### GEOTECHNICAL EVALUATION

# PROPOSED HAMPTON INN PITKIN STREET EAST HARTFORD, CONNECTICUT

PROJECT NO. 05490G SEPTEMBER 30, 2005



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# PROPOSED HAMPTON INN PITKIN STREET EAST HARTFORD, CONNECTICUT

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Prepared for:

Mr. George Gamache Adams Associates 90 Lewis Street Walpole, MA 02081 September 30, 2005

Mr. George Gamache Adams Associates 90 Lewis Street Walpole, MA 02081

Advance Copy by Fax

Re: Geotechnical Evaluation

Proposed Hampton Inn

Pitkin Street

East Hartford, Connecticut JGI Project No. 05490G

Dear Mr. Gamache:

JGI EASTERN, Inc. (JGI) is pleased to provide this report regarding a geotechnical evaluation for the above-referenced project. The report includes our assessment of subsurface conditions for foundation design and earthwork construction for the proposed development. Our work, which was completed in general accordance with our proposal dated July 15, 2005, is subject to the Limitations in Appendix A of this report. Environmental issues were not part of the assignment.

#### **SITE AND PROJECT DESCRIPTION**

The project site is located southeast of the intersection of Pitkin Street and East River Road, within the paved parking area of Founders Plaza in the City of East Hartford, Connecticut, as shown on Figure 1, Site Location Map. The site is generally level at approximate Elevation (El) 19.5 feet.

The project consists of the construction of a 5-story, 121-room, Hampton Inn hotel with a footprint of approximately 15,000 square feet. Parking is planned to the east, south, and west of the building. A 5,000-square foot restaurant outparcel is planned for the southeast corner of the site. However, we did not advance test borings at the restaurant location; this report does not provide foundation recommendations for the restaurant. We understand that the finished floor elevation (FFE) of the hotel will be at El 21.5, requiring placement of approximately 2 feet of fill. The existing general site layout and proposed development are shown on Figure 2, Subsurface Exploration Location Plan.

#### SUBSURFACE EXPLORATIONS AND CONDITIONS

JGI monitored the advancement of 6 test borings (JB-1 through JB-6) by New England Boring Contractors, Inc. of Glastonbury, Connecticut on August 10, 11, and 15, 2005. JB-2 through JB-5 were advanced within the proposed building footprint. JB-1 and JB-6 were advanced within the proposed parking and below-pavement stormwater infiltration system areas. JB-2, JB-4, and JB-5 were drilled with 4½-inch diameter solid-stem augers to a depth of 15 feet, and continued with a roller bit in 3-inch inside diameter flush wall casing (FWC) and a roller bit to refusal, probably on bedrock, at depths ranging 90.4 to 91.4 feet below the existing ground surface. JB-3 was advanced in a similar manner, but only to a depth of 52 feet. JB-1 and JB-6 were advanced with 4½-inch diameter solid-stem augers to a depth of 17 feet. Sampling was performed with a standard 2-inch outside diameter split-barrel sampler are intervals ranging from continuous near the surface to 10 feet at depth. Standard Penetration Tests (SPTs) were performed at sampling intervals, in general accordance with ASTM D1586. The approximate test boring locations are shown on Figure 2. Visual classifications of encountered soils are presented on the test boring logs in Appendix B.

The subsurface profile generally consists of asphalt/topsoil/fill over an alluvial deposit, which is underlain by a glaciofluvial deposit. The glaciofluvial deposit is underlain by a layer of glacial till over bedrock. Asphalt (2 inches) was encountered at the surface in JB-1, JB-4, and JB-6, and at a depth of 2.3 feet in JB-3. Topsoil (5 to 7 inches) was encountered in JB-2 and JB-5. The fill, very loose to medium dense, light brown, to red/brown, coarse to fine sand, trace to and gravel, little to some silt was encountered within all of the explorations and extends to depths ranging from 2 to 6 feet below the existing ground surface. The alluvial deposit, encountered below the fill in all of the explorations, varies from a loose, brown, fine sand, little to some silt, to a medium dense, brown, coarse to fine sand, little to some silt, trace to little gravel. The alluvial deposit has a thickness ranging from about 26 to 35 feet. The glaciolacustrine deposit, consisting of soft, red/brown, clay and silt, was encountered under the alluvial deposit at depths ranging from 32 to 39 feet below existing grade. The layer of glacial till, consisting of hard red/brown clay and silt, some gravel, was encountered at a depth of 85 feet in JB-4. The glacial till was encountered at a depth of 90 feet in JB-5, and was not encountered in JB-2. However, because of extended sampling intervals at this depth, JB-4 may be more representative of the glacial till thickness. Refusal, on bedrock was encountered in JB-2, JB-4, and JB-5 at depths of 90.4, 90.9, and 91.4 feet, respectively.

Depth to bedrock was implied by roller bit refusal in three of the test borings. The bedrock was not cored. Based on our review of the Bedrock Geological Map of Connecticut (1985), the bedrock underlying the site consists of arkose, commonly referred to as brownstone.

Groundwater was observed at depths ranging from 10.5 to 15.0 feet. However, groundwater levels may vary depending upon season, precipitation, and other conditions that may be different from those at the time of drilling. Groundwater may temporarily perch above silty layers within the alluvial deposit.

Mr. George Gamache Page 3 September 30, 2005

#### PERMEABILITY TESTING

Falling head permeability tests were performed where below-pavement stormwater infiltration systems may be constructed. The locations Perm 1 and Perm 2 are shown on Figure 2.

A 5-foot length of 4.1-inch inside diameter polyvinyl chloride (PVC) pipe was pushed a couple of inches into the native alluvial deposit at each location. A few inches of coarse sand was placed in the bottom of each PVC pipe to reduce disturbance to the alluvial soils as water was poured in. The falling head permeability test was performed by filling the PVC pipe to the top and measuring the incremental drop in water level for approximately 320 minutes. The permeability test results are included in Appendix C.

#### GEOTECHNICAL ENGINEERING RECOMMENDATIONS

#### **General Evaluation**

Under a surficial 2- to 6-foot thick layer of unsuitable fill, the site is underlain by a substantial thickness of generally loose alluvial deposit, then by a thick glaciolacustrine deposit with loose/soft layers. Shallow spread footings are not appropriate for the hotel. We will be able to provide foundation recommendations specifically for the restaurant in a separate report after drilling test holes at the restaurant location. Based on our knowledge of compressible soils in the East Hartford area, these soil layers may consolidate approximately 5 to 7 inches under the added weight of thickness of fill and from proposed building loads. Therefore, we recommend a piled foundation and pile-supported structural slab for the building.

From our experience of monitoring pile driving in the immediate area, the length of piles to the deep bedrock, and the difficulty of impact driving piles through silty soils, we consider that a non-displacement type pile, such as a steel H-pile, is appropriate. Even with non-displacement type piles, a vibratory hammer will likely be required, as side friction within siltier portions of the alluvial or glaciolacustrine deposits can impede or prevent impact driving. We have selected a pile type and size based on these considerations and your imposed loads.

#### Foundation Type and Design Criteria

In light of the above, we recommend that the hotel building columns and floor slab be supported on steel H-piles with a yield strength  $(f_y)$  of 50 kips per square inch, deriving vertical capacity through end bearing in the bedrock. An HP 12 X 74 section would be appropriate and would allow for 1/8 inch of corrosion. Protective points from Associated Pile & Fitting, LLC, or similar, should be attached to the toe of the pile. The allowable vertical effective load-carrying capacity of these H-piles is estimated to be 100 tons. This capacity and the associated driving refusal criterion should be confirmed by the selected piling contractor on the basis of wave equation analysis when the pile driving hammer has been chosen. Since each pile will have a design load in excess of 40 tons, we recommend that at least one vertical pile load test be performed to confirm that the safety factor is at least 2.0. Settlement of the pile foundations, bearing on competent bedrock, should be negligible.

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The allowable pile capacity is net of pile downdrag load, which we estimate to be up to about 4 tons per pile. Downdrag occurs as the compressible soils settle relative to the pile tip due to the additional 2.0 feet of fill, which we understand will be placed to reach finished grade.

Piles should be spliced with an appropriate splicer or full depth welding. However, splices should not be made in the upper 15 feet of the pile.

The number of piles installed per column will depend primarily on the eccentric loading of the pile group. A column is stable if supported by at least three piles. However, fewer piles can be used if grade beams or structural floors are designed to resist bending moments caused by eccentricity. Single piles may be used to support floor slab loads between column locations. Based on column and point loads, we consider that three piles will likely be required for each interior column support. The minimum pile spacing (center-to-center) should be 30 inches.

Lateral capacity of vertically installed piles is primarily dependent on the type and consistency of the soil against which the pile is pressed by the horizontal load, in this case the fill, alluvial, and glaciolacustrine soils that underlie the entire site. The thickness and consistency of each deposit is variable. Thus, the lateral capacity will be vary. Vertical HP 12 X 74 steel H-pile sections, oriented with the flange perpendicular to the direction of maximum lateral load, should have allowable lateral capacities of at least 4.0 kips. Lateral capacities for the H-pile section assumes up to 0.25-inch lateral deflection at the top of the pile. This estimate of lateral capacity is for piles securely tied into pile caps or grade beams (fixed head), as anticipated for the building. If these lateral capacities are not sufficient for portions of the building, we can review each location based on an adjacent test boring. Higher lateral capacities may be feasible. However, we may recommend that lateral load testing be performed to more accurately estimate pile lateral load capacity. Batter piles are not an option at the site because of the effect on sloping piles of settlement of the compressible soils following placement of the additional fill.

Sliding resistance between the existing fill/imported fill and concrete surfaces, such as pile caps or grade beams, should not be relied upon; the fill will settle away from the underside of pile caps or grade beams reducing sliding resistance to zero.

The underside of exterior pile caps and grade beams should be at least 3.5 feet below the adjacent finished grade, to reduce the likelihood of the detrimental effects of frost heave. Interior pile caps and/or grade beams may be placed higher, provided they will not be exposed to freezing temperatures.

Floor loads should be transferred into the piled foundation through the recommended structural floor slab. However, to provide a suitable base for forming and placing the floor slab, we recommend that an approximately 6-inch thick layer of a free draining, compacted structural fill be placed. Unless attached to the piles or structural slab, utilities will settle as the underlying alluvial and glaciofluvial deposit consolidate. A vapor barrier should be incorporated into the structural slab design.

#### **Lateral Earth Pressures**

Given the general site topography and the type of building, large retaining structures are unlikely. However, loading docks and other retaining structures, if constructed, should be pile supported. Piles similar to those recommended for the building would be appropriate. However, depending on lateral capacity, a smaller pile section may be used as the vertical loading will be less than for building loads. H-piles should be oriented with the flange perpendicular to the direction of maximum lateral load to take advantage of the full lateral capacity of the pile section.

The retaining structures and supporting piles should be designed to resist combined lateral forces resulting from static soil pressures, surcharges, and additional pressures under seismic events. Surcharge due to water pressure may be neglected, if geotextile wrapped foundation drains are installed behind the retaining wall adjacent to the footing. Retaining walls that are restrained, i.e. the top of the wall is fixed or braced, should be designed on the basis of the "non-yielding" parameters presented below. Retaining walls that are free to rotate may be designed on the basis of the "yielding" parameters. Other surcharge loads should be considered where they are located within a horizontal distance equal to 1.5 times the height of the wall. The following design criteria are recommended for yielding and non-yielding walls:

	Yielding	Non-Yielding
Static Lateral Earth Pressure	38 pcf	60 pcf
(Compacted structural fill as equivalent fluid	(pounds per cubic foot)	
unit weight)		
Traffic Surcharge	70 psf	110 psf
(Distributed uniformly over height of wall)		
Seismic Forces	11H psf/foot	11H psf/foot
	(distributed as an	(uniform pressure
	inverse triangle)	distribution)

Note: H is equal to the exposed height of the wall, i.e. above the permanent ground level in front of the wall. Surcharge stresses due to point loads, line loads, and those of limited extent such as compaction equipment should be evaluated using elastic theory.

Retaining structures should be backfilled evenly to the extent practical. Temporary bracing should be specified if walls that are designed to be supported by other structural elements, are permitted to be backfilled before the permanent support is in place. Because of settlement of the underlying organic deposit following placement of the proposed fill layer, friction at the soil-concrete interface should be ignored in calculating lateral resistance.

Lateral pressures based on the above parameters are cumulative for computing overall factors of safety. To account for effect on the wall of compaction equipment during construction, the lateral pressure should not be less than 200 psf, distributed uniformly over the height of the wall.

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We recommend that a passive earth pressure coefficient,  $K_p$ , of 3.0 and a dry unit weight for the soil of 110 pcf be used for calculating the passive soil resistance to lateral loading. The passive pressure calculated with these parameters should be reduced by at least a factor of safety of 3, to reflect the amount of movement required to mobilize the passive resistance.

#### Seismic Design Criteria

The subsurface conditions were reviewed in accordance with the Connecticut State Building Code, which incorporates *The BOCA National Building Code* – 13th *Edition*. For calculation of the lateral seismic forces on the structure, the soil profile is considered to be type  $S_4$ . The recommended site coefficient (S) for seismic design is 2.0. The site does not appear to be susceptible to liquefaction in the event of an earthquake.

#### **Pavements**

Flexible pavement designs for standard- and heavy-duty sections were based on AASHTO Guide for Design of Pavement Structures (1993) and our experience with similar projects. The thickness of each course is a function of subgrade strength, traffic, design life, serviceability factors, and frost susceptibility. A 20-year design life and 30,000 18-kip Equivalent Axle Loads (EALs) were used in the design of standard-duty pavement. A 20-year design life and 100,000 EALs were used in the design for heavy-duty pavement. A CBR value of 6 was considered appropriate for the underlying soils. A summary of design recommendations is presented below. Reference has been made to the State of Connecticut Department of Transportation (CTDOT) Standard Specifications for Roads, Bridges and Incidental Construction (Form 816) 2004.

	Thickness (	(inches)
Pavement Material	Standard Duty	<b>Heavy Duty</b>
Bituminous Concrete Wearing Course	1.5	1.5
CTDOT M.04.03 Class 2	1.3	1.5
Bituminous Concrete Binder Course	1.5	2.5
CTDOT M.04.03 Class 1	1.3	2.3
Granular Base CTDOT M.02.06 Grading C	6.0	6.0
Bank or Crushed Gravel CTDOT M.02.06 Grading B	6.0	6.0

The granular base should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D1557, Method C. Bituminous concrete should be placed in general accordance with CTDOT standards and compacted to at least 92 percent as compared to Marshall test methods.

#### **Compacted Fill**

Structural fill is typically used where support for structural elements is required. However, we have recommended that a thin layer of structural fill be placed under the structural slab. Common fill may be used elsewhere on the site, because the building and floor slab will be pile supported. We

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recommend that the maximum size of the common fill be reduced from 8 to 3 inches where common fill is placed against concrete elements.

**Structural Fill:** Structural fill should be free of organic, frozen, or other deleterious material and conform to the gradation requirements in Table 1. Structural fill should be placed in loose lifts not exceeding 12 inches thick for self-propelled vibratory rollers, and 8 inches for vibratory plate compactors. Structural fill should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D 1557.

Common Fill: Common fill should consist of mineral soil free from frozen soil, debris, or other deleterious material. The recommended maximum particle size for imported common fill is 8 inches. No more than 25 percent by weight should pass the No. 200 sieve. Common fill should be placed in the lift thicknesses recommended above for structural fill, and should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D 1557, under roadway and parking areas, which cover most of the site. In landscaped areas, a 92 percent compaction criterion would be appropriate.

#### **CONSTRUCTION CONSIDERATIONS**

#### **Compaction of Existing Fill**

Prior to placing common fill to raise the site grade in parking areas and along access roadways, asphalt and topsoil should be removed. The exposed subgrade consisting of previously placed fill should be proofrolled with at least 6 passes of a minimum 10-ton vibratory roller. During the proofrolling process, the subgrade should be observed by a geotechnical engineer, or his/her representative, for the presence of soft/loose zones. Soft/loose zones or unstable areas, if encountered, should be overexcavated to more competent subgrade and replaced with common fill. Once proofrolling has been completed satisfactorily, common fill may be placed.

Within the area of the building, which will be pile supported, limited proofrolling should be performed, such that a suitable working surface can be prepared for forming pile caps and grade beams and supporting the slab reinforcing steel.

#### **Construction Dewatering**

Based on the observed depths to groundwater, significant dewatering is not anticipated during construction. Dewatering, if required, may generally be accomplished by pumping from filtered sumps containing crushed stone.

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The contractor should maintain a stable subgrade during construction to allow the placement of pile caps, grade beams and the structural slab. The contractor should prevent groundwater, if encountered, and surface water runoff from collecting in excavations. Subgrade soils that become unstable should be replaced with compacted structural fill or crushed stone, to the extent necessary to facilitate placement of concrete.

#### **Pavement**

Pavement subgrade will comprise the common fill that has been placed and compacted to raise the site grade. However, prior to placing pavement subbase, the surface of the fill should be proofrolled with at least 6 passes of a minimum 10-ton vibratory roller. During the proofrolling process, the subgrade should be observed by a geotechnical engineer, or his/her representative, for the presence of soft/loose zones. Such soft/loose zones or unstable areas, if encountered, should be overexcavated to more competent subgrade and replaced with common fill. Once proofrolling has been completed satisfactorily, the granular subbase course may be placed.

#### **Temporary Excavations**

Excavations greater than 4 feet deep may be required for construction. Temporary construction slopes should be designed in compliance with recent governing regulations. Construction slopes should be cut to a stable incline or braced, depending upon the excavation depth and encountered subsurface conditions.

Construction slopes should be observed for signs of mass movement. If movement and/or potential stability problems are observed, work should cease; the geotechnical engineer should be immediately contacted. The responsibility for excavation safety and stability of temporary construction slopes should lie solely with the contractor.

#### **Potential Impact of Weather on Earthwork Activities**

The predominant soil subgrade will consist of either common fill placed to raise grade or the existing fill. While the common fill specification has an appropriate maximum fines content for compaction under most conditions, portions of the existing fill may have an elevated silt content. Existing fill with a higher silt content will be sensitive to moisture and difficult to proofroll or compact during wet periods. Contractors experienced in earthwork construction in New England should be aware of the silty soil behavior and the effect that moisture and inclement weather can have on its workability. If a contractor bids construction knowing that earthwork must begin during the winter or wet months, the contractor should have a contingency to use off-site suitable fill, and dispose on-site soils that become unsuitable.

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#### **DOCUMENTATION REVIEW AND CONSTRUCTION MONITORING**

JGI should be given the opportunity to review final design drawings and specifications prior to bidding. The purpose of the review is to evaluate the appropriate implementation of recommendations provided in this report. By completing this review prior to the bidding process, the potential for misinterpretation of our recommendations by the bidders may be reduced.

During earthwork operations, we recommend that a qualified geotechnical engineer or his/her representative be on site full time to observe earthwork and construction activities, such as preparation of pile caps/grade beams and slab subgrades, suitability of backfill soil, and installation of piles. During the placement of fill, compactive efforts should be evaluated by field density testing. JGI would be pleased to provide these services.

If you have questions or require additional information, please contact our office. We thank you for this opportunity to have been of service and look forward to continuing our work with you as the project progresses.

Very truly yours,

JGI EASTERN, Inc.

Ryan R. Roy, P.E. Principal/Senior Engineer

Richard W.M. McLaren, P.E.

Senior Engineer

/ekc/05490G

copy: Ms. Shannon Rutherford - Vanasse Hangen Brustlin, Inc., Middletown, CT

Attachments: Figure 1 – Site Location Map

Figure 2 – Subsurface Exploration Location Plan

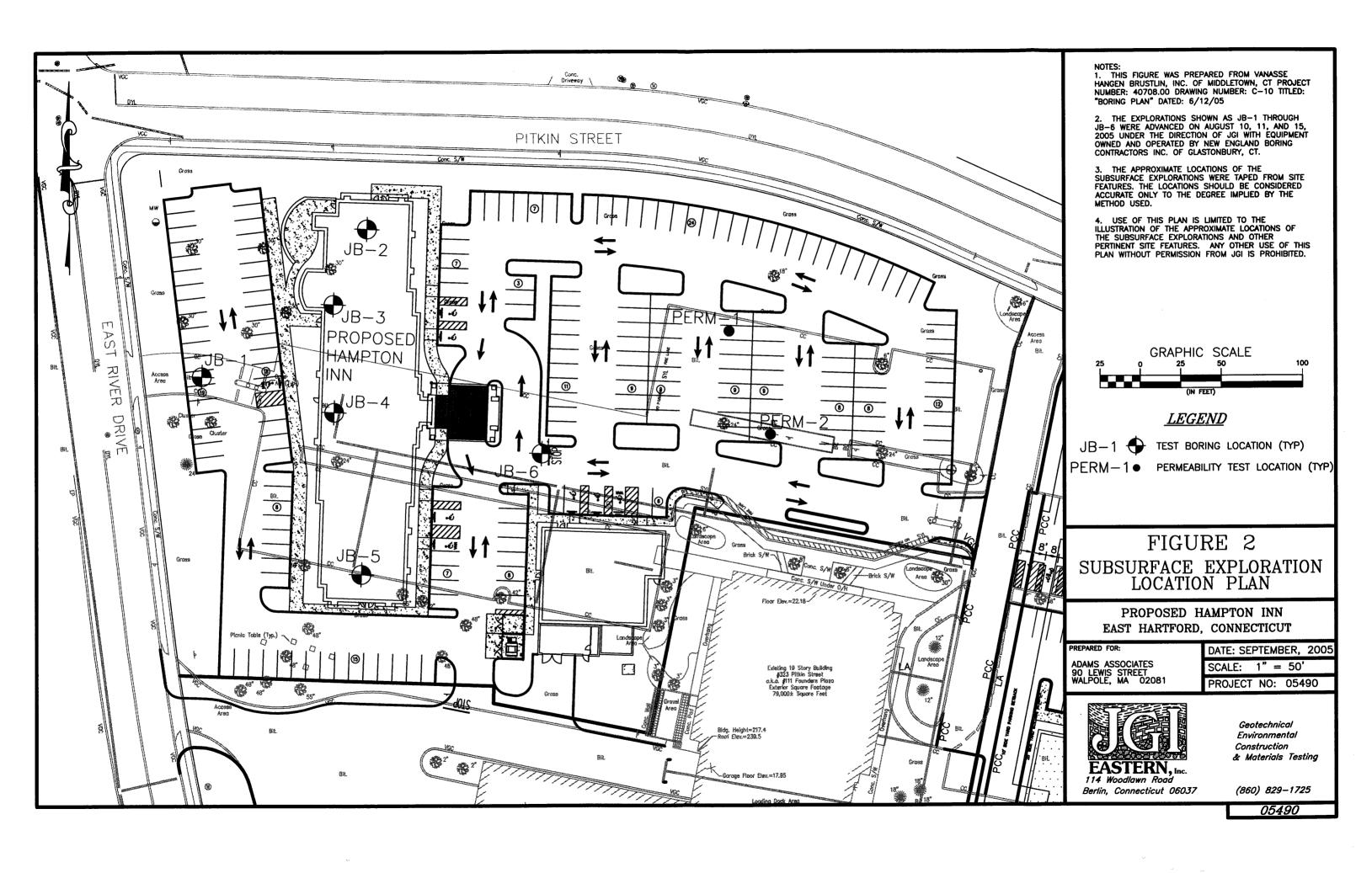
Table 1 – Gradation Specifications

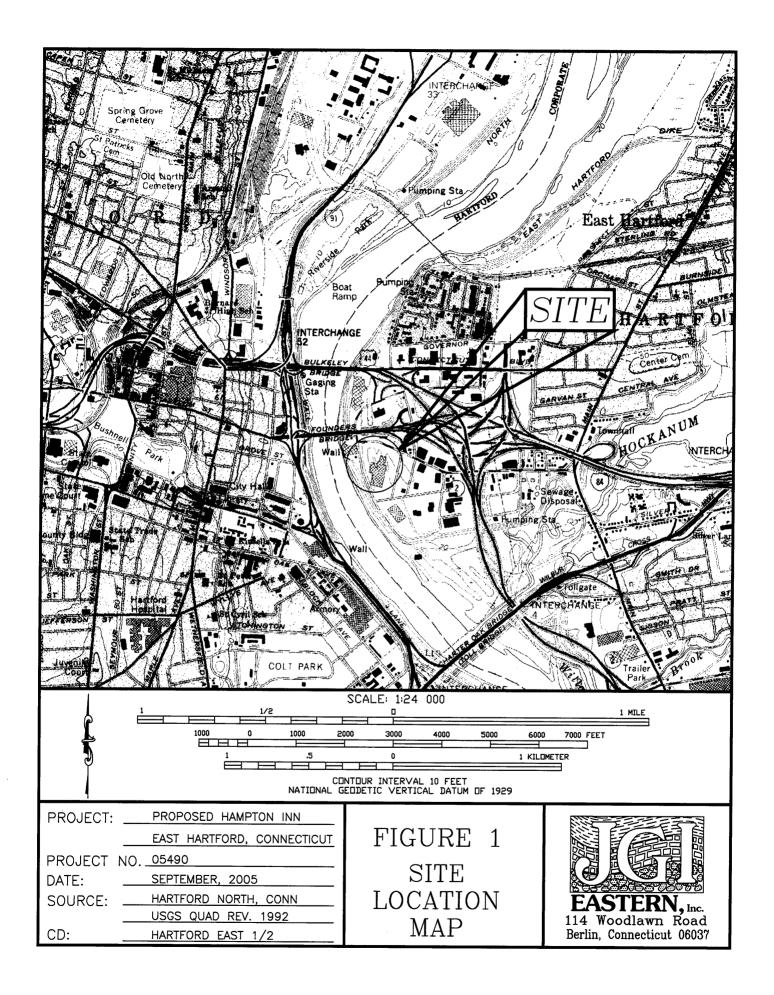
Appendix A – Limitations

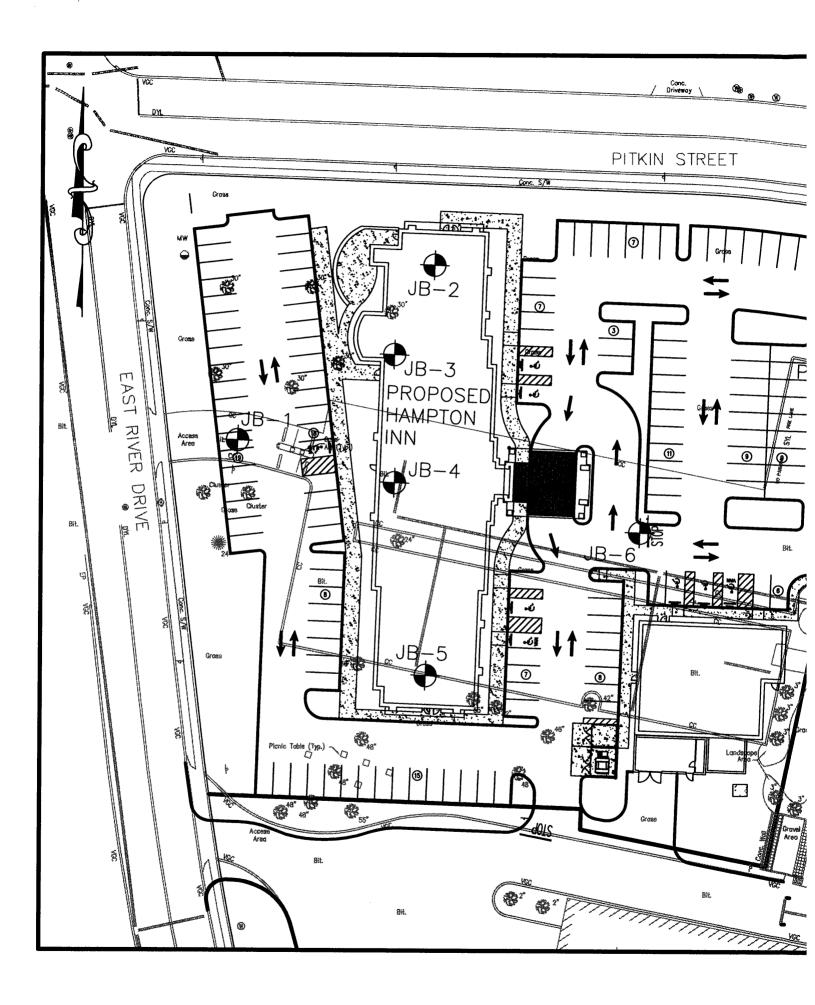
Appendix B – Test Boring Logs JB-1 thru JB-6

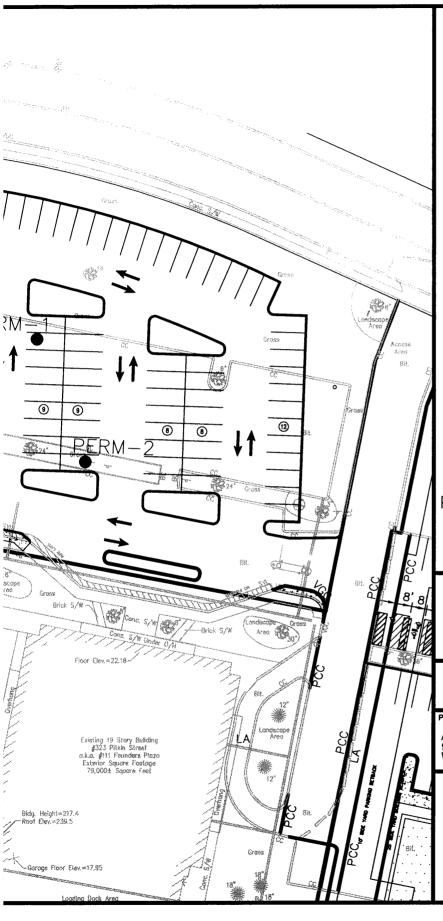
Appendix C – In-situ Falling Head Permeability Test Results

# Figures





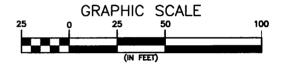




#### NOTE:

1. THIS FIGURE WAS PREPARED FROM VANASSE HANGEN BRUSTLIN, INC. OF MIDDLETOWN, CT PROJECT NUMBER: 40708.00 DRAWING NUMBER: C-10 TITLED: "BORING PLAN" DATED: 6/12/05

- 2. THE EXPLORATIONS SHOWN AS JB-1 THROUGH JB-6 WERE ADVANCED ON AUGUST 10, 11, AND 15, 2005 UNDER THE DIRECTION OF JGI WITH EQUIPMENT OWNED AND OPERATED BY NEW ENGLAND BORING CONTRACTORS INC. OF GLASTONBURY, CT.
- 3. THE APPROXIMATE LOCATIONS OF THE SUBSURFACE EXPLORATIONS WERE TAPED FROM SITE FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
- 4. USE OF THIS PLAN IS LIMITED TO THE ILLUSTRATION OF THE APPROXIMATE LOCATIONS OF THE SUBSURFACE EXPLORATIONS AND OTHER PERTINENT SITE FEATURES. ANY OTHER USE OF THIS PLAN WITHOUT PERMISSION FROM JGI IS PROHIBITED.



#### **LEGEND**

JB−1 <del>⊕</del>

TEST BORING LOCATION (TYP)

PERM−1 ● PE

PERMEABILITY TEST LOCATION (TYP)

## FIGURE 2 SUBSURFACE EXPLORATION LOCATION PLAN

PROPOSED HAMPTON INN EAST HARTFORD, CONNECTICUT

PREPARED FOR:

ADAMS ASSOCIATES 90 LEWIS STREET WALPOLE, MA 02081 DATE: SEPTEMBER, 2005

SCALE: 1" = 50'

PROJECT NO: 05490

FASTERN.

114 Woodlawn Road Berlin, Connecticut 06037 Geotechnical
Environmental
Construction
& Materials Testing

(860) 829-1725

05490

# Table

TABLE 1

Proposed Hampton Inn
Pitkin Street
East Hartford, Connecticut
Project No. 05490G

#### **Gradation Specifications**

Percent Passing by Weight

Sieve Size	Structural Fill	Granular <sup>1</sup> Base	Granular <sup>2</sup> Subbase	Common <sup>3</sup> Fill
8"				100
5"			100	
3½"			90 - 100	
3"				$(100)^3$
2"	100			
1½"		100	55 - 95	
3/4"	45 - 95	45 - 80		
1/4"		25 - 60	25 - 60	
No. 4	30 - 90			
No. 10	25 - 80	15 - 45	15 - 45	
No. 40	10 - 50	5 - 25	5 - 25	
No. 100		0 - 10	0 - 10	
No. 200	0 - 12	0 - 5	0 - 5	25

#### Notes:

<sup>&</sup>lt;sup>1</sup> From Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction, 2004 Form 816, Section M.02.06, Grading C.

<sup>&</sup>lt;sup>2</sup> From Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction, 2004 Form 816, Section M.02.06, Grading B.

<sup>&</sup>lt;sup>3</sup> Three inch maximum particle size when placed against concrete elements.

# Appendix A

#### **LIMITATIONS**

#### **Explorations**

- 1. The analyses, recommendations, and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, JGI EASTERN, Inc. (JGI) should re-evaluate the recommendations of this report.
- 2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual exploration logs.
- 3. Water level readings have been made in the test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, fluctuations in the level of the groundwater may occur because of variations in rainfall, temperature, and other factors differing from those at the time the measurements were made.

#### **Review**

- 4. JGI should be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided in this report.
- 5. In the event that changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by JGI.

#### Construction

6. JGI should be retained to provide geotechnical engineering services during the pile installation and earthwork phases of the project. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

#### **Use of Report**

- 7. This report has been prepared for the exclusive use of Adams Associates, and their architect and engineer, in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.
- 8. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to evaluation considerations only.

# Appendix B

PRO	J. NA	ME:	Proposed	l Hampton Ir	ın	наммі	CR.		SAM	PLER	CASING			SHEET I	OF 1
F - 1 - 1 - 1 - 1	CATIO	-1-1-1-1-1-1-1-1-1-1-1-1		tford, Conne	cticut	TYPE:	Safety			S	SSA		BORI		JB-1
	DJECT FE STA		05490 August 1	5 2005		SIZE: FALL:	140 lbs.			OD	4-1/4" Dia.		LOC	TION:	See Plan
	re eni	1010111111	August 1			FALL:	30"		Drop Metho	oa:	Winch/Cable	е	SURF	.EL:	19.5' ±
BOI	RING (	O.:	New Eng	land Boring	Contractors				GROUNI	OWATER	OBSERVA	TIONS			
		TION:	Glastonb			DATE		DEPTH	CASI		DUI			DRILLIN	G
	REMAI REP:		Mike St. Pat Came			8/15/05		12.0'	Rem	oved		10 Min	utes		
		SAM	IPLIN			1							St	rata	
Depth (ft)		Depth	Blows/	Penet./	1		S	Sample D	escription	l				ange	Notes
Dept	No.	(ft.)	6"	Rec. (in)				•	•					th (ft)	•
	SS-1	0-2	6-15	12/12	SS-1:	Asphalt	se to fine	SAND and G	ravel, little Silt.					0.3'	
	551		1 3	12/12	55 1.	rea, com	se to fine	ornino una o	iavei, indie ond			(***			
												(Fill)	 	2.0'	
	SS-2	2-4	5-3	24/22	SS-2:	Loose, br	own, fine	SAND, some	Silt, trace Grave	el.					
			4-5												
5	SS-3	4-6	4-3	24/20	SS-3:	Similar to	SS-2.								
			3-3												
	SS-4	6-8	5-6	24/24	SS-4:	Similar to	SS-3 ev	cept medium d	lense						
		1	6-7				,,	- F - modium (							
	SS-5	8-10	5-3	24/22	SS-5:	Loose, bro	own, coar	se to fine SAN	ND, some Silt, tr	ace Gravel.					
10			2-4												
15															
	SS-6	15-17	6-5	24/16	SS-6:	Similar to	SS-5, ex	cept medium	dense.						
			5-5								(Alluvial Dep	oosit)	ШШ		
						Exploration	on Termin	ated at 17.0'							
20															
25															
30			Notes:				Proport	ions Used: fr	ace (1-10%). li	ttle (10-20%	), some (20-35%	%), and (3	5-50%).		
							Cohesive	e Consistency	(Blows/ft.)	<u>C</u>	ohesionless Rela	tive Densi			
	TE						very soft	;	0-2 2-4		ery loose ose	0-4 4-10	,		
		30 50 V					medium	stiff	4-8	m	edium dense	10-3	0		
EA	STE	RN, Inc.					stiff very stif	f	8-15 15-30		ense ery dense	30-5 50+			
							hard		30+			_	Boring	No.	JB-1

LOC	J. NAI ATIO JECT	N:		l Hampton Ir tford, Conne		HAMMI TYPE: SIZE:	ER Safety 140 lbs.	SAMPLER SS 2" OD	<b>CASING</b> SSA / FWC 4-1/4" Dia. / 3" I.D.	SHEET IS BORING LOCATION:	IB-2
DAT	E STA	RT:	August 1			FALL:	30"	Drop Method:	Winch/Cable		
	E ENE		August 1		Contractors			CDAHNINI	R OBSERVATIO		19.5' ±
		O.: TION:	Glastonb		Contractors	DATE	DEPTH	CASING AT		INS ION AFTER DRILLING	
	EMAN	0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	Mike St.			8/12/05	10.5'	Removed		) Minutes	
JG1	REP:		Pat Came	eron				=			
_		SAN	1PLIN	G						Strata	
Depth (ft)		Depth	Blows/	Penet./	1		Sample D	escription		Change	Notes
De D	No.	(ft.)	6"	Rec. (in)						Depth (ft)	
	SS-1	0-2	1-4	24/18	SS-1:	Topsoil Medium	dense, white to brown,	coarse to fine SAND and (	Gravel, little Silt.	0.7'	
			14-30		1		,				
					1						
	SS-2	2-4	26-28	24/0	SS-2:	No Recov	very				
			6-4								
5	SS-3	4-6	5-5	24/2	SS-3:	Loose, da	ark brown, coarse to fine	e SAND and Gravel, some	Silt.		
			4-5						(Fill	6.0'	
			1								
					1						
10											
	SS-4	10-12	4-3	24/18	SS-4:	Loose, da	ark brown, fine SAND,	ittle Silt, trace Gravel.			
$\neg \uparrow$			2-2		1	,	-,,	,			
			2-2								
_											
15											
	SS-5	15-17	11-8	24/20	SS-5:	Medium o	dense brown coarse to	fine SAND, little Silt, trac	ce Gravel.		
							,,	,,			
			8-5		1						
$\dashv$											
20											
	SS-6	20-22	5-4	24/0	SS-6:	No Recov	very				
			6-8		1						
$\dashv$			0-8		1						
-											
_											
25											
	Ī										
$\neg \uparrow$					1						
+											
$\dashv$											
30											
			Notes:					race (1-10%), little (10-2			
			Boring adva	anced to a dept	of 15 feet with so	olid stem	Cohesive Consistency very soft	0-2	Cohesionless Relative very loose	Density (Blows/ft) 0-4	
	A		auger (SSA)	), and subseque	ntly advanced us	ing wash	soft	2-4	loose	4-10	
	CTE	EVSTONE	and drive tec casing (FW)		roller bit in flusl	h wall	medium stiff stiff	4-8 8-15	medium dense dense	10-30 30-50	
CA	OIE	RN, Inc.		**			very stiff	15-30	very dense	50+	
			L				hard	30+		Boring No.	JB-2

PROJ. NAME: Proposed Hampton Inn SAMPLER HAMMER CASING SHEET 2 OF 4 BORING: LOCATION: East Hartford, Connecticut TYPE: Safety SS SSA / FWC JB-2 PROJECT NO.: 05490 LOCATION: See Plan SIZE: 140 lbs. 2" OD 4-1/4" Dia. / 3" I.D. DATE START: August 15, 2005 FALL: 30" Drop Method: Winch/Cable DATE END: August 15, 2005 SURF, EL: 19.5' ± BORING CO.: GROUNDWATER OBSERVATIONS New England Boring Contractors CO. LOCATION: Glastonbury, CT DATE DEPTH CASING AT **DURATION AFTER DRILLING** FOREMAN: Mike St. John 8/12/05 10.5' Removed 10 Minutes

0		SAN	IPLING	3			Stra	Strata		
Depth (ft)		Depth	Blows/	Penet./		Sample Description	Cha	nge	Notes	
De D	No.	(ft.)	6"	Rec. (in)			Deptl	h (ft)		
	SS-7	30-32	6-7	24/15	SS-7:	Medium dense, brown, medium to fine SAND, little Gravel and Silt.				
			5-4		1	(Alluvial Deposit)		32.0'		
			3-4			(Alluviai Deposit)		32.0		
			1							
35										
,,					1					
			ļ							
					1					
<b>1</b> 0										
+0					1					
_	SS-8	40-42	13-8	24/24	SS-8:	Stiff, brown SILT and Clay.				
			7-7							
					1					
				<u> </u>						
_										
45										
_										
50										
	SS-9	50-52	WOR-2	24/24	SS-9:	Similar to SS-8, except soft.				
-	33-7	30-32		24/24	33-7.	Similar to 55-6, except sort.				
			1-2							
$\dashv$										
55										
$\neg$										
-								İ		
$\dashv$										
50			Notes:			Proportions Used: trace (1-10%), little (10-20%), some (20-35%), and	111111			



JGI REP:

Pat Cameron

Boring advanced to a dept of 15 feet with solid stem auger (SSA), and subsequently advanced using wash and drive techniques with a roller bit in flush wall casing (FWC).

hard	30+		Boring No.
very stiff	15-30	very dense	50+
stiff	8-15	dense	30-50
medium stiff	4-8	medium dense	10-30
soft	2-4	loose	4-10
very soft	0-2	very loose	0-4
Cohesive Consister	ncy (Blows/ft.)	Cohesionless Relat	ive Density (Blows/ft)
Proportions Used:	<u>: trace (1-10%), littl</u>	<u>le (10-20%), some (20-35%</u>	o), and (35-50%).

	J. NA			l Hampton II		HAMM	CR.	SAMPLER	CASING	SHEET 3	OF 4
	CATIO			tford, Conne	cticut	TYPE:	Safety	SS	SSA / FWC	************************************	JB-2
	<b>JECT</b>		05490			SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.	D. LOCATION:	See Plan
	CE STA		August 1			FALL:	30"	Drop Method:	Winch/Cable	40 MARIO (140 MARIO (1	10.51
	TE ENI		August 1		Contractors			COOKINDAY.	TER OBSERVAT		19.5' ±
		TION:	Glastonb		Contractors	DATE	DEPTH	CASING AT		ATION AFTER DRILLING	<u>:::::::::::::::::::::::::::::::::::::</u>
	REMAI		Mike St.			8/12/05	10.5'	Removed	DUKA	10 Minutes	
	REP:		Pat Came			0,12,03	10.5	70		10 111111111111	
		SAN	1PLIN			•				Strata	
€		1	Blows/	Penet./	1		Sample De	sarintian			Notes
Depth (ft)		Depth		ľ			Sample D	escription		Change	Notes
ă	No.	(ft.)	6''	Rec. (in)	ļ					Depth (ft)	
	SS-10	60-62	WOR	24/24	SS-10:	Medium	stiff, red/brown CLAY a	nd Silt.			
	-				1						
			2-3	<del></del>							
65											
			1								
			<b>†</b>		1						
			<u> </u>	<u> </u>	-						
				L	]						
					1						
					-						
70											
	CC 11	70.72	WOR	24/24	SS-11:	Similar to	CC 10				
	SS-11	70-72	WOR	24/24	33-11:	Sillilar ic	35-10.				
			3-4								
75											
					1						
			<del> </del>		1						
			+		1						
80											
_	SS-12	80-82	5-4	24/24	SS-12:	Similar to	SS-10, except medium	tiff.			
			5-5								
		· · <del></del>									
			<del>                                     </del>								
			ļ								
85											
-			<u>†                                      </u>								
			<del> </del>								
				<u></u>							
		<u> </u>	<del> </del>								
00											
90			Notes:	L	L		Proportions Used: tr	ace (1-10%), little (10	)-20%), some (20-35%	), and (35-50%).	
1100		252 B					Cohesive Consistency			ve Density (Blows/ft)	
W.			_	-	of 15 feet with so		very soft	0-2	very loose	0-4	
7	A				ntly advanced us		soft	2-4	loose	4-10	
	43203	EVSOVE	and drive te casing (FW		roller bit in flush	ı wall	medium stiff stiff	4-8 8-15	medium dense dense	10-30 30-50	
r.P	121E	RN, Inc.	Casing (L.M.	<i>∵</i> j.			very stiff	15-30	very dense	50+	
			1				hard	30+	-	Boring No.	JR-2

hard

30+

Boring No.

FERENCE	<u>ಇತ್ತುವ</u>		· - · · · · · · · · · · · · · · · · · ·	<del></del>		*******				********	•	*************	*****************
	OJ. NA			d Hampton Ir		HAMMI		SAMPLER	CASING			SHEET 4	<del> </del>
	CATIO			rtford, Conne		TYPE:	Safety	SS	SSA / FWC		BORI		JB-2
1000000	OJECT		05490			SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.	D.	LOCA	VIION:	See Plan
	TE ST			15, 2005		FALL:	30"	Drop Method:	Winch/Cable		Lieutainia	e de la	
	TE EN			15, 2005	C				***********		SURF	. kl.:	19.5' ±
	RING			gland Boring		<u>iijiiiiiiiiii</u>			ER OBSERVATI				
		ATION:		bury, CT		DATE	DEPTH	CASING AT	DURA			DRILLIN	G
	REMA	IN:	Mike St.			8/12/05	10.5'	Removed		]	10 Minute	es	
361	REP:		Pat Cam		<u> </u>		<del>.</del>				1		1
۰		SAN	IPLIN	G							Stı	rata	
D q		Depth	Blows/	Penet./			Sample D	escription			Ch	ange	Notes
Depth (ft)	No.	(ft.)	6"	Rec. (in)			•	•				th (ft)	
	SS-13	90-90.4	50/5"	5/3	SS-13:	Medium s	stiff, brown SILT and C	lay, some Gravel.	(Glaciolacustrine Depo	sit)	//////		
	<u> </u>								·		,,,,,,,		
					1	Refusal a	t 90.4'. Probably on Be	drock.					
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120													
	ı	L	Notes:	.L	L		Proportions Used: tr	ace (1-10%), little (10-	-20%), some (20-35%)	, and (3	<u>5-50%</u> ).		
							Cohesive Consistency		Cohesionless Relativ				
					of 15 feet with soli		very soft	0-2	very loose	0-4			
G	JAC	<b>39 39 3</b>			ntly advanced using		soft	2-4	loose	4-10			
	-8880E	3700000	casing (FW		roller bit in flush v	wall	medium stiff stiff	4-8 8-15	medium dense dense	10-3 30-5			
E.P	121F	ERN, Inc.	Casilig (F W	· - ).			very stiff	8-15 15-30	very dense	50-5 50+	· ·		

30+

Boring No.

PROJ. NAME: Proposed Hampton Inn HAMMER SAMPLER CASING SHEET 1 OF 2 BORING: LOCATION: East Hartford, Connecticut TYPE: Safety SSA / FWC JB-3 PROJECT NO.: 05490 SIZE: 140 lbs. 2" OD 4-1/4" Dia. / 3" I.D. LOCATION: See Plan DATE START: August 15, 2005 FALL: 30" Drop Method: Winch/Cable DATE END: August 15, 2005 SURF. EL: 19.5' ± BORING CO.: New England Boring Contractors GROUNDWATER OBSERVATIONS CO. LOCATION: Glastonbury, CT DATE DEPTH CASING AT **DURATION AT DRILLING** FOREMAN: Mike St. John 8/15/05 11.0' 10 Minutes Removed JGI REP: Pat Cameron SAMPLING Strata € Blows/ Sample Description Depth Penet./ Change Notes Depth. No. (ft.) 6" Rec. (in) Depth (ft) 0-2 24/12 SS-1: SS-1 2-3 Loose, red-brown, coarse to fine SAND, little Silt and Gravel, some Root Matter. 4-5 SS-2: Similar to SS-1 SS-2 2-4 3-3 24/12 Asphalt 4-4 SS-3 4-6 3-2 24/14 SS-3: Very loose, brown, fine SAND, some Root Matter. 1-2 10 (Fill) 10.3' SS-4 10-12 2-2 24/24 SS-4: Very loose, brown, fine SAND, some Silt. 2-3 15 15-17 SS-5 1-1 24/24 SS-5: Similar to SS-4 1-1 17.0' 20 SS-6 24/10 20-22 3-3 SS-6: Loose, gray/brown, coarse to fine SAND, little Silt. 4-4 25 30 Proportions Used: trace (1-10%), little (10-20%), some (20-35%), and (35-50%). Cohesive Consistency (Blows/ft.) Cohesionless Relative Density (Blows/ft) Boring advanced to a dept of 15 feet with solid stem very soft 0-2 very loose auger (SSA), and subsequently advanced using wash soft 2-4 loose 4-10 and drive techniques with a roller bit in flush wall medium stiff 4-8 medium dense 10-30 casing (FWC). stiff 8-15 30-50 EASTERN, Inc. very stiff 15-30 50+ very dense

hard

30+

Boring No.

								-,-						
	OJ. NA			l Hampton I		HAMM			SAMPLER	CASING			SHEET:	
	CATIO DJECT	. * . * . * . * . * . * . * . * . * . *	East Har 05490	tford, Conne	ecticut	TYPE:	Safety		SS	SSA / FWC	n	BORI		JB-3
	JJEC I TE STA		August 1	5 2005		SIZE: FALL:	140 lbs. 30"		2" OD	4-1/4" Dia. / 3" I.	D.	LOCA	HIUN:	See Plan
	TE ENI		August 1			FALL:	30		Drop Method:	Winch/Cable		SURF	RT.	19.5' ±
	RING (				Contractors				GROUNDWAT	ER OBSERVAT	ONS	7, 2, 1,		
CO.	. LOCA	TION:	Glastonb			DATE	DEPT	ГН	CASING AT	<del> </del>		AFTER	DRILLIN	G
	REMAI	V:	Mike St.			8/15/05	11.0	)'	Removed		10 Mir	utes		
JGI	REP:		Pat Cam		:[	<u> </u>						T		
æ		<u> </u>	1PLIN	************								St	rata	
Depth (ft)		Depth	Blows/	Penet./			Samp	ple De	scription			Ch	ange	Notes
₹	No.	(ft.)	6"	Rec. (in)								Dep	th (ft)	
	SS-7	30-32	3-4	24/22	SS-7:	Loose, 21	ray/brown, coarse	e to fine S	AND, little Silt.					
					1	, &-	,,,		,					
			4-5		1									
			<u> </u>		1									
35														
رر					1									
			-		-							$\parallel \parallel \parallel \parallel \parallel \parallel$		
_										(Alluvial Depo	sit)		38.0'	
			1							(7 Maviai Depo	/		30.0	1
					-									
40														
	SS-8	40-42	WOR-1	24/24	SS-8:	Soft, red/	brown CLAY an	d Silt.						
			1.2		1	·								
			1-2											
					1									i
45														
73														
			1											
					1									
				<u> </u>										
50														
	SS-9	50-52	WOR-1	24/24	SS-9:	Similar to	SS-8, except bro	own.						
			2-3							(Glaciolacustrine Depos	sit)			
			<u> </u>							Charle acust nic Depos		,,,,,,,		
			<del> </del>			Exploration	on Terminated at	t 52.0'						
			ļ											
55														
			<u> </u>											
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60			Notes:				Proportions II	sed tro	26 (1-1094) Bittle (10	-20%), some (20-35%)	and (1	5_500/\		
7762			Motes.				Cohesive Cons			Cohesionless Relativ			s/ft)	
	T a				of 15 feet with so		very soft		0-2	very loose	0-4			
G	A				ntly advanced using roller bit in flush		soft medium stiff		2-4 4-8	loose medium dense	4-10 10-3			
FA	STF	RN, Inc.	casing (FW		rong on in mush	wall	stiff		8-15	dense	30-5			
المعد	I I	ME TO INC.					very stiff		15-30	very dense	50+			
			1				hard		30+			Boring	No.	JB-3

DD/	OJ. NA	MIT.	Droposas	l Hampton I	3n	НАММ			27222	888 888888888 <b>2</b> 223	
	CATIO			tford, Conne		TYPE:	Safety	SAMPLER SS	CASING SSA / FWC	SHEET I BORING:	JB-4
	OJECT		05490	aoia, comic	ciicut	SIZE:	Safety 140 lbs.	2" OD	SSA / FWC 4-1/4" Dia. / 3" I.D.	LOCATION:	
1 - 1 - 1 - 1 -	TE STA	3+1+1+1+1+1+1+1+1+1+1+1+1	August 1	0. 2005		FALL:	30"	Drop Method:	Winch/Cable	LOCATION	See Flaii
1:1:1:1	TE ENI	858505050505050505050	August 1			L'INDL.	50	Diop Memou.	W HICH CADIE	SURF. EL:	19.5' ±
	RING (				Contractors			GROUNDWAT	ER OBSERVATION		
CO	. LOCA	TION:	Glastonb	ury, CT		DATE	DEPTH	CASING AT		N AFTER DRILLIN	G
	REMAI	Vš.	Mike St.	John		8/10/05	11.0'	Removed		Minutes	<del></del>
JGI	REP:		Pat Came	<del></del>							
}		SAN	<b>1PLIN</b>	G						Strata	
Depth (ff)		Depth	Blows/	Penet./			Sample D	escription		Change	Notes
ept	No.	(ft.)	6"	Rec. (in)	ļ			<b>L</b>		Depth (ft)	1,000
<u> </u>	110.	(11.)	<del>                                     </del>	Rec. (III)		Asphalt				0.3'	
	SS-1	0-1.5	5-5	18/4	SS-1:	Loose, re	ed/brown, coarse to fine	SAND, some Silt, little	Gravel.	******	
			7						(Fill)	2.0'	
	CC 2	2.4	7.0	24/20	CC 2	M. J.	d 10 ···	5 0.1375			
	SS-2	2-4	7-8	24/18	SS-2:	Medium	dense, red/brown, medi	ım to fine SAND and Si	It, trace Gravel.		
			8-10								
5	SS-3	4-6	5-4	24/20	SS-3:	Loose h	rown, fine SAND and S	lt. trace Gravel			
	1 35.5	· · ·		2.7.20	1	20030, 0	io my mic orato and 5.	, auto Giavol.			
			3-3		4						
	SS-4	6-8	4-5	24/24	SS-4:	Similar to	SS-3, except medium	lense.			
			5-6								
					1						
	SS-5	8-10	6-7	24/5	SS-5:	Similar to	SS-4.			<b>                                      </b>	
10			6-7								
			<del>                                     </del>								
			<u> </u>								
			ļ								
15											
	22.6	4.7.4.7	1	2.442.0	<b>.</b> .						
	SS-6	15-17	4-5	24/20	SS-6:	Medium	dense, gray to brown, co	earse to fine SAND, little	e Silt, trace Gravel.		
			6-8							<b>                                      </b>	
					1						
										<b>                                      </b>	
20	SS-7	20-22	6-8	24/12	SS-7:	Medium	dense, gray, fine SAND,	little Silt.			
			12-22								
	- 1		16-66							<b>                                      </b>	
										<b>                                      </b>	
_											
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25										<b>                                      </b>	
	SS-8	25-27	6-11	24/18	SS-8:	Similar to	SS-7.			<b>                                      </b>	
		-				74				<b>                                      </b>	
			14-20							<b>  </b>	
				,,,						<b>. [</b> ]]]]]]	
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										<b>  </b>	
30			Natro				In	4 4000	000()	11111	,
-		~	Notes:				Proportions Used: tr Cohesive Consistency		20%), some (20-35%), and Cohesionless Relative De		
			Boring adva	nced to a dept	of 15 feet with so	lid stem	very soft	0-2		ensity (Blows/π) -4	
			auger (SSA)	), and subseque	ntly advanced usi	ing wash	soft	2-4		-10	
		**************************************			roller bit in flush	wall	medium stiff	4-8		0-30	
EA	STE	RN, Inc.	casing (FW	<b>~)</b> .			stiff very stiff	8-15 15-30		0-50 0+	
							hard	30+	ory define 3	Boring No.	JB-4
			•								

	J. NA	ME:	Proposed	Hampton I	าท	НАММ	ER	SAMPLER	CASING	SHE	T 2 OF 4
	CATIO			tford, Conne		TYPE:	Safety	SS	SSA / FWC	BORING	JB-4
	)JECT	* . * . * . * . * . * . * . * . * . *	05490			SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.I		N: See Plan
	E STA		August 1			FALL:	30"	Drop Method:	Winch/Cable		
	E ENI		August 1		<u> </u>	141660000		ana wakaza sa		SURF. EL	19.5' ±
	RING ( LOCA		New Eng Glastonb	gland Boring	Contractor				TER OBSERVATI		
	REMAN		Mike St.			<b>DATE</b> 8/10/05	11.0'	CASING AT		TION AFTER DRIL 10 Minutes	LING
	REP:		Pat Came			18/10/03	11.0	Kellioved		10 Minutes	
		SAN	<b>IPLIN</b>							Strata	
(g)		Depth	Blows/	Penet./	1		Sample 1	Description			Notes
Depth (ft)	No.	(ft.)	6"				Sample	Description		Change	
· <del>P</del> :	110.	(11.)	+ 0	Rec. (in)	<u> </u>					Depth (fi	)
	SS-9	30-32	6-12	24/20	SS-9:	Similar to	o SS-7				
			13-31								
					}						
_			-		-						
			ļ	ļ	-						
35					]						
T	SS-10	35-37	7-9	24/18	SS-10:	Similar to	SS-7.				
					1	Januar W	. <del></del>				
$\dashv$			7-10		1					<u> </u>	
			ļ		_						
									(Alluvial Depos	sit) 39.	0'
40	.,						-		,		
40		· · · · · · · · · · · · · · · · · · ·	<del> </del>		1						
	SS-11	40-42	3-4	24/24	SS-11:	Stiff, red/	brown, SILT and Clay	<i>.</i> .			
			4-5								
1			<u> </u>								
$\dashv$					-						
45											
	SS-12	45-47	1-2	24/24	SS-12:	Soft, red/	brown, CLAY and Sil	t.			
			2.2		1						
-			2-3		-						
50											
	20.11										
$\dashv$	SS-13	50-52	2-2	24/24	SS-13:	Similar to	SS-12.				
			2-3								
				:							
$\dashv$											
55											
	SS-14	55-57	2-2	24/24	SS-14:	Similar to	SS-12.				
	Ţ		3-3								
$\dashv$			-								
+			<del>                                     </del>								
			ļ								
60											
			Notes:						0-20%), some (20-35%).		
			Doring - 1	nood to a dear	SE15 Com 1:1	noolid -4	Cohesive Consistence		Cohesionless Relativ		
K				nced to a dept of a nced to a dept of a nced to a dept of a nced to a nced t			very soft	0-2 2-4	very loose loose	0-4 4-10	
		29 53 N 5780005	and drive te	chniques with a			medium stiff	4-8	medium dense	10-30	
603			casing (FW0	C).			stiff	8-15	dense	30-50	
EA	STE	KN, Inc.	l amoung (1	,			very stiff	15-30	very dense	50+	

R	J. NAI	ME:	Proposed	Hampton Ir	nn	НАММ	er	SAMPLER	CASING	S	HEET 3	OF 4	
	CATIO		19	tford, Conne	cticut	TYPE:	Safety	SS	SSA / FWC	BORIN		JB-4	
	JECT		05490			SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.D.	LOCA	rion:	See Plan	
	FE STA		August 1			FALL:	30"	Drop Method:	Winch/Cable	nch/Cable <b>SURF EL:</b> 19.5' ±			
	FE ENI RING C		August 1		Contractors			CROENDWA	TER OBSERVATIO		LL:	19.3 ±	
	LOCA		Glastonb		Contractors					ION AFTER D	RILLIN	G	
	REMAN		Mike St.			8/10/05	11.0' Removed 10 Minutes						
GI	REP:		Pat Came	eron		<u> </u>							
		SAN	<b>IPLIN</b>	Ĵ						Stra	ıta		
3		Depth	Blows/	Penet./	4		Sample I	Description		Cha	nge	Notes	
Depth (ft)	No.	(ft.)	6"	Rec. (in)			<b>-</b>	<b>.</b>		Depti	_		
:			1							111111	1 (11)		
	SS-15	60-62	WOR-1	24/24	SS-15:	Soft, red/	brown, CLAY and Silt	•					
			1-2										
			-		1								
					4								
65													
	SS-16	65-67	WOR-1	24/24	SS-16:	Similar to	SS-15.						
					1								
_			1-1		1								
					1								
					1								
70			<del> </del>		-								
	SS-17	70-72	WOR-1	24/24	SS-17:	Similar to	SS-15.						
			2-2										
			-		-								
			<u> </u>								Ì		
75													
	00.10	76.77	1	24/24	20.10	o: " .	00.15						
	SS-18	75-77	2-2	24/24	SS-18:	Similar to	0 88-13.						
			3-4										
					]								
30			<b></b>		-								
	SS-19	80-85	2-2	24/24	SS-19:	Similar to	SS-15.						
			2-3										
					1								
-			-		1								
			ļ										
35									(Glaciolacustrine Deposit		85.0'		
	22-20	85-87	26-25	24/20	SS-20:	Hard mad	/brown, CLAY and Sil	t some Grovel					
	22-20	03-07		24/20	JJ3-20.	maiu, ita	orown, CLA 1 and Sh	i, some Glavei.					
			30-27										
-					1								
0			Notes				Proportions Head.	race (1_1004) 1844 /1	0-20%), some (20-35%), :	and (35-509/)			
: []5			Notes:				Cohesive Consistency		Cohesionless Relative		<u>'ft)</u>		
	V B	理			of 15 feet with se		very soft	0-2	very loose	0-4	_		
7	A				ntly advanced us		soft	2-4	loose	4-10			
	CTE	BNI	casing (FW		roller bit in flus	n wall	medium stiff	4-8 8-15	medium dense dense	10-30 30-50			
-	101E	RN, Inc.		,			very stiff	15-30	very dense	50+			
			1				hard	30+		Boring :	Νo.	JB-4	

PROJ. NAME:	Proposed Hampton Inn	намм	ER	SAMPLER	CASING	SHEET 4 OF 4
LOCATION:	East Hartford, Connecticut	TYPE:	Safety	SS	SSA / FWC	BORING JB-4
PROJECT NO.:	05490	SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.D.	LOCATION: See Plan
DATE START:	August 10, 2005	FALL:	30"	Drop Method:	Winch/Cable	1
DATE END:	August 10, 2006				<u> </u>	<b>SURF. EL:</b> 19.5' ±
BORING CO.:	New England Boring Contractors			GROUNDWATE	R OBSERVATIONS	
CO. LOCATION:	Glastonbury, CT	DATE	DEPTH	CASING AT	DURATION	AFTER DRILLING
FOREMAN:	Mike St. John	8/10/05	11.0'	Removed	10 Mir.	nutes
JGI REP:	Pat Cameron					

ایاز	REP: Pat Cameron SAMPLING					<u> </u>		Т		r
3									rata	
Depth (ft)		Depth	Blows/	Penet./		Sample Description			ange	Notes
ã	No.	(ft.)	6"	Rec. (in)				Dep	th (ft)	
	SS-21	90-90.9	30-100/5"	11/3	SS-21:	Hard, red/brown, CLAY, and Silt, some Gravel.	(Glacial Till)			
						Refusal at 90.9'. Probably on Bedrock.				
_					1	TOTAL ALSON, Trooper, on Bolloon				
					}					
	-				1					
95										
-					1					
_					1					
					-					
					1				:	
00										
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05										
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					1					
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10										
		*******			1					
	<del>                                     </del>				1					
					-					
15			<u> </u>							
					1					
20										
_			Notes:			Proportions Used: trace (1-10%), little (10-20	%), some (20-35%), and (	35-50%).		



Boring advanced to a dept of 15 feet with solid stem auger (SSA), and subsequently advanced using wash and drive techniques with a roller bit in flush wall casing (FWC).

Proportions Used: trac	ce (1-10%), little (10-20	0%), some (20-35%), a	nd (35-50%).			
Cohesive Consistency (F	Blows/ft.)	Cohesionless Relative Density (Blows/ft)				
very soft	0-2	very loose	0-4			
soft	2-4	loose	4-10			
medium stiff	4-8	medium dense	10-30			
stiff	8-15	dense	30-50			
very stiff	15-30	very dense	50+			
hard	30+		Boring No.			

PROJ. NAME:	Proposed Hampton Inn	HAMM	ER	SAMPLER	CASING	SHEET 1 OF 4
LOCATION:	East Hartford, Connecticut	TYPE:	Safety	SS	SSA / FWC	BORING JB-5
PROJECT NO.:	05490	SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.D.	LOCATION: See Plan
DATE START:	August 11, 2005	FALL:	30"	Drop Method:	Winch/Cable	
DATE END:	August 11, 2006					SURF, EL: 19.5' ±
BORING CO.:	New England Boring Contractors			GROUNDWATEI	OBSERVATIONS	
CO. LOCATION:	Glastonbury, CT	DATE	DEPTH	CASING AT	DURATION	AFTER DRILLING
FOREMAN:	Mike St. John	8/11/05	15.0'	Removed	10 Min	
JGI REP:	Pat Cameron	1				

		SAN	Pat Came			•		T ,	Strata	
Depth (ft)		Depth	Blows/	Penet./		Sample Description			Change	Notes
Dept	No.	(ft.)	6"	Rec. (in)				1	epth (ft)	riotes
	SS-1	0-2	4-7	24/10	SS-1:	Topsoil  Medium dense, brown, fine SAND, little Silt, trace Gravel.		0000	0.4'	
			6-5		1					
	SS-2	2-4	7-7	24/16	SS-2:	Similar to SS-1				
	- 55 2		5-6	24/10	355-2.	Sililiai to 33-1				
5	SS-3	4-6	4-4	24/1	SS-3:	Similar to SS-1, except loose.				
	33-3	4-0		24/1	33-3:	Similar to SS-1, except loose.				
			4-3		_					
					1					
					}				<b>**</b>	
			-							
10					-					
	SS-4	10-12	2-2	24/24	SS-4:	Similar to SS-3.			8	
			3-5				(Fill)	<b>***</b>	12.0'	
15										
	SS-5	15-17	6-2	24/21	SS-5:	Loose, brown, coarse to fine SAND, little Silt.				
			3-5							
								Ш		
20										
	SS-6	20-22	5-11	24/19	SS-6:	Similar to SS-5, except dense.				
			21-32							
					:					
25										
23										
_	-+									
$\dashv$	-									
$\dashv$	-									
30			Notes:			Proportions Used: trace (1-10%), little (10-20%), some	(20.250/)			
			110169:			<u>  rroportions Useα: trace (1-10%), little (10-20%), some</u>	(20-35%), and (	35-50%	١.	



Boring advanced to a dept of 15 feet with solid stem auger (SSA), and subsequently advanced using wash and drive techniques with a roller bit in flush wall casing (FWC).

Proportions Used: tra	Proportions Used: trace (1-10%), little (10-20%), some (20-35%), and (35-50%).												
Cohesive Consistency (	Blows/ft.)	Cohesionless Relative Density (Blows/ft)											
very soft	0-2	very loose	0-4										
soft	2-4	loose	4-10										
medium stiff	4-8	medium dense	10-30										
stiff	8-15	dense	30-50										
very stiff	15-30	very dense	50+										
hard	30+		Boring No.	JB-5									

	OJ. NA			l Hampton I		HAMM	ER	SAMPLER	CASING	SHEET	2 OF 4
* . * . * . *	CATIC			tford, Conne	ecticut	TYPE:	Safety	SS	SSA / FWC	BORING	JB-5
	<b>JJECT</b>		05490			SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.	D. LOCATION:	See Plan
	TE ST		August 1			FALL:	30"	Drop Method:	Winch/Cable		
	TE EN		August 1			11-1-1-1-1-1-1-1-1			TER OBSERVAT	SURF. EL:	19.5' ±
	RING				Contractors						
	REMA	ATION:	Glastonb Mike St.			<b>DATE</b> 8/11/05	DEPTH	CASING AT	T DURA	ATION AFTER DRILLIN	iG
	REP:	INS.	Pat Came			8/11/05	15.0'	Removed		10 Minutes	
		SAN	(PLIN					· · · · · · · · · · · · · · · · · · ·		Churche	Γ
Depth (ft)				*****	4		01-	D		Strata	
pth		Depth	Blows/	Penet./			Sample	Description		Change	Notes
ē	No.	(ft.)	6"	Rec. (in)			<del></del>			Depth (ft)	
	SS-7	30-32	13-15	24/24	SS-7:	Dense, b	rown, medium to fine	SAND, little Silt.			
					1			•			
		-	18-21	ļ					(Alluvial Depo	sit) 32.0'	-
	<b> </b>	1			1						
35					4						
					1						
		<del> </del>			1						
					]						
			ļ		i						
40											
	SS-8	40-42	2-1	24/24	SS-8:	Soft, red/	brown, SILT and Clay	<i>J</i> .			
						551,100	orown, orbi and old.	, .			
			2-3								
					]						
45											
					1						
					1						
			-								
50											
	SS-9	50-52	WOR-1	24/24	SS-9:	Soft, red/l	brown, CLAY and Sil	t.			
٦			2-3								
			2-3								
$\Box$											
55											
$\neg$											
$\dashv$		<u> </u>									
				-							
60	J		Notes				In	4	0.000()		
e de la constante de la consta			Notes:				Proportions Used: Cohesive Consistence		0-20%), some (20-35%).		
			Boring adva	nced to a dept of	of 15 feet with so	lid stem	very soft	<u>y (Βιοws/π.)</u> 0-2	Cohesionless Relative very loose	0-4	
			auger (SSA)	, and subsequer	ntly advanced usi	ng wash	soft	2-4	loose	4-10	
700	4000	2000			roller bit in flush	wall	medium stiff	4-8	medium dense	10-30	
EA	STE	RN, Inc.	casing (FWC	2).			stiff	8-15	dense	30-50	
							very stiff hard	15-30 30+	very dense	Boring No.	JB-5
							1	50.		Porting 140.	ขม-อ

PRO	OJ. NAI	ME:	Proposed	Hampton I	nn	НАММ	ER	SAMPLER	CASING	SHEET.	OF 4
LO	CATIO	N:	East Har	tford, Conne		TYPE:	Safety	SS	SSA / FWC	BORING:	JB-5
	<b>JJECT</b>		05490			SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.D.	_LOCATION:	See Plan
	TE STA		August 1			FALL:	30"	Drop Method:	Winch/Cable	Labelia de la company	
	TE ENI RING C		August 1		Contractors			CDAINING	ED ODCEDA ANYON	SURF. EL:	19.5' ±
	LOCA		Glastonb		Contractors	GROUNDWATER OBSERVATION DATE DEPTH CASING AT DURATIO				N AFTER DRILLIN	C
	REMA		Mike St.			8/11/05	inutes				
	REP:		Pat Came	eron			15.0'	Removed			
,		SAN	<b>4PLIN</b>	3						Strata	
P (ff		Depth	Blows/	Penet./	1		Sample l	Description		Change	Notes
Depth (ft)	No.	(ft.)	6"	Rec. (in)			-	-		Depth (ft)	
	SS-10	60-62			SS-10:	C-A1	4				
	33-10	00-02	WOR-1	24/24	35-10:	Son, rea	brown, CLAY and Sil	<b>.</b>			
			1-2		-						
					1						
65					1						
					4						
					]						
					†						
70											
	SS-11	70-72	WOR-1	24/24	SS-11:	Similar to	SS-10				
						Ommun (	7 55 10.				
			3-3		+						
75											
7.5					-						
		<del></del>	<u> </u>								
80											
	SS-12	80-82	WOR-1	24/24	SS-12:	Similar to	SS-10, except, little G	ravel.			
İ			7-3								
Ì											
85											
П											
İ											
$\dashv$			<del>                                     </del>								
			j T								
90			Notes:				Proportions Used:		Glaciolacustrine Deposit) 20%), some (20-35%), and	(35-50%)	
W.							Cohesive Consistenc		Cohesionless Relative De		
	16		_	_	of 15 feet with so		very soft	0-2	very loose 0-		
					ntly advanced usi roller bit in flush		soft medium stiff	2-4 4-8	loose 4- medium dense 10	10 -30	
EA	STE	RN, inc.	casing (FWC		0.0 11 114011		stiff	8-15		-50	
		<b>,</b>					very stiff	15-30	very dense 50		- TTN -
			ł				hard	30+		Boring No.	JB-5

PROJ. NAME:	Proposed Hampton Inn	НАММ	ER	SAMPLER	CASING	SHEET 4 OF 4
LOCATION:	East Hartford, Connecticut	TYPE:	Safety	SS	SSA / FWC	BORING: JB-5
PROJECT NO.:	05490	SIZE:	140 lbs.	2" OD	4-1/4" Dia. / 3" I.D.	LOCATION: See Plan
DATE START:	August 11, 2005	FALL:	30"	Drop Method:	Winch/Cable	
DATE END:	August 11, 2006					SURF. EL: 19.5' ±
BORING CO.:	New England Boring Contractors			GROUNDWATE	R OBSERVATIONS	
CO. LOCATION:	Glastonbury, CT	DATE	DEPTH	CASING AT	DURATION	AFTER DRILLING
FOREMAN:	Mike St. John	8/11/05	15.0'	Removed	10 Mir	nutes
JGI REP:	Pat Cameron	1				

اخا	IREP: Pat Cameron SAMPLING			:						1		1	
9											St		
Depth (ff)		Depth	Blows/	Penet./			Samp	le Descriptio	n		l l	ange	Note
Ğ	No.	(ft.)	6"	Rec. (in)							Dep	th (ft)	
	SS-13	90-91.4	40-36 100/5"	17/8	SS-13:	Hard, red/	/brown, CLAY a	nd Silt, some Grave	l.				
			100/5"							(Glacial Till)	+	-	
						Refusal at	191.4'. Probably	on Bedrock.					
					1								
					-						ļ		
95													
.00													
100													
105													
10					-								
					1								
_													
15													
20													
20			Notes:	l.			Proportions Us	ed: trace (1-10%)	little (10-20%), s	ome (20-35%), and	(35-50%).		



Boring advanced to a dept of 15 feet with solid stem auger (SSA), and subsequently advanced using wash and drive techniques with a roller bit in flush wall casing (FWC).

<b>Proportions Used:</b>	trace (1-10%), litt	le (10-20%), some (20-35%	o), and (35-50%).				
Cohesive Consisten	cy (Blows/ft.)	Cohesionless Relat	Cohesionless Relative Density (Blows/ft)				
very soft	0-2	very loose	0-4				
soft	2-4	loose	4-10				
medium stiff	4-8	medium dense	10-30				
stiff	8-15	dense	30-50				
very stiff	15-30	very dense	50+				
hard	30+		Boring No.	JB-5			

PRO	J. NA	ME:	Proposed	l Hampton I	nn	HAMMI	ER .	SAMPLER	CASING	SHRET	OF
	CATIO	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0		tford, Conne		TYPE:	Safety	SS	SSA / FWC	BORING:	JB-6
PROJECT NO.; DATE START:		05490 August 15, 2005			SIZE: 140 lbs. FALL: 30"	~	2" OD Drop Method:	4-1/4" Dia. / 3" I.D. Winch/Cable		:•	
						30"					
	ΓE ENI		August 1								19.5' ±
F 10 10 10 11	RING (	19191919191919191919191			Contractors				ER OBSERVATIO		
CO. LOCATION: Glastonbury, CT FOREMAN: Mike St. John							TION AFTER DRILLIN	G			
10111111	: 6: 6: 6: 6: 6: 6: 6: 6: 6: 6: 6: 6: 6:	<b>N</b>	Mike St.			8/15/05	15.0'	Removed	1	0 Minutes	
JUI	REP:	~ A 5	Pat Came		:	1					T
0		SAIV	1PLIN	ÿ.						Strata	
41		Depth	Blows/	Penet./			Sample D	escription		Change	Notes
Depth (ff)	No.	(ft.)	6"	Rec. (in)						Depth (ft)	
	00.		100		00.4	Asphalt				0.3'	
	SS-1	0-1	10-8	12/12	SS-1:	Medium	dense, light brown, coars	e to fine SAND, some S	ilt, trace Gravel.		
										<b>******</b>	
	SS-2	2-4	9-8	24/22	SS-2:	Madium	dense, brown, fine SANI	Dogge Cile listle Consul	1	<b></b>	
	33-2	2-4	9-6	24/22	33-2.	Medium	uense, blown, fille SANI	o, some sin, inne Grave		<b>88888</b>	
			5-6		1					<b></b>	
5	SS-3	4-6	2-2	24/20	SS-3:	Very loos	se, red/brown, coarse to f	ine SAND some Silt to	ace Gravel		
					1	. 51, 1003	, s.s.m, course to I	o. n .D, some ont, th	LUC CIUTOI.	<b>******</b>	
	-		1-1		4						
	SS-4	6-8	2-2	24/24	SS-4:	Similar to	SS-3.				
			2.2		]					<b>******</b>	
			2-2		1					<b>******</b>	
	SS-5	8-10	2-2	24/22	SS-5:	Similar to	SS-3			<b>******</b>	
10			2-2							<b>******</b>	
										<b>******</b>	
										<b>******</b>	
										<b>*****</b>	
										<b>******</b>	
					ĺ					<b>******</b>	
										<b>*******</b>	
15										<b>******</b>	
13			-								
	SS-6	15-17	2-1	24/16	SS-6:	Similar to	SS-3.				
			2-2						(Fill	n <b>188888</b>	
$\neg \neg$									(*	<del>" - POOCOCC</del>	
						Exploration	on Terminated at 17.0'				
20											
20											
$\neg$											
25											
25											
_											
30			Notes:				Dropostions II	200 (1 109/) 12/2 //2 /	00/) (30 370/)	-1 (25 500/)	
			Notes:				Cohesive Consistency (	nce (1-10%), little (10-2 Blows/ft.)	0%), some (20-35%), and Cohesionless Relative		
							very soft	0-2	very loose	0-4	
							soft	2-4	loose	4-10	
		20000					medium stiff	4-8	medium dense	10-30	
EA	STE	RN, Inc.					stiff very stiff	8-15 15-30	dense	30-50 50+	
							hard	15-30 30+	very dense	Boring No.	JB-6
							I	20.		Doing 140.	ט-עני

# Appendix C

#### **FALLING HEAD PERMEABILITY TEST**

Project: Project No.:	Hampton Inn 05490G		
Date:	9/14/2005		
Calculated By:	rwo		
Checked By:	RRR		
Page 1 of 1			

#### Test No. 1 (5 feet below grade)

Inside diameter of pipe (D) = 10.4 centimeters

Initial reading of water column  $(H_1)$  = 421.6 centimeters

Final reading of water column  $(H_2)$  = 335.0 centimeters

Duration of Test  $(T_2 - T_1) = 320$  minutes

Permeability,  $K_m = (Pi * D)/(11(T_2-T_1)) ln (H_1/H_2)$ 

Test No. 1 Calculated Permeability = 3.6 x 10<sup>-5</sup> cm/sec

#### Test No. 2 (2 feet below grade)

Inside diameter of pipe (D) = 10.4 centimeters

Initial reading of water column  $(H_1) = 409.0$  centimeters

Final reading of water column  $(H_2)$  = 327.0 centimeters

Duration of Test  $(T_2 - T_1) =$  320 minutes

Permeability,  $K_m = (Pi * D)/(11(T_2-T_1)) ln (H_1/H_2)$ 

Test No. 1 Calculated Permeability = 3.5 x 10<sup>-5</sup> cm/sec