

GEOTECHNICAL | CONSTRUCTION | ENVIRONMENTAL ENGINEERS and SCIENTISTS

August 4, 2015 File No. 750-09.18

Mr. Christopher Benda, P.E. Vermont Agency of Transportation (VTrans) Construction and Materials Bureau Central Lab 2178 Airport Road, Building B Berlin, VT 05641

Email: Chris.Benda@state.vt.us

Re: Geotechnical Data Report Hinesburg HES021-1(19) Roadway, Signal Mast Arm, and Culvert Enhancements/Improvements Hinesburg, VT

Dear Chris:

We are pleased to provide the following geotechnical data report for the proposed roadway, signal mast arm, and culvert enhancements/improvements at the intersection of Vermont Route 116 and Town Highways 1 and 7 in Hinesburg, Vermont.

This report includes a summary of soil boring and rock coring explorations performed at this site, subsurface findings, and laboratory testing results.

We completed these services at your request under our On-Call Geotechnical Engineering Services Contract Number PS0171 (EA number 0211019-100), and in accordance with our proposal dated May 14, 2015.

BACKGROUND

We understand that VTrans will be performing roadway enhancements/improvements consisting of four new mast arm signals, a new culvert, roadway widening, and the addition of turning lanes on Vermont Route 116 in Hinesburg at the Intersection of Town Highways 1 and 7 (Shelburne Falls and CVU Roads, respectively). VTrans has requested soil borings, rock coring (where necessary), and a data report for the proposed improvements. VTrans provided the proposed soil boring locations and depths. A Site Location Plan is shown on Figure 1 in Attachment 1.



Hinesburg HES021-1(19) Hinesburg, VT File No. 750-09.18 – August 4, 2015 Page No. 2

GEOLOGIC SETTING

The project location is on Vermont Route 116 in Hinesburg at the Intersection of Town Highways 1 and 7 (Shelburne Falls and CVU Roads, respectively). The project site generally slopes down to the west from hills located to the southeast and northeast of the intersection. Marshlands are present to the north of the intersection where the existing culvert passes under Vermont Route 116.

Surficial soils mapped in the site vicinity include clay with boulders, glacial till, and exposed bedrock (Natural Resources Atlas, Vermont Agency of Natural Resources, 2015). Bedrock at the site is mapped as a predominantly vitreous quartzite and sandy dolostone members (Natural Resources Atlas, Vermont Agency of Natural Resources, 2015).

Bedrock and natural soils encountered in our explorations generally matched mapped conditions.

TEST BORINGS

Twelve test borings (B1 through B8, B1-RC, B2-RC, B5-ST, and B7-ST) were drilled between May 26 and June 3, 2015. Test borings were drilled at the approximate locations shown on the attached explorations location plans (Figures 2A through 2C in Attachment 1). As-drilled locations shown on these plans were offset where necessary from locations proposed by VTrans due to the presence of utilities at the intended locations and/or drill rig access constraints.

Boring location B1 consisted of 5 probes performed along a +/- 56 foot long portion of the road, none of which were able to advance past 3 feet deep due to repeated refusals on inferred bedrock. Refer to the boring log for details.

Borings labeled B1-RC, B2-RC, B5-ST, and B7-ST were drilled next to the location of the primary borings (B1 through B8) to obtain either a rock core (RC) or undisturbed tube sample (ST).

Borings were drilled to depths of refusal (B1 probes), 25 feet (B2 through B5 and B8), and 35 feet (B6 and B7). Sampling was performed in accordance with MREI 10-01 for borings B2 through B5 (at the proposed signal mast arms). Elsewhere sampling was performed semicontinuously through the upper 15 feet and at 5 foot intervals thereafter.

Borings B1, B2, B4 through B8, B5-ST, and B7-ST were drilled by Platform Environmental Drilling and Remediation Services using a Geoprobe 7720DT rubber tracked rig equipped with an automatic hammer. Borings were advanced using hollow stem augers.



Borings B1-RC, B2-RC, and B3 were drilled by SJB Services, Inc. using a CME 550X rubber tired ATV rig equipped with an automatic hammer. Borings were advanced using hollow stem augers and rock coring was performed using rotary wash methods.

Split spoon samples were collected in general accordance with the Standard Penetration Test (SPT) per ASTM D 1586. Blow counts are recorded on the logs. Shelby tube samples were collected in general accordance with ASTM D 1587 (Thin-Walled Tube Sampling). Recovery, pocket torvane test results, and sample descriptions are provided on the logs. Geo**Design** personnel coordinated, observed, and logged all soil explorations on a full-time basis. Refer to Attachment 2 for boring logs.

NX rock cores were obtained in borings B1-RC, B2-RC, and B3 where bedrock was initially inferred based on hollow stem auger refusals. Five feet of rock coring was performed at each of these locations. Geo**Design** personnel coordinated, observed, and logged all rock explorations on a full-time basis.

LABORATORY TESTING

Classification Tests

VTrans performed soil gradation sieve analyses, moisture content determinations, and Atterberg Limits testing (when applicable) on the majority of samples collected from the borings. Refer to Attachment 3 for VTrans laboratory testing results.

Consolidation Testing

Two Shelby tube samples (B5-ST, ST-1 and B7-ST, ST-1) were sent to GeoTesting Express for one-dimensional consolidation testing. The testing results were directly used to determine values for coefficient of at-rest earth pressure (K_0) for the cohesive soil layers based on correlations between overconsolidation ratio (OCR), plasticity index (PI), and K₀. The results of the consolidation testing were also used to characterize the stress history and sensitivity of the Silty Clay stratum. Understanding this stress history and sensitivity of the stratum was necessary in interpreting strength testing results and assigning strength parameters. Refer to Attachment 3 for GeoTesting Express consolidation testing results.

Note that while the consolidation test results for the B5-ST, ST-1 test specimen are provided, Geo**Design** concluded that the results from this test are not representative of the true soil characteristics of this stratum. Based on discussions with GeoTesting personnel, pieces of gravel dispersed throughout the soil matrix were recovered in B5-ST, ST-1 which they observed while extruding the bottom portion of the sample.



Hinesburg HES021-1(19) Hinesburg, VT File No. 750-09.18 – August 4, 2015 Page No. 4

Based on the shape of the curve, we believe it is likely that sand and/or gravel was present within the consolidation ring, which resulted in a curve not representative of the consolidation characteristics of the clay. Given the prevalence of granular material observed in the extruded portion of the tube, we decided that obtaining another test specimen free of granular material from this sample was unlikely and was not attempted.

Consolidated Undrained Triaxial Compression Testing

Consolidated isotopically undrained compression testing (CIUC) testing was performed on the B7-ST, ST-1 sample which was collected in the Silty Clay stratum. CUIC testing was performed at uniform cell pressures of 500 psf, 1000 psf, and 1500 psf to estimate soil parameters. Refer to Attachment 3 for GeoTesting Express CIUC testing results. Testing results provided a highly non-linear failure envelope over the range was tested. This combined with liquidity index values greater than 1, a relatively high OCR (4) and weight-of-hammer sampling resistance are indicative of overconsolidated, sensitive clay. Given the irregularity in the failure envelope for these types of clays, the strength parameters of effective cohesion (c'), effective friction angle (Φ '), and undrained shear strength (Su) can vary significantly with change in normal stress. As such, we recommend the value for these parameters provided in the Subsurface Conditions section below be considered accurate only for normal stresses between 1000 psf to 1500 psf.

It is important to note that the values of c', Φ ', and S_u shown for the Reworked Clay Fill and Sandy Clay & Silt soil layers (see Subsurface Conditions section below), are conservatively based on the CIUC and consolidation testing performed on the B7-ST, ST-1 undisturbed tube sample which was collected in the Silty Clay stratum. This was done due to the lack of test specimen to perform suitable triaxial testing on these strata.

SUBSURFACE CONDITIONS

Refer to the boring logs provided in Attachment 2 for the subsurface conditions encountered at each individual location. The generalized subsurface profile observed in the borings is summarized in Table 1 and discussed below. Density/consistency and material composition descriptions are based on field recorded SPT N-values (not corrected for hammer efficiency or overburden pressure) and visual field classifications, respectively.



Hinesburg HES021-1(19) Hinesburg, VT File No. 750-09.18 – August 4, 2015 Page No. 5

			Silt &			Gravelly		
Soil	General	Reworked	Clay with	Sandy Clay	Silty	Sand &		
Boring	Fill	Clay Fill	Organics	& Silt	Clay	Silt	Glacial Till	Bedrock
B1	Up to 3'	-	-	-	-	-	-	@ 1.5' to 3'
B2	-	0' to 2'	-	2' to 4'	4' to 7.5'	7.5' to 15'	15' to 22' ⁽³⁾	@ 22' ⁽³⁾
B3	0'-4'	-	-	4' to 6.8'	-	6.8' to 10'	10' to 22.8'	@ 22.8'
B4	-	0' to 5.5'	-	-	-	5.5' to 12'	12' to 25.5'	-
B5	0' to 2'	2' to 8'	-	13' to 15' ⁽⁴⁾	8' to 13'	15' to 17'	17' to 25.4'	-
B6	0' to 6.5'	-	6.5' to 12'	12' to 15'	15' to 17'	-	17' to 36.5'	-
B7	-	0' to 2'	-	15 to 17.5'	2' to 15'	-	17.5' to 35.3'	-
B8	0' to 7'	-	7' to 12'	-	-	12' to 17'	17' to 26'	-

Table 1 – Subsurface Profile Summary

Table 1 Notes:

- 1) Transition depths to different strata are approximate and were estimated from sample descriptions, auger cutting observations and drilling resistance. See the boring logs for details.
- 2) A dash (-) indicates the stratum was not encountered.
- 3) Depths indicate those encountered in B2-RC. Boring B2 encountered auger refusal at 18' deep.
- 4) Sandy Clay & Silt is inferred at the transition between the Silty Clay and Gravelly Sand & Silt strata in Boring B5 based on testing laboratory (GeoTesting Express) personnel reporting frequent sand and gravel embedded in the tube collected in the immediately adjacent B5-ST (performed at a 2' offset from location B5). This layer was not observed in samples collected at location B5.

General Fill

General Fill was noted in Borings B1, B3, B5, B6, and B8 starting just below the asphalt or topsoil and extending to the depths depicted in Table 1. This layer typically consisted of sand with some gravel and little to some silt. Uncorrected SPT-N values in the General Fill ranged from 7 to 31 blows per foot (bpf), but were typically between 10 and 30 bpf, indicating a medium dense soil condition.

We recommend the following soil parameters be used for the General Fill strata for design of the mast arm foundations:

Avg. SPT (N1)60:	28 bpf
Cohesion (c):	0 psf
Internal friction angle (Φ) :	30°
Moist Unit weight (y):	120 pcf
Soil Modulus (k):	90 pci



Friction factor (against mass concrete) (f):	0.5
At-rest earth pressure coefficient (K ₀):	0.5

Reworked Clay Fill

Reworked Clay Fill was noted in soil borings B2, B4, B5, and B7 starting just below the topsoil (or the General Fill for B5) and extending to the depths depicted in Table 1. The Reworked Clay Fill soils generally consist of clay and silt with trace to some fine to coarse sand and little to no fine gravel. Uncorrected SPT-N values in the Reworked Clay Fill were erratic, and ranged from 0 to 9 bpf indicating soil conditions ranging from very soft to stiff.

We recommend the following soil parameters be used for the Reworked Clay Fill strata for design of the mast arm foundations:

Avg. SPT (N1)60:	6 bpf
Effective Cohesion (c'):	650 psf *
Effective Internal friction angle (Φ') :	13° *
Undrained Shear Strength (S _u):	900 psf *
Moist Unit weight (y):	110 pcf
Soil Modulus (k):	30 pci
Friction factor (against mass concrete) (f):	0.3
At-rest earth pressure coefficient (K ₀):	1.0

* Refer to the "Laboratory Testing" section of this report for more detail regarding the use of these parameters. These values should be considered accurate only across the range of normal stresses between 1000 and 1500 psf.

Silt & Clay with Organics

A layer of Silt & Clay with Organics was encountered below the fill soils north of the intersection (Borings B6 and B8) to the depths indicated on Table 1. The Silt & Clay with Organics generally consisted of silt and clay to clayey silt, with some fine to medium sand, occasional trace amounts of fine gravel, and organic matter (i.e., roots) observed dispersed throughout the strata. We inferred this layer to be a natural swampy deposit surrounding the adjacent brook that was filled over during the road construction. Uncorrected SPT-N values in this layer ranged from 3 to 6 blows per foot (bpf) indicating a soft to medium soil stiffness.

Soil parameters for the Silt & Clay with Organics stratum were requested by VTrans to assist the designer in proceeding with the new culvert design. These soil parameters are presented below. The culvert designer should give special consideration to the presence of organic matter observed within all samples collected in the stratum when evaluating its suitability for bearing.

Avg. SPT (N1)60:	6 bpf
Effective Cohesion (c'):	0 psf



Effective Internal friction angle (Φ') :	25°
Undrained Shear Strength (S _u):	600 psf
Moist Unit weight (y):	115 pcf
Soil Modulus (k):	50 pci *
Friction factor (against mass concrete) (f):	0.3
At-rest earth pressure coefficient (K ₀):	0.9

* Soil modulus (k) was estimated based on correlations between soil type and k_1 values determined from 1 foot by 1 foot plate load test. The soil modulus must be adjusted for factors such as width and shape of the loaded area and position under the foundation.

Sandy Clay & Silt

A relatively thin (2' to 3' thick) layer of Sandy Clay & Silt was encountered below the fill soils in Borings B2 and B3 and below the Silt & Clay with Organics stratum in Boring B6 to the depths indicated in Table 1. This stratum was also encountered below the Silty Clay in Borings B7 and inferred below the Silty Clay in B5 and B5-ST (based on soil descriptions from GeoTesting personnel) at the transition to the Gravelly Sand & Silt stratum.

The material typically consisted of a relatively equal mixture of clay and silt and fine to coarse sand with trace to some fine to coarse gravel. Uncorrected SPT-N values of 0, 3, 7, and 10 bpf were recorded in this layer indicating a soft to stiff soil condition.

We recommend the following soil parameters be used for the Sandy Clay & Silt strata for design of the mast arm foundations:

Avg. SPT (N ₁) ₆₀ :	8 bpf
Effective Cohesion (c'):	650 psf *
Effective Internal friction angle (Φ') :	13° *
Undrained Shear Strength (S _u):	900 psf *
Moist Unit weight (y):	115 pcf
Soil Modulus (k):	100 pci
Friction factor (against mass concrete) (f):	0.33
At-rest earth pressure coefficient (K ₀):	1.0

* Refer to the "Laboratory Testing" section of this report for more detail regarding the use of these parameters. These values should be considered accurate only across the range of normal stresses between 1000 and 1500 psf.

Silty Clay

Silty Clay was encountered in Borings B2 and B6 below the Sandy Clay & Silt stratum and in Borings B5 and B7 below the Fill layer to the depths indicated on Table 1. This stratum generally consisted of silty clay to clay and silt with trace amounts of fine sand. Uncorrected SPT-N values in this stratum ranged from 0 to 6 bpf, but were typically less than 4 bpf indicating



a very soft to soft soil stiffness. As noted in the "Laboratory Testing" section in this report, this stratum exhibits characteristics of a sensitive clay. As such, the sensitivity of this stratum should be taken into consideration during design and construction.

We recommend the following soil parameters be used for the Silty Clay strata for design of the mast arm foundations:

Avg. SPT (N ₁) ₆₀ :	3 bpf
Effective Cohesion (c'):	650 psf *
Effective Internal friction angle (Φ') :	13° *
Undrained Shear Strength (S _u):	900 psf *
Moist Unit weight (y):	110 pcf
Soil Modulus (k):	30 pci
Friction factor (against mass concrete) (f):	0.20
At-rest earth pressure coefficient (K ₀):	1.0

* Refer to the "Laboratory Testing" section of this report for more detail regarding the use of these parameters. These values should be considered accurate only across the range of normal stresses between 1000 and 1500 psf.

Gravelly Sand & Silt

Gravelly Sand & Silt was encountered in Borings B2, B3, B4, B5, and B8 at the depths indicated on Table 1. The soil matrix in this stratum typically consisted of fine to coarse sand with some silt and little to some fine to coarse gravel. Uncorrected SPT-N values in the Gravelly Sand & Silt ranged from 10 to 34 bpf, but were typically between 10 and 20 bpf indicating medium dense soils.

We recommend the following soil parameters be used for the Gravelly Sand & Silt strata for design of the mast arm foundations:

Avg. SPT (N1)60:	29 bpf
Cohesion (c):	0 psf
Internal friction angle (Φ) :	35°
Moist Unit weight (y):	125 pcf
Soil Modulus (k):	100 pci
Friction factor (against mass concrete) (f):	0.5
At-rest earth pressure coefficient (K ₀):	0.43

Glacial Till

Glacial Till was encountered in all soil borings with the exception of Boring B1 to the depths indicated on Table 1. This stratum generally consisted of fine to coarse sand some silt (varying to silt, some fine to coarse sand) with little fine gravel. Uncorrected SPT-N values in this stratum



ranged from 32 bpf to refusal (greater than 50 blows per 6"), but were typically greater than 50 bpf indicating a very dense soil.

We recommend the following soil parameters be used for the Glacial Till strata for design of the mast arm foundations:

Avg. SPT (N1)60:	83 bpf
Cohesion (c):	0 psf
Internal friction angle (Φ) :	40°
Moist Unit weight (γ) :	135 pcf
Soil Modulus (k):	125 pci
Friction factor (against mass concrete) (f):	0.5
At-rest earth pressure coefficient (K ₀):	0.36

Bedrock

Bedrock was encountered in borings performed on the south side of the intersection only (Borings B1/B1-RC, B2/B2-RC, and B3). At least 5 feet of rock coring was performed in each location (B1 probes and B2 were terminated with auger refusals on inferred bedrock, with Boring B2-RC performed offset of the initial location to obtain rock core).

Bedrock consisted of relatively fresh, moderately hard to hard dolostone. The rock ranged from fair to excellent quality based on Rock Quality Designation (RQD) values of 58% to 100%, but was typically of fair quality (RQD between 50% and 75%). Refer to the rock core descriptions on the boring logs for detailed information.

Groundwater

Groundwater was inferred based on wet samples and or static levels within the augers after drilling between approximately 6 and 15 feet deep (corresponding to between approximately El. 360' to 364') in all locations with the exception of Borings B1 and B3 which did not encounter groundwater. In general, the groundwater gradient was observed to be from northeast to southwest.

Groundwater conditions observed in the borings will likely vary from conditions which will be encountered during construction due to factors such as seasonal variations, temperature, rainfall, and other factors that differ from conditions at the time the subsurface explorations were made.



Hinesburg HES021-1(19) Hinesburg, VT File No. 750-09.18 – August 4, 2015 Page No. 10

LIMITATIONS

This report is subject to the limitations included in Attachment 4.

Sincerely,

Geo**Design**, Inc.

Jacob F. Wimett, P.E. Senior Project Engineer

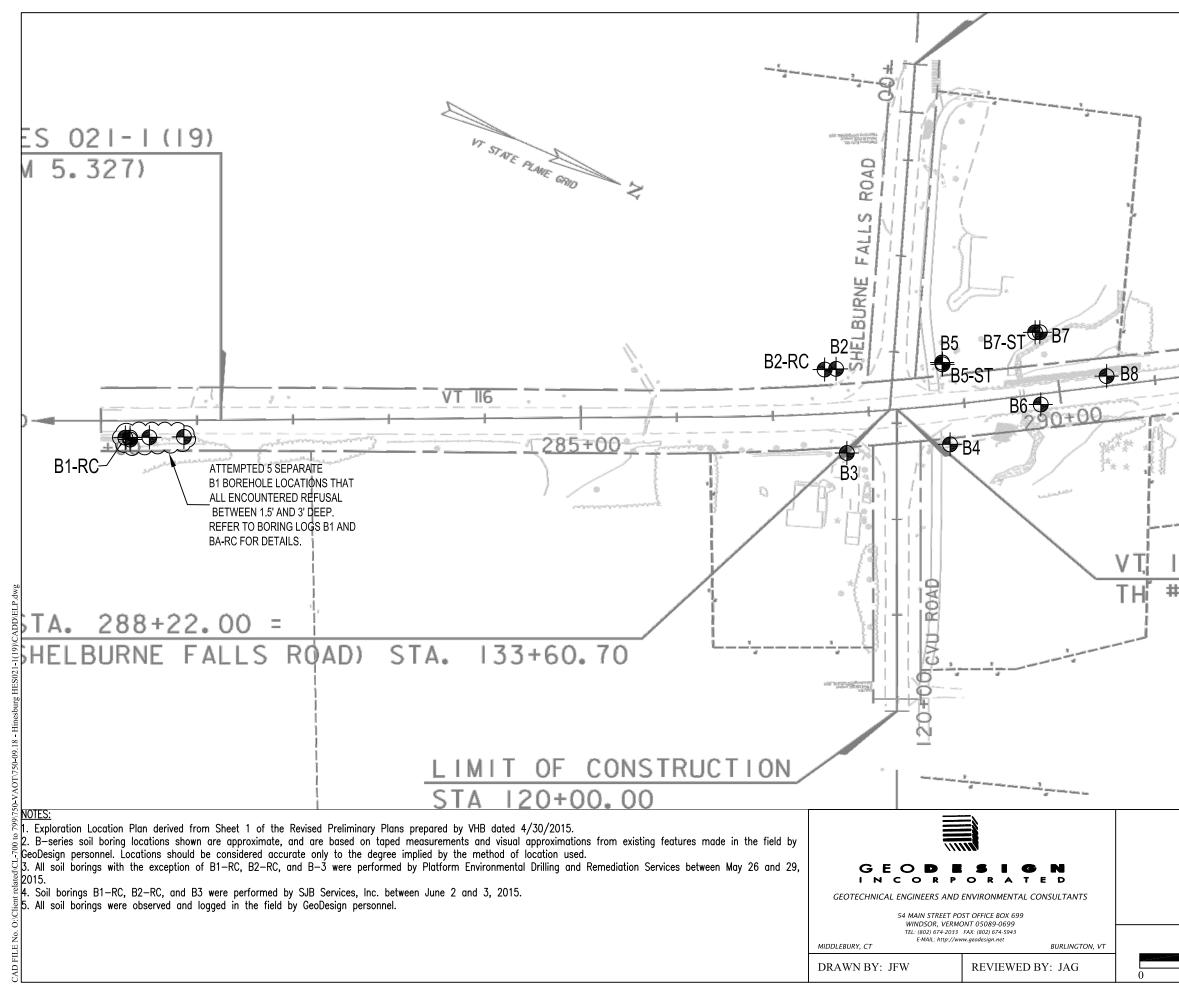
Jason A. Gaudette, P.G., LEED AP Senior Associate

Attachments: Attachment 1 – Figures Attachment 2 – Boring Logs Attachment 3 – Laboratory Test Results Attachment 4 – Limitations

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ATTACHMENT 1 – FIGURES





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16 STA. 28	8+29.04 =
7 (CVU ROA	D) STA. 123
LEGENI ^{B1}	D GEODESIGN SOIL BORING LOCATION
EXPLORATION LOC HINESBURG HES HINESBURC FILE NO. 750-0	5 021-1(19) 5, VT
SCALE IN FEET 1" = 100'	DATE: 6/24/15
50 100 200	FIGURE NO. 2A

H BEGIN HINESBURG HES 021-1(19) P0B STA. 281+25.00 280+00 (MM 5.327) STA. 280+75.00 BEGIN APPROACH +50, ġ. -5 0 0 G C7 LA 9 25: 1 SHLDR TAPER -8.83 Øs. 40: 1 EP TAPER 19.7' 16.4' 14' VT 116 N 23°52′42.01" W 283+00 282+00 281+00 14' 280+00 16 25: 1 SHLOR TAPER CZ C7rurullar Mulululu B1-RC ATTEMPTED 5 SEPARATE STA. 282+75 **BLOMSTRANN, JAN B1 BOREHOLE LOCATIONS THAT** CONSTRUCT G ALL ENCOUNTERED REFUSAL BETWEEN 1.5' AND 3' DEEP. REFER TO BORING LOGS B1 AND B1-RC FOR DETAILS. STA. 285+65, LT 40' TO (1)CONST. 65' X 18" RCP CL CONST. 18" RCPES CLASS NOTES: 1. Exploration Location Plan (South) derived from Sheet 17 of the Revised Preliminary Plans prepared by VHB dated 4/30/2015. EХ 2. B-series soil boring locations shown are approximate, and are based on taped measurements and visual approximations from existing features made in the field by GeoDesign personnel. Locations should be considered accurate only to the degree implied by the method of location used. 3. All soil borings with the exception of B1-RC, B2-RC, and B-3 were performed by Platform Environmental Drilling and Remediation Services between May 26 and 29, GEODESIG N INCORPORATED 2015. Soil borings B1-RC, B2-RC, and B3 were performed by SJB Services, Inc. between June 2 and 3, 2015.
 All soil borings were observed and logged in the field by GeoDesign personnel. GEOTECHNICAL ENGINEERS AND ENVIRONMENTAL CONSULTANTS 54 MAIN STREET POST OFFICE BOX 699 WINDSOR, VERMONT 05089-0699 TEL: (802) 674-2033 FAX: (802) 674-5943 E-MAIL: http://www.geodesign.net

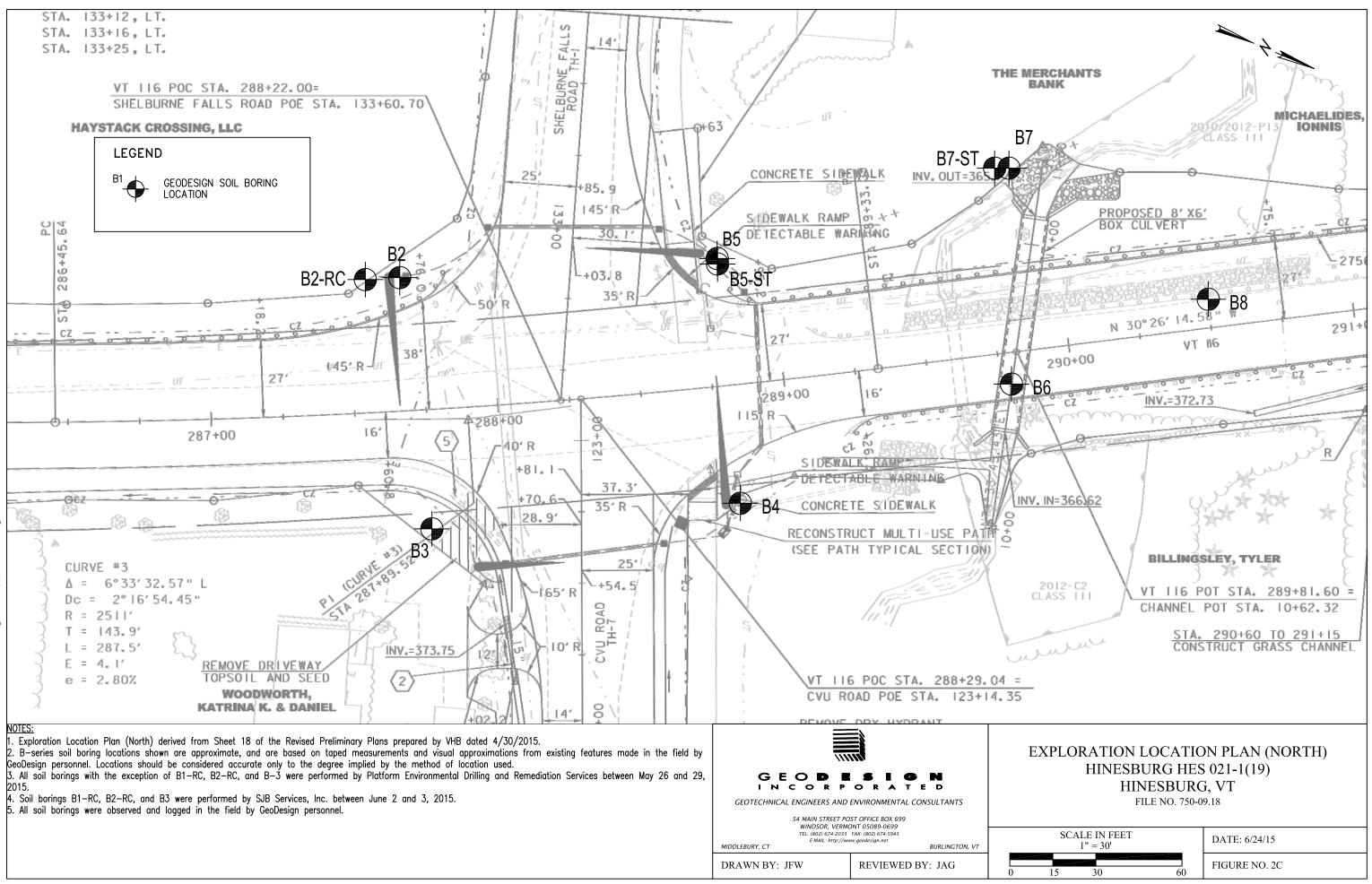
MIDDLEBURY, CT

DRAWN BY: JFW

BURLINGTON, VT

REVIEWED BY: JAG

AYSTACK CROSSING, LLC		
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	284+00	
××××××	CZ	
TO STA. 284+40 RASS CHANNEL		
RT 25' ASS III III, LT & RT	ID GEODESIGN SOIL BORING LOCATION	
KPLORATION LOCATION PLAN (SOUTH) HINESBURG HES 021-1(19) HINESBURG, VT FILE NO. 750-09.18		
SCALE IN FEET 1" = 30' 15 30 60	DATE: 6/24/15 FIGURE NO. 2B	



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ADD/FLP

ATTACHMENT 2 – BORING LOGS

EXPLANATION OF THE FORM - BORING LOG

The following provides an explanation of the various fields on the Boring Log form.

UPPER PORTION OF BORING LOG

Project and Boring Details

Within the upper portion of the Boring Log, details with regards to the Project Name and Location, Boring Number, and VTrans PIN number are provided. In addition, within the upper section of the Boring Log, the Boring Crew details - Driller (and name of the Drilling Company), together with the name of GecDesign's representative, are presented. Details with regards to the dates when the boring was drilled, its coordinates or other location references and the corresponding surface elevation may also be provided.

Casing and Sampler

This section provides a summary of the typical size of samplers and casings used, together with the type of drilling rig. See below for a description of samplers.

The type of drill rods and sampling hammer used is also provided in this section along with the hammer energy correction factor (Ce) to be used for converting N-values to Neo-Values.

Groundwater Observations

Water levels typically indicated on the Boring Log are levels measured in the boring at the date indicated. In permeable materials, the indicated levels may reflect the location of groundwater. In low permeability soils and/or due to effects of the casing, the accurate determination of groundwater levels may not be possible with only short term observations.

CENTRAL PORTION OF BORING LOG DEPTH STRATA This column provides a graphical representation of the soil and bedrock units, and inferred This column gives the depth scale of the boring, in feet or meters. geological contacts. See Subsurface Profile Legend. Stratification lines represent approximate boundaries between material types, transitions may be gradual. SAMPLE INFORMATION The initial columns provide the sample number, sample type, penetration, recovery and sample depth. The Sample Type Coding is as follows: PS- Undisturbed Piston - 3" (76 mm) SSL - Large Split-Barrel - 3" (76 mm) A - Auger Sample V - Vane Test C - Core - Diamond Bit - NX double tube, unless otherwise noted. SS - Split-Barrel (Split-Spoon) ST - Shelby Tube - 3" (76 mm) Blows / 6 " (N Value) Representative soil samples were obtained in the boring by split-barrel sampling procedures in general accordance with ASTM D 1586. The split-barrel sampling procedure utilizes a standard 51 mm (2") outside diameter split-barrel sampler that is driven into the bottom of the boring with a 63.5 kg (140-pound) hammer falling a distance of 0.76 m (30"). The number of blows required to advance the sampler in 0.15 m (6") increments is recorded as part of the Standard Penetration Test (SPT). These values are indicated at their depth of occurrence. The number of blows required to advance the split-barrel sampler the middle two - 0.15 m (6") increments is recorded as the Standard Penetration Resistance Value ("N") and is listed in parenthesis. Where the sampler advanced by Weight of Rods or Weight of Hammer, the designation WOR and WOH, respectively, was used. Coring Time (Where Applicable) This column provides the rate in minutes at which the core barrel was advanced into the bedrock (or boulder) in one foot (0.3 m) intervals. Moisture Content % (Where Applicable) Gravel% / Sand% / Fines % (Where Applicable) LL% / PI% (Where Applicable) This column provides moisture content determination results These columns provides the grain size breakdown This column provides Liquid Limit and Plasticity Index results for the samples tested. per AASHTO M145 for the samples tested. for the samples tested. SAMPLE DESCRIPTION This column provides a description of the soil and bedrock units, based on visual observation of the samples, sometimes in conjunction with field and laboratory tests. Each sample was generally described according to the following classification and terminology. In general, description of the soil units followed the Burmister classification system. AASHTO M145 Classifications where given are based on the results of laboratory testing. SOIL PROPERTIES & DESCRIPTIONS TEXTURE* COMPOSITION COHESIVE SOILS COHESIONLESS SOILS ESTIMATED CONSISTENCY "N" Component Size (mm) "N" ESTIMATED CLASSIFICATION *** COMPACTNESS < 0.002 mm Principal Component in Upper Case i.e. >50% Value CLAY Value SILT < #200 Sieve CLAY, SILT, SAND, GRAVEL, Very Soft DESCRIPTION *** < 2 COBBLES, BOULDERS (0.075 mm) SAND #200 to #4 Sieve Soft 2 - 4 Very Loose < 4 (0.075 mm to 4.75 mm) Minor Component Upper and Lower Case

Fine	#200 to #40 Sieve	i.e.<50%		Medium		4 - 8	Loose	4 - 10
	(0.075 mm to 0.425 mm)	Clay, Silt, Sand	, Gravel, Cobbles, Boulders					
Medium	#40 to #10 Sieve			Stiff		8 - 15	Medium Dense	10 - 30
	(0.425 mm to 2.00 mm)	DESCRIPTIVE	PERCENTAGE					
Coarse	#10 to #4 Sieve	ADJECTIVE	REQUIREMENT	Very Stiff		15 - 30	Dense	30 - 50
	(2.00 mm to 4.75 mm)							
GRAVEL	#4 Sieve to 3 in	trace	<10 %	Hard		> 30	Very Dense	> 50
	(4.75 mm to 76 mm)	little	10 - 20 %			*** empirical relations	ship	
Fine	#4 Sieve to 3/4 in	some	20 - 35 %	PLA	STICITY - Burmiste	r	STRUCT	URE
	(4.75 mm to 19 mm)	and	35 - 50 %	Degree of	Soil Type	Smallest Diameter		
Coarse	3/4 in to 3 in			Plasticity		of Thread**	Stratified, >6	6 mm (1/4")
	(19 mm to 76 mm)	MOISTURE CO	NDITION	Non-Plastic	SILT	None	Laminated, <	6 mm (1/4")
COBBLES	3 in to 12 in	Dry	Absence of moisture, dusty	Slight	Clayey SILT	1/4" (6 mm)	Parting, 0	to 1.6 mm (1/16")
	(76 mm to 305 mm)	Moisture	Damp but no visible water	Low	SILT & CLAY	1/8" (3 mm)	Seam, 1.	6 to 13 mm (1/2")
BOULDERS	> 12 in	Wet	Visible free water	Medium	CLAY & SILT	1/16" (1.6 mm)	Layer, 13	3 to 305 mm (12")
	(305 mm)			High	Silty CLAY	1/32" (0.8 mm)	Stratum, >	305 mm (12")
				Very High	CLAY	1/64" (0.4 mm)		
*textural classification	on as determined by sieve a	nd hydrometer ar	alyses	** moisture at o	or near optimum			

BEDROCK PROPERTIES & DESCRIPTIONS

RECOVERY AND ROCK QUALITY DESIGNATION (RQD)

Recovery is defined as the length of core obtained expressed as a percentage of the total length cored.

RQD is defined as the total length of sound core pieces, 4 inches (100 mm) or greater in length, excluding drilling breaks, expressed as a percentage of the total length cored. ROD provides an indication of the integrity of the rock mass and relative extent of seams and bedding planes.

(Classification	RQD %
Very F	Poor Quality	0 - 25
Poor C	Quality	25 - 50
Fair Q	uality	50 - 75
Good	Quality	75 - 90
Excelle	ent Quality	90 - 100
	WEATHERING	
Fresh	No visible signs of weathering	g
Slightly Weathered	Slight discoloration of parent	material in
	joints and seams	
Moderately Weathered	Less than 35% of rock mater	al is decomposed.
	Fresh or discolored rock is pr	esent.
Highly Weathered	More than 35% of rock mater	ial is decomposed.
	Fresh or discolored rock is pr	esent.
Extremely Weathered	All rock material is decompose	ed to soil. Rock

mass structure may still be intact.

TYPICAL ROCK	TYPES	Moh's Hardness Scale
Hard	Cannot be scratched with knife	> 5.5
Moderately Hard Soft	Can scratch with knife but not fingernail Can be scratched with fingernail	5.5 - 2.5 < 2.5
SANDSTONE Well Cemented Cemented Poorly Cemented	Capable of scratching a knife blade Can be scratched with knife Can be broken apart easily with fingers	5.5 - 2.5 < 2.5

HARDNESS

SPACING OF DISCONTINUITIES

Bedding	Jointing	Spacing	Spacing
		(inches)	(mm)
Very Thick Bedded	Very Wide	>80	>2000
Thick Bedded	Wide	24 - 80	600 - 2000
Medium Bedded	Moderate	8 - 24	200 - 600
Thin Bedded	Close	2.4 - 8	60 - 200
Very Thin Bedded	Very Close	0.8 - 2.4	20 - 60
Laminated	Shattered	0.24 - 0.8	6 - 20
Thinly Laminated	Fissured	<0.24	<6

When classification of rock materials has been estimated from disturbed samples, core samples and petrographic analysis may reveal other rock types

BOTTOM PORTION OF BORING LOG

The lower portion of the log provides borehole termination depth, termination criteria, and additional drilling notes within the Remarks section.

SYMBOLS	TYPICAL DESCRIPTIONS OF PREDOMINENT MATERIAL TYPE	Borehole — Stratigraphy			rehole Number Il Construction	
	ASPHALT				<u> </u>	WELL SYMBOLS
	CONCRETE		× × × × × × × × ×		SYMBOLS	TYPICAL DESCRIPTIONS
X X X X X X	FILL					CEMENT SEAL: 1 PIPE
$\begin{bmatrix} \frac{\sqrt{1}}{2} \\ 1 \\ \frac{1}{2} \end{bmatrix}$	TOPSOIL					BENTONITE SEAL: 1 PIPE
	SUBSOIL					SLOUGH BACKFILL: 1 PIPE
	ORGANIC SILT OR CLAY WITH SHELLS					FILTER PACK: 1 PIPE
<u> </u>	PEAT					SLOTTED PIPE WITH FILTER PACK: 1 PIPE
	CLAY					FILTER PACK AT BOTTOM OF HOLE
	SILT					SLOUGH AT BOTTOM OF HOLE
	CLAY/SILT MIXTURE					BENTONITE AT BOTTOM OF HOLE
	CLAY/SILT/SAND MIXTURE		•••			
	SANDY SILT			_		the various strata have been pring locations only. The stratigraphy
	SILTY SAND			_	between borings may transition n	may vary from that shown, and nore gradually within borings.
	POORLY-GRADED SAND				logs appended t	s, see Report and boring o this report. ed beside boring(s) represent SPT
	WELL-GRADED SAND				"N" values corr interval.	esponding to their respective sampling
	SAND/SILT/GRAVEL MIXTURE				boring(s) represe	as performed, numbers displayed beside ent Recovery and RQD values corresponding ve sampling interval.
P G	BOULDERS AND/OR COBBLES					to refusal of sampler, casing and/or
	GLACIAL TILL		R			bservations (where applicable)
	WEATHERED BEDROCK				Water Level Rea at time of drilli	-
	BEDROCK			T	Water Level Rea after completing	g drilling.

GEODESIGNERS • ENVIRONMENTAL CONSULTANTS

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FACSIMILE: (802) 674-5943

TELEPHONE: (802) 674-2033

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BORING LOG / SUBSURFACE PROFILE LEGEND

B = 0 B = 0 CLASSIFICATION OF WATERIALS (Description) B = 0										BOR	ING LOG			Boring	No.:	B1	
BUREAU CENTRAL LABORATORY Intersturg, VT Checked By: JFW Boring Crew: C. Aldrich (Platform), M. Hagedorn (GeoDesign) Type: Casing Sampler Groundwater Observations (*) Date Started: 5/29/15 Date Finished: 5/29/15 Date Finished: 5/29/15 Station: See Notes Offset: See Notes Offset:<		V	Trang	briting to Get You There	AGEN	CY OF TRA	ANSPORTATI			Hinesburg	HES 021-1(19)		Page N	o.: _	1 of '	1
Hindsburg, VT Checkborg, Curve Boring Creve: C. Aktich (Platform), M. Higgedom (SeeDesign). Casing Samplier Genumber (Constraints) Genumber (C		V	[] aus	mont Agency of Transportation						•	•	8)		Pin No.	: _	04b204	4
Boring Crew: C. Addrich (Platform), M. Hagedorn (GeoDesign). Type: AUGER SS Date Started: 5/29/15 Date Finished: 5/29/15 VTSPG NAD83: Station: See Notes Offset: See Notes Ground Elevation: 379 ft Rig: See Notes Offset: See Notes Ground Elevation: 379 ft Rig: Geoprote 7622DT C_e = 1.35 See Notes $\frac{4}{50} \oplus \frac{1}{50}$ CLASSIFICATION OF MATERIALS See Notes See					-			-			•				-		W
Date Started: <u>5/29/15</u> Date Finished: <u>5/29/15</u> JUC: <u>2.25 in1.38 in 1.38 in 1.38 inDateDepthNotesVTSPG NAD83:</u>		Boring	g Crew: C	. Aldrich (Platfo	orm), M. H	Hagedorn (G	GeoDesign)	-		0	•		Groun	dwater (Observa	tions (3)	
VTSPG NAD83:		Date S										Dat	e l		1	lotes	
Station: See Notes Offset: See Notes Hammer/Red Type: 30 in. Ground Elevation: 379 ft Hammer/Red Type: $Audo/NWJ$ Rig: $Geprobe 7822DT$ $C_c \equiv 1.35$ $\frac{4}{80} \oplus$ $\frac{1}{80}$ </th <th></th> <th>VTSP</th> <th>G NAD83:</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>er Wt:</th> <th></th> <th></th> <th>05/20</th> <th>/15</th> <th>(π)</th> <th>Nono</th> <th>bearvor</th> <th>4</th>		VTSP	G NAD83:						er Wt:			05/20	/15	(π)	Nono	bearvor	4
Ground Elevation: 379 ft Harmer/No 1ype: AutoNWJ $Rig: Geoprobe 7822DT C_{E} = 1.35 \frac{C}{B} \oplus \frac{C}{B} CLASSIFICATION OF MATERIALS(Description) \frac{1}{2} $		Statio	n: See	Notes	Offse	t: See	Notes					03/23	/15		INOTIC C		J.
Image: Computer Value 1 Image: Computer Value 1 Image: Computer Value 1 Image: Computer Value 1 Image: Computer Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1 Image: Value 1		Groun	d Elevation	: 379	9 ft												
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17.5 - 17.5 - 1 -	SBUF	-															
17.5 - 1 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. Cre is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated Fluctuations of drowindwater may occur due to other factors than those present at the time.	ΪNE	-															
17.5 90 90 91 92 93 94 95 96 97 98 99 90 91 92 93 94 95 96 97 98 98 99 90 90 91 92 <th>9.18</th> <th>-</th> <th> </th> <th></th>	9.18	-															
OPDUARD - Image: Second state of the second state of the state of th	750-0	17.5-															
 I. Stratification lines represent approximate boundary between material types. Transition may be gradual. Notes: I. Values have not been corrected for hammer energy. C_E is the hammer energy correction factor. Notes: I. Values have not been made at times and under conditions stated Fluctuations of droundwater may occur due to other factors than those present at the time 	00	-	1														
 Notes: 3. Water level readings have been made at times and under conditions stated Fluctuations of aroundwater may occur due to other factors than those present at the time 	NGL	-]														
1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated Fluctuations of drowindwater may occur due to other factors than those present at the time.	BORI	-															
Notes: 1. Submication infest represent approximate boundary between matterial types. Infistion may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of annundwater may occur due to other factors than those present at the time.	lign		1 Stratifica-ti	on linea represent -	nnrovim st-	houndaribet	woon metarial to	on Transiti	n moules	aradual							
	DDES	Notes:	2. N Values I	have not been corre	ected for ha	mmer energy.	C _E is the hammer	r energy corr	ection fact	or.	occur due to oth	er factor	s than the	ose nrese	nt at the t	ime	
measurements were made.	ы				du di				or gro			2. 100101					

					BO	RINGL	OG		В	oring N	0.:	B1-F	25
	V	Trong	STATE OF VERMONT AGENCY OF TRANSPORTATIO	NC	Hinesbu	urg HES (021-1(19)	P	age No	.: _	1 of	1
	V	I LAN2	AGEINCY OF TRANSPORTATION CONSTRUCTION AND MATERIA BUREAU CENTRAL LABORATO			esign #75	•	,	P	in No.:		04b204	4
		\sim	BUNEAU GEININAE EABOINTIG		Hi	nesburg,	VT		c	hecked	l By:	JF	W
Ī	Boring	g Crew:	T. Farrell (SJB), M. Hagedorn (GeoDesign)		Casing	•	pler		Groundw	ater O	bservat	ions (3)	
		Started:	6/02/15 Date Finished: 6/02/15	Type:	FJ		Α	Dat		pth	N	otes	
		G NAD83:		I.D.: Hamme	<u>4.25 ir</u> er Wt: 140 lb		Δ		`	ft)			
			<u>N 670950.00 ft</u> E 1479488.00 ft	Hamme				06/02	/15	1	None ol	oserve	d.
	Statio		0+25 Offset: <u>16 'RT</u>		· · _	Auto/NW							
ļ	Groun	d Elevation	: 379 ft	Rig: _	CME 550X ATV	$\underline{C_{E}} =$	1.35						
	÷	a ⁽¹⁾	CLASSIFICATION OF MATER			Run (Dip deg.)	ec. %)	Drill Rate minutes/ft	Blows/6" (N Value) ⁽²⁾	Moisture Content %	%	%	%
	Depth (ft)	Strata ⁽¹⁾	(Description)			ng di	Core Rec. % (RQD %)	nill F	Slows Valı	Aoist	Gravel	Sand ⁶	Fines ⁶
ļ						1)	°⊆ S		ΞŢ	20	0		ш.
	-	$\begin{array}{c} \star \star \star \\ \star \star \star \end{array}$	Inferred General Sand & Gravel Fill (From Auger Spoils)										
	-	$\begin{array}{c} \star \star \star \\ \star \star \star \\ \end{array}$	(
	-	\times \times \times											
	-	\star \star \star											
	2.5 -		C1 (2.5'-5'): Fair quality, moderately hard to hard	l, fresh w	ith slightly	C1	87	1.5					
	-		weathered joints, very close to moderate jointing white inclusions DOLOSTONE. Moderate reaction	gray with	infrequent		(67)						
	-		powdered. Jointing near horizontal with occasion					2.4					
	-		fractures.										
	5.0 -												
	5.0 -		C2 (5'-7.5'): Excellent quality, moderately hard to weathered joints, moderate jointing, gray with oc			C2	100 (100)						
	-		inclusions DOLOSTONE. Moderate reaction to d				(100)	2.1					
			powdered. Jointing near horizontal.										
	-							2.6					
	7.5 -	¥722¥74	Hole stopped @ 7.5 ft										
	-		Cored 5' into inferred bedro	ick.									
	-												
	-												
	10.0-												
	10.0	-											
	-	-											
5	-	-	Remarks:										
/15/1	-	-	1. Ground surface elevation, northing, easting, s										
DT 7	12.5-		the field by GeoDesign personnel, the Preliminar "z04b204sv.dgn" provided by VHB via email on J			B and dat	ed 4/3	0/2015	, and an	electro	nic site	plan tit	lled
OT.G	-	-	2. Casing hammered to refusal at 2.5' deep. Beg 3. Noted water return to be completely from arou			a durina (oro bi	tadvan	ico bolow	4' door	`		
NTA	-	-	4. Core block encountered at 5'. Retrieved 2.2' or	f cored ro									
RMO	-	1	 Consistent milky gray return color throughout Backfilled with 1.5 gallons of bentonite chips a 		gs.								
JVE	15.0-				~								
G.GP	15.0-												
BUR(
INES													
.18 H	-												
50-09	17.5-												
ž DC	-												
IG LC	-												
ORIN	-]											
GN B	-			_									
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	Notes:	2. N Values	on lines represent approximate boundary between material type have not been corrected for hammer energy. $C_{\rm E}$ is the hammer	energy corr	ection factor.				- 46 - 11				
GEC			el readings have been made at times and under conditions stat nents were made.	eu. riuctuat	ions of groundwater n	nay occur di	ue to oth	iei (actor	ร เกลก เกอร	e present	ai the tir	пе	

		$\overline{\mathbb{A}}$		E OF VERMONT F TRANSPORTA			BORI			•		oring N Ige No	-	B2 1 of	
	I rans	priking ib <u>Gat You There</u> most Agency of Transportation	CONSTRUC	TION AND MATE	RIALS		Hinesburg (GeoDesig Hines		0-09.1	,	Pi	n No.: necked		04b20 JF	4
Boring	Crew: C	Aldrich (Plat	form) A Bariba	ult (GeoDesign)			Casing	Sam	pler	G	roundw		-	ions (3)	
0	Started:		Date Finished:	5/26/15	- Type:		AUGER 4.25 in	S 1.38		Date	De		N	otes	
	G NAD83:		601.00 ft E 14		Hamme	er Wt:	<u>N.A.</u>	140	Ih I	05/26/1	(f 5 6.0	<i>,</i>	Vet Sa	mnle	
Station	n: <u>28</u>	7+68	Offset:	46' LT	Hamme	er Fall: er/Rod Tv	N.A.	<u>30</u> to/NW	in.	00/20/1	- 0.		ver oa	inpic	
Ground	d Elevation:	36	68 ft				e 7822DT	$C_E =$			-				
Depth (ft)	Strata ⁽¹⁾		CLAS	SSIFICATION OF (Descriptio		S			Blows/6" (N Value) ⁽²⁾ -	Moisture	Gravel %	Sand %	Fines %	NT %	à
-	$\begin{array}{c} \star \\ \star $	Sand, trace (n 21" - Soft, grey (-) fine Gravel, tr	y and tan mottled race Roots (upper 5 Classification: A	r 6"), moist.				1-1-2 (3)) 2.0	20.3	77.7	39	1
2.5 -		S2 (2' -4'): S	tiff, grey and tar	n CLAY & SILT, lii 2.0 ft (AASHTO	ttle fine to co			to	4-4-6 (10)		9 13.6	9.8	76.6	30	1
5.0 -				nd tan Silty CLAY AASHTO M145 C			m Sand, mc	ist	3-3-3 (6)		7 0.2	5.3	94.5	42	:
7.5			r 18": Brown and	d grey CLAY & SI ASHTO M145 CI			lium Sand, v	rery	WOH 2-17 (4)	1	1 0.1	5.2	94.7	36	
1.5 -				grey SILT, some (Silt, moist. (AAS				ne		13.				NP	1
-		S5 (8' -10'):	Medium dense, ne to coarse Gra	brown (top 2" -4" wel, moist. Rec. =) to gray fine	to coars	e SAND, so	me	2-8-10 (18)		36.0	34.0	30.0	NP	1
10.0		S6 (10' - 12') coarse Grave): Medium dense el, moist. Rec. =	e, grey fine to coa : 1.3 ft (AASHTO	arse SAND, s M145 Class	some Silt	, some fine A-2-4.)	to	4-8-7 (15		37.2	32.6	30.2	NP	1
15.0				rey fine to coarse AASHTO M145 (fine to coar	se	9-18-4 57 (65)		34.2	28.6	37.2	NP	•
+ - -			ł	Hole stopped @ Hollow stem auge						I					<u></u>
Notes:	2. N Values h		rected for hammer e	ary between material energy. C _E is the hamr	mer energy corr	ection facto	or.		io to othe	r factors t	an those	procent	at the tir	ne	

				CT A					BOR		Boring No.: B2				
	(V	Franci	Lotting to Gat You There must Agency of Temporation	AGENCY	OF TRANSP	ORTATIO			Hinesburg	HES 021-1(19)	Page N	lo.: _	2 of 2	
	V.	[[4]]2	mont Agency of Transportation		CTION AND				(GeoDesi	gn #750-09.1		Pin No	.:	04b204	
						2010110			Hines	sburg, VT		Check	ed By:	JFW	
Γ	Boring	Crew: (C Aldrich (Plat	tform), A. Baril	hault (GeoDe	sian)			Casing	Sampler	Gro	undwater	Observa	tions (3)	
	0	Started:		Date Finished			Type: I.D.:		AUGER		Date	Depth	1	lotes	
		G NAD83:		1601.00 ft E			Hamme	er Wt:	4.25 in N.A.	<u>1.38 in</u> 140 lb.	05/00/45	(ft)	Wet Co		
	Station		7+68	Offset:	46' LT		Hamme		N.A.	30 in.	05/26/15	6.0	Wet Sa	ampie	
		d Elevation		58 ft				er/Rod T	ype: <u>Au</u> e 7822DT	1000000000000000000000000000000000000					
┝	Crouin		00				Rig. <u>(</u>	seopion							
	Depth (ft)	Strata ⁽¹⁾		CL	ASSIFICATIC (Des	ON OF M.	ATERIAL	S		Blows/6"	(N Value) Moisture Content %	Gravel % Sand %	Fines %	ы % Р1 %	
	- 22.5 - - - 25.0 - - - - - - - - - - - - - - - - - - -		the field by C "z04b204sv. 2. Visual soil per AASHTC 3. Auger grin 4. Wet auge 5. Auger grin 6. Hollow ste Less than 1" 7. Backfilled	urface elevatio GeoDesign per dgn" provided I descriptions a D M145. nding at approx r cuttings obse nding/chatter a em auger refus ' advance with with 2.5 bags energy is assu	sonnel, the P by VHB via e are per the Bu ximately 3.5' o erved during a at 17' deep. W sal on inferred no recovery. bentonite and	Preliminar mail on J urmister s deep on in advance b /ater note d bedrock	y Plan Se lune 26, 2 system. L nferred G below 8' d ed flowing c at 18' de	et prepare 015. aborator ravel. Au eep. from au	ed by VHB a y gradations uger grinding uger flights.	and dated 4/3 where applic g at approxim	0/2015, and cable were p ately 7.5' to	d an electr performed 17' throug	onic site by VTra gh dense	e plan titled Ins and are er soil matrix.	
/15/15	- - 30.0 — - - -														
J VERMONT AOT.GDT 7	32.5 - - - - 35.0 -														
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	35.0 - - 37.5 - - - -														
ESIG				t approximate bou rected for hamme											
GEOL	Notes:	3. Water leve		been made at time						occur due to oth	er factors than	those prese	ent at the t	ime	

						I	BOR	ING L	OG			Bo	ring No	o.: _	B2-F	<u>کا</u>
	V	Tiona	STATE OF VERMONT AGENCY OF TRANSPORTATIO			Hine	sburg	HES	021-1(19)		Pa	ge No.	: _	1 of 2	2
	V.	[[ans #					oDesi	gn #75	50-09.1			Pin	No.:		04b204	4
		\sim	BOREAU CEININAE EABOINAIC				Hine	sburg,	VT			Ch	ecked	By:	JF	W
[Boring	crew:	T. Farrell (SJB), M. Hagedorn (GeoDesign)			Ca	sing	Sam	pler		Gro	undwa	iter Ob	servat	ions (3)	
			6/03/15 Date Finished: 6/03/15	Type:			GER	<u>S</u>		D	ate	Dep	th	N	otes	
		G NAD83:		I.D.: Hamme	⊃r W		25 in I.A.		<u>8 in</u>) lb.			(ft				
			<u>N 671591.00 ft</u> E 1479134.00 ft	Hamme			.A.		in.	06/0)3/15	6.0	lr	nferred	from E	32.
	Statio		7+56 Offset: <u>46' LT</u>			d Type:		ito/NW	J							
ļ	Groun	d Elevation:	368 ft	Rig: _	CM	E 550X A			1.35							
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF MATERIALS (Description)			Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6"	(N Value)	Moisture Content %	Gravel %	Sand %	Fines %	% TT	PI %
	-	* * * * * * * * * * * *	Reworked Clay Fill (Inferred from B2)													
	2.5 - - -		Sandy Clay & Silt (Inferred from B2)													
	- 		Silty Clay (Inferred from B2)													
	7.5 - - -		Gravelly Sand & Sllt (Inferred from B2)													
/15	- 10.0 - - -															
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15																
0-09.18 HINESBURG.GP.	15.0 - - - 17.5		Glacial Till (Inferred from B2)													
GN BORING LOG 75	-		S1 (18'-20'): Very dense, grey fine to coarse SAN fine to coarse Gravel, some Silt, moist. Rec. = 1. (AASHTO M145 Classification: A-1-b.)	6 ft					25-3 36- (73	37- 30 3)	5.6	44.5	31.0	24.5	NP	NP
GEODESI	Notes:	2. N Values I 3. Water leve	on lines represent approximate boundary between material type nave not been corrected for hammer energy. $C_{\rm E}$ is the hammer al readings have been made at times and under conditions state tents were made.	energy corr	ectior	factor.		occur di	ue to oth	er fact	tors that	n those	present	at the tir	ne	

Viewer Accent of a transformation of the second secon							E	BORI	ING L	.OG			Bor	ring No	o.: _	B2-R	RC
CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY (GeoDesign #70-09.18) Hinesburg, VT Pin No: Odd204 Checked By: JFW Boring Crew: T. Farrell (SJB), M. Hagedom (GeoDesign) Date Started: 6/03/15 Date Finished: 6/03/15 Type: AUGER 425 in 3.8 in 1.3 in Harmer Wt: MA 140 bn Date Date 0/03/15 Date 0/03/15 Date 0/03/15 Date 0/03/15 Date 0/03/15 Date 0/03/15 0/03/15 Date Date 0/03/15 Date Date 0/03/15 Date Date <td< td=""><td>10</td><td>V</td><td></td><td>STATE OF VERMONT AGENCY OF TRANSPORTATIO</td><td>ON</td><td></td><td>Hine</td><td>sburg</td><td>HES (</td><td>)21-1(</td><td>19)</td><td></td><td>Pa</td><td>ge No.</td><td>: _</td><td>2 of 2</td><td>2</td></td<>	10	V		STATE OF VERMONT AGENCY OF TRANSPORTATIO	ON		Hine	sburg	HES ()21-1(19)		Pa	ge No.	: _	2 of 2	2
Hinesburg, VT Checked By:	`	L.	I LAU2					•		•			Pin	No.:		04b204	4
Boring Crev: T. Farrell (SJB), M. Hagedorn (GeoDesign) Date Started: Type: Casing AUGER Sampler AUGER Casing Casing Casing Casing <thcasing< th=""> Casing Casing</thcasing<>				BUREAU CENTRAL LABORATO				Hines	sburg,	VT			Ch	ecked	By:	JF\	N
Date In articity of the finite interval (300) in the fini	F.					1	Ca	sing	Sam	pler		Gro	_		-	ons (3)	
10:1: 10:1: 12:1: 1:3:1:: 1:3:1:: 1:3:1::							AU	GER	-		Da						
Station: 287+56 Offset: 46'LT Hammer/Rod Type: Aut 30 in. Hammer/Rod Type: 000/07/15 8.0 Interfed from B2. Ground Elevation: 368 ft		Date S	Started:													0100	
Station:	\	VTSP	g nad83:	N 671591.00 ft E 1479134.00 ft							06/0	3/15	6.0	Ir	nferred	from E	32.
Ground Elevation:	1	Station	n: <u>28</u>	7+56 Offset: <u>46' LT</u>													
End CLASSIFICATION OF MATERIALS (Description) End of the transformation of the transformation of		Groun	d Elevation:	368 ft													
S2 (20'-22') Dense, grey fine to coarse SAND, some fine to coarse Gravel, some Silt, moist. Rec. = 1.2 ft (AASHTO M145 Classification: A-1-b.) 40-27. 14-21 (41) 7.4 35.7 39.0 25.3 NP NP 22.5 C1 (22.1'-27.1'): Fair quality, moderately hard to hard, fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCI when powdered. Jointing from near horizontal to ~45 C1 87 (74) 2.8 1.6 Image: Coarse Gravel and Coarse Grave							<u>.</u>	% (υĦ	. (2)		∞ %	v,				
S2 (20'-22') Dense, grey fine to coarse SAND, some fine to coarse Gravel, some Silt, moist. Rec. = 1.2 ft (AASHTO M145 Classification: A-1-b.) 40-27. 14-21 (41) 7.4 35.7 39.0 25.3 NP NP 22.5 C1 (22.1'-27.1'): Fair quality, moderately hard to hard, fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCI when powdered. Jointing from near horizontal to ~45 C1 87 (74) 2.8 1.6 Image: Coarse Gravel and Coarse Grave	1	eptn (ff)	ata ⁽¹				kun deg	D %	l Rat utes/	ws/6	aine	istur tent	kel 9	% pu	es %		%1
S2 (20'-22') Dense, grey fine to coarse SAND, some fine to coarse Gravel, some Silt, moist. Rec. = 1.2 ft (AASHTO M145 Classification: A-1-b.) 40-27. 14-21 (41) 7.4 35.7 39.0 25.3 NP NP 22.5 C1 (22.1'-27.1'): Fair quality, moderately hard to hard, fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCI when powdered. Jointing from near horizontal to ~45 C1 87 (74) 2.8 1.6 Image: Coarse Gravel and Coarse Grave		ž	Str	(Description)			Р Dip	Core (RC	Drill	Blo	z	Cont	Gra	Sal	Ë		Ч
coarse Gravel, some Silt, moist. Rec. = 1.2 ft (AASHTO M145 Classification: A-1-b.) 14-21 (41) 22.5 C1 (22.1'-27.1'): Fair quality, moderately hard to hard, fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCI when powdered. Jointing from near horizontal to ~45 C1 87 2.8 25.0 C1 (22.1'-27.1'): Fair quality, moderately hard to hard, fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCI when powdered. Jointing from near horizontal to ~45 1.6 1.6 25.0 1.6 1.8 1.9 25.0 1.6 1.8 1.8 27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock. 1.8 30.0 Remarks: Remarks:				S2 (20'-22') Dense, grev fine to coarse SAND, s	ome fine	to		0					35.7	39.0	25.3	NP	NP
22.5 C1 (22.1'-27.1'): Fair quality, moderately hard to hard, fresh, close to moderate jointing, gray with infrequent white degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. 25.0 Kernel Colorate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 kernel Colorate Fitter States when the fitter st		-		coarse Gravel, some Silt, moist. Rec. = 1.2 ft (A						14-2	21						
22.3 fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. (74) 1.6 25.0 1.9 1.6 1.9 25.0 1.6 1.8 1.8 27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock. 30.0 Remarks:		-		M145 Classification: A-1-b.)						(+)	''						
22.3 fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. (74) 1.6 25.0 1.9 1.6 1.9 25.0 1.6 1.8 1.8 27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock. 30.0 Remarks:		-															
22.3 fresh, close to moderate jointing, gray with infrequent white banding DOLOSTONE. Moderate reaction to dilute HCl when powdered. Jointing from near horizontal to ~45 degrees. (74) 1.6 25.0 1.9 1.6 1.9 25.0 1.6 1.8 1.8 27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock. 30.0 Remarks:		-	KARA A	C1 (22.1'-27.1'): Fair quality. moderately hard to	hard.		C1	87	2.8								
25.0 - Hole stopped @ 27.1 ft Cored 5' into inferred bedrock.	2	22.5-	XXXX	fresh, close to moderate jointing, gray with infred	quent whit	te											
25.0 degrees. 1.9 1.6 27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock. 30.0 Remarks:		-							1.6								
25.0 - Hole stopped @ 27.1 ft Cored 5' into inferred bedrock.		-															
27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock.									1.9								
27.5 Hole stopped @ 27.1 ft Cored 5' into inferred bedrock.		25.0-															
Hole stopped @ 27.1 ft Cored 5' into inferred bedrock.									1.6								
Hole stopped @ 27.1 ft Cored 5' into inferred bedrock.		-															
27.5 Cored 5' into inferred bedrock.		-							1.8								
27.5 Cored 5' into inferred bedrock.		-															
30.0 - Remarks:	2	27.5-															
Remarks:		-															
Remarks:		-															
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Remarks:		-															
4 Opened automatical and the section station and effect the sum are superior to discuss the section for the section for the section for the section of the s		50.0-															
4 Opened automatical and the section station and effect the sum are superior to discuss the section for the section for the section for the section of the s		_															
32.5 32.5 32.6 10.1 32.7.5 10.1 32.7.5 10.1 32.8 10.1 32.5.		_			tation on	d off	not chow	oro o	nnrovir	natod	from t	lion m	odo fr	om ovi	otina fr	oturoo	in
32.5 "204204sv.dgn" provided by VHB via email on June 26, 2015. 32.5 2. Visual soil descriptions are per the Burmister system. Laboratory gradations where applicable were performed by VTrans and are per AASHTO M145. 3. Augered directly to 18' and began sampling. Infer the upper 18' of lithology from the adjacent boring B-2. 4. Inferred coble/boulder between 20' and 20.5' deep from auger grinding. 5. Hollow stem auger refusal at 22.1'deep, set up to core. 6. Core block encountered almost immediately after beginning core run C1, removed and continued. Top of sample contains roller bit markings from cleanout. 7. Medium speed for first 0.5'; high speed for remainder of core run. 8. Consistent milky grey discharge for entire length of core. 9. Backfilled with bentonite and cuttings. 10. Hammer energy is assumed. 10. Hammer energy is assumed. 10. Hammer energy is assumed. 11. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Nydues have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	15/15	-		the field by GeoDesign personnel, the Preliminar	y Plan Se	et pre	pared by										
 37.5 - Statification lines represent approximate boundary between material types. Transition may be gradual. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. Notes: 2. Notes: 	≥ ⊢ 3	32.5-						lations	where	annlic	ahle v	woro	nerforr	ned hy	/ \/Trar	ne and	are
 3. Augered directly to 18' and began sampling. Infer the upper 18' of lithology from the adjacent boring B-2. 4. Inferred cobble/boulder between 20' and 20.5' deep from auger grinding. 5. Hollow stem auger refusal at 22. 1'deep, set up to core. 6. Core block encountered almost immediately after beginning core run C1, removed and continued. Top of sample contains roller bit markings from cleanout. 7. Medium speed for first 0.5'; high speed for remainder of core run. 8. Consistent milky grey discharge for entire length of core. 9. Backfilled with bentonite and cuttings. 10. Hammer energy is assumed. 	T.GD	-		per AASHTO M145.										neu by	, viiai		arc
35.0 5. Hollow stem auger refusal at 22.1'deep, set up to core. 35.0 6. Core block encountered almost immediately after beginning core run C1, removed and continued. Top of sample contains roller bit markings from cleanout. 35.0 7. Medium speed for first 0.5'; high speed for remainder of core run. 8. Consistent milky grey discharge for entire length of core. 9. Backfilled with bentonite and cuttings. 10. Hammer energy is assumed. 10. Hammer energy is assumed. Votes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 1. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	LAO	-							rom th	e adja	cent b	oring	B-2.				
35.0 0. One block encountered armost immediately after beginning core run C1, removed and continued. Top of sample contains foller bit markings from cleanout. 35.0 7. Medium speed for first 0.5'; high speed for remainder of core run. 8. Consistent milky grey discharge for entire length of core. 9. Backfilled with bentonite and cuttings. 10. Hammer energy is assumed. 10. Hammer energy is assumed. 37.5 - 8. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	MON	-		5. Hollow stem auger refusal at 22.1'deep, set up	p to core.		0 0	•	moved	004-	ontin		on of -	omela	oontri	no	or h ⁱ
35.0 7. Medium speed for first 0.5'; high speed for remainder of core run. 8. Consistent milky grey discharge for entire length of core. 9. Backfilled with bentonite and cuttings. 10. Hammer energy is assumed. 10. Hammer energy is assumed. 37.5 - 8. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	VER	-		markings from cleanout.	Ũ	0		o , rei	noved		Ununu	icu. I		ampie		13 1016	
37.5 9. Backfilled with bentoning for dealers of the forget of concerning for dealers. 10. Hammer energy is assumed. 10. Hammer energy is assumed. 11. Stratification lines represent approximate boundary between material types. Transition may be gradual. 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	GP 3	35.0-					e run.										
37.5 - 10. Hammer energy is assumed. 37.5 - - - - - Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	BRG.	-		9. Backfilled with bentonite and cuttings.	5.1.01.001												
37.5 - 37.5 - - - Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	ESBL	-		10. Hammer energy is assumed.													
37.5 - - - Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	Z H	-															
37.5 - 900 - 900 - 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	<u> </u>	-															
000000000000000000000000000000000000	750-(37.5-															
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	90	-															
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	NGL	-															
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 0 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	BORI	_															
Notes: 1. Surainication lines represent approximate boundary between material types. Iransition may be gradual. 2. N Values have not been corrected for hammer energy. C _E is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	Idn				- "												
S. water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	N	otes:	2. N Values I	have not been corrected for hammer energy. C _E is the hammer	energy corr	rectior	factor.		00017 5	in to at-	or foot	oro the	o these	oroo	ot the ti-		
					eu. riuctuat	uons c	n groundwat	ler may	occur di	ເບ 0th	ei iacto	JIS TAI	n ulose p	resent	ai ine tin	ie	

V	rans	batting in Gat You There must Reserve Ternsported	AGENCY OF	of vermont Transporta on and mater Tral Labora	RIALS		Hine	sburg oDesi	ING L HES (gn #75 sburg,)21-1(′ 0-09.1			Pa Pin	ring N ge No I No.: ecked	.:	B3 1 of ∶ 04b20 JF	2 4
Station	Gtarted: G NAD83:	6/02/15 N 6710 7+75	3), M. Hagedorn (Date Finished: _ 646.00 ft _ E 147 Offset: 4 ft	6/02/15	Type: I.D.: Hamme Hamme Rig: _	er Fall: er/Rod	<u>AU</u> 4.2 N	TV	Sam	<u>3 in</u> <u>1b.</u> in. J 1.35	Da 06/02	ate	undwa Dep (ft)	th)	bservati N	otes	
Depth (ft)	 ★ ★ Strata⁽¹⁾ 	C	CLASSIFICATION (Descri		S		Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6"	(in value)	Moisture Content %	Gravel %	Sand %	Fines %	% TT	%Id
- - - 2.5 — - -	<pre></pre>	some fine to	1edium dense, fin coarse Gravel, litt <i>ral Fill)</i> Rec. = 1.8 : A-1-b.)	le Roots, trace 0	Clay & Silt,	lt,				10-6- (10		19.8	33.6	45.0	21.4	NP	N
5.0 -		to coarse SA 1.8 ft (AASH	1edium, brown mo ND, trace fine to o TO M145 Classifi	coarse Gravel, m						5-3-4 (7))	26.2			51.8	35	1
7.5		and fine to co moist. Rec. = S3B - (Lower coarse SANE (AASHTO M S4 (8' - 10'): coarse SANE	1'): Very stiff, bro parse SAND, trace 1.7 ft (AASHTO 1'): Medium den 0, some Silt, some 145 Classification Medium dense, b 0, little fine Gravel 145 Classification	e (+) fine to coar M145 Classifica ise, tan to brown e fine to coarse (: A-2-4.) rown mottled SII , moist. Rec. =	rse Gravel, ation: A-6.) fine to Gravel, mois					10-1 12- (25 8-5-8 (13	-12		16.5 34.9 22.8		32.3	33 NP NP	1 N
10.0		S5 (10' - 12') little fine to co	: Dense, grey SIL parse Gravel, moi ication: A-4.)	, some fine to	coarse San (AASHTO	d,				10-1 19-3 (33	4- 34 3)	11.3	21.4	28.0	50.6	NP	N
12.5																	
15.0		coarse Sand,	4'): Very dense, gr little fine to coars 145 Classification	e Gravel, moist.	(+) fine to Rec. = 1.2	ft				13-1 61/ (79	8- 5"))	9.7	22.6	27.8	49.6	NP	N

			STATE OF VERMONT			I	BOR	NG L	.OG			Bor	ing No	o.:	B3	}
	(V	Trang	AGENCY OF TRANSPORTATIO			Hine	sburg	HES ()21-1(19)		Pa	ge No.	: _	2 of 2	2
			CONSTRUCTION AND MATERIA BUREAU CENTRAL LABORATO			(Ge	oDesi			18)		Pin	No.:		04b20	4
								sburg,					ecked	<u>,</u>	JF	
	Boring	g Crew:	T. Farrell (SJB), M. Hagedorn (GeoDesign)	T			sing	Sam	•		Gro	undwa	ter Ob	oservat	ions ⁽³⁾	
	Date S	Started:	6/02/15 Date Finished: 6/02/15	Type: I.D.:			<u>GER</u> 25 in	S 1.38	5 3 in	D	ate	Dep (ft)	th	Ν	otes	
	VTSP	G NAD83:	N 671646.00 ft E 1479204.00 ft	Hamme	er W		.A.	140		06/0)2/15	(11)		lone ot	serve	4
	Statio	n:28	7+75 Offset: 41' RT	Hamme			I.A.		in.		2/10					a.
	Groun	d Elevation	: 374 ft			nd Type: E 550X A		to/NW C _F =	J 1.35							
				5_	-		~		-	;	a %					
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF MATERIALS (Description)			Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6"	value)	Moisture Content %	Gravel %	Sand %	Fines %	% TT	Ы%
						(0°							_		
	-		S7 (20' - 20.8'): Refusal, grey SILT, some fine to Sand, some fine Gravel, trace Clay & Silt, moist.	coarse Rec. = 0	.8				29-50 (R		9.8	33.2	25.6	41.2	NP	NP
	-		ft (AASHTO M145 Classification: A-4.)													
	-															
	22.5-		C1 (22.8'-27.8'): Fair quality, moderately hard to	hard from	-h	1	93	3.7								
	-		with slightly weathered joints, very close to mode	rate	511	I	(58)	5.7								
			jointing, gray with infrequent white inclusions DOLOSTONE. Moderate reaction to dilute HCI.	Jointing												
	-		near horizontal with occasional near vertical fract													
	25.0-							2.3								
	-															
	-							1.8								
	-							1.8								
	27.5-							1.0								
	-		Hole stopped @ 27.8 ft													
	-		Cored 5' into inferred bedrock.													
	-															
	30.0-															
		-														
	-	-														
15	-	-														
7/15/1	-	-	Remarks: 1. Ground surface elevation, northing, easting, s	tation an	d off	set showr	n are a	nnroxir	nated	from	ties m	nade fro	nm exi	stina fe	atures	s in
DT .	32.5-		the field by GeoDesign personnel, the Preliminar	y Plan Se	et pre	pared by										
AOT.0	-		"z04b204sv.dgn" provided by VHB via email on J 2. Visual soil descriptions are per the Burmister s				ations	where	e applio	cable	were	perforr	ned by	/ VTrar	ns and	are
ONT /	-		per AASHTO M145. 3. Auger chatter observed from 14' - 15' deep.										-			
'ERM'	-		 Inferred boulder at 16.5' deep. Originally assuriate was able to advance casing past the obstruction. 	med bedr	ock.	Driller sw	itched	to 3" f	lush jo	int ca	asing I	owered	throu	igh the	auger	s and
νN	35.0-	-	methods.						•				0			0
RG.G	-		5. During core run C1 advance, from 22.8' - 24.3 27.8' at high speed.	3' deep at	low	rotary hea	ad spee	ed, 24.	3' - 25	.8' at	medi	um spe	ed, ar	nd from	25.8	to
ESBU	-		 Consistent milky grey return observed through Backfilled with cuttings and 1.5 gallons bentor 													
HINE	-		8. Hammer energy is assumed.													
09.18	37.5-]														
750-	-c. ic															
LOG	-															
RING	-	-														
N BO	-															
GEODESIGN BORING LOG 750-09.18 HINESBURG GPJ VERMONT AOT GDT 7/15/15			on lines represent approximate boundary between material type have not been corrected for hammer energy. $C_{\rm F}$ is the hammer				l.									
EOD	Notes:	3. Water leve	el readings have been made at times and under conditions state nents were made.				ter may	occur dı	ue to oth	er fact	tors tha	n those p	oresent	at the tir	ne	
U)		1														

V	Trans	STATE OF VERMONT AGENCY OF TRANSPORTAT CONSTRUCTION AND MATER	IALS		BORI Hinesburg (GeoDesig	HES 0	21-1(1			Pa	ring No. ge No. 1 No.:	: _	B 4 1 of 04b20	2
		BUREAU CENTRAL LABORAT	ORY			sburg, ˈ		,			ecked	By:	JF	w
Boring	Crew: 0	C. Aldrich (Platform), A. Baribault (GeoDesign)	_		Casing	Samp			Gro	undwa	iter Ob	oservat	ions ⁽³⁾)
0	Started:	5/26/15 Date Finished: 5/26/15	Type:		AUGER 4.25 in	<u>SS</u> 1.38		Date	е	Dep		N	otes	
VTSP	g NAD83:	N 671742.00 ft E 1479153.00 ft	Hamme	er Wt:	N.A.	140	Ih.	05/26/	/15	(ft) 11.8		Vet Sa	mole	
Station	n: <u>28</u>	8+81Offset:41' RT	Hamme	er Fall: er/Rod Tv	<u>N.A.</u>	<u>30 i</u> ito/NWJ	<u>n.</u>	05/26/	-	11.5		n open		
Groun	d Elevation	374 ft		Geoprobe		$C_{\rm E} = 1$, ,		-		-			
Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M (Description)		S			Blows/6" N Value) ⁽²⁾	Moisture	Content %	Gravel %	Sand %	Fines %	% TT	
-	×	S1 (0' -2'): Very loose/very soft, brown to grey-b CLAY & SILT toward bottom, some fine Sand, t moist. (<i>Reworked Clay Fill</i>) Rec. = 1.3 ft (AASH	race Roots	s and Gra	ss (Upper 8	3"),	WOH 1-1 (2)	-1- 2	2.0	0.2	21.2	78.6	31	
- 2.5 — -	* * *	S2 (2' -4'): Very soft, brown with occasional gre to coarse Sand, little fine Gravel, trace Root Fib Rec. = 1.2 ft (AASHTO M145 Classification: A-	ers, moist.				WOł WOł WOł (0)	H- 1-2	3.9	15.1	12.7	72.2	34	
- - 5.0 —	×	S3 (4' -6'): Loose / Medium, brown with grey an SAND, some Clay & Silt, little fine to coarse Gra moist. <i>(Reworked Clay Fill)</i> Rec. = 1.2 ft (AASH	avel (lower	6"), trace	Cotton Fal	bric,	3-3-4 (7)		6.1	25.3	44.2	30.5	33	
- - - 7.5 —		S4 (6' -8'): Medium dense, tan and grey fine to to coarse Gravel, moist (some areas very moist Rec. = 1.6 ft (AASHTO M145 Classification: A-).	ND and S	SILT, some ⁻	fine	5-7-8 (15		9.8	33.5	30.3	36.2	NP	1
-		S5 (8' -10'): Medium dense, tan and grey fine to coarse Gravel, moist. Rec. = 1.5 ft (AASHTO M				e to	4-6-9- (15		1.1	27.3	33.9	38.8	NP	
10.0- - -		S6 (10' -12'): Dense, tan and grey SILT and fine coarse Gravel, moist (bottom 2" wet). Rec. = 2. A-4.)	e to coarse 0 ft (AASH	e SAND, I ITO M14	ttle fine to 5 Classificat		8-18- 14 (34	16- 9)	9.6	24.3	28.1	47.6	NP	
12.5														
15.0 - - -		S7 (15' -17'): Dense, grey fine to coarse SAND, Gravel, wet. Rec. = 1.3 ft (AASHTO M145 Clas			ne to coarse	9	14-1- 18-1 (32	4- 9 9)	9.4	30.9	36.9	32.2	NP	1
17.5 - - -		S8 (19' -19.8'): Refusal, grey fine to coarse SAI Gravel, moist. Rec. = 0.6 ft (AASHTO M145 Cl			e fine to coa	arse	47-50 (R)		7.0	38.4	34.7	26.9	NP	
- - Notes:	2. N Values I		pes. Transitic r energy corr	n: A-2-4.) on may be g	radual. r.		(R)							•

	/					BOR	ING L	OG			Bor	ring No	o.: _	B4	
10	V		STATE OF VERMONT AGENCY OF TRANSPORTATIO	ON		Hinesburg	HES 0	21-1([,]	19)		Pa	ge No.	: _	2 of 2	2
	L		AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERI. BUREAU CENTRAL LABORATO			(GeoDesi	-				Pin	No.:		04b204	4
			BURLAU CENTRAL LABORATO			Hine	sburg,	VT			Ch	ecked	By:	JF\	W
	oring	Crew: C	. Aldrich (Platform), A. Baribault (GeoDesign)			Casing	Samp	oler		Gro	undwa	ter Ob	servati	ions (3)	
		Started:	5/26/15 Date Finished: 5/26/15	Type: I.D.:		AUGER 4.25 in	SS 		D	ate	Dep (ft)		N	otes	
	TSP	g nad83:	N 671742.00 ft E 1479153.00 ft	Hamm		<u>N.A.</u>	140		05/2	26/15	11.8	3 V	/et Sa	nple.	
s	tatior	n: <u>28</u> 8	8+81 Offset: 41' RT	Hammo	er Fail. er/Rod T	N.A.	<u>30 i</u> uto/NW.		05/2	26/15	11.5	5 Ir	open	hole.	
G	Groun	d Elevation:	374 ft	1		e 7822DT	C _E =								
Depth	(ifi)	Strata ⁽¹⁾	CLASSIFICATION OF M (Description)	IATERIAL	S			Blows/6"		Moisture Content %	Gravel %	Sand %	Fines %	% TT	PI %
	- - 2.5 — - - 5.0 —		S9 (24' -25.5'): Refusal, grey fine to coarse SAN some Silt, moist. Rec. = 1.3 ft (AASHTO M145 (۶,	41-61 (R		7.1	40.2	33.9	25.9	NP	NP
	-	6/18/14/2	Hole stopped @ 25	5 5 ft											
	-		Split spoon refus												
3(7.5 — - - 0.0 — -		Remarks: 1. Ground surface elevation, northing, easting, s the field by GeoDesign personnel, the Preliminar "204b204sv.dgn" provided by VHB via email on J 2. Visual soil descriptions are per the Burmister s per AASHTO M145.	ry Plan Se lune 26, 2 system. L	et prepar 2015. aborator	red by VHB a	and date s where	ed 4/30 applic	0/20 able	15, an were	d an el perforr	ectron	ic site	plan tit	led
2/15/15	- - 2.5 - -		 Auger grinding at 5.5' deep. Inferred gravel be More difficult drilling at approximately 11.5' de End boring at 25.5' in greater than 50 blow/6" Hammer energy is assumed. 	ep per dri	ller. Aug	er chatter n				1 there	after.				
INESBURG.GPJ VEI	- 5.0 - -														
	- - - - -														
GEODESIG	otes:	2. N Values h 3. Water leve	on lines represent approximate boundary between material typ nave not been corrected for hammer energy. $C_{\rm E}$ is the hammer el readings have been made at times and under conditions stat ents were made.	energy corr	ection fact	tor.	occur due	e to oth	er fac	tors tha	n those p	present	at the tin	ne	

						BORI	ING L	OG			Bo	ring No	o.: _	B	5
	V	Trong	STATE OF VERMONT AGENCY OF TRANSPORTATIO			Hinesburg	HES 0	21-1(19)		Pa	ge No.	: _	1 of	2
						(GeoDesi	gn #75	0-09.1	8)		Pin	No.:		04b20	4
						Hines	sburg,	VT			Ch	ecked	By:	JF	W
	Boring	g Crew: (C. Aldrich (Platform), A. Baribault (GeoDesign)			Casing	Sam	oler		Gro	undwa	ater Ob	oservati	ions ⁽³⁾	
		Started:	5/27/15 Date Finished: 5/28/15	Type: I.D.:		AUGER 2.25 in	SS 		C	Date	Dep		N	otes	
		G NAD83:	N 671700.00 ft E 1479078.00 ft	Hamme	er Wt:	N.A.	140		05/	20/45	(ft	,		hala	
	Statio		8+81 Offset: 44' LT	Hamme		N.A.	30 i		<u> </u>	28/15	12.0		n open		
		nd Elevation			er/Rod T		to/NW C _F =		05/2	28/15	10.0		Vet sar	npie	
	Crour			Rig. <u>(</u>	Seoprop	e 7822DT	<u> </u>								
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M. (Description)	ATERIAL	S			Blows/6"	(in value)	Moisture Content %	Gravel %	Sand %	Fines %	% TT	% Id
		\star \star \star	S1 (0' - 2'):					2-3-4	4-4	20.9	12.0	28.1	59.9	NP	NP
	-	* * * * * * * * *	S1A - Top 12": Topsoil. S1B - Bottom 3":: Loose, brown SILT, some fine trace Clay & Silt, trace Root Fibers, moist. (Gene M145 Classification: A-4.)					(7))						
	2.5 -	× × ×	S2 (2' - 4'): Stiff, brown CLAY & SILT, little fine to moist. (<i>Reworked Clay Fill</i>) Rec. = 1.8 ft (AASH					3-4-! (9)		24.9	0.5	14.5	85.0	39	19
	5.0 -	* * * * * * * * *	S3 (4' - 6'): Medium, grey-brown CLAY & SILT, t (<i>Reworked Clay Fill</i>) Rec. = 1.9 ft (AASHTO M1-				oist.	2-2-3 (5		30.4		9.5	90.5	32	14
	-	* * * * * * * * *	S4 (6' - 8'): Soft, grey-brown CLAY & SILT, trace Fiber, moist. <i>(Reworked Clay Fill)</i> Rec. = 1.8 ft (A-6.)					1-1-2 (3		35.4	0.1	2.3	97.6	33	13
	7.5 -	* * * * * *	S5 (8' - 10'): Soft, brown with grey mottling CLA	Y & SILT,	trace (-)) fine to med	lium	WOF		41.2	0.1	1.0	98.9	39	19
	-		Sand, trace Root Fibers, wet. <i>(Possible Subsoil)</i> = 2.0 ft (AASHTO M145 Classification: A-6.)	(Torvane	= 0.22 ·	- 0.25 tsf). R	lec.	1-1 (2)	1)						
15/15	- 10.0 - - -		S6 (10' - 12'): Very soft, grey Silty CLAY, trace (- layering, wet. Rec. = 2.0 ft (AASHTO M145 Clas) fine to r sification	nedium : A-6.)	Sand, possit	ble	WO WO WO (0)	H- H-)H	44.7		0.8	99.2	40	21
DT 7,	12.5-														
J VERMONT AOT.G	-		Inferred Sandy Clay & Silt (Inferred from transition encountered in B5-ST)												
18 HINESBURG.GP.	15.0 - - -	2.7747/77228	S7 (15' - 17'): Medium dense, grey SILT and fine coarse Gravel, wet. Rec. = 0.8 ft (AASHTO M14)				0	6-4-6 (10	6-3))	10.5	30.3	30.7	39.0	NP	NP
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	17.5- - - -														
ESIG			on lines represent approximate boundary between material type nave not been corrected for hammer energy. C_F is the hammer							1		1	L	1	1
GEOD	Notes:	3. Water leve	ave not been confected to namine energy. $C_{\rm E}$ is the namine energy, $C_{\rm E}$ is the namine energy of the name energy is the namine energy of the name energy is the name energy of the name ener				occur du	e to oth	er fac	tors thai	n those	present	at the tin	ne	

ſ						BORI	NG LOO	3		Во	ring N	0.:	B5	5
	V	Trong	STATE OF VERMONT AGENCY OF TRANSPORTATIO CONSTRUCTION AND MATERI.			Hinesburg	HES 021-	1(19)	Pa	ge No.	: _	2 of 2	2
		114112	CONSTRUCTION AND MATERI BUREAU CENTRAL LABORATO			(GeoDesig	•)	Pir	No.:		04b204	4
						Hines	sburg, VT			Ch	ecked	By:	JF	W
	Boring	Crew: (C. Aldrich (Platform), A. Baribault (GeoDesign)			Casing	Sampler		Gro	oundwa	ater Ob	oservat	ions ⁽³⁾	
	Date S	Started:	5/27/15 Date Finished: 5/28/15	Type: I.D.:		AUGER 2.25 in	<u>SS</u> 1.38 in	-	Date	Dep		N	otes	
	VTSP	G NAD83:	N 671700.00 ft E 1479078.00 ft	Hamme	er Wt:	N.A.	140 lb.	- –	5/28/15	(ft 12.		n open	bolo	
	Statior	n: 28	8+81 Offset: 44' LT	Hamme		<u>N.A.</u>	<u>30 in.</u>	_ -	5/28/15	12.		Vet sar		
	Groun	d Elevation		1	er/Rod Ty Geoprobe	ype: <u>Au</u> e 7822DT	$\frac{\text{to/NWJ}}{C_{E}} = 1.3$		5/20/15	10.		vet sai	Tiple	
┢				9	00000.000	<u> </u>		_	<u>``</u>					
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M	IATERIAL	.S			vs/6	sture	vel %	% pt	% se	%	%
	ů)	Stra	(Description)				i	Blows/6" (N Value) ⁽²⁾	Moisture Content %	Gravel	Sand	Fines 9	E	Ē
┢		<i>\$7.7.7.23,67.</i>	S8 (20' - 21.6'): Refusal, grey fine to coarse SAN	ND some	Silt little	e fine to coar		0-50-		23.3	46.2	30.5	NP	NP
	-		Gravel, moist. Rec. = 1.3 ft (AASHTO M145 Cla	ssification	n: A-2-4.))	5	50/5" (R)		20.0	10.2	00.0		
	-							(,						
	-													
	- 22.5													
	22.3-													
	-													
	-													
	-													
	25.0-		S9 (25' - 25.4'): Refusal, grey SILT and fine to c	oarse SA	ND trace	e fine Gravel	5)/4.5'	13.2	12.9	38.2	48.9	NP	NP
	-		\wet. Rec. = 0.4 ft (AASHTO M145 Classification	n: A-4.)	12, 1400		., /	(R)			_ 00.2			
	-		Hole stopped @ 25 Split spoon refus											
	-													
	- 27.5													
		-												
	-	-												
	-	-												
	-	-	Remarks:	tation on	d offoot /	abour are a	nnrovimate	d fra	m tion n	aada fr		oting f	turo	
	30.0-		1. Ground surface elevation, northing, easting, s the field by GeoDesign personnel, the Preliminar	ry Plan Se	et prepare									
	-		"z04b204sv.dgn" provided by VHB via email on J 2. Visual soil descriptions are per the Burmister	lune 26, 2 system 1	2015. aborator	v gradations	where ap	olicat	ole were	perfor	ned by	/ VTrar	ns and	are
	_		per AASHTO M145.	5		, 0				•	-			00
5/15	_		 Sample S1 from 0' - 2' was performed with ap Borehole temporarily stopped after sampling S 										28.	
T 7/1	32.5-	-	 SPT N-values by be artificially high for sample augers for samples below 15' deep. 	e S7 at 15	' deep du	ue to drill stri	ing being o	out of	vertical	alignm	ent. A	ble to s	straight	ten
T.GD	-	-	6. Increased auger resistance noted during auge	er advance	e below 1	15' deep.								
IT AO	-		 Hole remained open to 13.5' deep after remov Backfilled with cuttings and bentonite chips (1 		s with st	anding wate	rat 12'de	ep.						
MON	-		9. Hammer energy is assumed.											
ΥEF	-													
GPJ	35.0-	j												
3URG	-													
NESE	_													
18 HI	-													
0-09.	37.5-													
G 75	-													
GLO	-													
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	-													
3N B(-													
DESIG	N a4		on lines represent approximate boundary between material typ have not been corrected for hammer energy. $C_{\rm E}$ is the hammer											
GEOI	Notes:	3. Water leve	el readings have been made at times and under conditions stat				occur due to	other	factors tha	n those	present	at the tir	ne	

				BORING LOG			Boring	No.:	B5-9	ST
	Trange	STATE OF VERMONT AGENCY OF TRANSPORTATIO CONSTRUCTION AND MATERI	Hinesburg HES 021-1	(19)		Page N	o.: .	1 of	1	
		CONSTRUCTION AND MATERI BUREAU CENTRAL LABORATO		(GeoDesign #750-09.	18)		Pin No	: _	04b20	4
				Hinesburg, VT			Checke	ed By:	JF	W
Borino	Crew: (C. Aldrich (Platform), A. Baribault (GeoDesign)		Casing Sampler		Groun	dwater	Observa	ations (3)	
-	Started:	5/28/15 Date Finished: 5/29/15	Type: I.D.:	<u>FJ</u> <u>TUBE</u> 4 in 2.87 in	Dat	e	Depth		Notes	
	G NAD83:	N 671701.00 ft E 1479080.00 ft	Hamme				(ft)			
Station		8+81 Offset: 42' LT	Hamme	er Fall: N.A. N.A.	05/28	/15	12.0	Inferre	d from	B5.
	d Elevation			er/Rod Type: <u>N.A./N.A.</u>						
			Rig. <u>(</u>	$\frac{\text{Geoprobe 7822DT}}{\text{C}_{\text{E}} = \text{NA}}$						
Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION		ERIALS		Blows/6" /N Value) ⁽²⁾	Moisture	Gravel %	Sand %	Fines %
	Str	(Descri	iption)			BIO		B Gra	Sa	Ë
-	× × × × × × × × × × × × × × × × × × ×	Fill (Inferred from B5)								
2.5	* * * * * * *									
5.0 -	* * * *									
-	× * * * * * *									
7.5 -	* * *									
-		Silty Clay (Inferred from B5)								
10.0-		ST-1 (10'-12'): Grey CLAY & SILT, little fine Gra Remark 5). Rec. = 2.0 ft	vel, trace	fine to coarse Sand, moist. (See						
-		Nonark 9, 100. – 2.0 K								
12.5-		Hole stoppe No ref		ft						
- - - - 15.0-										
- - - 17.5-		Remarks: 1. Ground surface elevation, northing, easting, s the field by GeoDesign personnel, the Preliminar "z04b204sv.dgn" provided by VHB via email on J 2. B5-ST Located 2' East of B5. 3. Advanced 4" casing to 10' with pneumatic dire	y Plan Se lune 26, 2	et prepared by VHB and dated 4/3 2015.	80/2015	i, and a	an electr	onic site	e plan ti	tled
-		using wash rotary methods). 4. Backfilled with cuttings and 1.5 bags bentonite 5. ST-1 soil description based on discussion with	e chips.							
Notes:	2. N Values 3. Water lev	on lines represent approximate boundary between material typ have not been corrected for hammer energy. $C_{\rm E}$ is the hammer el readings have been made at times and under conditions stat nents were made.	energy corr	ection factor.	ner factor	s than th	iose prese	nt at the	time	

GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15

						BOR	ING L	OG			Bo	ring No	D.:	Be	i
	Ŵ	Tiona	STATE OF VERMONT AGENCY OF TRANSPORTATIO	DN	Hine	esburg	HES	021-1(19)		Pa	ge No.	: _	1 of	3
	V.	[[alls #	AGENCY OF TRANSPORTATIC CONSTRUCTION AND MATERIA BUREAU CENTRAL LABORATO			oDesi	•	•			Pin	No.:		04b20	4
		\sim		111		Hine	sburg,	, V T			Ch	ecked	By:	JF	W
Ī	Boring	g Crew: C	2. Aldrich (Platform), A. Baribault (GeoDesign)		Ca	asing	Sam	npler		Gro	undwa	ater Ob	servat	ions (3)	
				Type:		JGER	-	<u>S</u>	Da	ate	Dep	th	N	otes	
		Started:		I.D.: Hamme		<u>25 in</u> N.A.		<u>8 in</u>) lb.			(ft)			
		g NAD83:	<u>N 671812.00 ft</u> <u>E 1479078.00 ft</u>	Hamme		<u>N.A.</u>	N.		05/2	28/15	12.0	o v	Vet Sa	mple	
	Statio	n: <u>28</u>	9+79 Offset: <u>11' RT</u>		er/Rod Type:		uto/NW								
	Grour	nd Elevation:	375 ft	Rig: (Geoprobe 782	22DT	$C_{E} =$	1.35							
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF MATERIA (Description)	ALS		Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6"	(in value)	Moisture Content %	Gravel %	Sand %	Fines %	% TT	PI %
İ			Asphalt												
	2.5 -		S1 (0.5' - 2.5'): Dense, black (upper 4") and brow SAND, some fine Gravel, some Recycled Asphalt Silt, dry. <i>(General Fill)</i> Rec. = 1.3 ft (AASHTO M A-1-b.)	t (upper 4	1"), little	_		16-1 13- (31	12	3.3	43.3	44.4	12.3	NP	NP
	5.0 -	× × × × × × × × × ×	S2 (5' - 7'): S2A - (Upper 10"): Medium dense, brown fine to some fine to coarse Sand, some Silt, trace Silt & (<i>General Fill</i>) Rec. = 1.3 ft (AASHTO M145 Class S2B (Lower 6") - Stiff, brown SILT & CLAY, some Sand, trace Roots/Wood, moist. S2B: Torvane =	Clay, mo sification e fine to r	ist. : A-1-b.) medium	_		4-8-6 (14	•)	8.9 25.5	50.1 1.9	27.0 20.0		NP 26	NP 8
	7.5 -		(AASHTO M145 Classification: A-4.) S3 (10' - 12'): Medium, brown with grey mottling 5	SILT & C	LAY. some	_		1-2-4	1-6	19.0	1.0	25.7	73.3	23	6
5/15			fine to medium Sand, trace fine to coarse Gravel Roots/Sticks, very moist (wet lower 3"). Torvane = Rec. = 1.3 ft (AASHTO M145 Classification: A-4.	(lower 3" = 0.28 - ('), trace			(6))	10.0		20.1		20	
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	12.5-		S4 (12' - 14'): Soft, SILT & CLAY and fine to coar fine Gravel, wet. (AASHTO M145 Classification: <i>i</i>					1-2-7 (3)		22.2	31.7	29.6	38.7		
HINESBURG.GPJ	15.0 -		S5 (15' - 17'): Very soft, grey CLAY & SILT, (occa layers SILT, some fine Sand), trace (-) fine to coa Torvane (soft areas) = 1.8 - 2.2 tsf; Torvane (med 0.28 tsf. Rec. = 1.7 ft (AASHTO M145 Classifica	arse Sand dium area	d, wet. as) = 0.25 -			WO WOF 2 (1	I-1-	39.8	0.4	2.9	96.7	40	18
NG LOG 750-09.18	17.5 -		S6 (17' - 18.9'): Very dense, grey SILT and fine to fine to coarse Gravel, moist. Rec. = 1.5 ft (AASH Classification: A-4.)	TO M148	5			14-1 36-50 (54)/5"		16.4	31.7	51.9	NP	NP
IGN BORI	-		C1 (19.8' - 21.8'): SILT and fine to coarse SAND, Gravel.												
GEODES	Notes:	2. N Values h 3. Water leve	on lines represent approximate boundary between material type have not been corrected for hammer energy. $C_{\rm E}$ is the hammer energy is the hammer energy here been made at times and under conditions state ents were made.	energy corr	ection factor.		occur di	ue to oth	er fact	ors that	n those	present	at the tir	ne	

		briting to <u>Get You</u> There must Agency of Tensported o		Tion and mate Intral Labora			Hinesi (GeoE H Casi	Desig Hines		0-09.1 VT			Ch	No.: ecked	By:	04b20 JF	W
Date S	Started:	5/28/15 I	Date Finished:	ult (GeoDesign) 5/28/15	Type: I.D.:		AUG 2.25	ER in		S B in	Dat	1	undwa Dep (ft)	th	oservat N	ons ^(*) otes	
Statio	G NAD83: n: <u>28</u> nd Elevation	9+79	0ffset: 5 ft	179078.00 ft 11' RT		er Fall: er/Rod Ty		A. Au	<u>140</u> <u>N./</u> to/NW	A. J	05/28	/15	12.(v c	Vet Sa	mple	
Depth (ft)	Strata ⁽¹⁾		CLASSIFIC	ATION OF MATE (Description)		Geoprobe		Core Rec. %	Drill Rate Drill Rate	Blows/6"	Moieturo	Content %	Gravel %	Sand %	Fines %	NT %	
-								17 (0)	2		5						
22.5																	
25.0 - - - 27.5 -																	
- - 30.0 - -		S7 (30' - 31.4 fine Gravel (s Classification	ome pulverized	grey SILT and fin), moist. Rec. = 1	e to coarse .4 ft (AASH	SAND, li TO M148	ttle 5			30-3 43-50 (76	33- 9/5" 3)	9.2	21.0	30.6	48.4	NP	1
- - 32.5 - - - -																	
35.0		little fine to co	barse Gravel (so 145 Classification		oist. Rec. =	se Sand, 1.5 ft				35-3 50 50/5 (80	5.5	0.7	21.8	25.4	52.8	18	
-			Hole	stopped @ 36.5 fl No refusal.	L												

					BOR	NG LOG		Boring	No.:	B 6
	Trans				Hinesburg	HES 021-1(19)	Page N	lo.: _	3 of 3
			-		•	gn #750-09.1	18)	Pin No.	:	04b204
						sburg, VT		Checke		JFW
Boring	g Crew:	C. Aldrich (Platform), A. Baribault (GeoDesign)	-		Casing	Sampler	Gro	undwater (Observa	tions ⁽³⁾
Date	Started:	5/28/15 Date Finished: 5/28/15	Type: I.D.:		AUGER 2.25 in	<u></u> 1.38 in	Date	Depth	1	lotes
VTSP	G NAD83:	N 671812.00 ft E 1479078.00 ft	Hamme	er Wt:	N.A.	140 lb.	05/28/15	(ft) 12.0	Wet Sa	mnle
Statio	n: 28	39+79 Offset: 11' RT	Hamme		<u>N.A.</u>	<u>N.A.</u>	00/20/10	12.0	1100	
Grour	nd Elevatior		1	er/Rod T Geoprob	ype: <u>Au</u> e 7822DT	$\frac{\text{to/NWJ}}{C_{\text{E}} = 1.35}$				
			1.19.	0000100	%		<u> </u>			
Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF MATER (Description)	IALS		Core Rec. ? (RQD %)	Drill Rate minutes/ft Blows/6"	(in value) Moisture Content %	Gravel % Sand %	Fines %	ы % РI %
42.5 -		 Remarks: Ground surface elevation, northing, easting, s the field by GeoDesign personnel, the Preliminar "z04b204sv.dgn" provided by VHB via email on J Visual soil descriptions are per the Burmister per AASHTO M145. Grinding on inferred cobbles/gravel within fill s The last blow of sample S2 penetrated approx HSA refusal at 19.8' deep in dense glacial till s flush joint casing to prepare for rock coring. Wash water return light brown from ~10' to 1s dense glacial till soils. Casing driven to 19.8' deep and advanced ope to be taken with an AWJ rod string. Wash water return grey below 25' deep with w Driller accidentally passed the 25' depth witho was noted. No return water was observed below 30' dee 11. Borehole backfilled with cuttings and 3 bags 12. Hammer energy is assumed. 	ry Plan Se June 26, 2 system. L soils from imately 4' soils. Initia 9.8' deep. en hole wi vater loss ut samplir p.	et prepar 2015. aborator approxir past thr ally belie Switche th NWJ betweer ng. Simil	red by VHB a ry gradations mately 2' to 7 e intended sa ved to be be ed to core bal rods and a co n 20' and 25' lar drilling eff	ind dated 4/3 where applic " deep. ample depth. drock, so aug rrel and atten carbide roller deep.	0/2015, and cable were p gers were re npted C1 fro bit below th	d an electr performed emoved an pm 19.8' to is depth. <i>A</i>	onic site by VTra d replac o 21.8' c vll samp	e plan titled ins and are red with 3" reep through res continued
50.0 -	-									
72 52.5 -	-									
GEODESIGN BORING LOG 750-09-18 HINESBURG GPJ VERMONT A0T GDT 7/15/15 	- - - - - - - - -									
Notes:	2. N Values 3. Water lev	Lion lines represent approximate boundary between material typ have not been corrected for hammer energy. $C_{\rm E}$ is the hammer el readings have been made at times and under conditions stat ments were made.	energy corr	ection fact	tor.	occur due to oth	er factors thar	those prese	nt at the t	me

						BORI	NG L	OG		Во	ring No	o.:	B7	<u> </u>
	V	Trange	STATE OF VERMONT AGENCY OF TRANSPORTATIO			Hinesburg	HES 0	21-1(19)	Pa	ge No.	: _	1 of	3
			AGENCY OF TRANSPORTATIO CONSTRUCTION AND MATERIA BUREAU CENTRAL LABORATO			(GeoDesig		,		Pir	No.:		04b20	4
							sburg,			Ch	ecked	By:	JF	W
	Boring	g Crew: C	. Aldrich (Platform), M. Hagedorn (GeoDesign)	-		Casing	Sam		Gro	oundwa	ater Ob	servati	ions (3)	
	Date	Started:	5/27/15 Date Finished: 5/27/15	Type: I.D.:		AUGER 2.25 in	<u> </u>		Date	Dep (ft		N	otes	
	VTSP	g nad83:	N 671781.00 ft E 1479009.00 ft	Hamm		N.A.	140	lb. 0	5/27/15	15.	,	Vet Sar	nple.	
	Statio	n: <u>28</u>	9+87 Offset: <u>64' LT</u>	Hamm	er Fall: er/Rod T	N.A.	<u>30 i</u> to/NW		5/27/15	7.0		n auger	-	
	Grour	nd Elevation	367 ft			e 7822DT	$C_{E} =$							
	_	÷)(3)	e%	%	%	%		
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M (Description)	ATERIAL	S			Blows/6" (N Value) ⁽²⁾	Moisture Content %	Gravel %	Sand %	Fines 9	% TT	PI %
		õ						В,	₹ō	Ğ	ů	Ē	1	
		\star \star \star	S1 (0' -2'): Top 2" Topsoil. Bottom 22" - Very soft, brown CLAY & SILT, little	e fine to n	hedium	Sand little G	rass	WOH- WOH-1	- 26.8	0.4	11.1	88.5	31	10
		$ \star \star \star \\ \star \star \star $	fibers, moist. (Reworked Clay Fill) Rec. = 1.1 ft (1 (1)						
		* * *	A-4.)					()						
		<i>UNIN</i>	S2 (2' -4'): Soft, brown CLAY & SILT, trace fine t	to mediur	n Sand,	moist. Rec. =	=	1-1-2-2	37.1	0.1	2.1	97.8	41	19
	2.5 -		2.0 ft (AASHTO M145 Classification: A-7-6.)					(3)						
				0	0		2		00 7		10		50	00
			S3 (4' -6'): Soft, brown Silty CLAY, trace (-) fine = 2.0 ft (AASHTO M145 Classification: A-7-6.)	Sand, tra	ce Orga	nics, moist. F	≺ec.	WOH-1	- 39.7		1.2	98.8	59	33
	5.0 -							(3)						
			S4 (6' -8'): Very soft, brown Silty CLAY, trace (-)	fine San	d, moist	. Rec. = 2.0 f	ť	WOH- 1/12"-1			0.8	99.2	56	31
			(AASHTO M145 Classification: A-7-6.)					(1)						
	7.5 -													
			S5 (8' -10'): Very soft, brown Silty CLAY, trace fi	ne (-) Sa	nd mois	t Rec = 20	ft	WOH-	46.1		1.8	98.2	48	25
			(AASHTO M145 Classification: A-7-6.)		ia, moie			WOH- WOH-			1.0	00.2	-10	
								WOH (0)						
	10.0-													
			S6 (10' -12'): Very soft, grey CLAY & SILT, occa Sand, moist. (Torvane: 0.10 - 0.18 tsf) Rec. = 2.	sional Sil 0 ft (AAS	t seams HTO M ²	, trace (-) fine 145	e	WOH- WOH-	47.2		0.4	99.6	38	17
			Classification: A-6.)	(-				WOH- WOH						
15								(0)						
7/15/														
.GDT	12.5-													
AOT														
1 ONT														
VERN														
GPJ	15.0~		S7 (15' - 17'): Very soft, grey Clayey SILT and fir	ne to coa	se SAN	D, little fine		WOH-	12.1	22.5	30.7	46.8	16	2
URG.	· ·		Gravel, wet. Rec. = 2.0 ft (AASHTO M145 Class	ification:	A-4.)			WOH- WOH-2	2					
NESB								(0)						
18 HII														
50-09.	17.5-													
G 75														
IG LC														
30RIN														
GEODESIGN BORING LOG 750-09.18 HINESBURG GPJ VERMONT AOT GDT 7/15/15			on lines represent approximate boundary between wets at the	on Transition	n movie-	aradual								
DES	Notes:	2. N Values	on lines represent approximate boundary between material type have not been corrected for hammer energy. C _E is the hammer el readings have been made at times and under conditions stat	energy corr	ection fac	tor.	occur du	e to other	actors the	n those	oresent	at the tin	ne	
GEC			nents were made.		.ono or gro	canamator may (0.036	p.000m			

						BORI	NG L	OG			Bo	ring No	o.:	B7	,
	(V	Trong	STATE OF VERMONT AGENCY OF TRANSPORTATIO			Hinesburg	HES 0	21-1(19)		Pa	ge No.	: _	2 of 3	3
			AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERI BUREAU CENTRAL LABORATO			(GeoDesig	-		8)		Pin	No.:		04b20	4
							sburg,				Ch	ecked	By:	JF	W
	Boring	a Crew: C	. Aldrich (Platform), M. Hagedorn (GeoDesign)			Casing	Samp			Gro	oundwa	iter Ob	oservat	ions (3)	
		Started:	5/27/15 Date Finished: 5/27/15	Type: I.D.:		AUGER 2.25 in	<u>SS</u> 1.38)ate	Dep (ft		Ν	otes	
	VTSP	g nad83:	N 671781.00 ft E 1479009.00 ft	Hamm		N.A.	140		05/2	27/15	15.0		Vet Sa	nple.	
	Station	n: <u>28</u>	9+87 Offset: <u>64' LT</u>	Hamm	er Fall: er/Rod T		<u>30 i</u> to/NWJ			27/15	7.0		n augei	•	
	Groun	d Elevation	367 ft	1		<u>e 7822DT</u>	$C_{E} = 1$, 1.35							
		<u> </u>						(3)		e%	%	8	<u>``</u>		
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M (Description)	IATERIAL	S			Blows/6"	alue	Moisture Content %	Gravel ⁶	Sand %	Fines %	% TT	Ы%
		st	(Description)					BIG	ź	₹ĝ	U.S.	Š	iĒ		
	_		S8 (20' -21.5'): Refusal, grey SILT and fine to co Gravel, moist. Rec. = 1.0 ft (AASHTO M145 Cla	oarse SAN	D, little	fine to coars	е	17-52 (R	2-76	7.3	24.9	31.9	43.2	NP	NP
	-		Glavel, Molst. Rec 1.0 It (AASH 10 10145 Cla	SSIICatio	I. A-4.)			(1))						
	-														
	-														
	22.5-														
	-														
	-														
	-														
	25.0 -		S9 (25' -25.8'): Refusal, grey SILT and fine to co	arse SAN	D. little	fine to coars	e	31	-	9.0	21.0	28.4	50.6	NP	NP
	-		Gravel, moist. Rec. = 0.6 ft (AASHTO M145 Cla				-	31 50/3 (R	.5")						
	-							(,						
	-														
	27.5-														
	-														
	-														
	-														
	- 30.0														
			S10 (30' -30.8'): Refusal, grey SILT and fine to o moist. Rec. = 0.8 ft (AASHTO M145 Classification		ND, trad	ce fine Grave	el,	22-62 (R	۱	8.1	15.4	31.9	52.7	NP	NP
	-			,											
15	-														
7/15/	-														
GDT	32.5-														
AOT	_														
10NT	-							20.0	<u>``</u>	0.0	00.4	05.4	54.0		
VERN	-		S11 (34' -35.3'): Refusal, grey SILT, some fine t coarse Gravel, wet. Rec. = 1.3 ft (AASHTO M14					30-6 53/4	4"	9.6	23.1	25.1	51.8	NP	NP
GPJ	35.0							(R)						
URG.	-		Hole stopped @ 35 Split spoon refus												
VESB	-														
18 HII	-														
0-09	37.5-														
G 75	-	-													
1G LC	-														
GEODESIGN BORING LOG 750-09.18 HINESBURG GPJ VERMONT AOT GDT 7/15/15	-]													
IGN E		1 Stratifiant	on lines represent approximate boundary between met-of-the	os Tronsitio	n mouthe	aradual									
DDES	Notes:	2. N Values I	on lines represent approximate boundary between material typ have not been corrected for hammer energy. $C_{\rm E}$ is the hammer el readings have been made at times and under conditions stat	energy corr	ection fac	tor.	occur due	e to oth	er fac	tors the	n those i	oresent	at the tir	ne	
GEC		measurem	nents were made.	iuciudi	.ono or yrt	sanawator may (5 15 011		ud		- Cocnt	at and th		

							BORING LOG				Boring	No.:	B7	_
	(V	Г	Andrina in Casi Vine Theor		TE OF VERMONT OF TRANSPORTATI	ON		Hinesburg	HES 021-1(19)	Page N	lo.:	3 of 3	
	V.	I LAU2	terking to Get You There emont Agency of Tiersportation		CTION AND MATERI ENTRAL LABORATO			-	gn #750-09.1		Pin No.	: _	04b204	_
				DUILLAU CI				Hines	sburg, VT		Checke	ed By:	JFW	
Γ	Boring	Crew: C	Aldrich (Plat	form) M Hage	dorn (GeoDesign)			Casing	Sampler	Grou	undwater (Observ	ations (3)	
	Date S	Started:	5/27/15	Date Finished:	5/27/15	Type: I.D.:		AUGER 2.25 in	SS 1.38 in	Date	Depth (ft)		Notes	
	VTSP	g nad83:	N 671	1781.00 ft E 1	1479009.00 ft	Hamme Hamme		<u>N.A.</u> N.A.	<u>140 lb.</u> 30 in.	05/27/15	15.0 Wet Sam		ample.	
	1 Station 289+87 ()ttset 64 1								to/NWJ	05/27/15	7.0	In aug	ers.	
	Groun	d Elevation	:36	67 ft		Rig: (Geoprob	e 7822DT	C _E = 1.35					
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF MATERIALS (Description)									Fines %	% TT	PI %
	- - - 42.5 - -	-	the field by ("z04b204sv. 2. Visual soi per AASHTC 3. Soft/very 4. Auger grin 5. Auger grin 6. Backfilled	GeoDesign pers dgn" provided b I descriptions a D M145. soft soils unable nding at 17.5' de nding from 20' -	n, northing, easting, s sonnel, the Prelimina by VHB via email on v re per the Burmister e to get readings with eep at the inferred tra- 22' deep with heaving of bentonite chips ar ned.	ry Plan Se June 26, 2 system. L n Pocket F ansition to er grinding	et prepar 2015. aborator Penetron glacial f	red by VHB a ry gradations neter. till soils. at 31' deep.	where applic	0/2015, and cable were p	d an electro	onic sit	e plan titleo	d
	- 45.0 - -													
	- - 47.5 - -													
15	- 50.0 - -	-												
RMONT AOT.GDT 7/15/	- 52.5 - -													
18 HINESBURG.GPJ VE	55.0 - -	-												
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	57.5 - - -				idary between material typ									
GEOD	Notes:	3. Water lev			energy. C _E is the hammer and under conditions sta				occur due to oth	er factors than	those prese	nt at the	time	

BORIN							ING LOG			Boring	No.:	_	B7-S	ت
	(V	Trong	STATE OF VERMONT AGENCY OF TRANSPORTATIO			Hinesburg	HES 021-1(19)		Page I	No.:		1 of 1	1
	V.	1 (4 11 2 4				(GeoDesi	gn #750-09. ²			Pin No	D.:	0	4b204	4
		\sim	BOREAU GENTIAE EADOIVATO			Hine	sburg, VT			Check	ed By	r:	JF\	N
Γ	Porino		Addrich (Blatform) M. Hagodorn (GooDosign)			Casing	Sampler		Groun	dwater	Obse	rvatio	ons (3)	
	-		2. Aldrich (Platform), M. Hagedorn (GeoDesign)	Type:		FJ	TUBE	Dat		Depth			otes	
		Started:	5/27/15 Date Finished: 5/27/15	I.D.:		4 in	2.87 in			(ft)				
	VTSP	g nad83:	<u>N 671777.00 ft</u> E 1479011.00 ft	Hamme		<u>N.A.</u> N.A.	<u>N.A.</u> N.A.	05/27	/15	7.0	Infe	rred	from E	37.
	Station	n: <u>28</u>	9+82Offset:64' LT		er/Rod Ty		.A./N.A.			-				-
	Groun	d Elevation	:367 ft		Geoprobe		$C_E = NA$							
F								-	. 0		~	%		
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION		ERIALS				0/S/	sture	ent	vel %	Sand %	ss %
	ă)	Stra	(Descri	ption)					Blows/6" /N Value) ⁽²⁾	Moi	Content %	Gravel	Sar	Fines ⁶
┝		\star \star \star	Reworked Clay Fill						,		<u> </u>	_		<u> </u>
	-	* * *	(Inferred from B7)											
	-	\star \star \star												
	-	\star \star \star												
	-		Silty Clay											
	2.5 -	¥//////	(Inferred from B7).											
	-													
	-													
	-													
	-													
	5.0													
	-													
	-													
	-													
	-													
	7.5 -													
	-		ST-1 (8'-10'): Grey Silty CLAY, moist. (Torvane p	performed	d at 10': 0.	24 tsf) Re	c. = 2.0 ft							
	-													
	-													
	- 10.0													
	10.0-		Hole stopped		ft									
			No ref	usal.										
	_													
9/15	_													
72	12.5-													
<u>G</u>	12.5													
AOT	-													
ONT	-		Demerica											
ERM	-	-	Remarks: 1. Ground surface elevation, northing, easting, si	tation, an	d offset sl	nown are a	pproximated	from tie	es mad	le from	existi	ng fe	atures	s in
2	15.0-	-	the field by GeoDesign personnel, the Preliminar			d by VHB a	and dated 4/3	0/2015	i, and a	an elect	ronic	site p	olan titl	led
9.9	-		"z04b204sv.dgn" provided by VHB via email on J 2. Exploration performed to obtain a Shelby Tube			ole B7 in th	ne soft clay la	yer obs	served	betwee	n 8' -	12' d	eep.	
BUR	-		3. Borehole located 5' South-Southeast of B7.					•					•	
INES	-		4. Pushed casing to 3' deep. Casing advanced be 5. Backfilled with a mixture of bentonite chips and	d cuttings	s from hole	a prieumat e. Approxin	nately 1.0 ba	g of chi	ps use	d.				
18 H.	-			0				-	-					
0-09.	17.5-													
3 75(-													
ĕ	-													
SING	-													
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/29/15	-													
NGN NGN		1 Stratificati	on lines represent approximate boundary between material type	es Transitio	n mav he or	adual								
Ш	Notes:	2. N Values	In this represent approximate boundary between material type have not been corrected for hammer energy. $C_{\rm E}$ is the hammer el readings have been made at times and under conditions state	energy corr	ection factor	r.	occur due to oth	er factor	s than th	IOSE Dres	ent at t	he tim	e	
ы			nents were made.						- ciuri di	200 0100	at t	. an	-	

	BORIN					RING LOG				ring N	o.:	B	3	
	T	STATE OF VERMONT AGENCY OF TRANSPORTATI	ON		Hinesburg	HES 0	21-1(19))	Pa	ge No.	: _	1 of	2	
	I LAU2	AGENCY OF TRANSPORTATI CONSTRUCTION AND MATERI BUREAU CENTRAL LABORATO			(GeoDesig		•		Pir	No.:		04b20	4	
		BOREAU CENTRAL EABORATO			Hines	sburg, '	VT		Ch	ecked	By:	JF	W	
Borin	ig Crew: 0	2. Aldrich (Platform), A. Baribault (GeoDesign)			Casing	Samp	oler	Gr	oundwa	oservat	ions (3)			
	• <u> </u>		Type:		AUGER	SS		Date	1				Notes	
	Started:	5/29/15 Date Finished: 5/29/15	I.D.: Hamme	or \A/t·	2.25 in	1.38			(ft)					
	PG NAD83:	N 671863.00 ft E 1479023.00 ft	Hamme		<u>N.A.</u> N.A.	<u>140 </u> 30 ir)5/29/15	13.	o v	Wet sample.			
Statio	on: <u>29</u>	0+50 Offset: <u>10' LT</u>	-	er/Rod T		to/NWJ								
Grou	nd Elevation	377 ft	Rig: _(Geoprobe	e 7822DT	C _E = 2	1.35							
Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M (Description)		S			Blows/6" (N Value) ⁽²⁾	Moisture Content %	Gravel %	Sand %	Fines %	% TT	% Id	
		Asphalt												
2.5	* * * * * * * * * *	S1 (0.7' - 2.7'): Medium dense, brown fine to co Gravel, little Asphalt Fragments (upper 4"), trace ft (AASHTO M145 Classification: A-1-b.)		17-16 13-11 (29)		47.4	43.0	9.6	NP	NP				
5.0		limestone, angular), some fine to coarse Sand, I	: (5' - 7'): Medium dense, brown and grey fine to coarse GRAVEL (possible lestone, angular), some fine to coarse Sand, little Clayey Silt in upper 3", moist. eneral Fill) (AASHTO M145 Classification: A-1-b). Rec. = 0.7 ft							22.1	15.9			
7.5		S3 (7' - 9'): Medium, brown Clayey SILT, some f Gravel, trace Roots/Wood, top portion wet. Torva (AASHTO M145 Classification: A-4.)					1-2-2- (4)	2 23.9	3.7	31.5	64.8	21	3	
10.0		S4 (10' - 12'): Soft, grey with brown mottling Cla Sand, trace (-) fine Gravel, trace Roots/Wood (d moist. Torvane = 5.0 -6.5 tsf bottom half; Torvar = 2.0 ft (AASHTO M145 Classification: A-4.)	lecayed pi	eces, ve	y faint odor)),	WOH- 2-3 (3)	1- 25.6	0.9	16.4	82.7	21	2	
12.5		S5 (12' - 14'): Medium dense grey SILT, some fi coarse Gravel (lower 4"), trace Clay & Silt, wet (M145 Classification: A-4.)	lower 4").	Rec. = 1	.3 ft (AASH ⁻	ТО	2-4-6- (10)		17.1	25.5	57.4	NP	NP	
/ERM		S6 (15' - 17'): Dense, grey SILT, some fine to co Gravel, trace Clay & Silt, moist to wet.	oarse San	a, some	tine to coars	se								
15.0		Gravel, trace Clay & Siit, moist to wet. Rec. = 1.1 ft (AASHTO M145 Classification: A-4.)					13-21 14-7 (35)	- 11.5	27.6	25.5	46.9	NP	NP	
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15 12.0 12.0 Notes		S7 (17' - 19'): Dense, grey Clayey SILT, some fine to coarse Sand, little fine to coarse Gravel, moist. Rec. = 1.3 ft (AASHTO M145 Classification: A-4.) 10-16-18-26 (34)						9.3	16.3	24.8	58.9	17	3	
ESIC	2 N Values	on lines represent approximate boundary between material typ nave not been corrected for hammer energy. $C_{\rm F}$ is the hammer												
Notes	3. Water leve	are not been confected for nammer energy. C_E is the nammer energy, C_E is the nammer energy and the statement of the st				occur due	e to other	factors that	an those	present	at the tir	ne		

ĺ			STATE OF VERMONT		BORING LOG Boring No.: B8						3				
	V	Trans	AGENCY OF TRANSPORTATIO			Hinesburg	HES 02	21-1(*	19)		Pa	ge No.	: _	2 of 2	2
	V		CONSTRUCTION AND MATERIA BUREAU CENTRAL LABORATO			(GeoDesig	•		8)		Pin	No.:		04b204	4
							sburg, \					ecked	· ·	JF	
	Boring	g Crew:	C. Aldrich (Platform), A. Baribault (GeoDesign)	Turnor		Casing	Samp	mpler Gro			undwa	ter Ob	servat	ions ⁽³⁾	
	Date S	Started:	5/29/15 Date Finished: 5/29/15	Type: I.D.:		AUGER 2.25 in	1.38		D	ate	Dep (ft		Ν	otes	
	VTSP	g nad83:	N 671863.00 ft E 1479023.00 ft	Hamme	er Wt:	N.A.	140 I	lb.	05/2	29/15	13.0		Vet sar	nple	
	Station: 290+50 Offset: 10' LT Hammer Fall: N.A. 30 Hammer/Rod Type: Auto/NW														
	Ground Elevation: 377 ft Rig:Geoprobe 7822DTC_E =														
ľ								(S)		%ە	%				
	Depth (ft)	Strata ⁽¹⁾	CLASSIFICATION OF M	ATERIAL	S			Blows/6"	ard	Moisture Content %	Gravel 9	Sand %	Fines %	% TT	PI %
	Δ	St	(Description)					BIG	~	δS	Gra	Sa	Ē		–
ľ			S8 (20' - 22'): Very dense, grey SILT, some fine	to coarse	Sand, s	some fine to		21-2		6.7	28.5	24.3	47.2	NP	NP
	-	<u> 1817 a</u>	coarse Gravel, trace Silt & Clay, moist. Rec. = 2. Classification: A-4.)	oft (AAS	HIOM	145		44-4 (72							
	-														
	22.5-														
	-	<u> ABII A</u>													
	-														
	S9 (24' - 26'): Very dense, grey SILT, some fine to coarse Sand, some fine to coarse Gravel, moist. Rec. = 2.0 ft (AASHTO M145 Classification: A-4.)								8-	10.0	26.1	21.8	52.1	17	2
	25.0-		coarse Gravel, moist. Rec. = 2.0 ft (AASHTO M		33-5 (61										
	_0.0														
	-	ETTER AND	Hole stopped @ 26												
			No refusal.												
	27.5-														
	-	-													
	-	-													
	30.0-		Remarks:	hotion on	doffaat	abour are a	norovin	otod (tion m	odo fr		atina f	turo	a in
	-		1. Ground surface elevation, northing, easting, si the field by GeoDesign personnel, the Preliminar	y Plan Se	et prepai	red by VHB a	and date	ated 1 ed 4/30	70m)/20	ties m 15, an	d an el	ectron	ic site	plan tit	tled
	-		"z04b204sv.dgn" provided by VHB via email on J 2. Visual soil descriptions are per the Burmister s			rv aradations	where	applic	able	were	perforr	ned by	/ VTrar	ns and	are
15/15	-	-	per AASHTO M145. 3. Auger grinding on inferred cobbles/gravel from			, 0		••							
7 7	32.5-		were able to be brought back to vertical prior to s	ampling \$	S4.	•	0	• •		or anyi	inent	wrille	sampin	iy 55,	but
DT.GI	-	-	 Increased drilling resistance beginning at 18' c Water/wet cuttings observed during auger adv 					al till s	oils.						
NT A	-		 Borehole backfilled with cuttings and 1.5 bags Hammer energy is assumed. 					t patch	۱.						
RMO	-]													
JVE	35.0-														
G.GF															
SBUR															
HINE	-														
9.181	-														
750-0	37.5-	1													
9 O	-														
INGL	-														
GEODESIGN BORING LOG 750-09.18 HINESBURG.GPJ VERMONT AOT.GDT 7/15/15	-														
ESIGN			on lines represent approximate boundary between material type												
EODI	Notes:	3. Water leve	have not been corrected for hammer energy. $C_{\rm E}$ is the hammer el readings have been made at times and under conditions state nents were made.				occur due	e to oth	er fac	tors tha	n those	oresent	at the tir	ne	
ڻ.															

ATTACHMENT 3 – LABORATORY TESTING RESULTS

3A – VTRANS RESULTS

3B – GEOTESTING EXPRESS RESULTS

3A – VTRANS RESULTS

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150770	Correc	ted copy: N/A	A		Repor	t Dat	te: 6/15/2015 8:30:31 A
Project: HINE	SBURG		Numbe	r: HES	021-1(19)	Site:	VT-1	116 TH-1, TH-7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Te	sted h	by: J. TOUCHETTE
Station: 287+6	55 Offse	t: -47.0	Hole: B-2		Depth:	0]	F T 1	to: 2 FT
Field descriptio	n:							
Submitted by:	GEODESIG	N			Address:			
Sample type:	SPLIT BAR	REL			Quantity:			
Sample source/	Outside agen	cy name:						
Location used:				Exan	nined for: N	AC, GS	, AL	
Comment: S-1								
				D 14				

Test Results

	Sieve Analysis		Limits							
T-88	% Passing									
	Total Sample	T-	265 Moistui	e content	: 2	6.0%				
75		T-	89 Liquid L	imit:		39				
75 mm (3.0"):		T-	90 Plastic L	imit:		20				
37.5 mm (1.5"): 19 mm (3/4"):		T-	90 Plasticity	Index:		19				
9.5 mm (3/8"):					ture De	nsity				
4.75 mm (#4):	99.5%	Te	st method:	T-180	1	Method:				
2.00 mm (#10):	98.0%	Μ	aximum den	sity:		pcf				
850 µm (#20):	93.7%			-		per				
425 μm (#40):	88.8%	U	otimum moi	sture:						
250 µm (#60):	84.7%	T-	100 Specific	Gravity:						
150 µm (#100):	81.2%	Gr	2.0%	D2487:	CL					
75 μm (#200):	77.7%	Sa:		M145:	A-6	Silty Clay				
Hydromete	er Analysis	Si:	77.7%							
Particles smaller	• % total sample									

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E15	50771 Corre	cted copy: N/A		Report Date:	6/15/2015 8:30:32 A
Project: HINESBU	URG	Number: HES	021-1(19)	Site: VT-116	TH-1, TH-7
Date sampled: 5,	/26/2015 Received:	6/10/2015 Tested:	6/10/2015	Tested by:	J. TOUCHETTE
Station: 287+65	Offset: -47.0	Hole: B-2	Depth:	2 FT to:	4 FT
Field description:					
Submitted by: GE	EODESIGN		Address:		
Sample type: SP	LIT BARREL		Quantity:		
Sample source/Out	tside agency name:				
Location used:		Exan	nined for: M	C, GS, AL	
Comment: S-2					

Test Results

	Sieve Analysis		Limits							
T-88	% Passing Total Sample	T-	265 Moistu			0.9%				
75 mm (3.0").		T-	89 Liquid L	imit:		30				
75 mm (3.0"): 37.5 mm (1.5"):		T-	90 Plastic L	imit:		17				
19 mm (3/4''):		T-	90 Plasticity	y Index:		13				
9.5 mm (3/8"):				Mois	ture De	nsity				
4.75 mm (#4):	87.8%	Те	st method:	T-180		Method:				
2.00 mm (#10):	86.4%	М	aximum der	nsity:		pcf				
850 µm (#20):	84.8%			·		P				
425 µm (#40):	82.9%		ptimum moi							
250 µm (#60):	80.8%	T-	100 Specific	e Gravity:						
150 µm (#100):	79.1%	Gr	13.6%	D2487:	CL					
75 μm (#200):	76.6%	Sa:		M145:	A-6	Silty Clay				
Hydromete	r Analysis	Si:	76.6%							
Particles smaller	% total sample									

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150772	Correcte	ed copy: N/A]	Report Date:	6/15/2015 8:30:32 A
Project: HINESBURG		Number: HI	ES 021-1(19)	Site: VT-116	TH-1, TH-7
Date sampled: 5/26/201	5 Received: 6	5/10/2015 Teste	d: 6/10/2015	Tested by:	J. TOUCHETTE
Station: 287+65 Off	set: -47.0	Hole: B-2	Depth:	4 FT to:	6 FT
Field description:					
Submitted by: GEODESI	GN		Address:		
Sample type: SPLIT BA	RREL		Quantity:		
Sample source/Outside ag	ency name:				
Location used:		Ex	amined for: M	C, GS, AL	
Comment: S-3					
		Test Desrel	4.0		

Test Results

T-88	Sieve Analysis % Passing	Limits	Limits			
1-00	Total Sample	T-265 Moisture content: 31.	7%			
	-	T-89 Liquid Limit:	42			
75 mm (3.0"):		T-90 Plastic Limit:	21			
37.5 mm (1.5"): 19 mm (3/4"):		T-90 Plasticity Index:	21			
9.5 mm (3/8''):		Moisture Dens	ity			
4.75 mm (#4):	100.0%	Test method: T-180	Method:			
2.00 mm (#10):	99.8%	Maximum density:	pcf			
850 μm (#20):	99.5%	Optimum moisture:				
425 µm (#40):	98.7%	•				
250 µm (#60):	97.4%	T-100 Specific Gravity:				
150 µm (#100):	96.0%	Gr: 0.2% D2487: CL				
75 μm (#200):	94.5%	Sa: 5.3% M145: A-7-6	Clay			
Hydromet	er Analysis	Si: 94.5%	-			
Douticles smalle	n 0/ total commis					

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist 7DE



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150773	Correc	cted copy: N/	A		Report l	Date:	6/15/2015 8:30:32 A
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site: V	T-116	TH-1, TH-7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Teste	ed by:	J. TOUCHETTE
Station: 287+6	55 Offse	t: -47.0	Hole: B-2	2	Depth:	6 FT	to:	7.5 FT
Field descriptio	n:							
Submitted by:	GEODESIG	N			Address:			
Sample type:	SPLIT BAR	REL			Quantity:			
Sample source/	Outside agen	cy name:						
Location used:				Exan	nined for: M	AC, GS, A	AL.	
Comment: S-4	А							
			T					

Test Results

Т-88	Sieve Analysis % Passing	Li					
1-00	Total Sample		T-20	65 Moistu	re content	: 3	57.1%
== (2,011)	-		T-8) Liquid L	imit:		36
75 mm (3.0"): 37.5 mm (1.5"):			Т-90) Plastic L	imit:		20
19 mm (3/4"):			Т-90) Plasticity	v Index:		16
9.5 mm (3/8''):					Mois	ture De	nsity
4.75 mm (#4):	100.0%		Test	method:	T-180		Method:
2.00 mm (#10):	99.9%		May	kimum der	nsitv:		pcf
850 μm (#20):	99.1%				·		per
425 μm (#40):	98.3%		Opt	imum moi	sture:		
250 μm (#60):	97.3%		T-1(00 Specific	Gravity:		
150 µm (#100):	96.3%		Gr:	0.1%	D2487:	CL	
75 μm (#200):	94.7%		Sa:	5.2%	M145:	СL А-б	Silty Clay
Hydromet	er Analysis		Si:	94.7%	M1143.	110	Sinty City
Particles smalle	r % total sample						

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:



Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number:	E150774	Correc	ted copy: N/.	A		Repor	rt Dat	te:	6/15/2015 8:30:33 A
Project: HINES	SBURG		Numbe	er: HES	021-1(19)	Site:	VT-1	116	TH-1, TH-7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	sted l	by:	J. TOUCHETTE
Station: 287+6	5 Offse	t: -47.0	Hole: B-2	2	Depth:	7.5	FT	to:	8 FT
Field description	n:								
Submitted by:	GEODESIG	N			Address:				
Sample type:	SPLIT BAR	REL			Quantity:				
Sample source/(Outside agen	cy name:							
Location used:				Exan	nined for: N	AC, GS	, AL		
Comment: S-4H	3								
			T	• D 14 -					

Test Results

	Sieve Analysis		Limits						
T-88	% Passing								
	Total Sample	Т-2	265 Moistu	re content	:	13.2%			
		Т-8	89 Liquid L	imit:					
75 mm (3.0"):		Т-9	00 Plastic L	imit:					
37.5 mm (1.5"):									
19 mm (3/4"):	80.1%	Т-9	00 Plasticity	y Index:		NP			
9.5 mm (3/8"):	73.7%			Mois	ture De	ensity			
4.75 mm (#4):	66.4%	Te	st method:	T-180		Method:			
2.00 mm (#10):	60.7%	Ma	ximum der	nsitv:		pcf			
850 μm (#20):	56.7%			-		per			
425 μm (#40):	53.8%	Op	timum moi	sture:					
250 µm (#60):	51.2%	T- 1	00 Specific	: Gravity:					
150 µm (#100):	48.3%	Gr:	39.3%	D2487:	GM				
75 μm (#200):	43.5%	Sa:	17.2%	M145:		Gravelly Silt			
Hydromete	er Analysis	Si:	43.5%			,			
Particles smaller	r % total sample								
0.05 mm:									
0.02 mm:									
0.005 mm:									

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE. A SMALL AMOUNT OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist 7DE

0.002 mm: 0.001 mm:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150775	Correc	ted copy: N/	A		Report	Date:	6/15/2015 8:30:33 A
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site: V	VT-116	5 TH-1, TH-7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Test	ted by:	J. TOUCHETTE
Station: 287+6	5 Offse	t: -47.0	Hole: B-2	2	Depth:	8 F	T to:	10 FT
Field description	n:							
Submitted by:	GEODESIG	N			Address:			
Sample type:	SPLIT BAR	REL			Quantity:			
Sample source/0	Outside agen	cy name:						
Location used:				Exan	nined for: N	AC, GS		
Comment: S-5								

Test Results

Sieve Analysis			Limits					
T-88	% Passing							
	Total Sample	T- 2	265 Moistu	re content	: 8.	3%		
75		Т-	89 Liquid L	imit:				
75 mm (3.0"):		T-9	90 Plastic L	imit:				
37.5 mm (1.5"): 19 mm (3/4"):		Т-:	90 Plasticity	y Index:		NP		
9.5 mm (3/8''):	83.1%			Mois	ture Dens	sity		
4.75 mm (#4):	74.4%	Те	st method:	T-180)	Method:		
2.00 mm (#10):	64.0%	M	aximum dei	nsitv•		pcf		
850 μm (#20):	55.7%			-		per		
425 μm (#40):	49.5%	-	otimum moi					
250 µm (#60):	44.0%	Τ-	100 Specific	e Gravity:				
150 µm (#100):	38.6%	Gr:	36.0%	D2487:	SM			
75 μm (#200):	30.0%	Sa:		M145:		Silty Sandy Gravel		
Hydromete	er Analysis	Si:	30.0%					
Particles smaller	r % total sample							
0.05 mm:								
0.02 mm:								
0.005 mm:								
0.002 mm:								
0.001 mm:								

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist 7DE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150776 Correct	cted copy: N/A	Report Date: 6/15/2015 8:30:33 A			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 5/26/2015 Received:	6/10/2015 Tested: 6/10/2015	5 Tested by: J. TOUCHETTE			
Station: 287+65 Offset: -47.0	Hole: B-2 Depth:	10 FT to: 12 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for:	MC, GS			
Comment: S-6					
	Test Results				

Sieve Analysis Limits **T-88** % Passing 7.6% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 91.6% 9.5 mm (3/8"): 82.1% **Moisture Density** 4.75 mm (#4): 72.2% Test method: T-180 Method: 2.00 mm (#10): 62.8% Maximum density: pcf 850 µm (#20): 54.0% **Optimum moisture:** 425 µm (#40): 47.7% **T-100 Specific Gravity:** 250 µm (#60): 42.6% 150 µm (#100): 37.6% Gr: 37.2% D2487: SM 75 µm (#200): 30.2% Sa: 32.5% **M145:** A-2-4 Silty Sandy Gravel Si: 30.2% **Hydrometer Analysis** Particles smaller % total sample

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150777	Correc	cted copy: N/2	A		Repor	t Date:	6/15/2015 8:30:34 A
Project: HINE	SBURG		Numbe	er: HES	021-1(19)	Site:	VT-11	6 TH-1, TH-7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Tes	ted by	: J. TOUCHETTE
Station: 287+6	55 Offse	t: -47.0	Hole: B-2		Depth:	15 F	T to	: 17 FT
Field descriptio	n:							
Submitted by:	GEODESIG	N			Address:			
Sample type:	SPLIT BAR	REL			Quantity:			
Sample source/	Outside agen	cy name:						
Location used:				Exan	nined for: N	AC, GS		
Comment: S-7								

Test Results

Sieve Analysis			Limits						
T-88	% Passing				Linnts				
	Total Sample	T-	265 Moistu	re content	:	7.5%			
		T-	89 Liquid I	Limit:					
75 mm (3.0"):		T-	90 Plastic I	imit					
37.5 mm (1.5"):									
19 mm (3/4"):	91.2%	T-	90 Plasticit	y Index:		NP			
9.5 mm (3/8"):	81.0%			Mois	ture D	ensity			
4.75 mm (#4):	73.3%	Te	st method:	T-180)	Method:			
2.00 mm (#10):	65.8%	М	Maximum density:						
850 μm (#20):	59.3%								
425 μm (#40):	54.4%	O ₁	Optimum moisture:						
250 µm (#60):	49.9%	T-	100 Specifi	c Gravity:					
150 µm (#100):	45.2%	Gr	34.2%	D2487:	SM				
75 μm (#200):	37.2%	Sa:		M145:	A-4	Sandy Gravelly Silt			
Hydromete	er Analysis	Si:	37.2%	11145,	71 -	Sandy Graveny Sin			
•	* % total sample								
0.05 mm:									
0.02 mm:									
0.005 mm:									
0.002 mm.									

0.002 mm: 0.001 mm:

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

Distribution list

Lab n	umber: E15077	70	Corrected c	opy: N/A		Report Date:	6/15/2015 8:31:43 A
Projec	et: HINESBURG	3		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-2	Depth:	0 FT -	2 FT			
			г	-88 Particle si	ize analysis		
1 00% T	<u> </u>	•					
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -							
20% -	Pct smaller						
10% -							
0% +					· · · ·		·····
10	0		1		0.1		0.01
				Particle :	size, m m		

Distribution list

Report on Soil Sample

	Corrected copy: N/A	Report Date: 6/15/2015 8:31:43 A
Project: HINESBURG	Number: HES 021-1(19	9) Site: VT-116 TH-1, TH-7
Hole: B-2 Depth	: 2 FT - 4 FT	
	T-88 Particle size analysis	
100%		
90%		
80%		
70%		•
60%		
50%		
40%		
30 //		
20%		
10%		
0%		
10	1	0.1 0.01

Particle size, mm

Report on Soil Sample

Lab nu	umber: E15077	2	Corrected	copy: N/A		Report Date:	6/15/2015 8:31:43 A
Projec	t: HINESBURG	j		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-2	Depth:	4 FT -	6FT			
				T-88 Particle si	ize analysis		
100% ⊤	•	•	• • • • • •				
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -							
20% -	Pct smaller						
10% -							
0% +		· · ·			· · · · · · · · · · · · · · · · · · ·		·····
10)		1		0.1		0.01

Particle size, mm

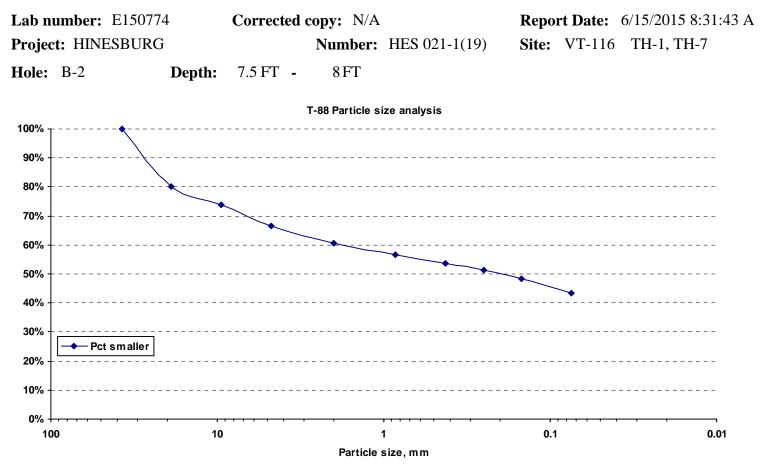
Distribution list

Report on Soil Sample

Lab n	umber: E15077	3	Corrected	copy: N/A		Report Date:	6/15/2015 8:31:43 A
Projec	t: HINESBURC	5		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-2	Depth:	6FT -	7.5 FT			
				T-88 Particle si	ze analysis		
100% T	• • • • • • • • • • • • • • • • • • • •	•	•	•			
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -							
20% -	Pct smaller						
10% -							
0% +		· · ·			· · · · ·		· · · · · · · · · · · · · · · · · · ·
10)		1		0.1		0.01

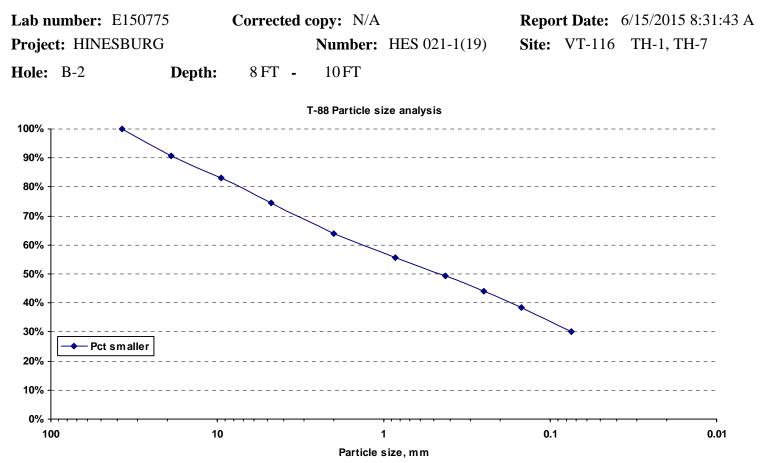
Particle size, mm

Report on Soil Sample

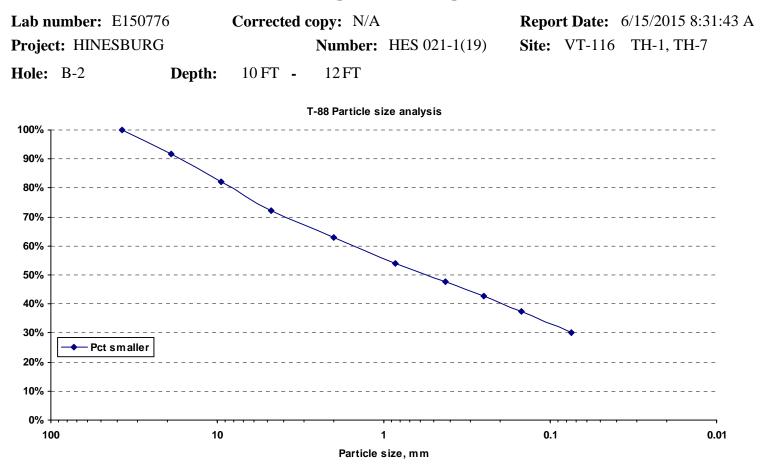


Distribution list

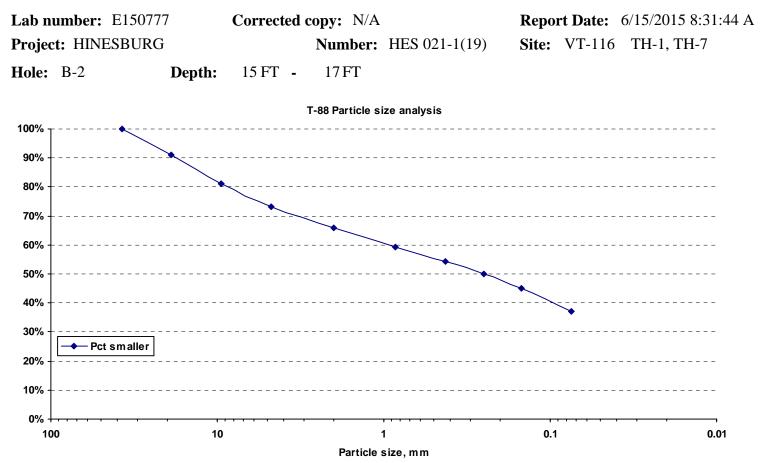
Distribution list



Distribution list



Distribution list



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150778	Correc	eted copy: N	/A		Report	Date:	6/15/2015 8:38:47 A
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT-116	5 TH-1, TH-7
Date sampled:	6/3/2015	Received:	6/10/2015	Tested:	6/10/2015	Tes	ted by:	J. TOUCHETTE
Station:	Offse	t:	Hole: B-	2 RC	Depth:	18 F	T to:	20 FT
Field descriptio	on:							
Submitted by:	GEODESIG	N			Address:			
Sample type:	SPLIT BAR	REL			Quantity:			
Sample source/	Outside agen	cy name:						
Location used:				Exan	nined for: N	AC, GS		
Comment: S-1								
			Tes	st Results				

Sieve Analysis Limits **T-88** % Passing 5.6% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 87.6% 9.5 mm (3/8"): **Moisture Density** 76.2% 4.75 mm (#4): 65.2% Test method: T-180 Method: 2.00 mm (#10): 55.5% Maximum density: pcf 850 µm (#20): 47.7% **Optimum moisture:** 425 µm (#40): 41.9% **T-100 Specific Gravity:** 250 µm (#60): 36.8% 150 µm (#100): 31.8% Gr: 44.5% D2487: SM 75 µm (#200): 24.5% Sa: 31.0% M145: A-1-b Silty Sandy Gravel Si: 24.5% **Hydrometer Analysis** Particles smaller % total sample 0.05 mm:

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist 70%

0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150779	Correc	cted copy: N	/A		Repor	t Date:	6/15/2015 8:38:48 A
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT-11	6 TH-1, TH-7
Date sampled:	6/3/2015	Received:	6/10/2015	Tested:	6/10/2015	Tes	ted by	: J. TOUCHETTE
Station:	Offse	t:	Hole: B-	2 RC	Depth:	20 H	T to	: 22 FT
Field descriptio	on:							
Submitted by:	GEODESIG	N			Address:			
Sample type:	SPLIT BAR	REL	Quantity:					
Sample source/	Outside agen	cy name:						
Location used:				Exan	nined for: M	AC, GS		
Comment: S-2								
			Te	st Results				

Sieve Analysis Limits **T-88** % Passing 7.4% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 97.8% 9.5 mm (3/8"): **Moisture Density** 89.8% 4.75 mm (#4): 76.2% Test method: T-180 Method: 2.00 mm (#10): 64.3% Maximum density: pcf 850 µm (#20): 54.7% **Optimum moisture:** 425 µm (#40): 47.1% **T-100 Specific Gravity:** 250 µm (#60): 40.3% 150 µm (#100): 34.1% Gr: 35.7% D2487: SM 75 µm (#200): 25.3% Sa: 38.9% M145: A-1-b Silty Gravelly Sand Si: 25.3% **Hydrometer Analysis** Particles smaller % total sample

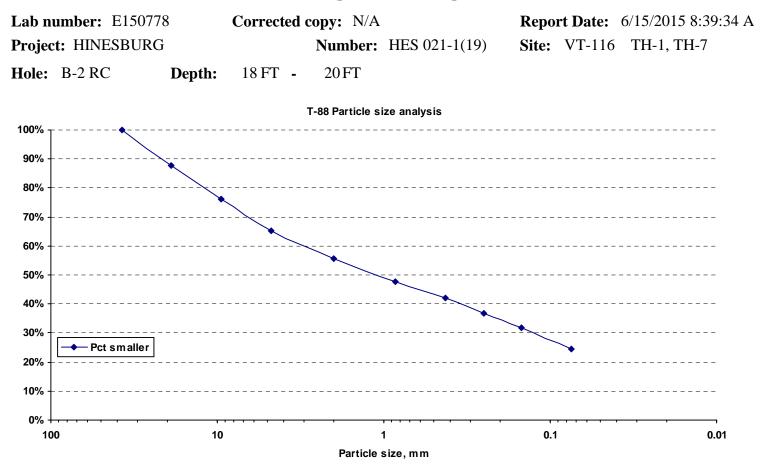
0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

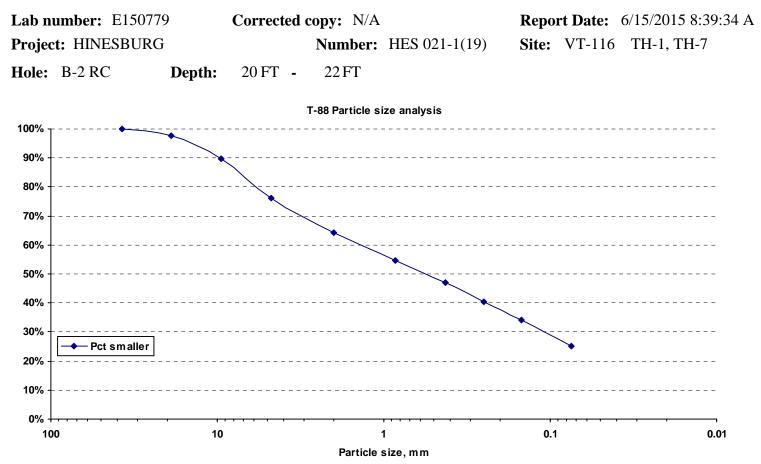
Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list



Report on Soil Sample



Distribution list

Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E150780 Corr	ected copy: N/A	Report Date: 6/15/2015 11:23:21			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received	: 6/10/2015 Tested : 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	2 FT to: 4 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	MC, GS, AL			
Comment: S-1					
	Test Results				

Sieve Analysis Limits			Limits			
T-88	% Passing					
	Total Sample	T- 2	265 Moistur	re content:	: 19.8	3%
		Т-8	39 Liquid L	imit:		
75 mm (3.0"):		Т_(00 Plastic L	imit·		
37.5 mm (1.5"):		1-2	o i lastic L			
19 mm (3/4''):		T-9	00 Plasticity	Index:	Ν	NP
9.5 mm (3/8''):	83.9%			Mois	ture Densi	ity
4.75 mm (#4):	73.4%	Tes	st method:	T-180	1	Method:
2.00 mm (#10):	66.4%	Ma	ximum der	nsity.		pcf
850 μm (#20):	56.5%			-		per
425 μm (#40):	45.5%	Op	timum moi	sture:		
250 µm (#60):	36.1%	T- 1	00 Specific	Gravity:		
150 µm (#100):	28.6%	Gr:	33.6%	D2487:	SM	
75 μm (#200):	21.4%	Sa:	45.0%	M145:	A-1-b	Silty Gravelly Sand
Hydrometer	r Analysis	Si:	21.4%			
Particles smaller	% total sample					
0.05 mm:						

Comments: LAB NOTE: A SMALL AMOUNT OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150781 Corre	cted copy: N/A	Report Date: 6/15/2015 11:23:21			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	4 FT to: 6 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	AC, GS, AL			
Comment: S-2					
	Test Results				

Sieve Analysis Limits **T-88** % Passing 26.2% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 35 75 mm (3.0"): **T-90 Plastic Limit:** 17 37.5 mm (1.5"): **T-90 Plasticity Index:** 18 19 mm (3/4"): 97.3% 9.5 mm (3/8"): 96.9% **Moisture Density** 4.75 mm (#4): 94.6% Test method: T-180 Method: 2.00 mm (#10): 89.7% Maximum density: pcf 850 µm (#20): 80.4% **Optimum moisture:** 425 µm (#40): 70.4% **T-100 Specific Gravity:** 250 µm (#60): 61.8% 150 µm (#100): 56.6% Gr: 10.3% D2487: CL 75 µm (#200): 51.8% Sa: 37.9% M145: A-6 Sandy Silty Clay Si: 51.8% **Hydrometer Analysis**

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150782 Correc	ted copy: N/A	Report Date: 6/15/2015 11:23:21			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	6 FT to: 6.8 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	IC, GS, AL			
Comment: S-3A					
	Test Results				

	Sieve Analysis		Limits			
T-88	% Passing					
	Total Sample	T-26	55 Moistur	e content	: 20.9%)
		T-89) Liquid Li	imit:	33	
75 mm (3.0"):		Т-90) Plastic Li	mit:	18	
37.5 mm (1.5"):		т_90	T-90 Plasticity Index: 15			
19 mm (3/4"):		1-90	1 lasticity	muca.	15	
9.5 mm (3/8"):	98.7%		Moisture Density			
4.75 mm (#4):	90.0%	Test	method:	T-180	1	Method:
2.00 mm (#10):	83.5%	Max	timum den	sitv:		pcf
850 μm (#20):	77.8%			·		per
425 μm (#40):	72.3%	Opti	imum mois	sture:		
250 µm (#60):	66.1%	T-10	00 Specific	Gravity:		
150 µm (#100):	60.1%	Gr:	16.5%	D2487:	CI	
75 μm (#200):	53.1%	Sa:	30.4%	M145:	A-6 Sandy	Silty Clay
Hydromete	er Analysis	Si:	53.1%			

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm:

0.001 mm:

Comments:

Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E150783 Correc	ted copy: N/A	Report Date: 6/15/2015 11:23:22			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	6.8 FT to: 8 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	IC, GS, AL			
Comment: S-3B					
	Test Results				

	Sieve Analysis		Limits				
T-88	% Passing				-	Linnt,5	
	Total Sample		T-26	5 Moistur	e content	: 10.	4%
(2.011)		,	T-89	Liquid L	imit:		
75 mm (3.0"):		,	т.90	Plastic L	mit·		
37.5 mm (1.5"):			1-70	I lastic L			
19 mm (3/4"):	91.9%	r.	Т-90	Plasticity	Index:		NP
9.5 mm (3/8''):	85.9%				Mois	ture Dens	sity
4.75 mm (#4):	74.2%	-	Test	method:	T-180		Method:
2.00 mm (#10):	65.1%	1	Mavi	imum den	sitv•		pcf
850 µm (#20):	58.0%				·		per
425 µm (#40):	52.0%		-	mum mois			
250 µm (#60):	46.1%	r.	T-10	0 Specific	Gravity:		
150 µm (#100):	40.6%	6	Fr:	34.9%	D2487:	SM	
75 μm (#200):	32.3%	_	a:	32.8%	M145:		Silty Sandy Gravel
Hydromete	er Analysis	S	i:	32.3%			
Particles smaller	% total sample						

Comments: LAB NOTE: SAMPLE TESTED (NP)

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150784 Correc	cted copy: N/A	Report Date: 6/15/2015 11:23:22			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	8 FT to: 10 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	IC, GS, AL			
Comment: S-4					
	Test Results				

Sieve Analysis Limits **T-88** % Passing 12.5% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 99.2% 9.5 mm (3/8"): **Moisture Density** 92.6% 4.75 mm (#4): 84.4% Test method: T-180 Method: 2.00 mm (#10): 77.2% Maximum density: pcf 850 µm (#20): 70.5% **Optimum moisture:** 425 µm (#40): 65.2% **T-100 Specific Gravity:** 250 µm (#60): 60.2% 150 µm (#100): 54.6% Gr: 22.8% D2487: SM 75 µm (#200): 45.7% Sa: 31.5% M145: A-4 Gravelly Sandy Silt Si: 45.7% **Hydrometer Analysis** Particles smaller % total sample

Comments: LAB NOTE: SAMPLE TESTED (NP)

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDP*

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150785	Corrected copy: N/	Ά	Report Date:	6/15/2015 11:23:22		
Project: HINESBURG	Numb	er: HES 021-1(19)	Site: VT-116	TH-1, TH-7		
Date sampled: 6/2/2015	Received: 6/10/2015	Tested: 6/10/2015	Tested by:	J. TOUCHETTE		
Station: 287+76 Offset	: 39.0 Hole: B-2	3 Depth:	10 FT to:	12 FT		
Field description:						
Submitted by: GEODESIGN	1	Address:				
Sample type: SPLIT BARR	REL	Quantity:				
Sample source/Outside agend	cy name:					
Location used:		Examined for: N	IC, GS, AL			
Comment: S-5						
	Tec					

Test Results

	Sieve Analysis	Limits
T-88	% Passing	Limits
	Total Sample	T-265 Moisture content: 11.3%
(* ***		T-89 Liquid Limit:
75 mm (3.0"):		T-90 Plastic Limit:
37.5 mm (1.5"):		
19 mm (3/4"):	97.4%	T-90 Plasticity Index: NP
9.5 mm (3/8"):	91.3%	Moisture Density
4.75 mm (#4):	84.8%	Test method: T-180 Method:
2.00 mm (#10):	78.6%	Maximum density: pcf
850 µm (#20):	73.2%	
425 μm (#40):	68.6%	Optimum moisture:
250 µm (#60):	63.8%	T-100 Specific Gravity:
150 µm (#100):	58.8%	Gr: 21.4% D2487: ML
75 μm (#200):	50.6%	Sa: 27.9% M145: A-4 Gravelly Sandy Silt
Hydromete	er Analysis	Si: 50.6%
Particles smaller	• % total sample	
0.05		

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments: LAB NOTE: SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150786 Correct	ted copy: N/A	Report Date: 6/15/2015 11:23:23			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	15 FT to: 16.4 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	1C, GS			
Comment: S-6					
	Test Results				

Sieve Analysis		Limits		
T-88	% Passing			
Total Sample		T-265 Moisture content: 9.7%		
75 mm (3.0"):		T-89 Liquid Limit:		
		T-90 Plastic Limit:		
37.5 mm (1.5"):				
19 mm (3/4"	98.0%	T-90 Plasticity Index: NP		
9.5 mm (3/8''): 92.6%	Moisture Density		
4.75 mm (#4	b): 84.4%	Test method: T-180 Method:		
2.00 mm (#10): 77.4%	Maximum density: pcf		
850 μm (#20): 71.4%			
425 μm (#40): 67.1%	Optimum moisture:		
250 μm (#60): 62.9%	T-100 Specific Gravity:		
150 μm (#100): 57.8%	Gr: 22.6% D2487 : SM		
75 μm (#200): 49.6%	Sa: 27.8% M145: A-4 Gravelly Sandy Silt		
Hydrometer Analysis		Si: 49.6%		
Douticles small	lan 0/ total commla			

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E150787 Correct	ted copy: N/A	Report Date: 6/15/2015 11:23:23			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 6/2/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 287+76 Offset: 39.0	Hole: B-3 Depth:	20 FT to: 20.8 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: MC, GS, AL				
Comment: S-7					
Test Results					

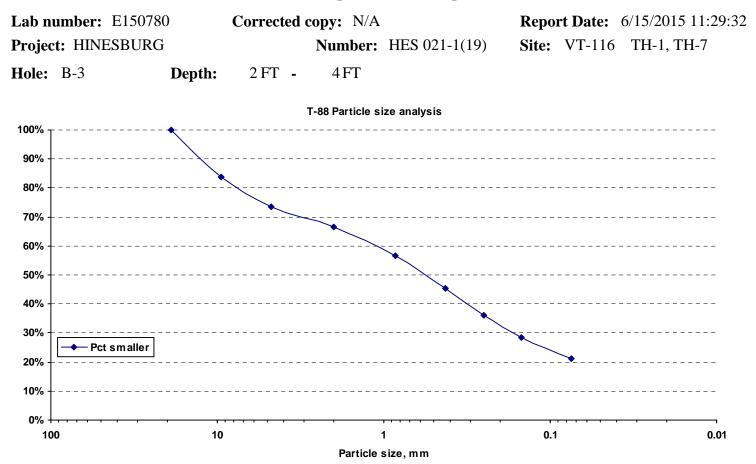
Sieve Analysis Limits **T-88** % Passing 9.8% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 91.3% 9.5 mm (3/8"): 83.3% **Moisture Density** 4.75 mm (#4): 74.2% Test method: T-180 Method: 2.00 mm (#10): 66.8% Maximum density: pcf 850 µm (#20): 59.8% **Optimum moisture:** 425 µm (#40): 55.1% **T-100 Specific Gravity:** 250 µm (#60): 51.2% 150 µm (#100): 47.2% Gr: 33.2% D2487: SM 75 µm (#200): 41.2% M145: A-4 Sa: 25.6% Sandy Gravelly Silt Si: 41.2% **Hydrometer Analysis** Particles smaller % total sample

Comments: LAB NOTE: A SMALL AMOUNT OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP) BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist 7D9

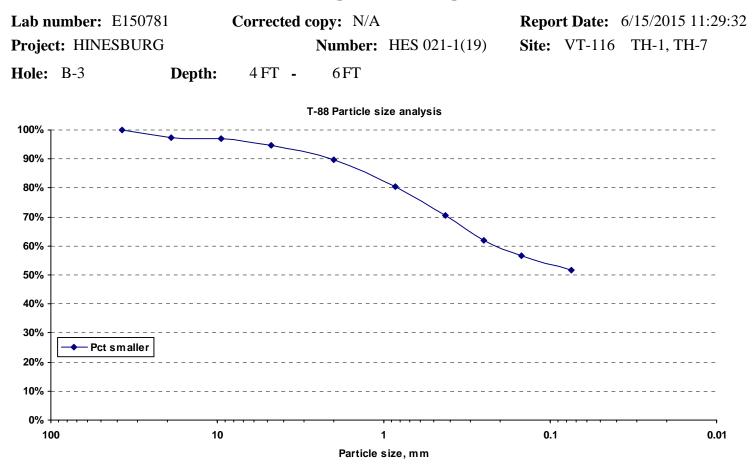
0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Report on Soil Sample



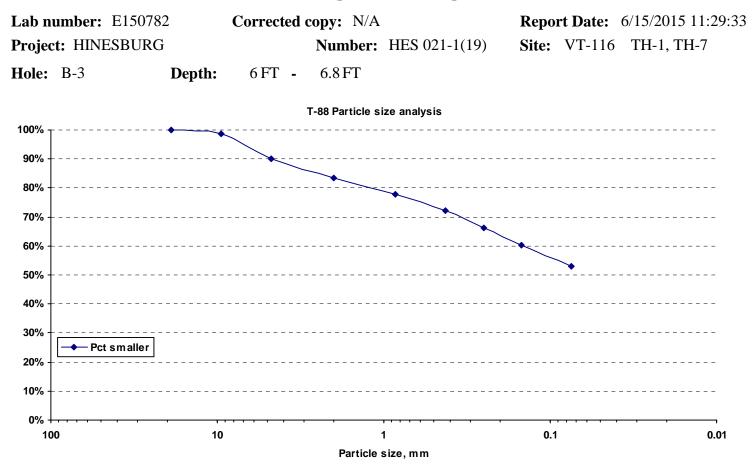
Distribution list

Report on Soil Sample

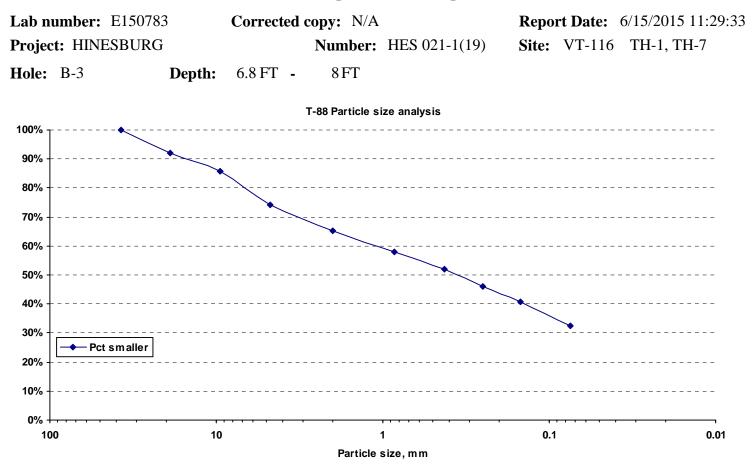


Distribution list

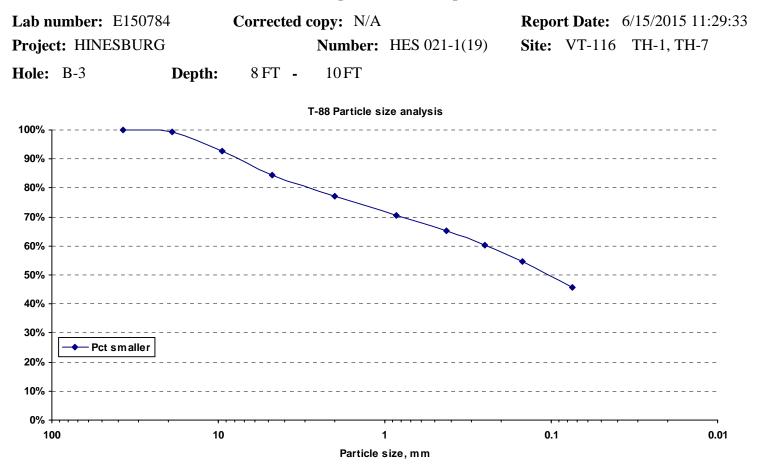
Report on Soil Sample



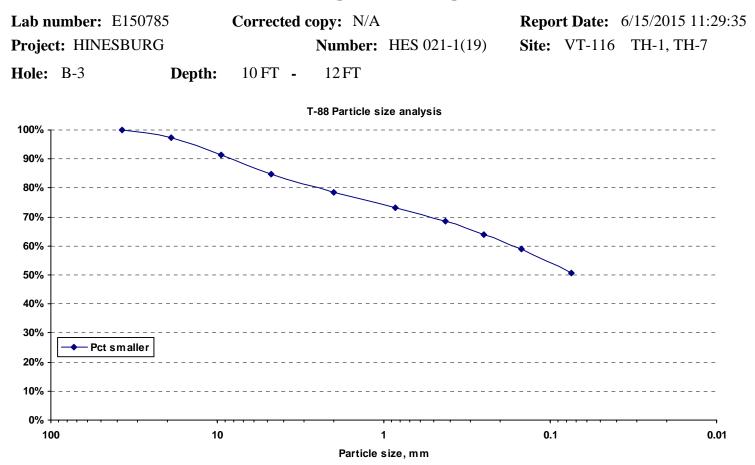
Report on Soil Sample



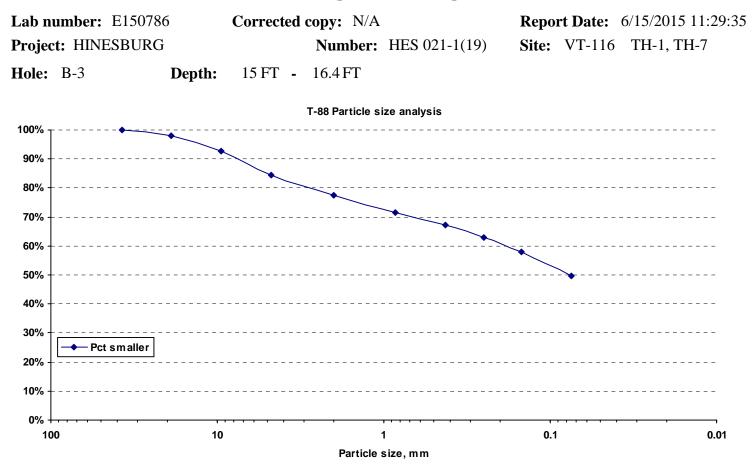
Report on Soil Sample



Report on Soil Sample

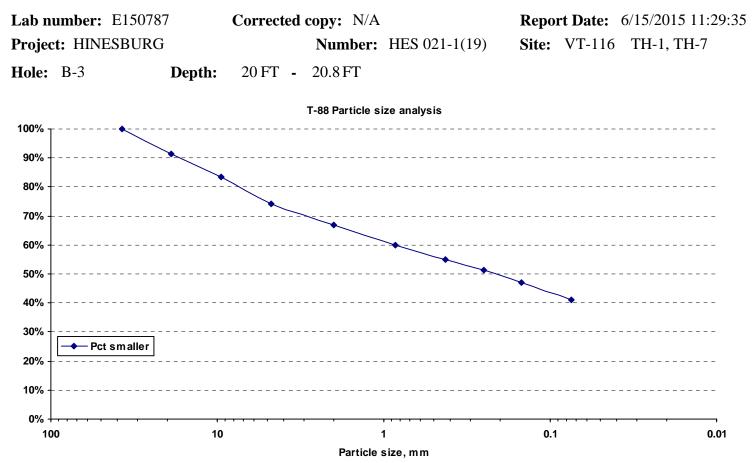


Report on Soil Sample



Distribution list

Report on Soil Sample



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150788 C	Corrected copy: N/A	Report Date: 6/15/2015 12:06:10
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/26/2015 Receiv	ved: 6/10/2015 Tested: 6/10/201	15 Tested by: J. TOUCHETTE
Station: 288+80 Offset: 45.0	D Hole: B-4 Depth:	0 FT to: 2 FT
Field description:		
Submitted by: GEODESIGN	Address:	:
Sample type: SPLIT BARREL	Quantity	:
Sample source/Outside agency nan	ne:	
Location used:	Examined for:	MC, GS, AL
Comment: S-1		

Test Results

	Sieve Analysis		1	Limits	imits		
T-88	% Passing						
	Total Sample	T-265 Moisture	e content:	22	2.0%		
		T-89 Liquid Liı	mit:		31		
75 mm (3.0")		T-90 Plastic Li	nit:		18		
37.5 mm (1.5")	:						
19 mm (3/4'')):	T-90 Plasticity	Index:		13		
9.5 mm (3/8'')	:		Mois	ture Den	sity		
4.75 mm (#4)	: 100.0%	Test method:	T-180		Method:		
2.00 mm (#10)	: 99.8%	Maximum dens	itv•		pcf		
850 µm (#20)	: 98.6%		·		per		
425 µm (#40)	: 95.7%	Optimum moist	ture:				
250 μm (#60)	: 90.9%	T-100 Specific	Gravity:				
150 µm (#100)	85.6%	Gr: 0.2%	D2487:	CL			
75 μm (#200)	: 78.6%	Sa: 21.2%	M145:	A-6	Sandy Silty Clay		
Hydrome	ter Analysis	Si: 78.6%					
Б (1) П							

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

Report on Soil Sample

Lab number: E150789	Corrected copy: N/A	Report Date: 6/15/2015 12:06:10
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/26/2015 Rece	eived: 6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 288+80 Offset: 45	5.0 Hole: B-4 Depth:	2 FT to: 4 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency na	ame:	
Location used:	Examined for: 1	MC, GS, AL
Comment: S-2		

Test Results

T-88	Limits					
1-00	% Passing Total Sample	T-265 Moisture content:				23.9%
77 (2.011)	•	T-8 9	9 Liquid L	imit:		34
75 mm (3.0"): 37.5 mm (1.5"):		T-9 () Plastic L	imit:		18
19 mm (3/4"):		T-9 () Plasticity	v Index:		16
9.5 mm (3/8''):		Moisture De				
4.75 mm (#4):	86.9%	Test	t method:	T-180		Method:
2.00 mm (#10):	84.9%	May	ximum der	nsitv•		pcf
850 μm (#20):	84.0%			·		per
425 μm (#40):	82.1%	Opt	imum moi	sture:		
250 µm (#60):	79.7%	T-1(00 Specific	Gravity:		
150 µm (#100):	77.2%	Gr:	15.1%	D2487:	CL	
75 μm (#200):	72.2%	Sa:	12.7%	M145:	СL А-б	Silty Clay
Hydromet	er Analysis	Si:	72.2%			Sitty City
Particles smalle	r % total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150790 Correc	ted copy: N/A	Report Date: 6/15/2015 12:06:11
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/26/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 288+80 Offset: 45.0	Hole: B-4 Depth:	4 FT to: 6 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	AC, GS, AL
Comment: S-3		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 16.1% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 33 75 mm (3.0"): **T-90 Plastic Limit:** 16 37.5 mm (1.5"): **T-90 Plasticity Index:** 17 19 mm (3/4"): 91.8% 9.5 mm (3/8"): 89.2% **Moisture Density** 4.75 mm (#4): 83.5% Test method: T-180 Method: 2.00 mm (#10): 74.7% Maximum density: pcf 850 µm (#20): 66.4% **Optimum moisture:** 425 µm (#40): 59.2% **T-100 Specific Gravity:** 250 µm (#60): 52.1% 150 µm (#100): 43.7% Gr: 25.3% D2487: SC 75 µm (#200): 30.5% Sa: 44.2% M145: A-2-6 Gravelly Sandy Clay Si: 30.5% **Hydrometer Analysis**

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist 7DP

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E15	50791 Correc	ted copy: N/A	Re	eport Date: (5/15/2015 12:06:11
Project: HINESBU	URG	Number: HES	021-1(19) Sit	te: VT-116	TH-1, TH-7
Date sampled: 5/	/26/2015 Received:	6/10/2015 Tested:	6/10/2015	Tested by: J	I. TOUCHETTE
Station: 288+80	Offset: 45.0	Hole: B-4	Depth:	6 FT to:	8 FT
Field description:					
Submitted by: GE	EODESIGN		Address:		
Sample type: SP	LIT BARREL		Quantity:		
Sample source/Out	side agency name:				
Location used:		Exan	nined for: MC,	GS	
Comment: S-4					

Test Results

	Sieve Analysis		Limits					
T-88	% Passing				Linnes			
	Total Sample	T-	265 Moistu	re content	: 9	9.8%		
		T-	89 Liquid L	imit:				
75 mm (3.0"):		т.	90 Plastic L	imit·				
37.5 mm (1.5"):								
19 mm (3/4"):	97.9%	T-	90 Plasticity	y Index:		NP		
9.5 mm (3/8''):	88.4%			Mois	ture Der	nsity		
4.75 mm (#4):	76.3%	Te	est method:	T-180	1	Method:		
2.00 mm (#10):	66.5%	М	aximum der	nsitv•		pcf		
850 µm (#20):	59.5%			•		per		
425 μm (#40):	54.2%	O	ptimum moi	sture:				
250 µm (#60):	49.4%	T·	100 Specific	Gravity:				
150 µm (#100):	44.4%	Gr	33.5%	D2487:	SM			
75 μm (#200):	36.2%	Sa		M145:	A-4	Sandy Gravelly Silt		
Hydromete	er Analysis	Si:			7 1 1	Sundy Graveny Sh		
-	r % total sample							
0.05 mm:								
0.02 mm:								
0.005 mm:								
0.002								

0.002 mm: 0.001 mm:

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150792 Correc	cted copy: N/A	Report Date: 6/15/2015 12:06:12
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/26/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 288+80 Offset: 45.0	Hole: B-4 Depth:	8 FT to: 10 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: M	1C, GS
Comment: S-5		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 11.1% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 9.5 mm (3/8"): **Moisture Density** 94.3% 4.75 mm (#4): 83.3% Test method: T-180 Method: 2.00 mm (#10): 72.7% Maximum density: pcf 850 µm (#20): 64.7% **Optimum moisture:** 425 µm (#40): 58.9% **T-100 Specific Gravity:** 250 µm (#60): 53.5% 150 µm (#100): 47.6% Gr: 27.3% D2487: SM 75 µm (#200): 38.8% Sa: 33.9% M145: A-4 Gravelly Sandy Silt Si: 38.8% **Hydrometer Analysis**

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E	150793	Correc	ted copy: N/A	A		Repo	rt Da	ite:	6/15/2015	12:06:12
Project: HINESI	BURG		Numbe	er: HES	021-1(19)	Site:	VT-	-116	TH-1, TI	H-7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TOUCH	IETTE
Station: 288+80	Offset	t: 45.0	Hole: B-4		Depth:	10	FT	to:	12 I	FT
Field description:	:									
Submitted by: O	GEODESIG	N			Address:					
Sample type: S	PLIT BARI	REL			Quantity:					
Sample source/O	utside agen	cy name:								
Location used:				Exan	nined for: N	4C, GS	5			
Comment: S-6										
			Test	Degualda						

Test Results

	Sieve Analysis		Limits				
T-88	% Passing					Linnes	
	Total Sample		T-26	5 Moistu	re content:	:	9.6%
			T-89	Liquid L	imit:		
75 mm (3.0"):			т-90	Plastic L	imit:		
37.5 mm (1.5"):							
19 mm (3/4''):	97.1%		T-90	Plasticity	Index:		NP
9.5 mm (3/8''):	89.8%				Mois	ture De	ensity
4.75 mm (#4):	82.9%		Test	method:	T-180		Method:
2.00 mm (#10):	75.7%		Max	imum der	sitv•		pcf
850 µm (#20):	69.2%				-		per
425 μm (#40):	64.5%		Opti	mum moi	sture:		
250 µm (#60):	60.0%		T-10	0 Specific	Gravity:		
150 µm (#100):	55.3%		Gr:	24.3%	D2487:	SM	
75 μm (#200):	47.6%		Sa:	28.1%			Gravelly Sandy Silt
T 1 4			Si:	47.6%			~ ~ ~
Hydrometer	•	L.	,,,,	17.070			
Particles smaller	% total sample						
0.05 mm:							
0.02 mm:							
0.005 mm:							

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: I	E150794	Correc	ted copy: N/	A		Repo	rt Da	ite:	6/15/2	2015 12	2:06:12
Project: HINES	SBURG		Numb	er: HES	021-1(19)	Site:	VT-	-116	TH-	-1, TH-7	7
Date sampled:	5/26/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TO	UCHE	ГТЕ
Station: 288+8	0 Offset	t: 45.0	Hole: B-4	Ļ	Depth:	15	FT	to:		17 FT	
Field description	n:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BARI	REL			Quantity:						
Sample source/O	Outside agen	cy name:									
Location used:				Exan	nined for: M	AC, GS	5				
Comment: S-7											

Test Results

	Sieve Analysis	Limits					
T-88	% Passing			-			
	Total Sample	T-26	65 Moistu	e content:	: 9.4	4%	
		T-8 9) Liquid L	imit:			
75 mm (3.0"):		T-9() Plastic L	imit:			
37.5 mm (1.5"):		-			_		
19 mm (3/4"):	97.8%	T-9() Plasticity	Index:	1	NP	
9.5 mm (3/8''):	90.4%			Mois	ture Dens	ity	
4.75 mm (#4):	78.1%	Test	method:	T-180		Method:	
2.00 mm (#10):	69.1%	May	kimum der	sitv		pcf	
850 μm (#20):	61.6%			-		per	
425 μm (#40):	55.9%	Opt	imum moi	sture:			
250 µm (#60):	50.2%	T-1(00 Specific	Gravity:			
150 µm (#100):	43.1%	Gr:	30.9%	D2487:	SM		
75 μm (#200):	32.2%	Sa:	36.9%	M145:	A-2-4	Gravelly Silty Sand	
				WI143.	M-2-4	Graveny Shty Sand	
Hydrometer	r Analysis	Si:	32.2%				
Particles smaller	% total sample						
0.05 mm:							
0.02 mm:							
0.005 mm:							
0.002 mm:							

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

0.001 mm:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150795 Correct	ted copy: N/A	Report Date: 6/15/2015 12:06:13
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/26/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 288+80 Offset: 45.0	Hole: B-4 Depth:	19 FT to: 19.7 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: M	1C, GS
Comment: S-8		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 7.0% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 84.9% 9.5 mm (3/8"): **Moisture Density** 80.8% 4.75 mm (#4): 72.2% Test method: T-180 Method: 2.00 mm (#10): 61.6% Maximum density: pcf 850 µm (#20): 53.0% **Optimum moisture:** 425 µm (#40): 46.1% **T-100 Specific Gravity:** 250 µm (#60): 39.9% 150 µm (#100): 34.5% Gr: 38.4% D2487: SM 75 µm (#200): 26.9% Sa: 34.7% **M145:** A-2-4 Silty Sandy Gravel Si: 26.9% **Hydrometer Analysis** Particles smaller % total sample 0.05 mm:

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist 709

0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E1	50796	Correct	ted copy: N/A	`		Repor	rt Dat	te: 6	5/15/2015	12:06:13
Project: HINESB	URG		Numbe	r: HES	021-1(19)	Site:	VT-1	116	TH-1, TH	I- 7
Date sampled:	5/26/2015 R	Received:	6/10/2015	Tested:	6/10/2015	Te	sted l	by: J	. TOUCH	ETTE
Station: 288+80	Offset:	45.0	Hole: B-4		Depth:	24	FT	to:	25.5 F	T
Field description:										
Submitted by: G	EODESIGN				Address:					
Sample type: SI	PLIT BARRH	EL			Quantity:					
Sample source/Ou	tside agency	y name:								
Location used:				Exan	nined for: M	4C, GS				
Comment: S-9										
			T	D 14						

Test Results

	Sieve Analysis				I	Limits	
T-88	% Passing				-	Linnts	
	Total Sample	Т	[-26	5 Moistu	e content:	: 7.	1%
		Т	[-89	Liquid L	imit:		
75 mm (3.0"):		т	n	Plastic L	imit·		
37.5 mm (1.5"):							
19 mm (3/4"):	96.1%	Ĩ	[-90	Plasticity	Index:]	NP
9.5 mm (3/8"):	83.9%				Mois	ture Dens	ity
4.75 mm (#4):	71.8%	Т	ſest	method:	T-180		Method:
2.00 mm (#10):	59.8%	Ν	Aavi	imum der	sitv		pcf
850 μm (#20):	51.9%				·		per
425 μm (#40):	45.7%	(Jptn	mum moi	sture:		
250 µm (#60):	39.7%	Ĩ	[-10	0 Specific	Gravity:		
150 µm (#100):	33.9%	G	r	40.2%	D2487:	SM	
75 μm (#200):	25.9%	Sa		33.9%		A-2-4	Silty Sandy Gravel
					WI145.	A-2-4	Sifty Salidy Oraver
Hydromete	er Analysis	Si	:	25.9%			
Particles smaller	* % total sample						
0.05 mm:							
0.02 mm:							
0.005 mm:							

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

0.002 mm: 0.001 mm:

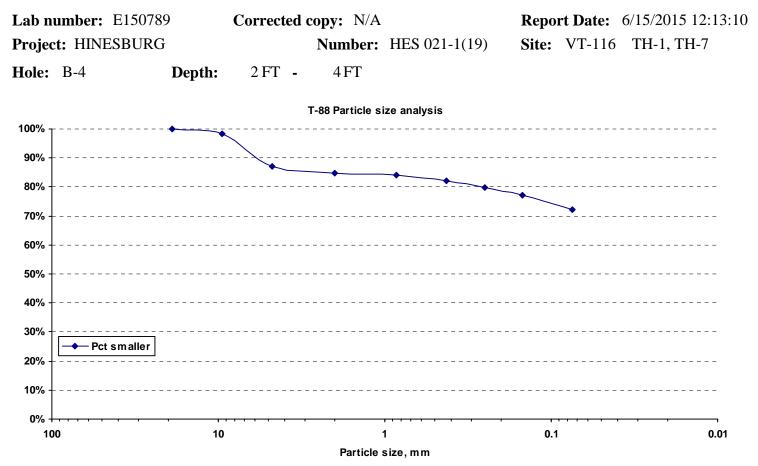
Distribution list

Report on Soil Sample

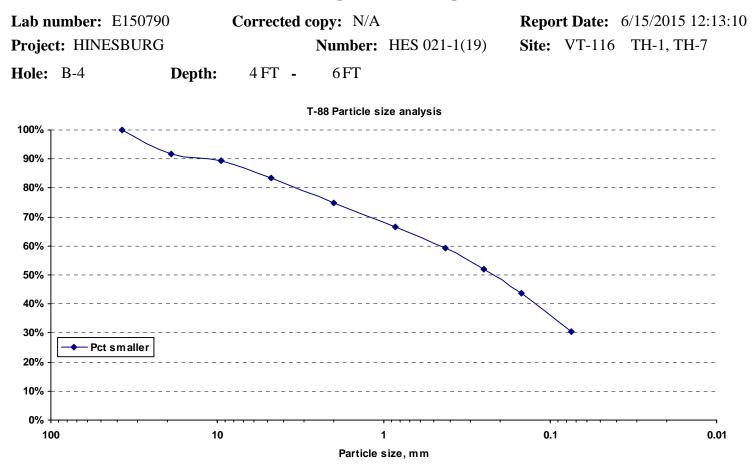
Lab nu	mber: E150788	6 (Corrected of	copy: N/A		Repo	rt Date:	6/15/2015 12:13:10
Project	: HINESBURG			Number:	HES 021-1(19)	Site:	VT-116	TH-1, TH-7
Hole:	B-4	Depth:	0 FT -	2FT				
				T-88 Particle si	ze analysis			
100% T	· •	•						
90%				~				
80%						•		
70%								
60%								
50% -								
40%								
30% + -								
20% -	Pct smaller							
10%								
0%					· · · ·			·1
10			1		0.1			0.01
				Deutiele				

Particle size, mm

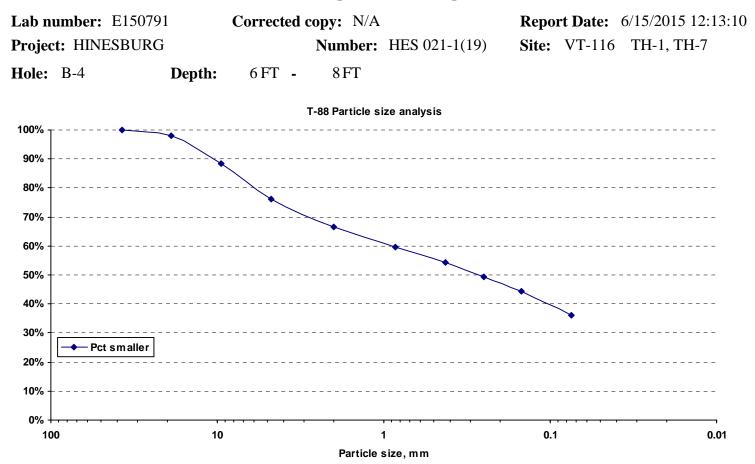
Report on Soil Sample



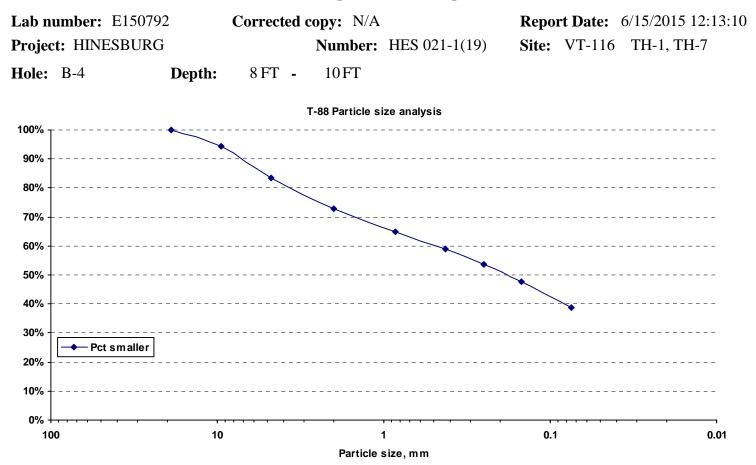
Report on Soil Sample



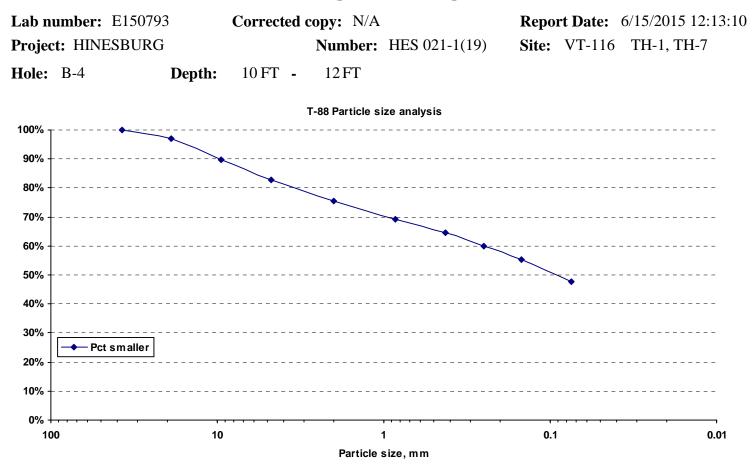
Report on Soil Sample



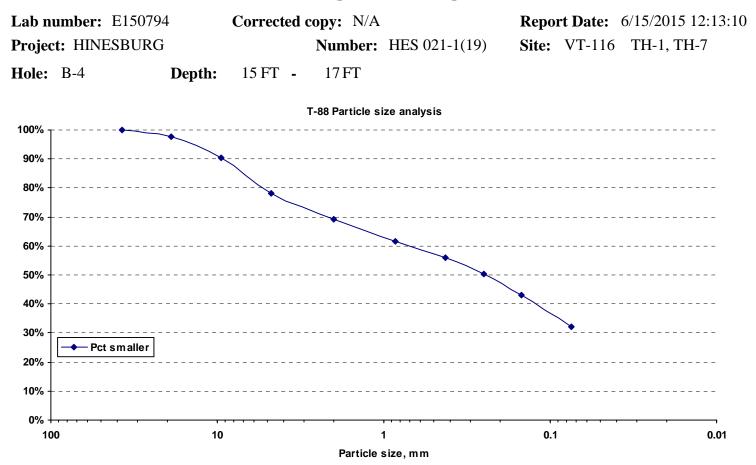
Report on Soil Sample



Report on Soil Sample

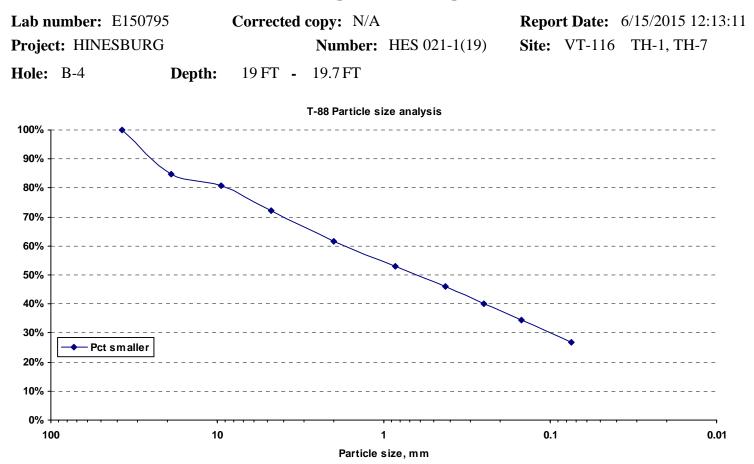


Report on Soil Sample

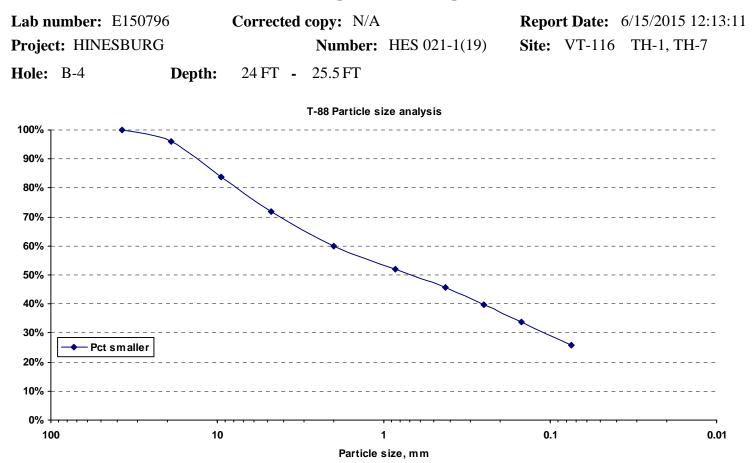


Distribution list

Report on Soil Sample



Report on Soil Sample



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150797	Correc	cted copy: N/	A		Repor	rt Da	te:	6/15/2015 12:59:	15
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT-	116	TH-1, TH-7	
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Te	sted	by:	J. TOUCHETTE	
Station:	Offse	t:	Hole: B-5	i	Depth:	0	FT	to:	2 FT	
Field descriptio	on:									
Submitted by:	GEODESIG	N			Address:					
Sample type:	SPLIT BAR	REL			Quantity:					
Sample source/	Outside agen	cy name:								
Location used:				Exan	nined for: M	1C, GS	, AL			
Comment: S-1										
			T	(D						

Test Results

	Sieve Analysis	Limits	
T-88	% Passing		
	Total Sample	T-265 Moisture content: 20.9%	
75 mm (3.0"):		T-89 Liquid Limit:	
37.5 mm (1.5"):		T-90 Plastic Limit:	
19 mm (3/4'')		T-90 Plasticity Index: NP	
9.5 mm (3/8''):	94.8%	Moisture Density	
4.75 mm (#4):	92.4%	Test method: T-180	Method:
2.00 mm (#10):	88.0%	Maximum density:	pcf
850 μm (#20):	82.1%	•	per
425 μm (#40) :	75.4%	Optimum moisture:	
250 μm (#60):	69.4%	T-100 Specific Gravity:	
150 µm (#100):	65.1%	Gr: 12.0% D2487: ML	
75 μm (#200):	59.9%		Sandy Silt
Hydromet	er Analysis	Si: 59.9%	-
Particles smalle	r % total sample		
0.05 mm	:		
0.02 mm	:		
0.005 mm	:		
0.002 mm:	:		
0.001 mm:	:		

Comments: LAB NOTE: A TRACE OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

Report on Soil Sample

Lab number:	E150798	Correc	cted copy: N/	A		Repo	rt Da	ite:	6/15/2	2015 12	2:59:15
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT-	-116	TH-	-1, TH-7	7
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TO	UCHET	ГТЕ
Station:	Offse	t:	Hole: B-S	5	Depth:	2	FT	to:		4 FT	
Field description	on:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BAR	REL			Quantity:						
Sample source/	Outside agen	cy name:									
Location used:				Exan	nined for: N	AC, GS	S, AL	,			
Comment: S-2											
			_								

Test Results

	Sieve Analysis				Limits	
T-88	% Passing			-		
	Total Sample	T-	265 Moistur	re content	: 2	4.9%
75		T-	89 Liquid L	imit:		39
75 mm (3.0"):		T-	90 Plastic L	imit:		20
37.5 mm (1.5"):		Т-	90 Plasticity	Index		19
19 mm (3/4"):		1-	90 I lasticity			-
9.5 mm (3/8"):				Mois	ture De	nsity
4.75 mm (#4):	100.0%	Те	st method:	T-180)	Method:
2.00 mm (#10):	99.5%	Μ	aximum den	sity:		pcf
850 μm (#20):	96.3%		otimum moi	·		Ĩ
425 μm (#40):	92.4%	-				
250 µm (#60):	89.4%	T-	100 Specific	Gravity:		
150 µm (#100):	87.1%	Gr	0.5%	D2487:	CL	
75 μm (#200):	85.0%	Sa:		M145:	A-6	Silty Clay
Hydromete	r Analysis	Si:	85.0%			
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:



Distribution list GEODESIGN T. ELIASSEN J. TOUCHETTE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150799	Correc	cted copy: N/	A		Repo	rt Da	ate:	6/15/2	2015 12:	59:16
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT	-116	TH-	1, TH-7	
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TO	UCHET	TE
Station:	Offse	t:	Hole: B-5	5	Depth:	4	FT	to:		6 FT	
Field descriptio	n:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BAR	REL			Quantity:						
Sample source/	Outside agen	cy name:									
Location used:				Exan	nined for: N	4C, GS	S, AL				
Comment: S-3											

Test Results

:	Sieve Analysis			Limits	
T-88	% Passing			Linnes	
,	Total Sample	T-265 Moist	ure content	: 3	30.4%
		T-89 Liquid	Limit:		32
75 mm (3.0"):		T-90 Plastic	Limit:		18
37.5 mm (1.5"):					-
19 mm (3/4"):		T-90 Plastic	ty index:		14
9.5 mm (3/8"):			Mois	sture De	ensity
4.75 mm (#4):	100.0%	Test method	: T-180)	Method:
2.00 mm (#10):	100.0%	Maximum d	ensity•		pcf
850 μm (#20):	99.8%		·		per
425 μm (#40):	98.9%	Optimum m	oisture:		
250 µm (#60):	95.5%	T-100 Specif	ic Gravity:		
150 µm (#100):	92.9%	Gr: 0.0%	D2487:	CL	
75 μm (#200):	90.5%	Sa: 9.5%	M145:	A-6	Silty Clay
			11145:	A-0	Siny Clay
Hydrometer	·	Si: 90.5%			

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Report on Soil Sample

Lab number:	E150800	Correc	cted copy: N/	A		Repo	rt Da	ate:	6/15/2	2015 12:	59:16
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT	-116	TH-	1, TH-7	
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TO	UCHET	TE
Station:	Offse	t:	Hole: B-5	5	Depth:	6	FT	to:		8 FT	
Field descriptio	on:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BAR	REL			Quantity:						
Sample source/	Outside agen	cy name:									
Location used:				Exan	nined for: M	4C, GS	S, AL	_			
Comment: S-4											
			The second se								

Test Results

	Sieve Analysis			Limits	
T-88	% Passing			Linnts	
	Total Sample	T-265 Moist	ure content	: 3	35.4%
		T-89 Liquid	Limit:		33
75 mm (3.0"):		T-90 Plastic	Limit:		20
37.5 mm (1.5"):					
19 mm (3/4'') :	:	T-90 Plastici	ty Index:		13
9.5 mm (3/8''):			Mois	sture De	nsity
4.75 mm (#4):	100.0%	Test method	: T-180)	Method:
2.00 mm (#10):	99.9%	Maximum d	ensity•		pcf
850 μm (#20):	99.7%		·		per
425 μm (#40):	99.2%	Optimum me	oisture:		
250 µm (#60):	98.7%	T-100 Specif	ic Gravity:		
150 µm (#100):	98.1%	Gr: 0.1%	D2487:	CI	
75 μm (#200):	97.6%	Sa: 2.3%	M145:	СL А-б	Silty Clay
Hydromet	er Analysis	Si: 97.6%			·- · · · · · · · · · · · · · · · · · ·
D (1) U					

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Distribution list GEODESIGN T. ELIASSEN J. TOUCHETTE

Report on Soil Sample

Lab number:	E150801	Correc	cted copy: N/	A		Repo	rt Da	ate:	6/15/2	2015 12	:59:17
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT	-116	TH-	1, TH-7	,
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TO	UCHET	TE
Station:	Offse	t:	Hole: B-3	5	Depth:	8	FT	to:		10 FT	
Field descriptio	on:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BAR	REL			Quantity:						
Sample source/	Outside agen	cy name:									
Location used:				Exan	nined for: M	4C, GS	S, AL				
Comment: S-5											

Test Results

		Limits							
T-88	% Passing Total Sample	Т	Г -2 6	5 Moistu	e content:		41.2%		
75 mm (3.0"):	i our sumple	Т	[-89	Liquid L	imit:		39		
37.5 mm (1.5"):		Т	[-90	Plastic L	imit:		20		
19 mm (3/4''):		Т	Γ-90	Plasticity	Index:		19		
9.5 mm (3/8"):					Mois	ture Do	ensity		
4.75 mm (#4):	100.0%	Т	ſest	method:	T-180			Method:	
2.00 mm (#10):	99.9%	Ν	Лах	imum der	sity:		1	pcf	
850 µm (#20):	99.8%				•		1	P = -	
425 µm (#40):	99.6%		-	mum moi					
250 µm (#60):	99.3%	Т	7-10	0 Specific	Gravity:				
150 µm (#100):	99.2%	G	r:	0.1%	D2487:	CL			
75 μm (#200):	98.9%	Sa	a:	1.0%	M145:	A-6	Sil	lty Clay	
Hydromete	r Analysis	Si	:	98.9%					
Particles smaller	% total sample								

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm:

0.001 mm: **Comments:**

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE



Distribution list GEODESIGN T. ELIASSEN J. TOUCHETTE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150802	Correc	cted copy: N/	A		Repo	rt Da	ate:	6/15	/2015 1	2:59:18
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT	-116	TH	[-1, TH-	7
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TO	DUCHE	TTE
Station:	Offse	t:	Hole: B-	5	Depth:	10	FT	to:		12 FT	-
Field description	on:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BAR	REL			Quantity:						
Sample source/	Outside agen	cy name:									
Location used:				Exan	nined for: N	AC, GS	S, AL				
Comment: S-6											
			-								

Test Results

	Sieve Analysis				Limits	
T-88	% Passing					
	Total Sample	T-	265 Moistu	re content	: 4	4.7%
75 (2.011).		T-	89 Liquid I	.imit:		40
75 mm (3.0"):		T-	90 Plastic I	.imit:		19
37.5 mm (1.5"): 19 mm (3/4"):		T-	90 Plasticit	y Index:		21
9.5 mm (3/8''):				Mois	ture De	nsity
4.75 mm (#4):	100.0%	Те	st method:	T-180		Method:
2.00 mm (#10):	100.0%	М	aximum de	nsitv•		pcf
850 µm (#20):	99.9%			•		per
425 µm (#40):	99.8%	0]	otimum mo	isture:		
250 µm (#60):	99.6%	T-	100 Specifi	c Gravity:		
150 µm (#100):	99.5%	Gr	0.0%	D2487:	CL	
75 μm (#200):	99.2%	Sa:		M145:	A-6	Clay
Hydromete	r Analysis	Si:	99.2%			
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150803	Corre	cted copy: N/	A		Repo	rt Da	ite:	6/15/20	015 12:5	9:18
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT-	116	TH-1,	, TH-7	
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TOU	CHETT	E
Station:	Offse	t:	Hole: B-	5	Depth:	15	FT	to:	1	7 FT	
Field description	on:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BAR	REL			Quantity:						
Sample source/	Outside agen	cy name:									
Location used:				Exan	nined for: N	4C, GS	S, AL	,			
Comment: S-7											

Test Results

T-88	Sieve Analysis	Limits
1-00	% Passing Total Sample	T-265 Moisture content: 10.5%
		T-89 Liquid Limit:
75 mm (3.0''):		1-89 Eiquid Emilit:
37.5 mm (1.5"):		T-90 Plastic Limit:
19 mm (3/4"):	95.4%	T-90 Plasticity Index: NP
9.5 mm (3/8''):	87.1%	Moisture Density
4.75 mm (#4):	77.5%	Test method: T-180 Method:
2.00 mm (#10):	69.7%	Maximum density: pcf
850 μm (#20):	62.4%	
425 μm (#40):	56.9%	Optimum moisture:
250 μm (#60):	52.1%	T-100 Specific Gravity:
150 µm (#100):	47.2%	Gr: 30.3% D2487 : SM
75 μm (#200):	39.0%	
• ` ´		Sa: 30.7% M145: A-4 Gravelly Sandy Silt
Hydromet	er Analysis	Si: 39.0%
Particles smalle	r % total sample	
0.05 mm:		
0.02 mm:	:	
0.005 mm:	1	

Comments: LAB NOTE: SAMPLE TESTED (NP)

0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150804	Correc	cted copy: N/	А		Repo	rt Da	te:	6/15/2015 12:5	9:18
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT-	116	TH-1, TH-7	
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TOUCHETT	Έ
Station:	Offse	t:	Hole: B-S	5	Depth:	20	FT	to:	21.4 FT	
Field descriptio	on:									
Submitted by:	GEODESIG	N			Address:					
Sample type:	SPLIT BAR	REL			Quantity:					
Sample source/	Outside agen	cy name:								
Location used:				Exan	nined for: N	4C, GS	S, AL			
Comment: S-8										
			T							

Test Results

	Sieve Analysis				I	Limits	
T-88	% Passing				-	Linnts	
	Total Sample]	Г-26	5 Moistui	re content:	11.	9%
		1	Г-89	Liquid L	imit:		
75 mm (3.0"):		7	г_9Л	Plastic L	imit·		
37.5 mm (1.5"):							
19 mm (3/4"):	98.2%]	Г-90	Plasticity	Index:]	NP
9.5 mm (3/8"):	91.3%				Mois	ture Dens	sity
4.75 mm (#4):	83.1%]	Гest	method:	T-180		Method:
2.00 mm (#10):	76.7%	л	Max	imum der	sitv		pcf
850 μm (#20):	72.2%				-		per
425 µm (#40):	68.5%	(Opti	mum moi	sture:		
250 µm (#60):	62.1%]	Г-10	0 Specific	Gravity:		
150 µm (#100):	49.8%	G	r:	23.3%	D2487:	SM	
75 μm (#200):	30.5%	-	a:	46.2%	M145:		Gravelly Silty Sand
		Si		30.5%			Shaveny Shay Saha
Hydrometer	r Analysis	5	1:	50.5%			
Particles smaller	% total sample						
0.05 mm:							
0.02 mm:							
0.005 mm:							

Comments: LAB NOTE: SAMPLE TESTED (NP)

0.002 mm: 0.001 mm:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150805	Correc	ted copy: N/	A		Repo	rt Da	ate:	6/15/2013	5 12:59:19
Project: HINE	SBURG		Numb	er: HES	021-1(19)	Site:	VT	-116	TH-1, 7	TH-7
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	ested	by:	J. TOUC	HETTE
Station:	Offse	t:	Hole: B-:	5	Depth:	25	FT	to:	25.4	FT
Field descriptio	on:									
Submitted by:	GEODESIG	N			Address:					
Sample type:	SPLIT BAR	REL			Quantity:					
Sample source/	Outside agen	cy name:								
Location used:				Exan	nined for: N	AC, GS	5			
Comment: S-9										

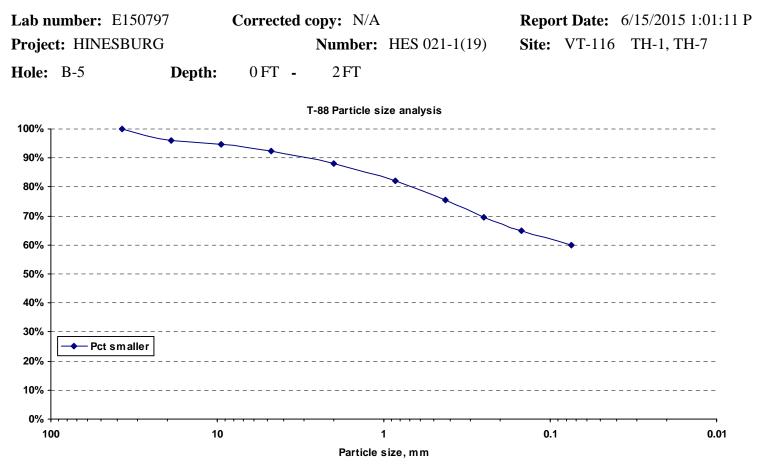
Test Results

	Sieve Analysis				Limits	
T-88	% Passing					
	Total Sample	T-	265 Moistur	e content	: 1	3.2%
75 (2.04)		T-	89 Liquid L	imit:		
75 mm (3.0"):		T-	90 Plastic Li	imit:		
37.5 mm (1.5"):		Т-	90 Plasticity	Indev		NP
19 mm (3/4"):		1-	50 I lasticity			
9.5 mm (3/8"):	97.0%			Mois	ture De	nsity
4.75 mm (#4):	94.1%	Te	est method:	T-180)	Method:
2.00 mm (#10):	87.1%	М	aximum den	sity:		pcf
850 µm (#20):	81.0%			·		per
425 μm (#40):	75.7%	0j	ptimum mois	sture:		
250 µm (#60):	69.4%	T-	100 Specific	Gravity:		
150 µm (#100):	61.7%	Gr	12.9%	D2487:	SM	
75 μm (#200):	48.9%	Sa:		M145:	A-4	Sandy Silt
			48.9%	WI143.	M - H	Sandy Sht
Hydromete	er Analysis	Si:	40.7%			
Particles smaller	• % total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Report on Soil Sample



Distribution list

Report on Soil Sample

Lab n	umber: E15079	8	Corrected	copy: N/A		Report Date:	6/15/2015 1:01:11 H
Projec	et: HINESBURG	3		Number:	HES 021-1(19)	Site: VT-116	5 TH-1, TH-7
Hole:	B-5	Depth:	2 FT -	4 FT			
				T-88 Particle s	ize analysis		
1 00% 7	· · · · · · · · · • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •					
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -	← Pct smaller						
20% -							
10% -							
0% -	····	· ·			· · · ·		· · · · · · · · · · · · · · · · · · ·
1	0		1	Dentista	0.1		0.01

Particle size, mm

Distribution list

Report on Soil Sample

Lab n	umber: E15079	9	Corrected	copy: N/A		Report Date:	6/15/2015 1:01:11 H
Projec	t: HINESBURG	ŕ		Number:	HES 021-1(19)	Site: VT-116	5 TH-1, TH-7
Hole:	B-5	Depth:	4 FT -	6FT			
				T-88 Particle s	ize analysis		
100% ⊺		· •	•		<u> </u>		
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -							
20% -	Pct smaller						
10% -							
0% +		· · ·			· · · ·		· · · · · · · · · · · · · · · · · · ·
10)		1		0.1		0.01
				Dentiale	- !		

Particle size, mm

Distribution list

Report on Soil Sample

Lab nu	umber: E15080	00	Corrected	copy: N/A		Report Date:	6/15/2015 1:01:13 P
Projec	t: HINESBURG	3		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-5	Depth:	6FT -	8 FT			
				T-88 Particle si	ize analysis		
100% ⊤	• • •	•		•	•	·	
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -	← Pct smaller						
20% -							
10% -							
0% +		· · ·			· · · · · ·		·····
10)		1		0.1		0.01

Particle size, mm

Report on Soil Sample

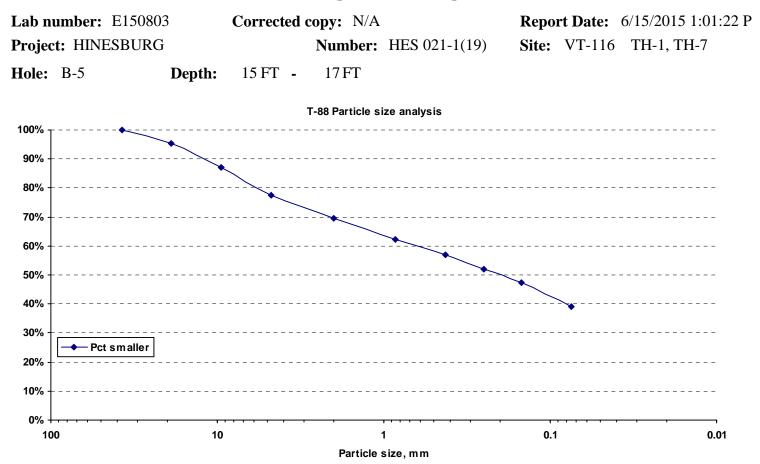
Lab n	umber: E15080)1	Corrected	copy: N/A		Report Date:	6/15/2015 1:01:15 P
Projec	t: HINESBURC	Ē		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-5	Depth:	8 FT -	10FT			
				T-88 Particle si	ize analysis		
100% ⊺	· · · · · · · · · • • • • • • • • • • •	•	•	•	····		
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -							
20% -	→ Pct smaller						
10% -							
0% +		- I - I			· · · ·		· · · · · · · · · · · · · · · · · · ·
10	D		1		0.1		0.01

Particle size, mm

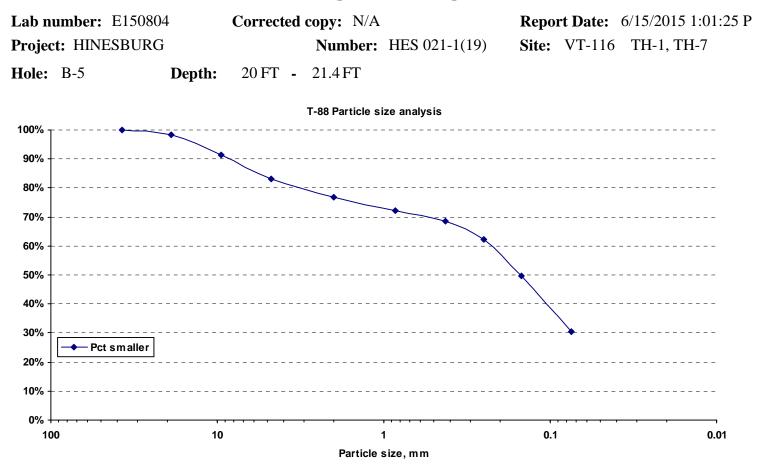
Report on Soil Sample

Lab n	umber: E150802	2	Corrected	copy: N/A		Report Date:	6/15/2015 1:01:20 P
Projec	et: HINESBURG			Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-5	Depth:	10 FT -	12 FT			
				T-88 Particle si	ize analysis		
100%]			•	•	•••••		
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -	Pct smaller						
20% -							
10% -							
0% -		, ,			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
1	0		1		0.1		0.01
				Particle :	size, m m		

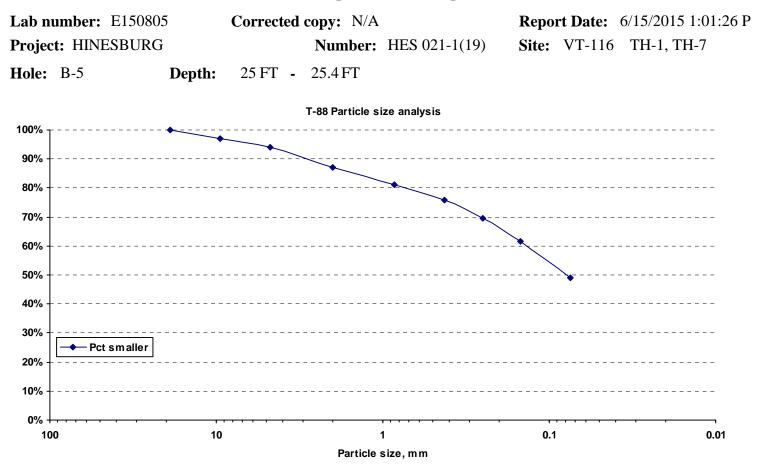
Report on Soil Sample



Report on Soil Sample



Distribution list



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150811	Corrected copy: N/A	Rej	port Date:	6/15/2015 1:22:06 P	
Project: HINESBURG	Number: 1	HES 021-1(19) Site	e: VT-116	TH-1, TH-7	
Date sampled: 5/28/2015 Re	eceived: 6/10/2015 Tes	ted: 6/10/2015	Tested by:	J. TOUCHETTE	
Station: 298+75 Offset:	-11.0 Hole: B-6	Depth: 1	5 FT to:	17 FT	
Field description:					
Submitted by: GEODESIGN		Address:			
Sample type: SPLIT BARRE	L	Quantity:			
Sample source/Outside agency	name:				
Location used:	I	Examined for: MC, (GS, AL		
Comment: S-5					
		_			

Test Results

Sieve Analysis		Limits	Limits				
T-88	% Passing						
	Total Sample	T-265 Moisture content: 39.89	ó				
(2.04)		T-89 Liquid Limit: 40)				
75 mm (3.0"):		T-90 Plastic Limit: 22	2				
37.5 mm (1.5"):		T-90 Plasticity Index: 18					
19 mm (3/4"):		•					
9.5 mm (3/8"):		Moisture Density	7				
4.75 mm (#4):	100.0%	Test method: T-180	Method:				
2.00 mm (#10):	99.6%	Maximum density:	pcf				
850 µm (#20):	99.0%	·	1				
425 μm (#40):	98.6%	Optimum moisture:					
250 µm (#60):	98.2%	T-100 Specific Gravity:					
150 µm (#100):	97.7%	Gr: 0.4% D2487: CL					
75 μm (#200):	96.7%	Sa: 2.9% M145: A-6	Silty Clay				
Hydromete	•	Si: 96.7%					

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150812 Correc	ted copy: N/A	Report Date: 6/15/2015 1:22:07 P			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 5/28/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 298+75 Offset: -11.0	Hole: B-6 Depth:	17 FT to: 19 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: MC, GS, AL				
Comment: S-6					
	Test Results				

Sieve Analysis Limits **T-88** % Passing **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 98.2% 9.5 mm (3/8"): 94.7% **Moisture Density** 4.75 mm (#4): 89.1% Test method: T-180 Method: 2.00 mm (#10): 83.6% Maximum density: pcf 850 µm (#20): 78.4% **Optimum moisture:** 425 µm (#40): 74.0% **T-100 Specific Gravity:** 250 µm (#60): 68.6% 150 µm (#100): 61.9% Gr: 16.4% **D2487:** ML 75 µm (#200): 51.9% Sa: 31.7% M145: A-4 Sandy Silt Si: 51.9% **Hydrometer Analysis** Particles smaller % total sample

Comments: LAB NOTE: SAMPLE TESTED (NP)

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150813	Corrected copy: N/A	Report Date: 6/15/2015 1:22:07 P
Project: HINESBURG	Number: HES	021-1(19) Site: VT-116 TH-1, TH-7
Date sampled: 5/28/2015 Re	ceived: 6/10/2015 Tested:	6/10/2015 Tested by: J. TOUCHETTE
Station: 298+75 Offset: -	-11.0 Hole: B-6	Depth: 30 FT to: 31.4 FT
Field description:		
Submitted by: GEODESIGN		Address:
Sample type: SPLIT BARREI		Quantity:
Sample source/Outside agency	name:	
Location used:	Exan	nined for: MC, GS
Comment: S-7		
	T - e t D - e e e l k e	

Test Results

	Sieve Analysis		Limits			
T-88	% Passing					
	Total Sample	T-2	65 Moistur	e content	: 9	9.2%
== (2.000)		T-8	9 Liquid L	imit:		
75 mm (3.0"):		Т-9	0 Plastic L	imit:		
37.5 mm (1.5"):						ND
19 mm (3/4"):		1-9	0 Plasticity	Index:		NP
9.5 mm (3/8"):	95.5%			Mois	ture Der	nsity
4.75 mm (#4):	88.0%	Tes	t method:	T-180		Method:
2.00 mm (#10):	79.0%	Ma	ximum den	citv		pcf
850 μm (#20):	72.6%			·		per
425 μm (#40):	67.9%	Op	timum mois	sture:		
250 μm (#60):	63.4%	T-1	00 Specific	Gravity:		
150 µm (#100):	57.4%	Gr:	21.0%	D2487:	SM	
75 μm (#200):	48.4%	Sa:	30.6%	M145:	A-4	Gravelly Sandy Silt
Hydromete	er Analysis	Si:	48.4%			
Particles smaller	• % total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150814 Co	rrected copy: N/A	Report Date: 6/15/2015 1:22:07 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/28/2015 Receive	ed: 6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 298+75 Offset: -11.0	Hole: B-6 Depth:	35 FT to: 36.5 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name		
Location used:	Examined for: 1	MC, GS, AL
Comment: S-8		
	Tost Posults	

Test Results

Sieve Analysis			Limits				
T-88	% Passing						
	Total Sample	Т-2	65 Moistu	re content	: 10	.7%	
		Т-8	9 Liquid I	.imit:		18	
75 mm (3.0"):		T.C	0 Plastic I	imit		15	
37.5 mm (1.5"):						-	
19 mm (3/4''):	97.8%	Т-9	0 Plasticit	y Index:		3	
9.5 mm (3/8"):	94.2%		Moisture Density				
4.75 mm (#4):	86.6%	Tes	t method:	T-180)	Method:	
2.00 mm (#10):	78.2%	Ma	ximum de	nsitv•		pcf	
850 µm (#20):	72.3%			•		per	
425 µm (#40):	67.7%	-	timum mo				
250 µm (#60):	63.6%	T-1	00 Specifi	c Gravity:			
150 µm (#100):	59.5%	Gr:	21.8%	D2487:	ML		
75 μm (#200):	52.8%	Sa:	25.4%	M145:	A-4	Gravelly Sandy Silt	
Hydrometer	r Analysis	Si:	52.8%				
Particles smaller	% total sample						

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150806 Corr	rected copy: N/A	Report Date: 6/15/2015 1:22:08 P			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 5/28/2015 Received	l: 6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 298+75 Offset: -11.0	Hole: B-6 Depth:	0.5 FT to: 2.5 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	MC, GS			
Comment: S-1					
	Test Results				

Sieve Analysis Limits **T-88** % Passing 3.3% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 9.5 mm (3/8"): **Moisture Density** 87.5% 4.75 mm (#4): 71.2% Test method: T-180 Method: 2.00 mm (#10): 56.7% Maximum density: pcf 850 µm (#20): 43.2% **Optimum moisture:** 425 µm (#40): 33.0% **T-100 Specific Gravity:** 250 µm (#60): 24.9% 150 µm (#100): 18.4% Gr: 43.3% D2487: SM 75 µm (#200): 12.3% Sa: 44.4% M145: A-1-b Gravelly Sand Si: 12.3% **Hydrometer Analysis**

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E	E150807	Correc	ted copy: N/2	A		Repor	t Date	: 6/15/2015 1:22:08 P
Project: HINES	BURG		Numbe	er: HES	021-1(19)	Site:	VT-11	16 TH-1, TH-7
Date sampled:	5/28/2015	Received:	6/10/2015	Tested:	6/10/2015	Tes	sted by	y: J. TOUCHETTE
Station: 298+75	5 Offset	: -11.0	Hole: B-6		Depth:	5 H	T to	6.5 FT
Field description	1:							
Submitted by: (GEODESIGN	Ν			Address:			
Sample type:	SPLIT BARI	REL	Quantity:					
Sample source/O	Outside agen	cy name:						
Location used:				Exan	nined for: N	AC, GS,	AL	
Comment: S-2A	L							
			Tea	Dogulta				

Test Results

Sieve Analysis			Limits					
T-88	% Passing			L	Linnts			
	Total Sample	Τ-2	265 Moistur	e content	: 8.9	%		
		Т-:	89 Liquid Li	imit:				
75 mm (3.0"):		т.,	00 Plastic Li	imit·				
37.5 mm (1.5"):								
19 mm (3/4"):	74.7%	T- ?	00 Plasticity	Index:	N	IP		
9.5 mm (3/8''):	63.0%			Mois	ture Densi	ty		
4.75 mm (#4):	55.2%	Те	st method:	T-180	1	Method:		
2.00 mm (#10):	49.9%	M	ximum den	sity:		pcf		
850 µm (#20):	44.3%			·		per		
425 µm (#40):	38.7%	-	timum mois					
250 µm (#60):	33.3%	Τ-	100 Specific	Gravity:				
150 µm (#100):	29.0%	Gr:	50.1%	D2487:	GM			
75 μm (#200):	22.9%	Sa:	27.0%	M145:	A-1-b	Silty Sandy Gravel		
II-uduomoto		Si:	22.9%					
Hydromete	•							
Particles smaller	• % total sample							
0.05 mm:								
0.02 mm:								

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE. A THIN LAYER OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150808 Correct	cted copy: N/A	Report Date: 6/15/2015 1:22:08 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/28/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 298+75 Offset: -11.0	Hole: B-6 Depth:	6.5 FT to: 7 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: 1	MC, GS, AL
Comment: S-2B		

Test Results

Т-88	Sieve Analysis % Passing			Limits		
1-00	Total Sample	T-26	5 Moistur	re content	: 2	5.5%
75 (2.04)	-	T-89	Liquid L	imit:		26
75 mm (3.0"): 37.5 mm (1.5"):		T-9 0) Plastic L	imit:		18
19 mm (3/4"):		T-9 0) Plasticity	Index:		8
9.5 mm (3/8''):				Mois	ture De	nsity
4.75 mm (#4):	100.0%	Test	method:	T-180		Method:
2.00 mm (#10):	98.1%	Max	timum der	sitv•		pcf
850 μm (#20):	95.8%			·		per
425 μm (#40):	93.1%	Opti	imum moi	sture:		
250 µm (#60):	90.4%	T-1 0	00 Specific	Gravity:		
150 µm (#100):	84.4%	Gr:	1.9%	D2487:	CL	
75 μm (#200):	78.1%	Sa:	20.0%	M145:	-	Sandy Clayey Silt
Hydromet	er Analysis	Si:	78.1%			
Particles smaller	r % total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E1	50809 C	orrected copy: N/A		Report Date:	6/15/2015 1:22:09 P
Project: HINESB	URG	Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Date sampled:	5/28/2015 Receiv	ved: 6/10/2015 Te	sted: 6/10/2015	Tested by:	J. TOUCHETTE
Station: 298+75	Offset: -11.	Hole: B-6	Depth:	10 FT to:	12 FT
Field description:					
Submitted by: G	EODESIGN		Address:		
Sample type: SI	PLIT BARREL		Quantity:		
Sample source/Ou	tside agency nam	ie:			
Location used:			Examined for: N	AC, GS, AL	
Comment: S-3					
			7.		

Test Results

	Sieve Analysis	Limits				
T-88	% Passing					
	Total Sample	T-2	65 Moistui	re content:	: 19.0)%
75 (2.011).		T-8) Liquid L	imit:	2	23
75 mm (3.0"):		T-9) Plastic L	imit:	1	17
37.5 mm (1.5"):		Т-9) Plasticity	/ Index:		6
19 mm (3/4"):		1 /	, i iusticity			
9.5 mm (3/8"):	100.00/			MOIS	ture Densi	ty
4.75 mm (#4):	100.0%	Test	method:	T-180		Method:
2.00 mm (#10):	99.0%	May	kimum der	sity:		pcf
850 µm (#20):	97.2%			·		per
425 µm (#40):	94.2%	-	imum moi			
250 µm (#60):	89.4%	T-1	00 Specific	Gravity:		
150 µm (#100):	83.2%	Gr:	1.0%	D2487:	CL-ML	
75 μm (#200):	73.3%	Sa:	25.6%		A-4	Sandy Silt
Hydromete	·	Si:	73.3%			Sandy Sht
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E150	810 Correcte	ed copy: N/A		Report Date:	6/15/2015 1:22:09 P
Project: HINESBUE	RG	Number: HES (021-1(19)	Site: VT-116	TH-1, TH-7
Date sampled: 5/2	28/2015 Received:	5/10/2015 Tested:	6/10/2015	Tested by:	J. TOUCHETTE
Station: 298+75	Offset: -11.0	Hole: B-6	Depth:	12 FT to:	14 FT
Field description:					
Submitted by: GEO	DESIGN		Address:		
Sample type: SPL	IT BARREL		Quantity:		
Sample source/Outsi	ide agency name:				
Location used:		Exam	ined for: M	C, GS, AL	
Comment: S-4					
		Test Results			

	Sieve Analysis		Limits				
T-88	% Passing Total Sample	T-2	65 Moistur			.2%	
75 mm (3.0"):			9 Liquid L 0 Plastic L				
37.5 mm (1.5"): 19 mm (3/4"):			0 Plasticity			NP	
9.5 mm (3/8"):	92.7%			Mois	ture Dens	sity	
4.75 mm (#4):	75.4%	Tes	t method:	T-180		Method:	
2.00 mm (#10):	68.3%	Ma	ximum der	oity.		pcf	
850 μm (#20):	62.7%			•		per	
425 µm (#40):	58.3%	Op	timum moi	sture:			
250 µm (#60):	53.1%	T-1	00 Specific	Gravity:			
150 µm (#100):	46.5%	Gr:	31.7%	D2487:	SM		
75 μm (#200):	38.7%	Sa:	29.6%	M145:	A-4	Sandy Gravelly Silt	
Hydromete	er Analysis	Si:	38.7%				
Particles smaller	• % total sample						

Comments: LAB NOTE: INSUFFICIENT SAMPLE TO TEST FOR LIMITS, BUT CLAY WAS NOTICEABLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

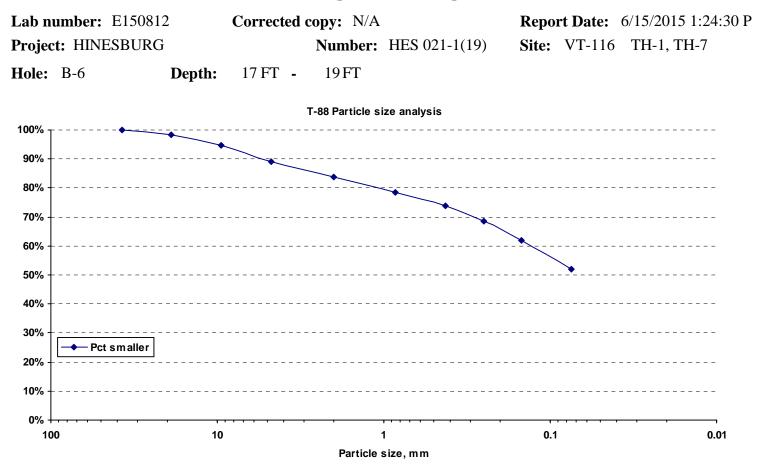
0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Report on Soil Sample

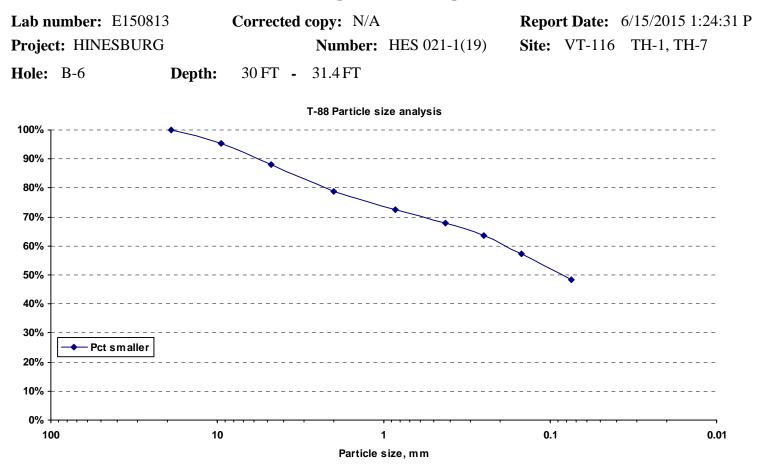
Lab n	umber: E15081	1	Corrected	copy: N/A		Report Date:	6/15/2015 1:24:29 P
Projec	t: HINESBURC	5		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-6	Depth:	15 FT -	17 FT			
				T-88 Particle s	ize analysis		
100%	•	•		•		· · · · · · · · · · · · · · · · · · ·	
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -							
20% -	Pct smaller						
10% -							
0% +		· · ·			· · · · · · ·		· · · · · · · · · · · · · · · · · · ·
10	0		1		0.1		0.01

Particle size, mm

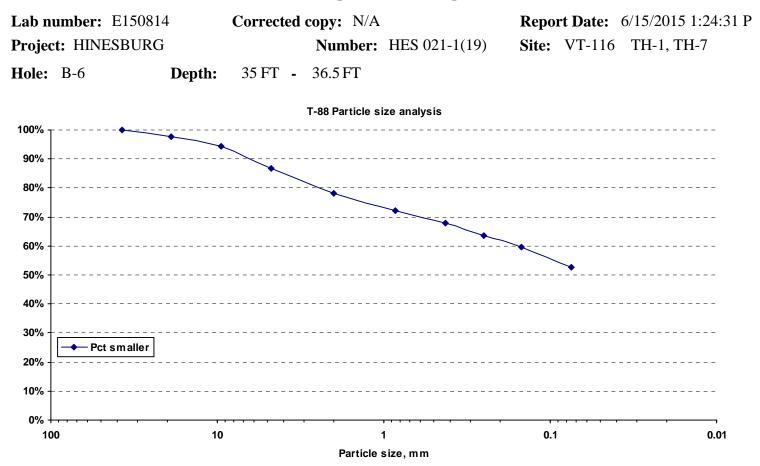
Distribution list

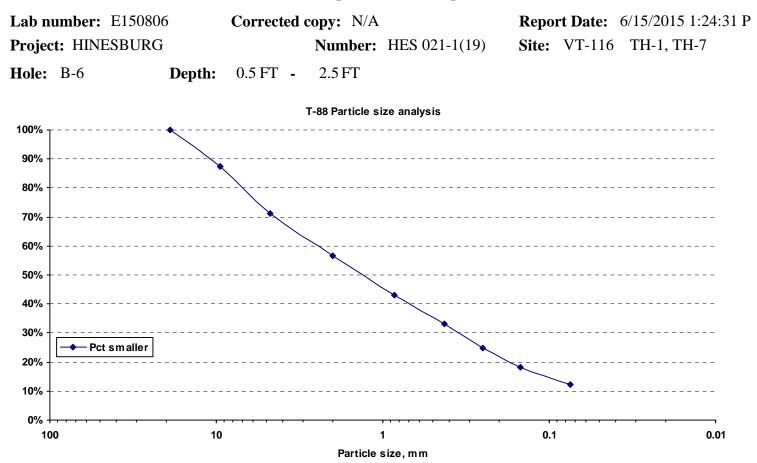


Report on Soil Sample

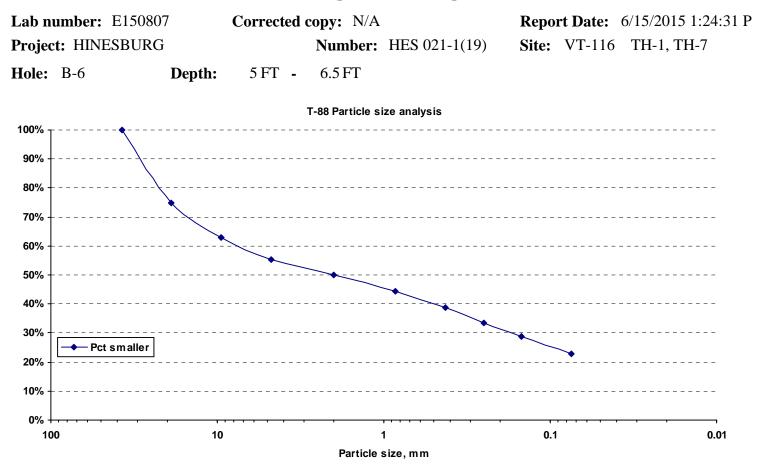


Report on Soil Sample





Distribution list



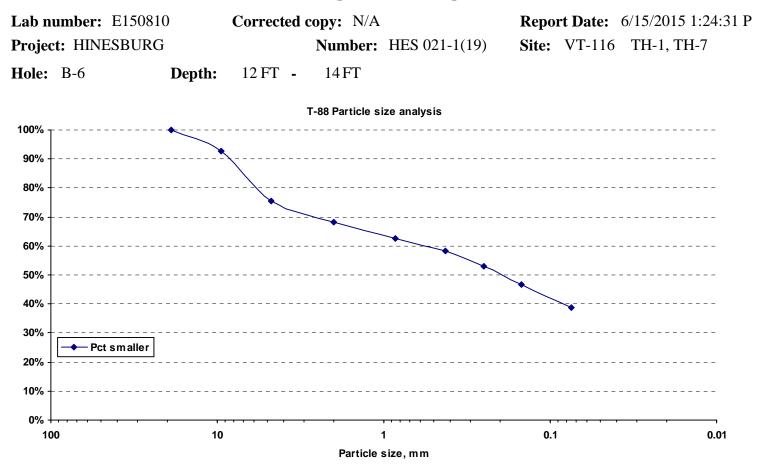
Distribution list

Lab n	umber: E150808		Corrected co	py: N/A		Report Da	ate:	6/15/2015 1:24:31 P
Projec	t: HINESBURG]	Number:	HES 021-1(19)	Site: VT	-116	TH-1, TH-7
Hole:	B-6	Depth:	6.5 FT -	7 FT				
			Т-4	88 Particle si	ze analysis			
100%	••••••							
90% -								
80% -						•		
70% -								
60% -								
50% -								
40% -								
30% -	← Pct smaller							
20% -								
10% -								
0% +		•		, , ,	· · · ·	- · · · · ·	 ,	· · · · · · · · · · · · · · · · · · ·
10)		1		0.1			0.01
				Particle s	size, mm			

Distribution list

Lab num	ber: E150809	Corrected copy: N/A		Report Date:	6/15/2015 1:24:31 P
Project:	HINESBURG	Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole: B-	Depth:	10 FT - 12 FT			
		T-88 Particle s	ize analysis		
100% ·	· · · · • • • • • • • • • • • • • • • •	•			
90%					
80%					
70%				•	
60%					
50%					
40%					
30% +					
20%	← Pct smaller				
10%					
0%				· · · · · · · ·	·····
10		1	0.1		0.01
		Particle	size, mm		

Distribution list



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150815 Co	orrected copy: N/A	Report Date: 6/12/2015 10:10:22
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Receive	ed: 6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	0 FT to: 2 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name	e:	
Location used:	Examined for: N	MC, GS, AL
Comment: S-1		
	Test Desults	

Test Results

	Sieve Analysis		Limits				
T-88	% Passing			-	Linnts		
	Total Sample	Т-2	265 Moistur	e content:	: 2	6.8%	
(_ ()		T-4	89 Liquid L	imit:		31	
75 mm (3.0"):		Т-9	90 Plastic L	imit:		21	
37.5 mm (1.5"):							
19 mm (3/4"):		Т-9	90 Plasticity	Index:		10	
9.5 mm (3/8"):				Mois	ture De	nsity	
4.75 mm (#4):	100.0%	Те	st method:	T-180		Method:	
2.00 mm (#10):	99.6%	M	aximum den	sitv		pcf	
850 μm (#20):	98.4%			·		per	
425 μm (#40):	96.7%	Op	timum mois	sture:			
250 μm (#60):	95.0%	T- :	100 Specific	Gravity:			
150 µm (#100):	93.2%	Gr:	0.4%	D2487:	CL		
75 μm (#200):	88.5%	Sa:	11.1%		A-4	Clayey Silt	
			88.5%	WI1 4 5.	M - H	Clayey Sht	
Hydromet	er Analysis	Si:	00.3%				
Particles smaller	r % total sample						

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number:	E150816	Correc	ted copy: N/A	4		Repor	rt Da	te:	6/12/2	2015 10	:10:23
Project: HINES	SBURG		Numbe	er: HES	021-1(19)	Site:	VT-	116	TH-	1, TH-7	
Date sampled:	5/27/2015	Received:	6/10/2015	Tested:	6/10/2015	Те	sted	by:	J. TOU	UCHET	TE
Station: 289+8	5 Offset	t: -60.0	Hole: B-7		Depth:	2	FT	to:		4 FT	
Field description	n:										
Submitted by:	GEODESIG	N			Address:						
Sample type:	SPLIT BARI	REL			Quantity:						
Sample source/(Outside agen	cy name:									
Location used:				Exan	nined for: M	4C, GS	, AL				
Comment: S-2											
				_							

Test Results

	Sieve Analysis	Limits				
T-88	% Passing	-				4.07
	Total Sample	T-2 0	55 Moistu	re content:	37.	.1%
75 (2.011).		T-8 9) Liquid L	imit:		41
75 mm (3.0"):		Т-90) Plastic L	imit:		22
37.5 mm (1.5"): 19 mm (3/4"):		Т-9() Plasticity	y Index:		19
9.5 mm (3/8''):		Moisture Density				
4.75 mm (#4):	100.0%	Test	method:	T-180		Method:
2.00 mm (#10):	99.9%	Maximum density:				pcf
850 μm (#20):	99.5%			·		per
425 μm (#40):	99.0%	Opt	imum moi	sture:		
250 µm (#60):	98.5%	T-10	00 Specific	e Gravity:		
150 µm (#100):	98.3%	Gr:	0.1%	D2487:	CL	
75 μm (#200):	97.8%	Sa:	2.1%	M145:	A-7-6	Silty Clay
Hydromete	r Analysis	Si:	97.8%			
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150817 Corre	cted copy: N/A	Report Date: 6/12/2015 10:10:23
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	4 FT to: 6 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: 1	MC, GS, AL
Comment: S-3		

Test Results

	Sieve Analysis		Limits					
T-88	% Passing Total Sample		T-26	5 Moistu	re content:		.7%	
77 (2.041)			T-8 9	Liquid L	imit:		59	
75 mm (3.0"): 37.5 mm (1.5"):			T-9 0	Plastic L	imit:		26	
19 mm (3/4"):			T-90 Plasticity Index: 33				33	
9.5 mm (3/8"):			Moisture Density					
4.75 mm (#4):	100.0%		Test	method:	T-180		Metho	d:
2.00 mm (#10):	100.0%		Max	imum der	sity:		pcf	
850 μm (#20): 425 μm (#40):			Optimum moisture:				•	
250 µm (#60):			T-1 0	0 Specific	Gravity:			
150 µm (#100):	99.6%		Gr:	0.0%	D2487:	СН		
75 μm (#200):	98.8%	S	Sa:	1.2%	M145:	A-7-6	Clay	
Hydromete	r Analysis	S	Si:	98.8%				
Particles smaller	% total sample							

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150818 Correc	cted copy: N/A	Report Date: 6/12/2015 10:10:24
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	6 FT to: 8 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	AC, GS, AL
Comment: S-4		

Test Results

	Sieve Analysis	Limits			
T-88	% Passing				
	Total Sample	T-265 Moisture content: 47.1%			
(* ***		T-89 Liquid Limit: 56			
75 mm (3.0")		T-90 Plastic Limit: 25			
37.5 mm (1.5")	:				
19 mm (3/4'')	:	T-90 Plasticity Index: 31			
9.5 mm (3/8'')	:	Moisture Density			
4.75 mm (#4)	: 100.0%	Test method: T-180 Method:			
2.00 mm (#10)	: 100.0%	Maximum density: pcf			
850 μm (#20)	:				
425 μm (#40)	:	Optimum moisture:			
250 µm (#60)	:	T-100 Specific Gravity:			
150 µm (#100)	: 99.9%	Gr: 0.0% D2487: CH			
75 μm (#200)	: 99.2%				
• 、 ,		Sa: 0.8% M145: A-7-6 Clay			
Hydrometer Analysis		Si: 99.2%			
ъ <i>с</i> т и					

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150819	Corrected copy: N/A	Report Date: 6/12/2015 10:10:24
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Recei	ived: 6/10/2015 Tested: 6/10/2013	5 Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60	0.0 Hole: B-7 Depth:	8 FT to: 10 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency na	me:	
Location used:	Examined for:	MC, GS, AL
Comment: S-5		

Test Results

	Sieve Analysis	Limits		
T-88	% Passing Total Sample	T-265 Moisture content: 46.1%		
75 mm (3.0''):		T-89 Liquid Limit: 48		
37.5 mm (1.5"):		T-90 Plastic Limit: 23		
19 mm (3/4''):		T-90 Plasticity Index: 25	25	
9.5 mm (3/8''):		Moisture Density		
4.75 mm (#4):	100.0%	Test method: T-180	Method:	
2.00 mm (#10):	100.0%	Maximum density:	pcf	
850 μm (#20): 425 μm (#40):		Optimum moisture:	-	
250 µm (#60):	99.8%	T-100 Specific Gravity:		
150 µm (#100):	99.2%	Gr: 0.0% D2487: CL		
75 μm (#200):	98.2%		Clay	
Hydromete	er Analysis	Si: 98.2%		

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150820 Co	rrected copy: N/A	Report Date: 6/12/2015 10:10:24
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Receive	ed: 6/10/2015 Tested: 6/10/201	5 Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	10 FT to: 12 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name	e:	
Location used:	Examined for:	MC, GS, AL
Comment: S-6		

Test Results

	Sieve Analysis	Limits				
T-88	% Passing Total Sample	Т-2	65 Moistu	re content:		7.2%
75		T-8	9 Liquid L	imit:		38
75 mm (3.0"): 37.5 mm (1.5"):		Т-9) Plastic L	imit:		21
19 mm (3/4"):		Т-9) Plasticity	Index:		17
9.5 mm (3/8"):		Moisture Density				
4.75 mm (#4):	100.0%	Test	t method:	T-180		Method:
2.00 mm (#10):	100.0%	Max	ximum der	nsity:		pcf
850 μm (#20): 425 μm (#40):		Optimum moisture:				•
250 µm (#60):		1-10	00 Specific	e Gravity:		
150 µm (#100):	99.9%	Gr:	0.0%	D2487:	CL	
75 μm (#200):	99.6%	Sa:	0.4%	M145:	A-6	Silty Clay
Hydromete	r Analysis	Si:	99.6%			
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150821 Correc	cted copy: N/A	Report Date: 6/12/2015 10:10:25
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	15 FT to: 17 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	AC, GS, AL
Comment: S-7		

Test Results

	Sieve Analysis		Limits			
T-88	% Passing				Linnes	
	Total Sample	T- 2	265 Moist	ure content	: 12	2.1%
		T-8	89 Liquid	Limit:		16
75 mm (3.0"):		т.	0 Plastic	Limit		14
37.5 mm (1.5"):						
19 mm (3/4''):		T- 9	90 Plastici	ty Index:		2
9.5 mm (3/8''):	92.6%			Mois	sture Den	sity
4.75 mm (#4):	83.9%	Te	st method	: T-180)	Method:
2.00 mm (#10):	77.5%	M	aximum d	ensity		pcf
850 μm (#20):	71.0%			·		per
425 μm (#40):	65.8%	Op	timum m	oisture:		
250 µm (#60):	60.9%	T- :	100 Specif	ic Gravity:		
150 µm (#100):	55.4%	Gr:	22.5%	D2487:	SM	
75 μm (#200):	46.8%	Sa:	30.7%	M145:	A-4	Gravelly Sandy Silt
Hydrometer	r Analysis	Si:	46.8%			
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150822 Correc	ted copy: N/A	Report Date: 6/12/2015 10:10:25			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 5/27/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	20 FT to: 21.5 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: N	1C, GS			
Comment: S-8					
Test Results					

Sieve Analysis		Limits				
T-88	% Passing					
	Total Sample	T-265 Moisture content: 7.3%				
(2.04)		T-89 Liquid Limit:				
75 mm (3.0")		T-90 Plastic Limit:				
37.5 mm (1.5")	:					
19 mm (3/4'')	: 96.6%	T-90 Plasticity Index: NP				
9.5 mm (3/8'')	: 90.1%	Moisture Density				
4.75 mm (#4)	: 81.9%	Test method: T-180 Method:				
2.00 mm (#10)	: 75.1%	Maximum density: pcf				
850 µm (#20)	: 68.5%					
425 μm (#40)	: 63.2%	Optimum moisture:				
250 µm (#60)	: 57.7%	T-100 Specific Gravity:				
150 µm (#100)	: 51.9%	Gr: 24.9% D2487 : SM				
75 μm (#200)	: 43.2%	Sa: 31.9% M145: A-4 Gravelly Sandy Silt				
Hydrome	ter Analysis	Si: 43.2%				
.						

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150823 Correc	ted copy: N/A	Report Date: 6/12/2015 10:10:25
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/27/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	25 FT to: 25.8 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: M	IC, GS
Comment: S-9		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 9.0% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 97.4% 9.5 mm (3/8"): 94.1% **Moisture Density** 4.75 mm (#4): 86.4% Test method: T-180 Method: 2.00 mm (#10): 79.0% Maximum density: pcf 850 µm (#20): 73.1% **Optimum moisture:** 425 µm (#40): 68.7% **T-100 Specific Gravity:** 250 µm (#60): 64.4% 150 µm (#100): 59.1% Gr: 21.0% **D2487:** ML 75 µm (#200): 50.6% Sa: 28.4% M145: A-4 Gravelly Sandy Silt Si: 50.6% **Hydrometer Analysis**

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150824 Correct	ted copy: N/A	Report Date: 6/12/2015 10:10:26			
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7			
Date sampled: 5/27/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE			
Station: 289+85 Offset: -60.0	Hole: B-7 Depth:	30 FT to: 30.9 FT			
Field description:					
Submitted by: GEODESIGN	Address:				
Sample type: SPLIT BARREL	Quantity:				
Sample source/Outside agency name:					
Location used:	Examined for: M	IC, GS			
Comment: S-10					
Test Results					

	Sieve Analysis		Limits					
T-88	% Passing							
	Total Sample	Τ-	265 Moistu	re content	:	8.1%		
		T-	89 Liquid L	imit:				
75 mm (3.0") 37.5 mm (1.5"):		T-	90 Plastic L	imit:				
19 mm (3/4'')		T-	90 Plasticity	y Index:		NP		
9.5 mm (3/8''):	97.0%			Mois	ture De	ensity		
4.75 mm (#4)	91.4%	Te	st method:	T-180)	Method:		
2.00 mm (#10)	84.6%	M	avimum der	ncity•		pcf		
850 µm (#20)	: 79.0%		Maximum density:					
425 μm (#40)	74.3%	OI	otimum moi	sture:				
250 μm (#60)	68.8%	T-	100 Specific	: Gravity:				
150 µm (#100)	62.2%	Gr:	15.4%	D2487:	ML			
75 μm (#200)	: 52.7%	Sa:		M145:	A-4	Sandy Silt		
Hydromet	ter Analysis	Si:	52.7%					
D								

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E15082	5 Correct	ed copy: N/A]	Report Date: (5/12/2015 10:10:26
Project: HINESBURG	ŕ	Number: HES	021-1(19)	Site: VT-116	TH-1, TH-7
Date sampled: 5/27/2	2015 Received:	6/10/2015 Tested:	6/10/2015	Tested by: J	. TOUCHETTE
Station: 289+85	Offset: -60.0	Hole: B-7	Depth:	34 FT to:	35.4 FT
Field description:					
Submitted by: GEOD	ESIGN		Address:		
Sample type: SPLIT	BARREL		Quantity:		
Sample source/Outside	agency name:				
Location used:		Exam	ined for: M	C, GS	
Comment: S-11					

Test Results

Sieve Analysis			Limits				
T-88	% Passing				-	21111115	
	Total Sample		Г-26	5 Moistur	e content:		9.6%
77 (2.00)		,	Г-89	Liquid Li	imit:		
75 mm (3.0"):		,	Г-90	Plastic Li	mit:		
37.5 mm (1.5"):			T 00				
19 mm (3/4"):	93.2%		I -90	Plasticity	Index:		NP
9.5 mm (3/8"):	90.4%				Mois	ture D	ensity
4.75 mm (#4):	82.9%	,	Test	method:	T-180		Method:
2.00 mm (#10):	76.9%	1	Max	imum den	sitv•		pcf
850 μm (#20):	72.1%						per
425 μm (#40):	68.1%		-	mum mois			
250 µm (#60):	63.9%		T-100 Specific Gravity:				
150 µm (#100):	59.1%	G	r:	23.1%	D2487:	ML	
75 μm (#200):	51.8%	-	a:	25.1%	M145:	A-4	Gravelly Sandy Silt
			i:	51.8%			j ~j ~
Hydrometer	r Analysis	3	1.	J1.070			
Particles smaller	% total sample						
0.05 mm:							
0.02 mm:							
0.005 mm:							
0.002 mm:							

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

0.001 mm:

Report on Soil Sample

Lab number: E150815	Corrected copy: N		-	6/12/2015 10:13:29
Project: HINESBURG	Numbe	r: HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole: B-7 De	epth: 0 FT - 2 FT			
	T-88 Particl	e size analysis		
100% •				
90%			•	
80%				
70%				
60%				
50%				
40%				
30%				
10%				
0% +				· · · · · · · · · · · · · · · · · · ·
10	1	0.1		0.01
	Partic	le size, mm		

Distribution list

Report on Soil Sample

Lab nu	umber: E15081	16	Corrected	copy: N/A		Report Date:	6/12/2015 10:13:29
Projec	t: HINESBURG	3		Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole:	B-7	Depth:	2 FT -	4 FT			
				T-88 Particle s	ize analysis		
100%	+	•	•		•		
90% -							
80% -							
70% -							
60% -							
50% -							
40% -							
30% -	← Pct smaller						
20% -							
10% -							
0% +		· · ·			· · · · · ·		· · · · · · · · · · · · · · · · · · ·
10)		1		0.1		0.01

Particle size, mm

Distribution list

State of Vermont Agency of Transportation Construction and Materials Bureau Central Laboratory

Lab n	umber: E15081	17	Corrected	copy: N/A		Repo	rt Date:	6/12/2015 10:13:30
Projec	et: HINESBURG	3		Number:	HES 021-1(19)	Site:	VT-116	TH-1, TH-7
Hole:	B-7	Depth:	4 FT -	6FT				
				T-88 Particle s	ize analysis			
1 00%				••••				
90% -								
80% -								
70% -								
60% -								
50% -								
40% -								
30% -								
20% -	→ Pct smaller							
10% -								
0% -								·
1				C).1			0.01



Distribution list

State of Vermont Agency of Transportation Construction and Materials Bureau Central Laboratory

Lab number: E150818	Corrected copy: N/A	Rep	bort Date: 6/12/2015 10:13:30
Project: HINESBURG	Number:	HES 021-1(19) Site	e: VT-116 TH-1, TH-7
Hole: B-7 De	pth: 6 FT - 8 FT		
	T-88 Particle s	ize analysis	
100%	\		
90%			
80%			
70%			
60%			
50%			
40%			
20%			
10%			
0%			
1	C).1	0.01



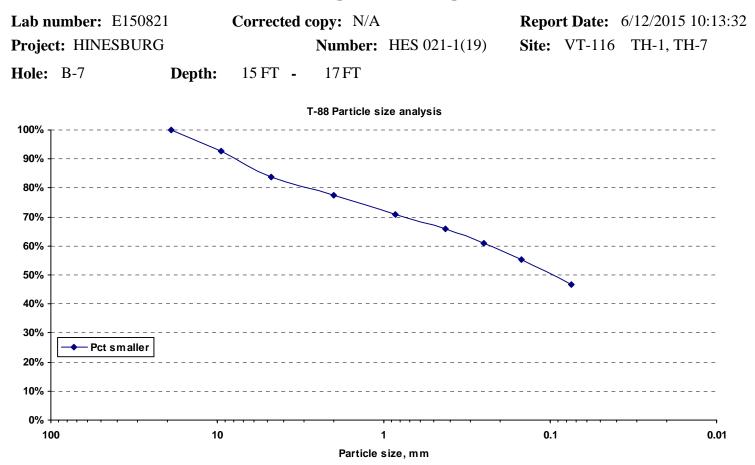
Lab n	umber: E1508	19	Corrected	copy: N/A		Repo	rt Date:	6/12/2015 10:13:32
Projec	et: HINESBUR	G		Number:	HES 021-1(19)	Site:	VT-116	TH-1, TH-7
Hole:	B-7	Depth:	8 FT -	10 FT				
				T-88 Particle s	ize analysis			
1 00%			• • • • • • • • • • • • • • • • • • • •		•			
90% -								
80% -								
70% -								
60% -								
50% -								
40% -								
30% -								
20% -	Pct smaller							
10% -								
0% -								ı
1				C	.1			0.01



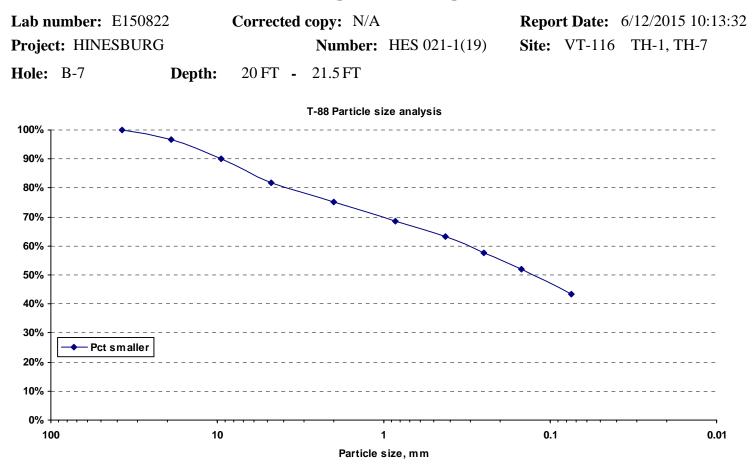
Lab number: E150820	Corrected copy: N/A	Report Date: 6/12/2015 10:13:32
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Hole: B-7 Depth	10 FT - 12 FT	
	T-88 Particle size analysis	
100%	-	
90%		
80%		
70%		
60%		
50%		
40%		
20% Pct smaller		
10%		
0%		- · · · · · · · · · · · · · · · · · · ·
1	0.1	0.01

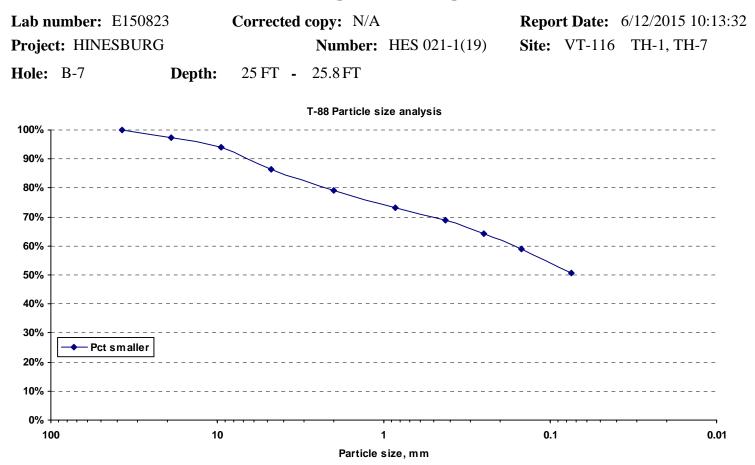


Report on Soil Sample

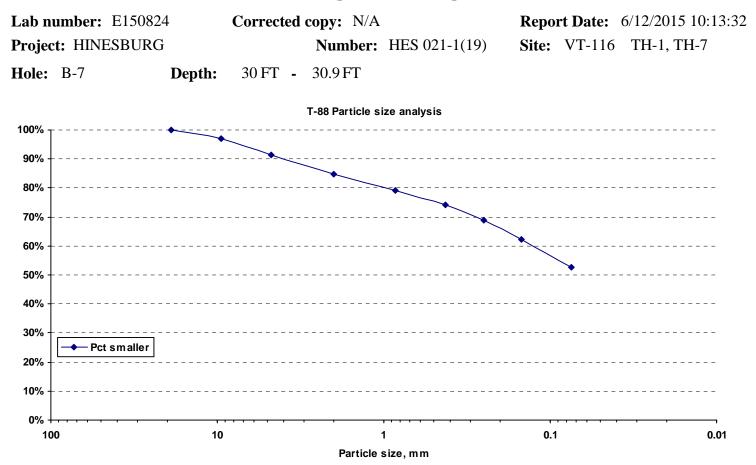


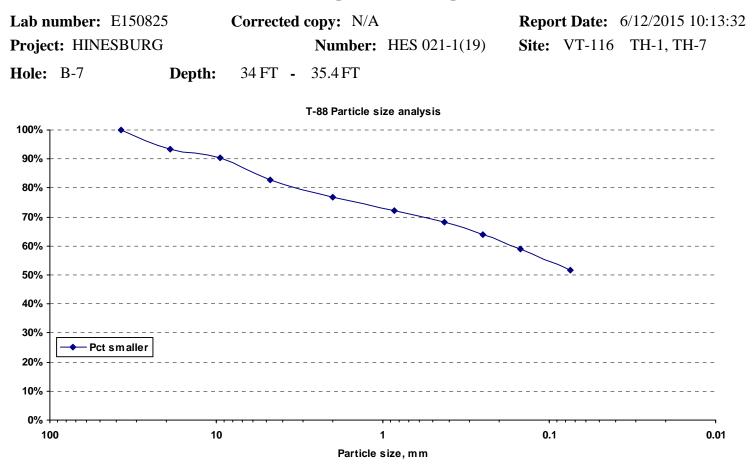
Report on Soil Sample





Distribution list





Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150826 Correc	eted copy: N/A	Report Date: 6/15/2015 1:55:48 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	0.7 FT to: 2.7 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	AC, GS
Comment: S-1		
	Test Results	

	Sieve Analysis	Limits	
T-88	% Passing		2 50/
	Total Sample	T-265 Moisture content: 12	3.5%
75 (2.011).		T-89 Liquid Limit:	
75 mm (3.0"): 37.5 mm (1.5"):		T-90 Plastic Limit:	
19 mm (3/4"):	92.4%	T-90 Plasticity Index:	NP
9.5 mm (3/8"):	82.0%	Moisture Der	nsity
4.75 mm (#4):	67.9%	Test method: T-180	Method:
2.00 mm (#10):	52.6%	Maximum density:	pcf
850 µm (#20):	38.1%	•	per
425 μm (#40):	28.5%	Optimum moisture:	
250 µm (#60):	20.9%	T-100 Specific Gravity:	
150 µm (#100):	15.0%	Gr: 47.4% D2487 : SP-SM	
75 μm (#200):	9.6%	Sa: 42.9% M145: A-1-b	Sandy Gravel
Hydromete	er Analysis	Si: 9.6%	

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150827 Corre	cted copy: N/A	Report Date: 6/15/2015 1:55:48 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	6/10/2015 Tested: 6/10/201	15 Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	5 FT to: 7 FT
Field description:		
Submitted by: GEODESIGN	Address:	:
Sample type: SPLIT BARREL	Quantity	:
Sample source/Outside agency name:		
Location used:	Examined for:	MC, GS, AL
Comment: S-2		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 7.4% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 75.6% 9.5 mm (3/8"): 60.3% **Moisture Density** 4.75 mm (#4): 46.7% Test method: T-180 Method: 2.00 mm (#10): 38.0% Maximum density: pcf 850 µm (#20): 32.7% **Optimum moisture:** 425 µm (#40): 28.7% **T-100 Specific Gravity:** 250 µm (#60): 24.7% 150 µm (#100): 20.9% Gr: 62.0% **D2487:** GM 75 µm (#200): 15.9% Sa: 22.1% M145: A-1-b Sandy Gravel Si: 15.9% **Hydrometer Analysis**

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE. INSUFFICIENT SAMPLE FOR LIMITS TESTING. CLAY WAS NOTICEABLE AND SIMILAR TO 7-9 FT.

Reviewed by: T. Eliassen, P.G., Transportation Geologist

ID9

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150828 Corre	cted copy: N/A	Report Date: 6/15/2015 1:55:49 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	7 FT to: 9 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	MC, GS, AL
Comment: S-3		
	Tost Posults	

Test Results

Sieve Analysis		Limits
T-88	% Passing	
	Total Sample	T-265 Moisture content: 23.9%
// //		T-89 Liquid Limit: 21
75 mm (3.0 ⁴		T-90 Plastic Limit: 18
37.5 mm (1.5'	"):	
19 mm (3/4	"):	T-90 Plasticity Index: 3
9.5 mm (3/8'	"): 99.1%	Moisture Density
4.75 mm (#4	4): 98.2%	Test method: T-180 Method:
2.00 mm (#1	0): 96.3%	Maximum density: pcf
850 μm (#20	0): 92.7%	
425 μm (#4	0): 87.2%	Optimum moisture:
250 μm (#6	0): 79.9%	T-100 Specific Gravity:
150 μm (#10	0): 73.3%	Gr: 3.7% D2487 : ML
75 μm (#20	0): 64.8%	
Hydrom	neter Analysis	Si: 64.8%
Doutiolog amo	llan 0/ total commla	

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist



Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150829 Corre	cted copy: N/A	Report Date: 6/15/2015 1:55:49 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	10 FT to: 12 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	MC, GS, AL
Comment: S-4		
	T 14	

Test Results

T-88	Sieve Analysis % Passing	Limits	
1-00	Total Sample	T-265 Moisture content: 25.6%	
	-	T-89 Liquid Limit: 21	
75 mm (3.0"): 37.5 mm (1.5"):		T-90 Plastic Limit: 19	
19 mm (3/4"):		T-90 Plasticity Index: 2	
9.5 mm (3/8''):		Moisture Density	
4.75 mm (#4):	99.4%	Test method: T-180 Method	l:
2.00 mm (#10):	99.1%	Maximum density: pcf	
850 μm (#20):	98.4%	Optimum moisture:	
425 µm (#40):	96.3%	•	
250 μm (#60):	92.6%	T-100 Specific Gravity:	
150 µm (#100):	88.9%	Gr: 0.9% D2487: ML	
75 μm (#200):	82.7%	Sa: 16.4% M145: A-4 Silt	
Hydromet	er Analysis	Si: 82.7%	

Particles smaller % total sample 0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Reviewed by: T. Eliassen, P.G., Transportation Geologist

TDE

Distribution list

GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E150830 Corr	ected copy: N/A	Report Date: 6/15/2015 1:55:50 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	c 6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	12 FT to: 14 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	MC, GS, AL
Comment: S-5		
	Test Results	

	Sieve Analysis		Limits			
T-88	% Passing				2111115	
	Total Sample	T-2	65 Moistur	e content	: 1	9.1%
		Т-8	9 Liquid Li	imit:		
75 mm (3.0"):		Т-9	0 Plastic Li	mit:		
37.5 mm (1.5"):		Т-9	0 Plasticity	Index:		NP
19 mm (3/4"):		• •	o i iusticity			
9.5 mm (3/8"):	97.3%			Mois	ture De	nsity
4.75 mm (#4):	89.7%	Tes	t method:	T-180)	Method:
2.00 mm (#10):	82.9%	Ma	ximum den	sitv•		pcf
850 µm (#20):	77.4%			-		per
425 μm (#40):	72.9%	Opt	timum mois	sture:		
250 µm (#60):	68.3%	T-1	00 Specific	Gravity:		
150 µm (#100):	63.7%	Gr:	17.1%	D2487:	ML	
75 μm (#200):	57.4%	Sa:	25.5%	M145:	A-4	Sandy Silt
Hydromete	er Analysis	Sa. Si:	57.4%	11143.	71-4	Sandy Sin
Particles smaller	r % total sample					

Comments: LABN NOTE: A VERY SMALL AMOUNT OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist 7DS

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150831 Correc	cted copy: N/A	Report Date: 6/15/2015 1:55:50 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	17 FT to: 19 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: 1	MC, GS, AL
Comment: S-6		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 11.5% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 94.0% 9.5 mm (3/8"): **Moisture Density** 86.3% 4.75 mm (#4): 80.0% Test method: T-180 Method: 2.00 mm (#10): 72.4% Maximum density: pcf 850 µm (#20): 67.1% **Optimum moisture:** 425 µm (#40): 63.0% **T-100 Specific Gravity:** 250 µm (#60): 58.7% 150 µm (#100): 54.4% Gr: 27.6% D2487: SM 75 µm (#200): 46.9% Sa: 25.4% M145: A-4 Sandy Gravelly Silt Si: 46.9% **Hydrometer Analysis** Particles smaller % total sample

Comments: LABN NOTE: A VERY SMALL AMOUNT OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist *TDE*

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E	150832	Correc	ted copy: N/.	A		Repo	rt Da	te:	6/15/2015 1:55:50) P
Project: HINES	BURG		Numbe	er: HES	021-1(19)	Site:	VT-	116	TH-1, TH-7	
Date sampled:	5/29/2015	Received:	6/10/2015	Tested:	6/10/2015	Te	sted	by:	J. TOUCHETTE	
Station: 290+50	Offset	t: -10.0	Hole: B-8	3	Depth:	17	FT	to:	19 FT	
Field description	:									
Submitted by: (GEODESIG	N			Address:					
Sample type: S	SPLIT BARI	REL			Quantity:					
Sample source/O	utside agen	cy name:								
Location used:				Exan	nined for: N	AC, GS	, AL			
Comment: S-7										
			T							

Test Results

	Sieve Analysis		Limits			
T-88	% Passing		Linits			
	Total Sample	Т-2	265 Moistur	re content	:	9.3%
(2.011)		Т-8	89 Liquid L	imit:		17
75 mm (3.0"):		Т-9	00 Plastic L	imit:		14
37.5 mm (1.5"):						
19 mm (3/4''):	97.1%	Т-9	00 Plasticity	Index:		3
9.5 mm (3/8''):	94.2%			Mois	ture De	nsity
4.75 mm (#4):	89.5%	Tes	st method:	T-180)	Method:
2.00 mm (#10):	83.7%	Ma	ximum den	sitv		pcf
850 µm (#20):	78.4%			·		per
425 μm (#40):	74.3%	Op	timum moi	sture:		
250 μm (#60):	70.3%	T- 1	00 Specific	Gravity:		
150 µm (#100):	65.8%	Gr:	16.3%	D2487:	ML	
75 μm (#200):	58.9%	Sa:	24.9%	M145:	A-4	Sandy Silt
				W11 4 5.	M-	Sandy Sin
Hydromete	er Analysis	Si:	58.9%			
Particles smaller	% total sample					

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Comments:

Distribution list GEODESIGN

T. ELIASSEN

J. TOUCHETTE

Report on Soil Sample

Lab number: E150833 Correct	ted copy: N/A	Report Date: 6/15/2015 1:55:51 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	6/10/2015 Tested: 6/10/2015	Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	20 FT to: 22 FT
Field description:		
Submitted by: GEODESIGN	Address:	
Sample type: SPLIT BARREL	Quantity:	
Sample source/Outside agency name:		
Location used:	Examined for: N	AC, GS, AL
Comment: S-8		
	Test Results	

Sieve Analysis Limits **T-88** % Passing 6.7% **T-265 Moisture content: Total Sample T-89 Liquid Limit:** 75 mm (3.0"): **T-90 Plastic Limit:** 37.5 mm (1.5"): **T-90 Plasticity Index:** NP 19 mm (3/4"): 95.7% 9.5 mm (3/8"): 87.3% **Moisture Density** 4.75 mm (#4): 79.8% Test method: T-180 Method: 2.00 mm (#10): 71.5% Maximum density: pcf 850 µm (#20): 66.1% **Optimum moisture:** 425 µm (#40): 61.9% **T-100 Specific Gravity:** 250 µm (#60): 57.7% 150 µm (#100): 53.6% Gr: 28.5% D2487: SM 75 µm (#200): 47.2% Sa: 24.3% M145: A-4 Sandy Gravelly Silt Si: 47.2% **Hydrometer Analysis** Particles smaller % total sample

Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE. A SMALL AMOUNT OF CLAY WAS NOTICEABLE. SAMPLE TESTED (NP)

Reviewed by: T. Eliassen, P.G., Transportation Geologist

0.05 mm: 0.02 mm: 0.005 mm: 0.002 mm: 0.001 mm:

Distribution list

J. TOUCHETTE

GEODESIGN T. ELIASSEN

Report on Soil Sample

Lab number: E150834 Corre	ected copy: N/A	Report Date: 6/15/2015 1:55:51 P
Project: HINESBURG	Number: HES 021-1(19)	Site: VT-116 TH-1, TH-7
Date sampled: 5/29/2015 Received:	: 6/10/2015 Tested: 6/10/20	15 Tested by: J. TOUCHETTE
Station: 290+50 Offset: -10.0	Hole: B-8 Depth:	24 FT to: 26 FT
Field description:		
Submitted by: GEODESIGN	Address	:
Sample type: SPLIT BARREL	Quantity	y:
Sample source/Outside agency name:		
Location used:	Examined for:	MC, GS, AL
Comment: S-9		

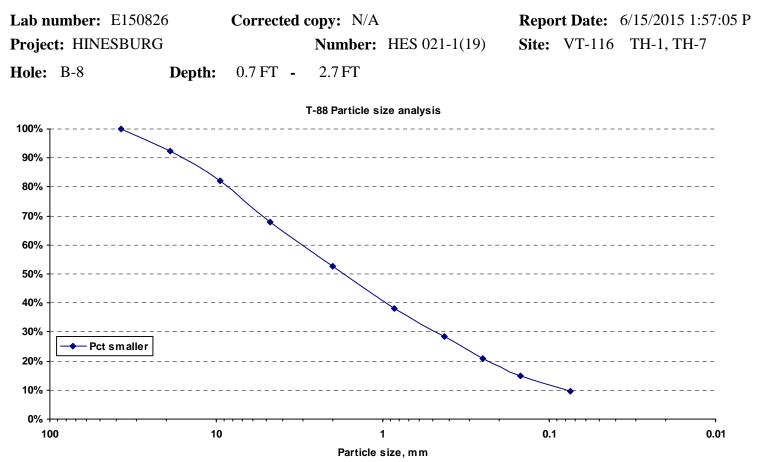
Test Results

	Limits					
T-88	% Passing			-	21111113	
	Total Sample	T-26	5 Moistur	e content:	1	0.0%
		T-89	Liquid L	imit:		17
75 mm (3.0"):		т_00	Plastic L	imit·		15
37.5 mm (1.5"):						15
19 mm (3/4"):	93.3%	T-90	Plasticity	Index:		2
9.5 mm (3/8''):	86.6%			Mois	ture Dei	nsity
4.75 mm (#4):	79.5%	Test	method:	T-180		Method:
2.00 mm (#10):	73.9%	Maximum density:				pcf
850 μm (#20):	69.1%					per
425 μm (#40):	65.5%	Optimum moisture:				
250 µm (#60):	62.2%	T-10	0 Specific	Gravity:		
150 µm (#100):	58.5%	Gr:	26.1%	D2487:	ML	
75 μm (#200):	52.1%	Sa:	21.8%		A-4	Sandy Gravelly Silt
				IVI143.	M- +	Sandy Oraverry Sht
Hydrometer	r Analysis	Si:	52.1%			
Particles smaller	% total sample					
0.05 mm:						
0.02 mm:						
0.005 mm:						

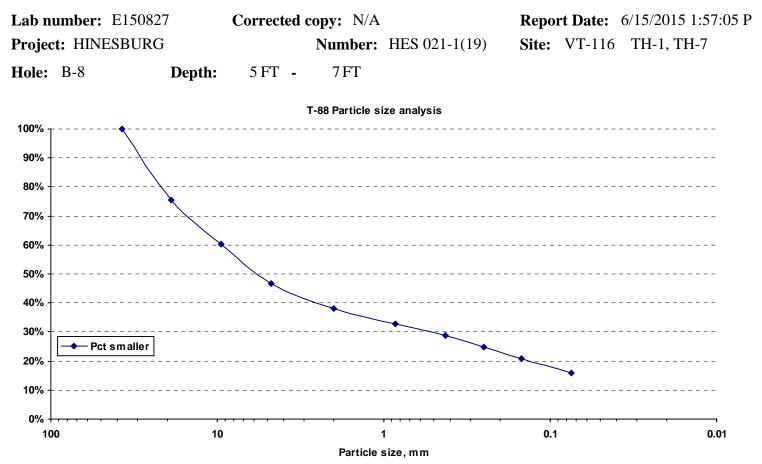
Comments: LAB NOTE: BROKEN ROCK WAS WITHIN SAMPLE.

Reviewed by: T. Eliassen, P.G., Transportation Geologist TDE

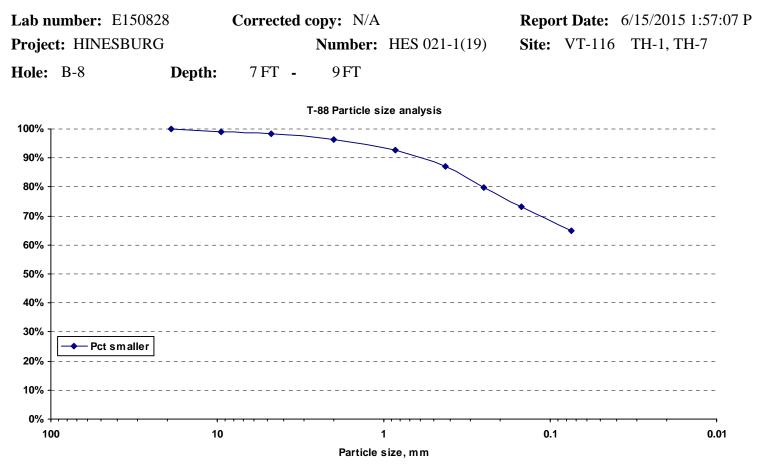
0.002 mm: 0.001 mm:



Report on Soil Sample



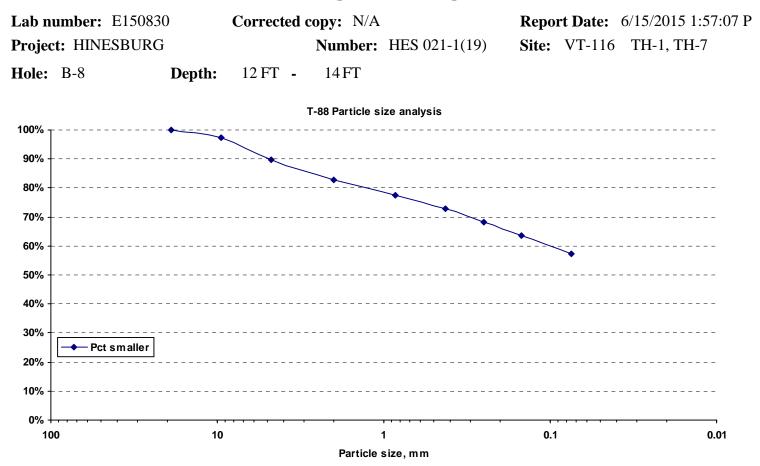
Report on Soil Sample



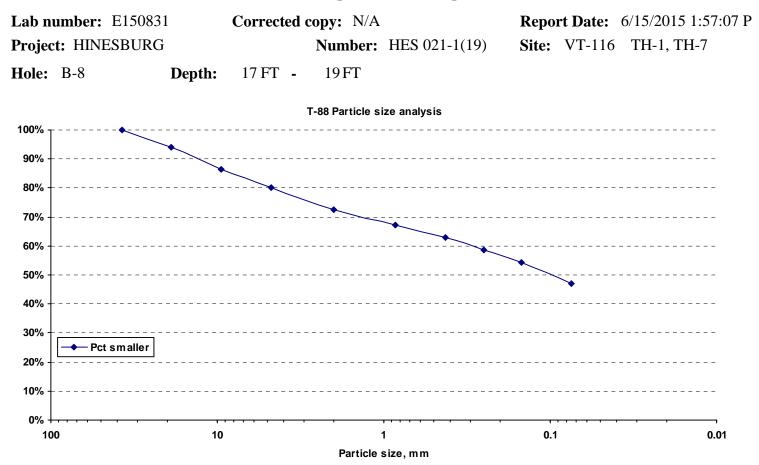
Distribution list

Lab number: E150829	Corrected copy: N/A		Report Date:	6/15/2015 1:57:07 P
Project: HINESBURG	Number:	HES 021-1(19)	Site: VT-116	TH-1, TH-7
Hole: B-8 Depth	10 FT - 12 FT			
	T-88 Particle s	ize analysis		
100%				
90%				
80%			•	
70%				
60%				
50%				
40%				
30%				
10%				
0% +				· · · · · · · · · · · · · · · · · · ·
10	1	0.1		0.01
	Particle	size, m m		

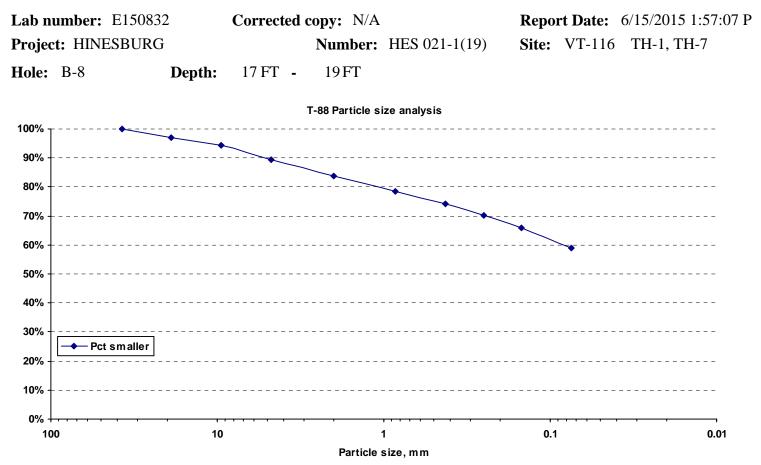
Report on Soil Sample



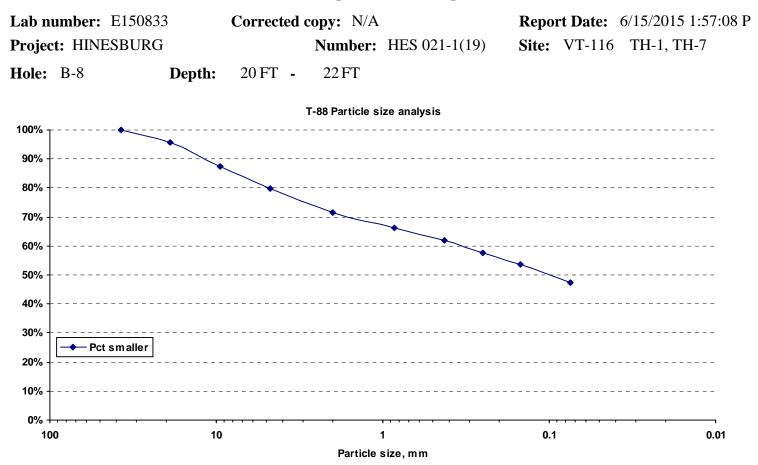
Report on Soil Sample



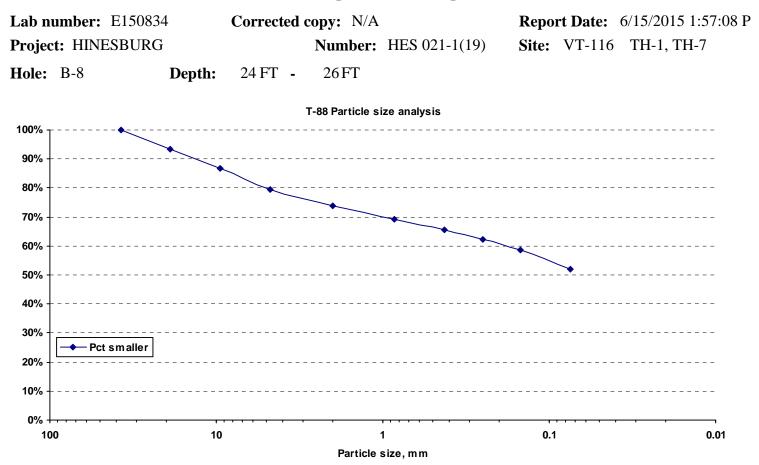
Report on Soil Sample



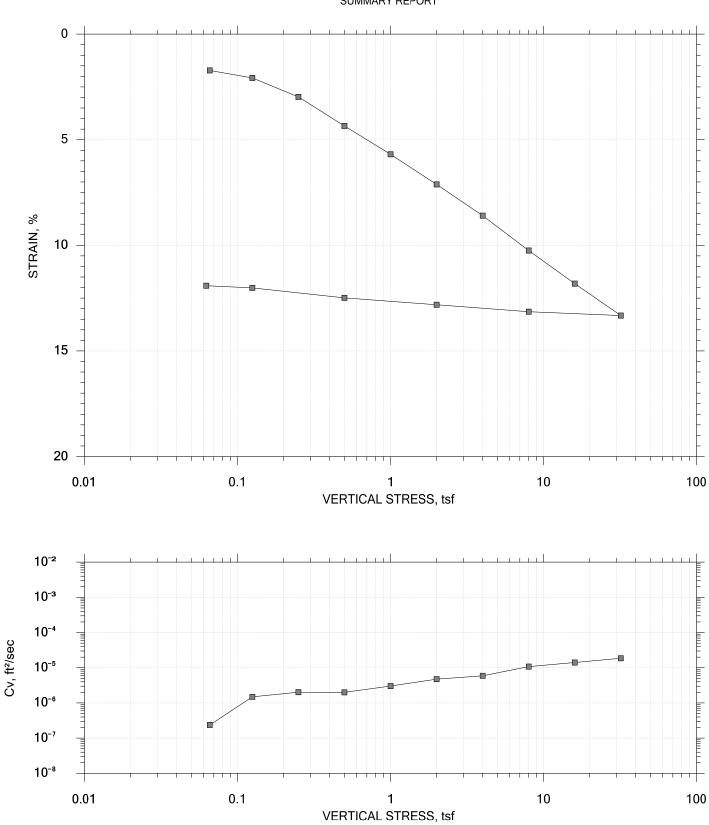
Report on Soil Sample



Report on Soil Sample



3B – GEOTESTING EXPRESS RESULTS



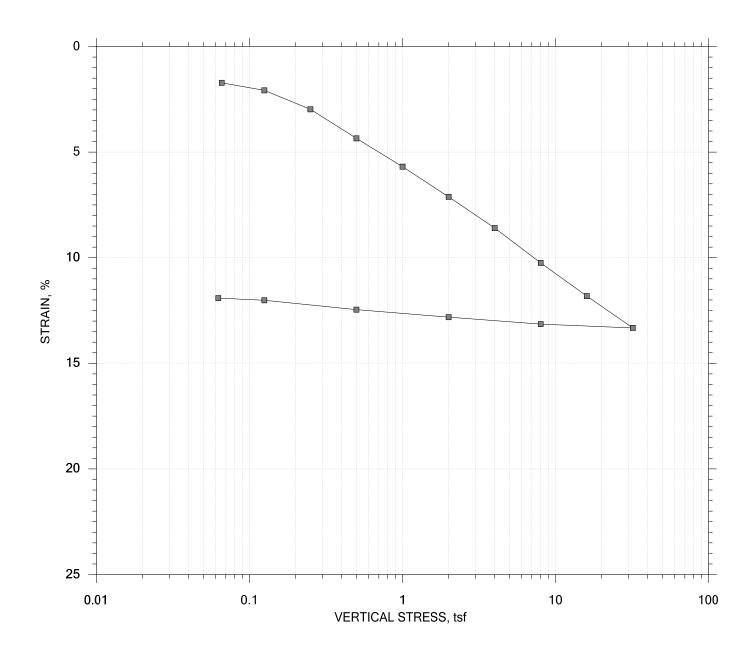
One-Dimensional Consolidation by ASTM D2435 - Method B

SUMMARY REPORT

	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B5-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1		
GeoTesting	Depth: 10-12 ft	Sample Type: intact	Elevation:		
EXPRESS	Description: Moist, dark olive gray clay with gravel				
	Remarks: System S, Swell Pressure = 0.0658 tsf				
	Displacement at End of Increment				

One-Dimensional Consolidation by ASTM D2435 - Method B

SUMMARY REPORT



					Before Test	After Test
Current Vertical Effective Stress:		Water Content, %	14.87	10.26		
Preconsolidation Stress:		Dry Unit Weight, pcf	121.46	133.47		
Compression Ratio:		Saturation, %	99.92	100.00		
Diameter: 2.5 in		Height: 1 in		Void Ratio	0.41	0.28
LL: 24	PL: 12	PI: 12	GS: 2.74			

	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B5-ST	Tested By: md	Checked By: jdt		
GeoTesting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1		
	Depth: 10-12 ft	Sample Type: intact	Elevation:		
EXPRESS	Description: Moist, dark olive gray clay with gravel				
	Remarks: System S, Swell Pressure = 0.0658 tsf				
	Displacement at End of Increment				

Project: Hinesburg HES 021-0(19)Location: ---Boring No.: B5-STTested By: mdSample No.: ST-1Test Date: 06/15/15Test No.: IP-1Sample Type: intact

Project No.: GTX-303296 Checked By: jdt Depth: 10-12 ft Elevation: ---

Soil Description: Moist, dark olive gray clay with gravel Remarks: System S, Swell Pressure = 0.0658 tsf

Estimated Specific Gravity: 2.74 Initial Void Ratio: 0.408 Final Void Ratio: 0.281	Liquid Limit: 24 Plastic Limit: 12 Plasticity Index: 12		Specimen Diameter: 2.50 in Initial Height: 1.00 in Final Height: 0.91 in	
	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	A-1032	RING		A-247
Wt. Container + Wet Soil, gm	207.57	288.72	281.50	180.32
Wt. Container + Dry Soil, gm	179.74	265.44	265.44	164.31
Wt. Container, gm	8.4700	108.94	108.94	8.2600
Wt. Dry Soil, gm	171.27	156.50	156.50	156.05
Water Content, %	16.25	14.87	10.26	10.26
Void Ratio		0.408	0.281	
Degree of Saturation, %		99.92	100.00	
Dry Unit Weight, pcf		121.46	133.47	

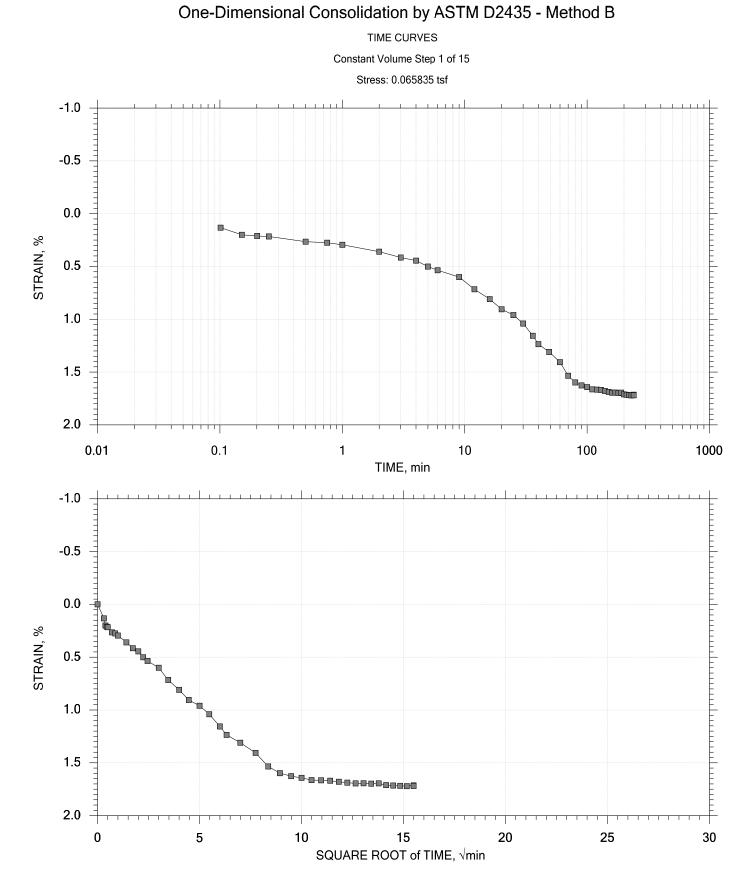
Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

Project: Hinesburg HES 021-0(19) Boring No.: B5-ST Sample No.: ST-1 Test No.: IP-1 Location: ---Tested By: md Test Date: 06/15/15 Sample Type: intact Project No.: GTX-303296 Checked By: jdt Depth: 10-12 ft Elevation: ---

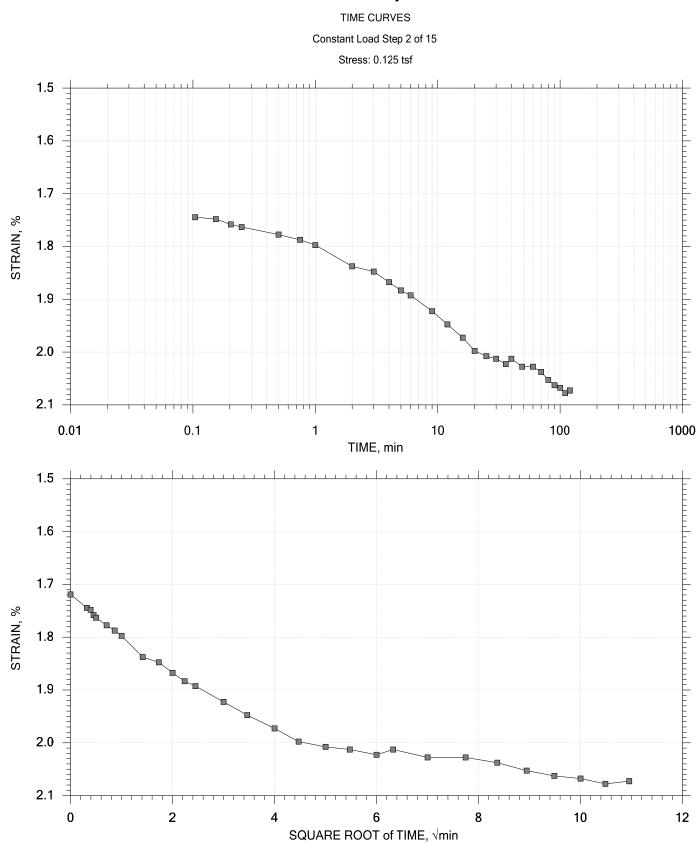
Soil Description: Moist, dark olive gray clay with gravel Remarks: System S, Swell Pressure = 0.0658 tsf

Displacement at End of Increment

	Applied	Final	Void	Strain					
	Stress	Displacement	Ratio	at End	Sq.Rt T90	Cv	Mv	k	
	tsf	in	Katio	at Ella	min	ft²/sec	1/tsf	ft/day	
	LSI	111		õ	11111	IL-/Sec	1/tsi	It/uay	
1	0.0658	0.01719	0.383	1.72	99.527	2.42e-007	2.61e-001	1.71e-004	
2	0.125	0.02073	0.378	2.07	15.224	1.55e-006	5.98e-002	2.50e-004	
3	0.250	0.02970	0.366	2.97	12.407	1.88e-006	7.18e-002	3.64e-004	
4	0.500	0.04346	0.346	4.35	11.708	1.95e-006	5.50e-002	2.89e-004	
5 6	1.00	0.05688	0.328	5.69	9.155	2.42e-006	2.68e-002	1.75e-004	
	2.00	0.07115	0.308	7.11	4.527	4.75e-006	1.43e-002	1.83e-004	
7	4.00	0.08592	0.287	8.59	3.175	6.56e-006	7.39e-003	1.31e-004	
8	8.00	0.1024	0.263	10.2	2.520	7.99e-006	4.13e-003	8.90e-005	
9	16.0	0.1181	0.241	11.8	1.670	1.16e-005	1.96e-003	6.15e-005	
10	32.0	0.1332	0.220	13.3	1.240	1.51e-005	9.44e-004	3.85e-005	
11	8.00	0.1314	0.223	13.1	0.413	4.47e-005	7.52e-005	9.06e-006	
12	2.00	0.1281	0.227	12.8	0.597	3.11e-005	5.52e-004	4.64e-005	
13	0.500	0.1249	0.232	12.5	3.980	4.70e-006	2.17e-003	2.76e-005	
14	0.125	0.1201	0.239	12.0	50.053	3.77e-007	1.26e-002	1.28e-005	
15	0.0625	0.1191	0.240	11.9	0.000	0.00e+000	1.65e-002	0.00e+000	
				a					
	Applied	Final	Void	Strain	Log	~		,	~
	Stress	Displacement	Void Ratio	at End	т50	Cv	Mv	k	Ca
						Cv ft²/sec	Mv 1/tsf	k ft/day	Ca %
1	Stress	Displacement		at End	т50				
1 2	Stress tsf	Displacement in	Ratio	at End %	T50 min	ft²/sec	1/tsf	ft/day	8
	Stress tsf 0.0658	Displacement in 0.01719	Ratio 0.383	at End % 1.72	T50 min 0.000	ft²/sec 0.00e+000	1/tsf 2.61e-001	ft/day 0.00e+000	% 0.00e+000
2	Stress tsf 0.0658 0.125	Displacement in 0.01719 0.02073	Ratio 0.383 0.378	at End % 1.72 2.07	T50 min 0.000 0.000	ft ² /sec 0.00e+000 0.00e+000	1/tsf 2.61e-001 5.98e-002	ft/day 0.00e+000 0.00e+000	% 0.00e+000 0.00e+000
2 3	Stress tsf 0.0658 0.125 0.250	Displacement in 0.01719 0.02073 0.02970	Ratio 0.383 0.378 0.366	at End % 1.72 2.07 2.97	T50 min 0.000 0.000 0.000	ft ² /sec 0.00e+000 0.00e+000 0.00e+000	1/tsf 2.61e-001 5.98e-002 7.18e-002	ft/day 0.00e+000 0.00e+000 0.00e+000	% 0.00e+000 0.00e+000 0.00e+000
2 3 4	Stress tsf 0.0658 0.125 0.250 0.500	Displacement in 0.01719 0.02073 0.02970 0.04346	Ratio 0.383 0.378 0.366 0.346	at End % 1.72 2.07 2.97 4.35	T50 min 0.000 0.000 0.000 0.000	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 0.00e+000	1/tsf 2.61e-001 5.98e-002 7.18e-002 5.50e-002	ft/day 0.00e+000 0.00e+000 0.00e+000 0.00e+000	<pre>% 0.00e+000 0.00e+000 0.00e+000 0.00e+000</pre>
2 3 4 5 6 7	Stress tsf 0.0658 0.125 0.250 0.500 1.00	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688	Ratio 0.383 0.378 0.366 0.346 0.328	at End % 1.72 2.07 2.97 4.35 5.69	T50 min 0.000 0.000 0.000 0.000 1.648	ft²/sec 0.00e+000 0.00e+000 0.00e+000 0.00e+000 3.12e-006	1/tsf 2.61e-001 5.98e-002 7.18e-002 5.50e-002 2.68e-002	ft/day 0.00e+000 0.00e+000 0.00e+000 0.00e+000 2.26e-004	<pre>% 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000</pre>
2 3 4 5 6	Stress tsf 0.0658 0.125 0.250 0.500 1.00 2.00	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115	Ratio 0.383 0.378 0.366 0.346 0.328 0.308	at End % 1.72 2.07 2.97 4.35 5.69 7.11	T50 min 0.000 0.000 0.000 1.648 0.000	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 3.12e-006 0.00e+000	1/tsf 2.61e-001 5.98e-002 7.18e-002 5.50e-002 2.68e-002 1.43e-002	ft/day 0.00e+000 0.00e+000 0.00e+000 2.26e-004 0.00e+000	<pre>% 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000</pre>
2 3 4 5 6 7 8 9	Stress tsf 0.0658 0.125 0.250 0.500 1.00 2.00 4.00	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115 0.08592	Ratio 0.383 0.378 0.366 0.328 0.328 0.308 0.287 0.263 0.241	at End % 1.72 2.07 2.97 4.35 5.69 7.11 8.59 10.2 11.8	T50 min 0.000 0.000 0.000 1.648 0.000 0.917	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 3.12e-006 0.00e+000 5.28e-006	1/tsf 2.61e-001 5.98e-002 7.18e-002 5.50e-002 2.68e-002 1.43e-002 7.39e-003	ft/day 0.00e+000 0.00e+000 0.00e+000 2.26e-004 0.00e+000 1.05e-004	<pre>% 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000</pre>
2 3 4 5 6 7 8 9 10	Stress tsf 0.0658 0.125 0.250 0.500 1.00 2.00 4.00 8.00	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115 0.08592 0.1024	Ratio 0.383 0.378 0.366 0.346 0.328 0.308 0.287 0.263	at End * 1.72 2.07 2.97 4.35 5.69 7.11 8.59 10.2	T50 min 0.000 0.000 0.000 1.648 0.000 0.917 0.289	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 3.12e-006 0.00e+000 5.28e-006 1.62e-005	1/tsf 2.61e-001 5.98e-002 7.18e-002 2.68e-002 2.68e-002 7.39e-003 4.13e-003	ft/day 0.00e+000 0.00e+000 0.00e+000 2.26e-004 0.00e+000 1.05e-004 1.80e-004	<pre>% 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000</pre>
2 3 4 5 6 7 8 9 10 11	Stress tsf 0.0658 0.125 0.500 1.00 2.00 4.00 8.00 16.0	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115 0.08592 0.1024 0.1181	Ratio 0.383 0.378 0.366 0.328 0.328 0.308 0.287 0.263 0.241	at End % 1.72 2.07 2.97 4.35 5.69 7.11 8.59 10.2 11.8	T50 min 0.000 0.000 0.000 1.648 0.000 0.917 0.289 0.282	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 3.12e-006 0.00e+000 5.28e-006 1.62e-005 1.60e-005	1/tsf 2.61e-001 5.98e-002 7.18e-002 5.50e-002 2.68e-002 1.43e-002 7.39e-003 4.13e-003 1.96e-003	ft/day 0.00e+000 0.00e+000 0.00e+000 2.26e-004 0.00e+000 1.05e-004 1.80e-004 8.48e-005	<pre>% 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000</pre>
2 3 4 5 6 7 8 9 10	Stress tsf 0.0658 0.125 0.250 0.500 1.00 2.00 4.00 8.00 16.0 32.0	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115 0.08592 0.1024 0.1181 0.1132	Ratio 0.383 0.378 0.366 0.346 0.328 0.308 0.287 0.263 0.241 0.220	at End % 1.72 2.07 2.97 4.35 5.69 7.11 8.59 10.2 11.8 13.3	T50 min 0.000 0.000 0.000 1.648 0.000 0.917 0.289 0.282 0.175	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 3.12e-006 0.00e+000 5.28e-006 1.62e-005 1.60e-005 2.49e-005	1/tsf 2.61e-001 5.98e-002 7.18e-002 5.50e-002 2.68e-002 1.43e-002 7.39e-003 4.13e-003 9.44e-004	ft/day 0.00e+000 0.00e+000 0.00e+000 2.26e-004 0.00e+000 1.05e-004 1.80e-004 8.48e-005 6.34e-005	<pre>% 0.00e+000 /pre>
2 3 4 5 6 7 8 9 10 11 12 13	Stress tsf 0.0658 0.125 0.250 0.500 1.00 2.00 4.00 8.00 16.0 32.0 8.00	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115 0.08592 0.1024 0.1181 0.1332 0.1314	Ratio 0.383 0.378 0.366 0.328 0.328 0.287 0.263 0.241 0.220 0.223 0.227 0.232	at End % 1.72 2.07 2.97 4.35 5.69 7.11 8.59 10.2 11.8 13.3 13.1 12.8 12.5	T50 min 0.000 0.000 0.000 1.648 0.000 0.917 0.289 0.282 0.175 0.000	ft ² /sec 0.00e+000 0.00e+000 0.00e+000 3.12e-006 0.00e+000 5.28e-006 1.62e-005 2.49e-005 0.00e+000	1/tsf 2.61e-001 5.98e-002 7.18e-002 2.68e-002 1.43e-002 1.43e-003 1.96e-003 9.44e-004 7.52e-005	ft/day 0.00e+000 0.00e+000 0.00e+000 2.26e-004 0.00e+000 1.05e-004 1.80e-004 8.48e-005 6.34e-005 0.00e+000	<pre>% 0.00e+000 /pre>
2 3 4 5 6 7 8 9 10 11 12	Stress tsf 0.0658 0.125 0.250 0.500 1.00 2.00 4.00 8.00 16.0 32.0 8.00 2.00	Displacement in 0.01719 0.02073 0.02970 0.04346 0.05688 0.07115 0.08592 0.1024 0.1181 0.1332 0.1314 0.1281	Ratio 0.383 0.378 0.366 0.346 0.328 0.308 0.287 0.263 0.241 0.220 0.223 0.227	at End % 1.72 2.07 2.97 4.35 5.69 7.11 8.59 10.2 11.8 13.3 13.1 12.8	T50 min 0.000 0.000 0.000 1.648 0.000 0.917 0.289 0.282 0.175 0.000 0.000	ft ² /sec 0.00e+000 0.00e+000 3.12e-006 0.00e+000 5.28e-006 1.62e-005 1.60e-005 0.00e+000 0.00e+000	1/tsf 2.61e-001 5.98e-002 7.18e-002 2.68e-002 1.43e-002 7.39e-003 4.13e-003 1.96e-003 9.44e-004 7.52e-005 5.52e-004	ft/day 0.00e+000 0.00e+000 2.26e-004 0.00e+000 1.05e-004 1.80e-004 8.48e-005 6.34e-005 0.00e+000 0.00e+000	<pre>% 0.00e+000 /pre>

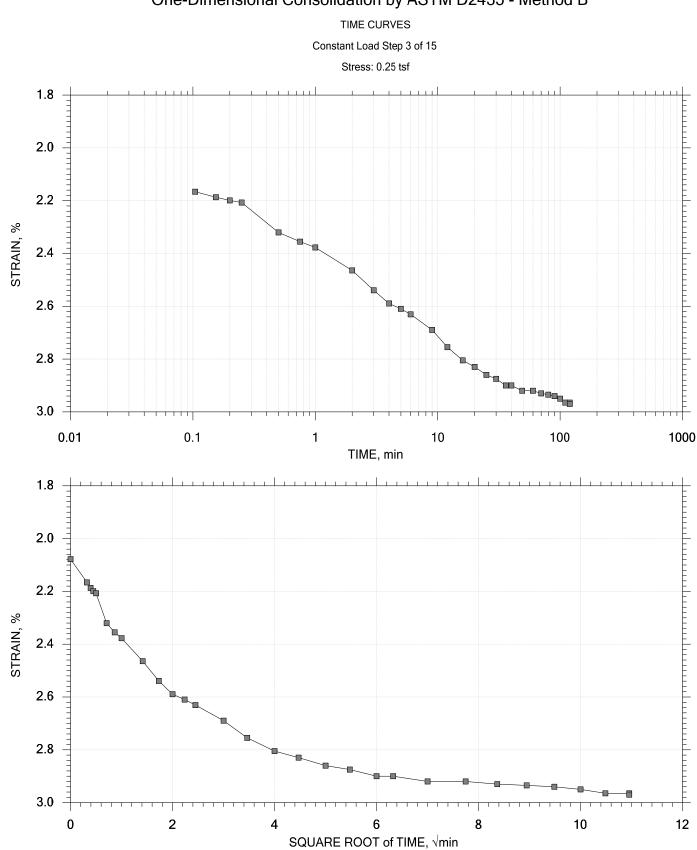


	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B5-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1		
GeoTesting	Depth: 10-12 ft	Sample Type: intact	Elevation:		
EXPRESS	Description: Moist, dark olive gray clay with gravel				
	Remarks: System S, Swell Pressure = 0.0658 tsf				



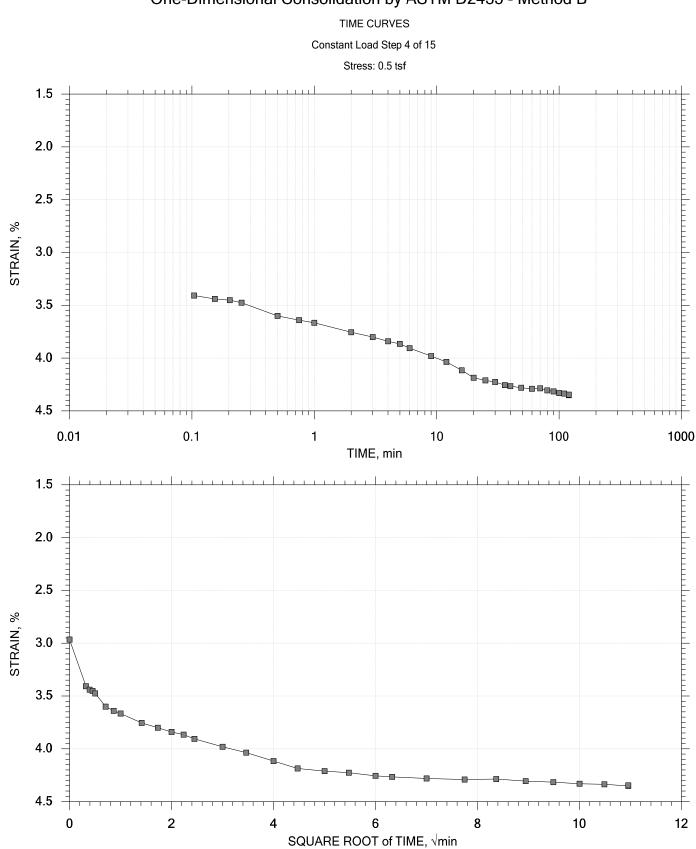
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	Boring No.: B5-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1		
GeoTesting EXPRESS	Depth: 10-12 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark olive gray clay with gravel				
	Remarks: System S, Swell Pressure = 0.0658 tsf				

One-Dimensional Consolidation by ASTM D2435 - Method B

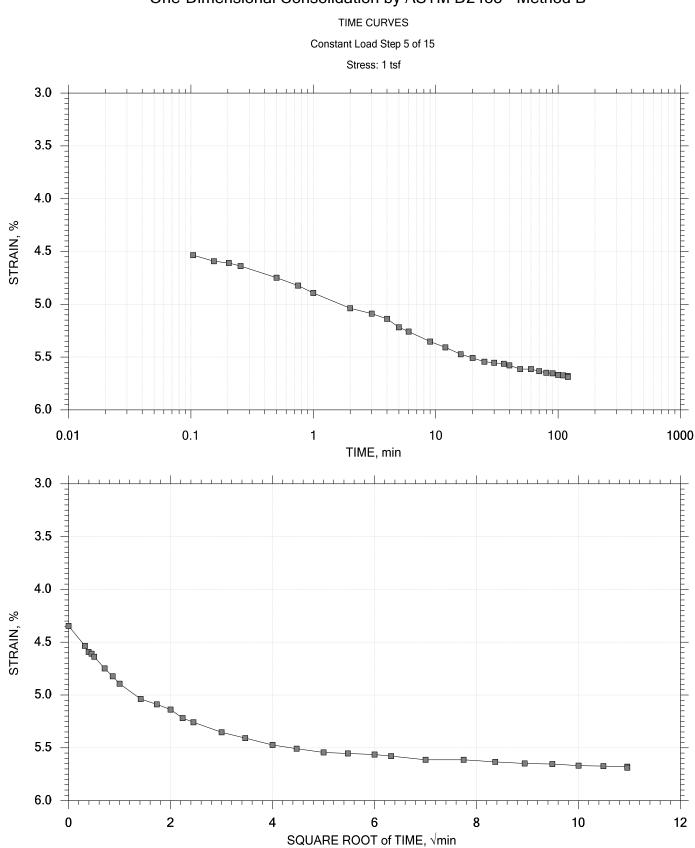


	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B5-ST	Tested By: md	Checked By: jdt		
Testing	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1		
GeoTesting EXPRESS	Depth: 10-12 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark olive gray clay with gravel				
	Remarks: System S, Swell Pressure = 0.0658 tsf				

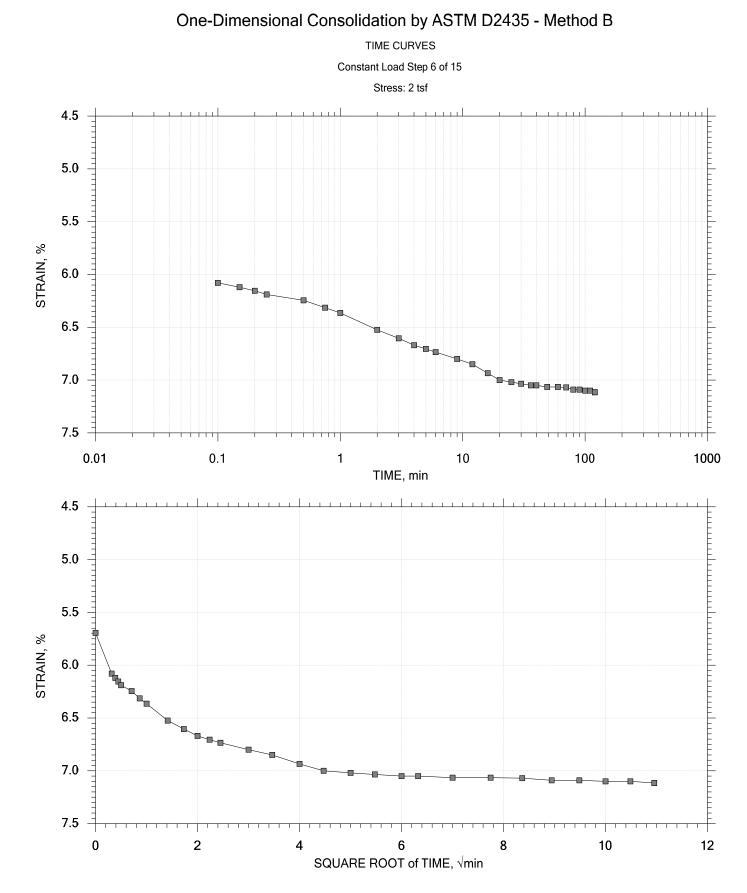
One-Dimensional Consolidation by ASTM D2435 - Method B



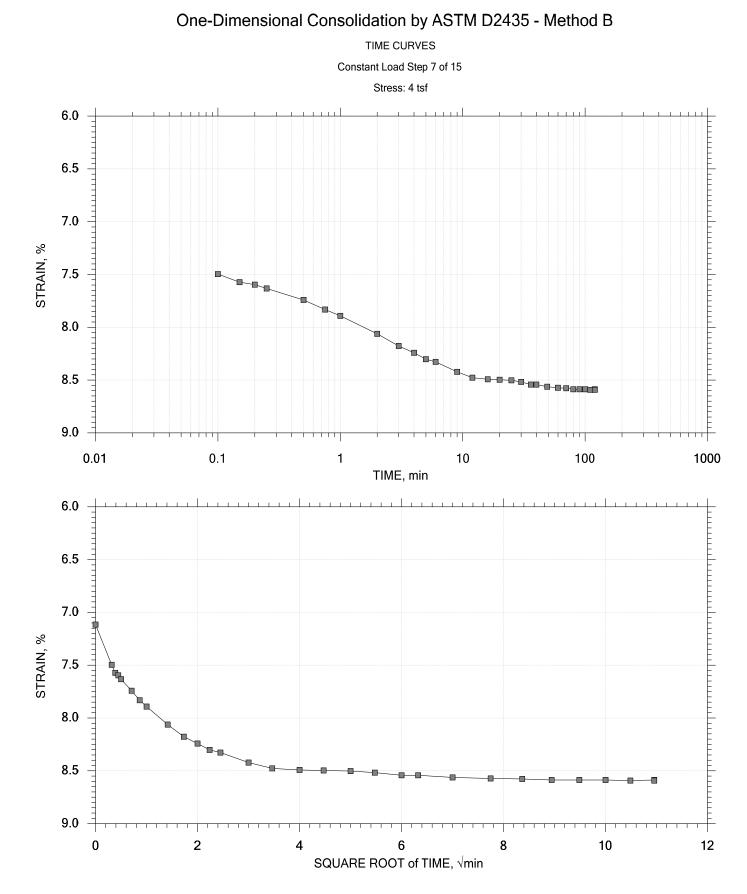
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



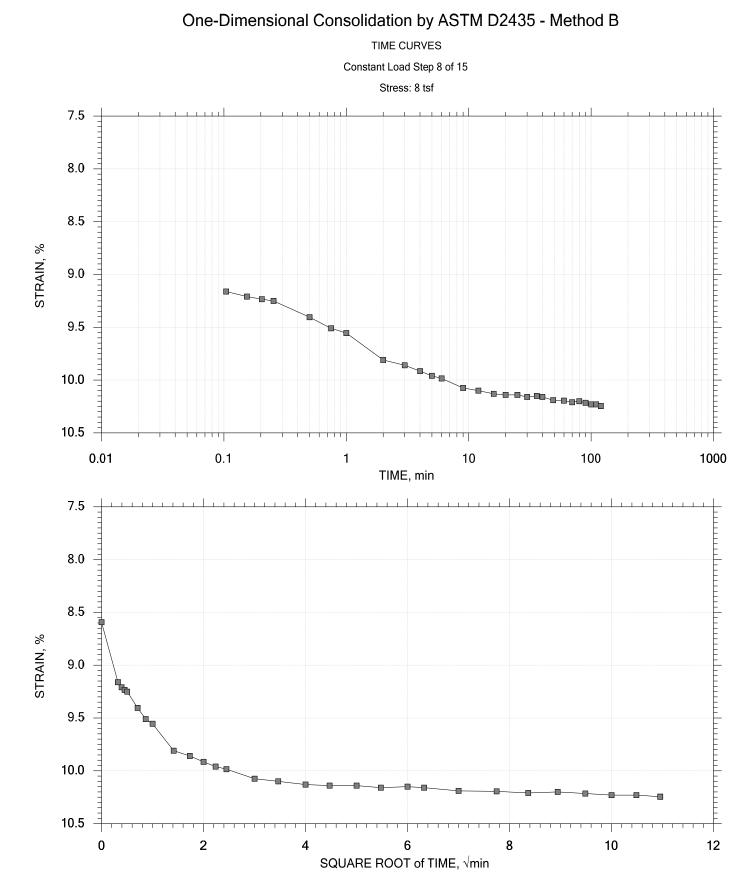
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



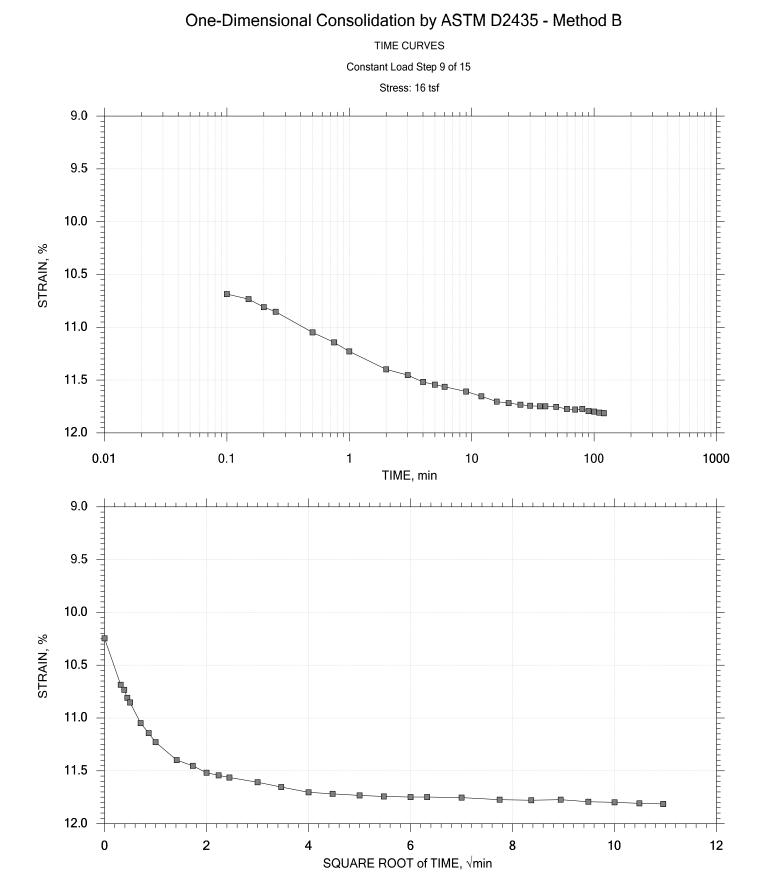
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



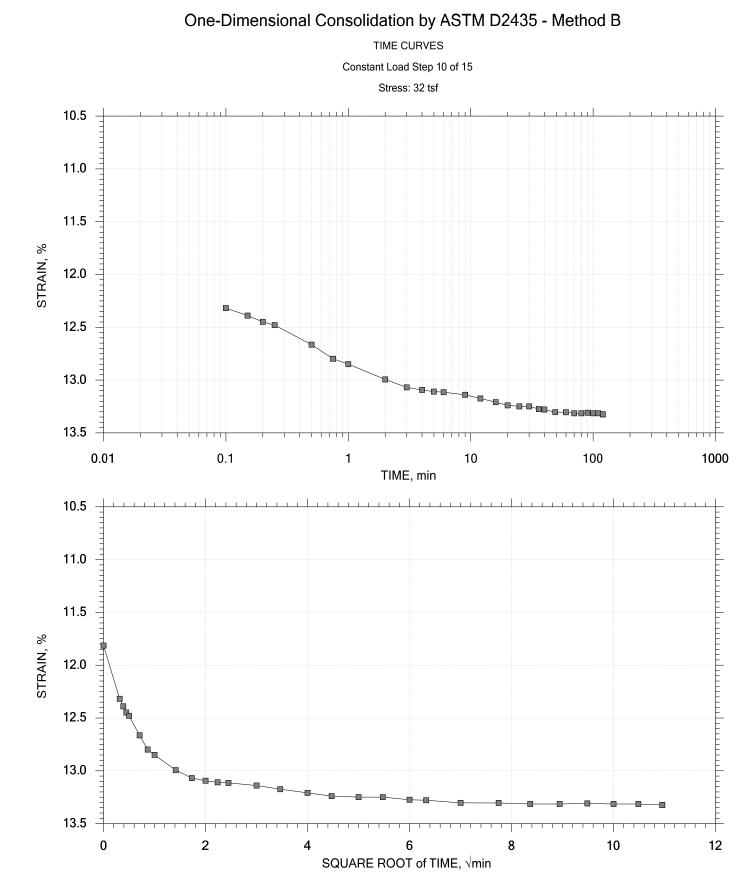
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



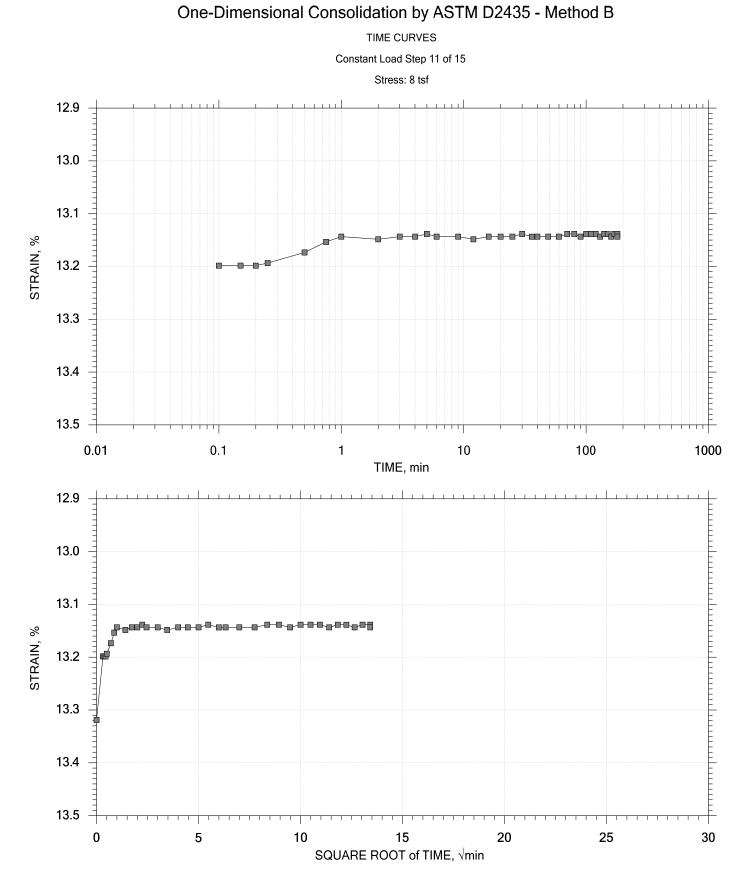
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



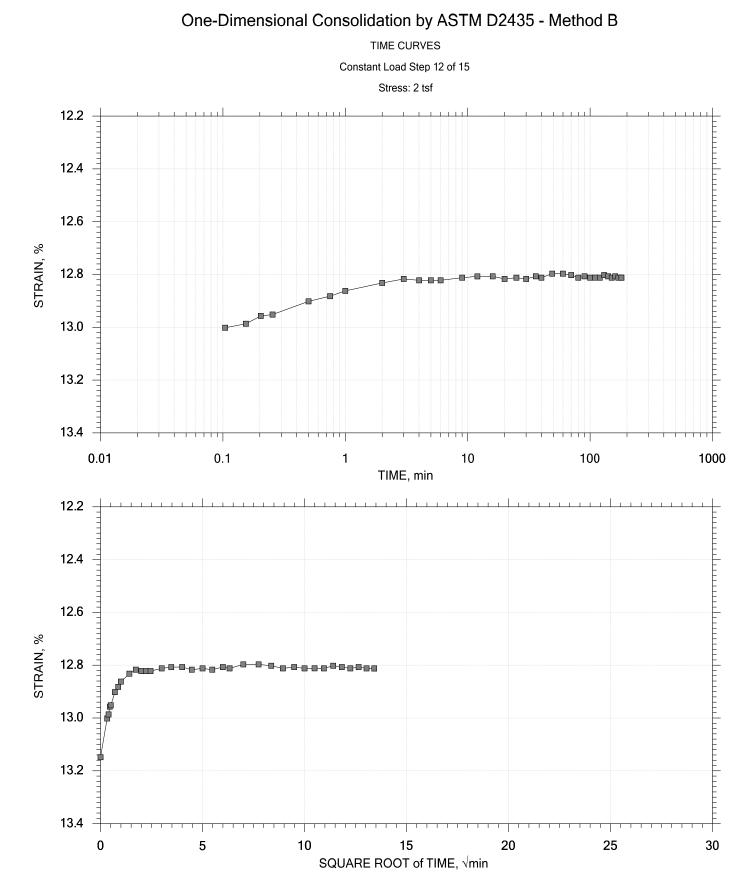
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



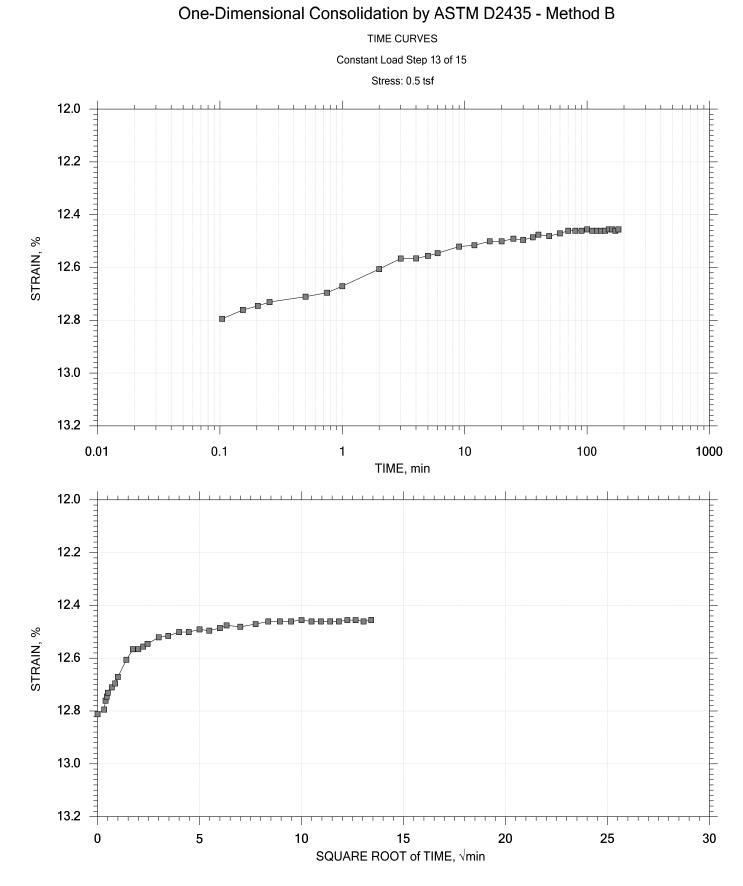
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



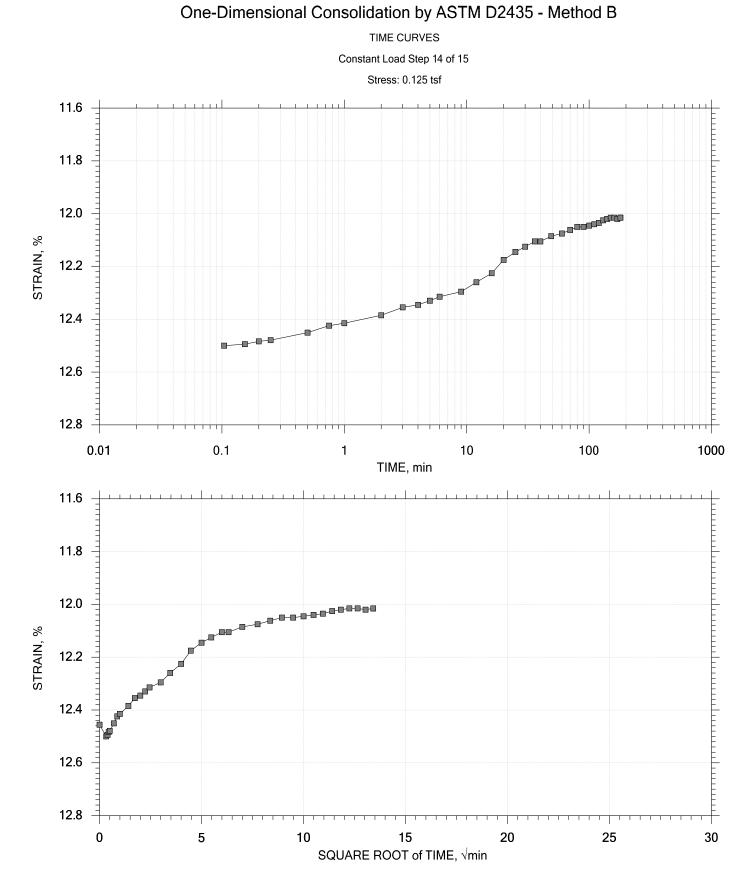
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	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



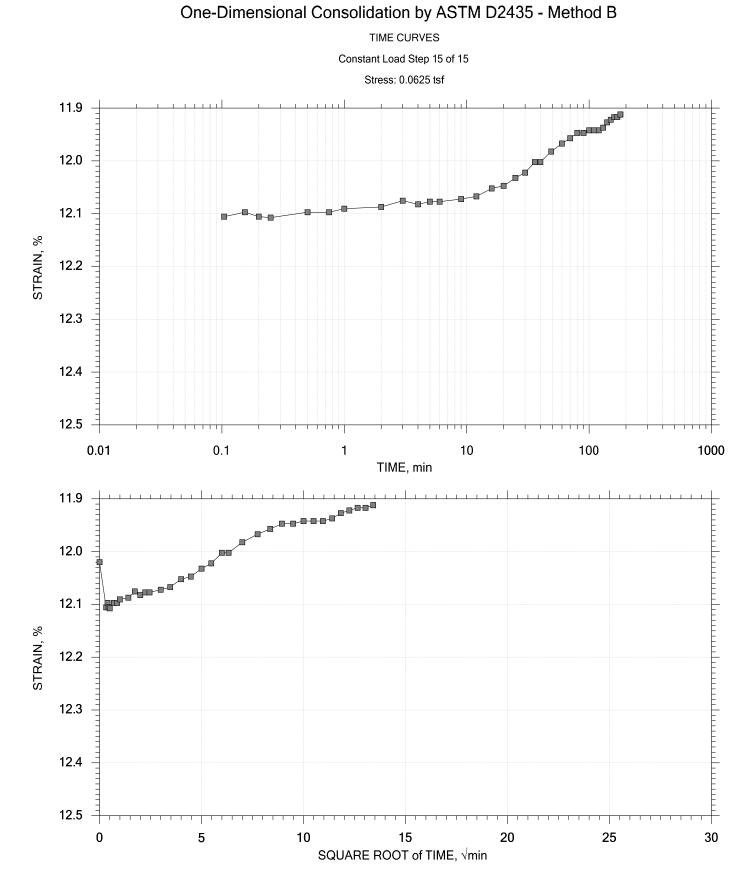
GeoTesting E X P R E S S	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



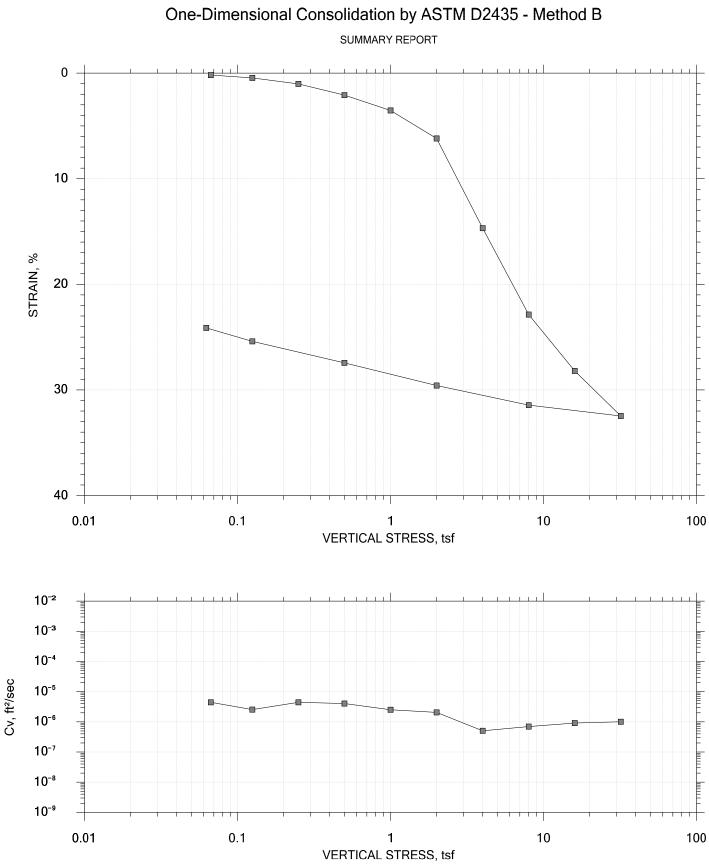
GeoTesting E X P R E S S	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



GeoTesting E X P R E S S	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		

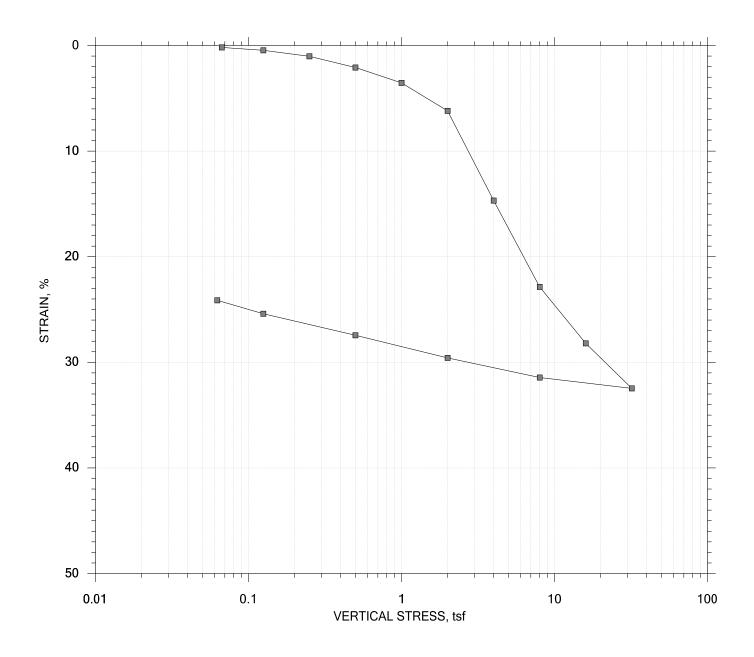


GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B5-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-1
	Depth: 10-12 ft	Sample Type: intact	Elevation:
	Description: Moist, dark olive gray clay with gravel		
	Remarks: System S, Swell Pressure = 0.0658 tsf		



	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Testing	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting EXPRESS	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				
	Displacement at End of Increment				

SUMMARY REPORT



					Before Test	After Test
Current Vertical Effective Stress:			Water Content, %	44.32	28.20	
Preconsolidation Stress:			Dry Unit Weight, pcf	77.032	96.29	
Compression Ratio:			Saturation, %	99.80	100.00	
Diameter: 2.5 in Height: 1 in		Void Ratio	1.21	0.77		
LL: 55	PL: 23	PI: 32	GS: 2.73			

	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Contine	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting EXPRESS	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				
	Displacement at End of Increment				

Project: Hinesburg HES 021-0(19) Boring No.: B7-ST Sample No.: ST-1 Test No.: IP-2	Location: Tested By: md Test Date: 06/15/15 Sample Type: intact		Project No.: Checked By: Depth: 8-10 Elevation: -	jdt ft
Soil Description: Moist, dark grayish Remarks: System V, Swell Pressure = O				
Estimated Specific Gravity: 2.73 Initial Void Ratio: 1.21 Final Void Ratio: 0.770	Liquid Limit: 5 Plastic Limit: Plasticity Inde	23	Specimen Diameter: Initial Height: 1. Final Height: 0.80	00 in
	Before Co	onsolidation	After Consol	idation
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	A-658	RING		A-603
Wt. Container + Wet Soil, gm	153.83	254.53	238.53	133.89
Wt. Container + Dry Soil, gm	104.55	210.54	210.54	106.26
Wt. Container, gm	8.3900	111.28	111.28	8.2900
Wt. Dry Soil, gm	96.160	99.257	99.257	97.970
Water Content, %	51.25	44.32	28.20	28.20
Void Ratio		1.21	0.770	
Degree of Saturation, %		99.80	100.00	
Dry Unit Weight, pcf		77.032	96.290	

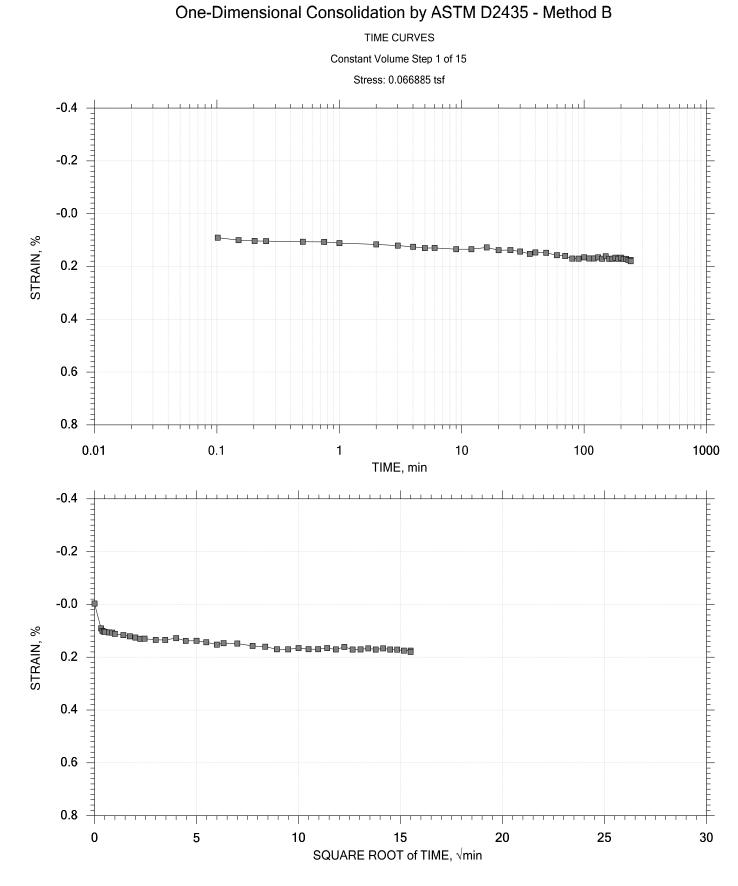
Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

Project: Hinesburg HES 021-0(19) Boring No.: B7-ST Sample No.: ST-1 Test No.: IP-2 Location: ---Tested By: md Test Date: 06/15/15 Sample Type: intact Project No.: GTX-303296 Checked By: jdt Depth: 8-10 ft Elevation: ---

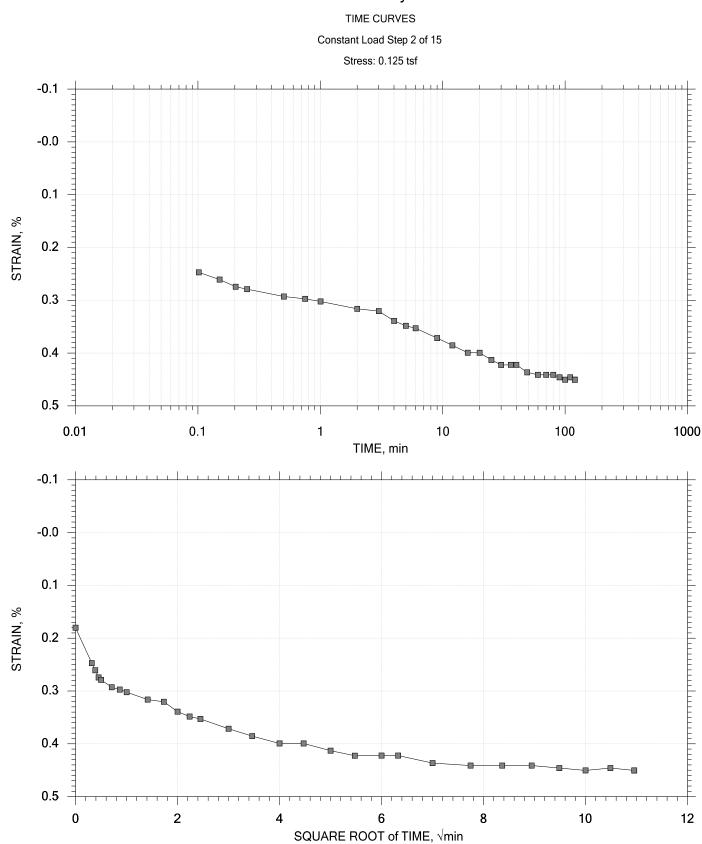
Soil Description: Moist, dark grayish brown clay Remarks: System V, Swell Pressure = 0.0669 tsf

Displacement at End of Increment

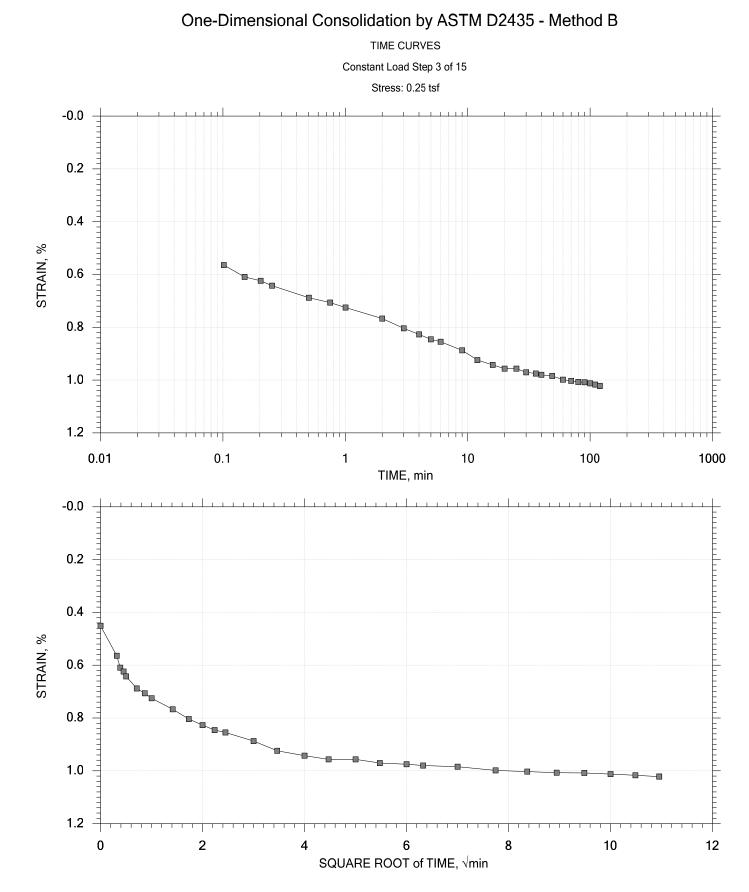
		_, _							
	Applied	Final	Void	Strain	Sq.Rt	<i></i>	.,	1-	
	Stress	Displacement	Ratio	at End	Т90	Cv	Mv	k	
	tsf	in		o'o	min	ft²/sec	1/tsf	ft/day	
1	0.0669	0.001797	1.21	0.180	4.942	4.96e-006	2.69e-002	3.59e-004	
2	0.125	0.004504	1.20	0.450	11.401	2.14e-006	4.66e-002	2.69e-004	
3	0.250	0.01022	1.19	1.02	5.800	4.17e-006	4.57e-002	5.14e-004	
4	0.500	0.02080	1.17	2.08	4.976	4.78e-006	4.23e-002	5.46e-004	
5	1.00	0.03534	1.13	3.53	8.054	2.88e-006	2.91e-002	2.26e-004	
6	2.00	0.06185	1.08	6.19	10.889	2.04e-006	2.65e-002	1.46e-004	
7	4.00	0.1468	0.888	14.7	39.594	4.97e-007	4.25e-002	5.69e-005	
8	8.00	0.2286	0.707	22.9	22.803	7.10e-007	2.04e-002	3.91e-005	
9	16.0	0.2820	0.588	28.2	11.950	1.14e-006	6.68e-003	2.05e-005	
10	32.0	0.3246	0.494	32.5	12.055	9.88e-007	2.66e-003	7.10e-006	
11	8.00	0.3144	0.517	31.4	9.239	1.23e-006	4.26e-004	1.41e-006	
12	2.00	0.2958	0.558	29.6	20.356	5.82e-007	3.09e-003	4.86e-006	
13	0.500	0.2744	0.605	27.4	123.661	1.01e-007	1.43e-002	3.91e-006	
14	0.125	0.2540	0.650	25.4	0.000	0.00e+000	5.43e-002	0.00e+000	
15	0.0625	0.2413	0.679	24.1	0.000	0.00e+000	2.04e-001	0.00e+000	
	Applied	Final	Void	Strain	Log				
	Stress	Displacement	Ratio	at End	T50	Cv	Mv	k	Ca
	tsf	in	Racio	ac Ella	min	ft²/sec	1/tsf	ft/day	Ca %
	COL	111		0		10 / 500	1/ 051	rc/day	0
1	0.0669	0.001797	1.21	0.180	0.000	0.00e+000	2.69e-002	0.00e+000	0.00e+000
2	0.125	0.004504	1.20	0.450	1.074	5.27e-006	4.66e-002	6.62e-004	0.00e+000
3	0.250	0.01022	1.19	1.02	0.000	0.00e+000	4.57e-002	0.00e+000	0.00e+000
4	0.500	0.02080							
5			1.17	2.08	0.000	0.00e+000	4.23e-002	0.00e+000	0.00e+000
	1.00	0.03534	1.13	3.53	0.000	0.00e+000	2.91e-002	0.00e+000	0.00e+000
6	1.00 2.00	0.03534 0.06185	1.13 1.08	3.53 6.19	0.000 2.658	0.00e+000 1.94e-006	2.91e-002 2.65e-002	0.00e+000 1.39e-004	0.00e+000 0.00e+000
7	1.00 2.00 4.00	0.03534 0.06185 0.1468	1.13 1.08 0.888	3.53 6.19 14.7	0.000 2.658 0.000	0.00e+000 1.94e-006 0.00e+000	2.91e-002 2.65e-002 4.25e-002	0.00e+000 1.39e-004 0.00e+000	0.00e+000 0.00e+000 0.00e+000
7 8	1.00 2.00 4.00 8.00	0.03534 0.06185 0.1468 0.2286	1.13 1.08 0.888 0.707	3.53 6.19 14.7 22.9	0.000 2.658 0.000 0.000	0.00e+000 1.94e-006 0.00e+000 0.00e+000	2.91e-002 2.65e-002 4.25e-002 2.04e-002	0.00e+000 1.39e-004 0.00e+000 0.00e+000	0.00e+000 0.00e+000 0.00e+000 0.00e+000
7 8 9	1.00 2.00 4.00 8.00 16.0	0.03534 0.06185 0.1468 0.2286 0.2820	1.13 1.08 0.888 0.707 0.588	3.53 6.19 14.7 22.9 28.2	0.000 2.658 0.000 0.000 3.954	0.00e+000 1.94e-006 0.00e+000 0.00e+000 8.00e-007	2.91e-002 2.65e-002 4.25e-002 2.04e-002 6.68e-003	0.00e+000 1.39e-004 0.00e+000 0.00e+000 1.44e-005	0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000
7 8 9 10	1.00 2.00 4.00 8.00 16.0 32.0	0.03534 0.06185 0.1468 0.2286 0.2820 0.3246	1.13 1.08 0.888 0.707 0.588 0.494	3.53 6.19 14.7 22.9 28.2 32.5	0.000 2.658 0.000 0.000 3.954 2.649	0.00e+000 1.94e-006 0.00e+000 0.00e+000 8.00e-007 1.04e-006	2.91e-002 2.65e-002 4.25e-002 2.04e-002 6.68e-003 2.66e-003	0.00e+000 1.39e-004 0.00e+000 0.00e+000 1.44e-005 7.50e-006	0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000
7 8 9 10 11	1.00 2.00 4.00 8.00 16.0 32.0 8.00	0.03534 0.06185 0.1468 0.2286 0.2820 0.3246 0.3144	1.13 1.08 0.888 0.707 0.588 0.494 0.517	3.53 6.19 14.7 22.9 28.2 32.5 31.4	0.000 2.658 0.000 0.000 3.954 2.649 0.000	0.00e+000 1.94e-006 0.00e+000 0.00e+000 8.00e-007 1.04e-006 0.00e+000	2.91e-002 2.65e-002 4.25e-002 2.04e-002 6.68e-003 2.66e-003 4.26e-004	0.00e+000 1.39e-004 0.00e+000 0.00e+000 1.44e-005 7.50e-006 0.00e+000	0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000
7 8 9 10 11 12	$ \begin{array}{r} 1.00\\ 2.00\\ 4.00\\ 8.00\\ 16.0\\ 32.0\\ 8.00\\ 2.00\end{array} $	0.03534 0.06185 0.1468 0.2286 0.2820 0.3246 0.3144 0.2958	$\begin{array}{c} 1.13 \\ 1.08 \\ 0.888 \\ 0.707 \\ 0.588 \\ 0.494 \\ 0.517 \\ 0.558 \end{array}$	3.53 6.19 14.7 22.9 28.2 32.5 31.4 29.6	$\begin{array}{c} 0.000 \\ 2.658 \\ 0.000 \\ 3.954 \\ 2.649 \\ 0.000 \\ 5.554 \end{array}$	0.00e+000 1.94e-006 0.00e+000 8.00e-007 1.04e-006 0.00e+000 4.96e-007	2.91e-002 2.65e-002 4.25e-002 6.68e-003 2.66e-003 4.26e-004 3.09e-003	0.00e+000 1.39e-004 0.00e+000 1.44e-005 7.50e-006 0.00e+000 4.14e-006	0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000
7 8 9 10 11 12 13	$\begin{array}{c} 1.00\\ 2.00\\ 4.00\\ 8.00\\ 16.0\\ 32.0\\ 8.00\\ 2.00\\ 0.500\end{array}$	$\begin{array}{c} 0.03534\\ 0.06185\\ 0.1468\\ 0.2286\\ 0.2820\\ 0.3246\\ 0.3144\\ 0.2958\\ 0.2744 \end{array}$	$\begin{array}{c} 1.13\\ 1.08\\ 0.888\\ 0.707\\ 0.588\\ 0.494\\ 0.517\\ 0.558\\ 0.605\end{array}$	3.53 6.19 14.7 22.9 28.2 32.5 31.4 29.6 27.4	0.000 2.658 0.000 0.000 3.954 2.649 0.000 5.554 17.061	0.00e+000 1.94e-006 0.00e+000 8.00e-007 1.04e-006 0.00e+000 4.96e-007 1.71e-007	2.91e-002 2.65e-002 4.25e-002 6.68e-003 2.66e-003 4.26e-004 3.09e-003 1.43e-002	0.00e+000 1.39e-004 0.00e+000 0.00e+000 1.44e-005 7.50e-006 0.00e+000 4.14e-006 6.58e-006	0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000
7 8 9 10 11 12	$ \begin{array}{r} 1.00\\ 2.00\\ 4.00\\ 8.00\\ 16.0\\ 32.0\\ 8.00\\ 2.00\end{array} $	0.03534 0.06185 0.1468 0.2286 0.2820 0.3246 0.3144 0.2958	$\begin{array}{c} 1.13 \\ 1.08 \\ 0.888 \\ 0.707 \\ 0.588 \\ 0.494 \\ 0.517 \\ 0.558 \end{array}$	3.53 6.19 14.7 22.9 28.2 32.5 31.4 29.6	$\begin{array}{c} 0.000 \\ 2.658 \\ 0.000 \\ 3.954 \\ 2.649 \\ 0.000 \\ 5.554 \end{array}$	0.00e+000 1.94e-006 0.00e+000 8.00e-007 1.04e-006 0.00e+000 4.96e-007	2.91e-002 2.65e-002 4.25e-002 6.68e-003 2.66e-003 4.26e-004 3.09e-003	0.00e+000 1.39e-004 0.00e+000 1.44e-005 7.50e-006 0.00e+000 4.14e-006	0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000 0.00e+000



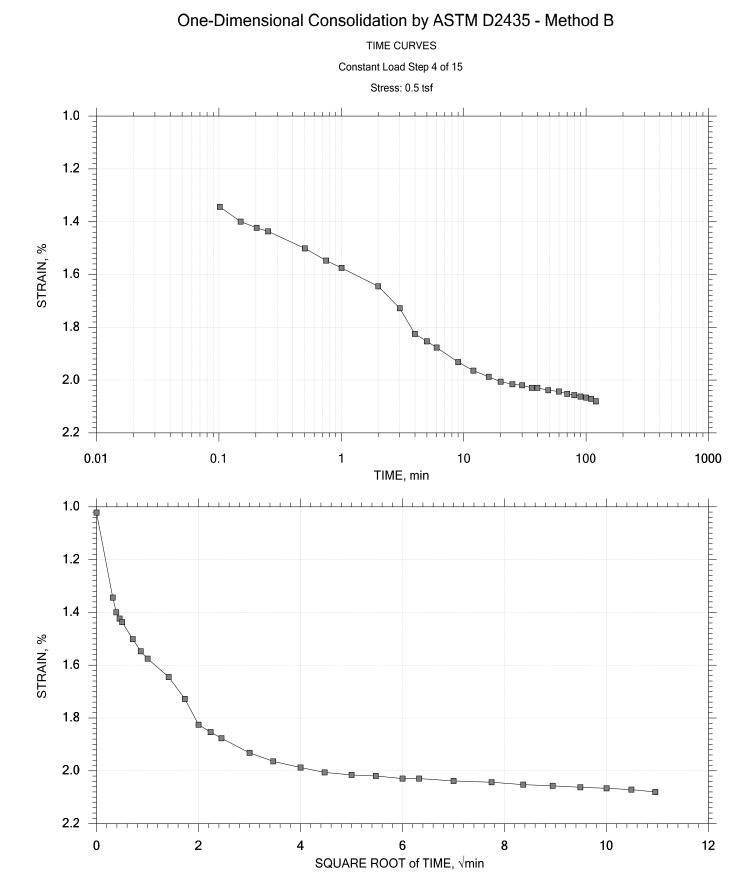
	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting EXPRESS	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				



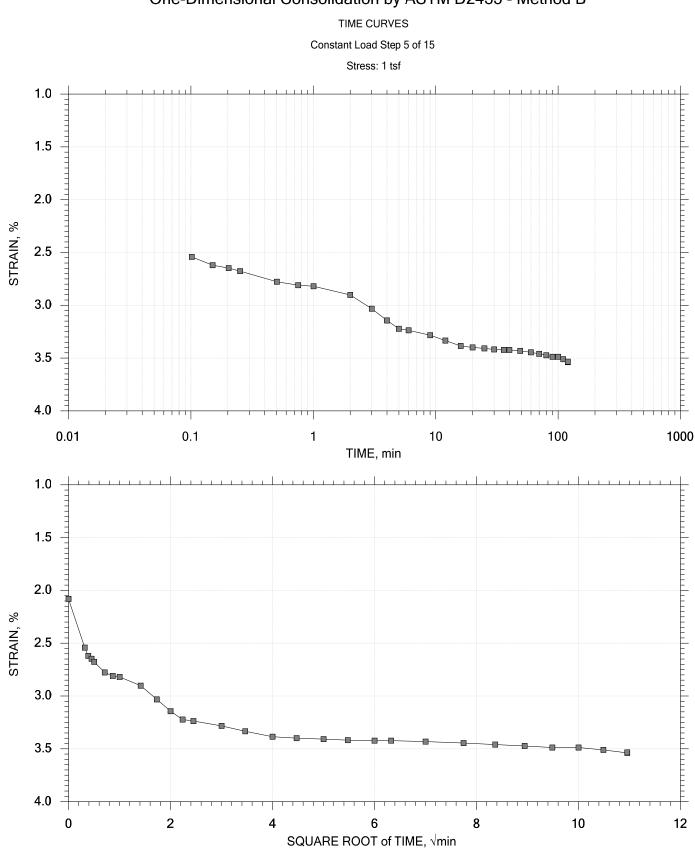
GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				



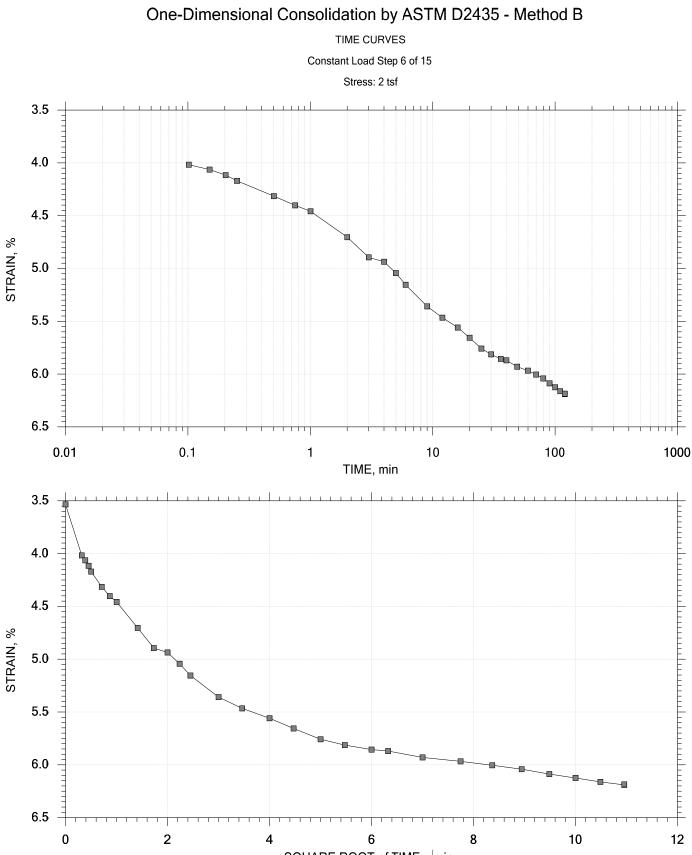
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	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting EXPRESS	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				



GeoTesting EXPRESS	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296
	Boring No.: B7-ST	Tested By: md	Checked By: jdt
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2
	Depth: 8-10 ft	Sample Type: intact	Elevation:
	Description: Moist, dark grayish brown clay		
	Remarks: System V, Swell Pressure = 0.0669 tsf		

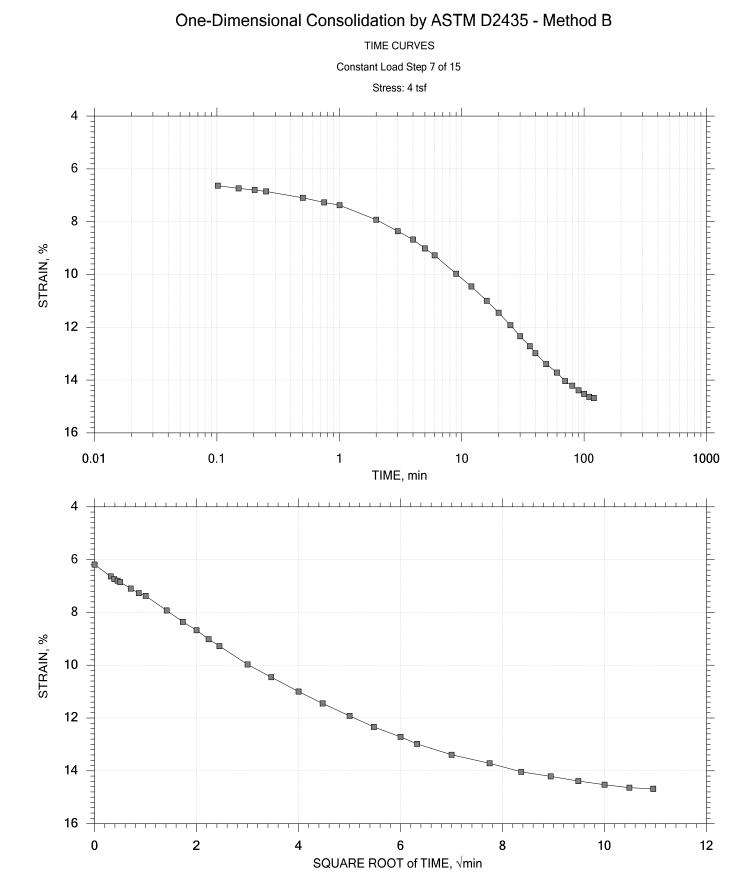


GeoTesting E X P R E S S	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				

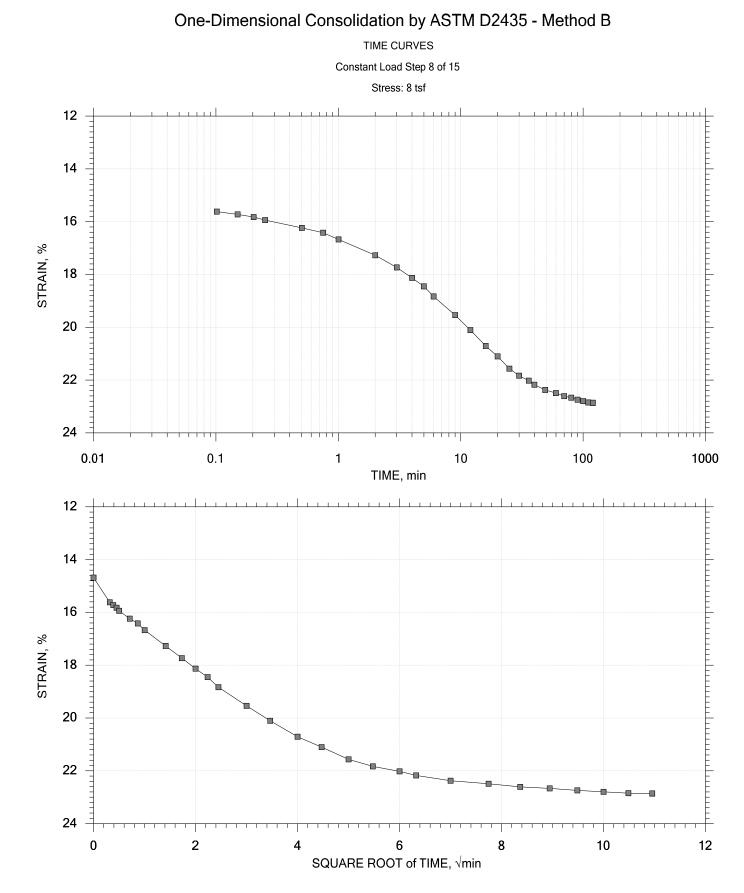


SQUARE ROOT of TIME, $\sqrt{\text{min}}$

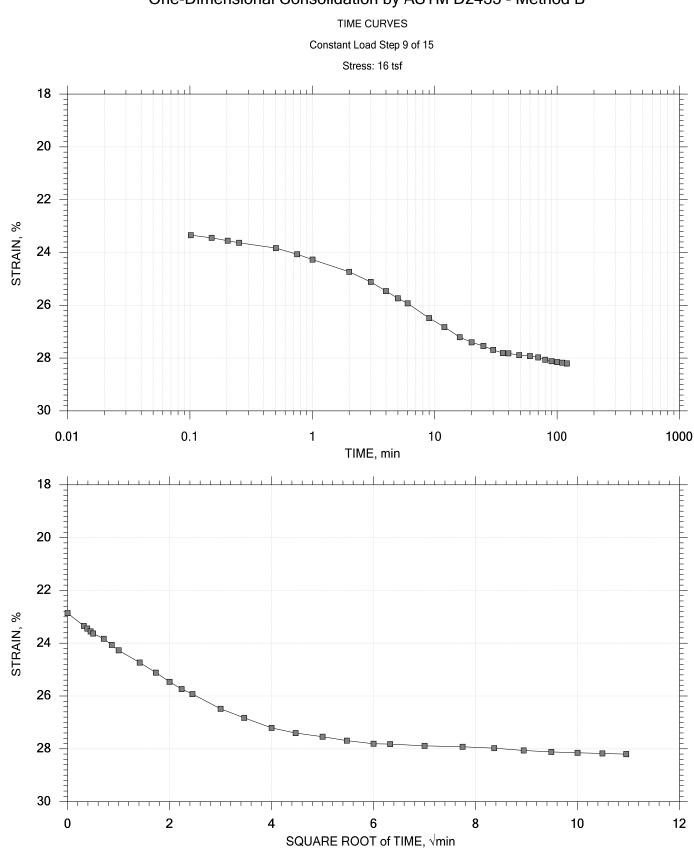
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	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				



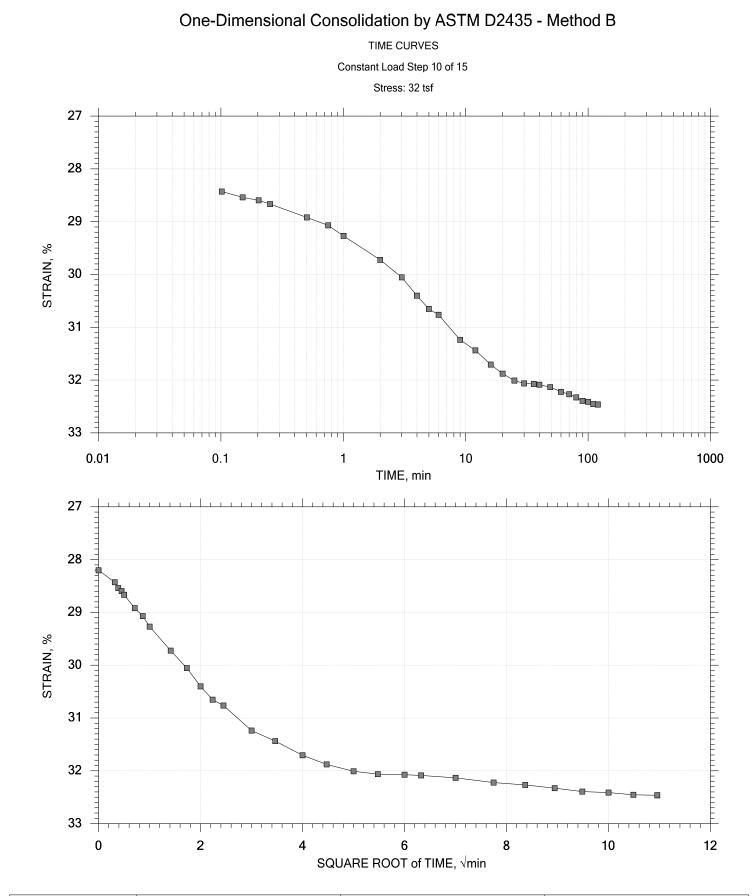
Project: Hinesburg HES 021-0(19) Location: ---Project No.: GTX-303296 Boring No.: B7-ST Checked By: jdt Tested By: md Sample No.: ST-1 Test Date: 06/15/15 Test No.: IP-2 GeoTesting Depth: 8-10 ft Sample Type: intact Elevation: ---EXPRESS Description: Moist, dark grayish brown clay Remarks: System V, Swell Pressure = 0.0669 tsf



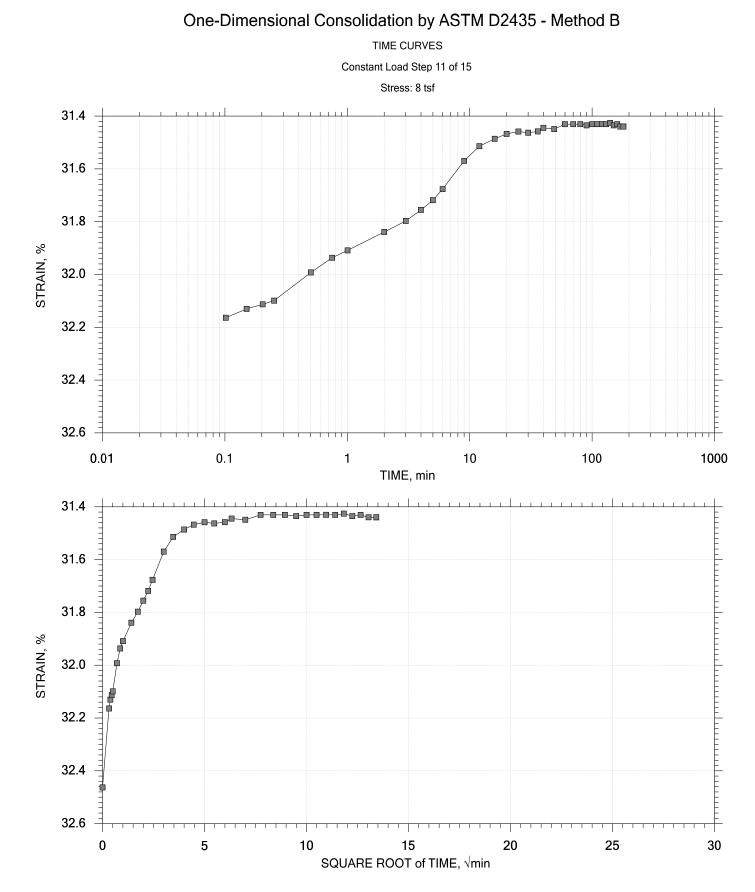
	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting EXPRESS	Depth: 8-10 ft	Sample Type: intact	Elevation:		
	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				



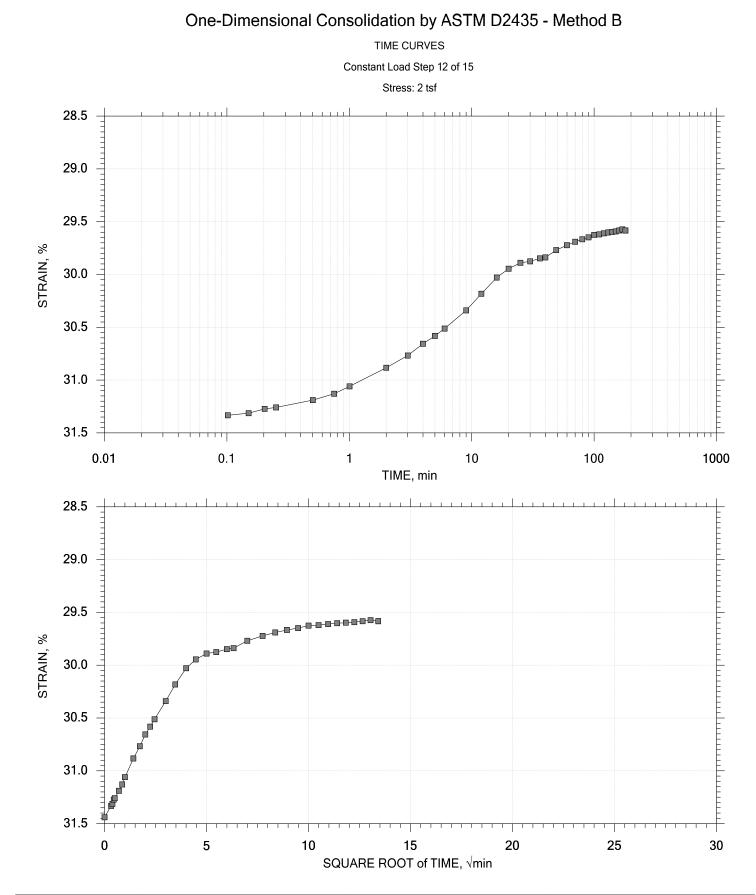
	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296			
	Boring No.: B7-ST	Tested By: md	Checked By: jdt			
Testing	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2			
GeoTesting	Depth: 8-10 ft	-10 ft Sample Type: intact Elevation:				
EXPRESS	Description: Moist, dark grayish brown clay					
	Remarks: System V, Swell Pressure = 0.0669 tsf					



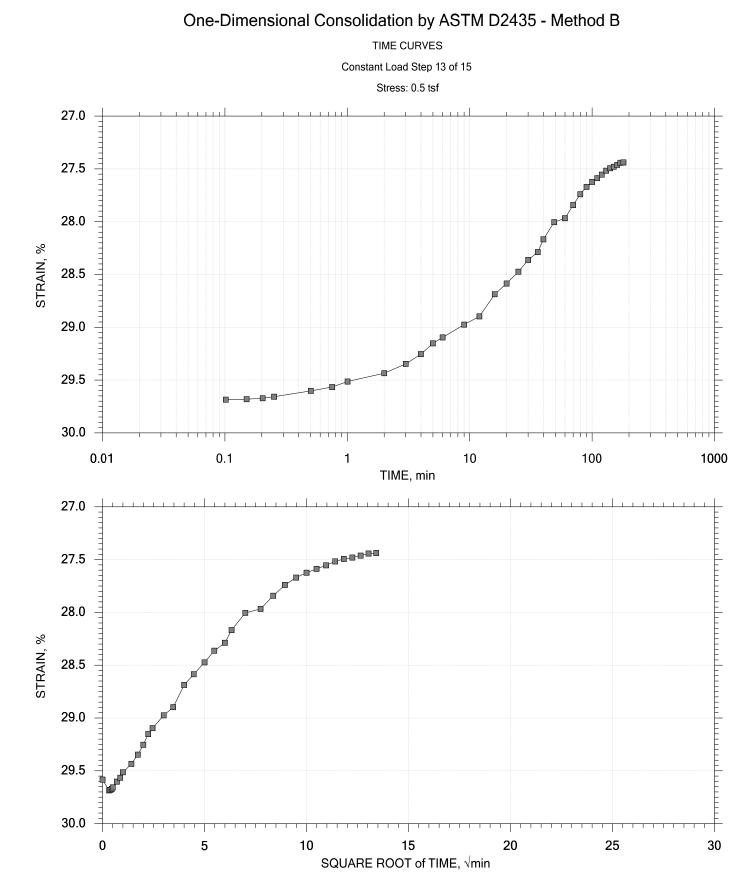
Project: Hinesburg HES 021-0(19) Location: ---Project No.: GTX-303296 Boring No.: B7-ST Checked By: jdt Tested By: md Test Date: 06/15/15 Sample No.: ST-1 Test No.: IP-2 GeoTesting Depth: 8-10 ft Sample Type: intact Elevation: ---EXPRESS Description: Moist, dark grayish brown clay Remarks: System V, Swell Pressure = 0.0669 tsf



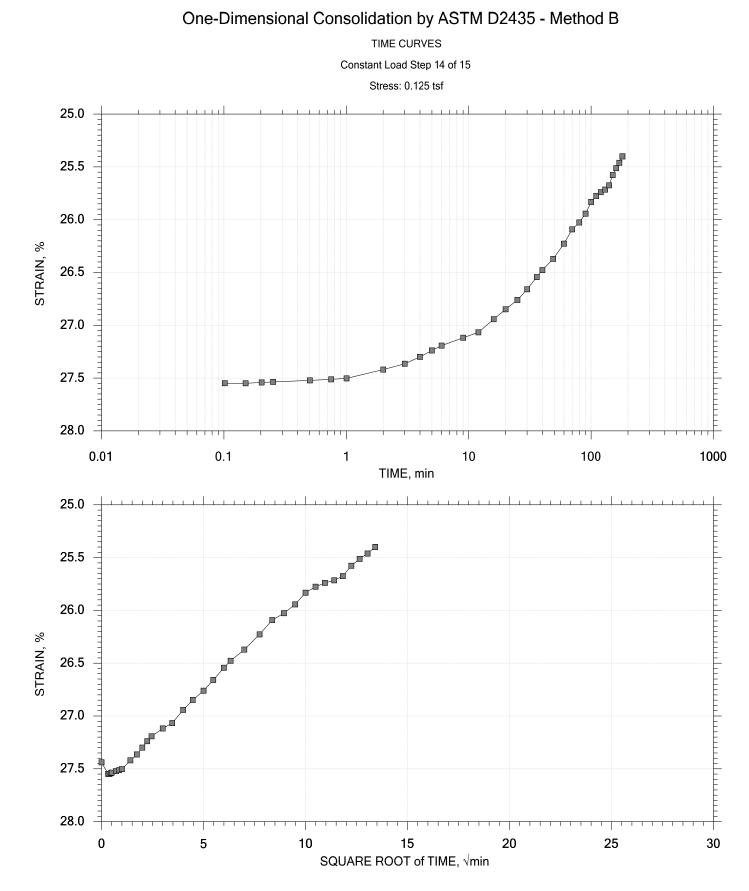
	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296			
	Boring No.: B7-ST	Tested By: md	Checked By: jdt			
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2			
GeoTesting	Depth: 8-10 ft Sample Type: intact Elevation:		Elevation:			
EXPRESS	Description: Moist, dark grayish brown clay					
	Remarks: System V, Swell Pressure = 0.0669 tsf					



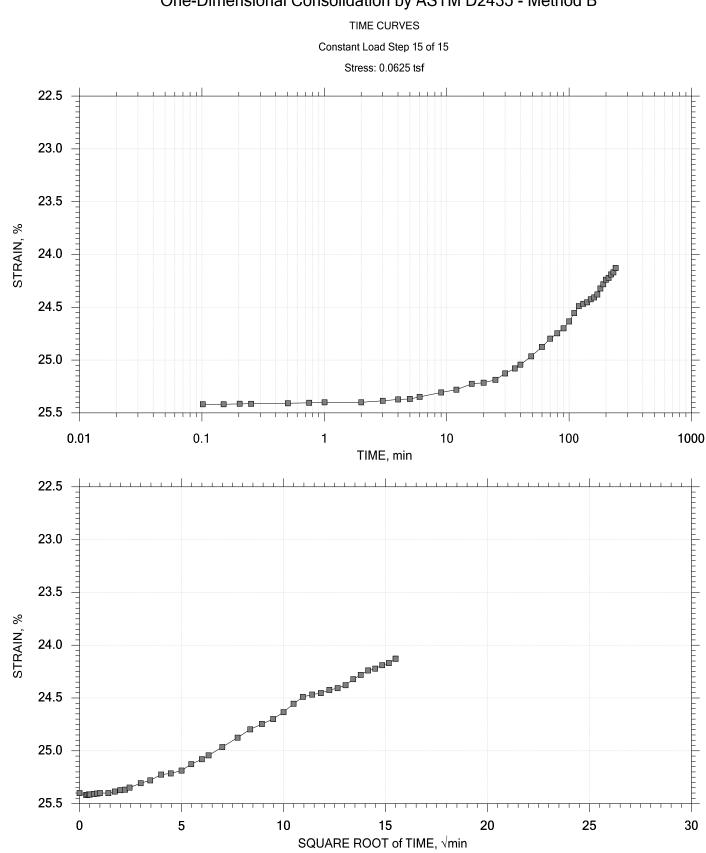
	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting	Depth: 8-10 ft	Sample Type: intact	Elevation:		
EXPRESS	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				



	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296			
	Boring No.: B7-ST	Tested By: md	Checked By: jdt			
Testing	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2			
GeoTesting	Depth: 8-10 ft Sample Type: intact Elevation:		Elevation:			
EXPRESS	Description: Moist, dark grayish brown clay					
	Remarks: System V, Swell Pressure = 0.0669 tsf					



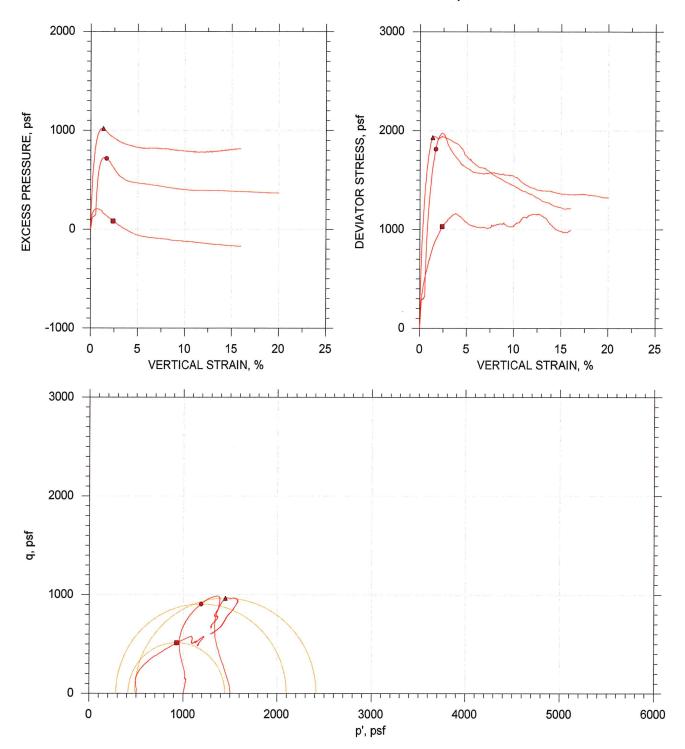
	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296			
	Boring No.: B7-ST	Tested By: md	Checked By: jdt			
Casting	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2			
GeoTesting	Depth: 8-10 ft Sample Type: intact Elevation:		Elevation:			
EXPRESS	Description: Moist, dark grayish brown clay					
	Remarks: System V, Swell Pressure = 0.0669 tsf					



	Project: Hinesburg HES 021-0(19)	Location:	Project No.: GTX-303296		
	Boring No.: B7-ST	Tested By: md	Checked By: jdt		
Testing	Sample No.: ST-1	Test Date: 06/15/15	Test No.: IP-2		
GeoTesting	Depth: 8-10 ft Sample Type: intact Elevation:				
EXPRESS	Description: Moist, dark grayish brown clay				
	Remarks: System V, Swell Pressure = 0.0669 tsf				

Client: GeoDesign, Inc. Project Name: Hinesburg HES 021-1(19) GeoTesting Project Location: ---Project Number: GTX-303296 EXPRES Tested By: md Checked By: njh Boring ID: B7-ST Preparation: intact Description: Moist, dark grayish brown clay Classification: ---Group Symbol: ---Liquid Limit: ----Plastic Limit: ---Plasticity Index: ---Estimated Specific Gravity: 2.7 CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767 4000 T T T 1 1 1 1 i l 4000 DEVIATOR STRESS, psf 3000 3000 psf 2000 2000 ÷ 1000 1000 0 0 0 1000 2000 3000 4000 5000 6000 10 0 5 15 20 25 p', psf **VERTICAL STRAIN, %** Symbol Sample ID ST-1 ST-1 ST-1 Depth, ft 8-10 ft 8-10 FT 8-10 ft Test Number CU-1 CU-3 CU-2 Height, in 3.800 4 000 4.730 Diameter, in 2 030 2.000 2.020 Moisture Content (from Cuttings), % 46.9 46.3 49.0 Initial Dry Density, pcf 71.2 71.7 73.1 Saturation (Wet Method), % 92.6 95.8 98.1 Void Ratio 1.37 1.31 1.35 Moisture Content, % 48.3 47.8 47.8 Dry Density, pcf 73.2 73.6 73.6 Shear Cross-sectional Area (Method A), in² 3.183 3.183 3.094 Before Saturation, % 100.0 100.0 100.0 Void Ratio 1 30 1.29 1.29 Back Pressure, psf 2.146e+004 2.027e+004 2.285e+004 Vertical Effective Consolidation Stress, psf 498.4 1001. 1497. Horizontal Effective Consolidation Stress, psf 499.7 999.6 1503. Vertical Strain after Consolidation, % 0.0000 0.1636 0.5024 Volumetric Strain after Consolidation, % -0.1054 0.7238 1.148 Time to 50% Consolidation, min 0.6400 0.0000 6.760 Shear Strength, psf 515.6 907.7 965.9 Strain at Failure, % 2.38 1.68 1.35 Strain Rate, %/min 0.01600 0.01600 0.01600 Deviator Stress at Failure, psf 1031. 1815. 1932. Effective Minor Principal Stress at Failure, psf 413.5 282.9 481.7 Effective Major Principal Stress at Failure, psf 1445 2098. 2413. **B-Value** 0.96 0.95 0.95 Notes: - Before Shear Saturation set to 100% for phase calculation. Moisture Content determined by ASTM D2216.
Deviator Stress includes membrane correction.
Values for c and
ø determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions. Remarks: System O

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test	No.	Depth	Tested By	Test Date	Checked By	Check D	ate	Test File
	ST-1	CU-1		8-10 ft	md	7/1/15	njh	7/9/15		303296-CU-1n.dat
•	ST-1	CU-3		8-10 FT	md	07/14/15	jdt			303296-CU-2Ajoe2.dat
	ST-1	CU-2		8-10 ft	md	7/1/15	njh	7/9/15		303296-CU-2n.dat
				esburg HES 021-1(19)	Location: Project No.: GTX-303296).: GTX-303296	
	GeoTesting		Boring No.:	B7-ST		Sample Type: intact				
£Χ	PRESS		Description: Moist, dark grayish brown clay							
			Remarks: System O							

	Client: GeoDesign, Inc.			
	Project Name: Hinesburg Hi	S 021-1(19)		
GeoTesting	Project Location:			
Geolesting	Project Number: GTX-30329	6		
EXPRESS	Tested By: md		Checked By: njh	
	Boring ID: B7-ST			
	Preparation: intact			
	Description: Moist, dark gray	ish brown clay		
	Classification:	ion brown oldy		
	Group Symbol:			
	Liquid Limit:		Plastic Limit:	
	Plasticity Index:		Estimated Specific Gravity: 2.7	
CONSOLID	ATED UNDRAINED TRI	AXIAL TEST by ASTM [
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Symbol		•		
Sample ID	ST-1	ST-1	ST-1	
Depth, ft	8-10 ft	8-10 FT	8-10 ft	
Test Number	CU-1	CU-3	CU-2	
Height, in	4.000			
Diameter in		4.730	3.800	
Diameter, in	2.030	4.730	3.800	
- Mainture Content (from Cuttings) 8/		2.020	2.000	
Moisture Content (from Cuttings), %	46.9	2.020 46.3	2.000 49.0	
m Moisture Content (from Cuttings), % Dry Density, pcf	46.9 71.2	2.020 46.3 73.1	2.000 49.0 71.7	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), %	46.9 71.2 92.6	2.020 46.3 73.1 95.8	2.000 49.0 71.7 98.1	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio	46.9 71.2 92.6 1.37	2.020 46.3 73.1 95.8 1.31	2.000 49.0 71.7 98.1 1.35	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, %	46.9 71.2 92.6 1.37 48.3	2.020 46.3 73.1 95.8 1.31 47.8	2.000 49.0 71.7 98.1 1.35 47.8	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, %	46.9 71.2 92.6 1.37 48.3 73.2	2.020 46.3 73.1 95.8 1.31 47.8 73.6	2.000 49.0 71.7 98.1 1.35 47.8 73.6	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, %	46.9 71.2 92.6 1.37 48.3 73.2 3.183	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, %	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, %	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Saturation (Vet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf /ertical Effective Consolidation Stress, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Saturation (Vet Method), % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf /ertical Effective Consolidation Stress, psf /ertical Strain after Consolidation, %	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Vertical Strain after Consolidation, % /ertical Strain after Consolidation, %	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Vertical Strain after Consolidation, % Volumetric Strain after Consolidation, %	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Vertical Effective Consolidation, % Volumetric Strain after Consolidation, % Cinne to 50% Consolidation, min Shear Strength, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503 0.5024 1.148 6.760 965.9	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Shear Strength, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Shear Strength, psf Strain at Failure, % Strain Rate, %/min	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503 0.5024 1.148 6.760 965.9 1.35 0.01600	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Volumetric Strain after Consolidation, % Yolumetric Strain after Consolidation, % Moleumetric Strain after Consolidation, % Yolumetric Strain after Consolidatio	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Volumetric Strain after Consolidation, % Vitrain Rate, %/min Veviator Stress at Failure, psf Iffective Minor Principal Stress at Failure, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Vertical Strain after Consolidation, % Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Strain at Failure, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Minor Principal Stress at Failure, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Horizontal Effective Consolidation, % Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Strain at Failure, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Effective Major Principal Stress at Failure, psf Streter Major Principal Stress at Failure, psf	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Horizontal Effective Consolidation Stress, psf Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Strain T Failure, % Strain T Failure, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Effective Major Principal Stress at Failure, psf Stream Steres Sturation set to 100% for phase calculation.	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Horizontal Effective Consolidation, % Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Strain at Failure, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Stress Shear Saturation set to 100% for phase calculation. Moisture Content determined by ASTM D2216.	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Horizontal Effective Consolidation Stress, psf Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Deviator Stress includes membrane correction.	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in² Saturation, % Void Ratio Back Pressure, psf Vertical Effective Consolidation Stress, psf Horizontal Effective Consolidation, % Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Volumetric Strain after Consolidation, % Strain at Failure, % Strain at Failure, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Minor Principal Stress at Failure, psf Effective Major Principal Stress at Failure, psf Stress Barding Stress at Failure, psf Stress Includes membrane correction. Moisture Content determined by ASTM D2216. Deviator Stress Includes membrane correction. Values for cand q determined from bet-fit straight line for the specific t	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503. 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf //ertical Effective Consolidation Stress, psf -lorizontal Effective Consolidation, Stress, psf //olumetric Strain after Consolidation, % //olumetric Strain after Consolidation, % //olumetric Strain after Consolidation, % Strain at Failure, % Strain at Failure, % Strain Rate, %/min Deviator Stress at Failure, psf Effective Major Principal Stress at Failure, psf Effective Major Principal Stress at Failure, psf Before Shear Sturation set to 100% for phase calculation. Moisture Content determined by ASTM D2216. Deviator Stress includes membrane correction. Values for c and q determined from bets-fitstraight line for the specific test conditions. Actual <	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf //ertical Effective Consolidation Stress, psf /lorizontal Effective Consolidation Stress, psf //olumetric Strain after Consolidation, % //olumetric Strain after Consolidation, min Shear Strength, psf Strain Rate, %/min Deviator Stress at Failure, psf Stretive Minor Principal Stress at Failure, psf Stretive Minor Principal Stress at Failure, psf Stretive Minor Stress includes membrane correction. Walues for c and q determined by ASTM D2216.	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Moisture Content (from Cuttings), % Dry Density, pcf Saturation (Wet Method), % Void Ratio Moisture Content, % Dry Density, pcf Cross-sectional Area (Method A), in ² Saturation, % Void Ratio Back Pressure, psf //ertical Effective Consolidation Stress, psf /lorizontal Effective Consolidation Stress, psf //olumetric Strain after Consolidation, % //olumetric Strain after Consolidation, min Shear Strength, psf Strain Rate, %/min Deviator Stress at Failure, psf Stretive Minor Principal Stress at Failure, psf Stretive Minor Principal Stress at Failure, psf Stretive Minor Stress includes membrane correction. Walues for c and q determined by ASTM D2216.	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	
Image: Sector of the sector	46.9 71.2 92.6 1.37 48.3 73.2 3.183 100.0 1.30 2.146e+004 498.4 499.7 0.1636 -0.1054 0.6400 515.6 2.38 0.01600 1031. 413.5 1445.	2.020 46.3 73.1 95.8 1.31 47.8 73.6 3.183 100.0 1.29 2.027e+004 1001. 999.6 0.0000 0.7238 0.0000 907.7 1.68 0.01600 1815. 282.9 2098.	2.000 49.0 71.7 98.1 1.35 47.8 73.6 3.094 100.0 1.29 2.285e+004 1497. 1503 0.5024 1.148 6.760 965.9 1.35 0.01600 1932. 481.7 2413.	

ATTACHMENT 4 - LIMITATIONS

REPORT LIMITATIONS

Explorations

- 1. The analysis and data submitted in this geotechnical data report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the interpretations made in this report or for design.
- 2. The generalized soil profiles described in the text are intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil bedrock transitions are probably more erratic. For specific information, refer to the exploration logs.
- 3. Water level readings have been made in the explorations at times and under conditions stated on the logs. These data has been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature and other factors occurring since the time measurements were made.

<u>Review</u>

4. In the event that any changes in the nature, design or location of the proposed structure are planned, the conclusions and interpretations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by Geo**Design**, Inc.

Uses of Report

- 5. This report has been prepared for the exclusive use of VTrans and their design teams for specific application to the proposed Hinesburg HES021-1(19) project in Hinesburg, Vermont in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.
- 6. This geotechnical data report has been prepared for this project by Geo**Design**, Inc. This report is for informational and design purposes only and is not sufficient to prepare an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to informational considerations only.