ROADWAY REPORT FOR
NEW BRITAIN - HARTFORD BUSWAY
STATE PROJECT NO. 171-305
NEWINGTON TO WEST HARTFORD, CONNECTICUT

by

Haley & Aldrich, Inc.
Parsippany, New Jersey

for

Ammann & Whitney Consulting Engineers
New York, New York

File No. 32669-000
16 November 2010

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Attention: Samia Abdou, P.E.

Subject: Revised Roadway Report
New Britain - Hartford Busway
State Project No. 171-305
Newington to West Hartford, Connecticut

Ladies and Gentlemen:

This revised report provides the results of our geotechnical engineering studies for roadway design of the New Britain-Hartford ConnDOT Busway, located in Newington and West Hartford, Connecticut, and was revised to incorporate a comment from the Connecticut Department of Transportation dated 14 October, 2010. The roadway location is shown on the Project Locus, Figure 1.

SUMMARY

Subsurface soils generally consist of fill overlying alluvial, lacustrine or glaciolacustrine deposits over glacial till or bedrock. The laboratory consolidation testing performed on samples collected from the roadway borings indicate that the compressible soils are over consolidated. Coupled with the proposed heights of new embankment fill, it is anticipated that consolidation along the roadway alignment will remain in the recompression range. Ground improvement (either preloading and/or wick drains) is not necessary.

PROPOSED CONSTRUCTION

The project consists of constructing a roadway parallel to the existing Amtrak rail line with associated crash walls and noise barrier walls, and also includes the construction of two new bridges, crossings over three culverts, and eleven retaining walls. The scope of our work covers the project between Sta. 204+00 and Sta. 332+00. The following tables summarize the proposed construction.

Proposed Retaining Wall	L or R of Centerline	From Station to Station	Length (ft)	Maximum Wall Height (ft)
101	L	Sta. 215+40 to Sta. 218+27	285	8.5
102	L	Sta. 225+50 to Sta. 229+00	350	10.5
103	L	Sta. 244+17 to Sta. 247+29	317	15
104	L	Sta. 251+00 to Sta. 251+60	60	19.95
105	L	Sta. 295+50 to Sta. 300+10	460	3

Proposed Retaining Wall	L or R of Centerline	From Station to Station	Length (ft)	Maximum Wall Height (ft)
106	R	Sta. 295+75 to Sta. 300+10	435	9.2
107	L	Sta. 301+60 to Sta. 303+00	137	14.75
108	R	Sta. 301+58 to Sta. 304+27	269	10
109	L	Sta. 304+77 to Sta. 308+04	330	18.5
110	R	Sta. 305+68 to Sta. 308+06	237	8.5
111	L	Sta. 309+24 to Sta. 316+20	696	17.5
112	R	Sta. 229+20 to Sta. 239+00	980	7.5

Proposed Barrier Wall	L or R of Centerline	From Station to Station	Length (ft)	Maximum Wall Height (ft)
Noise	L	Sta. 225+00 to Sta. 237+00	950	25

Proposed Culverts	Location	Diameter (ft)	Invert El (ft)
Tributary to Piper Brook	Sta. 223+45	6.5	60.0
Tributary to Piper Brook	Sta. 230+80	TBD	TBD
Jacob Brook	Sta. 250+50	7.5	61.0

Proposed Bridges	From Station to Station	Length (ft)
over New Britain Avenue	Sta. 300+29.56 to Sta. 301+44.56	115
over Trout Brook	Sta. 308+21 to Sta. 309+08	85

In addition to the structures and utilities described in the table above, the project contains roadway cut and fill sections as described under "Geotechnical Engineering Recommendations".

The investigation and recommendations specific to the structures summarized above are covered by separate reports. This report contains recommendations specific to the proposed roadway. Plans and profiles showing the overall limits of the project are presented in Figures 2A through 2K. Elevations are in feet and refer to National Geodetic Vertical Datum of 1929 (NGVD 29). Coordinates are in feet and based on the Connecticut Coordinate System, North American Datum of 1983 (NAD83).

SITE CONDITIONS

The project site begins in Newington following the existing Amtrak rail line to the northeast ending in West Hartford. In general, the area along the alignment has been previously developed and surface features include vegetated ground, railroad embankments, bridges and streams. The existing ground surface elevations along the proposed centerline vary between El. 51.0 at New Britain Avenue (which will be spanned by a bridge) and El. 76.7, approximately 2000 feet (ft) south of New Britain Avenue.

Our understanding of the project area is based on the following information:

- 60% Semi Final Submission Drawings Connecticut Department of Transportation Plan for Construction of New Britain – Hartford Busway
- 90% Final Design Cross Section Drawings provided by Ammann & Whitney
- Report on Settlement due to the Glacial Lake Deposit

- Structure Type Study Report on Busway over New Britain Avenue
- Structure Type Study Report on Busway over Trout Brook

REGIONAL GEOLOGY

This portion of the ConnDOT Busway Project extends from Newington to West Hartford, CT, and lies completely within the Central Valley region of the state. Bedrock is the late Triassic Portland Arkose Formation, sedimentary rock composed of interbedded red-brown shales, siltstones, and sandstones, and occasional gray shale layers. These lithologies are largely the result of fluvial (river), alluvial fan, and lake deposition of sediments derived from crystalline mountains in a tropical environment. Regional-scale normal faulting to the east resulted in the approximately 20 to 30 degree characteristic dip in the sedimentary beds. Connecticut's surficial deposits have been largely sculpted over the past 25,000 years, at the close of the Ice Age during the final advance of the Wisconsinan Glacier. Continental ice sheets flowed south, scouring the land of its existing subsoil, saprolite, and weathered bedrock, and polishing or plucking the more competent bedrock. This material was deposited by the ice as a dense, heterogeneous mixture of soil (clay to boulders) known as *glacial till*. Other material was deposited by glacial meltwater, either in contact with the ice (*stratified drift*) or in meltwater streams (*glaciofluvial deposits*). Often meltwater streams would become dammed by either ice or sediment dams, forming glacial lakes. In the deep lake waters only the finest particles (silt and clay) were deposited (*glaciolacustrine deposits*), while streams entering the lakes would drop their silt and sand in *glaciodeltaic deposits*.

The initial stages of glacial lake formation, as observed in test boring samples, were often characterized by heavy sediment loads in glacial meltwaters and long winters, creating thick and irregularly-spaced layers. As time progressed, glacial margins retreated north, and seasons were more regular, creating varved deposits with rhythmically-deposited layers. The Newington end of this portion of the project, southwest of Willard Avenue, is one of the few areas in Connecticut that soil deposits predating Glacial Lake Hitchcock (other than glacial till) are exposed. The clays here have been mapped previously (Deane, 1967) as being part of the Berlin Clay varved deposits. The Berlin Clay was deposited in a series of ice-marginal glacial lakes that existed prior to the final major advance of the Wisconsinan glacier, and have been found to be overlain in various locations by till, glaciofluvial deposits, and Lake Hitchcock varved clays. Varved clays northeast of Willard Avenue have been mapped previously as being deposited in Glacial Lake Hitchcock, one of the largest and longest-lived glacial lakes in the Northeast (Deane, 1967). The Berlin Clay may underlie the Lake Hitchcock clay in portions of Newington and southern West Hartford.

Since the retreat of the glaciers, recent geological and anthropogenic processes have continued to shape the land surface. Streams and associated wetlands deposit sediments in their channels and floodplains as *alluvium* (silt, sand, and gravel) and as *organic soil deposits*. Shallow depth fills underlie the railroad tracks throughout the project alignment. Thicker fills, generally composed of local soils, were encountered at railroad crossing dating from the early 20th Century, and include the New Britain Avenue overpass, the bridge over Trout Brook, and two (2) deep storm drainage culverts.

SUBSURFACE EXPLORATIONS AND LABORATORY TESTING

Recent Test Borings

General Borings, Inc., Prospect, Connecticut, drilled nine (9) test borings between 18 and 22 October 2007, forty-eight (48) test borings between 9 and 29 April 2008, two (2) test borings between 30 September and 2 October, 2009 and seven (7) test borings between 19 and 23 July, 2010. Borings were drilled using

NW (3-inch I.D.) and HW-size (4-inch I.D.) driven casing, and hollow-stem augers (HSA 4.25-inch I.D.). Boring depths ranged from 17 to 110 ft below ground surface. Soil samples were obtained at maximum 5 ft intervals by driving a split spoon sampler with a safety or donut hammer. Most of the borings terminated within glaciolacustrine deposits.

A representative of Haley & Aldrich monitored the drilling. Exploration locations were surveyed by ConnDOT, and are shown on Figures 2A through 2K. Boring logs are presented in Appendix A.

Nine (9) observation wells were installed in completed test borings (CB-101(OW), NBA-102(OW), RB-101(OW), RB-107(0W), RB-114(OW), RB-124(OW), RW-106(OW), RW-117(OW) and TB-102(OW) to measure groundwater levels. Observation well records are provided in Appendix B.

Recent Laboratory Testing

Laboratory testing included twenty-five (25) grain size distribution analyses (ASTM D422) on representative samples of the fill, alluvial deposits, and glaciolacustrine deposits to confirm visual classification. Laboratory testing on samples of the glaciolacustrine deposits included seven (7) consolidation tests, seven (7) isotropically-consolidated undrained triaxial compression (CIUC) tests, seventeen (17) Atterberg Limits, eight (8) organic content determinations, seven (7) lab vanes, thirty-five (35) unit weight tests, and sixty-nine (69) water content determinations for evaluation of engineering properties. Testing was conducted by Geotesting Services, Inc. of Totowa, New Jersey in general accordance with standard ASTM procedures. Laboratory test results are presented in Appendix C.

Previous Borings

Fifteen (15) test borings were conducted during the Pilot Program for the proposed Busway. Also, four (4) test borings (Nos. 1 through 4) were conducted on New Britain Avenue for the construction of the existing bridge. Previous boring locations are shown on Figure 2 and logs are included in Appendix D.

Previous Laboratory Testing

Thirty six (36) grain size analyses, eighty-one (81) water contents, thirty-two (32) sets of Atterberg Limits tests, twelve (12) torvane tests, three (3) consolidated undrained triaxial compression tests, two (2) unconfined compressive strength tests and five (5) one dimensional consolidation tests were performed on representative samples during the Pilot Program to aid in classification and to determine engineering properties. Previous laboratory test results are presented in Appendix E.

SUBSURFACE CONDITIONS

Borings generally encountered fill underlain by alluvial, lacustrine, glaciolacustrine, glaciofluvial and/or glacial till over bedrock. Generalized descriptions of soil strata in order of increasing depth below ground surface follow.

Profiles showing subsurface stratigraphy are presented on Figures 2 through 12. In general, the stratigraphy varies along the alignment. At the south end of the alignment from Sta 204+00 to Sta 218+00, the overburden is generally 12 to 20 ft thick and consists of fill, over alluvium, over glacial till. North of Sta 218+00 to Sta 242+00 the thickness of the overburden ranges between 20 and 60 ft and consists of fill over alluvium, lacustrine, and glacial till. Between Sta 242+00 and Sta 245+00, the top of rock rises such that the overburden (consisting of glacial till) is approximately 15 ft thick. North of Sta 245+00 to Sta 302+00 the thickness of overburden increases to 35 to 60 ft and consists of fill over alluvium, glaciolacustrine, and glacial

till. From Sta 302+00 to Sta 316+00, the thickness of overburden ranges from 60 to more than 150 ft thick (based on Pilot Boring SB-55) and consists of fill over glaciolacustrine and glacial till. From Sta 316+00 to the end of the project limits (Sta 332+00), the depths of the borings were approximately 30 ft and did not extend to the top of rock, therefore the thickness of overburden (which consists of fill, lacustrine and pockets of organic soil over glaciolacustrine) is unknown. Table I provides a summary of the soil strata thicknesses encountered in the recent test borings.

Thickness, ft	Generalized Description
0.5 to 37.5	**Fill** – Very loose to very dense brown, dark brown, red-brown or black, coarse to fine SAND, some medium to fine gravel, trace silt. At some locations, roots, wood, brick, ash, cinders and coal particles encountered. The fill was encountered and fully penetrated at all 57 recent test boring locations.
1.2 to 9.0	**Organic Soil –** Very soft to medium stiff dark brown, gray ORGANIC SILT, little course to fine sand, root fibers and leaf matter. This stratum was encountered in 2 recent test borings and was fully penetrated.
2.0 to 14.5	**Alluvial –** Very soft to hard red-brown SILT to loose to dense brown to red-brown coarse to fine SAND, coarse to fine gravel, little clay. This stratum was encountered in 19 recent test borings and was fully penetrated.
3.0 to greater than 31.0	**Lacustrine –** Medium stiff to very stiff brown clayey SILT and CLAY, varved. This stratum was encountered in 9 recent test borings, six of the test borings were terminated in this stratum.
6.0 to greater than 54.5	**Glaciolacustrine Deposits –** Very soft to stiff brown to red brown CLAY varved with gray brown clayey SILT, trace fine sand. This stratum was encountered in 39 recent test borings; this stratum was not fully penetrated at all 39 test boring locations.
2.0 to 31.0	**Glacial Till –** Medium dense to very dense brown to red-brown coarse to fine SAND and coarse to fine GRAVEL, some silt. This stratum was encountered in 21 recent test borings; this stratum was not fully penetrated at all 21 test boring locations.

Bedrock – The top of weathered bedrock/competent bedrock was encountered in seventeen (17) recent test borings approximately 12 to 100 ft below existing ground surface. The elevation of the top of weathered bedrock/competent bedrock ranged between El. 61.25 and El. -36.25. Bedrock was encountered and cored at nine (9) locations and auger refusal was encountered at eight (8) locations. Recovered cores consist of SHALE and SILTSTONE from the Portland Arkose Formation with recovery ranging from 60 to 100% and RQD ranging from of 10 to 88%.

Groundwater ranged from approximately 1.0 to 31.0 ft below ground surface. The groundwater level ranged between El. 32.5 and El. 71.6. Refer to Table I for a summary of the water levels observed at each boring during drilling. The observation well monitoring records are provided in Appendix B. Groundwater levels will fluctuate with season, precipitation, and construction activity and are expected to vary.

GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Proposed Roadway Construction

The project includes construction of the proposed New Britain – Hartford Busway along the existing Amtrak rail line from Newington to West Hartford, Connecticut. Approximately half of the proposed roadway alignment will be at the same elevation as existing grade, over a third of the alignment will require cuts to achieve proposed grade, while the remainder of the alignment will be filled to reach proposed grade.

Pavement Section

Pavement design has been performed by Ammann & Whitney and is not covered in this report.

Summary of Roadway Cuts & Fills

The following table summarizes the approximate geometry of the cuts and fills in areas without retaining walls, as provided by Ammann & Whitney.

From Station to Station	Cut/ Fill	L or R of Center-line	Range of Proposed Slope Heights (ft)	Range of Proposed Slope Angles
Sta 203+00 to Sta 215+40	Cut	L	1.0 to 8.0	2.0H:1V to 12.0H:1V
Sta 215+00 to Sta 300+00	Cut	R	0.5 to 3.0	2.0H:1V to 12.0H:1V
Sta 219+00 to Sta 230+00	Fill	L	1.5 to 7.5	2.0H:1V to 12.0H:1V
Sta 241+00 to Sta 250+00	Cut	L	0.5 to 9.0	2.0H:1V to 12.0H:1V
Sta 251+60 to Sta 254+00	Cut	L	0.5 to 5.0	2.0H:1V to 12.0H:1V
Sta 255+50 to Sta 257+00	Cut	L	0.5 to 5.5	2.0H:1V to 12.0H:1V
Sta 281+00 to Sta 293+00	Cut	L	0.5 to 4.5	2.0H:1V to 12.0H:1V
Sta 301+75 to Sta 307+75	Cut	R	0.5 to 2.0	2.0H:1V to 12.0H:1V
Sta 309+25 to Sta 329+40	Cut	R	0.5 to 2.0	2.0H:1V to 12.0H:1V
Sta 309+50 to Sta 316+00	Cut	L	0.5 to 3.0	2.0H:1V to 12.0H:1V
Sta 316+00 to Sta 321+25	Fill	L	0.5 to 3.0	2.0H:1V to 12.0H:1V
Sta 322+50 to Sta 328+25	Fill	L	0.5 to 2.0	2.0H:1V to 12.0H:1V
Sta 328+50 to Sta 330+50	Cut	L	0.5 to 1.5	2.0H:1V to 12.0H:1V
Sta 331+00 to Sta 332+00	Cut	R	2.0 to 2.5	2.0H:1V to 12.0H:1V

Settlement

Placement of embankment fill (unit weight assumed to be 125 pcf; friction angle of 32 degrees assumed) will cause some consolidation settlement of the alluvium, lacustrine and glaciolacustrine deposits. The geometries of the proposed cuts and fills in areas without retaining walls were evaluated along the alignment and the corresponding consolidation test results reviewed. In general, the consolidation test results indicate that the compressible layers are over consolidated. Along segments where the grade will be raised, the fill thickness is generally between 1 and 3 ft. In these areas the consolidation due to the new embankment fills will remain in the recompression range and will be insignificant.

In areas with retaining walls, based on the cross-sections, the greatest heights of new embankment fill range from approximately 8 ft to 13.5 ft. The total settlements in these areas are estimated to be about 1.5 to 2.3 inches (in.), based on the nearby consolidation test data. In addition, it is possible that there are compressible layers that are closer to normally consolidated which were not encountered during the recent or Pilot test boring programs. Therefore, in certain areas it is recommended that the embankment fills be placed as early in the construction schedule as possible to allow for the maximum possible amount of time between fill placement and paving; this will allow for more consolidation to take place and should reduce the amount of differential settlement along the alignment. These areas are listed in the table below along with the estimated duration of preloading for most of the anticipated settlement to occur.

Location Station to Station	Left or Right of Centerline	Retaining Wall Designation	Preloading Duration
Sta. 251+00 to Sta. 251+60	L	104	6 months
Sta. 295+50 to Sta. 300+10	L	105	6 months
Sta. 301+59 to Sta. 303+00	L	107	7 months
Sta. 301+58 to Sta. 304+27	R	108	6 months
Sta. 304+77 to Sta. 308+04	L	109	6 months

Based on the subsurface information collected during the recent and Pilot test boring programs in the areas scheduled to receive new embankment fill, it is anticipated that there should be no abrupt changes in the rate or magnitude of consolidation along the roadway alignment.

Lightweight Fill Use

Due primarily to predicted settlements, lightweight fill consisting of Expanded Shale, Clay and Slate (ESCS) is recommended for use in the Mechanically Stabilized Earth (MSE) wall at Retaining Wall 109 and for abutment and wingwall backfill at the New Britain Avenue and Trout Brook Bridges. In addition, we understand that lightweight fill may be used for the backfill of other cast-in-place structures (walls and abutments) primarily to decrease the lateral loads and therefore the footing sizes. The Retaining Wall Report, New Britain Avenue Bridge Report and Trout Brook Bridge Report contain further information supporting the use of this material.

Due to the highly pervious nature of this material, a separation geotextile is recommended between the ESCS and any other backfill material and existing soils. Similarly a separation geotextile should be placed above the ESCS layer before installing the base course for the pavement. A suitable non-woven geotextile can be used for this purpose.

Subgrade near Sta. 330+00

An organic soil layer was observed near Sta 330+00 within 4 to 5 ft below the proposed roadway elevation, and below barrier curb and utilities. During subgrade preparation, after stripping to roadway and barrier curb subgrade elevation, the subgrade should be proof-rolled with a vibratory drum compactor with a minimum static load of 10 tons. If the subgrade is found unstable, the subgrade should be over excavated at least 2 ft into the unsuitable material and backfilled with compacted Free Draining Material within a geotextile envelope. Additional and deeper removal of organic or otherwise unsuitable soils may be required based on the field inspection during construction. At the barrier curb locations, deeper over excavations may need to be performed. All drainage installations, including catch basins and 18-in. reinforced concrete drainage pipes extending into the organic soil layer should be installed after removal of organic soil to the underlying glaciolacustrine layer and backfilling with compacted Free Draining Material up to the drainage structure bearing elevation and around the structure to the pavement subgrade elevation. The extent of the overexcavation shall be at a 45° angle below the proposed structure. Typical expected limits of over excavation and backfill treatment have been provided to Ammann & Whitney for the contract drawings.

Slope Stability

At proposed retaining wall locations, a stability analysis was performed using SLIDE 5.0. The search for critical surfaces included evaluation of deep seated failures; however, it was found that the minimum factors of safety corresponded to surficial slope failures. The minimum factor of safety at each retaining wall area ranged from 1.5 to 5.0 and is provided in the 'Geotechnical Engineering Report on Retaining Walls' for this project.

In areas without retaining walls new cut and roadway fill side slopes will be stable if slopes are 2H:1V or flatter. As shown in the table, no proposed side slopes will be steeper than 2H:1V. Steeper slopes between 1.5H:1V and 2H:1V may also be feasible, but may require slope protection.

Seismic Design Considerations

Since the Busway roadway is not a critical structure or major interstate, the seismicity was not evaluated.

Reuse of Excavated Material

The majority of the on-site miscellaneous fill will not be suitable for use as structural fill but may be used as embankment fill. On-site natural soils underlying the miscellaneous fill may be used as structural fill, provided the soils meet the requirements discussed above. Fill and on-site natural soils are expected to have relatively high moisture contents that may complicate achieving the required compaction criteria.

It should be noted that the natural moisture content of the on-site soils varies and moisture conditioning may be required to achieve proper compaction. Some delays due to moisture conditioning and difficulties in achieving the required compaction criteria should be expected.

Underdrains

Provide pavement edge drains along the entire length of the proposed roadway. Roadway underdrains are recommended from Sta 241+00 to Sta 251+00, Sta 269+00 to Sta 285+00, and Sta 326+00 to Sta 332+00. These recommended areas are based on available groundwater data. Additional areas of underdrains may be required if wet and yielding soils are encountered during construction.

Proposed Trenchless Construction

Trenchless methods are proposed for the installation of 36-in. diameter RCP drainage culverts across the Amtrak railroad at about Sta. 298+90 (Location 1) and Sta. 310+10 (Location 2) with lengths of approximately 68 ft and 72 ft, respectively. The two (2) crossings are aligned east to west and are perpendicular to the railroad. Invert depths are about 12 ft below the base of rail at both locations.

Anticipated soil conditions within the pipe horizon at these crossing are primarily stiff SILT (Alluvial and Lacustrine Deposits). Fill soil (with some wood, coal ash and cinders) maybe encountered at the eastern end of the Location 2 alignment. Groundwater is anticipated to be encountered at depths of about 15 ft below the base of rail.

Potential Trenchless Construction Methods

Horizontal Earth Boring

Horizontal earth boring (HEB), also referred to as auger boring, is the process of simultaneously jacking a steel casing through the ground while excavating and removing the soil from inside the casing by means of a rotating continuous flight auger. Casing installed by this method must be straight and level or only very slightly sloped. HEB is typically used in soil types with low permeability and good stand-up time. HEB excavation through ground prone to flowing conditions is generally not feasible without dewatering or pre-stabilization by ground improvement methods such as grouting.

Major components of typical HEB set-up include the boring machine with an internal combustion engine or hydraulic motor, tracks on which the boring machine slides back and forth, casing pipe, cutting heads and augers. The boring machine rotates the augers and the cutting head located at the leading edge of the auger. The casing remains stationary by being temporarily attached to the boring machine. The boring machine, casing and augers are advanced forward by means of hydraulic jacks at the rear of the boring machine, reacting against the back wall of the jacking pit.

HEB requires that a jacking pit and receiving pit be excavated at either end of the casing to be installed. Staging requirements at the jacking pit are relatively limited, with plant and equipment generally consisting of a small crane, front end loader, spoil storage bin and storage for auger and casing pipe segments. The jacking pit for HEB is generally at least 25 ft long.

Pipe Jacking

Pipe jacking (PJ) consists of advancing pipe through the ground with thrust provided by hydraulic jacks and excavation of soil at the front of the pipe string either manually or mechanically. The process requires personnel entry into the pipe being jacked to operate excavation equipment. The excavation method can vary from a very basic process of hand excavation to excavation using a sophisticated tunnel boring machine.

Regardless of the excavation method, it is usually accomplished inside of a shield attached to the leading section of pipe. The shields are typically articulated which allows some degree of line and grade control. The purpose of the shield is to provide a safe working environment for the workers and allow the bore to stay open during the excavation process for the pipe to be jacked into place. Typically, pipe jacking is done with pipes 42 to 48 in. in diameter and larger which accommodates

worker entry. Pipe jacking is typically used in soil types with low permeability and good stand-up time, or in soils that have been dewatered or otherwise prestabilized by ground improvement methods such as grouting. Grouting can be accomplished from the ground surface, ahead of the advancing face of the excavation. It can also be performed from within the shield, on an as-needed basis, when unstable ground is encountered. Also, face control measures such as breasting can be implemented to control adverse ground behavior.

The process requires a simple, cyclic procedure for installing individual sections of pipe, then jacking the pipe forward by the use of hydraulic jacks reacting against the back wall of the jacking pit. The face is excavated simultaneously with the jacking operation and the excavated spoil is removed through the inside of the pipe, typically with small carts, to the jacking pit.

PJ requires that a jacking pit and receiving pit be excavated at either end of the casing to be installed. Staging area requirements at the jacking pit are relatively limited, with plant and equipment generally consisting of a small crane, front end loader, spoil storage area and stockpiled casing pipe segments. The jacking pit for PJ is generally at least 15 ft long, and is generally governed by the length of pipe (casing) sections to be jacked. Receiving pits can be somewhat smaller, and must be large enough to remove the PJ shield.

Summary of Evaluations for Trenchless Construction

We recommend installation of a 48-in. diameter steel casing under the railroad and installing the 36-inch diameter RCP inside the casing and grouting it in-place.

All pipe (i.e. casing pipe and RCP pipe) should be designed to support full overburden loading plus applicable surcharge loadings in accordance with Amtrak's Pipeline Occupancy – Requirements and Specifications. Based on Amtrak's requirements, the distance from the base of rail to the top of casing shall not be less than 5.5 ft at its closest point.

The design and location of the jacking and receiving pits shall also be within the minimum requirements outlined in Amtrak's requirements.

For these two (2) crossings it appears that PJ and HEB would both be technically feasible. However, each method differs in relative risk for problems during construction due to the potential for encountering obstructions, such as fill containing wood remnants (Location 2) or other buried manmade structures. The PJ method is judged to have the least risk relative to obstructions because workers can manually remove the obstructions from the excavation face without impacting overall production rates significantly. Obstructions can be cleared in the HEB method by withdrawing the augers from the casing pipe and sending workers to the excavation face to remove them. Since HEB is not set-up for routine worker entry into the casing pipe, obstructions when encountered on an HEB project, can result in significant delays and unanticipated cost increases.

Use of the 48-in. diameter casing will allow for better working space and comply with OSHA guidelines for work in confined space for personnel excavating at the face for the PJ option.

For both PJ and HEB, based on available information, the proposed vertical alignment is above the anticipated groundwater level. Should groundwater be encountered, groundwater lowering or soil stabilization may be required.

It is recommended that the jacking pit be located on the west side of each crossing based on availability of work space within Busway right-of-way.

CONSTRUCTION CONSIDERATIONS

This section provides comments related to roadway construction and other geotechnical aspects of the project. It will aid those responsible for preparation of contract plans and specifications and those involved with construction monitoring. Contractors should evaluate potential construction problems on the basis of their own knowledge and experience in the area and on the basis of similar localities, taking into account their own proposed construction methods and procedures.

Excavation and Temporary Lateral Support

Excavations for the roadway will be in existing fill, alluvium or glaciolacustrine deposits. Conventional heavy construction equipment appears practical for excavation.

Excavation geometry should conform to OSHA excavation regulations contained in 29 CFR Part 1926, latest edition. Temporary soil slopes above groundwater of 1V:1.5H (Soil Profile Type C), or flatter, appear appropriate but should be confirmed during construction based on conditions at the time of excavation.

Dewatering

We anticipate that, in general, excavation dewatering may be accomplished by open pumping from the sumps located in the bottom of excavations. The contractor should configure excavations and surrounding areas to prevent surface water from entering excavations.

The contractor should be responsible for handling and disposal of water from excavation dewatering or turbid water from construction operations in accordance with the sedimentation and erosion control requirements contained in the contract documents, project permits, and regulatory agency requirements.

Rock Excavation

No rock excavation is anticipated on this project.

Shrink and Swell

Most of the soil encountered near the ground surface was relatively loose fill. We anticipate densification of these soils upon reuse, assume 10% shrinkage.

CLOSING

This report has been prepared for specific application to the New Britain - Hartford Busway Roadway, as understood at this time, in accordance with generally accepted geotechnical engineering practice common to the local area. In the event that changes in the nature, design or location of the project elements are planned, the conclusions and recommendations contained in this report should not be considered valid, unless the changes are reviewed by Haley & Aldrich, Inc. and the conclusions of this report modified or verified in writing.

The analyses and recommendations are based, in part, upon data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to reevaluate the recommendations of this report.

We appreciate the opportunity to provide engineering services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.

STATE OF CONNECTICUT
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PROFESSIONAL ENGINEER

Edward M. Zamiskie, Jr., P.E.
Vice President

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TABLES

TABLE I
SUMMARY OF SUBSURFACE DATA
CONNECTICUT BUSWAY
STATE PROJECT NO. 171-305
WEST HARTFORD, CONNECTICUT

EXPLOR. NUMBER	ELEV. (ft)	DEPTH (ft)		THICKNESS OF SOIL STRATA (ft)						BEDROCK (ft)		WATER LEVEL (ft)	
				FILL	ORGANIC SOIL	ALLUVIAL DEPOSITS	LACUSTRINE	GLACIOLACUSTRINE DEPOSITS	GLACIAL TILL	DEPTH	ELEV.	DEPTH	ELEV.
Roadway Borings (RB)													
RB-101(OW)	69.35	24.00	R	4.20	--	6.80	--	--	2.00	13.00	56.35	4.00	65.35
RB-102	68.19	17.00	R	6.00	--	8.00	--	--	--	14.00	54.19	5.00	63.19
RB-103	67.54	21.00	R	5.00	--	9.00	--	--	5.00	19.00	48.54	6.50	61.04
RB-104	66.67	21.00	C	3.00	--	2.00	--	--	10.00	15.00	51.67	9.00	57.67
RB-105	66.44	20.00	C	3.00	--	6.00	--	--	6.00	15.00	51.44	6.00	60.44
RB-106	65.21	27.00		8.50	--	3.50	> 15.00	--	--	--	--	8.50	56.71
RB-107(OW)	64.81	25.00		6.00	--	12.50	> 6.50	--	--	--	--	10.20	54.61
RB-108	66.94	25.00		5.00	--	7.00	> 13.00	--	--	--	--	9.00	57.94
RB-109	67.89	25.00		3.50	--	10.50	> 11.00	--	--	--	--	10.00	57.89
RB-110	69.37	25.00		5.00	1.20	4.30	--	> 14.50	--	--	--	5.00	64.37
RB-111	71.56	25.00		3.00	--	5.00	--	> 17.00	--	--	--	5.50	66.06
RB-112	71.19	25.00		3.00	--	--	--	> 22.00	--	--	--	5.50	65.69
RB-113	72.93	25.00		5.00	--	--	--	> 20.00	--	--	--	5.00	67.93
RB-114(OW)	73.99	25.00		7.00	--	--	--	> 18.00	--	--	--	14.90	59.09
RB-115	74.55	25.00		5.00	--	--	--	> 20.00	--	--	--	12.00	62.55
RB-116	75.69	25.00		2.00	--	--	--	> 23.00	--	--	--	5.00	70.69
RB-117	76.61	25.00		2.00	--	--	--	> 23.00	--	--	--	5.00	71.61
RB-118	75.75	25.00		3.20	--	--	--	> 21.80	--	--	--	5.00	70.75
RB-119	74.32	25.00		2.60	--	--	--	> 22.40	--	--	--	7.00	67.32
RB-120	73.51	25.00		5.00	--	--	--	> 20.00	--	--	--	--	--
RB-121	64.64	25.00		7.00	--	--	3.00	> 15.00	--	--	--	6.00	58.64
RB-122	65.78	25.00		3.00	--	--	--	> 22.00	--	--	--	--	--
RB-123	69.72	25.00		5.00	--	--	--	> 20.00	--	--	--	2.00	67.72
RB-124(OW)	72.44	25.00		4.50	9.00	--	--	> 11.50	--	--	--	2.00	70.44
Culvert Borings (CB)													
CB-101(OW)	64.41	40.00		6.00	--	7.50	18.50	--	> 8.00	--	--	9.50	54.91
CB-102	63.11	40.00		1.50	--	7.50	> 31.00	--	--	--	--	10.00	53.11
CB-103	71.44	50.00		10.00	--	8.50		26.50	> 5.00	--	--	11.00	60.44
Retaining Walls (RW)													
RW-101	71.20	26.00	C	6.50	--	2.00	--	--	12.50	21.00	50.20	--	--
RW-101A	66.35	17.00	R	2.00	--	4.00	--	--	9.00	15.00	51.35	14.00	52.35
RW-102	66.16	22.50	C	5.00	--	3.00	--	--	3.80	11.80	54.36	10.00	56.16
RW-103	65.41	21.00	C	3.50	--	6.00	--	--	6.40	16.00	49.41	8.00	57.41
RW-104	78.75	28.00	C	0.50	--	--	--	--	17.10	17.50	61.25	--	--
RW-105	76.36	24.00	C	3.00	--	--	--	--	16.00	19.00	57.36	--	--
RW-106(OW)	69.95	40.80	R	3.00	--	7.00	--	12.50	12.50	35.00	34.95	0.30	69.65
RW-107	69.99	40.30	R	5.00	--	5.00	--	18.50	11.80	--	--	1.00	68.99
RW-108	70.66	40.00		2.00	--	--	--	> 38.00	--	--	--	--	--
RW-109	67.23	40.00		10.50	--	--	--	26.50	> 3.00	--	--	--	--
RW-110	70.03	40.00		16.00	--	--	--	> 24.00	--	--	--	--	--
RW-111	57.68	40.00		11.00	--	--	--	25.00	> 4.00	--	--	--	--
RW-112	69.33	55.70	R	21.00	--	--	--	27.00	> 7.70		69.33	16.00	53.33
RW-113	55.42	37.50	R	13.00	--	--	--	23.00	--	36.00	19.42	--	--
RW-114	69.21	57.00		25.00	--	--	--	28.00	> 4.00	--	--	15.00	54.21
RW-115	55.81	40.00		13.50	--	--	--	> 26.50	--	--	--	--	--
RW-116	67.82	57.00		2.50	--	--	--	> 54.50	--	--	--	10.00	57.82
RW-117(OW)	66.76	55.00		2.50	--	--	--	> 52.50	--	--	--	14.20	52.56
RW-118	64.39	55.00		22.00	--	--	--	> 33.00	--	--	--	10.00	54.39
RW-119	63.41	60.00		31.00	--	--	--	> 29.00	--	--	--	15.00	48.41
RW-120	63.32	55.00		33.50	--	--	--	> 21.50	--	--	--	15.00	48.32
RW-121	63.55	55.00		28.00	--	--	--	> 27.00	--	--	--	15.00	48.55
RW-122	63.68	55.00		16.00	--	--	--	> 39.00	--	--	--	8.00	55.68
RW-123	64.82	40.00		4.00	--	14.50	> 21.50	--	--	--	--	12.00	52.82
RW-124	64.23	40.00		4.00	--	12.00	22.50	--	> 5.50	--	--	11.00	53.23
RW-125	53.51	54.40		10.00	--	--	--	39.00	> 5.40	--	--	14.00	39.51
RW-125A	63.00	61.80		7.00	--	6.50	42.00		> 6.50	--	--	--	--
RW-126	65.00	68.10		6.00	--	--	57.00		> 5.00	--	--	--	--
RW-127	66.50	59.00		5.00	--	--	52.00		> 2.00	--	--	--	--
RW-128	67.50	57.50		5.00	--	--	51.50		> 2.00	--	--	--	--
RW-129	68.50	51.90		5.00	--	--	>47.00		--	--	--	--	--
													--
New Britain Avenue Bridge (NBA)													--
													--
NBA-101	51.84	50.00	C	5.00	--	--	--	32.80	--	42.00	9.84	5.00	46.84
NBA-102(OW)	53.82	51.50	R	3.50	--	--	--	40.50	--	44.00	9.82	7.70	46.12
													--
Trout Brook Culvert/Bridge (TB)													--
													--
TB-101	63.75	110.00	C	36.50	--	--	--	32.00	31.00	100.00	-36.25	25.00	38.75
TB-102(OW)	63.51	80.00		37.50	--	--	--	39.10	> 2.20	--		31.00	32.51

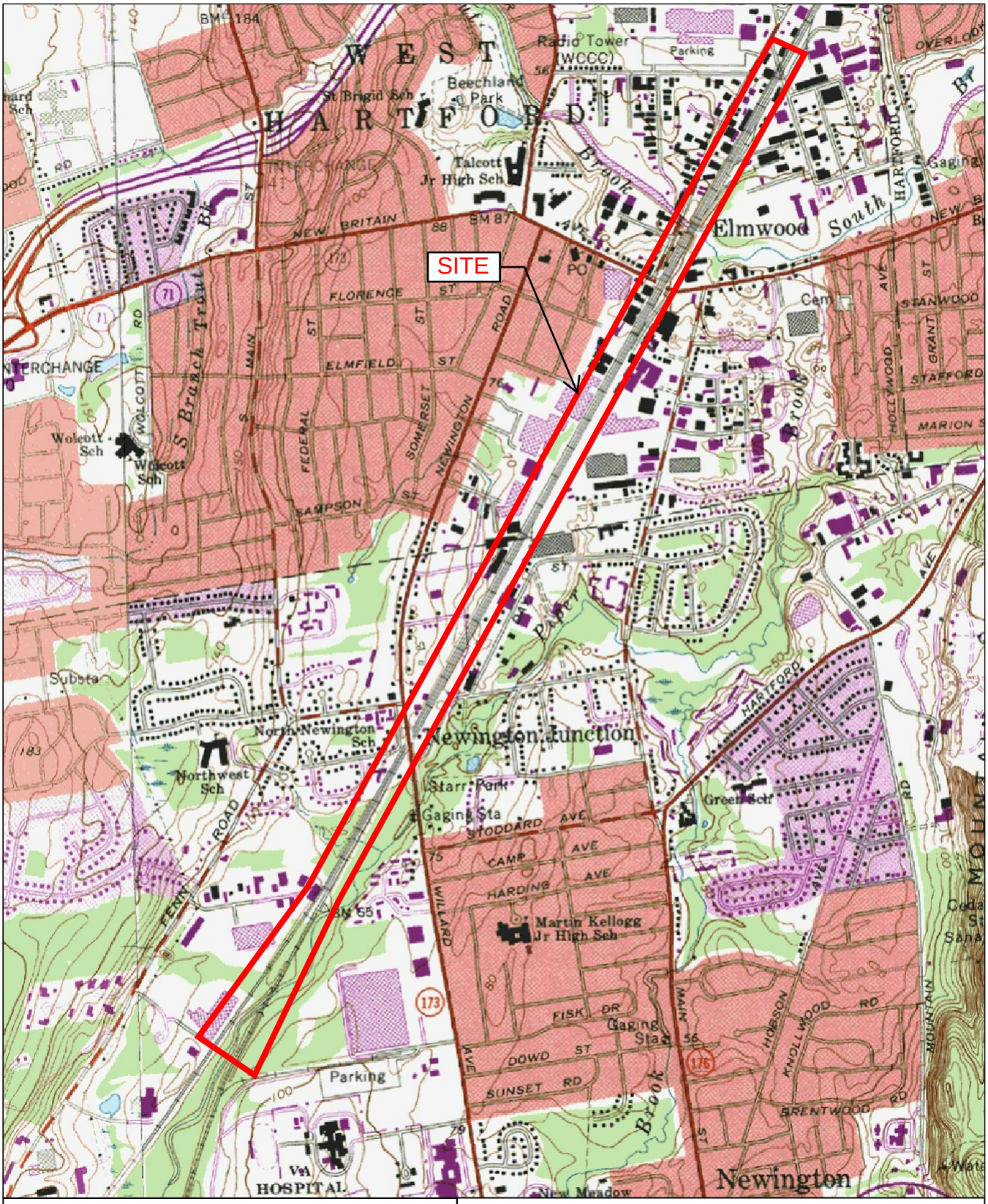
Notes:
1. "--" indicates not encountered or unknown.
2. ">" indicates stratum thickness is greater than number indicated since the boring was terminated within the stratum.
3. Elevations are in feet and refer to the NGVD 1929.
4. Refer to boring logs for detailed soil and rock descriptions.
5. Water levels were measured shortly after drilling and may not represent stabilized groundwater.
6. "(C)" indicates bedrock core sample, "(R)" indicates auger refusal.

TABLE II
SUMMARY OF SUBSURFACE DATA
CONNECTICUT BUSWAY
STATE PROJECT NO. 171-305
WEST HARTFORD, CONNECTICUT

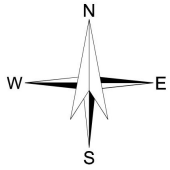
Boring Number	Sample No.	Depth of sample	USCS Classification	Moisture Content	Organic Content	Atterberg Limits			Dry Unit Weight	Total Unit Weight	Grain Size Analysis						Consolidated Undrained Triaxial Compression				Lab Vane			Consolidation Tests				
						Liquid Limit	Plastic Limit	Plasticity Index			Gravel (%)		Sand (%)			% Finer than #200	Confining Stress	Peak Shear Stress	Axial Strain @ Peak Stress	Results	Peak Shear Stress	Residual Shear Stress	Sensitivity	Initial Void Ratio	CR	RR	Maximum Past Pressure	Estimated OCR
		(ft bgs)		(%)	(%)	(%)	(%)	(%)	(pcf)	(pcf)	Coarse	Fine	Coarse	Medium	Fine		(ksf)	(ksf)	(%)		(ksf)	(ksf)					(tsf)	
CB-101	S-4	7.0 - 9.0	SC	26.5							-	20.8	10.8	13.4	13.9	41.1												
CB-103	S-3	5.0 - 7.0	SM	8.1							14.8	17.8	9.6	21.9	18.6	17.3												
CB-103	U-1	38.0 - 40.0								124.1																		
CB-103	U-1B	38.65	CL-ML	28.1		25	20	5	97.7	122.6							2.7	8.5	20.6	-								
NBA-101	S-2	3.0 - 5.0	SP-SM	5.7							14	27.5	8.8	23.9	17.7	8.1												
NBA-101	U-3	35.0 - 37.0	--	--						124.5																		
NBA-101	U-3A	35.65	CL	29.1					98	126.6							2.2	12.3	19.9	Total Stress								
NBA-101	U-3B	36.15	CL&ML	27.6					95.4	121.7							4.3	6.2	21.3	ϕ = 38º, c = 0 ksf								
NBA-101	U-3C	36.65	CL-ML	24.5					103.7	129.1							8.6	5.2	20.4	Effective Stress								
NBA-101	U-3D	37.1	CL	22.4		28	18	10	107.2	131.3														0.624	0.055	0.007	3.6	3.26
NBA-101	U-3D	37.1	--	22																	0.76	0.1	7.5					
RB-101	S-4	7.0 -9.0	SM	25.8							-	1	1	4.3	79.3	14.4												
RB-102	S-2	2.0 - 4.0	SM	9.8							9.1	27.8	13.1	17.7	14.5	17.8												
RB-103	S-4	6.0 - 8.0	SW-SM	14.9							-	26	20.1	36.1	9.6	8.2												
RB-104	S-1	1.0 - 3.0	SC	11.9							5.7	16.7	14.5	23.7	15.3	24.1												
RB-105	S-4	7.0 - 9.0	SC	16.6							-	20.4	10.8	12.8	31	25												
RB-107	S-1	0.0 -2.0	SP-SM	4.9							22.9	19.8	8.7	23.1	19.7	5.8												
RB-107	S-4	7.0 - 9.0	SM	12.9							-	17.1	14.3	27.3	20.6	20.7												
RB-110	S-2	2.0 - 4.0	SM	11.7							-	1.7	3.5	38.5	27.9	28.4												
RB-112	U-1	18.0 - 20.0								116.8																		
RB-112	U-1A	18.2		17.1																	0.26	0.02	10.3					
RB-112	U-1B	18.45	CL-ML	21.6					111.2	135.2							1.4	4.9	20.3	Total Stress								
RB-112	U-1C	18.95	CL	30.9					93.1	121.9							2.9	1.6	4.7	ϕ = 12.1º, c = 1.45 ksf								
RB-112	U-1D	19.45	CL	38					86	118.7							5.8	1.7	7.2	Effective Stress								
RB-112	U-IE	19.85	CL	40.7		43	21	22	81.4	114.5														1.132	0.171	0.020	2.2	3.16
RB-118	U-2	23.0 - 25.0								116.6																		
RB-118	U-2	23.2		41.5																	0.22	0.04	5.4					
RB-118	U-2	23.65	ML	32.5					90.8	120.3							1.7	6.2	19.2	Total Stress								
RB-118	U-2	24.15	CL-ML	29.6					96.5	125.1							3.5	8.9	10.1	ϕ = 35.4º, c = 2.02 ksf								
RB-118	U-2	24.65	CL-ML	29.8					95.2	123.6							6.9	13.4	12.5	Effective Stress								
RB-118	U-2	25.1	ML	23		NP	NP	NP	104.2	128.1														0.648	0.030	0.002	2	2.38
RB-120	S-1	0.0 -2.0	SM	6.8							-	11.6	4.4	9.7	29.6	44.7												
RB-122	S-2	2.0 - 4.0	SM	11.9							5.8	8.1	6.5	37.2	28	14.4												
RB-124	S-3	5.0 - 7.0	PT	202.5	50.5	271	137	134																				
RB-124	S-4	7.0 - 9.0	OH	146	23.9	181	108	73																				
RB-124	S-5	10.0 - 12.0	OH	61.4	5.2	61.4	42	24																				
RW-101	S-3	5.0 - 7.0	SC	9.6							14.7	11.1	10.7	15.1	12.2	36.2												
RW-105	S-1	0.0 - 2.0	SM	7.7							6.3	12.3	9.1	16.2	28.3	27.8												
RW-110	S-1	1.0 - 2.0	SM	13.3							11.7	13.5	7.1	22.5	31.1	14.1												
RW-110	U-1	23.0 - 25.0								108																		
RW-110	U-1A	23.45	CL	51.6					72.2	109.4							2.9	0.8	6.9	Total Stress								
RW-110	U-1B	23.95	CL	46.9					76.3	112.1							5.8	1.7	17.2	ϕ = 11.9º, c = 0.12 ksf								
RW-110	U-1C	24.45	CL	49.7					73.8	110.5							11.5	3.1	17.7	Effective Stress								
RW-110	U-1D	24.9	ML	61.1		49	28	21	64.1	103.2														1.709	0.230	0.045	2	1.40
RW-110	U-1D	24.9		61.7																	0.34	0.1	3.7					
RW-112	S-2	3.0 - 5.0	SM	9.2							-	11.8	8.2	24.8	34.2	21												
RW-114	S-3	5.0 - 7.0	SM	11.6							-	19.1	11.4	24.2	32.1	13.2												
RW-114	S-6	15.0 - 17.0	ML	27.9	2.3	29	23	6																				
RW-114	S-7	20.0 - 22.0	OH	56.1	8.9	54	39	15																				
RW-116	A	18.25	CH	63.7					64	104.8							1.4	0.7	4.9	Total Stress								
RW-116	B	18.75	CH	60.7					65.2	104.8							2.9	1.1	2.6	ϕ = 8.8º, c = 0.39 ksf								
RW-116	C	19.25	CH	60.5					65	104.4							5.8	1.5	2.6	Effective Stress								
RW-116	D	19.75	CH	60.7		69	29	40	65.1	104.6														1.706	0.279	0.055	2.3	3.30
RW-116	D	19.75		65.3																	0.68	0.18	3.7					
RW-116		18.0 - 20.0								105.1																		
RW-118	S-1	0.0 -2.0	SP	2.5							7.2	39	5.5	27.3	18.2	2.8												
RW-118	S-6	15.0 - 17.0	CL	28.8	3.1	35	20	15																				
RW-118	S-7	20.0 - 22.0	CL	25	2.5	29	18	11																				
RW-119	S-5	10.0 - 12.0	CL	21.1							-	2.2	3	13.1	25.3	56.4												
RW-119	S-6	16.0 - 17.0	missing																									
RW-119	S-7	20.0 - 22.0	CL	23		30	20	10																				
RW-119	S-8	25.0 - 27.0	CL	30.7	2.4	36	21	15																				
RW-119	S-9	30.0 - 31.2	CL	31.5		48	24	24																				
RW-120	S-4	7.0 - 9.0	SP	4.2							-	-	-	24.2	72.7	3.1												
RW-121	U-1	43.0 - 45.0								108.5																		
RW-121	U-1A	43.15		41.8																	0.32	0.08	4.1					
RW-121	U-1B	43.55	CL	52.2					71.9	109.4							3.3	1	11.9	Total Stress								
RW-121	U-1C	44.05	CL	47.9					74.3	109.9							6.6	1.9	18.1	ϕ = 10º, c = 0.29 ksf								
RW-121	U-1D	44.5	CL	49.3					73.9	110.4							13.3	3.1	5	Effective Stress								
RW-121	U-1E	45.05	CL	52.5					70.3	107.1														1.444	0.167	0.028	1.1	0.66
RW-124	S-5	10.0 -12.0	SM	18.5							15.7	15.9	12.1	20.7	14.8	20.8												
TB-101	S-2	2.0 - 4.0	SP-SM	2.9							-	38.2	10.7	27	16.8	7.3												
TB-101	S-7	20.0 - 22.0	SP-SM	6.5							9.1	9.5	6.1	22.7	43.7	8.9												
TB-102	S-6	15.0 - 17.0	SP-SM	6.7							-	1.1	3.4	45	44.6	5.9												
TB-102	U-3	55.0 - 57.0								110.3																		
TB-102	U-3D	56.45	ML	48.8					75.1	111.7							4.3	1.6	16.8	-								
TB-102	U-3E	56.85	ML	45.3		37	25	12	78.7	114.3														1.317	0.102	0.023	2.2	1.03
TB-102	U-3E	56.85		66																	0.32	0.08	4.1					

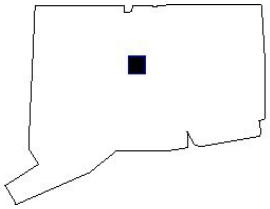
Notes:
1. All soil laboratory tests were performed in general conformance with applicable ASTM standards.

FIGURES



SITE COORDINATES:41°43'11"N 72°43'59"W





U.S.G.S. QUADRANGLE: HARTFORD SOUTH, CT

HALEY & ALDRICH

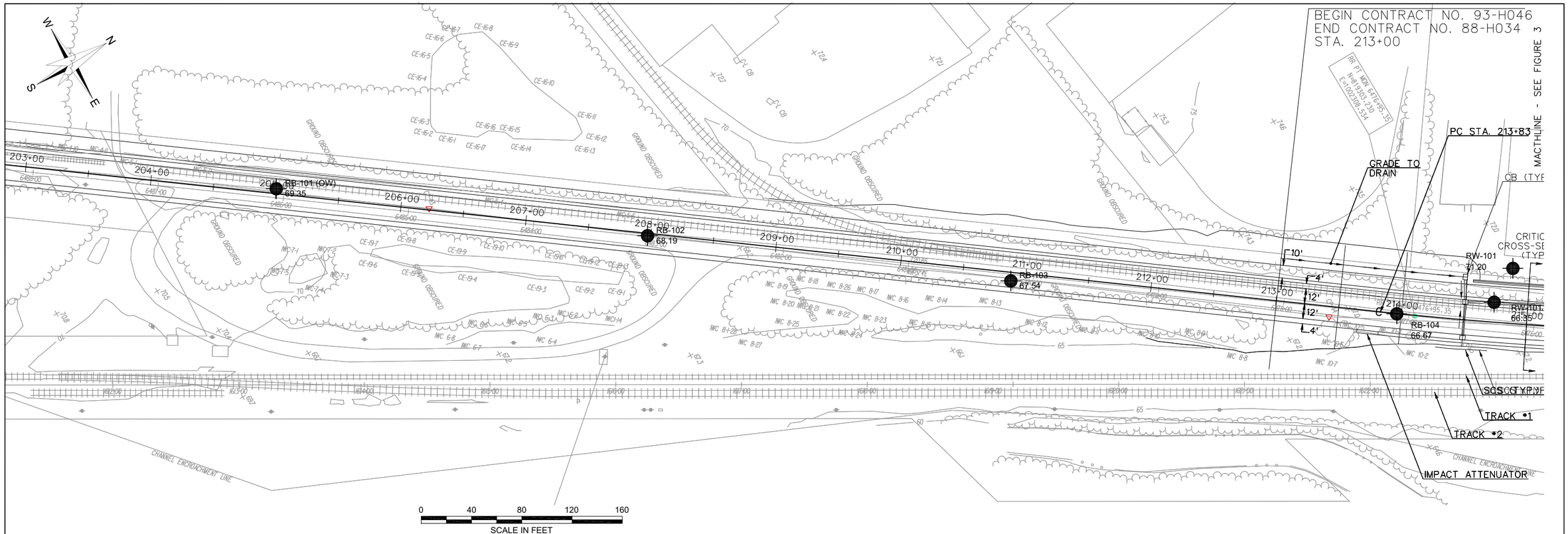
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

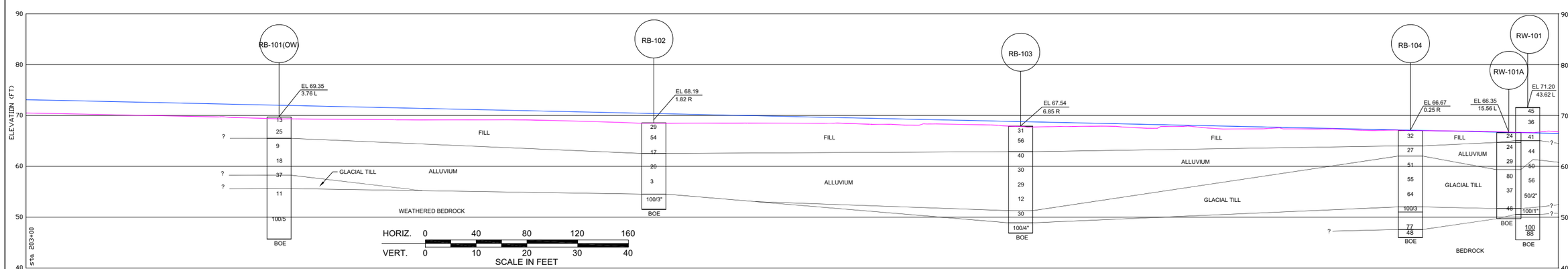
PROJECT LOCUS

SCALE: 1:24,000
JUNE 2008

FIGURE 1

32669-000 1.PDF





NBA-102 (OW) — BORING DESIGNATION; "OW" INDICATES OBSERVATION WELL INSTALLED IN COMPLETED TEST BORING.

EL 53.82 / 22.32 R — APPROXIMATE GROUND SURFACE ELEVATION; BORING OFFSET FROM CENTERLINE .

4 — APPROXIMATE LOCATION OF SOIL SAMPLE AND STANDARD PENETRATION RESISTANCE, "N"

WOH — WEIGHT OF HAMMER

PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

NOTES:

1. COORDINATE SYSTEM IS IN FEET AND REFERS TO THE CONNECTICUT COORDINATE SYSTEM BASED ON NAD 83.
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HALEY & ALDRICH

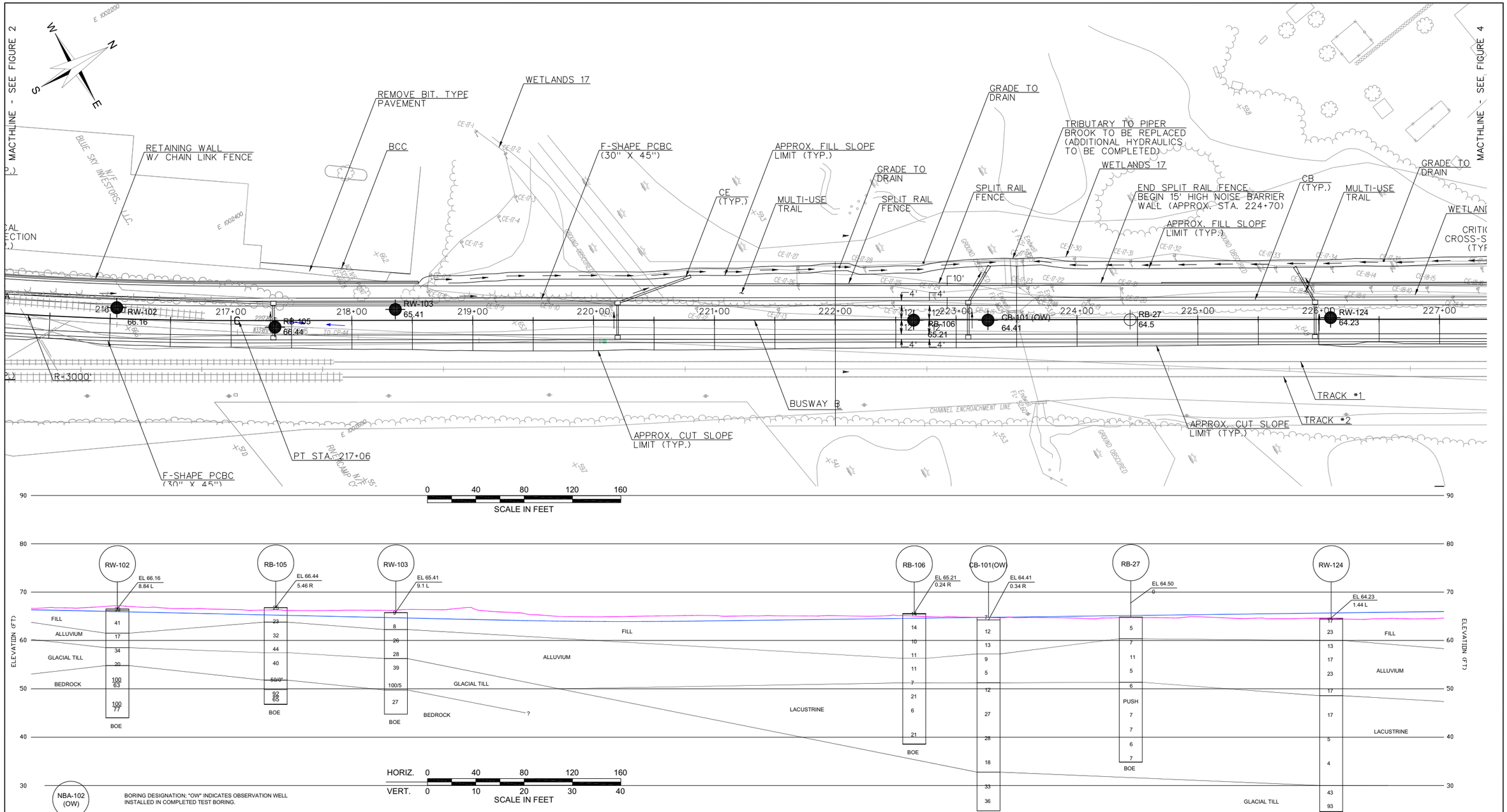
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA. 203+00 TO STA 215+14

SCALE: AS SHOWN
JULY 2008

FIGURE 2A

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



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PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100/40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

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HALEY & ALDRICH

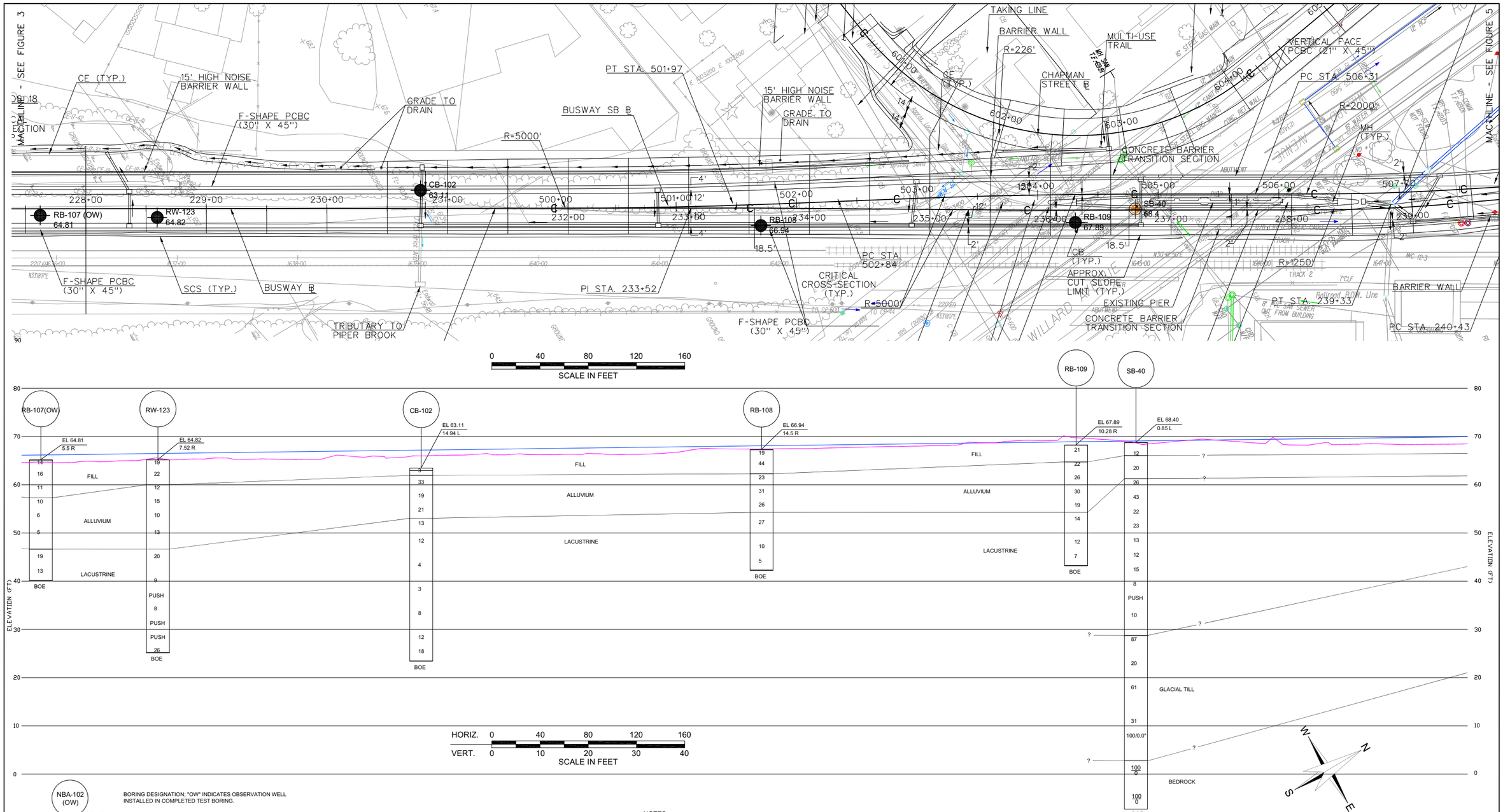
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 215+14 TO STA 227+30

SCALE: AS SHOWN
JULY 2008

FIGURE 2B

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



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PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100/40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

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HALEY & ALDRICH

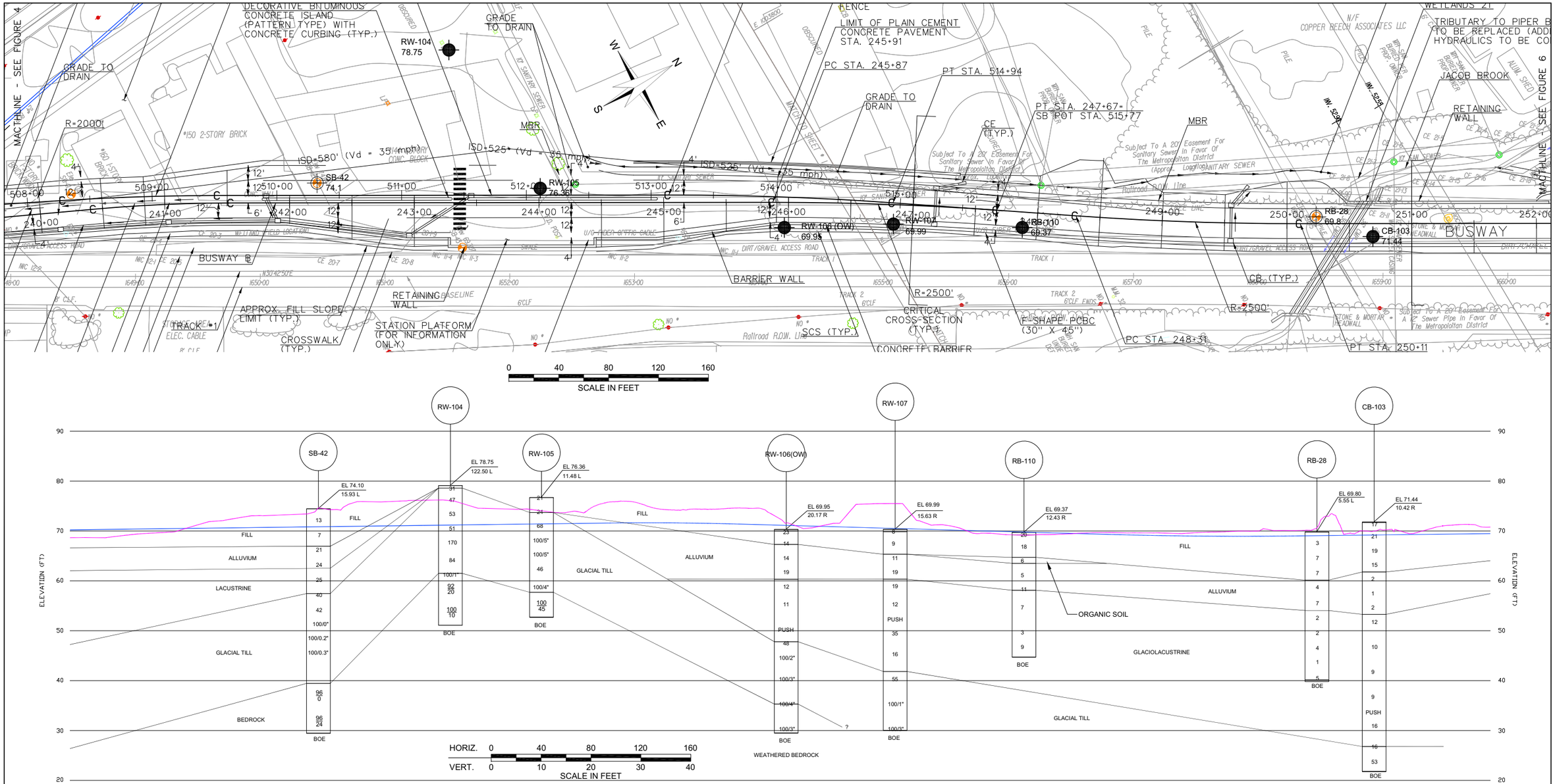
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 227+30 TO STA 239+70

SCALE: AS SHOWN
JULY 2008

FIGURE 2C

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



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PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

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HALEY & ALDRICH

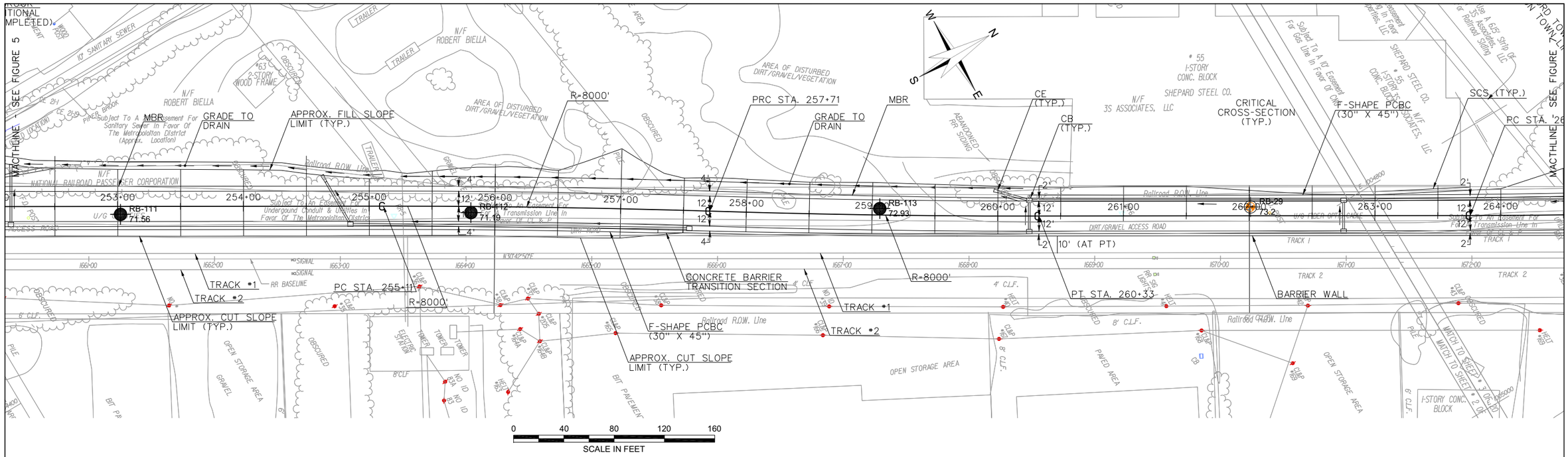
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

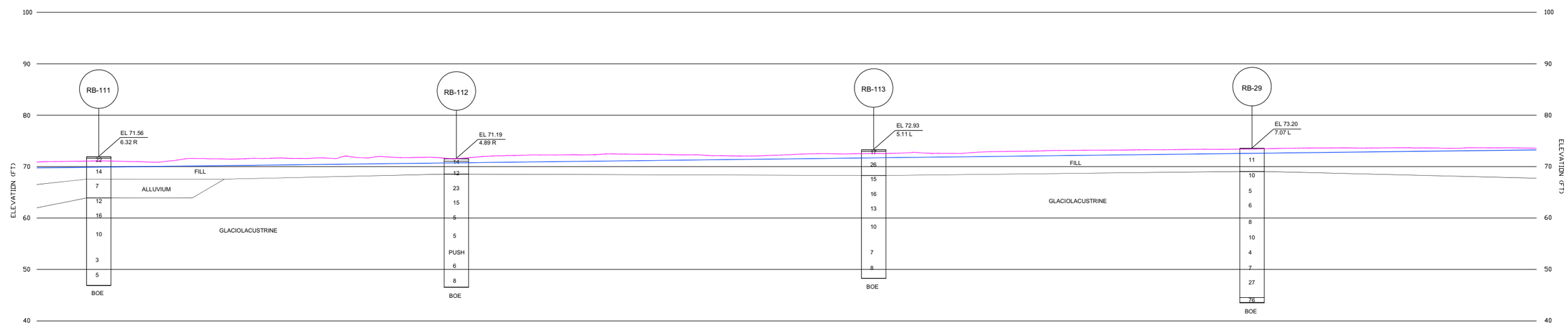
SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 239+70 TO STA 252+11

SCALE: AS SHOWN
JULY 2008

FIGURE 2D

G:\32669-CT BUSWAY\0041CAD\DRAWINGS\32669-000-0D03-SEP.DWG





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INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

HORIZ. 0 40 80 120 160

VERT. 0 10 20 30 40

SCALE IN FEET

LEGEND

RB-101 / 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 / 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

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HALEY & ALDRICH

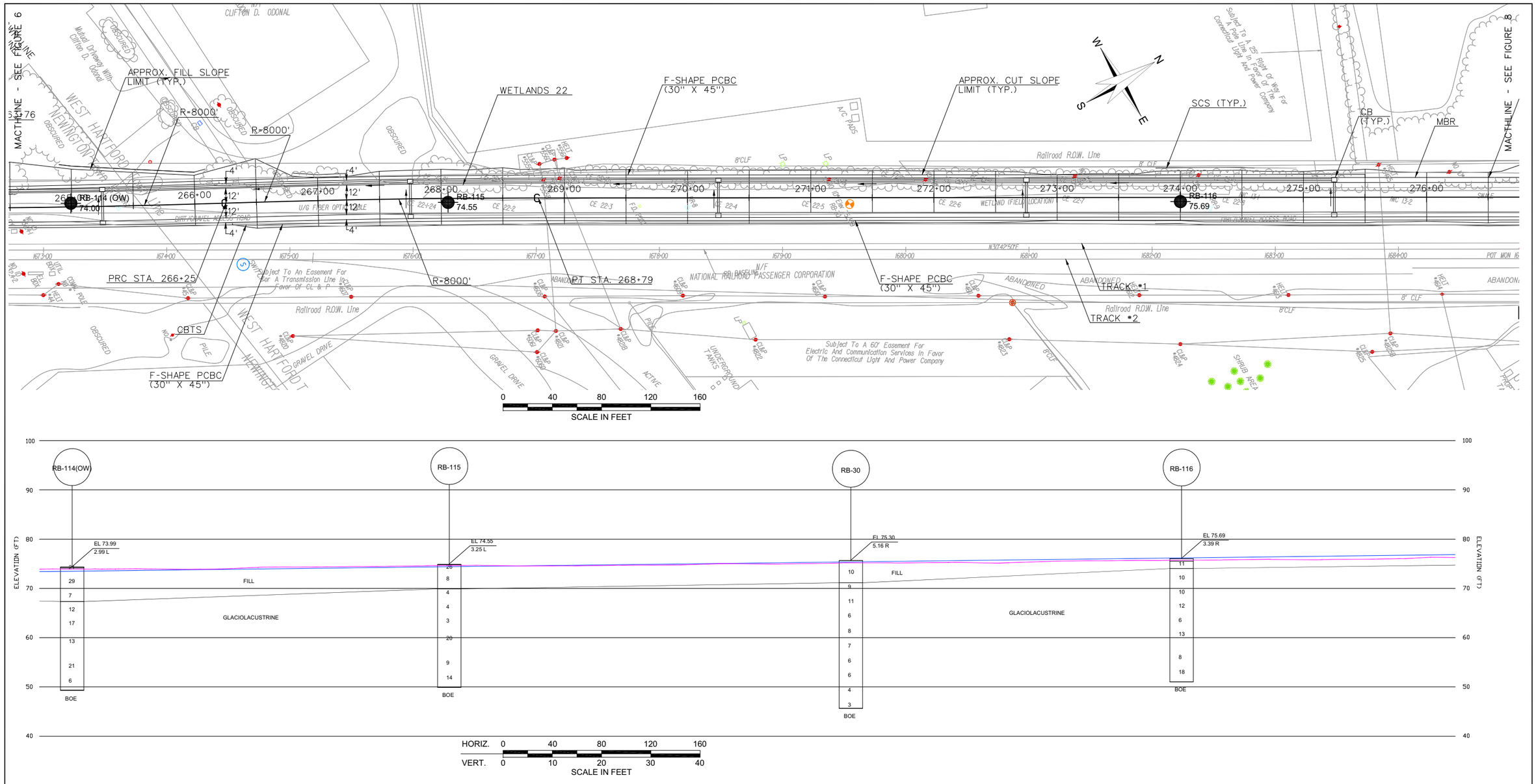
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 252+11 TO STA 264+50

SCALE: AS SHOWN
JULY 2008

FIGURE 2E

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



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INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

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LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

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HALEY & ALDRICH

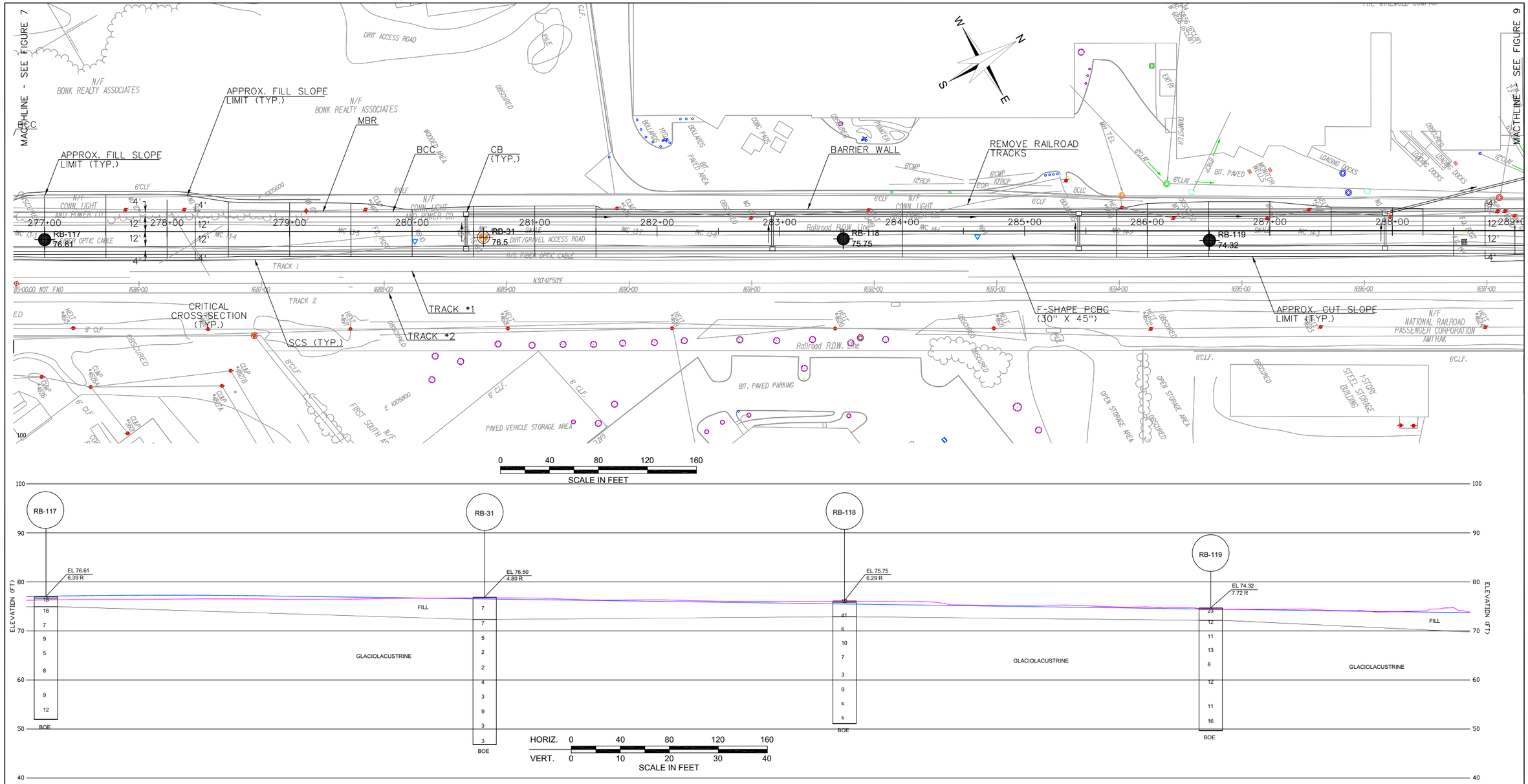
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 264+50 TO STA 276+75

SCALE: AS SHOWN
JULY 2008

FIGURE 2F

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



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INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

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LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

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PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

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HALEY & ALDRICH

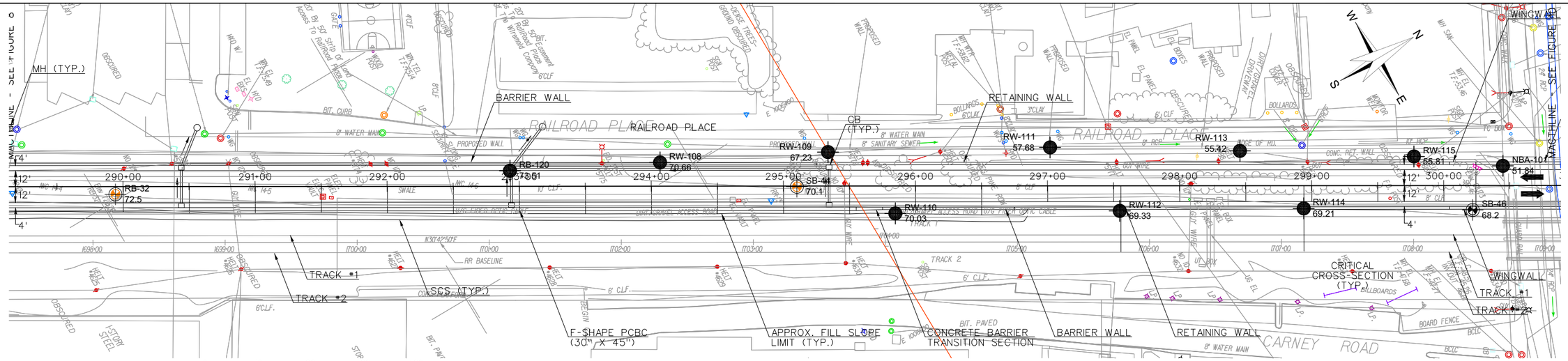
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

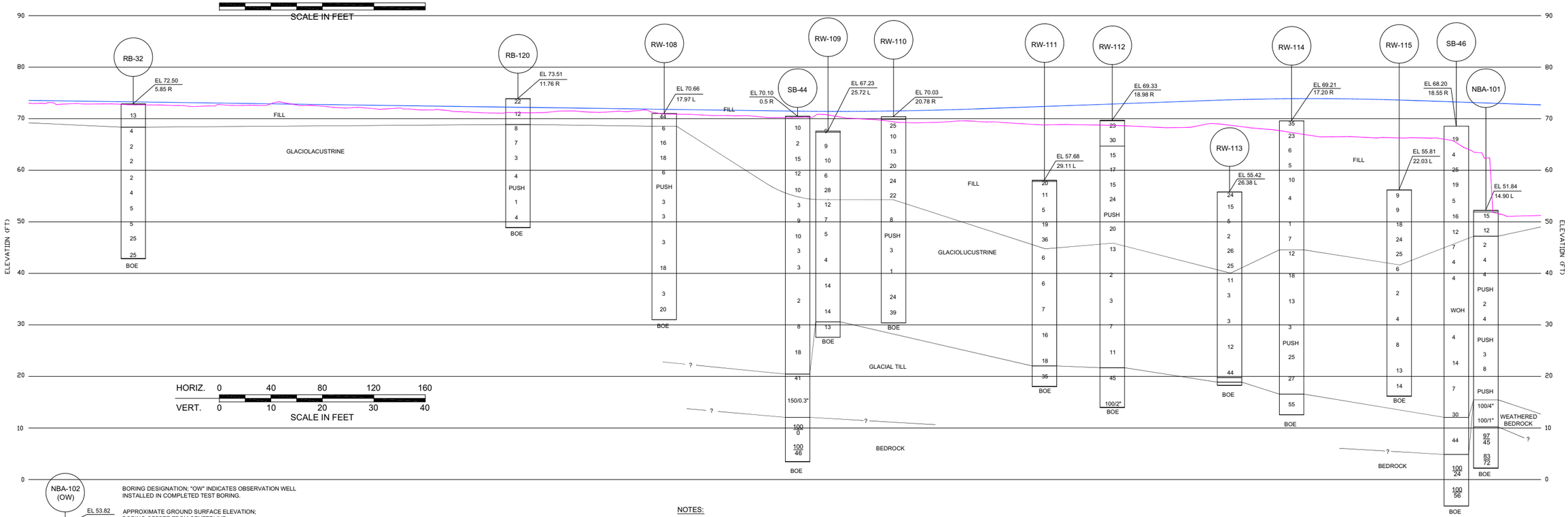
SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 276+75 TO STA 289+14

SCALE: AS SHOWN
JULY 2008

FIGURE 2G

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG





NBA-102 (OW) — BORING DESIGNATION; "OW" INDICATES OBSERVATION WELL INSTALLED IN COMPLETED TEST BORING.

EL 53.82 / 22.32 R — APPROXIMATE GROUND SURFACE ELEVATION; BORING OFFSET FROM CENTERLINE .

4 — APPROXIMATE LOCATION OF SOIL SAMPLE AND STANDARD PENETRATION RESISTANCE, "N"

WOH — WEIGHT OF HAMMER

PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 / 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 / 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

NOTES:

1. COORDINATE SYSTEM IS IN FEET AND REFERS TO THE CONNECTICUT COORDINATE SYSTEM BASED ON NAD 83.
2. ELEVATIONS ARE IN FEET AND REFER TO NGVD 1929.
3. REFER TO THE REPORT APPENDICES FOR TEST BORING LOGS.
4. THE STANDARD PENETRATION RESISTANCE, "N", IS DEFINED AS THE NUMBER OF BLOWS OF A 140-LB HAMMER FALLING THROUGH A VERTICAL DISTANCE OF 30 INCHES REQUIRED TO DRIVE A 2-INCH O.D., 1-3/8-INCH I.D. SPLITS POON SAMPLER 12 INCHES.
5. THE ROCK QUALTIY DESIGNATION (RQD) IS DEFINED AS THE SUM OF ALL PIECES OF ROCK CORE, 4 INCHES IN LENGTH OR LONGER, DIVIDED BY THE TOTAL LENGTH IN INCHES OF THE CORE DRILLED IN THE GIVEN RUN, EXPRESSED AS A PERCENTAGE. IF THE CORE IS BROKEN BY HANDLING OR DRILLING PROCEDURES, THE PIECES OF THE CORE ARE FITTED TOGETHER AND COUNTED AS ONE PIECE, PROVIDED THEY CONSTITUTE THE REQUIRED 4-INCH LENGTH.
6. REFER TO THE REPORT TEXT FOR MORE DETAILED SOIL STRATUM DESCRIPTIONS AND THE TEST BORING LOGS FOR DETAILED SAMPLE DESCRIPTIONS.
7. SUBSURFACE PROFILES DEPICT THE GENERAL GEOLOGIC CONDITIONS AT THE SITE AND ARE BASED ON INTERPRETATION OF DATA ENCOUNTERED IN THE EXPLORATIONS. LINES REPRESENTING INTERFACES BETWEEN STRATA ON THE PROFILE ARE BASED ON ADJACENT BORINGS. THE BORING STICKS SHOW THE INTERPRETED SEQUENCE OF STRATA ENCOUNTERED AT THAT LOCATION. ACTUAL SOIL CONDITIONS AND INTERFACES BETWEEN EXPLORATIONS MAY VARY FROM THOSE INDICATED ON THE PROFILE.

HALEY & ALDRICH

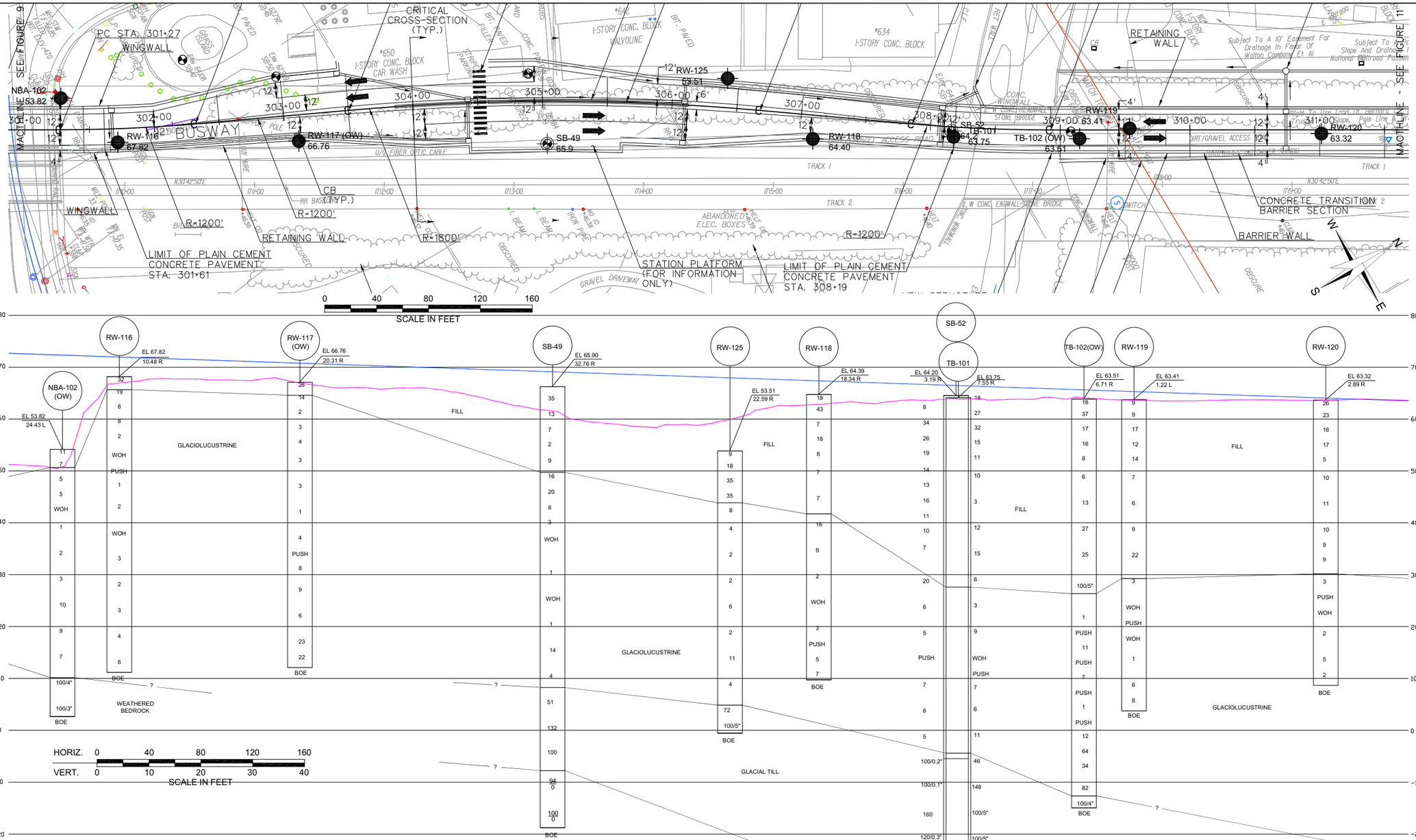
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 289+14 TO STA 300+88

SCALE: AS SHOWN
JULY 2008

FIGURE 2H

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



NBA-102 (OW) — BORING DESIGNATION; "OW" INDICATES OBSERVATION WELL INSTALLED IN COMPLETED TEST BORING.

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WOH — WEIGHT OF HAMMER

PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

NOTES:

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HALEY & ALDRICH

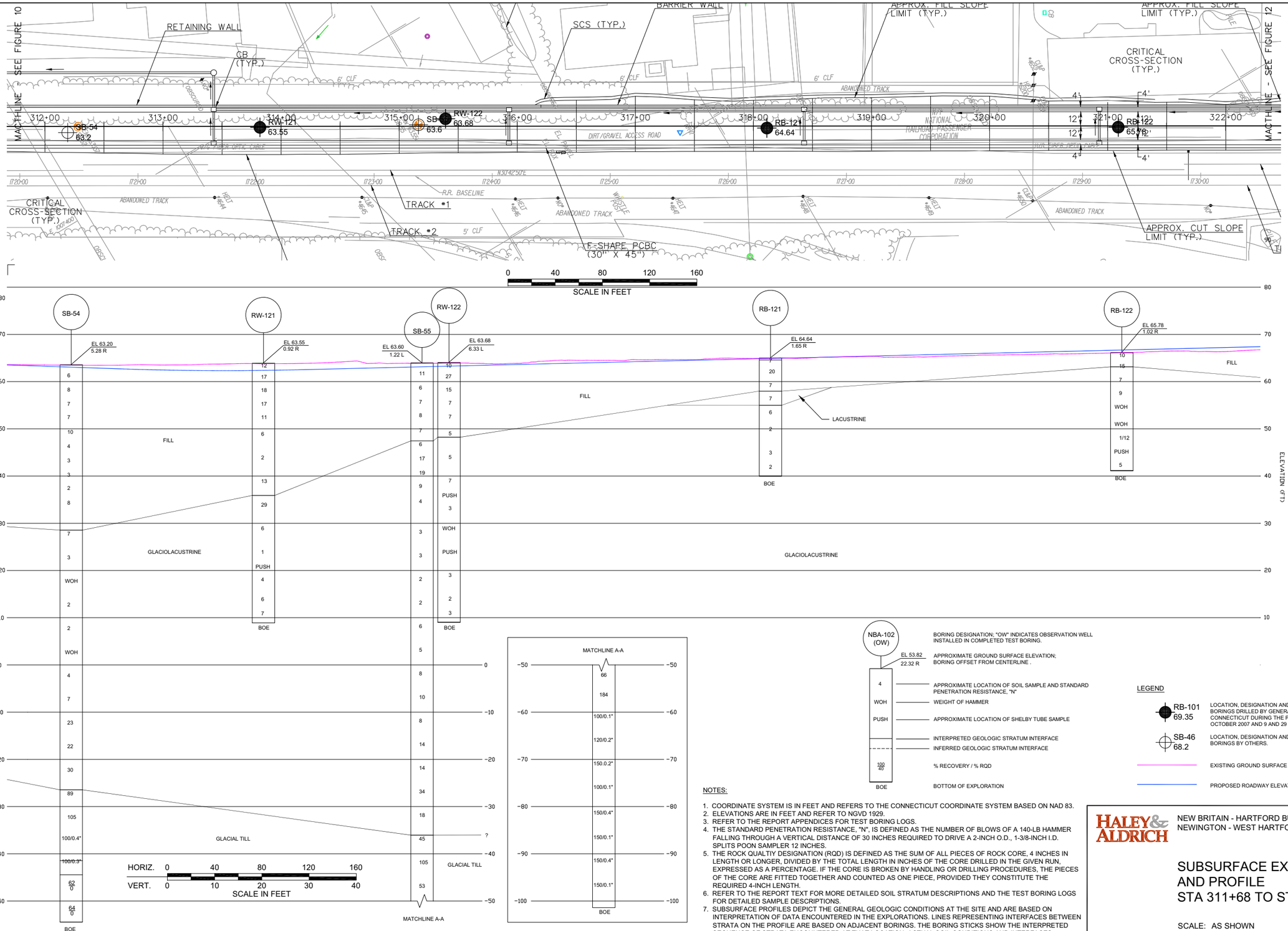
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 300+88 TO STA 311+68

SCALE: AS SHOWN
JULY 2008

FIGURE 2I

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG



NBA-102 (OW) — BORING DESIGNATION; "OW" INDICATES OBSERVATION WELL INSTALLED IN COMPLETED TEST BORING.

EL 53.82 / 22.32 R — APPROXIMATE GROUND SURFACE ELEVATION; BORING OFFSET FROM CENTERLINE .

4 — APPROXIMATE LOCATION OF SOIL SAMPLE AND STANDARD PENETRATION RESISTANCE, "N"

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PUSH — APPROXIMATE LOCATION OF SHELBY TUBE SAMPLE

INTERPRETED GEOLOGIC STRATUM INTERFACE

INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

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HALEY & ALDRICH

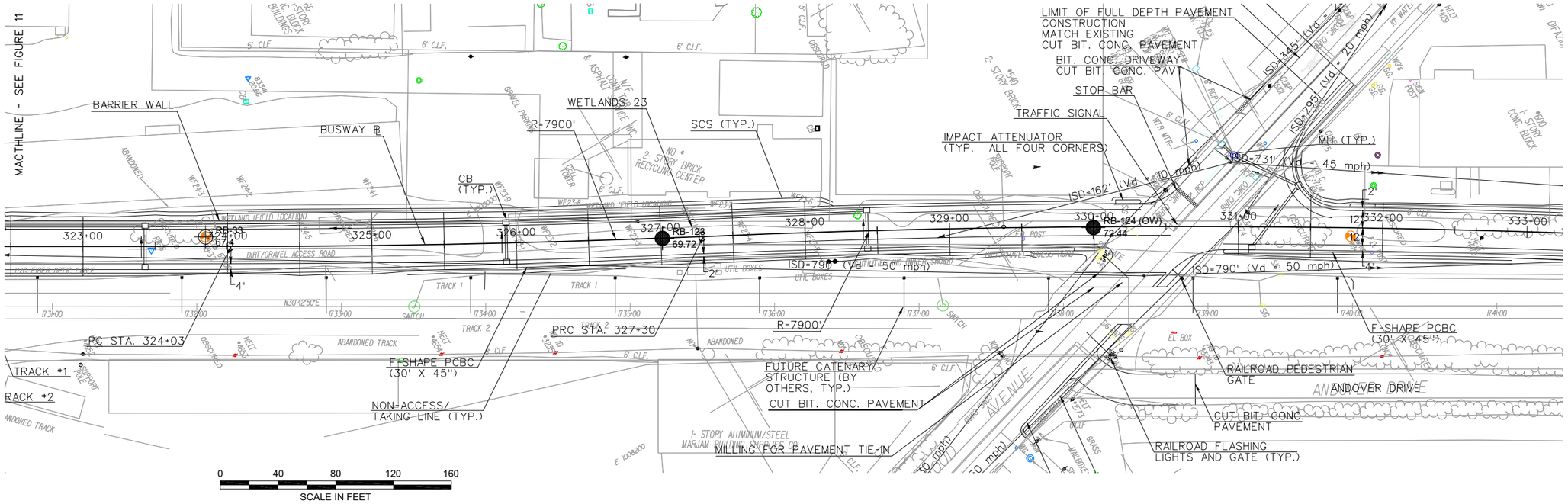
NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

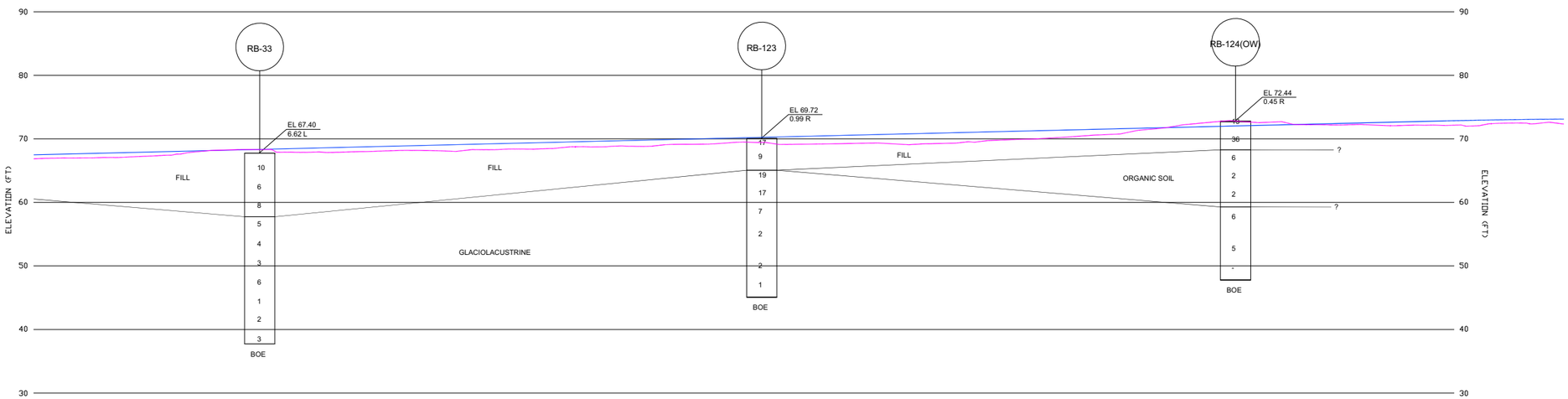
SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 311+68 TO STA 322+46

SCALE: AS SHOWN
JULY 2008

FIGURE 2J

G:\32669-CT BUSWAY\004\CAD\DRAWINGS\32669-000-0D03-SEP.DWG





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INFERRED GEOLOGIC STRATUM INTERFACE

100 / 40 — % RECOVERY / % RQD

BOE — BOTTOM OF EXPLORATION

LEGEND

RB-101 69.35 — LOCATION, DESIGNATION AND ELEVATION OF RECENT TEST BORINGS DRILLED BY GENERAL BORINGS, INC., OF PROSPECT, CONNECTICUT DURING THE PERIODS BETWEEN 18 AND 22 OCTOBER 2007 AND 9 AND 29 APRIL 2008.

SB-46 68.2 — LOCATION, DESIGNATION AND ELEVATION OF PREVIOUS PILOT BORINGS BY OTHERS.

EXISTING GROUND SURFACE ALONG CENTERLINE

PROPOSED ROADWAY ELEVATION ALONG CENTERLINE

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HALEY & ALDRICH

NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON - WEST HARTFORD, CONNECTICUT

SUBSURFACE EXPLORATION PLAN AND PROFILE
STA 322+46 TO STA 331+40

SCALE: AS SHOWN
JULY 2008

FIGURE 2K

G:\32669-CT BUSWAY\004CAD\DRAWINGS\32669-000-0D03-SEP.DWG

APPENDIX A

Recent Test Boring Logs

Driller:	T. McGovern	**Connecticut DOT Boring Report**		Hole No.:	NBA-101
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	300+44.89/14.9L
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	826726.358885
Start Date:	4-28-08	Route No.:		Easting:	1006714.527666
Finish Date:	4-28-08	Bridge No.:		Surface Elevation:	51.84

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 3; NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: NW
Hammer Wt.: 300 lb Fall: 24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 5.0 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0							BITUMINOUS PAVEMENT		
	S-1	3 5 10 14	2	4			FILL	Medium dense brown coarse to fine SAND, some medium to fine gravel, trace silt, no odor, dry	50
	S-2	7 7 5 7	2	5				Medium dense brown coarse to fine SAND and medium to fine GRAVEL, trace silt, no odor, dry	
5	S-3	2 1 1 2	2	20			GLACIO-LACUSTRINE DEPOSITS	Very soft brown to red-brown CLAY varved with gray-brown SILT, no odor, wet; varve couplets approximately 0.5 to 1.0 in. thick on average, with occasional clay layers up to 3 in. thick, gravel dropstones	
	S-4	2 2 2 2	2	2				Similar to S3, except soft, with a thick clay layer from approximately 8.2 to 8.7 ft	45
10	S-5	2 2 2 2	2	18				Similar to S4	40
15	UP-1	p u s h	2	24				Note: Piston tube sample from 15.0 to 17.0 ft	
	S-6	1 1 1 1	2	16				Very soft brown to red-brown CLAY varved with gray-brown clayey SILT, no odor, wet; clay and silt layers approximately 1.0 in. thick each on average	35
20	S-7	1 1 3 4	2	20				Similar to S6, except soft	30

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 42.0 ft Rock: 8.0 ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 11 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller:	T. McGovern	**Connecticut DOT Boring Report**		Hole No.:	NBA-101
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	300+44.89/14.9L
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	826726.358885
Start Date:	4-28-08	Route No.:		Easting:	1006714.527666
Finish Date:	4-28-08	Bridge No.:		Surface Elevation:	51.84

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 3; NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: NW
Hammer Wt.: 300 lb Fall: 24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 5.0 ft b.g.s

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
							GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	UP-2	p u s h	2	24				Note: Piston tube sample from 25.0 to 27.0 ft	
	S-8	1 1 2 3	2	20				Soft brown to red-brown laminated clayey SILT with frequent clay layers, no odor, wet; silt layers approximately 2.0 to 3.0 in. thick on average, clay layers approximately 1 in. thick on average	25
30	S-9	1 3 5 5	2	12				Similar to S8, except medium stiff	20
35	UP-3	p u s h	2	24				Note: Piston tube sample from 35.0 to 37.0 ft	
	S-10	10 100/4	0.8	10				Medium dense red-brown SILT, little coarse to fine gravel, trace coarse to fine sand, clay, no odor, moist; compact, massive, well-bonded in-situ, angular to subrounded gravel	15
							WEATHERED BEDROCK	Note: Spoon refusal at 37.8 ft on probable top of bedrock	
40	S-11	100/1	0.1	1				Red-brown shale fragments, spoon refusal at 40.1 ft Note: Roller bit refusal at approximately 42.0 ft, began rock core at 42.0 ft	
	C-1		5	58	45	2	BEDROCK	Hard, fresh, brown , aphanitic SILTSTONE. Bedding is low angle, extremely thin to thin, often cross-bedded. Primary joints low angle (generally along bedding planes), extremely close to close, smooth, planar to slightly undulating, slightly disintegrated to fresh, open. Secondary joints are high angle,	10
						2			
						2			
45						2			

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 42.0 ft Rock: 8.0 ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 11 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller:	T. McGovern	**Connecticut DOT Boring Report**		Hole No.:	NBA-101
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	300+44.89/14.9L
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	826726.358885
Start Date:	4-28-08	Route No.:		Easting:	1006714.527666
Finish Date:	4-28-08	Bridge No.:		Surface Elevation:	51.84

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 3; NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: NW
Hammer Wt.: 300 lb Fall: 24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 5.0 ft b.g.s

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						2	BEDROCK *(con't)*	moderately spaced (or wider), smooth to rough, planar to slightly undulating, slightly disintegrated to fresh, open; occasional calcite in-filling in joints	5
	C-2		3	30	72			Similar to C1, except primary joints are very close to moderately spaced	
50								-PORTLAND ARKOSE FORMATION-	
								END OF BORING 50 ft	0
55									-5
60									-10
65									-15

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 42.0 ft Rock: 8.0 ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 11 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: NBA-102(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 301+27.86/24.43L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826802.55494	
Start Date: 4-28-08	Route No.:	Easting: 1006748.698956	
Finish Date: 4-28-08	Bridge No.:	Surface Elevation: 53.82	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 7.7 ft b.g.s after 3 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	3 5 6 4	2	10		TOPSOIL FILL	Medium dense brown coarse to fine SAND, some coarse to fine gravel, trace silt, no odor, dry	
	S-2	5 4 3 3	2	13			Similar to S1, except loose	
						GLACIO-LACUSTRINE DEPOSITS	Medium stiff brown CLAY varved with gray-brown clayey SILT, no odor, moist	50
5	S-3	2 2 3 4	2	24			Medium stiff brown to red-brown CLAY varved with gray-brown clayey SILT, trace fine sand, no odor, wet; varve couplets approximately 0.5 to 1.0 in. thick on average, with occasional clay layers over 2 in. thick; clay dominant, occasional gravel-sized dropstones	
	S-4	2 2 3 3	2	24			Similar to S3	
							Note: Switch to HW casing at 10.0 ft	45
10	S-5	woh/18 - - 2	2	24			Similar to S4, except very soft	
								40
15	S-6	woh/12 - 1 2	2	24			Similar to S5	
								35
20	S-7	woh/12 - 2 2	2	24			Similar to S6	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 51.5 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 13 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: NBA-102(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 301+27.86/24.43L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826802.55494	
Start Date: 4-28-08	Route No.:	Easting: 1006748.698956	
Finish Date: 4-28-08	Bridge No.:	Surface Elevation: 53.82	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 7.7 ft b.g.s after 3 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		30
25	S-8	woh 1 2 4	2	18			Similar to S7	
								25
30	S-9	4 6 4 4	2	20			Stiff brown to red-brown laminated clayey SILT with frequent layers of clay (up to 1.5 in. thick on average), no odor, wet; frequent layers of SILT, some fine sand	
								20
35	S-10	4 5 4 4	2	24			Similar to S9	
								15
40	S-11	2 4 3 5	2	20			Similar to S10, except medium stiff	
							Note: Drill action suggests stratum change at approximately 44.0 ft	10
						WEATHERED BEDROCK		
45	S-12	100/4	0.3	3			Very dense red-brown coarse to fine GRAVEL, some coarse to fine sand, little silt, no odor, wet; composed of shale fragments	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 51.5 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 13 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: NBA-102(OW)
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 301+27.86/24.43L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826802.55494
Start Date: 4-28-08	Route No.:	Easting: 1006748.698956
Finish Date: 4-28-08	Bridge No.:	Surface Elevation: 53.82

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 7.7 ft b.g.s after 3 days

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						WEATHERED BEDROCK *(con't)*		
50	S-13	100/3	0.3	2			Similar to S11 Note: Roller bit refusal at 51.5 ft	5
							Note: Well installed in completed borehole END OF BORING 51.5 ft	0
55								-5
60								-10
65								-15

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 51.5 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 13 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: TB-101
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 308+18.42/7.55R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827378.897167
Start Date: 4-17-08	Route No.:		Easting: 1007126.269904
Finish Date: 4-22-08	Bridge No.:		Surface Elevation: 63.75
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	9 9 9 10	2	12			FILL	Medium dense brown to dark brown coarse to fine SAND, some coarse to fine gravel, trace silt, coal cinders, no odor, dry	
	S-2	9 9 18 17	2	6				Medium dense brown to yellow-brown coarse to fine SAND and medium to fine GRAVEL, trace silt, coarse gravel, few cobbles, no odor, dry; rounded gravel and cobbles	60
5	S-3	14 16 16 11	2	0				No recovery (pushing gravel) (cuttings similar to S2)	
	S-4	12 6 9 15	2	8				Similar to S2	55
								Note: Switched to NW casing at 10.0 ft	
10	S-5	6 4 7 8	2	10				Similar to S4	50
15	S-6	3 5 5 5	2	12				Loose light brown to yellow-brown coarse to fine SAND, trace medium to fine gravel, silt, no odor, dry	
								Note: Roller bit grinding approximately 18.0 to 19.0 ft. Refusal at 19.0 ft. No cuttings indicated type of obstruction, however slight creosote odor suggests possible railroad ties. Moved 5 ft south-southwest and redrilled.	45
20	S-7	1 1 2 3	2	12				Very loose brown to orange-brown coarse to fine SAND, little medium to fine gravel, trace silt, coal particles, no odor, moist	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 103.0 ft Rock: 7.0 ft	NOTES:	Sheet 1 of 5
No. of Soil Samples: 23 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: TB-101
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 308+18.42/7.55R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827378.897167
Start Date: 4-17-08	Route No.:		Easting: 1007126.269904
Finish Date: 4-22-08	Bridge No.:		Surface Elevation: 63.75
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
							FILL *(con't)*		40
25	S-8	3 6 6 7	2	4				Medium dense brown coarse to fine SAND and COBBLES, little silt, gravel, no odor, wet; poor recovery, mainly sandstone cobble fragments. Note: Drill action suggests cobbles and sand from 27.0 to 30.0 ft	
30	S-9	7 7 8 8	2	8				Stiff brown clayey SILT, some coarse to fine gravel, little coarse to fine sand, no odor, wet; trace wood in spoon (fill cuttings), actual depth (between 27.0 and 30.0 ft) of wood location could not be determined	35
35	S-10	4 3 3 2	2	11				Medium stiff CLAY varved with gray-brown clayey SILT, no odor, wet; top 5 in. of sample contains wood fragments (disturbed)	30
							GLACIO-LACUSTRINE DEPOSITS		
40	S-11	1 1 2 2	2	20				Soft brown CLAY varved with gray-brown clayey SILT, no odor, wet; varve couplets typically 1.0 to 2.0 in. thick, clay dominant; one clay layer 6 in. thick from approximately 40.3 to 40.8 ft	25
45	S-12	1 3 6 3	2	20				Similar to S11, except stiff, layer of red-brown SILT, some fine sand at approximately 46.6 to 46.8 ft	20

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 103.0 ft Rock: 7.0 ft	NOTES:	Sheet 2 of 5
No. of Soil Samples: 23 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: TB-101
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 308+18.42/7.55R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827378.897167
Start Date: 4-17-08	Route No.:		Easting: 1007126.269904
Finish Date: 4-22-08	Bridge No.:		Surface Elevation: 63.75
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
							GLACIO-LACUSTRINE DEPOSITS *(con't)*		
								Very soft red-brown to brown CLAY varved with brown clayey SILT, trace coarse to fine sand, no odor, wet; clay layer thicknesses vary from approximately 0.5 to 3.0 in., silt thicknesses vary from approximately 0.25 to 2.0 in.; trace coarse to fine sand and fine gravel-sized dropstones	15
50	S-13	1 1/12 - 2	2	23					
	UP-1	p u s h	2	24				Note: Piston tube sample from 53.0 to 55.0 ft	10
55	S-14	3 3 4 3	2	24				Similar to S13	
									5
60	S-15	3 2 4 3	2	24				Medium stiff brown laminated clayey SILT, occasional clay layers generally 0.25 to 0.5 in. thick, trace coarse sand to fine gravel-sized dropstones, no odor, wet	
									0
65	S-16	6 6 5 2	2	24				Similar to S15, except stiff	
								Note: Drill action suggests stiffer/coarser material at approximately 68.5 ft	
							GLACIAL TILL		-5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 103.0 ft Rock: 7.0 ft	NOTES:	Sheet 3 of 5
No. of Soil Samples: 23 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: TB-101
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 308+18.42/7.55R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827378.897167
Start Date: 4-17-08	Route No.:	Easting: 1007126.269904
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.75

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 31.0 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
70	S-17	21 21 25 21	2	16			GLACIAL TILL *(con't)*	Hard red-brown SILT, little coarse to fine sand, coarse to fine gravel, no odor, wet; gravel present in layers at approximately 69.5 to 69.7 ft and 70.3 to 70.5 ft, some stratification, possible flow-till Note: Few cobbles from 72.0 to 75.0 ft	
									-10
75	S-18	19 54 94 98	2	15				Very dense red-brown coarse to fine SAND and SILT, some coarse to fine gravel, trace clay, few cobbles, no odor, wet; compact and well-bonded in-situ; bottom 6 in. of sample is brown siltstone fragments (cobble)	
									-15
80	S-19	96 100/5	0.9	10				Similar to S18, composed primarily of horizontal red-brown shale flakes	
									-20
85	S-20	100/5	0.4	4				Very dense red-brown coarse to fine SAND and fine GRAVEL, some silt, little coarse to medium gravel, no odor, wet; well-bonded in-situ	
									-25
90	S-21	100/4	0.3	4				Similar to S20	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 103.0 ft Rock: 7.0 ft	NOTES:	Sheet 4 of 5
No. of Soil Samples: 23 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: TB-101
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 308+18.42/7.55R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827378.897167
Start Date: 4-17-08	Route No.:	Easting: 1007126.269904
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.75

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 31.0 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
							GLACIAL TILL *(con't)*		-30
95	S-22	56 100/4	0.8	9				Similar to S21, gravel lithologies in sample dominated by siltstone but includes basalt, wet	-35
100	S-23	56 100/6	1	9			BEDROCK	Similar to S22 Very dense/soft red-brown decomposed SHALE, no odor, wet Note: Roller bit refusal at 103.0	
	C-1		2	24	0			Moderately hard, highly to moderately weathered, brown, fine-grained to aphanitic SHALE with occasional thin beds of fine-grained sandstone up to 2 in. thick. Bedding is low angle, planar, laminated with frequent depositional features.	-40
105	C-2		5	54	0	1 1.5 1.5 2 2		Primary joints low angle along bedding, extremely to very close, smooth, planar to slightly undulating, slightly disintegrated, open. Secondary joints high angle to vertical, close (or wider) spacing, rough, stepped, slightly disintegrated to open, with small calcite-lined vugs (largest vug observed measured 1.5 in. long vertical, 0.25 in. wide, approximately 0.5 in. deep)	-45
110								-PORTLAND ARKOSE FORMATION- Note: Core terminated at 110.0 ft due to refusal and destruction of core bit by metal fragments (casing shoe fragments)	
								END OF BORING 110 ft	-50
115									

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 103.0 ft Rock: 7.0 ft	NOTES:	Sheet 5 of 5
No. of Soil Samples: 23 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: TB-102(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 309+15.00/6.71R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827461.702129	
Start Date: 4-22-08	Route No.:	Easting: 1007177.191157	
Finish Date: 4-24-08	Bridge No.:	Surface Elevation: 63.51	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s after 7 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 7 9 13	2	12		FILL	Medium dense brown to light brown coarse to fine SAND and COAL CINDERS, some coarse to fine gravel, trace silt, no odor, dry	
	S-2	11 16 21 21	2	7			Dense brown coarse to fine SAND and coarse to fine GRAVEL, trace silt, no odor, dry; rounded gravel	60
5	S-3	6 9 8 12	2	10			Similar to S2, except medium dense Note: Frequent cobbles from 5.0 to 10.0 ft	
	S-4	7 7 9 10	2	12			Similar to S3 Note: Switched to NW casing at 10.0 ft	55
10	S-5	2 4 4 5	2	15			Loose light brown fine SAND, some coal cinders (layer approximately 11.5 to 11.8 ft), little coarse sand, medium to gravel, trace silt, no odor, dry	50
15	S-6	2 3 3 2	2	15			Loose light brown coarse to fine SAND, trace silt, fine gravel, no odor, dry Note: Auger grinding approximately 18.0 to 19.0 ft. Refusal at 19.0 ft. Offset 5 ft north-northeast and re-drill to 20.0 ft Note: Switched to HW casing at 20.0 ft	45
20	S-7	3 4 9 7	2	14			Similar to S6, except medium dense, little gravel	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 ft Rock: - ft	NOTES:	Sheet 1 of 4
No. of Soil Samples: 19 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: TB-102(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 309+15.00/6.71R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827461.702129
Start Date: 4-22-08	Route No.:		Easting: 1007177.191157
Finish Date: 4-24-08	Bridge No.:		Surface Elevation: 63.51
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s after 7 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						FILL *(con't)*		40
25	S-8	11 12 15 15	2	12			Medium dense brown to dark brown coarse to fine SAND, some coarse to fine gravel, little silt, trace wood (branches), no odor, dry Note: Drill through wood (treated lumber) from approximately 28.0 to 29.0 ft. Roller bit grinding through hard material 29.0 to 35.0 ft (possible granite block wall-cuttings include flecks of muscovite and biotite, fine quartz sand and white powder that does not react with acid (ground orthoclase). Borehole abandoned after refusal. Off set 7 ft north-northeast and re-drilled, wood at approximately 28.5 to 29.5 ft	35
30	S-9	6 7 18 21	2	8			Very stiff gray CLAY with wood, gravel, cobbles, boulders, wood lumber odor, dry Note: Drill action suggests frequent voids approximately 3 to 4 in. diameter on average, but occasionally greater than 12 in., dense materials between voids from 32.0 to 36.0 ft	30
35			1				Possible void from 35. to 36.0 ft	
	S-10	8 100/5	0.9	4			Very dense brown coarse to fine GRAVEL, little coarse to fine sand, trace silt, no odor, wet (poor recovery) Note: Drill action suggests gravel and cobbles from 36.0 to 37.5 ft	
						GLACIO-LACUSTRINE DEPOSITS		25
40							Note: Roller bit released from drill head and swivel at 40.0 ft. Sank to approximately 41.0 ft under weight of rods Very soft brown to red-brown CLAY varved with brown to gray-brown clayey SILT, no odor, wet; clay and silt layers approximately 0.5 to 1.0 in. thick each on average, with occasional clay layers up to 3 in. thick	
	S-11	1/12 - 1 2	2	19				20
45	UP-1	p u s h	2	24			Note: Piston tube sample 45.0 to 47.0 ft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 ft Rock: - ft	NOTES:	Sheet 2 of 4
No. of Soil Samples: 19 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: TB-102(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 309+15.00/6.71R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827461.702129	
Start Date: 4-22-08	Route No.:	Easting: 1007177.191157	
Finish Date: 4-24-08	Bridge No.:	Surface Elevation: 63.51	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s after 7 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	S-12	2 3 8 8	2	22		GLACIO-LACUSTRINE DEPOSITS *(con't)*	Similar to S11, except stiff with occasional layer of red-brown SILT and fine SAND	15
50	UP-2	p u s h	2	24			Note: Piston tube sample 50.0 to 52.0 ft	
	S-13	2 3 4 4	2	10			Similar to S12, except medium stiff, no fine sand layers, all brown	10
55	UP-3	p u s h	2	22			Note: Piston tube sample 55.0 to 57.0 ft	
	S-14	1/12 - 1 2	2	6			Similar to S13, except very loose	5
60	UP-4	p u s h	2	24			Note: Piston tube sample 60.0 to 62.0 ft	
	S-15	2 4 8 15	2	16			Similar to S14, except stiff	0
65	S-16	26 34 30 37	2	10			Hard brown laminated SILT with frequent seams of brown clay and light brown fine sand, no odor, wet	-5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 ft Rock: - ft	NOTES:	Sheet 3 of 4
No. of Soil Samples: 19 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: TB-102(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 309+15.00/6.71R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827461.702129	
Start Date: 4-22-08	Route No.:	Easting: 1007177.191157	
Finish Date: 4-24-08	Bridge No.:	Surface Elevation: 63.51	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 31.0 ft b.g.s after 7 days			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
70	S-17	13 16 18 23	2	14		GLACIO-LACUSTRINE DEPOSITS *(con't)*	Similar to S16, except dense, trace coarse to fine sand, occasional seams of clayey silt	
								-10
75	S-18	23 31 51 100/1	1.6	9			Hard brown SILT, trace coarse to fine sand, no odor, wet; massive, with 0.5 in. of red-brown clayey SILT and coarse to fine SAND, little fine gravel in spoon tip	
						GLACIAL TILL		
	S-19	95 100/4	0.8	6			Very dense red-brown coarse to fine SAND and coarse to fine GRAVEL, some clayey silt, no odor, wet; well-bonded in-situ	-15
							Note: Well installed in completed borehole	
80							END OF BORING 78.8 ft	
								-20
85								
								-25
90								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 ft Rock: - ft	NOTES:	Sheet 4 of 4
No. of Soil Samples: 19 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: CB-101(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 223+26.41/0.34R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820082.937816
Start Date: 4-11-08	Route No.:		Easting: 1002787.822926
Finish Date: 4-11-08	Bridge No.:		Surface Elevation: 64.41
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 9.5 ft b.g.s after 21 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	3 3 4 4	2	16		FILL	Loose brown coarse to fine SAND, some medium to fine gravel, trace silt, with pockets of cinders and coal particles, no odor, dry	
	S-2	5 6 6 5	2	15			Similar to S1, except medium dense	60
5	S-3	6 7 6 6	2	0			No recovery, gravel in spoon tip	
						ALLUVIUM		
	S-4	6 5 4 4	2	12			Loose coarse to fine SAND and SILT, some coarse to fine gravel, trace clay, no odor, moist	55
10	S-5	3 2 3 6	2	14			Loose dark brown to brown coarse to fine SAND, some silt, coarse to fine gravel, little organics, slight organic odor, wet	
						LACUSTRINE DEPOSITS	Note: Switched to HW casing at 15.0 ft	50
15	S-6	3 6 6 8	2	16			Stiff dense brown laminated clayey SILT, no odor, wet; occasional clay seams	
20	S-7	8 12 15 18	2	16			Similar to S6, except very stiff brown SILT, trace clay Note: Drill action suggests trace amounts of gravel from 22.0 to 25.0 ft	45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: CB-101(OW)
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 223+26.41/0.34R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 820082.937816
Start Date: 4-11-08	Route No.:	Easting: 1002787.822926
Finish Date: 4-11-08	Bridge No.:	Surface Elevation: 64.41

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 9.5 ft b.g.s after 21 days

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*		
25	S-8	7 11 17 18	2	17			Very stiff brown SILT, occasional clay seams up to approximately 0.25 in. thick, with little amounts of coarse to fine gravel in top and bottom of sample, no odor, wet	40
30	S-9	9 9 9 10	2	17			Similar to S8	35
						GLACIAL TILL		
35	S-10	19 18 15 17	2	19			Dense red-brown medium to fine GRAVEL and coarse to fine SAND, little silt, no odor, wet; subrounded to angular gravel Note: Roller bit chattering from 32.0 to 35.0 and 37.0 to 38.0 ft	30
	S-11	17 15 21 21	2	18			Dense red-brown coarse to fine SAND, some coarse to fine gravel, little silt, few decomposed cobbles, no odor, wet	25
40							Note: Well installed in completed borehole END OF BORING 40 ft	20
45								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: CB-102
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 230+77.69/14.94L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820736.798997
Start Date: 4-10-08	Route No.:		Easting: 1003158.135211
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 63.11
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	1 2 1 6	2	15		FILL	Very loose brown to dark brown fine SAND and SILT, little fine gravel, coarse sand, trace coarse to medium gravel, clay	
	S-2	10 17 16 15	2	20		ALLUVIUM	Hard brown to orange-brown laminated SILT, trace clay, frequent fine sand partings, no odor, dry	60
5	S-3	8 9 10 10	2	24			Similar to S2, except very stiff, moist	
	S-4	10 10 11 13	2	24			Very stiff brown laminated SILT, with frequent clay seams, occasional fine sand partings, no odor, moist	55
10	S-5	9 7 6 7	2	24		LACUSTRINE DEPOSITS	Stiff brown CLAY varved with SILT and clayey SILT, no odor, moist; varve couplets generally 0.5 to 1.5 in. thick; wet at 12.0 ft	
							Note: Switched to NW casing	50
15	S-6	5 5 7 6	2	24			Similar to S5	45
20	S-7	4 2 2 3	2	24			Similar to S6, except soft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: CB-102
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 230+77.69/14.94L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820736.798997
Start Date: 4-10-08	Route No.:		Easting: 1003158.135211
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 63.11
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*		40
25	S-8	3 1 2 3	2	24			Similar to S7	
								35
30	S-9	5 5 3 7	2	22			Similar to S8, except medium stiff	
								30
35	S-10	6 5 7 8	2	21			Similar to S9 Stiff red-brown to brown SILT, trace fine sand, clay, no odor, wet; massive structure	
	S-11	8 8 10 12	2	18			Similar to S10 (below 36.0 ft)	25
40							END OF BORING 40 ft	
								20
45								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: CB-103
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 250+68.97/10.42R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822435.200992
Start Date: 4-14-08	Route No.:		Easting: 1004195.67663
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 71.44
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 11.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	7 8 9 9	2	7		FILL	Medium dense brown coarse to fine SAND, little coarse to fine gravel, silt, trace roots, no odor, dry	70
	S-2	9 11 10 7	2	0			No recovery, pushed gravel (cuttings are similar to S1)	
5	S-3	7 10 9 7	2	18			Medium dense brown to red-brown coarse to fine SAND, some coarse to fine gravel, little silt, no odor, dry	65
	S-4	7 7 8 13	2	14			Similar to S3	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	2 1 1 1	2	20		ALLUVIUM	Very soft SILT, little fine sand, clay, no odor, wet	60
	S-6	woh - 1 1	2	21			Similar to S5	
15	S-7	1 1 1 1	2	18			Very soft brown stratified SILT and fine SAND, with frequent layers of black organic silt approximately 1/8 to 1/2 in. thick., trace organic matter, slight organic odor, wet	55
20	S-8	5 5 7 8	2	18		GLACIO-LACUSTRINE DEPOSITS	Medium dense red-brown coarse to fine SAND, some medium to fine gravel, clayey silt, trace coarse gravel, no odor, wet; bonded in-situ	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: CB-103
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 250+68.97/10.42R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 822435.200992
Start Date: 4-14-08	Route No.:	Easting: 1004195.67663
Finish Date: 4-14-08	Bridge No.:	Surface Elevation: 71.44

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 11.0 ft b.g.s

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-9	3 4 6 8	2	17			Medium stiff brown silty CLAY, with coarse gravel dropstone at 26.0 ft, no odor, wet Stiff brown clayey SILT, no odor, wet	45
30	S-10	4 4 5 5	2	18			Stiff brown silty CLAY, some coarse to fine sand, little medium to fine gravel, no odor, wet; resembles ablation or flow till	40
35	S-11	3 4 5 5	2	19			Stiff brown varved SILT and CLAY, no odor, wet; silt and clay layers generally 0.5 to 1 in. thick each	35
	UP-1	p u s h	2	12			Note: Piston tube sample from 38.0 to 40.0 ft, poor recovery	
40	S-12	7 7 9 11	2	24			Very stiff brown clayey SILT, no odor, wet	30
45	S-13	5 8 8 13	2	16		GLACIAL TILL	Medium dense red-brown SILT and coarse to fine SAND, some coarse to fine gravel, no odor, wet; bonded in-situ	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: CB-103
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 250+68.97/10.42R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822435.200992
Start Date: 4-14-08	Route No.:		Easting: 1004195.67663
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 71.44
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 11.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIAL TILL *(con't)*		25
							Similar to S13	
	S-14	12 18 35 100	2	19			Note: Completely weathered shale in tip of soon, possible top of bedrock	
50							END OF BORING 50 ft	20
55								15
60								10
65								5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-101
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 214+84.51/43.62L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819389.797263
Start Date: 10-18-07	Route No.:		Easting: 1002315.785686
Finish Date: 10-18-07	Bridge No.:		Surface Elevation: 71.20
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	18 21 24 36	2	14			FILL	Dense brown to red-brown coarse to fine SAND, some gravel, little silt, wet	70
	S-2	25 18 18 20	2	16				Similar to S1	
5	S-3	24 22 19 23	2	17				Dense brown to red-brown coarse to fine SAND and SILT, some gravel	
	S-4	22 25 19 24	2	18			ALLUVIUM	Dense red-brown coarse to fine SAND some silt, fine gravel	65
							GLACIAL TILL		
10	S-5	20 23 27 32	2	20				Similar to S4, except wet	60
	S-6	23 25 31 30	2	15				Very dense red-brown coarse to fine SAND, some gravel, silt	
15	S-7	26 93 50/2	1.2	12				Similar to S6	55
20	S-8	100/1	1	1				Siltstone fragments	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 21.0 ft Rock: 5.0 ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 7 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-101
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 214+84.51/43.62L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819389.797263
Start Date: 10-18-07	Route No.:		Easting: 1002315.785686
Finish Date: 10-18-07	Bridge No.:		Surface Elevation: 71.20
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	C-1		5	60	88	1 1.5 1.5 1 1.5	BEDROCK	Moderately hard to hard, fresh, brown to red-brown, aphanitic SILTSTONE. Bedding low angle, extremely thin to thin, planar to slightly undulating. Primary joints horizontal to low angle, close to moderately spaced, smooth, planar to slightly undulating, slightly disintegrated to fresh, open to tight. Secondary joints high angle to vertical, moderately spaced or wider, rough, planar to stepped, disintegrated, open	50
25									45
								END OF BORING 26 ft	
30									40
35									35
40									30

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 21.0 ft Rock: 5.0 ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-101A
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 214+72.53/15.56L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819363.159051
Start Date: 4-24-08	Route No.:		Easting: 1002331.360906
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 66.35
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 9 15 12	2	15		FILL	Medium dense brown coarse to fine SAND and coarse to fine GRAVEL, little coal cinders, trace silt, no odor, dry	65
	S-2	13 13 11 11	2	18		ALLUVIUM	Medium dense brown coarse to fine SAND and coarse to fine GRAVEL, some silt, no odor, moist; compact, bonded-in-situ	
5	S-3	4 15 14 15	2	12			Similar to S2	
						GLACIAL TILL		60
	S-4	18 54 26 20	2	16			Similar to S3, except very dense Note: Few cobbles from 5.0 to 15.0 ft Note: Switched to NW casing at 10.0 ft	
10	S-5	16 23 14 32	2	9			Similar to S4, except dense	55
15	S-6	29 27 21 100/3	1.8	16		DECOMPOSED ROCK	Dense brown coarse to fine SAND and coarse to fine GRAVEL, little silt, no odor, wet; composed of shale chips Note: Roller bit refusal at 17.0 ft	50
							END OF BORING 17 ft	
20								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 17.0 ft Rock: - ft	NOTES:	Sheet 1 of 1
No. of Soil Samples: 6 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-102
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 216+04.6/8.84L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819468.743271
Start Date: 4-25-08	Route No.:		Easting: 1002410.378703
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 66.16
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 13 25 24	2	19			RAILROAD BALLAST / FILL	Dense dark brown to black coarse to fine SAND and COAL CINDERS, little medium to fine gravel, trace silt, coal particles, brick, no odor, dry	65
	S-2	17 21 20 21	2	16				Dense brown coarse to fine SAND, little gravel, trace silt, no odor, dry Dense brown coarse to fine SAND, some coarse to fine gravel, silt, trace clay, no odor, dry; bonded/compact	
5	S-3	5 8 9 10	2	18			GLACIOFLUVIAL DEPOSITS	Very stiff poorly-stratified clayey SILT with occasional layers of SILT, some fine sand, no odor, moist, wet at approximately 6.0 ft	60
	S-4	10 12 22 11	2	14			GLACIAL TILL	Similar to S3, except dense, wet Dense brown to red-brown coarse to fine SAND and clayey SILT, some coarse to fine gravel, no odor, moist; well-bonded in-situ Note: Switched to NW casing at 10.0 ft	
10	S-5	12 10 10 100/3	1.8	11				Similar to S4 (below 8.0 ft); decomposed shale in spoon tip	55
	C-1		5	60	63	1 1 1.5 2	BEDROCK	Note: Roller bit grinding 11.7 to 12.5 ft. Began rock core at 12.5 ft Moderately hard to hard, slightly weathered to fresh, brown, aphanitic SILTSTONE. Bedding appears thin to thick, not easily discernible. Primary joints low angle, close to moderately spaced, smooth, planar to slightly undulating, slightly disintegrated to fresh, open to tight. Secondary joints high angle to near-vertical, moderately spaced (or wider), smooth, planar to undulating, slightly disintegrated to fresh, open to tight	50
15									

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 12.5 ft Rock: 10.0 ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 5 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-102
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 216+04.6/8.84L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819468.743271
Start Date: 4-25-08	Route No.:		Easting: 1002410.378703
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 66.16
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						2	BEDROCK *(con't)*	Similar to C1, except hard, fresh; all joints observed in fresh condition	
	C-2		5	60	77	2			
						2		-PORTLAND ARKOSE FORMATION-	
						2			
20						2			
						3			45
						3			
								END OF BORING 22.5 ft	
25									40
30									35

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 12.5 ft Rock: 10.0 ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 5 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-103
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 218+36.06/9.1L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819666.086796
Start Date: 4-25-08	Route No.:		Easting: 1002529.433393
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 65.41
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 8.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 5 4 4	2	6			FILL	Loose dark brown to black SAND, some silt, trace gravel, with few fragments of slag and wood	65
	S-2	4 4 4 8	2	22				Similar to S1	
							GLACIO-LACUSTRINE DEPOSITS		
5	S-3	4 15 11 9	2	18				Very stiff red-brown clayey SILT, trace sand	60
	S-4	11 14 14 9	2	18				Similar to S3 Medium dense brown SILT and fine SAND, wet Note: Switched to NW casing at 10.0 ft	
10	S-5	13 22 17 14	2	16			GLACIAL TILL	Dense red-brown SAND, some silt, little gravel, wet	55
15	S-6	11 100/5	0.9	10				Very dense red-brown GRAVEL and SAND, some clayey silt, wet	50
	C-1		5	58	27	2	BEDROCK	Moderately hard to hard, slightly weathered, dark brown, aphanitic SILTSTONE. Primary joints low angle, extremely close to moderately spaced, smooth, planar to slightly undulating, slightly disintegrated to fresh, open. Secondary joints similar, except high angle to near vertical, moderately spaced (or wider)	
						2			
						2			
						2			
20						2			45
								-PORTLAND ARKOSE FORMATION-	
								END OF BORING 21 ft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 16.0 ft Rock: 5.0 ft	NOTES:	Sheet 1 of 1
No. of Soil Samples: 6 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RW-104	
Inspector: E. Danaher	Town: Newington to West Hartford	Stat./Offset: 243+27.96/122.5L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 821875.153818	
Start Date: 10-18-07	Route No.:	Easting: 1003688.348875	
Finish Date: 10-19-07	Bridge No.:	Surface Elevation: 78.75	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.	Core Barrel Type: NX	
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 18 13 19	2	15			FILL	Medium dense dark brown sandy GRAVEL, trace wood	
							GLACIAL TILL	Very stiff red-brown fine sandy SILT, trace fine gravel, dry	
	S-2	20 23 24 27	2	18				Hard red-brown clayey SILT, little sand, dry	75
5	S-3	14 27 26 24	2	18				Very dense red-brown coarse to fine SAND and GRAVEL, little silt	
	S-4	17 16 35 33	2	18				Very dense red-brown coarse to fine SAND and coarse to fine GRAVEL, little silt (fractured/weathered rock, probable boulder)	70
10	S-5	32 81 89 100/5	1.9	12				Very dense red-brown coarse to fine SAND and GRAVEL (fractured/weathered rock). Spoon refusal at 11.9 ft on cobbles/boulder (rock in spoon tip)	65
15	S-6	55 44 40 59	2	14				Very dense red-brown coarse to fine SAND, some silt, trace gravel, wet	
	S-7	58 100/1	0.6	7				Very dense red-brown fine GRAVEL and SAND, some silt. Spoon refusal at 17.6 ft	
							BEDROCK		

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18.0 ft Rock: 10.0 ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 7 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-104
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 243+27.96/122.5L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 821875.153818
Start Date: 10-18-07	Route No.:		Easting: 1003688.348875
Finish Date: 10-19-07	Bridge No.:		Surface Elevation: 78.75
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	C-1		5	55	20	3	BEDROCK *(con't)*	Hard, slightly weathered, brown to red-brown, aphanitic SHALE. Bedding is low angle, extremely thin, planar to slightly undulating. Primary joints horizontal to low angle, extremely close to close spacing, smooth, planar to slightly undulating, fresh to slightly disintegrated, open. secondary joints high angle to vertical, generally moderately spaced (or wider), smooth to rough, planar to stepped, slightly disintegrated to fresh, open. Occasional calcite in-filling in joints	60
						3			
20						4			
						4			
						4			
	C-2		5	60	10	4		Similar to C1	55
						4			
25						3			
						4			
						4			
								END OF BORING 28 ft	50
30									
									45
35									

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18.0 ft Rock: 10.0 ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-105
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 244+1.02/11.48L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 821881.32056
Start Date: 10-18-07	Route No.:		Easting: 1003821.112729
Finish Date: 10-19-07	Bridge No.:		Surface Elevation: 76.36
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 11 10 6	2	12			FILL	Medium dense brown fine SAND, some silt, little coarse to fine gravel	
									75
	S-2	8 8 16 28	2	7				Medium dense red-brown coarse to fine SAND, some fine gravel, silt, dry	
							GLACIAL TILL		
5	S-3	12 27 41 80	2	20				Very dense red-brown GRAVEL, some coarse to fine sand, silt	
									70
	S-4	40 100/5	0.9	4				Very dense red-brown GRAVEL (fractured rock), some coarse to fine sand, silt, dry	
10	S-5	100/5	0.5	3				Weathered rock, fragments of siltstone. Advanced roller bit through cobbles and boulders	
									65
	S-6	11 17 29 100/5	1.9	12				Dense red-brown clayey SILT and coarse to fine SAND, little fine gravel, wet Note: Cored through boulder from 15.0 to 18.0 ft	
15									
									60
	S-7	18 32 100/4	1.3	6				Very dense gray GRAVEL, some coarse to fine sand, little red-brown clayey silt	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 19.0 ft Rock: 5.0 ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 7 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-105
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 244+1.02/11.48L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 821881.32056
Start Date: 10-18-07	Route No.:		Easting: 1003821.112729
Finish Date: 10-19-07	Bridge No.:		Surface Elevation: 76.36
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	C-1		5	60	45	3	BEDROCK	Hard, slightly weathered, dark gray to dark brown aphanitic SHALE. Bedding is low angle, extremely thin, planar to slightly undulating. Primary joints horizontal to low angle, very close to close spacing, smooth, planar to slightly undulating, fresh to slightly disintegrated, open. secondary joints high angle to vertical, generally moderately spaced (or wider), smooth to rough, planar to stepped, slightly disintegrated to fresh, open. Occasional calcite in-filling in joints	
						3			
						4			55
						4			
						3			
20									
25								END OF BORING 24 ft	
									50
30									
									45
35									
									40

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 19.0 ft Rock: 5.0 ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-106(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 245+96.71/20.17R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822033.43589
Start Date: 4-24-08	Route No.:		Easting: 1003948.219458
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 69.95
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 0.3 ft b.g.s after 8 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	9 11 12 11	2	22		RAILROAD BALLAST / FILL	Medium dense brown to dark brown coarse to fine SAND, some coal cinders, little silt, coarse to fine gravel, no odor, moist	
	S-2	9 7 7 6	2	20		ALLUVIAL DEPOSITS	Similar to S1 Stiff brown clayey SILT, little coarse to fine sand, trace medium to fine gravel, no odor, moist; trace mottling; sand and gravel occurs in frequent small lenses	
5	S-3	4 5 9 13	2	20			Stiff brown to dark brown laminated SILT, little fine sand, organic fibers, no odor, moist	65
	S-4	8 8 11 13	2	24			Similar to S3, no organic fibers observed	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	5 5 7 9	2	24		GLACIO-LACUSTRINE DEPOSITS	Stiff brown laminated clayey SILT with frequent brown clay seams, no odor, wet	60
15	S-6	4 5 6 8	2	24			Similar to S5, except with trace medium to fine gravel-sized dropstones	55
20	UP-1	p u s h	2	24			Note: Piston tube sample from 20.0 to 22.0 ft	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.8 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-106(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 245+96.71/20.17R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822033.43589
Start Date: 4-24-08	Route No.:		Easting: 1003948.219458
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 69.95
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 0.3 ft b.g.s after 8 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	S-7	6 21 27 32	2	16		GLACIAL TILL	Similar to S6 Dense red-brown coarse to fine SAND and clayey SILT, some coarse to fine gravel, no odor, wet; well-bonded in-situ	
25	S-8	51 100/2	0.2	6			Very dense red-brown coarse to fine SAND and coarse to fine GRAVEL, little silt, no odor, wet; composed of shale chips Note: Roller bit grinding from approximately 25.0 to 27.0 ft on siltstone boulder. Cored 27.0 to 30.0 ft, broke through boulder at approximately 29.0 ft	45
30	S-9	100/3	0.3	3			Very dense red-brown coarse to fine SAND and GRAVEL, some silt, no odor, wet	40
35	S-10	79 100/4	0.8	7		DECOMPOSED BEDROCK	Similar to S9, except red-brown to gray, frequent shale chips	35
40	S-11	73 100/3	0.8	5			Similar to S10, except gray	30
							Note: Well installed in completed borehole END OF BORING 40.8 ft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.8 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-107
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 246+84.18/15.63R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822110.0055
Start Date: 4-25-08	Route No.:		Easting: 1003990.544
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 69.99
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 1.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 4 4 5	2	20		RAILROAD BALLAST / FILL	Loose dark brown to black coarse to fine SAND and COAL CINDERS, little coarse to fine gravel, silt, trace coal particles, no odor, dry	
	S-2	5 4 5 7	2	18			Loose brown coarse to fine SAND, trace fine gravel, silt, no odor, wet	
5	S-3	4 4 7 11	2	18		ALLUVIAL DEPOSITS	Stiff brown clayey SILT, little coarse to fine sand, no odor, wet	65
	S-4	8 10 9 11	2	20			Similar to S3, except very stiff, poorly-stratified	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	5 7 12 13	2	18		GLACIO-LACUSTRINE DEPOSITS	Very stiff red-brown CLAY varved with brown clayey SILT, trace fine sand, no odor, wet	60
15	S-6	8 7 5 5	2	14			Similar to S5, except stiff	55
	UP-1	p u s h	2	0			Note: Piston tube sample taken 18.0 to 20.0 ft (tube crushed during push)	
20	S-7	11 17 18 10	2	0			No recovery	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.3 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-107
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 246+84.18/15.63R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822110.0055
Start Date: 4-25-08	Route No.:		Easting: 1003990.544
Finish Date: 4-25-08	Bridge No.:		Surface Elevation: 69.99
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 1.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	6 8 8 13	2	24			Very stiff brown stratified SILT and clayey SILT, no odor, wet; layers approximately 1/8 to 1/4 in. thick	45
						GLACIAL TILL		
30	S-9	16 23 32 41	2	10			Very dense red-brown coarse to fine SAND, some silt, little coarse to fine gravel, wet	40
35	S-10	46 81 100/1	1.1	11			Very dense red-brown coarse to fine GRAVEL, some silt, little coarse to fine sand, no odor, wet Note: Drill action indicates hard material from 36.5 to 40.0 ft	35
40	S-11	100/3	0.3	3			Similar to S10	30
							END OF BORING 40.3 ft	
45								25

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.3 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-108
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 294+06.68/17.97L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826179.174373
Start Date: 10-19-07	Route No.:		Easting: 1006386.004063
Finish Date: 10-19-07	Bridge No.:		Surface Elevation: 70.66
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	10 18 26 21	2	3		FILL	Dense brown coarse to fine GRAVEL, some coarse to fine sand, trace silt	70
	S-2	12 4 2 4	2	13		GLACIO-LACUSTRINE DEPOSITS	Medium dense red-brown coarse to fine SAND, little fine gravel, silt, wet Medium stiff red-brown CLAY varved with gray-brown SILT and fine SAND	
5	S-3	6 8 8 10	2	18			Similar to S2, except very stiff	65
	S-4	11 9 9 7	2	18			Similar to S3	
10	S-5	2 3 3 3	2	20			Medium stiff red-brown CLAY varved with gray-brown SILT	60
	UP-1	p u s h	2	24			Undisturbed piston sample from 12.0 to 14.0 ft	
	S-6	1 1 2 3	2	24			Soft red-brown CLAY varved with gray-brown SILT	
15								55
20	S-7	3 1 2 2	2	24			Similar to S6	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RW-108
Inspector: E. Danaher	Town: Newington to West Hartford	Stat./Offset: 294+06.68/17.97L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826179.174373
Start Date: 10-19-07	Route No.:	Easting: 1006386.004063
Finish Date: 10-19-07	Bridge No.:	Surface Elevation: 70.66

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations:

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	1 1 2 2	2	24			Similar to S7	45
30	S-9	3 6 12 12	2	24			Medium dense red-brown fine SAND and SILT interbedded with very stiff gray clayey SILT	40
							Drill action indicates change at approximately 33.0 ft	
35	S-10	1 2 1 2	2	24			Soft red-brown CLAY varved with gray brown SILT	35
	S-11	6 8 12 13	2	14			Very stiff red-brown SILT and CLAY, little coarse sand, fine gravel	
40							END OF BORING 40 ft	30
45								25

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in	NOTES:	Sheet 2 of 2
Earth: 40.0 ft Rock: - ft		
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-109
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 295+33.84/25.72L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826292.463623
Start Date: 10-22-07	Route No.:		Easting: 1006444.273249
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 67.23
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 5 4 4	2	15		BITUMINOUS CONCRETE / FILL	Loose dark brown GRAVEL, some coarse to fine sand, trace silt Stiff red-brown coarse to fine SAND, some silt, clay	
	S-2	4 4 5 6	2	0			No recovery	65
5	S-3	1 3 7 4	2	4			Medium dense red-brown coarse to fine SAND, some silt, trace clay	
	S-4	3 3 3 5	2	17			Loose gray-brown fine SAND, some silt, no odor, wet	60
10	S-5	8 13 15 16	2	20		GLACIO-LACUSTRINE DEPOSITS	Very stiff red-brown CLAY varved with fine SAND and SILT	
	S-6	9 7 5 6	2	8			Stiff red-brown CLAY varved with fine SAND and SILT	55
15	S-7	2 3 4 5	2	24			Similar to S6, except medium stiff	
								50
20	S-8	1 2 3 2	2	24			Similar to S7	
								45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 12 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RW-109
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 295+33.84/25.72L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826292.463623
Start Date: 10-22-07	Route No.:		Easting: 1006444.273249
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 67.23
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-9	2 2 2 1	2	24			Similar to S8, except soft	
								40
30	S-10	3 5 9 10	2	24			Similar to S9, except medium stiff Medium dense red-brown SILT and fine SAND	
								35
35	S-11	3 5 9 9	2	16			Medium stiff red-brown CLAY varved with SILT and fine SAND Note: Cobbles and/or boulder encountered to approximately 37.0 to 38.0 ft	
						GLACIAL TILL		30
	S-12	5 6 7 6	2	24			Medium dense red-brown coarse to fine SAND and SILT, little fine gravel	
40							END OF BORING 40 ft	
								25
45								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 12 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-110
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 295+84.79/20.78R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826312.547855
Start Date: 4-15-08	Route No.:		Easting: 1006510.279731
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 70.03
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ (not observed)			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						RAILROAD BALLAST / FILL		70
	S-1	10 14 11 7	2	21			Medium dense brown coarse to fine SAND, some medium to fine gravel, little silt, no odor, wet	
	S-2	3 5 5 4	2	18			Stiff dark gray-brown clayey SILT, trace fine sand, slight organic odor, moist	
5	S-3	5 6 7 7	2	6			Stiff brown to gray silty CLAY, trace fine sand, no odor, moist; some mottling (poor recovery)	65
	S-4	7 9 11 7	2	6			Similar to S3, except very stiff	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	8 11 13 16	2	19			Very stiff brown to light brown to gray-brown varved SILT and silty CLAY, trace fine sand; varves typically approximately 1/8 to 1/4 in. thick consisting of fine sand parting-silt seam-clay seam sequences	60
15	S-6	7 8 14 18	2	24		GLACIO-LACUSTRINE DEPOSITS	Very stiff brown to red-brown varved CLAY and SILT, no odor, wet; silt layers approximately 2 to 3 in. thick, clay layers approximately up to 1.5 in. thick	55
20	S-7	4 4 4 4	2	24			Similar to S6, except medium stiff	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-110
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 295+84.79/20.78R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826312.547855
Start Date: 4-15-08	Route No.:		Easting: 1006510.279731
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 70.03
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ (not observed)			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	UP-1	p u s h	2	24		GLACIO-LACUSTRINE DEPOSITS *(con't)*	Piston tube sample 23.0 to 25.0 ft	
25	S-8	2 1 2 2	2	24			Soft brown to red-brown varved CLAY and clayey SILT, no odor, wet	45
30	S-9	woh woh 1 2	2	24			Very stiff red-brown CLAY varved with gray-brown to olive-brown clayey SILT, no odor, wet; silt layers generally 0.5 to 1 in. thick, clay layers generally 0.5 to over 2 in. thick, layer containing little coarse to fine sand from 31.1 to 31.2 ft	40
35	S-10	14 11 13 16	2	24			Note: Drill action suggests stratum change at approximately 34.0 ft Medium dense red-brown stratified SILT and fine SAND, occasional clay seams, occasional seams with coarse to fine sand, no odor, wet	35
	S-11	9 15 24 27	2	24			Hard brown to red-brown varved CLAY and clayey SILT, with occasional lenses of red-brown clayey coarse to fine sand, no odor, wet	
40								30
							END OF BORING 40 ft	
45								25

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-111
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 297+02.03/29.11L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826438.797469
Start Date: 10-22-07	Route No.:		Easting: 1006527.235797
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 57.68
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 8 12 10	2	6		BITUMINOUS CONCRETE / FILL	Medium dense dark brown coarse to fine SAND, little gravel, trace brick, cinders, silt, no odor, dry	
	S-2	5 5 6 4	2	14			Medium dense dark brown coarse to fine SAND, little fine gravel, cinders, coal, ash, trace silt, no odor, dry	55
5	S-3	2 3 2 7	2	21			Similar to S2, except loose Loose gray-brown silty fine SAND, no odor, moist	
	S-4	4 9 10 12	2	14			Very stiff red-brown SILT, some fine sand, trace clay, no odor, moist	50
10	S-5	19 19 17 19	2	12		GLACIO-LACUSTRINE DEPOSITS	Hard red-brown CLAY varved with SILT and fine SAND, little fine gravel, no odor, moist	45
15	S-6	3 3 3 3	2	24			Medium stiff red-brown CLAY varved with SILT and fine SAND, no odor, wet	40
20	S-7	2 4 2 4	2	24			Similar to S6	35

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-111
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 297+02.03/29.11L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826438.797469
Start Date: 10-22-07	Route No.:		Easting: 1006527.235797
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 57.68
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	2 3 4 3	2	20			Similar to S7	
								30
30	S-9	6 8 8 16	2	20			Very stiff red-brown CLAY varved with SILT	
							Dense red-brown fine GRAVEL and SILT, little clay, trace coarse to fine sand	25
35	S-10	8 11 7 9	2	20			Very stiff red-brown CLAY, some silt, little coarse to fine SAND and fine gravel	
						GLACIAL TILL		
	S-11	10 18 17 27	2	18			Dense red-brown silty fine SAND, little gravel, coarse to fine sand, trace clay; possible flow-till	20
40							END OF BORING 40 ft	
								15
45								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-112
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 297+54.72/18.98R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826459.571573
Start Date: 4-15-08	Route No.:		Easting: 1006595.503034
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 69.33
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 16.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						RAILROAD BALLAST / FILL		
	S-1	9 13 10 17	2	12			Medium dense black to brown coarse to fine SAND, little coarse to fine gravel, coal cinders, trace silt, no odor, dry	
	S-2	11 13 17 18	2	16			Medium dense red-brown coarse to fine SAND, some silt, little medium to fine gravel, no odor, dry	65
5	S-3	8 7 8 11	2	20			Stiff brown to gray-brown to yellow-brown clayey SILT, trace fine sand, no odor, moist; little mottling	
	S-4	10 7 10 11	2	18			Similar to S3, except little clay Note: Switched to NW casing at 10.0 ft	
10	S-5	8 7 8 8	2	24			Stiff brown silty CLAY varved with brown to light brown to light gray-brown SILT, trace fine sand, no odor, moist; varve couplets approximately 1/8 to 1/4 in. thick on average	60
15	S-6	9 11 13 15	2	24			Similar to S5, except very stiff	55
	UP-1	p u s h	2	24			Note: Piston tube sample from 18.0 to 20.0 ft	
20	S-7	7 9 11 14	2	24		GLACIO-LACUSTRINE DEPOSITS	Very stiff brown to red-brown CLAY varved with brown to gray-brown clayey SILT, no odor, wet; varve couplets generally 0.5 to 1.0 in. thick on average	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.7 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-112
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 297+54.72/18.98R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826459.571573
Start Date: 4-15-08	Route No.:		Easting: 1006595.503034
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 69.33
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 16.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		45
25	S-8	7 7 6 9	2	24			Similar to S7, except stiff	
30	S-9	woh woh 2 2	2	24			Very soft brown silty CLAY varved with brown clayey SILT, clay and silt layers generally 1 to 2 in. thick each, with occasional clay layers 4 in. or thicker	40
35	S-10	woh 1 2 3	2	24			Similar to S9, except soft	35
40	S-11	4 3 4 3	2	24			Similar to S10, except medium stiff, trace fine sand	30
45	S-12	5 6 5 5	2	22			Stiff brown to red-brown clayey SILT, frequent clay seams	25

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.7 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-112	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 297+54.72/18.98R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826459.571573	
Start Date: 4-15-08	Route No.:	Easting: 1006595.503034	
Finish Date: 4-15-08	Bridge No.:	Surface Elevation: 69.33	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 16.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
						GLACIAL TILL	Note: Drill action suggests possible stratum change at approximately 48.0 ft	
								20
50	S-13	13 21 24 30	2	20			Dense brown to red-brown clayey SILT and fine SAND, trace fine gravel, no odor, wet	
							Similar to S13, except with trace coarse gravel	15
55	S-14	26 100/2	0.7	5			Note: Spoon refusal at 55.7 ft (shale fragments in spoon tip)	
							END OF BORING 55.7 ft	
								10
60								
								5
65								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.7 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-113
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 298+45.78/26.38L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826561.008645
Start Date: 10-22-07	Route No.:		Easting: 1006602.982814
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 55.42
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	10 15 9 6	2	13		FILL	Medium dense dark brown coarse to fine SAND, some gravel, little brick, ash, cinders and slag, trace silt	55
	S-2	7 9 6 6	2	14			Medium dense dark brown to brown coarse to fine SAND, little silt, fine gravel, slag, brick, cinders, ash, trace organics, no odor, moist	
5	S-3	7 3 2 2	2	5			Loose dark brown GRAVEL, some coarse to fine sand, little slag, cinders, ash, trace brick, no odor, wet	50
	S-4	1 1 1 2	2	10			Very loose gray-brown fine SAND and SILT, no odor, wet	
10	S-5	8 11 15 16	2	0			No recovery	45
	S-6	12 12 13 11	2	18			Very stiff red-brown CLAY varved with SILT, trace fine sand, no odor, moist	
						GLACIO-LACUSTRINE DEPOSITS		
15	S-7	5 5 6 7	2	24			Similar to S6, except stiff, wet at approximately 16.0 ft	40

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 37.5 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-113
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 298+45.78/26.38L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826561.008645
Start Date: 10-22-07	Route No.:		Easting: 1006602.982814
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 55.42
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-8	3 1 2 2	2	24			Similar to S7, except soft	35
25	S-9	1 1 2 2	2	24			Soft red-brown CLAY varved with SILT, trace fine sand, no odor, wet	30
30	S-10	3 4 8 9	2	24			Stiff red-brown clayey SILT	25
35	S-11	6 13 31 65	2	8			Similar to S10, except very stiff	20

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 37.5 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-113
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 298+45.78/26.38L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826561.008645
Start Date: 10-22-07	Route No.:		Easting: 1006602.982814
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 55.42
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						WEATHERED BEDROCK	Dense red-brown GRAVEL (weathered siltstone), little silt Note: Roller bit refusal at 37.5 ft	
							END OF BORING 37.5 ft	
40								15
45								10
50								5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 37.5 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-114
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 298+94.02/17.2R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826580.249578
Start Date: 4-16-08	Route No.:		Easting: 1006665.090457
Finish Date: 4-16-08	Bridge No.:		Surface Elevation: 69.21
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	16 18 17 15	2	14		RAILROAD BALLAST FILL	Dense brown to black coarse to fine SAND and COAL CINDERS, trace silt, gravel, no odor, dry	
	S-2	10 10 13 11	2	16			Dense brown to light brown coarse to fine SAND, trace silt, fine gravel, no odor, dry Similar to S1 (below 1.5 ft)	65
5	S-3	8 4 2 2	2	17			Loose red-brown coarse to fine SAND, little fine gravel, silt, trace medium gravel, no odor, moist	
	S-4	2 2 3 2	2	18			Medium stiff brown to gray SILT, little fine sand, trace clay lenses, no odor, moist Note: Switched to NW casing at 10.0 ft	
10	S-5	3 5 5 7	2	20			Stiff brown to orange-brown to gray-brown SILT, some fine sand, trace clay lenses, no odor, wet; mottled Note: Switched to NW casing at 15.0 ft	60
15	S-6	2 2 2 2	2	24			Soft dark gray SILT, with organic silt, trace organic matter, slight organic odor, wet	55
20	S-7	woh woh 1 1	2	22			Very soft black ORGANIC SILT, little organics (mainly roots, twigs), trace sand, silt, organic odor, moist	50
	S-8	3 3 4 5	2	24			Medium stiff dark brown SILT, trace fine sand, organic silt, peat fibers, slight organic odor, wet	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-114
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 298+94.02/17.2R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826580.249578
Start Date: 4-16-08	Route No.:	Easting: 1006665.090457
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 69.21

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 15.0 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						FILL *(con't)*		
25	S-9	6 5 7 7	2	24		GLACIO-LACUSTRINE DEPOSITS	Stiff red-brown to brown CLAY, varved with brown to gray-brown SILT, trace fine sand, no odor, wet; varve couplets generally 0.5 to 1.0 in. thick	45
30	S-10	7 9 9 7	2	24			Similar to S9, except very stiff	40
35	S-11	4 4 9 11	2	24			Similar to S10, except stiff; varve couplets 1.0 to 1.5 in. thick on average; with 2 in. layer of red-brown SILT, some fine sand from approximately 36.1 to 36.3 ft	35
40	S-12	4 2 1 2	2	24			Similar to S11, except soft, varve couplets approximately 1.5 to 2.0 in. thick on average, clay fraction dominates	30
	UP-1	p u s h	2	24			Note: Piston tube sample from 43.0 to 45.0 ft	
45	S-13	10 13 12 13	2	24			Very stiff brown laminated SILT and CLAY, trace fine gravel and sand-sized dropstones, no odor, wet	25

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-114	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 298+94.02/17.2R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826580.249578	
Start Date: 4-16-08	Route No.:	Easting: 1006665.090457	
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 69.21	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		20
50	S-14	12 14 13 14	2	24			Similar to S13	
						GLACIAL TILL	Note: Drill action suggests possible stratum change at approximately 53.0 ft	15
55	S-15	17 24 31 43	2	16			Very dense red-brown SILT, some coarse to fine sand, little medium to fine gravel, trace clay, no odor, moist; compact bonded in-situ	
							END OF BORING 57 ft	10
60								
65								5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-115
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 299+77.53/22.03L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826672.077052
Start Date: 10-22-07	Route No.:		Easting: 1006674.000626
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 55.81
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						FILL		
	S-1	2 3 6 6	2	10			Loose brown fine SAND and SILT, little brick, ash, cinders, trace gravel	55
	S-2	4 4 5 5	2	18			Loose gray-brown SILT and fine SAND, no odor, moist	
5	S-3	3 7 11 17	2	18			Very stiff gray-brown SILT, some fine sand, trace clay, no odor, moist	50
	S-4	9 11 13 17	2	20			Medium dense gray-brown fine SAND and SILT, no odor, moist	
10	S-5	8 11 14 21	2	24			Very stiff gray-brown SILT, little clay, gravel, trace fine sand, no odor, moist	45
						GLACIO-LACUSTRINE DEPOSITS		
15	S-6	2 3 3 4	2	24			Medium stiff red-brown CLAY varved with SILT, no odor, wet	40
20	S-7	1 1 1 2	2	24			Very soft red-brown CLAY varved with SILT, no odor, wet	35

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: M. Jennett	**Connecticut DOT Boring Report**		Hole No.: RW-115
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 299+77.53/22.03L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826672.077052
Start Date: 10-22-07	Route No.:		Easting: 1006674.000626
Finish Date: 10-22-07	Bridge No.:		Surface Elevation: 55.81
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	5 1 3 4	2	18			Similar to S7, except soft	30
30	S-9	2 3 5 7	2	20			Similar to S8, except medium stiff	25
35	S-10	5 6 7 9	2	18			Similar to S9, except stiff	20
	S-11	7 6 8 13	2	24			Similar to S10 Medium dense red-brown fine SAND and SILT	
40							END OF BORING 40 ft	15
45								10

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-116
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 301+70.86/10.48R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826822.904342
Start Date: 4-16-08	Route No.:		Easting: 1006800.414252
Finish Date: 4-17-08	Bridge No.:		Surface Elevation: 67.82
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	12 15 17 11	2	0		RAILROAD BALLAST / FILL	Dense dark brown to black coarse to fine SAND and COAL CINDERS, some coarse to fine gravel, little silt, no odor, dry	
	S-2	8 6 13 6	2	18		GLACIO-LACUSTRINE DEPOSITS	Medium dense brown coarse to fine SAND, little medium to fine gravel, trace silt, no odor, dry	65
							Very stiff gray-brown CLAY varved with brown SILT and fine SAND, no odor, moist; varve couplets are approximately 1/8 to 1/4 in. thick on average	
5	S-3	7 4 4 5	2	24			Similar to S2, except medium stiff, wet	
	S-4	5 4 4 6	2	24			Similar to S3	60
							Note: Switched to NW casing at 10.0 ft	
10	S-5	woh woh 2 2	2	24			Very soft gray-brown CLAY varved with brown SILT, little fine sand, no odor, wet; varve couplets generally approximately 0.25 to 0.5 in. thick, although single 5 in. thick layer was encountered at approximately 23.2 to 23.6 ft	55
15	S-6	woh woh woh 2	2	24			Similar to S5, except trace fine sand	
	UP-1	p u s h	2	24			Note: Piston tube sample 18.0 to 20.0 ft	50
20	S-7	woh woh 1 2	2	24			Similar to S6	
								45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-116
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 301+70.86/10.48R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826822.904342
Start Date: 4-16-08	Route No.:		Easting: 1006800.414252
Finish Date: 4-17-08	Bridge No.:		Surface Elevation: 67.82
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	woh woh 2 2	2	24			Similar to S7	
								40
30	S-9	woh woh woh 2	2	24			Similar to S8	
								35
35	S-10	woh 1 2 3	2	24			Similar to S9, except soft	
								30
40	S-11	woh 1 1 2	2	24			Very soft brown CLAY varved with gray-brown SILT, no odor, wet; varve couplets approximately 1.5 to 3.0 in. thick on average	
								25
45	S-12	1 1 2 2	2	24			Similar to S11, except soft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-116	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 301+70.86/10.48R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826822.904342	
Start Date: 4-16-08	Route No.:	Easting: 1006800.414252	
Finish Date: 4-17-08	Bridge No.:	Surface Elevation: 67.82	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		20
50	S-13	woh 2 2 4	2	24			Similar to S12	
								15
55	S-14	2 3 3 5	2	24			Medium stiff brown to red-brown clayey SILT, no odor, wet	
							END OF BORING 57 ft	10
60								5
65								0

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-117(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 303+10.02/20.31R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 826943.322226	
Start Date: 4-17-08	Route No.:	Easting: 1006871.032327	
Finish Date: 4-18-08	Bridge No.:	Surface Elevation: 66.76	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.2.0 ft b.g.s after 13 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	10 15 11 19	2	11		RAILROAD BALLAST / FILL	Medium dense brown to red-brown coarse to fine SAND, some coarse to fine gravel, little silt, coal cinders, no odor, moist	
	S-2	10 7 7 10	2	18		GLACIO-LACUSTRINE DEPOSITS	Similar to S1 Stiff dark brown to gray-brown laminated clayey SILT, trace fine sand, no odor, dry	65
5	S-3	1 1 1 2	2	24			Very soft gray CLAY varved with brown to red-brown SILT, trace fine sand, no odor, wet; varve couplets generally 1/8 to 1/4 in. thick	
	S-4	2 1 2 2	2	24			Soft brown to gray-brown silty CLAY varved with brown to red-brown SILT, trace fine sand, no odor, wet; varve couplets generally 1/4 to 3/4 in. thick, but up to 4 in. thick, clay dominant	60
							Note: Switched to HW casing at 10.0 ft	
10	S-5	2 2 2 2	2	24			Similar to S4	55
15	S-6	1 1 2 3	2	24			Similar to S5, except CLAY varved with clayey SILT	50
20	S-7	woh 1 2 1	2	24			Similar to S6	45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-117(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 303+10.02/20.31R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826943.322226
Start Date: 4-17-08	Route No.:		Easting: 1006871.032327
Finish Date: 4-18-08	Bridge No.:		Surface Elevation: 66.76
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.2.0 ft b.g.s after 13 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	woh woh 1 2	2	24			Similar to S7, except very soft; red-brown to brown CLAY varved with brown to gray-brown clayey SILT, varve couplets generally 0.5 to 1.5 in. thick	40
30	S-9	2 2 2 3	2	24			Similar to S8, except soft	35
	UP-1	p u s h	2	24			Note: Piston tube sample from 33.0 to 35.0 ft	
35	S-10	3 4 4 4	2	24			Similar to S9, except medium stiff	30
40	S-11	4 5 4 4	2	24			Similar to S10	25
45	S-12	3 2 4 4	2	24			Similar to S11	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-117(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 303+10.02/20.31R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826943.322226
Start Date: 4-17-08	Route No.:		Easting: 1006871.032327
Finish Date: 4-18-08	Bridge No.:		Surface Elevation: 66.76
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.2.0 ft b.g.s after 13 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		20
50	S-13	10 11 12 18	2	20			Very stiff brown to red-brown laminated clayey SILT, with occasional layers of red-brown clayey SILT, some sand (ice-raft deposits)	15
	S-14	12 10 12 16	2	21			Similar to S13 Note: Well installed in completed borehole	
55							END OF BORING 55 ft	10
60								5
65								0

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-118
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 307+10.44/18.34R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827284.770257
Start Date: 4-17-08	Route No.:		Easting: 1007072.189525
Finish Date: 4-17-08	Bridge No.:		Surface Elevation: 64.39
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 9 9 18	2	5		FILL	Medium dense brown to tan coarse to fine SAND and medium to fine GRAVEL, trace silt, no odor, dry	
	S-2	21 23 20 17	2	6			Dense brown coarse to fine SAND, some coarse to fine gravel, trace silt, coal cinders, no odor, dry	
5	S-3	3 3 4 9	2	14			Stiff brown to gray to yellow-brown clayey SILT, trace fine sand, no odor, moist; mottled	60
	S-4	9 9 9 10	2	4			Similar to S3, except very stiff, poor recovery; piece of gravel pushed through clay Note: Switched to NW casing at 10.0 ft	
10	S-5	4 4 4 6	2	20			Medium stiff dark brown to dark gray-brown clayey SILT, trace fine sand, organic fibers, slight organic odor, wet	55
15	S-6	3 3 4 5	2	21			Medium stiff dark brown to dark gray-brown clayey SILT and ORGANIC SILT, trace fine sand, organics, organic odor, wet; stratified	50
20	S-7	2 4 3 4	2	18			Similar to S6, except slight organic odor	45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-118
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 307+10.44/18.34R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827284.770257
Start Date: 4-17-08	Route No.:		Easting: 1007072.189525
Finish Date: 4-17-08	Bridge No.:		Surface Elevation: 64.39
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
25	S-8	7 8 8 7	2	24			Very stiff red-brown CLAY varved with brown SILT, trace fine sand, no odor, wet; varve couplets generally 0.25 to 0.75 in. thick on average	40
30	S-9	4 5 4 4	2	24			Similar to S8, except stiff; varve couplets average approximately 1.0 to 1.5 in. thick	35
35	S-10	1 1 1 2	2	24			Very soft brown to red-brown CLAY varved with brown to gray-brown clayey SILT, no odor, wet; varve couplets approximately 1.0 to 2.0 in. thick on average	30
40	S-11	woh/18 - - 2	2	24			Similar to S10	25
45	S-12	3 2 1 1	2	24			Similar to S11, except soft	20

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-118	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 307+10.44/18.34R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827284.770257	
Start Date: 4-17-08	Route No.:	Easting: 1007072.189525	
Finish Date: 4-17-08	Bridge No.:	Surface Elevation: 64.39	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
	UP-1	p u s h	2	24			Note: Piston tube sample at 48.0 to 50.0 ft	
50								15
	S-13	4 2 3 4	2	24			Similar to S12, except medium stiff, brown (both clay and silt), trace sand	
	S-14	3 3 4 5	2	24			Similar to S13	
55								10
							END OF BORING 55 ft	
60								5
65								0

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-119	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 309+53.52/1.22L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827498.865187	
Start Date: 4-19-08	Route No.:	Easting: 1007190.063762	
Finish Date: 4-21-08	Bridge No.:	Surface Elevation: 63.41	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 5 4 6	2	6		FILL	Loose dark brown coarse to fine SAND, some coarse to fine gravel,little silt, trace roots, leaves, slight organic (topsoil) odor, dry	
	S-2	7 5 4 4	2	13			Loose red-brown coarse to fine SAND, some coal cinders, little coarse to fine gravel, silt, no odor, dry	60
5	S-3	7 8 9 9	2	11			Similar to S2, except medium dense, little coal cinders, trace medium to fine gravel	
	S-4	6 5 7 9	2	15			Similar to S3, except no coal cinders	55
							Note: Switched to NW casing at 10.0 ft	
10	S-5	6 8 6 9	2	12			Medium dense dark brown coarse to fine sandy silty CLAY, trace fine gravel	50
15	S-6	3 4 3 3	2	24			Medium stiff brown SILT, some fine sand, trace coarse sand, organic fibers, no odor, wet	45
20	S-7	3 3 3 4	2	24			Medium stiff, predominantly gray-brown with small brown, blue-gray, green, gray and red-brown specks, SILT, some coarse to fine sand, trace clay, fine gravel, organic fibers, very slight organic odor, wet	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-119
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 309+53.52/1.22L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827498.865187
Start Date: 4-19-08	Route No.:		Easting: 1007190.063762
Finish Date: 4-21-08	Bridge No.:		Surface Elevation: 63.41
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						FILL *(con't)*		40
25	S-8	3 3 6 4	2	24			Similar to S7, except interbedded SILT and CLAY, trace fine sand (25.0 to 25.6 ft and 26.7 to 27.0 ft) with SILT and fine SAND (25.6 to 26.7 ft), no odor, wet; frequent lenticular deposits	35
30	S-9	5 7 15 12	2	22		GLACIO-LACUSTRINE DEPOSITS	Very stiff brown to red-brown SILT, some coarse to fine sand, little fine gravel grading to coarse to fine SAND, some medium to fine gravel, little silt, no odor, wet	30
35	S-10	woh 1 2 2	2	24			Soft brown to red-brown CLAY varved with brown to gray-brown SILT, no odor, wet; varve couplets generally 1 to 2 in. thick	25
40	S-11	woh woh woh 1	2	24			Similar to S10, except very soft; varve thicknesses reduce to approximately 1/8 to 1/4 in. thick on average at approximately 41.0 ft	
	UP-1	p u s h	2	24			Note: Piston tube sample from 43.0 to 45.0 ft	20
45	S-12	woh woh woh 2	2	16			Similar to S11, except varve couplets 1.5 to 2.5 in. thick on average; occasional sand to fine gravel-sized dropstones	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore Inspector: S. Poff	**Connecticut DOT Boring Report** Town: Newington to West Hartford	Hole No.: RW-119 Stat./Offset: 309+53.52/1.22L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827498.865187	
Start Date: 4-19-08	Route No.:	Easting: 1007190.063762	
Finish Date: 4-21-08	Bridge No.:	Surface Elevation: 63.41	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		15
50	S-13	woh woh 1 2	2	20			Similar to S12	10
55	S-14	3 3 3 4	2	24			Medium stiff brown to red-brown irregularly interbedded CLAY and clayey SILT, trace coarse to fine sand in occasional layers, no odor, wet	
	S-15	3 3 5 5	2	24			Similar to S14	5
60							END OF BORING 60 ft	0
65								-5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-120
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 311+1.39/2.89R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827623.876933
Start Date: 4-21-08	Route No.:		Easting: 1007269.143851
Finish Date: 4-21-08	Bridge No.:		Surface Elevation: 63.32
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	10 14 12 10	2	11		FILL	Medium dense coarse to fine GRAVEL and coarse to fine SAND, little silt, trace organics (mainly railroad ballast and topsoil), no odor, dry	
	S-2	11 13 10 10	2	12			Medium dense tan to black coarse to fine SAND and COAL CINDERS, trace fine gravel, silt, no odor, dry	60
5	S-3	7 8 8 9	2	18			Medium dense light brown to tan coarse to fine SAND, trace fine gravel, silt, no odor, dry	
	S-4	9 9 8 7	2	20			Medium dense light brown to tan medium to fine SAND, trace silt	55
							Note: Switched to NW casing at 10.0 ft	
10	S-5	4 3 2 3	2	18			Similar to S4, except loose, moist	
							Loose black COAL CINDERS and coarse to fine SAND, little silt, no odor, moist	
							Loose brown to red-brown coarse to fine SAND, some clayey silt, no odor, moist	50
15	S-6	2 4 6 6	2	16			Stiff brown to orange-brown to gray clayey SILT, little fine sand, no odor, wet; stratified, sandy layers alternating with clayey layers; layers generally 3.0 to 6.0 in. thick on average	45
20	S-7	3 5 6 5	2	20			Stiff brown SILT, little fine sand, trace coarse sand, no odor, wet	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-120
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 311+1.39/2.89R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827623.876933
Start Date: 4-21-08	Route No.:		Easting: 1007269.143851
Finish Date: 4-21-08	Bridge No.:		Surface Elevation: 63.32
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						FILL *(con't)*		40
25	S-8	3 5 5 3	2	20			Loose brown coarse to fine SAND and SILT, occasional lenses of gray silty clay 25.0 to 25.8 ft, no odor, wet	
	S-9	4 2 7 7	2	21			Similar to S8, except poorly-stratified	
							Stiff brown SILT and ORGANIC SILT, trace fine sand, organic fibers	35
30	S-10	3 3 6 7	2	24			Medium stiff brown SILT, little organic silt, trace fine sand, organic fibers, no odor, wet Medium dense brown to gray-brown fine SAND and clayey SILT grading to coarse to fine SAND, little silt, trace fine gravel, trace organics (mainly decayed leaves) found throughout	
						GLACIO-LACUSTRINE DEPOSITS		30
35	S-11	woh 2 1 2	2	24			Soft brown CLAY varved with gray-brown clayey SILT, no odor, wet; varve couplets generally 1.0 to 2.0 in., thick, but vary from approximately 0.5 to 3.0 in. thick	
	UP-1	p u s h	2	24			Note: Piston tube sample from 38.0 to 40.0 ft	25
40	S-12	woh woh woh 1	2	20			Similar to S11, except very soft	
								20
45	S-13	woh 1 1 3	2	24			Similar to S12	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-120
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 311+1.39/2.89R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 827623.876933
Start Date: 4-21-08	Route No.:		Easting: 1007269.143851
Finish Date: 4-21-08	Bridge No.:		Surface Elevation: 63.32
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		15
50	S-14	3 2 3 4	2	24			Similar to S13, except medium stiff, brown clay and silt	
	S-15	2 1 1 2	2	24			Similar to S14, except very soft	10
55							END OF BORING 55 ft	5
60								0
65								-5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 15 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-121	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 313+82.18/0.92R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827866.257518	
Start Date: 4-21-08	Route No.:	Easting: 1007410.926125	
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.55	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 6 6 8	2	10		FILL	Medium dense brown to dark brown to black coarse to fine SAND, some medium to fine gravel, coal cinders, little silt, trace coal particles, slag particles, few to frequent cobbles, no odor, dry	
	S-2	6 8 9 7	2	8			Similar to S1, except trace coal cinders, no slag particles	60
5	S-3	7 9 9 6	2	4			Medium dense brown coarse to fine SAND, some coarse to fine gravel, trace silt, no odor, dry (poor recovery)	
	S-4	13 10 7 8	2	0			No recovery (pushing gravel)	
							Note: Switched to NW casing at 10.0 ft	55
10	S-5	4 6 5 5	2	22			Medium dense dark brown to orange-brown to gray SILT, little clay, fine sand interbedded with fine SAND and SILT, trace coarse sand, organic fibers, no odor, moist; layers generally 6 to 8 in. thick, gradational contacts between beds	
							Note: Switch to NW casing at 15.0 ft	50
15	S-6	3 1 5 3	2	16			Medium stiff brown to dark brown to gray stratified SILT, some coarse to fine sand, trace organic fibers, fine gravel, no odor, wet; occasional seams of coarse to fine sand, trace medium to fine gravel	
								45
20	S-7	2 1 1 3	2	24			Very loose brown to dark brown SILT and fine SAND, trace coarse sand, medium to fine gravel, organic fibers, no odor, wet; poorly-stratified	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-121	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 313+82.18/0.92R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827866.257518	
Start Date: 4-21-08	Route No.:	Easting: 1007410.926125	
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.55	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						FILL *(con't)*		40
25	S-8	2 4 9 11	2	20			Similar to S7 Stiff brown to dark brown clayey SILT and silty CLAY, trace organic fibers, no odor, moist; dry and very stiff below 26.8 ft	
						GLACIO-LACUSTRINE DEPOSITS		35
30	S-9	11 13 16 19	2	22			Very stiff brown CLAY varved with gray SILT, trace fine sand, no odor, dry; varve couplets generally approximately 0.25 to 0.5 in. thick, up to 1.5 in. thick below 31.5 ft	
								30
35	S-10	2 3 3 4	2	24			Similar to S9, except medium stiff; varve couplets generally 1.0 to 2.0 in. thick with single thick clay layer from approximately 35.5 to 35.8 ft	
								25
40	S-11	woh woh 1 2	2	24			Similar to S10, except very soft, clay dominant	
	UP-1	p u s h	2	24			Note: Piston tube sample from 43.0 to 45.0 ft	20
45	S-12	1 1 3 4	2	20			Similar to S11, except soft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-121	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 313+82.18/0.92R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827866.257518	
Start Date: 4-21-08	Route No.:	Easting: 1007410.926125	
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.55	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 15.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		15
50	S-13	2 2 4 4	2	21			Similar to S12, except medium stiff	
	S-14	5 3 4 5	2	24			Similar to S13	10
55							END OF BORING 55 ft	5
60								0
65								-5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller:	E. DelPriore	**Connecticut DOT Boring Report**		Hole No.:	RW-122
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	315+39.32/6.33L
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	828005.037749
Start Date:	4-22-08	Route No.:		Easting:	1007484.983344
Finish Date:	4-22-08	Bridge No.:		Surface Elevation:	63.68

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 8.0 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 4 6 8	2	7		FILL	Loose dark brown coarse to fine SAND, some medium to fine gravel, coal cinders, trace coarse gravel, silt, no odor, dry	
	S-2	9 16 11 13	2	5			Medium dense dark brown to black coarse to fine SAND and COAL CINDERS, little medium to fine gravel, trace silt, coal particles, no odor, dry	60
5	S-3	11 8 7 9	2	10			Stiff dense brown layers of clayey SILT, trace sand with occasional layers of coarse to fine sand, trace silt, no odor, dry	
	S-4	7 4 3 3	2	18			Similar to S3 Similar to below, but disturbed Medium stiff light brown to yellow-brown to gray SILT, some fine sand, trace coarse sand, root fibers, no odor, wet	55
10	S-5	3 3 4 3	2	19			Note: Switch to NW casing at 10.0 ft Medium stiff brown to yellow-brown to gray SILT, some fine sand, occasional lenses of gray clay; bottom 6 in. is gray clayey SILT with a seam of decayed leaf matter in the spoon tip	50
15	S-6	2 2 3 2	2	23			Soft gray-brown clayey SILT, trace organics, slight organic odor, wet	
						GLACIO-LACUSTRINE DEPOSITS	Loose brown fine SAND, some silt, trace coarse sand, gravel, no odor, wet	45
20	S-7	2 2 3 2	2	24			Medium stiff gray to brown laminated CLAY and clayey SILT, occasional seams of fine sand, no odor, moist	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-122	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 315+39.32/6.33L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 828005.037749	
Start Date: 4-22-08	Route No.:	Easting: 1007484.983344	
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.68	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 8.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		40
25	S-8	3 4 3 4	2	24			Medium stiff brown to red-brown CLAY varved with brown to gray-brown clayey SILT, no odor, moist; varve couplets approximately 0.25 to 0.5 in. thick on average	
	UP-1	p u s h	2	24			Note: Piston tube sample from 28.0 to 38.0 ft	35
30	S-9	woh 1 2 3	2	20			Similar to S8, except soft, varve couplets approximately 0.75 to 1.5 in. thick on average, occasionally up to 4 in. thick	
								30
35	S-10	woh woh woh 1	2	24			Similar to S9, except very soft; varve couplets approximately 1.5 to 3.0 in. thick on average	
								25
40	S-11	woh woh woh 24	2	20			Similar to S10	
								20
45	S-12	woh 1 2 2	2	12			Similar to S11, except soft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-122	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 315+39.32/6.33L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 828005.037749	
Start Date: 4-22-08	Route No.:	Easting: 1007484.983344	
Finish Date: 4-22-08	Bridge No.:	Surface Elevation: 63.68	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 8.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		15
50	S-13	woh woh 2 4	2	24			Similar to S12, except silt and clay layers approximately 1.0 to 2.0 in. thick each	
	S-14	woh 1 2 3	2	24			Similar to S13	10
55							END OF BORING 55 ft	5
60								0
65								-5

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 55.0 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-123	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 228+59.31/7.32R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 820537.636922	
Start Date: 4-23-08	Route No.:	Easting: 1003065.813385	
Finish Date: 4-24-08	Bridge No.:	Surface Elevation: 64.82	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 12.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 9 10 10	2	16		FILL	Medium dense coarse to fine SAND and COAL CINDERS, little gravel, trace silt, no odor, dry; layers 6 in. or greater on average	
	S-2	9 10 12 11	2	18			Similar to S1	
						ALLUVIUM		
5	S-3	6 5 7 9	2	0			No recovery	60
	S-4	6 6 9 7	2	16			Stiff brown clayey SILT, little coarse to fine sand, no odor, moist; disturbed soils	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	5 4 6 6	2	24			Stiff brown clayey SILT, trace fine sand, occasional lenses of gray fine sand, no odor	55
15	S-6	5 6 7 7	2	0			No recovery (cuttings similar to S5)	50
						LACUSTRINE DEPOSITS		
20	S-7	7 9 11 11	2	24			Medium dense brown coarse to fine SAND, trace fine gravel, silt; no odor, wet; stratified Medium dense brown coarse to fine SAND, little coarse to fine gravel, silt, no odor, wet; stratified Very stiff brown varved CLAY with clayey SILT, no odor, wet; clay and silt layers 1.0 to 2.0 in.	45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 10 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RW-123	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 228+59.31/7.32R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 820537.636922	
Start Date: 4-23-08	Route No.:	Easting: 1003065.813385	
Finish Date: 4-24-08	Bridge No.:	Surface Elevation: 64.82	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 12.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*	thick	
25	S-8	4 4 5 4	2	20			Stiff brown CLAY varved with brown clayey SILT, no odor, wet; varve couplets approximately 1.0 to 2.0 in. thick on average	40
	UP-1	p u s h	2	16			Note: Piston tube sample 28.0 to 30.0 ft	
30	S-9	3 4 4 5	2	24			Similar to S8, except medium stiff	35
	UP-2	p u s h	2	0			Note: Piston tube sample 33.0 to 35.0 ft (no recovery)	
35	UP-3	p u s h	2	24			Note: Piston tube sample 35.0 to 37.0 ft	30
	S-10	12 13 13 15	2	20			Very stiff brown stratified clayey SILT with frequent clay layers (approximately 0.25 to 2.0 in. thick, variable), no odor, wet	
40								25
							END OF BORING 40 ft	
45								20

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 10 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-124
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 226+9.92/1.44L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820327.650907
Start Date: 4-23-08	Route No.:		Easting: 1002930.99123
Finish Date: 4-23-08	Bridge No.:		Surface Elevation: 64.23
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 11.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 7 10 11	2	18		FILL	Medium dense brown to black coarse to fine SAND and COAL CINDERS, little coarse to fine gravel, trace silt, roots, no odor, dry	
	S-2	11 10 13 11	2	17			Medium dense brown coarse to fine SAND, some coal cinders, little medium to fine gravel, trace silt, no odor, dry	
						ALLUVIUM		60
5	S-3	6 7 6 6	2	0			No recovery (pushing gravel)	
	S-4	9 8 9 11	2	0			No recovery (pushing gravel) Note: Sampler basket changed. Drill cuttings suggest similar to S2, except little silt Note: Switched to NW casing at 10.0 ft	
								55
10	S-5	9 11 12 5	2	6			Medium dense brown coarse to fine SAND, some silt, some coarse to fine gravel, no odor, wet at approximately 11.0 ft	
								50
15	S-6	6 7 10 8	2	16			Similar to S5	
						LACUSTRINE DEPOSITS	Very stiff SILT, trace fine sand, no odor, dry	
								45
20	S-7	10 9 8 8	2	3			Very stiff brown CLAY varved with brown clayey SILT, trace coarse to fine sand in occasional seams, no odor, wet (poor recovery)	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RW-124
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 226+9.92/1.44L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820327.650907
Start Date: 4-23-08	Route No.:		Easting: 1002930.99123
Finish Date: 4-23-08	Bridge No.:		Surface Elevation: 64.23
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 11.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*		40
25	S-8	2 2 3 4	2	23			Medium stiff brown SILT, trace clay, fine sand, no odor, wet; stratified with occasional clay layers generally 0.5 to 1.0 in. thick	
								35
30	S-9	3 2 2 1	2	20			Similar to S8, except soft	
							Note: Attempt to push piston tube at 34.0 ft, crushed at 34.5 ft	30
35						GLACIAL TILL		
	S-10	23 22 21 40	2	24			Hard brown SILT, trace coarse to fine sand, fine gravel, no odor, wet; poorly-stratified to massive	
	S-11	27 34 59 100	2	17			Similar to S10	25
40							END OF BORING 40 ft	
								20
45								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 11 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RW-125	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 306+40.95/22.59L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827252.246246	
Start Date: 4-29-08	Route No.:	Easting: 1006998.497559	
Finish Date: 4-29-08	Bridge No.:	Surface Elevation: 53.51	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	1 2 7 6	2	9		FILL	Stiff dark brown to gray-brown clayey SILT, little coarse to fine sand, roots/organics, trace brick, slight organic odor, moist (topsoil and disturbed top of clay deposits)	
	S-2	5 8 10 15	2	14			Very stiff light brown to brown to gray-brown laminated silty CLAY, frequent partings of fine sand, no odor, dry	50
5	S-3	4 14 21 26	2	20			Hard light brown to gray-brown laminated CLAY, some silt, trace fine sand partings, with 0.25 in. thick layer of SILT and SAND, some organic fibers at approximately 6.2 ft	
	S-4	13 17 18 19	2	18			Similar to S3, except no organic-containing sand layers	
							Note: Switched to NW casing at 10.0 ft	45
10	S-5	2 3 5 5	2	24		GLACIO-LACUSTRINE DEPOSITS	Medium stiff brown to red-brown CLAY varved with brown SILT, trace fine sand, no odor, moist; varve couplets composed of clay seam-silt seam-fine sand parting sequences, 0.5 to 1.0 in. thick on average	
								40
15	S-6	2 2 2 2	2	24			Similar to S5, except soft, wet; varve couplets approximately 1.0 to 2.0 in. thick on average	
								35
20	S-7	1 1 1 1	2	24			Very soft red-brown CLAY varved with gray-brown clayey SILT, no odor, wet; varve couplets approximately 1.0 to 3.0 in. thick on average; clay dominant	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 54.4 ft Rock: - ft	NOTES:	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RW-125	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 306+40.95/22.59L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827252.246246	
Start Date: 4-29-08	Route No.:	Easting: 1006998.497559	
Finish Date: 4-29-08	Bridge No.:	Surface Elevation: 53.51	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		30
25	S-8	1 1 1 2	2	24			Similar to S7, with occasional clay layers approximately 3.0 to 4.0 in. thick on average	25
30	S-9	4 3 3 1	2	24			Similar to S8, except medium stiff	20
35	S-10	1 1 1 2	2	20			Similar to S9, except very soft Very soft red-brown to brown CLAY with frequent layers of red-brown to brown silty CLAY, no odor, wet	15
40	S-11	2 5 6 7	2	20			Stiff red-brown to brown clayey SILT with frequent interbeds of both SILT and CLAY, no odor, wet	10
45	S-12	1 2 2 1	2	22			Soft red-brown SILT, trace clay with frequent interbeds of clayey SILT, no odor, wet	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 54.4 ft Rock: - ft	NOTES:	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RW-125	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 306+40.95/22.59L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 827252.246246	
Start Date: 4-29-08	Route No.:	Easting: 1006998.497559	
Finish Date: 4-29-08	Bridge No.:	Surface Elevation: 53.51	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 14.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
						GLACIAL TILL	Note: Drill action indicates probable stratum change at approximately 49.0 ft, with 6 in. of cobbles from 49.0 to 49.5 ft	5
50	S-13	19 36 36 46	2	18			Very dense red-brown coarse to fine SAND and coarse to fine GRAVEL, some silt, occasional clayey lenses, no odor, wet	
	S-14	36 42 100/5	1.4	16			Very dense red-brown coarse to fine SAND and medium to fine GRAVEL, trace silt, no odor, wet; subrounded to rounded particles (confined aquifer)	0
55							END OF BORING 54.4 ft	-5
60								-10
65								-15

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 54.4 ft Rock: - ft	NOTES:	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-101(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 205+00/3.76L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 818577.000867
Start Date: 4-10-08	Route No.:		Easting: 1001758.479051
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 69.35
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 4.0 ft b.g.s after 20 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	6 6 7 13	2	15		FILL	Medium dense brown to light brown coarse to fine SAND, some medium to fine gravel, trace silt, with 6 in. layer of black sand and gravel-sized COAL CINDERS from approximately 1.0 to 1.5 ft., no odor, moist	
	S-2	14 14 11 14	2	18			Similar to S1	
						ALLUVIUM	Medium dense red-brown coarse to fine SAND, some clayey silt, coarse to fine gravel, no odor, dry	65
5	S-3	3 5 4 6	2	16			Medium dense red-brown to brown SILT, little clay, grading to SILT and fine SAND, no odor, wet at approximately 3.5 ft Similar to S2 (below 4.2 ft) Loose brown to red-brown fine SAND, trace silt, coarse sand, no odor, wet; poorly-stratified	
	S-4	4 8 10 12	2	16			Medium dense brown to red-brown fine SAND, little silt, trace coarse sand, fine gravel, no odor, wet	
							Note: Switch to HW casing at 10.0 ft	60
10	S-5	5 16 21 12	2	12			Medium dense red-brown to brown coarse to fine SAND and coarse to fine GRAVEL, little silt, no odor, wet	
						GLACIAL TILL	Dense red-brown coarse to fine SAND and coarse to fine GRAVEL, some clayey silt, no odor, wet; bonded in-situ	
						DECOMPOSED BEDROCK		55
15	S-6	3 5 6 9	2	8			Medium dense brown to red-brown coarse to fine SAND and coarse to fine GRAVEL, some silt, no odor, wet; shale chips and fragments	
						WEATHERED BEDROCK	Note: Auger to 20.0 ft through weathered shale bedrock	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 24.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 7 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-101(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 205+00/3.76L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 818577.000867
Start Date: 4-10-08	Route No.:		Easting: 1001758.479051
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 69.35
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 4.0 ft b.g.s after 20 days			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						WEATHERED BEDROCK *(con't)*		50
20	S-7	53 100/5	0.9	8			Weathered red-brown SHALE fragments Note: Spoon refusal at 20.9 ft with auger refusal at 21.0 ft. Rock coring attempted at 21.0, 22.0 and 23.0 ft. Core-lock by gravel sized pieces in all attempts. Between core barrel runs, clean-outs and casing re-advancements, the borehole was advanced to 24.0 ft	
							Note: Well installed in completed borehole	45
25							END OF BORING 24 ft	
								40
30								
								35
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 24.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-102
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 207+97.5/1.82R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 818811.638647
Start Date: 4-10-08	Route No.:		Easting: 1001941.595052
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 68.19
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	9 9 20 35	2	16		FILL	Medium dense dark brown to black coarse to fine SAND, some coarse to fine gravel, little silt, cinders, no odor, moist	
	S-2	30 31 23 20	2	17			Very dense brown to red-brown coarse to fine SAND and fine GRAVEL, trace coarse to medium gravel, silt, no odor, dry; with occasional lenses of red-brown sand, some silt	65
							Very dense red-brown coarse to fine SAND and coarse to fine GRAVEL, little silt, trace cinders, no odor, dry	
5	S-3	13 8 9 9	2	18			Similar to S2, except medium dense, wet	
						ALLUVIUM	Very stiff brown CLAY varved with brown clayey SILT, no odor, wet; silt and clay layers generally 1 to 2 in. thick each	
	S-4	8 11 9 11	2	14			Similar to S3 (below 6.0 ft)	60
							Note: Switch to NW casing at 10.0 ft	
10	S-5	1 1 2 3	2	8			Similar to S4, except soft	
							Note: Drill action suggests stratum change at approximately 14.0 ft	55
						DECOMPOSED BEDROCK		
15	S-6	22 32 100/3	1.3	14			Very dense brown decomposed SHALE (sand and gravel-sized chips), some silt, no odor, wet; bonded in-situ but easily friable	
							Note: Roller bit grinding to 17.0 ft through weathered rock, refusal at 17.0 ft	
							END OF BORING 17 ft	50
20								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 17.0 ft Rock: - ft	NOTES:	Sheet 1 of 1
No. of Soil Samples: 6 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-103
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 210+88.5/6.85R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819041.547063
Start Date: 4-9-08	Route No.:		Easting: 1002120.227393
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 67.54
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 6.5 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	12 14 17 21	2	6		FILL	Dense dark brown to brown coarse to fine SAND, little silt, coarse to fine gravel, no odor, dry	
	S-2	26 31 25 19	2	18			Very dense red-brown silty coarse to fine SAND, some medium to fine gravel, trace coarse gravel, no odor, dry	65
	S-3	15 18 22 21	2	17			Similar to S2, except medium dense	
5						ALLUVIUM	Dense brown to red-brown coarse SAND, little fine gravel, trace fine sand, silt, medium gravel, no odor, moist	
	S-4	13 15 15 18	2	21			Medium dense brown to red-brown coarse SAND, some fine gravel, trace fine sand, silt, medium gravel, no odor, wet	60
	S-5	15 13 16 15	2	20			Similar to S4, except little silt, gravel Note: Switch to NW casing at 10.0 ft	
10	S-6	5 5 7 13	2	24			Medium dense red-brown fine SAND, trace coarse sand, silt, no odor, wet	55
						GLACIAL TILL		
15	S-7	21 14 16 18	2	22			Medium dense red-brown silty coarse to fine SAND, little coarse to fine gravel, no odor, wet	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 21.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-103
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 210+88.5/6.85R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819041.547063
Start Date: 4-9-08	Route No.:		Easting: 1002120.227393
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 67.54
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 6.5 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIAL TILL *(con't)*	Note: Roller bit grinding at 19.0 to 20.0 ft in weathered SHALE	
						WEATHERED ROCK	Gray SHALE fragments	
20	S-8	100/4	0.3	3			Note: Roller bit refusal at 21.0 ft on shale	
							END OF BORING 21 ft	
								45
25								
								40
30								
								35
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 21.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-104
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 213+96.5/0.25R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819291.939464
Start Date: 4-9-08	Route No.:		Easting: 1002299.64856
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 66.67
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 9.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0							FILL	Brown to dark brown SAND, some silt, medium to fine gravel, trace coarse gravel, no odor, dry	
	S-1	19 19 13 12	2	18				Dense red-brown coarse to fine SAND, some silt, coarse to fine gravel, no odor, moist	65
	S-2	12 14 13 15	2	17			ALLUVIUM	Medium dense brown to red-brown SILT, trace fine gravel, coarse to fine sand, no odor, moist	
5	S-3	32 25 26 28	2	24			GLACIAL TILL	Very dense red-brown coarse to fine SAND, some fine gravel, some silty clay, little coarse to medium gravel, no odor, moist; bonded in-situ	
	S-4	23 26 29 30	2	20				Similar to S3	60
								Note: Switched to NW casing at 10.0 ft	
10	S-5	25 31 33 27	2	16				Very dense red-brown coarse to fine SAND and coarse to fine GRAVEL, some silt, no odor, wet	55
								Red-brown SHALE fragments, wet	
15	S-6	100/3	0.3	3			WEATHERED ROCK	Note: Auger refusal at 16.0 ft; began core run	
	C-1		5	46	48	1 1.5	BEDROCK	Moderately hard, moderately weathered to approximately 18.0 ft, fresh below 18.0 ft, red-brown to brown, aphanitic SHALE. Laminated horizontal to low angle bedding. Primary joints low angle, very close above	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 16.0 ft Rock: 5.0 ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 6 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-104
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 213+96.5/0.25R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819291.939464
Start Date: 4-9-08	Route No.:		Easting: 1002299.64856
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 66.67
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 9.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						1.5	BEDROCK *(con't)*	18.0 ft to close below 18.0 ft, smooth, planar to slightly undulating, discolored to fresh, open to tight. Secondary joints high angle to vertical, moderately spaced (generally), smooth, slightly undulating to stepped, discolored, open	
20						2			
						1.5			
								-PORTLAND ARKOSE FORMATION-	
								END OF BORING 21 ft	45
25									
									40
30									
									35
35									

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 16.0 ft Rock: 5.0 ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 6 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-105
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 217+36.41/5.46R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 819572.967969
Start Date: 4-9-08	Route No.:		Easting: 1002491.092011
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 66.44
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: NX
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 6.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Core Times per 12"	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	10 15 10 6	2	18			FILL	Medium dense dark brown to light brown fine GRAVEL and coarse to fine SAND, little silt, no odor, moist	65
	S-2	11 11 12 13	2	17			GLACIOFLUVIAL DEPOSITS	Medium dense red-brown coarse to fine SAND, little silt, fine gravel, trace coarse to medium gravel, no odor, moist Similar to S1 (below 1.5 ft)	
5	S-3	12 17 15 16	2	16				Medium dense red-brown coarse to fine SAND and SILT, little fine gravel, trace medium gravel, no odor, moist; bonded in-situ	
	S-4	18 21 23 25	2	21				Dense brown medium to fine GRAVEL and coarse to fine SAND, some silt, trace coarse gravel, no odor, wet Dense brown coarse to fine SAND, some silt, some medium to fine gravel, trace coarse gravel, no odor, wet	60
10	S-5	17 20 20 21	2	16			GLACIAL TILL	Note: Switched to NW casing at 10.0 ft Similar to S4; bonded in-situ	55
15	S-6	50/0	0	0				No recovery	
	C-1		5	55	65	1	BEDROCK	Note: Spoon refusal at 15.0 ft; began core run	
						1		Moderately hard, fresh, brown, aphanitic SHALE. Bedding low angle. Primary joints horizontal to low angle, very close to moderately close, smooth, planar to slightly undulating, discolored to fresh, open. Secondary joints high angle to vertical, moderately spaced (generally), smooth, stepped, discolored, open	50
						1.5			
						1.5			
						1.5			
20								END OF BORING 20 ft	45

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 15.0 ft Rock: 5.0 ft	NOTES:	Sheet 1 of 1
No. of Soil Samples: 6 No. of Core Runs: 1		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-106
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 222+64.9/0.24R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820030.098483
Start Date: 4-9-08	Route No.:		Easting: 1002756.335281
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 65.21
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 8.5 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 6 8 4	2	19		TOPSOIL / FILL	Medium dense black to dark brown to tan to red-brown coarse to fine SAND, little coarse to fine gravel, trace silt, with trace roots, ash, cinders from 0 to 1.8 ft, no odor, dry	65
	S-2	8 7 7 5	2	14			Loose black COAL particles, some medium to fine sand, no odor, dry Similar to S1 Medium dense brown to red-brown coarse to fine SAND, trace silt, fine gravel, no odor, dry (3.0 to 3.4 ft) Medium dense red-brown clayey SAND, some coarse to fine gravel, no odor, moist; gravel includes shale fragments (3.4 to 4.0 ft)	
5	S-3	2 5 5 5	2	15			Similar to S2 (below 3.4 ft), except loose	60
	S-4	6 5 6 6	2	15			Similar to S3, except medium dense, wet at approximately 8.5 ft	
						ALLUVIUM	Note: Switched to NW casing at 10.0 ft	
10	S-5	2 3 8 12	2	0			No recovery	55
	S-6	2 3 4 7	2	12		LACUSTRINE DEPOSITS	Medium stiff red-brown CLAY varved with brown SILT, no odor, wet; silt and clay layers generally 1.5 to 2.0 in. thick each	
15	S-7	5 10 11 13	2	24			Similar to S6, except very stiff	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 27.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 9 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-106
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 222+64.9/0.24R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820030.098483
Start Date: 4-9-08	Route No.:		Easting: 1002756.335281
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 65.21
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 8.5 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*		
20	S-8	2 3 3 5	2	20			Medium stiff red-brown to brown clayey SILT with frequent clay seams, no odor, wet	45
25	S-9	5 8 13 12	2	20			Similar to S7, except very stiff at approximately 26.0 ft	40
							END OF BORING 27 ft	
30								35
35								30

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 27.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 9 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-107(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 227+62.28/5.5R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820455.127304
Start Date: 4-9-08	Route No.:		Easting: 1003014.727403
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 64.81
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.2 ft b.g.s after 22 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	3 5 9 9	2	10		TOPSOIL FILL	Medium dense brown coarse to fine SAND and coarse to medium GRAVEL, trace silt, no odor, dry	
	S-2	5 8 8 10	2	10			Similar to S1, with 2 in. layer of black cinders at top of sample	
5	S-3	3 5 6 7	2	10		ALLUVIUM	Medium dense brown coarse to fine SAND, some fine gravel, silt, trace coarse to medium gravel, brick, asphalt, no odor, moist	60
	S-4	6 5 5 5	2	12			Loose brown coarse to fine SAND, some silt, little medium to fine gravel	
							Note: Switch to HW casing at 10.0 ft	
10	S-5	2 3 3 2	2	9			Loose brown coarse to fine SAND and SILT, some medium to fine gravel, trace coarse gravel, clay, no odor, wet	55
15	S-6	2 2 3 5	2	16			Loose brown fine SAND and SILT, little coarse sand, fine gravel, trace clay, no odor, wet; no structure Loose dark brown fine SAND, some silt, little coarse sand, no odor, wet Loose brown to red-brown coarse to fine SAND, little silt, trace fine gravel, no odor, wet	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-107(OW)
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 227+62.28/5.5R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820455.127304
Start Date: 4-9-08	Route No.:		Easting: 1003014.727403
Finish Date: 4-10-08	Bridge No.:		Surface Elevation: 64.81
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.2 ft b.g.s after 22 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS		
20	S-7	5 11 8 7	2	17			Very stiff brown laminated SILT, frequent clay seams, no odor, wet	45
	S-8	4 6 7 6	2	18			Stiff brown laminated clayey SILT with frequent clay seams, no odor, wet; clay seams are generally 1/8 to 1/4 in. thick, but occasionally 1+in. thick Note: Well installed in completed borehole	
25								40
							END OF BORING 25 ft	
30								35
35								30

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-108
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 233+59.94/14.5R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 820964.453206
Start Date: 4-9-08	Route No.:		Easting: 1003327.565065
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 66.94
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 9.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	9 8 11 15	2	12		FILL	Medium dense brown to dark brown medium to fine SAND, little coarse to fine gravel, coarse sand, silt, trace coal, cinders, no odor, dry; coal and cinders in 2 in. layer at approximately 1.0 ft	
	S-2	15 16 28 24	2	16			Similar to S1, except dense, no coal or cinders Very dense red-brown silty coarse to fine SAND, little fine gravel, trace coarse gravel, cobbles, no odor, dry; occasional shale cobbles	65
5	S-3	6 10 13 14	2	20		ALLUVIAL DEPOSITS	Medium dense red-brown SILT, trace clay, no odor, moist; massive structure	
	S-4	11 15 16 17	2	20			Similar to 3, except dense	60
							Note: Switched to NW casing at 10.0 ft	
10	S-5	5 11 15 15	2	21			Very stiff red-brown silty CLAY, trace sand to fine gravel-sized particles, no odor, wet	
						LACUSTRINE DEPOSITS		55
15	S-6	8 13 14 14	2	24			Very stiff red-brown CLAY, varved with brown SILT, no odor, wet	
								50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-108	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 233+59.94/14.5R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 820964.453206	
Start Date: 4-9-08	Route No.:	Easting: 1003327.565065	
Finish Date: 4-9-08	Bridge No.:	Surface Elevation: 66.94	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 9.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*		
20	S-7	5 5 5 6	2	24			Similar to S6, except stiff	
								45
	S-8	2 3 2 3	2	24			Similar to S7, except medium stiff	
25							END OF BORING 25 ft	
								40
30								
								35
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-109
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 236+20.76/10.28R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 821189.905343
Start Date: 4-9-08	Route No.:		Easting: 1003458.719663
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 67.89
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						FILL	Brown to gray-brown medium to fine GRAVEL and coarse to fine SAND, little coarse sand, trace silt, no odor, dry	
	S-1	9 7 14 3	2	6			Medium dense black to light brown coarse to fine SAND, some coarse to fine gravel, little silt, trace cinders, no odor, dry	
	S-2	20 9 13 14	2	16			Similar to S1, except slight creosote odor	65
						ALLUVIUM	Medium dense brown fine SAND and SILT, with frequent seams of red-brown clay; no odor, dry	
5	S-3	10 12 14 17	2	20			Similar to S2 (below 3.5 ft), except without clay seams, with trace fine gravel and coarse sand particles	
	S-4	10 14 16 20	2	16			Similar to S3	60
							Note: Switched to NW casing at 10.0 ft	
10	S-5	4 7 12 14	2	22			Very stiff brown clayey SILT, no odor, wet; laminated	
								55
						LACUSTRINE DEPOSITS		
15	S-6	5 6 8 13	2	24			Stiff brown CLAY,varved with brown SILT, no odor, wet; varve couplets generally 1 to 2 in. thick	
								50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-109
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 236+20.76/10.28R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 821189.905343
Start Date: 4-9-08	Route No.:		Easting: 1003458.719663
Finish Date: 4-9-08	Bridge No.:		Surface Elevation: 67.89
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 10.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						LACUSTRINE DEPOSITS *(con't)*		
20	S-7	6 6 6 9	2	22			Similar to S6, except silt and clay layers are generally 1 to 2 in. thick each	
	S-8	2 3 4 3	2	24			Similar to S7, except medium stiff	45
25							END OF BORING 25 ft	
								40
30								
								35
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-110
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 247+87.61/12.43R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822197.332752
Start Date: 4-14-08	Route No.:		Easting: 1004045.706434
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 69.37
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 9 11 12	2	19		RAILROAD BALLAST	Medium dense gray coarse to fine GRAVEL, little coarse to fine sand, trace silt, no odor, dry	
						FILL	Medium dense black to dark gray-brown coarse to fine SAND and COAL CINDERS, little medium to fine gravel, silt, no odor, dry	
	S-2	9 10 8 6	2	6			Medium dense coarse to fine SAND, some silt, trace medium to fine gravel, no odor, moist	
								65
5	S-3	1 2 4 4	2	18		ORGANIC SILT	Medium stiff dark gray-brown SILT and ORGANIC SILT, little coarse to fine sand, trace organic fibers, slight organic odor, wet	
						ALLUVIUM	Medium stiff brown CLAY, no odor, wet; trace gravel in spoon tip	
	S-4	2 3 2 3	2	23			Medium stiff brown SILT, trace fine sand, no odor, wet	
							Note: Switched to NW casing at 10.0 ft	
								60
10	S-5	6 7 4 6	2	18			Stiff brown to light brown SILT, some fine sand, no odor, wet	
						GLACIO-LACUSTRINE DEPOSITS	Stiff brown silty CLAY, no odor, wet	
								55
15	S-6	2 3 4 4	2	16			Medium stiff brown silty CLAY, no odor, wet; stratified (not truly varved)	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-110
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 247+87.61/12.43R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822197.332752
Start Date: 4-14-08	Route No.:		Easting: 1004045.706434
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 69.37
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		50
20	S-7	1 1 2 2	2	20			Similar to S6, except soft, trace fine gravel, coarse to fine sand	
	S-8	2 4 5 6	2	21			Similar to S7, except stiff	45
25							END OF BORING 25 ft	
								40
30								
								35
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-111
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 253+02.32/6.32R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822637.951858
Start Date: 4-14-08	Route No.:		Easting: 1004311.24775
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 71.56
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.5 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	9 10 12 10	2	10		RAILROAD BALLAST / FILL	Medium dense black to dark gray-brown coarse to fine SAND and COAL CINDERS, trace coarse to fine gravel, coal particles, no odor, dry	
	S-2	11 7 7 6	2	16			Medium dense brown coarse to fine SAND and fine GRAVEL, trace silt, no odor, dry Similar to S1 (below 0.8 ft)	70
						ALLUVIUM	Stiff brown SILT, some fine sand, trace clay, no odor, wet at approximately 5.5 ft	
5	S-3	3 3 4 4	2	17			Similar to S2 (below 3.0 ft), except loose, wet	
								65
	S-4	2 3 9 16	2	15			Similar to S3	
						GLACIO-LACUSTRINE DEPOSITS	Very stiff brown clayey SILT, moist; compact	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	4 8 8 9	2	18			Very stiff red-brown to brown silty CLAY, no odor, wet	
								60
15	S-6	3 4 6 8	2	18			Stiff brown stratified SILT, some fine sand, frequent clay layers, no odor, wet	
								55

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-111
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 253+02.32/6.32R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822637.951858
Start Date: 4-14-08	Route No.:		Easting: 1004311.24775
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 71.56
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.5 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	1 1 2 3	2	24			Soft brown silty CLAY, no odor, wet; with frequent layers of clayey SAND, little fine gravel approximately 0.5 to 2 in. thick; possible ice-raft deposits	50
	S-8	3 3 2 2	2	24			Similar to S7, except medium stiff; sandy layer approximately 6 in. thick from 23.3 to 23.8 ft	
25							END OF BORING 25 ft	45
30								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller:	T. McGovern	**Connecticut DOT Boring Report**		Hole No.:	RB-112
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	255+80.99/4.89R
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	822878.174052
Start Date:	4-14-08	Route No.:		Easting:	1004452.509162
Finish Date:	4-14-08	Bridge No.:		Surface Elevation:	71.19

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size (in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 5.5 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 6 8 8	2	14		RAILROAD BALLAST / FILL	Medium dense black to dark gray-brown coarse to fine SAND and COAL CINDERS, trace medium to fine gravel, silt, no odor, wet	70
	S-2	8 6 6 9	2	14		GLACIO-LACUSTRINE DEPOSITS	Similar to S1 Stiff red-brown to brown laminated SILT and CLAY, occasional fine sand partings, no odor, moist	
5	S-3	8 10 13 8	2	16			Very stiff brown to red-brown stratified clayey SILT (approximately 5.0 to 6.2 ft and 6.7 to 7 ft) and SAND, some silt (6.2 to 6.7 ft), no odor, wet	65
	S-4	7 7 8 7	2	16			Stiff brown CLAY varved with clayey SILT, no odor, wet; clay layers generally 1 to 2 in. thick, silt layers generally 4 in. +	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	1 2 3 4	2	18			Medium stiff brown SILT, trace clay, grading to SILT, trace fine sand, no odor, wet	60
15	S-6	3 2 3 3	2	20			Medium stiff brown clayey SILT, trace fine sand, no odor, wet	55

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-112
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 255+80.99/4.89R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 822878.174052
Start Date: 4-14-08	Route No.:		Easting: 1004452.509162
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 71.19
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.5 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	UP-1	p u s h	2	24		GLACIO-LACUSTRINE DEPOSITS *(con't)*	Note: Piston tube sample from 18.0 to 20.0 ft	
20	S-7	5 4 2 4	2	23			Medium stiff brown CLAY, some silt, no odor, wet; laminated silt and clay approximately 20.0 to 20.8 ft and 21.7 to 22.0 ft; single massive clay layer approximately 20.8 to 21.7 ft	50
	S-8	3 4 4 4	2	24			Similar to S7; laminated SILT and clayey SILT approximately 23 to 23.6 ft and 24.7 to 25.0 ft; massive clay layer 23.6 to 24.7 ft with occasional medium to fine gravel (dropstones), layer of medium to fine gravel and coarse sand at approximately 24.1 to 24.2 ft in massive clay layer (possible ice-raft deposits)	
25							END OF BORING 25 ft	45
30								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-113	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 259+06.24/5.11L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 823159.244749	
Start Date: 4-14-08	Route No.:	Easting: 1004616.02868	
Finish Date: 4-14-08	Bridge No.:	Surface Elevation: 72.93	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 8 9 8	2	15		RAILROAD BALLAST / FILL	Medium dense black to dark gray-brown coarse to fine SAND and COAL CINDERS, some medium to fine gravel, little silt, no odor, wet (perched)	
	S-2	11 12 14 16	2	0			Medium dense dark brown to brown coarse to fine SAND, little medium to fine gravel, trace silt, no odor, wet; dark brown stain 1.0 to 1.5 ft from above cinders	70
							Stiff brown clayey SILT, no odor, moist S2: No recovery	
5	S-3	5 8 7 7	2	12		GLACIO-LACUSTRINE DEPOSITS	Stiff red-brown CLAY, no odor, wet	
	S-4	4 7 9 9	2	0			No recovery (sampler basket changed)	65
							Note: Switched to NW casing at 10.0 ft	
10	S-5	5 6 7 7	2	17			Stiff brown SILT, trace fine sand, no odor, wet; stratified	60
15	S-6	6 6 4 4	2	19			Stiff brown stratified SILT, with frequent clay seams from less than 1/16 to 1/2 in. thick, no odor, wet	55

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-113	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 259+06.24/5.11L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 823159.244749	
Start Date: 4-14-08	Route No.:	Easting: 1004616.02868	
Finish Date: 4-14-08	Bridge No.:	Surface Elevation: 72.93	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	2 3 4 6	2	24			Medium stiff brown to red-brown silty CLAY, stratified; with 6 in. layer of red-brown silty CLAY, some coarse to fine sand, little medium to fine gravel at bottom of sample (ice-raft deposit)	
	S-8	2 3 5 5	2	24			Medium stiff brown varved SILT and CLAY, no odor, wet	50
25							END OF BORING 25 ft	
								45
30								
								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-114(OW)
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 264+99.38/2.99L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 823668.278211
Start Date: 4-15-08	Route No.:	Easting: 1004920.474446
Finish Date: 4-15-08	Bridge No.:	Surface Elevation: 73.99

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 14.9 ft b.g.s after 16 days

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 8 13 13	2	17		RAILROAD BALLAST / FILL	Medium dense black coarse to fine SAND and COAL CINDERS, little coarse to fine gravel, silt, trace coal particles, no odor, dry	
	S-2	14 14 15 31	2	12			Medium dense dark brown coarse to fine SAND, little medium to fine gravel, trace silt, no odor, dry; coal-stained Medium dense brown to light brown coarse to fine SAND, little fine gravel, trace silt; with 3 in. piece of wood (no odor, possible tie fragment)	70
5	S-3	2 4 3 4	2	12			Medium stiff dark brown silty CLAY, trace sand, wood, no odor, moist; disturbed native soil	
	S-4	4 4 8 15	2	12		GLACIO-LACUSTRINE DEPOSITS	Stiff brown to red-brown SILT, little clay, trace fine sand, no odor, moist	
							Note: Switch to HW casing at 10.0 ft	65
10	S-5	6 8 9 10	2	18			Medium dense red-brown fine SAND, some silt, no odor, wet Very stiff red-brown to brown SILT, some fine sand, no odor, wet	
								60
15	S-6	6 6 7 7	2	19			Medium dense red-brown to brown SILT and fine SAND, grading to fine SAND, some silt by approximately 16.0 ft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller:	T. McGovern	**Connecticut DOT Boring Report**		Hole No.:	RB-114(OW)
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	264+99.38/2.99L
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	823668.278211
Start Date:	4-15-08	Route No.:		Easting:	1004920.474446
Finish Date:	4-15-08	Bridge No.:		Surface Elevation:	73.99

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/4; HSA/HW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 14.9 ft b.g.s after 16 days

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
							Very stiff red-brown clayey SILT, frequent clay layers from approximately 1/16 to 1/2 in. thick, occasional layers of silt, some fine sand, no odor,wet; occasional medium to fine gravel (dropstones)	55
20	S-7	5 10 11 7	2	24				
							Medium stiff red-brown silty CLAY and coarse to fine SAND, little fine gravel, trace coarse to medium gravel from approximately 23.0 to 23.5 ft and 24.1 to 24.9 ft, red-brown to brown silty CLAY from 23.5 to 24.1 ft and 24.9 to 25.0 ft	
	S-8	3 3 3 3	2	24				50
							Note: Well installed in completed borehole	
25							END OF BORING 25 ft	
								45
30								
								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-115
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 268+05.65/3.25L
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 823931.779774
Start Date: 4-14-08	Route No.:		Easting: 1005076.442735
Finish Date: 4-14-08	Bridge No.:		Surface Elevation: 74.55
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 12.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	8 11 15 18	2	8		FILL	Medium dense black to dark brown coarse to fine SAND and COAL CINDERS, little coarse to fine gravel, trace silt, no odor, dry	
	S-2	10 6 2 2	2	4			Dense dark brown coarse to fine SAND, trace gravel, silt, no odor, moist Similar to S1 (below 1.0 ft) Medium stiff brown CLAY and coarse to fine SAND, little gravel, no odor, moist	70
5	S-3	1 2 2 2	2	10		GLACIO-LACUSTRINE DEPOSITS	Soft brown to red-brown silty CLAY, no odor, wet	
	S-4	3 2 2 3	2	16			Similar to S3 Note: Switched to NW casing at 10.0 ft	65
10	S-5	2 1 2 2	2	24			Soft brown laminated CLAY and clayey SILT, no odor, wet	60
15	S-6	8 10 10 11	2	24			Very stiff brown varved SILT and CLAY, no odor, wet	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RB-115	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 268+05.65/3.25L	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 823931.779774	
Start Date: 4-14-08	Route No.:	Easting: 1005076.442735	
Finish Date: 4-14-08	Bridge No.:	Surface Elevation: 74.55	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 12.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	4 4 5 7	2	13			Similar to S6, except stiff	55
	S-8	6 7 7 8	2	11			Similar to S7	50
25							END OF BORING 25 ft	45
30								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RB-116	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 274+00.26/3.39R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 824443.130572	
Start Date: 4-14-08	Route No.:	Easting: 1005379.884476	
Finish Date: 4-14-08	Bridge No.:	Surface Elevation: 75.69	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						RAILROAD BALLAST		
	S-1	7 5 6 5	2	14		FILL	Medium dense black to dark gray-brown coarse to fine SAND and COAL CINDERS, trace gravel, silt	75
						GLACIO-LACUSTRINE DEPOSITS	Stiff yellow-brown to red-brown clayey SILT, no odor, dry; trace mottling, appears disturbed previously	
	S-2	6 4 6 7	2	0			No recovery	
5	S-3	3 5 5 7	2	24			Stiff brown laminated CLAY and silty CLAY, no odor, wet	70
	S-4	5 6 6 7	2	16			Similar to S3	
							Stiff red-brown CLAY, varved with gray-brown SILT, no odor, wet	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	3 3 3 3	2	17			Medium stiff brown silty CLAY, with occasional fine gravel to coarse sand-sized dropstones, no odor, wet	65
15	S-6	5 5 8 7	2	19			Stiff brown CLAY, varved with SILT, no odor, wet	60

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**	Hole No.: RB-116	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 274+00.26/3.39R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 824443.130572	
Start Date: 4-14-08	Route No.:	Easting: 1005379.884476	
Finish Date: 4-14-08	Bridge No.:	Surface Elevation: 75.69	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	6 4 4 5	2	24			Similar to S6, except medium stiff	55
	S-8	7 9 9 11	2	24			Similar to S7 Medium dense brown fine SAND and SILT, occasional seams of silt and clay below approximately 24.8 ft	
25							END OF BORING 25 ft	50
30								45
35								40

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-117
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 277+00.16/6.39R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 824699.460815
Start Date: 4-15-08	Route No.:		Easting: 1005535.59854
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 76.61
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	6 6 12 15	2	18		RAILROAD BALLAST / FILL	Medium dense black coarse to fine SAND and COAL CINDERS, trace coarse to fine gravel, coal particles, silt, no odor, wet (perched)	
	S-2	8 8 10 13	2	12		GLACIO-LACUSTRINE DEPOSITS	Medium dense dark brown to brown coarse to fine SAND, little medium to fine gravel, trace silt, no odor, wet (perched)	75
							Very stiff brown to gray clayey SILT, trace fine sand, little mottling, no odor, moist; laminated	
5	S-3	2 3 4 5	2	18			Medium stiff brown to dark brown laminated SILT and CLAY, frequent fine sand seams, no odor, wet	
	S-4	3 5 4 3	2	24			Stiff brown laminated silty CLAY, no odor, wet	70
							Note: Switched to NW casing at 10.0 ft	
10	S-5	1 2 3 2	2	20			Medium stiff brown silty CLAY, no odor, wet; poorly-stratified, layers generally approximately 0.5 to 2 in. thick	65
15	S-6	3 4 4 6	2	21			Similar to S5	60

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-117	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 277+00.16/6.39R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 824699.460815	
Start Date: 4-15-08	Route No.:	Easting: 1005535.59854	
Finish Date: 4-15-08	Bridge No.:	Surface Elevation: 76.61	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	3 3 6 6	2	14			Stiff brown SILT, with occasional clay seams, no odor, wet	55
	S-8	7 6 6 7	2	24			Medium dense brown silty CLAY (top 6 in.) grading to SILT (14 in.), to fine SAND and SILT (bottom 4 in.) no odor, wet	
25							END OF BORING 25 ft	50
30								45
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller:	T. McGovern	**Connecticut DOT Boring Report**		Hole No.:	RB-118
Inspector:	S. Poff	Town:	Newington to West Hartford	Stat./Offset:	283+51.94/6.29R
Engineer:	Haley & Aldrich, Inc.	Project No.:	171-305	Northing:	825259.919406
Start Date:	4-15-08	Route No.:		Easting:	1005868.319173
Finish Date:	4-15-08	Bridge No.:		Surface Elevation:	75.75

Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000

Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.	

Groundwater Observations: @ approximately 5.0 ft b.g.s

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 5 7 18	2	14		RAILROAD BALLAST / FILL	Medium dense black to dark gray-brown coarse to fine SAND and COAL CINDERS, some medium to fine gravel, trace silt, coal particles, no odor, moist	75
	S-2	18 32 9 10	2	17			Medium dense dark gray-brown (coal stained) coarse to fine SAND, little medium to fine gravel, trace silt, no odor, moist Similar to above	
						GLACIO-LACUSTRINE DEPOSITS	Dense brown coarse to fine SAND, trace coarse to fine gravel, silt, no odor, moist Very stiff brown silty CLAY, no odor, moist	
5	S-3	2 2 4 6	2	18			Medium stiff red-brown to brown CLAY varved with brown to olive-brown SILT, no odor, wet; varve couplets generally 0.25 to 0.5 in. thick	70
	S-4	5 4 6 4	2	19			Stiff brown varved CLAY and clayey SILT, no odor, wet; varve couplets generally 0.5 to 1 in. thick	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	5 3 4 6	2	16			Similar to S4, except medium stiff	65
15	S-6	1 1 2 3	2	24			Soft red-brown brown CLAY varved with brown to gray-brown clayey SILT, no odor, wet; silt and clay layers generally 0.25 5o 0.75 in. thick each, occasionally lenses of red-brown clayey sand	60

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 7 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-118	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 283+51.94/6.29R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 825259.919406	
Start Date: 4-15-08	Route No.:	Easting: 1005868.319173	
Finish Date: 4-15-08	Bridge No.:	Surface Elevation: 75.75	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 5.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	S-7	4 5 4 5	2	20		GLACIO-LACUSTRINE DEPOSITS *(con't)*	Similar to S6, except stiff, occasional fine sand seams, silt layers generally 2 to 4 in. thick, clay layers generally 1 to 2 in. thick	
20	UP-1	p u s h	2	15			Note: Piston tube sample from 20.0 to 22.0 ft, 15 in. of recovery Note: Re-attempted tube sample at 23.0 ft	55
	UP-2	p u s h	2	24			Note: Piston tube sample from 23.0 to 25.0 ft	
25							END OF BORING 25 ft	50
30								45
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-119
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 286+50.81/7.72R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 825516.157991
Start Date: 4-15-08	Route No.:		Easting: 1006022.148979
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 74.32
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 7.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 9 14 9	2	14		RAILROAD BALLAST / FILL	Medium dense black coarse to fine SAND and COAL CINDERS, little coarse to fine gravel, trace silt, no odor, moist	
	S-2	6 5 7 7	2	15		GLACIO-LACUSTRINE DEPOSITS	Medium dense dark gray-brown to dark brown coarse to fine SAND, little medium to fine gravel, trace silt, no odor, moist Similar to above, except light brown Stiff brown to gray-brown laminated clayey SILT, trace fine sand, no odor, dry; mottled	70
5	S-3	3 5 6 9	2	24			Similar to S2 (below 2.5 ft)	
	S-4	6 6 7 6	2	14			Stiff brown to red-brown CLAY varved with olive-brown to brown clayey SILT, no odor, wet; silt and clay layers generally 1 to 3 in. thick each Note: Switched to NW casing at 10.0 ft	65
10	S-5	3 3 5 4	2	24			Similar to S4, except medium stiff	60
15	S-6	5 6 6 7	2	8			Similar to S5, except stiff	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-119
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 286+50.81/7.72R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 825516.157991
Start Date: 4-15-08	Route No.:		Easting: 1006022.148979
Finish Date: 4-15-08	Bridge No.:		Surface Elevation: 74.32
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 7.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		55
20	S-7	3 4 7 9	2	14			Similar to S6	
	S-8	3 7 9 9	2	22			Similar to S7, except very stiff	50
25							END OF BORING 25 ft	
								45
30								
								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-120
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 292+93.02/11.76R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826078.277286
Start Date: 10-18-07	Route No.:		Easting: 1006333.31516
Finish Date: 10-18-07	Bridge No.:		Surface Elevation: 73.51
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	12 15 7 7	2	15		FILL	Medium dense light brown SILT and coarse to fine SAND, little medium to fine gravel, trace wood, dry	
	S-2	7 4 8 9	2	16			Medium dense dark brown coarse to fine SAND, little fine gravel, silt, trace cinders, dry	70
	S-3	7 4 4 5	2	18			Medium stiff red-brown clayey SILT, little fine sand, wet at 5.0 ft	
5						GLACIO-LACUSTRINE DEPOSITS		
	S-4	4 3 4 5	2	20			Medium stiff red-brown CLAY varved with gray-brown SILT, wet	65
10	S-5	1 1 2 2	2	24			Soft red-brown CLAY varved with gray-brown SILT, wet	60
15	S-6	1 2 2 2	2	24			Soft red-brown CLAY varved with gray-brown SILT	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: E. DelPriore	**Connecticut DOT Boring Report**		Hole No.: RB-120
Inspector: E. Danaher	Town: Newington to West Hartford		Stat./Offset: 292+93.02/11.76R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 826078.277286
Start Date: 10-18-07	Route No.:		Easting: 1006333.31516
Finish Date: 10-18-07	Bridge No.:		Surface Elevation: 73.51
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.0 in. / HW	Sampler Type/Size: SS / 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: 300 lb. Fall: 30 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations:			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		55
20	S-7	woh woh 1 2	2	24			Very soft red-brown CLAY varved with gray-brown SILT	
	S-8	1 2 2 2	2	24			Soft red-brown CLAY varved with gray-brown SILT, trace fine sand	50
25							END OF BORING 25 ft	
								45
30								
								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-121	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 318+11.51/1.65R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 828234.937911	
Start Date: 4-16-08	Route No.:	Easting: 1007630.911584	
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 64.64	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 6.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	2 3 4 6	2	12		TOPSOIL FILL	Loose brown to black coarse to fine SAND and COAL CINDERS, little coarse to fine gravel, trace silt, coal particles, slag particles, no odor, dry	
	S-2	7 8 12 14	2	12			Medium dense brown to dark brown coarse to fine SAND, trace silt, medium to fine gravel, no odor, dry Medium dense red-brown coarse to fine SAND, some clayey silt, coarse to fine gravel, no odor, moist; bonded, compact	
5	S-3	4 4 3 3	2	24			Medium dense gray to dark gray to brown to red-brown to olive-brown SILT, some fine sand, trace clay, slight organic odor, moist; stratified, spotted Similar to S2 (below 3.0 ft), except loose, wet	60
	S-4	3 4 3 3	2	18		LACUSTRINE DEPOSITS	Medium stiff gray to olive brown to brown laminated clayey SILT, slight organic odor, wet	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	3 3 3 3	2	24		GLACIO-LACUSTRINE DEPOSITS	Medium stiff brown laminated clayey SILT, with frequent seams of gray clay and brown fine sand, no odor, moist	55
15	S-6	1 1 1 1	2	24			Very soft brown to red-brown CLAY, varved with brown to gray-brown SILT, no odor, wet; varve couplets generally 0.25 in. thick on average; occasional seams of fine sand	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-121	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 318+11.51/1.65R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 828234.937911	
Start Date: 4-16-08	Route No.:	Easting: 1007630.911584	
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 64.64	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 6.0 ft b.g.s			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	1 1 2 2	2	24			Similar to S6, varve couplets generally 0.5 to 0.75 in. thick	45
	S-8	1 1 1 2	2	24			Similar to S7	40
25							END OF BORING 25 ft	
30								35
35								30

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-122	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 321+9.09/1.02R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 828491.066841	
Start Date: 4-16-08	Route No.:	Easting: 1007782.414476	
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 65.78	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ (not observed)			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 5 5 12	2	12		FILL	Brown coarse to fine SAND and coarse to fine GRAVEL, little silt, no odor, dry	65
	S-2	12 10 5 7	2	16			Loose dark brown to black coarse to fine SAND and COAL CINDERS, little coarse to fine sand, silt, trace slag particles Medium dense brown coarse to fine SAND, little fine gravel, little silt, no odor, moist	
						GLACIO-LACUSTRINE DEPOSITS	Stiff dark gray-brown to brown stratified silty CLAY, with frequent fine sand seams, no odor, moist	
5	S-3	3 3 4 6	2	10			Medium stiff olive-brown to brown stratified silty CLAY, with frequent seams of light brown fine sand, no odor, moist	60
	S-4	5 4 5 6	2	12			Similar to S3, except stiff, with a single 4 in. thick clay layer at bottom of sample	
							Note: Switched to NW casing at 10.0 ft	
10	S-5	1 1/12 - 1	2	24			Very soft brown to red-brown CLAY, varved with brown to gray-brown SILT, occasional seams of light red-brown fine sand, no odor, wet; varve couplets generally approximately 0.5 to 0.75 in. thick	55
15	S-6	1/18 - - 1	2	24			Similar to S5	50

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**		Hole No.: RB-122
Inspector: S. Poff	Town: Newington to West Hartford		Stat./Offset: 321+9.09/1.02R
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305		Northing: 828491.066841
Start Date: 4-16-08	Route No.:		Easting: 1007782.414476
Finish Date: 4-16-08	Bridge No.:		Surface Elevation: 65.78
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.		Core Barrel Type: None
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ (not observed)			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
	S-7	1/12 - 1/12 -	2	24		GLACIO-LACUSTRINE DEPOSITS *(con't)*	Similar to S6	
20	UP-1	p u s h	2	24			Note: Piston tube sample from 20.0 to 22.0 ft	45
	S-8	2 2 3 2	2	24			Similar to S7, except medium stiff	
25							END OF BORING 25 ft	40
30								35
35								30

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-123	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 327+1.24/0.19R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 829003.335212	
Start Date: 4-16-08	Route No.:	Easting: 1008079.370665	
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 69.72	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 2.0 ft b.g.s			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	5 8 9 9	2	10		FILL	Medium dense brown to black coarse to fine SAND, some coarse to fine gravel, little silt, trace coal particles	
	S-2	5 5 4 4	2	17			Similar to S1, except loose, trace silt, wet	
5	S-3	5 8 11 12	2	12		GLACIO-LACUSTRINE DEPOSITS	Medium dense red-brown coarse to fine SAND and clayey SILT, trace fine gravel, roots, no odor, moist Very stiff gray-brown to yellow-brown laminated SILT and CLAY, trace fine sand seams, no odor, dry; mottled	65
	S-4	6 8 9 9	2	0			No recovery Note: Switched to NW casing at 10.0 ft	
10	S-5	2 3 4 6	2	12			Medium stiff gray-brown CLAY varved with brown fine SAND and SILT, no odor, wet; varve couplets generally approximately 0.25 to 0.5 in., thick	60
15	S-6	1 1 1 1	2	22			Similar to S5, except very soft, clay varved with silt, trace fine sand	55

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-123	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 327+1.24/0.19R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 829003.335212	
Start Date: 4-16-08	Route No.:	Easting: 1008079.370665	
Finish Date: 4-16-08	Bridge No.:	Surface Elevation: 69.72	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 2.0 ft b.g.s			

Depth (ft)	SAMPLES Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	1 1 1 1	2	24			Similar to S6, except with single 4 in. thick layer of gray-brown silty clay at 20.0 to 20.3 ft	50
	S-8	1/12 - 1 2	2	24			Similar to S7	
25								45
							END OF BORING 25 ft	
30								40
35								35

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-124(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 329+99.74/0.45R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 829263.647657	
Start Date: 4-17-08	Route No.:	Easting: 1008225.445669	
Finish Date: 4-17-08	Bridge No.:	Surface Elevation: 72.44	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 2.0 ft b.g.s after 14 days			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	6 6 7 8	2	4		TOPSOIL FILL	Medium dense brown coarse to fine SAND, some coarse to fine gravel, trace silt, no odor, dry	
	S-2	22 19 17 17	2	10			Hard brown SILT, some coarse to fine sand, trace gravel, clay, no odor, dry	70
5	S-3	3 3 3 4	2	20		ORGANIC SOIL	Medium stiff gray to yellow-brown clayey SILT, trace fine sand, root fibers, no odor, moist	
	S-4	1 1 1 1	2	4			Medium stiff black ORGANIC SILTY CLAY, organic odor, wet Medium stiff dark brown PEAT (mainly leaf matter), organic odor, wet Very soft brown to dark brown ORGANIC SILT, some peat (mainly leaf matter), organic odor, wet; poor recovery Note: Switched to NW casing at 10.0 ft	65
10	S-5	1 1 1 1	2	24			Very soft dark brown to gray-brown SILT, little organic silt, fine sand, trace peat fibers, occasional pockets of gray fine sand, slight organic odor, wet	60
15	S-6	2 2 4 5	2	16		GLACIO-LACUSTRINE DEPOSITS	Medium stiff gray silty CLAY varved with gray SILT and light brown fine SAND, no odor, wet; varves composed of gray clay seam-gray silt seam-light brown fine sand seam sequences; varve sequences generally approximately 0.5 to 1.0 in. thick	55

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 1 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

Driller: T. McGovern	**Connecticut DOT Boring Report**	Hole No.: RB-124(OW)	
Inspector: S. Poff	Town: Newington to West Hartford	Stat./Offset: 329+99.74/0.45R	
Engineer: Haley & Aldrich, Inc.	Project No.: 171-305	Northing: 829263.647657	
Start Date: 4-17-08	Route No.:	Easting: 1008225.445669	
Finish Date: 4-17-08	Bridge No.:	Surface Elevation: 72.44	
Project Description: Connecticut DOT Busway Final Design - Haley & Aldrich Project No. 32669-000			
Casing Size(in.)/Type: 4.25/3; HSA/NW	Sampler Type/Size: SS; 1 3/8 in.	Core Barrel Type: None	
Hammer Wt.: -/300 lb Fall: -/24 in.	Hammer Wt.: 140 lb Fall: 30 in.		
Groundwater Observations: @ approximately 2.0 ft b.g.s after 14 days			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
						GLACIO-LACUSTRINE DEPOSITS *(con't)*		
20	S-7	1 2 3 3	2	24			Similar to S6	
	S-8	1 1/12 - 1	2	24			Very soft gray CLAY, varved with gray-brown clayey SILT, trace brown fine sand, no odor, wet Note: Well installed in completed borehole	50
25							END OF BORING 25 ft	45
30								40
35								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0 ft Rock: - ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 8 No. of Core Runs: -		SM-001-M REV. 1/02

APPENDIX B

Groundwater Monitoring Reports

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. TB-102(OW)

Boring No. TB-102(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/24/2008
DRILLER	T. McGovern	WATER LEVEL	31.0 ft after 7 days

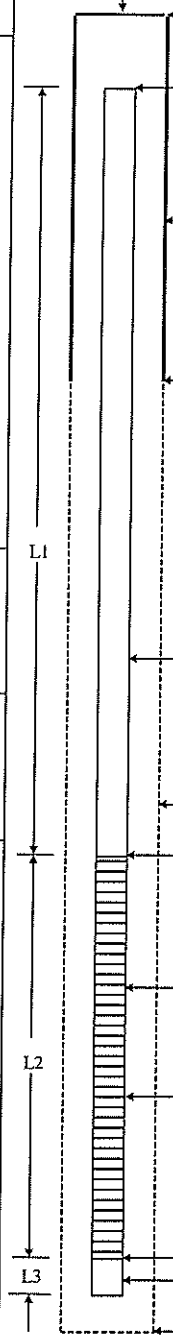
Ground El. 63.51 ft
El. Datum NGVD29

Location See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
	PIPE & CONCRETE
	1
FILL	PIPE & CUTTINGS
	25
	PIPE & SEAL
	28
	PIPE & SAND
37.5	30
GLACIOLUSTRINE DEPOSITS	SCREEN & SAND
76.5	40
GLACIAL TILL	SAND & CUTTINGS
80	80

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe
Height of top of guard pipe above ground surface	3.0 ft
Height of top of riser pipe above ground surface	2.93 ft
Type of protective casing:	Steel Guard Pipe
Length	3.5 ft
Inside Diameter	6.0 in
Depth of bottom of guard pipe	0.6 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	25.0	3.0

Type of riser pipe:	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in
Type of backfill around riser	Cuttings/Bentonite/Sand
Diameter of borehole	6.0 in
Depth to top of well screen	30.0 ft
Type of screen	Schedule 40 PVC
Screen gauge or size of openings	0.010 in
Diameter of screen	2.0 in
Type of backfill around screen	Filter Sand
Depth of bottom of well screen	40.0 ft
Bottom of Silt trap	40.3 ft
Depth of bottom of borehole	80.0 ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
TB-102(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 63.51

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
1-May-08	1320	7	30.92	32.59	PVC Stick-up = 2.39ft	SWP
25-Jun-08	1120	62	30.92	32.59		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. CB-101(OW)

Boring No. CB-101(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/11/2008
DRILLER	T. McGovern	WATER LEVEL	9.54 ft. after 21 days

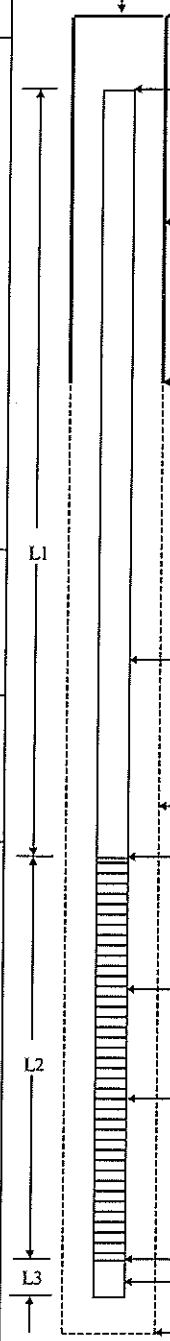
Ground El. 64.41 ft
El. Datum NGVD29

Location: See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
TOPSOIL	PIPE & CONCRETE
0.2	1
FILL	PIPE & CUTTINGS
	11
	PIPE & SEAL
13.5	13
GLACIOLACUSTRINE DEPOSITS	PIPE & SAND
	15
	SCREEN & SAND
32	
GLACIOFLUVIAL DEPOSITS	25
	SAND
40	40

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe	
Height of top of guard pipe above ground surface	2.29	ft
Height of top of riser pipe above ground surface	2.18	ft
Type of protective casing:	Steel Guard Pipe	
Length	3.5	ft
Inside Diameter	6.0	in
Depth of bottom of guard pipe	1.2	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	11.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	15.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	25.0	ft
Bottom of Silt trap	25.3	ft
Depth of bottom of borehole	40.0	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
CB-101(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 64.41

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
2-May-08	1035	21	9.54	54.87	PVC Stick-up = 2.18ft	SWP
25-Jun-08	945	75	9.86	54.55		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. NBA-102(OW)

Boring No. NBA-102(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/28/2008
DRILLER	E. DelPriore	WATER LEVEL	7.7 ft after 3 days

Ground El. 53.82 ft

El. Datum NGVD29

Location See Plan

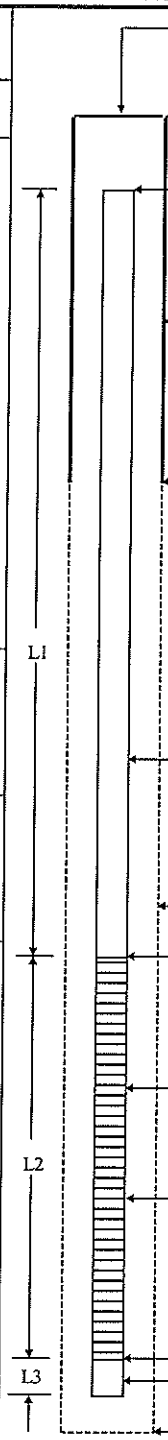
☐ Guard Pipe

☑ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
TOPSOIL	PIPE & CONCRETE
0.5	1
FILL	
3.5	
	PIPE & CUTTINGS
	11
GLACIOLACUSTRINE DEPOSITS	PIPE & SEAL
	13
	PIPE & SAND
	15
	SCREEN & SAND
44	
WEATHERED SHALE BEDROCK	
	25
	SAND
51.1	51.1

(Bottom of Exploration)

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Roadway Box	
Height of top of roadway box above ground surface	0.0	ft
Depth of top of riser pipe below ground surface	0.28	ft
Type of protective casing:	Roadway Box	
Length	0.8	ft
Inside Diameter	6.0	in
Depth of bottom of roadway box	0.8	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	11.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	15.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	25.0	ft
Bottom of Silt trap	35.0	ft
Depth of bottom of borehole	51.1	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
NBA-102(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 53.82

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
1-May-08	1350	3	7.68	46.14	PVC Stick-down = 0.28ft	SWP
25-Jun-08	1100	58	8.64	45.18		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. RW-106(OW)

Boring No. RW-106(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/24/2008
DRILLER	E. DelPriore	WATER LEVEL	0.3 ft after 8 days

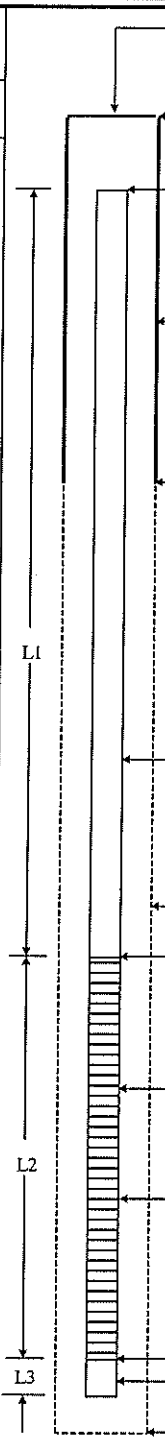
Ground El. 69.95 ft
El. Datum NGVD29

Location See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
RAILROAD BALLAST	PIPE & CONCRETE
0.2	1
FILL	
3	
ALLUVIAL DEPOSITS	PIPE & CUTTINGS
10	
	13
GLACIOLACUSTRINE DEPOSITS	PIPE & SEAL
	15
	PIPE & SAND
	17
22.5	
GLACIAL TILL	SCREEN & SAND
35.5	27
DECOMPOSED BEDROCK	SAND
40.8	40.8

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe	
Height of top of guard pipe above ground surface	2.97	ft
Height of top of riser pipe above ground surface	2.63	ft
Type of protective casing:	Steel Guard Pipe	
Length	3.5	ft
Inside Diameter	6.0	in
Depth of bottom of guard pipe	0.9	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	13.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	17.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	27.0	ft
Bottom of Silt trap	27.3	ft
Depth of bottom of borehole	40.8	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
RW-106(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 69.95

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
2-May-08	1010	7	0.30	69.65	PVC Stick-up = 2.63ft	SWP
25-Jun-08	1015	61	2.25	67.70		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. RW-117(OW)

Boring No. RW-117(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/18/2008
DRILLER	E. DelPriore	WATER LEVEL	14.2 ft after 13 days

Ground El. 66.76 ft

El. Datum NGVD29

Location See Plan

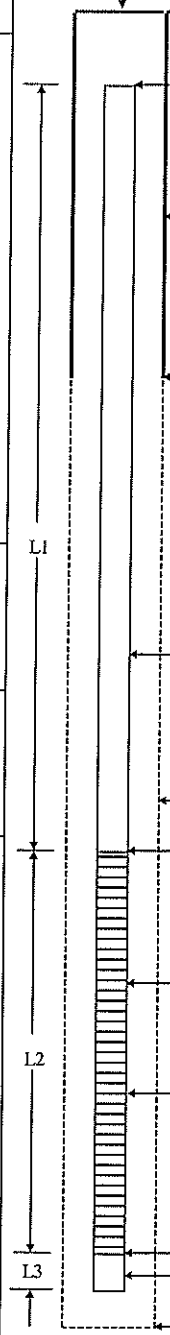
☑ Guard Pipe

☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
RAILROAD BALLAST	PIPE & CONCRETE
0.2	1
FILL	
2.5	
	PIPE & CUTTINGS
	11
	PIPE & SEAL
GLACIOLACUSTRINE DEPOSITS	13
	PIPE & SAND
	15
	SCREEN & SAND
	25
	SAND & CUTTINGS
55	55

(Bottom of Exploration)

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe	
Height of top of guard pipe above ground surface	2.60	ft
Height of top of riser pipe above ground surface	2.38	ft
Type of protective casing:	Steel Guard Pipe	
Length	3.5	ft
Inside Diameter	6.0	in
Depth of bottom of guard pipe	1.1	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	11.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	15.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	25.0	ft
Bottom of Silt trap	25.3	ft
Depth of bottom of borehole	55.0	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
RW-117(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 66.76

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
1-May-08	1145	13	14.25	52.51	PVC Stick-up = 2.38ft	SWP
25-Jun-08	1330	68	14.70	52.06		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. RB-101(OW)

Boring No. RB-101(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/11/2008
DRILLER	T. McGovern	WATER LEVEL	4.0 ft after 20 days

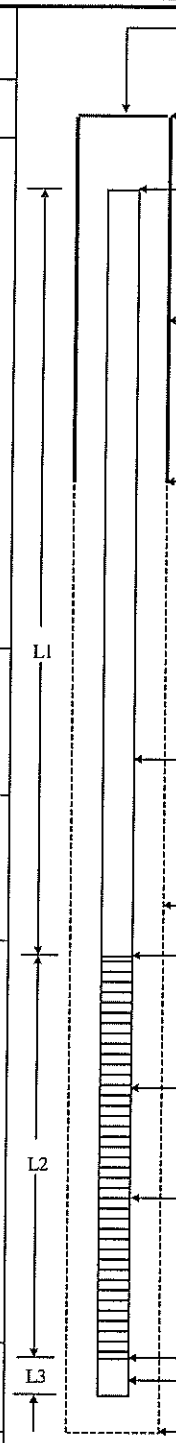
Ground El. 69.35 ft
El. Datum NGVD29

Location See Plan

☐ Guard Pipe
☑ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
	PIPE & CONCRETE
	1
FILL	
	PIPE & CUTTINGS
4.2	
GLACIAL TILL	
	9
11	
	PIPE & SEAL
	11
	PIPE & SAND
	13.5
SHALE BEDROCK	SCREEN & SAND
	23.5
	SAND
24	24

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Roadway Box
Height of top of roadway box above ground surface	0.0 ft
Depth of top of riser pipe below ground surface	0.27 ft
Type of protective casing:	Roadway Box
Length	0.8 ft
Inside Diameter	6.0 in
Depth of bottom of roadway box	0.8 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	9.0	2.0

Type of riser pipe:	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in
Type of backfill around riser	Cuttings/Bentonite/Sand
Diameter of borehole	6.0 in
Depth to top of well screen	13.5 ft
Type of screen	Schedule 40 PVC
Screen gauge or size of openings	0.010 in
Diameter of screen	2.0 in
Type of backfill around screen	Filter Sand
Depth of bottom of well screen	23.5 ft
Bottom of Silt trap	24.0 ft
Depth of bottom of borehole	24.0 ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
RB-101(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 69.35

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
2-May-08	1100	22	3.97	65.38	PVC Stick-down = 0.27ft	SWP
25-Jun-08	900	76	6.79	62.56		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. RB-107(OW)

Boring No. RB-107(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/10/2008
DRILLER	T. McGovern	WATER LEVEL	10.2 ft after 22 days

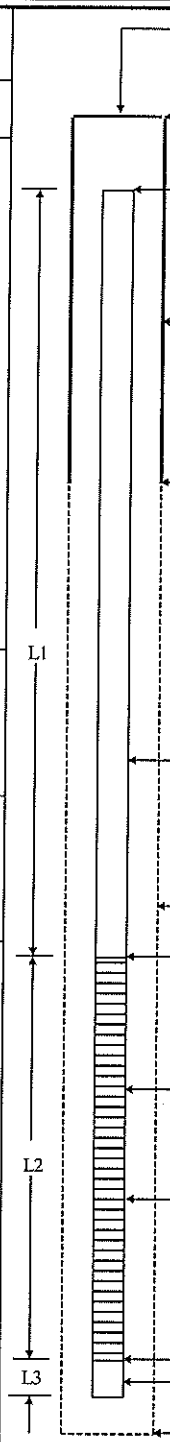
Ground El. 64.81 ft
El. Datum NGVD29

Location See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
TOPSOIL	PIPE & CONCRETE
0.2	1
FILL	PIPE & CUTTINGS
	9
	PIPE & SEAL
	11
	PIPE & SAND
	13
15	
ALLUVIAL DEPOSITS	SCREEN & SAND
18.5	
GLACIOLACUSTRINE DEPOSITS	
	23
	SAND
25	25

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe	
Height of top of guard pipe below ground surface	2.62	ft
Height of top of riser pipe above ground surface	2.34	ft
Type of protective casing:	Steel Guard Pipe	
Length	3.5	ft
Inside Diameter	6.0	in
Depth of bottom of guard pipe	1.2	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	9.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	13.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	23.0	ft
Bottom of Silt trap	23.3	ft
Depth of bottom of borehole	25.0	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
RB-107(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 64.81

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
2-May-08	1025	22	10.16	54.65	PVC Stick-up = 2.34	SWP
25-Jun-08	955	76	10.56	54.25		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. RB-114(OW)

Boring No. RB-114(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/15/2008
DRILLER	T. McGovern	WATER LEVEL	14.9 ft after 16 days

Ground El. 73.99 ft

El. Datum NGVD29

Location See Plan

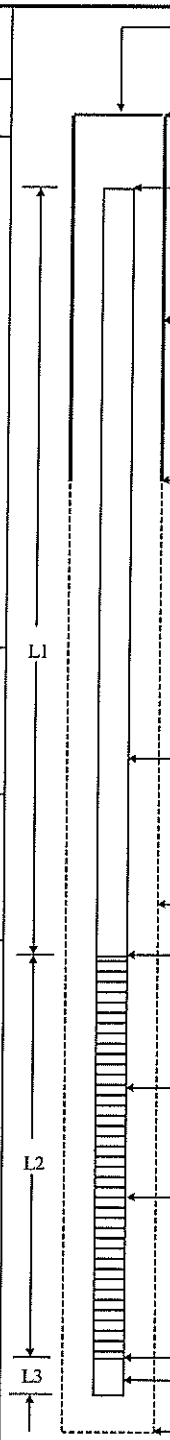
☑ Guard Pipe

☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
RAILROAD BALLAST	PIPE & CONCRETE
0.2	1
FILL	PIPE & CUTTINGS
7	9
	PIPE & SEAL
	11
	PIPE & SAND
	13
GLACIOLACUSTRINE DEPOSITS ??	SCREEN & SAND
	23
	SAND
25	25

(Bottom of Exploration)

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe	
Height of top of guard pipe above ground surface	2.61	ft
Height of top of riser pipe above ground surface	2.47	ft
Type of protective casing:	Steel Guard Pipe	
Length	3.5	ft
Inside Diameter	6.0	in
Depth of bottom of guard pipe	1.0	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	9.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	13.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	23.0	ft
Bottom of Silt trap	23.3	ft
Depth of bottom of borehole	25.0	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
RB-114(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 73.99

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
1-May-08	1430	16	14.93	59.06	PVC Stick-up = 2.47ft	SWP
25-Jun-08	1040	71	15.98	58.01		SWP

Form #3170

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. RB-124(OW)

Boring No. RB-124(OW)

PROJECT	Connecticut DOT Busway	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, Connecticut	PROJECT MGR.	J. Salsgiver
CLIENT	Ammann & Whitney, Inc.	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE INSTALLED	4/17/2008
DRILLER	T. McGovern	WATER LEVEL	2.0 ft after 14 days

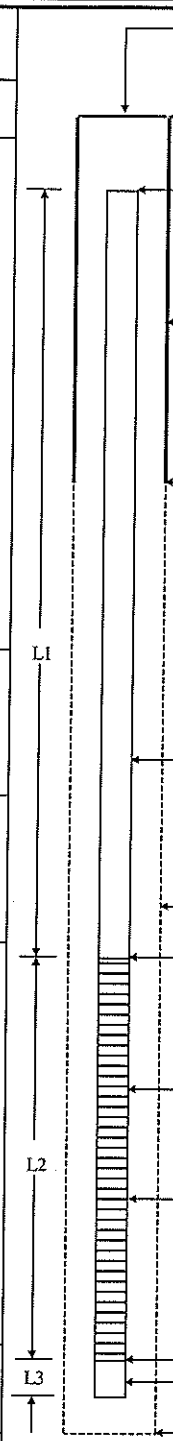
Ground El. 72.44 ft
El. Datum NGVD29

Location See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
TOPSOIL	PIPE & CONCRETE
0.2	1
FILL	PIPE & CUTTINGS
4.5	
SWAMP DEPOSITS	9
	PIPE & SEAL
	11
	PIPE & SAND
13.5	13
GLACIOLACUSTRINE DEPOSITS	SCREEN & SAND
	23
	SAND
25	25

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Guard Pipe	
Height of top of guard pipe above ground surface	2.3	ft
Height of top of riser pipe above ground surface	2.18	ft
Type of protective casing:	Steel Guard Pipe	
Length	3.5	ft
Inside Diameter	6.0	in
Depth of bottom of guard pipe	1.3	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	9.0	2.0

Type of riser pipe:	Schedule 40 PVC	
Inside diameter of riser pipe	2.0	in
Type of backfill around riser	Cuttings/Bentonite/Sand	
Diameter of borehole	6.0	in
Depth to top of well screen	13.0	ft
Type of screen	Schedule 40 PVC	
Screen gauge or size of openings	0.010	in
Diameter of screen	2.0	in
Type of backfill around screen	Filter Sand	
Depth of bottom of well screen	23.0	ft
Bottom of Silt trap	23.3	ft
Depth of bottom of borehole	25.0	ft

COMMENTS:

Form 2007: G:\32669 CT Busway\000\Databases\2008-0501-HAI-32669000 wells

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
RB-124(OW)

PROJECT	Connecticut DOT Busway Project	H&A FILE NO.	32669-000
LOCATION	Newington/West Hartford, CT	PROJECT MGR.	J. Salsgiver
CLIENT	Connecticut DOT	FIELD REP.	S. Poff
CONTRACTOR	General Borings, Inc.	DATE	See below

ELEVATION OF REFERENCE POINT 72.44

DESCRIPTION OF REFERENCE POINT ☐ PVC ☐ Roadway / Casing ☑ Ground Surface ☐ Other:

Date	Time	Elapsed Time (days)	Depth to Water from Reference Point	Elevation of Water	Remarks	Read By
1-May-08	1300	9	2.02	70.42	PVC Stick-up = 2.18ft	SWP
25-Jun-08	1210	63	3.34	69.10		SWP

Form #3170

APPENDIX C

Previous Test Boring Logs

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-40**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821238.3
Start Date: 7/7/03	Route No.:	Easting: 1003474.5
Finish Date: 7/8/03	Bridge No.:	Surface Elevation: 68.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/3" &	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 13.0 after: 0 hours, @5.9 after: 24 hours, @4.7 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					68
1–2	S-1	6 6 6	1.5	0.8			WELL GRADED SAND (SW) - reddish brown fine to coarse sand, trace silt; moist, medium dense, NP; (FILL).	67
2–3						2.7'	ELEV. 65.7	66
3–4	A-N		1.5				SILT (ML) - reddish brown silt; moist, medium stiff, -PL; (TERRACE ALLUVIUM).	65
4–5						4.5'	ELEV. 63.9	64
5–6	S-2	8 10 10	1.5	0.25			CLAYEY SAND WITH GRAVEL (SC) - reddish brown fine to coarse sand, some clay, little coarse gravel; moist, medium dense, NP; (TERRACE ALLUVIUM).	63
6–7	A-N		1.5					62
7–8						7.5'	ELEV. 60.9	61
8–9	S-3	10 14 12	1.5	0.9			SILT (ML) - reddish brown silt; moist, very stiff, -PL; (GLACIAL LAKE DEPOSIT).	60
9–10	A-N		1.5					59
10–11	S-4	22 28 15	1.5	0.5			GRAVELLY SILT (ML) - reddish brown silt, some fine to coarse gravel; moist, hard, -PL to +PL; (GLACIAL LAKE DEPOSIT).	58
11–12								57
12–13	W-N		1.5					56
13–14	S-5	10 11 11	1.5	0.4			GRAVELLY SILT (ML) - reddish brown silt, some fine to coarse gravel; moist, very stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	55
14–15								54
15–16	W-N		1.5					53
16–17	S-6	8 9 14	1.5	1.0			SILT (ML) - reddish brown silt; moist, very stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	52
17–18								51
18–19	W-N		1.5					50
19–20		7					SILT (ML) - reddish brown silt; moist, stiff, -PL to +PL;	49

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 66.0' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 1 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-40**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821238.3
Start Date: 7/7/03	Route No.:	Easting: 1003474.5
Finish Date: 7/8/03	Bridge No.:	Surface Elevation: 68.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/3" &	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 13.0 after: 0 hours, @5.9 after: 24 hours, @4.7 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	7 6	1.5	1.0			(GLACIAL LAKE DEPOSIT).	48
21								
22	W-N		1.5					47
23	S-8	7 6 6	1.5	1.1			SILT (ML) - reddish brown silt; moist, stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	46
24								45
25	W-N		1.5					44
26	S-9	10 7 8	1.5	1.0			SILT (ML) - reddish brown silt; moist, stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	43
27								42
28	W-N		1.5					41
29	S-10	4 4 4	1.5	1.5			SILT WITH CLAY (ML) - reddish brown silt, little clay; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	40
30								39
31	UP-1		2.0	0.0			NO RECOVERY IN UP-1	38
32								37
33	W-N		3.0					36
34								35
35								34
36	S-11	4 5 5	1.5	1.5			SILT WITH CLAY (ML) - reddish brown silt, little clay; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	33
37								32
38	W-N		3.5					31
39								30
								29

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 66.0' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 2 of 4

SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-40
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821238.3
Start Date: 7/7/03	Route No.:	Easting: 1003474.5
Finish Date: 7/8/03	Bridge No.:	Surface Elevation: 68.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/3" &	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 13.0 after: 0 hours, @5.9 after: 24 hours, @4.7 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40						40.0'	ELEV. 28.4	28
41	S-12	31 40 47	1.5	0.5			SILTY GRAVEL (GM) - gray and reddish brown fine to coarse gravel, some silt; moist, very dense, NP; (TILL).	27
42								26
43	W-N		3.5			43.0'	ELEV. 25.4	25
44								24
45	S-13	5 8 12	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, very stiff, +PL.	23
46								22
47								21
48	W-N		3.5					20
49						49.0'	ELEV. 19.4	19
50	S-14	30 36 25	1.5	1.0			SILTY GRAVEL WITH SAND (GM) - reddish brown fine to coarse gravel, some silt, little fine sand; moist, very dense, NP (TILL).	18
51	W-N		0.5					17
52	C-1		0.5	0.5 100%	0.0 0%	52.0' 52.5'	ELEV. 16.4 0.5' - SANDSTONE COBBLE AT 52.0'. ELEV. 15.9	16
53								15
54								14
55	W-N		4.5					13
56								12
57	S-15	12 14 17	1.5	0.5			POORLY GRADED GRAVEL WITH SAND (GP) - reddish brown medium to coarse gravel, little fine sand; moist, dense, NP (TILL).	11
58								10
59	W-N		1.5					9

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 66.0' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 3 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-40
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821238.3
Start Date: 7/7/03	Route No.:	Easting: 1003474.5
Finish Date: 7/8/03	Bridge No.:	Surface Elevation: 68.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/3" &	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 13.0 after: 0 hours, @5.9 after: 24 hours, @4.7 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60	S-16	27 42 100/0.0	1.0	0.5			POORLY GRADED GRAVEL WITH SAND (GP) - reddish brown medium to coarse gravel, little fine sand; moist, very dense, NP (TILL).	8
61								7
62								6
63	W-N		5.0					5
64								4
65								3
66				5.0	0.0	66.0'	ELEV. 2.4	
67							SHALE; reddish brown, medium hard, highly weathered.	2
68	C-2		5.0					1
69								0
70				100%	0%	70.0'	ELEV. -1.6	-1
71				5.0	0.0		SANDSTONE, fine to medium grained; reddish brown and tan, medium hard to hard, highly weathered.	-2
72								-3
73	C-3		5.0					-4
74								-5
75								-6
76				100%	0%		ELEV. -7.6	-7
77							End of Boring at 76.0'	-8
78								-9
79								-10
								-11

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 66.0' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 4 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-41**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821555.9
Start Date: 8-14-03	Route No.:	Easting: 1003632.9
Finish Date: 8-19-03	Bridge No.:	Surface Elevation: 70.0
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 20.0 after: 0 hours, @	after: 24 hours, @	after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					69
1–2	S-1	4 4 6	1.5	1.5			CLAYEY SILT (CL/ML) - reddish brown silt and clay, little fine to medium sand; moist, stiff, -PL; (FILL).	68
2–3	A-N		1.5					67
3–4	S-2	5 6 9	1.5	1.5			CLAYEY SILT (CL/ML) - reddish brown silt and clay, little fine to coarse sand; moist, stiff, -PL; (FILL).	66
4–5	W-N		1.5					65
5–6	S-3	6 9 11	1.5	0		7.5'	ELEV. 62.5 NO RECOVERY ON S-3.	64
6–7	W-N		1.5					63
7–8	S-4	10 11 13	1.5	0.5			CLAYEY SILT (CL/ML) - reddish brown silt and clay, little fine to medium sand, trace gravel; moist, very stiff, -PL; (GLACIAL LAKE DEPOSIT).	62
8–9	W-N		1.5					61
9–10	S-5	11 16 23	1.5	1.5			CLAYEY SILT (CL/ML) - reddish brown silt and clay, little fine to medium sand, trace gravel; moist, hard, -PL; (GLACIAL LAKE DEPOSIT).	60
10–11	W-N		1.5					59
11–12	S-6	4 4 4	1.5	0.8			CLAYEY SILT (CL/ML) - reddish brown silt and clay, little fine to medium sand, trace gravel; moist, stiff, -PL; (GLACIAL LAKE DEPOSIT).	58
12–13	W-N		1.5					57
13–14		2				19.5'	ELEV. 50.5	56
14–15								55
15–16								54
16–17								53
17–18								52
18–19								51

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 Rock: 15.0' No. of Samples: 11	NOTES:	Sheet 1 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-41**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821555.9
Start Date: 8-14-03	Route No.:	Easting: 1003632.9
Finish Date: 8-19-03	Bridge No.:	Surface Elevation: 70.0
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 20.0 after: 0 hours, @ after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	4 5	1.5	0.6			WELL GRADED GRAVEL WITH SILT (GW-GM) - reddish brown fine to coarse gravel, some silt; moist, loose, NP; (TILL).	50
21								49
22	W-N		1.5					48
23	S-8	100/0.5	0.5	0.4			WELL GRADED GRAVEL WITH SILT (GW-GM) - reddish brown fine to coarse gravel, some silt; moist, very dense, NP; (TILL).	47
24	W-N		2.5					46
25								45
26	S-9	25 25 32	1.5	0.2			WELL GRADED GRAVEL WITH SILT (GW-GM) - reddish brown fine to coarse gravel, some silt; moist, very dense, NP; (TILL).	44
27								43
28	W-N		1.5					42
29	S-10	100/0.2	0.2	0.2			WELL GRADED GRAVEL WITH SILT (GW-GM) - reddish brown fine to coarse gravel, some silt; moist, very dense, NP; (TILL).	41
30								40
31	W-N		5.3					39
32								38
33								37
34				1.0	0.0	34.0'	ELEV. 36.0 CORED THROUGH ONE 1.0' BOULDER AND MANY SMALLER COBBLES.	36
35								35
36								34
37	C-1		6.0					33
38								32
39								31

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 Rock: 15.0' No. of Samples: 11	NOTES:	Sheet 2 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-41
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821555.9
Start Date: 8-14-03	Route No.:	Easting: 1003632.9
Finish Date: 8-19-03	Bridge No.:	Surface Elevation: 70.0
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 20.0 after: 0 hours, @ after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40				17%	0%		MORE COBBLES AND BOULDERS	30
41				0	0.0			29
42	C-2		5.0					28
43								27
44								26
45				0%	0%			25
	S-11	100/0.2	0.2	0			NO RECOVERY	
46								24
47								23
48	W-N		4.8					22
49								21
50						50.0'	ELEV. 20.0	20
51				3.9	0.0		SILTSTONE; reddish brown, soft to medium hard, moderately weathered.	19
52	C-3		5.0					18
53								17
54								16
55				78%	0%			15
56				0.6	0.0		SILTSTONE; reddish brown, soft to medium hard, highly weathered.	14
57	C-4		5.0					13
58								12
59								11

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 Rock: 15.0' No. of Samples: 11	NOTES:	Sheet 3 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-41**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821555.9
Start Date: 8-14-03	Route No.:	Easting: 1003632.9
Finish Date: 8-19-03	Bridge No.:	Surface Elevation: 70.0
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 20.0 after: 0 hours, @	after: 24 hours, @	after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60				12%	0%		SILTSTONE; reddish brown, soft to medium hard, moderately weathered, calcite inclusions present.	10
61				3.2	0.0			9
62								8
63	C-5		5.0					7
64								6
65				64%	0%		ELEV. 5.0	5
							END OF BORING AT 65.0 FEET.	
66								4
67								3
68								2
69								1
70								0
71								-1
72								-2
73								-3
74								-4
75								-5
76								-6
77								-7
78								-8
79								-9

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 50.0 Rock: 15.0' No. of Samples: 11	NOTES:	Sheet 4 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-42**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821729.8
Start Date: 8-13-03	Route No.:	Easting: 1003726.0
Finish Date: 8-14-03	Bridge No.:	Surface Elevation: 74.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 7.0 after: 0 hours, @7.2 after: 24 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					74–73
2–3	S-1	6 4 9	1.5	1.3			SANDY SILT (ML) - reddish brown silt, some fine to coarse sand; moist, medium dense, NP; (FILL).	72–71
4	A-N		1.5					70
5–6	S-2	3 4 3	1.5	0.8			SANDY SILT (ML) - reddish brown silt, some fine to coarse sand, little clay; moist, loose, NP; (FILL).	69–68
7	W-N		1.5					67
8	S-3	6 9 12	1.5	1.0		7.5'	ELEV. 66.6 CLAYEY SILT (ML/CL) - reddish brown silt and clay; moist, very stiff, PL; (GLACIAL LAKE DEPOSIT).	66
9–10	W-N		1.5					65–64
11	S-4	11 11 13	1.5	1.3		10.5'	ELEV. 63.6 SILT (ML) - reddish brown silt; moist, very stiff, -PL; (GLACIAL LAKE DEPOSIT).	63
12–13	W-N		1.5					62–61
14	S-5	10 12 13	1.5	1.3			SILT (ML) - reddish brown silt; moist, very stiff, -PL; (GLACIAL LAKE DEPOSIT).	60
15–16	W-N		1.5					59–58
17	S-6	37 23 17	1.5	1.0		17.0'	WEATHERED COBBLE AT 16.5'. ELEV. 57.1	57
18–19	W-N		1.5				SANDY SILT WITH GRAVEL (ML) - reddish brown silt, some fine to coarse sand, some medium to coarse gravel, trace cobbles; moist, dense, NP; (TILL).	56–55
		17				19.5'	ELEV. 54.6	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 35.0' Rock: 10.0' No. of Samples: 10	NOTES:	Sheet 1 of 3 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-42**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821729.8
Start Date: 8-13-03	Route No.:	Easting: 1003726.0
Finish Date: 8-14-03	Bridge No.:	Surface Elevation: 74.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 7.0 after: 0 hours, @7.2 after: 24 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	22 20	1.5	0.8			WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM) - reddish brown to black fine to coarse gravel, some fine to coarse sand, some silt; wet, dense, NP; (TILL).	54
21								53
22	W-N		1.5					52
23	S-8	100/0	0.0	0				51
24	W-N		3.0					50
25								49
26	S-9	39 100/0.2	0.7	0.6			WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM) - reddish brown to black fine to coarse gravel, some fine to coarse sand, some silt; wet, very dense, NP; (TILL).	48
27	W-N		2.3					47
28								46
29	S-10	100/0.3	0.3	0.2			WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM) - reddish brown to black fine to coarse gravel, some fine to coarse sand, some silt; wet, very dense, NP; (TILL).	45
30								44
31								43
32	W-N		6.2					42
33								41
34								40
35				4.8	0.0	35.0'	ELEV. 39.1	39
36							SILTSTONE; reddish brown, soft, highly weathered, highly fractured horizontal, highly fractured vertical, calcite inclusions present.	38
37	C-1		5.0					37
38								36
39								35

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 35.0' Rock: 10.0' No. of Samples: 10	NOTES:	Sheet 2 of 3

SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-42**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821729.8
Start Date: 8-13-03	Route No.:	Easting: 1003726.0
Finish Date: 8-14-03	Bridge No.:	Surface Elevation: 74.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 7.0 after: 0 hours, @7.2 after: 24 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40				96%	0%		SILTSTONE; reddish brown, soft, highly weathered, highly fractured horizontal, highly fractured vertical, calcite inclusions present.	34
41				4.8	1.2			33
42	C-2		5.0					32
43								31
44								30
45				96%	24%		ELEV. 29.1	29
46							END OF BORING AT 45.0 FEET.	28
47								27
48								26
49								25
50								24
51								23
52								22
53								21
54								20
55								19
56								18
57								17
58								16
59								15

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 35.0' Rock: 10.0' No. of Samples: 10	NOTES:	Sheet 3 of 3 SM-001-M REV. 1/02

Driller: Mike St.John/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-43
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821803.3
Start Date: 7-7-03	Route No.:	Easting: 1003830.1
Finish Date: 7-7-03	Bridge No.:	Surface Elevation: 69.3
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 4.0' after: 0 hours, @1.0 after: 24 hours, @1.3 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					69
2	S-1	9 10 9	1.5	1.1			GRAVELLY SILTY SAND (SM) - reddish brown fine to coarse sand, some silt, little fine to medium gravel; moist, medium dense, NP; (FILL).	68, 67
3–4	A-N		1.5					66
4.5'							ELEV. 64.8	65
5	S-2	4 5 5	1.5	1.3			SILT (ML) - reddish brown silt; moist, stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	64
6–7	A-N		1.5					63
8	S-3	9 10 12	1.5	1.5			SILT (ML) - reddish brown silt; moist, very stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	62, 61
9	A-N		1.0					60
10–11	S-4	10 9 11	1.5	1.2			SILT (ML) - reddish brown silt; moist, very stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	59
12							COBBLE AT 12.0'	58
12–13	W-N		2.0				Encountered water at 12.5'	57
13.5'							ELEV. 55.8	56
14	S-5	30 35 42	1.5	1.3			GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, little coarse sand; moist, very dense, NP; (TILL).	55
15–16	W-N		1.5					54
17	S-6	21 25 60	1.5	0.8			GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, little coarse sand; moist, very dense, NP; (TILL).	53, 52
18–19	W-N		1.5					51
19.5'							ELEV. 49.8	50
		14						

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0' Rock: 10.0' No. of Samples: 8	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Mike St.John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-43**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 821803.3
Start Date: 7-7-03	Route No.:	Easting: 1003830.1
Finish Date: 7-7-03	Bridge No.:	Surface Elevation: 69.3
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 4.0' after: 0 hours, @1.0 after: 24 hours, @1.3 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	10	1.1	0.7			SILTY GRAVEL (GM) - reddish brown and gray fine to coarse gravel, some silt; moist, very dense, NP; (TILL).	49
		100/0.1						
21	W-N		2.4					48
22								
	S-8	120/0.2	0.2	0.1		22.5'	ELEV. 46.8	47
23							POORLY GRADED GRAVEL (GP) - gray fine to coarse gravel; dry, very dense, NP.	
24	W-N		2.3					46
								45
25				4.1	2.2	25.0'	ELEV. 44.3	44
26							SILTSTONE; reddish brown and gray, medium hard to hard, weathered.	
27	C-1		5.0					43
28								42
29								41
				82%	44%			40
30				4.6	2.1		SILTSTONE; reddish brown and gray, medium hard to hard, weathered.	39
31								38
32	C-2		5.0					37
33								36
34								35
				92%	42%			
35							ELEV. 34.3	34
36							END OF BORING AT 35.0'	33
37								32
38								31
39								30

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 25.0' Rock: 10.0' No. of Samples: 8	NOTES:	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-44**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826258.8
Start Date: 8/18/03	Route No.:	Easting: 1006454.8
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 70.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 8.0 after: 0 hours, @ after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					70–69
1–2	S-1	4 5 5	1.5	1.0			SILTY SAND WITH GRAVEL (SM) - black to brown and reddish brown fine to coarse sand, some silt, little fine gravel; moist, medium dense, NP; (FILL).	68
2–3	A-N		1.5					67
3–4								66
4.5'							Encountered water at 4.5' — ELEV. 65.6	
4–5	S-2	1 1 1	1.5	1.2			SILT (ML) - gray to brown silt, trace fine sand, trace clay; wet to moist, soft, +PL.	65
5–6	W-N		1.5					64
6–7								63
7.5'							ELEV. 62.6	
7–8	S-3	5 7 8	1.5	0.5			LEAN CLAY (CL) - brown clay, little silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	62
8–9	W-N		1.0					61
9–10	S-4	4 5 7	1.5	1.5			LEAN CLAY (CL) - brown and gray clay, little silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	60
10–11								59
11–12	W-N		2.0					58
12–13								57
13–14	S-5	3 4 6	1.5	1.5			LEAN CLAY (CL) - brown and reddish brown clay, little silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	56
14–15	W-N		1.5					55
15–16								54
16–17	S-6	1 1 2	1.5	1.3			LEAN CLAY (CL) - reddish brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	53
17–18	W-N		1.5					52
18–19								51
19–		4					LEAN CLAY (CL) - gray and reddish brown clay, little	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 1 of 4 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-44**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826258.8
Start Date: 8/18/03	Route No.:	Easting: 1006454.8
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 70.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 8.0 after: 0 hours, @	after: 24 hours, @	after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	5 4	1.5	0.7			silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	50
21								49
22	W-N		1.5					48
23	S-8	6 6 4	1.5	0.4			LEAN CLAY (CL) - reddish brown clay, little silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	47
24	W-N		1.0					46
25	S-9	1 2 1	1.5	1.5			LEAN CLAY (CL) - reddish brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	45
26								44
27	W-N		2.0					43
28								42
29	S-10	1 2 1	1.5	0.5			LEAN CLAY (CL) - reddish brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	41
30								40
31	UP-1		2.0	1.2				39
32								38
33	W-N		3.0					37
34								36
35	S-11	1 1 1	1.5	1.5			LEAN CLAY (CL) - reddish brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	35
36								34
37	W-N		3.5					33
38								32
39								31

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 2 of 4 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-44**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826258.8
Start Date: 8/18/03	Route No.:	Easting: 1006454.8
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 70.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 8.0 after: 0 hours, @ after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40, 41	S-12	2, 4, 4	1.5	1.5		40.0'	ELEV. 30.1 SILT (ML) - reddish brown silt, little clay; moist, stiff, +PL.	30, 29
42, 43, 44	W-N		3.5					28, 27, 26
45, 46	S-13	6, 6, 12	1.5	1.1			SILT WITH SAND (ML) - reddish brown silt, little fine sand; wet, very stiff, +PL.	25, 24
47, 48, 49	W-N		3.5					23, 22, 21
50, 51	S-14	33, 20, 21	1.5	0.3		50.0'	ELEV. 20.1 POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) - reddish brown and black coarse gravel, little silt, little coarse sand; wet, very dense, NP; (TILL).	20, 19
52, 53, 54	W-N		3.5					18, 17, 16
55	S-15	150/0.3	0.3	0.3			POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) - reddish brown and black coarse gravel, little silt, little coarse sand; wet, very dense, NP; (TILL).	15
56	W-N		1.7					14
57				5.0	0.0	57.0'	ELEV. 13.1 SHALE; gray, soft, weathered; (COBBLE IN TILL).	13
58						57.6'	ELEV. 12.5 GRAVELLY CLAY WITH SAND (CL) - black and brown clay, some fine to coarse gravel, little fine to coarse sand; wet, hard, +PL, organics present; (TILL).	12
59	C-1		5.0			58.4'	ELEV. 11.7	11

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 3 of 4

SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-44**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826258.8
Start Date: 8/18/03	Route No.:	Easting: 1006454.8
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 70.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 8.0 after: 0 hours, @ after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60							SHALE; gray, soft, weathered, vertically fractured throughout	10
61								9
62				100%	0%			8
				5.0	2.3	62.4'	SHALE; gray, soft, weathered, vertically fractured throughout	
63							ELEV. 7.7	7
64	C-2		5.0				SILTSTONE; reddish brown, medium hard to hard, slightly weathered, calcite veins and high angle fractures throughout.	6
65								5
66								4
67				100%	46%			3
							ELEV. 3.1	
							End of Boring at 67.0'	
68								2
69								1
70								0
71								-1
72								-2
73								-3
74								-4
75								-5
76								-6
77								-7
78								-8
79								-9

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 57.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 4 of 4

SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-46**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826689.6
Start Date: 7-8-03	Route No.:	Easting: 1006731.6
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 68.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 22.0 after: 0 hours, @ after: hours, @21.8 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					68
2	S-1	4 8 11	1.5	0.6			WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM) - tan to brown fine sand, some silt, some angular medium gravel; dry, medium dense, NP; (FILL).	67
3–4	A-N		1.5					66
5	S-2	2 2 2	1.5	0.3			WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM) - tan to brown fine sand, some silt, some angular medium gravel; moist, loose, NP; (FILL).	65
6–7	W-N		1.5					64
8	S-3	13 14 11	1.5	0.4			WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM) - tan to brown fine sand, some silt, some angular medium gravel; dry, medium dense, NP; (FILL).	63
9	W-N		1.0					62
10–11	S-4	15 11 8	1.5	0.0			NO RECOVERY ON S-4.	61
12–13	W-N		2.0					60
14	S-5	4 2 3	1.5	0.1			WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM) - tan to brown fine sand, some silt, some angular medium gravel; dry, loose, NP; (FILL).	59
15–16	W-N		1.5					58
17	S-6	5 6 10	1.5	0.3			WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM) - tan to brown fine sand, some silt, some angular medium gravel; dry, medium dense, NP; (FILL).	57
18–19	W-N		1.5					56
		4				19.5'	ELEV. 48.7	55

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 63.7' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 1 of 4

SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-46**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826689.6
Start Date: 7-8-03	Route No.:	Easting: 1006731.6
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 68.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 22.0 after: 0 hours, @ after: hours, @21.8 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	5 7	1.5	1.4			SILT WITH CLAY (ML) -red to brown silt, some clay; moist, stiff, -PL; (GLACIAL LAKE DEPOSIT).	48
21								
22	W-N		1.5					47
						22.5'	ELEV. 45.7	46
23	S-8	3 3 4	1.5	1.0			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	45
24	W-N		1.0					44
25	S-9	3 2 2	1.5	1.4			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	43
26								42
27	W-N		2.0					41
28								40
29	S-10	1 2 2	1.5	1.5			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	39
30								38
31	UP-1		2.0	1.7				37
32								36
33	W-N		3.0					35
34								34
35	S-11	WOH WOH WOH	1.5	1.5			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	33
36								32
37	W-N		3.5					31
38								30
39								29

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 63.7' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 2 of 4 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-46**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826689.6
Start Date: 7-8-03	Route No.:	Easting: 1006731.6
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 68.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 22.0 after: 0 hours, @ after: hours, @21.8 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40–41	S-12	2 3 1	1.5	1.5			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	28–27
42–44	W-N		3.5					26–24
45–46	S-13	1 7 7	1.5	1.5			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	23–22
47–49	W-N		3.5					21–19
50–51	S-14	2 3 4	1.5	1.3			CLAY WITH SILT (CL) - tan to brown clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	18–17
52–54	W-N		3.5					16–14
55–56	S-15	4 10 20	1.5	1.5		55.0'	ELEV. 13.2 SILTY CLAY (CL-ML) - red to brown clay, some silt, trace of fine gravel (in spoon tip); moist, stiff, -PL.	13–12
57–59	W-N		3.5			56.5'	ELEV. 11.7	11–9

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 63.7' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 3 of 4

SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-46**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826689.6
Start Date: 7-8-03	Route No.:	Easting: 1006731.6
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 68.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 22.0 after: 0 hours, @ after: hours, @21.8 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60–61	S-16	35 21 23	1.5	1.3			ELEV. 8.2 WELL-GRADED SAND WITH SILT (SW-SM) - red to brown fine to medium sand, some silt, trace fine gravel; moist, medium dense, NP; (TILL).	8, 7
62–63	W-N		2.2					6, 5
64–68	C-1		5.0	5.0 100%	1.2 24%	63.7'	ELEV. 4.5 SILTSTONE; red to brown; medium hard, fresh; calcite inclusions throughout.	4, 3, 2, 1, 0
69–73	C-2		5.0	5.0 100%	2.8 56%		SILTSTONE; red to brown; medium hard, fresh; calcite inclusions throughout.	-1, -2, -3, -4, -5
74							ELEV. -5.5 END OF BORING AT 73.7'	-6
75–79								-7, -8, -9, -10, -11

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 63.7' Rock: 10.0' No. of Samples: 16	NOTES:	Sheet 4 of 4

SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-47**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826898.3.2
Start Date: 8/19/03	Route No.:	Easting: 1006771.3
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 64.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 18.5 after: 0 hours, @20.1 after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0								64
1	A-N		1.5					63
2	S-1	2 4 9	1.5	0.6			SILTY SAND WITH GRAVEL (SM) - reddish brown fine to coarse sand, some silt, little coarse gravel; moist, medium dense, NP; (FILL).	62
3								61
4	A-N		1.5					60
						4.5'	ELEV. 59.6	
5	S-2	63 3 4	1.5	0.8		5.0'	CONCRETE COBBLE AT 4.5'	59
							ELEV. 59.1	
6							SILT (ML) - gray silt, little fine sand; moist, medium stiff, +PL; (FILL).	58
7	A-N		1.5					57
8	S-3	2 2 2	1.5	0.8		8.0'	SILT (ML) - gray silt, little fine sand; moist, soft, +PL; (FILL).	56
						8.7'	ELEV. 56.1	
9	W-N		1.0				POORLY GRADED SAND (SP) - tan fine sand, little silt; moist, very loose, NP; (FILL).	55
							ELEV. 55.4	
10	S-4	1 1 1	1.5	1.5			LEAN CLAY (CL) - gray clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	54
11							LEAN CLAY (CL) - gray and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	53
12	W-N		2.0					52
13								51
14	S-5	1 1 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	50
15								49
16	W-N		1.5					48
17	S-6	1 1 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	47
18								46
19	W-N		1.5					45
		1					LEAN CLAY (CL) - gray and reddish brown clay;	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 1 of 4 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-47**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826898.3.2
Start Date: 8/19/03	Route No.:	Easting: 1006771.3
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 64.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 18.5 after: 0 hours, @20.1 after: 24 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	1 1	1.5	1.5			moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	44
21								43
22	W-N		1.5					42
23	S-8	1 1 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	41
24	W-N		1.0					40
25	S-9	WOR 1 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	39
26								38
27	W-N		2.0					37
28								36
29	S-10	WOR/1.0 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	35
30	W-N		5.0					34
31								33
32								32
33								31
34								30
35	S-11	WOR/1.5	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	29
36								28
37	W-N		3.5					27
38								26
39								25

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 2 of 4 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-47**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826898.3.2
Start Date: 8/19/03	Route No.:	Easting: 1006771.3
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 64.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 18.5 after: 0 hours, @20.1 after: 24 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40	S-12	WOR/1.5	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	24
41								23
42	W-N		3.5					22
43								21
44								20
45	S-13	4 4 4	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very stiff, +PL; (GLACIAL LAKE DEPOSIT).	19
46								18
47	W-N		3.5					17
48								16
49								15
50	S-14	21 38 55	1.5	1.3		50.0'	ELEV. 14.1 SILT (ML) - reddish brown silt, trace fine gravel; moist, hard, -PL.	14
51								13
52	W-N		3.5					12
53								11
54								10
55	S-15	82 100/0.2	0.7	0.5		55.0'	ELEV. 9.1 SILTY GRAVEL (GM) - reddish brown fine to coarse gravel, little silt, little fine to coarse sand; wet, very dense, NP; (DECOMPOSED ROCK).	9
56	W-N		4.3					8
57								7
58								6
59								5

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 3 of 4 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-47**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826898.3.2
Start Date: 8/19/03	Route No.:	Easting: 1006771.3
Finish Date: 8/19/03	Bridge No.:	Surface Elevation: 64.1
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 18.5 after: 0 hours, @20.1 after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60				4.4	0.6	60.0'	ELEV. 4.1	4
61							SILTSTONE; reddish brown, medium hard to hard, slightly weathered.	3
62	C-1		5.0					2
63								1
64								0
65				88%	12%			-1
				4.1	1.5		SILTSTONE; reddish brown, medium hard to hard, slightly weathered.	
66								-2
67	C-2		5.0					-3
68								-4
69								-5
70				82%	30%		ELEV. -5.9	-6
							End of Boring at 70.0'	
71								-7
72								-8
73								-9
74								-10
75								-11
76								-12
77								-13
78								-14
79								-15

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 60.0' Rock: 10.0' No. of Samples: 15	NOTES:	Sheet 4 of 4

SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-48**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826971.8
Start Date: 8-19-03	Route No.:	Easting: 1006759.9
Finish Date: 8-20-03	Bridge No.:	Surface Elevation: 62.8
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 11.3 after: 0 hours, @7.2 after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0						0.1'	ASPHALT	
1	A-N		1.5				ELEV. 62.7	62
						1.5'	SUBBASE	
2	S-1	1 1 1	1.5	1.5			ELEV. 61.3	61
							CLAY (CL) - gray clay, trace fine sand; moist, soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	
3								60
4	A-N		1.5					59
5	S-2	2 1 1	1.5	1.3			CLAY (CL) - gray clay, trace fine sand; moist, soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	58
6								57
7	A-N		1.5					56
8	S-3	2 1 2	1.5	1.5			CLAY (CL) - gray clay, trace fine sand; moist, soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	55
9								54
10	W-N		1.5					53
11	S-4	1 1 1	1.5	1.5			CLAY (CL) - gray clay, trace fine sand; moist, soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	52
12								51
13	W-N		1.5					50
14	S-5	1 0 1	1.5	1.5			CLAY (CL) - gray clay, trace fine sand; moist, very soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	49
15								48
16	W-N		1.5					47
17	S-6	1 1 0	1.5	1.5			CLAY (CL) - gray clay, trace fine sand; moist, very soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	46
18								45
19	W-N		1.5					44
		1					CLAY (CL) - gray clay, trace fine sand; moist, very	43

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0' Rock: 10.0' No. of Samples: 11	NOTES:	Sheet 1 of 4
		SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-48**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826971.8
Start Date: 8-19-03	Route No.:	Easting: 1006759.9
Finish Date: 8-20-03	Bridge No.:	Surface Elevation: 62.8
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 11.3 after: 0 hours, @7.2 after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	WOH WOH	1.5	1.5			soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	42
21								
22	W-N		1.5					41
23	S-8	1 1 WOH	1.5	1.5			CLAY (CL) - gray clay, trace fine sand; moist, very soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	40
24								39
25	W-N		1.5					38
26	S-9	1 2 2	1.5	0.6			CLAY (CL) - gray clay, trace fine sand; moist, very soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	37
27								36
28	W-N		1.5					35
29	S-10	WOR 1 WOH	1.5	1.5			CLAY (CL) - gray clay, trace fine sand; moist, very soft, +PL, varved; (GLACIAL LAKE DEPOSIT).	34
30								33
31								32
32	W-N		5.0					31
33								30
34								29
35						35.0'	ELEV. 27.8	28
36	S-11	2 1 WOH	1.5	1.5			SILTY CLAY (CL/ML) - reddish brown to gray clay, some silt; wet, very soft, +PL; (GLACIAL LAKE DEPOSIT).	27
37								26
38	W-N		3.5					25
39								24
								23

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0' Rock: 10.0' No. of Samples: 11	NOTES:	Sheet 2 of 4 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-48**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826971.8
Start Date: 8-19-03	Route No.:	Easting: 1006759.9
Finish Date: 8-20-03	Bridge No.:	Surface Elevation: 62.8
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 11.3 after: 0 hours, @7.2 after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40						40.0'	ELEV. 22.8	
41	S-12	6 9 11	1.5	1.5			SILT WITH SAND (ML) - reddish brown silt, little fine sand; moist, very stiff, -PL.	22
42								21
43	W-N		3.5					20
44								19
45								18
46	S-13	3 5 6	1.5	1.5			SILT WITH SAND (ML) - reddish brown silt, little fine sand; moist, very stiff, -PL.	17
47								16
48	W-N		3.5					15
49								14
50						50.0'	ELEV. 12.8	13
51	S-14	46 66 81	1.5	0.8			WELL GRADED SAND WITH SILT (SW-SM) - dark brown fine to coarse sand, little silt, trace gravel; moist, very dense, NP; (TILL).	12
52								11
53	W-N		3.5					10
54								9
55	S-15	100/0.0	0.0	0.0				8
56								7
57	W-N		5.0					6
58								5
59								4
								3

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0' Rock: 10.0' No. of Samples: 11	NOTES:	Sheet 3 of 4
		SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-48**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826971.8
Start Date: 8-19-03	Route No.:	Easting: 1006759.9
Finish Date: 8-20-03	Bridge No.:	Surface Elevation: 62.8
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 11.3 after: 0 hours, @7.2 after: 24 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60							ELEV. 2.8	
61				3.2	0.7	60.0'	SILTSTONE; reddish brown, medium hard to hard, slightly weathered, moderate horizontal fractures.	2
62	C-1		5.0					1
63								0
64				64%	14%			-1
65				5.0	0.33		SILTSTONE; reddish brown, medium hard to hard, slightly weathered, moderate horizontal fractures, calcite inclusions present.	-2
66								-3
67	C-2		5.0					-4
68								-5
69								-6
70				100%	7%		ELEV. -7.2	-7
							END OF BORING AT 70.0 FEET.	
71								-8
72								-9
73								-10
74								-11
75								-12
76								-13
77								-14
78								-15
79								-16
								-17

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 40.0' Rock: 10.0' No. of Samples: 11	NOTES:	Sheet 4 of 4 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-49**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827106.9
Start Date: 7-8-03	Route No.:	Easting: 1006970.7
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 65.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 0.0' after: 0 hours, @ after: hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					65
1–2	S-1	10 16 19	1.5	1.3			WELL-GRADED SAND WITH GRAVEL (GW) - black and brown fine to coarse sand, little fine to medium gravel; moist, dense, NP (FILL).	64
2–3	A-N		1.5					63
3–4								62
4.5'							ELEV. 61.4	
4–5	S-2	5 9 4	1.5	1.5			SILTY SAND WITH GRAVEL (SM) - red, brown and black fine to coarse sand, some silt, little fine to medium gravel; moist, medium dense, NP; (FILL).	61
5–6	A-N		1.5					60
6–7								59
7.5'							ELEV. 58.4	
7–8	S-3	5 3 4	1.5	1.4			SANDY SILT (ML) - tan and brown silt, some fine to medium sand, trace fine to medium gravel; moist, medium stiff, -PL; (FILL).	58
8–9	W-N		1.0					57
9–10	S-4	1 1 1	1.5	1.5			SANDY SILT (ML) - tan and brown silt, some fine to medium sand, trace fine to medium gravel; moist, medium stiff, -PL; (FILL).	56
10–11								55
11–12	W-N		2.0					54
12–13								53
13–14	S-5	5 4 5	1.5	1.3			SANDY SILT (ML) - tan and brown silt, some very fine sand, trace fine to medium gravel; moist, loose, NP; (FILL).	52
14–15								51
15–16	W-N		1.5					50
16.5'							ELEV. 49.4	
16–17	S-6	5 8 8	1.5	1.1			CLAYEY SILT (ML) - gray and brown silt, some clay; dry to moist, stiff to very stiff, -PL; (GLACIAL LAKE DEPOSIT).	49
17–18								48
18–19	W-N		1.5					47
19–		5					CLAYEY SILT (ML) - gray and brown silt, some clay;	46

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 75.0' Rock: 10.0' No. of Samples: 18	NOTES:	Sheet 1 of 5

SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-49**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827106.9
Start Date: 7-8-03	Route No.:	Easting: 1006970.7
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 65.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 0.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	8 12	1.5	1.5			dry to moist, stiff to very stiff, -PL; (GLACIAL LAKE DEPOSIT).	
21								45
22	W-N		1.5					44
23	S-8	2 2 6	1.5	1.5			CLAYEY SILT (ML) - gray and brown silt, some clay; dry to moist, stiff to very stiff, -PL; (GLACIAL LAKE DEPOSIT).	43
24	W-N		1.0					42
25						25.0'	ELEV. 40.9	41
26	S-9	1 2 1	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	40
27	W-N		2.0					39
28								38
29	S-10	1 1 WOH	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	37
30	W-N		5.0					36
31								35
32								34
33								33
34								32
35	S-11	WOH WOH 1	1.5	1.4			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	31
36								30
37	W-N		3.5					29
38								28
39								27
								26

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 75.0' Rock: 10.0' No. of Samples: 18	NOTES:	Sheet 2 of 5
		SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-49**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827106.9
Start Date: 7-8-03	Route No.:	Easting: 1006970.7
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 65.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 0.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40, 41	S-12	WOH WOH WOH	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	25
42, 43, 44	W-N		3.5					24, 23, 22
45, 46	S-13	WOH WOH 1	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, and silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	21, 20
47, 48, 49	W-N		3.5					19, 18, 17
50, 51	S-14	5 6 8	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, and silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	16, 15
52, 53, 54	W-N		3.5					14, 13, 12
55, 56	S-15	5 1 3	1.5	1.3			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	11, 10
57, 58, 59	W-N		3.5			58.0'	ELEV. 7.9	9, 8, 7, 6

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 75.0' Rock: 10.0' No. of Samples: 18	NOTES:	Sheet 3 of 5 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-49**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827106.9
Start Date: 7-8-03	Route No.:	Easting: 1006970.7
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 65.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 0.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60, 61	S-16	27 26 25	1.5	1.0			SILTY SAND WITH GRAVEL (SM) - red and brown fine to coarse sand, some silt, some fine to coarse gravel; moist, very dense, NP; (TILL).	5
62, 63, 64	W-N		3.5					4, 3, 2
65						65.0'	ELEV. 0.9	1
66	S-17	37 65 67	1.5	1.1			GRAVELLY SILT (ML) - red and brown silt, some fine to coarse gravel; moist, very dense, NP; (TILL).	0
67, 68, 69	W-N		3.5					-1, -2, -3
70	S-18	53 100	1.0	1.0			GRAVELLY SILT (ML) - red and brown silt, some fine to coarse gravel; moist, very dense, NP; (TILL).	-4
71, 72, 73	W-N		4.0					-5, -6, -7
74						74.0'	ELEV. -8.1	-8
75, 76, 77, 78, 79	C-1		5.0	4.7	0.0		SILTSTONE; red, fresh to slightly weathered, calcite inclusions present.	-9, -10, -11, -12, -13, -14

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 75.0' Rock: 10.0' No. of Samples: 18	NOTES:	Sheet 4 of 5 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-49**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827106.9
Start Date: 7-8-03	Route No.:	Easting: 1006970.7
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 65.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 0.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
80				94%	0%		SILTSTONE; red, fresh to slightly weathered, calcite inclusions present.	
81				5.0	0.0			-15
82	C-2		5.0					-16
83								-17
84								-18
85				100%	0%		ELEV. -19.1	-19
							END OF BORING AT 85.0'	
86								-20
87								-21
88								-22
89								-23
90								-24
91								-25
92								-26
93								-27
94								-28
95								-29
96								-30
97								-31
98								-32
99								-33
								-34

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 75.0' Rock: 10.0' No. of Samples: 18	NOTES:	Sheet 5 of 5 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-50**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826953.6
Start Date: 8/19/03	Route No.:	Easting: 1006819.3
Finish Date: 8/20/03	Bridge No.:	Surface Elevation: 62.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ after: 0 hours, @18.5 after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0								
1	A-N		1.5					62
2	S-1	9 6 4	1.5	1.0			SILTY SAND (SM) - reddish brown fine sand, some silt; dry, medium dense, NP; (FILL).	61
3						2.8'	ELEV. 60.1	60
4	A-N		1.5				LEAN CLAY (CL) - gray clay, little silt; moist, soft, +PL (GLACIAL LAKE DEPOSIT).	59
5	S-2	3 3 4	1.5	1.5			LEAN CLAY (CL) - gray clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	58
6								57
7	W-N		1.5					56
8	S-3	3 3 4	1.5	1.0			LEAN CLAY (CL) - gray clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	55
9	W-N		1.0					54
10	S-4	1 1 1	1.5	1.3			LEAN CLAY (CL) - gray clay, little silt; moist, soft, +PL (GLACIAL LAKE DEPOSIT).	53
11								52
12	W-N		2.0					51
13								50
14	S-5	1 2 1	1.5	1.5			LEAN CLAY (CL) - gray clay, little silt; moist, soft, +PL (GLACIAL LAKE DEPOSIT).	49
15								48
16	W-N		1.5					47
17	S-6	WOH WOH 1	1.5	1.4			LEAN CLAY (CL) - gray and reddish brown clay, little silt; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	46
18								45
19	W-N		1.5					44
		WOH					LEAN CLAY (CL) - gray and reddish brown clay, little	43

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 1 of 4 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-50**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826953.6
Start Date: 8/19/03	Route No.:	Easting: 1006819.3
Finish Date: 8/20/03	Bridge No.:	Surface Elevation: 62.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @	after: 0 hours, @18.5 after: 24 hours, @	after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	WOH WOH	1.5	1.5			silt; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	
21								42
22	W-N		1.5					41
23	S-8	WOH WOH WOH	1.5	1.0			LEAN CLAY (CL) - gray and reddish brown clay, little silt; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	40
24	W-N		1.0					39
25								38
26	S-9	WOH 1 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	37
27	W-N		2.0					36
28								35
29	S-10	WOH WOH WOH	1.5	1.5			LEAN CLAY (CL) - reddish brown clay, little silt; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	34
30								33
31								32
32	W-N		5.0					31
33								30
34								29
35						35.0'	ELEV. 27.9	28
36	S-11	7 3 3	1.5	1.0			SILTY SAND (SM) - reddish brown fine sand and silt; wet, loose, NP; (GLACIAL LAKE DEPOSIT).	27
37								26
38	W-N		3.5					25
39								24
								23

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 2 of 4 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-50**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826953.6
Start Date: 8/19/03	Route No.:	Easting: 1006819.3
Finish Date: 8/20/03	Bridge No.:	Surface Elevation: 62.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ after: 0 hours, @18.5 after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40						40.0'	ELEV. 22.9	
41	S-12	1 2 3	1.5	1.5			LEAN CLAY (CL) - reddish brown clay, little silt; wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	22
42								21
43	W-N		3.5					20
44								19
45						45.0'	ELEV. 17.9	18
46	S-13	9 10 14	1.5	0.7			SILT (ML) - reddish brown silt; wet, very stiff, +PL.	17
47								16
48	W-N		3.5					15
49								14
50								13
51	S-14	12 30 31	1.5	1.2			SILT WITH GRAVEL (ML) - reddish brown silt, little fine to coarse gravel; moist, hard, -PL.	12
52								11
53	W-N		3.5					10
54								9
55						55.0'	ELEV. 7.9	8
56	S-15	27 34 37	1.5	1.4			SILTY SAND (SM) - reddish brown fine to coarse sand, some silt; wet, very dense, NP.	7
57								6
58	W-N		3.5					5
59								4
								3

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 3 of 4 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-50**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826953.6
Start Date: 8/19/03	Route No.:	Easting: 1006819.3
Finish Date: 8/20/03	Bridge No.:	Surface Elevation: 62.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ after: 0 hours, @18.5 after: 24 hours, @ after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60	S-16	88 100/0.4	0.9	0.9		60.0'	ELEV. 2.9	
61							GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, little fine to coarse sand; wet, very dense, NP; (TILL).	2
62								1
63	W-N		4.1					0
64								-1
65	S-17	50 100/0.1	0.6	0.6			GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, little fine to coarse sand; wet, very dense, NP; (TILL).	-2
66								-3
67	W-N		2.4			67.0'	ELEV. -4.1	-4
68				5.0	0.4		SILTSTONE; reddish brown, medium hard to hard, slightly weathered, calcite veins and vertically fractured throughout.	-5
69								-6
70	C-1		5.0					-7
71								-8
72								-9
73				100%	8%			-10
				5.0	2.2		SILTSTONE; reddish brown, medium hard to hard, slightly weathered, calcite veins and vertically fractured throughout.	
74								-11
75	C-2		5.0					-12
76								-13
77								-14
78				100%	44%		ELEV. -15.1	-15
							End of Boring at 78.0'	
79								-16
								-17

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 4 of 4 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-51**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826122.0
Start Date: 8/18/03	Route No.:	Easting: 1006916.7
Finish Date: 8/18/03	Bridge No.:	Surface Elevation: 60.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 21.0 after: 0 hours, @20.2 after: 24 hours, @ after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					60
2	S-1	5 10 6	1.5	1.2			CLAYEY SAND WITH GRAVEL (SC) - gray fine to coarse sand, some clay, little coarse gravel; moist, very stiff, +PL; (FILL).	59, 58
3–4	A-N		1.5				Encountered water at 3.8'	57
4.5'							ELEV. 55.9	56
5	S-2	1 2 3	1.5	1.0			LEAN CLAY (CL) - gray clay, trace fine sand; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	55
6–7	W-N		1.5					54
8	S-3	4 6 5	1.5	1.5			LEAN CLAY (CL) - brown clay; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	53, 52
9	W-N		1.0					51
10–11	S-4	3 3 4	1.5	1.5			LEAN CLAY (CL) - brown and reddish brown clay; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	50
12–13	W-N		2.0					49, 48
14	S-5	2 1 1	1.5	1.5			LEAN CLAY (CL) - brown and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	47, 46
15–16	W-N		1.5					45
17	S-6	1 1 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	44, 43
18–19	W-N		1.5					42
		WOH					LEAN CLAY (CL) - gray and reddish brown clay;	41

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 1 of 4

SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-51**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826122.0
Start Date: 8/18/03	Route No.:	Easting: 1006916.7
Finish Date: 8/18/03	Bridge No.:	Surface Elevation: 60.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 21.0 after: 0 hours, @20.2 after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	WOH 2	1.5	1.5			moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	40
21	W-N		1.5					39
22								38
23	S-8	WOH WOH WOH	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	37
24	W-N		1.0					36
25	S-9	WOH WOH WOH	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	35
26								34
27	W-N		2.0					33
28								32
29	S-10	WOH WOH WOH	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	31
30	W-N		5.0					30
31								29
32								28
33								27
34								26
35	S-11	WOH WOH 1	1.5	1.5			LEAN CLAY (CL) - gray and reddish brown clay; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	25
36								24
37	W-N		3.5					23
38								22
39								21

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 2 of 4
		SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-51**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826122.0
Start Date: 8/18/03	Route No.:	Easting: 1006916.7
Finish Date: 8/18/03	Bridge No.:	Surface Elevation: 60.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 21.0 after: 0 hours, @20.2 after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40, 41	S-12	WOH WOH 3	1.5	1.5			LEAN CLAY (CL) - reddish brown clay; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	20
42, 43, 44	W-N		3.5					19, 18, 17, 16
45						45.0'	ELEV. 15.4	
46	S-13	4 8 7	1.5	1.2			SILT (ML) - reddish brown silt, little clay; moist, stiff, +PL.	15
47, 48, 49	W-N		3.5					14, 13, 12, 11
50, 51	S-14	10 26 62	1.5	1.3			SILT (ML) - reddish brown silt, little clay; moist, hard, -PL.	10
						51.0'	ELEV. 9.4	
52, 53, 54	W-N		3.5				SILTY SAND WITH GRAVEL (SM) - reddish brown to dark brown fine to coarse sand, little silt, little fine to coarse gravel; wet, very dense, NP; (TILL).	9, 8, 7, 6
55, 56	S-15	44 48 56	1.5	1.2			SILTY SAND WITH GRAVEL (SM) - reddish brown to dark brown fine to coarse sand, some silt, little fine to coarse gravel; wet, very dense, NP; (TILL).	5
57, 58, 59	W-N		3.5					4, 3, 2, 1

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 3 of 4
		SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-51**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 826122.0
Start Date: 8/18/03	Route No.:	Easting: 1006916.7
Finish Date: 8/18/03	Bridge No.:	Surface Elevation: 60.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 21.0 after: 0 hours, @20.2 after: 24 hours, @ after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60	S-16	97 100/0.1	0.6	0.6		60.0'	ELEV. 0.4 SANDY SILT WITH GRAVEL (ML) - reddish brown silt, little fine to medium sand, little fine to coarse gravel; moist, hard, -PL; (TILL).	0
61								-1
62								-2
63	W-N		4.4					-3
64								-4
65	S-17	100/0.1	0.1	0.1		65.1'	SILTY SAND WITH GRAVEL (SM) - reddish brown to dark brown fine to coarse sand, little silt, little fine to coarse gravel; wet, very dense, NP; (TILL). ELEV. -4.7	-5
66								-6
67	W-N		2.4					-7
68				5.0	0.0		SILTSTONE; reddish brown, medium hard to hard, slightly weathered.	-8
69								-9
70	C-1		5.0					-10
71								-11
72								-12
73				100%	0%			-13
74				4.7	1.7		SILTSTONE; reddish brown, medium hard to hard, slightly weathered.	-14
75	C-2		5.0					-15
76								-16
77								-17
78				94%	34%		ELEV. -17.6 End of Boring at 78.0'	-18
79								-19

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 68.0' Rock: 10.0' No. of Samples: 17	NOTES:	Sheet 4 of 4 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-52**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827379.8
Start Date: 7-8-03	Route No.:	Easting: 1007121.6
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 64.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 18.0' after: 0 hours, @29.2 after: 24 hours, @28.0 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0								64
1	A-N		1.5					63
2	S-1	6 5 3	1.5	1.3			WELL-GRADED SAND WITH GRAVEL (SW) - brown, black and tan fine to coarse sand, some fine to coarse gravel; dry, loose, NP; (FILL).	62
3								61
4	A-N		1.5					60
5	S-2	12 16 18	1.5	1.0			WELL-GRADED SAND WITH GRAVEL (SW) - brown, black and tan fine to coarse sand, some fine to coarse gravel; dry, dense, NP; (FILL).	59
6								58
7	A-N		1.5					57
8	S-3	13 15 11	1.5	1.5			WELL-GRADED SAND WITH GRAVEL (SW) - brown, black and tan fine to coarse sand, some fine to coarse gravel; dry, medium dense, NP; (FILL).	56
9	A-N		1.0					55
10	S-4	10 10 9	1.5	0.2			WELL-GRADED SAND WITH GRAVEL (SW) - brown, black and tan fine to coarse sand, some fine to coarse gravel; dry, medium dense, NP; (FILL).	54
11								53
12	W-N		2.0					52
13						13.5'	ELEV. 50.7	51
14	S-5	6 6 8	1.5	1.0			WELL-GRADED SAND WITH GRAVEL (SW) - tan, brown and black fine to coarse sand, some fine to coarse rounded gravel; moist, medium dense, NP; (ALLUVIUM).	50
15								49
16	W-N		1.5					48
17	S-6	5 6 7	1.5	0.7			WELL-GRADED SAND WITH GRAVEL (SW) - tan, brown and black fine to coarse sand, some fine to coarse rounded gravel; moist, medium dense, NP; (ALLUVIUM).	47
18								46
19	W-N		1.5					45
		11					WELL-GRADED SAND WITH GRAVEL (SW) - tan,	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 100.0' Rock: 10.0' No. of Samples: 22	NOTES:	Sheet 1 of 6 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-52**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827379.8
Start Date: 7-8-03	Route No.:	Easting: 1007121.6
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 64.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 18.0' after: 0 hours, @29.2 after: 24 hours, @28.0 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	8 8	1.5	0.7			brown and black fine sand, some fine to coarse rounded gravel, some silt; moist, medium dense, NP; (ALLUVIUM).	44
21								
22	W-N		1.5					43
								42
23	S-8	12 6 5	1.5	0.5			WELL-GRADED SAND WITH GRAVEL (SW) - tan, brown and black fine to coarse sand, some fine to coarse gravel; moist, medium dense, NP; (ALLUVIUM).	41
24	W-N		1.0					40
25						25.0'	ELEV. 39.2	39
26	S-9	6 5 5	1.5	0.3			WELL-GRADED GRAVEL WITH SAND (GW) - tan to brown and black fine to coarse gravel, little fine to coarse sand; moist, loose, NP; (ALLUVIUM).	38
27	W-N		2.0					37
28						28.5'	ELEV. 35.7	36
29	S-10	4 4 3	1.5	1.0			SILTY CLAY WITH GRAVEL (CL-ML) - red and brown clay, some silt; moist, medium stiff, +PL.	35
30								34
31								33
32	W-N		5.0					32
33								31
34								30
35						35.0'	ELEV. 29.2	29
36	S-11	6 8 12	1.5	0.7			WELL-GRADED GRAVEL (GW) - reddish brown fine to coarse gravel; moist to wet, medium dense, NP.	28
37								27
38	W-N		3.5					26
39								25

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 100.0' Rock: 10.0' No. of Samples: 22	NOTES:	Sheet 2 of 6

SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-52**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827379.8
Start Date: 7-8-03	Route No.:	Easting: 1007121.6
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 64.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 18.0' after: 0 hours, @29.2 after: 24 hours, @28.0 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40						40.0'	ELEV. 24.2	24
41	S-12	2 3 3	1.5	1.3			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	23
42								22
43	W-N		3.5					21
44								20
45								
46	S-13	2 2 3	1.5	1.0			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	19 18
47								17
48	W-N		3.5					16
49								15
50								14
51	ST-1		2.0	1.3				13
52								12
53	W-N		3.0					11
54								10
55								
56	S-14	2 3 4	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	9 8
57								7
58	W-N		3.5					6
59								5

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 100.0' Rock: 10.0' No. of Samples: 22	NOTES:	Sheet 3 of 6 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-52**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827379.8
Start Date: 7-8-03	Route No.:	Easting: 1007121.6
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 64.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 18.0' after: 0 hours, @29.2 after: 24 hours, @28.0 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60	S-15	3 3 3	1.5	1.5			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	4
61								3
62	W-N		3.5					2
63								1
64								0
65	S-16	2 2 3	1.5	1.3			SILTY CLAY (CL-ML) - red and brown clay, some silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	-1
66								-2
67	W-N		3.5					-3
68								-4
69								-5
70	S-17	55 80 100/.2	1.2	1.0		70.0'	ELEV. -5.8 SILTY SAND WITH GRAVEL (SM) - red to brown fine to medium sand, little silt, little fine to coarse gravel; moist, very dense, NP (TILL).	-6
71								-7
72	W-N		3.7					-8
73								-9
74								-10
75	S-18	100/0.1	0.1	0.0			NO RECOVERY	-11
76	W-N		4.9					-12
77								-13
78								-14
79								-15

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 100.0' Rock: 10.0' No. of Samples: 22	NOTES:	Sheet 4 of 6 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-52**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827379.8
Start Date: 7-8-03	Route No.:	Easting: 1007121.6
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 64.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 18.0' after: 0 hours, @29.2 after: 24 hours, @28.0 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
80						80.0'	ELEV. -15.8	-16
81	S-19	27 65 95	1.5	0.7			GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, some fine to coarse sand; moist, very dense, NP; (TILL).	-17
82								-18
83	W-N		3.5					-19
84								-20
85	S-20	120/0.3	0.3	0.2			GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, some fine to coarse sand; moist, very dense, NP; (TILL).	-21
86								-22
87	W-N		4.7					-23
88								-24
89								-25
90	S-21	120/0.2	0.2	0.2			Lost drill water at 90.0'. GRAVELLY SILT WITH SAND (ML) - reddish brown silt, some fine to coarse gravel, some fine to coarse sand; moist, very dense, NP; (TILL).	-26
91								-27
92	W-N		4.8					-28
93								-29
94								-30
95	S-22	120/0.1	0.1	0.0			NO RECOVERY	-31
96								-32
97	W-N		4.9					-33
98								-34
99								-35

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 100.0' Rock: 10.0' No. of Samples: 22	NOTES:	Sheet 5 of 6 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-52**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827379.8
Start Date: 7-8-03	Route No.:	Easting: 1007121.6
Finish Date: 7-9-03	Bridge No.:	Surface Elevation: 64.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 18.0' after: 0 hours, @29.2 after: 24 hours, @28.0 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
100				5.0	0.0	100.0'	ELEV. -35.8	-36
101							SILTSTONE WITH INTERBEDDED SANDSTONE; fine grained, red, hard, fresh to slightly weathered, calcite inclusions present.	-37
102	C-1		5.0					-38
103								-39
104								-40
105				100%	0%			
				4.5	0.0		SILTSTONE WITH INTERBEDDED SANDSTONE; fine-grained, red, hard, fresh to slightly weathered, calcite inclusions present. BASALT SEAM at 105.1'	-41
106								-42
107	C-2		5.0					-43
108								-44
109								-45
110				90%	0%		ELEV. -45.8	-46
							END OF BORING AT 110.0'	
111								-47
112								-48
113								-49
114								-50
115								-51
116								-52
117								-53
118								-54
119								-55

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 100.0' Rock: 10.0' No. of Samples: 22	NOTES:	Sheet 6 of 6 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-53**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827458.6
Start Date: 7/8/03	Route No.:	Easting: 1007169.0
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 63.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 25.0 after: 0 hours, @26.7 after: 24 hours, @26.6 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0								
1	A-N		1.5					63
2	S-1	6 5 9	1.5	0.5			WELL GRADED SAND WITH SILT (SW-SM) - black, brown and tan fine to coarse sand, little silt; dry, medium dense, NP; (FILL).	62
3								61
4	A-N		1.5					60
5	S-2	8 20 12	1.5	0.7			WELL GRADED SAND WITH SILT (SW-SM) - black, brown and tan fine to coarse sand, little silt, trace coarse gravel; dry, dense, NP; (FILL).	59
6								58
7	A-N		1.5					57
8	S-3	6 9 9	1.5	0.1			WELL GRADED SAND WITH SILT (SW-SM) - brown and tan fine to coarse sand, little silt; dry, medium dense, NP; (FILL).	56
9								55
10	A-N		1.5					54
11	S-4	7 11 12	1.5	0.9			WELL GRADED SAND WITH SILT (SW-SM) - brown and tan fine to coarse sand, little silt; dry, medium dense, NP; (FILL).	53
12								52
13	W-N		1.5					51
14	S-5	10 7 7	1.5	0.0			No recovery in S-5	50
15								49
16	W-N		1.5					48
						16.5'	ELEV. 47.4	
17	S-6	9 11 11	1.5	0.7			POORLY GRADED GRAVEL (GP) - dark gray and black fine to medium gravel; moist, medium dense, NP; (FILL).	47
18								46
19	W-N		1.5					45
		6				19.5'	ELEV. 44.4	44

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 Rock: 11.0 No. of Samples: 19	NOTES:	Sheet 1 of 5 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-53**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827458.6
Start Date: 7/8/03	Route No.:	Easting: 1007169.0
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 63.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 25.0 after: 0 hours, @26.7 after: 24 hours, @26.6 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	8 8	1.5	0.5			POORLY GRADED SAND WITH SILT (SP-SM) - tan and brown fine to medium sand, little silt; wet, medium dense, NP; (ALLUVIUM).	
21								43
22	W-N		1.5					42
						22.5'	ELEV. 41.4	
23	S-8	5 7 9	1.5	0.2			POORLY GRADED GRAVEL (GP) - dark gray coarse gravel; wet, medium dense, NP (ALLUVIUM).	41
24								40
25	W-N		1.5					39
						25.5'	ELEV. 38.4	
26	S-9	7 8 8	1.5	0.2			POORLY GRADED SAND WITH SILT (SP-SM) - tan and brown fine to medium sand, little silt; moist, medium dense, NP; (ALLUVIUM).	38
27								37
28	W-N		3.0			28.0'	ELEV. 35.9	36
							WOOD TIMBER, no sample possible from 28.5'-30.0'	
29						29.2'	ELEV. 34.7	35
30	S-10	5 6 5	1.5	1.0			POORLY GRADED SAND WITH WOOD (SP) - tan and brown fine to medium sand, some wood; wet, medium dense, NP (ALLUVIUM).	34
31								33
32								32
33	W-N		3.5					31
34								30
35						35.0'	ELEV. 28.9	29
36	S-11	5 7 11	1.5	0.9			LEAN CLAY (CL) - gray and reddish brown clay, trace fine sand; moist, very stiff, +PL; (GLACIAL LAKE DEPOSIT).	28
37								27
38	W-N		3.5					26
39								25
								24

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 Rock: 11.0 No. of Samples: 19	NOTES:	Sheet 2 of 5

SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-53
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827458.6
Start Date: 7/8/03	Route No.:	Easting: 1007169.0
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 63.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 25.0 after: 0 hours, @26.7 after: 24 hours, @26.6 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40								
41	S-12	3 2 3	1.5	0.9			LEAN CLAY (CL) - gray and reddish brown clay; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	23
42								22
43	W-N		3.5					21
44								20
45						45.0'	ELEV. 18.9	19
46	S-13	5 11 11	1.5	1.5			SILT (ML) - reddish brown silt, trace clay; wet, very stiff, +PL; (GLACIAL LAKE DEPOSIT).	18
47								17
48	W-N		3.5					16
49								15
50						50.0'	ELEV. 13.9	14
51	S-14	1 1 1	1.5	1.5			LEAN CLAY (CL) - reddish brown clay, trace silt; moist, very soft, +PL; (GLACIAL LAKE DEPOSIT).	13
52								12
53	W-N		3.5					11
54								10
55								9
56	S-15	2 4 4	1.5	1.5			CLAY WITH SILT (CL) - reddish brown clay, little silt; moist, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	8
57								7
58	W-N		3.5					6
59								5
								4

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 Rock: 11.0 No. of Samples: 19	NOTES:	Sheet 3 of 5 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-53**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827458.6
Start Date: 7/8/03	Route No.:	Easting: 1007169.0
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 63.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 25.0 after: 0 hours, @26.7 after: 24 hours, @26.6 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60								
61	S-16	5 6 6	1.5	1.5			CLAY WITH SILT (CL) - reddish brown clay, little silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	3
62								2
63	W-N		3.5					1
64								0
65								-1
66	S-17	5 5 6	1.5	1.5			CLAY WITH SILT (CL) - reddish brown clay, little silt; moist, stiff, +PL; (GLACIAL LAKE DEPOSIT).	-2
67								-3
68	W-N		3.5					-4
69								-5
70						70.0'	ELEV. -6.1	-6
71	S-18	16 24 23	1.5	1.0			SANDY SILT (ML) - reddish brown silt, some fine sand; wet, dense, NP.	-7
72								-8
73	W-N		3.5					-9
74								-10
75								-11
76	S-19	18 24 33	1.5	0.8			SILT WITH GRAVEL (ML) - reddish brown silt, little fine gravel; moist, hard, -PL.	-12
77								-13
78	W-N		3.5					-14
79								-15
								-16

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 Rock: 11.0 No. of Samples: 19	NOTES:	Sheet 4 of 5 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-53**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827458.6
Start Date: 7/8/03	Route No.:	Easting: 1007169.0
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 63.9
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 25.0 after: 0 hours, @26.7 after: 24 hours, @26.6 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
80				1.2	0.0			
81								-17
82	C-1		5.0					-18
83								-19
84						83.8'	ELEV. -19.9	-20
85				24%	0%			-21
	C-2		1.0	0.5 / 50%	0.0 / 0%		SILTSTONE, SANDY; reddish brown, medium hard, slightly weathered.	
86				4.7	1.1			-22
87						86.5'	ELEV. -22.6	-23
						87.2'	0.7' - BASALT SEAM AT 86.5' ELEV. -23.3	
88	C-3		5.0				SILTSTONE, SANDY; reddish brown, medium hard, slightly weathered.	-24
89								-25
90								-26
91				94%	22%		ELEV. -27.1 End of Boring at 91.0'	-27
92								-28
93								-29
94								-30
95								-31
96								-32
97								-33
98								-34
99								-35
								-36

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 80.0 Rock: 11.0 No. of Samples: 19	NOTES:	Sheet 5 of 5 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-54**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827734.1
Start Date: 7-9-03	Route No.:	Easting: 1007331.5
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 63.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 38.7 after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					63
2–3	S-1	4 3 3	1.5	1.1			SILTY SAND (SM) - brown and black fine to coarse sand, some silt, little fine to coarse gravel; moist, loose, NP; (FILL).	62, 61
3–4	A-N		1.5					60
4.5'							ELEV. 58.7	59
5–6	S-2	4 4 4	1.5	1.0			WELL-GRADED SAND WITH SILT (SW-SM) - black, brown, tan fine to coarse sand, some silt, little fine to coarse gravel; moist, loose, NP; (FILL) .	58
7	A-N		1.5					57
7.5'							ELEV. 55.7	56
8–9	S-3	4 3 4	1.5	1.1			SILTY SAND WITH GRAVEL (SM) - black, brown, tan fine to coarse sand, some silt, little fine to medium gravel; moist, loose, NP; (FILL).	55
9	A-N		1.0					54
10.0'							ELEV. 53.2	53
10–11	S-4	3 4 3	1.5	1.5			SANDY SILT (ML) - tan and brown silt, some fine sand; moist, loose, NP; (ALLUVIUM).	52
12–13	W-N		2.0					51
14–15	S-5	5 5 5	1.5	1.3			SANDY SILT (ML) - tan and brown silt, some fine sand; moist to wet, stiff, +PL; (ALLUVIUM).	50, 49
16	W-N		1.5					48
17–18	S-6	2 2 2	1.5	1.5			SANDY SILT (ML) - tan and brown silt, some fine sand; moist to wet, stiff, +PL; (ALLUVIUM).	47, 46
19	W-N		1.5					45
		1					SANDY SILT (ML) - tan and brown silt, and fine sand;	44

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 108.0' Rock: 10.0' No. of Samples: 25	NOTES:	Sheet 1 of 6

SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-54**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827734.1
Start Date: 7-9-03	Route No.:	Easting: 1007331.5
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 63.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 38.7 after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	2 1	1.5	1.0			moist to wet, stiff, +PL; (ALLUVIUM).	43
21								
22	W-N		1.5					42
								41
23	S-8	2 2 1	1.5	1.0			SANDY SILT (ML) - tan and brown silt, and fine sand; moist to wet, stiff, +PL; (ALLUVIUM).	40
24	W-N		1.0					39
25	S-9	1 1 1	1.5	1.5			SANDY SILT (ML) - tan and brown silt, and fine sand; moist to wet, stiff, +PL; (ALLUVIUM).	38
26								37
27	W-N		2.0					36
28								35
29	S-10	1 3 5	1.5	1.5			SANDY SILT (ML) - tan and brown silt, and fine sand; moist to wet, stiff, +PL; (ALLUVIUM).	34
30								33
31								32
32	W-N		5.0					31
33								30
34								29
35						35.0'	ELEV. 28.2	28
36	S-11	9 4 3	1.5	1.0			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	27
37								26
38	W-N		3.5					25
39								24

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 108.0' Rock: 10.0' No. of Samples: 25	NOTES:	Sheet 2 of 6 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-54**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827734.1
Start Date: 7-9-03	Route No.:	Easting: 1007331.5
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 63.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 38.7 after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40–41	S-12	1 2 1	1.5	1.5			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	23–22
42	W-N		0.5					
43	ST-1		2.0	2.0				21–20
44	W-N		1.0					19
45–46	S-13	WOH WOH WOH	1.5	1.5			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	18–17
47–48–49	W-N		3.5					16–15–14
50–51	S-14	1 1 1	1.5	0.8			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	13–12
52–53–54	W-N		3.5					11–10–9
55–56	S-15	WOH 1 1	1.5	1.5			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	8–7
57–58–59	W-N		3.5					6–5–4

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 108.0' Rock: 10.0' No. of Samples: 25	NOTES:	Sheet 3 of 6 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-54**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827734.1
Start Date: 7-9-03	Route No.:	Easting: 1007331.5
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 63.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 38.7 after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60								3
61	S-16	WOH WOH WOH	1.5	1.5			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	2
62								1
63	W-N		3.5					0
64								-1
65								-2
66	S-17	1 1 3	1.5	1.5			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	-3
67								-4
68	W-N		3.5					-5
69								-6
70								-7
71	S-18	1 3 4	1.5	1.5			SILTY CLAY (CL-ML) - red brown clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT, VARVED CLAY).	-8
72								-9
73	W-N		3.5					-10
74								-11
75						75.0'	ELEV. -11.8	-12
76	S-19	5 10 13	1.5	1.5			SANDY SILT (ML) - reddish brown silt, some fine sand; moist, very stiff, NP.	-13
77								-14
78	W-N		3.5					-15
79								-16

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 108.0' Rock: 10.0' No. of Samples: 25	NOTES:	Sheet 4 of 6 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-54**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827734.1
Start Date: 7-9-03	Route No.:	Easting: 1007331.5
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 63.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 38.7 after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
80								-17
81	S-20	12 11 11	1.5				SANDY SILT (ML) - reddish brown silt, and sand; moist, very stiff, NP.	-18
82								-19
83	W-N		3.5					-20
84								-21
85								-22
86	S-21	10 15 15	1.5	1.2			SANDY SILT (ML) - reddish brown silt, little sand; moist, very stiff, NP; .	-23
87								-24
88	W-N		3.5					-25
89								-26
90						90.0'	ELEV. -26.8	-27
91	S-22	28 44 45	1.5	1.3			SILT WITH GRAVEL (ML) - reddish brown silt, little fine gravel; dry, very dense, NP; (TILL).	-28
92								-29
93	W-N		3.5					-30
94								-31
95	S-22	42 105	1.0	0.7			SANDY SILT WITH GRAVEL (ML) - reddish brown silt, some fine to coarse sand, some fine to medium gravel; dry to moist, very dense, NP; (TILL).	-32
96								-33
97								-34
98	W-N		4.0					-35
99								-36

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 108.0' Rock: 10.0' No. of Samples: 25	NOTES:	Sheet 5 of 6 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **SB-54**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827734.1
Start Date: 7-9-03	Route No.:	Easting: 1007331.5
Finish Date: 7-11-03	Bridge No.:	Surface Elevation: 63.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 38.7 after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
100	S-24	100/0.4	0.4	0.3			GRAVELLY SILT WITH SAND (ML) - reddish brown silt, and fine to coarse gravel, little fine to coarse sand moist to wet, very dense, NP; (TILL).	-37
101								-38
102								-39
103	W-N		4.6					-40
104								-41
105	S-25	100/0.3	0.3	0.2		105.0'	ELEV. -41.8	-42
106							SILTY GRAVEL WITH SAND (GM) - reddish brown fine to medium gravel, little silt, little fine to coarse sand; moist, very dense, NP; (DECOMPOSED ROCK).	-43
107	W-N		2.7					-44
108				3.1	0.0	108.0'	ELEV. -44.8	-45
109							SILTSTONE; reddish brown, medium hard to hard; moderately to slightly weathered.	-46
110	C-1		5.0					-47
111								-48
112								-49
113				62%	0%			-
				3.2	0.0		SILTSTONE; reddish brown, medium hard to hard; moderately to slightly weathered.	-50
114								-51
115	C-2		5.0					-52
116								-53
117								-54
118				64%	0%		ELEV. -54.8	-55
119							END OF BORING AT 118.0'	-56

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 108.0' Rock: 10.0' No. of Samples: 25	NOTES:	Sheet 6 of 6

SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-55
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					63
2	S-1	4 4 7	1.5	1.3			SILTY SAND WITH GRAVEL (SM) - black and dark brown fine to coarse sand, some silt, little fine to medium gravel; moist, medium dense, NP; (FILL).	62
3–4	A-N		1.5					61, 60
4.5'							ELEV. 59.1	59
5	S-2	4 3 3	1.5	1.5			SANDY SILT (ML) - red and tan silt, some fine sand; moist; loose, NP; (FILL).	58
6–7	A-N		1.5					57
8	S-3	4 3 4	1.5	0.7			SANDY SILT (ML) - red and tan silt, some fine sand; moist; loose, NP; organic material present; (FILL).	56
9	A-N		1.0					55, 54
10–11	S-4	3 3 5	1.5	1.5			SANDY SILT (ML) - red, black and tan silt, some fine sand, trace fine gravel, trace clay; moist; loose, NP; (FILL).	53
12–13	W-N		2.0					52, 51
14	S-5	3 3 4	1.5	1.3			SANDY SILT (ML) - red and tan silt, some fine sand; moist to wet; loose, NP; organic material present; (FILL).	50
15–16	W-N		1.5					49, 48
16.5'							ELEV. 47.1	47
17	S-6	2 3 3	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; medium stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	46
18–19	W-N		1.5					45
		3					SILTY CLAY (CL-ML) - gray and brown varved clay,	44

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 1 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	7 10	1.5	1.0			some silt; dry to moist; very stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	43
21								
22	W-N		1.5					42
23	S-8	7 9 10	1.5	1.0			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; very stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	41
24	W-N		1.0					40
25	S-9	4 4 5	1.5	0.8			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	39
26								38
27	W-N		2.0					37
28								36
29	S-10	2 2 2	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; soft; -PL to +PL; (GLACIAL LAKE DEPOSIT).	35
30								34
31	W-N		5.0					33
32								32
33								31
34								30
35								29
36	S-11	1 1 2	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; soft; -PL to +PL; (GLACIAL LAKE DEPOSIT).	28
37	W-N		3.5					27
38								26
39								25
								24

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 2 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
40, 41	S-12	1 1 2	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; soft; -PL to +PL; (GLACIAL LAKE DEPOSIT).	23
42, 43, 44	W-N		3.5					22, 21, 20
45, 46	S-13	1 1 1	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; soft; -PL to +PL; (GLACIAL LAKE DEPOSIT).	19, 18
47, 48, 49	W-N		3.5					17, 16, 15
50, 51	S-14	1 1 1	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; soft; -PL to +PL; (GLACIAL LAKE DEPOSIT).	14, 13
52, 53, 54	W-N		3.5					12, 11, 10
55, 56	S-15	2 3 3	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; medium stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	9, 8
57, 58, 59	W-N		3.5					7, 6, 5, 4

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 3 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
60								
61	S-16	2 2 3	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; medium stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	3
62								2
63	W-N		3.5					1
64								0
65								-1
66	S-17	2 3 5	1.5	1.5			SILTY CLAY (CL-ML) - gray and brown varved clay, some silt; dry to moist; medium stiff; -PL to +PL; (GLACIAL LAKE DEPOSIT).	-2
67								-3
68	W-N		3.5					-4
69								-5
70						70.0'	ELEV. -6.4	-6
71	S-18	3 4 6	1.5	1.5			SANDY SILT (ML) - reddish brown silt, some fine sand; moist, stiff, -PL.	-7
72								-8
73	W-N		3.5					-9
74								-10
75						75.0'	ELEV. -11.4	-11
76	S-19	3 3 5	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown silt, some clay; moist to wet, stiff, +PL.	-12
77								-13
78	W-N		3.5					-14
79								-15
								-16

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 4 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
80								
81	S-20	6 7 7	1.5	1.1			SILTY CLAY (CL-ML) - reddish brown silt, some clay; moist to wet, stiff, +PL.	-17
82								-18
83	W-N		3.5					-19
84								-20
85								-21
86	S-21	7 7 7	1.5	1.0			SILTY CLAY (CL-ML) - reddish brown silt, some clay, trace fine to medium gravel, trace fine sand; dry to moist, stiff, -PL.	-22
87								-23
88	W-N		3.5					-24
89								-25
90								-26
91	S-22	10 14 21	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown silt, some clay, trace fine to medium gravel, trace fine sand; dry to moist, hard, -PL.	-27
92								-28
93	W-N		3.5					-29
94								-30
95								-31
96	S-23	3 7 11	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown silt, some clay, trace fine to medium gravel, trace fine sand; dry to moist, very stiff, -PL to +PL.	-32
97								-33
98	W-N		3.5					-34
99								-35
								-36

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 5 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
100						100.0'	ELEV. -36.4	
101	S-24	8 15 30	1.5	1.1			SANDY SILT WITH GRAVEL (ML) - reddish brown silt, some fine to medium sand, little fine gravel; dry to moist, dense, NP; (TILL).	-37
102								-38
103	W-N		3.5					-39
104								-40
105								-41
106	S-25	21 45 60	1.5	0.8			SILT WITH GRAVEL (ML) - reddish brown silt, little fine gravel; dry to moist, very dense, NP; (TILL).	-42
107								-43
108	W-N		3.5					-44
109								-45
110								-46
111	S-26	25 24 29	1.5	1.0			SILT WITH GRAVEL (ML) - reddish brown silt, little fine gravel; dry to moist, very dense, NP; (TILL).	-47
112								-48
113	W-N		3.5					-49
114								-50
115								-51
116	S-27	26 28 38	1.5	0.7			SILT (ML) - reddish brown silt; dry to moist, very dense, NP; (TILL).	-52
117								-53
118	W-N		3.5					-54
119								-55
								-56

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 6 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
120						120.0'	ELEV. -56.4	
121	S-28	95 74 110	1.5	0.8			SILTY SAND WITH GRAVEL (SM) - reddish brown fine sand and silt, little fine to medium gravel; moist, very dense, NP; (TILL).	-57
122								-58
123	W-N		3.5					-59
124								-60
125	S-29	100/0.1	0.1	0.0			NO RECOVERY ON S-29	-61
126								-62
127	W-N		4.9					-63
128								-64
129								-65
130	S-30	120/0.2	0.2	0.0			NO RECOVERY ON S-30	-66
131								-67
132	W-N		4.8					-68
133								-69
134								-70
135	S-31	150/0.2	0.2	0.2			SILTY SAND WITH GRAVEL (SM) - reddish brown fine sand and silt, little fine to medium gravel; moist, very dense, NP; (TILL).	-71
136								-72
137	W-N		4.8					-73
138								-74
139								-75
								-76

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 7 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: SB-55
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
140	S-32	100/0.1	0.1	0.0			NO RECOVERY ON S-32	
141								-77
142								-78
143	W-N		4.9					-79
144								-80
145								-81
	S-33	55 150/0.4	0.9	0.5			SILTY SAND WITH GRAVEL (SM) - reddish brown fine sand and silt, little fine to medium gravel; moist, very dense, NP; (TILL).	-82
146								-83
147								-84
148	W-N		4.1					-85
149								-86
150	S-34	150/0.1	0.1	0.1			SILTY SAND WITH GRAVEL (SM) - reddish brown fine sand and silt, little fine to medium gravel; moist, very dense, NP; (TILL).	-87
151								-88
152	W-N		4.9					-89
153								-90
154								-91
155	S-35	150/0.4	0.4	0.4			SILTY SAND WITH GRAVEL (SM) - reddish brown fine sand and silt, little fine to medium gravel; moist, very dense, NP; (TILL).	-92
156								-93
157	W-N		4.6					-94
158								-95
159								-96

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 8 of 9 SM-001-M REV. 1/02

Driller: Mike St. John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **SB-55**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 827982.8
Start Date: 7/9/03	Route No.:	Easting: 1007477.7
Finish Date: 7/11/03	Bridge No.:	Surface Elevation: 63.6
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW/4"	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NQ/1-7/8"
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 22.0 after: 0 hours, @34.3 after: 48 hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
160	S-36	150/0.1	0.1	0.1			SILTY SAND WITH GRAVEL (SM) - reddish brown fine sand and silt, little fine to medium gravel; moist, very dense, NP; (TILL).	
161								-97
162								-98
163	W-N		4.9					-99
164								-100
165								-101
							ELEV. -101.4	
166							End of Boring at 165.0'	-102
167								-103
168								-104
169								-105
170								-106
171								-107
172								-108
173								-109
174								-110
175								-111
176								-112
177								-113
178								-114
179								-115
								-116

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 165.0' Rock: 0.0' No. of Samples: 36	NOTES:	Sheet 9 of 9
		SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-26**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 837491.9
Start Date: 7/7/03	Route No.:	Easting: 1013412.4
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 64.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 24.5 after: 0 hours, @6.0 after: 24 hours, @5.8 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					64
1–2	S-1	4 3 2	1.5	0.9			SANDY SILT WITH GRAVEL (ML) - dark brown and black silt, some fine to coarse sand, little fine to coarse gravel; moist, loose, NP; (FILL).	63, 62
2–3	A-N		1.5					61
3–4						4.5'	ELEV. 60.0	60
4–5	S-2	1 1 2	1.5	1.2			GRAVELLY CLAY WITH SAND (CL) - dark brown and red clay, some fine to coarse gravel, little fine to coarse sand; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	59
5–6	A-N		1.5					58
6–7						7.5'	ELEV. 57.0	57
7–8	S-3	5 6 9	1.5	1.2			SILTY CLAY WITH GRAVEL (CL-ML) - dark brown and red silt, some clay, little fine to coarse gravel; moist, stiff, -PL; (GLACIAL LAKE DEPOSIT).	56
8–9	A-N		1.0					55
9–10	S-4	4 4 6	1.5	1.5			SILTY CLAY WITH GRAVEL (CL-ML) - dark brown and red silt, some clay, little fine to coarse gravel; moist, stiff, -PL; (GLACIAL LAKE DEPOSIT).	54, 53
10–11	A-N		2.0					52
11–12	S-5	3 5 8	1.5	1.3			SILTY CLAY WITH GRAVEL (CL-ML) - dark brown and red silt, some clay, little fine to coarse gravel; moist, stiff, -PL; (GLACIAL LAKE DEPOSIT).	51, 50
12–13	A-N		1.5					49
13–14	S-6	8 10 16	1.5	1.2			SILTY CLAY WITH GRAVEL (CL-ML) - red clay, some silt, little fine to coarse gravel; wet, very stiff, -PL; (GLACIAL LAKE DEPOSIT).	48, 47
14–15	A-N		1.5					46
15–19		19				19.5'	ELEV. 45.0	45

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 29.2' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-26**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 837491.9
Start Date: 7/7/03	Route No.:	Easting: 1013412.4
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 64.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 24.5 after: 0 hours, @6.0 after: 24 hours, @5.8 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	21 21	1.5	1.2			CLAYEY GRAVEL (GC) - red fine to coarse gravel and clay; wet, dense, NP; (TILL).	44
21								
22	A-N		1.5					43
23	S-8	7 11 31	1.5	1.3			CLAYEY GRAVEL (GC) - red fine to coarse gravel and clay; wet, dense, NP; (TILL).	42
24	A-N		1.0					41
25	S-9	17 100/0.4	0.9	0.9			CLAYEY GRAVEL (GC) - red fine to coarse gravel and clay; wet, very dense, NP; (TILL).	40
26								39
27	A-N		2.6					38
28								37
29	S-10	37 100/0.2	0.7	0.7			CLAYEY GRAVEL (GC) - red fine to coarse gravel and clay; wet, very dense, NP; (TILL).	36
							ELEV. 35.3	35
30							End of Boring at 29.2'	34
31								33
32								32
33								31
34								30
35								29
36								28
37								27
38								26
39								25

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 29.2' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-27**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 820184.3
Start Date: 7-7-03	Route No.:	Easting: 1002847.6
Finish Date: 7-7-03	Bridge No.:	Surface Elevation: 64.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 17.7' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					64
1–2	S-1	4 3 2	1.5	0.5			WELL-GRADED SAND WITH GRAVEL (GW) - black and brown fine to coarse sand, some fine to medium gravel; dry, loose, NP; (FILL).	63, 62
2–3	A-N		1.5					61
3–4						4.5'	ELEV. 60.0	60
4–5	S-2	3 3 4	1.5	0.7			CLAYEY SILT WITH GRAVEL (ML) - brown and red silt, some clay, little gravel; moist, medium stiff, -PL; (TERRACE ALLUVIUM).	59
5–6	A-N		1.5					58
6–7	S-3	4 9 2	1.5	0.4			CLAYEY SILT WITH GRAVEL (ML) - brown and red silt, some clay, little gravel; moist, stiff, -PL; (TERRACE ALLUVIUM).	57, 56
7–8	A-N		1.0					55
8–9	S-4	3 3 2	1.5	0.4			CLAYEY SILT WITH GRAVEL (ML) - brown and red silt, some clay, little gravel; moist, medium stiff, -PL; (TERRACE ALLUVIUM).	54
9–10	A-N		2.0					53, 52
10–11						13.5'	ELEV. 51.0	51
11–12	S-5	3 4 2	1.5	1.2			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	50
12–13	A-N		0.5					49
13–14	UP-1		1.2	1.2				48
14–15	A-N		2.8					47, 46
15–16		1					SILTY CLAY (CL-ML) - red clay, some silt; moist to	45

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-27**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 820184.3
Start Date: 7-7-03	Route No.:	Easting: 1002847.6
Finish Date: 7-7-03	Bridge No.:	Surface Elevation: 64.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 17.7' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-6	3 4	1.5	1.4			wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	44
21								
22	A-N		1.5					43
23	S-7	2 3 4	1.5	1.2			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	42
24								41
25	A-N		1.5					40
26	S-8	3 2 4	1.5	1.3			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	39
27								38
28	A-N		1.5					37
29	S-9	1 3 4	1.5	1.1			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	36
30							ELEV. 34.5	35
31							END OF BORING AT 30.0'	34
32								33
33								32
34								31
35								30
36								29
37								28
38								27
39								26
								25

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-28**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 822404.2
Start Date: 7/7/03	Route No.:	Easting: 1004158.7
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 69.8
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ DRY after: 0 hours, @ DRY after: 24 hours, @ DRY after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0								
1	A-N		1.5					69
2	S-1	3 2 1	1.5	0.8			POORLY GRADED SAND (SP) - brown, tan and black fine to coarse sand; dry, very loose, NP; organics present; (FILL).	68
3								67
4	A-N		1.5					66
5	S-2	5 4 3	1.5	0.8			POORLY GRADED SAND (SP) - brown, tan and black fine to coarse sand; dry, loose, NP; organics present; (FILL).	65
6								64
7	A-N		1.5					63
						7.5'	ELEV. 62.3	
8	S-3	4 4 3	1.5	0.1			POORLY GRADED SAND WITH SILT (SP-SM) - brown, tan and black fine to coarse sand, little silt; dry, loose, NP; organics present; (FILL).	62
9	A-N		1.0					61
10						10.0'	ELEV. 59.8	60
11	S-4	2 2 2	1.5	1.1			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	59
12	A-N		2.0					58
13								57
14	S-5	2 3 4	1.5	1.0			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	56
15								55
16	A-N		1.5					54
17	S-6	2 1 1	1.5	1.5			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	53
18								52
19	A-N		1.5					51
		2					SILTY CLAY (CL-ML) - red clay, some silt; moist to	50

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-28**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 822404.2
Start Date: 7/7/03	Route No.:	Easting: 1004158.7
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 69.8
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ DRY after: 0 hours, @ DRY after: 24 hours, @ DRY after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	1 1	1.5	1.3			wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	
21								49
22	A-N		1.5					48
23	S-8	1 2 2	1.5	1.5			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	47
24	A-N		1.0					46
25	S-9	WOH WOH 1	1.5	1.5			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, very soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	45
26								44
27	A-N		2.0					43
28								42
29	S-10	2 2 3	1.5	1.5			SILTY CLAY (CL-ML) - red clay, some silt; moist to wet, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	41
30							ELEV. 39.8 End of Boring at 30.0'	40
31								39
32								38
33								37
34								36
35								35
36								34
37								33
38								32
39								31
								30

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-29**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 823413.3
Start Date: 7/7/03	Route No.:	Easting: 1004765.6
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 73.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ DRY after: 0 hours, @ DRY after: 24 hours, @ DRY after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					73
1–2	S-1	6 5 6	1.5	0.8			POORLY GRADED SAND (SP) - tan and black fine to medium sand; moist, medium dense, NP; (FILL).	72
2–3								71
3–4	A-N		1.5					70
4–5	S-2	4 4 6	1.5	1.1		4.5'	ELEV. 68.7	69
5–6							SILTY CLAY (CL-ML) - red clay, some silt; moist, stiff, -PL; (GLACIAL LAKE DEPOSIT).	68
6–7	A-N		1.5					67
7–8	S-3	3 3 2	1.5	1.0			SILTY CLAY (CL-ML) - red clay, some silt; moist, medium stiff, -PL; (GLACIAL LAKE DEPOSIT).	66
8–9								65
9–10	A-N		1.0					64
10–11	S-4	2 4 2	1.5	1.0			SILTY CLAY (CL-ML) - red clay, some silt; moist, medium stiff, -PL; (GLACIAL LAKE DEPOSIT).	63
11–12								62
12–13	A-N		2.0					61
13–14	S-5	2 4 4	1.5	1.0		13.5'	ELEV. 59.7	60
14–15							SANDY SILT (ML) - red silt and very fine sand; wet, loose, NP (GLACIAL LAKE DEPOSIT).	59
15–16	A-N		1.5					58
16–17	S-6	2 4 6	1.5	1.1		16.5'	ELEV. 56.7	57
17–18							SILTY SAND (SM) - red very fine sand, some silt; wet, loose, NP; (GLACIAL LAKE DEPOSIT).	56
18–19	A-N		1.5					55
19		3				19.5'	ELEV. 53.7	54

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-29**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 823413.3
Start Date: 7/7/03	Route No.:	Easting: 1004765.6
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 73.2
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ DRY after: 0 hours, @ DRY after: 24 hours, @ DRY after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	2 2	1.5	1.2			SILTY CLAY (CL-ML) - red to brown clay, some silt; wet, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	53
21								52
22	A-N		1.5					51
23	S-8	1 4 3	1.5	1.1			SILTY CLAY (CL-ML) - red to brown clay, some silt; wet, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	50
24	A-N		1.0					49
25						25.0'	ELEV. 48.2	48
26	S-9	5 11 16	1.5	1.0			SANDY SILT (ML) - red and brown silt, some very fine sand; moist, medium dense, NP; (GLACIAL LAKE DEPOSIT).	47
27	A-N		2.0					46
28								45
29	S-10	5 27 49	1.5	1.1		29.0'	ELEV. 44.2	44
30							GRAVELLY SILT (ML) - red to brown silt, some fine to medium gravel; dry, very dense, NP; (TILL). ELEV. 43.2	43
31							End of Boring at 30.0'	42
32								41
33								40
34								39
35								38
36								37
37								36
38								35
39								34

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

Driller: Mike St.John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **RB-30**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 824211.3
Start Date: 7-7-03	Route No.:	Easting: 1005244.3
Finish Date: 7-7-03	Bridge No.:	Surface Elevation: 75.3
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 4.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0	A-N		1.5					75
1								74
2	S-1	7 5 5	1.5	0.6			SILTY SAND WITH GRAVEL (SM) - gray and reddish brown fine to coarse sand, little silt, little coarse gravel; moist, medium dense, NP.	73
3	A-N		1.5					72
4						4.5'	ELEV. 70.8	71
5	S-2	4 4 5	1.5	1.0			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, stiff, -PL.	70
6	A-N		1.5					69
7								68
8	S-3	5 6 5	1.5	1.0			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, stiff, +PL.	67
9	A-N		1.0					66
10	S-4	2 3 3	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, medium stiff, +PL.	65
11								64
12	W-N		2.0					63
13								62
14	S-5	2 3 5	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, medium stiff, +PL.	61
15	W-N		1.5					60
16								59
17	S-6	2 3 4	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, medium stiff, +PL.	58
18	W-N		1.5					57
19								56
		2					SILTY CLAY (CL-ML) - reddish brown clay, some silt;	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Mike St.John/NEBC	**Connecticut DOT Boring Report**	Hole No.: **RB-30**
Inspector: Mark Martin	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 824211.3
Start Date: 7-7-03	Route No.:	Easting: 1005244.3
Finish Date: 7-7-03	Bridge No.:	Surface Elevation: 75.3
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 4.0' after: 0 hours, @ after: hours, @ after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	3 3	1.5	1.5			moist, medium stiff, +PL.	55
21								
22	W-N		1.5					54
								53
23	S-8	3 3 3	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, medium stiff, +PL.	52
24								51
25	W-N		1.5					50
26	S-9	2 2 2	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, medium stiff, +PL.	49
27								48
28	W-N		1.5					47
29	S-10	1 1 2	1.5	1.5			SILTY CLAY (CL-ML) - reddish brown clay, some silt; moist, medium stiff, +PL.	46
30							ELEV. 45.3 END OF BORING AT 30.0'	45
31								44
32								43
33								42
34								41
35								40
36								39
37								38
38								37
39								36

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-31**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 825008.2
Start Date: 7/7/03	Route No.:	Easting: 1005717.1
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 76.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ DRY after: 0 hours, @ DRY after: 24 hours, @ DRY after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					76
2–3	S-1	5 4 3	1.5	1.3			POORLY GRADED SAND WITH SILT (SP) - tan, brown and black fine to coarse sand, some silt; moist, loose, NP; (FILL).	75, 74
3–4	A-N		1.5					73
						4.5'	ELEV. 72.0	72
5–6	S-2	4 3 4	1.5	0.3			SILTY CLAY WITH SAND (CL-ML) - red to brown clay, some silt, little fine to medium sand; moist, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	71
7	A-N		1.5					70
8–9	S-3	2 3 2	1.5	1.5			SILTY CLAY (CL-ML) - red to brown clay, some silt; moist, medium stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	69, 68
9	A-N		1.0					67
10–11	S-4	2 1 1	1.5	1.5			SILTY CLAY (CL-ML) - red to brown clay, some silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	66
12–13	A-N		2.0					65, 64
14–15	S-5	1 1 1	1.5	1.5			SILTY CLAY (CL-ML) - red to brown clay, some silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	63, 62
16	A-N		1.5					61
17–18	S-6	WOH 2 2	1.5	1.5			SILTY CLAY (CL-ML) - red to brown clay, some silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	60, 59
19	A-N		1.5					58
		WOH					SILTY CLAY (CL-ML) - red to brown clay, some silt;	57

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **1** of **2** SM-001-M REV. 1/02

Driller: Al Augustine/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-31**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 825008.2
Start Date: 7/7/03	Route No.:	Easting: 1005717.1
Finish Date: 7/7/03	Bridge No.:	Surface Elevation: 76.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ DRY after: 0 hours, @ DRY after: 24 hours, @ DRY after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	2 1	1.5	1.5			moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	56
21								
22	A-N		1.5					55
23	S-8	1 5 4	1.5	1.3			SILTY CLAY (CL-ML) - red to brown clay and silt; moist to wet, stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	54
24	A-N		1.0					53
25	S-9	1 2 1	1.5	1.5			SILTY CLAY (CL-ML) - red to brown clay and silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	52
26								51
27	A-N		2.0					50
28								49
29	S-10	1 2 1	1.5	1.5			SILTY CLAY (CL-ML) - red to brown clay and silt; moist to wet, soft, -PL to +PL; (GLACIAL LAKE DEPOSIT).	48
30							ELEV. 46.5 End of Boring at 30.0'	47
31								46
32								45
33								44
34								43
35								42
36								41
37								40
38								39
39								38
								37

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-32**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 825812.4
Start Date: 7-8-03	Route No.:	Easting: 1006195.9
Finish Date: 7-8-03	Bridge No.:	Surface Elevation: 72.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	

Groundwater Obs. @ 26.0 after: 0 hours, @2.3 after: 24 hours, @2.0 after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					72
2	S-1	5 8 5	1.5	0.8			WELL-GRADED SAND WITH GRAVEL (SW) - dark brown to black, fine to medium sand, some fine to medium course angular gravel; moist, medium dense, NP, traprock; (FILL).	71
3–4	A-N		1.5					70, 69
4.5'							ELEV. 68.0	68
5	S-2	2 2 2	1.5	1.5			CLAY WITH SILT (CL) - red to brown clay, trace silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	67
6–7	A-N		1.5					66
8	S-3	1 1 1	1.5	1.5			CLAY WITH SILT (CL) - red to brown clay, trace silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	65, 64
9	A-N		1.0					63
10–11	S-4	1 1 1	1.5	1.5			CLAY WITH SILT (CL) - red to brown clay, trace silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	62
12–13	A-N		2.0					61, 60
14	S-5	1 1 1	1.5	1.5			CLAY WITH SILT (CL) - red to brown clay, trace silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	59, 58
15–16	A-N		1.5					57
17	S-6	2 2 2	1.5	1.4			CLAY WITH SILT (CL) - red to brown clay, trace silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	56, 55
18–19	A-N		1.5					54
		4					CLAY WITH SILT (CL) - red to brown clay, trace silt;	53

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0' No. of Samples: 10	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Seth Murkette/GZA	**Connecticut DOT Boring Report**	Hole No.: **RB-32**
Inspector: Rachael Marks	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 825812.4
Start Date: 7-8-03	Route No.:	Easting: 1006195.9
Finish Date: 7-8-03	Bridge No.:	Surface Elevation: 72.5
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 26.0 after: 0 hours, @2.3 after: 24 hours, @2.0 after: 48 hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	3 2	1.5	1.0			moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	52
21								
22	A-N		1.5					51
23	S-8	1 2 3	1.5	1.4			CLAY WITH SILT (CL) - red to brown clay, little silt; moist, soft, +PL; (GLACIAL LAKE DEPOSIT).	50
24	A-N		1.0					49
25						25.0'	ELEV. 47.5	48
26	S-9	5 12 13	1.5	1.1			CLAYEY SILT (ML) - red to brown silt, trace clay; moist, very stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	47
27	A-N		2.0					46
28								45
29	S-10	2 10 15	1.5	1.1			CLAYEY SILT (ML) - red to brown silt, trace clay; moist, very stiff, -PL to +PL; (GLACIAL LAKE DEPOSIT).	44
30							ELEV. 42.5	43
31							END OF BORING AT 30.0'	42
32								41
33								40
34								39
35								38
36								37
37								36
38								35
39								34
								33

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **RB-33**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 828732.1
Start Date: 7-10-03	Route No.:	Easting: 1007916.8
Finish Date: 7-10-03	Bridge No.:	Surface Elevation: 67.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 10.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0–1	A-N		1.5					67
1–2	S-1	4 5 5	1.5	0.8			WELL-GRADED SAND WITH GRAVEL (SW) - black, brown fine to coarse sand, some fine to coarse gravel; moist, loose, NP (FILL).	66
2–3								65
3–4	A-N		1.5					64
4.5'							ELEV. 62.9	63
4–5	S-2	3 3 3	1.5	0.8			CLAYEY SILT WITH SAND (ML) - gray and tan silt, some clay, little sand; moist, medium stiff, +PL (FILL).	62
5–6								61
6–7	A-N		1.5					60
7–8	S-3	4 3 5	1.5	0.5			CLAYEY SILT WITH SAND (ML) - gray and tan silt, some clay, little sand; moist, medium stiff, +PL (FILL).	59
8–9	A-N		1.0					58
10.0'							ELEV. 57.4	
9–10	S-4	1 2 3	1.5	1.0			SILTY CLAY (CL-ML) - varved red and brown clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	57
10–11								56
11–12	A-N		2.0					55
12–13								54
13–14	S-5	2 2 2	1.5	1.5			SILTY CLAY (CL-ML) - varved red and brown clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	53
14–15								52
15–16	W-N		1.5					51
16–17	S-6	1 1 2	1.5	1.3			SILTY CLAY (CL-ML) - varved red and brown clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	50
17–18								49
18–19	W-N		1.5					48
19–		1					SILTY CLAY (CL-ML) - varved red and brown clay,	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 1 of 2

SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **RB-33**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 828732.1
Start Date: 7-10-03	Route No.:	Easting: 1007916.8
Finish Date: 7-10-03	Bridge No.:	Surface Elevation: 67.4
Project Description: New Britain to Hartford Busway		
Casing Type/Size: HW 4" ID	Sampler Type/Size: SS/ 1-3/8 " ID	Core Barrel Type: NQ/1 7/8" ID
Hammer Wt.: 300 Fall: 24	Hammer Wt.: 140 Fall: 30	
Groundwater Obs. @ 10.0' after: 0 hours, @ after: hours, @ after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES: Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	2 4	1.5	1.5			some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	47
21								46
22	W-N		1.5					45
23	S-8	1 WOH 1	1.5	1.5			SILTY CLAY (CL-ML) - varved red and brown clay, some silt; moist to wet, very soft, +PL; (GLACIAL LAKE DEPOSIT).	44
24	W-N		1.0					43
25	S-9	1 1 1	1.5	1.0			SILTY CLAY (CL-ML) - varved red and brown clay, some silt; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	42
26								41
27	W-N		2.0					40
28								39
29	S-10	WOH 1 2	1.5	1.5			SILTY CLAY (CL-ML) - varved red and brown clay, some silt; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	38
30							ELEV. 37.4 END OF BORING AT 30.0'	37
31								36
32								35
33								34
34								33
35								32
36								31
37								30
38								29
39								28

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **RB-34**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 829413.6
Start Date: 7/10/03	Route No.:	Easting: 1008321.6
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 72.0
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 8.0 after: 0 hours, @2.7 after: 24 hours, @4.2 after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
0								
1	A-N		1.5					71
2	S-1	3 3 6	1.5	0.8			WELL GRADED SAND WITH GRAVEL (SW) - black and gray fine to coarse sand, some fine to coarse gravel; moist, loose, NP; (FILL).	70
3								69
4	A-N		1.5					68
						4.5'	ELEV. 67.5	
5	S-2	2 8 10	1.5	0.7			SANDY SILT WITH GRAVEL (ML) - tan, brown and gray silt, some fine to medium sand, little fine to medium gravel; moist, medium dense, NP; (FILL).	67
6								66
7	A-N		1.5					65
						7.5'	ELEV. 64.5	
8	S-3	6 6 6	1.5	0.7			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand, trace fine to coarse gravel; moist to wet, stiff, +PL; (GLACIAL LAKE DEPOSIT).	64
9	A-N		1.0					63
10								62
11	S-4	4 4 3	1.5	0.7			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand, trace fine to coarse gravel; moist to wet, medium stiff, +PL; (GLACIAL LAKE DEPOSIT).	61
12	W-N		2.0					60
13								59
14	S-5	2 2 2	1.5	0.8			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand varves; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	58
15								57
16	W-N		1.5					56
17	S-6	2 1 1	1.5	0.8			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand varves, trace fine to coarse gravel; moist to wet, soft, +PL; (GLACIAL LAKE DEPOSIT).	55
18								54
19	W-N		1.5					53
		1					SILTY CLAY WITH SAND (CL-ML) - gray and brown	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger

Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **1** of **2** SM-001-M REV. 1/02

Driller: Jeff Leavitt/NEBC	**Connecticut DOT Boring Report**	Hole No.: **RB-34**
Inspector: Ryan Tinsley	Town: West Hartford / Hartford, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 829413.6
Start Date: 7/10/03	Route No.:	Easting: 1008321.6
Finish Date: 7/10/03	Bridge No.:	Surface Elevation: 72.0
Project Description: New Britain to Hartford Busway		
Casing Type/Size: NA	Sampler Type/Size: SS/1-3/8"	Core Barrel Type: NA
Hammer Wt.: Fall:	Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 8.0 after: 0 hours, @2.7 after: 24 hours, @4.2 after: hours		

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: northern Template: CDOT_E (LD4 1/03)

Depth (ft.)	SAMPLES Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)	Generalized Strata Description	Material Description and Notes	Elevation (ft.)
20	S-7	WOH WOH	1.5	1.5			clay, some silt, little fine sand varves; moist to wet, very soft, +PL; (GLACIAL LAKE DEPOSIT).	52
21								51
22	W-N		1.5					50
23	S-8	WOH/1.5	1.5	1.5			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand varves; moist to wet, very soft, +PL; (GLACIAL LAKE DEPOSIT).	49
24	W-N		1.0					48
25	S-9	WOH/1.5	1.5	1.5			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand varves; moist to wet, very soft, +PL; (GLACIAL LAKE DEPOSIT).	47
26								46
27	W-N		2.0					45
28								44
29	S-10	WOH 1 1	1.5	1.5			SILTY CLAY WITH SAND (CL-ML) - gray and brown clay, some silt, little fine sand varves; moist to wet, very soft, +PL; (GLACIAL LAKE DEPOSIT).	43
30							ELEV. 42.0 End of Boring at 30.0'	42
31								41
32								40
33								39
34								38
35								37
36								36
37								35
38								34
39								33

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 -20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0' No. of Samples: 10	NOTES:	Sheet **2** of **2** SM-001-M REV. 1/02

APPENDIX D

Recent Laboratory Test Data

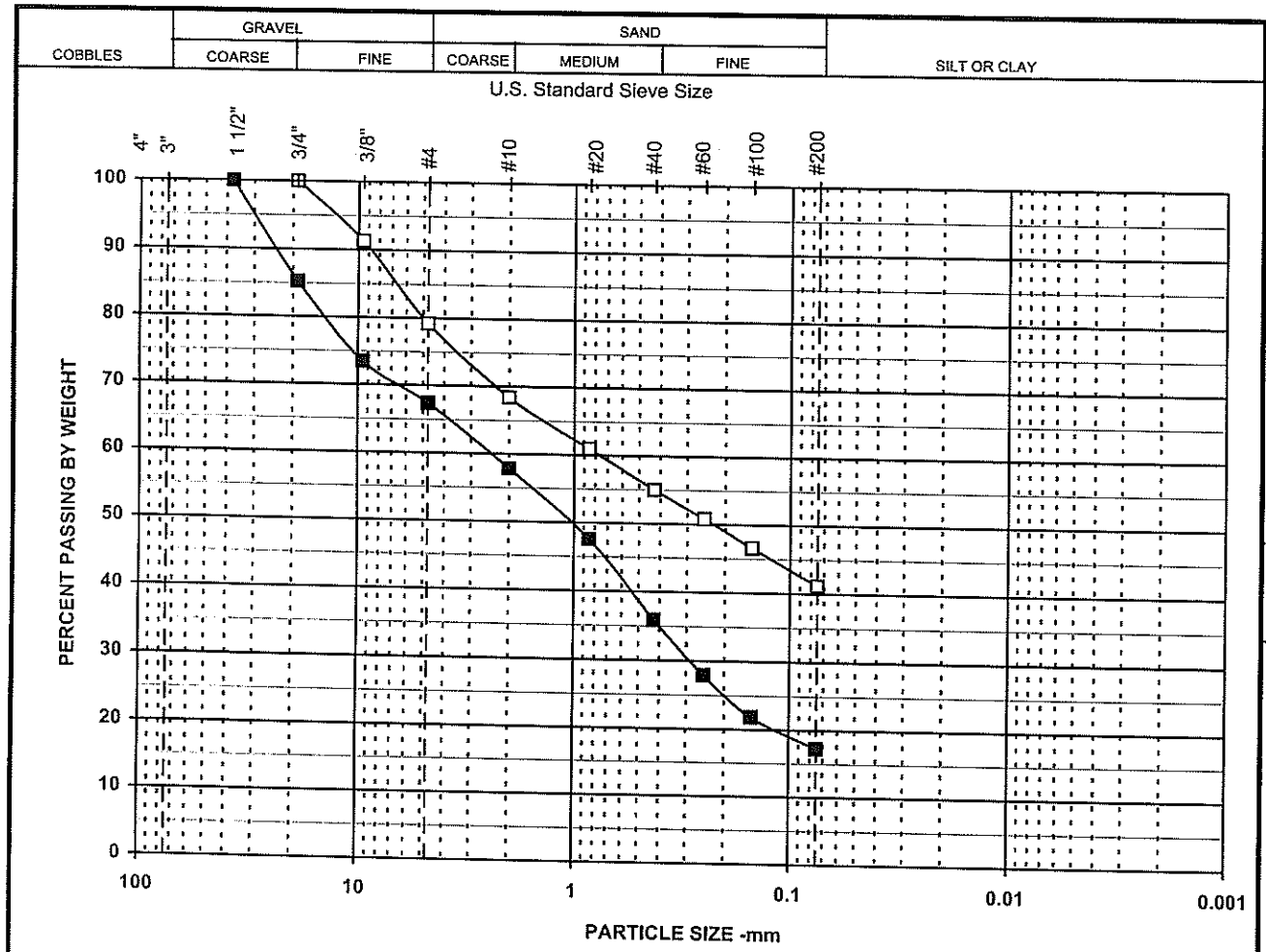
Project No.: 31737788-805 File: Indx jars.xls

Haley & Aldrich - #32669-000
Connecticut Busway
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS							REMARKS
			WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	ORGANIC CONTENT (burnoff) (%)	
CB-101	S-4	7-9	26.5				SC	41.1		
CB-103	S-3	5-7	8.1				SM	17.3		
NBA-101	S-2	3-5	5.7				SP-SM	8.1		
RB-101	S-4	7-9	25.8				SM	14.4		
RB-102	S-2	2-4	9.8				SM	17.8		
RB-103	S-4	6-8	14.9				SW-SM	8.2		
RB-104	S-1	1-3	11.9				SC	24.1		
RB-105	S-4	7-9	16.6				SC	25.0		
RB-107	S-1	0-2	4.9				SP-SM	5.8		
RB-107	S-4	7-9	12.9				SM	20.7		
RB-110	S-2	2-4	11.7				SM	28.4		
RB-120	S-1	0-2	6.8				SM	44.7		
RB-122	S-2	2-4	11.9				SM	14.4		
RB-124	S-3	5-7	202.5	271	137	134	PT		50.5	
RB-124	S-4	7-9	146.0	181	108	73	OH		23.9	
RB-124	S-5	10-12	61.4	66	42	24	OH		5.2	
RW-101	S-3	5-7	9.6				SC	36.2		
RW-105	S-1	0-2	7.7				SM	27.8		
RW-110	S-1	1-2	13.3				SM	14.1		
RW-112	S-2	3-5	9.2				SM	21.0		
RW-114	S-3	5-7	11.6				SM	13.2		
RW-114	S-6	15-17	27.9	29	23	6	ML		2.3	
RW-114	S-7	20-22	56.1	54	39	15	OH		8.9	
RW-118	S-1	0-2	2.5				SP	2.8		
RW-118	S-6	15-17	28.8	35	20	15	CL		3.1	
RW-118	S-7	20-22	25.0	29	18	11	CL		2.5	
RW-119	S-6	16-17								missing
RW-119	S-7	20-22	23.0	30	20	10	CL			
RW-119	S-8	25-27	30.7	36	21	15	CL		2.4	
RW-119	S-9	30-31.2	31.5	48	24	24	CL			
RW-119	S-5	10-12	21.1				CL	56.4		
RW-120	S-4	7-9	4.2				SP	3.1		
RW-124	S-5	10-12	18.5				SM	20.8		
TB-101	S-2	2-4	2.9				SP-SM	7.3		
TB-101	S-7	20-22	6.5				SP-SM	8.9		
TB-102	S-6	15-17	6.7				SP-SM	5.9		

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.

Prepared by: JR Reviewed by: GET Date: 5/19/2008



SYMBOL	DESCRIPTION AND REMARKS
□	brown clayey c-f SAND, some f. gravel.
■	red gravelly c-f SAND, some silt.
○	

Symbol	□	■	○
Boring	CB-101	CB-103	
Sample	S-4	S-3	
Spec			
Depth	7-9	5-7	
% +3"			
% Gravel	20.8	32.6	
% SAND	38.1	50.1	
% FINES	41.1	17.3	
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	SM	
w (%)	26.5	8.1	

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"	100.0	85.2	
3/8"	91.3	73.5	
4	79.2	67.4	
10	68.4	57.8	
20	60.9	47.6	
40	55.0	35.9	
60	50.8	27.9	
100	46.6	21.8	
200	41.1	17.3	

PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

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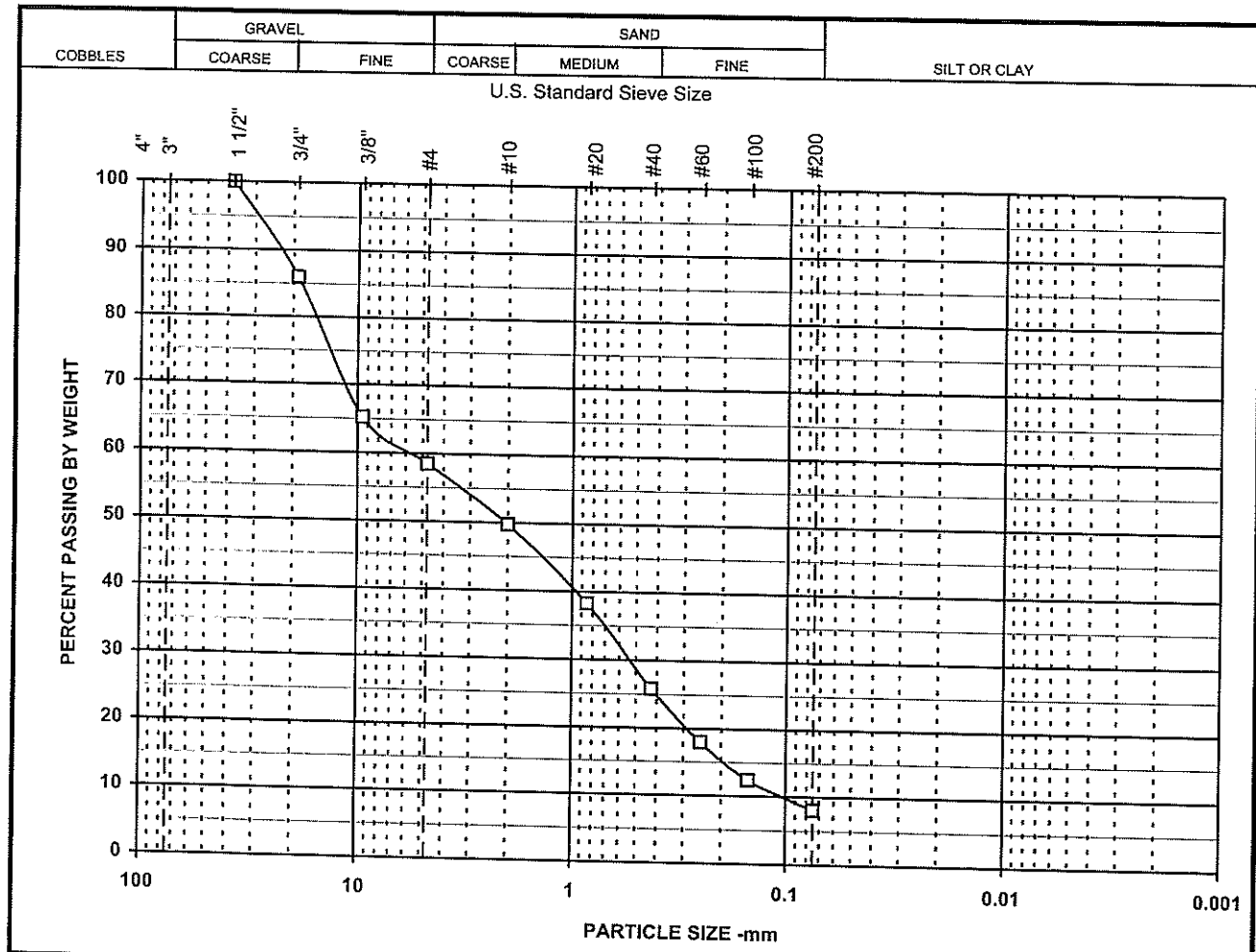

SYMBOL	DESCRIPTION AND REMARKS
□	brown gravelly c-f SAND, trace silt.
■	
○	

Symbol	□	■	○
Boring	NBA-101		
Sample	S-2		
Spec			
Depth	3-5		
% +3"			
% Gravel	41.5		
% SAND	50.4		
% FINES	8.1		
% -2μ			
Cc	0.5		
Cu	53.8		
LL			
PL			
PI			
USCS	SP-SM		
w (%)	5.7		

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"	100.0		
3/4"	86.0		
3/8"	65.2		
4	58.5		
10	49.7		
20	38.2		
40	25.8		
60	18.0		
100	12.4		
200	8.1		

PARTICLE SIZE DISTRIBUTION

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Project No.		Figure
31737788-805	May 2008	

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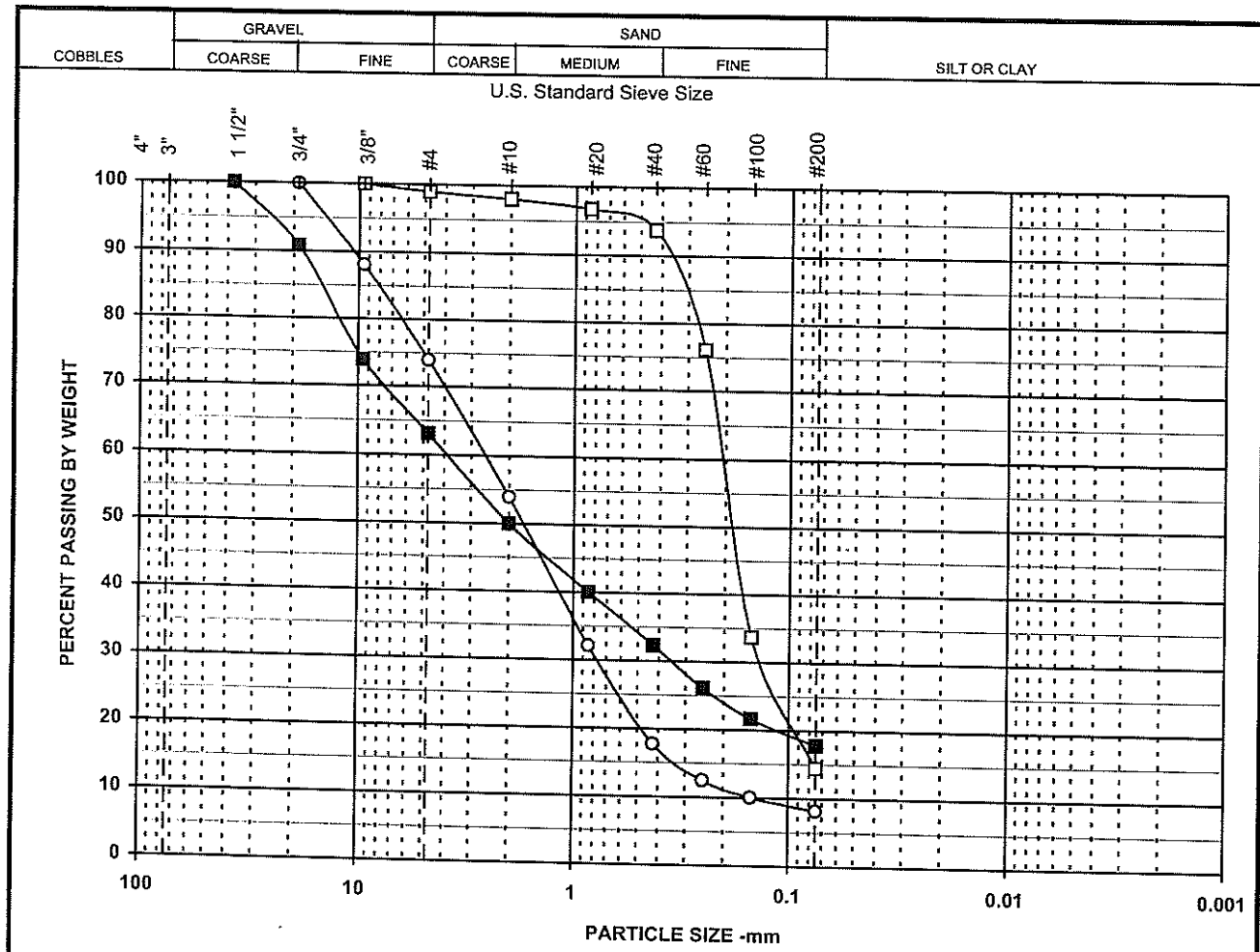

SYMBOL	DESCRIPTION AND REMARKS
□	brown f. SAND, some silt, trace f. gravel, c-f sand.
■	brown gravelly c-f SAND, some silt.
○	brown c-f SAND, some f. gravel, trace silt.

Symbol	□	■	○
Boring	RB-101	RB-102	RB-103
Sample	S-4	S-2	S-4
Spec			
Depth	7-9	2-4	6-8
% +3"			
% Gravel	1.0	36.9	26.0
% SAND	84.6	45.3	65.8
% FINES	14.4	17.8	8.2
% -2μ			
Cc			1.5
Cu			19.4
LL			
PL			
PI			
USCS	SM	SM	SW-SM
w (%)	25.8	9.8	14.9

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"		90.9	100.0
3/8"	100.0	73.9	88.1
4	99.0	63.1	74.0
10	98.0	50.0	53.9
20	96.8	40.0	32.1
40	93.7	32.3	17.8
60	76.1	26.1	12.5
100	33.7	21.7	10.1
200	14.4	17.8	8.2

PARTICLE SIZE DISTRIBUTION

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Project No.		Figure
31737788-805	May 2008	

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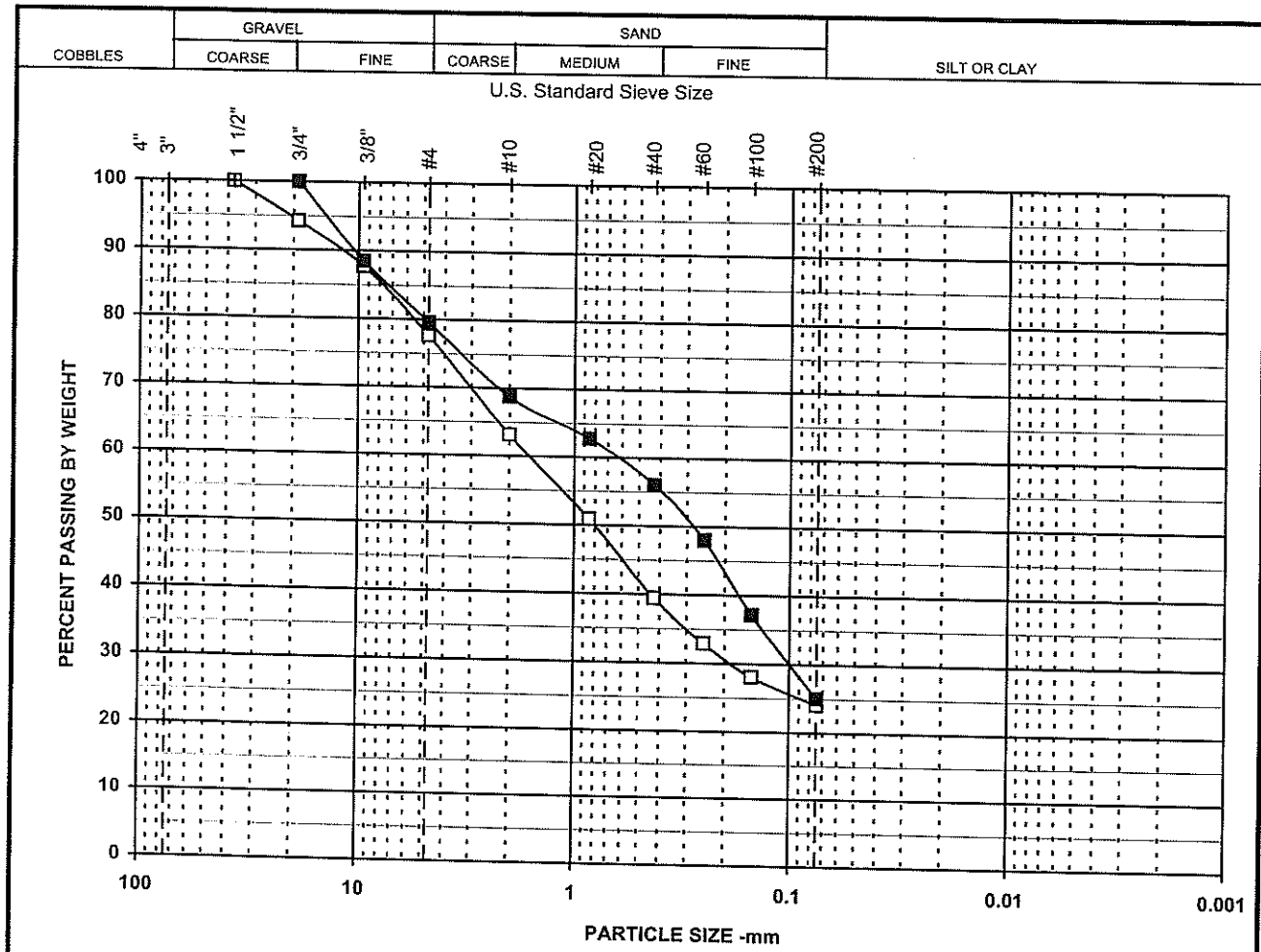

SYMBOL	DESCRIPTION AND REMARKS
□	red c-f SAND, some clay, trace gravel.
■	red c-f SAND, some f. gravel, clay.
○	

Symbol	□	■	○
Boring	RB-104	RB-105	
Sample	S-1	S-4	
Spec			
Depth	1-3	7-9	
% +3"			
% Gravel	22.4	20.4	
% SAND	53.5	54.6	
% FINES	24.1	25.0	
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	SC	
w (%)	11.9	16.6	

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"	100.0		
3/4"	94.3	100.0	
3/8"	87.7	88.5	
4	77.6	79.6	
10	63.1	68.8	
20	50.9	62.7	
40	39.4	56.0	
60	32.9	48.0	
100	28.1	37.2	
200	24.1	25.0	

PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

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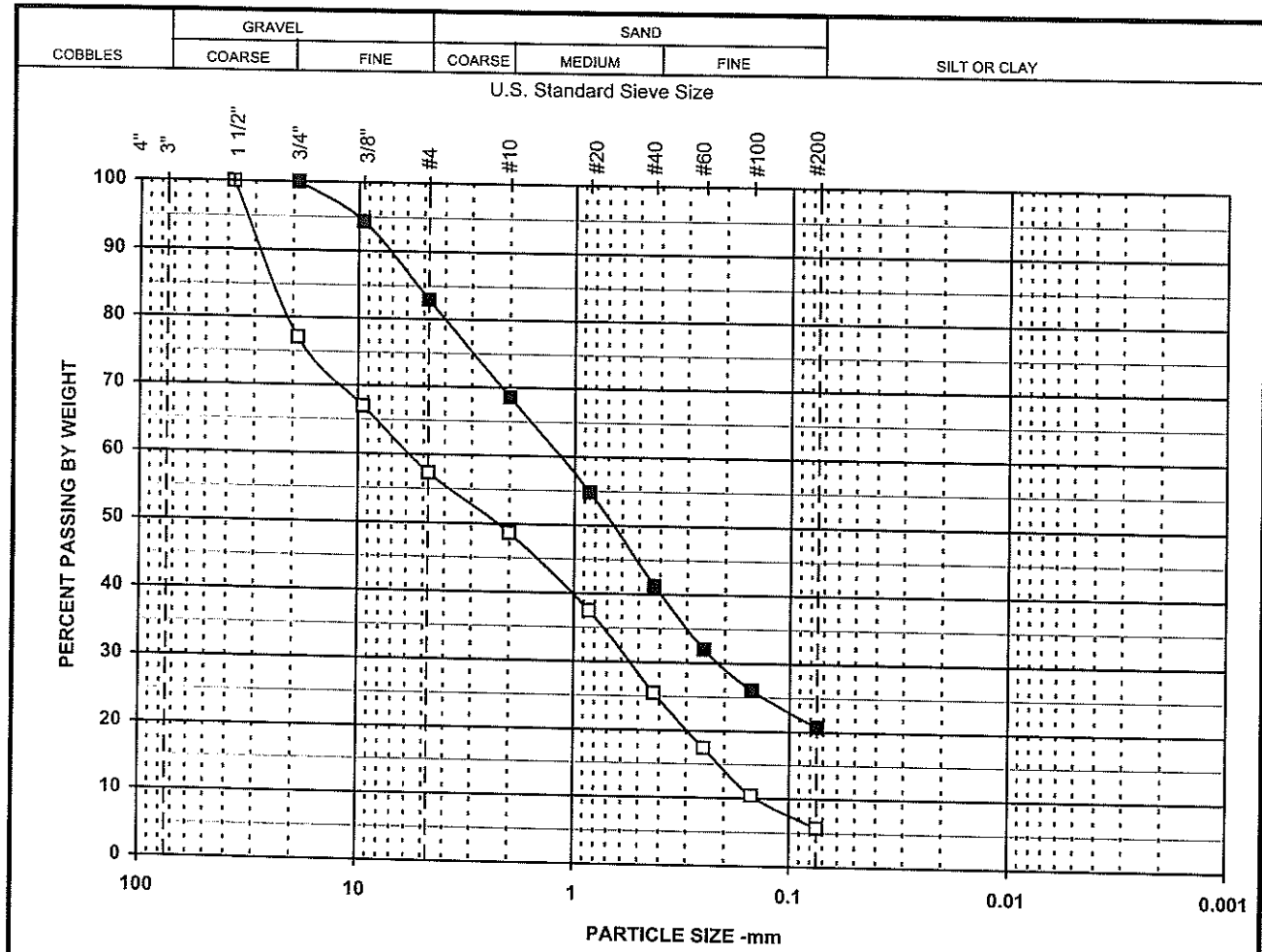

SYMBOL	DESCRIPTION AND REMARKS
□	reddish-brown gravelly c-f SAND, trace silt.
■	brown c-f SAND, some f. gravel, silt.
○	

Symbol	□	■	○
Boring	RB-107	RB-107	
Sample	S-1	S-4	
Spec			
Depth	0-2	7-9	
% +3"			
% Gravel	42.7	17.1	
% SAND	51.5	62.2	
% FINES	5.8	20.7	
% -2μ			
Cc	0.4		
Cu	42.5		
LL			
PL			
PI			
USCS	SP-SM	SM	
w (%)	4.9	12.9	

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"	100.0		
3/4"	77.1	100.0	
3/8"	67.0	94.3	
4	57.3	82.9	
10	48.6	68.6	
20	37.4	54.8	
40	25.5	41.3	
60	17.4	32.0	
100	10.5	26.1	
200	5.8	20.7	

PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

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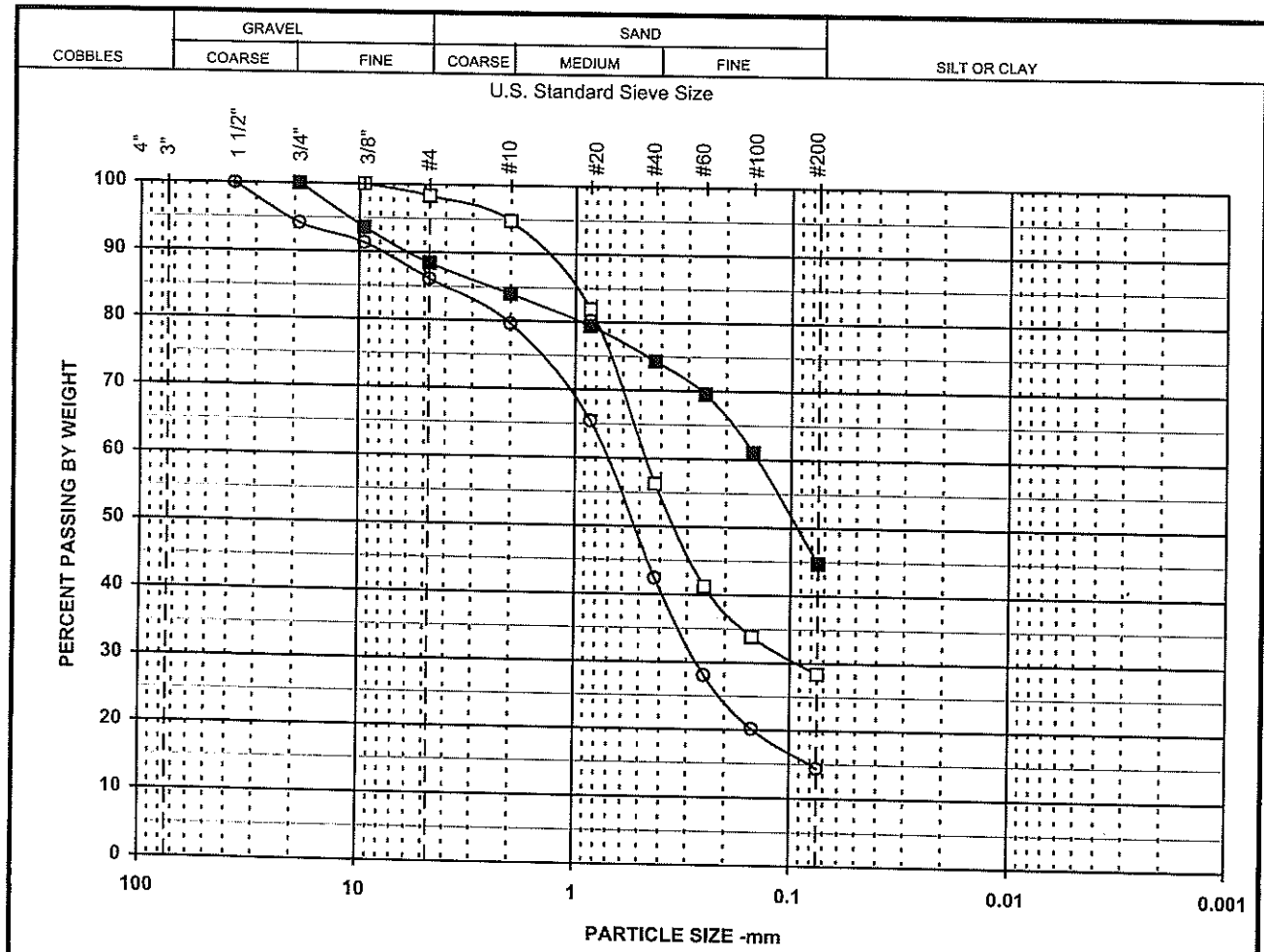

SYMBOL	DESCRIPTION AND REMARKS
□	reddish-brown c-f SAND, some silt, trace f. gravel; clay lumps noted.
■	brown silty c-f SAND, trace f. gravel.
○	reddish-brown c-f SAND, some gravel, silt.

Symbol	□	■	○
Boring	RB-110	RB-120	RB-122
Sample	S-2	S-1	S-2
Spec			
Depth	2-4	0-2	2-4
% +3"			
% Gravel	1.7	11.6	
% SAND	69.9	43.7	
% FINES	28.4	44.7	14.4
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SM	SM	SM
w (%)	11.7	6.8	11.9

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"			100.0
3/4"		100.0	94.2
3/8"	100.0	93.6	91.4
4	98.3	88.4	86.1
10	94.8	84.0	79.6
20	81.9	79.4	65.5
40	56.3	74.3	42.4
60	41.2	69.5	28.1
100	33.9	61.0	20.2
200	28.4	44.7	14.4

PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

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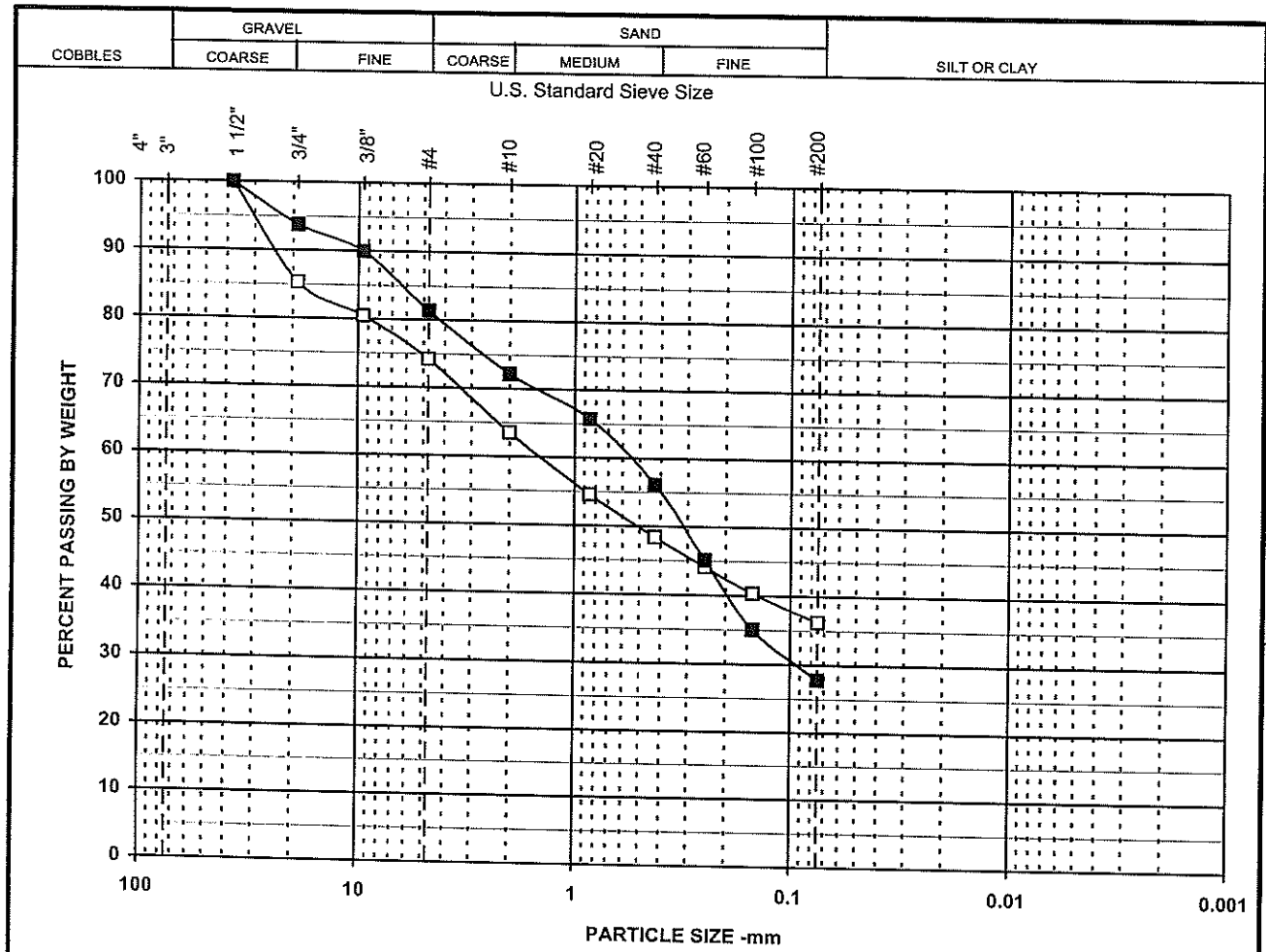

SYMBOL	DESCRIPTION AND REMARKS
□	brown clayey c-f SAND, some gravel.
■	brown c-f SAND, some gravel, silt.
○	

Symbol	□	■	○
Boring	RW-101	RW-105	
Sample	S-3	S-1	
Spec			
Depth	5-7	0-2	
% +3"			
% Gravel	25.8		
% SAND	38.0		
% FINES	36.2	27.8	
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	SM	
w (%)	9.6	7.7	

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"	100.0	100.0	
3/4"	85.3	93.7	
3/8"	80.5	89.9	
4	74.2	81.4	
10	63.5	72.3	
20	54.6	65.7	
40	48.4	56.1	
60	44.1	45.1	
100	40.3	35.1	
200	36.2	27.8	

PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

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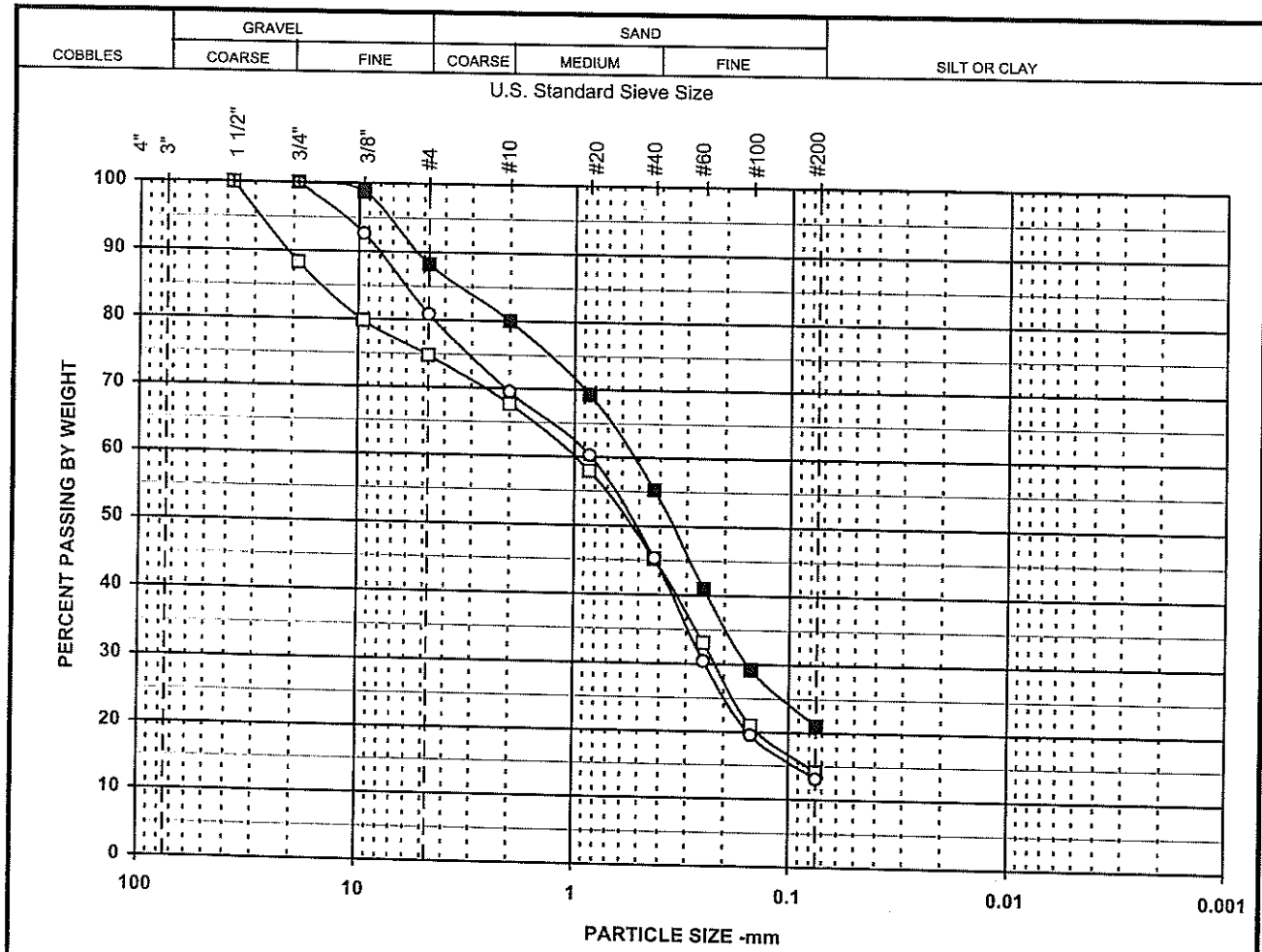


SYMBOL	DESCRIPTION AND REMARKS
□	red c-f SAND, some gravel, silt.
■	red c-f SAND, some silt, trace f. gravel.
○	red c-f SAND, some f. gravel, silt.

Symbol	□	■	○
Boring	RW-110	RW-112	RW-114
Sample	S-1	S-2	S-3
Spec			
Depth	1-2	3-5	5-7
% +3"			
% Gravel	25.2	11.8	19.1
% SAND	60.7	67.2	67.7
% FINES	14.1	21.0	13.2
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SM	SM	SM
w (%)	13.3	9.2	11.6

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"	100.0		
3/4"	88.3	100.0	100.0
3/8"	79.9	98.7	92.6
4	74.8	88.2	80.9
10	67.7	80.0	69.5
20	57.9	69.3	60.2
40	45.2	55.2	45.3
60	33.1	40.9	30.4
100	20.9	29.2	19.5
200	14.1	21.0	13.2

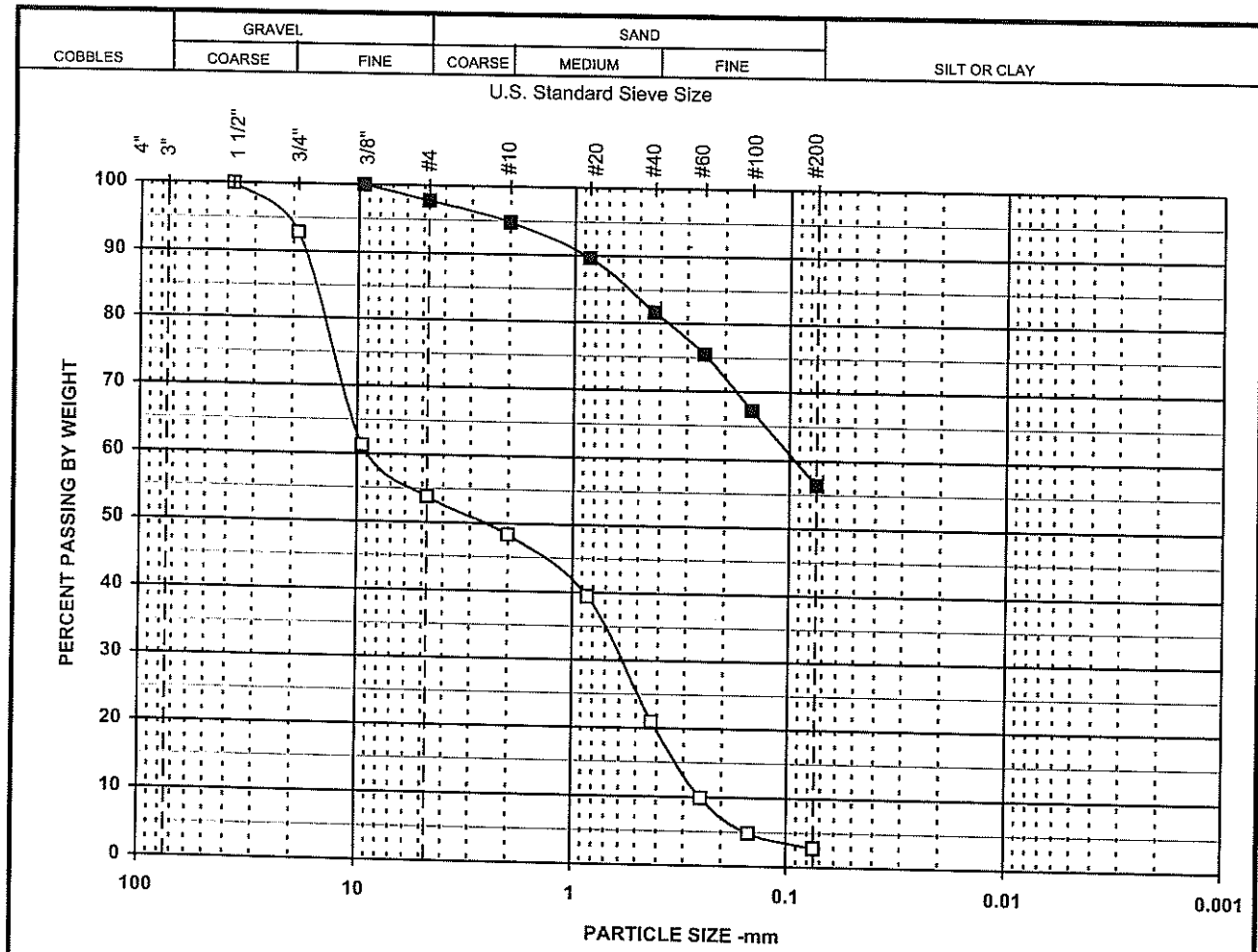
PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

Geotesting Services, Inc.

sievj08.xls 5/19/2008



SYMBOL	DESCRIPTION AND REMARKS
□	brown gravelly c-f SAND, trace silt.
■	brown c-f sandy silty CLAY, trace f. gravel.
○	

Symbol	□	■	○
Boring	RW-118	RW-119	
Sample	S-1	S-5	
Spec			
Depth	0-2	10-12	
% +3"			
% Gravel	46.2	2.2	
% SAND	51.0	41.4	
% FINES	2.8	56.4	
% -2μ			
Cc	0.2		
Cu	34.7		
LL			
PL			
PI			
USCS	SP	CL	
w (%)	2.5	21.1	

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"	100.0		
3/4"	92.8		
3/8"	61.2	100.0	
4	53.8	97.8	
10	48.3	94.8	
20	39.5	89.6	
40	21.0	81.7	
60	9.9	75.5	
100	4.9	67.2	
200	2.8	56.4	

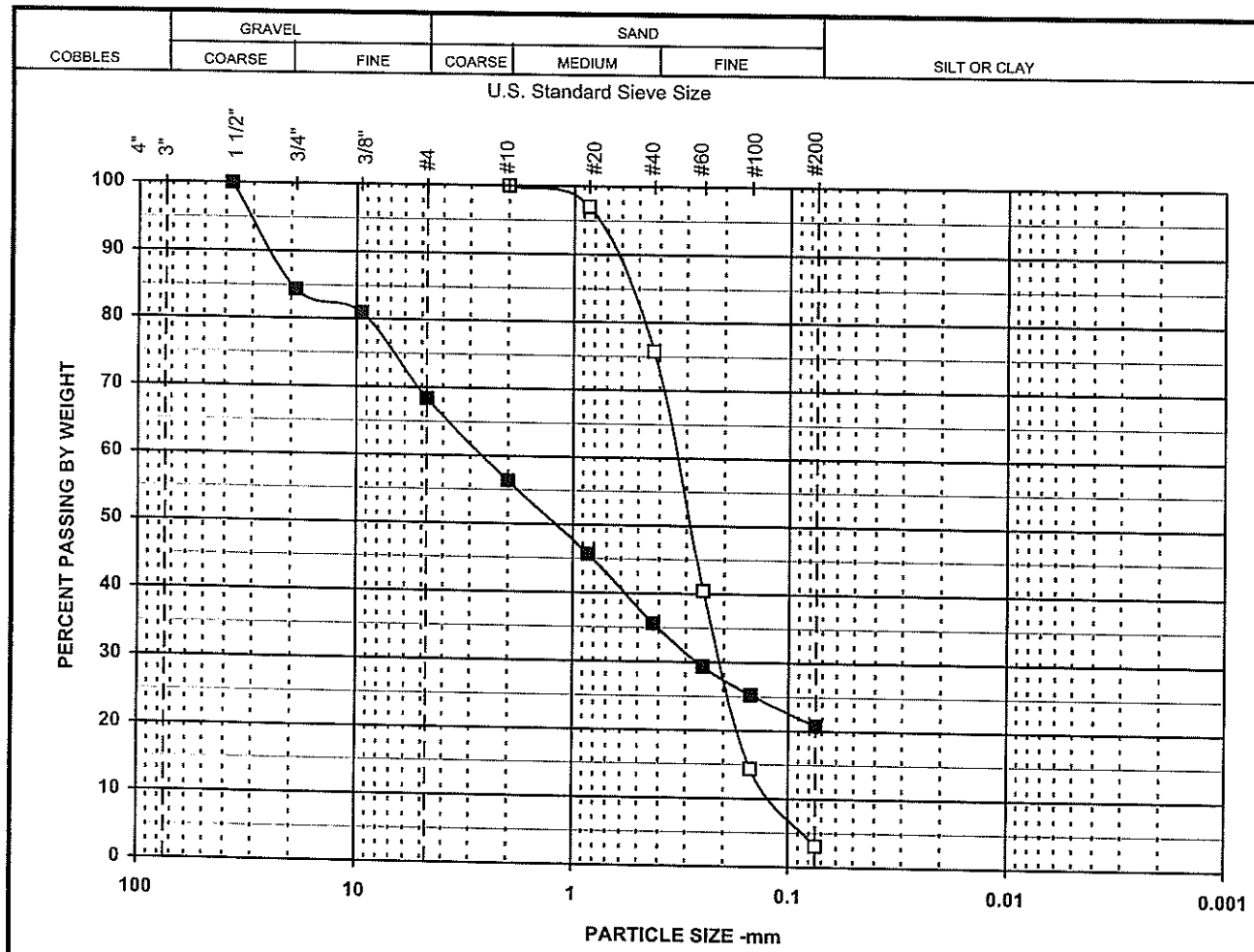
PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

Geotesting Services, Inc.

sievj09.xls 5/19/2008



SYMBOL	DESCRIPTION AND REMARKS
□	brown m-f SAND, trace silt.
■	brown gravelly c-f SAND, some silt.
○	

Symbol	□	■	○
Boring	RW-120	RW-124	
Sample	S-4	S-5	
Spec			
Depth	7-9	10-12	
% +3"			
% Gravel		31.6	
% SAND	96.9	47.6	
% FINES	3.1	20.8	
% -2μ			
Cc	1.1		
Cu	2.9		
LL			
PL			
PI			
USCS	SP	SM	
w (%)	4.2	18.5	

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"		84.3	
3/8"		80.9	
4		68.4	
10	100.0	56.3	
20	97.0	45.7	
40	75.8	35.6	
60	40.5	29.4	
100	14.4	25.2	
200	3.1	20.8	

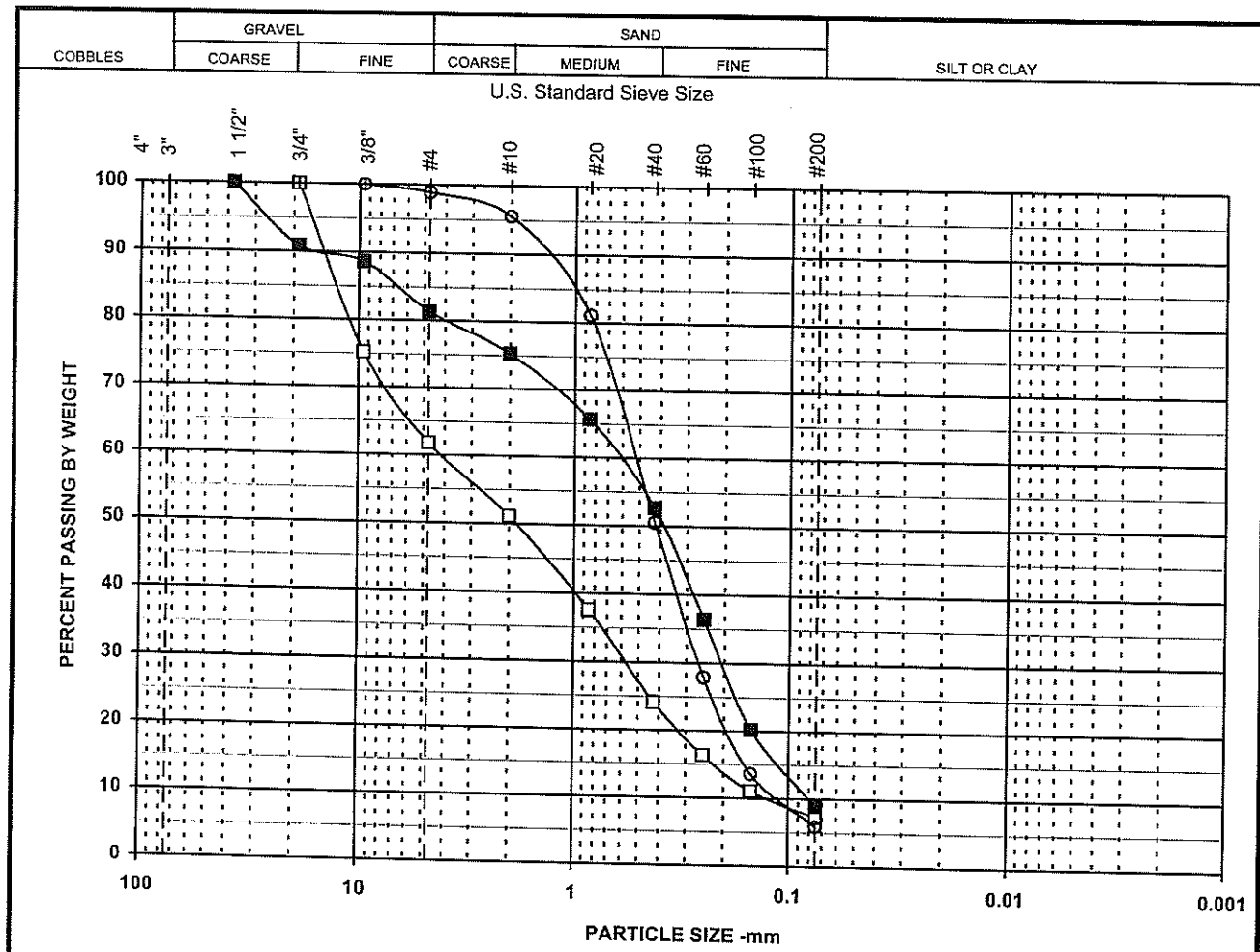
PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

Geotesting Services, Inc.

sievj10.xls 5/19/2008



SYMBOL	DESCRIPTION AND REMARKS
□	yellowish-brown gravelly c-f SAND, trace silt.
■	yellowish-brown c-f SAND, some gravel, trace silt.
○	brown c-f SAND, trace f. gravel, silt.

Symbol	□	■	○
Boring	TB-101	TB-101	TB-102
Sample	S-2	S-7	S-6
Spec			
Depth	2-4	20-22	15-17
% +3"			
% Gravel	38.2	18.6	
% SAND	54.5	72.5	
% FINES	7.3	8.9	5.9
% -2μ			
Cc	0.7	0.8	1.1
Cu	33.3	8.1	4.8
LL			
PL			
PI			
USCS	SP-SM	SP-SM	SP-SM
w (%)	2.9	6.5	6.7

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"	100.0	90.9	
3/8"	75.2	88.6	100.0
4	61.8	81.4	98.9
10	51.1	75.3	95.5
20	37.6	65.7	81.1
40	24.1	52.6	50.5
60	16.3	36.4	27.9
100	11.0	20.2	13.6
200	7.3	8.9	5.9

PARTICLE SIZE DISTRIBUTION

H&A #32669-000 - Connecticut Busway

Project No.		Figure
31737788-805	May 2008	

Geotesting Services, Inc.

sievj11.xls 5/19/2008

Project No.: 31737788-805 File: Indx1 tubes.xls

Haley & Aldrich - #32669-000
Connecticut Busway
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS: WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	TOTAL UNIT WEIGHT (pcf)	DRY UNIT WEIGHT (pcf)	STRENGTH: Test Type @ STRESS (ksf)	PEAK SHEAR STRESS (ksf)	AXIAL STRAIN @ PEAK STRESS (%)	RESIDUAL SHEAR STRESS (ksf)	SENSITIVITY	CONSOLIDATION INITIAL CONDITIONS: VOID RATIO (-)	SATUR-ATION (%)	REMARKS
CB-103	U-1	38-40						124.1									
CB-103	U-1B	38.65	28.1	25	20	5	CL-ML	122.6	97.7	CIU'@2.7	8.5	20.6					T2882
NBA-101	U-3	35-37						124.5									
NBA-101	U-3A	35.65	29.1				ML	126.6	98.0	CIU'@2.2	12.3	19.9					T2879
NBA-101	U-3B	36.15	27.6				CL&ML	121.7	95.4	CIU'@4.3	6.2	21.3					T2880
NBA-101	U-3C	36.65	24.5				CL-ML	129.1	103.7	CIU'@8.6	5.2	20.4					T2881
NBA-101	U-3D	37.1	22.4	28	18	10	CL	131.3	107.2						0.624	100	C08054
NBA-101	U-3D	37.1	22.0							LV	0.76		0.10	7.5			
RB-112	U-1	18-20						116.8									
RB-112	U-1A	18.2	17.1							LV	0.26		0.02	10.3			
RB-112	U-1B	18.45	21.6				CL-ML	135.3	111.2	CIU'@1.4	4.9	20.3					T2870
RB-112	U-1C	18.95	30.9				CL	121.9	93.1	CIU'@2.9	1.6	4.7					T2871
RB-112	U-1D	19.45	38.0				CL	118.7	86.0	CIU'@5.8	1.7	7.2					T2872
RB-112	U-1E	19.85	40.7	43	21	22	CL	114.5	81.4						1.132	100	C08051
RB-118	U-2	23-25						116.6									
RB-118	U-2	23.2	41.5							LV	0.22		0.04	5.4			
RB-118	U-2	23.65	32.5				ML	120.3	90.8	CIU'@1.7	6.2	19.2					T2864
RB-118	U-2	24.15	29.6				CL-ML	125.1	96.5	CIU'@3.5	8.9	10.1					T2865
RB-118	U-2	24.65	29.8				CL-ML	123.6	95.2	CIU'@6.9	13.4	12.5					T2866
RB-118	U-2	25.1	23.0	np	np	np	ML	128.1	104.2						0.648	98	C08048
RW-110	U-1	23-25						108.0									
RW-110	U-1A	23.45	51.6				CL	109.4	72.2	CIU'@2.9	0.8	6.9					T2876
RW-110	U-1B	23.95	46.9				CL	112.1	76.3	CIU'@5.8	1.7	17.2					T2877
RW-110	U-1C	24.45	49.7				CL	110.5	73.8	CIU'@11.5	3.1	17.7					T2878
RW-110	U-1D	24.9	61.1	49	28	21	ML	103.2	64.1						1.709	99	C08053
RW-110	U-1D	24.9	61.7							LV	0.34		0.10	3.7			bottom

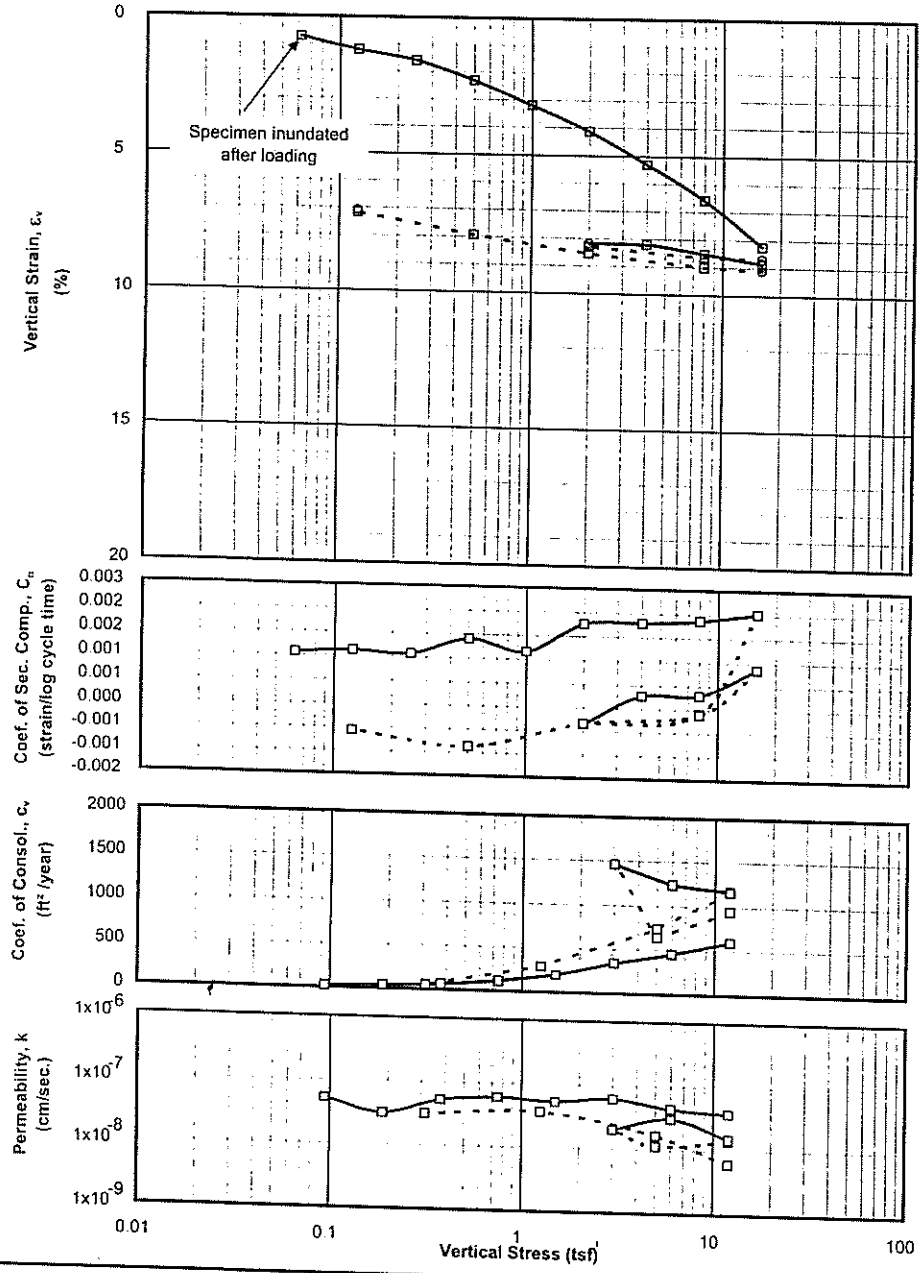
Prepared by: JR Reviewed by: GET Date: 5/28/2008

Haley & Aldrich - #32669-000
Connecticut Busway
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS: WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	TOTAL UNIT WEIGHT (pcf)	DRY UNIT WEIGHT (pcf)	STRENGTH: Test Type @ STRESS (ksf)	PEAK SHEAR STRESS (ksf)	AXIAL STRAIN @ PEAK STRESS (%)	RESIDUAL SHEAR STRESS (ksf)	SENSITIVITY	CONSOLIDATION INITIAL CONDITIONS: VOID RATIO (-)	SATUR-ATION (%)	REMARKS
RW-116		18-20						105.1									
RW-116	A	18.25	63.7				CH	104.8	64.0	CIU'@1.4	0.7	4.9					T2873
RW-116	B	18.75	60.7				CH	104.8	65.2	CIU'@2.9	1.1	2.6					T2874
RW-116	C	19.25	60.5				CH	104.4	65.0	CIU'@5.8	1.5	2.6					T2875
RW-116	D	19.75	60.7	69	29	40	CH	104.6	65.1						1.706	100	C08052
RW-116	D	19.75	65.3							LV	0.68		0.18	3.7			bottom
RW-121	U-1	43-45						108.5									
RW-121	U-1A	43.15	41.8							LV	0.32		0.08	4.10			
RW-121	U-1B	43.55	52.2				CL	109.4	71.9	CIU'@3.3	1.0	11.9					T2867
RW-121	U-1C	44.05	47.9				CL	109.9	74.3	CIU'@6.6	1.9	18.1					T2868
RW-121	U-1D	44.5	49.3				CL	110.4	73.9	CIU'@13.3	3.1	5.0					T2869
RW-121	U-1E	45.05	52.5	41	25	16	CL	107.1	70.3						1.444	100	C08049
TB-102	U-3	55-57						110.3									
TB-102	U-3A	55.1															disturbed
TB-102	U-3B	55.45															disturbed
TB-102	U-3C	55.95															disturbed
TB-102	U-3D	56.45	48.8				ML	111.7	75.1	CIU'@4.3	1.6	16.8					T2883
TB-102	U-3E	56.85	45.3	37	25	12	ML	114.3	78.7						1.317	100^{+}	C08050
TB-102	U-3E	56.85	66.0							LV	0.32		0.08	4.1			

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.

Prepared by: JR Reviewed by: GET Date: 5/28/2008



SAMPLE INFORMATION

Boring:	NBA-101
Sample:	U3-D
Depth:	37.10 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	CL, reddish brown VARVED silty CLAY, trace f. sand. LL = 28, PL = 18, PI = 10

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.61	inch
Diameter:	2.50	inch
Initial water content:	22.4	%
Initial total unit weight:	131.3	pcf
Initial dry unit weight:	107.2	pcf
Initial void ratio:	0.624	
Initial degree of saturation:	100	%
Final water content:	18.9	%
Final total unit weight:	135.7	pcf
Final dry unit weight:	114.1	pcf
Final void ratio:	0.527	
Final degree of saturation:	100	% (assumed specific gravity = 2.79)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	3.6 (Range: 1.4 to 4.3)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.055
Compression Index (void ratio per log cycle stress):	0.089
Swell Ratio (strain per log cycle stress):	0.006
Swell Index (void ratio per log cycle stress):	0.010
Recompression Ratio (strain per log cycle stress):	0.007
Recompression Index (void ratio per log cycle stress):	0.011
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 5/8/08 Tested By: CMJ Checked By: GET

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: NBA-101 Depth: 37.10 feet
Geotesting Services, Inc.	Project No.: 31737788-805	May 2008

PROJECT:	CT Busway
PROJECT NO.:	31737788-805
BORING:	NBA-101
SAMPLE:	U3-D
TEST:	C08054
DEPTH, feet:	37.1
BY:	CMJ
TEST DATE:	5/8/08

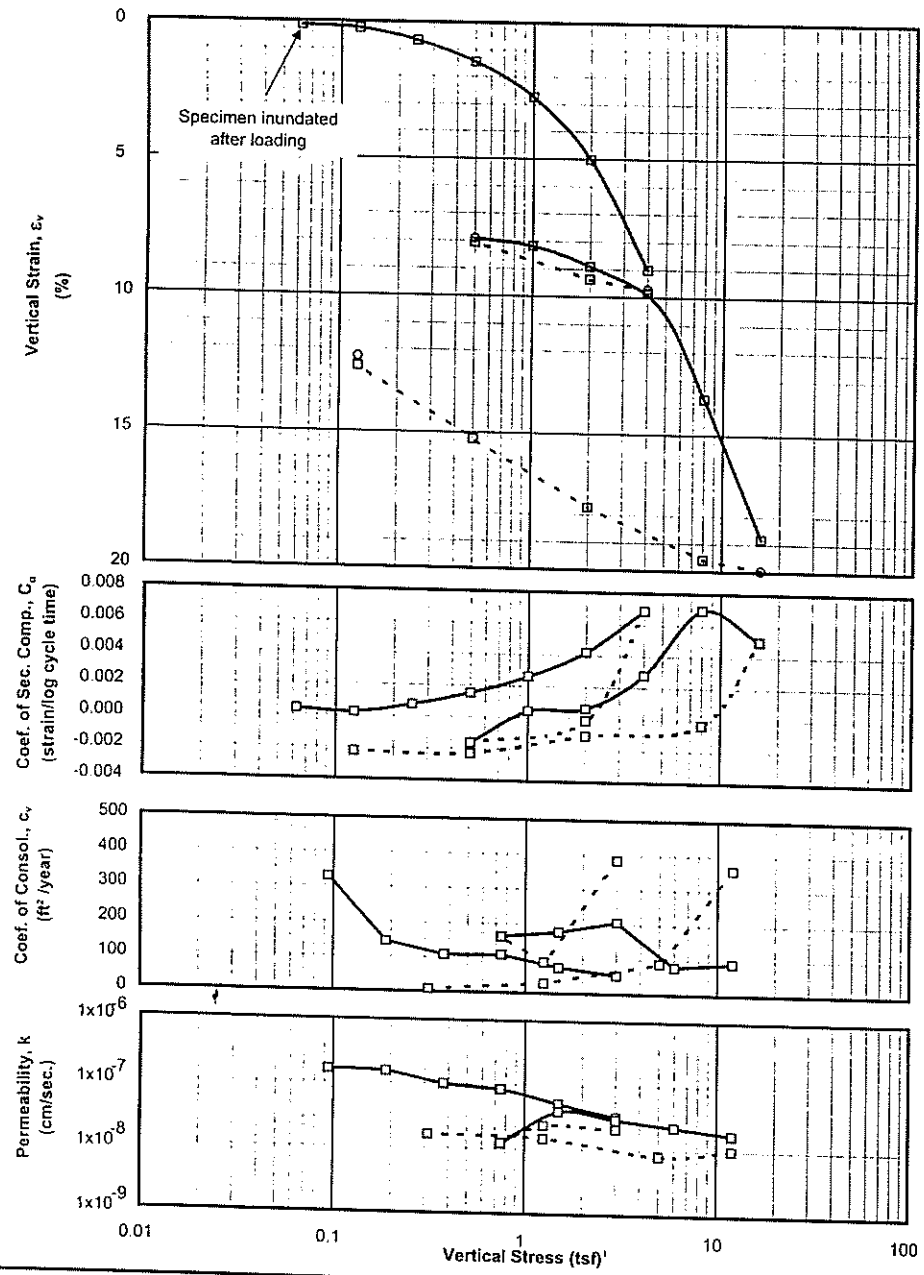
Initial height:	0.611 inch	Final height:	0.574 inch
Initial water content:	22.4 %	Final water content:	18.9 %
Initial dry density:	107.2 pcf	Final dry density:	114.1 pcf
Initial total density:	131.3 pcf	Final total density:	135.7 pcf
Initial saturation:	100 %	Final saturation:	100 %
Initial void ratio:	0.624	Final void ratio:	0.527
		Final strain:	6.1 %

EQUIPMENT:
Load Frame No.: 3
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: CL, reddish brown VARVED silty CLAY, trace f. sand.

G	LL	PL	PI
2.79	28	18	10

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0045	0.733	0.612	0.808	0.611	30.40	0.0011	8.53	1.07E-07
2	0.125	0.0074	1.218	0.604	1.183	0.605	22.11	0.0011	12.87	5.18E-08
3	0.250	0.0098	1.602	0.598	1.720	0.596	34.03	0.0011	32.59	3.15E-08
4	0.500	0.0141	2.309	0.587	2.495	0.584	61.10	0.0014	35.34	5.22E-08
5	1.00	0.0196	3.204	0.572	3.480	0.568	109.75	0.0012	55.87	5.93E-08
6	2.00	0.0252	4.129	0.557	4.610	0.549	191.10	0.0018	108.06	5.34E-08
7	4.00	0.0324	5.305	0.538	5.710	0.531	343.70	0.0018	170.17	6.09E-08
8	8.00	0.0403	6.583	0.517	6.981	0.511	456.04	0.0019	312.81	4.40E-08
9	16.0	0.0504	8.242	0.490	8.701	0.483	600.70	0.0020	482.19	3.76E-08
10	8.00	0.0528	8.641	0.484	8.625	0.484	949.83	-0.0001	2007.11	1.43E-08
11	2.00	0.0507	8.291	0.489	8.179	0.491	646.60	-0.0003	1714.58	1.14E-08
12	4.00	0.0501	8.200	0.491	8.278	0.490	1462.42	0.0003	2199.32	2.01E-08
13	8.00	0.0521	8.525	0.486	8.608	0.484	1240.88	0.0003	1230.30	3.04E-08
14	16.0	0.0542	8.865	0.480	9.107	0.476	1171.92	0.0009	2351.89	1.50E-08
15	8.00	0.0551	9.006	0.478	8.974	0.478	1166.13	-0.0001	5713.15	6.16E-09
16	2.00	0.0523	8.561	0.485	8.484	0.486	745.23	-0.0003	1349.12	1.67E-08
17	0.500	0.0485	7.935	0.495	7.676	0.499	290.38	-0.0009	239.87	3.65E-08
18	0.125	0.0439	7.173	0.508	7.101	0.509	51.45	-0.0006	49.17	3.16E-08



SAMPLE INFORMATION

Boring:	RB-112
Sample:	U-1E
Depth:	19.85 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	CL, reddish brown CLAY, trace f. sand.

LL = 43, PL = 21, PI = 22

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.61	inch
Diameter:	2.50	inch
Initial water content:	40.7	%
Initial total unit weight:	114.5	pcf
Initial dry unit weight:	81.4	pcf
Initial void ratio:	1.132	
Initial degree of saturation:	100	%
Final water content:	35.3	%
Final total unit weight:	118.5	pcf
Final dry unit weight:	87.6	pcf
Final void ratio:	0.981	
Final degree of saturation:	100	%

(assumed specific gravity = 2.78)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	2.2 (Range: 1.7 to 2.3)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.171
Compression Index (void ratio per log cycle stress):	0.365
Swell Ratio (strain per log cycle stress):	0.022
Swell Index (void ratio per log cycle stress):	0.047
Recompression Ratio (strain per log cycle stress):	0.020
Recompression Index (void ratio per log cycle stress):	0.043
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 5/5/08 Tested By: CMJ Checked By: GET 9/1

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: RB-112 Depth: 19.85 feet
Geotesting Services, Inc.	Project No., 31737788-805	May 2008

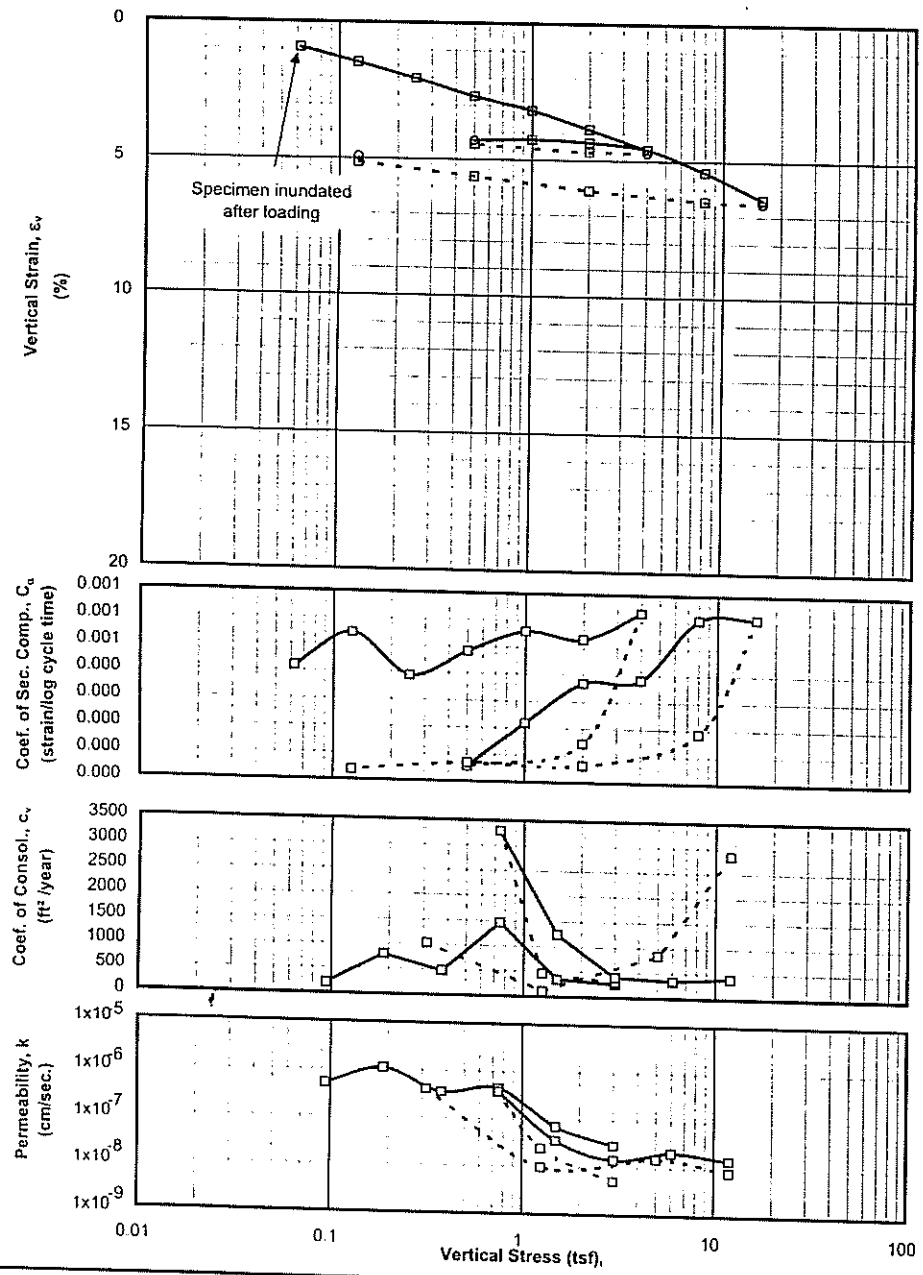
PROJECT:	H&A				
PROJECT NO.:	31737788-805	Initial height:	0.613 inch	Final height:	0.568 inch
BORING:	RB-112	Initial water content:	40.7 %	Final water content:	35.3 %
SAMPLE:	U-1E	Initial dry density:	81.4 pcf	Final dry density:	87.6 pcf
TEST:	C08051	Initial total density:	114.5 pcf	Final total density:	118.5 pcf
DEPTH, feet:	19.85	Initial saturation:	100 %	Final saturation:	100 %
BY:	CMJ	Initial void ratio:	1.132	Final void ratio:	0.981
TEST DATE:	5/5/2008			Final strain:	7.4 %

EQUIPMENT:
Load Frame No.: 5
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: CL, reddish brown CLAY, trace f. sand.

G	LL	PL	PI
2.78	43	21	22

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0009	0.139	1.129	0.122	1.130	294.95	0.0004	44.89	1.98E-07
2	0.125	0.0015	0.241	1.127	0.243	1.127	328.80	0.0002	61.37	1.62E-07
3	0.250	0.0042	0.680	1.118	0.819	1.115	144.77	0.0007	28.46	1.53E-07
4	0.500	0.0089	1.454	1.101	1.612	1.098	108.21	0.0015	32.31	1.01E-07
5	1.00	0.0168	2.739	1.074	3.012	1.068	109.20	0.0026	38.92	8.46E-08
6	2.00	0.0308	5.021	1.025	5.498	1.015	74.86	0.0042	43.81	5.15E-08
7	4.00	0.0552	9.001	0.940	9.718	0.925	54.14	0.0069	50.25	3.25E-08
8	2.00	0.0574	9.362	0.933	9.320	0.934	385.39	-0.0001	554.08	2.10E-08
9	0.500	0.0494	8.049	0.961	7.907	0.964	89.34	-0.0016	114.21	2.36E-08
10	1.00	0.0501	8.173	0.958	8.239	0.957	162.83	0.0004	404.49	1.21E-08
11	2.00	0.0546	8.894	0.943	8.956	0.941	177.00	0.0006	138.56	3.85E-08
12	4.00	0.0604	9.844	0.922	10.260	0.913	206.93	0.0028	210.64	2.96E-08
13	8.00	0.0839	13.685	0.840	14.594	0.821	79.64	0.0069	104.13	2.31E-08
14	16.0	0.1154	18.820	0.731	19.952	0.707	90.89	0.0050	155.81	1.76E-08
15	8.00	0.1200	19.569	0.715	19.501	0.716	360.00	-0.0003	1067.66	1.02E-08
16	2.00	0.1087	17.715	0.755	17.576	0.758	87.98	-0.0011	323.69	8.20E-09
17	0.500	0.0934	15.229	0.808	15.003	0.812	29.29	-0.0023	60.33	1.46E-08
18	0.125	0.0773	12.608	0.863	12.268	0.871	7.69	-0.0023	14.31	1.62E-08



SAMPLE INFORMATION

Boring:	RB-118
Sample:	U-2E
Depth:	25.10 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	ML, reddish brown SILT, some f. sand.

LL = 0, PL = 0, PI = 0

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.62	inch
Diameter:	2.50	inch
Initial water content:	23.0	%
Initial total unit weight:	128.1	pcf
Initial dry unit weight:	104.2	pcf
Initial void ratio:	0.648	
Initial degree of saturation:	98	%
Final water content:	21.6	%
Final total unit weight:	131.0	pcf
Final dry unit weight:	107.7	pcf
Final void ratio:	0.594	
Final degree of saturation:	100	% (assumed specific gravity = 2.75)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	2.0 (Range: 1.1 to 3.0)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.030
Compression Index (void ratio per log cycle stress):	0.049
Swell Ratio (strain per log cycle stress):	0.004
Swell Index (void ratio per log cycle stress):	0.007
Recompression Ratio (strain per log cycle stress):	0.002
Recompression Index (void ratio per log cycle stress):	0.003
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 4/30/08 Tested By: CMJ Checked By: GET

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: RB-118 Depth: 25.10 feet
Geotesting Services, Inc.	Project No. 31737788-805	May 2008

PROJECT:	H&A
PROJECT NO.:	31737788-805
BORING:	RB-118
SAMPLE:	U-2E
TEST:	C08048
DEPTH, feet:	25.1
BY:	CMJ
TEST DATE:	4/30/2008

Initial height:	0.615 inch
Initial water content:	23.0 %
Initial dry density:	104.2 pcf
Initial total density:	128.1 pcf
Initial saturation:	98 %
Initial void ratio:	0.648

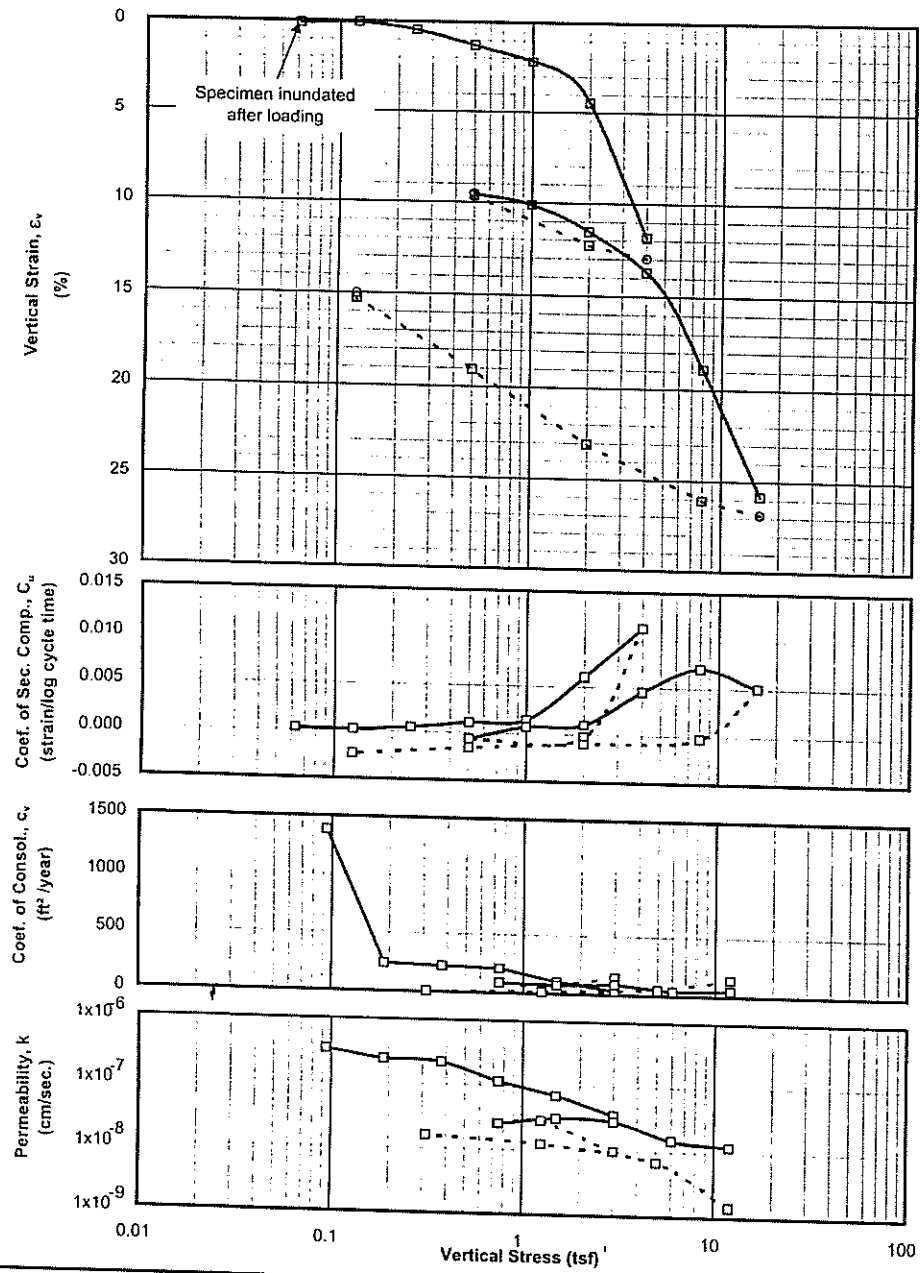
Final height:	0.594 inch
Final water content:	21.6 %
Final dry density:	107.7 pcf
Final total density:	131.0 pcf
Final saturation:	100 %
Final void ratio:	0.594
Final strain:	3.5 %

EQUIPMENT:
Load Frame No.: 6
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: ML, reddish brown SILT, some f. sand.

G	LL	PL	PI
2.75	np	np	np

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0058	0.938	0.632	1.052	0.630	1393.62	0.0004	6.66	6.31E-06
2	0.125	0.0090	1.467	0.624	1.656	0.620	197.74	0.0007	11.83	5.04E-07
3	0.250	0.0126	2.043	0.614	2.151	0.612	791.03	0.0004	21.68	1.10E-06
4	0.500	0.0164	2.669	0.604	2.792	0.602	474.57	0.0006	39.92	3.59E-07
5	1.00	0.0195	3.175	0.595	3.368	0.592	1464.33	0.0007	98.86	4.47E-07
6	2.00	0.0237	3.858	0.584	4.016	0.582	345.72	0.0007	146.43	7.12E-08
7	4.00	0.0282	4.584	0.572	4.727	0.570	266.67	0.0009	275.67	2.92E-08
8	2.00	0.0289	4.697	0.570	4.682	0.571	301.66	-0.0001	1760.82	5.17E-09
9	0.500	0.0273	4.431	0.575	4.305	0.577	453.74	-0.0003	563.38	2.43E-08
10	1.00	0.0261	4.243	0.578	4.256	0.578	3287.92	0.0000	266.10	3.73E-07
11	2.00	0.0267	4.338	0.576	4.413	0.575	1241.14	0.0003	1048.18	3.57E-08
12	4.00	0.0282	4.580	0.572	4.648	0.571	398.51	0.0004	829.05	1.45E-08
13	8.00	0.0332	5.395	0.559	5.553	0.556	341.57	0.0008	490.69	2.10E-08
14	16.0	0.0393	6.382	0.543	6.530	0.540	398.85	0.0008	810.51	1.48E-08
15	8.00	0.0397	6.460	0.541	6.453	0.541	2846.27	0.0000	10283.51	8.35E-09
16	2.00	0.0375	6.093	0.547	5.982	0.549	851.18	-0.0003	1635.08	1.57E-08
17	0.500	0.0346	5.624	0.555	5.573	0.556	104.72	-0.0003	320.20	9.87E-09
18	0.125	0.0316	5.135	0.563	4.921	0.567	1026.65	-0.0003	76.59	4.04E-07



SAMPLE INFORMATION

Boring:	RW-110
Sample:	U-1D
Depth:	24.90 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	ML, reddish brown VARVED clayey SILT, trace f. sand. LL = 49, PL = 28, PI = 21

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.61	inch
Diameter:	2.50	inch
Initial water content:	61.1	%
Initial total unit weight:	103.2	pcf
Initial dry unit weight:	64.1	pcf
Initial void ratio:	1.709	
Initial degree of saturation:	99	%
Final water content:	54.2	%
Final total unit weight:	106.8	pcf
Final dry unit weight:	69.3	pcf
Final void ratio:	1.506	
Final degree of saturation:	100	% (assumed specific gravity = 2.78)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	2.0 (Range: 1.7 to 2.0)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.230
Compression Index (void ratio per log cycle stress):	0.623
Swell Ratio (strain per log cycle stress):	0.044
Swell Index (void ratio per log cycle stress):	0.119
Recompression Ratio (strain per log cycle stress):	0.045
Recompression Index (void ratio per log cycle stress):	0.122
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 5/7/08 Tested By: CMJ Checked By: GET 91

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: RW-110 Depth: 24.90 feet
Geotesting Services, Inc.	Project No. 31737788-805	May 2008

PROJECT:	H&A
PROJECT NO.:	31737788-805
BORING:	RW-110
SAMPLE:	U-1D
TEST:	C08053
DEPTH, feet:	24.9
BY:	CMJ
TEST DATE:	5/7/2008

Initial height:	0.612 inch
Initial water content:	61.1 %
Initial dry density:	64.1 pcf
Initial total density:	103.2 pcf
Initial saturation:	99 %
Initial void ratio:	1.709

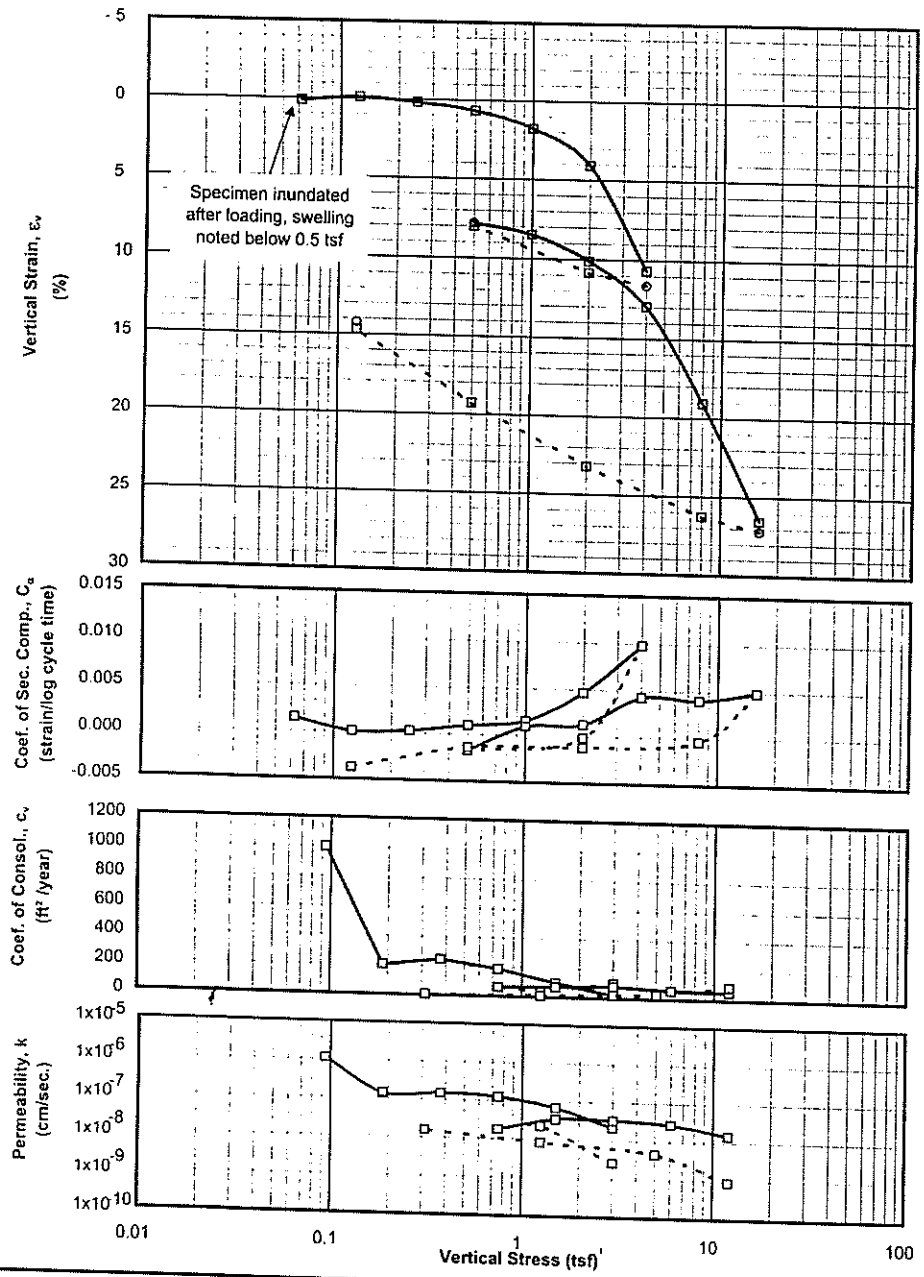
Final height:	0.553 inch
Final water content:	54.2 %
Final dry density:	69.3 pcf
Final total density:	106.8 pcf
Final saturation:	100 %
Final void ratio:	1.506
Final strain:	9.5 %

EQUIPMENT:
Load Frame No.: 4
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: ML, reddish brown VARVED clayey SILT, trace f. sand.

G	LL	PL	PI
2.78	49	28	21

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0006	0.104	1.706	-0.004	1.709	533.71	0.0002	59.81	2.69E-07
2	0.125	0.0003	0.054	1.707	0.049	1.708	1386.08	0.0002	123.68	3.38E-07
3	0.250	0.0029	0.469	1.696	0.542	1.694	239.65	0.0005	30.12	2.40E-07
4	0.500	0.0078	1.282	1.674	1.576	1.666	224.37	0.0011	30.77	2.20E-07
5	1.00	0.0133	2.178	1.650	2.391	1.644	211.30	0.0015	55.81	1.14E-07
6	2.00	0.0273	4.455	1.588	5.088	1.571	103.02	0.0060	43.92	7.08E-08
7	4.00	0.0725	11.851	1.388	12.970	1.357	32.19	0.0112	27.04	3.59E-08
8	2.00	0.0752	12.297	1.376	12.258	1.377	150.81	-0.0002	447.82	1.02E-08
9	0.500	0.0591	9.656	1.447	9.543	1.450	53.54	-0.0007	56.79	2.84E-08
10	1.00	0.0620	10.132	1.434	10.219	1.432	88.41	0.0007	104.94	2.54E-08
11	2.00	0.0707	11.549	1.396	11.659	1.393	73.32	0.0011	70.57	3.13E-08
12	4.00	0.0838	13.702	1.338	14.171	1.325	88.62	0.0046	92.92	2.88E-08
13	8.00	0.1156	18.900	1.197	19.722	1.175	38.67	0.0071	76.94	1.52E-08
14	16.0	0.1580	25.828	1.009	26.854	0.981	47.35	0.0051	115.49	1.24E-08
15	8.00	0.1596	26.094	1.002	26.022	1.004	141.78	-0.0003	2998.69	1.43E-09
16	2.00	0.1411	23.071	1.084	22.870	1.089	45.22	-0.0010	198.47	6.87E-09
17	0.500	0.1166	19.066	1.192	18.910	1.197	15.66	-0.0016	37.45	1.26E-08
18	0.125	0.0934	15.269	1.295	15.010	1.302	5.25	-0.0024	9.88	1.60E-08



SAMPLE INFORMATION

Boring:	RW-116
Sample:	D
Depth:	19.75 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	CH, reddish brown VARVED CLAY, trace f. sand.

LL = 69, PL = 29, PI = 40

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.61	inch
Diameter:	2.50	inch
Initial water content:	60.7	%
Initial total unit weight:	104.6	pcf
Initial dry unit weight:	65.1	pcf
Initial void ratio:	1.706	
Initial degree of saturation:	100	%
Final water content:	56.7	%
Final total unit weight:	106.3	pcf
Final dry unit weight:	67.9	pcf
Final void ratio:	1.594	
Final degree of saturation:	100	%

(assumed specific gravity = 2.82)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	2.3 (Range: 2.2 to 2.4)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.279
Compression Index (void ratio per log cycle stress):	0.755
Swell Ratio (strain per log cycle stress):	0.047
Swell Index (void ratio per log cycle stress):	0.127
Recompression Ratio (strain per log cycle stress):	0.055
Recompression Index (void ratio per log cycle stress):	0.149
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 5/6/08 Tested By: CMJ Checked By: GET

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: RW-116 Depth: 19.75 feet
Geotesting Services, Inc.	Project No. 31737788-805	May 2008

GSI Analysis File: Conv31.xls (10/05)

C08052.xls

5/22/2008

PROJECT:	H&A
PROJECT NO.:	31737788-805
BORING:	RW-116
SAMPLE:	D
TEST:	C08052
DEPTH, feet:	19.75
BY:	CMJ
TEST DATE:	5/6/2008

Initial height:	0.610 inch
Initial water content:	60.7 %
Initial dry density:	65.1 pcf
Initial total density:	104.6 pcf
Initial saturation:	100 %
Initial void ratio:	1.706

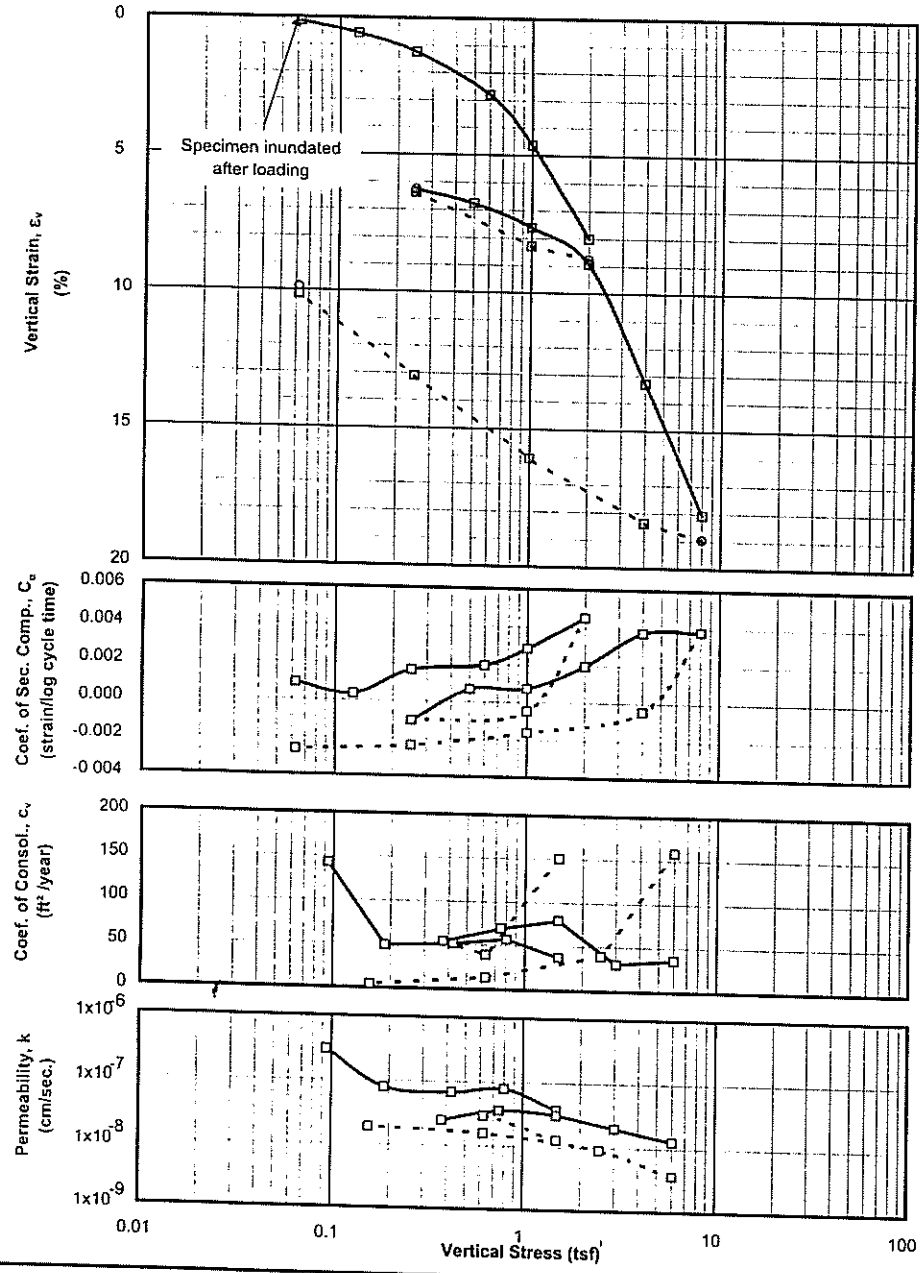
Final height:	0.544 inch
Final water content:	56.7 %
Final dry density:	67.9 pcf
Final total density:	106.3 pcf
Final saturation:	100 %
Final void ratio:	1.594
Final strain:	10.9 %

EQUIPMENT:
Load Frame No.: 1
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: CH, reddish brown VARVED CLAY, trace f. sand.

G	LL	PL	PI
2.82	69	29	40

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0008	0.126	1.703	-0.073	1.708	366.40	0.0015	49.56	2.23E-07
2	0.125	-0.0006	-0.102	1.709	-0.099	1.709	1001.42	0.0001	27.36	1.10E-06
3	0.250	0.0011	0.182	1.701	0.210	1.700	204.25	0.0003	43.92	1.40E-07
4	0.500	0.0042	0.683	1.688	0.835	1.683	243.65	0.0010	49.94	1.47E-07
5	1.00	0.0109	1.781	1.658	1.991	1.652	186.73	0.0016	45.53	1.24E-07
6	2.00	0.0249	4.087	1.595	4.622	1.581	97.66	0.0047	43.36	6.80E-08
7	4.00	0.0649	10.643	1.418	11.620	1.392	22.21	0.0098	30.51	2.20E-08
8	2.00	0.0659	10.814	1.413	10.777	1.414	100.68	-0.0002	1170.67	2.59E-09
9	0.500	0.0488	7.996	1.490	7.814	1.495	39.30	-0.0017	53.24	2.23E-08
10	1.00	0.0517	8.481	1.477	8.589	1.474	61.20	0.0009	103.27	1.79E-08
11	2.00	0.0616	10.097	1.433	10.247	1.429	70.67	0.0013	61.87	3.45E-08
12	4.00	0.0790	12.948	1.356	13.582	1.338	78.50	0.0043	70.15	3.38E-08
13	8.00	0.1162	19.056	1.190	19.941	1.166	60.40	0.0040	65.49	2.78E-08
14	16.0	0.1618	26.533	0.988	27.192	0.970	52.70	0.0049	106.99	1.49E-08
15	8.00	0.1602	26.272	0.995	26.228	0.996	89.81	-0.0004	3063.29	8.84E-10
16	2.00	0.1414	23.193	1.078	23.046	1.082	29.36	-0.0013	194.86	4.55E-09
17	0.500	0.1177	19.296	1.184	19.100	1.189	10.56	-0.0014	38.49	8.28E-09
18	0.125	0.0896	14.694	1.308	14.247	1.321	4.21	-0.0038	8.15	1.56E-08



SAMPLE INFORMATION

Boring:	RW-121
Sample:	U-1E
Depth:	45.05 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	CL, reddish brown varved silty CLAY, trace f. sand.

LL = 41, PL = 25, PI = 16

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.62	inch
Diameter:	2.50	inch
Initial water content:	52.5	%
Initial total unit weight:	107.1	pcf
Initial dry unit weight:	70.3	pcf
Initial void ratio:	1.444	
Initial degree of saturation:	100	%
Final water content:	48.0	%
Final total unit weight:	109.5	pcf
Final dry unit weight:	73.9	pcf
Final void ratio:	1.322	
Final degree of saturation:	100	%

(assumed specific gravity = 2.75)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	1.1 (Range: 0.9 to 1.2)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.167
Compression Index (void ratio per log cycle stress):	0.408
Swell Ratio (strain per log cycle stress):	0.032
Swell Index (void ratio per log cycle stress):	0.078
Recompression Ratio (strain per log cycle stress):	0.028
Recompression Index (void ratio per log cycle stress):	0.068
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 4/30/08 Tested By: CMJ Checked By: GET

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: RW-121 Depth: 45.05 feet
Geotesting Services, Inc.	Project No.: 31737788-805	May 2008

PROJECT:	H&A
PROJECT NO.:	31737788-805
BORING:	RW-121
SAMPLE:	U-1E
TEST:	C08049
DEPTH, feet:	45.05
BY:	CMJ
TEST DATE:	4/30/2008

Initial height:	0.619 inch
Initial water content:	52.5 %
Initial dry density:	70.3 pcf
Initial total density:	107.1 pcf
Initial saturation:	100 %
Initial void ratio:	1.444

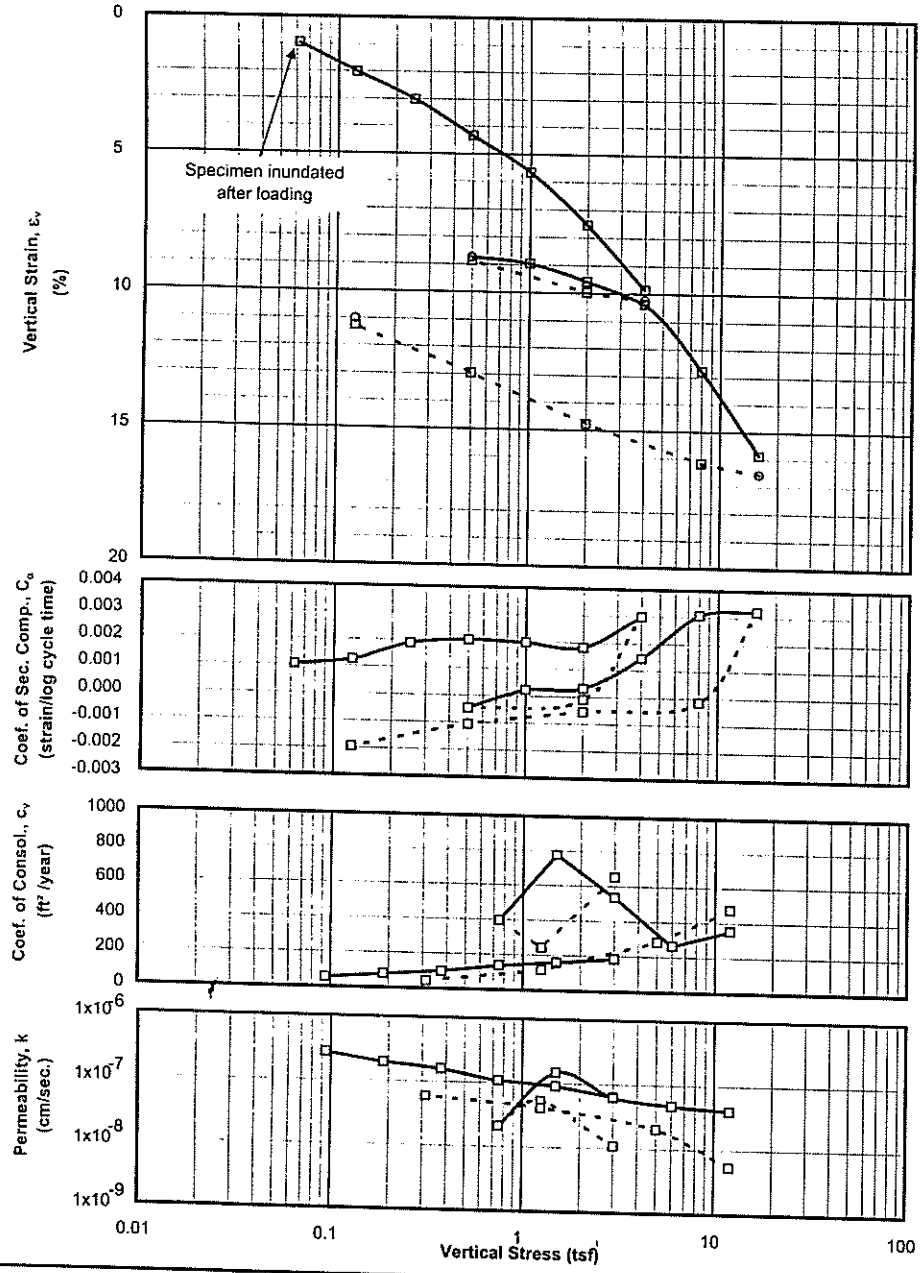
Final height:	0.585 inch
Final water content:	48.0 %
Final dry density:	73.9 pcf
Final total density:	109.5 pcf
Final saturation:	100 %
Final void ratio:	1.322
Final strain:	5.6 %

EQUIPMENT:
Load Frame No.: 7
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: CL, reddish brown varved silty CLAY, trace f. sand.

G	LL	PL	PI
2.75	41	25	16

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0009	0.142	1.440	0.190	1.439	533.90	0.0009	43.87	3.67E-07
2	0.125	0.0036	0.586	1.429	0.650	1.428	142.76	0.0004	14.10	3.05E-07
3	0.250	0.0078	1.264	1.413	1.420	1.409	48.65	0.0017	18.43	7.96E-08
4	0.600	0.0173	2.802	1.375	3.028	1.370	51.30	0.0020	22.75	6.80E-08
5	1.00	0.0287	4.642	1.330	5.033	1.321	57.00	0.0029	21.74	7.91E-08
6	2.00	0.0495	8.002	1.248	8.753	1.230	37.29	0.0045	29.77	3.78E-08
7	1.00	0.0513	8.286	1.241	8.231	1.243	150.87	-0.0005	351.42	1.30E-08
8	0.250	0.0395	6.376	1.288	6.269	1.291	39.28	-0.0010	39.26	3.02E-08
9	0.500	0.0418	6.757	1.279	6.814	1.277	53.97	0.0007	65.57	2.48E-08
10	1.00	0.0472	7.621	1.258	7.688	1.256	69.61	0.0008	57.92	3.63E-08
11	2.00	0.0553	8.927	1.226	9.154	1.220	79.61	0.0020	76.53	3.14E-08
12	4.00	0.0823	13.293	1.119	14.015	1.101	30.77	0.0038	45.81	2.03E-08
13	8.00	0.1118	18.063	1.002	18.934	0.981	35.72	0.0038	83.87	1.29E-08
14	4.00	0.1137	18.366	0.995	18.271	0.997	159.17	-0.0004	1318.52	3.64E-09
15	1.00	0.0994	16.065	1.051	15.908	1.055	39.57	-0.0016	130.39	9.16E-09
16	0.250	0.0811	13.101	1.124	12.883	1.129	13.18	-0.0024	25.30	1.57E-08
17	0.063	0.0628	10.143	1.196	9.873	1.202	3.97	-0.0026	6.34	1.89E-08



SAMPLE INFORMATION

Boring:	TB-102
Sample:	U-3E
Depth:	56.85 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	ML, reddish-brown varved clayey SILT, trace f. sand.

LL = 37, PL = 25, PI = 12

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.62	inch
Diameter:	2.50	inch
Initial water content:	45.3	%
Initial total unit weight:	114.3	pcf
Initial dry unit weight:	78.7	pcf
Initial void ratio:	1.317	
Initial degree of saturation:	101	%
Final water content:	38.8	%
Final total unit weight:	118.5	pcf
Final dry unit weight:	85.4	pcf
Final void ratio:	1.134	
Final degree of saturation:	100	% (assumed specific gravity = 2.92)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	2.2 (Range: 1.9 to 2.5)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.102
Compression Index (void ratio per log cycle stress):	0.236
Swell Ratio (strain per log cycle stress):	0.018
Swell Index (void ratio per log cycle stress):	0.042
Recompression Ratio (strain per log cycle stress):	0.023
Recompression Index (void ratio per log cycle stress):	0.053
Remarks:	

LEGEND: ☐ End of primary ○ End of Stage ——— Loading - - - - - - Unloading

Test Date: 5/1/08 Tested By: CMJ Checked By: GET

Haley & Aldrich	H&A #32669-000 Connecticut Busway	ONE DIMENSIONAL CONSOLIDATION TEST Boring: TB-102 Depth: 56.85 feet
Geotesting Services, Inc.	Project No: 31737788-805	May 2008

PROJECT:	H&A
PROJECT NO.:	31737788-805
BORING:	TB-102
SAMPLE:	U-3E
TEST:	C08050
DEPTH, feet:	56.85
BY:	CMJ
TEST DATE:	5/1/2008

Initial height:	0.616 inch
Initial water content:	45.3 %
Initial dry density:	78.7 pcf
Initial total density:	114.3 pcf
Initial saturation:	101 %
Initial void ratio:	1.317

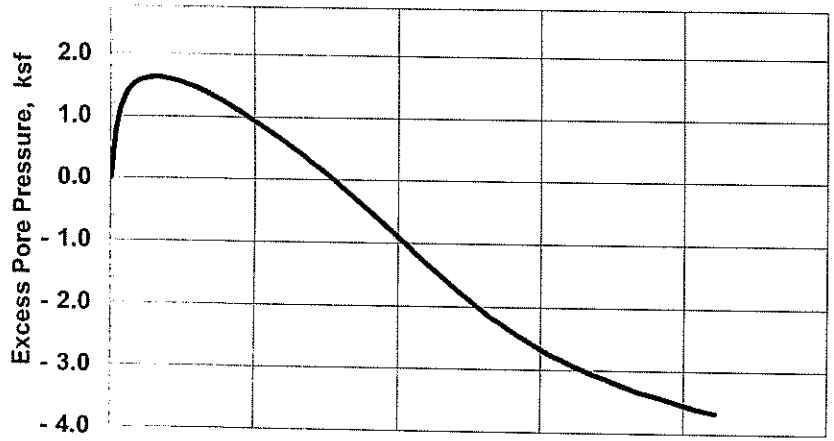
Final height:	0.567 inch
Final water content:	38.8 %
Final dry density:	85.4 pcf
Final total density:	118.5 pcf
Final saturation:	100 %
Final void ratio:	1.134
Final strain:	7.9 %

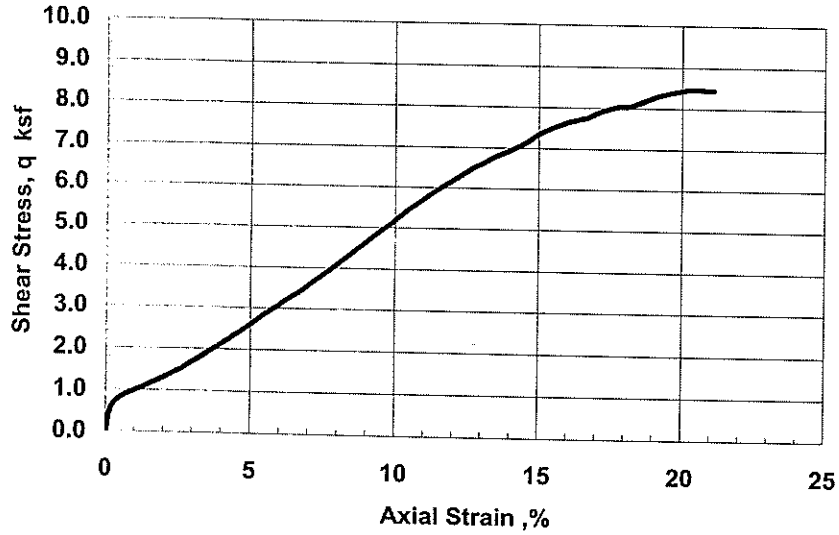
EQUIPMENT:
Load Frame No.: 4
Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: ML, reddish-brown varved clayey SILT, trace f. sand.

G	LL	PL	PI
2.92	37	25	12

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0060	0.969	1.294	1.089	1.291	78.08	0.0011	6.45	3.65E-07
2	0.125	0.0123	2.004	1.270	2.253	1.265	54.48	0.0013	6.04	2.72E-07
3	0.250	0.0187	3.028	1.247	3.242	1.242	78.99	0.0019	12.21	1.95E-07
4	0.500	0.0268	4.347	1.216	4.567	1.211	99.05	0.0020	18.96	1.58E-07
5	1.00	0.0349	5.661	1.186	5.893	1.180	136.98	0.0020	38.03	1.09E-07
6	2.00	0.0465	7.551	1.142	7.740	1.137	160.04	0.0018	52.92	9.12E-08
7	4.00	0.0608	9.867	1.088	10.240	1.079	183.29	0.0030	86.37	6.40E-08
8	2.00	0.0615	9.977	1.086	9.942	1.086	653.95	-0.0001	1806.90	1.09E-08
9	0.500	0.0546	8.872	1.111	8.745	1.114	241.92	-0.0005	135.65	5.38E-08
10	1.00	0.0552	8.960	1.109	9.031	1.108	393.73	0.0002	564.29	2.11E-08
11	2.00	0.0591	9.592	1.095	9.667	1.093	779.61	0.0003	158.33	1.49E-07
12	4.00	0.0639	10.370	1.076	10.650	1.070	536.46	0.0014	257.04	6.30E-08
13	8.00	0.0788	12.790	1.020	13.357	1.007	263.98	0.0031	165.25	4.82E-08
14	16.0	0.0978	15.874	0.949	16.572	0.933	352.90	0.0032	259.45	4.10E-08
15	8.00	0.0997	16.177	0.942	16.137	0.943	474.77	-0.0001	2636.76	5.43E-09
16	2.00	0.0909	14.758	0.975	14.657	0.977	284.78	-0.0006	422.82	2.03E-08
17	0.500	0.0798	12.958	1.017	12.839	1.019	114.98	-0.0011	83.30	4.16E-08
18	0.125	0.0694	11.261	1.056	11.020	1.061	43.44	-0.0020	22.11	5.93E-08





SAMPLE INFORMATION

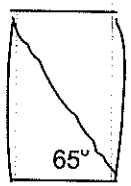
Boring: CB-103 Sample: U-1B Depth: 38.65 ft
Type: Intact
Description: CL-ML, reddish brown VARVED silty CLAY, trace f. sand.
LL = 25 PL = 20 PI = 5

SPECIMEN INFORMATION (Initial)

Height: 5.99 inch Diameter: 2.91 inch Area: 6.64 in²
Water Content: 28.1 % Total Unit Weight: 122.6 pcf

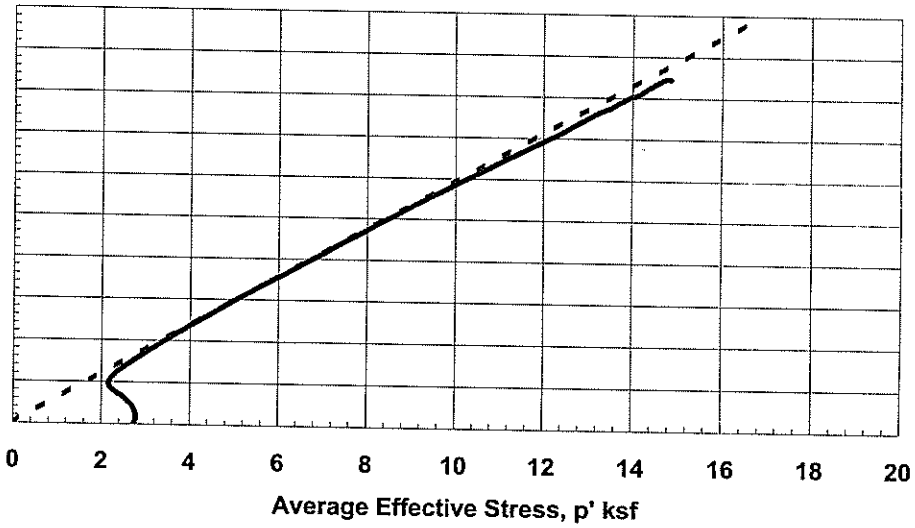
TEST SUMMARY

Consolidation Stresses: 2.74 ksf vertical, 2.74 ksf lateral
Water Content: 23.9 % Total Unit Weight: 128.3 pcf
B Coefficient: 95.6 Strain Rate: 0.020 %/min
Peak Shear Strength: 8.45 ksf @ 20.6 % Strain
Peak Effective Friction Angle: 36.4°



Failure Sketch

REMARKS:



Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring CB-103 Sample U-1B @ 38.65 ft	May-08

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

Test No	Boring No	Sample Section No	Depth / Elev (ft)	USCS Group Symbol / Gs	w_o / w_c (%)	$\gamma_{t,o}$ / $\gamma_{t,c}$ (pcf)	$\gamma_{d,o}$ / $\gamma_{d,c}$ (pcf)	$\sigma'_{c,max}$ (ksf) / OCR	$\sigma'_{v,c}$ (ksf) / $K_c = \sigma'_{v,c} / \sigma'_{h,c}$	$\varepsilon_{a,c}$ / $\varepsilon_{v,c}$ (%)	B factor (%) / ε_{rate} (%/hr)	at Peak Deviator Stress: ε_a (%)	at Peak Obliquity: $(\sigma_1 - \sigma_3)/2$ (ksf)	at Peak Obliquity: $(\sigma'_1 + \sigma'_3)/2$ (ksf)	at Peak Obliquity: σ'_1 / σ'_3	at Peak Obliquity: A factor	at Peak Obliquity: ϕ' for c'=0
T-2879	NBA-101	U-3A	35.65	ML	29.1	126.6	98.0	2.16	2.16	0.9	97.2	19.9	12.27	20.61	3.94	-0.252	36.5
				(2.90)	24.2	132.2	106.5	1.0	1.00	7.9	1.2	4.5	3.22	5.05	4.54	0.052	39.7
T-2880	NBA-101	U-3B	36.15	CL & ML	27.6	121.7	95.4	4.32	4.32	1.7	96.8	21.3	6.24	11.45	3.40	-0.071	33.0
				(2.75)	27.0	125.2	98.6	1.0	1.00	3.3	1.2	13.8	4.59	8.26	3.51	0.071	33.8
T-2881	NBA-101	U-3C	36.65	CL-ML	24.5	129.1	103.7	8.64	8.64	1.7	96.4	20.4	5.15	9.80	3.22	0.388	31.7
				(2.81)	20.7	133.8	110.9	1.0	1.00	6.5	1.3	8.8	4.34	7.98	3.39	0.577	33.0

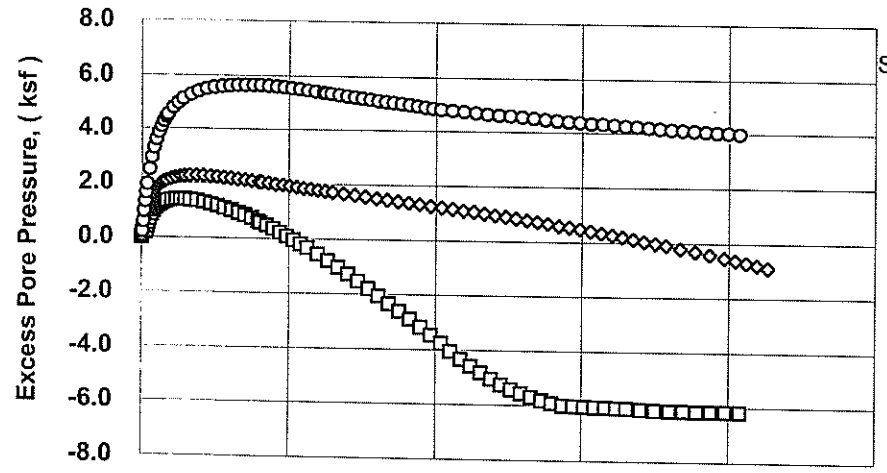
Test No	Description of Material Tested and Remarks
T-2879	ML, reddish brown SILT, trace f. sand.
T-2880	CL & ML, reddish brown silty CLAY, trace f. sand; bottom ML.
T-2881	CL-ML, reddish brown silty CLAY; top 1" ML.

Strength Envelope Summary

Test Series	Failure Criteria	ϕ' (deg)	c' (ksf)	α' (deg)	a' (ksf)	Correlation Coefficient
1	1	35.1	0.000	29.9	0.000	--
	2	24.1	1.271	22.2	1.161	0.995

Failure Criteria: 1 - Peak Deviator Stress; 2 - Peak Obliquity

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements NBA-101 SUMMARY	May 2008
	Geotesting Services, Inc.		

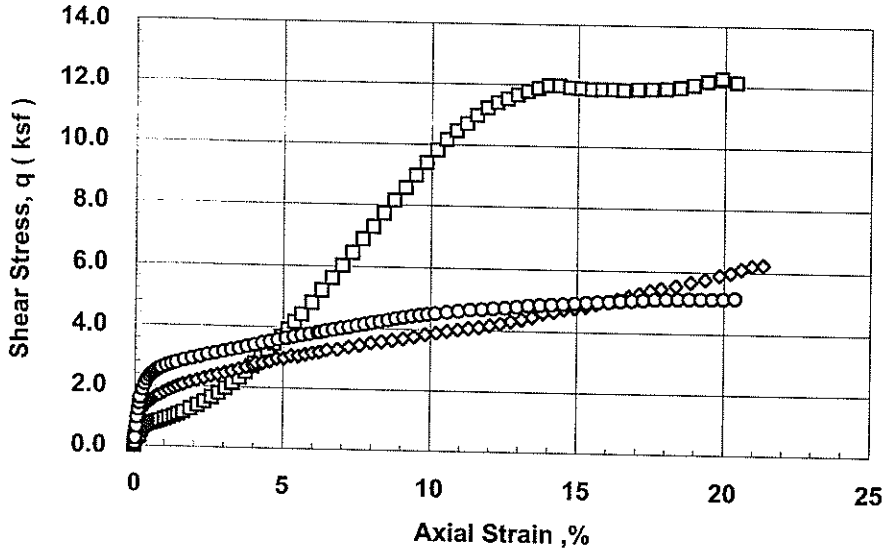


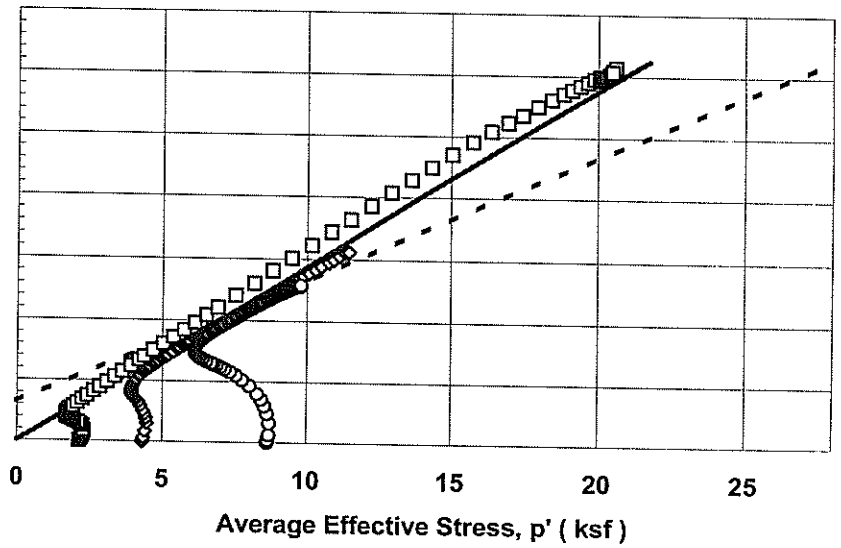
LEGEND AND SUMMARY INFORMATION

Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (ksf)
□	T-2879	NBA-101	U-3A	35.7	29.1	126.6	2.16
◊	T-2880	NBA-101	U-3B	36.2	27.6	121.7	4.32
○	T-2881	NBA-101	U-3C	36.7	24.5	129.1	8.64

SERIES SUMMARY

Notation	Failure Criteria	c' (ksf)	Φ' (degrees)
———	Peak Deviator Stress	0.00	35.1
- - - -	Peak Obliquity	1.27	24.1

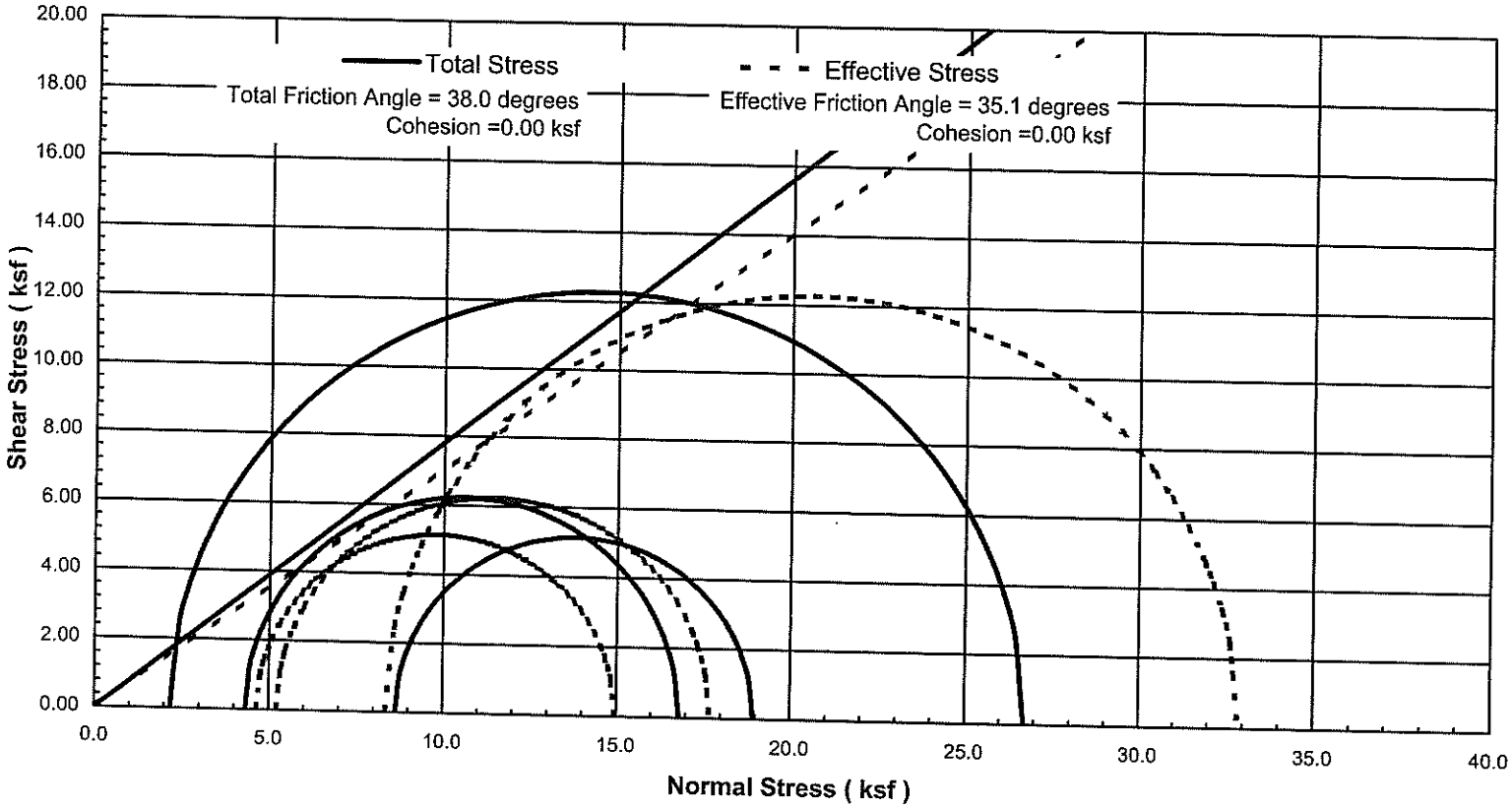




Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements NBA-101 SUMMARY	Figure 1
Prepared by: C. Jordan Checked by: G. Thomas	Geotesting Services, Inc.		May 2008

GSI Analysis File: Cu'sum3v4

5/27/2008 Test: Cu'sum1_NBA.xls

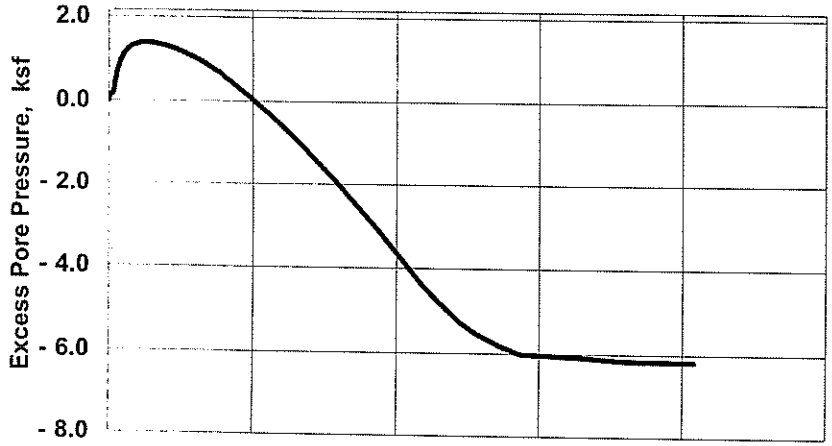


Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	Mohr Circles of Total and Effective Stresses at Peak CIU' Triaxial Test	Figure 2
Geotesting Services, Inc.		NBA-101 SUMMARY	May 2008

GSI Analysis File: Cu'sum3v4.xls

Cu'sum1_NBA.xls

5/27/2008



SAMPLE INFORMATION

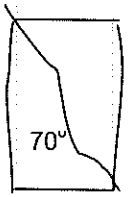
Boring: NBA-101 Sample: U-3A Depth: 35.65 ft
Type: Intact
Description: ML, reddish brown SILT, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.01 inch Diameter: 2.84 inch Area: 6.35 in²
Water Content: 29.1 % Total Unit Weight: 126.6 pcf

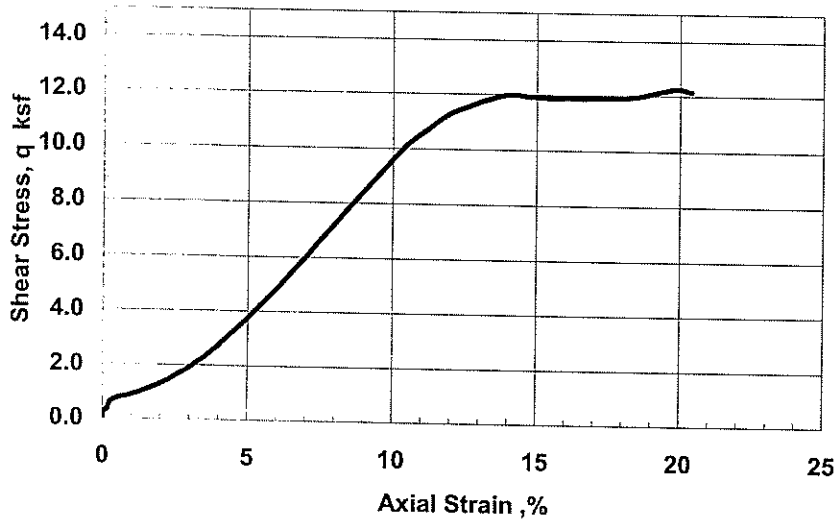
TEST SUMMARY

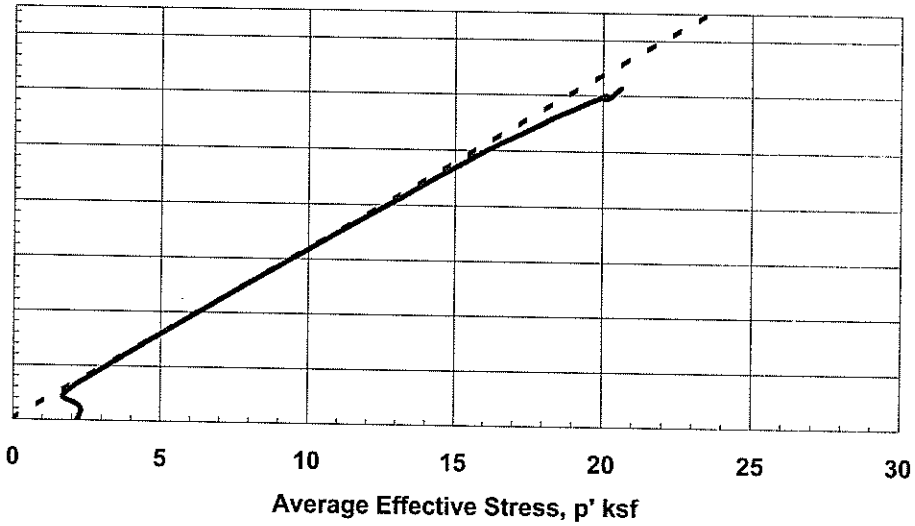
Consolidation Stresses: 2.16 ksf vertical, 2.16 ksf lateral
Water Content: 24.2 % Total Unit Weight: 132.2 pcf
B Coefficient: 97.2 Strain Rate: 0.019 %/min
Peak Shear Strength: 12.27 ksf @ 19.9 % Strain
Peak Effective Friction Angle: 39.7°



Failure Sketch

REMARKS:

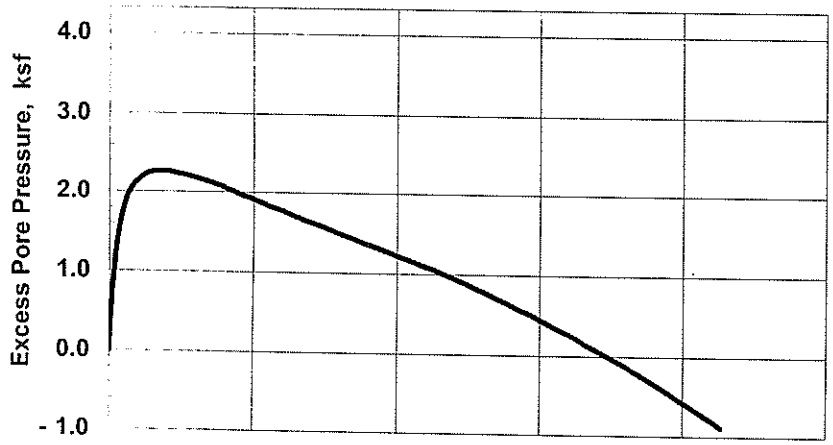


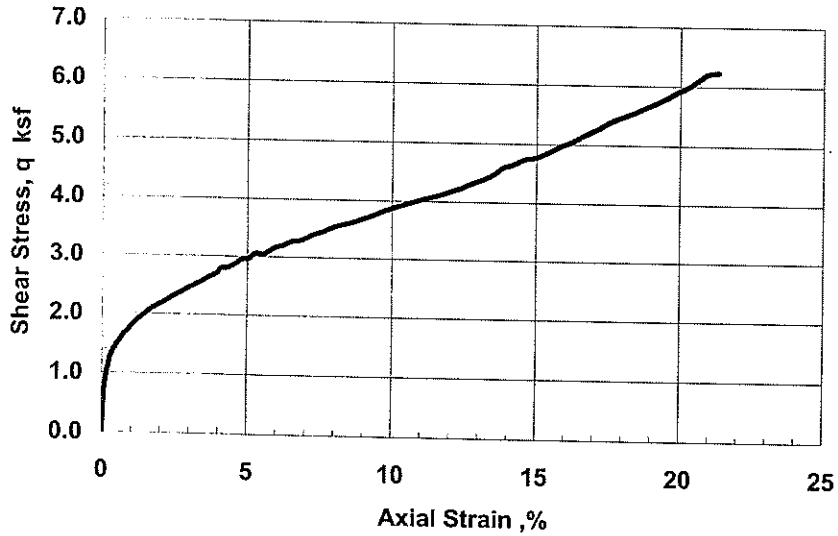


Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring NBA-101 Sample U-3A @ 35.65 ft	May-08





SAMPLE INFORMATION

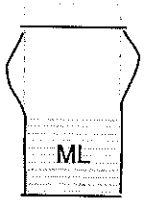
Boring: NBA-101 Sample: U-3B Depth: 36.15 ft
Type: Intact
Description: CL & ML, reddish brown silty CLAY, trace f. sand; bottom ML.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.87 inch Area: 6.48 in²
Water Content: 27.6 % Total Unit Weight: 121.7 pcf

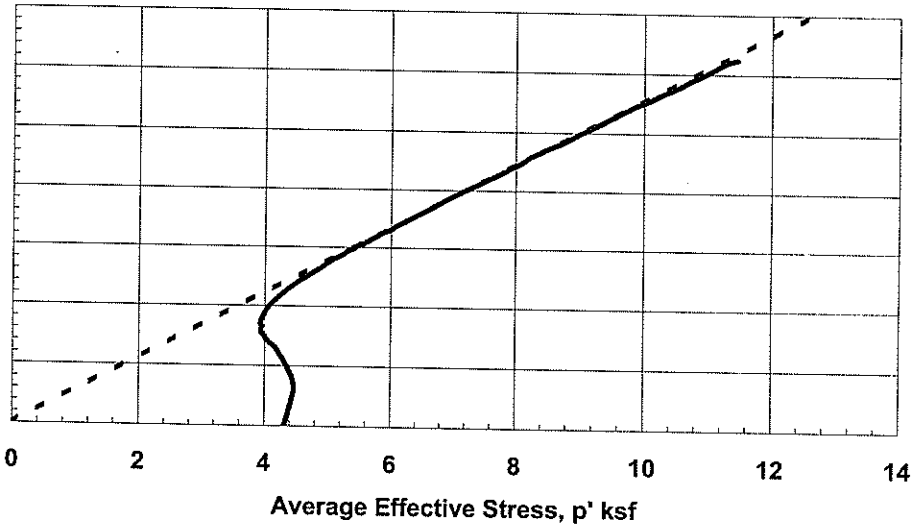
TEST SUMMARY

Consolidation Stresses: 4.32 ksf vertical, 4.32 ksf lateral
Water Content: 27.0 % Total Unit Weight: 125.2 pcf
B Coefficient: 96.8 Strain Rate: 0.020 %/min
Peak Shear Strength: 6.24 ksf @ 21.3 % Strain
Peak Effective Friction Angle: 33.8°

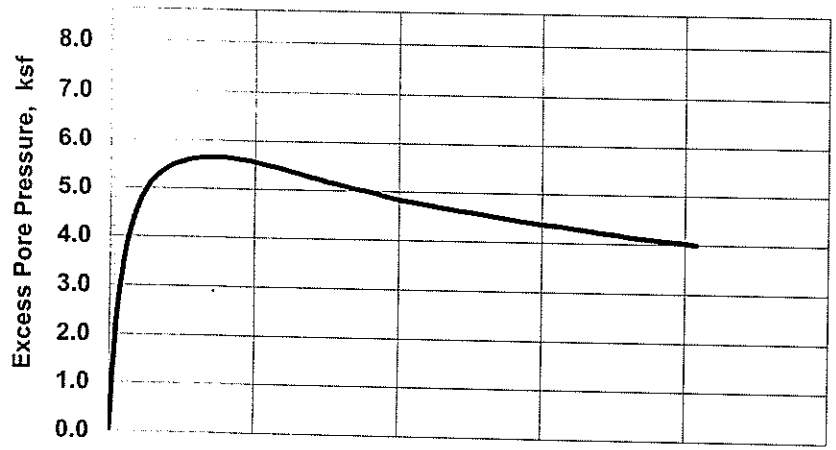


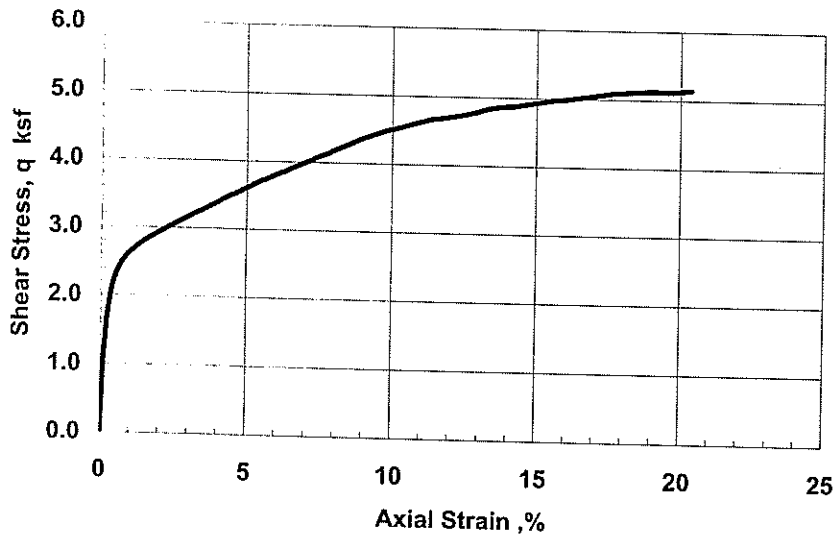
Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	**Geotesting Services, Inc.**		Boring NBA-101 Sample U-3B @ 36.15 ft
			May-08





SAMPLE INFORMATION

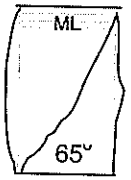
Boring: NBA-101 Sample: U-3C Depth: 36.65 ft
Type: Intact
Description: CL-ML, reddish brown silty CLAY; top 1" ML.

SPECIMEN INFORMATION (Initial)

Height: 5.98 inch Diameter: 2.87 inch Area: 6.47 in²
Water Content: 24.5 % Total Unit Weight: 129.1 pcf

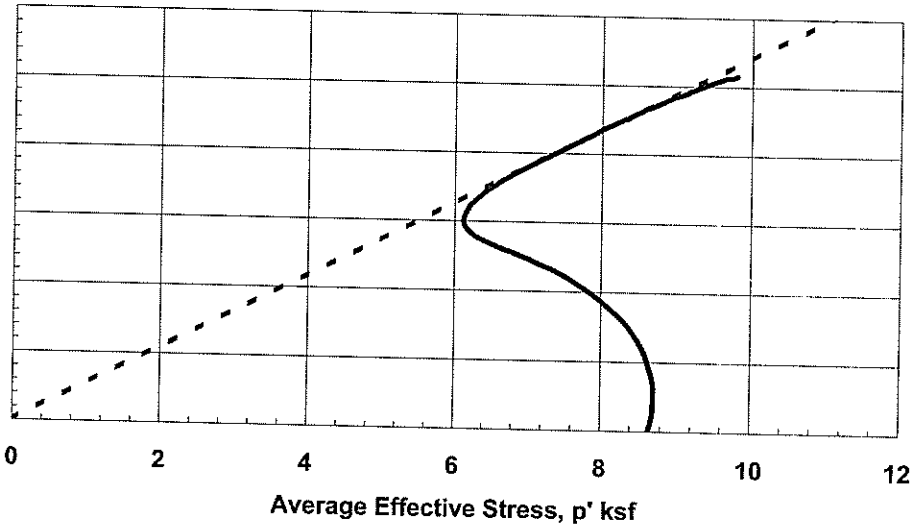
TEST SUMMARY

Consolidation Stresses: 8.64 ksf vertical, 8.64 ksf lateral
Water Content: 20.7 % Total Unit Weight: 133.8 pcf
B Coefficient: 96.4 Strain Rate: 0.022 %/min
Peak Shear Strength: 5.15 ksf @ 20.4 % Strain
Peak Effective Friction Angle: 33.0°



Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring NBA-101 Sample U-3C @ 36.65 ft
			May-08

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

Test No	Boring No	Sample Section No	Depth / Elev (ft)	USCS Group Symbol / Gs	w_o / w_c (%)	$\gamma_{t,o}$ / $\gamma_{t,c}$ (pcf)	$\gamma_{d,o}$ / $\gamma_{d,c}$ (pcf)	$\sigma'_{c,max}$ (ksf) / OCR	$\sigma'_{v,c}$ (ksf) / $K_c = \sigma'_{v,c} / \sigma'_{h,c}$	$\varepsilon_{a,c}$ / $\varepsilon_{v,c}$ (%)	B factor (%) / ε_{rate} (%/hr)	at Peak Deviator Stress / at Peak Obliquity: ε_a (%)	$(\sigma_1 - \sigma_3)/2$ (ksf)	$(\sigma'_1 + \sigma'_3)/2$ (ksf)	σ'_1 / σ'_3	A factor	ϕ' for c'=0
T-2870	RB-112	U-1B	18.45	CL-ML	21.6	135.3	111.2	1.44	1.44	0.5	96.8	20.3	4.85	8.05	4.04	-0.181	37.1
				(2.90)	19.9	137.6	114.7	1.0	1.00	3.0	1.1	9.9	3.54	5.64	4.38	-0.093	38.9
T-2871	RB-112	U-1C	18.95	CL	30.9	121.9	93.1	2.88	2.88	1.5	98.2	4.7	1.55	2.90	3.30	0.493	32.3
				(2.75)	27.6	124.5	97.6	1.0	1.00	4.6	1.1	4.0	1.52	2.83	3.32	0.518	32.5
T-2872	RB-112	U-1D	19.45	CL	38.0	118.7	86.0	5.76	5.76	1.8	97.9	7.2	1.67	4.19	2.33	0.968	23.5
				(2.89)	34.3	121.6	90.6	1.0	1.00	5.0	1.3	17.4	1.47	3.25	2.64	1.357	26.8

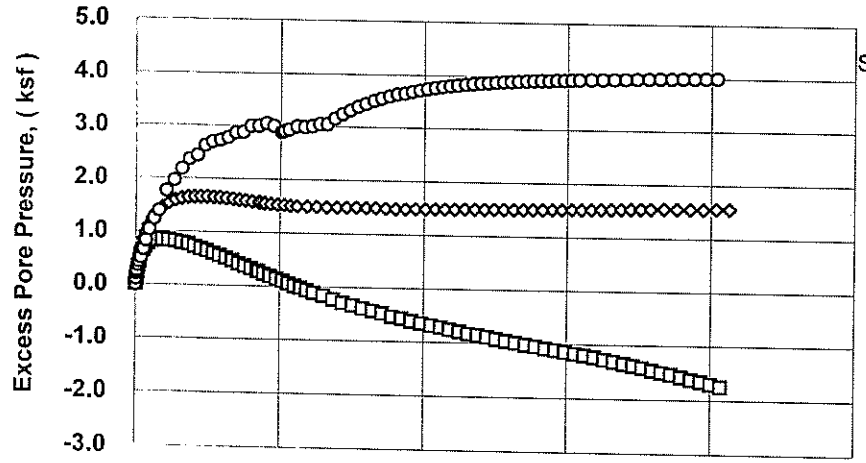
Test No	Description of Material Tested and Remarks
T-2870	CL-ML, reddish brown silty CLAY, trace f. sand.
T-2871	CL, reddish brown VARVED CLAY, trace f. sand.
T-2872	CL, reddish brown VARVED CLAY, trace f. sand.

Strength Envelope Summary

Test Series	Failure Criteria	ϕ' (deg)	c' (ksf)	α' (deg)	a' (ksf)	Correlation Coefficient
1	1	33.9	0.000	29.1	0.000	--
	2	35.2	0.000	30.0	0.000	--

Failure Criteria: 1 - Peak Deviator Stress
2 - Peak Obliquity

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RB-112 SUMMARY	May 2008
	Geotesting Services, Inc.		

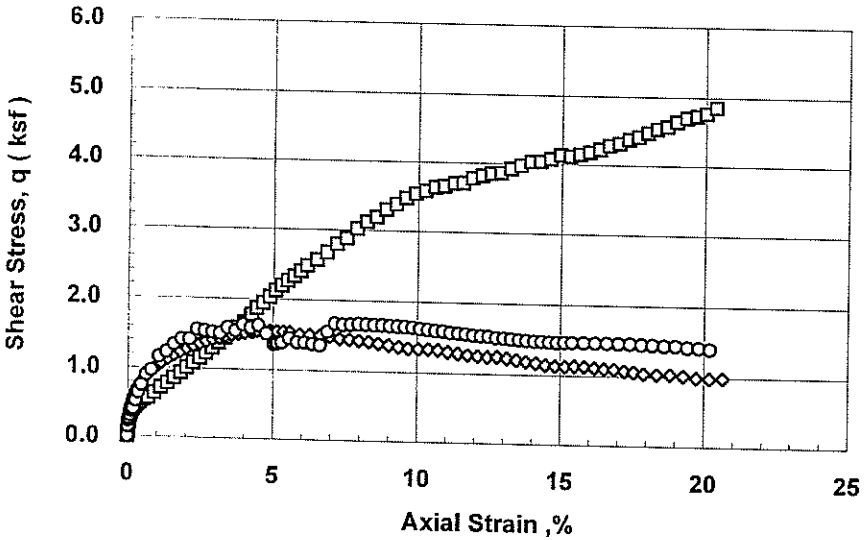


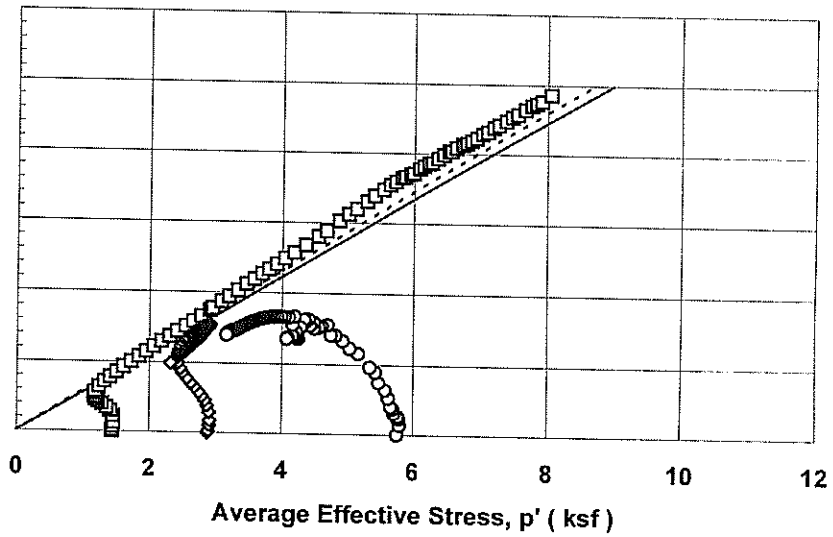
LEGEND AND SUMMARY INFORMATION

Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (ksf)
□	T-2870	RB-112	U-1B	18.5	21.6	135.3	1.44
◊	T-2871	RB-112	U-1C	19.0	30.9	121.9	2.88
○	T-2872	RB-112	U-1D	19.5	38.0	118.7	5.76

SERIES SUMMARY

Notation	Failure Criteria	c' (ksf)	Φ' (degrees)
———	Peak Deviator Stress	0.00	33.9
- - - -	Peak Obliquity	0.00	35.2

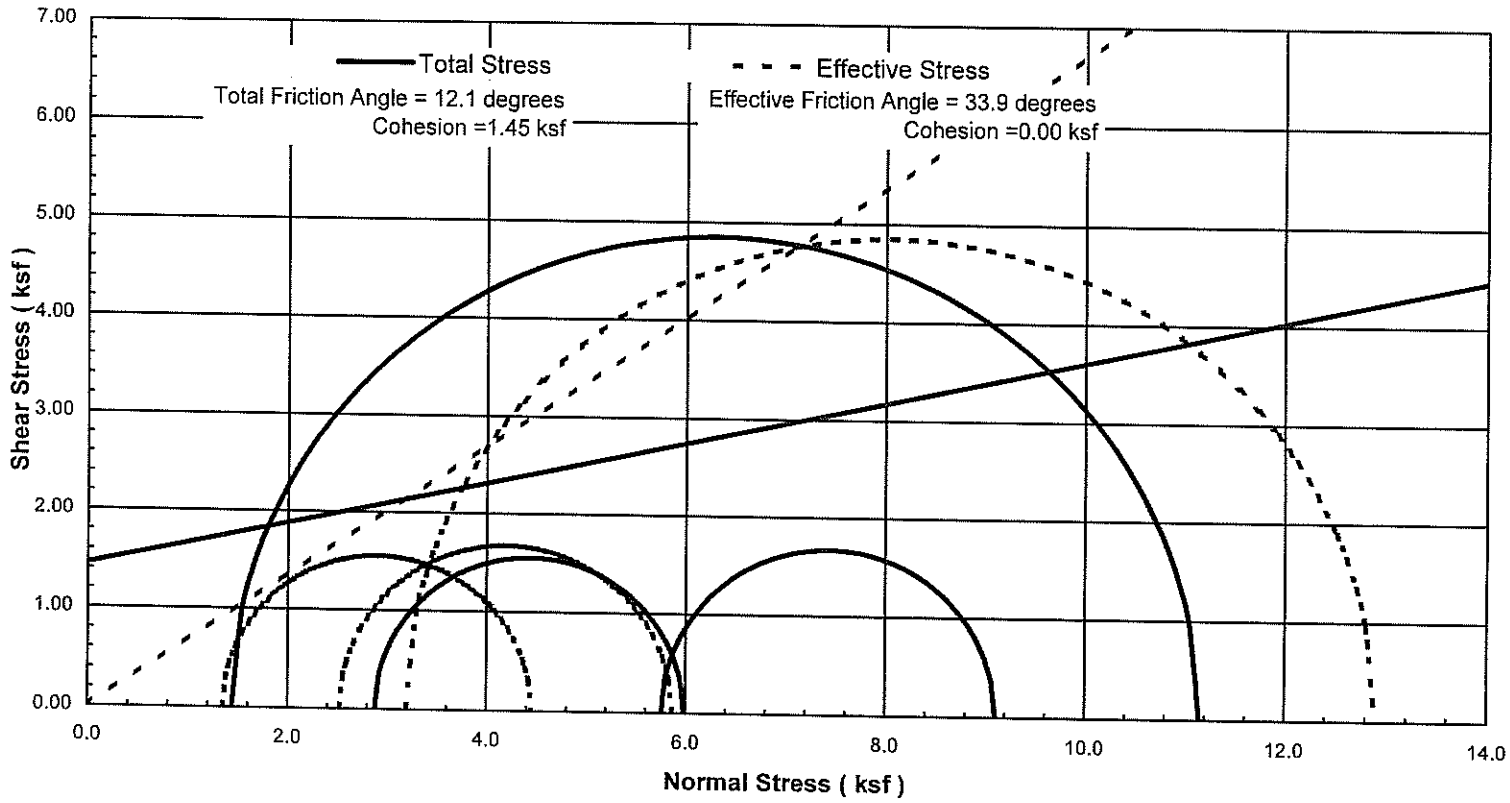




Prepared by: C. Jordan	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RB-112 SUMMARY	Figure 1
Checked by: G. Thomas	Geotesting Services, Inc.			May 2008

GSI Analysis File: Cu'sum3v4

5/28/2008 Test: Cu'sum1_rb112.xls

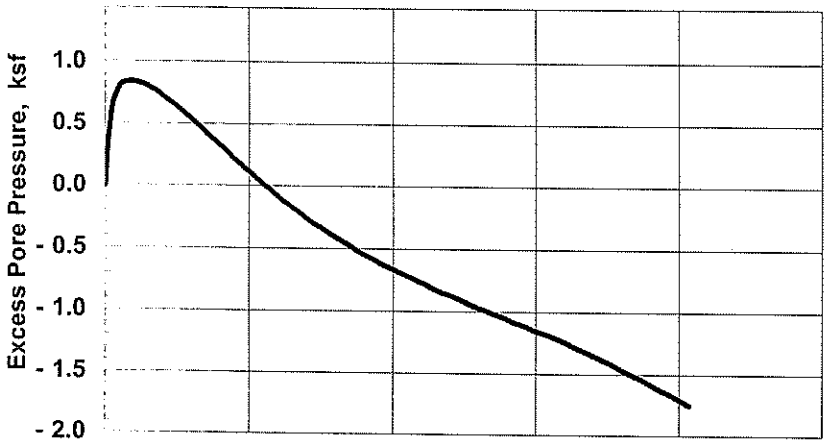


Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	Mohr Circles of Total and Effective Stresses at Peak CIU' Triaxial Test	Figure 2
Geotesting Services, Inc.		RB-112 SUMMARY	May 2008

GSI Analysis File: Cu'sum3v4.xls

Cu'sum1_rb112.xls

5/28/2008



SAMPLE INFORMATION

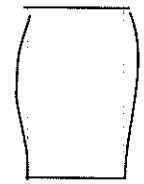
Boring: RB-112 Sample: U-1B Depth: 18.45ft
Type: Intact
Description: CL-ML, reddish brown silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.98 inch Diameter: 2.87 inch Area: 6.46 in²
Water Content: 21.6 % Total Unit Weight: 135.3 pcf

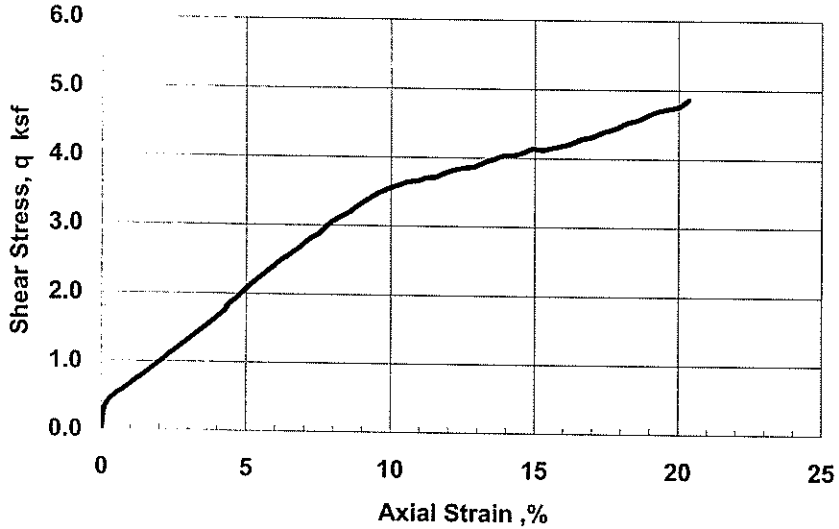
TEST SUMMARY

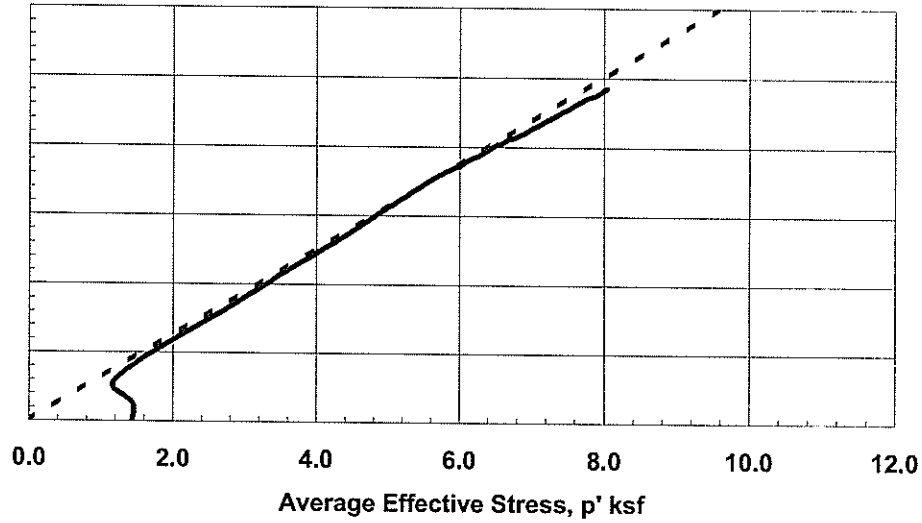
Consolidation Stresses: 1.44 ksf vertical, 1.44 ksf lateral
Water Content: 19.9 % Total Unit Weight: 137.6 pcf
B Coefficient: 96.8 Strain Rate: 0.019 %/min
Peak Shear Strength: 4.85 ksf @ 20.3 % Strain
Peak Effective Friction Angle: 38.9°



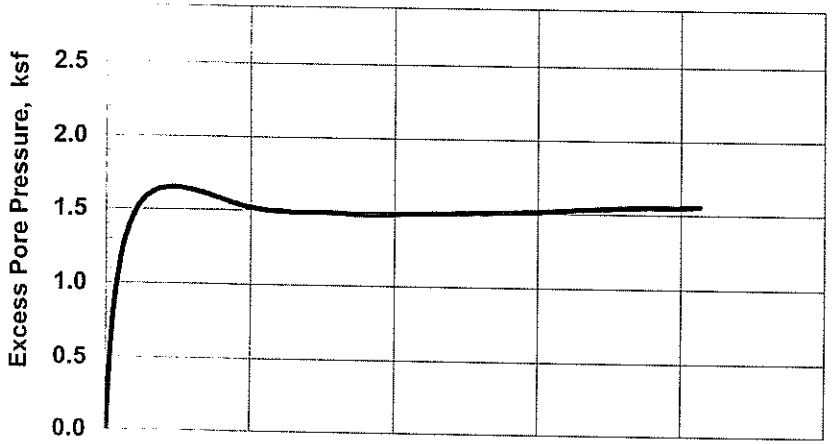
Failure Sketch

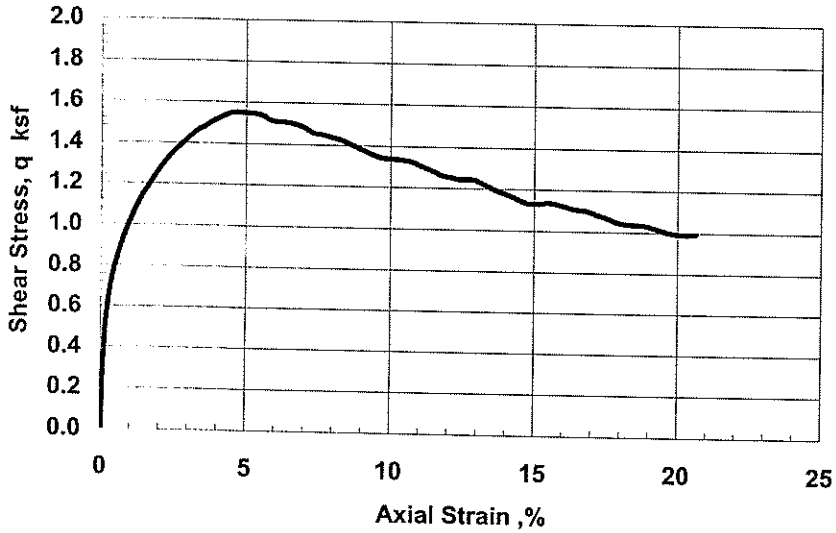
REMARKS:





Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring RB-112 Sample U-1B
			May-08





SAMPLE INFORMATION

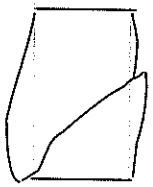
Boring: RB-112 Sample: U-1C Depth: 18.95ft
Type: Intact
Description: CL, reddish brown VARVED CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.88 inch Area: 6.51 in²
Water Content: 30.9 % Total Unit Weight: 121.9 pcf

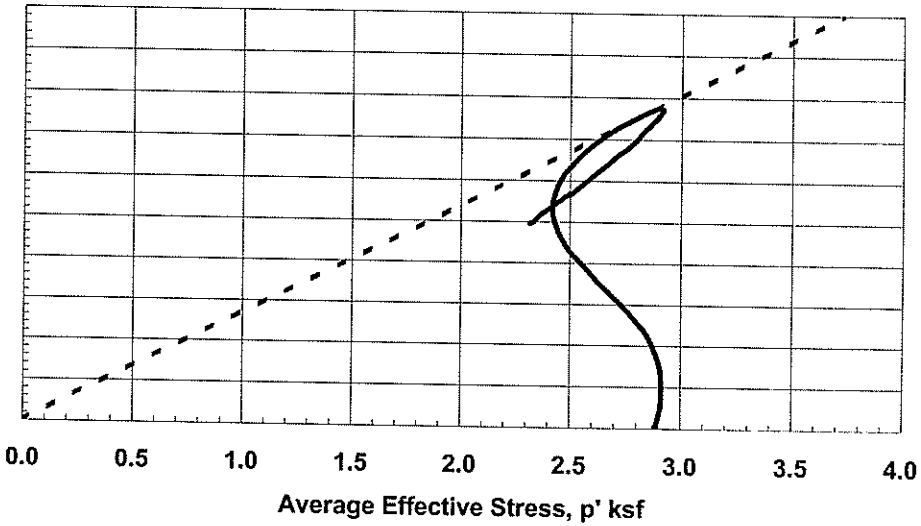
TEST SUMMARY

Consolidation Stresses: 2.88 ksf vertical, 2.88 ksf lateral
Water Content: 27.6 % Total Unit Weight: 124.5 pcf
B Coefficient: 98.2 Strain Rate: 0.019 %/min
Peak Shear Strength: 1.55 ksf @ 4.7 % Strain
Peak Effective Friction Angle: 32.5°



Failure Sketch

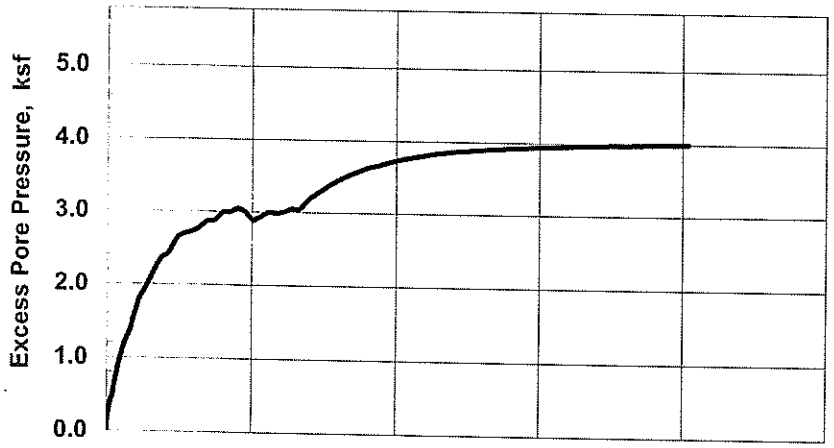
REMARKS:

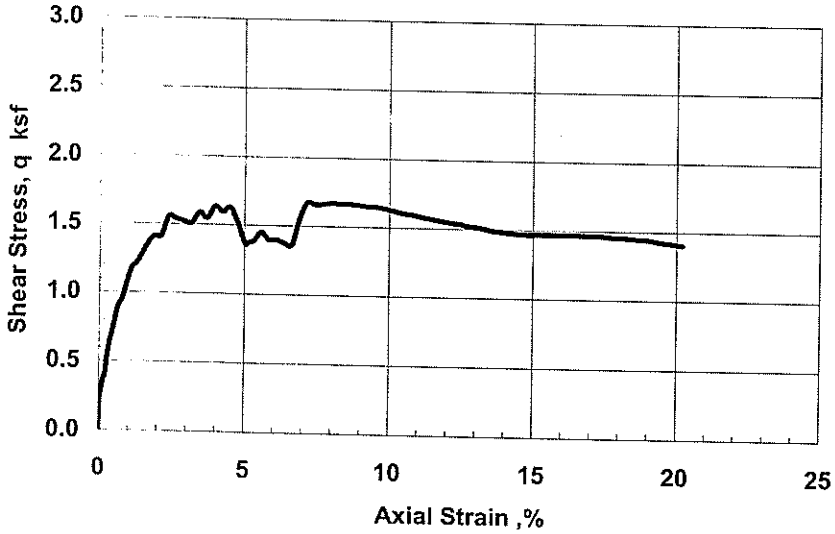


Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring RB-112 Sample U-1C	May-08





SAMPLE INFORMATION

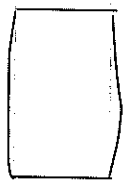
Boring: RB-112 Sample: U-1D Depth: 19.45ft
Type: Intact
Description: CL, reddish brown VARVED CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.01 inch Diameter: 2.85 inch Area: 6.37 in²
Water Content: 38.0 % Total Unit Weight: 118.7 pcf

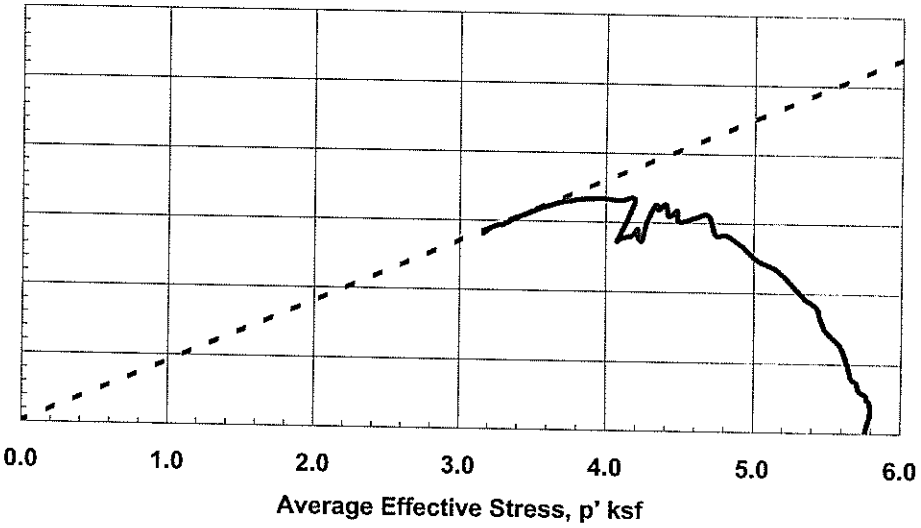
TEST SUMMARY

Consolidation Stresses: 5.76 ksf vertical, 5.76 ksf lateral
Water Content: 34.3 % Total Unit Weight: 121.6 pcf
B Coefficient: 97.9 Strain Rate: 0.022 %/min
Peak Shear Strength: 1.67 ksf @ 7.2 % Strain
Peak Effective Friction Angle: 26.8°



Failure Sketch

REMARKS:



Test by: DT Checked by: GET	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements Boring RB-112 Sample U-1D	May-08
	Geotesting Services, Inc.			

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

Test No	Boring No	Sample Section No	Depth Elev (ft)	USCS Group Symbol Gs	w_o w_c (%)	$\gamma_{t,o}$ $\gamma_{t,c}$ (pcf)	$\gamma_{d,o}$ $\gamma_{d,c}$ (pcf)	$\sigma'_{c,max}$ (ksf) OCR	$\sigma'_{v,c}$ (ksf) $K_c = \frac{\sigma'_{v,c}}{\sigma'_{h,c}}$	$\varepsilon_{a,c}$ $\varepsilon_{v,c}$ (%)	B factor (%) ε_{rate} (%/hr)	at Peak Deviator Stress: ε_a (%)	at Peak Obliquity: $\frac{\sigma_1 - \sigma_3}{2}$ (ksf)	$\frac{\sigma'_1 + \sigma'_3}{2}$ (ksf)	σ'_1 / σ'_3	A factor	ϕ' for c'=0
T-2864	RB-118	U-2B	23.65	ML	32.5	120.3	90.8	1.73	1.73	1.3	99.2	19.2	6.16	10.51	3.83	-0.213	35.9
				(2.75)	26.7	125.4	98.9	1.0	1.00	8.2	0.7	15.7	5.63	9.50	3.91	-0.190	36.4
T-2865	RB-118	U-2C	24.15	CL-ML	29.6	125.1	96.5	3.46	3.46	1.0	98.5	10.1	8.91	14.94	3.96	-0.144	36.6
				(2.85)	26.5	128.2	101.3	1.0	1.00	4.8	0.7	6.0	6.50	10.55	4.21	-0.045	38.1
T-2866	RB-118	U-2D	24.65	CL-ML	29.8	123.6	95.2	6.91	6.91	2.8	97.8	12.5	13.37	23.28	3.70	-0.112	35.0
				(2.80)	26.0	127.3	101.0	1.0	1.00	5.8	1.2	8.4	9.74	16.39	3.93	0.013	36.5

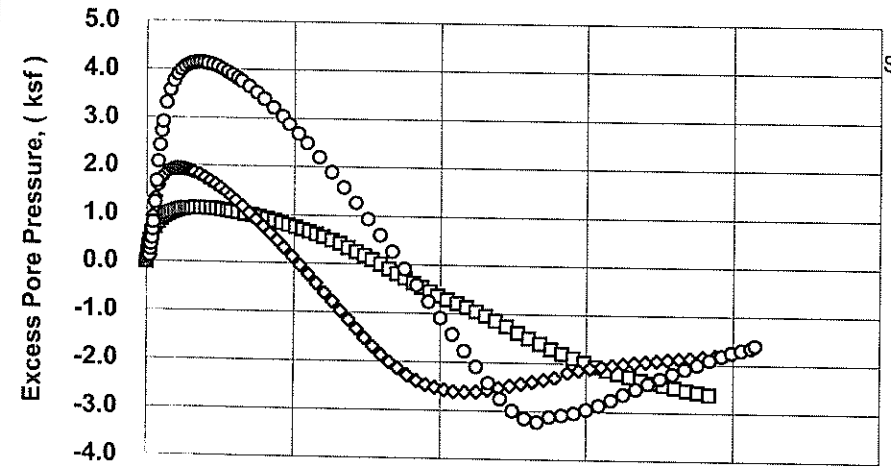
Test No	Description of Material Tested and Remarks
T-2864	ML, reddish brown SILT, trace f. sand.
T-2865	CL-ML, reddish brown VARVED silty CLAY, trace f. sand.
T-2866	CL-ML, reddish brown VARVED silty CLAY, trace f. sand.

Strength Envelope Summary

Test Series	Failure Criteria	ϕ' (deg)	c' (ksf)	α' (deg)	a' (ksf)	Correlation Coefficient
1	1	34.1	0.447	29.3	0.370	0.999
	2	35.6	0.270	30.2	0.220	0.998

Failure Criteria: 1 - Peak Deviator Stress
2 - Peak Obliquity

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RB-118 SUMMARY	May 2008
Geotesting Services, Inc.			

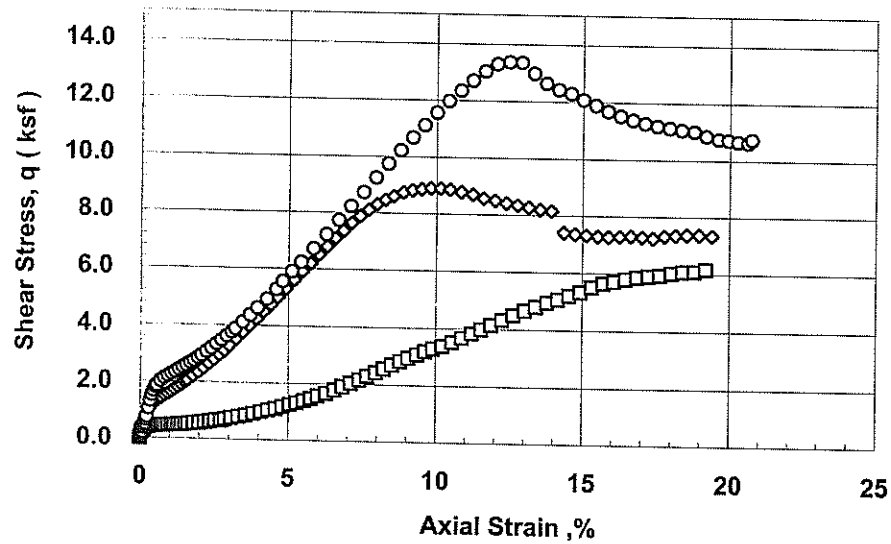


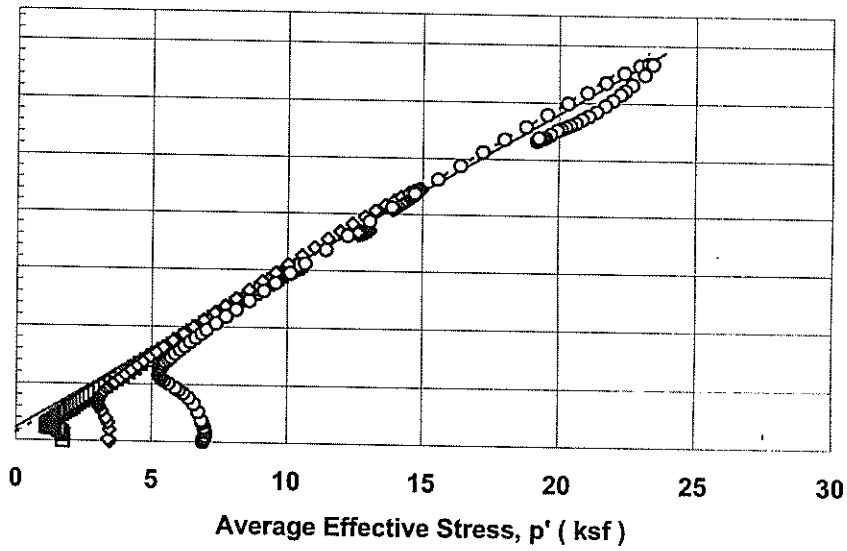
LEGEND AND SUMMARY INFORMATION

Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (ksf)
□	T-2864	RB-118	U-2B	23.7	32.5	120.3	1.73
◊	T-2865	RB-118	U-2C	24.2	29.6	125.1	3.46
○	T-2866	RB-118	U-2D	24.7	29.8	123.6	6.91

SERIES SUMMARY

Notation	Failure Criteria	c' (ksf)	Φ' (degrees)
———	Peak Deviator Stress	0.45	34.1
- - - -	Peak Obliquity	0.27	35.6

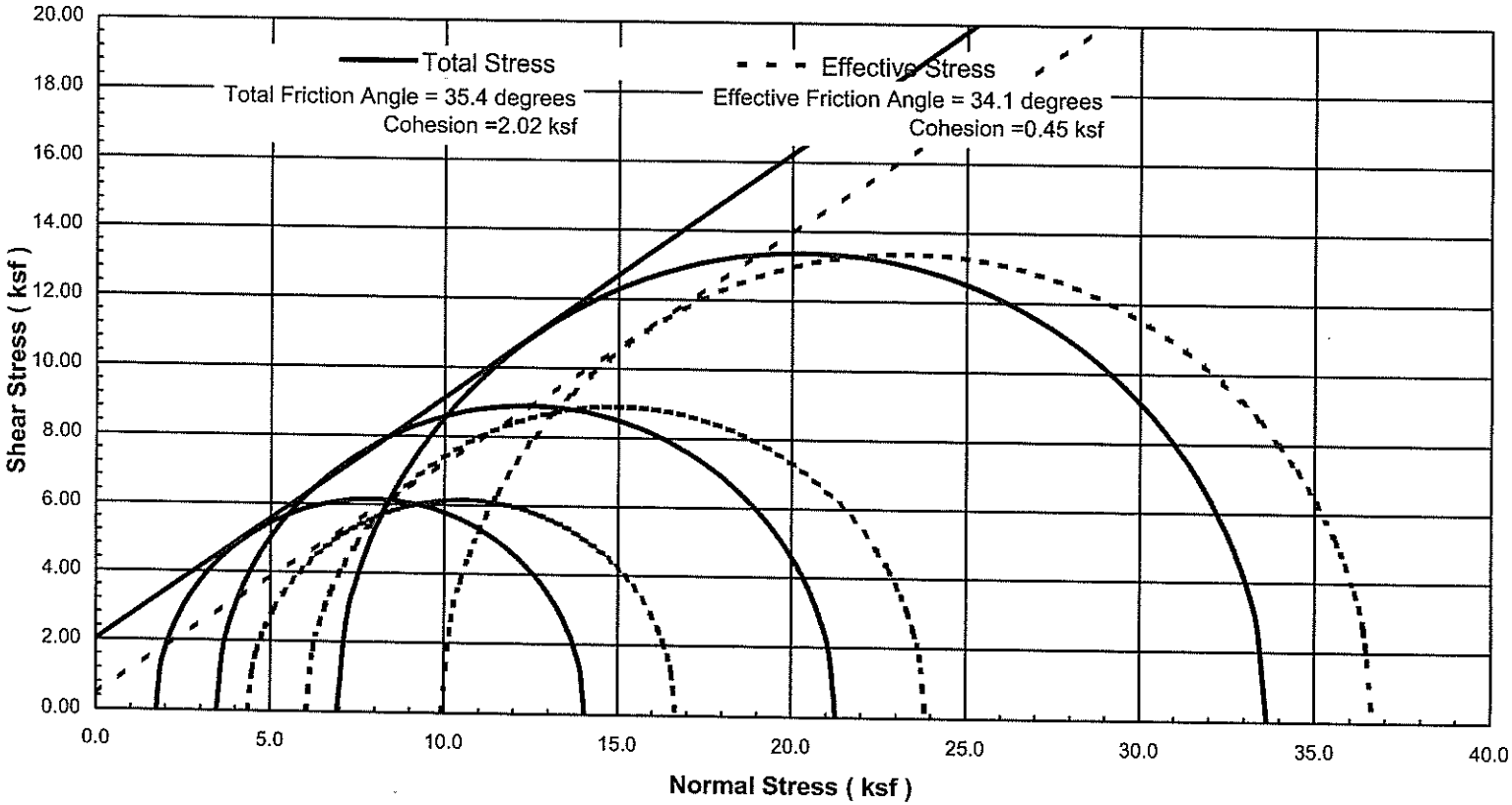




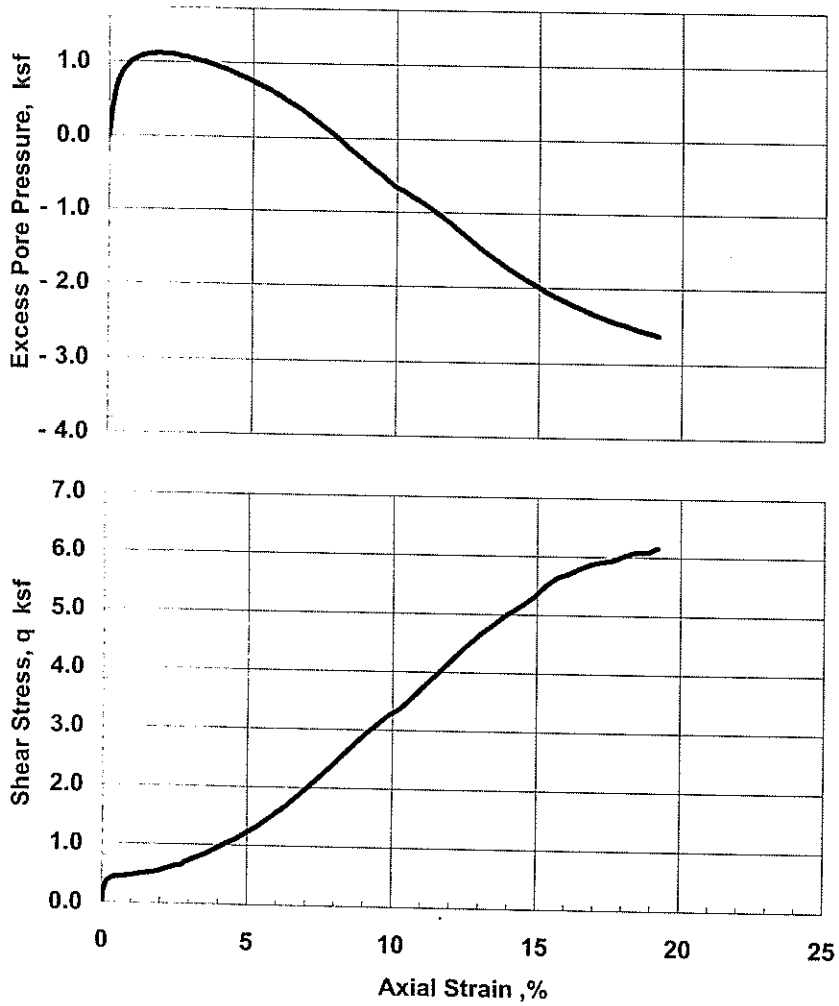
Prepared by: C. Jordan	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RB-118 SUMMARY	Figure 1
Checked by: G. Thomas	Geotesting Services, Inc.			May 2008

GSI Analysis File: Cu'sum3v4

5/27/2008 Test: Cu'sum1_rb118.xls



Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	Mohr Circles of Total and Effective Stresses at Peak CIU' Triaxial Test	Figure 2
Geotesting Services, Inc.		RB-118 SUMMARY	May 2008



SAMPLE INFORMATION

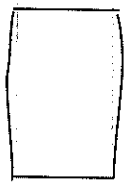
Boring: RB-118 Sample: U-2B Depth: 23.65ft
Type: Intact
Description: ML, reddish brown SILT, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.93 inch Diameter: 2.87 inch Area: 6.47 in²
Water Content: 32.5 % Total Unit Weight: 120.3 pcf

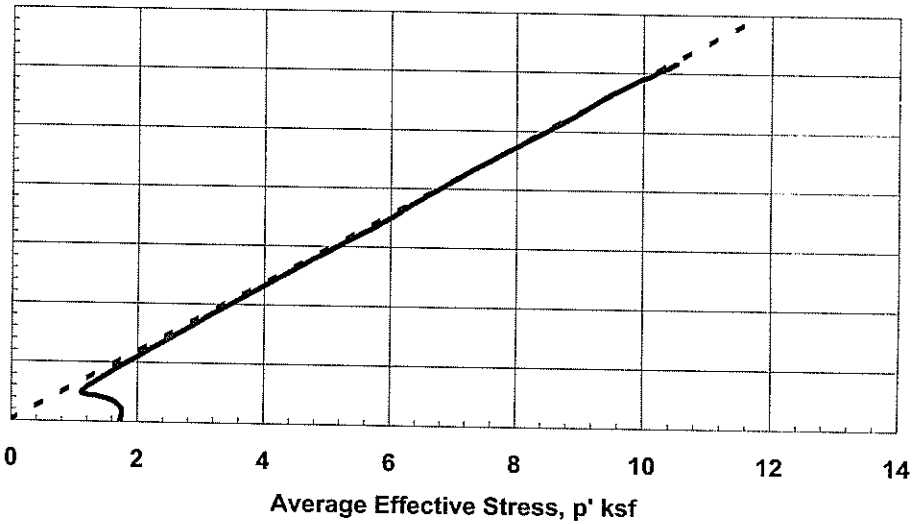
TEST SUMMARY

Consolidation Stresses: 1.73 ksf vertical, 1.73 ksf lateral
Water Content: 26.7 % Total Unit Weight: 125.4 pcf
B Coefficient: 99.2 Strain Rate: 0.012 %/min
Peak Shear Strength: 6.16 ksf @ 19.2 % Strain
Peak Effective Friction Angle: 36.4°



Failure Sketch

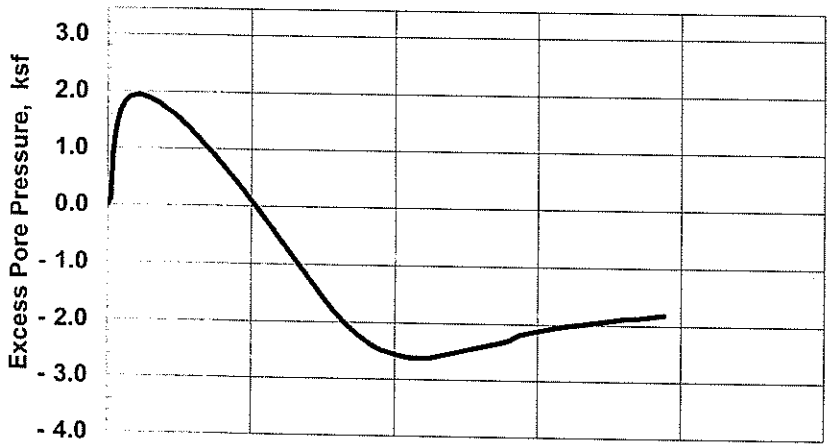
REMARKS:

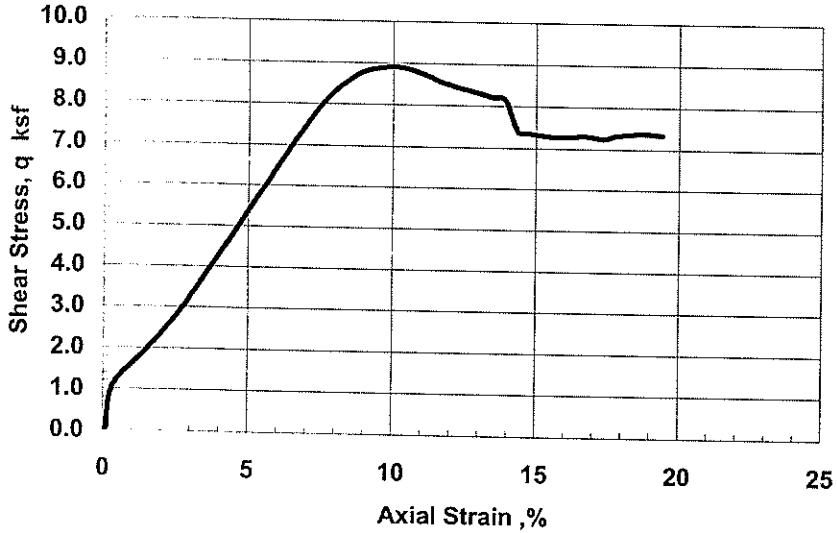


Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring RB-118 Sample U-2B	May-08





SAMPLE INFORMATION

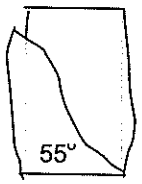
Boring: RB-118 Sample: U-2C Depth: 24.15ft
Type: Intact
Description: CL-ML, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.96 inch Diameter: 2.87 inch Area: 6.47 in²
Water Content: 29.6 % Total Unit Weight: 125.1 pcf

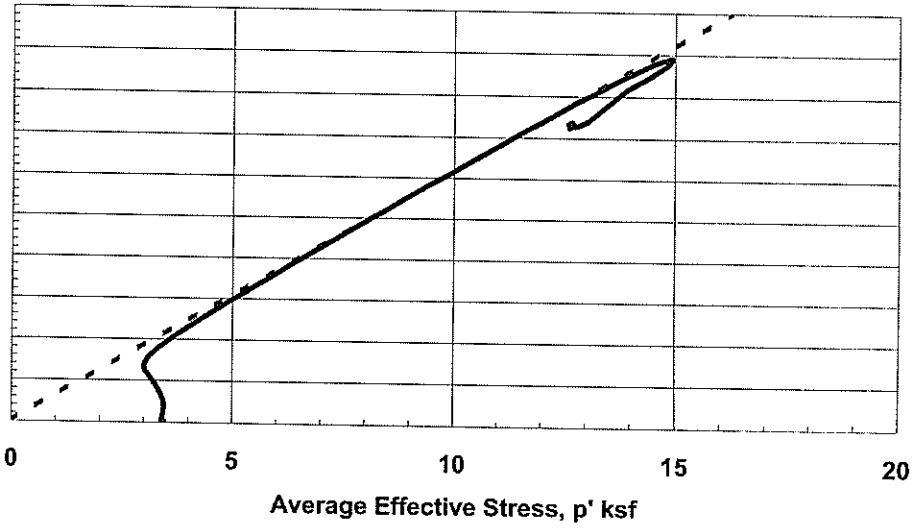
TEST SUMMARY

Consolidation Stresses: 3.46 ksf vertical, 3.46 ksf lateral
Water Content: 26.5 % Total Unit Weight: 128.2 pcf
B Coefficient: 98.5 Strain Rate: 0.012 %/min
Peak Shear Strength: 8.91 ksf @ 10.1 % Strain
Peak Effective Friction Angle: 38.1°



Failure Sketch

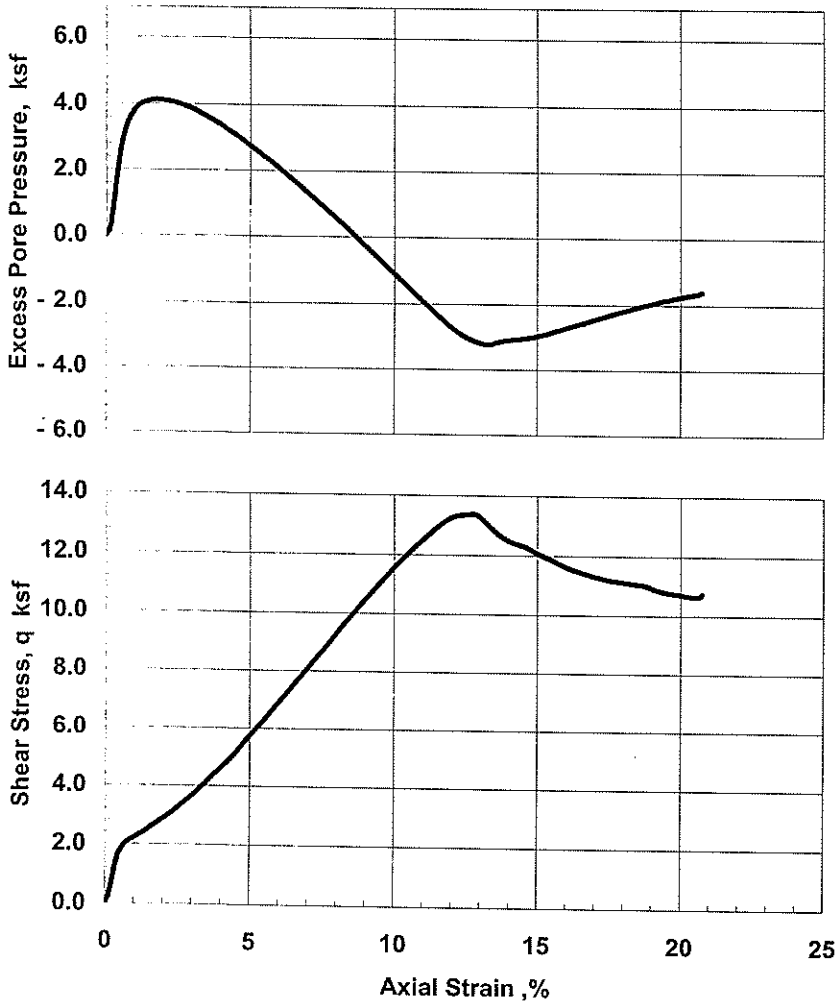
REMARKS:



Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring RB-118 Sample U-2C	May-08



SAMPLE INFORMATION

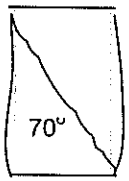
Boring: RB-118 Sample: U-2D Depth: 24.65ft
Type: Intact
Description: CL-ML, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.98 inch Diameter: 2.86 inch Area: 6.44 in²
Water Content: 29.8 % Total Unit Weight: 123.6 pcf

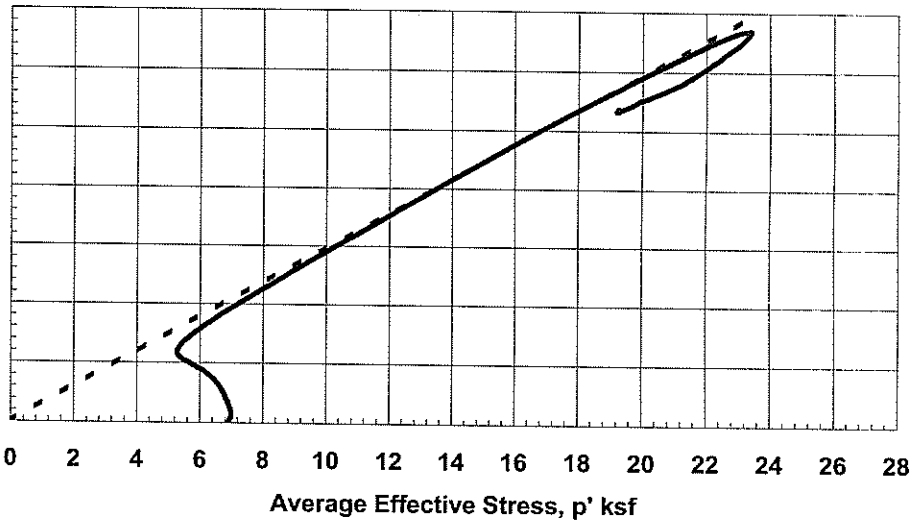
TEST SUMMARY

Consolidation Stresses: 6.91 ksf vertical, 6.91 ksf lateral
Water Content: 26.0 % Total Unit Weight: 127.3 pcf
B Coefficient: 97.8 Strain Rate: 0.021 %/min
Peak Shear Strength: 13.37 ksf @ 12.5 % Strain
Peak Effective Friction Angle: 36.5°



Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring RB-118 Sample U-2D
			May-08

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

Test No	Boring No	Sample Section No	Depth / Elev (ft)	USCS Group Symbol / Gs	w_o / w_c (%)	$\gamma_{t,o}$ / $\gamma_{t,c}$ (pcf)	$\gamma_{d,o}$ / $\gamma_{d,c}$ (pcf)	$\sigma'_{c,max}$ (ksf) / OCR	$\sigma'_{v,c}$ (ksf) / $K_c = \sigma'_{v,c} / \sigma'_{h,c}$	$\varepsilon_{a,c}$ / $\varepsilon_{v,c}$ (%)	B factor (%) / ε_{rate} (%/hr)	at Peak Deviator Stress: ε_a (%)	at Peak Obliquity: $(\sigma_1 - \sigma_3)/2$ (ksf)	at Peak Obliquity: $(\sigma'_1 + \sigma'_3)/2$ (ksf)	at Peak Obliquity: σ'_1 / σ'_3	at Peak Obliquity: A factor	at Peak Obliquity: ϕ' for c'=0
T-2876	RW-110	U-1A	23.45	CL	51.6	109.4	72.2	2.88	2.88	4.9	96.5	6.9	0.83	1.85	2.62	1.124	26.6
				(2.87)	42.3	115.1	80.9	1.0	1.00	10.8	1.3	7.9	0.82	1.83	2.63	1.135	26.7
T-2877	RW-110	U-1B	23.95	CL	46.9	112.1	76.3	5.76	5.76	4.0	98.2	17.2	1.74	3.33	3.18	1.199	31.4
				(2.87)	41.3	115.8	82.0	1.0	1.00	6.9	1.3	12.6	1.71	3.21	3.27	1.248	32.1
T-2878	RW-110	U-1C	24.45	CL	49.7	110.5	73.8	11.52	11.52	7.8	96.9	17.7	3.10	6.24	2.97	1.353	29.7
				(2.87)	39.4	117.2	84.1	1.0	1.00	12.2	1.4	16.1	3.07	6.18	2.98	1.370	29.8

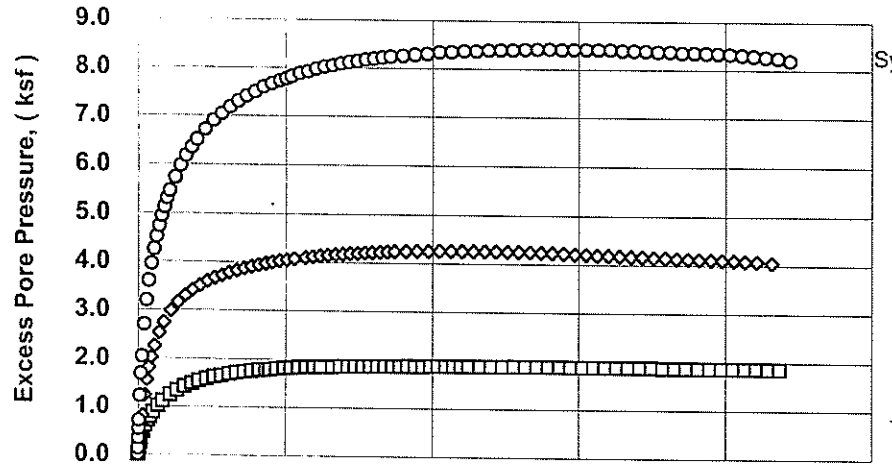
Test No	Description of Material Tested and Remarks
T-2876	CL, reddish brown VARVED silty CLAY, trace f. sand.
T-2877	CL, reddish brown VARVED silty CLAY, trace f. sand.
T-2878	CL, reddish brown VARVED silty CLAY, trace f. sand.

Strength Envelope Summary

Test Series	Failure Criteria	ϕ' (deg)	c' (ksf)	α' (deg)	a' (ksf)	Correlation Coefficient
1	1	29.9	0.000	26.5	0.000	--
	2	30.0	0.000	26.6	0.000	--

Failure Criteria: 1 - Peak Deviator Stress; 2 - Peak Obliquity

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RW-110 SUMMARY	May 2008
	Geotesting Services, Inc.		

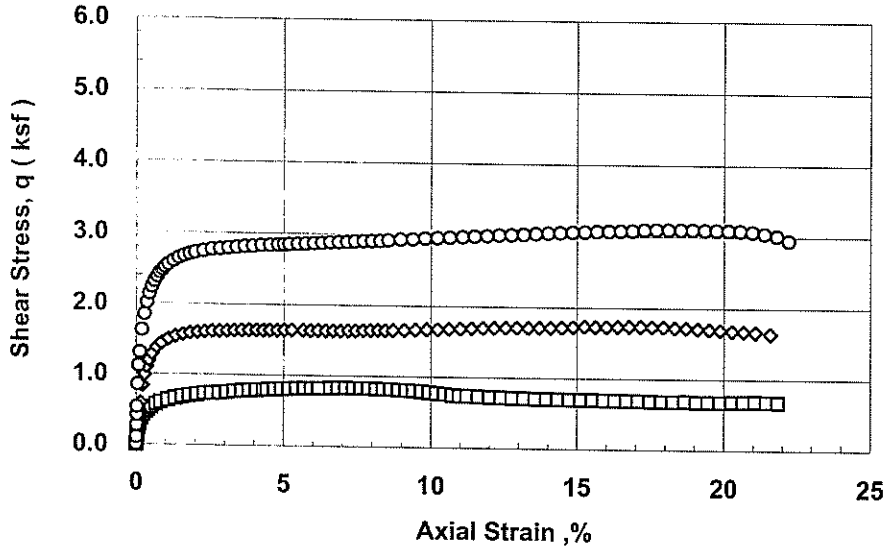


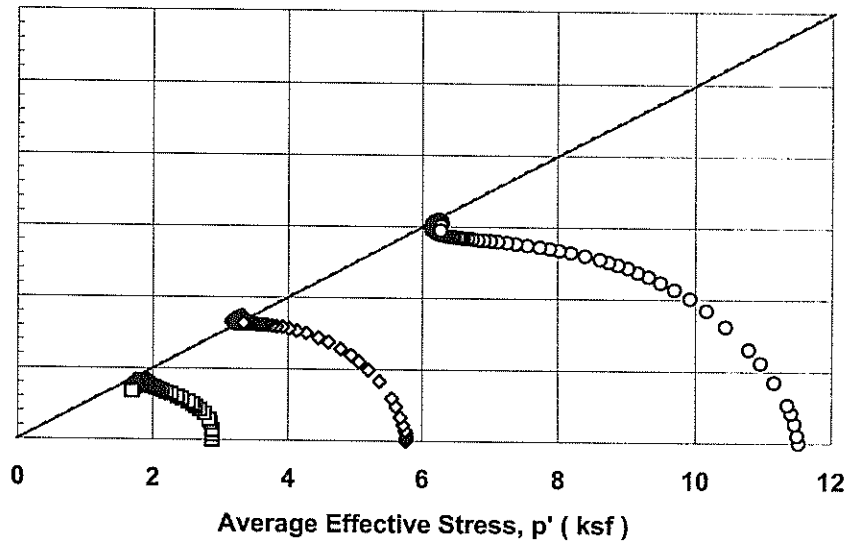
LEGEND AND SUMMARY INFORMATION

Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (ksf)
□	T-2876	RW-110	U-1A	23.5	51.6	109.4	2.88
◊	T-2877	RW-110	U-1B	24.0	46.9	112.1	5.76
○	T-2878	RW-110	U-1C	24.5	49.7	110.5	11.52

SERIES SUMMARY

Notation	Failure Criteria	c' (ksf)	Φ' (degrees)
———	Peak Deviator Stress	0.00	29.9
·····	Peak Obliquity	0.00	30.0

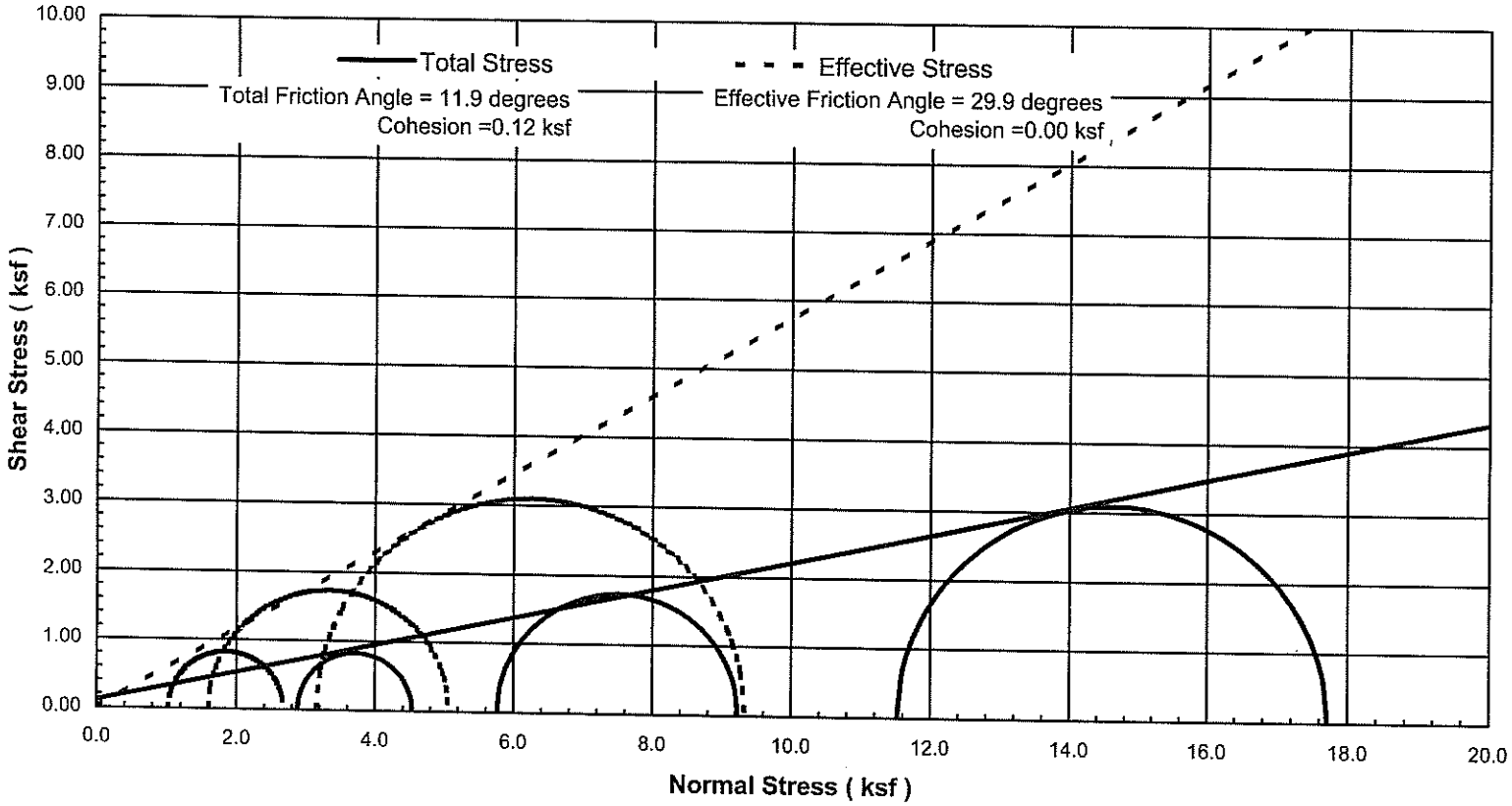




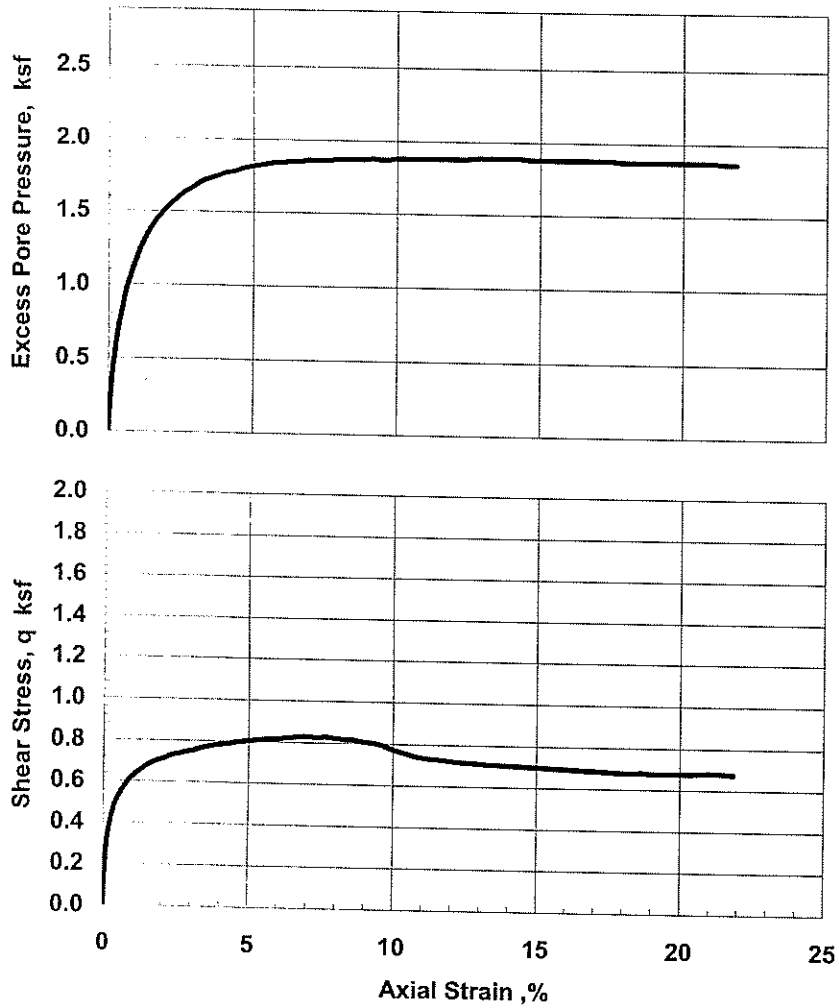
Prepared by: C. Jordan	Project No. 31737788-805	**Haley & Aldrich - #32669-000** **Connecticut Busway**	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RW-110 SUMMARY	Figure 1
Checked by: G. Thomas	**Geotesting Services, Inc.**			May 2008

GSI Analysis File: Cu'sum3v4

5/28/2008 Test: Cu'sum1_rw110.xls



Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	Mohr Circles of Total and Effective Stresses at Peak CIU' Triaxial Test	Figure 2
Geotesting Services, Inc.		RW-110 SUMMARY	May 2008



SAMPLE INFORMATION

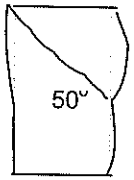
Boring: RW-110 Sample: U-1A Depth: 23.45ft
Type: Intact
Description: CL, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.98 inch Diameter: 2.86 inch Area: 6.42 in²
Water Content: 51.6 % Total Unit Weight: 109.4 pcf

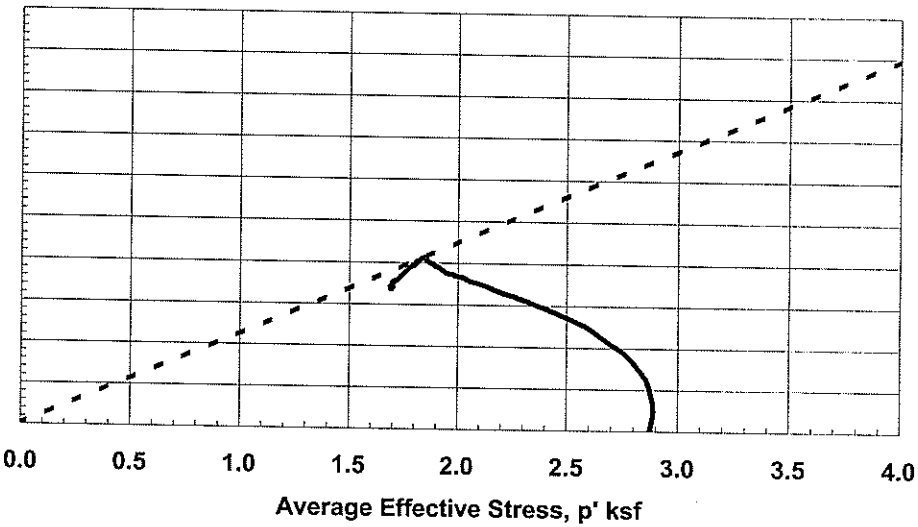
TEST SUMMARY

Consolidation Stresses: 2.88 ksf vertical, 2.88 ksf lateral
Water Content: 42.3 % Total Unit Weight: 115.1 pcf
B Coefficient: 96.5 Strain Rate: 0.021 %/min
Peak Shear Strength: 0.83 ksf @ 6.9 % Strain
Peak Effective Friction Angle: 26.7°

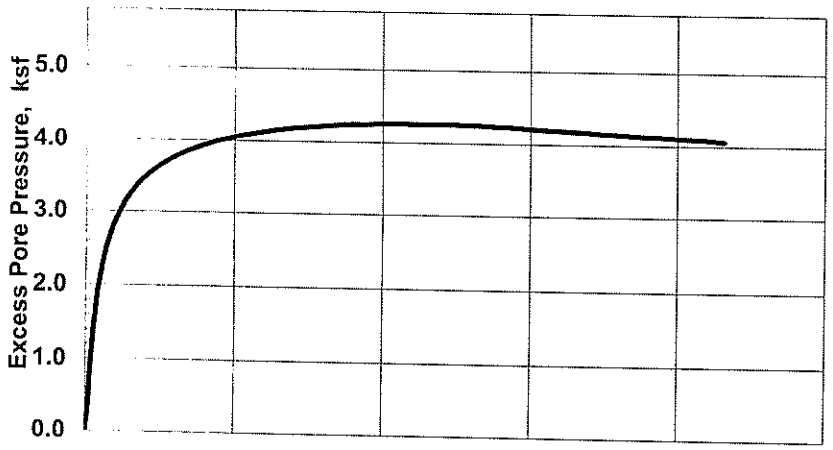


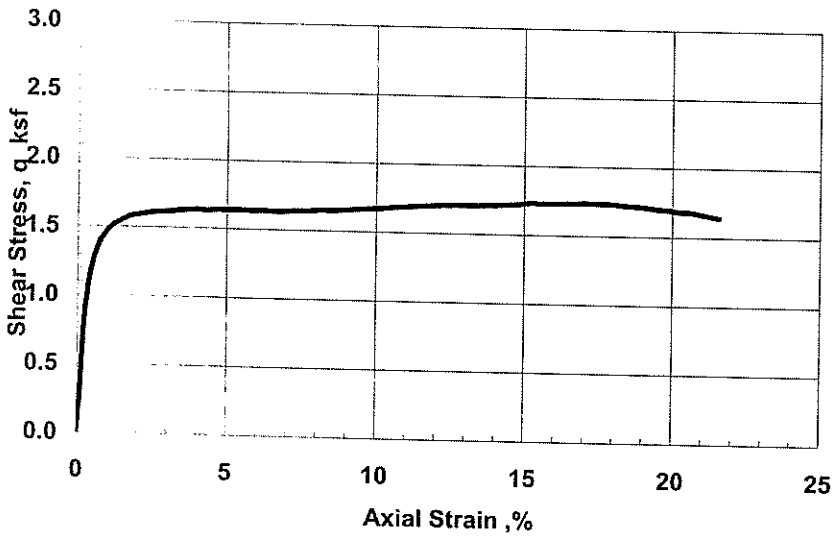
Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring RW-110 Sample U-1A
			May-08





SAMPLE INFORMATION

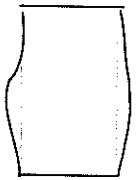
Boring: RW-110 Sample: U-1B Depth: 23.95ft
Type: Intact
Description: CL, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.85 inch Area: 6.37 in²
Water Content: 46.9 % Total Unit Weight: 112.1 pcf

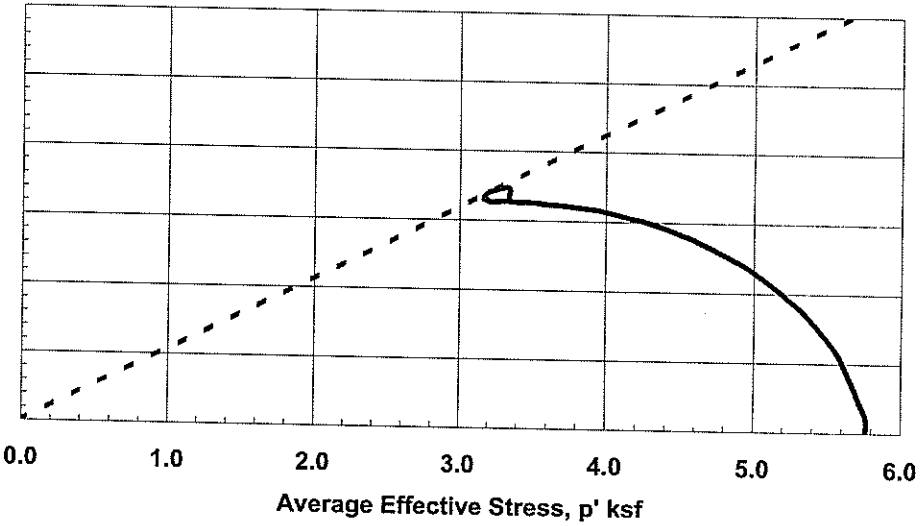
TEST SUMMARY

Consolidation Stresses: 5.76 ksf vertical, 5.76 ksf lateral
Water Content: 41.3 % Total Unit Weight: 115.8 pcf
B Coefficient: 98.2 Strain Rate: 0.021 %/min
Peak Shear Strength: 1.74 ksf @ 17.2 % Strain
Peak Effective Friction Angle: 32.1°

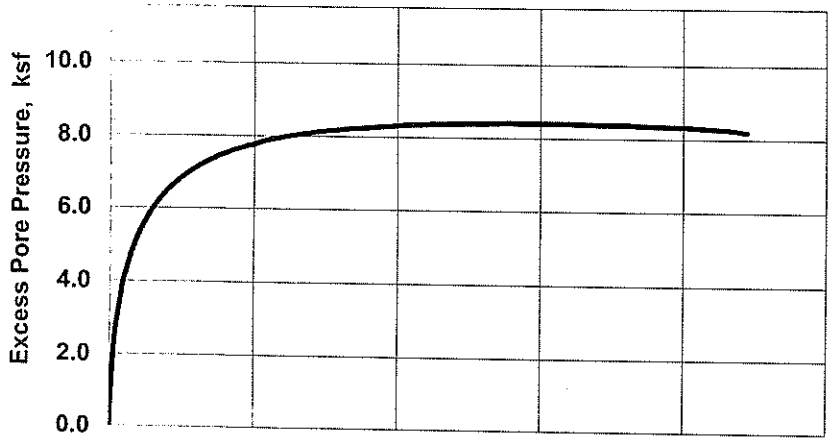


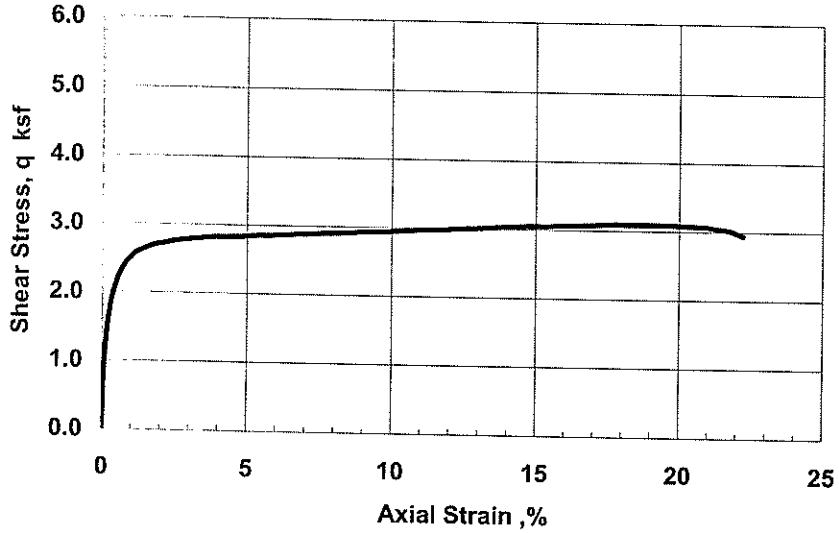
Failure Sketch

REMARKS:



Test by: DT Checked by: GET	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements Boring RW-110 Sample U-1B	May-08
	Geotesting Services, Inc.		





SAMPLE INFORMATION

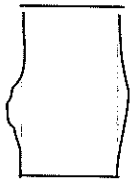
Boring: RW-110 Sample: U-1C Depth: 24.45ft
Type: Intact
Description: CL, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.99 inch Diameter: 2.86 inch Area: 6.41 in²
Water Content: 49.7 % Total Unit Weight: 110.5 pcf

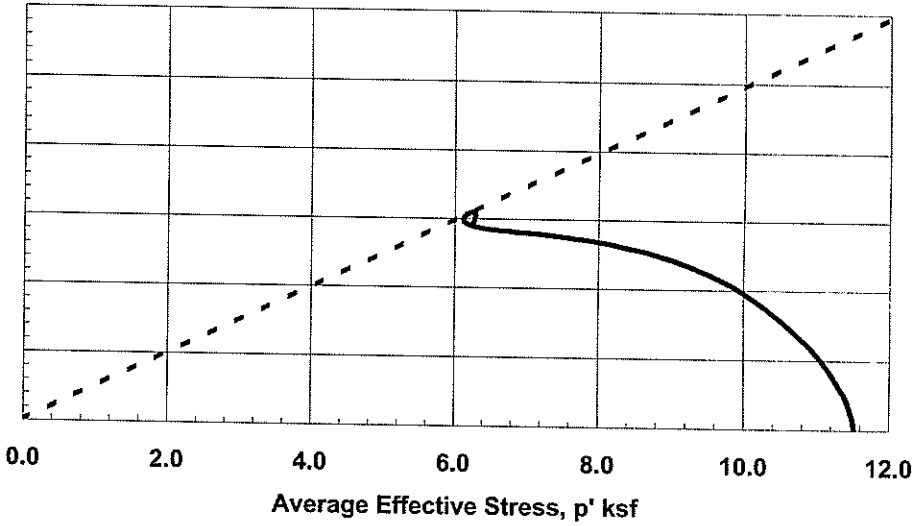
TEST SUMMARY

Consolidation Stresses: 11.52 ksf vertical, 11.52 ksf lateral
Water Content: 39.4 % Total Unit Weight: 117.2 pcf
B Coefficient: 96.9 Strain Rate: 0.023 %/min
Peak Shear Strength: 3.10 ksf @ 17.7 % Strain
Peak Effective Friction Angle: 29.8°



Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring RW-110 Sample U-1C
			May-08

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

Test No	Boring No	Sample Section No	Depth / Elev (ft)	USCS Group Symbol / Gs	w_o / w_c (%)	$\gamma_{t,o}$ / $\gamma_{t,c}$ (pcf)	$\gamma_{d,o}$ / $\gamma_{d,c}$ (pcf)	$\sigma'_{c,max}$ (ksf) / OCR	$\sigma'_{v,c}$ (ksf) / $K_c = \sigma'_{v,c} / \sigma'_{h,c}$	$\varepsilon_{a,c}$ / $\varepsilon_{v,c}$ (%)	B factor (%) / ε_{rate} (%/hr)	at Peak Deviator Stress: ε_a (%)	at Peak Obliquity: $(\sigma_1 - \sigma_3)/2$ (ksf)	$(\sigma'_1 + \sigma'_3)/2$ (ksf)	σ'_1 / σ'_3	A factor	ϕ' for c'=0
T-2873	RW-116	A	18.25	CH	63.7	104.8	64.0	1.44	1.44	3.2	97.3	4.9	0.65	1.12	3.77	0.746	35.5
				(2.90)	58.9	106.2	66.8	1.0	1.00	4.2	1.2	3.7	0.64	1.08	3.90	0.782	36.3
T-2874	RW-116	B	18.75	CH	60.7	104.8	65.2	2.88	2.88	1.5	97.6	2.6	1.07	2.23	2.83	0.806	28.6
				(2.86)	55.8	107.2	68.8	1.0	1.00	5.3	1.3	3.7	1.02	2.10	2.88	0.882	29.0
T-2875	RW-116	C	19.25	CH	60.5	104.4	65.0	5.76	5.76	4.4	96.7	2.6	1.46	3.56	2.39	1.254	24.2
				(2.88)	53.4	108.7	70.9	1.0	1.00	8.3	1.4	13.0	1.19	2.32	3.09	1.948	30.7

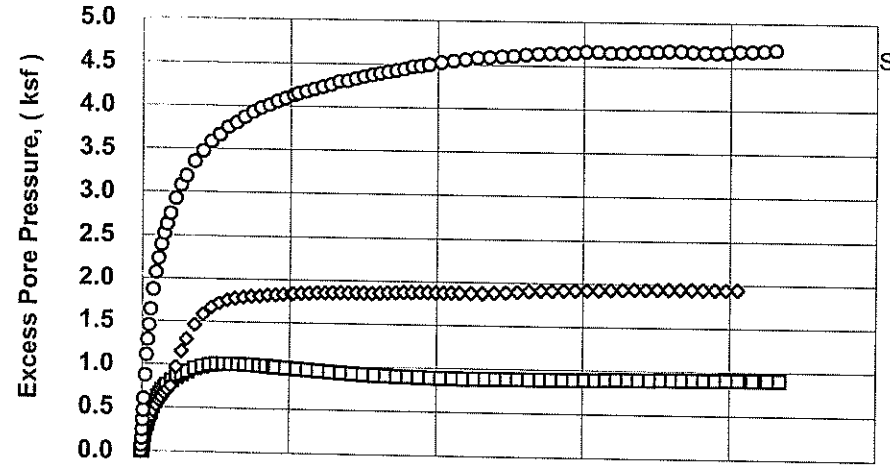
Test No	Description of Material Tested and Remarks
T-2873	CH, reddish brown VARVED CLAY, trace f. sand.
T-2874	CH, reddish brown VARVED CLAY, trace f. sand.
T-2875	CH, reddish brown VARVED CLAY, trace f. sand.

Strength Envelope Summary

Test Series	Failure Criteria	ϕ' (deg)	c' (ksf)	α' (deg)	a' (ksf)	Correlation Coefficient
1	1	19.3	0.316	18.3	0.298	0.998
	2	24.8	0.197	22.7	0.179	0.991

Failure Criteria: 1 - Peak Deviator Stress; 2 - Peak Obliquity

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RW-116 SUMMARY	May 2008
	Geotesting Services, Inc.		

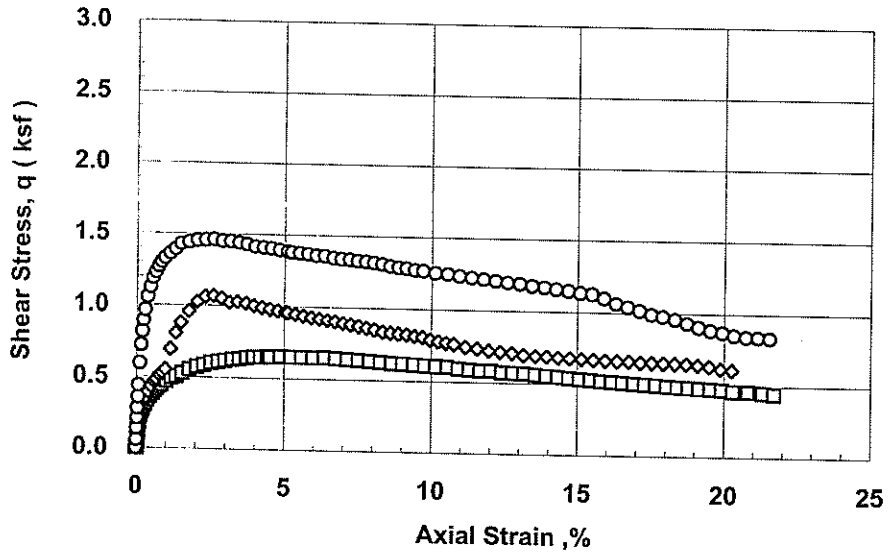


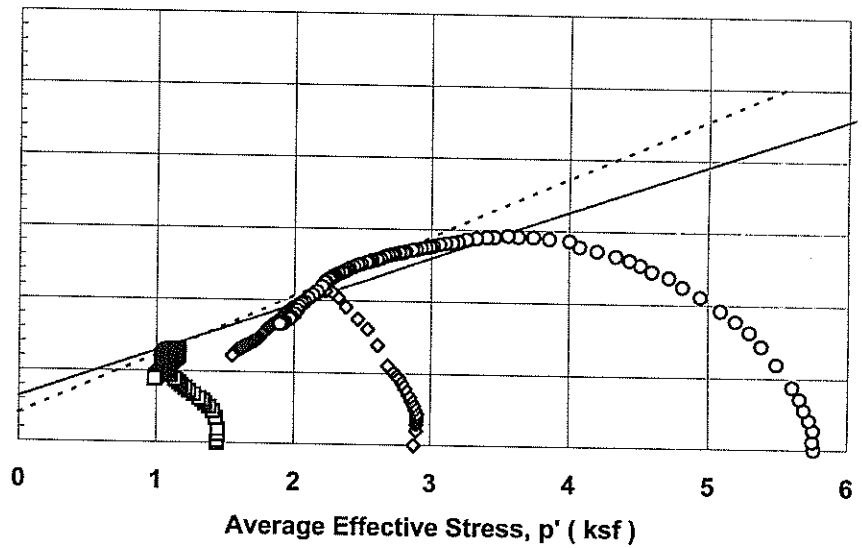
LEGEND AND SUMMARY INFORMATION

Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (ksf)
□	T-2873	RW-116	A	18.3	63.7	104.8	1.44
◊	T-2874	RW-116	B	18.8	60.7	104.8	2.88
O	T-2875	RW-116	C	19.3	60.5	104.4	5.76

SERIES SUMMARY

Notation	Failure Criteria	c' (ksf)	Φ' (degrees)
	Peak Deviator Stress	0.32	19.3
	Peak Obliquity	0.20	24.8

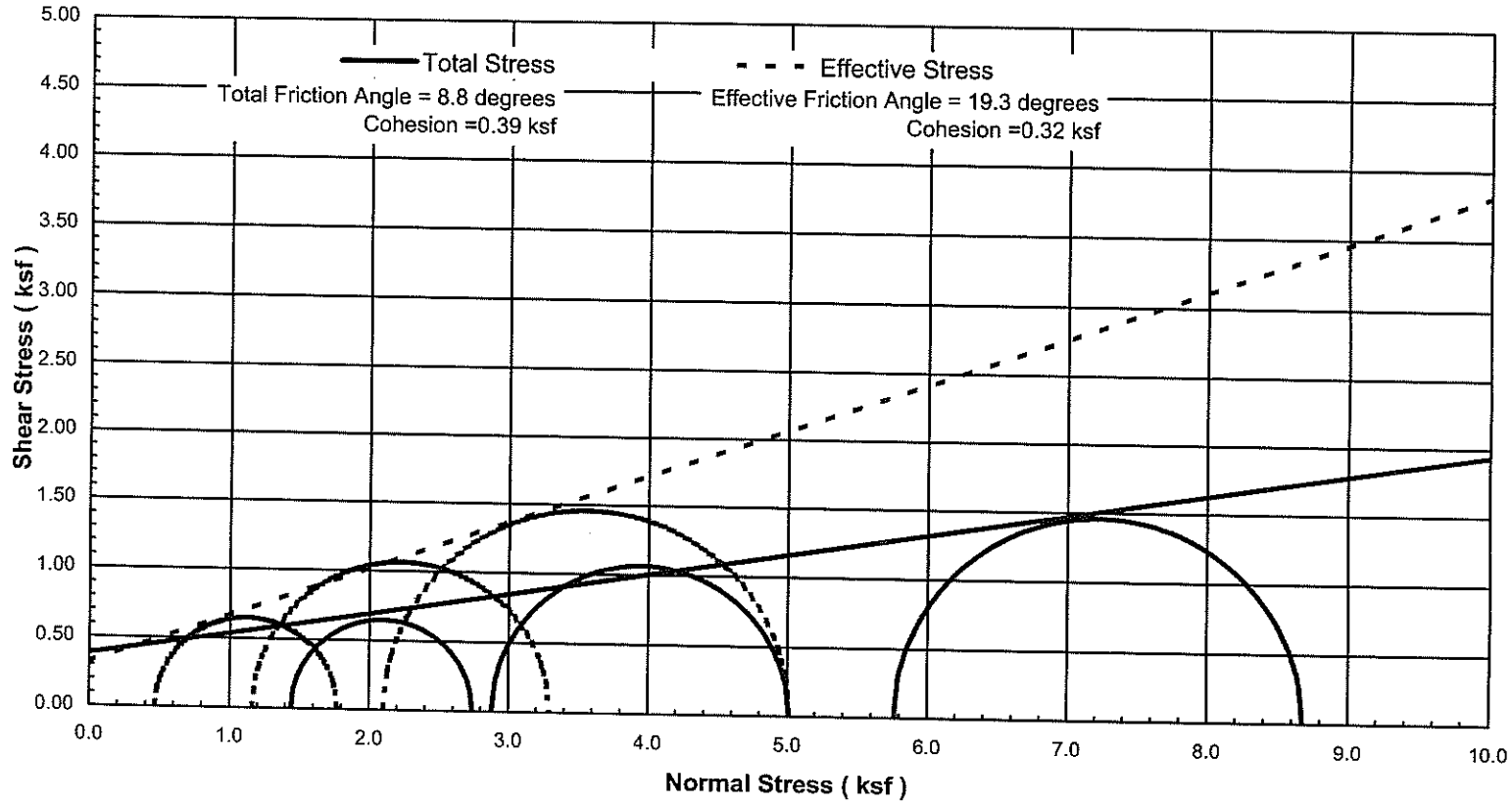




Prepared by: C. Jordan	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RW-116 SUMMARY	Figure 1
Checked by: G. Thomas	Geotesting Services, Inc.			May 2008

GSI Analysis File: Cu'sum3v4

5/27/2008 Test: Cu'sum1_rw116.xls

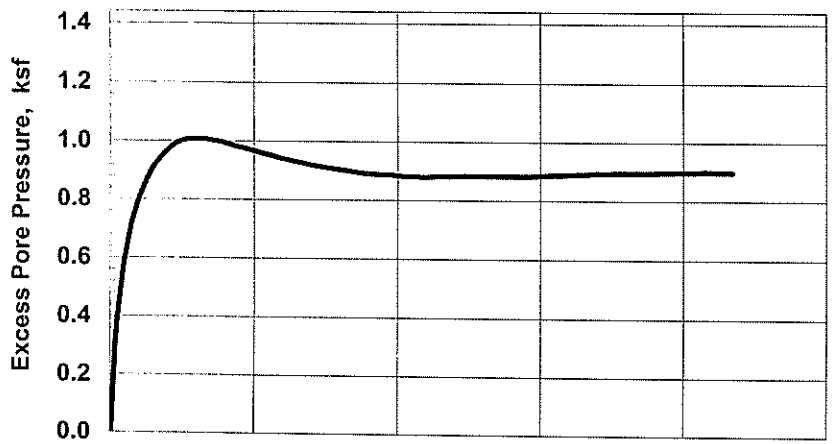


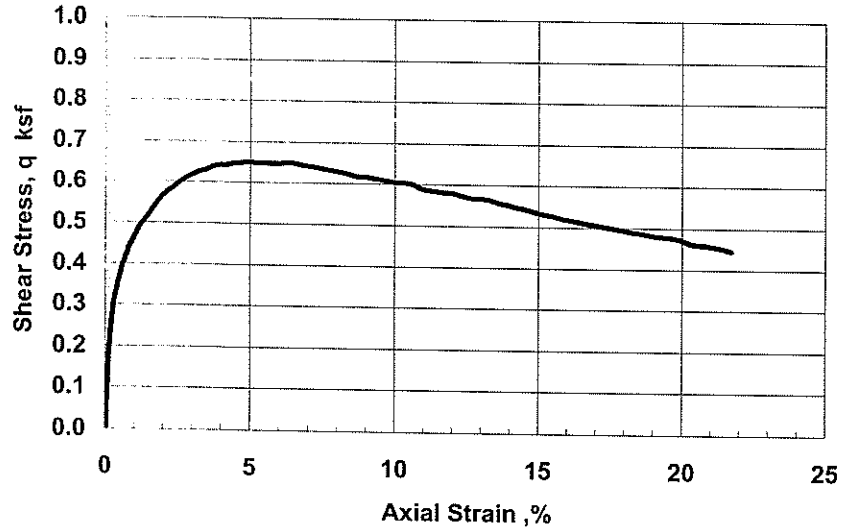
Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	Mohr Circles of Total and Effective Stresses at Peak CIU' Triaxial Test	Figure 2
Geotesting Services, Inc.		RW-116 SUMMARY	May 2008

GSI Analysis File: Cu'sum3v4.xls

Cu'sum1_rw116.xls

5/27/2008





SAMPLE INFORMATION

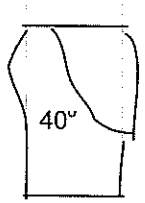
Boring: RW-116 Sample: A Depth: 18.25ft
Type: Intact
Description: CH, reddish brown VARVED CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.99 inch Diameter: 2.84 inch Area: 6.35 in²
Water Content: 63.7 % Total Unit Weight: 104.8 pcf

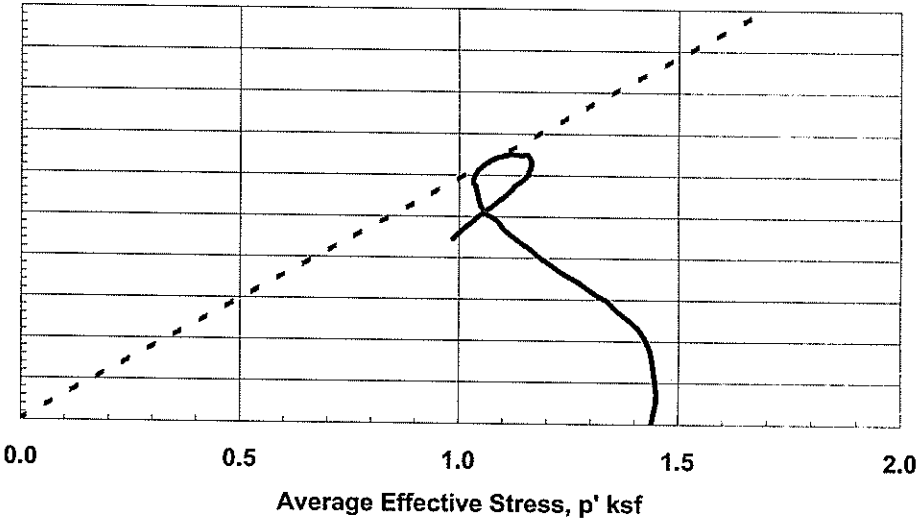
TEST SUMMARY

Consolidation Stresses: 1.44 ksf vertical, 1.44 ksf lateral
Water Content: 58.9 % Total Unit Weight: 106.2 pcf
B Coefficient: 97.3 Strain Rate: 0.021 %/min
Peak Shear Strength: 0.65 ksf @ 4.9 % Strain
Peak Effective Friction Angle: 36.3°

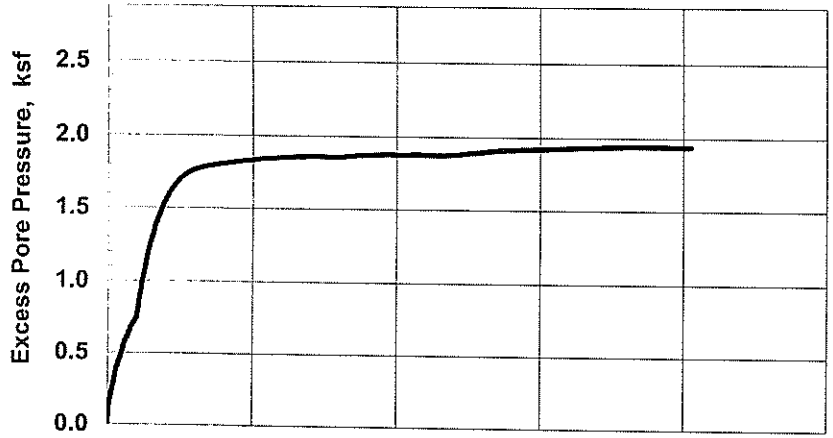


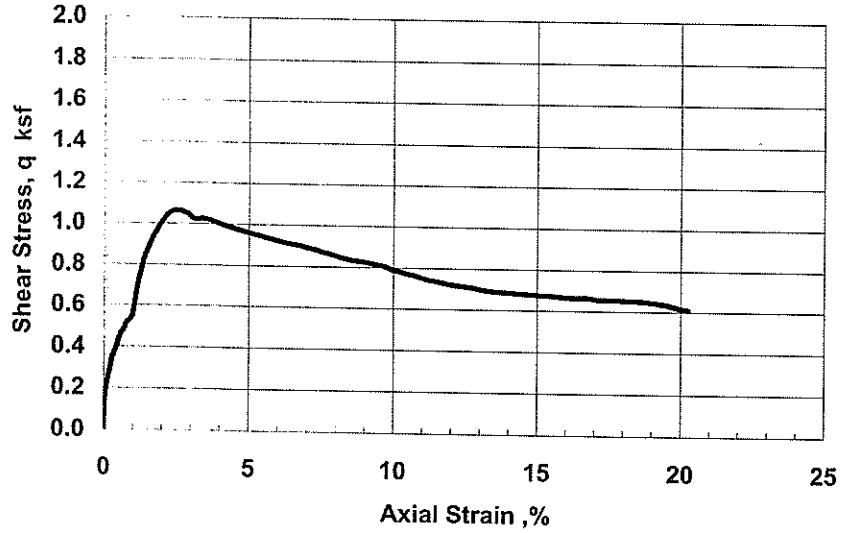
Failure Sketch

REMARKS:



Test by: DT Checked by: GET	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements Boring RW-116 Sample A	May-08
	Geotesting Services, Inc.			





SAMPLE INFORMATION

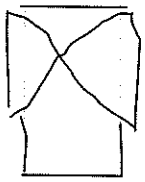
Boring: RW-116 Sample: B Depth: 18.75ft
Type: Intact
Description: CH, reddish brown VARVED CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.86 inch Area: 6.41 in²
Water Content: 60.7 % Total Unit Weight: 104.8 pcf

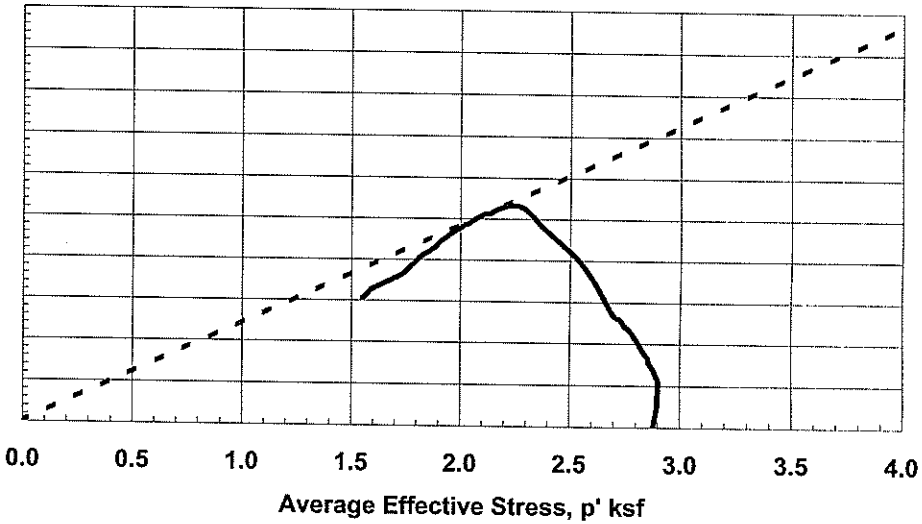
TEST SUMMARY

Consolidation Stresses: 2.88 ksf vertical, 2.88 ksf lateral
Water Content: 55.8 % Total Unit Weight: 107.2 pcf
B Coefficient: 97.6 Strain Rate: 0.022 %/min
Peak Shear Strength: 1.07 ksf @ 2.6 % Strain
Peak Effective Friction Angle: 29.0°



Failure Sketch

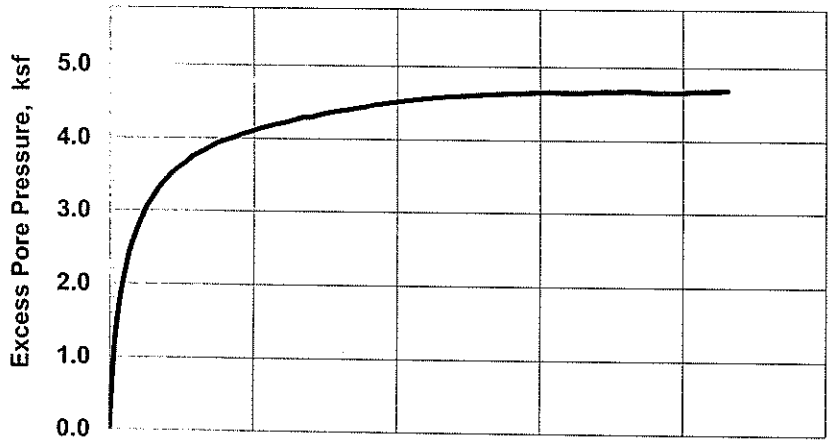
REMARKS:

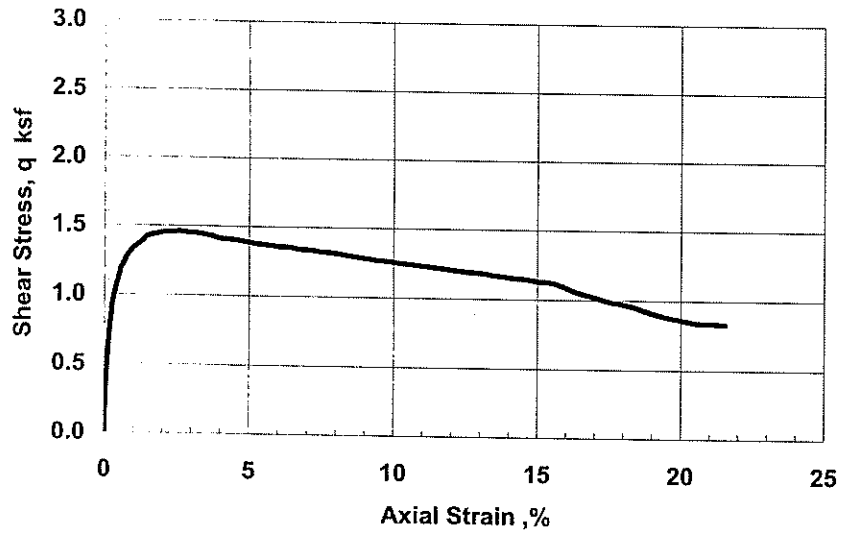


Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring RW-116 Sample B	May-08





SAMPLE INFORMATION

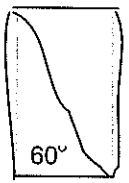
Boring: RW-116 Sample: C Depth: 19.25ft
Type: Intact
Description: CH, reddish brown VARVED CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.84 inch Area: 6.34 in²
Water Content: 60.5 % Total Unit Weight: 104.4 pcf

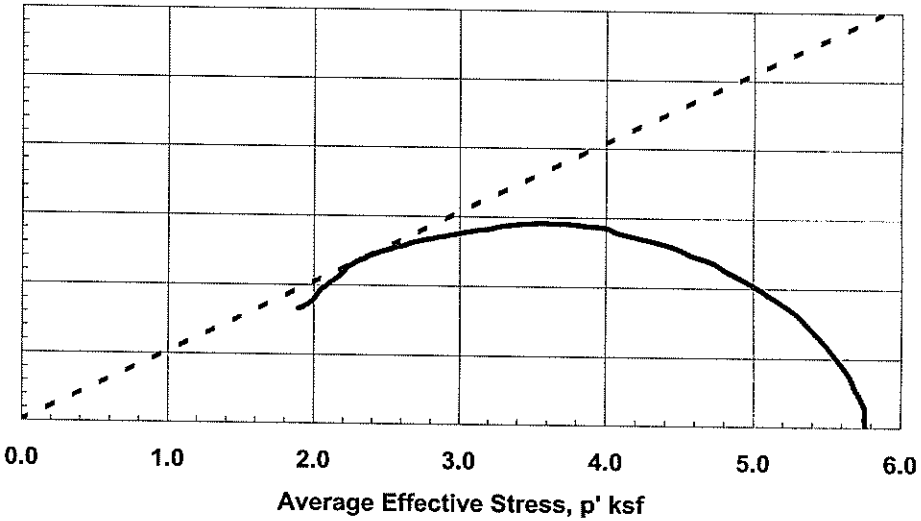
TEST SUMMARY

Consolidation Stresses: 5.76 ksf vertical, 5.76 ksf lateral
Water Content: 53.4 % Total Unit Weight: 108.7 pcf
B Coefficient: 96.7 Strain Rate: 0.023 %/min
Peak Shear Strength: 1.46 ksf @ 2.6 % Strain
Peak Effective Friction Angle: 30.7°



Failure Sketch

REMARKS:



Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring RW-116 Sample C	May-08

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

Test No	Boring No	Sample Section No	Depth / Elev (ft)	USCS Group Symbol / Gs	w_o / w_c (%)	$\gamma_{t,o}$ / $\gamma_{t,c}$ (pcf)	$\gamma_{d,o}$ / $\gamma_{d,c}$ (pcf)	$\sigma'_{c,max}$ (ksf) / OCR	$\sigma'_{v,c}$ (ksf) / $K_c = \sigma'_{v,c} / \sigma'_{h,c}$	$\varepsilon_{a,c}$ / $\varepsilon_{v,c}$ (%)	B factor (%) / ε_{rate} (%/hr)	at Peak Deviator Stress: ε_a (%)	at Peak Obliquity: $(\sigma_1 - \sigma_3)/2$ (ksf)	$(\sigma'_1 + \sigma'_3)/2$ (ksf)	σ'_1 / σ'_3	A factor	ϕ' for c'=0
T-2867	RW-121	U-1B	43.55	CL	52.2	109.4	71.9	3.31	3.31	3.4	95.9	11.9	0.97	1.89	3.09	1.238	30.8
				(2.90)	46.5	112.9	77.1	1.0	1.00	6.7	1.3	16.4	0.95	1.85	3.13	1.269	31.0
T-2868	RW-121	U-1C	44.05	CL	47.9	109.9	74.3	6.62	6.62	5.6	96.8	18.1	1.86	3.92	2.80	1.228	28.3
				(2.75)	40.4	114.2	81.4	1.0	1.00	8.7	1.3	15.3	1.85	3.87	2.83	1.246	28.5
T-2869	RW-121	U-1D	44.55	CL	49.3	110.4	73.9	13.25	13.25	7.2	98.3	5.0	3.09	7.88	2.29	1.368	23.1
				(2.85)	38.4	117.6	85.0	1.0	1.00	13.0	1.4	6.1	3.04	7.66	2.31	1.421	23.4

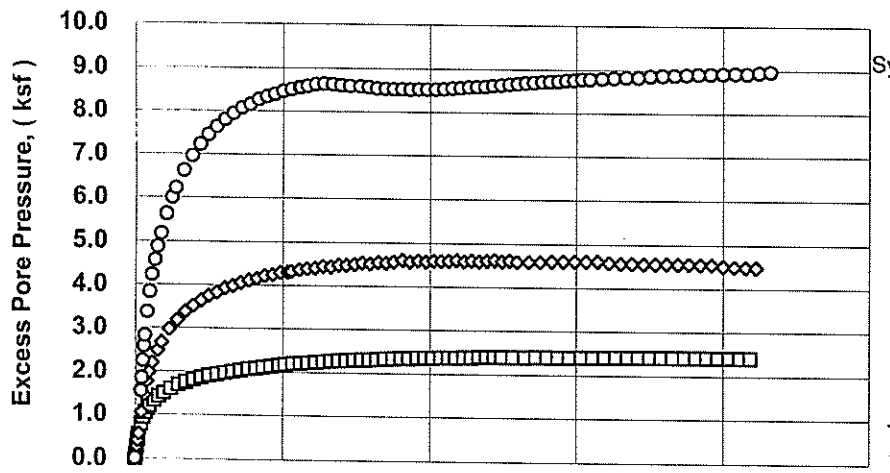
Test No	Description of Material Tested and Remarks
T-2867	CL, reddish brown VARVED silty CLAY, trace f. sand.
T-2868	CL, reddish brown VARVED silty CLAY, trace f. sand.
T-2869	CL, reddish brown VARVED silty CLAY, trace f. sand.

Strength Envelope Summary

Test Series	Failure Criteria	ϕ' (deg)	c' (ksf)	α' (deg)	a' (ksf)	Correlation Coefficient
1	1	20.5	0.403	19.3	0.378	0.996
	2	20.7	0.398	19.4	0.372	0.996

Failure Criteria: 1 - Peak Deviator Stress; 2 - Peak Obliquity

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RW-121 SUMMARY	May 2008
	Geotesting Services, Inc.		

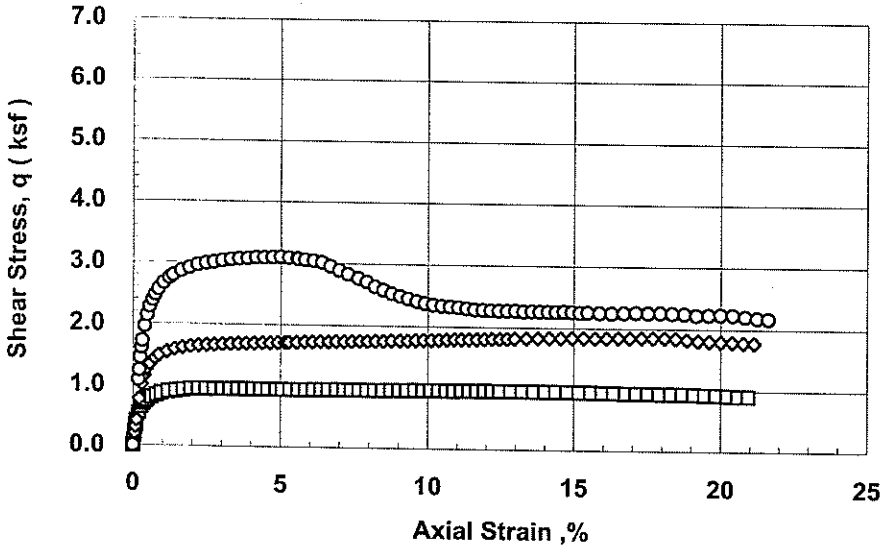


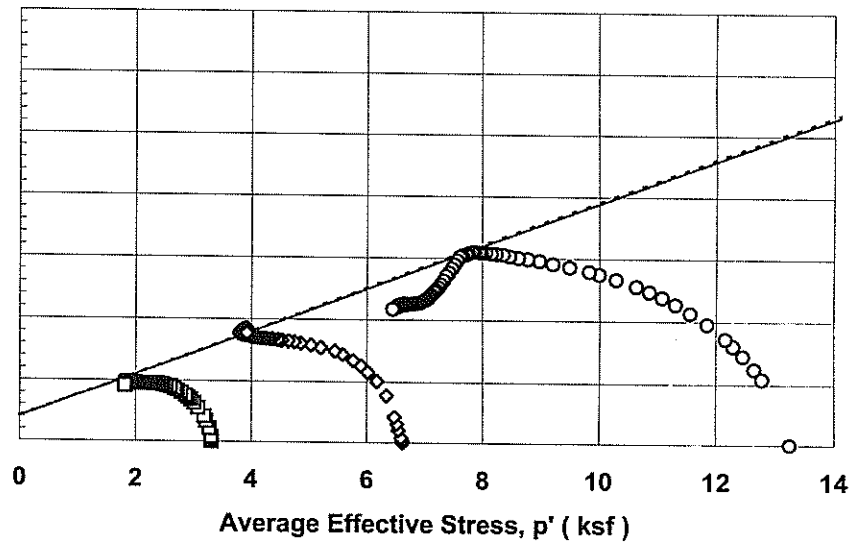
LEGEND AND SUMMARY INFORMATION

Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (ksf)
□	T-2867	RW-121	U-1B	43.6	52.2	109.4	3.31
◊	T-2868	RW-121	U-1C	44.1	47.9	109.9	6.62
○	T-2869	RW-121	U-1D	44.6	49.3	110.4	13.25

SERIES SUMMARY

Notation	Failure Criteria	c' (ksf)	Φ' (degrees)
———	Peak Deviator Stress	0.40	20.5
- - - -	Peak Obliquity	0.40	20.7

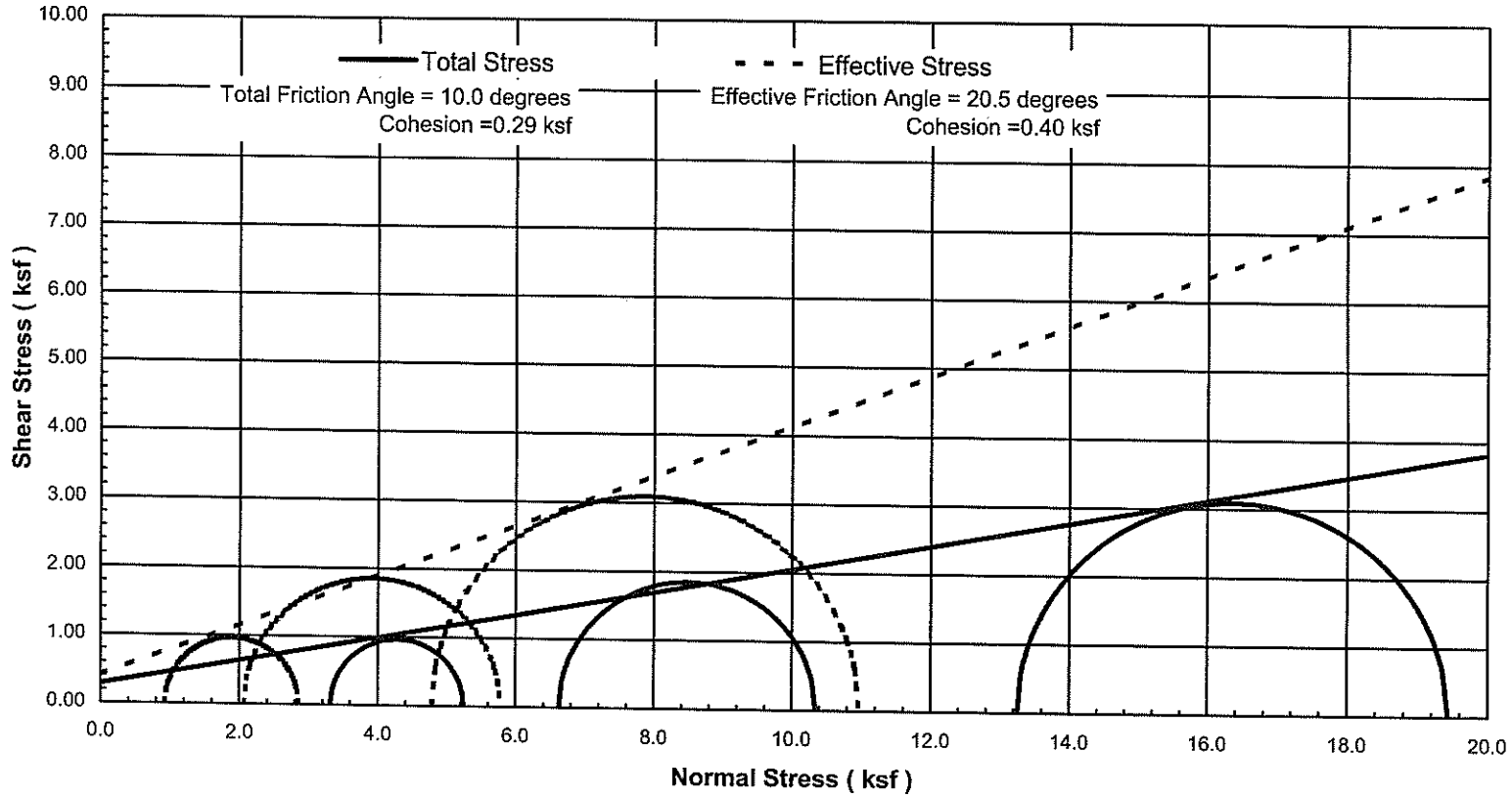




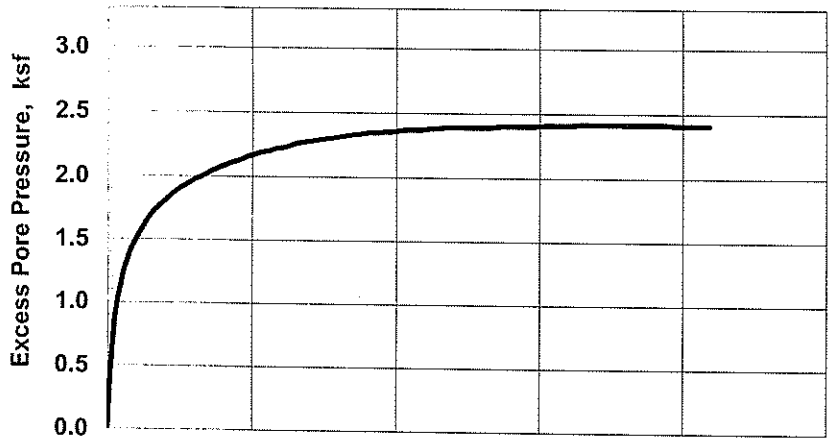
Prepared by: C. Jordan Checked by: G. Thomas	Project No. 31737788-805	**Haley & Aldrich - #32669-000** **Connecticut Busway**	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements RW-121 SUMMARY	Figure 1
	Geotesting Services, Inc.			May 2008

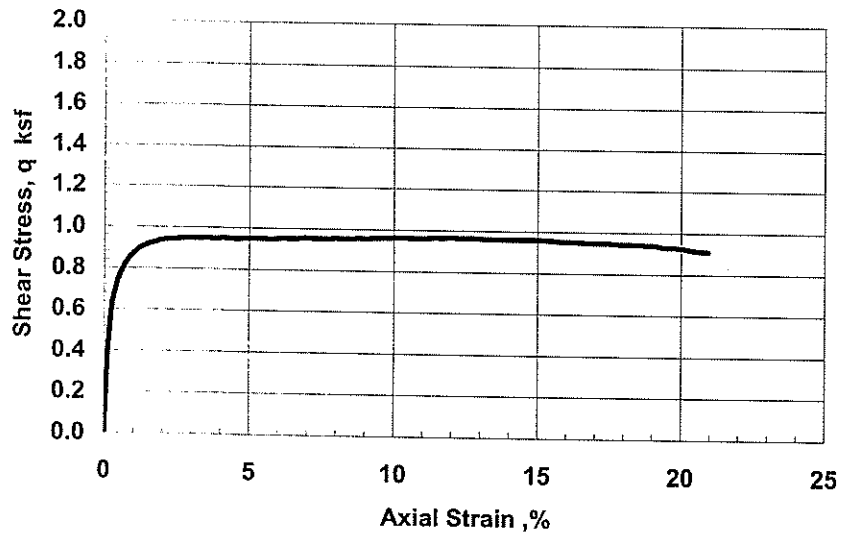
GSI Analysis File: Cu'sum3v4

5/27/2008 Test: Cu'sum1_rw121.xls



Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	Mohr Circles of Total and Effective Stresses at Peak CIU' Triaxial Test	Figure 2
Geotesting Services, Inc.		RW-121 SUMMARY	May 2008





SAMPLE INFORMATION

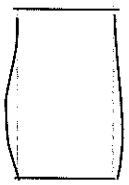
Boring: RW-121 Sample: U-1B Depth: 43.55ft
Type: Intact
Description: CL, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.99 inch Diameter: 2.85 inch Area: 6.36 in²
Water Content: 52.2 % Total Unit Weight: 109.4 pcf

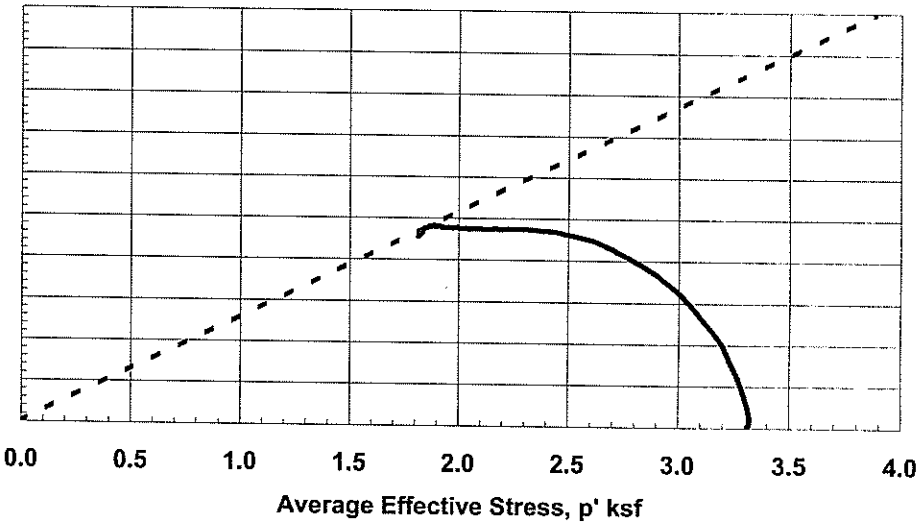
TEST SUMMARY

Consolidation Stresses: 3.31 ksf vertical, 3.31 ksf lateral
Water Content: 46.5 % Total Unit Weight: 112.9 pcf
B Coefficient: 95.9 Strain Rate: 0.022 %/min
Peak Shear Strength: 0.97 ksf @ 11.9 % Strain
Peak Effective Friction Angle: 31.0°



Failure Sketch

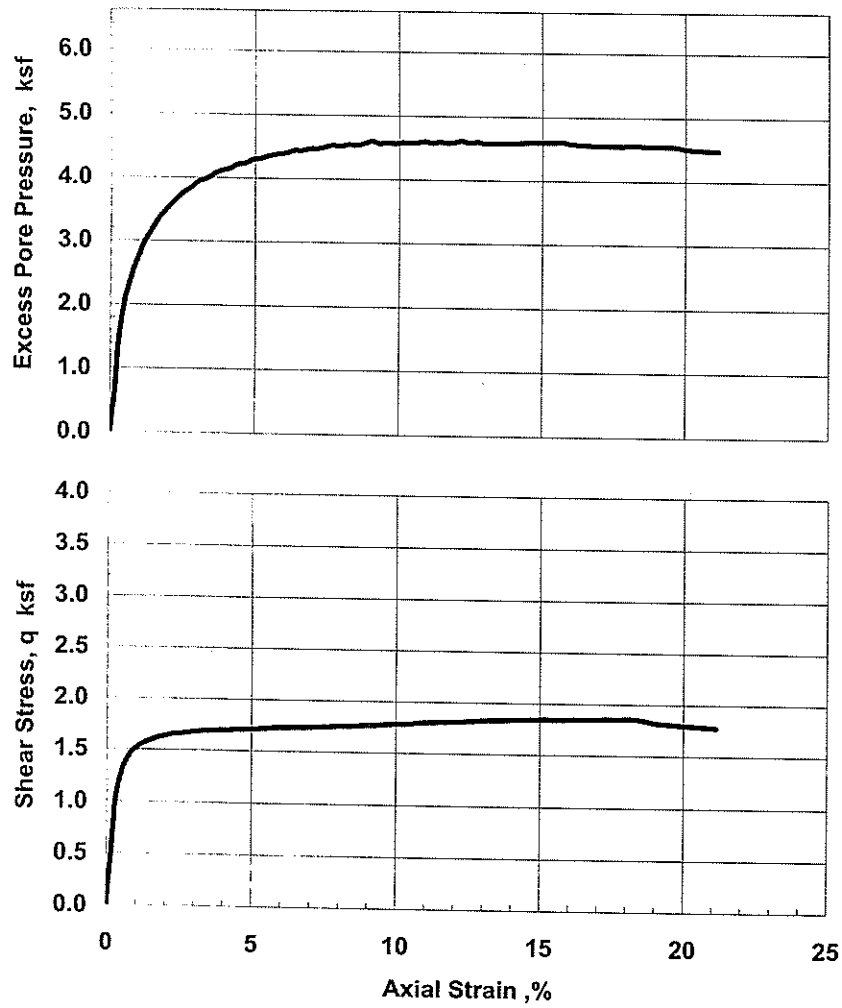
REMARKS:



Test by: DT

Checked by: GET

Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
	Geotesting Services, Inc.	Boring RW-121 Sample U-1B	May-08



SAMPLE INFORMATION

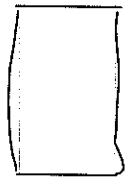
Boring: RW-121 Sample: U-1C Depth: 44.05ft
Type: Intact
Description: CL, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.87 inch Area: 6.45 in²
Water Content: 47.9 % Total Unit Weight: 109.9 pcf

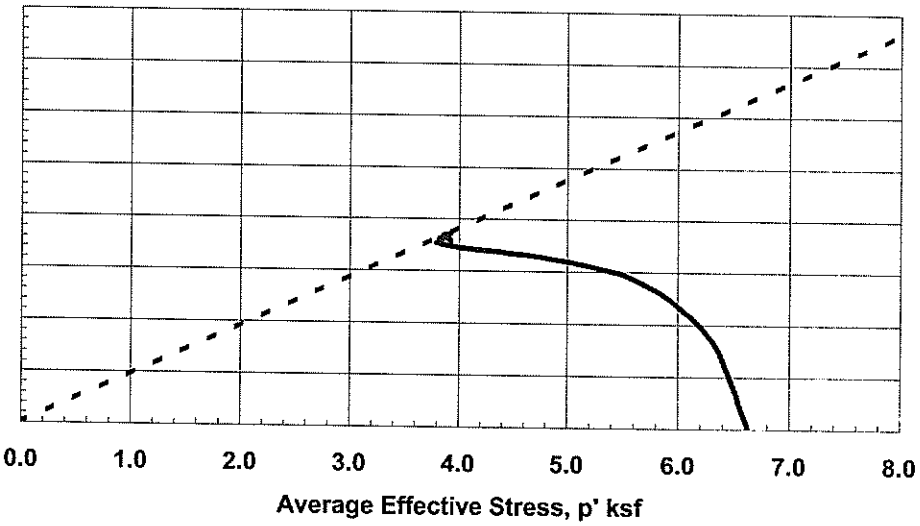
TEST SUMMARY

Consolidation Stresses: 6.62 ksf vertical, 6.62 ksf lateral
Water Content: 40.4 % Total Unit Weight: 114.2 pcf
B Coefficient: 96.8 Strain Rate: 0.022 %/min
Peak Shear Strength: 1.86 ksf @ 18.1 % Strain
Peak Effective Friction Angle: 28.5°

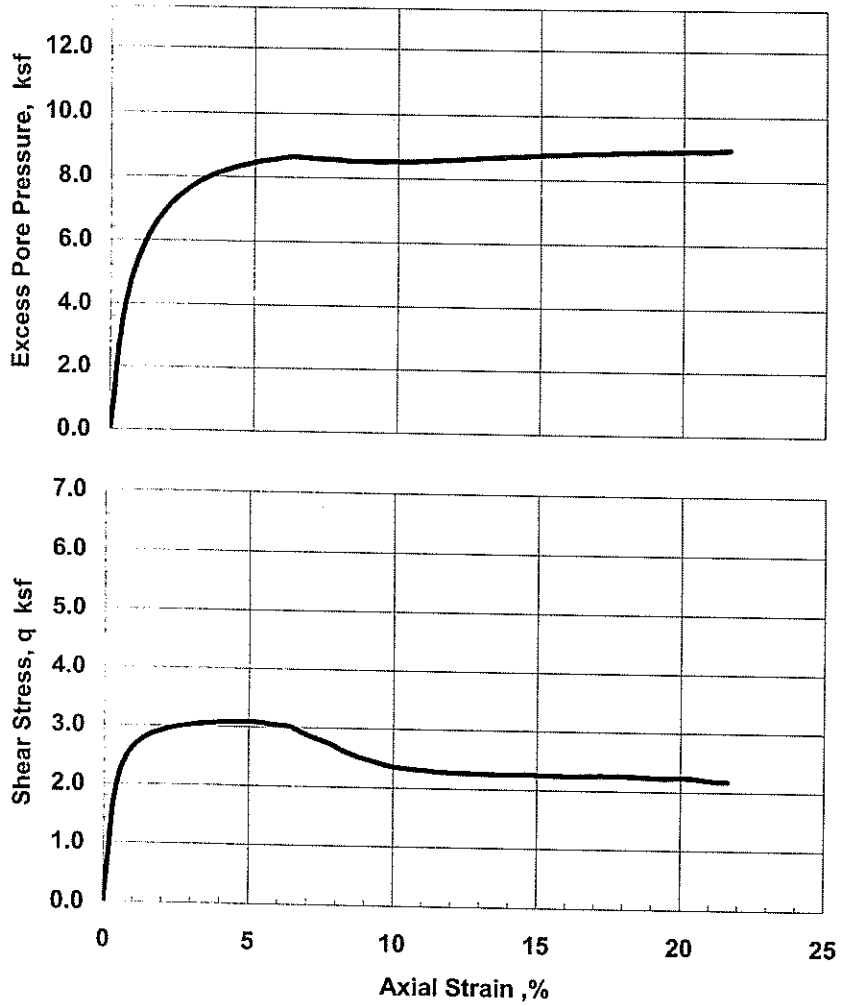


Failure Sketch

REMARKS:



Test by: DT Checked by: GET	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements Boring RW-121 Sample U-1C	May-08
	Geotesting Services, Inc.			



SAMPLE INFORMATION

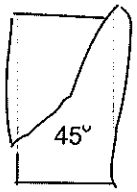
Boring: RW-121 Sample: U-1D Depth: 44.55ft
Type: Intact
Description: CL, reddish brown VARVED silty CLAY, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 6.00 inch Diameter: 2.85 inch Area: 6.36 in²
Water Content: 49.3 % Total Unit Weight: 110.4 pcf

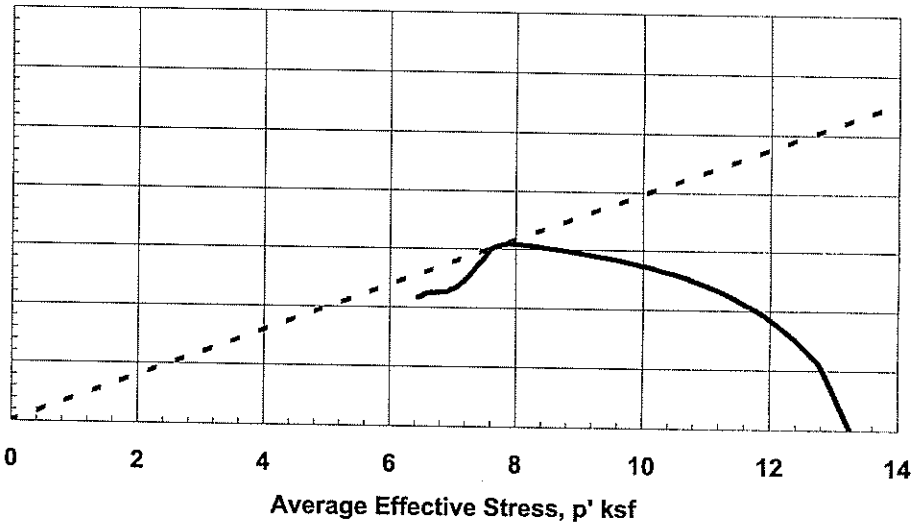
TEST SUMMARY

Consolidation Stresses: 13.25 ksf vertical, 13.25 ksf lateral
Water Content: 38.4 % Total Unit Weight: 117.6 pcf
B Coefficient: 98.3 Strain Rate: 0.023 %/min
Peak Shear Strength: 3.09 ksf @ 5.0 % Strain
Peak Effective Friction Angle: 23.4°

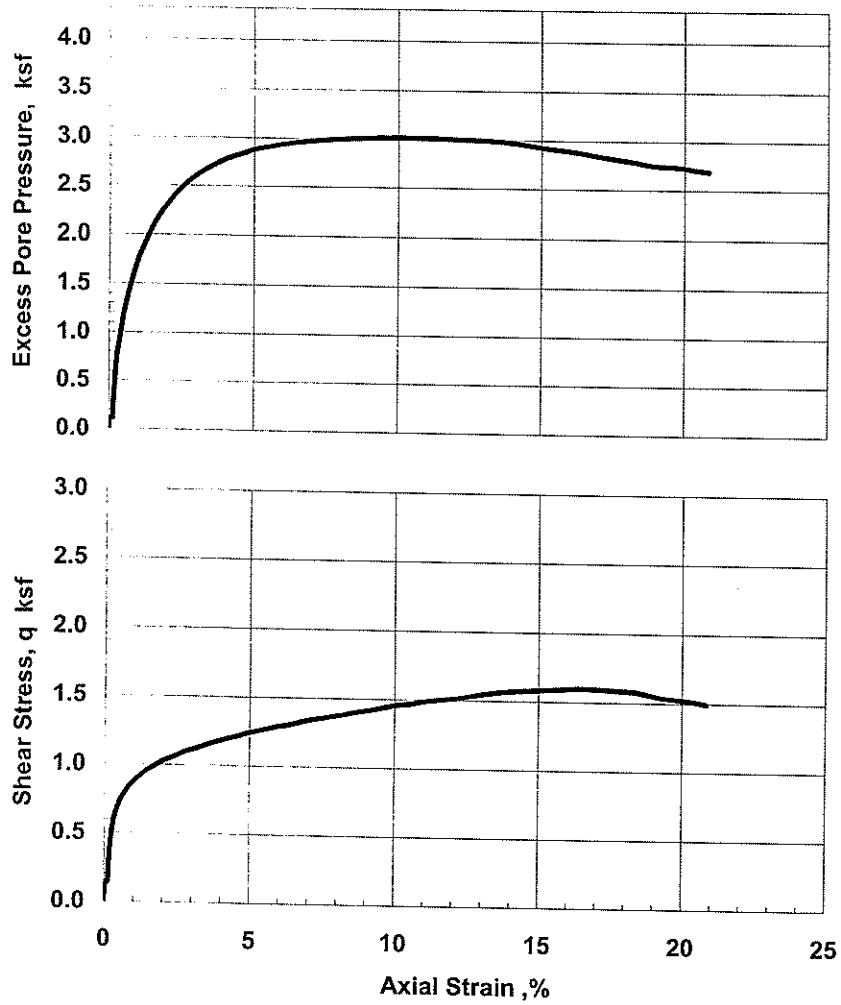


Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring RW-121 Sample U-1D
			May-08



SAMPLE INFORMATION

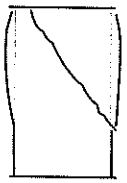
Boring: TB-102 Sample: U-3D Depth: 56.45 ft
Type: Intact 0
Description: ML, reddish brown VARVED clayey SILT, trace f. sand.

SPECIMEN INFORMATION (Initial)

Height: 5.99 inch Diameter: 2.87 inch Area: 6.46 in²
Water Content: 48.8 % Total Unit Weight: 111.7 pcf

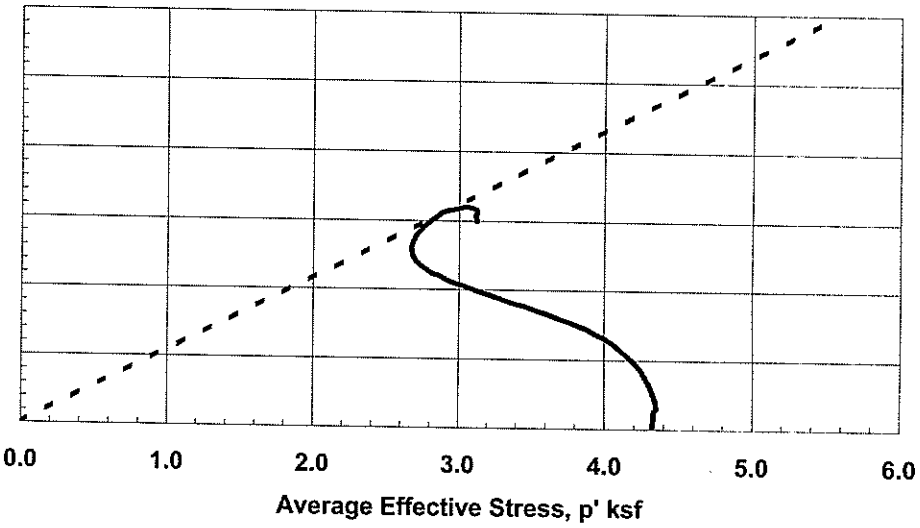
TEST SUMMARY

Consolidation Stresses: 4.32 ksf vertical, 4.32 ksf lateral
Water Content: 38.5 % Total Unit Weight: 118.9 pcf
B Coefficient: Strain Rate: 0.022 %/min
Peak Shear Strength: 1.60 ksf @ 16.8 % Strain
Peak Effective Friction Angle: 32.7°



Failure Sketch

REMARKS:



Test by: DT	Project No. 31737788-805	Haley & Aldrich - #32669-000 Connecticut Busway	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	Geotesting Services, Inc.		Boring TB-102 Sample U-3D @ 56.45 ft
			May-08

APPENDIX E

Previous Laboratory Test Data

Moisture Content

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Matthew Polz

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/11/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
RB-26	S-6	16.5-18.0	248	9.2																
RB-27	S-2	4.5-6.0	249	15.8																
RB-27	S-5	13.5-15.0	250	26.2																
RB-28	S-4	10.0-11.5	251	19.1																
RB-28	S-9	25.0-26.5	252	27.2																
RB-29	S-2	4.5-6.0	253	28.7																
RB-30	S-3	7.5-9.0	254	31.7																
RB-30	S-6	16.5-18.0	255	44.2																
RB-31	S-9	25.0-26.5	256	38.5																
RB-32	S-2	4.5-6.0	257	38.1																
RB-32	S-9	25.0-26.5	258	21.5																
RB-33	S-6	16.5-18.0	259	44.7																
RB-34	S-9	25.0-26.5	260	60.6																
RB-35	S-3	7.5-9.0	261	38.7																
RB-35	S-9	25.5-27.0	262	55.6																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]
Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/11/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
SB-40	S-3	7.5-9.0	275	21.1																
SB-40	S-11	35.0-36.5	276	29.9																
SB-40	S-13	45.0-46.5	277	30.4																
SB-41	S-2	4.5-6.0	278	21.3																
SB-42	S-3	7.5-9.0	279	26.8																
SB-42	S-9	25.5-26.2	280	10.8																
SB-43	S-2	4.5-6.0	281	25.4																
SB-44	S-9	25.0-26.5	282	47.6																
SB-46	S-11	35.0-36.5	283	48.7																
SB-46	S-15	55.0-56.5	284	18.8																
SB-47	S-4	10.0-11.5	285	48.5																
SB-47	S-14	50.0-51.5	286	11.7																
SB-48	S-3	7.5-9.0	287	55.5																
SB-49	S-5	13.5-15.0	288	35.4																

LABORATORY TESTING DATA SHEET

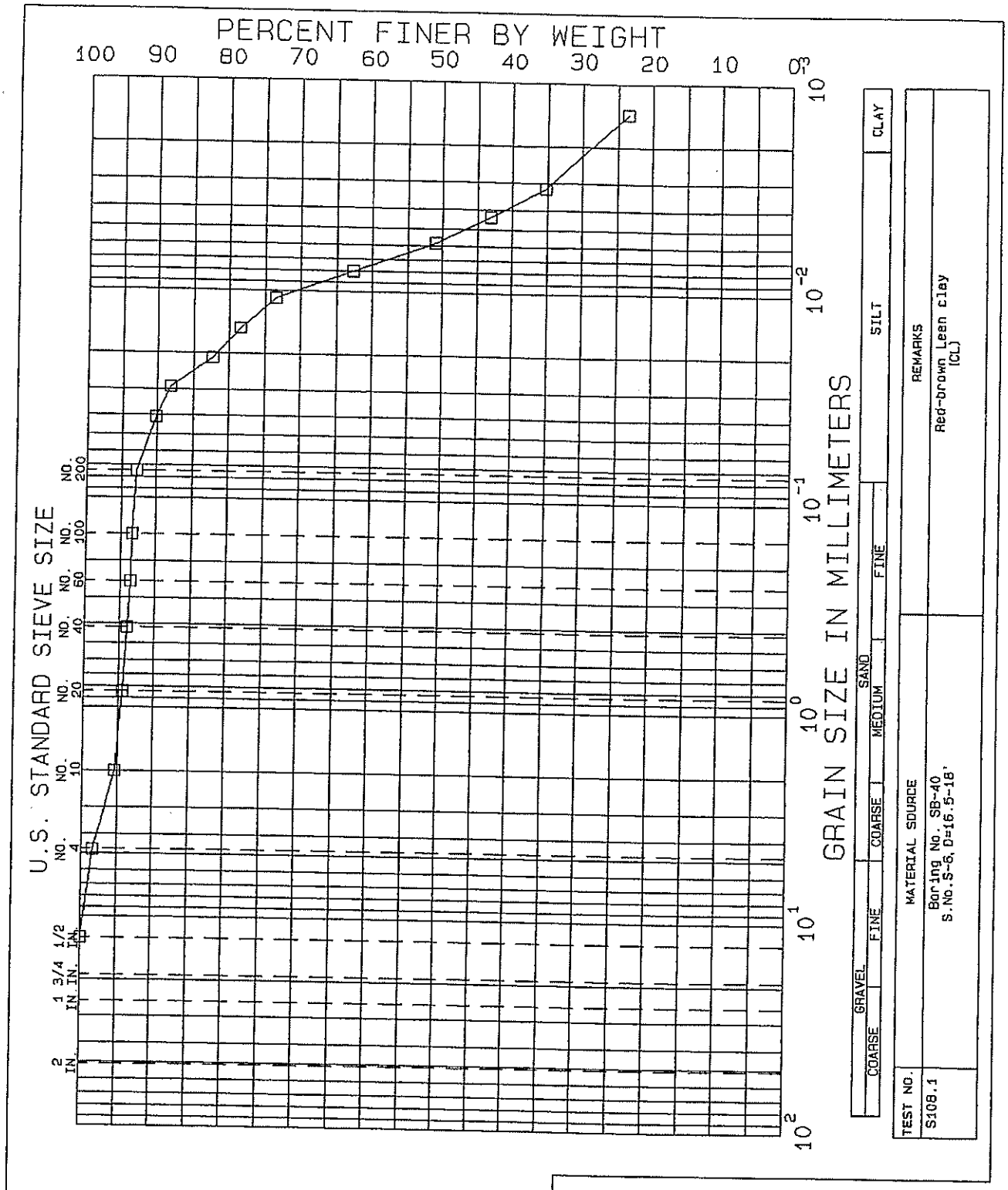
Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/11/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-50	S-2	4.5-6.0	289	32.6																
SB-50	S-10	28.5-30.0	290	55.5																
SB-51	S-5	13.5-15.0	291	49.0																
SB-51	S-13	45.0-46.5	292	21.1																
SB-52	S-10	28.5-30.0	293	23.8																
SB-53	S-13	45.0-46.5	294	41.2																
SB-54	S-21	85.0-86.5	295	24.3																
SB-55	S-10	28.5-30.0	296	54.9																
SB-55	S-25	105.0-106.5	297	20.9																
SB-56	S-19	75.0-76.5	298	27.3																
SB-57	S-10	28.5-30.0	299	57.1																
SB-57	S-22	90.0-91.5	300	22.5																
SB-58	S-4	10.0-11.5	301	32.7																
SB-58	S-11	35.0-36.5	302	59.5																

Classifications



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

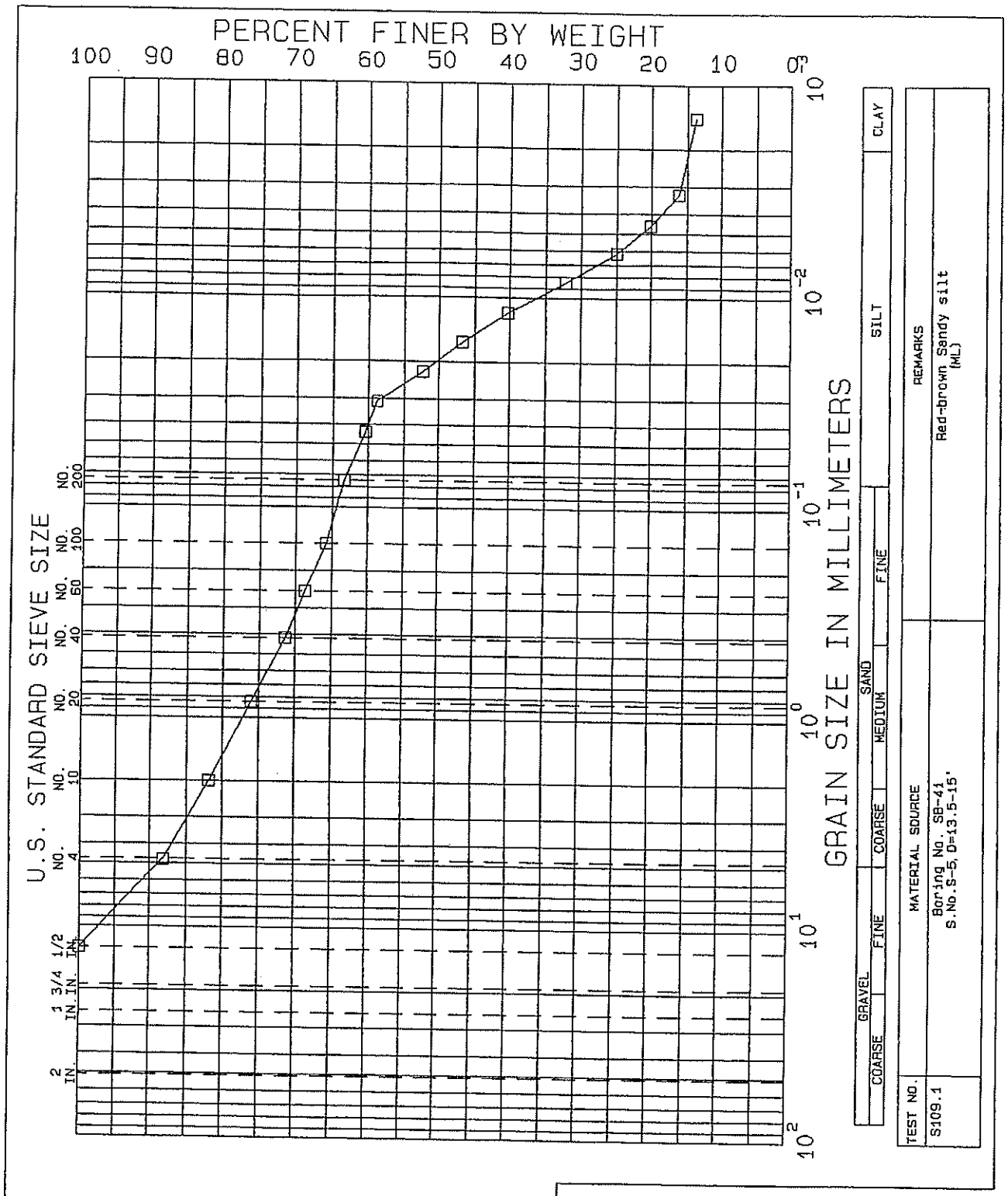
GRADATION TESTS

BORING NO. SB-40
SAMPLE S-6
DEPTH 16.5-18'
TECH. CAG
REVIEWER MBP

TEST SERIES
NO. 108
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

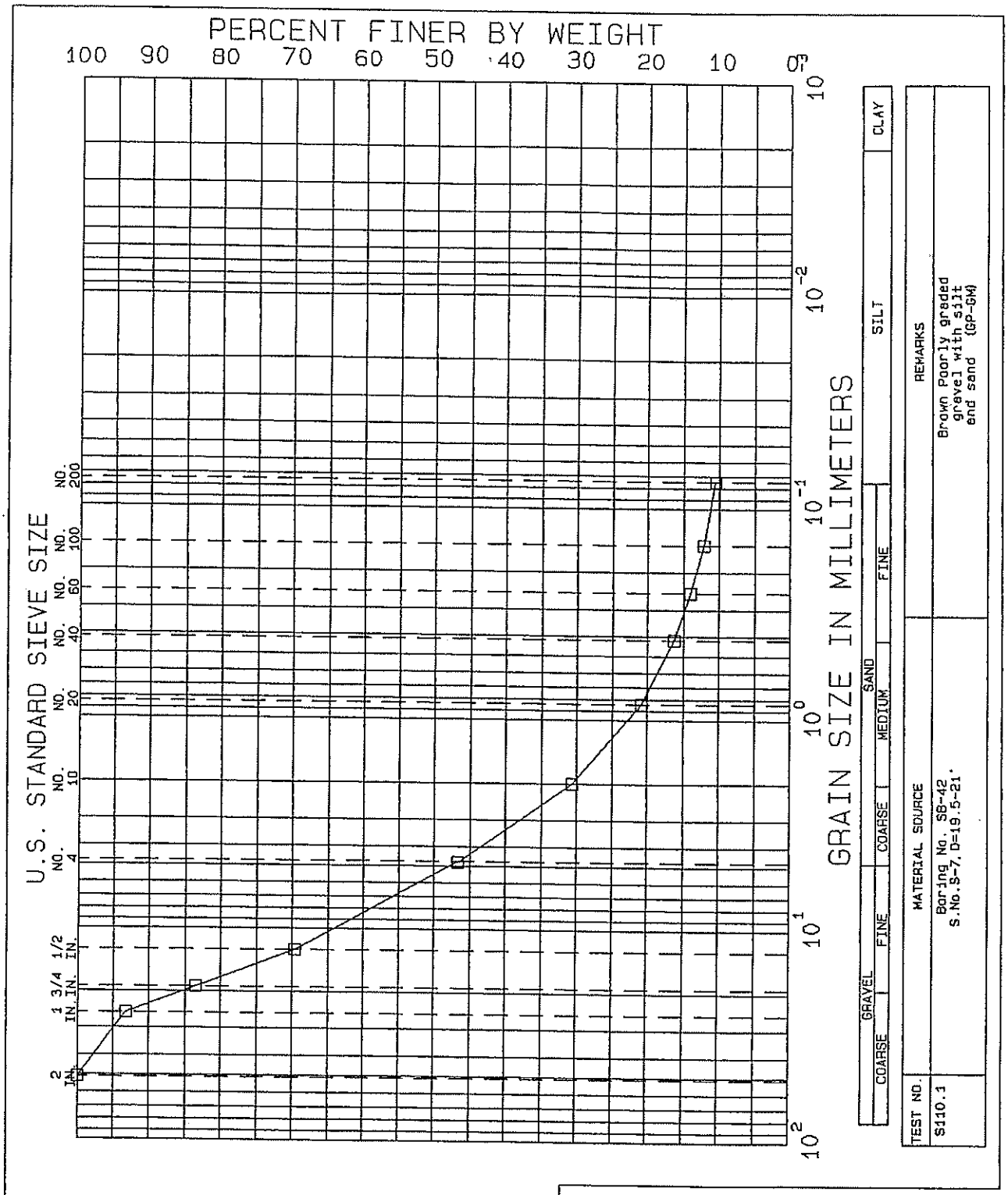
GRADATION TESTS

BORING NO. SB-41
SAMPLE S-5
DEPTH 13.5-15'
TECH. CAG
REVIEWER MBP

TEST SERIES
NO. 109
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



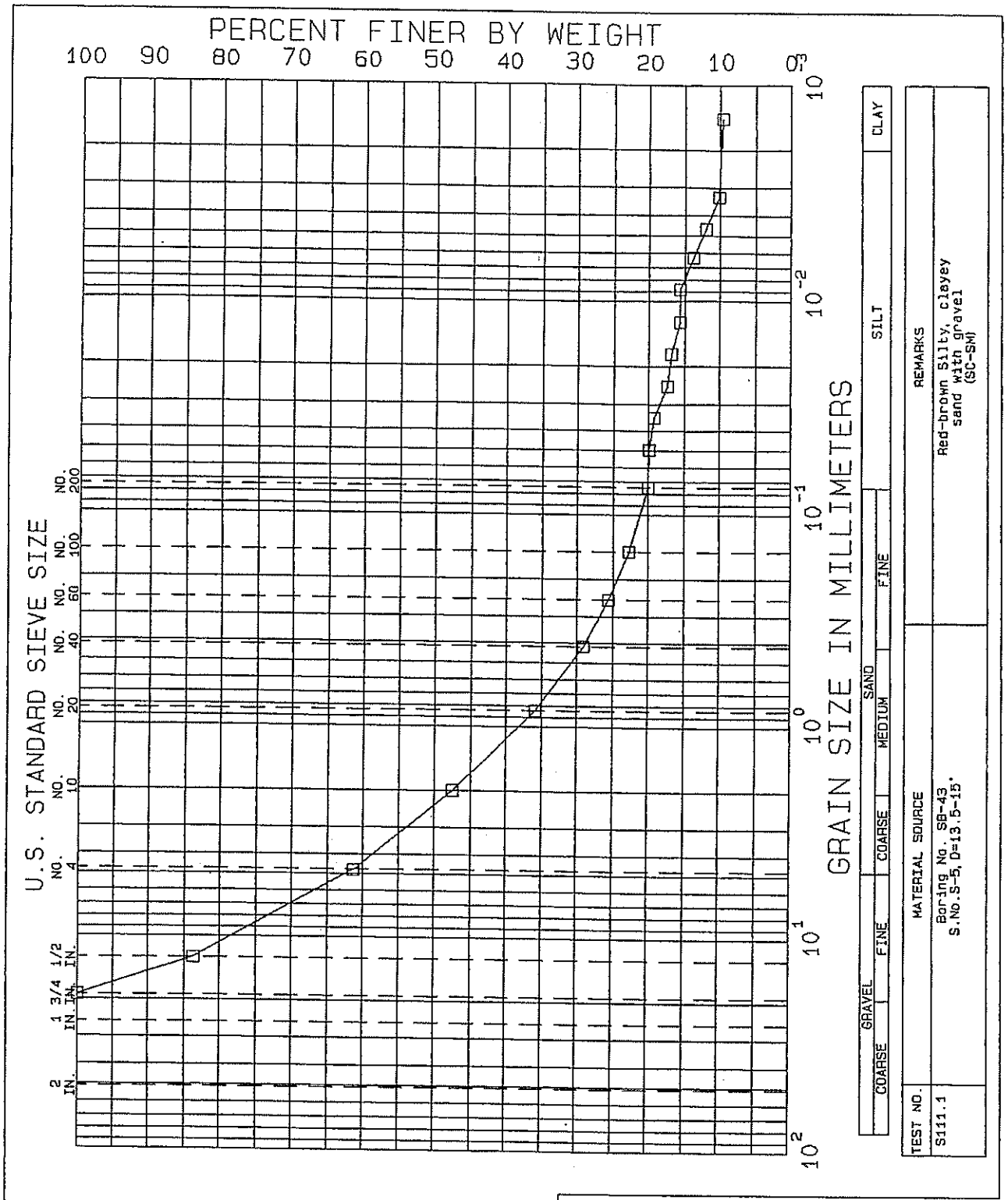
NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-42	TEST SERIES	
SAMPLE	S-7	NO.	110
DEPTH	19.5-21'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



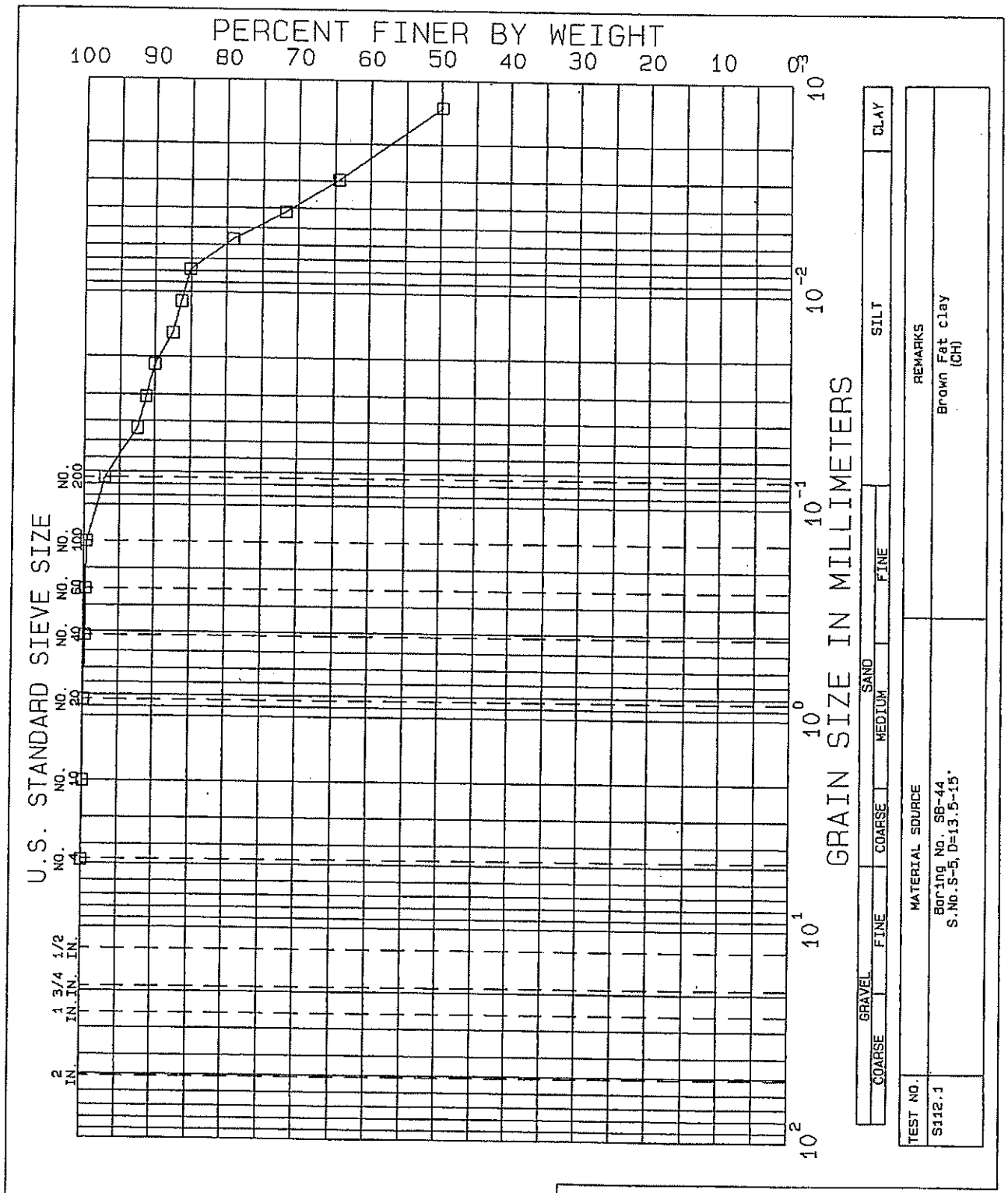
NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-43	TEST SERIES	
SAMPLE	S-5	NO.	111
DEPTH	13.5-15'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



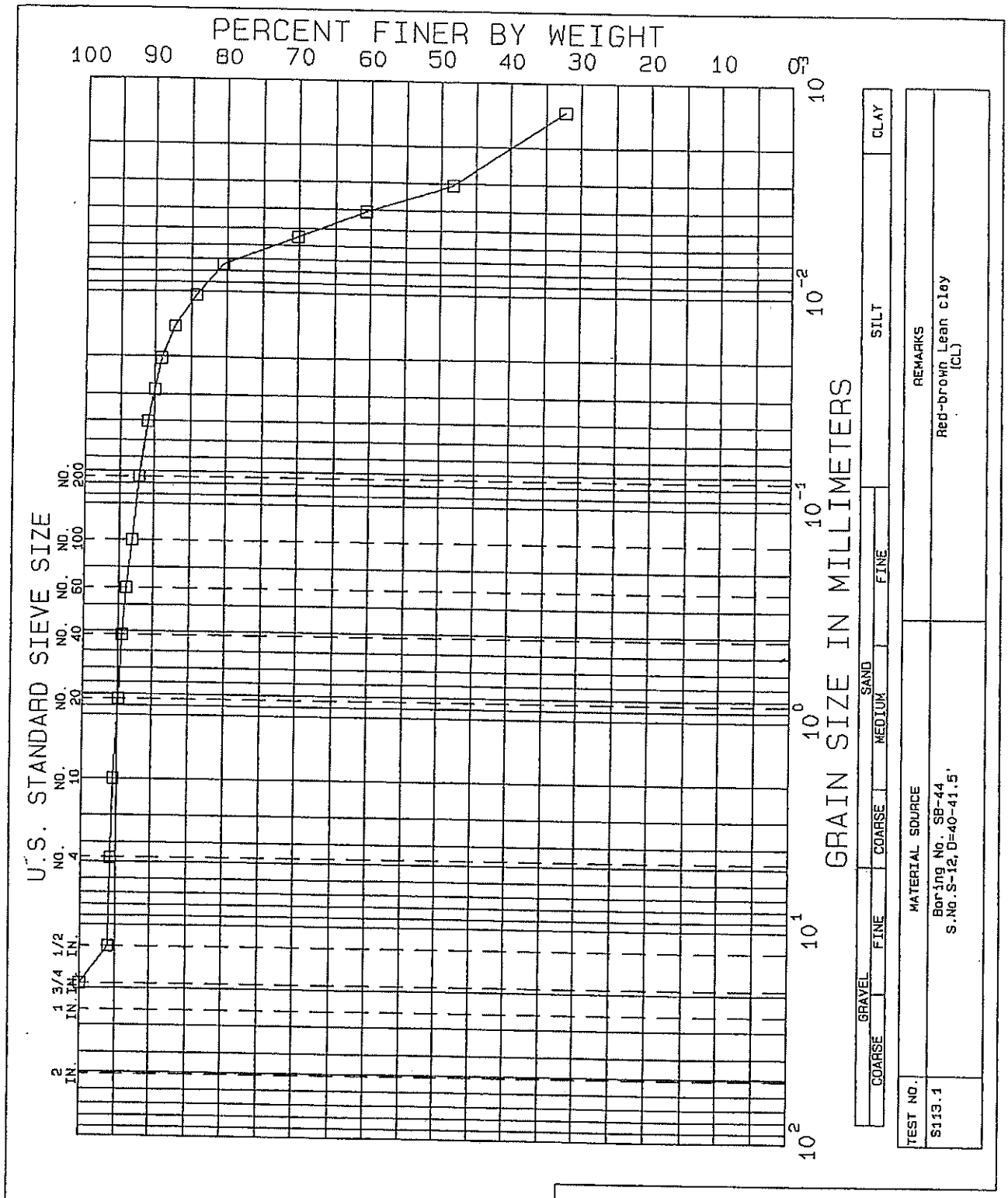
NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-44	TEST SERIES	
SAMPLE	S-5	NO.	112
DEPTH	13.5-15'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



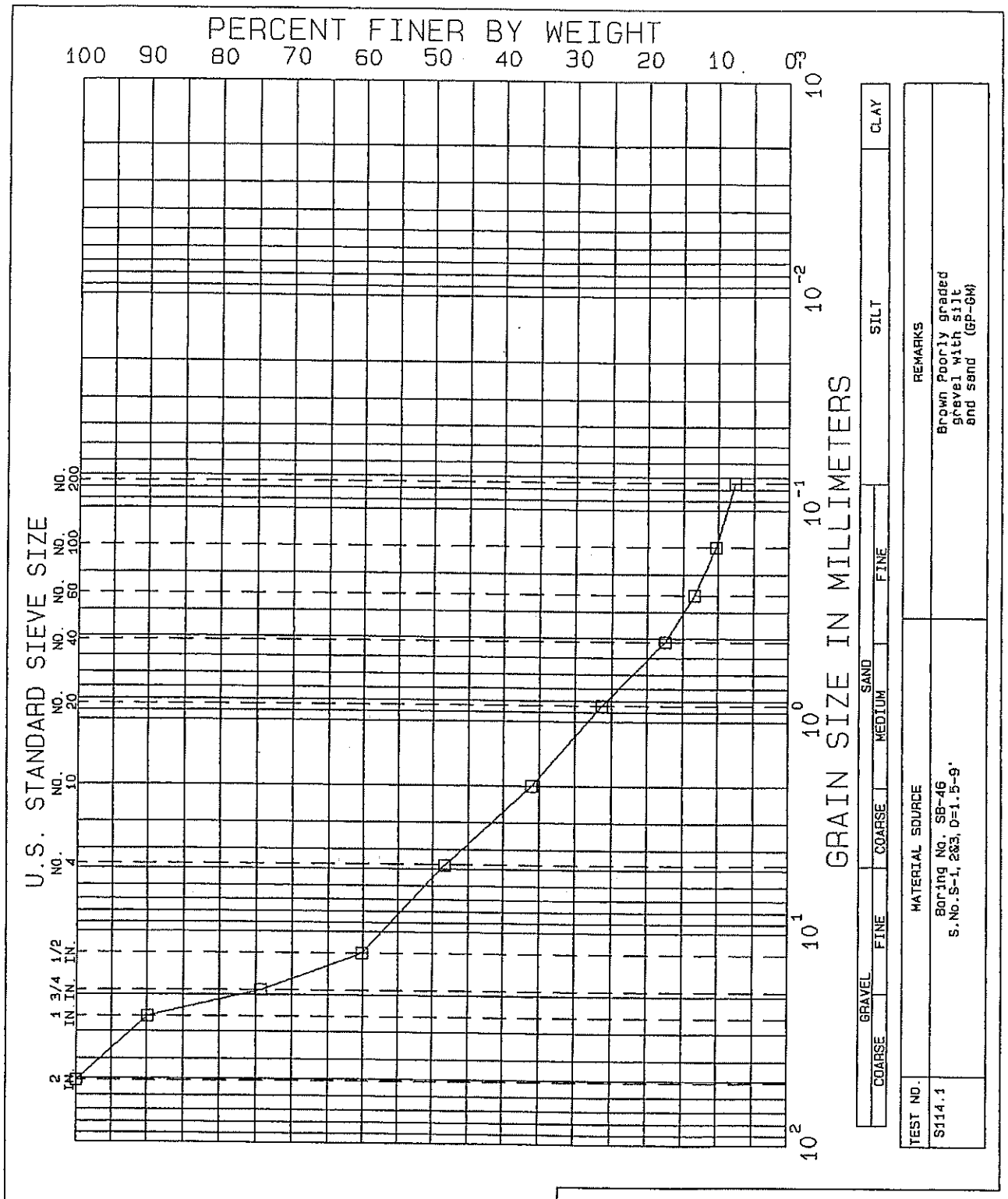
NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-44	TEST SERIES	
SAMPLE	S-12	NO.	113
DEPTH	40-41.5'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

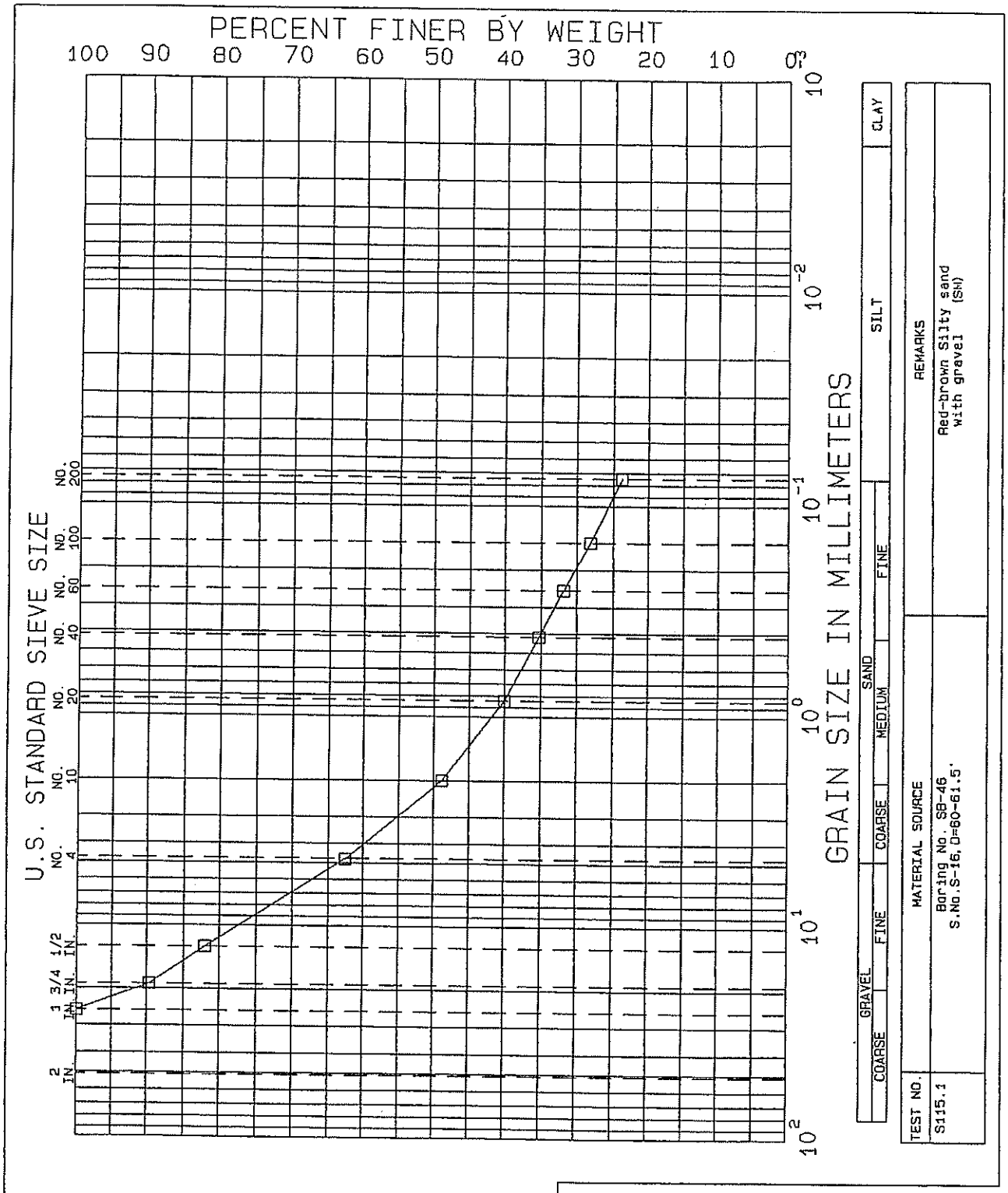


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-46	TEST SERIES	
SAMPLE	S1,2,3	NO.	114
DEPTH	1.5-9'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

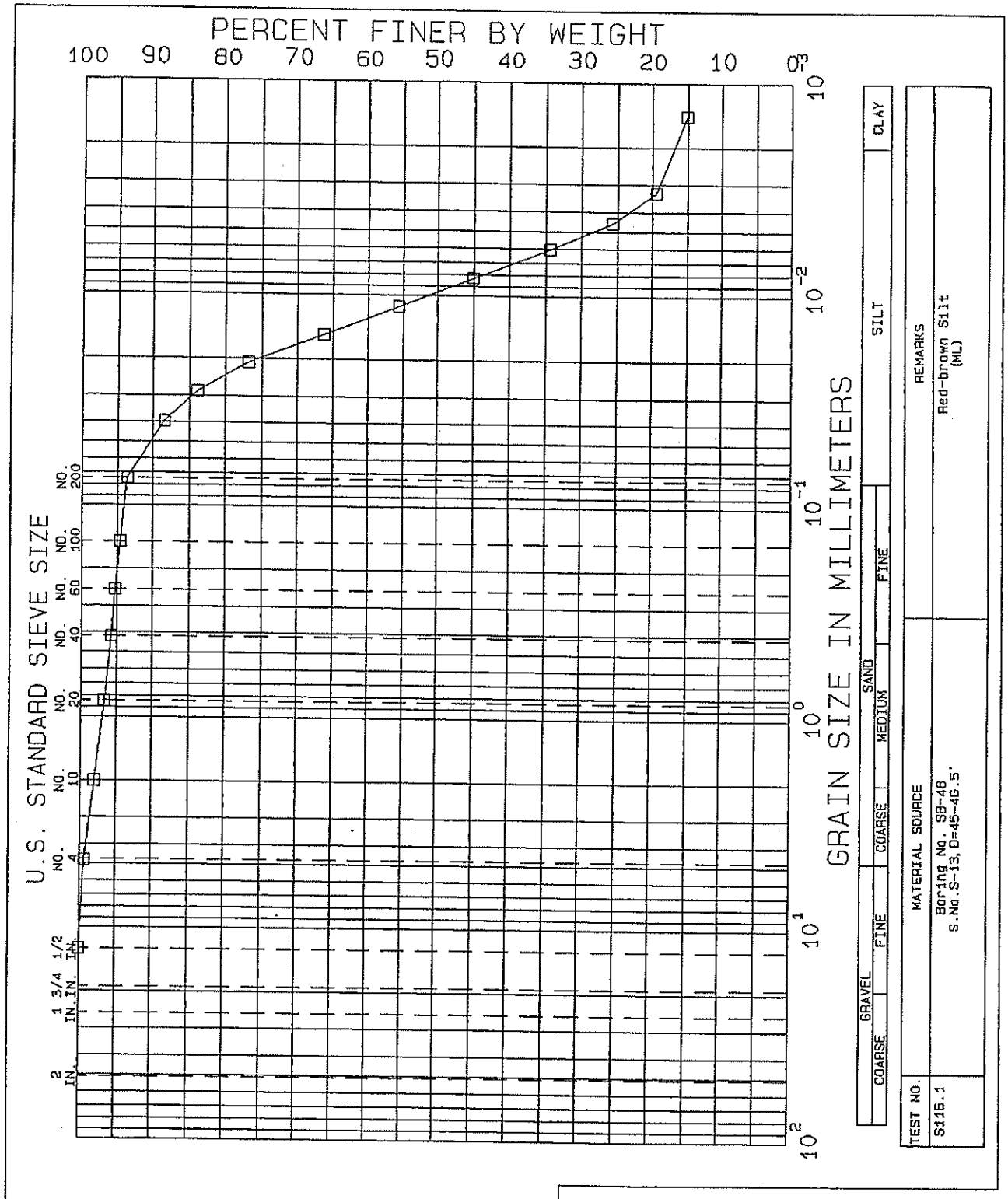


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-46	TEST SERIES	
SAMPLE	S-16	NO.	115
DEPTH	60-61.5'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

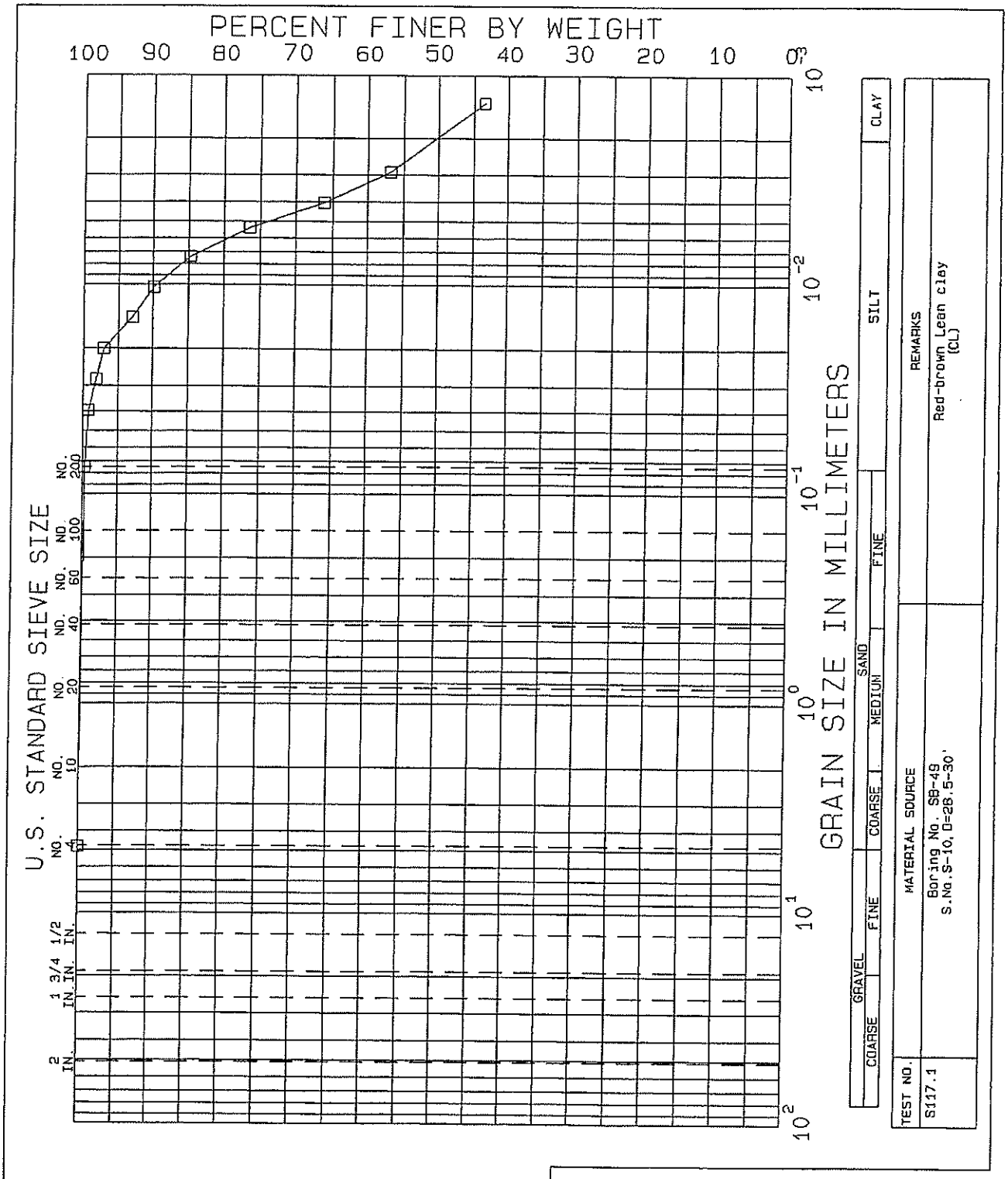
GRADATION TESTS

BORING NO.	SB-48	TEST SERIES	
SAMPLE	S-13	NO.	116
DEPTH	45-46.5'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: NOV.03
Reviewed By: Don Schulze
Date Reviewed: 11/14/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
SB-49	S-10	28.5-30.0	117	48.0	41	24	100	50												Red-brown Lean clay (CL)
SB-49	S-17	65.0-66.5	118	7.8	20	13	42	12												Red-brown Sandy clay with gravel (CL)
SB-50	S-5	13.5-15.0	119	61.6	60	27	100	60												Brown Fat clay (CH)
SB-50	S-15	55.0-56.5	120	15.2	15	15	67													Red-brown Sandy silt (ML)
SB-51	S-3	7.5-9.0	121	36.2	59	26	99	62												Gray-brown Fat clay (CH)
SB-52	S-5	13.5-15.0	122	6.0	NP	NP	7													Gray-brown Poorly-graded sand with silt and gravel (SP-SM)
SB-52	S-14	55.0-56.5	123	63.2	37	22	99	39												Red-brown Lean clay (CL)
SB-52	S-17	70.0-71.2	124	15.3	NP	NP	24													Red-brown Silty sand with gravel (SM)
SB-53	S-4	10.5-12.0	125	2.9	*	*	9		* Insufficient sample for limit test											Gray Well-graded sand with silt and gravel (SW-SM)
SB-53	S-18	70.0-71.5	126	25.4	NP	NP	78	4												Red-brown Silt with sand (ML)

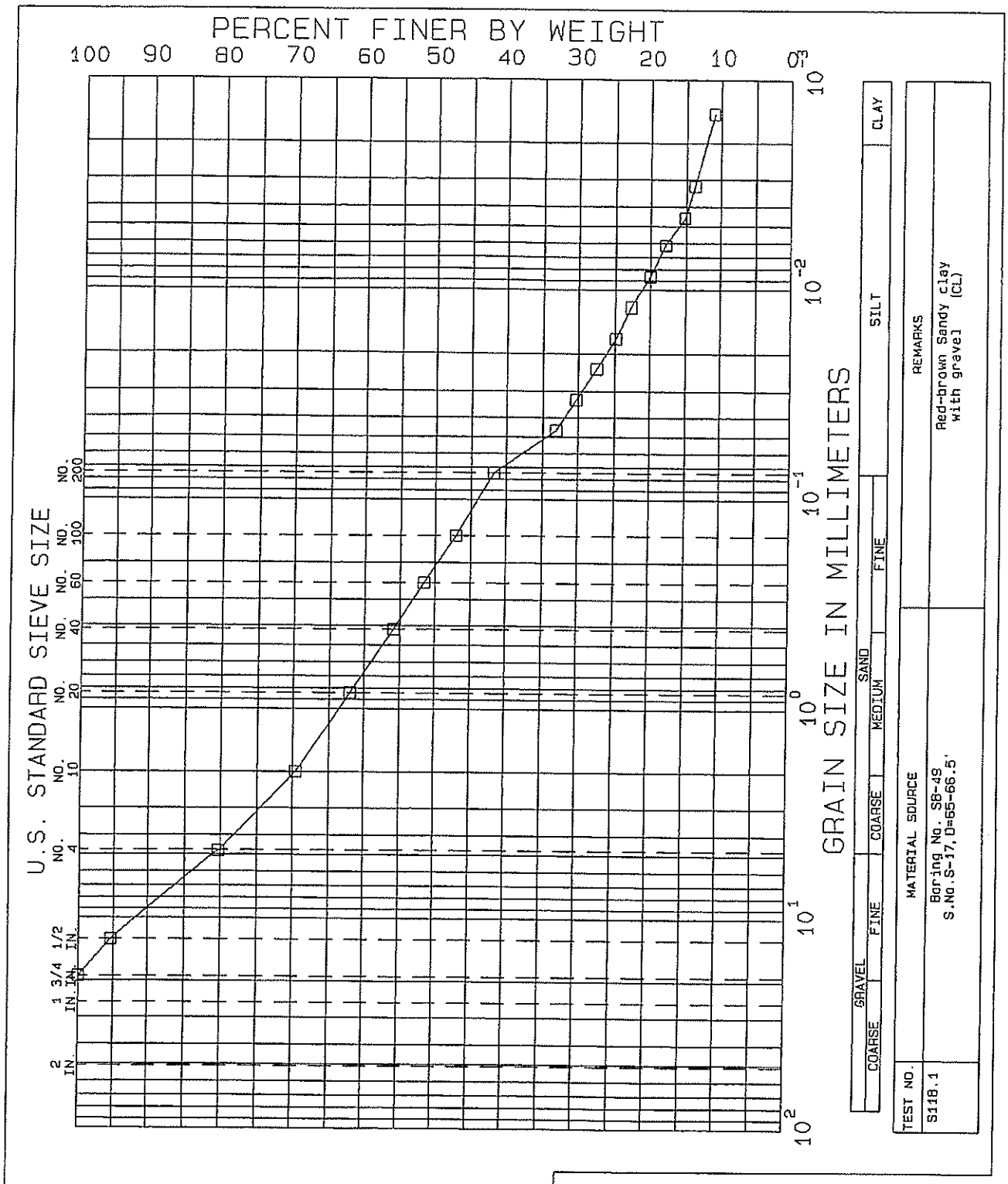


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-49	TEST SERIES	
SAMPLE	S-10	NO.	117
DEPTH	28.5-30'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

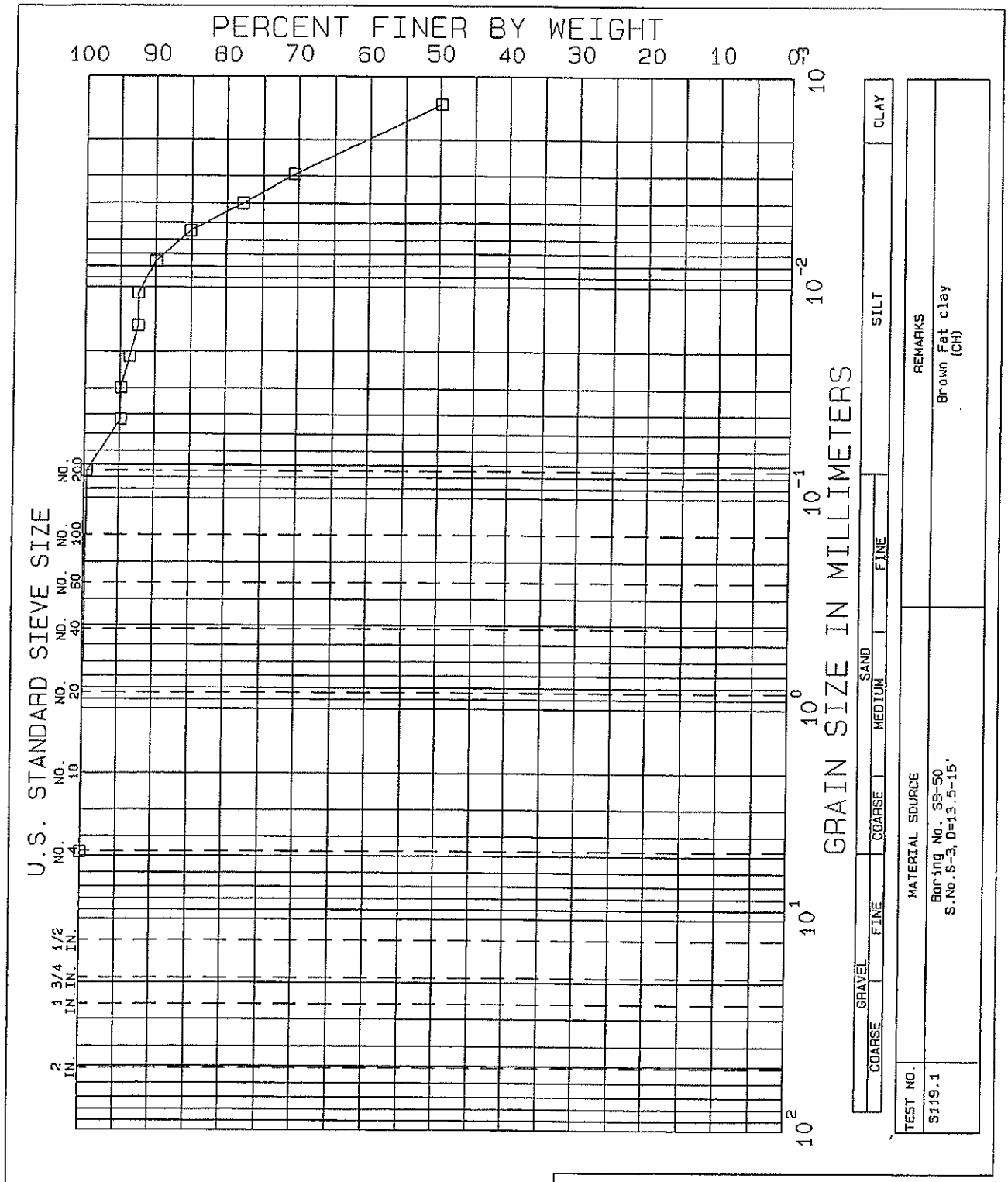


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-49	TEST SERIES	
SAMPLE	S-17	NO.	118
DEPTH	65-66.5'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

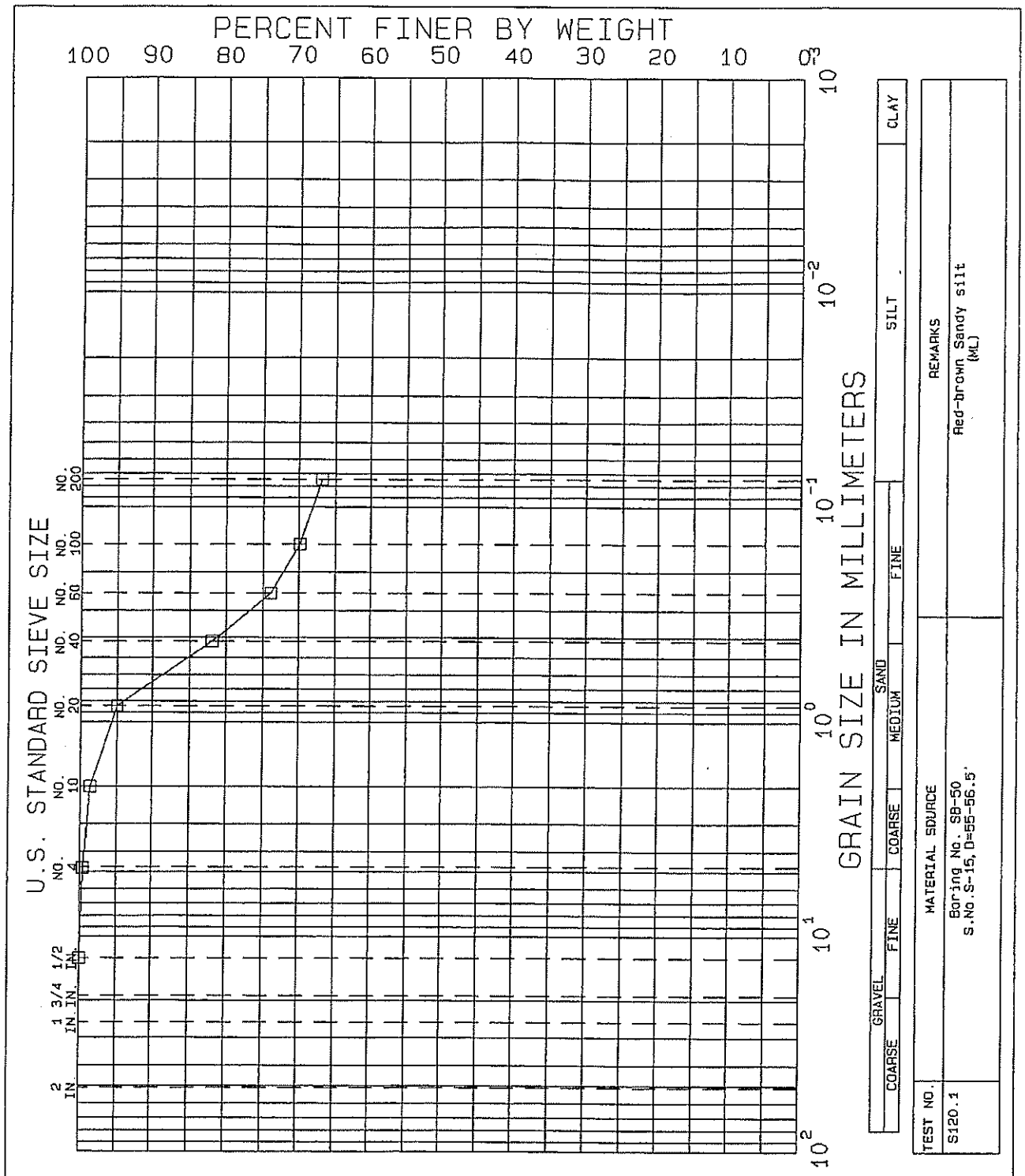


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-50	TEST SERIES	
SAMPLE	S-3	NO.	119
DEPTH	13.5-15'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

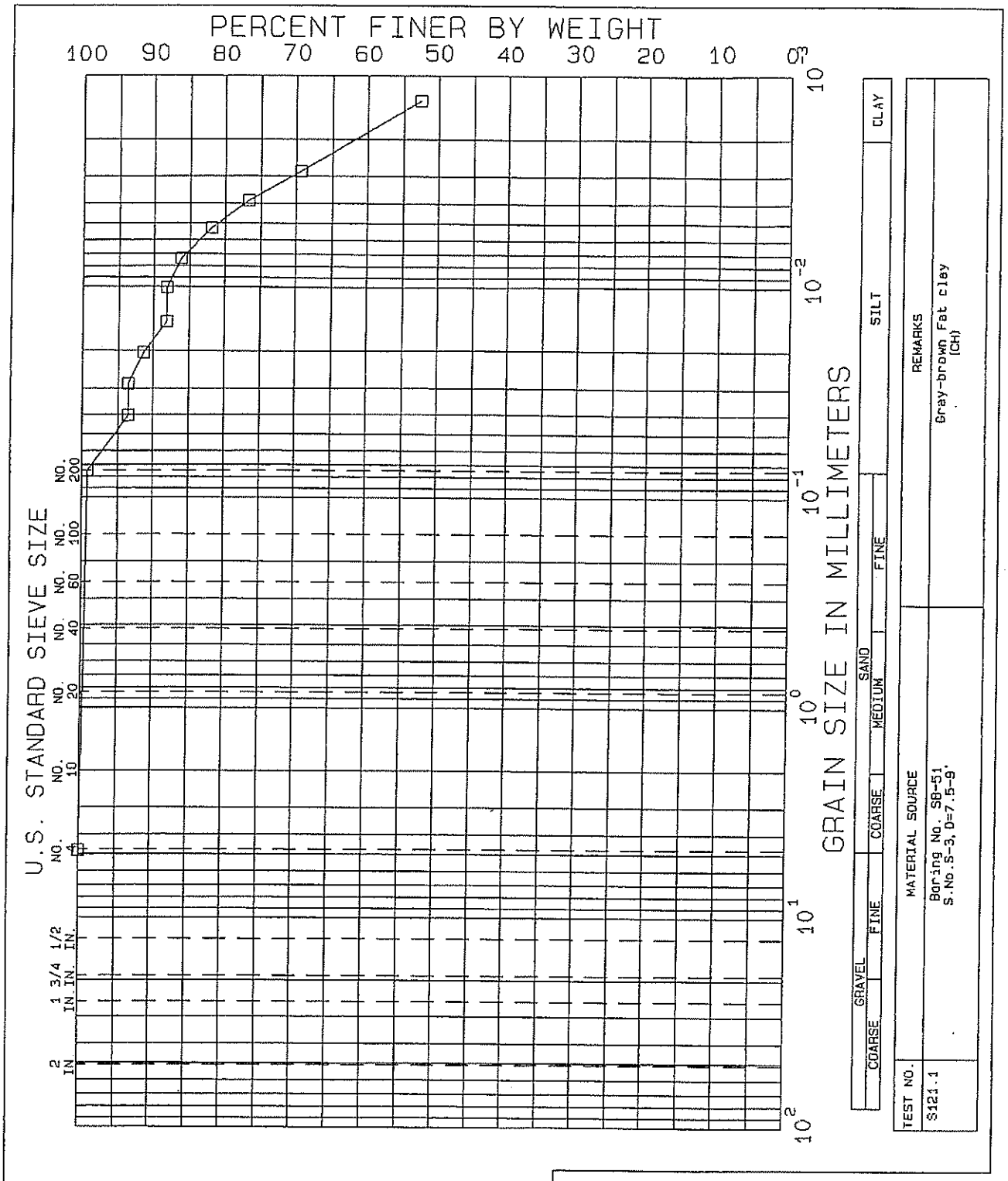


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-50	TEST SERIES	
SAMPLE	S-15	NO	120
DEPTH	55-56.5'	DATE	Nov.03
TECH.	MCM		
REVIEWER	MBP	FILE	L17828

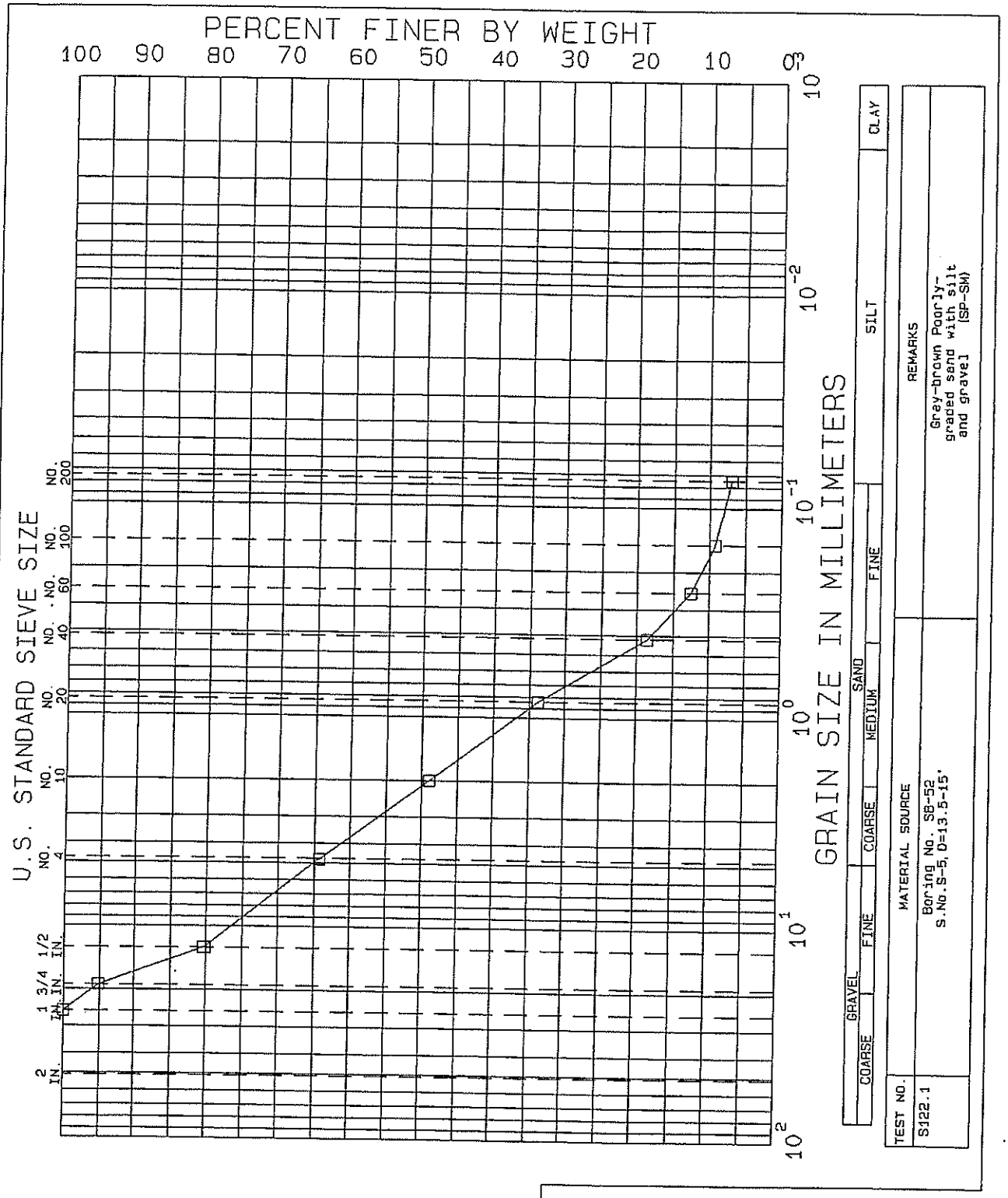


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-51	TEST SERIES	
SAMPLE	S-3	NO.	121
DEPTH	7.5-9'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

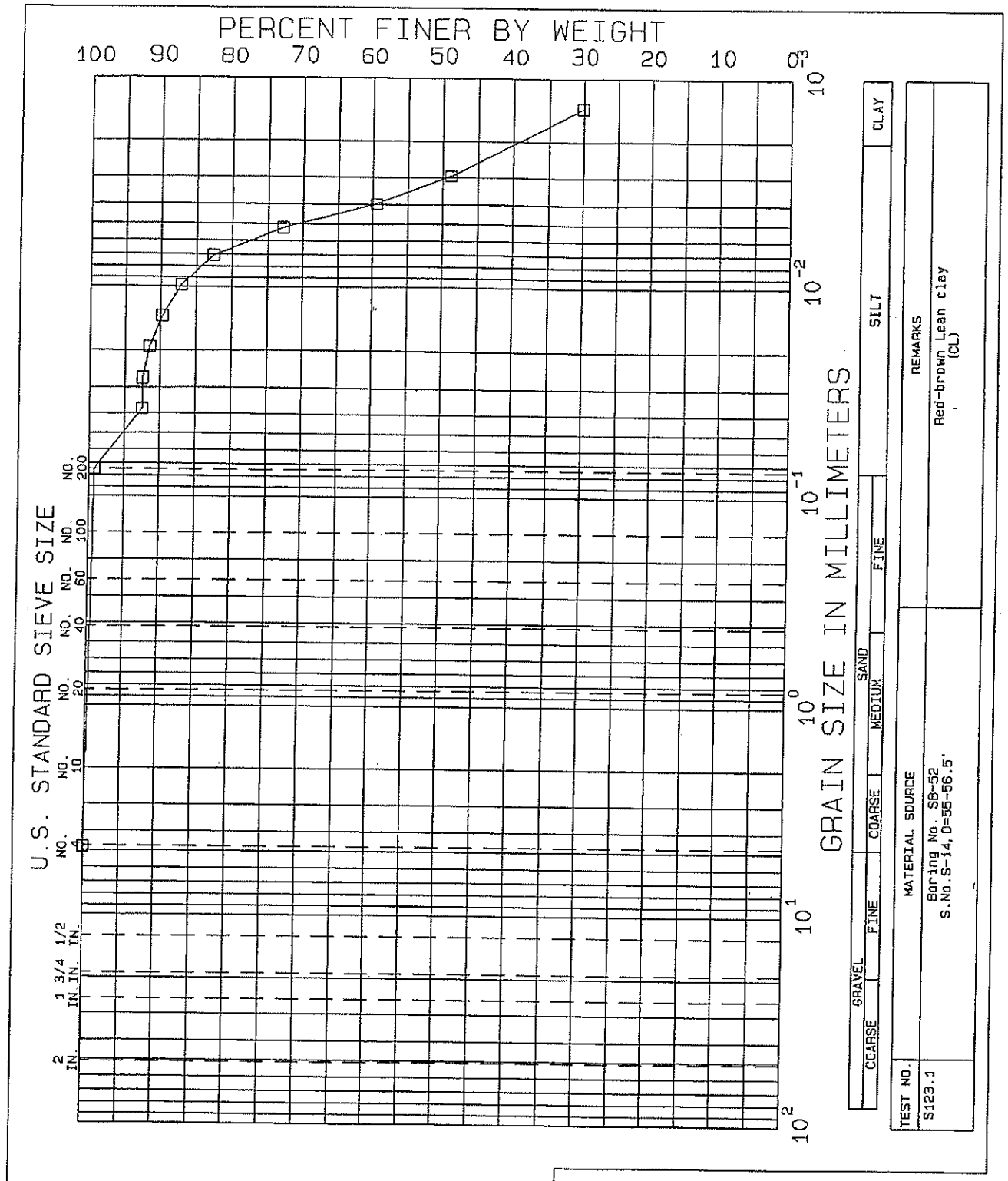
GRADATION TESTS

BORING NO. SB-52
SAMPLE S-5
DEPTH 13.5-15'
TECH. PEC
REVIEWER MBP

TEST SERIES
NO. 122
DATE Nov.03

FILE L17628

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

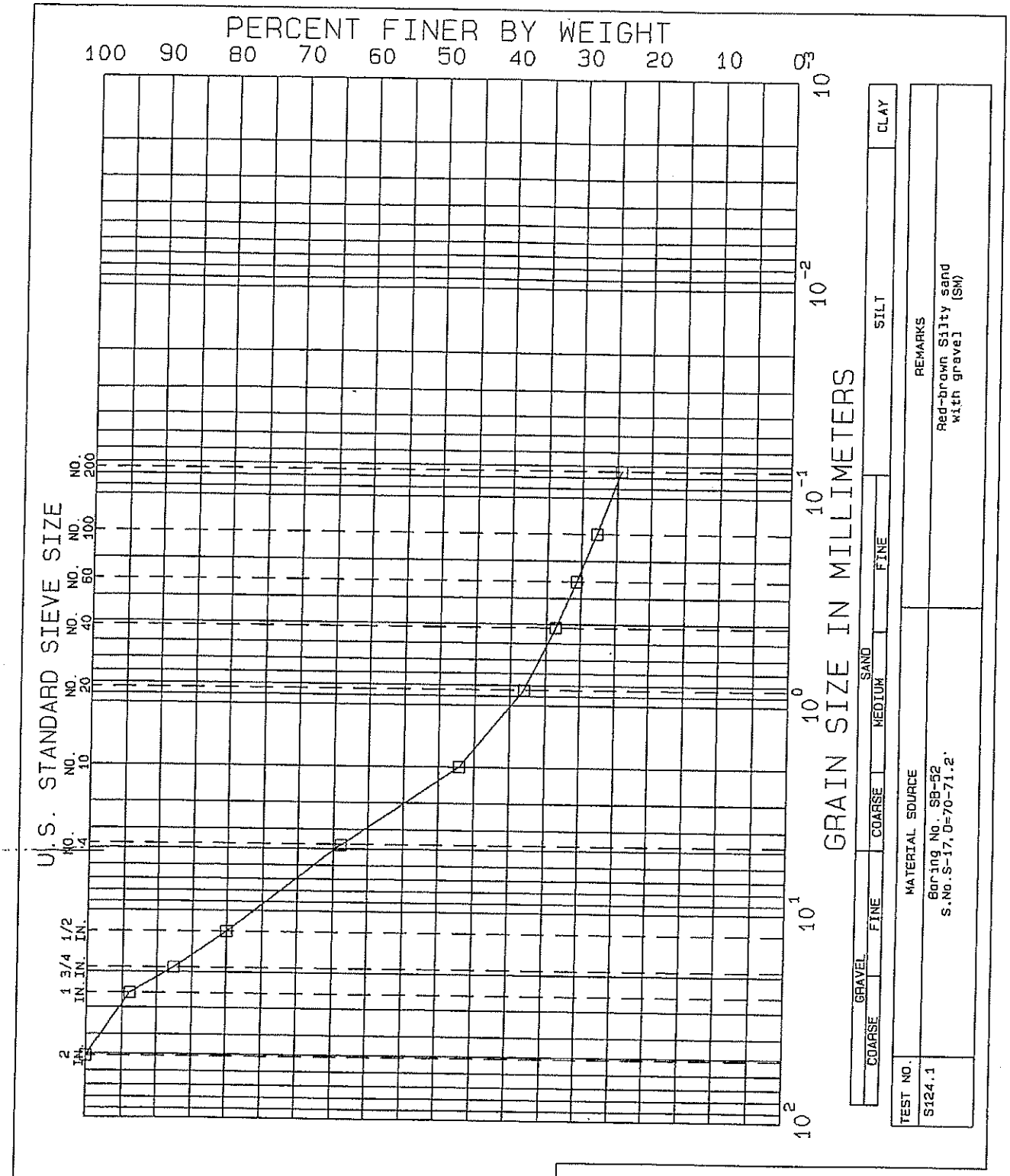


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-52	TEST SERIES	
SAMPLE	S-14	NO.	123
DEPTH	55-56.5'	DATE	Nov.03
TECH.	CAG		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

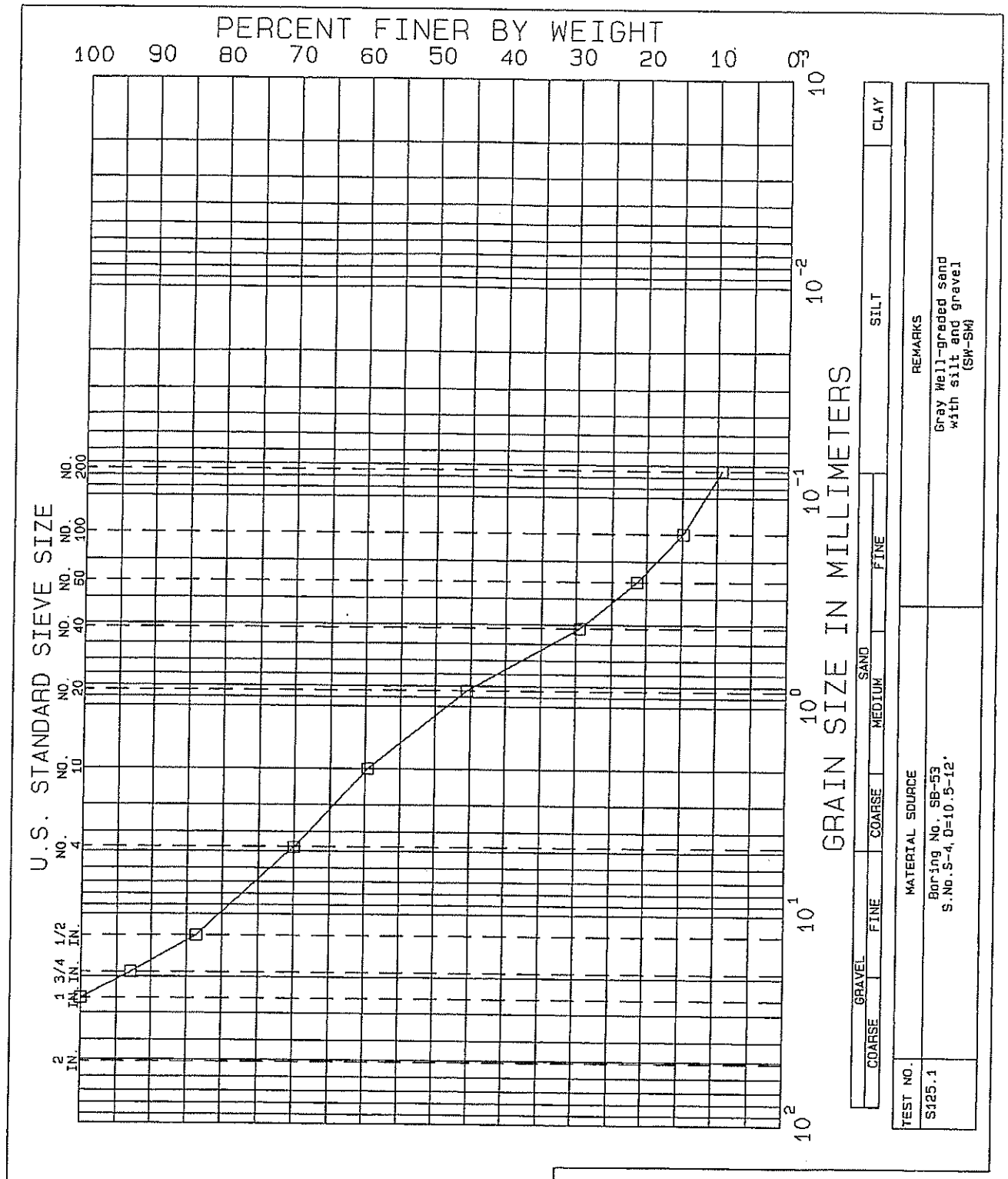
GRADATION TESTS

BORING NO. SB-52
SAMPLE S-17
DEPTH 70-71.2'
TECH. PEC
REVIEWER MBP

TEST SERIES
NO. 124
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

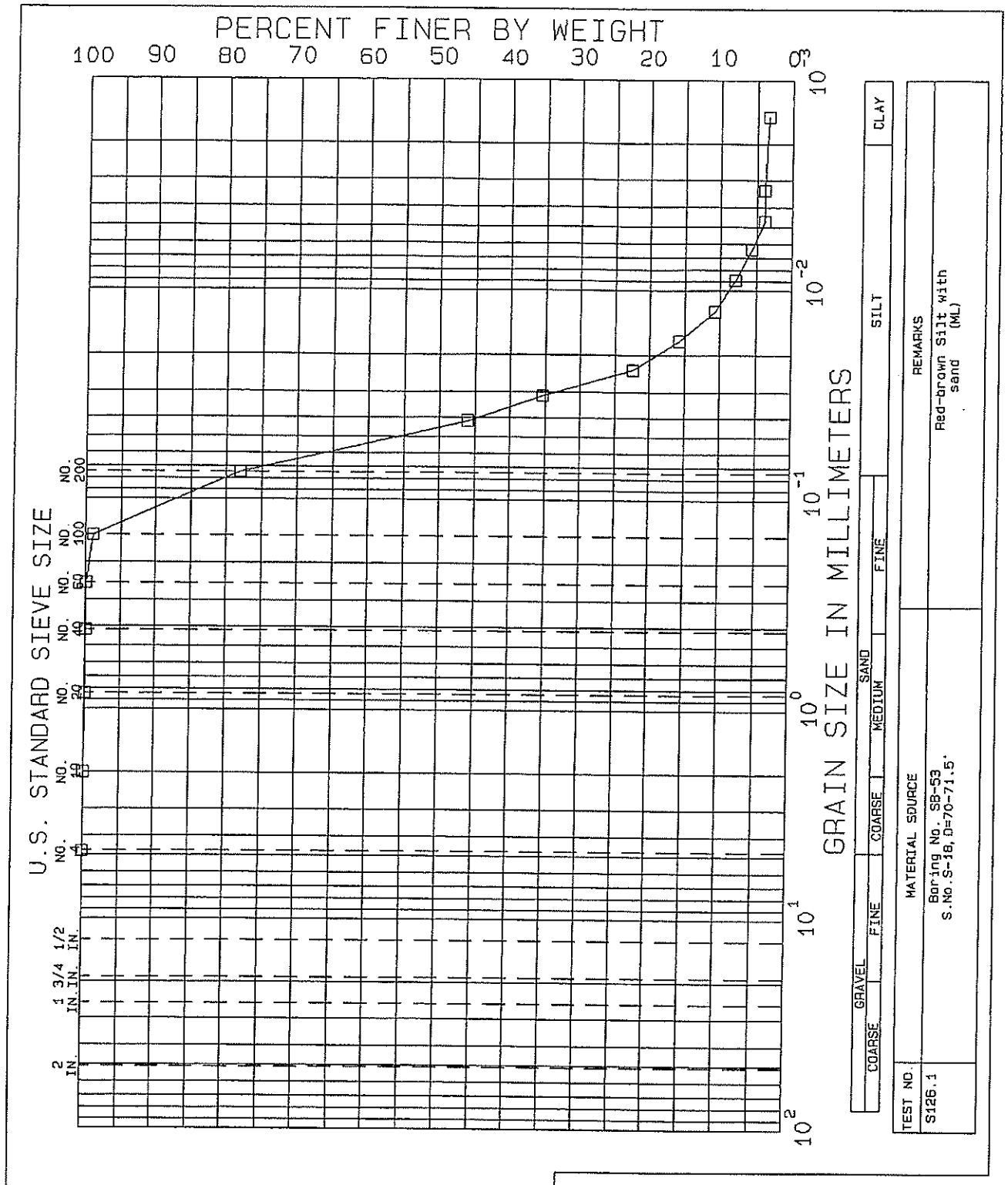


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-53	TEST SERIES	
SAMPLE	S-4	NO.	125
DEPTH	10.5-12'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO. SB-53
SAMPLE S-18
DEPTH 70-71.5'
TECH. CAG
REVIEWER MBP

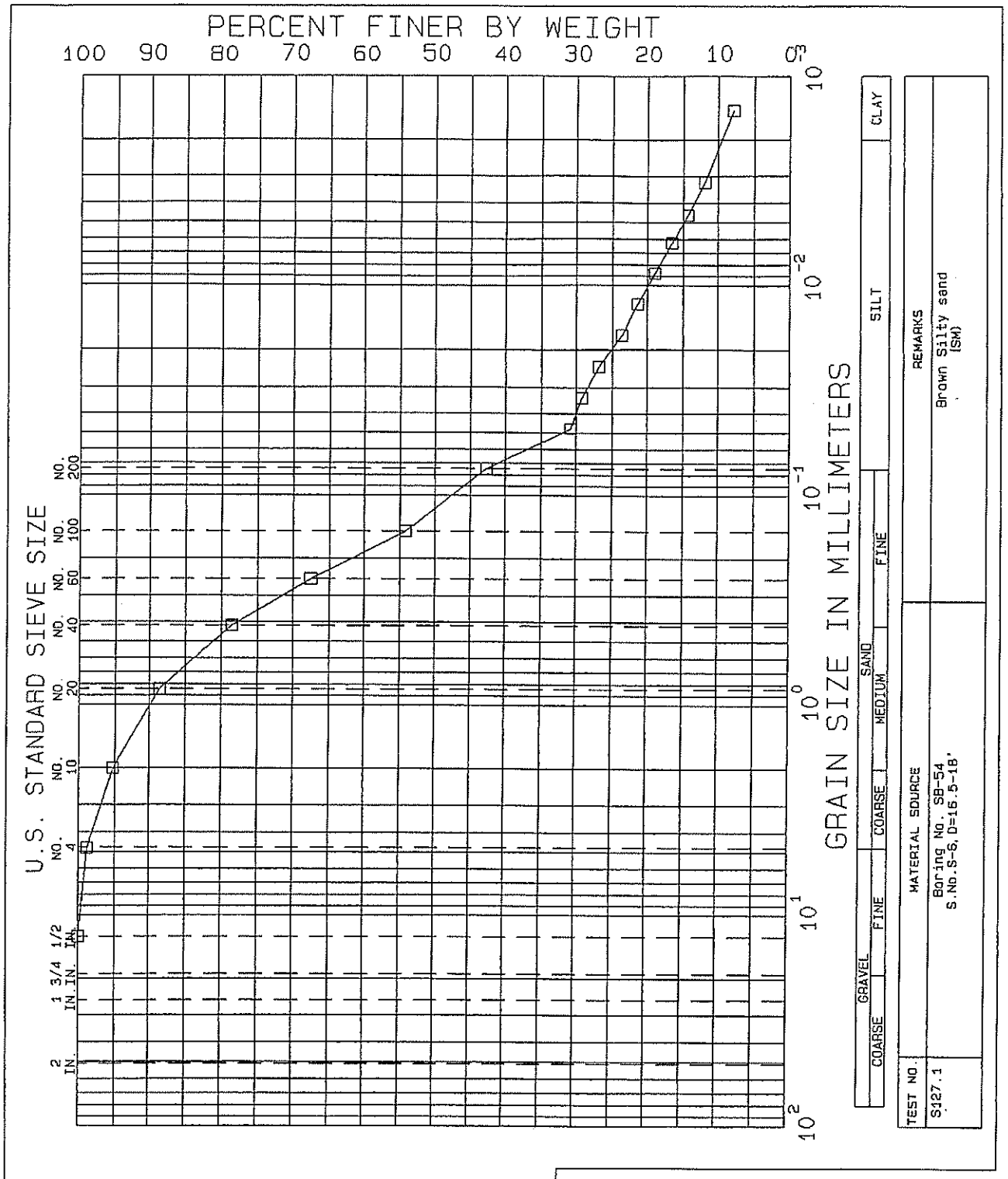
TEST SERIES
NO. 126
DATE Nov.03

FILE L17828

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: NOV.03
Reviewed By: Don Schulze
Date Reviewed: 11/18/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-54	S-6	16.5-18.0	127	20.1	21	20	43	9												Brown Silty sand (SM)
SB-54	S-15	55.0-56.5	128	42.1	44	22	98	44												Red-brown Lean clay (CL)
SB-55	S-4	10.0-11.5	129	18.5	22	20	39	8												Brown Silty sand with gravel (SM)
SB-55	S-17	65.0-66.5	130	33.7	29	22	99	25												Red-brown Silty clay (CL-ML)
SB-55	S-28	120.0-121.5	131	16.1	NP	NP	25													Brown Silty sand (SM)
SB-56	S-15	55.0-56.5	132	40.2	41	25	100	40												Red-brown Lean clay (CL)
SB-56	S-25	105.0-106.5	133	15.2	NP	NP	15													Brown Silty sand (SM)
SB-57	S-15	55.0-56.5	134	45.7	42	23	100	35												Red-brown Lean clay (CL)
SB-58	S-14	50.0-51.5	135	56.6	53	25	100	60												Brown Fat clay (CH)
SB-58	S-21	90.0-91.5	136	34.2	24	24	100	15												Red-brown Silt (ML)
SB-58	S-25	110.0-111.5	137	23.1	NP	NP	30	5												Red-brown Silty sand (SM)

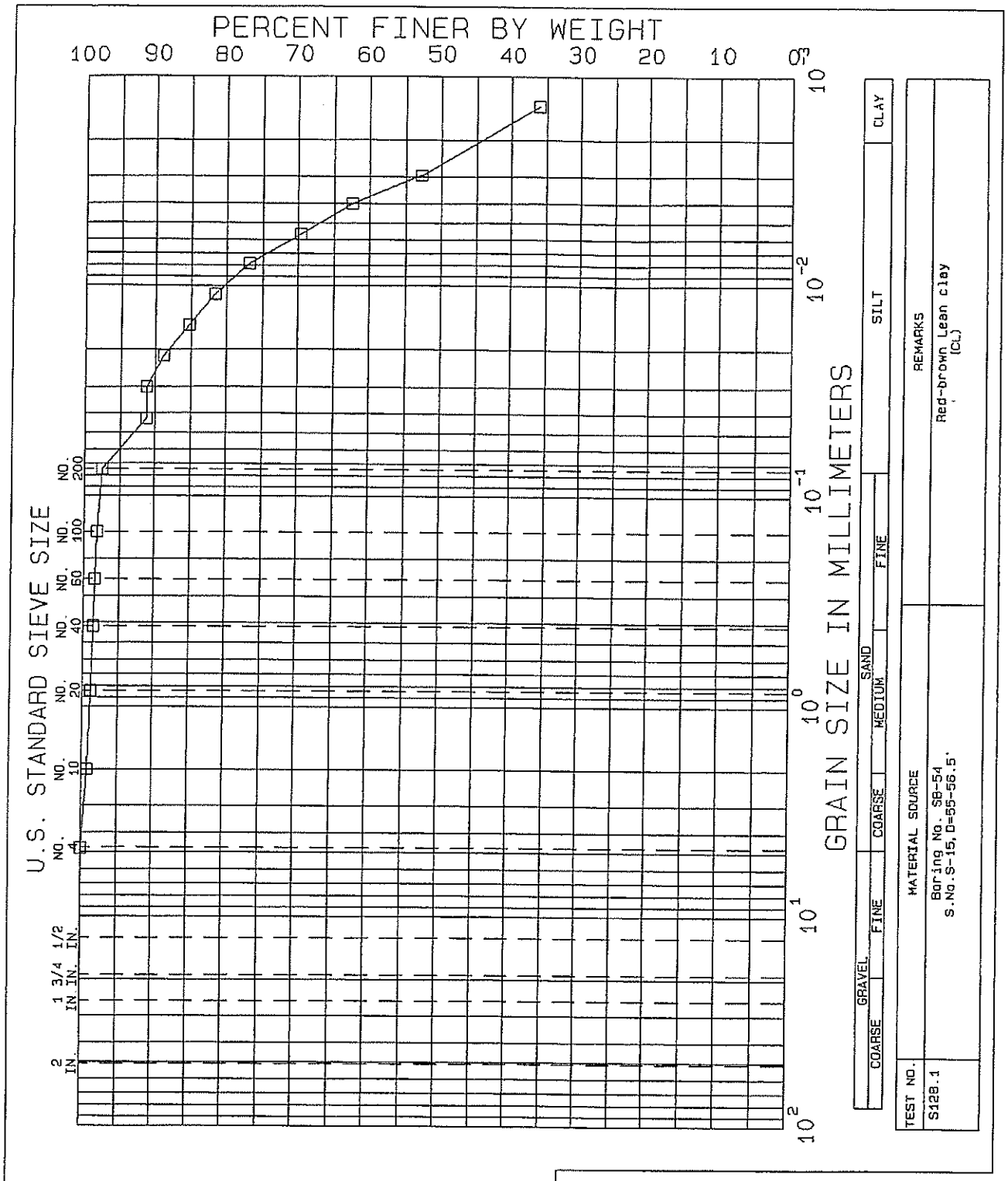


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-54	TEST SERIES	
SAMPLE	S-6	NO.	127
DEPTH	16.5-18'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828

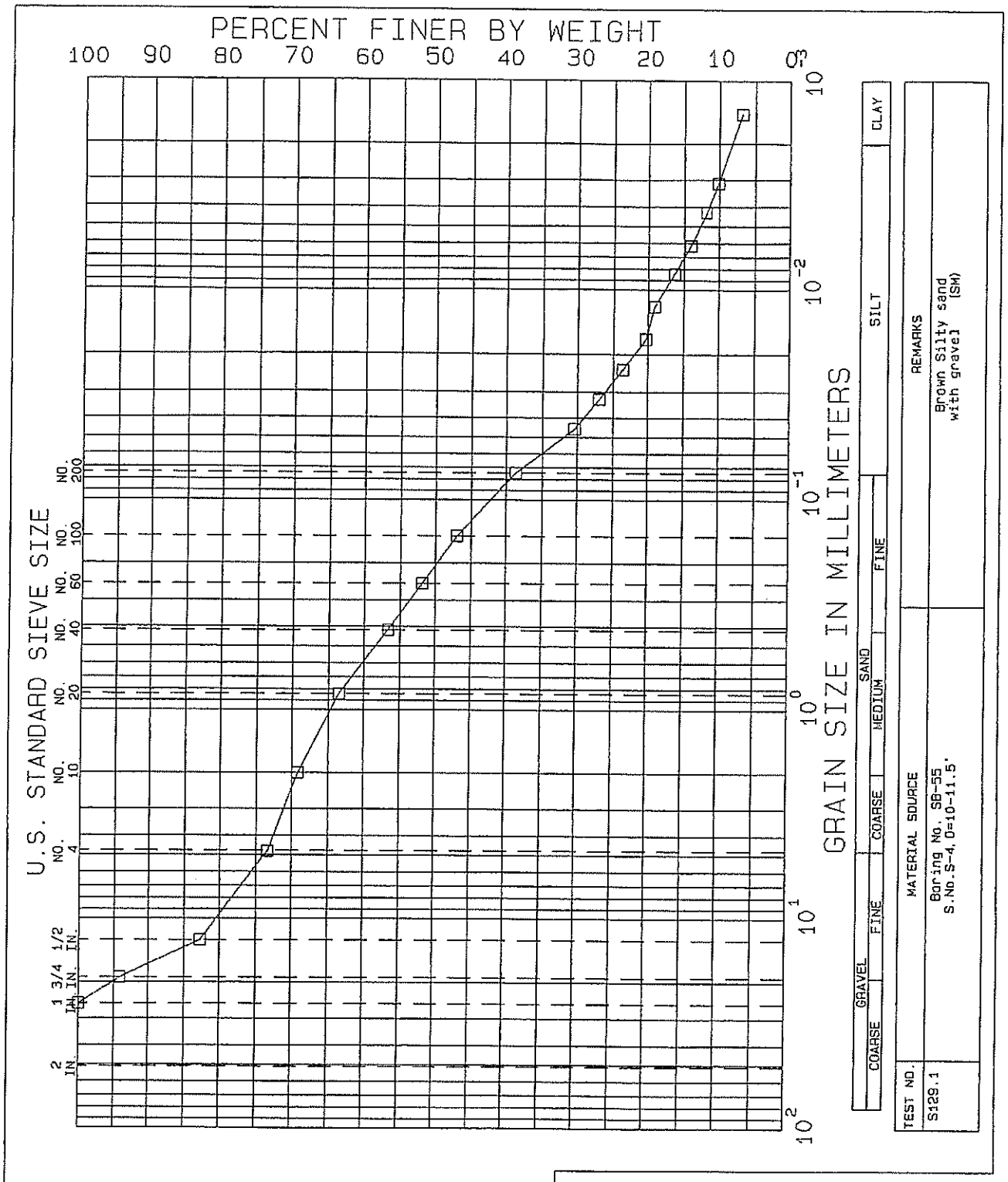


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-54	TEST SERIES	
SAMPLE	S-15	NO.	128
DEPTH	55-56.5'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828

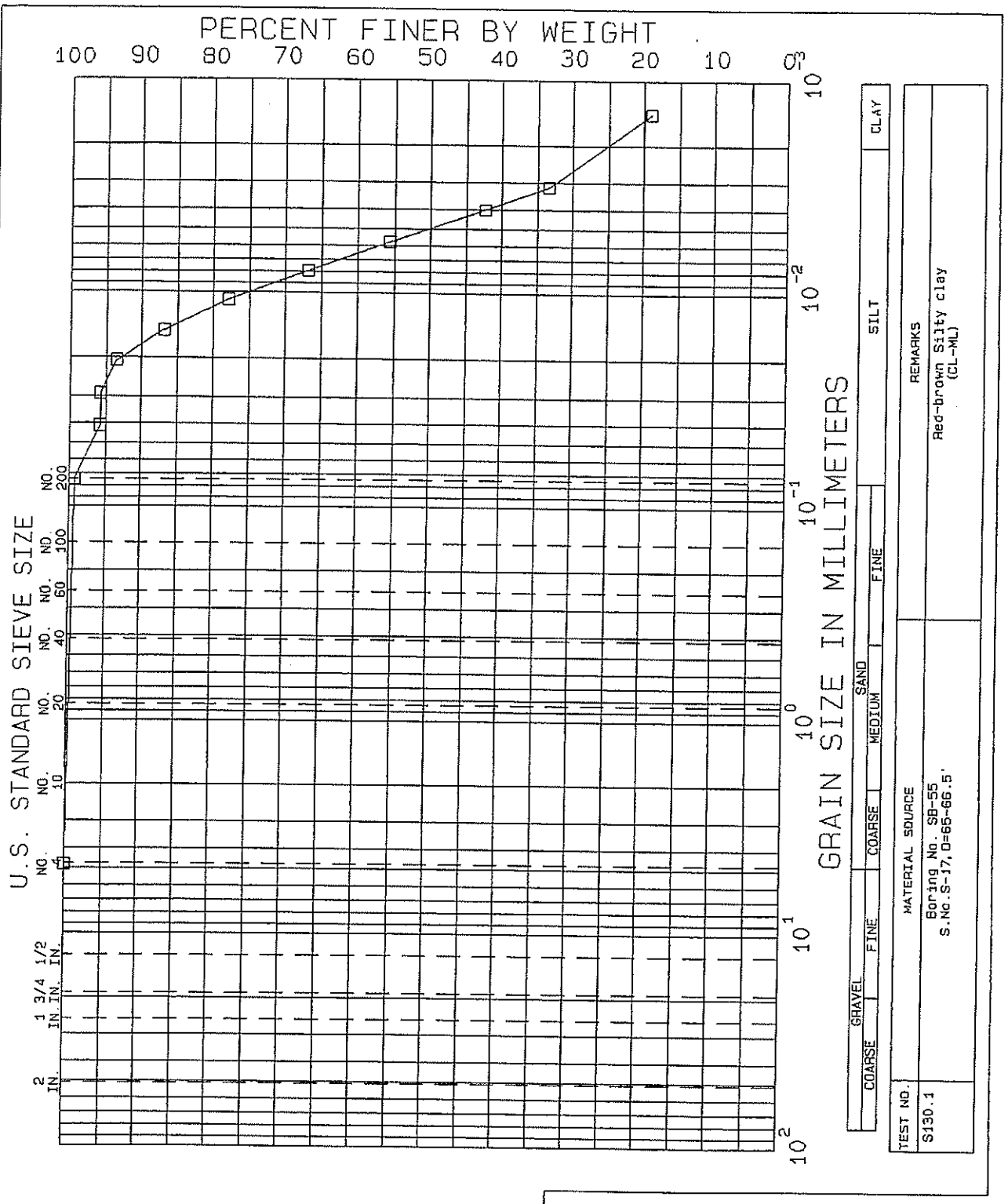


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-55	TEST SERIES	
SAMPLE	S-4	NO.	129
DEPTH	10-11.5'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828

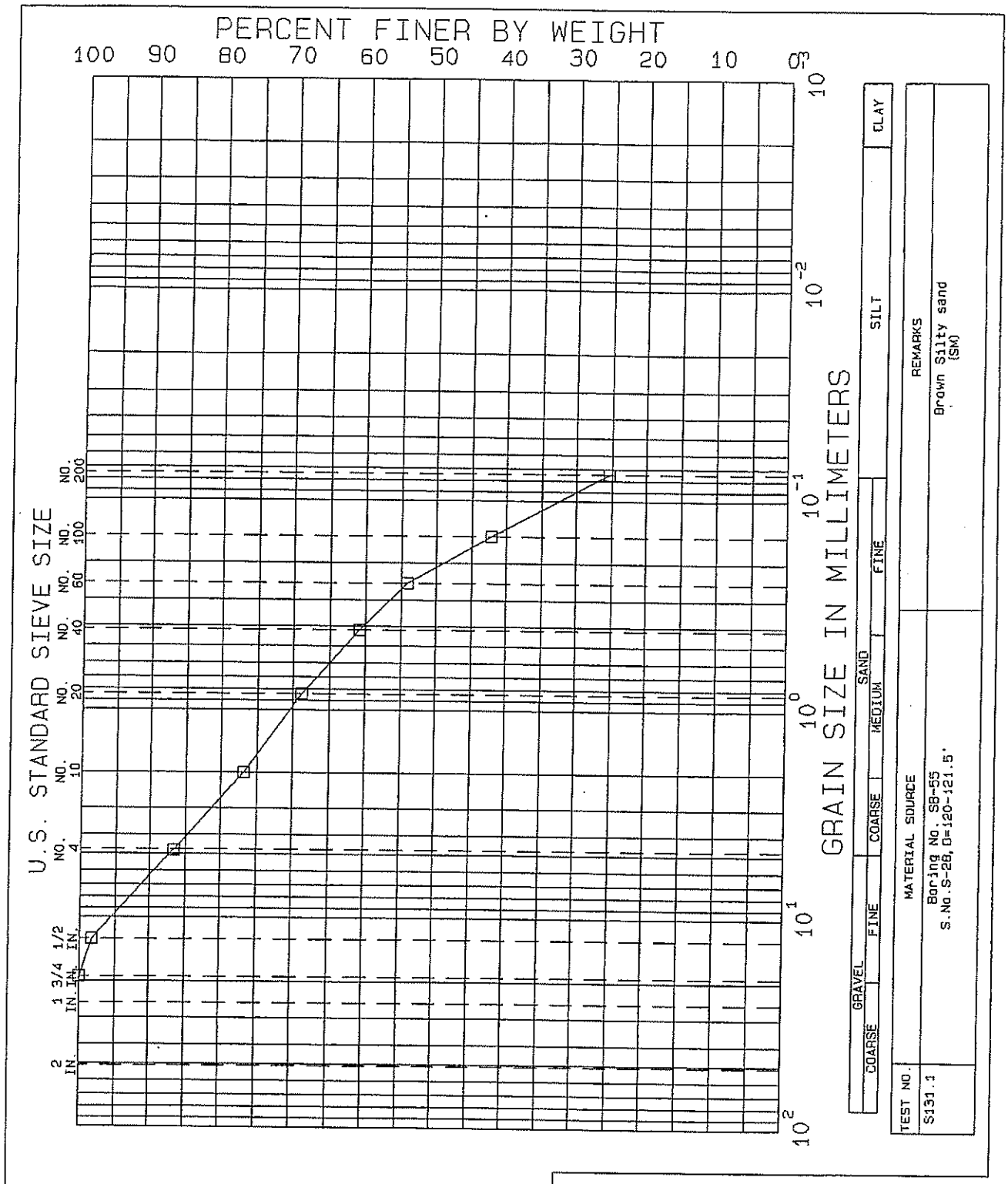


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-55	TEST SERIES	
SAMPLE	S-17	NO.	130
DEPTH	65-66.5'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

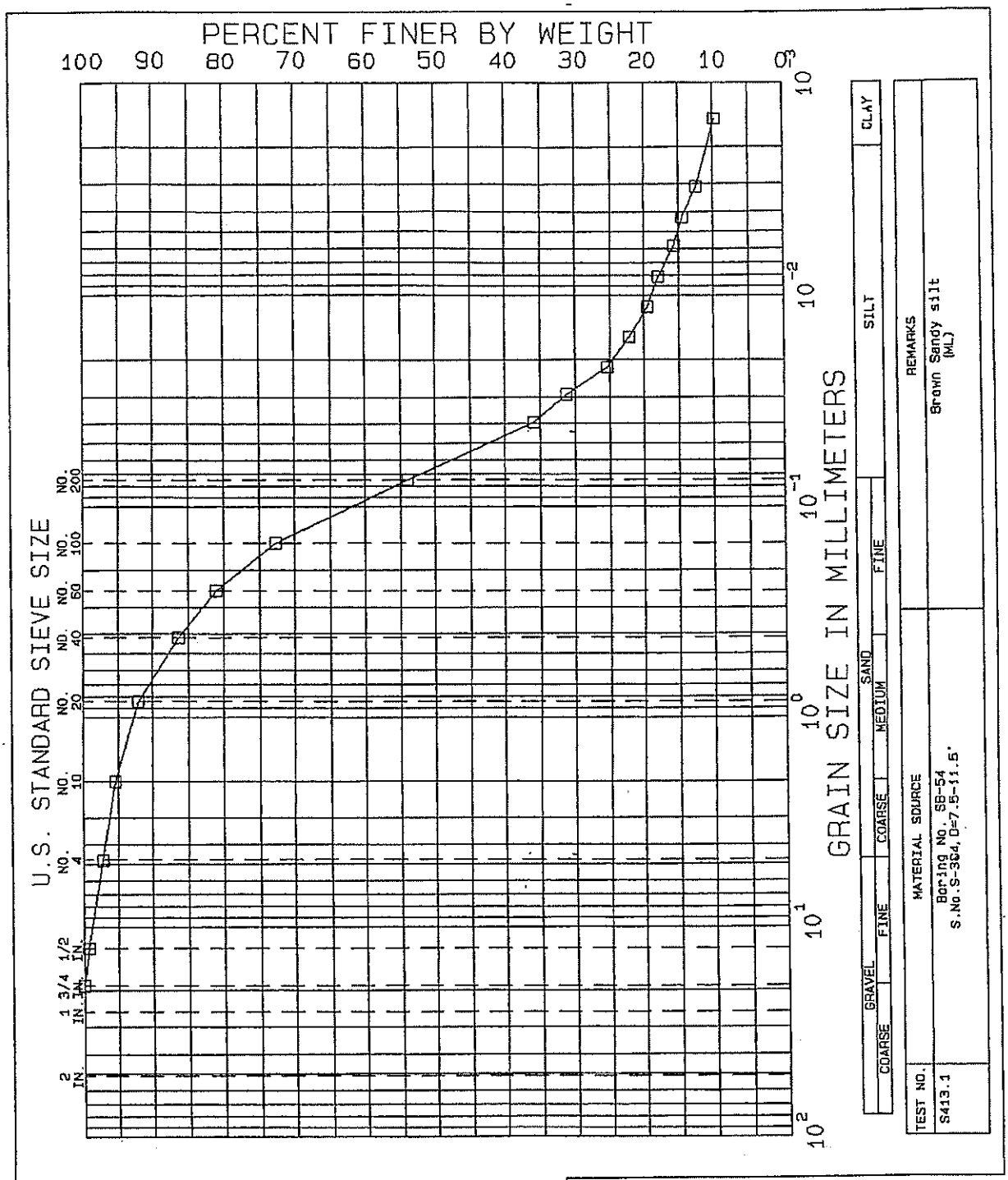
BORING NO.	SB-55	TEST SERIES	
SAMPLE	S-28	NO.	131
DEPTH	120-121.5'	DATE	Nov 03
TECH.	MCM		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Dan Schulze
Project Engineer: D. SCHULZE | Date: Feb.04 | Date Reviewed: 2/19/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1 + e_o}$	Laboratory Log and Soil Description
SB-1	S-1, S-2 & S-3	1.5-9.0	408	15.9	25	21	24	6												Brown Silty gravel with sand (GM)
SB-1	S-6	16.5-18.0	409	12.3	NP	NP	45	8												Red-brown Silty sand (SM)
SB-39	S-1	1.5-3.0	410	9.1	NP	NP	10	2												Brown Well-graded sand with silt and gravel (SW-SM)
SB-39	S-2	4.5-6.0	411	10.5	NP	NP	14	2												Red-brown Silty sand with gravel (SM)
SB-39	S-6	16.5-18.0	412	31.4	34	21	93	34												Red-brown Lean clay (CL)
SB-54	S-3 S-4	7.5-11.5	413	20.9	24	23	54	11												Brown Sandy silt (ML)
SB-54	S-8	22.5-24.5	414	24.2	18	17	42	8												Red-brown Silty sand (SM)
SB-59	S-1 & S-4	1.5-11.5	415	46.5	42	23	97	40												Gray Lean clay (CL)
SB-59	S-7	19.5-21.0	416	48.9	47	25	100	45												Gray Lean clay (CL)
RB-10	S-1	1.5-3.0	417	8.9	NP	NP	15	2												Black Silty sand with gravel (SM)
RB-10	S-3	7.5-9.0	418	9.3	NP	NP	25	3												Red-brown Silty sand (SM)



NEW BRITAIN-HARTFORD BUSWAY

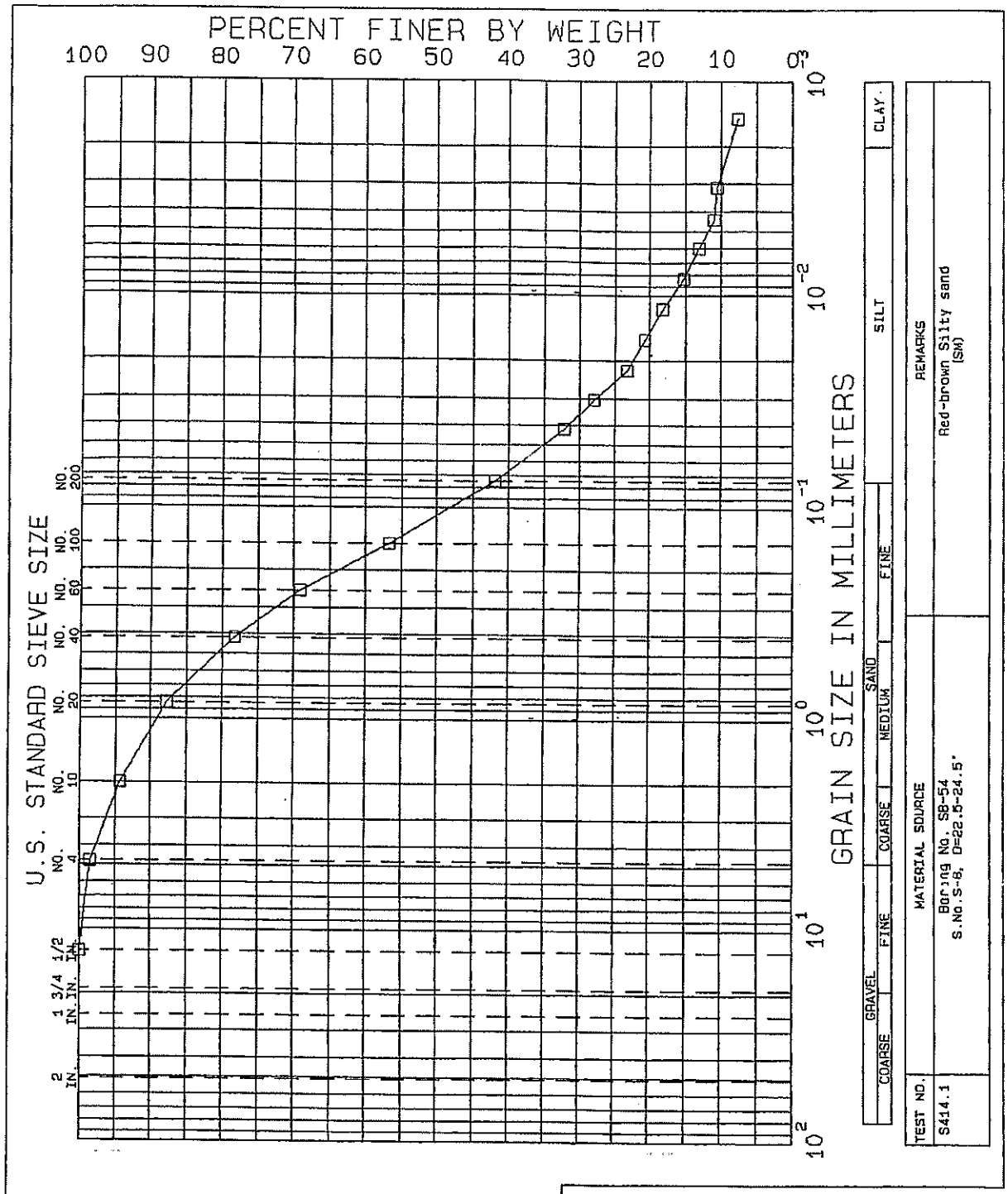
CONNECTICUT

GRADATION TESTS

BORING NO. SB-54
SAMPLE S3&S4
DEPTH 7.5-11.5'
TECH. PEC
REVIEWER MBP

TEST SERIES
NO. 413
DATE Feb.04

FILE L17828



NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-54
SAMPLE S-8
DEPTH 22.5-24.5'
TECH. PEC
REVIEWER MBP

TEST SERIES
NO. 414
DATE Feb.04

FILE L17828

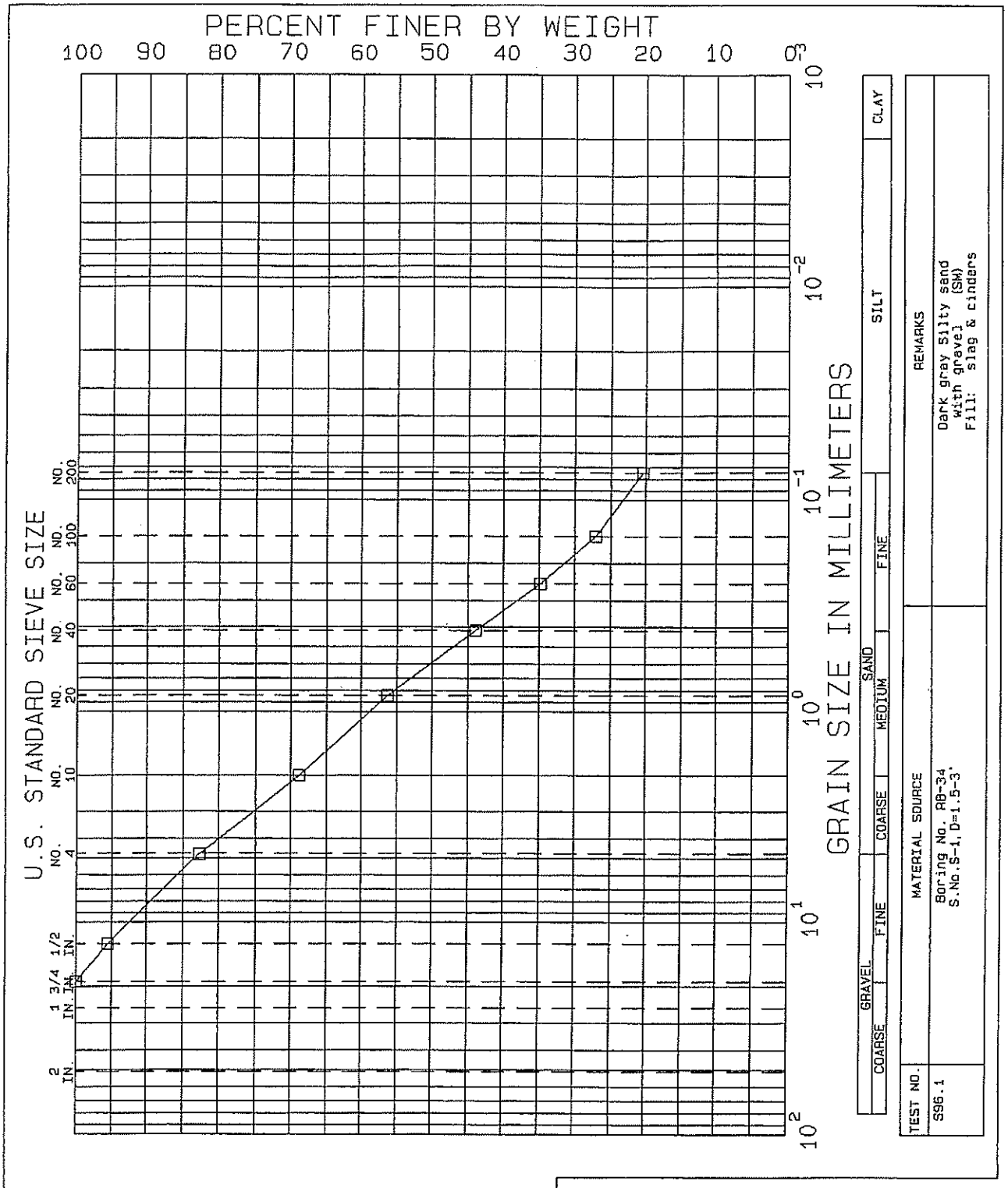
LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 — Assigned By: D. GAFFNEY — Reviewed By: [signature]

Project Engineer: D. SCHULZE — Date: NOV.03 — Date Reviewed: 11/6/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
RB-34	S-1	1.5-3.0	96	27.4	*	*	20		* Insufficient sample for limit test											Dark gray Silty sand with gravel (SM) Fill: slag & cinders
RB-34	S-4	10-11.5	97	41.6	39	23	99	34												Red-brown Lean clay (CL)
RB-35	S-5	13.5-15.0	98	36.1	36	21	98	27												Gray-brown Lean clay (CL)
RB-36	S-2	4.5-6.0	99	31.0	34	24	98	17												Brown Lean clay (CL)
RB-37	S-3	7.5-9.0	100	32.0	26	26	97	14												Gray-brown Silt (ML)
RB-38	S-1	1.5-3.0	101	5.2	NP	NP	10													Gray-brown Poorly-graded sand with silt and gravel (SP-SM)
RB-38	S-5	13.5-15.0	102	35.3	29	22	99	27												Gray-brown Silty clay (CL-ML)
RB-39	S-2	4.5-6.0	103	31.5	NP	NP	56													Brown Sandy silt (ML)
RB-40	S-5	13.5-15.0	104	43.0	49	24	99	38												Gray-brown Lean clay (CL)
RB-41	S-4	10.0-11.5	105	65.7	62	26	97	63												Brown Fat clay (CH)
RB-42	S-3	7.5-9.0	106	10.6	NP	NP	18													Brown Silty sand with gravel (SM)
RB-42	S-8 S-9	22.5-28.5	107	10.4	25	14	48	17												Red-brown Clayey sand with gravel (SC)

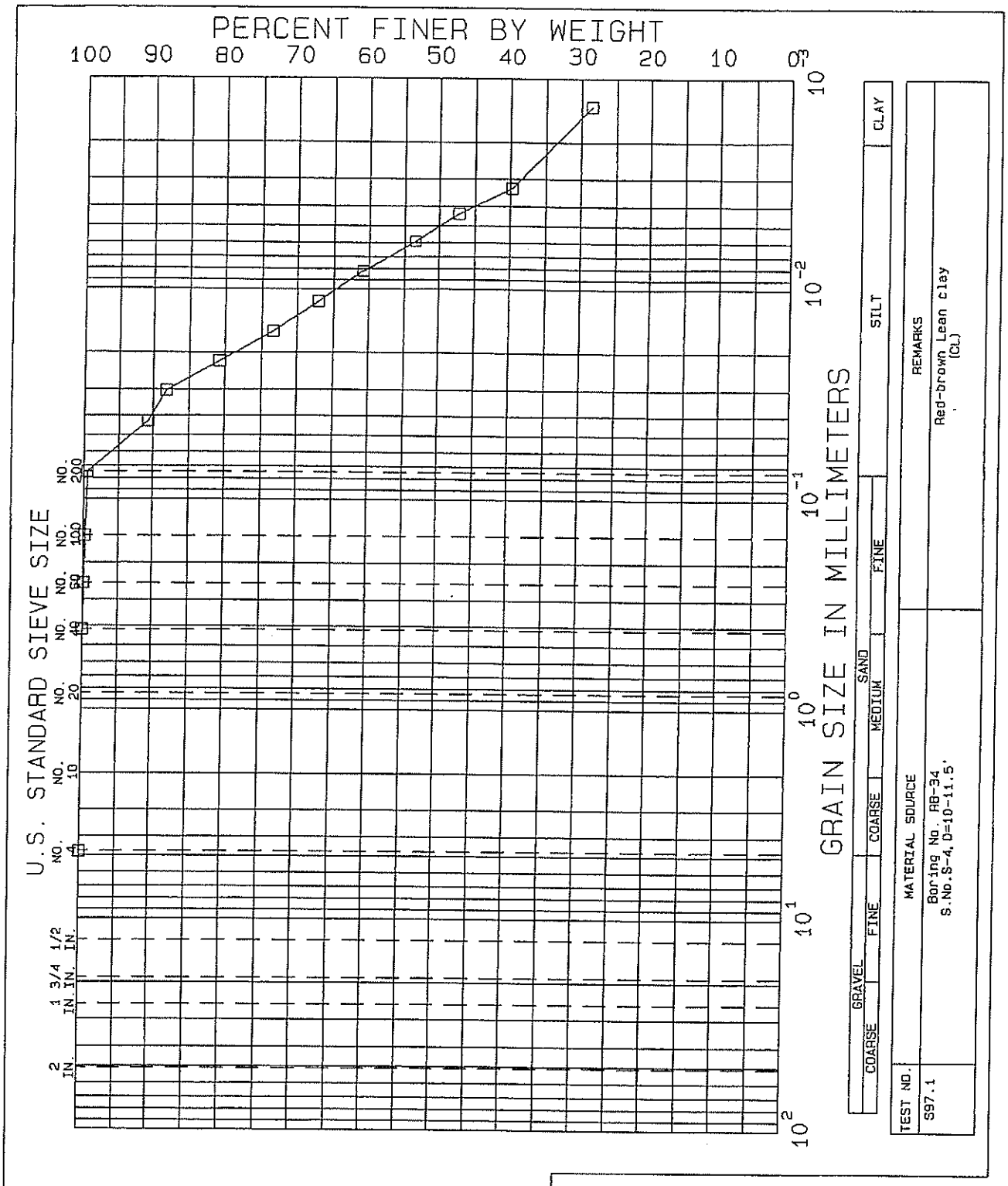


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	RB-34	TEST SERIES	
SAMPLE	S-1	NO.	96
DEPTH	1.5-3'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

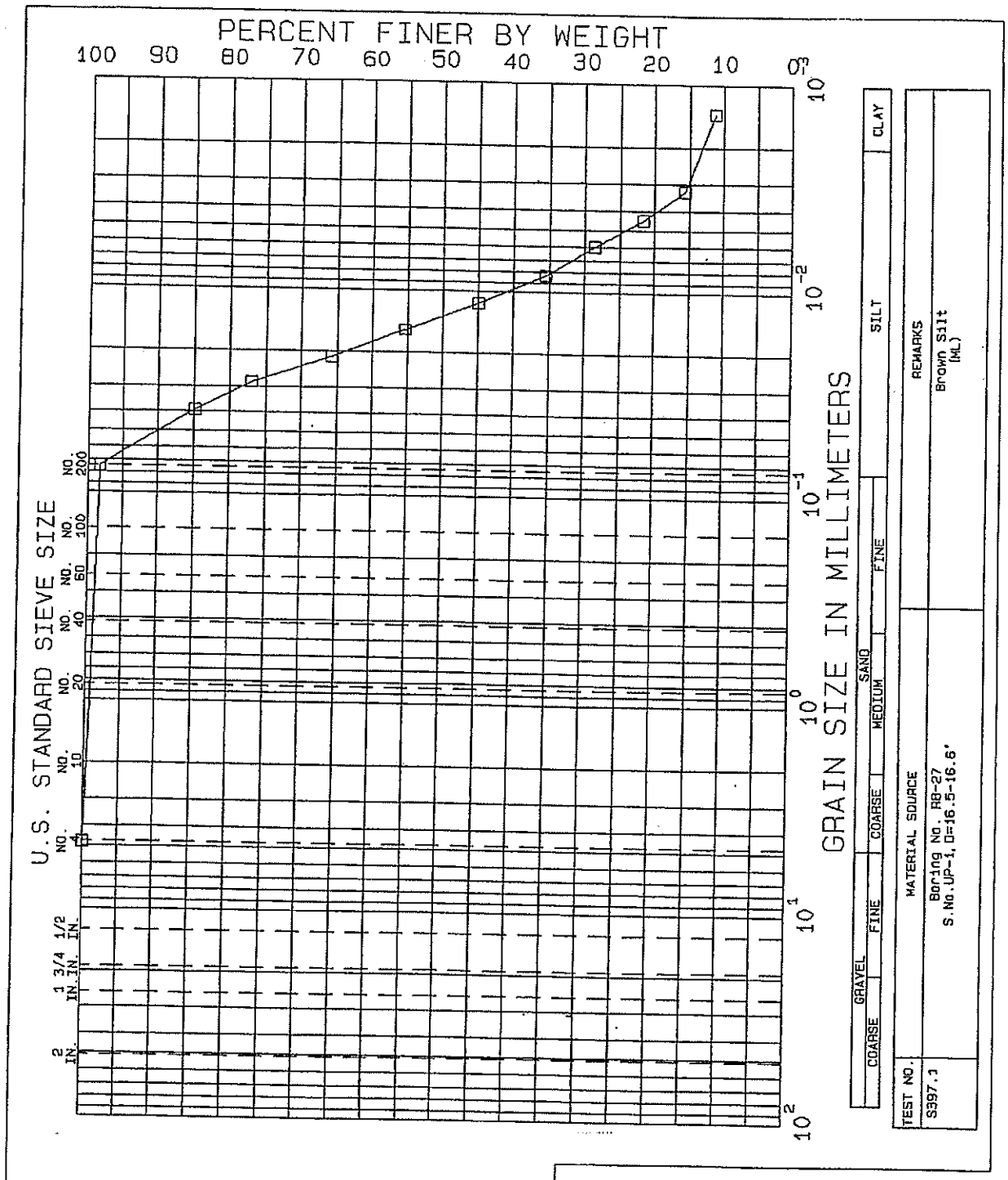
BORING NO.	RB-34	TEST SERIES	
SAMPLE	S-4	NO.	97
DEPTH	10-11.5'	DATE	Nov.03
TECH.	PEC		
REVIEWER	MBP	FILE	L17828

Consolidation and Triaxial Tests

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Feb.03
Reviewed By: [signature]
Date Reviewed: 2/12/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
RB-27	UP-1	15.5-16.7	397	Average Total Unit Weight (15.5-16.7') = 120.4 Pcf																Brown Silt (ML)
		15.6		25.9										Tv= 0.45 tsf						
		16.1		28.2										Tv= 0.50 tsf						
		16.2-16.3		24.7	23	21														
		16.3-16.4		31.5							93.3								0.09	
		16.5-16.6					98	13												
		16.7								2.71										
		5.3		25.0										Tv= 0.47 tsf						
SB-44	UP-1	30.0-32.0	398	Average Total Unit Weight (30.0-31.1') = 125.2 Pcf																Brown Silt with sand (ML)
		30.1		24.2										Tv= 0.45 tsf						
		30.6		23.9										Tv= 0.50 tsf						
		30.6-30.7		24.3	NP	NP														
		30.7-30.8		25.2							99.2								0.03	
		30.8-30.9					83	3												
		30.9-31.0								2.72										
		31.1		24.1										Tv= 0.52 tsf						



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

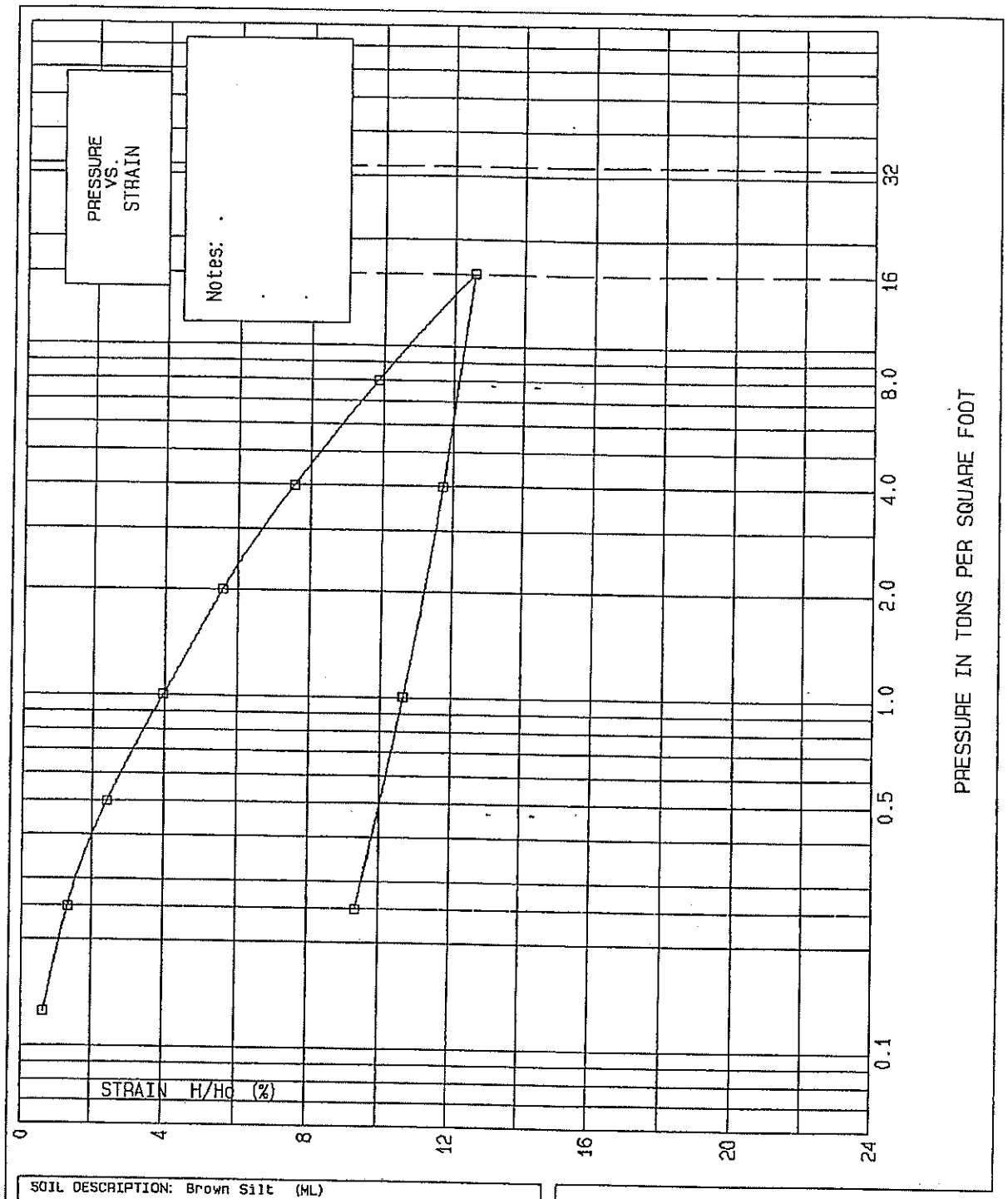
GRADATION TESTS

BORING NO. RB-27
SAMPLE UP-1
DEPTH 16.5-16.6'
TECH. CAG
REVIEWER MBP

TEST SERIES
NO. 397
DATE Feb.04

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Brown Silt (ML)

SAMPLE DIAM. 2.5 IN. LIQUID LIMIT 23 % PLASTIC LIMIT 21 % SPECIFIC GRAVITY 2.71

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	31.50	93.30			0.80
FINAL	26.00	102.96			0.72

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO. RB-27
SAMPLE UP-1
DEPTH 16.3-16.4'
TECH. MST
REVIEWER DAS

TEST SERIES NO. C397
DATE 2/12/04
FILE 17826

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number 17828
Project Name ..... New Britain-Hartford Busway
Test Number C397
Sample Description .. Brown Silt (ML)
Boring Number RB-27
Sample Number UP-1
Depth ..... 16.3-16.4'

Technician ..... MST
Reviewer ..... DAS

NOTES: Homogeneous
Sample

Specific Gravity ..... 2.7100E+00
Sample Dry Weight ..... 9.6180E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 7.2500E-01
Initial Water Content .... 3.1500E+01
Final Water Content ..... 2.6000E+01
Liquid Limit ..... 2.3000E+01
Plastic Limit ..... 2.1000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	0.812			
2	0.125	50.0	0.63	0.801			
3	0.250	105.0	1.31	0.789	2.0	71.54	
4	0.500	194.0	2.42	0.768	4.0	35.12	
5	1.000	318.0	3.97	0.740	2.0	68.35	
6	2.000	446.0	5.57	0.711	2.3	57.52	0.0014
7	4.000	603.5	7.54	0.676	1.7	74.93	
8	8.000	789.0	9.86	0.634	1.2	101.34	
9	16.000	1006.0	12.57	0.584	1.2	95.83	0.0020
10	4.000	938.0	11.72	0.600			
11	1.000	852.0	10.65	0.619			
12	0.250	748.0	9.35	0.643			

S.O. No. _____

Subject: NEW BRITAIN - HARTFORD BUSWAY

CONSOLIDATION CALCS Sheet No. _____ of _____

DETERMINATION OF C_c C_r OCR, e_o Drawing No. _____

Computed by REC Checked By RST 10/19/04 Date 10/14/04

Baker

TEST BORING - RB-27

DEPTH: 16.3'

WATER DEPTH - 17.7' (Below Sample)

γ = 110 PCF

EXISTING OVERBURDEN PRESSURE (σ_{vo}) = γd = 110 PCF (16.3') = 1793 PSF

$\sigma_{vo}' = \sigma_{vo} - u$

$u = 0$ (WATER BELOW SAMPLE)

$\sigma_{vo}' = \sigma_{vo} - 0 = 1793$ PSF

PRECONSOLIDATION PRESSURE (σ_p') = 4.0 TSF = 8000 PSF (FROM GRAPH)

OVER CONSOLIDATION RATIO - OCR = σ_p'/σ_{vo}' = 8000 PSF / 1793 PSF = 4.46

OCR = 4.46 (OVERCONSOLIDATED)

COMPRESSION INDEX (C_c)

$$C_c = \frac{\Delta e}{\log \sigma_2/\sigma_1} \quad \therefore \quad C_c = \frac{(0.676 - 0.634)}{\log(8\,TSF/4\,TSF)} = \frac{0.042}{0.30}$$

$C_c = 0.14$

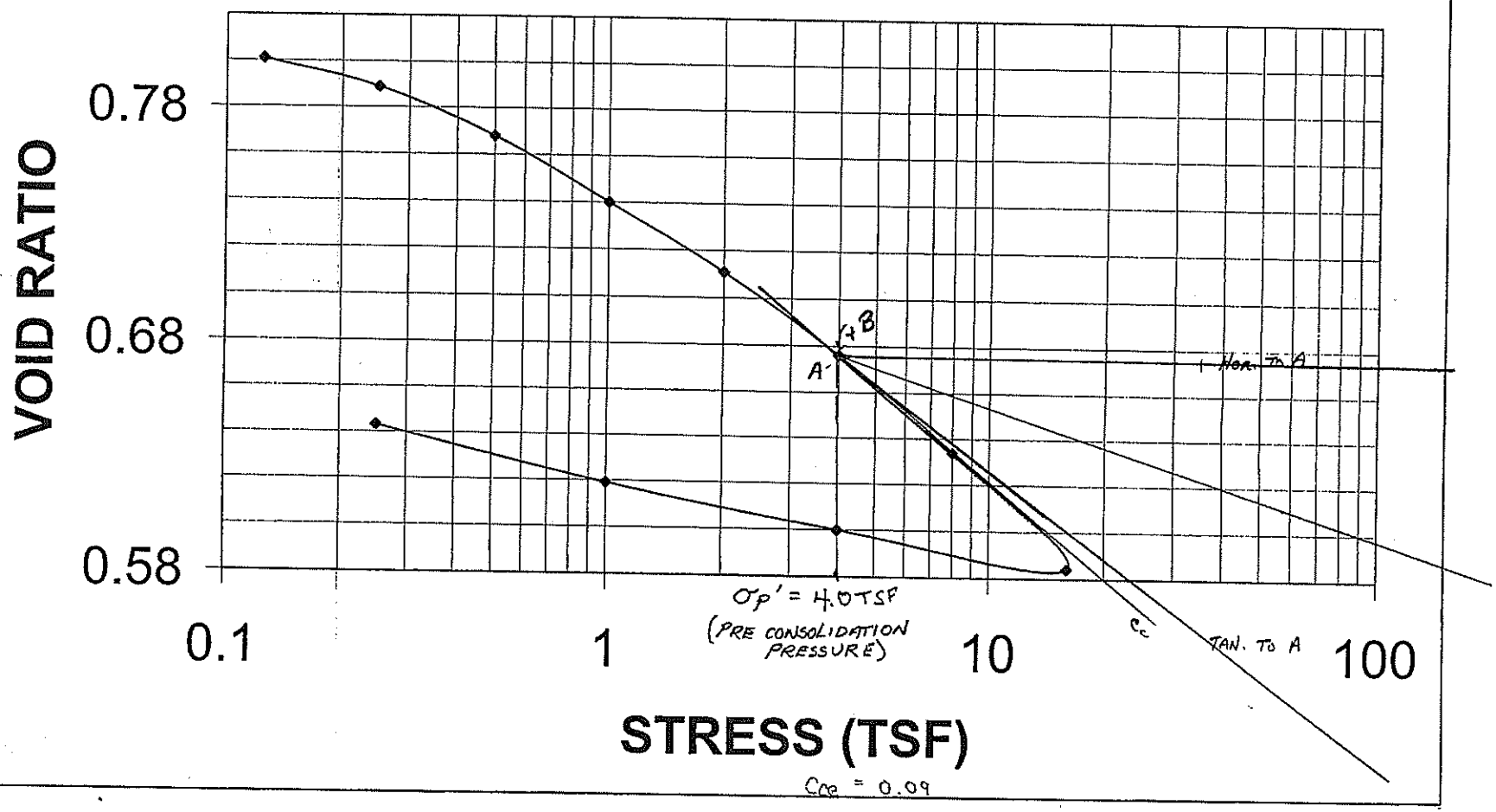
$$C_r = \frac{0.643 - 0.600}{\log(4/0.25)} = \frac{0.043}{1.2} = 0.036$$

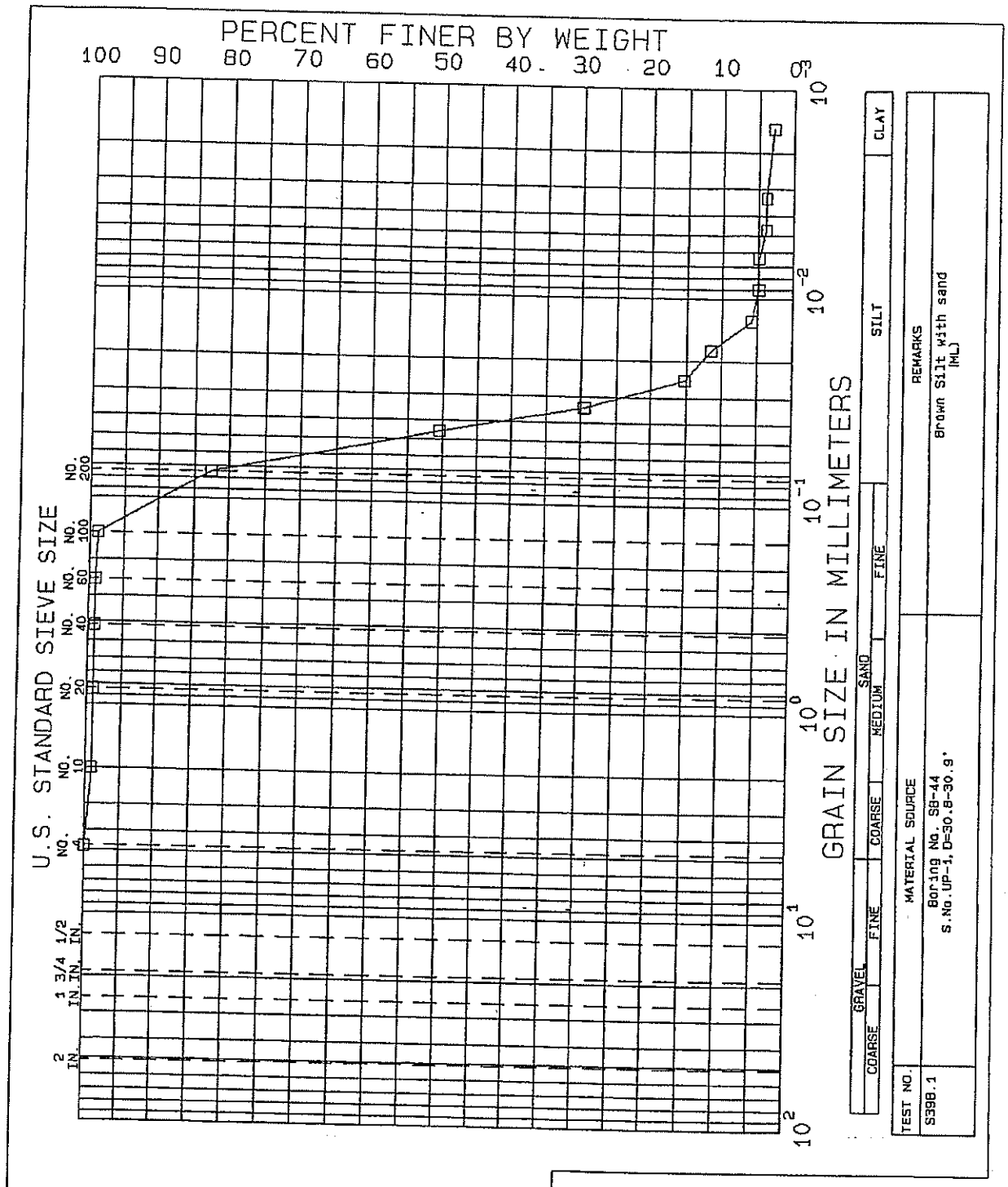
INITIAL VOID RATIO, e_o

4/.25

FROM LAB SUMMARY - VALUE @ 0 PRESSURE = 0.812

RB-27 Consolidation





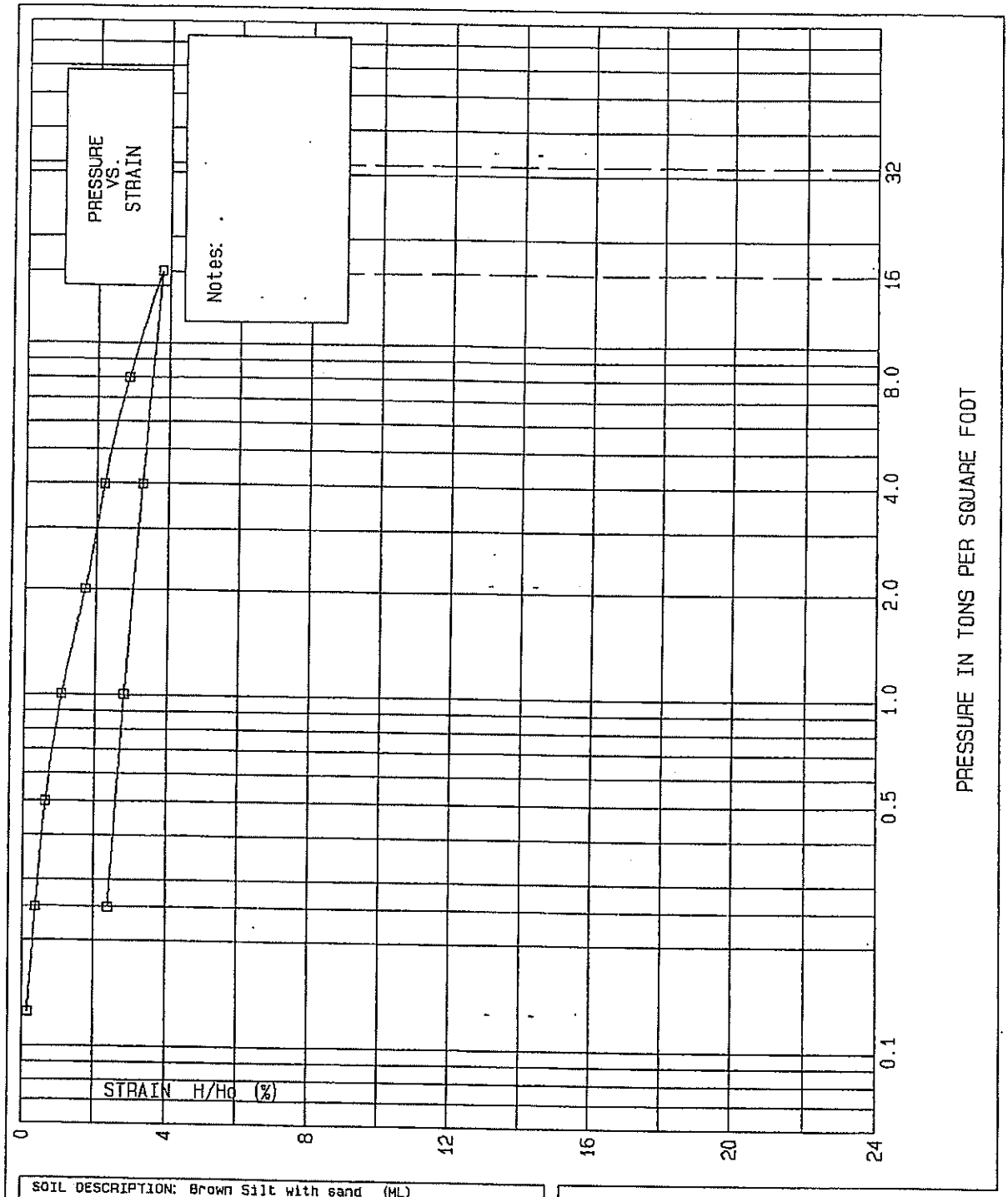
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-44
SAMPLE UP-1
DEPTH 30.8-30.9'
TECH. CAG
REVIEWER MBP

TEST SERIES
NO. 398
DATE Feb.04

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Brown Silt with sand (ML)

SAMPLE DIAM. 2.5 IN. LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 2.72

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	25.20	99.24			0.80
FINAL	25.40	101.65			0.78

New Britain-Hartford Busway

CONSOLIDATION TEST

FIGURE

BORING NO.	SB-44	TEST SERIES NO.	C398
SAMPLE	UP-1	DATE	2/12/04
DEPTH	30.7-30.8'		
TECH.	MST		
REVIEWER	DAS	FILE	17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number 17828
Project Name ..... New Britain-Hartford Busway
Test Number C398
Sample Description .. Brown Silt with sand (ML)
Boring Number SB-44
Sample Number UP-1
Depth ..... 30.7-30.8'

Technician ..... MST
Reviewer ..... DAS

NOTES: Silt Portion
Comprises 95%
of Sample

Specific Gravity ..... 2.7200E+00
Sample Dry Weight ..... 1.0230E+02
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 7.8100E-01
Initial Water Content .... 2.5200E+01
Final Water Content ..... 2.5400E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	0.710			
2	0.125	11.0	0.14	0.708			
3	0.250	29.0	0.36	0.704	0.2	725.82	
4	0.500	50.0	0.63	0.700	0.5	288.91	
5	1.000	85.0	1.06	0.692	0.6	239.07	
6	2.000	136.0	1.70	0.681	0.6	236.48	0.00053
7	4.000	178.0	2.22	0.672	0.5	280.44	
8	8.000	231.0	2.89	0.661	0.6	230.88	
9	16.000	303.0	3.79	0.645	0.8	170.40	0.00072
10	4.000	262.0	3.27	0.654			
11	1.000	225.0	2.81	0.662			
12	0.250	192.0	2.40	0.669			

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Nov.03
Reviewed By: Don Schulze
Date Reviewed: 11/24/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
SB-46	UP-1	30-32	390		Average Total Unit Weight (30.0-31.9') = 108.94 Pcf															Brown Varved Soil as follows:
		30.6		66.1	(Clay Portion)									Tv= 0.27 tsf						Fat Clay (CH) grading to Silt (ML)
		30.7		35.7	(Silt Portion)															
		30.8-30.9		48.6	(entire varve)															Varve thickness varies from 1-2.5"
		31.0-31.1		60.5							65.7								0.26	Clay portion varies from 0.375-0.875" in thickness and comprises approx. 25-40% of total varve
		31.1-31.2		39.6	34	29														
		31.1 31.2					100	15												
		31.2-31.3		68.0	88	30														
		31.4-31.5					100	87		2.89										

GZA GeoEnvironmental, Inc.
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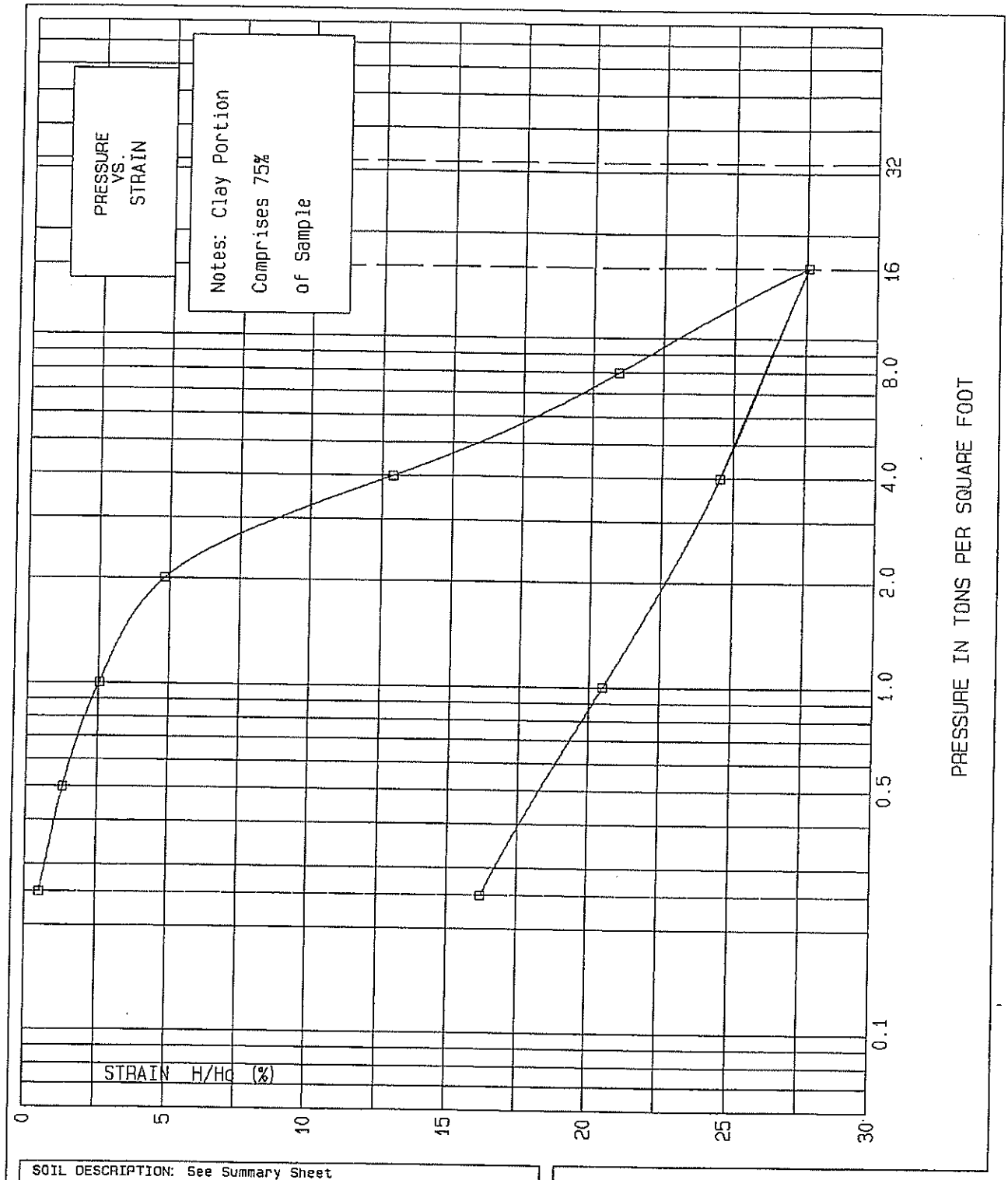
labform1.xls



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 0 %	PLASTIC LIMIT 0 %	SPECIFIC GRAVITY 2.89

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	60.50	65.71			0.80
FINAL	46.80	78.58			0.67

NEW BRITAIN-HARTFORD BUSWAY

CONSOLIDATION TEST

FIGURE

BORING NO.	SB-46	TEST SERIES NO.	390.1
SAMPLE	UP-1	DATE	11/19/03
DEPTH	31.0-31.1'		
TECH.	MST		
REVIEWER	DAS	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

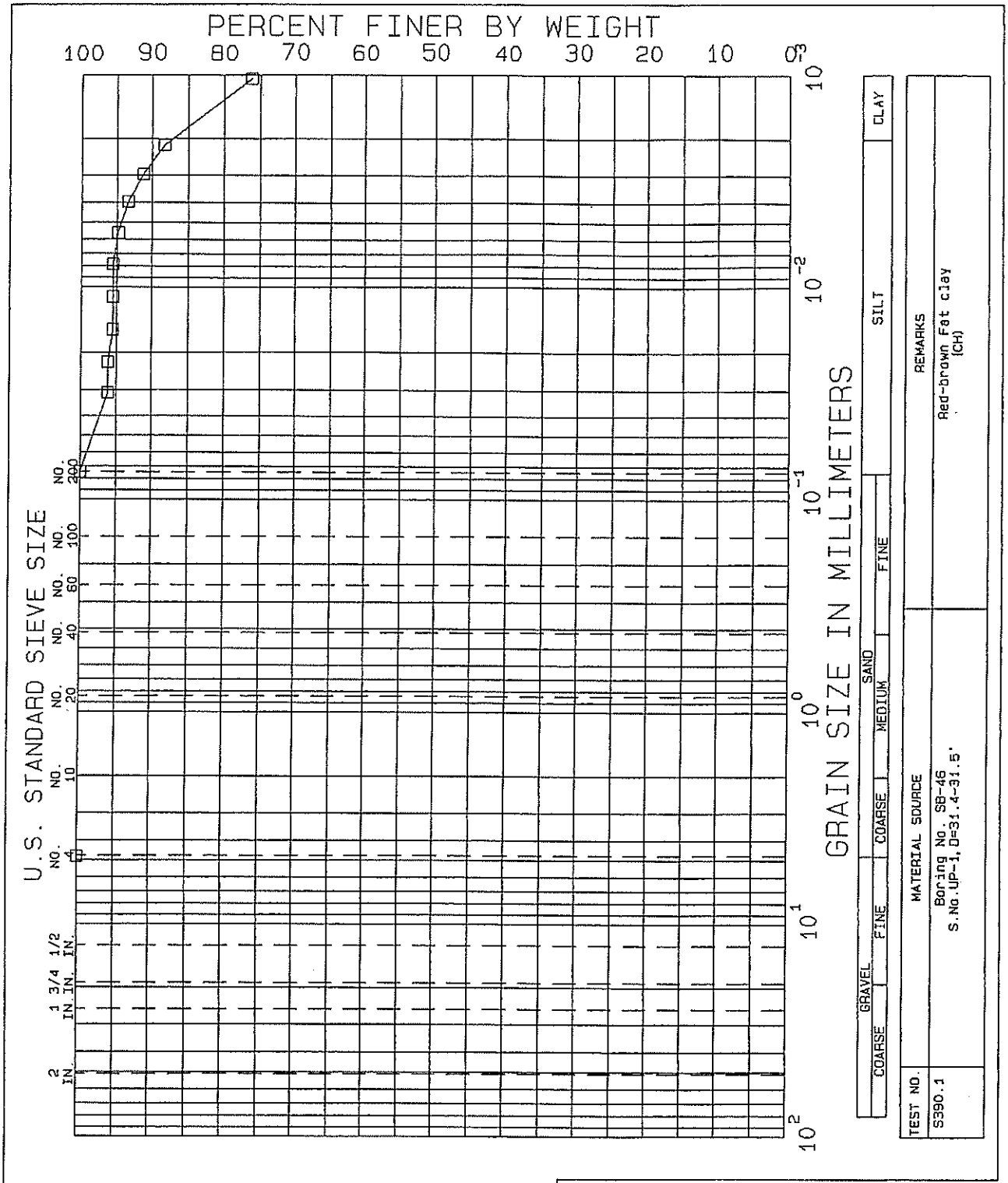
Job Number L17828
Project Name ..... NEW BRITAIN-HARTFORD BUSWAY
Test Number 390.1
Sample Description .. See Summary Sheet
Boring Number SB-46
Sample Number UP-1
Depth ..... 31.0-31.1'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 75%
of Sample

Specific Gravity ..... 2.8900E+00
Sample Dry Weight ..... 6.7740E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.6900E-01
Initial Water Content .... 6.0500E+01
Final Water Content ..... 4.6800E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) cm²/sec	C_α
1	0.125	17.0	0.00	1.744			
2	0.250	57.0	0.50	1.730	2.6	55.83	
3	0.500	121.0	1.30	1.709	6.3	22.74	0.0006
4	1.000	221.0	2.55	1.674	6.3	22.27	
5	2.000	402.0	4.81	1.612	6.3	21.48	
6	4.000	1049.0	12.90	1.390	23.0	5.27	
7	8.000	1689.0	20.90	1.171	13.0	7.75	0.007
8	16.000	2222.0	27.56	0.988	9.0	9.31	
9	4.000	1981.0	24.55	1.071			
10	1.000	1656.0	20.49	1.182			
11	0.250	1314.0	16.21	1.299			

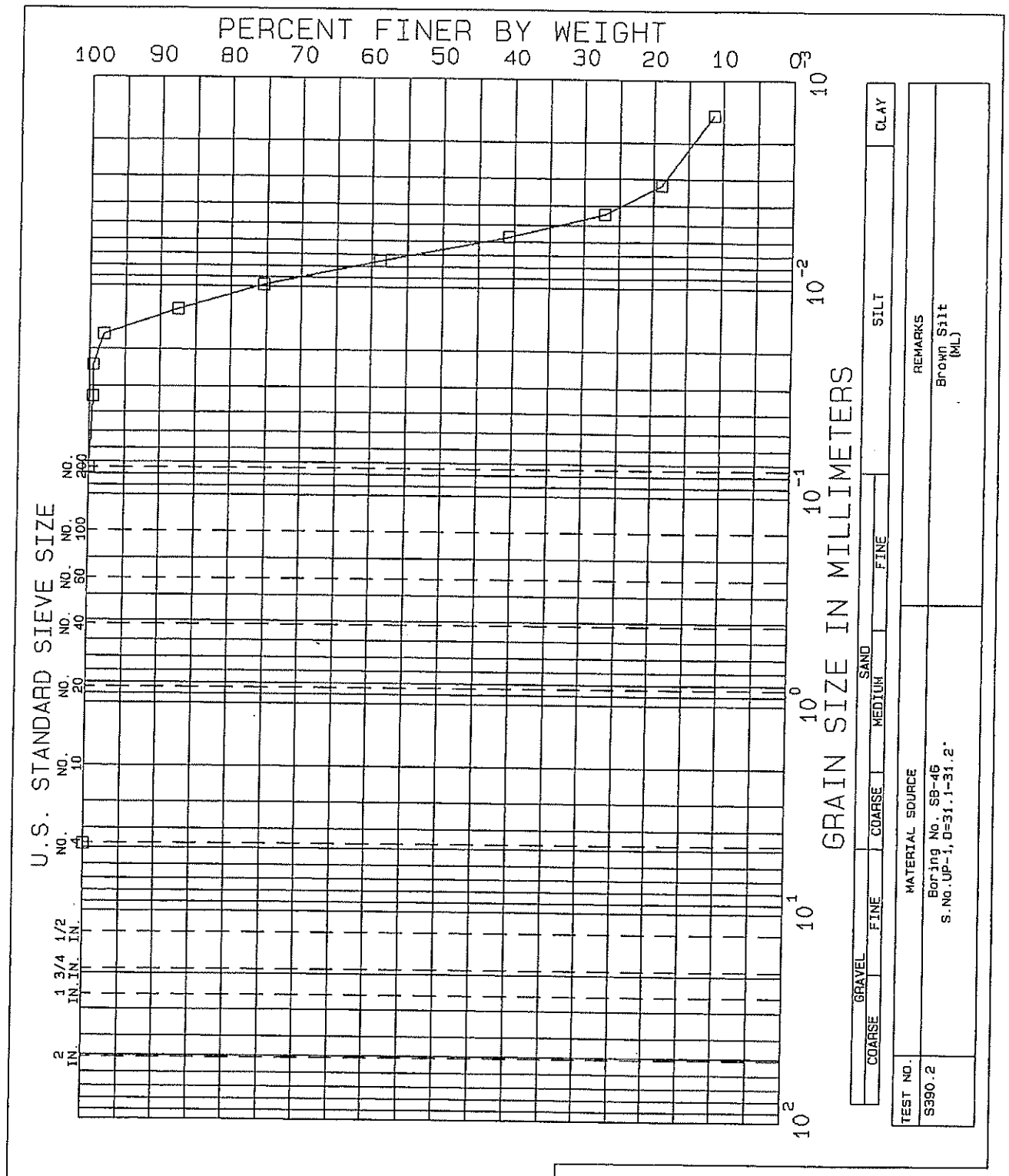


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-46	TEST SERIES	
SAMPLE	UP-1	NO.	390
DEPTH	31.4-31.5'	DATE	Nov.03
TECH.	pec		
REVIEWER	MBP	FILE	L17828



NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO. SB-46
SAMPLE UP-1
DEPTH 31.1-31.2'
TECH. PEC
REVIEWER MBP

TEST SERIES
NO. 390
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. Gaffney | Reviewed By: [illegible]
Project Engineer: D. SCHULZE | Date: Feb.03 | Date Reviewed: 2/23/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
SB-52	ST-1	50.0-52.0	399		Average Total Unit Weight (50.0-51.3') = 117.8 Pcf															Red-brown Varved Soil as follows:
		50.1		48.7	(Clay Portion)									Tv= 0.24 tsf						Lean Clay (CL) grading to Silt (ML)
		50.5		23.2	(Silt Portion)									Tv= 0.20 tsf						
		50.5-50.6		43.7							79.3								0.15	Varve thickness varies from 0.25-0.5" Clay portion varies from 0.125-.25"
		50.7		41.6	(entire varve)									Tv= 0.25 tsf						in thickness and comprises approx. 35-50% of total varve
		50.0-51.3*		47.3	40	23														
		50.0-51.3*					100	47												* Note: Hydrometer, Specific Gravity, and Atterberg Limit samples taken from
		50.0-51.3*								2.83										clay layers throughout the tube sample

GZA GeoEnvironmental, Inc.
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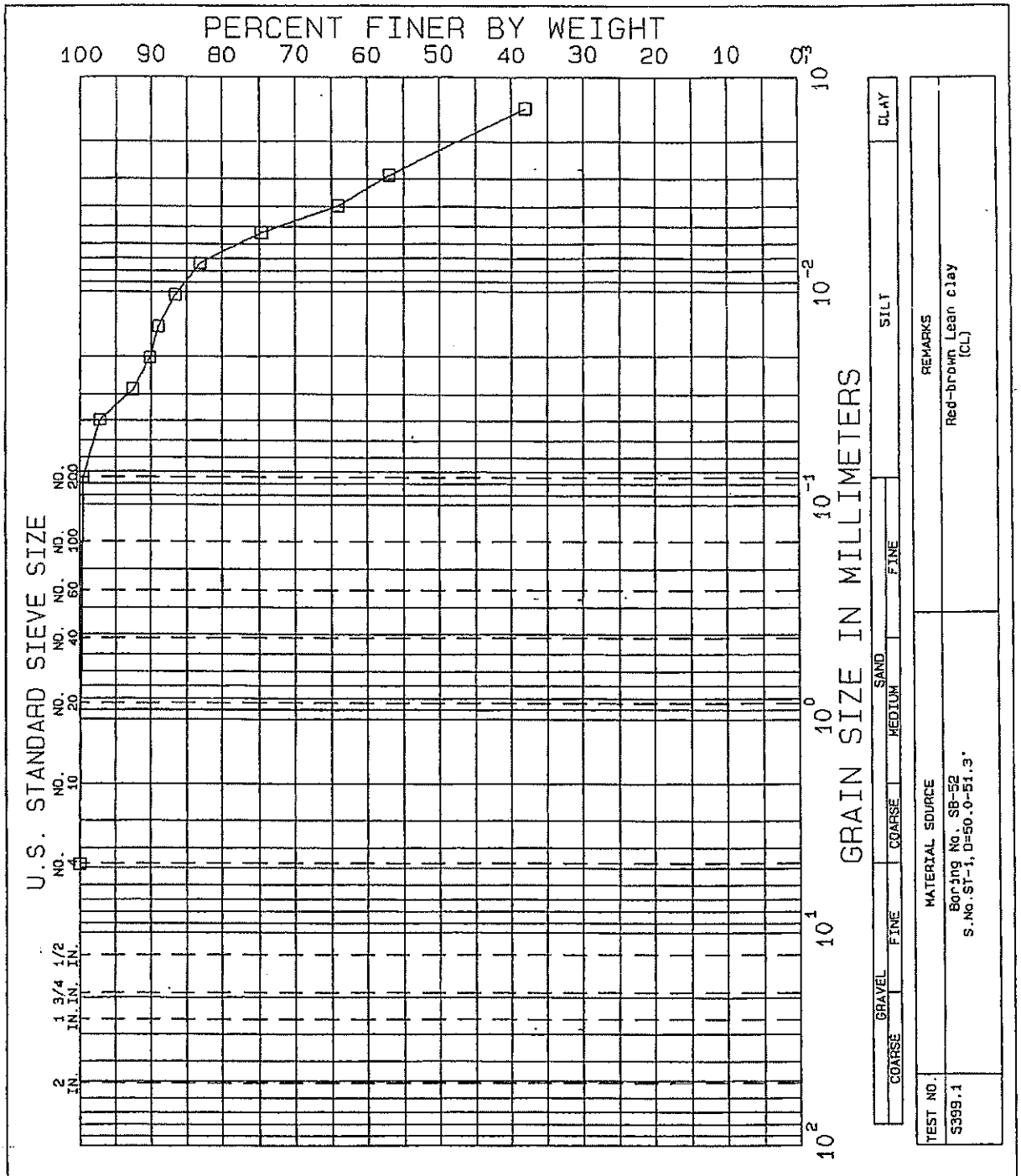
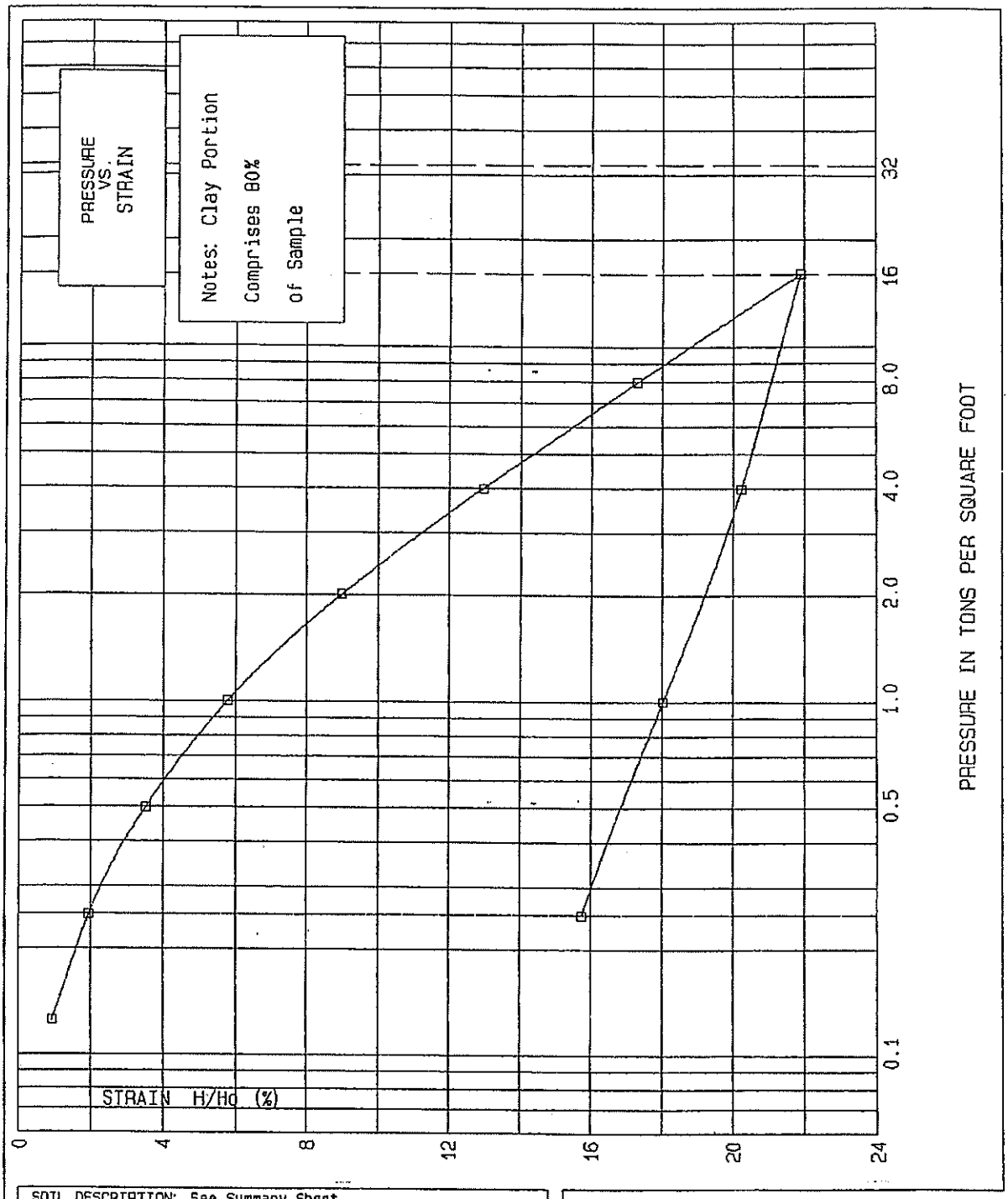


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-52	TEST SERIES	
SAMPLE	ST-1	NO.	399
DEPTH	50.0-51.3'	DATE	Feb.04
TECH.	PEC		
REVIEWER	WBP	FILE	L17828



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	0 %	0 %	2.83

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	43.70	79.26			0.80
FINAL	32.20	94.07			0.67

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-52	TEST SERIES NO.	C399.1
SAMPLE	ST-1	DATE	2/23/04
DEPTH	50.5-50.6'		
TECH.	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C399.1
Sample Description .. See Summary Sheet
Boring Number SB-52
Sample Number ST-1
Depth ..... 50.5-50.6'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 80%
of Sample

Specific Gravity ..... 2.8300E+00
Sample Dry Weight ..... 8.1700E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.7400E-01
Initial Water Content .... 4.3700E+01
Final Water Content ..... 3.2200E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	1.228			
2	0.125	75.0	0.94	1.207			
3	0.250	158.0	1.97	1.184	12.9	10.98	
4	0.500	283.0	3.54	1.149	12.3	11.22	0.0018
5	1.000	462.0	5.77	1.099	6.3	21.05	0.0024
6	2.000	719.0	8.99	1.028	8.4	14.90	
7	4.000	1036.0	12.95	0.940	6.3	18.36	
8	8.000	1384.0	17.30	0.843	6.3	16.68	
9	16.000	1752.0	21.90	0.740	4.0	23.58	0.0041
10	4.000	1619.0	20.24	0.777			
11	1.000	1443.0	18.04	0.826			
12	0.250	1259.0	15.74	0.877			

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. Gaffney — Reviewed By: Don Schulze
Project Engineer: D. SCHULZE — Date: Feb.04 — Date Reviewed: 2/6/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
SB-54	ST-1	42-44	400		Average Total Unit Weight (42.0-43.9') = 111.9 Pcf															Brown Varved Soil as follows:
		42.0-42.5		48.2							74.9			CIU	4320	σ1/σ3 MAX	2887	15.3		Fat Clay (CH) grading to Silt (ML)
		42.5		67.7	(Clay Portion)									Tv= 0.28 tsf						
		42.5-43.0		45.9							76.8			CIU	5760	σ1/σ3 MAX	4023	13.2		Varve thickness varies from 0.5-2.0"
		43.0-43.5		46.1							76.6			CIU	7200	σ1/σ3 MAX	4681	13.9		Clay portion varies from 0.25-0.625" in thickness and comprises approx. 25-50% of total varve
		43.5		72.5	(Clay Portion)									Tv= 0.27 tsf						
		43.6-43.7		55.7							69.8								0.17	
		43.7		40.8	(Silt Portion)															
		43.7-43.9		46.8	(entire varve)															
		42.0-43.0		76.7	76	30	100	82		2.84	(Clay Portion)									

GZA GeoEnvironmental, Inc.

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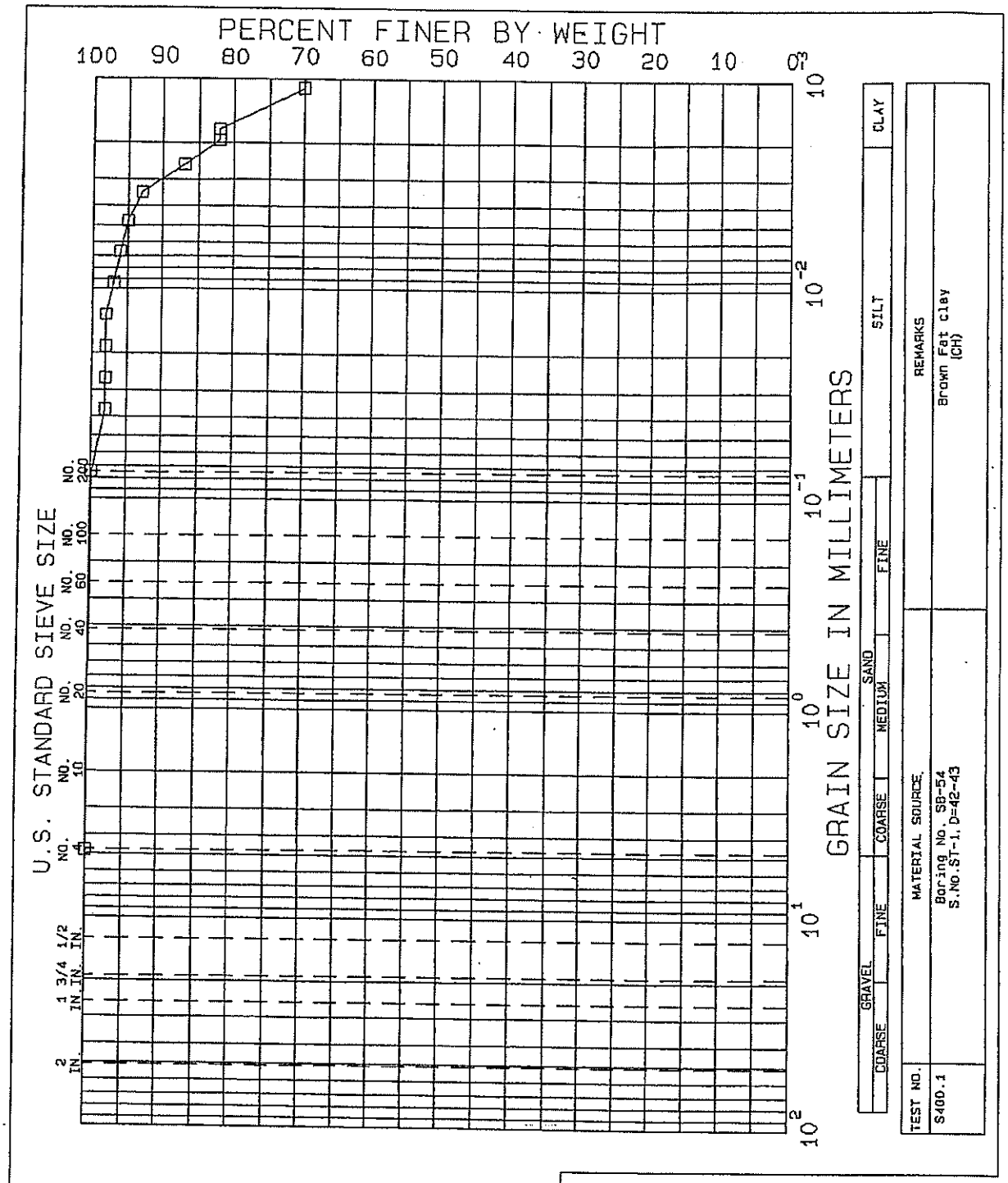
labform1.xls



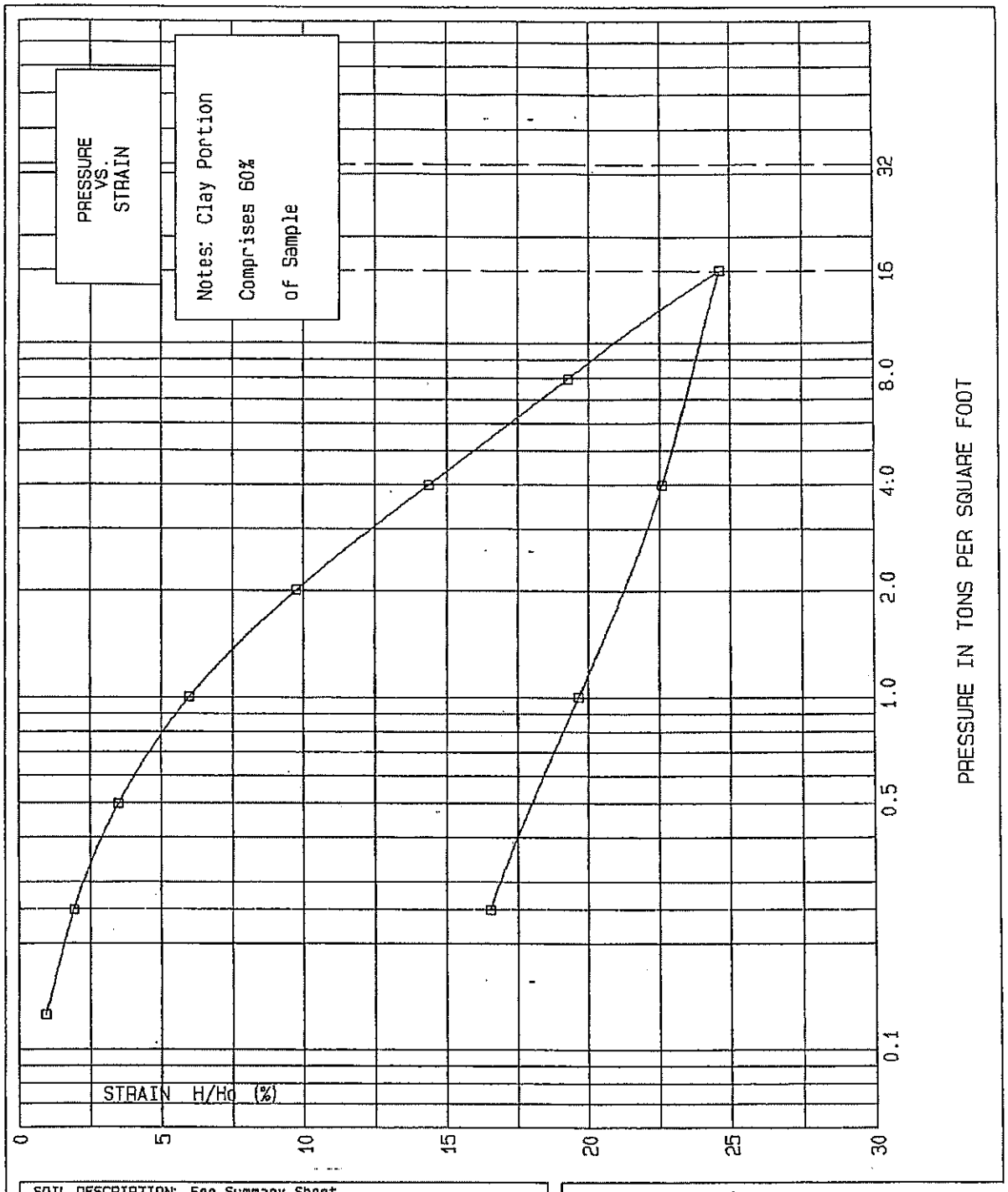
NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-54	TEST SERIES	
SAMPLE	ST-1	NO.	400
DEPTH	42-43'	DATE	Feb.04
TECH.	CAG		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 76 %	PLASTIC LIMIT 30 %	SPECIFIC GRAVITY 2.84

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	55.70	69.84			0.80
FINAL	41.10	83.64			0.67

New Britain-Hartford Busway

CONSOLIDATION TEST

FIGURE

BORING NO.	SB-54	TEST SERIES NO.	C400
SAMPLE	ST-1	DATE	2/12/04
DEPTH	43.6-43.7'		
TECH.	MST		
REVIEWER	DAS	FILE	17828

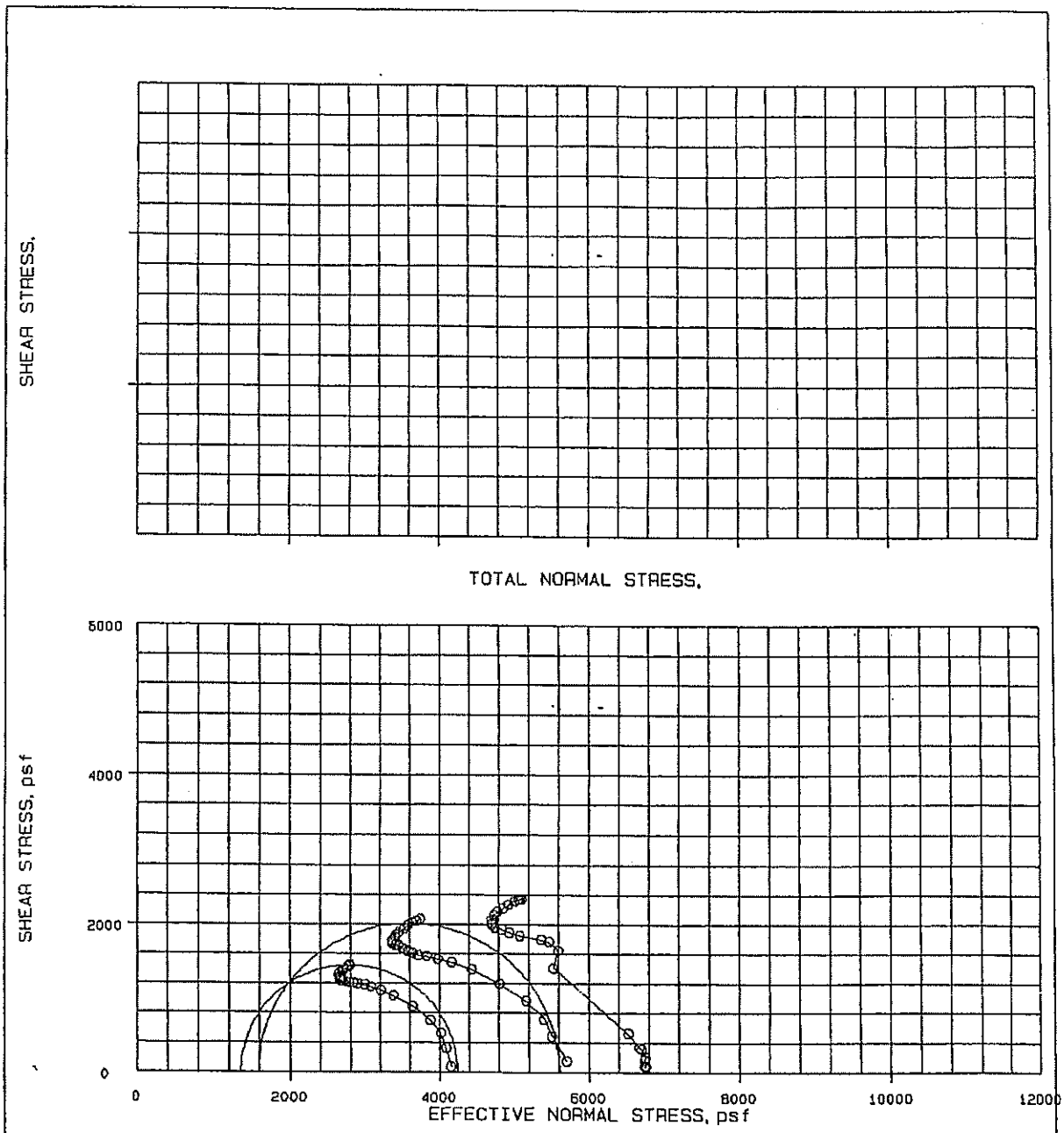
Job Number 17828
Project Name ..... New Britain-Hartford Busway
Test Number C400
Sample Description .. See Summary Sheet
Boring Number SB-54
Sample Number ST-1
Depth ..... 43.6-43.7'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 60%
of Sample

Specific Gravity ..... 2.8400E+00
Sample Dry Weight ..... 7.1990E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.6800E-01
Initial Water Content .... 5.5700E+01
Final Water Content ..... 4.1100E+01
Liquid Limit ..... 7.6000E+01
Plastic Limit ..... 3.0000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) cm²/sec	C_α
1	0.000	0.0	0.00	1.538			
2	0.125	73.0	0.91	1.514			
3	0.250	155.0	1.94	1.488	6.2	22.87	
4	0.500	281.0	3.51	1.448	4.4	31.37	0.0016
5	1.000	478.0	5.97	1.386	3.6	36.77	
6	2.000	778.0	9.72	1.291	6.3	19.66	0.0040
7	4.000	1151.0	14.39	1.172	6.8	16.59	
8	8.000	1540.0	19.25	1.049	4.0	25.24	
9	16.000	1971.0	24.64	0.912	3.2	27.78	0.0053
10	4.000	1808.0	22.60	0.964			
11	1.000	1571.0	19.64	1.039			
12	0.250	1323.0	16.54	1.118			



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	0

FAILURE CRITERIA

REMARKS

σ_1/σ_3

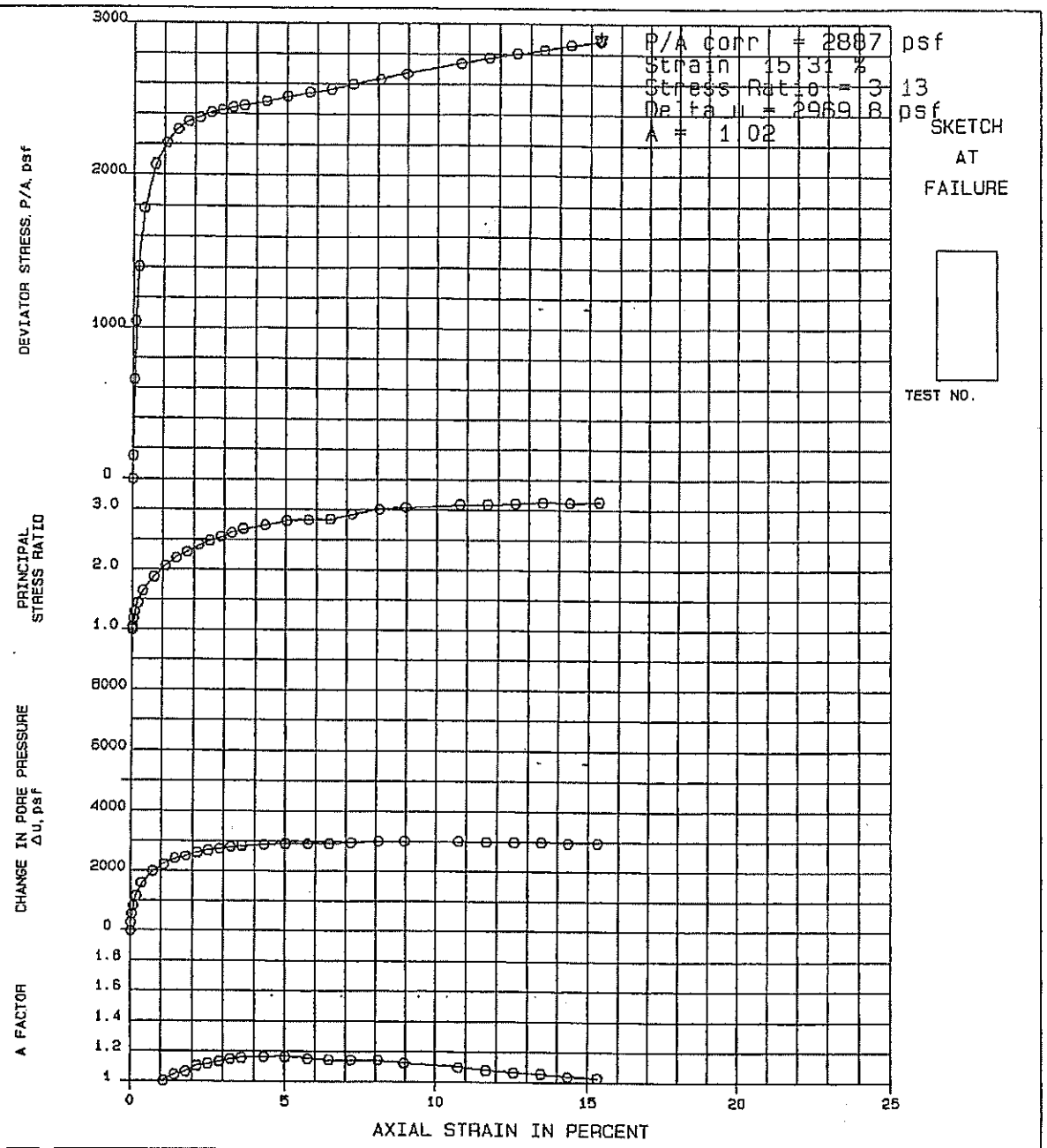
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO	SB-54	TEST SERIES NO.	400
SAMPLE	ST-1	DATE	Feb.04
DEPTH	43.0-43.5'		
TECH.	MST		
REVIEWER		FILE	L17828



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
400.1.1	48.2	74.9	5.698 2.825	4.32	8.64	6.2	98.2	43.8	79.9	.042

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 0

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

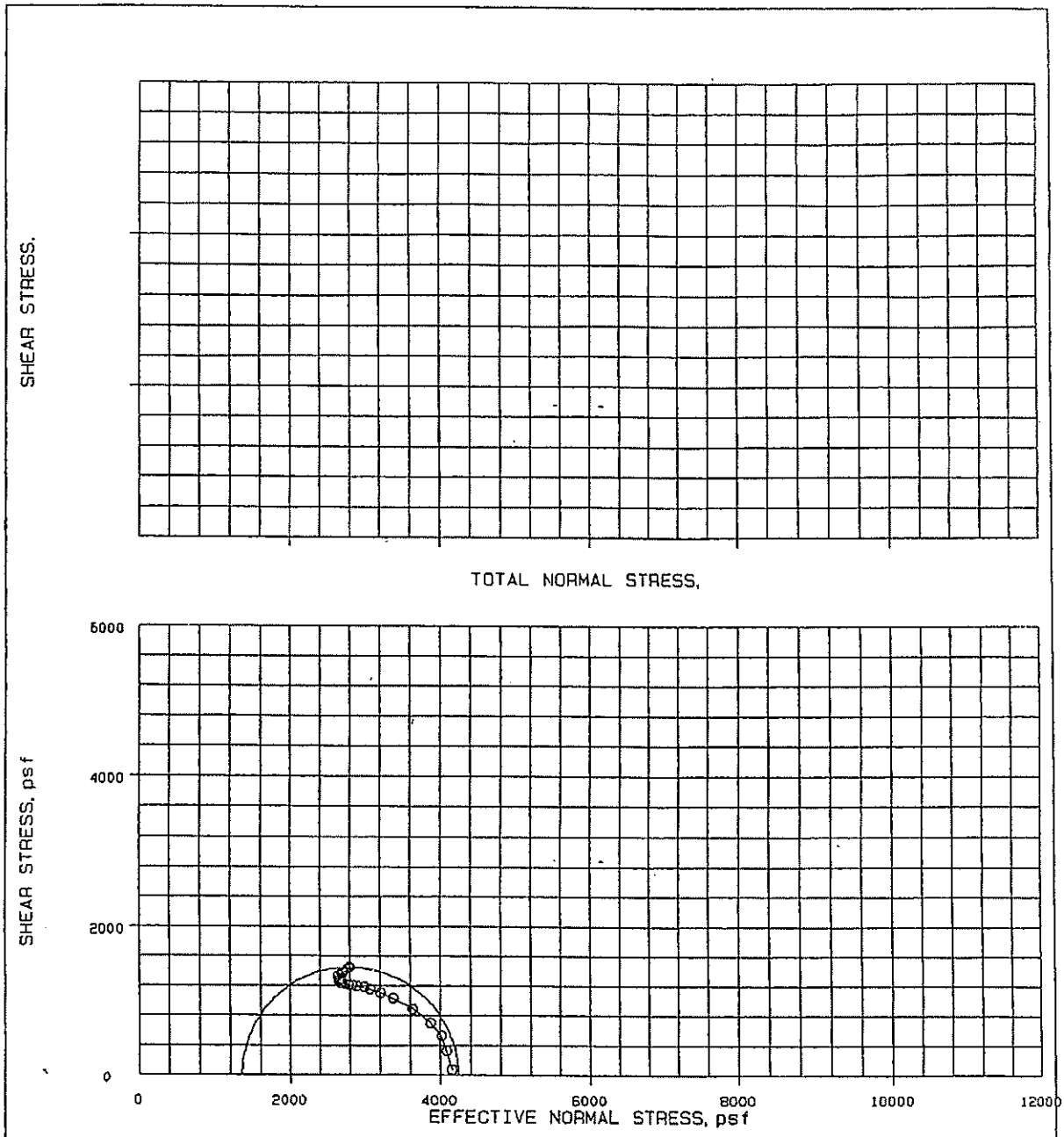
BORING NO. SB-54
SAMPLE ST-1
DEPTH 42.0-42.5'
TECH. MST
REVIEWER

TEST SERIES NO. 400
DATE Feb.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

T.S



SOIL DESCRIPTION:	See Summary Sheet	
LIQUID LIMIT 0 %	PLASTIC LIMIT 0	SPECIFIC GRAVITY 0

FAILURE CRITERIA

REMARKS σ_1'/σ_3

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

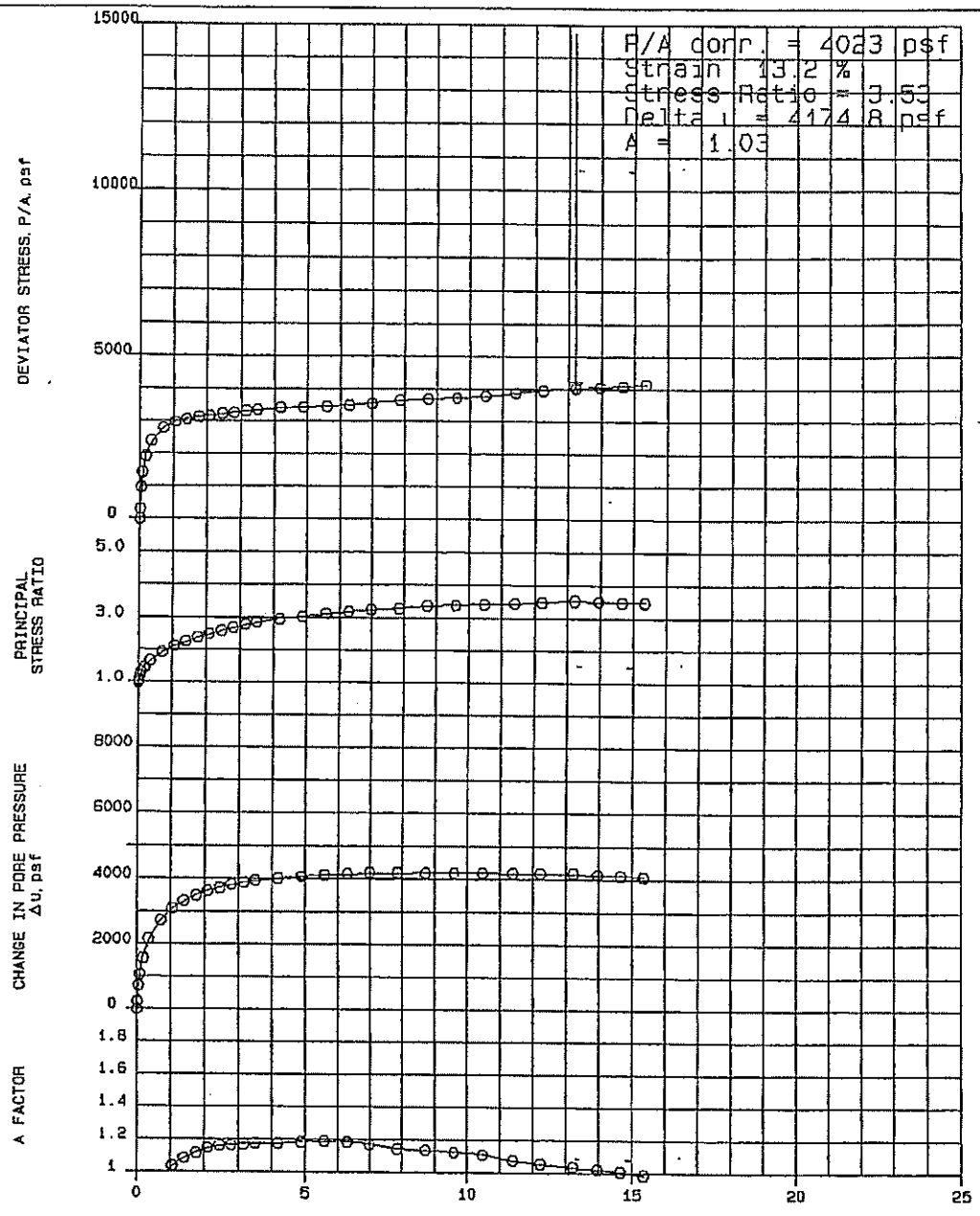
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	S8-54	TEST SERIES NO.	400
SAMPLE	ST-1	DATE	Feb.04
DEPTH	42.0-42.5'		
TECH.	MST		
REVIEWER		FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO.

TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
400.1.2	45.9	76.8	5.875 2.825	5.76	8.64	7.2	97.8	40.6	82.8	.051

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 0

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

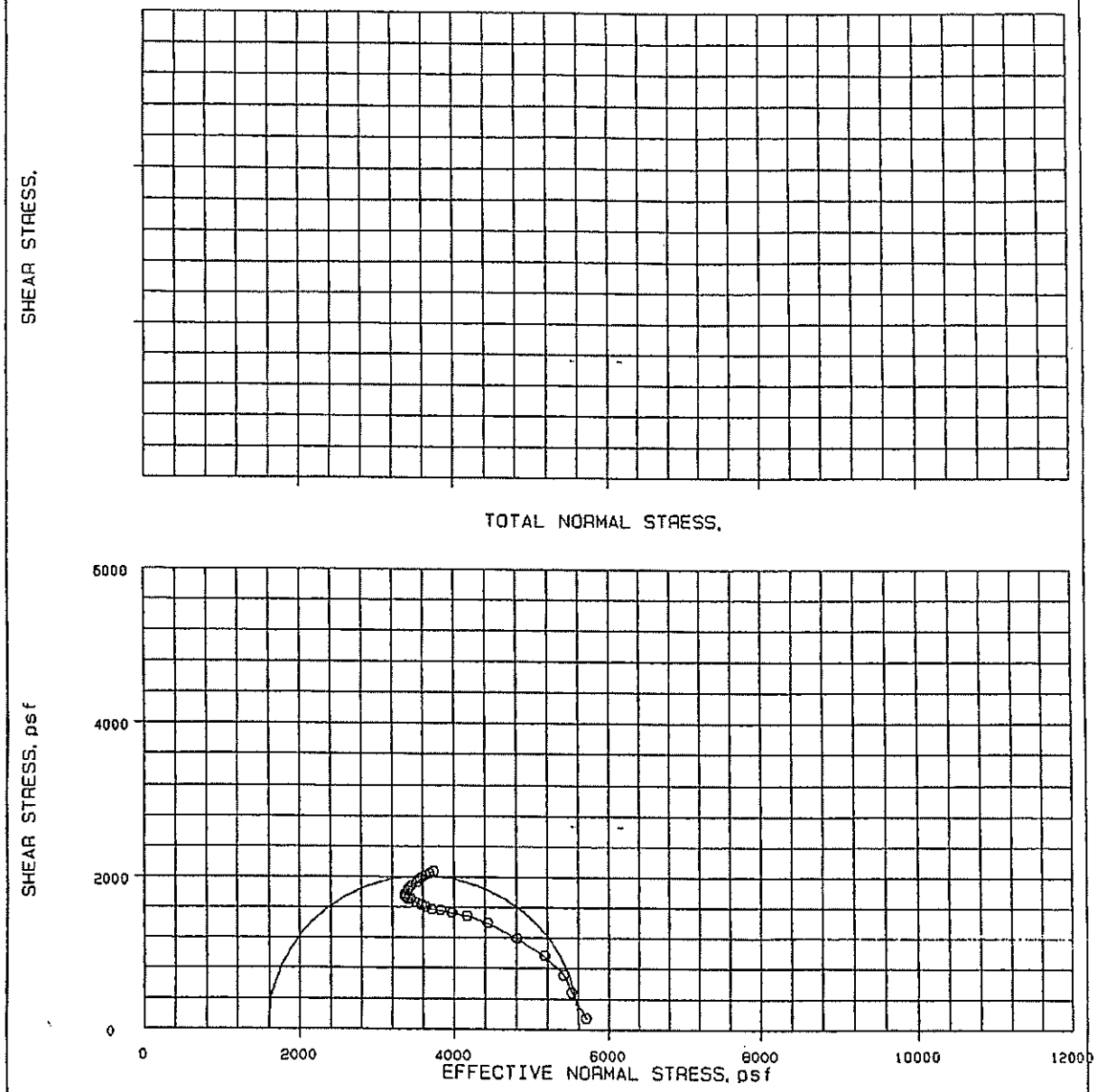
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO. SB-54
SAMPLE ST-1
DEPTH 42.5-43.0'
TECH. MST
REVIEWER

TEST SERIES NO. 400
DATE Feb.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet	
LIQUID LIMIT 0 %	PLASTIC LIMIT 0	SPECIFIC GRAVITY 0

FAILURE CRITERIA

REMARKS

σ_1/σ_3

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

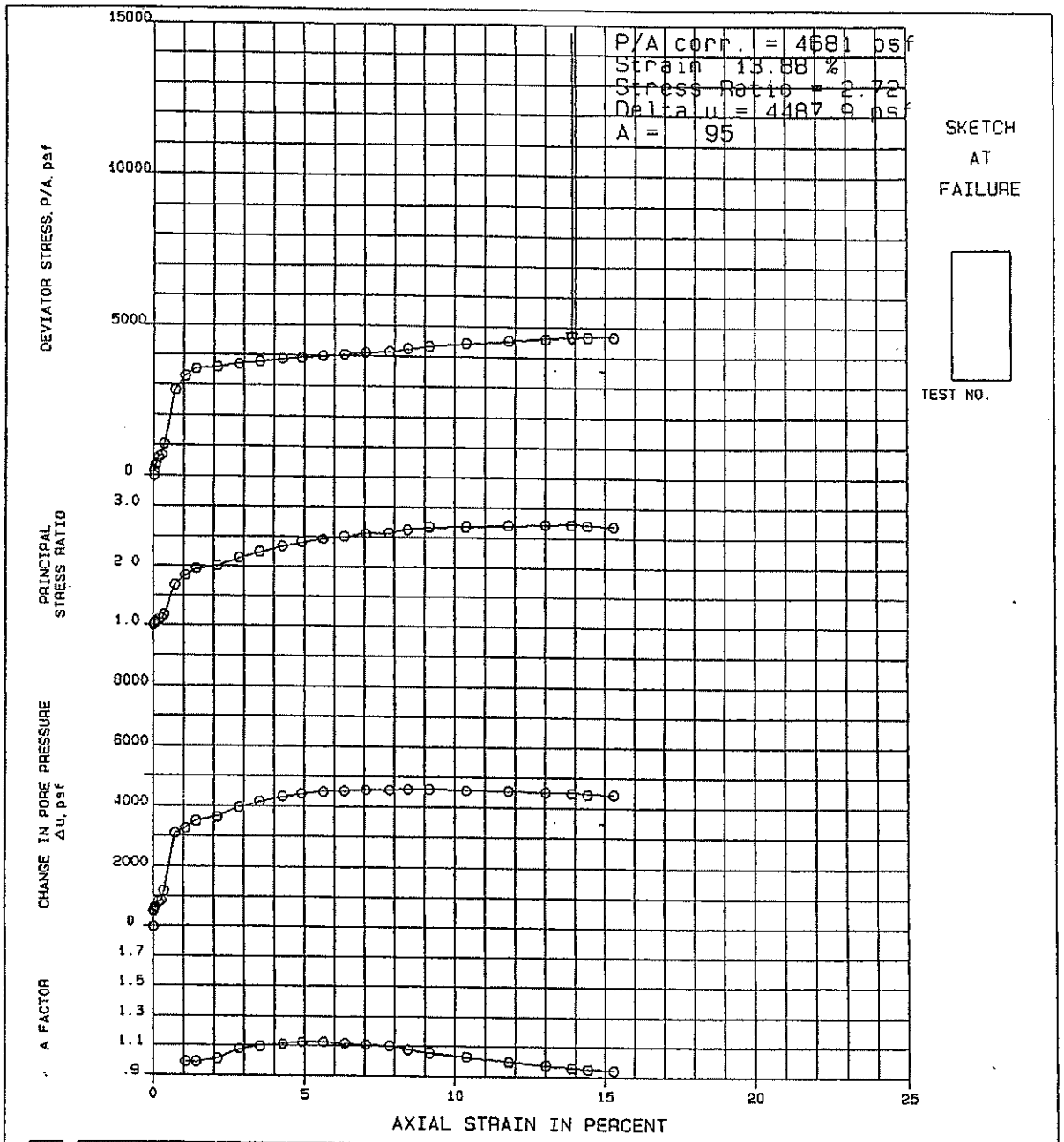
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	98-54	TEST SERIES NO.	400
SAMPLE	ST-1	DATE	Feb.04
DEPTH	42.5-43.0'		
TECH.	MST		
REVIEWER		FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO /SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
400.1.3	46.1	76.6	5.855 2.81	7.2	8.64	8.4	94	38.7	83.7	.031

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 0

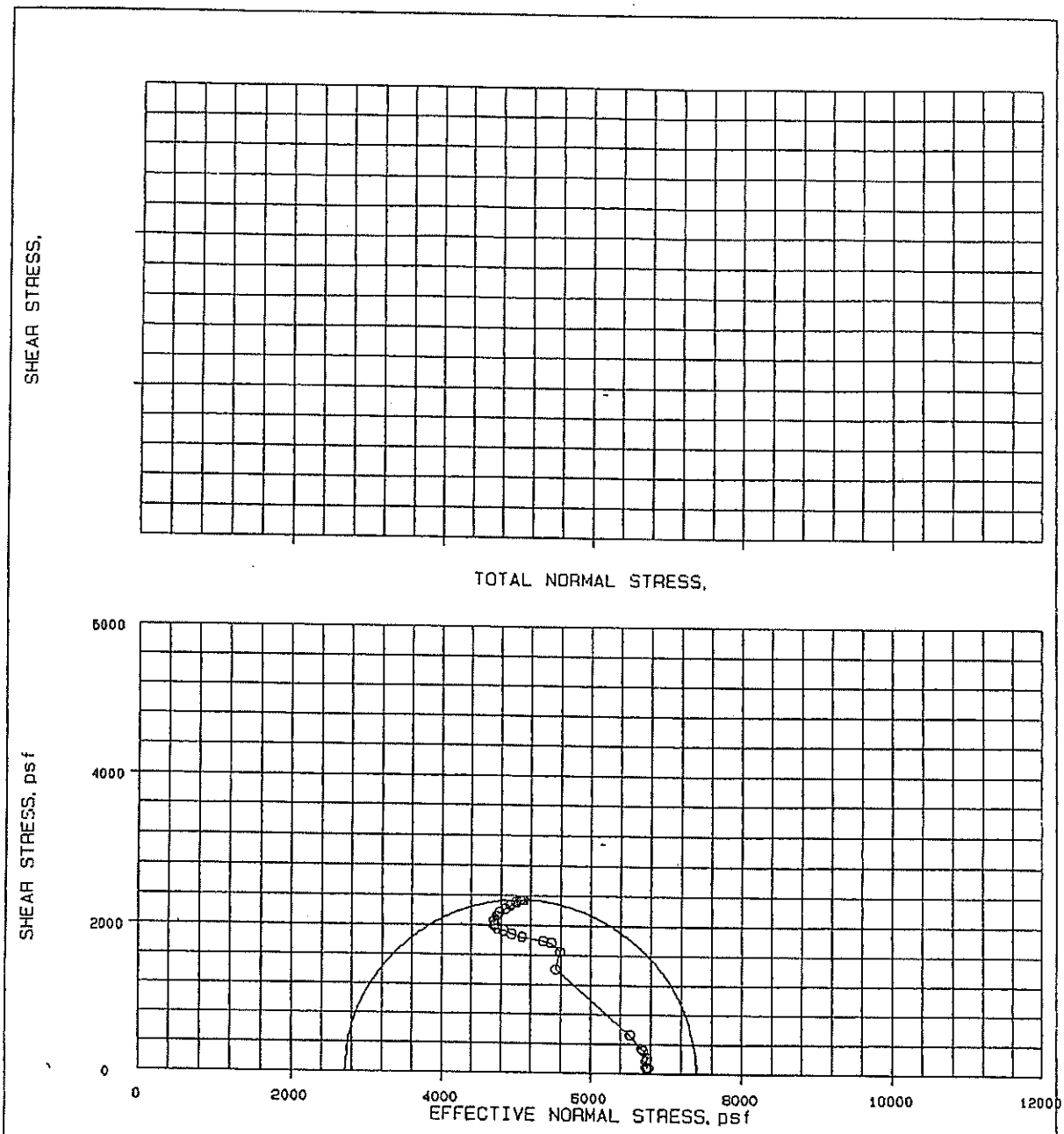
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

FIGURE

BORING NO SB-54
SAMPLE ST-1
DEPTH 43.0-43.5'
TECH. MST
REVIEWER

TEST SERIES NO. 400
DATE Feb.04
FILE L17628

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet	
LIQUID LIMIT 0 %	PLASTIC LIMIT 0	SPECIFIC GRAVITY 0

FAILURE CRITERIA

REMARKS

σ_1/σ_3

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-54	TEST SERIES NO.	400
SAMPLE	ST-1	DATE	Feb.04
DEPTH	43.0-43.5'		
TECH.	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

UNCONFINED COMPRESSION TEST

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Mar.04
Reviewed By: Don Schulze
Date Reviewed: 3/8/04

Boring/ Test Pit No.	Sample No.	Depth Ft.	Lab No.	Sample Data: Water Content %	Do in.	L in.	(1) Unit Wt. PCF	(2) Wet Density PCF	Bulk Gs.	(3) Other Tests	Compression Tests: (4) Strength KSI	(5) Strain %	(6) Conf. Stress	(7) E tan PSI EE+06	(8) E sec PSI EE+06	(9) Poisson's Ratio	σT KSI	Is_{50} KSI	Rock Formation or Description or Remarks
SB-25		33.8-34.3	428		1.993	4.412	164.0			U	7.53								
SB-26		50.2-50.7	429		1.962	4.195	166.5			U	7.77								
SB-27		61.0-61.4	430																Sample not testable due to fracture along bedding plane
SB-28		54.0-54.5	431		1.979	4.495	163.0			U	11.87								
SB-29			432																Sample not received
SB-30			433																Sample not received
SB-31		42.8-43.3	434		1.969	4.205	162.6			U	7.72								
SB-35		30.8-31.4	435		1.974	4.321	162.6			U	9.97								
SB-36		37.9-38.7	436		1.974	4.150	164.2			U	8.01								
SB-42		43.1-43.4	437		1.975	3.691	161.9			U	8.00								
SB-43		27.9-28.4	438																Sample not testable due to fracture along bedding plane

(1) Volume Determined By Measuring Dimensions
(2) Determined by Measuring Dimensions and Weight of Saturated Sample
(3) P=Petrographic PI.D=Point Load (diametrical), PI.A= Point Load (Axial) RST= Splitting Tensile U= Unconfined Compressive Strength

(4) Taken at Peak Deviator Stress
(5) Strain at Deviator Stress
(6) Represents Confining Stress on Triaxial Tests
(7) Represents Tangent Modulus at 50% of Total Failure Stress
(8) Represents Secant Modulus at 50% of Total Failure Stress
(9) Represents Secant Poisson's Ratio at 50% of Total Failure Stress

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Mar.04
Reviewed By: Don Schulze
Date Reviewed: 3/11/04

Boring/ Test Pit No.	Sample No.	Depth Ft.	Lab No.	Sample Data: Water Content %	Do in.	L in.	(1) Unit Wt. PCF	(2) Wet Density PCF	Bulk Gs.	(3) Other Tests	Compression Tests: (4) Strength KSI	(5) Strain %	(6) Conf. Stress	(7) E tan PSI EE+06	(8) E sec PSI EE+06	(9) Poisson's Ratio	στ KSI	Is_{50} KSI	Rock Formation or Description or Remarks
SB-44		65.0-65.5	439		1.965	4.394	156.9			U	* 4.45								* Sample failed on joint plane
SB-89		27.3-27.7	440		1.961	4.365	159.2			U	7.45								
SB-90		90.8-91.2	441																Sample not testable due to fracture along bedding plane
SB-92		42.0-42.4	442		1.941	3.846	158.7			U	4.73								
SB-95		16.8-17.4	443		1.981	4.314	161.6			U	10.06								
SB-96		16.8-17.3	444																Sample not testable due to fracture along bedding plane
SB-98		21.0-21.5	445		1.971	4.036	160.9			U	6.23								* Sample failed on joint plane
SB-99		37.6-38.0	446																Sample not testable due to fracture along bedding plane
SB-31		43.5-43.9	447		1.974	4.255	161.5			U	6.05								
SB-16		48.3-48.9	448		1.961	4.092	159.5			U	4.47								

(1) Volume Determined By Measuring Dimensions
(2) Determined by Measuring Dimensions and Weight of Saturated Sample
(3) P=Petrographic PLD=Point Load (diametrical). PLA= Point Load (Axial) RST= Splitting Tensile U= Unconfined Compressive Strength

(4) Taken at Peak Deviator Stress
(5) Strain at Deviator Stress
(6) Represents Confining Stress on Triaxial Tests
(7) Represents Tangent Modulus at 50% of Total Failure Stress
(8) Represents Secant Modulus at 50% of Total Failure Stress
(9) Represents Secant Poisson's Ratio at 50% of Total Failure Stress

Corrosivity Test Results

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs
Date Received: 02/04/2004
Work Order #: 0402-01543

Approved by: R.I. Analytical

Sample # 003
SAMPLE DESCRIPTION: LAB #411 SB-39 S-2 (4.5-6.0)
SAMPLE TYPE: COMPOSITE SAMPLE DATE/TIME: —

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	7.2		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.087		MEGOHM-CM	SM2510 B	02/05/2004	CCP
SULFATE	<160	160	mg/kg dry	SM4500-SO4 E	02/10/2004	EC
SULFIDE	<2.5	2.5	mg/kg dry	EPA 276.2	02/09/2004	EC
CHLORIDE	<160	160	mg/kg dry	SM4500-CL B	02/10/2004	EC

Chloride, Sulfate, and Sulfide - Analysis performed on water soluble portion of sample.

Sulfate and Chloride - Increased detection limit due highly colored sample which interfered with test methodology.

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

Sample # 004
SAMPLE DESCRIPTION: LAB #413 COMPOSITE SB-54
SAMPLE TYPE: COMPOSITE SAMPLE DATE/TIME: —

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	6.6		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.069		MEGOHM-CM	SM2510 B	02/05/2004	CCP
SULFATE	<420	420	mg/kg dry	SM4500-SO4 E	02/10/2004	EC
SULFIDE	<2.5	2.5	mg/kg dry	EPA 276.2	02/09/2004	EC
CHLORIDE	<830	830	mg/kg dry	SM4500-CL B	02/10/2004	EC

Chloride, Sulfate, and Sulfide - Analysis performed on water soluble portion of sample.

Sulfate and Chloride - Increased detection limit due highly colored sample which interfered with test methodology.

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs
Date Received: 02/04/2004
Work Order #: 0402-01543

Approved by: R.I. Analytical

Sample # 010
SAMPLE DESCRIPTION: LAB #414 SB-54 S-8 (22.5-24.5)
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** ---

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	7.4		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.026		MEGOHM-CM	SM2510 B	02/05/2004	CCP

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

Sample # 011
SAMPLE DESCRIPTION: LAB #416 SB-59 S-7 (19.5-21.0)
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** ---

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	7.7		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.013		MEGOHM-CM	SM2510 B	02/05/2004	CCP

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.