Attachment 6

Geotechnical Report

GEOTECHNICAL SUMMARY REPORT FOR:
PROPOSED DOLLAR GENERAL
HIGHWAY 5 @ CHADBOURNE RIDGE ROAD
NORTH WATERBORO, MAINE 04061

TO:
GBT REALTY
9010 OVERLOOK BOULEVARD
BRENTWOOD, TENNESSEE 37027

JTC PROJECT NO: 14-15-048

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& Boring Logs

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Geotechnical Summary Report

GEOTECHNICAL SUMMARY REPORT

Prepared by:

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STATE OF MAINE
KEVIN M. MARTIN
No. 8738
LICENSED PROFESSIONAL ENGINEER

TO: Jason Horowitz
GBT Realty
9010 Overlook Boulevard
Brentwood, Tennessee 37027

FROM: Judson Zachar, P.E. — Staff Engineer
Kevin Martin, P.E. — Geotechnical Engineer

DATE: July 3, 2014

RE: **GEOTECHNICAL SUMMARY REPORT**
PROPOSED DOLLAR GENERAL
HIGHWAY 5 @ CHADBOURNE RIDGE ROAD
NORTH WATERBORO, MAINE
Project No. 14-15-048

This memorandum serves as a preliminary geotechnical report for the referenced project. The contents of this report are subject to the attached ***Limitations***.

SITE & PROJECT DESCRIPTION

The project site includes a vacant lot (grassed field) located at the intersection of Highway 5 & Chadbourne Ridge Road. There is a small shed on the property. Based on visual review, grades possess a gradual slope with about ≈1-3 ft of topographic relief. We were provided with limited *Site Plans* at the time of this study. Specifically, a *Plot Plan* with no existing conditions, topography, utilities or grading was provided for our use. The *Plot Plan* does provide the proposed layout of the store and associated parking. JTC has no prior knowledge of past construction, use and/or development on the property except what is visibly apparent at the time of our visit.

The project includes a new retail store. The building is to consist of a single-story building about 9,100 ft² in footprint area. It is intended to support the building on a conventional spread footing foundation with a concrete floor slab-on-grade. We anticipate that maximum wall loads will be

in the order of ≈3 kips per linear foot and ≈30 kips for the strip-wall footings and column pads, respectively. Paved parking will be provided to the south and west of the store. Again, *Grading Plans* were not provided at the time of this study. It is expected that shallow cuts and/or fill will be necessary for final grading. The purpose of this study is to provide a preliminary geotechnical evaluation as it pertains to foundation design and associated construction

SUBSURFACE EXPLORATIONS & LABORATORY TESTING

Test Borings

The subgrade conditions were reviewed with eight (8) test borings completed throughout the site. The test borings (identified as B1 to B8) were advanced to depths of about ≈12-22 ft utilizing 2¼ inch continuous flight hollow stem augers. Soil samples were typically retrieved at no greater than 5 ft intervals with a 2-inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in general accordance with ASTM-D1586 (*Standard Method for Penetration Test and Split-Barrel Sampling of Soils*). Field descriptions and penetration resistance of the soils encountered, observed depth to groundwater, depth to apparent bedrock refusal and other pertinent data are contained on the attached *Test Boring Logs*. The test borings were located by referencing existing site features as shown on the *Test Boring Location Plan*. These locations should be considered approximate given the limited survey control.

Laboratory Testing

Twelve (12) selected split-spoon samples obtained from the test borings were submitted to our laboratory for sieve analyses per ASTM Standards. The purpose of the testing was to assess engineering characteristics for design and to assess the suitability of the site soils for re-use as structural fill on the project. The test results are attached for review.

SUBGRADE CONDITIONS

The subgrade conditions below (1) surface Organic soils include (2) Stratified Sand underlain by (3) deeper Sand & Gravel.

The site is blanketed with a surface Topsoil and underling loamy Subsoil Horizon. The Topsoil is about ≈6-9 inches in thickness. The underlying Subsoil extends about ≈12-14 inches below grade consisting of an orange brown, loamy silty Sand, trace gravel, loam and roots.

The predominate overburden includes a Stratified Sand. More specifically, a fine to medium Sand, trace gravel, trace silt was encountered throughout the site to depths greater than ≈10-15 ft. The Stratified Sand is expected to be present throughout site construction. The Sand is clean, stable and well-draining. At depth, there is a Sand & Gravel with cobbles.

Groundwater was encountered at depths of ≈18-19 ft below grade. Soil samples below these depths were saturated and wet. It should be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature and other factors differing from the time of the measurements. This study was completed at a time of seasonally low groundwater. Groundwater is not expected to impact the project.

PRELIMINARY FOUNDATION SUBGRADE RECOMMENDATIONS

The subgrade conditions are generally favorable for supporting the proposed retail building on a conventional spread footing foundation with a concrete floor slab-on-grade. The organic laden soils (topsoil, loamy subsoil, etc) are **not** suitable for foundation bearing support. It is therefore recommended the Organic laden soils and other questionable matter be fully removed from the building pad plus at least 10 ft laterally around the foundation. There is expected to be about ≈12 inches of site stripping in this regard. Structural Fill necessary to achieve foundation grade should conform to the *Specifications* (Table 1).

The parent subgrade soils (Stratified Sand) should be exposed in the foundation areas prior to casting the footings or placing structural fill. It is recommended that the parent subgrade soils be proof-rolled with vibratory densification and exhibit stable and compact conditions. The purpose of the proof-rolling is to densify the site soils and identify potential loose or unstable areas which should be removed as necessary. Recommended proof-rolling should involve at least 4-5 passes with a vibratory compactor (minimum 750 pound static weight) operating at peak energy. During the proof rolling process, the subgrade should be observed by an Engineer to identify areas exhibiting weaving or instability. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill. Proper groundwater control and storm water management are also necessary to maintain site stability.

The bearing subgrade should ultimately be stable, dewatered, protected from frost and compact throughout construction. It will be necessary to remove weakened or unstable soils and replace with a Structural Fill or crushed stone as necessary. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from JTC should be scheduled to review the foundation subgrade conditions and preparation during construction.

FOUNDATION DESIGN RECOMMENDATIONS

The footings are expected to gain bearing support atop the parent site soils and/or compacted Structural Fill (Table 1). Footings may be designed using an allowable bearing capacity of 3,000 psf (FS=3). The allowable bearing capacity may be increased a third (⅓) when considering transient loads such as wind or seismic. The bearing capacity is contingent upon the perimeter strip footings and isolated column footings being no less than 2 ft and 3 ft in width respectively. For footings less than 3 ft in lateral dimension, the allowable bearing capacity should be reduced to one-third and multiplied by the least lateral footing dimension in feet. As such, the allowable bearing capacity for a 2 ft footing should be reduced to 2,000 psf. Foundation settlement should be less than 1 inch with differential settlement less than ½ inch. Exterior footings shall be provided with at least 4½ ft of frost protection. Proper frost protection should be necessary during winter construction.

The subsurface conditions were reviewed with respect to seismic criteria set forth in the *International Building Code (2012)*. Based on the relative density of the site soils, the site does not appear susceptible to liquefaction (complete loss of shear resistance) in the event of an

earthquake. Based on interpretation of the *Building Code* together with the project and site conditions, the *Site Classification* (Table 1615.1.1) is "D" (Stable Soil Profile).

It is recommended that a minimum 8-inch base of *Clean Granular Fill* (Table 1) be placed below the concrete floor slab for moisture and frost control. The gravel base shall be increased to no less than 12 inches for exterior concrete slabs exposed to frost (≈18 inches at the entrance and ramps). A subgrade modulus of 150 pci may be used for design of the floor slab. A vapor retarder should be used below the floor slab dependent upon the floor treatment. A vapor barrier should be specified by others per ACI Standards. A typical vapor retarder may include 10 mil polyethylene sheeting or StegoWrap™ lapped 8 inches at seams. Structural fill necessary within and below the foundation should also conform to the attached *Specifications* (Table 1). The Stratified Sand is suitable for re-use as general backfill against foundation walls or general site fill. The Sand will need to be segregated from the surface organic soils.

SITE DEVELOPMENT CONSIDERATIONS

Bituminous Pavement Structures

The flexible pavement recommendations are based on our experience with similar pavement structures and reference to the *AASHTO Guide for Design of Pavement Structures.* The thickness of each course is a function of the subgrade strength, traffic intensity, design life, drainage, and frost/regional conditions.

Based on the foregoing, the following is a summary of our minimum pavement structure recommendations for a 15 year design life:

Pavement Course	***Heavy Duty Traffic Conditions***	***Light Duty Traffic Conditions***
Bituminous Concrete Top Course, ME DOT	1½ inch	1½ inch
Bituminous Concrete Binder Course, ME DOT	2½ inch	1½ inch
Crushed Gravel (Base Course) ME DOT	14 inch	12 inch
TOTAL:	**18 inches**	**15 inches**

NOTES:

Heavy duty pavement areas are associated with access drives, entrances, main roadways, loading bays, etc. whereas light duty pavements are strictly for vehicular parking.

The above recommendations are based on a stable, granular subgrade that is free of organic and other weak material. The subgrade should be proof rolled with a minimum 10 ton vibratory roller making at least four coverages across the pavement subgrade. Areas exhibiting unstable/weaving

conditions should be over-excavated and replaced with compacted structural fill. The subgrade should ultimately be granular, stable and compact being free of organic and weak material.

The Crushed Gravel Base Course should be placed in controlled lifts and compacted to at least 95 percent relative compaction as determined by the Modified Proctor Test (ASTM-D1557). The adequacy of the compaction efforts should be verified by field density testing.

The pavement structure recommendations should not be construed for adequate support of haul roads, staging areas and other construction traffic. The design and maintenance of such temporary construction roads shall be reviewed by the contractor.

Bituminous concrete should be placed in accordance with the ***ME-DPW Standard Specifications for Bridge and Highway Construction***. In particular bituminous concrete should be compacted to at least 95 percent of Marshall Density within the specified temperature range. Placement temperatures of bituminous concrete mixes, in general, range between 270 and 310 degrees Fahrenheit.

A tack coat shall be placed between successive layers of the bituminous concrete. Specifically, a tack coat shall be placed atop the binder course pavement prior to placing the wearing course.

CONSTRUCTION CONCERNS

The contractor should be required to maintain stable-dewatered subgrades for foundations, pavements and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control and construction activities. The site soils (Stratified Sand) are not considered vulnerable to moisture disturbance given a well-draining and granular composition. Nonetheless, the contractor should take precautions to reduce subgrade disturbance. Such precautions may include diverting storm run-off away from construction areas, reducing traffic in sensitive areas, minimizing the extent of exposed subgrade if inclement weather is forecast, backfilling footings as soon as practicable, and maintaining an effective dewatering program. Soils exhibiting weaving or instability should be over-excavated to a competent bearing soil and replaced with a crushed stone or gravel. The moisture concerns are typically more problematic if construction takes place during the winter to spring season or other periods of inclement weather.

Soils which become softened/disturbed during construction will be rendered unsuitable for structural bearing support. The foundation subgrades should ultimately be stable, dewatered, protected from frost and compact throughout construction. The Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection and site stability during construction. An Engineer from JTC should be scheduled to review the subgrade conditions and preparation.

CONSTRUCTION MONITORING

It is recommended that a qualified engineer or representative be retained to review earthwork activities such as the preparation of the foundation bearing subgrade and the placement/compaction of Structural Fill. It is recommended that JTC be retained to provide construction monitoring services. This is to observe compliance with the design concepts presented herein.

We trust the contents of this memorandum report are responsive to your needs at this time. Should you have any questions or require additional assistance, please do not hesitate to contact our office.

kmm50/jtc14/NorthWaterboroDollarGeneral.wpd

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary 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 re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been 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 differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by John Turner Consulting, Inc.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of GBT Realty Corporation in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by John Turner Consulting, Inc. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to preliminary geotechnical design considerations.

TABLE 1

Dollar General
Chadbourne Ridge Road
North Waterboro, Maine

Recommended Soil Gradation & Compaction Specifications

Clean Granular Fill
(Select Gravel Fill)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3 inch	100
3/4 inch	60-90
No. 4	20-70
No. 200	2-8

NOTE: For minimum 8-inch base below Concrete Floor Slab-on-Grade
For minimum 12-inch base for exterior concrete slabs exposed to frost
For minimum 18-inch base below ramps and entrances
Compact to at least 95% relative compaction per ASTM D1557

Structural Fill
(Gravelly SAND, little Silt)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 inch	100
3/4 inch	60-100
No. 4	20-85
No. 200	0-10

NOTE: For use as structural load support below the foundations
For use as backfill behind unbalanced foundation/retaining walls
A ¾-inch crushed stone may be used in wet conditions
Compact to at least 95% relative compaction per ASTM D1557

TABLE 1

Dollar General
Chadbourne Ridge Road
North Waterboro, Maine

Recommended Soil Gradation & Compaction Specifications

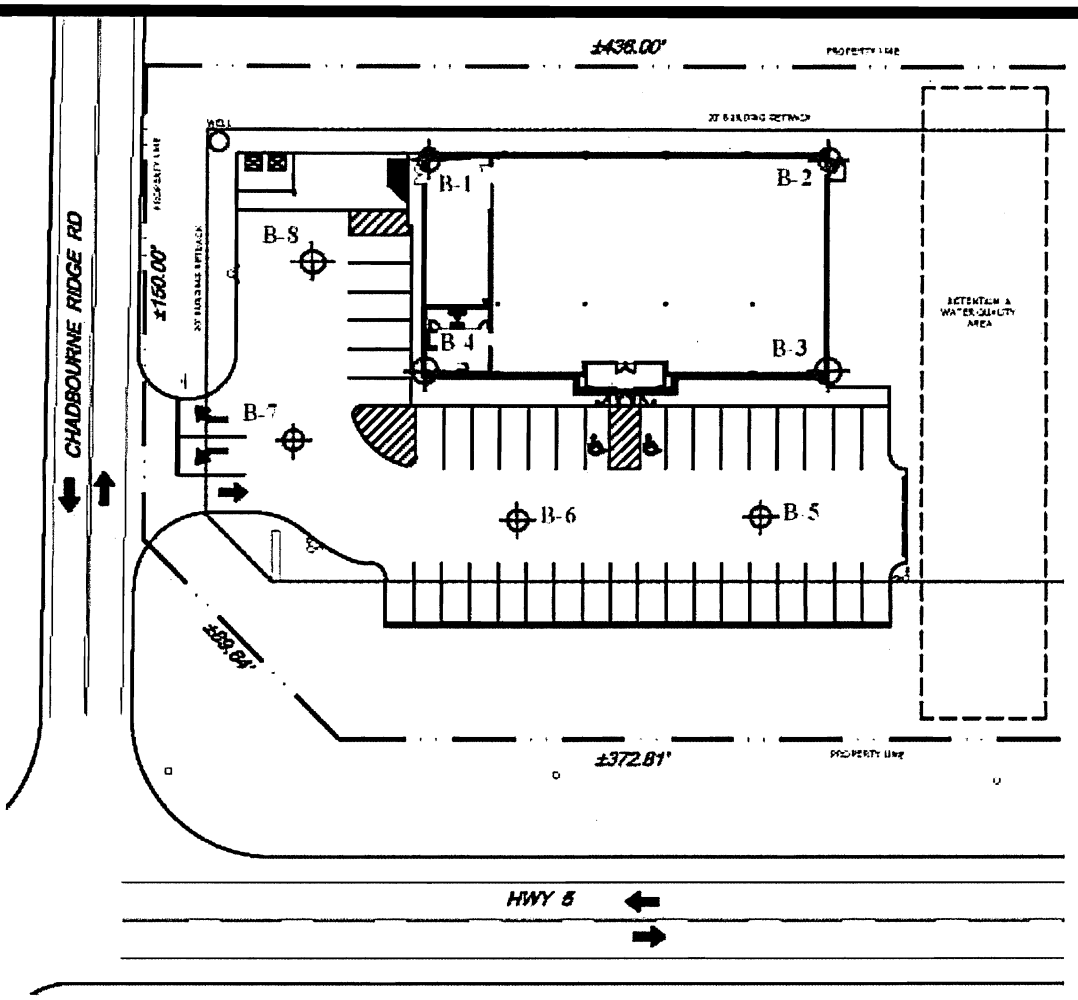
Common Fill
(Silty SAND, little Gravel)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
6-8 inch	100
3/4 inch	60-100
No. 4	20-85
No. 200	0-20

NOTE: For use as roadway embankment fill is deep pavement areas.
Maximum stone size should be ⅔ the maximum lift thickness
Compact to at least 92% relative compaction per ASTM D1557

Structural Fill placed beneath the foundation should include the *Footing Zone of Influence* which is defined as that area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V splay. Structural Fill should be placed in loose lifts not exceeding 12 inches for heavy vibratory rollers and 8 inches for vibratory plate compactors. All Structural Fill should be compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Test (ASTM-D1557). The Clean Granular Fill and Structural Fill should be compacted within ±3% of optimum moisture content. The adequacy of the compaction efforts should be verified by field density testing which is also a requirement of the *State Building Code*.

Boring Location Plan & Boring Logs



Notes:

1. Borings were performed on June 26th, 2014 under the direction of JTC.
2. Boring locations should be considered approximate.
3. Refer to the individual test boring logs for subsurface conditions at each location.

GBT Realty **9010 Overlook Boulevard** **Brentwood Tennessee 03027**	**Highway 5 & Chadbourne Ridge Rd.** **North Waterboro, ME**
JTC	**TEST BORING LOCATION PLAN**

CONSULTING TESTING INSPECTION **JTC** inc.
GEOTECHNICAL • CONSTRUCTION

TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048
BORING No:	B-1
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
6/26/2014	19'	Upon Completion

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	14	7" Topsoil (F-M SAND, l. Silt, tr. Gravel)	7"	1-2-3-2	5
1-2							
2-3	S-2	2-4	16	Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-4-3-4	7
3-4							
4-5							
5-6	S-3	5-7	5	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-5-7-8	12
6-7							
7-8	S-4	7-9	13	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		8-8-8-7	16
8-9							
9-10							
10-11	S-5	10-12	17	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		5-9-8-8	17
11-12							
12-13							
13-14							
14-15							
15-16	S-5	15-17	18	Lt. Brown, V. Moist, F-M SAND, l. Silt		7-9-11-16	20
16-17							
17-18							
18-19							
19-20							
20-21	S-6	20-22	14	Lt. Brown, Saturated, F-M SAND, l. Silt	21'	6-6-8-10	14
21-22				Brown, Saturatede, F-C SAND, l. Silt, l. Gravel			
22-23				Boring Terminated @ -22'			
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

CONSULTING TESTING INSPECTION JTC inc.
GEOTECHNICAL • CONSTRUCTION

TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048
BORING No:	B-2
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
-	-	-

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	10	5" Topsoil (F-M SAND, l. Silt, tr. Gravel)	5"	1-2-3-3	5
1-2							
2-3	S-2	2-4	12	Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-4-5-5	9
3-4							
4-5							
5-6	S-3	5-7	16	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		8-7-7-7	14
6-7							
7-8	S-4	7-9	18	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		10-9-8-8	17
8-9							
9-10							
10-11	S-5	10-12	17	Lt. Brown, V. Moist, F-M SAND, tr. Silt, tr. Gravel		5-6-7-6	13
11-12							
12-13							
13-14				Cobbles/Difficult Augering			
14-15							
15-16	S-5	15-17	1	Brown, V. Moist, F-C SAND & Weatherd Rock Fragments		50/1"	50+
16-17				Boring Terminated @ -15'1"			
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

CONSULTING TESTING INSPECTION **JTC** inc.
GEOTECHNICAL • CONSTRUCTION

TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048
BORING No:	B-3
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
-	-	-

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	14	6" Topsoil (F-M SAND, l. Silt, tr. Gravel)	6"	2-2-2-3	4
1-2							
2-3	S-2	2-4	17	Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		4-6-8-4	14
3-4							
4-5							
5-6	S-3	5-7	18	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		4-5-8-6	13
6-7							
7-8	S-4	7-9	17	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		7-8-8-9	16
8-9							
9-10							
10-11	S-5	10-12	19	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		5-8-7-9	15
11-12							
12-13							
13-14				(Cobbles/Difficult Drilling)			
14-15					14'		
15-16	S-5	15-17	7	Brown, V. Moist, F-C SAND & Gravel, l. Silt		12-50/4"	62+
16-17							
17-18				(Cobbles/Difficult Drilling)			
18-19							
19-20							
20-21	S-6	20-22	0		21'	50/0"	50+
21-22				Split Spoon Refusal. Boring Terminated @ -20'			
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
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Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

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TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

BORING No:	B-4
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
6/26/2014	18'	Upon Completion

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	13	7" Topsoil (F-M SAND, l. Silt, tr. Gravel)	7"	2-2-2-2	4
1-2							
2-3	S-2	2-4	14	Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		2-4-5-5	9
3-4							
4-5							
5-6	S-3	5-7	17	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-4-4-5	8
6-7							
7-8	S-4	7-9	16	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		6-8-8-8	16
8-9							
9-10							
10-11	S-5	10-12	18	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-4-5-6	9
11-12							
12-13							
13-14							
14-15							
15-16	S-5	15-17	19	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		7-10-10-9	20
16-17							
17-18							
18-19							
19-20							
20-21	S-6	20-22	18	Brown, Saturated, F-C SAND, l. Silt, l. Gravel		6-8-12-22	20
21-22				Boring Terminated @ -22'			
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

CONSULTING TESTING INSPECTION **JTC** inc.
GEOTECHNICAL • CONSTRUCTION

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048
BORING No:	B-5
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
-	-	-

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	16	7" Topsoil (F-M SAND, l. Silt, tr. Gravel)	7"	1-2-2-2	4
1-2							
2-3	S-2	2-4	18	Brown, Moist, F-M SAND, l. Silt, tr. Gravel		3-4-4-6	8
3-4							
4-5							
5-6	S-3	5-7	19	Lt. Brown, Moist, F-M SAND, l. Silt, tr. Gravel		3-5-5-7	10
6-7							
7-8	S-4	7-9	16	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		4-6-5-6	11
8-9							
9-10				(Cobbles @ 9'6")			
10-11	S-5	10-12	15	Lt. Brown, V. Moist, F-M SAND, l. Gravel, tr. Silt		4-6-6-5	12
11-12				Boring Terminated @ 12'			
12-13							
13-14							
14-15							
15-16							
16-17							
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

CONSULTING • TESTING • INSPECTION

JTC inc.

GEOTECHNICAL • CONSTRUCTION

TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048
BORING No:	B-6
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
-	-	-

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	17	7" Topsoil (F-M SAND, l. Silt, tr. Gravel)	7"	1-1-2-2	3
1-2							
2-3	S-2	2-4	9	Brown, Moist, F-M SAND, l. Silt, tr. Gravel		2-5-5-5	10
3-4							
4-5							
5-6	S-3	5-7	17	Lt. Brown, Moist, F-M SAND, l. Silt, tr. Gravel		4-9-8-10	17
6-7							
7-8	S-4	7-9	16	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		8-8-10-9	18
8-9							
9-10							
10-11	S-5	10-12	16	Lt. Brown, V. Moist, F-M SAND, tr. Gravel, tr. Silt		4-5-6-6	11
11-12				Boring Terminated @ 12'			
12-13							
13-14							
14-15							
15-16							
16-17							
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

CONSULTING TESTING INSPECTION **JTC** inc.
GEOTECHNICAL • CONSTRUCTION

TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048
BORING No:	B-7
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
-	-	-

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	10	8" Topsoil (F-M SAND, l. Silt, tr. Gravel)	8"	1-2-3-4	5
1-2							
2-3	S-2	2-4	11	Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-4-5-6	9
3-4							
4-5							
5-6	S-3	5-7	18	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-5-7-7	12
6-7							
7-8	S-4	7-9	14	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		4-6-5-6	11
8-9							
9-10							
10-11	S-5	10-12	17	Lt. Brown, V. Moist, F-M SAND, tr. Gravel, tr. Silt		3-5-6-7	11
11-12				Boring Terminated @ 12'			
12-13							
13-14							
14-15							
15-16							
16-17							
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

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TEST BORING LOG

CLIENT:	GBT Realty
PROJECT:	North Waterboro, ME
LOCATION:	Hwy 5 & Chadbourne Ridge Rd, North Waterboro, ME
PROJECT No:	14-15-00048

JOHN TURNER CONSULTING, INC.
19 DOVER STREET
DOVER, NH 03820
(603) 749-1841 www.consultjtc.com

BORING No:	B-8
DATE:	6/26/2014
LOCATION:	See Attached Plan
SURFACE EL:	-

TYPE OF BORING:	2 1/4" Hollow Stem Augers
DRILLING Co:	Greatworks Test Boring
RIG:	Acker Rubber Track Drill Rig
DRILLER:	Jeff Lee
JTC REP.:	Judson Zachar

GROUNDWATER OBSERVATIONS

DATE:	DEPTH:	TIME:
-	-	-

FT	NO.	SAMPLE DEPTH (FT.)	REC. (IN.)	SOIL & ROCK CLASSIFICATION-DESCRIPTION BURMEISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE (FT.)	BLOWS PER 6 INCHES	SPT (N)
0-1	S-1	0-2	18	8" Topsoil (F-M SAND, l. Silt, tr. Gravel)	8"	1-2-3-3	5
1-2							
2-3	S-2	2-4	17	Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		3-4-4-6	8
3-4							
4-5							
5-6	S-3	5-7	19	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		4-6-6-6	12
6-7							
7-8	S-4	7-9	18	Lt. Brown, Moist, F-M SAND, tr. Silt, tr. Gravel		5-7-7-8	14
8-9							
9-10							
10-11	S-5	10-12	17	Lt. Brown, V. Moist, F-M SAND, tr. Gravel, tr. Silt		6-6-8-8	14
11-12				Boring Terminated @ 12'			
12-13							
13-14							
14-15							
15-16							
16-17							
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
24-25							
25-26							
26-27							
27-28							
28-29							
29-30							
30-31							
31-32							

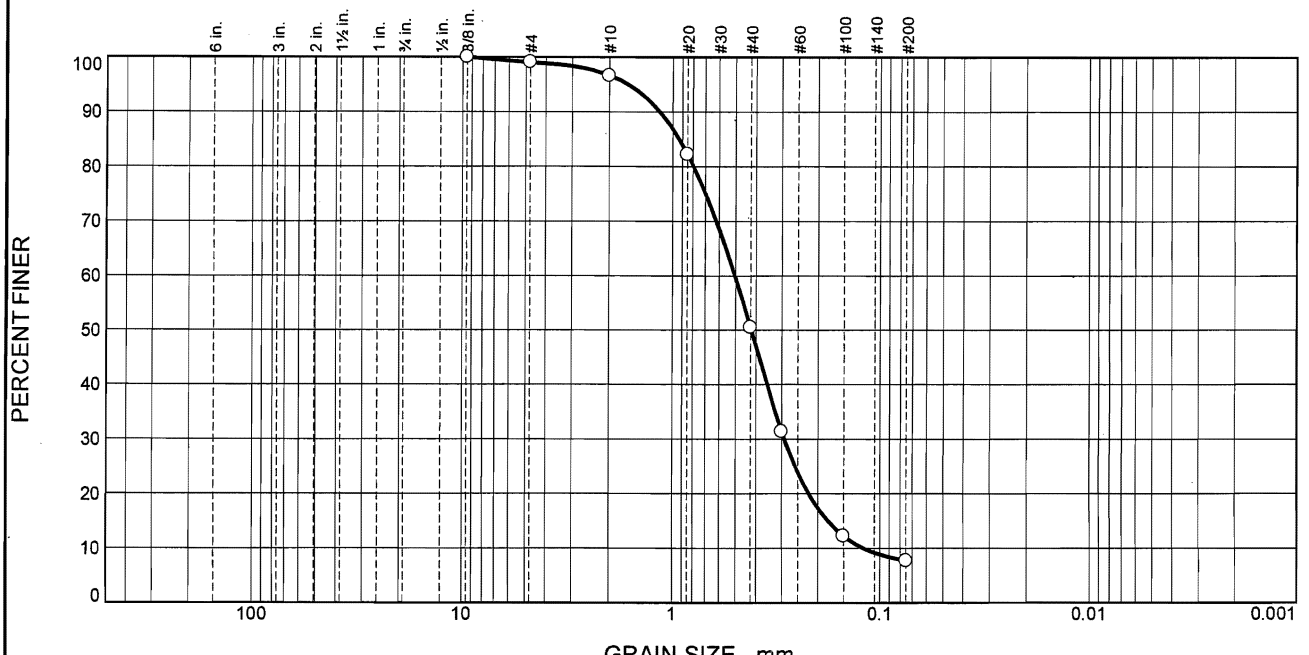
REMARKS:

Standard Penetration Tests (SPT) = 140# hammer falling 30" (ASTM D1586)
Blows are per 6 inches with a 24" long by 2" O.D. by 1 3/8" I.D. split spoon sampler unless otherwise noted
S = split-spoon sample; C = rock core sample; U = undisturbed

REMARKS: *The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test borings at times and under conditions stated in the test boring logs. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.*
Proportions used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

Soil Laboratory Reports

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	2.4	46.1	42.8	7.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.0		
#10	96.6		
#20	82.2		
#40	50.5		
#50	31.3		
#100	12.2		
#200	7.7		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.1540 D_{85}= 0.9337 D_{60}= 0.5064
D_{50}= 0.4214 D_{30}= 0.2915 D_{15}= 0.1793
D_{10}= 0.1206 C_u= 4.20 C_c= 1.39

Remarks

In-Situ Moisture: 10.1%

Date Received: 6-27-14 **Date Tested:** 6-27-14

Tested By: Jeff Young

Checked By: Jim Corti

Title: Supervisor

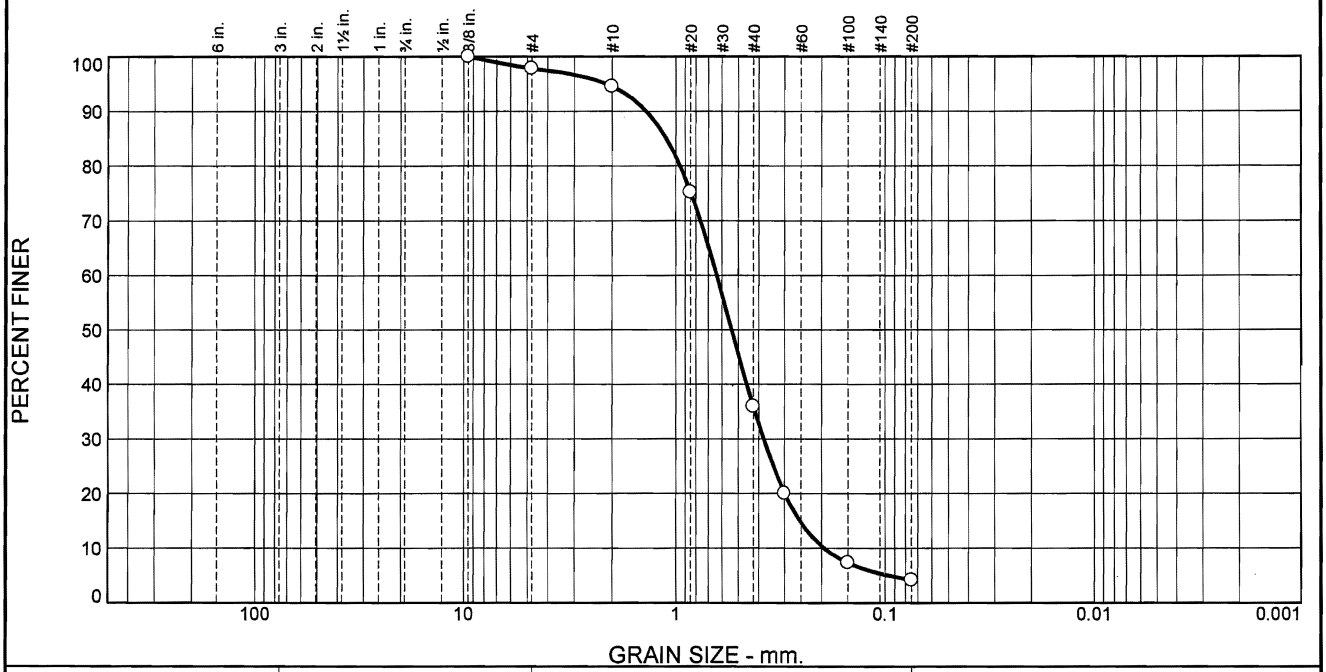
Location: B-1(S-1)
Sample Number: 14-649 **Depth:** 1'-2'

Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME

Project No: 14-15-048 **Figure** 001

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.2	3.3	58.6	31.7	4.2	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.8		
#10	94.5		
#20	75.2		
#40	35.9		
#50	20.0		
#100	7.3		
#200	4.2		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.3839 D_{85}= 1.1120 D_{60}= 0.6385
D_{50}= 0.5407 D_{30}= 0.3792 D_{15}= 0.2537
D_{10}= 0.1948 C_u= 3.28 C_c= 1.16

Remarks

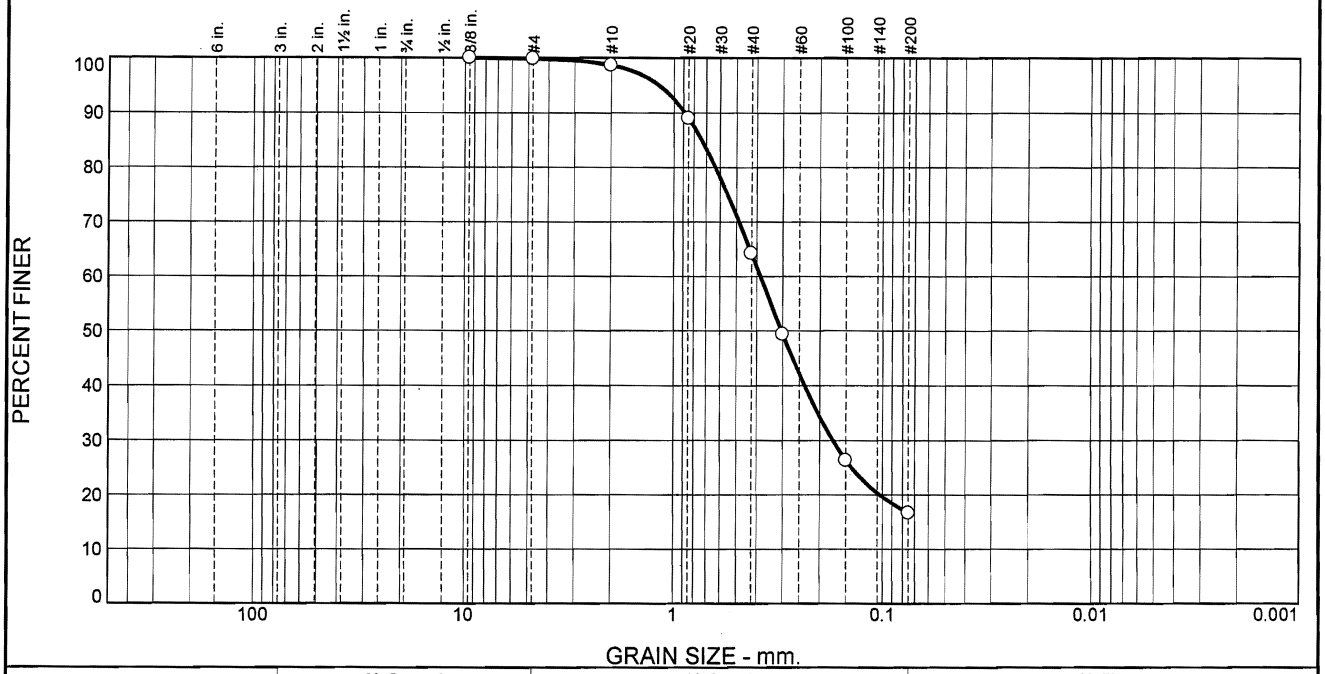
In-Situ Moisture: 11.1%

Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-1(S-4)
Sample Number: 14-650 **Depth:** 7'-9'
Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 002

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.2	34.4	47.6	16.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.8		
#10	98.6		
#20	89.0		
#40	64.2		
#50	49.4		
#100	26.3		
#200	16.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, little Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.8870 D_{85}= 0.7359 D_{60}= 0.3852
D_{50}= 0.3046 D_{30}= 0.1734 D_{15}=
D_{10}= C_u= C_c=

Remarks

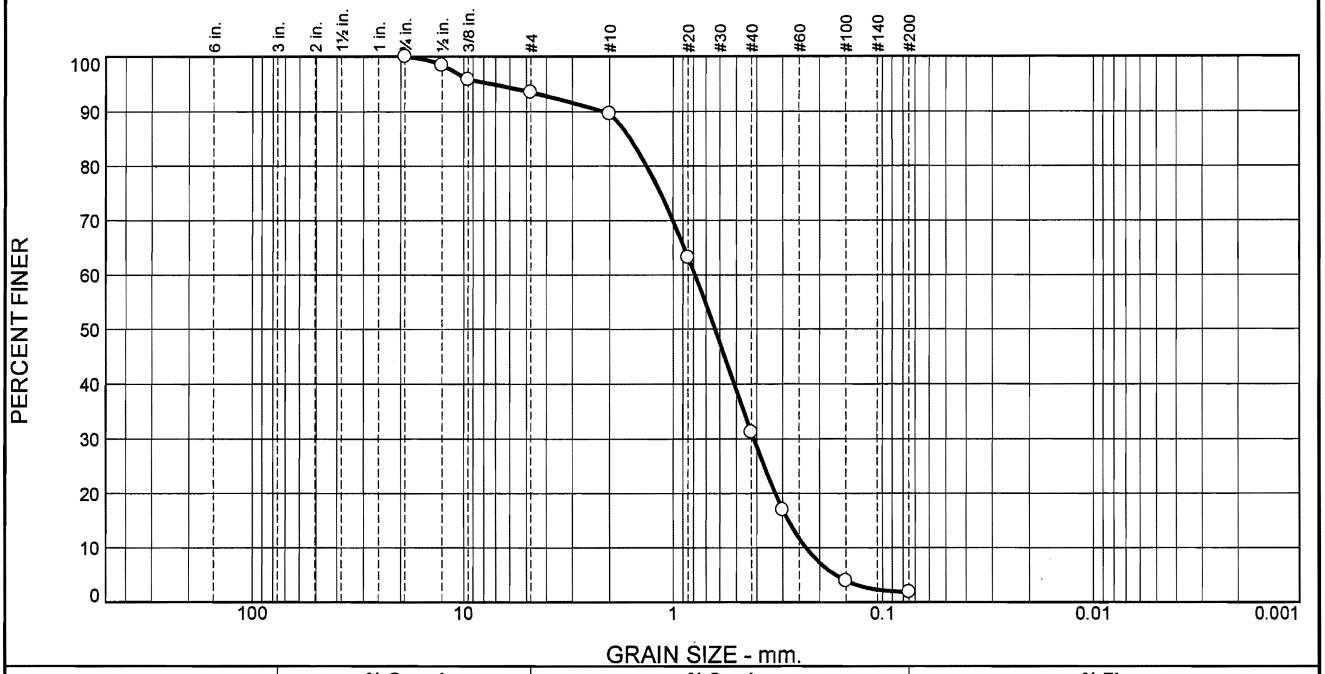
In-Situ Moisture: 19.5%

Date Received: 6-27-14 **Date Tested:** 6-30-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-2(S-1)
Sample Number: 14-651 **Depth:** 0'-1'
Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 003

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.5	3.9	58.4	29.4	1.8	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
1/2	98.4		
3/8	95.8		
#4	93.5		
#10	89.6		
#20	63.2		
#40	31.2		
#50	17.0		
#100	3.9		
#200	1.8		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 2.1609 D_{85}= 1.5960 D_{60}= 0.7899
D_{50}= 0.6348 D_{30}= 0.4139 D_{15}= 0.2822
D_{10}= 0.2327 C_u= 3.39 C_c= 0.93

Remarks

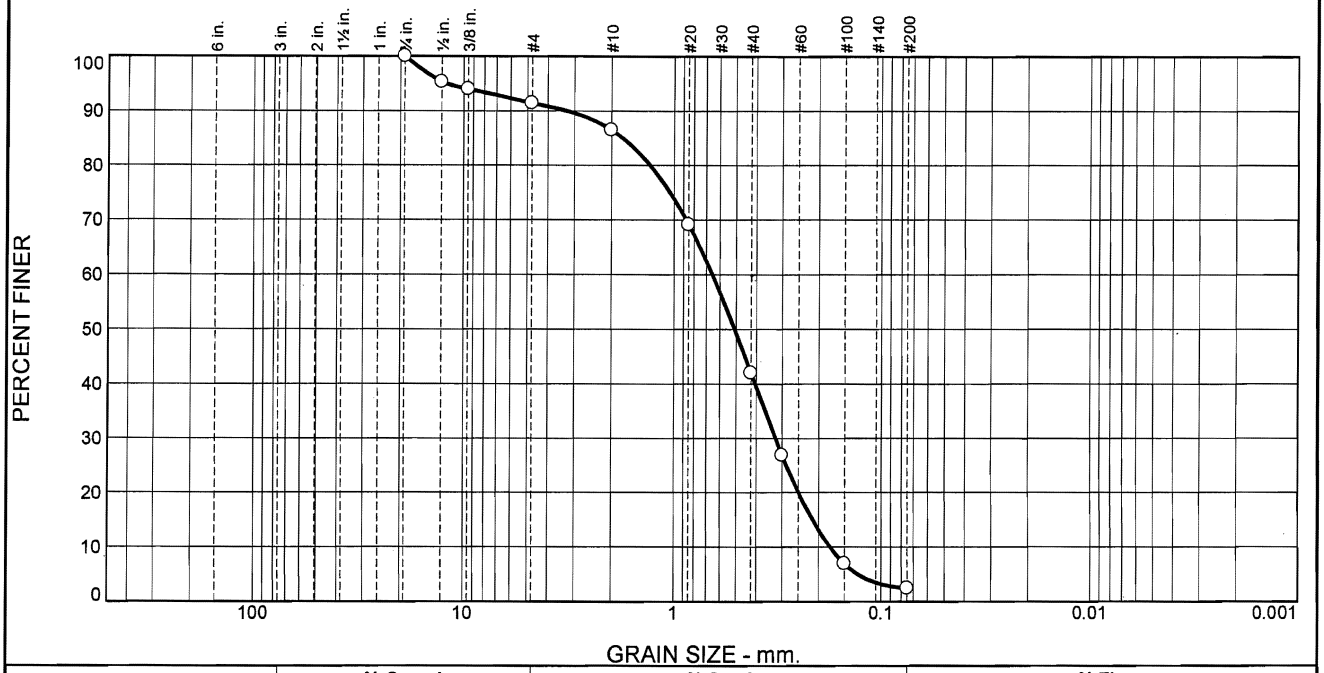
In-Situ Moisture: 3.5%

Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-2(S-3)
Sample Number: 14-652 **Depth:** 5'-7'
Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 004

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.6	4.9	44.5	39.6	2.4	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
1/2	95.3		
3/8	94.0		
#4	91.4		
#10	86.5		
#20	69.1		
#40	42.0		
#50	26.8		
#100	6.9		
#200	2.4		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 3.2823 D_{85}= 1.7716 D_{60}= 0.6545
D_{50}= 0.5106 D_{30}= 0.3237 D_{15}= 0.2141
D_{10}= 0.1764 C_u= 3.71 C_c= 0.91

Remarks

In-Situ Moisture: 4.0%

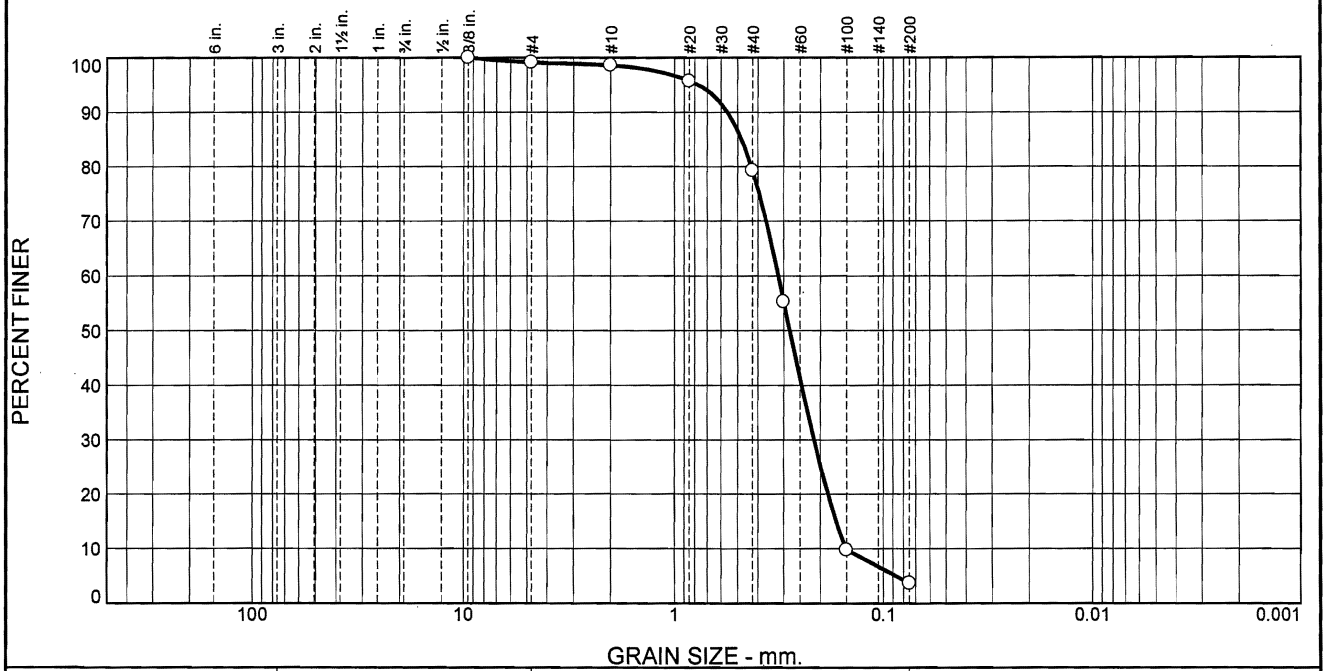
Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-3(S-2)
Sample Number: 14-653 **Depth:** 2'-4'
Date Sampled: 6-27-14

JTC

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 005

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.5	19.3	75.7	3.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.1		
#10	98.6		
#20	95.7		
#40	79.3		
#50	55.2		
#100	9.7		
#200	3.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.5614 D_{85}= 0.4807 D_{60}= 0.3191
D_{50}= 0.2805 D_{30}= 0.2150 D_{15}= 0.1687
D_{10}= 0.1510 C_u= 2.11 C_c= 0.96

Remarks

In-Situ Moisture: 5.1%

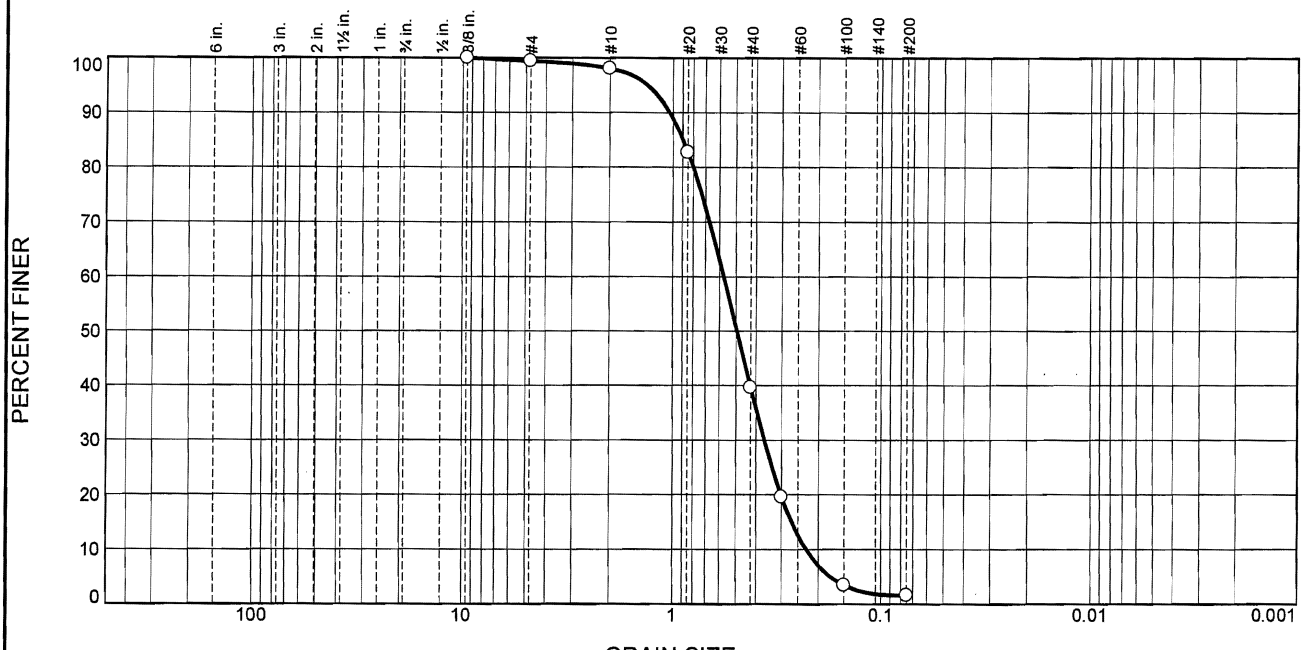
Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-3(S-5)
Sample Number: 14-654 **Depth:** 10'-12'
Date Sampled: 6-27-14

JTC

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 006

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.4	58.4	38.0	1.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.4		
#10	98.0		
#20	82.7		
#40	39.6		
#50	19.6		
#100	3.5		
#200	1.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.0414 D_{85}= 0.8983 D_{60}= 0.5745
D_{50}= 0.4957 D_{30}= 0.3650 D_{15}= 0.2687
D_{10}= 0.2289 C_u= 2.51 C_c= 1.01

Remarks

In-Situ Moisture: 3.9%

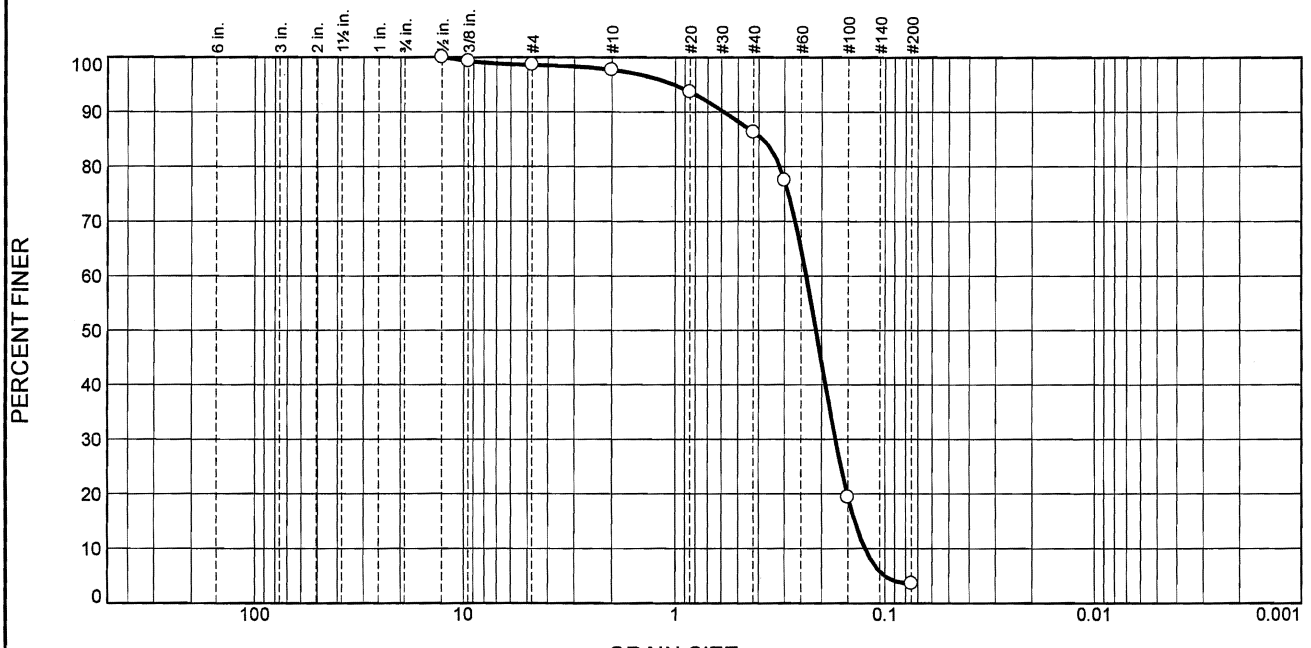
Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-4(S-3)
Sample Number: 14-655 **Depth:** 5'-7'
Date Sampled: 6-27-14

JTC

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 007

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.9	11.5	82.6	3.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1/2	100.0		
3/8	99.3		
#4	98.6		
#10	97.7		
#20	93.6		
#40	86.2		
#50	77.4		
#100	19.4		
#200	3.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.5874 D_{85}= 0.3860 D_{60}= 0.2369
D_{50}= 0.2129 D_{30}= 0.1720 D_{15}= 0.1394
D_{10}= 0.1246 C_u= 1.90 C_c= 1.00

Remarks

In-Situ Moisture: 7.1%

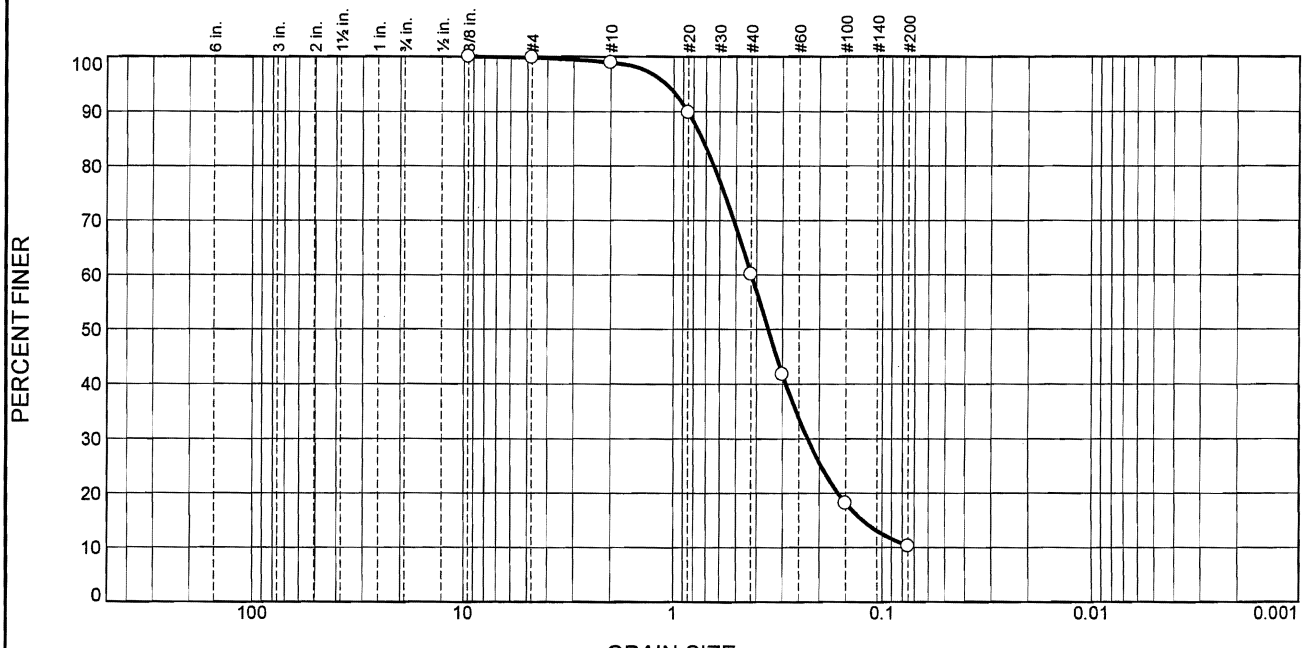
Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-4(S-6)
Sample Number: 14-656 **Depth:** 15'-17'
Date Sampled: 6-27-14

JTC

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 008

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.9	38.8	49.8	10.3	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.8		
#10	98.9		
#20	89.8		
#40	60.1		
#50	41.7		
#100	18.2		
#200	10.3		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, little Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.8564 D_{85}= 0.7304 D_{60}= 0.4239
D_{50}= 0.3523 D_{30}= 0.2279 D_{15}= 0.1244
D_{10}= C_u= C_c=

Remarks

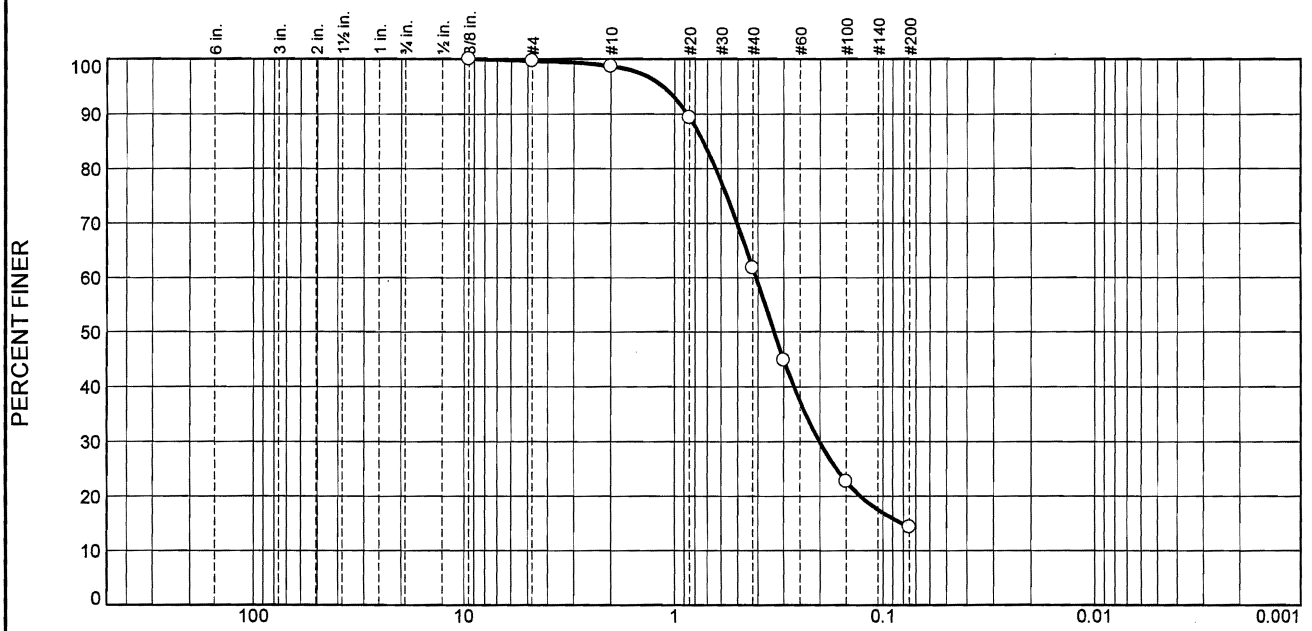
In-Situ Moisture: 11.9%

Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-5(S-1)
Sample Number: 14-657 **Depth:** 1'-2'
Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 009

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.0	36.9	47.4	14.4	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.7		
#10	98.7		
#20	89.3		
#40	61.8		
#50	44.8		
#100	22.7		
#200	14.4		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, little Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.8722 D_{85}= 0.7344 D_{60}= 0.4099
D_{50}= 0.3350 D_{30}= 0.2015 D_{15}= 0.0811
D_{10}= C_u= C_c=

Remarks

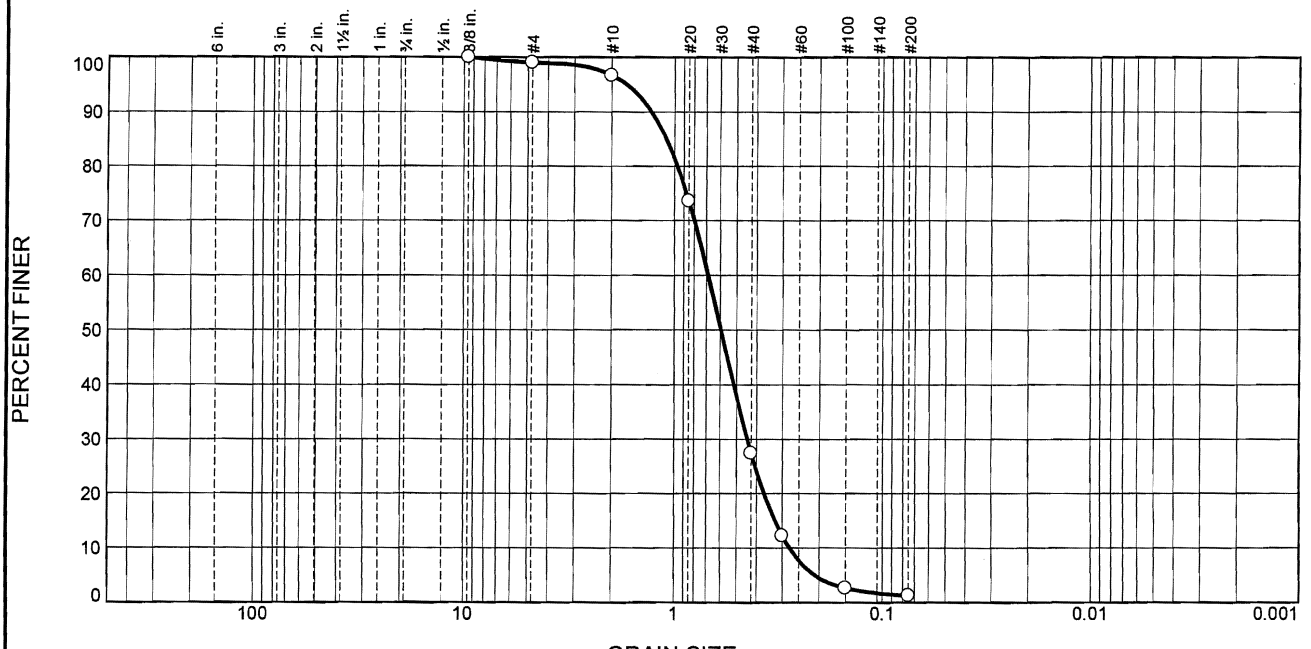
In-Situ Moisture: 20.9%

Date Received: 6-27-14 **Date Tested:** 6-27-14
Tested By: Jeff Young
Checked By: Jim Corti
Title: Supervisor

Location: B-6(S-1)
Sample Number: 14-658 **Depth:** 0'-1'
Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME
Project No: 14-15-048 **Figure** 010

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	2.4	69.2	26.2	1.2	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.0		
#10	96.6		
#20	73.6		
#40	27.4		
#50	12.2		
#100	2.6		
#200	1.2		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.2945 D_{85}= 1.0954 D_{60}= 0.6862
D_{50}= 0.5959 D_{30}= 0.4444 D_{15}= 0.3264
D_{10}= 0.2777 C_u= 2.47 C_c= 1.04

Remarks

In-Situ Moisture: 3.2%

Date Received: 6-27-14 **Date Tested:** 6-27-14

Tested By: Jeff Young

Checked By: Jim Corti

Title: Supervisor

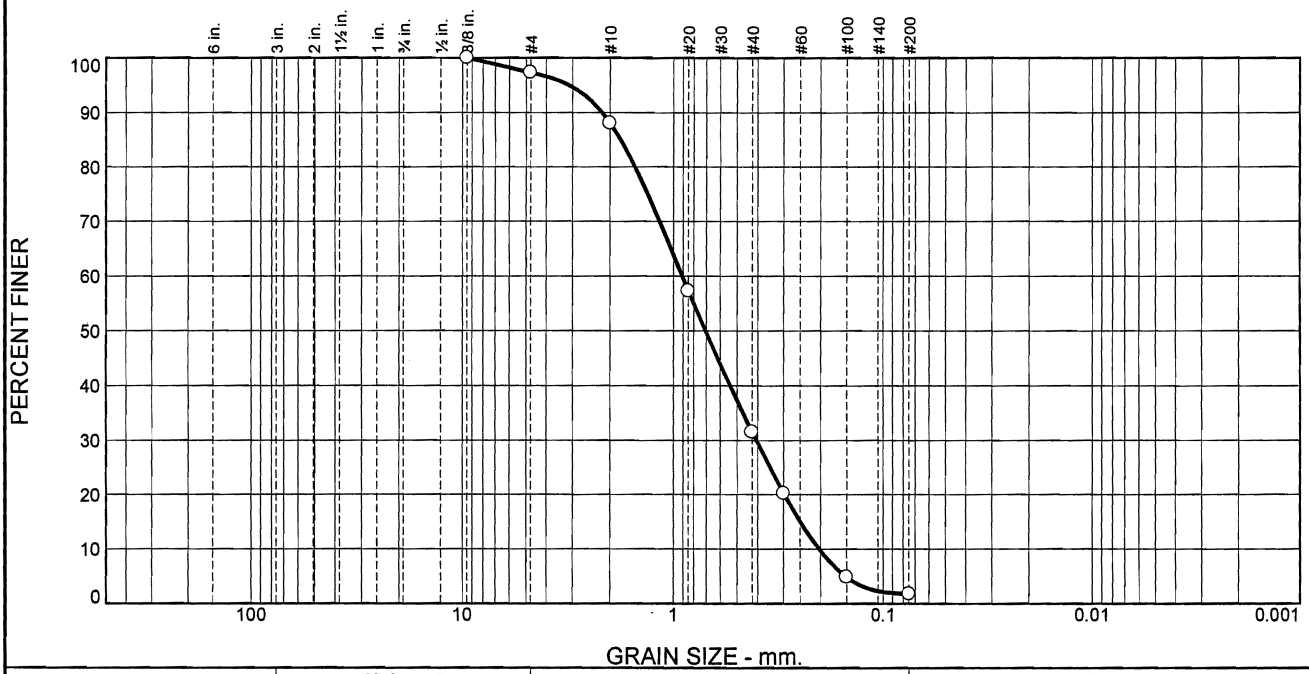
Location: B-7(S-3)
Sample Number: 14-659 **Depth:** 5'-7'

Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME

Project No: 14-15-048 **Figure** 011

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.7	9.3	56.4	29.8	1.8	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.3		
#10	88.0		
#20	57.3		
#40	31.6		
#50	20.2		
#100	4.8		
#200	1.8		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 2.1877 D_{85}= 1.7846 D_{60}= 0.9095
D_{50}= 0.7057 D_{30}= 0.4060 D_{15}= 0.2500
D_{10}= 0.2032 C_u= 4.47 C_c= 0.89

Remarks

In-Situ Moisture: 3.1%

Date Received: 6-27-14 **Date Tested:** 6-27-14

Tested By: Jeff Young

Checked By: Jim Corti

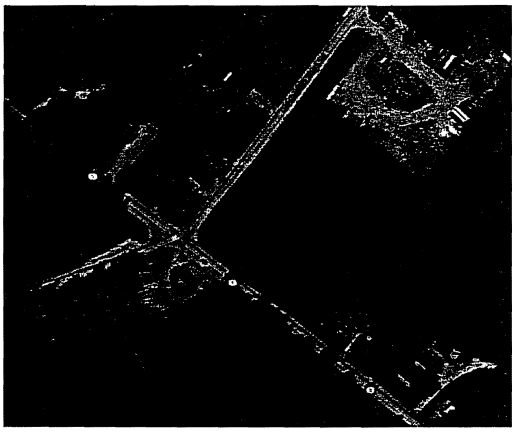
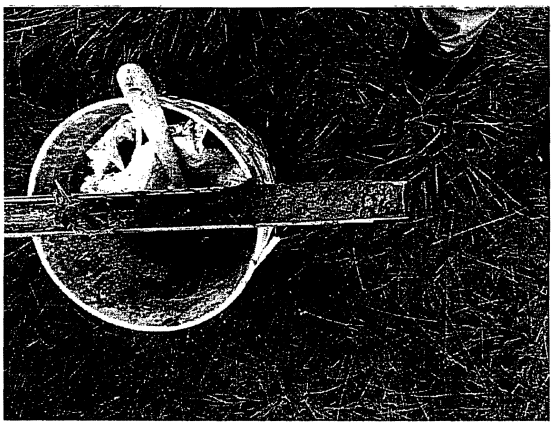
Title: Supervisor

Location: B-8(S-2)
Sample Number: 14-660 **Depth:** 2'-4'

Date Sampled: 6-27-14

Client: GBT Realty
Project: North Waterboro, ME

Project No: 14-15-048 **Figure** 012

Site Photographs

SITE PHOTOGRAPHS
PROPOSED DOLLAR GENERAL
NORTH WATERBORO, MAINE