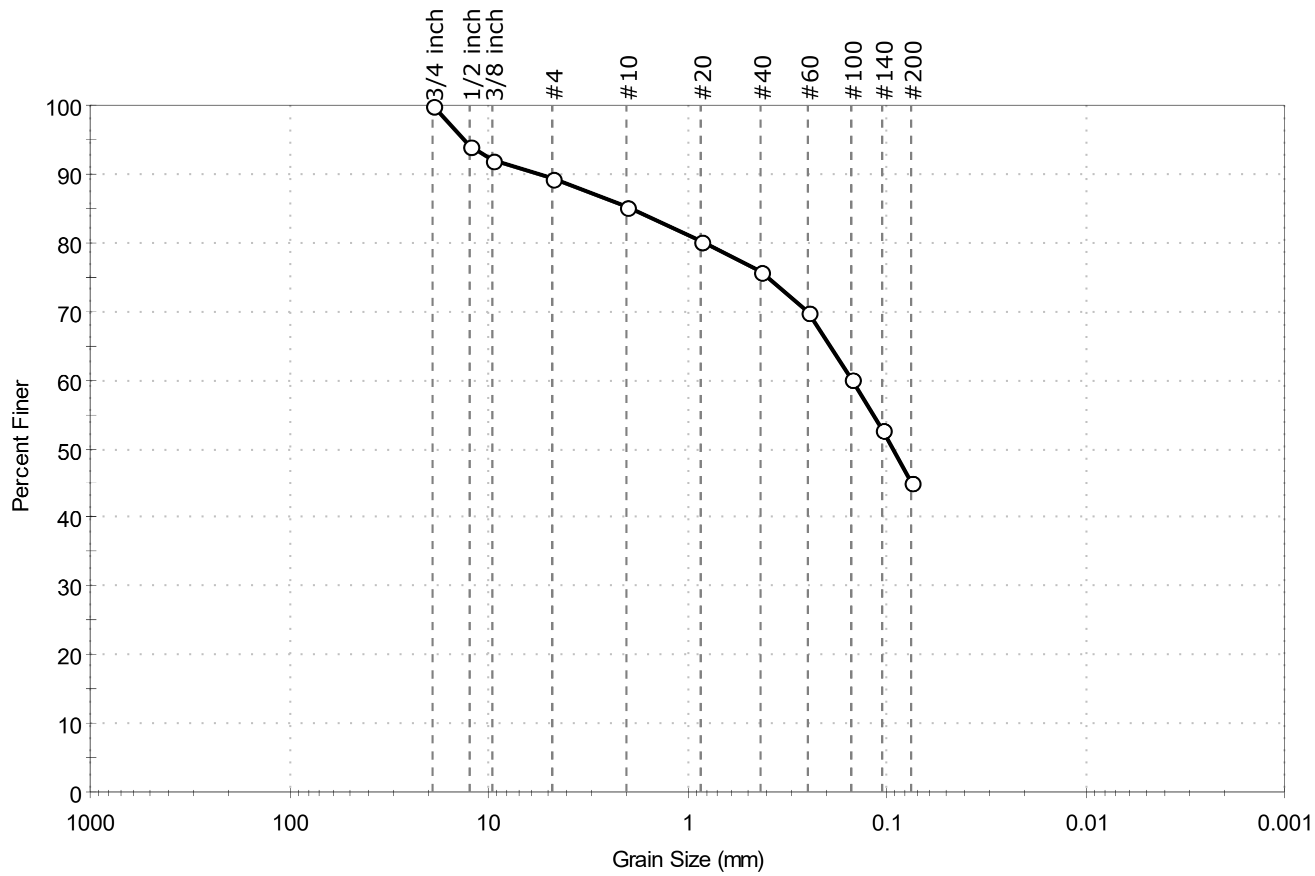
Client: WSP USA, Inc.
Project: Ridge Road
Location: Worthington, MA
Project No: GTX-322996

Boring ID: TP-11
Sample ID: RR-TP-11
Depth : 3-4
Sample Type: Bag
Test Date: 04/10/26
Test Id: 862790
Tested By: ajl
Checked By: ank

Test Comment: ---
Visual Description: Moist, grayish brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	10.6	44.2	45.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3/4 inch	19.00	100		
1/2 inch	12.50	94		
3/8 inch	9.50	92		
#4	4.75	89		
#10	2.00	85		
#20	0.85	80		
#40	0.42	76		
#60	0.25	70		
#100	0.15	60		
#140	0.11	53		
#200	0.075	45		

Coefficients

D_{85} =1.9029 mm
D_{30} =N/A
D_{60} =0.1479 mm
D_{15} =N/A
D_{50} =0.0930 mm
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

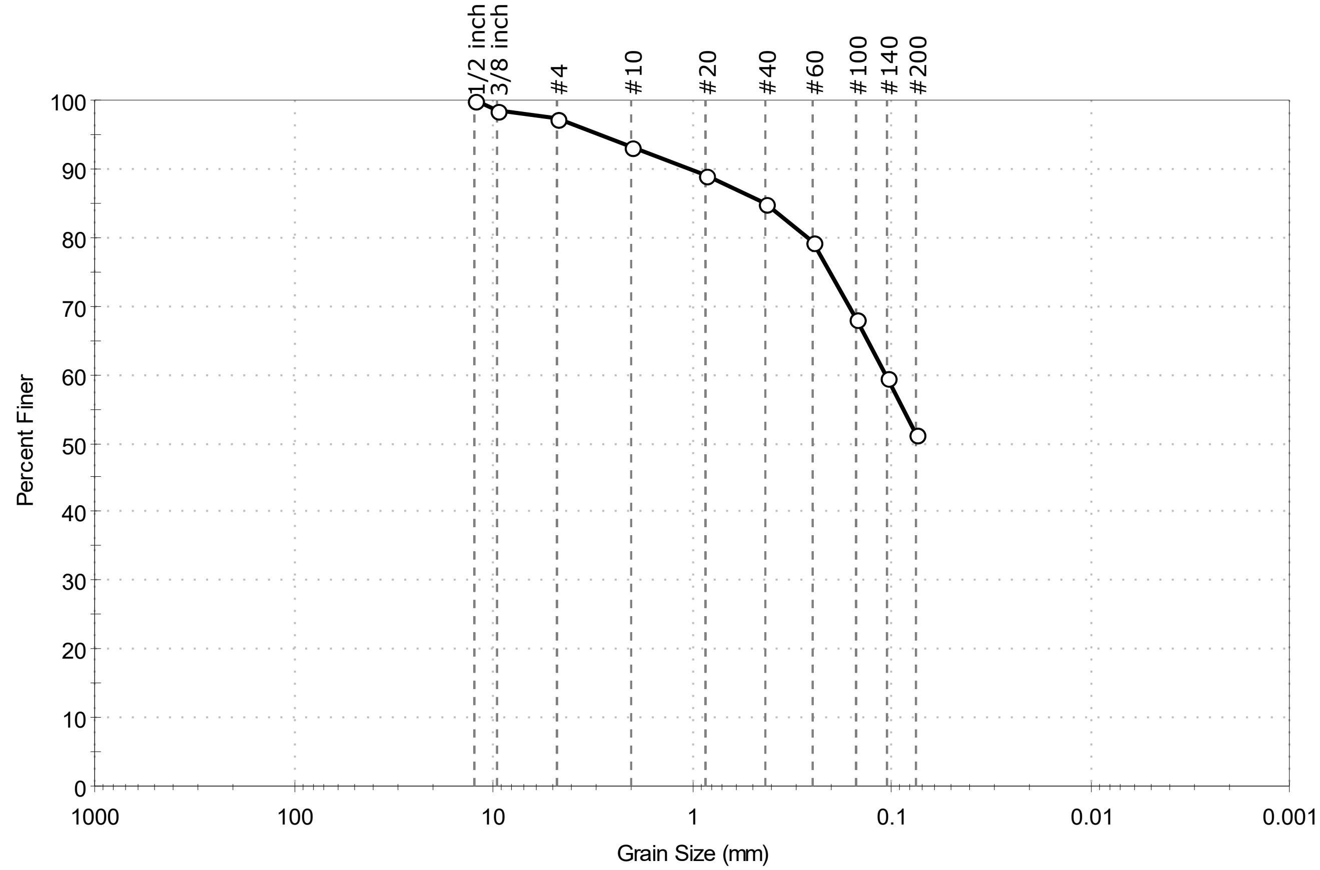
Sand/Gravel Hardness : HARD

Client: WSP USA, Inc.
Project: Ridge Road
Location: Worthington, MA
Project No: GTX-322996

Boring ID: TP-14
Sample ID: RR-TP-14
Depth : 3-4
Sample Type: Bag
Test Date: 04/10/26
Test Id: 862791
Tested By: ajl
Checked By: ank

Test Comment: ---
Visual Description: Moist, dark olive brown sandy silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	2.8	45.9	51.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1/2 inch	12.50	100		
3/8 inch	9.50	99		
#4	4.75	97		
#10	2.00	93		
#20	0.85	89		
#40	0.42	85		
#60	0.25	79		
#100	0.15	68		
#140	0.11	60		
#200	0.075	51		

Coefficients

D_{85} =0.4249 mm
D_{30} =N/A
D_{60} =0.1077 mm
D_{15} =N/A
D_{50} =N/A
D_{10} =N/A
C_u =N/A
C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

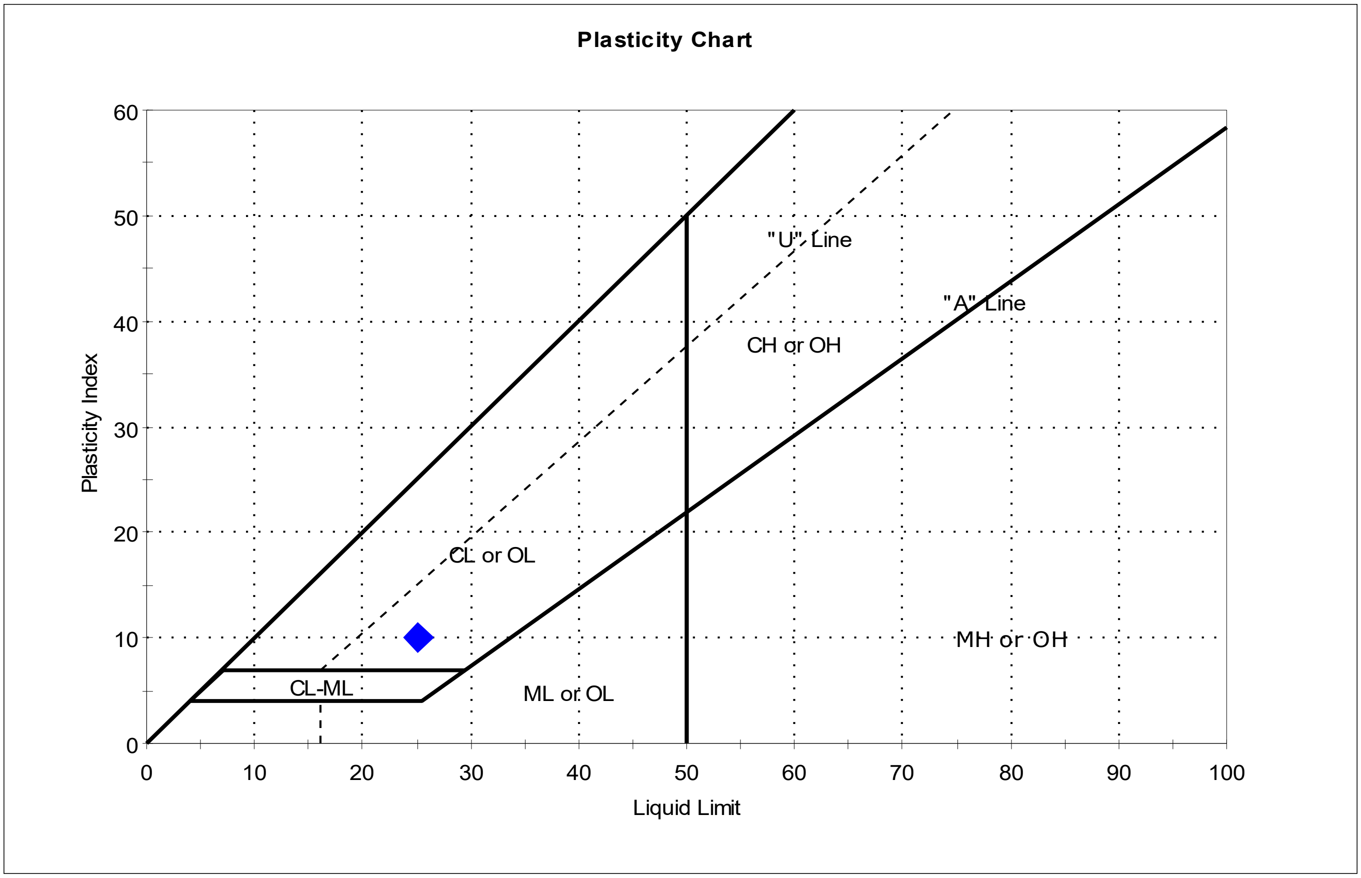
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	WSP USA, Inc.				
Project:	Ridge Road				
Location:	Worthington, MA			Project No:	GTX-322996
Boring ID:	TP-3	Sample Type:	Bag	Tested By:	ajl
Sample ID:	RR-TP-3	Test Date:	04/14/26	Checked By:	ank
Depth :	3-4	Test Id:	862787		

Test Comment: ---
Visual Description: Moist, dark olive brown sandy clay
Sample Comment: ---

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	RR-TP-3	TP-3	3-4	15	25	15	10	0	Sandy Lean CLAY (CL)

Sample Prepared using the WET method

14% Retained on #40 Sieve

Dry Strength: HIGH

Dilatancy: SLOW

Toughness: LOW

Testing Services sm
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TEL +1 801 262 2448 · Director-TS-A@TEi-Test.com
www.TEi-TS.com

GEOTESTING EXPRESS INCORPORATED
125 NAGOG PARK
ACTON MA 01720-3451
USA

Analysis No.	TS-A2613826
Report Date	16 April 2026
Date Sampled	13 April 2026
Date Received	14 April 2026
Where Sampled	Acton, MA USA
Sampled By	Client

This is to attest that we have examined: Soil: Project: Ridge Road; Site Location: – — –; Job Number: GTX-322996

When examined to the applicable requirements of:

ASTM D 512-23	“Standard Test Methods for Chloride Ion in Water” Method B
ASTM D 516-22	“Standard Test Method for Sulfate Ion in Water”
ASTM G 200-20	“Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil”

Results:

ASTM D 512 - Chloride Method B

Sample		Results		Minimum Detection Limit
		ppm (mg/kg)	%[1]	
RR-TP-2		14.	0.0014	10.
TP-2	2 – 3’			
RR-TP-12		13.	0.00132	
TP-12	2 – 3’			

NOTE: [1]Percent by weight after drying and prepared as per the Standard.

ASTM D 516 - Sulfates (Soluble)

Sample		Results		Minimum Detection Limit
		ppm (mg/kg)	%[1]	
RR-TP-2		< 10.	< 0.0010	10.
TP-2	2 – 3’			
RR-TP-12		< 10.	< 0.0010	
TP-12	2 – 3’			

NOTE: [1]Percent by weight after drying and prepared as per the Standard.

ASTM G 200 - REDOX

Sample		Results	Minimum Detection Limit
RR-TP-2		305.6 @ 20.4 ºC	0.1 mV
TP-2	2 – 3’		
RR-TP-12		283.8 @ 20.4 ºC	
TP-12	2 – 3’		

NOTE: [1]Percent by weight after drying and prepared as per the Standard.

END OF ANALYSIS

USEPA Laboratory ID UT00930

Merrill Gee

Merrill Gee P.E. – Engineer in Charge

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