

ADDENDUM NO.: 1

DATE OF ADDENDUM: September 16, 2014

**State Veterans' Cemetery Expansion and Improvements
Middletown, CT**

BI-C-283

Original Bid Due Date / Time: September 24, 2014 1:00 PM

Revised Bid Due Date / Time: N/A N/A

Previous Addendums: None

TO: Prospective Bid Proposers:

This Addendum forms part of the "Contract Documents" and modifies or clarifies the original "Contract Documents" for this Project dated September 3, 2014. Prospective Bid Proposers shall acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form. Failure to do may subject Bid Proposers to disqualification.

The following clarifications are applicable to drawings and specifications for the project referenced above.

Item 1

See attached sign in list

Item 2

The bidders shall note that there can be scheduled up to five (5) thirty (30) minute funerals on days Monday to Friday from 9 am until 2 pm and on Saturday from 9 am to noon. The successful bidder may be asked to stop work briefly if it will impact a service. All this will be coordinated on a cast-to-case basis with the successful bidder's site superintendent and Reed Johnson of the DVA.

Item 3

The bidders shall note that they may place a construction field office trailer and portable toilet facility adjacent to and on the north side of the construction entrance noted on Sheet CE.1.2

Item 4

The bidders shall note that a General Permit (GP) Registration Form for the Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities has been filed with the State of Connecticut Department of Energy & Environmental Protection and the GP and GP responsibilities will be transferred to the successful bidder prior to construction. DAS/DCS has paid the \$3,000 permit fee.

Item 5

The bidders shall note that demolition permits are not required.

Item 6

The bidders shall note that are active storm drainage systems on site that must be maintained during the duration of the project to adequately drain the site. See Sheets CE.1.1 and CE.1.2 for locations of temporary sediment control measures and sheet C.0.2 for erosion control notes.

Item 7

See SKA1.1-01 & SK 1.2-01 which were prepared in response to CT DCS comments.

Item 8

The project title/number needs to be indicated on all communications

Item 9

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Only attendees of the pre-bid meeting are eligible to bid on this project

Item 10

This is a 365-day project and is expected to start in the Spring 2015

Item 11

Due to time constraints on this specific project, the Owner will NOT consider requests for Equals or Substitutions prior to the receipt of the Bid

Item 12

Every request must be received by the end of business 5:00pm on Tuesday 09/16/2014 and all questions will be answered by addendum on 09/17/2014

Item 13

PMWeb is to be utilized for this project

Item 14

Small Business Enterprise (SBE) Set Aside Participation is 25% / Minority Business Enterprise (MBE) Participation is 6.25%

Item 15

See attached Geotechnical Report.

All questions must be in writing (not phone or e-mail) and must be forwarded to the consulting Architect/Engineer (BL Companies-Ray Gradwell at (860) 249-2400 with copies sent to the CT DCS Project Manager (Ron Zanobi) at (860) 713-7261

End of Addendum No. 1



Mellanee Walton, Associate Fiscal Administrative Officer
Department of Administrative Services
On Behalf of the Division of Construction Services



6020
Bid Phase Meeting
Attendance Log

CTDAS/DCS Project No.: BI-C-283
 Date: 09/11/2014
 Meeting Start Time: 10:00 AM
 Meeting Location: State Veteran's Cemetery, Middletown, CT
 Meeting Purpose: Pre-Bid Meeting
 Post Bid Review Meeting
 Other:

Name: RONALD ZAVOLI, PM	Title:
Company/Department: DAS/DCS	E-mail:
Street: 165 CAPITAL AVE	Phone:
City/State/Zip: HARTFORD CT	FAX:

Name: SARAH TERRY	Title: C/A & Asst. PM.
Company/Department: CT DAS/DCS	E-mail: sarah.terry@ct.gov
Street: 165 Capital Ave Rm 460	Phone: 860 713 5822
City/State/Zip: Hartford CT 06106	FAX: 860 713 7261

Name: VICTOR GRANDISONI	Title: ESTIMATOR
Company/Department: ORLANDO ANNULLI & CON	E-mail: VICTOR@ANNULI.COM
Street: 147 HALE RD	Phone: 860-644-2427
City/State/Zip: MANCHESTER CT 06042	FAX: 860-644-6505

Name: LAWRENCE BRUNLI	Title: CM
Company/Department: Lawrence Brunli Inc	E-mail: lbrunli@lbrunli.com
Street: 11 Cowbrow Dr.	Phone: 860 676-9900
City/State/Zip: Farmington, CT 06035	FAX: 860 676-0455

Name: James Nenniger	Title:
Company/Department: Barton Construction	E-mail:
Street: 339 Washington Ave	Phone:
City/State/Zip: North Haven, CT	FAX:

Name: ADAM PRESTIA	Title: OPERATION MANAGER
Company/Department: T&T COMPLETE LANDSCAPING	E-mail: T&TCOMPLETE@DOMO.COM
Street: 30-A SPRING ST	Phone: (860) 982 4957
City/State/Zip: NEWINGTON CT 06111	FAX: (860) 372 4933



6020
Bid Phase Meeting
Attendance Log

CTDAS/DCS Project No.: BI-C-283
Date: 09/11/2014
Meeting Start Time: 10:00 AM
Meeting Location: State Veteran's Cemetery, Middletown, CT

Name: <u>Roel Nogal</u>	Title: <u>Estimator</u>
Company/Department: <u>Estimator</u> <u>Nogal Builders</u>	E-mail: <u>Roel @ nogalbuilders.com</u>
Street: <u>51 ORICK Dr Durham Ct</u>	Phone: <u>860 349 5675</u>
City/State/Zip	FAX:

Name: <u>DAVID GREENFIELD</u>	Title:
Company/Department: <u>V&Z QUALITY WORKS, LLC</u>	E-mail: <u>davidg@vazquality.com</u>
Street: <u>179 William Street</u>	Phone: <u>(203) 336-5229</u>
City/State/Zip: <u>Brit Ct 06608</u>	FAX: <u>(203) 333-5227</u>

Name: <u>Pete Coppellina</u>	Title: <u>Estimator</u>
Company/Department: <u>J A Rosa Construction</u>	E-mail: <u>petecj@rosa.com</u>
Street: <u>17 Town Line Rd</u>	Phone: <u>203 879 3445</u>
City/State/Zip: <u>Wolcott Ct 06716</u>	FAX: <u>203 879 0760</u>

Name: <u>BRIAN KRONENBERGER</u>	Title: <u>PRESIDENT</u>
Company/Department: <u>KRONENBERGER & SONS</u>	E-mail: <u>BRIAN@KRONENBERGERSONS.COM</u>
Street: <u>175 INDUSTRIAL PARK RD</u>	Phone: <u>603-347-4000</u>
City/State/Zip: <u>MIDDLETOWN, CT 06457</u>	FAX: <u>343-0284</u>

Name: <u>Brian Gombotz</u>	Title: <u>Gen. Mgr.</u>
Company/Department: <u>H. E. BUTLER CONST. CO.</u>	E-mail: <u>BG@HBYLERCONSTRUCTION.COM</u>
Street: <u>984 PORTLAND-CORAL RD.</u>	Phone: <u>860 342-3880</u>
City/State/Zip: <u>PORTLAND, CT 06480</u>	FAX: <u>860 342-2142</u>

Name: <u>PETER ZLOTNICK</u>	Title: <u>VP</u>
Company/Department: <u>ZLOTNICK CONSTRUCTION</u>	E-mail: <u>PZlotnick@zlotnickconstruction.com</u>
Street: <u>161 STONNS ROAD</u>	Phone: <u>860 456 3221</u>
City/State/Zip: <u>MASSFIELD CT 06250</u>	FAX: <u>860 456 3981</u>



6020
Bid Phase Meeting
Attendance Log

CTDAS/DCS Project No.: BI-C-283
 Date: 09/11/2014
 Meeting Start Time: 10:00 AM
 Meeting Location: State Veteran's Cemetery, Middletown, CT

Name:	DOMINICK CENTURA	Title:	LANDSCAPE ARCHITECT
Company/Department:	BL COMPANIES	E-mail:	dcentura@blcompanies.com
Street:	150 TROMBOLL STREET	Phone:	860-249-2200
City/State/Zip:	HARTFORD CT 06103	FAX:	

Name:	RAY GRADWELL	Title:	ENGINEER
Company/Department:	BL COMPANIES	E-mail:	rgradwell@blcompanies.com
Street:	150 TROMBOLL STREET	Phone:	860-249-2200
City/State/Zip:	HARTFORD CT 06103	FAX:	

Name:		Title:	
Company/Department:		E-mail:	
Street:		Phone:	
City/State/Zip:		FAX:	

Name:		Title:	
Company/Department:		E-mail:	
Street:		Phone:	
City/State/Zip:		FAX:	

Name:		Title:	
Company/Department:		E-mail:	
Street:		Phone:	
City/State/Zip:		FAX:	

Name:		Title:	
Company/Department:		E-mail:	
Street:		Phone:	
City/State/Zip:		FAX:	

TOILET ACCESSORIES SCHEDULE

NO.	ITEM	MANUFACTURER	MODEL NO.	REMARKS
(A)	TISSUE DISPENSER MULTI ROLL	BOBRICK	B-2888	MOUNT UPPER EDGE 1-1/2" MIN. BELOW GRAB BAR, CENTER 8" IN FRONT OF TOILET
(B1)	PAPER TOWEL DISPENSER & WASTE RECEPTACLE	BOBRICK	B-39003	RECESSED - 12G CAPACITY WASTE CONTAINER
(B2)	PAPER TOWEL DISPENSER & WASTE RECEPTACLE	BOBRICK	B-43699	SURFACE MOUNTED - 3.0G CAPACITY WASTE CONTAINER
(C)	SOAP DISPENSER	BOBRICK	B-2111	CLASSIC SERIES, 40 OZ. CAPACITY. SURFACE-MOUNTED
(C1)	SOAP DISPENSER	SLOAN	SJS 1150	SENSOR-ACTIVATED WALL MOUNT FOAM SOAP DISPENSER
(D)	MIRROR (48" X LENGTH OF COUNTER)	BOBRICK	B-2908	SERIES CHANNEL-FRAME POLISHED STAINLESS STEEL
(E1)	42" SIDE GRAB BAR	BOBRICK	B-6806X42	42" X 1-1/2" AT 33" TO 36" A.F.F. MAX. STAINLESS STEEL SATIN FINNEDISH, CONCEALED MOUNTED.
(E2)	36" REAR GRAB BAR	BOBRICK	B-6806X36	36" X 1-1/2" AT 33" TO 36" A.F.F. MAX. STAINLESS STEEL SATIN FINNEDISH, CONCEALED MOUNTED.
(E3)	18" VERTICAL GRAB BAR	BOBRICK	B-6806X18	18" X 1-1/2" AT 39" TO 41" A.F.F. MAX. STAINLESS STEEL SATIN FINNEDISH, CONCEALED MOUNTED VERTICAL.
(E4)	29" SWING UP GRAB BAR	BOBRICK	B-4998	29" SWING UP GRAB BAR AT 36" A.F.F. MOUNTING METHOD SHALL RESIST 250# SHEAR TENSILE & MOMENT FORCES.
(F)	UNDER LAVATORY GUARD	-	-	-
(G)	SIGNAGE	-	-	-
(H)	CALL FOR AID	-	-	-
(J)	COAT HOOK	BOBRICK	B-2116	-
(K)	5' UTILITY SHELF	-	-	60" X 18" STAINLESS STEEL UTILITY SHELF
(L)	VITREOUS-CHINA WATER CLOSET - WC1	-	-	ELONGATED, SIPHON-JET TYPE, WALL HANGING, BACK OUTLET W/ FLUSHOMETER VALVE, MAX. 1.6 GPF
(M)	VITREOUS-CHINA WATER CLOSET - WC2	-	-	ELONGATED, SIPHON-JET TYPE, FLOOR MOUNTED, FLOOR OUTLET W/ CLOSED-COUPLED, GRAVITY TANK, MAX. 1.6 GPF
(N)	VITREOUS-CHINA LAVATORY - LAV1	-	-	ACCESSIBLE, WALL MOUNTED
(O)	VITREOUS-CHINA LAVATORY - LAV2	-	-	ACCESSIBLE, UNDER COUNTER-MOUNTING, RECTANGULAR, 17"X 13" X 6" DEEP BASIN

1/26/2012 2:13 PM, FALVES, K: \JOBS\12\12C4226\ARCH\A12C4226\01.DWG, SKA1.1-01
 Xrefs: ; XA12C422601; XA012C422601; XA012C422600; B012C422600; XA12C422600; XA12C4226-101; XE12C4226-101



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STATE OF CONNECTICUT
STATE VETERANS CEMETERY
 MIDDLETOWN, CONNECTICUT
 PROJECT NO. BI-C-283

Drawn By:	FA	Origin:	-
Checked By:	SJJ	DWG. Ref:	A.1.1
Project No.	12C4226	Scale:	1/8" = 1'-0"
CAD File:	A12C4226101	Date:	9/12/2014
Title:	SKA1.1-01		



GEOTECHNICAL | CONSTRUCTION | ENVIRONMENTAL
ENGINEERS and SCIENTISTS

March 12, 2014
File No. 0277-010.00

Mr. Raymond Gradwell, P.E.
BL Companies
150 Trumbull Street, 6th Floor
Hartford, Connecticut 06103

Re: Geotechnical Engineering Report
Veterans Administration Cemetery Improvements
Middletown, Connecticut

Dear Mr. Gradwell:

GeoDesign, Inc. (GeoDesign) is pleased to submit our geotechnical engineering report for the proposed improvements to the Veterans Administration Cemetery located at 317 Bow Lane in Middletown, Connecticut. Refer to Figure 1, Locus Plan, in Appendix 1 for the general site location.

PURPOSE AND SCOPE

GeoDesign completed a subsurface exploration program and geotechnical engineering evaluation for the proposed improvements to the Veterans Administration Cemetery. Our services included characterizing the subsurface conditions in the project area, performing geotechnical engineering analyses, and providing geotechnical design and construction recommendations for the project. Our services were provided in accordance with our November 8, 2013 proposal, which was based, in part, on a 120-scale sketch provided by your office depicting the current cemetery layout and proposed improvement locations (Sketch Plan SK-100, dated August 3, 2012).

Elevations (El.) stated in this report are in feet and are based on grading shown on an undated 120-scale topographic plan provided by BL Companies.

EXISTING CONDITIONS AND PROPOSED IMPROVEMENTS

The site is an existing cemetery that is occupied by landscape areas and site features that include: a main access roadway; a small parking lot; sidewalks; gravesites; and several small benches and other structures. The site topography generally slopes down from west to east with slopes ranging from about 4H:1V (horizontal to vertical) to nearly level. Refer to Figures 2, Site and Boring Location Plan, in Appendix 1 for general site details.



The main cemetery roadway begins at the entrance from Bow Lane and generally passes through the center of the site. We understand the improvements to the cemetery will include constructing approximately 2,600 linear feet of new roadway along the southern perimeter of the site; constructing a single-story, columbarium structure with associated parking area near the entrance to the cemetery; and evaluating two pavement areas that have exhibited signs of distress in the form of excessive cracking, settlement and heave. The approximate locations of the proposed improvements are shown on Figure 2 in Appendix 1.

TEST BORINGS

A GeoDesign representative observed and logged sixteen test borings (B-1 through B-16) that were drilled by Site, LLC on February 24 and 25, 2014. Approximate test boring locations are shown on Figure 2 in Appendix 1 and were located in the field by taping/pacing from existing site features. The ground surface elevation at each test boring location was estimated from the above referenced topographic plan. The locations of the borings and their elevations should be considered approximate. Boring logs are included in Appendix 2.

Borings were made to explore subsurface conditions in the areas of the proposed cemetery improvements. Hollow-stem-auger drilling methods were used to advance the borings to depths of approximately 6 to 12 feet below current site grades. Representative samples were obtained by split barrel sampling procedures in general accordance with ASTM Specification D-1586. The split-barrel sampling procedure utilizes a standard 2-inch O.D. split-barrel sampler that is driven into the bottom of the boring with a 140-pound hammer falling a distance of 30 inches. The blows (i.e. the "N" values) are indicated on the boring logs at their depth of occurrence and provide an indication of the relative consistency of the subsurface materials. Groundwater levels were measured using a weighted tape in the open drill holes and are recorded on the logs.

SUBSURFACE CONDITIONS

Geologic Mapping

Published surficial and bedrock geological data (1:125,000 scale, *Surficial Materials Map of Connecticut, Janet Radway Stone, 1992* and *Bedrock Geological Map of Connecticut, John Rodgers, 1985*) was consulted. The surficial material within the area of the cemetery is mapped as Glacial Till and is described as a poorly sorted mixture of sand, gravel, silt, and clay with sporadic cobbles and boulders intermixed. The underlying bedrock is classified as light gray, fine to medium grained, Granitic Gneiss.

General Subsurface Profile

The generalized subsurface profile, as inferred from the subsurface explorations, consists of Topsoil or Asphalt overlying Fill and Glacial Till. A four foot thick layer of Clayey Silt was



encountered below the Fill in Boring B-13. Bedrock was not encountered within the depths explored. The following is a more detailed description of the subsurface materials encountered.

Topsoil and Asphalt

Either Topsoil or Asphalt was encountered at the ground surface in all borings. Topsoil was approximately two to fourteen inches thick and consisted of dark brown fine sand and silt, with trace (0 to 10%) amounts roots.

An approximate four inch thick layer of Bituminous Asphalt pavement was drilled though at one location (B-16). The Asphalt at this location was directly on the natural insitu soils no aggregate subbase layer was observed.

Fill

Fill was encountered below the Topsoil in Borings B-6, B-7, B-13, and B-14. This Fill was approximately 1 to 7 feet thick and typically consisted of loose to medium dense red brown fine to medium Sand with some (20 to 35%) Silt and varying amount (10 to 35%) amounts of fine to coarse Gravel. Trace (0 to 5%) amounts of Root Fibers were also present in the Fill. The Fill appeared to be derived from the native Glacial Till. Based on the test boring data, the thickness, character, and consistency of the Fill varies between exploration locations.

Glacial Till

Glacial Till was encounter in all borings and generally consisted of medium dense to dense red brown fine to medium Sand with some Silt and little amounts of fine to coarse Gravel. Cobbles and possible boulders were inferred in this stratum based on split spoon refusal.

Groundwater Water

The depth to groundwater was measured in each test boring during drilling. Groundwater was observed in only four borings (B-1 through B-3, and B-16) at depths of about 2 to 5 feet below existing grades, which correspond to between approximately El. 168 to El 179.

Groundwater levels will vary depending on factors such as temperature, season, precipitation, construction activity, and other conditions, which may be different from those at the time of these measurements.

LABORATORY TESTING

GeoDesign performed four gradation tests on representative soil samples collected from the test borings in accordance with Method A of ASTM D6913. The gradation tests confirmed our field



classifications and were used to evaluate the subsurface materials for reuse. Refer to Appendix 3 for the results of the gradation tests.

The soil sample tested from the Fill (Boring B-7) was collected at depths ranging from 2 to 4 feet and indicated a sand content of 41%, gravel content of 28%, and silt (particles passing No. 200 sieve) content of 31%.

Soil samples tested from the Glacial Till (Borings B-2, B-9, and B-14) were collected at depths ranging from 2 to 4 feet and indicated a sand content of 46 to 70%, gravel content of 21 to 27%, and silt content of 9 to 27%.

GEOTECHNICAL RECOMMENDATIONS

Columbarium

Based on our understanding of the project and the subsurface conditions summarized above, we recommend supporting the structure on conventional shallow spread footing foundations with slab-on-grade construction for floor slabs.

The footings should bear below the Fill on undisturbed Glacial Till or on Compacted Granular Fill (CGF) over undisturbed Glacial Till. Topsoil, asphalt, and existing Fill are not considered suitable bearing soils, and must be removed from beneath proposed footings during site preparation. When CGF is used beneath the footings (e.g. in filled areas), we recommend that it be placed one foot beyond the edge of the footings and sloped down and away from the footings at a 1H:1V.

Footings should be constructed at a minimum depth of 42-inches below proposed site grades. The minimum isolated footing size should be 2.5 feet by 2.5 feet, and the minimum wall footing width should be 1.5 feet. We recommend a maximum allowable design bearing pressure of two tons per square foot for footings bearing on the prepared subgrade recommended above (undisturbed Glacial Till or CGF over undisturbed Glacial Till).

Based on the anticipated loads, and recommended minimum footing sizes, we anticipate that the footings will undergo less than one inch of total settlement and less than a half inch of differential settlement. Settlements should occur as the loads are applied and are expected to be complete at the end of construction.

We recommend that floor slabs bear on a prepared subgrade of an eight inches base course layer placed on a prepared subgrade of undisturbed Glacial Till or proof-compacted existing Fill. The base course material should consist of compacted Sand and Gravel or Crushed Stone. Based on the above, for design we recommend a subgrade modulus of 300 pounds per cubic inch.



Slab damp-proofing should be installed between the slab and base course, and consist of not less than 6-mil polyethylene with joints lapped at least 6-inches. Other approved methods or materials may be considered.

The on-site soils are poorly drained and groundwater levels were observed at relatively shallow depths, thus, we recommend installing footings drains to prevent water collecting around the foundations and below the slab. The drains should consist of 4-inch diameter perforated PVC pipe, surrounded by 6-inches of Crushed Stone, wrapped in non-woven filter fabric. Footing drain inverts should be set flush with or up to 6-inches above bottom of footing level. The drains should be gravity drained to daylight or to the site drainage system.

Seismic Design

The average Standard Penetration Test "N" value over a 100-foot depth is between 15 and 50. Thus, the site class for the proposed bridges is "D" (*Stiff Soil Profile*) per the IBC. Based on the standard penetration test results, gradation analyses, and expected design peak ground acceleration at this locale, the saturated site soils are not prone to liquefaction.

Pavement Design

It is our opinion that the areas where the existing pavements are distressed are due to the absence of a properly prepared roadway subgrade. We recommend for the pavement repair areas, the proposed parking area, and for the proposed roadway area the following minimum pavement sections for passenger cars (Standard) and H-20 truck (Heavy) loading:

Bituminous Pavement	Finish Course	Binder Course	Processed Aggregate Base	Sand-Gravel Subbase
Passenger Car (Standard)	1-inch	1.25-inches	4-inches	5-inches
H-20 Truck (Heavy)	1.5-inches	1.5-inches	6-inches	7-inches

The above recommended pavement section should be constructed on a prepared subgrade. Subgrade preparation recommendations are provided later in this report.

MATERIALS AND COMPACTION REQUIREMENTS

On-Site Materials

The existing Topsoil is not considered suitable for reuse except in non-structural and landscape areas, due to its high organic content. The Glacial Till and existing Fill have a silt content that is generally greater than 20%; thus the high silt content will make the on-site soils difficult to place and compact. We recommended not re-using these materials as backfill below foundations,



slabs, or pavement. These materials will also be sensitive to remolding under construction equipment and vibration when wet. Success in working with (i.e. excavating, traversing, etc.) these materials will depend on their moisture content and prevailing weather conditions.

Compacted Granular Fill

Compacted Granular Fill (CGF) derived from off-site sources for use as structural fill shall consist of inorganic soil free of clay, loam, ice and snow, tree stumps, roots, and other organic matter; graded within the following limits:

Sieve Size	Percent finer by weight
4-inches	100%
No. 10	30 - 100
No. 40	10 - 90
No. 200	0 - 12

Sand and Gravel

Sand and Gravel for use as slab base course and pavement subbase shall consist of hard, durable sand and gravel; free of ice, clay, shale, roots, sod, rubbish, and other organic matter; graded within the following limits:

Sieve Size	Percent finer by weight
2-inches	100%
1/2-inch	50 - 85
No. 4	40 - 75
No. 40	10 - 35
No. 200	0 - 5

Processed Aggregate Base

Processed Aggregate Base for use as pavement base shall consist of inorganic soil free of clay, loam, ice and snow, tree stumps, roots, and other organic matter; graded within the following limits:

Sieve Size	Percent finer by weight
2 1/2-inches	100%
2-inch	95 - 100
3/4-inch	50 - 75
1/4-inch	25 - 45
No. 40	5 - 20
No. 100	2 - 12



Crushed Stone

Crushed Stone for use around drains or below foundations and slabs shall consist of sound, tough, durable, rock that is graded within the following:

Sieve Size	Percent finer by weight
5/8-inches	100%
1/2-inch	85 - 100
3/8 inch	15 - 45
No. 4	0 - 15
No. 8	0 - 5

Placement and Compaction

We recommend a minimum in-place dry density of 95-percent as per ASTM D1557 for materials placed below foundations and slabs. We recommend a minimum in-place dry density of 92-percent as per ASTM D1557 for material placed below paved areas.

Materials should be placed within 2% of their optimum moisture content. We recommend a maximum loose lift thickness of 10-inches assuming a vibratory compactor with a minimum dynamic force of 3,000 lbs. per foot of drum width.

CONSTRUCTION CONSIDERATIONS

Subgrade Preparation

The base of subgrade excavations should be free of topsoil, asphalt, water, and loose soils prior to placing structures, compacted fill, pavement or other materials. We recommend the use of smooth edged excavator buckets to make the final excavation to help protect the subgrade. Materials should be placed as soon as possible after excavation so that disturbance of bearing materials does not occur. Should the materials at bearing level become disturbed, the affected materials should be removed.

Proof Rolling

In areas where Fill will remain at or below slab or pavement subgrade levels, we recommend improving the Fill with a minimum of four passes with a vibratory drum roller having a minimum dynamic force of 6,500 lbs. per foot of drum width. Areas exhibiting instability shall receive additional compaction and/or be over-excavated and replaced with CGF. Proof rolling of the exiting Fill will require careful observation by an experienced geotechnical engineer.

This procedure may have to be modified or abandoned if the subgrade is too saturated or groundwater elevations are found to be higher during construction.



Dewatering

If required, we expect that temporary groundwater/storm water control can be accomplished by means of shallow trenches and sumps, and grading the excavation to low points.

CONSTRUCTION DOCUMENTS AND PLANS

Project plans should be provided to GeoDesign to review for conformance with geotechnical recommendations. If changes are made, the recommendations in this report will need to be reviewed.

LIMITATIONS

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

Thank you for the opportunity to be of service. Please feel free to call either of the undersigned if you have questions.

Sincerely,

Daniel F. LaMesa, P.E.
Project Engineer

Joseph W. Kidd, P.E.
Senior Associate

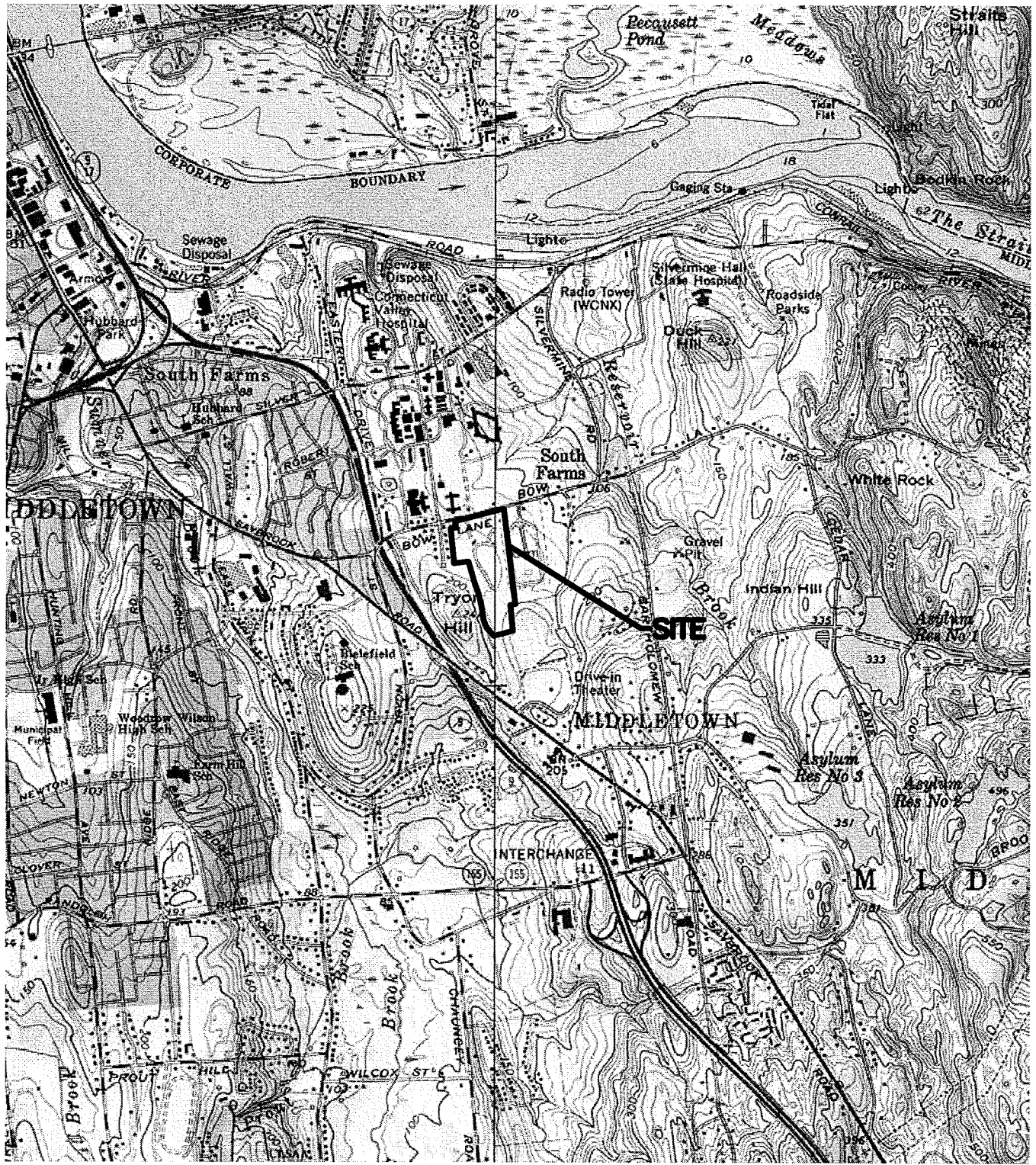
Attachments: Appendix 1 – Figures
Appendix 2 – Boring Logs
Appendix 3 – Laboratory Test Results
Appendix 4 – Limitations

Appendix 1

Figures

- Figure 1 - Site Locus Plan
- Figure 2 - Site and Boring Location Plan

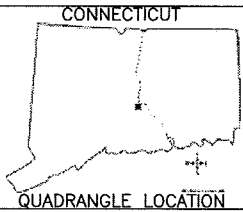
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GEODESIGN
INCORPORATED

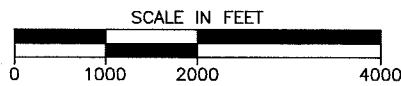
Geotechnical | Construction | Environmental
Engineers and Scientists

984 SOUTHFORD ROAD • MIDDLEBURY, CONNECTICUT 06762
TELEPHONE: 203.758.8836 • FACSIMILE: 203.758.8842



**VETERANS ADMINISTRATION
CEMETERY IMPROVEMENTS
MIDDLETOWN, CONNECTICUT**

REFERENCE:
U.S.G.S. 7.5 MINUTE QUADRANGLE: MIDDLETOWN, CONNECTICUT.
FIGURE WAS CREATED USING TOPO! 2003 SOFTWARE.



PROJECT NO.	0277-010.00
DATE	2/11/14
FIGURE NO.	

DRAWN BY: CPF REVIEWED BY: JWK

Appendix 2

Boring Logs

- Test Boring B-1
- Test Boring B-2
- Test Boring B-3
- Test Boring B-4
- Test Boring B-5
- Test Boring B-6
- Test Boring B-7
- Test Boring B-8
- Test Boring B-9
- Test Boring B-10
- Test Boring B-11
- Test Boring B-12
- Test Boring B-13
- Test Boring B-14
- Test Boring B-15
- Test Boring B-16



Geotechnical | Construction | Environmental
Engineers and Scientists
984 Southford Road - Middlebury, CT 06762
Telephone: (203) 758-8836 Fax: (203) 758-8842

BORING LOG

Project Name
**Veterans Administration Cemetery
Improvements
Middletown, Connecticut**

Boring No.: **B-3**
Page No.: **1 of 1**
File No.: **0277-010.00**
Checked By: **DFL**

Boring Company: **Site LLC**
Foreman: **John DeAngelis**
GeoDesign Rep.: **Robert Marshall**
Date Started: **February 24, 2014** Date Finished: **February 24, 2014**
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): **180**
Station: _____ Offset: **ft**

Casing: _____ Sampler: _____
Type: **H.S.A.** **SS**
I.D.: **2.25 in.** **1.38 in.**
Hammer Wt.: **140 lbs**
Hammer Fall: **30 in.**
Rig Type: **ATV CME 300/45**
Hammer Type: **Automatic - Hydraulic**

Groundwater Observations			
Date	Depth (ft)	Elev. (ft)	Notes
2/24/14	4.0	176.0	Open hole 5 min

Depth (ft)	Sample Information										Strata Description	Symbol	Sample Description		
	Casing Blows/ft		Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)	
	Number	Type				0 - 6	6 - 12	12 - 18	18 - 24						
1.2	1	SS	24	16	0.0	1	1	1	1					Topsoil	Very loose, Top 14": TOPSOIL
2.0	2	SS	24	16	2.0	2	8	15	14					Glacial Till	Bottom 2": red brown fine to medium SAND, some Silt
5.0	3	SS	24	17	5.0	6	9	16	9						Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
7.0	4	SS	24	20	7.0	7	8	9	9						Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
10.0	5	SS	24	24	10.0	8	19	27	42						Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
12.0														Bottom of Exploration at 12.0 ft	
15.0															
20.0															
25.0															
30.0															

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) 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. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-3**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD_GDT 3/5/14



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BORING LOG

Project Name
**Veterans Administration Cemetery
Improvements
Middletown, Connecticut**

Boring No.: **B-4**
Page No.: **1 of 1**
File No.: **0277-010.00**
Checked By: **DFL**

Boring Company: **Site LLC**
Foreman: **John DeAngelis**
GeoDesign Rep.: **Robert Marshall**
Date Started: **February 24, 2014** Date Finished: **February 24, 2014**
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): **180**
Station: _____ Offset: **ft**

Casing:	Sampler:	Groundwater Observations			
Type:	I.D.:	Date	Depth (ft)	Elev. (ft)	Notes
H.S.A.	SS				
2.25 in.	1.38 in.				
Hammer Wt.: 140 lbs		2/24/14			None observed
Hammer Fall: 30 in.					
Rig Type: ATV CME 300/45					
Hammer Type: Automatic - Hydraulic					

Depth (ft)	Sample Information										Strata Description	Symbol	Sample Description		
	Casing Blows/ft		Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)	
	Number	Type				0 - 6	6 - 12	12 - 18	18 - 24						
	1	SS	24	19	0.0	1	4	8	13			0.7	Topsoil	Classification System: Modified Burmister Medium dense, Top 8": TOPSOIL Bottom 11": red brown fine to medium SAND, some Silt, little fine to coarse Gravel Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel	
	2	SS	24	24	2.0	18	15	19	18			179.3	Glacial Till		
5	3	SS	24	24	5.0	8	13	10	10						
	4	SS	24	19	7.0	9	12	20	27						
10	5	SS	24	21	10.0	12	16	17	22						
												12.0	Bottom of Exploration at 12.0 ft	168.0	
15															
20															
25															
30															

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC = After coring; NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-4**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14



Geotechnical | Construction | Environmental
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BORING LOG

Project Name

Veterans Administration Cemetery
Improvements
Middletown, Connecticut

Boring No.: **B-5**

Page No.: 1 of 1

File No.: 0277-010.00

Checked By: DFL

Boring Company: Site LLC
Foreman: John DeAngelis
GeoDesign Rep.: Robert Marshall
Date Started: February 24, 2014 Date Finished: February 24, 2014
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): 185
Station: _____ Offset: ft

Casing:	Sampler:	Groundwater Observations			
Type:	I.D.:	Date	Depth (ft)	Elev. (ft)	Notes
H.S.A.	SS				
2.25 in.	1.38 in.				
Hammer Wt.: 140 lbs		2/24/14			None observed
Hammer Fall: 30 in.					
Rig Type: ATV CME 300/45					
Hammer Type: Automatic - Hydraulic					

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description	
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)
							0 - 6	6 - 12	12 - 18	18 - 24					
		1	SS	24	16	0.0	1	4	6	10			0.7	Topsoil	Classification System: Modified Burmister Loose, Top 8": TOPSOIL Bottom 8": red brown fine to coarse SAND, some Silt, little fine to coarse Gravel Medium dense, red brown fine to medium SAND, some Silt, trace fine to coarse Gravel Dense, red brown fine to medium SAND, some fine to coarse Gravel, some Silt Very dense, red brown fine to medium SAND, little fine to coarse Gravel, little Silt
		2	SS	24	19	2.0	9	10	10	8			184.3	Glacial Till	
5		3	SS	24	24	5.0	8	16	19	30					
		4	SS	24	16	7.0	25	28	30	50/2"			9.0	Bottom of Exploration at 9.0 ft	
10															
15															
20															
25															
30															

Remarks: 1.) Sampler refusal at 8.7 feet and auger refusal at 9.0 feet.

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) 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. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-5**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14

BORING LOG

Boring No.: **B-6**
 Page No.: **1 of 1**
 File No.: **0277-010.00**
 Checked By: **DFL**

**Veterans Administration Cemetery
 Improvements
 Middletown, Connecticut**

Boring Company: **Site LLC**
 Foreman: **John DeAngelis**
 GeoDesign Rep.: **Robert Marshall**
 Date Started: **February 25, 2014** Date Finished: **February 25, 2014**
 N. Coordinate: _____ E. Coordinate: _____
 Ground Surface Elevation (feet): **179**
 Station: _____ Offset: **ft**

Casing:		Sampler:		Groundwater Observations			
Type:	I.D.:	Hammer WL:	Hammer Fall:	Date	Depth (ft)	Elev. (ft)	Notes
H.S.A.	2.25 in.	140 lbs	30 in.	2/25/14			None observed

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description	
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)
							0 - 6	6 - 12	12 - 18	18 - 24					
		1	SS	24	18	0.0	3	2	5	5			Topsoil Fill	178.7	Classification System: Modified Burmister Loose, Top 3": TOPSOIL Bottom 15": red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		2	SS	24	24	2.0	6	7	12	11					Medium dense, red brown fine to medium SAND, some fine to coarse Gravel, some Silt
5															
		3	SS	24	18	5.0	6	4	4	5			Glacial Till	173.0	Loose, Top 8": red brown fine to medium SAND, some Silt, trace fine Gravel, trace Root Fibers Bottom 10": gray brown fine to medium SAND, some Silt, trace Root Fibers
		4	SS	24	24	7.0	7	8	9	11					Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
10															Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
		5	SS	24	19	10.0	4	6	7	10			Bottom of Exploration at 12.0 ft	167.0	
15															
20															
25															
30															

Remarks:

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC= After coring; NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-6**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14



BORING LOG

Project Name
Veterans Administration Cemetery Improvements
Middletown, Connecticut

Boring No.: **B-7**
 Page No.: **1 of 1**
 File No.: **0277-010.00**
 Checked By: **DFL**

Boring Company: **Site LLC**
 Foreman: **John DeAngelis**
 GeoDesign Rep.: **Robert Marshall**
 Date Started: **February 25, 2014** Date Finished: **February 25, 2014**
 N. Coordinate: _____ E. Coordinate: _____
 Ground Surface Elevation (feet): **184**
 Station: _____ Offset: _____ ft

Type:	Casing:	Sampler:	Groundwater Observations			
	H.S.A.	SS	Date	Depth (ft)	Elev. (ft)	Notes
I.D.:	2.25 in.	1.38 in.				
Hammer Wt.:	140 lbs		2/25/14			None observed
Hammer Fall:	30 in.					
Rig Type:	ATV CME 300/45					
Hammer Type:	Automatic - Hydraulic					

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description		
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)	
							0 - 6	6 - 12	12 - 18	18 - 24						
1		1	SS	24	20	0.0	1	2	3	5			1.0	Topsoil		Classification System: Modified Burmister Loose,
2		2	SS	24	17	2.0	8	7	7	6			183.0	Fill		Top 12": TOPSOIL Bottom 8": red brown fine to medium SAND, some Silt, little fine Gravel
5		3	SS	24	21	5.0	3	8	9	9						Medium dense, red brown fine to medium SAND, some Silt, some fine Gravel
		4	SS	24	20	7.0	13	10	8	9						Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
10		5	SS	24	19	9.0	9	11	11	9			176.0	Glacial Till		Medium dense, Top 10": red brown fine to medium SAND, some Silt, little fine to coarse Gravel, trace Root Fibers, damp Bottom 10": Brown fine to medium SAND, some Silt, trace fine Gravel, trace Root Fibers
													172.0	Bottom of Exploration at 12.0 ft		Medium dense, red brown fine to medium SAND, little Silt, little fine to coarse Gravel
15																
20																
25																
30																

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC = After coring; NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-7**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14

BORING LOG

Project Name

**Veterans Administration Cemetery
 Improvements
 Middletown, Connecticut**

Boring No.: **B-8**

Page No.: **1 of 1**

File No.: **0277-010.00**

Checked By: **DFL**

Boring Company: Site LLC
 Foreman: John DeAngelis
 GeoDesign Rep.: Robert Marshall
 Date Started: February 24, 2014 Date Finished: February 24, 2014
 N. Coordinate: _____ E. Coordinate: _____
 Ground Surface Elevation (feet): 186
 Station: _____ Offset: _____ ft

Type:	Casing:	Sampler:	Groundwater Observations			
	H.S.A.	SS	Date	Depth (ft)	Elev. (ft)	Notes
I.D.:	2.25 in.	1.38 in.				
Hammer Wt.:	140 lbs	▼	2/24/14			None observed
Hammer Fall:	30 in.	▼				
Rig Type:	ATV CME 300/45	▼				
Hammer Type:	Automatic - Hydraulic	▼				

Depth (ft)	Casing Blows/ft	Sample Information										
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)	Moisture Content (%)
							0 - 6	6 - 12	12 - 18	18 - 24		
		1	SS	24	20	0.0	1	4	10	13		
		2	SS	24	24	2.0	11	18	16	20		
5												
		3	SS	24	24	5.0	10	13	10	10		
		4	SS	24	20	7.0	12	15	13	12		
10												
		5	SS	24	16	10.0	7	14	14	19		
15												
20												
25												
30												

Strata Description	Symbol	Sample Description
Depth & Elevation (feet)		Classification System: Modified Burmister
Topsoil	185.7	Medium dense, Top 4": TOPSOIL
Glacial Till	185.7	Bottom 16": red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Medium dense, red brown fine to coarse SAND, little fine to coarse Gravel, little Silt
		Medium dense, red brown fine to medium SAND, some fine to coarse Gravel, some Silt
12.0	174.0	
Bottom of Exploration at 12.0 ft		

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC = After coring, NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC = Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube;
 V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14



BORING LOG

Project Name

Veterans Administration Cemetery Improvements
Middletown, Connecticut

Boring No.: **B-9**
Page No.: **1 of 1**
File No.: **0277-010.00**
Checked By: **DFL**

Boring Company: Site LLC
Foreman: John DeAngelis
GeoDesign Rep.: Robert Marshall
Date Started: February 24, 2014 Date Finished: February 24, 2014
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): 190
Station: _____ Offset: ft

Type:	Casing:	Sampler:	Groundwater Observations			
	H.S.A.	SS	Date	Depth (ft)	Elev. (ft)	Notes
I.D.:	2.25 in.	1.38 in.				
Hammer Wt.:		140 lbs	2/24/14			None observed
Hammer Fall:		30 in.				
Rig Type:	ATV CME 300/45					
Hammer Type:	Automatic - Hydraulic					

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description	
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)
							0 - 6	6 - 12	12 - 18	18 - 24					
		1	SS	24	21	0.0	WH	1	5	10			0.9	Topsoil	Classification System: Modified Burmister Loose, Top 11": TOPSOIL Bottom 10": red brown fine to medium SAND, some Silt, little fine to coarse Gravel Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel Medium dense, red brown fine to medium SAND, some fine to coarse Gravel, some Silt Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel Dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
		2	SS	24	18	2.0	8	8	12	12			189.1	Glacial Till	
5		3	SS	24	17	5.0	9	9	10	12					
		4	SS	24	22	7.0	12	11	11	11					
10		5	SS	24	20	10.0	7	16	16	24			12.0	Bottom of Exploration at 12.0 ft	
15															
20															
25															
30															

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC = After coring; NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-9**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14

BORING LOG


Project Name

**Veterans Administration Cemetery
 Improvements
 Middletown, Connecticut**

Boring No.: **B-10**
 Page No.: **1 of 1**
 File No.: **0277-010.00**
 Checked By: **DFL**

Boring Company: **Site LLC**
 Foreman: **John DeAngelis**
 GeoDesign Rep.: **Robert Marshall**
 Date Started: **February 24, 2014** Date Finished: **February 24, 2014**
 N. Coordinate: _____ E. Coordinate: _____
 Ground Surface Elevation (feet): **195**
 Station: _____ Offset: **ft**

Casing:	Sampler:	Groundwater Observations			
Type:	I.D.:	Date	Depth (ft)	Elev. (ft)	Notes
H.S.A.	SS				
2.25 in.	1.38 in.				
Hammer Wt.: 140 lbs		2/24/14			None observed
Hammer Fall: 30 in.					
Rig Type: ATV CME 300/45					
Hammer Type: Automatic - Hydraulic					

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description		
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)	
							0 - 6	6 - 12	12 - 18	18 - 24						
		1	SS	24	20	0.0	1	2	10	22			0.8	Topsoil		Classification System: Modified Burmister Medium dense, Top 9": TOPSOIL Bottom 11": red brown fine to medium SAND, some Silt, little fine to coarse Gravel Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		2	SS	24	17	2.0	12	20	13	13				Glacial Till		194.2
5		3	SS	24	16	5.0	6	5	6	4						
		4	SS	24	24	7.0	9	8	10	14						
10		5	SS	24	24	10.0	10	16	33	33						
													12.0	Bottom of Exploration at 12.0 ft	183.0	
15																
20																
25																
30																

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC = After coring; NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-10**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14



BORING LOG

Project Name

Veterans Administration Cemetery Improvements
Middletown, Connecticut

Boring No.: **B-11**
Page No.: 1 of 1
File No.: 0277-010.00
Checked By: DFL

Boring Company: Site LLC
Foreman: John DeAngelis
GeoDesign Rep.: Robert Marshall
Date Started: February 25, 2014 Date Finished: February 25, 2014
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): 190
Station: _____ Offset: _____ ft

Type:	Casing:	Sampler:	Groundwater Observations			
			Date	Depth (ft)	Elev. (ft)	Notes
I.D.:	H.S.A.	SS				
	2.25 in.	1.38 in.				
Hammer Wt.:		140 lbs	2/25/14			None observed
Hammer Fall:		30 in.				
Rig Type:	ATV CME 300/45					
Hammer Type:	Automatic - Hydraulic					

Depth (ft)	Casing Blows/ft	Sample Information										
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)	Moisture Content (%)
							0 - 6	6 - 12	12 - 18	18 - 24		
		1	SS	24	20	0.0	1	4	7	5		
		2	SS	24	24	2.0	10	10	12	11		
5												
		3	SS	24	21	5.0	5	7	9	11		
		4	SS	24	18	7.0	12	13	15	16		
10												
		5	SS	24	23	10.0	11	11	9	7		
15												
20												
25												
30												

Strata Description	Symbol	Sample Description
Depth & Elevation (feet)		Classification System: Modified Burmister
Topsoil		Medium dense, Top 6": TOPSOIL
Glacial Till	189.5	Bottom 14": red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
		Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
Bottom of Exploration at 12.0 ft	178.0	

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) 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. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-11**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14



BORING LOG

Project Name

Veterans Administration Cemetery Improvements
Middletown, Connecticut

Boring No.: **B-12**
Page No.: **1 of 1**
File No.: **0277-010.00**
Checked By: **DFL**

Boring Company: **Site LLC**
Foreman: **John DeAngelis**
GeoDesign Rep.: **Robert Marshall**
Date Started: **February 25, 2014** Date Finished: **February 25, 2014**
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): **191**
Station: _____ Offset: **ft**

Type:	Casing:	Sampler:	Groundwater Observations			
	H.S.A.	SS	Date	Depth (ft)	Elev. (ft)	Notes
I.D.:	2.25 in.	1.38 in.				
Hammer Wt.:		140 lbs	2/25/14			None observed
Hammer Fall:		30 in.				
Rig Type:		ATV CME 300/45				
Hammer Type:		Automatic - Hydraulic				

Depth (ft)	Casing Blows/ft	Sample Information										
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)	Moisture Content (%)
							0 - 6	6 - 12	12 - 18	18 - 24		
		1	SS	24	12	0.0	1	6	14	18		
		2	SS	24	20	2.0	18	10	16	13		
5												
		3	SS	24	19	5.0	6	17	26	21		
		4	SS	24	22	7.0	22	22	20	31		
10												
		5	SS	24	21	10.0	12	23	35	38		
15												
20												
25												
30												

Strata Description	Symbol	Sample Description
Depth & Elevation(feet)		Classification System: Modified Burmister
Topsoil		Medium dense, Top 6": TOPSOIL
Glacial Till	190.5	Bottom 6": red brown fine to medium SAND, some fine to coarse Gravel, little Silt
		Medium dense, red brown fine to medium SAND, little fine Gravel, little Silt
		Dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
		Dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
		Very dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel
Bottom of Exploration at 12.0 ft	179.0	

Remarks

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) 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. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC = Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-12**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD_GDT 3/5/14

BORING LOG

Project Name

**Veterans Administration Cemetery
 Improvements
 Middletown, Connecticut**

Boring No.: **B-15**
 Page No.: **1 of 1**
 File No.: **0277-010.00**
 Checked By: **DFL**

Boring Company: **Site LLC**
 Foreman: **John DeAngelis**
 GeoDesign Rep.: **Robert Marshall**
 Date Started: **February 25, 2014** Date Finished: **February 25, 2014**
 N. Coordinate: _____ E. Coordinate: _____
 Ground Surface Elevation (feet): **176**
 Station: _____ Offset: **ft**

Casing:		Sampler:		Groundwater Observations			
Type:	H.S.A.	SS	Date	Depth (ft)	Elev. (ft)	Notes	
I.D.:	2.25 in.	1.38 in.					
Hammer Wt.:	140 lbs		2/25/14			None observed	
Hammer Fall:	30 in.						
Rig Type:	ATV CME 300/45						
Hammer Type:	Automatic - Hydraulic						

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description		
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)	
							0 - 6	6 - 12	12 - 18	18 - 24						
		1	SS	24	15	0.0	1	2	6	7			1.2	Topsoil	174.8	Classification System: Modified Burmister Loose, Top 9": TOPSOIL Bottom 6": red brown fine to medium SAND, little Silt, little fine to coarse Gravel
		2	SS	24	21	2.0	4	10	14	17						Medium dense, red brown fine to medium SAND, some Silt, little fine to coarse Gravel Medium dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel Medium dense, red brown fine to coarse SAND, some Silt, little fine to coarse Gravel
5		3	SS	24	16	5.0	7	5	8	7						
		4	SS	24	21	7.0	7	10	20	18						
10		5	SS	8	6	10.0	22	50/2"					10.7	Bottom of Exploration at 10.7 ft	165.3	Very dense, red brown fine to medium SAND, some Silt, some fine to coarse Gravel
15																
20																
25																
30																

Remarks: 1.) Spoon refusal at 10.5 feet.

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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. AC = After coring; NR = Not Recorded.
 3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-15**

1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14



BORING LOG

Project Name

Veterans Administration Cemetery Improvements
Middletown, Connecticut

Boring No.: **B-16**
Page No.: **1 of 1**
File No.: **0277-010.00**
Checked By: **DFL**

Boring Company: Site LLC
Foreman: John DeAngelis
GeoDesign Rep.: Robert Marshall
Date Started: February 25, 2014 Date Finished: February 25, 2014
N. Coordinate: _____ E. Coordinate: _____
Ground Surface Elevation (feet): 181
Station: _____ Offset: ft

Type:	Casing:	Sampler:	Groundwater Observations			
			Date	Depth (ft)	Elev. (ft)	Notes
H.S.A.		SS				
I.D.:	2.25 in.	1.38 in.				
Hammer Wt.:		140 lbs	2/25/14	1.6	179.4	Open hole 10 minutes
Hammer Fall:		30 in.				
Rig Type:		ATV CME 300/45				
Hammer Type:		Automatic - Hydraulic				

Depth (ft)	Casing Blows/ft	Sample Information								Coring Time (min./ft)	Moisture Content (%)	Strata Description	Symbol	Sample Description	
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval								
							0 - 6	6 - 12	12 - 18						18 - 24
		1	SS	24	16	0.0	22	10	11	9					
		2	SS	24	16	2.0	6	7	11	6					
5		3	SS	24	6	4.0	9	11	11	9					
10															
15															
20															
25															
30															

Remarks: 1.) Pushed Cobble on first attempt at S-1 with poor recovery, redrove S-1 2 feet North with 3" spoon for increased recovery.

Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) 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. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; MC=Macrocore; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **B-16**

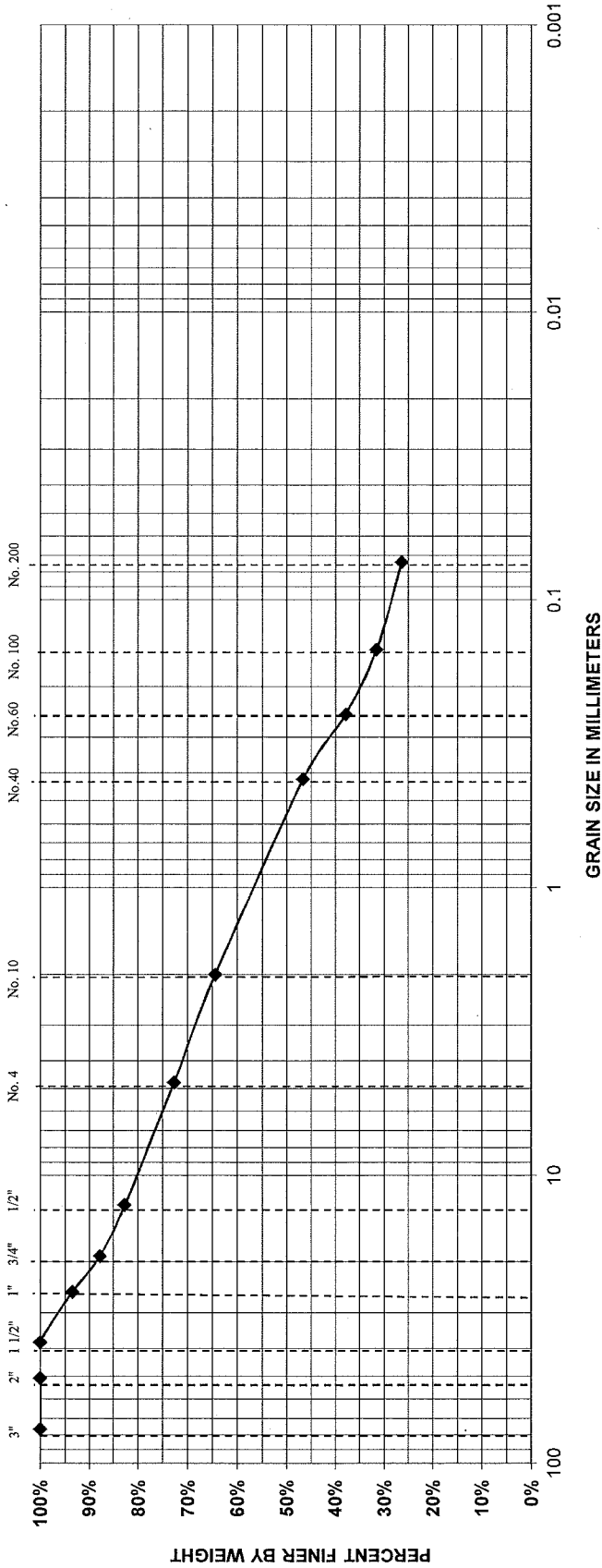
1 - BORING LOG MC 2008-2009 0277-010.00 BORING LOGS.GPJ GEODESIGN STANDARD.GDT 3/5/14

Appendix 3

Laboratory Test Results

- Test Boring B-2, S-2, Gradation Test
- Test Boring B-7, S-2, Gradation Test
- Test Boring B-9, S-2, Gradation Test
- Test Boring B-14, S-2, Gradation Test

U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND		SILT OR CLAY
	COARSE	FINE	COARSE	FINE	

GRADATION TEST

VA Cemetery Expansion, Middletown, CT

BORING NO. B-2
 SAMPLE NO. S-2
 DEPTH 2-4'
 TECH. RJM
 REVIEWER JWK
 DATE 02/28/14
 FILE NO. 277-010

BURMISTER SOIL CLASSIFICATION SYSTEM

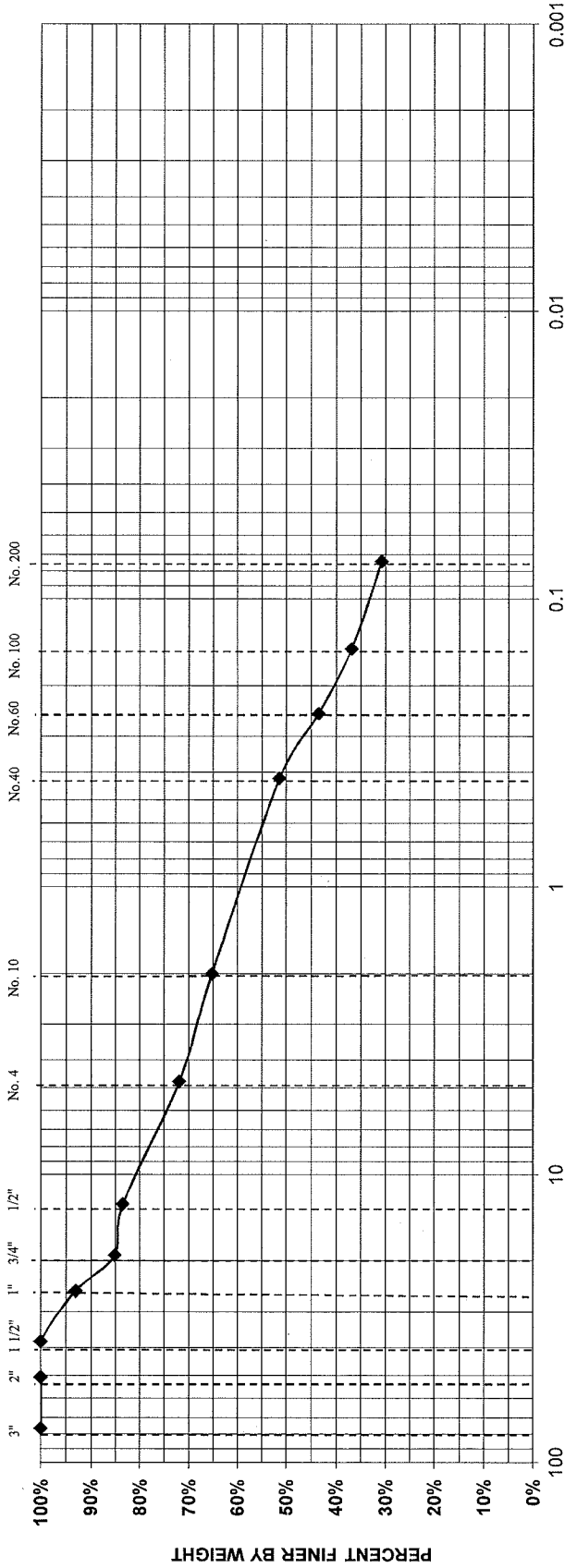
TEST NO.	MATERIAL SOURCE	DESCRIPTION
1 of 4	Jar sample	Fine to medium SAND, some (26%) Silt, some fine to coarse Gravel



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U.S. STANDARD SIEVE SIZE



GRAIN SIZE IN MILLIMETERS

COBBLES	GRAVEL		SAND		SILT OR CLAY
	COARSE	FINE	COARSE	FINE	

GRADATION TEST

VA Cemetery Expansion, Middletown, CT

BORING NO. B-7
 SAMPLE NO. S-2
 DEPTH 2-4'
 TECH. RJM
 REVIEWER JWK
 DATE 02/28/14
 FILE NO. 277-010

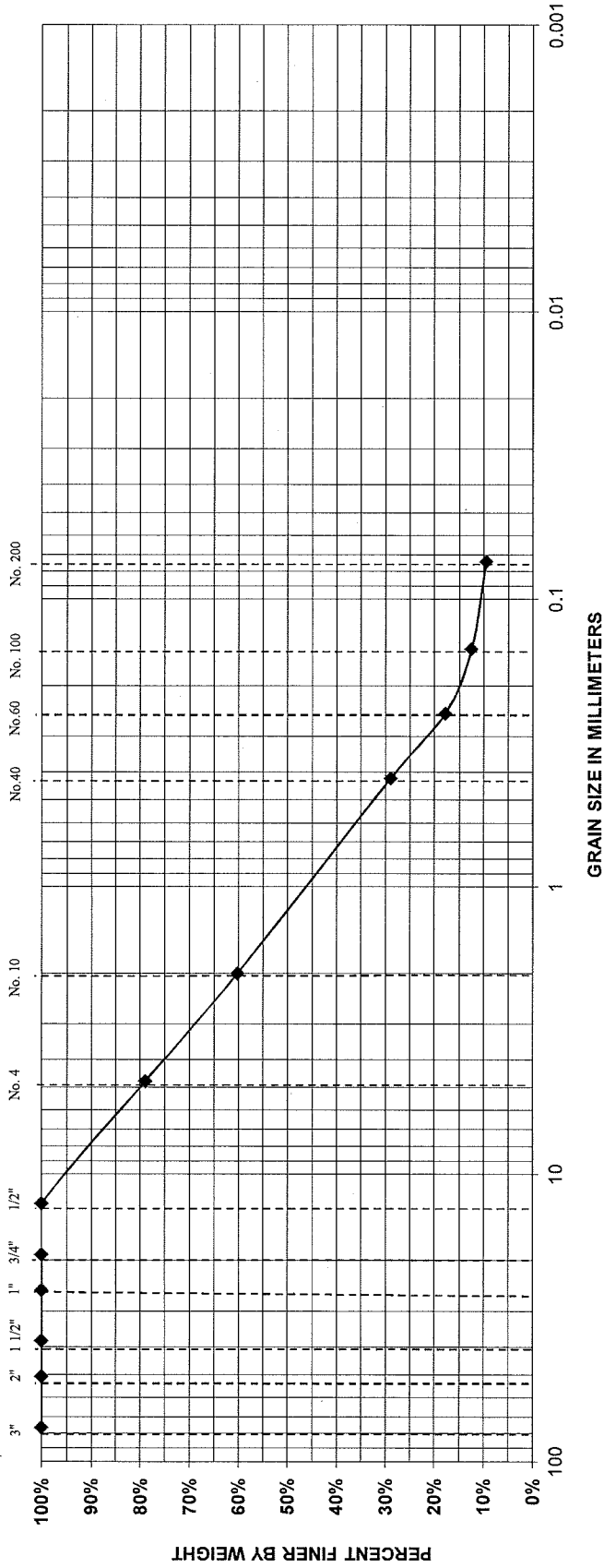
BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
2 of 4	Jar sample	Fine to medium SAND, some (31%) Silt, some fine to coarse Gravel



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U.S. STANDARD SIEVE SIZE



COBBLES	GRAVEL		SAND		SILT OR CLAY
	COARSE	FINE	COARSE	FINE	

GRADATION TEST

VA Cemetery Expansion, Middletown, CT

BORING NO.	B-14
SAMPLE NO.	S-2
DEPTH	2-4'
TECH.	RJM
REVIEWER	JWK
DATE	02/28/14
FILE NO.	277-010

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
4 of 4	Jar sample	Fine to coarse SAND, some fine Gravel, trace (9%) Silt



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Appendix 4

Limitations

GEOTECHNICAL LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from 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 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 interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.
3. Water level readings have been made in the drill holes at times and under conditions stated on the boring 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 occurring since the time measurements were made.

Review

4. In the event that any changes in the nature, design or location of the proposed improvements are planned, the conclusions and recommendations 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 GeoDesign. It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

Use of Report

5. This report has been prepared for the exclusive use of BL Companies and their design team for specific application to the proposed improvements to the Veterans Administration Cemetery located at 317 Bow Lane in Middletown, Connecticut, in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.