Appendix H

PRELIMINARY
HYDROGEOLOGIC STUDY

GEODESIGN INCORPORATED

GEOTECHNICAL ENGINEERS AND ENVIRONMENTAL CONSULTANTS

Preliminary Hydrogeologic Study

Stateline Retail Center
East and West Disposal Areas
Southeast, New York

Prepared for:

Camarda Development Company
1699 Route 6, Suite 1
Carmel, NY 10512

Prepared by:

Geo**Design**, Inc.
984 Southford Road
Middlebury, CT 06762
Tel. (203) 758-8836
Fax. (203) 758-8842

File No. 321-05
December, 2006

d/b/a GeoDesign, PC

December 18, 2006
File 321-05

Mr. Fred Koelsch
Camarda Development Company
1699 Route 6, Suite 1
Carmel, NY 10512

Via: email Fkoelsch@suscom.net

Re: Preliminary Hydrogeologic Study
Stateline Retail Center
U.S. Route 6, Southeast NY

Dear Fred:

This report presents the results of Geo**Design**'s preliminary Hydrogeologic Study of the site of the proposed Stateline Retail Center development in the Town Southeast, New York.

Background Information

Based on information provided by Insite, two areas are targeted for sewage disposal for this project. The first, the East Area, consists of an approximately 400' by 380' area near the northeast corner of the site. The second, the West area, consists on an L-shaped area approximately a 160' to 240' by 800' area (average approximately 200' by 800') located at the westerly end of the site. It is currently anticipated that in excess of 5,000 gallons per day of sewage flow will be required to service different possible development scenarios for the site. Subsurface treatment and disposal (using conventional primary sewage treatment in tank and effluent recharge into leaching trenches) is being considered.

Pre-Existing Subsurface Data

Insite excavated and logged 12 deep test holes (test pits) on December 10 and 13, 2004 in a portion of the proposed East disposal area. Insite also excavated and logged about 18 deep test holes (test pits) in December, 2004 in a portion of the proposed West disposal area. Excavation depths reached to seven feet maximum in the pits. Bedrock was encountered in some of the test pits and not in others to depth of up to about 7 feet. Some bedrock outcroppings are present in portions of the site. Groundwater was not encountered at depth shallower than 6 feet. In one of the test holes a localized water seep was observed at a depth of 12 inches, but this it was not

determined to represent groundwater. The shallow soils were generally described a "Fine Sandy Silt" or "Fine Sandy Silt and Gravel" and locally as "Fine Sand".

New Subsurface Data

Additional subsurface data was obtained in accordance with a workplan dated October 4, 2006. The purpose of the new data was to allow the preliminarily estimation of the flow rate capacities of the East and the West areas in accepting subsurface sewage flow. This data was used to determine preliminary design groundwater levels and hydraulic parameters in both areas. The field investigation was performed in a manner that provided both the NYC DEP and the Putnam Dept. of Health an opportunity to review and comment on our technical approach (work plan) and witness the field testing. The intent of this approach was to help ensure that the data obtained would be acceptable to these agencies during the final site characterization phase. The final phase is scheduled to occur in future once the disposal site(s) have been chosen, once target flow rates have been selected, and at a time of the year which will allow measuring groundwater levels during the wet season (Spring or early Summer).

As described in the workplan, we engaged a subcontractor to drill 8 test borings at each area. Borings at the East and West Areas are termed BE-1 to BE-8, and BW-1 to BW-8, respectively. Drilling, testing, well installation, and well measurements occurred between October 5 and 13, 2006. A NYC DEP representative (Mr. Matt Gianetta) visited the site on the first day of drilling and testing. Subsequent groundwater observation levels were measured on October 16 and 18, 2006.

Boring logs are attached in the Appendix and boring locations are shown on Figures 1A and 1B for the East and West Areas, respectively. Each borings was terminated with a 2-inch diameter PVC observation well to allow measurement of stabilized groundwater levels. Wells were constructed with five-foot long 0.01-inch slotted screens and solid risers. Well locations and elevations (ground surface and top of riser) were surveyed by the project surveyor (Insite) and provided to us in AutoCAD format.

Borings were either extended to refusal or terminated with rock core five to ten feet below the bedrock surface. A summary of bedrock data is included in Table No. 2. We performed in-situ permeability tests below groundwater levels using the falling head methodology in unconsolidated materials in selected borings to estimate in-situ permeability. We also performed six gradation tests of selected soil samples to confirm visual classification of representative soil samples and determine D_{10} size. Test data sheets and results are included in the Appendix.

We measured several sets of stabilized groundwater levels in all of the wells. This data is summarized in Table No. 1, attached. The phreatic (groundwater) surface levels as measured on

October 18, 2006 are also depicted on Figures 1A and1B. Based on this data we estimated the groundwater flow gradient and direction at each proposed disposal area.

Calculated Permeability Estimates

To supplement the limited field permeability testing, we performed Kozeny-Carman analyses. These analyses correlate in-situ relative density and estimated D_{10} particle size to permeability. The relative density was estimated based on standard penetration test N-values (from the test borings), and the particle size is based on the six gradation tests. The results of these data and analyses are summarized in Table 4.

Interpretation of Field Data and Analyses

East Area

About 6 to 12 inches of topsoil and subsoil are present in this area. These deposits overlie generally medium dense gravelly Sand and Silt, to depths depths ranging from as little as 6 feet in BE-2 to as much as 27 feet in BE-7. This stratum generally becomes denser and siltier with depth, and overlies dense Glacial Till or Gneiss Bedrock.

Depths to stabilized groundwater ranged from about 6.5 to 12.5 feet except in BE-7, near the stream where depth to water was about 1.8 foot. These reading correspond to approximate Elevations 482 to 452 decreasing toward the north. This 30 foot range in groundwater levels yields approximate hydraulic gradients of about 0.11 toward the north.

In-situ permeability test data (summarized on Table No. 3) indicated an average permeability of 1.5 feet per day. The Kozeny-Carman analyses (summarized on Table No. 4) indicate an estimated permeability of about 2.2 feet per day. These values are consistent with each other and fall within the range of published values for the gravelly sand and silt (as determined by visual classifications and gradation tests).

West Area

About 6 to 24 inches of topsoil and subsoil are present in this area. These deposits overlie generally medium dense Sand and Silt grading to Silt and Sand, to depths ranging from about 13 to 25 feet. This stratum generally becomes denser and siltier with depth, and grades to dense Glacial Till. It overlies Gneiss Bedrock.

Depths to stabilized groundwater ranged from about 10.5 to 25.5 feet except in BW-8 nearest the wetland where depth to water was about 5.5 feet. These reading correspond to approximate Elevations 506 to 463 decreasing toward the north. This 43 foot range in groundwater levels yields approximate hydraulic gradients of about 0.08 toward the north.

In-situ permeability test data (summarized on Table No. 3) indicated an average permeability of 0.27 foot per day. The Kozeny-Carman analyses (summarized on Table No. 4) indicate an estimated average permeability of about 0.06 foot per day. These values indicate a high degree of variability, but are consistent with medium dense silty granular soils grading to dense silty Glacial Till soils.

Data Comparison between East and West Areas

Depth to bedrock is greater at the West Area than at the East Area. Thus, the thickness of unconsolidated materials is greater in the West Area than in the East Area. Depth to groundwater is generally higher at the West area than at the East Area. Saturated thicknesses of the aquifer are about 8 and 13 feet at the West Area and at the East Area, respectively.

Based on limited testing, the estimated in-situ permeability of the East Area is on the order of five to ten times higher than that of the West Area.

Estimated Potential for Subsurface Disposal, Conclusions, and Recommendations

Based on the referenced data, we offer the following preliminary conclusions regarding the potential for subsurface discharge and treatment of sewage. From a hydrogeologic standpoint, in general two primary factors control the suitability of discharging sewage and/or water into the ground. One is the ability of shallow soils (near the trenches) to infiltrate water at a sufficiently high rate. The other is the ability of deeper soils/bedrock formations to convey the water without excessive mounding or breakout.

We recommend that during final design percolation testing be performed at shallow depths to investigate the shallow infiltration capacity of both the East and the West Areas.

For preliminary planning purposes, we estimated the capacity of each site to accept sewage disposal flows with no breakout. Simplified one-dimensional analyses were made. The results of these analyses are included in Figures 2A and 2B, and 3A and 3B for the East and West areas, respectively. The summary of the input flow used for these analyses is included in Table No. 5. The most important assumption made for these analyses is the design base flow (groundwater flow or recharge) present at each site (e.g. before sewage flows are applied). A design value equal to 10 inches per year was used (see Figures 2A and 3A). This value is consistent with the time of the year the wells were read and the simplified model was calibrated to (October 2006) as well as the rainfall in the prior six-month period (April 2006 to October 2006). We also compared recent precipitation data to historic values for this region using recent Danbury Airport precipitation data and historic data. Refer to Tables 6A and 6B, and the partial plot of the data in Table 6B for this comparison. The values of Hydraulic Transmissivities are also critical and were estimated using the referenced permeability data, the estimated aquifer thickness, and our

experience with the types of soils/bedrock present at the site. We note that the post-flow hydraulic transmissivities used in our analyses were increased from predicted existing values to account for the expected increased aquifer thickness as the groundwater rises after the application of sewage flows. Lastly, we note that the wells were not read during the wet season, thus additional judgment had to be used. Groundwater readings made during the Spring or early Summer will be required during final design to evaluate the effects of increased based flow during the wet season.

Based on our preliminary calculations, we estimate that the East and West Areas, will be capable of accommodation approximately 7,000 gallons per day (gpd) and 3,000 gpd, respectively. See Figures 2B and 3B.

For final design, we anticipate that a mounding analysis will be required (by the NYC DEP) using a 2-D model. This will require additional testing to provide the necessary data that will then be used in analyses and preparation of a computer model to evaluate / confirm the suitability for subsurface disposal. We expect that all of the data obtained during the present study can be directly re-used for future studies of the site.

This report is subject to the attached limitations. We are available to meet with you and or Insite to discuss these results or answer any questions you may have.

If you have any questions concerning this report please the undersigned (203-758-8836, extension 105).

Very Truly Yours,

Geo**Design**, Inc.

Original Signed

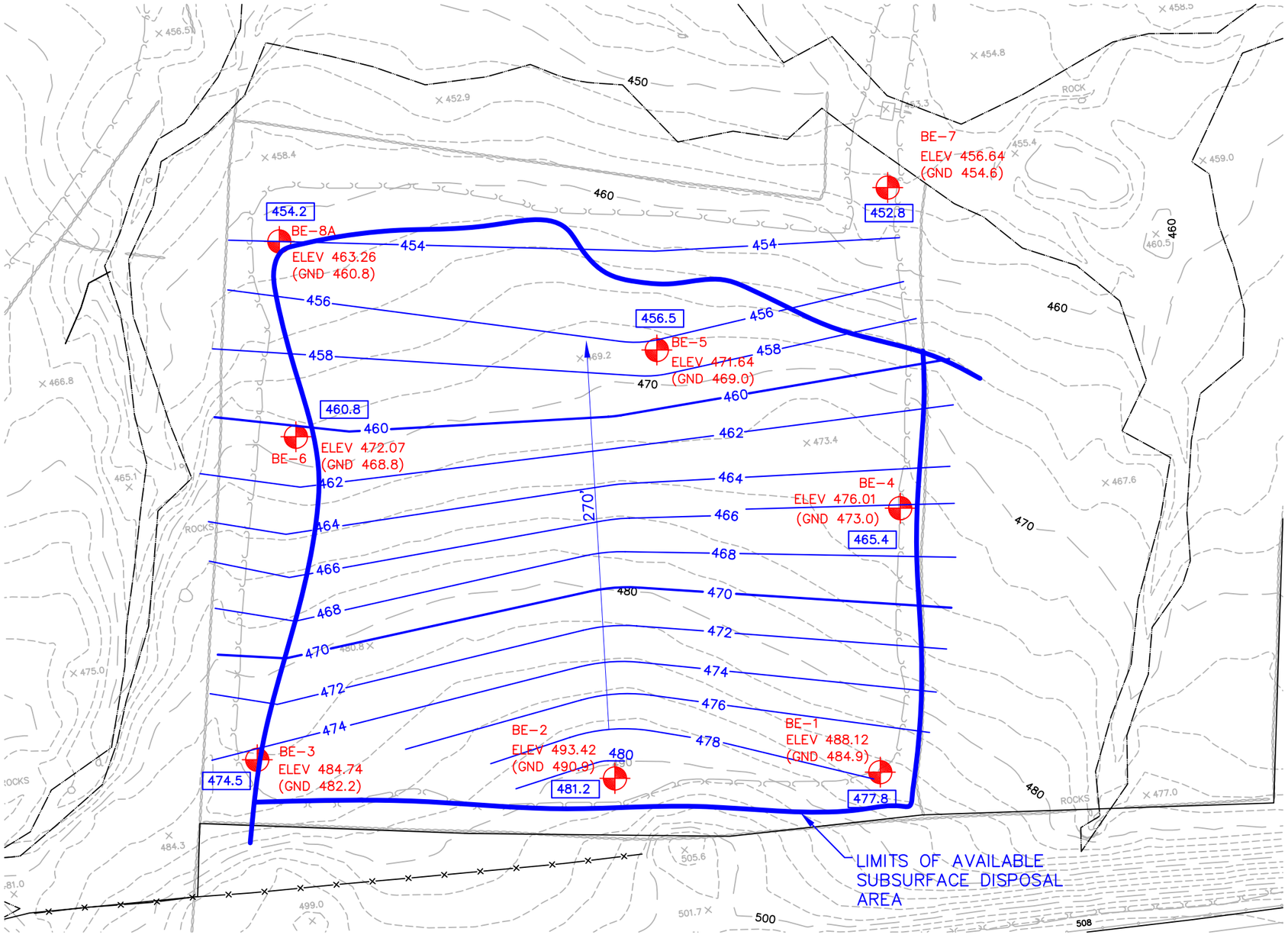
Ulrich La Fosse, P.E.
Senior Principal

Attachments: Figures
Tables
Boring and Wells Logs
Gradations Testing Results
Falling Head Test Results
Limitations

M\cl\321-05\report.doc

APPENDICES

FIGURES



LEGEND

BE–1 — TEST BORING
ELEV. 488.12 — ELEVATION (FT)
(GND 484.9) — GROUND SURFACE ELEVATION (FT)

477.8 — GROUNDWATER SURFACE ELEVATION (FT) MEASURED ON 10–18–2006

470 — INFERRED GROUNDWATER ELEVATION CONTOUR (FT) ON OCTOBER 18, 2006

NOTES:
1. BASEMAP PROVIDED BY INSITE VIA E–MAIL AND DATED OCT. 2006.

DESIGNED BY						
DRAWN BY SMC						
CHECKED BY ULF						
APPROVED BY ULF	NO.	DATE	REVISIONS	DRWN.	CHKD	APPVD

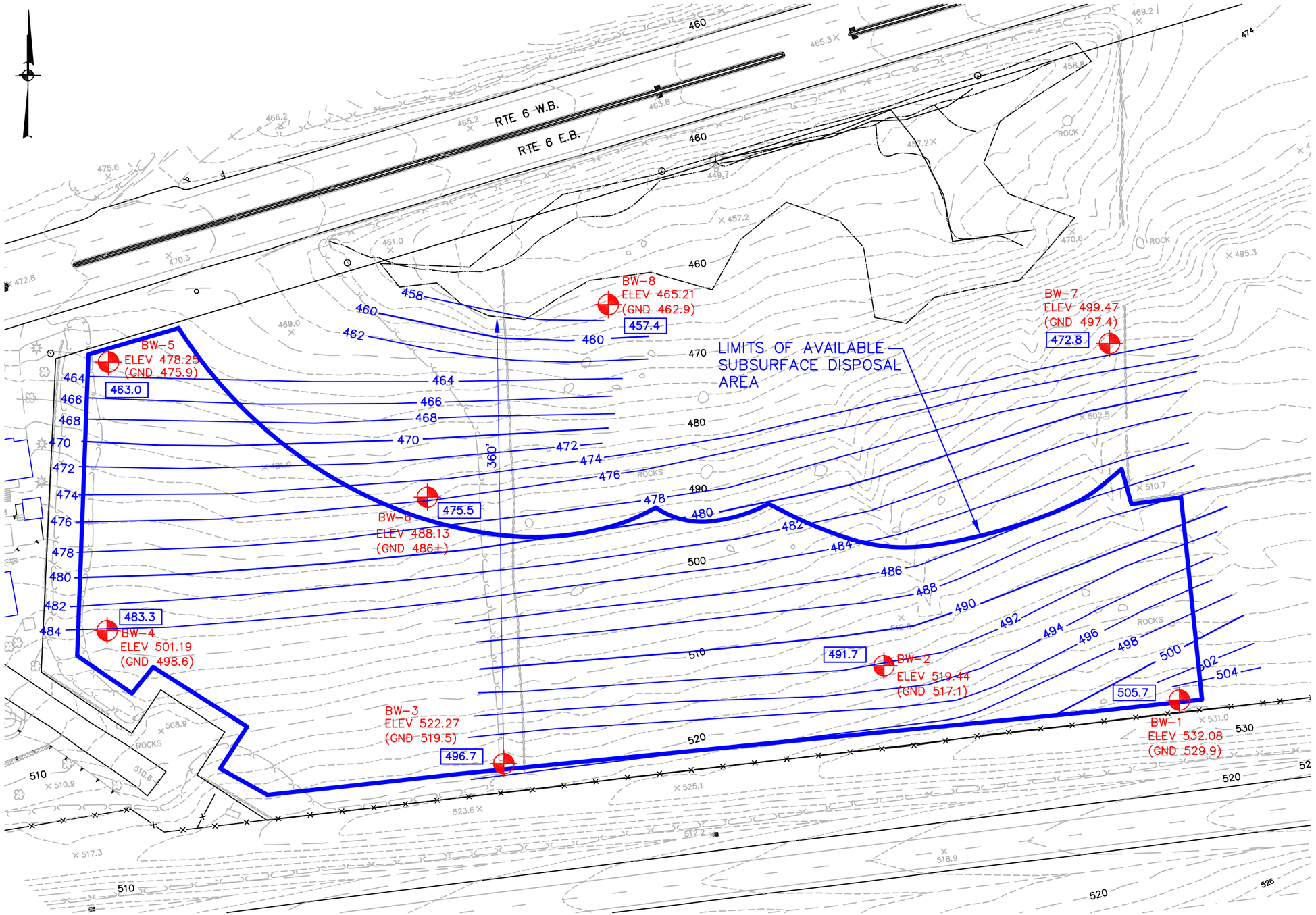
GEODESIGN INCORPORATED
GEOTECHNICAL ENGINEERS • ENVIRONMENTAL CONSULTANTS
964 SOUTHFORD ROAD • MIDDLEBURY CONNECTICUT 06762
TELEPHONE: (203)758–8836 FACSIMILE: (203)758–8842

PROJECT
STATELINE RETAIL CENTER
PRELIMINARY HYDROLOGICAL STUDY

FILE NO. 321–05
SCALE 1" = 80' DATE 11–21–06

DWG. TITLE
EAST AREA GROUNDWATER ELEVATION PLAN

DRAWING NO. 1A



DESIGNED BY						
DRAWN BY SMC						
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APPROVED BY ULF	NO.	DATE	REVISIONS	DRWN.	CHKD	APPVD

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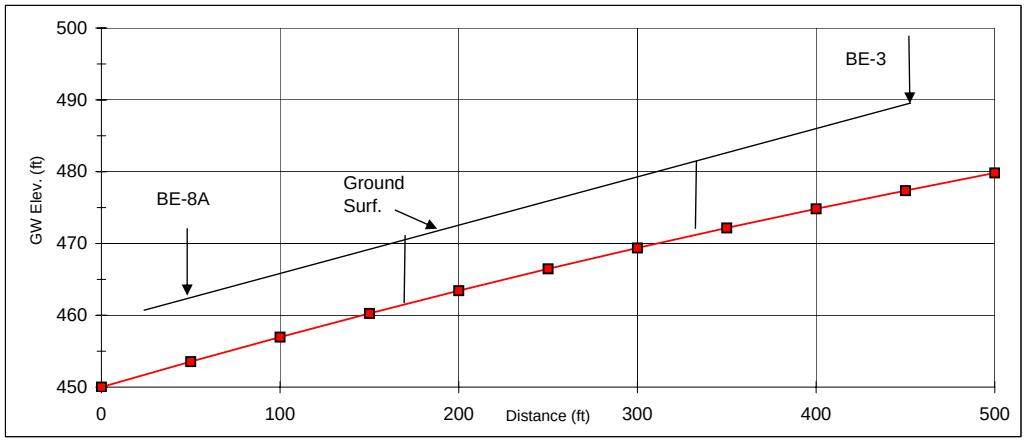
964 SOUTHFORD ROAD • MIDDLEBURY CONNECTICUT 06762
TELEPHONE: (203)758-8836 FACSIMILE: (203)758-8842

PROJECT	STATELINE RETAIL CENTER PRELIMINARY HYDROLOGICAL STUDY
FILE NO.	321-05
SCALE	1" = 80'
DATE	11-21-06
DWG. TITLE	WEST AREA GROUNDWATER ELEVATION PLAN
DRAWING NO.	1B

LINEAR (1-D) FLOW ANALYSES

FIGURE 2A
STATELINE RETAIL
EAST AREA
CALIBRATION



	Mult. Factor											
Point Source Flows for Widths input			**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Input Point Source Flow , (ft**3/d)	1		0	0	0	0	0	0	0	0	0	1000
Point Source Flow, Q (ft**3/d)			0	0	0	0	0	0	0	0	0	1000
Input Recharge (in/yr)	10		1	1	1	1	1	1	1	1	1	0
Recharge (in/yr)			10	10	10	10	10	10	10	10	10	0
Input Distances (ft)		0	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
Input Width (ft)	450		1	1	1	1	1	1	1	1	1	1
Width (ft)			450	450	450	450	450	450	450	450	450	450
Input Transmissivity (ft**2/d)	45		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Model Transmissivity (ft**2/d)			45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Final Heads (ft)		**450**	**453.55**	**456.97**	**460.26**	**463.43**	**466.47**	**469.38**	**472.17**	**474.83**	**477.36**	**479.83**
1			0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
2			0.13	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
3			0.13	0.25	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
4			0.13	0.25	0.38	0.44	0.44	0.44	0.44	0.44	0.44	0.44
5			0.13	0.25	0.38	0.51	0.57	0.57	0.57	0.57	0.57	0.57
6			0.13	0.25	0.38	0.51	0.63	0.70	0.70	0.70	0.70	0.70
7			0.13	0.25	0.38	0.51	0.63	0.76	0.82	0.82	0.82	0.82
8			0.13	0.25	0.38	0.51	0.63	0.76	0.89	0.95	0.95	0.95
9			0.13	0.25	0.38	0.51	0.63	0.76	0.89	1.01	1.08	1.08
10			2.47	4.94	7.41	9.88	12.35	14.81	17.28	19.75	22.22	24.69

Note: the formula is different along the diagonal shaded locations to account for less head loss when not all of the flow causes head loss through the starting node.
There is a divide by 2 term to account for this. Note formula is WL**2/2T in McWhorter & Sunada p.150 see added section for constant T by PFR
This is the same formula being applied to the shaded elements where the average of 1/2 the flow causes head loss thorugh the element with recharge.

The head loss for a point source of flow is: Q * L/T

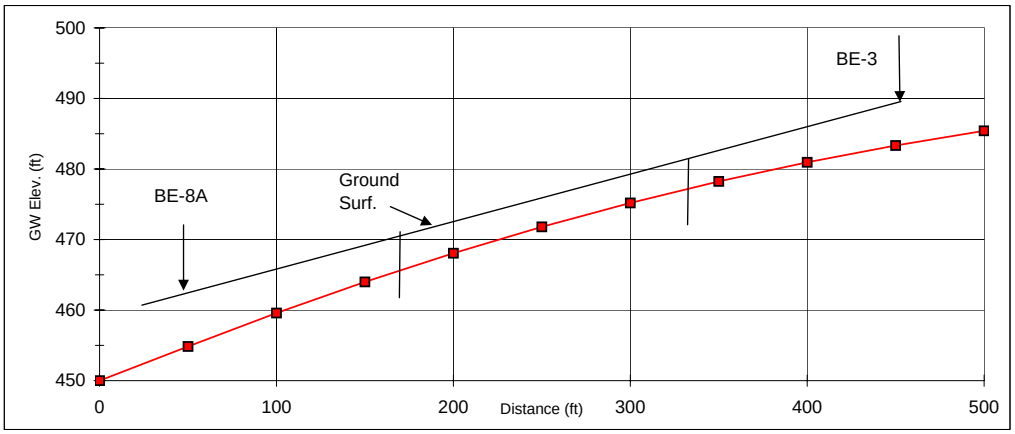
The head loss over an element with distributed flow is: q*L**2/(2*T)

The head loss over an element that is downgradient of a distributed flow element is treated like head loss from a point source.
Q = q*L and therefore the head loss is Q*L/T or q*L*L/T

Shaded head loss is the head loss through that node
Head loss terms below the shaded node are each due to the flow originating at other upgradient nodes, each term is loss due to each upgrad. Node
Head loss terms above the shaded node are just carried upgradient for calculating final heads.

LINEAR (1-D) FLOW ANALYSES

FIGURE 2B
STATELINE RETAIL
EAST AREA
PREDICTION



ft^3/cell	gpd
117	**7,000**

Point Source Flows for Widths input	Mult. Factor		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Input Point Source Flow , (ft**3/d)	1		0	117	117	117	117	117	117	117	117	1000
Point Source Flow, Q (ft**3/d)			0	117	117	117	117	117	117	117	117	1000
Input Recharge (in/yr)	10		1	1	1	1	1	1	1	1	1	0
Recharge (in/yr)			10	10	10	10	10	10	10	10	10	0
Input Distances (ft)		0	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
Input Width (ft)	400		1	1	1	1	1	1	1	1	1	1
Width (ft)			400	400	400	400	400	400	400	400	400	400
Input Transmissivity (ft**2/d)	60		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Model Transmissivity (ft**2/d)			60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Final Heads (ft)		**450**	**454.84**	**459.59**	**464.00**	**468.07**	**471.80**	**475.19**	**478.24**	**480.95**	**483.33**	**485.41**
1			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2			0.34	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
3			0.34	0.68	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
4			0.34	0.68	1.02	1.31	1.31	1.31	1.31	1.31	1.31	1.31
5			0.34	0.68	1.02	1.36	1.65	1.65	1.65	1.65	1.65	1.65
6			0.34	0.68	1.02	1.36	1.69	1.99	1.99	1.99	1.99	1.99
7			0.34	0.68	1.02	1.36	1.69	2.03	2.32	2.32	2.32	2.32
8			0.34	0.68	1.02	1.36	1.69	2.03	2.37	2.66	2.66	2.66
9			0.34	0.68	1.02	1.36	1.69	2.03	2.37	2.71	3.00	3.00
10			2.08	4.17	6.25	8.33	10.42	12.50	14.58	16.67	18.75	20.83

Note: the formula is different along the diagonal shaded locations to account for less head loss when not all of the flow causes head loss through the starting node.
There is a divide by 2 term to account for this. Note formula is WL**2/2T in McWhorter & Sunada p.150 see added section for constant T by PFR
This is the same formula being applied to the shaded elements where the average of 1/2 the flow causes head loss thorugh the element with recharge.

The head loss for a point source of flow is: Q * L/T

The head loss over an element with distributed flow is: q*L**2/(2*T)

The head loss over an element that is downgradient of a distributed flow element is treated like head loss from a point source.
Q = q*L and therefore the head loss is Q*L/T or q*L*L/T

Shaded head loss is the head loss through that node
Head loss terms below the shaded node are each due to the flow originating at other upgradient nodes, each term is loss due to each upgrad. Node
Head loss terms above the shaded node are just carried upgradient for calculating final heads.

LINEAR (1-D) FLOW ANALYSES

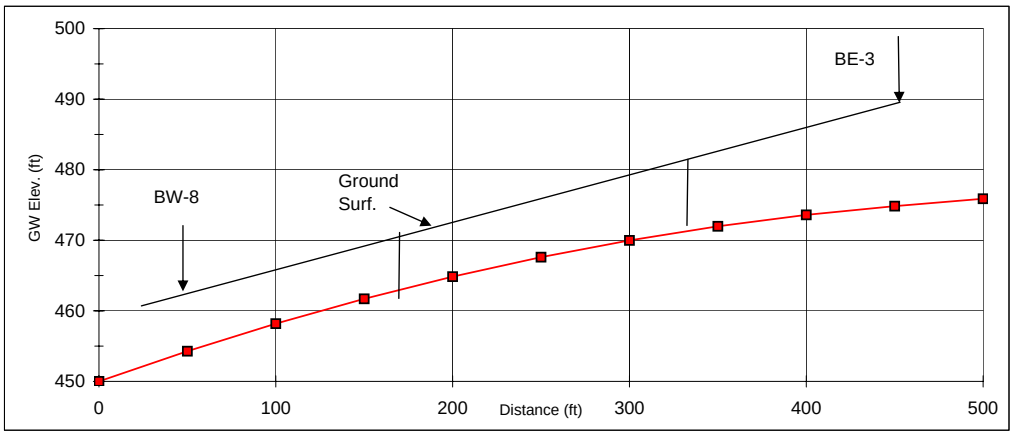


FIGURE 3A
STATELINE RETAIL
WEST AREA
CALIBRATION

Point Source Flows for Widths input	Mult. Factor		1	2	3	4	5	6	7	8	9	10
Input Point Source Flow , (ft**3/d)	1		0	0	0	0	0	0	0	0	0	0
Point Source Flow, Q (ft**3/d)			0	0	0	0	0	0	0	0	0	220
Input Recharge (in/yr)	10		1	1	1	1	1	1	1	1	1	0
Recharge (in/yr)			10	10	10	10	10	10	10	10	10	0
Input Distances (ft)		0	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
Input Width (ft)	700		1	1	1	1	1	1	1	1	1	1
Width (ft)			700	700	700	700	700	700	700	700	700	700
Input Transmissivity (ft**2/d)	15		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Model Transmissivity (ft**2/d)			15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Final Heads (ft)		**450**	**454.28**	**458.18**	**461.70**	**464.84**	**467.60**	**469.98**	**471.98**	**473.60**	**474.84**	**475.89**
1			0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
2			0.38	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
3			0.38	0.76	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
4			0.38	0.76	1.14	1.33	1.33	1.33	1.33	1.33	1.33	1.33
5			0.38	0.76	1.14	1.52	1.71	1.71	1.71	1.71	1.71	1.71
6			0.38	0.76	1.14	1.52	1.90	2.09	2.09	2.09	2.09	2.09
7			0.38	0.76	1.14	1.52	1.90	2.28	2.47	2.47	2.47	2.47
8			0.38	0.76	1.14	1.52	1.90	2.28	2.66	2.85	2.85	2.85
9			0.38	0.76	1.14	1.52	1.90	2.28	2.66	3.04	3.23	3.23
10			1.05	2.10	3.14	4.19	5.24	6.29	7.33	8.38	9.43	10.48

Note: the formula is different along the diagonal shaded locations to account for less head loss when not all of the flow causes head loss through the starting node.
There is a divide by 2 term to account for this. Note formula is WL**2/2T in McWhorter & Sunada p.150 see added section for constant T by PFR
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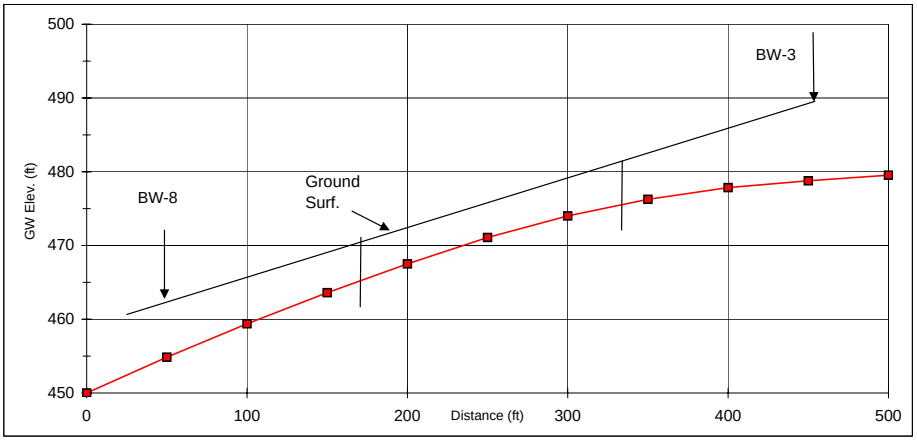
LINEAR (1-D) FLOW ANALYSES

FIGURE 3B
STATELINE RETAIL
WEST AREA
PREDICTION



ft^3/cell	gpd
100.3	**3,000**

		Mult. Factor										
Point Source Flows for Widths input				**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Input Point Source Flow , (ft**3/d)		1		0	0	0	0	100.3	100.3	100.3	100.3	0	220
Point Source Flow, Q (ft**3/d)				0	0	0	0	100.3	100.3	100.3	100.3	0	220
Input Recharge (in/yr)		10		1	1	1	1	1	1	1	1	1	0
Recharge (in/yr)				10	10	10	10	10	10	10	10	10	0
Input Distances (ft)			0	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
Input Width (ft)		800		1	1	1	1	1	1	1	1	1	1
Width (ft)				800	800	800	800	800	800	800	800	800	800
Input Transmissivity (ft**2/d)		18		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Model Transmissivity (ft**2/d)				18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Final Heads (ft)			**450**	**454.85**	**459.39**	**463.61**	**467.51**	**471.09**	**474.01**	**476.26**	**477.85**	**478.77**	**479.54**
	1			0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	2			0.32	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
	3			0.32	0.63	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
	4			0.32	0.63	0.95	1.11	1.11	1.11	1.11	1.11	1.11	1.11
	5			0.67	1.33	2.00	2.66	3.17	3.17	3.17	3.17	3.17	3.17
	6			0.67	1.33	2.00	2.66	3.33	3.83	3.83	3.83	3.83	3.83
	7			0.67	1.33	2.00	2.66	3.33	3.99	4.50	4.50	4.50	4.50
	8			0.67	1.33	2.00	2.66	3.33	3.99	4.66	5.16	5.16	5.16
	9			0.32	0.63	0.95	1.27	1.59	1.90	2.22	2.54	2.70	2.70
	10			0.76	1.53	2.29	3.06	3.82	4.58	5.35	6.11	6.88	7.64

Note: the formula is different along the diagonal shaded locations to account for less head loss when not all of the flow causes head loss through the starting node.
There is a divide by 2 term to account for this. Note formula is WL**2/2T in McWhorter & Sunada p.150 see added section for constant T by PFR
This is the same formula being applied to the shaded elements where the average of 1/2 the flow causes head loss thorugh the element with recharge.

The head loss for a point source of flow is: Q * L/T

The head loss over an element with distributed flow is: q*L**2/(2*T)

The head loss over an element that is downgradient of a distributed flow element is treated like head loss from a point source.
Q = q*L and therefore the head loss is Q*L/T or q*L*L/T

Shaded head loss is the head loss through that node
Head loss terms below the shaded node are each due to the flow originating at other upgradient nodes, each term is loss due to each upgrad. Node
Head loss terms above the shaded node are just carried upgradient for calculating final heads.

TEST BORING AND WELL LOGS

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-1**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Jeff Leavitt			Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes
GeoDesign Rep.:	Chi Zhang			I.D.:	4.0 in.	1.38 in.	
Date Started:	October 5, 2006	Date Finished:	October 5, 2006	Hammer Wt.:	NA	140 lbs	▼ 10/5/06 / 7.0 / 477.0 / Wet sample
N. Coordinate:		E. Coordinate:		Hammer Fall:	NA	30 in.	▼ 10/6/06 / 5.9 / 478.1 / In well
Ground Surface Elevation (feet):	484.0			Rig Type:	Bombardier		▼ 10/9/06 / 7.2 / 476.8 / In well
Station:		Offset:	ft	Hammer Type:	Safety - Hydraulic		▼ 10/16/06 / 6.0 / 478.0 / In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	4	0.0	6	7	13	13			Sand & Gravel		Medium dense, brown fine to coarse SAND, some fine to coarse Gravel, little Silt
5		2	SS	24	14	5.0	6	6	12	21					Medium dense, brown fine to coarse SAND, some fine to coarse Gravel, little Silt
													8.5 Bottom of Exploration at 8.5 ft 475.5		
10															
15															
20															
25															

Remarks: Auger refusal at 8.5 feet below grade. Moved boring 5 feet to the north and began BE-1A.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-1**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-1A**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Jeff Leavitt		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 5, 2006	Date Finished:	October 5, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	484.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/5/06	7.0	477.0	Wet sample
10/6/06	5.9	478.1	In well
10/9/06	7.2	476.8	In well after 3 days
10/16/06	6.0	478.0	In well after 10 days

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: Burmister
5															
													8.5		
10		C-1	C	60	55	8.5	[REC= 92%; RQD= 100%]				6		Bedrock 475.5		Excellent Quality, Hard, Slightly Weathered, gray, GNEISS, moderate jointing
											7				
											10				
											10				
											10				
15		C-2	C	60	60	13.5	[REC= 100%; RQD= 90%]				10				Excellent Quality, Hard, Slightly Weathered, GNEISS, moderate jointing
											11				
											9				
											11				
											11				
													18.5		
20													Bottom of Exploration at 18.5 ft 465.5		
25															

Remarks: Moved boring BE-1 five feet to the north and began BE-1A.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 10 foot riser. Riser stickup is approximately 2 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-1A**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-2**
Page No.: 1 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Jeff Leavitt		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 6, 2006	Date Finished:	October 6, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	490.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/9/06	10.5	479.5	In well
10/10/06	10.4	479.6	In well
10/16/06	9.8	480.2	In well
10/18/06	10.2	479.8	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	16	0.0	2	3	4	7			0.5 Topsoil / Subsoil 489.5		Loose, brown fine to coarse SAND and SILT, little fine to coarse Gravel, trace Roots
													2.0 Sand & Gravel 488.0		
5															
		2	SS	24	12	5.0	6	12	15	15					Medium dense, brown fine to coarse SAND, some Silt, some fine to coarse Gravel
10															
		3	SS	14	8	10.0	18	36	100/2"				11.2 Cobbles & Boulders 478.8		Very dense, gray fine to coarse GRAVEL, some fine to coarse Sand, little Silt
15															
20													21.0 Bedrock 469.0		
		C-1	C	60	60	21.0	[REC= 100%; RQD= 90%]				6				Excellent Quality, Moderately Hard, Slightly Weathered, gray, GNEISS
											6				
											9				
25											11				

Remarks

Auger refusal at 7 feet below grade; cored to 7.5 feet through a boulder using casing; did not get GWT.
Cored at 11.2 feet below grade through a 4 inch diameter cobble; augered through a layer of boulders and cobbles from 11.2 to 21 feet below grade.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 14 foot riser. Riser stickup is approximately 2.4 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-2**
Page No.: 2 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		Casing:	Sampler:	
Foreman:	Jeff Leavitt	Type:	HW	SS	
GeoDesign Rep.:	Chi Zhang	I.D.:	4.0 in.	1.38 in.	
Date Started:	October 6, 2006	Date Finished:	October 6, 2006	Hammer Wt.:	NA	140 lbs
N. Coordinate:		E. Coordinate:		Hammer Fall:	NA	30 in.
Ground Surface Elevation (feet):	490.0			Rig Type:	Bombardier	
Station:		Offset:	ft	Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/9/06	10.5	479.5	In well
10/10/06	10.4	479.6	In well
10/16/06	9.8	480.2	In well
10/18/06	10.2	479.8	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: Burmister
											11		Bedrock *(Continued)*		
		C-2	C	60	57	26.0	[REC= 95%; RQD= 70%]				11				Fair Quality, Moderately Hard, Slightly Weathered, gray, GNEISS
											10				
											10				
30											12				
											7		31.0		
													Bottom of Exploration at 31.0 ft 459.0		
35															
40															
45															
50															

Remarks

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-2**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-3**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Tim Carpenter		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 5, 2006	Date Finished:	October 6, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	483.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations			
Date	Depth (ft)	Elev. (ft)	Notes
10/6/06	8.8	474.2	Open hole
10/9/06	8.5	474.5	In well
10/10/06	8.6	474.4	In well
10/18/06	7.7	475.3	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	20	0.0	1	1	2	3			0.5 Topsoil Silty Sand & Gravel 482.5		Very loose, brown fine to medium SAND and SILT, little fine to coarse Gravel, trace Roots
5		2	SS	24	20	5.0	4	4	5	6			7.0		Loose, brown/gray fine to coarse SAND, some Silt, little fine to coarse Gravel
10		3	SS	24	20	10.0	14	17	17	19			Glacial Till 476.0 12.0		Dense, gray fine to coarse SAND and fine to coarse GRAVEL, some Silt, (moist)
15													Bottom of Exploration at 12.0 ft 471.0		
20															
25															

Remarks

Drilled to 12 feet below grade; left hole open and taped water level next morning. Hole caved in to 9 feet.
Moved 3 feet north to case a hole for falling head test.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 5 foot screen (0.010 inch slots) and a 1.2 foot riser. Riser stickup is approximately 2.5 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-3**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-4**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Tim Carpenter		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 5, 2006	Date Finished:	October 6, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	473.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/5/06	10.0	463.0	Wet sample
10/6/06	9.7	463.3	In well
10/9/06	8.2	464.8	In well
10/16/06	6.9	466.1	In well

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	8	0.0	1	2	2	3			Topsoil 1.0		Loose, dark brown fine to coarse SAND and SILT, some fine to coarse Gravel, trace Wood
													Silty Sand & Gravel 472.0		
5		2	SS	24	18	5.0	12	12	11	13					Medium dense, brown/gray fine to coarse SAND and Silt, little fine to coarse Gravel
10		3	SS	24	20	10.0	5	2	5	6					Loose, gray fine to coarse SAND, some Silt, trace fine Gravel, (wet)
		4	SS	1	1	13.5	50/1"						13.6 Bottom of Exploration at 13.6 ft 459.4		Very dense, gray fine to coarse Gravel
15															
20															
25															

Remarks: Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 5 foot screen (0.010 inch slots) and a 10 foot riser. Riser stickup is approximately 2.9 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-4**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-5**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Jeff Leavitt		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 9, 2006	Date Finished:	October 10, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	471.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/10/06	12.9	458.1	In well
10/11/06	12.9	458.1	In well
10/16/06	12.8	458.2	In well
10/18/06	12.6	458.4	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	10	0.0	2	3	4	7			Topsoil 1.0		Loose, brown SILT, some fine to coarse Sand, trace Roots
													Subsoil 470.0 2.0		
													Sand & Gravel 469.0		
5															
		2	SS	24	18	5.0	10	13	22	25					Dense, brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt
10															
		3	SS	24	24	10.0	6	7	12	12					Medium dense, brown fine to coarse SAND, little fine to coarse Gravel, trace Silt
15															
		4	SS	24	20	15.0	16	21	37	53			16.8		Very dense, gray to black fine to coarse GRAVEL and fine to coarse SAND, trace Silt, (weathered Rock)
													17.5 Weathered Rock 454.2 453.5		
20													Bottom of Exploration at 17.5 ft		
25															

Remarks: Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 10 foot riser. Riser stickup is approximately 2.6 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-5**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-6**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		Casing:	Sampler:	
Foreman:	Jeff Leavitt	Type:	HW	SS	
GeoDesign Rep.:	Chi Zhang	I.D.:	4.0 in.	1.38 in.	
Date Started:	October 9, 2009	Date Finished:	October 9, 2006	Hammer Wt.:	NA	140 lbs
N. Coordinate:		E. Coordinate:		Hammer Fall:	NA	30 in.
Ground Surface Elevation (feet):	473.0			Rig Type:	Bombardier	
Station:		Offset:	ft	Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/10/06	8.3	464.7	In well
10/11/06	8.3	464.7	In well
10/16/06	8.3	464.8	In well

Depth (ft)	Casing Blows/ft	Sample Number	Sample Type	Penetration (inches)	Recovery (inches)	Sample Depth (ft)	Blows / 6 inch Interval 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	20	0.0	4	4	6	6			0.5 Topsoil		Medium dense, red-brown SILT, some fine to coarse Sand, trace Roots
													Silty Sand & Gravel 472.5		
5		2	SS	24	18	5.0	13	10	7	11					Medium dense, gray-brown fine to coarse SAND, some Silt, trace fine Gravel
10		3	SS	24	20	10.0	6	7	12	12					Medium dense, brown SILT and fine to coarse SAND, some fine to coarse Gravel, (wet)
15		4	SS	24	20	15.0	4	4	5	7					Loose, brown fine to coarse SAND, little Silt
20		5	SS	24	20	20.0	7	9	9	15			22.0 Sand & Gravel 451.0		Medium dense, brown fine to coarse SAND and SILT, trace fine Gravel, (wet)
25		6	SS	6	3	23.0	110						23.5 Bottom of Exploration at 23.5 ft 449.5		Very dense, brown fine to coarse GRAVEL and fine to coarse SAND, little Silt

Remarks: Sample S-4 was lost when box fell from truck.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 15 foot screen (0.010 inch slots) and a 10 foot riser. Riser stickup is approximately 3.2 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-6**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-7**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Tim Carpenter		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 9, 2006	Date Finished:	October 10, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	454.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/9/06	5.0	449.0	Wet spoon
10/10/06	2.2	451.8	In well
10/16/06	2.0	452.0	In well
10/18/06	1.8	452.2	In well

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	20	0.0	1	1	2	4			Topsoil 1.0		Very loose, dark brown SILT and fine to coarse SAND, little fine to coarse Gravel, trace Roots and Timbers
													Sand & Gravel 453.0		
5															
		2	SS	24	18	5.0	8	8	12	5					Medium dense, gray fine to coarse SAND, some fine to coarse Gravel, trace Silt
													7.0		
													Silty Sand & Gravel 447.0		
10															
		3	SS	24	20	10.0	8	9	2	2					Medium dense, gray fine to coarse SAND, some Silt, some fine to coarse Gravel, (wet)
15															
		4	SS	24	12	15.0	8	8	11	11					Medium dense, gray SILT and fine to medium SAND
20													20.0		
		5	SS	24	20	20.0	20	28	33	40			Glacial Till 434.0		Very dense, gray fine to coarse GRAVEL, some fine to coarse Sand, little Silt
25															
		6	SS	14	12	25.0	37	51	100/2"				26.2		Very dense, dark gray fine to medium SAND, some Silt, little fine to coarse Gravel
													Bottom of Exploration at 26.2 ft 427.8		

Remarks: Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 15 foot screen (0.010 inch slots) and a 10 foot riser. Riser stickup is approximately 2 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-7**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-8**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Tim Carpenter		Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes	
GeoDesign Rep.:	Chi Zhang		I.D.:	4.0 in.	1.38 in.		
Date Started:	October 6, 2006	Date Finished: October 6, 2006	Hammer Wt.:	NA	140 lbs	▼ 10/6/06 / 10.0 / 450.0 / Wet sample	
N. Coordinate:		E. Coordinate:	Hammer Fall:	NA	30 in.	▼ 10/6/06 / 8.0 / 452.0 / Before falling head test	
Ground Surface Elevation (feet):	460.0		Rig Type:	Bombardier		▼	
Station:	Offset: ft		Hammer Type:	Safety - Hydraulic		▼	

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	10	0.0	1	2	4	4			0.7 Topsoil		Loose, brow-dark brown fine to coarse SAND and SILT, some fine to coarse Gravel, trace Roots, trace Timber
													Sand & Gravel 459.3		
5		2	SS	24	20	5.0	10	13	10	9					Medium dense, brown fine to coarse SAND, little Silt, (moist)
													▼		
10		3	SS	24	20	10.0	21	24	14	15			▼		Dense, dark brown fine to coarse SAND, some fine to coarse Gravel, little Silt
													12.0		
													Bottom of Exploration at 12.0 ft 448.0		
15															
20															
25															

Remarks: After taking sample S-3, moved borehole 2 feet to the east and began BE-8A.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-8**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BE-8A**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Tim Carpenter		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 9, 2006	Date Finished:	October 9, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	460.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/10/06	6.9	453.1	In well
10/11/06	6.8	453.2	In well
10/16/06	6.7	453.3	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: Burmister
5															
10		1	SS	24	8	10.0	14	52							Very dense, dark gray fine to coarse SAND, trace Silt
													11.5 Boulder 448.5		
													13.0 Glacial Till 447.0		
15		2	SS	24	12	15.0	15	21	29	32					Very dense, gray-brown fine to coarse SAND and SILT, little fine to coarse Gravel
20		3	SS	4	4	20.0	100/4"								Very dense, gray SILT and fine to coarse SAND, some fine to coarse Gravel
25		4	SS	3	3	25.0	100/3"						25.3 Bottom of Exploration at 25.3 ft 434.7		Very dense, gray SILT, some fine to coarse Sand, some fine to coarse Gravel

Remarks

Boring was located 2 feet east of boring BE-8. (See log B-8 for strata descriptions above 10 foot depth.)
Augered to 10 feet below grade for falling head test then began sampling at 10 foot depth; refusal at 11.5 feet; cored boulder to 13 feet.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 20 foot screen (0.010 inch slots) and a 9 foot riser.
Riser stickup is approximately 2.4 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BE-8A**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-1**
Page No.: 1 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors		
Foreman:	Tim Carpenter		
GeoDesign Rep.:	Chi Zhang		
Date Started:	October 10, 2006	Date Finished:	October 11, 2006
N. Coordinate:		E. Coordinate:	
Ground Surface Elevation (feet):	527.0		
Station:		Offset: ft	

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/12/06	25.3	501.7	In well
10/12/06	25.5	501.5	In well
10/18/06	27.4	499.6	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: Burmister
		1	SS	24	18	0.0	2	2	4	5			0.5 Topsoil		Loose, brown fine to coarse SAND and SILT, some fine to coarse Gravel, trace Roots
													Sand & Silt 526.5		
5		2	SS	24	20	5.0	12	12	15	15					Medium dense, brown fine to coarse SAND and SILT
10		3	SS	24	20	10.0	9	10	10	11					Medium dense, brown fine to coarse SAND and SILT
15		4	SS	24	20	15.0	10	16	27	27					Dense, gray SILT and fine to medium SAND
20		5	SS	24	24	20.0	25	36	40	25					Very dense, SILT, some fine to medium SAND
25													25.0		

Remarks

Hole caved in to 21.5 feet; moist at the bottom.
Rollerbit was advanced through weathered rock from 25 to 35 feet below grade.
Stopped drilling at 22 feet on 10/10/06 and continued drilling on 10/11/06.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 15 foot screen (0.010 inch slots) and a 22 foot riser. Riser stickup is approximately 1.1 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-1**
Page No.: 2 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:
Foreman:	Tim Carpenter			Type:	HW	SS
GeoDesign Rep.:	Chi Zhang			I.D.:	4.0 in.	1.38 in.
Date Started:	October 10, 2006	Date Finished:	October 11, 2006	Hammer Wt.:	NA	140 lbs
N. Coordinate:		E. Coordinate:		Hammer Fall:	NA	30 in.
Ground Surface Elevation (feet):	527.0			Rig Type:	Bombardier	
Station:		Offset: ft		Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/12/06	25.3	501.7	In well
10/12/06	25.5	501.5	In well
10/18/06	27.4	499.6	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		6	SS	3	3	25.0	100/3"						Weathered Rock 502.0		Very dense, light brown fine to coarse SAND, trace Silt, (decomposed Rock)
30															
35													35.0 Bottom of Exploration at 492.0 at 35.0 ft		
40															
45															
50															

Remarks

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-1**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-2**
Page No.: 1 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Tim Carpenter		Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes	
GeoDesign Rep.:	Chi Zhang		I.D.:	4.0 in.	1.38 in.		
Date Started:	October 12, 2006	Date Finished: October 12, 2006	Hammer Wt.:	NA	140 lbs	10/13/06 / 25.5 / 489.5 / In well	
N. Coordinate:		E. Coordinate:	Hammer Fall:	NA	30 in.		
Ground Surface Elevation (feet):	515.0		Rig Type:	Bombardier			
Station:	Offset: ft		Hammer Type:	Safety - Hydraulic			

Depth (ft)	Casing Blows/ft	Sample Number	Sample Type	Penetration (inches)	Recovery (inches)	Sample Depth (ft)	Blows / 6 inch Interval 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	20	0.0	1	1	2	4			0.5 Topsoil Glacial Till 514.5		Very loose, brown SILT, little fine to coarse Sand, trace Roots
5		2	SS	24	18	5.0	9	10	29	11					Dense, gray fine to coarse SAND and SILT, trace fine to coarse Gravel
10		3	SS	24	20	10.0	11	23	24	36					Dense, gray fine to coarse SAND, some Silt, little fine to coarse Gravel
15		4	SS	16	8	15.0	51	100/4"							Very dense, gray fine SAND and SILT, trace (-) fine Gravel
20		5	SS	15	15	20.0	41	64	101/3"						Very dense, dark gray fine to coarse SAND and SILT, little fine to coarse Gravel
25															

Remarks: Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 15 foot screen (0.010 inch slots) and a 17 foot riser. Riser stickup is approximately 2.3 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-2**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-2**
Page No.: 2 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Tim Carpenter		Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes	
GeoDesign Rep.:	Chi Zhang		I.D.:	4.0 in.	1.38 in.		
Date Started:	October 12, 2006	Date Finished: October 12, 2006	Hammer Wt.:	NA	140 lbs	10/13/06 / 25.5 / 489.5 / In well	
N. Coordinate:		E. Coordinate:	Hammer Fall:	NA	30 in.		
Ground Surface Elevation (feet):	515.0		Rig Type:	Bombardier			
Station:	Offset: ft		Hammer Type:	Safety - Hydraulic			

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		6	SS	14	12	25.0	38	60	100/4"				26.0 ▼		Very dense, gray fine to medium SAND and SILT, trace fine Gravel
													Weathered Rock 489.0		
30													30.0		
													Bottom of Exploration at 30.0 ft 485.0		
35															
40															
45															
50															

Remarks

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-2**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-3**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Jeff Leavitt			Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes
GeoDesign Rep.:	Chi Zhang			I.D.:	4.0 in.	1.38 in.	
Date Started:	October 10, 2006	Date Finished:	October 11, 2006	Hammer Wt.:	NA	140 lbs	▼ 10/11/06 / 23.0 / 497.0 / In well
N. Coordinate:		E. Coordinate:		Hammer Fall:	NA	30 in.	▼ 10/11/06 / 21.3 / 498.7 / In well
Ground Surface Elevation (feet):	520.0			Rig Type:	Bombardier		▼ 10/13/06 / 22.9 / 497.1 / In well
Station:		Offset:	ft	Hammer Type:	Safety - Hydraulic		▼ 10/18/06 / 21.9 / 498.1 / In well

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	18	0.0	9	10	13	14			0.5 Topsoil Glacial Till 519.5		Medium dense, brown SILT and fine to medium SAND, trace Roots
5		2	SS	24	14	5.0	39	47	100/5"						Very dense, brown fine to medium SAND, some Silt, little fine to coarse Gravel
10		3	SS	24	16	10.0	23	13	21	33					Dense, gray-light brown SILT and fine to coarse SAND, little fine to coarse Gravel
15		4	SS	11	10	15.0	67	100/5"							Very dense, gray SILT and fine to coarse SAND, trace fine to coarse Gravel
20		5	SS	3	3	20.0	100/3"								Very dense, brown fine to coarse SAND and fine to coarse GRAVEL
25		6	SS	0	0	25.0							25.0 Bottom of Exploration at 25.0 ft 495.0		Refusal

Remarks: Spoon refusal at 17 feet below grade. Cored through a 1 foot diameter cobble.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 18 foot riser. Riser stickup is approximately 2.6 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-3**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-4**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company: New England Boring Contractors
Foreman: Jeff Leavitt
GeoDesign Rep.: Chi Zhang
Date Started: October 11, 2006 Date Finished: October 11, 2006
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 500.0
Station: Offset: ft

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/11/06	14.8	485.2	In well
10/13/06	15.2	484.8	In well
10/18/06	15.4	484.6	In well

Depth (ft)	Casing Blows/ft	Sample Information: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description: Depth & Elevation(feet)	Symbol	Sample Description: Classification System: Burmister
		1	SS	24	8	0.0	3	3	3	4			Topsoil 499.6		Loose, black-gray SILT, some fine to coarse Sand, trace Roots
													Silty Sand & Gravel		
5		2	SS	24	16	5.0	8	13	14	14					Medium dense, brown fine to coarse SAND and SILT, trace fine Gravel
													7.5		
													Cobble 492.5		
													9.0		
10													Silty Sand & Gravel 491.0		
		3	SS	24	14	10.0	12	15	12	14					Medium dense, brown fine to coarse SAND, some Silt, trace fine Gravel
15															
		4	SS	24	10	15.0	12	24	24	27					Dense, brown fine to coarse SAND, little fine to coarse Gravel, trace Silt, (decomposed Rock)
													17.0		
													Decomposed Rock 483.0		
20															
		5	SS	24	22	20.0	17	26	31	39					Very dense, brown/red-brown fine to coarse SAND, little fine to coarse Gravel, trace Silt
25													25.0		
													Bottom of Exploration at 25.0 ft 475.0		

Remarks: Roller bit was advanced from 22 to 25 feet below grade.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 17 foot riser. Riser stickup is approximately 2.5 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-4**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-5**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Jeff Leavitt			Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes
GeoDesign Rep.:	Chi Zhang			I.D.:	4.0 in.	1.38 in.	
Date Started:	October 11, 2006	Date Finished:	October 12, 2006	Hammer Wt.:	NA	140 lbs	▼ 10/13/06 / 13.0 / 462.0 / In well
N. Coordinate:		E. Coordinate:		Hammer Fall:	NA	30 in.	▼ 10/16/06 / 13.1 / 461.9 / In well
Ground Surface Elevation (feet):	475.0			Rig Type:	Bombardier		▼ 10/18/06 / 13.1 / 461.9 / In well
Station:		Offset:	ft	Hammer Type:	Safety - Hydraulic		▼

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	13	8	0.0	3	3	100/1"				Topsoil 1.0		Very dense, dark brown SILT, little fine to coarse Sand, little fine to coarse Gravel
													Subsoil & Cobbles 474.0 2.5		
													Sand & Gravel 472.5		
5															
		2	SS	24	10	5.0	7	16	13	9					Medium dense, white fine to coarse SAND and fine to coarse GRAVEL
10															
		3	SS	5	3	10.0	100/5"								Very dense, brown, fine to coarse SAND, little (+) fine GRAVEL, little (-) Silt
													13.0 ▼		
													Decomposed Bedrock (inferred) 462.0		
15															
													17.0		
													Bottom of Exploration at 17.0 ft 458.0		
20															
25															

Remarks

White-colored return water was observed while advancing roller bit from 13 to 17 foot depth. Roller bit refusal at 17 foot depth.

Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 6 foot riser. Riser stickup is approximately 2.3 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-5**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-6**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company: New England Boring Contractors
Foreman: Jeff Leavitt
GeoDesign Rep.: Chi Zhang
Date Started: October 12, 2006 Date Finished: October 13, 2006
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 486.0
Station: Offset: ft

	Casing:	Sampler:
Type:	HW	SS
I.D.:	4.0 in.	1.38 in.
Hammer Wt.:	NA	140 lbs
Hammer Fall:	NA	30 in.
Rig Type:	Bombardier	
Hammer Type:	Safety - Hydraulic	

Groundwater Observations

Date	Depth (ft)	Elev. (ft)	Notes
10/13/06	11.4	474.6	Open hole
10/16/06	10.5	475.5	In well
10/18/06	10.3	475.7	In well

Depth (ft)	Casing Blows/ft	Sample Number	Sample Type	Penetration (inches)	Recovery (inches)	Sample Depth (ft)	Blows / 6 inch Interval 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	12	0.0	1	1	2	6			0.5 Topsoil Sand & Gravel 485.5		Very loose, brown fine SAND, little Silt
5		2	SS	24	12	5.0	13	21	27	35					Dense, brown fine to coarse SAND, some fine to coarse Gravel, trace Silt
10		3	SS	9	6	10.0	61	100/3"					10.0 Glacial Till 476.0		Very dense, black-dark gray SILT and fine to coarse SAND, some fine to coarse Gravel (weathered Rock)
15		4	SS	24	18	15.0	30	34	31	43					Very dense, black fine to coarse GRAVEL, some fine to coarse Sand, trace Silt
20													18.0 Decomposed Rock (inferred) 468.0 20.0 Bottom of Exploration at 20.0 ft 466.0		
25															

Remarks: Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 10 foot screen (0.010 inch slots) and a 12 foot riser. Riser stickup is approximately 2.3 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-6**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-7**
Page No.: 1 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Tim Carpenter		Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes	
GeoDesign Rep.:	Chi Zhang		I.D.:	4.0 in.	1.38 in.		
Date Started:	October 10, 2006	Date Finished: October 11, 2006	Hammer Wt.:	NA	140 lbs	10/12/06 / 24.5 / 470.5 / In well	
N. Coordinate:		E. Coordinate:	Hammer Fall:	NA	30 in.	10/13/06 / 24.7 / 470.3 / In well	
Ground Surface Elevation (feet):	495.0		Rig Type:	Bombardier		10/15/06 / 24.7 / 470.3 / In well	
Station:	Offset: ft		Hammer Type:	Safety - Hydraulic			

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	18	0.0	2	4	5	7			0.5 Topsoil		Loose, brown SILT, some fine to coarse Sand, trace Roots
													Sand & Gravel 494.5		
5		2	SS	20	14	5.0	19	31	50	50/2"					Very dense, dark brown fine to coarse GRAVEL and fine to coarse SAND, trace Silt
10		3	SS	3	2	10.0	100/3"								Very dense, dark brown SILT, little fine to coarse Sand
													13.5 Decomposed/ Weathered Rock 481.5		
15															
20		C-1	C	60	60	20.0	[REC= 100%; RQD= 14%]						20.0 Bedrock 475.0		Very Poor Quality, Soft, Extremely Weathered, dark gray, GNEISS, very close jointing
25															

Remarks

Lost water at 19 feet below grade in inferred decomposed rock.
Spoon refusal at 13.5 feet below grade; rollerbit advanced to 20 feet.
Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 20 foot screen (0.010 inch slots) and a 10 foot riser. Riser stickup is approximately 1.95 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-7**
Page No.: 2 of 2
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Tim Carpenter		Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes	
GeoDesign Rep.:	Chi Zhang		I.D.:	4.0 in.	1.38 in.		
Date Started:	October 10, 2006	Date Finished: October 11, 2006	Hammer Wt.:	NA	140 lbs	10/12/06 / 24.5 / 470.5 / In well	
N. Coordinate:		E. Coordinate:	Hammer Fall:	NA	30 in.	10/13/06 / 24.7 / 470.3 / In well	
Ground Surface Elevation (feet):	495.0		Rig Type:	Bombardier		10/15/06 / 24.7 / 470.3 / In well	
Station:	Offset: ft		Hammer Type:	Safety - Hydraulic			

Depth (ft)	Casing Blows/ft	Sample Info: Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval: 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		C-2	C	42	42	25.0	[REC= 100%; RQD= 30%]						Bedrock *(Continued)*		Poor Quality, Moderately Weathered, dark gray, GNEISS, close jointing
													28.5 Bottom of Exploration at 28.5 ft 466.5		
30															
35															
40															
45															
50															

Remarks

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-7**

GEODESIGN INCORPORATED
Geotechnical Engineers and Environmental Consultants
984 Southford Road
Middlebury, Connecticut 06762
Telephone: 203-758-8836 Fax: 203-758-8842

BORING LOG

Project Name

Stateline Retail Center

Southeast, New York

Boring No.: **BW-8**
Page No.: 1 of 1
File No.: 0321-005.0
Checked By: ULF

Boring Company:	New England Boring Contractors			Casing:	Sampler:	Groundwater Observations	
Foreman:	Tim Carpenter		Type:	HW	SS	Date / Depth (ft) / Elev. (ft) / Notes	
GeoDesign Rep.:	Chi Zhang		I.D.:	4.0 in.	1.38 in.		
Date Started:	October 12, 2006	Date Finished: October 13, 2006	Hammer Wt.:	NA	140 lbs	10/13/06 / 5.6 / 456.4	
N. Coordinate:		E. Coordinate:	Hammer Fall:	NA	30 in.		
Ground Surface Elevation (feet):	462.0		Rig Type:	Bombardier			
Station:	Offset: ft		Hammer Type:	Safety - Hydraulic			

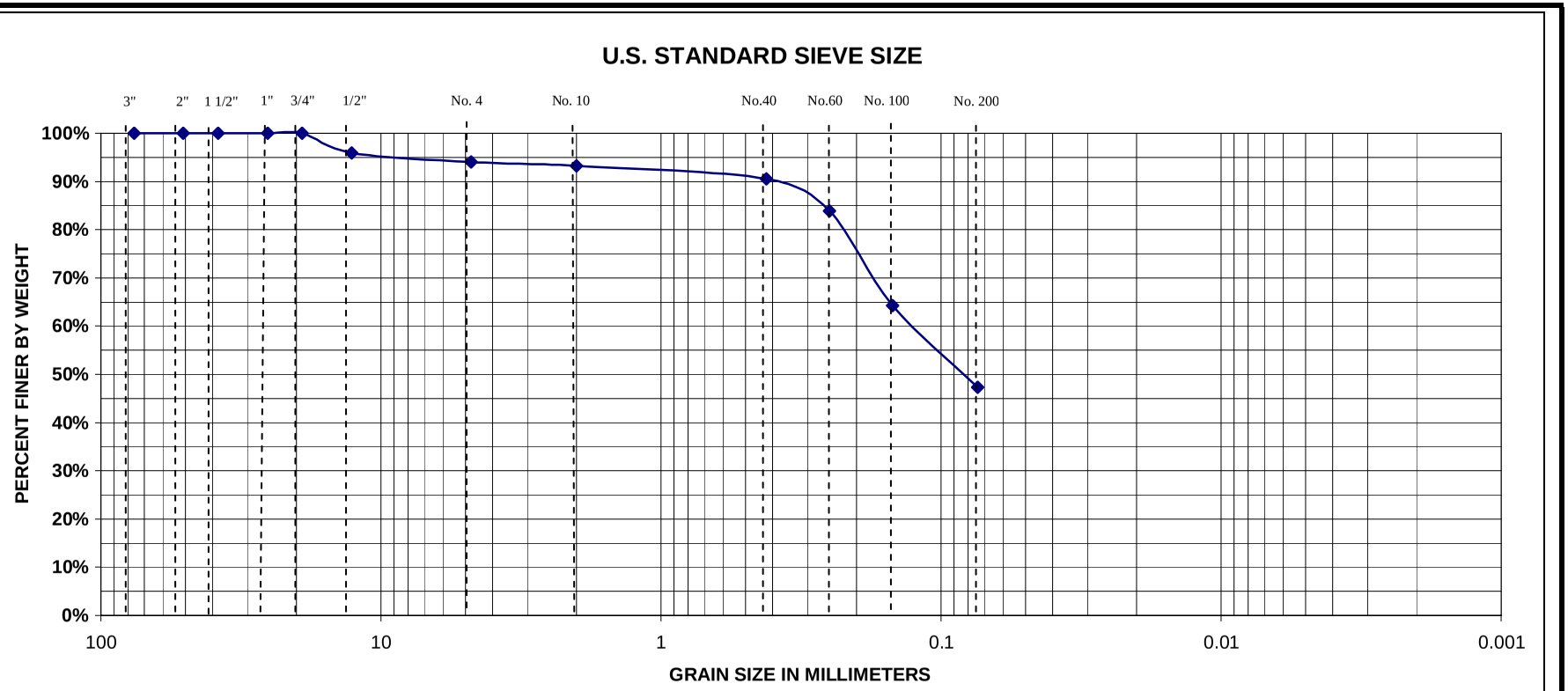
Depth (ft)	Casing Blows/ft	Sample Number	Sample Type	Penetration (inches)	Recovery (inches)	Sample Depth (ft)	Blows / 6 inch Interval 0 - 6	6 - 12	12 - 18	18 - 24	Coring Time (min./ft)	Moisture Content (%)	Strata Description (Depth & Elevation(feet))	Symbol	Sample Description (Classification System: Burmister)
		1	SS	24	14	0.0	1	1	4	5			0.7 Topsoil Subsoil 461.3 2.0		Loose, dark brown SILT, some fine Sand, trace Roots
													Glacial Till 460.0		
5		2	SS	24	20	5.0	8	11	11	8			▼		Medium dense, gray-brown fine to coarse SAND and SILT, some fine to coarse Gravel
10															
15		3	SS	24	20	15.0	8	10	15	15					Medium dense, gra-brown fine to coarse GRAVEL and fine to coarse SAND, some Silt, (wet)
													19.0		
20													Decomposed Rock 443.0		
25													25.0		
													Bottom of Exploration at 25.0 ft 437.0		

Remarks: Upon completion of drilling, a 2 inch diameter PVC well was installed. Well consists of a 20 foot screen (0.010 inch slots) and a 7 foot riser. Riser stickup is approximately 2.3 feet. Screen was backfilled with #2 WG filter sand. From 2 feet above screen to 1.5 feet below ground surface well was backfilled with bentonite chips. Locking protective standpipe was concreted in place to protect well.

Notes:
1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. AC = After coring; NR = Not Recorded.
3) Abbreviations: A = Auger; C = Core; D = Driven; G = Grab; PS = Piston Sample; SS = Split Spoon; SSL = 3.5 Inch ID Split Spoon; ST = Shelby Tube; V = Vane; WOR/H = Weight of Rod/Hammer
4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

Boring No.: **BW-8**

GRADATION TEST RESULTS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

Stateline Retail Center

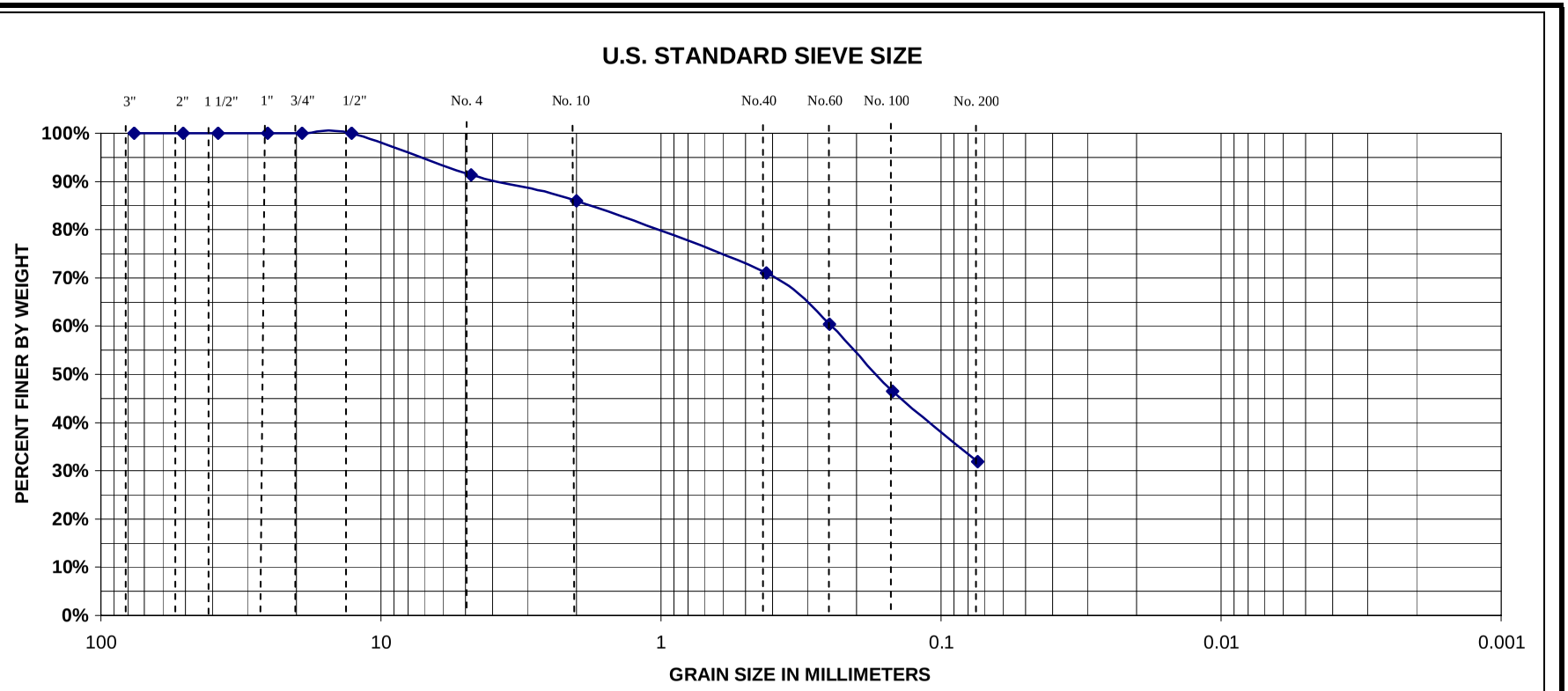
BORING NO.	BW 2
SAMPLE NO.	S-6
DEPTH	25' - 25'4"
TECH.	PAK
REVIEWER	ULF
DATE	10/18/06
FILE NO.	0321-005.0

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
3 of 6	Split Spoon Sample	SILT and fine to coarse SAND, trace fine Gravel

GeoDesign Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

Stateline Retail Center

BORING NO.	BE 6
SAMPLE NO.	S-2
DEPTH	5'-7'
TECH.	PAK
REVIEWER	ULF
DATE	10/18/06
FILE NO.	0321-005.0

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
1 of 6	Split Spoon Sample	Fine to coarse SAND, some Silt, little fine Gravel

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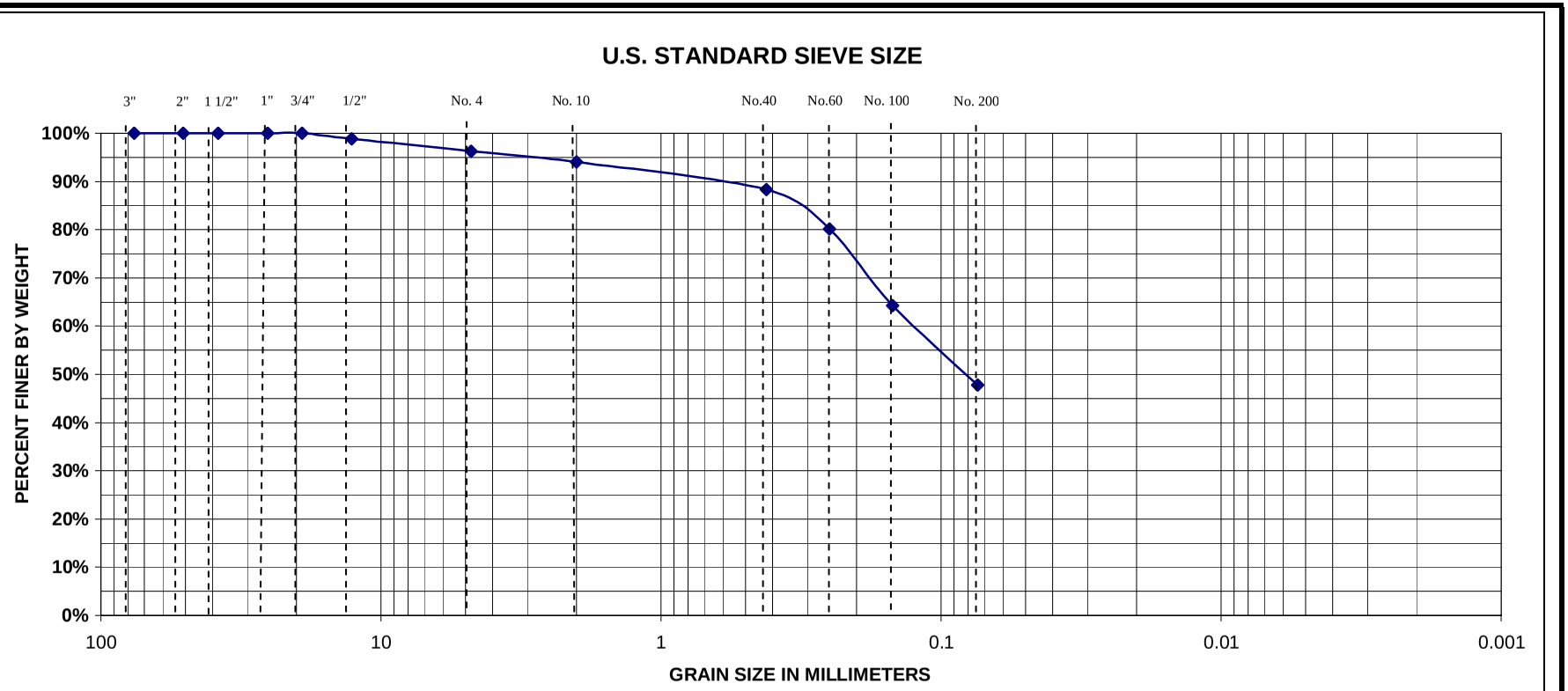
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

Stateline Retail Center

BORING NO.	BW 2
SAMPLE NO.	S-4
DEPTH	15'-15'10"
TECH.	PAK
REVIEWER	ULF
DATE	10/18/06
FILE NO.	0321-005.0

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
5 of 6	Split Spoon Sample	SILT and fine to coarse Sand, trace fine Gravel

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984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
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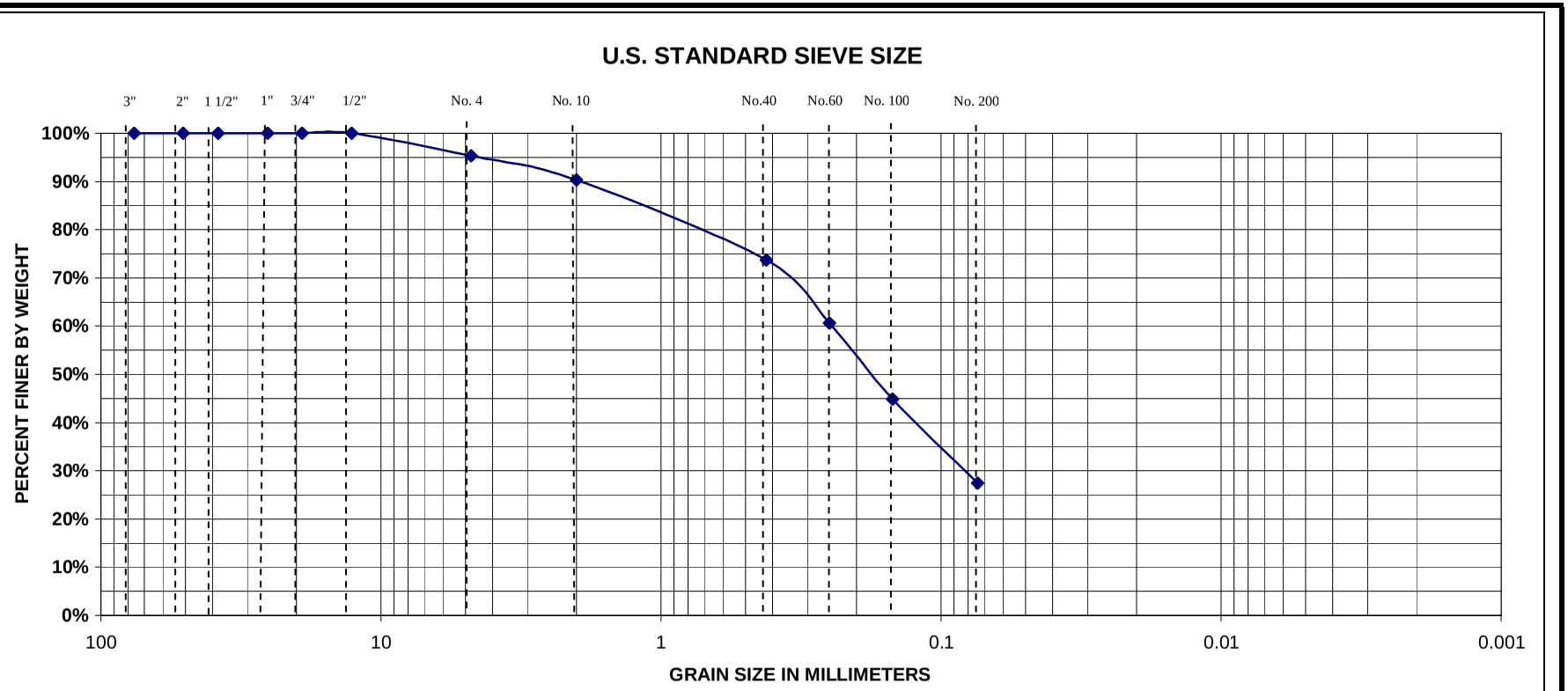


COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

Stateline Retail Center

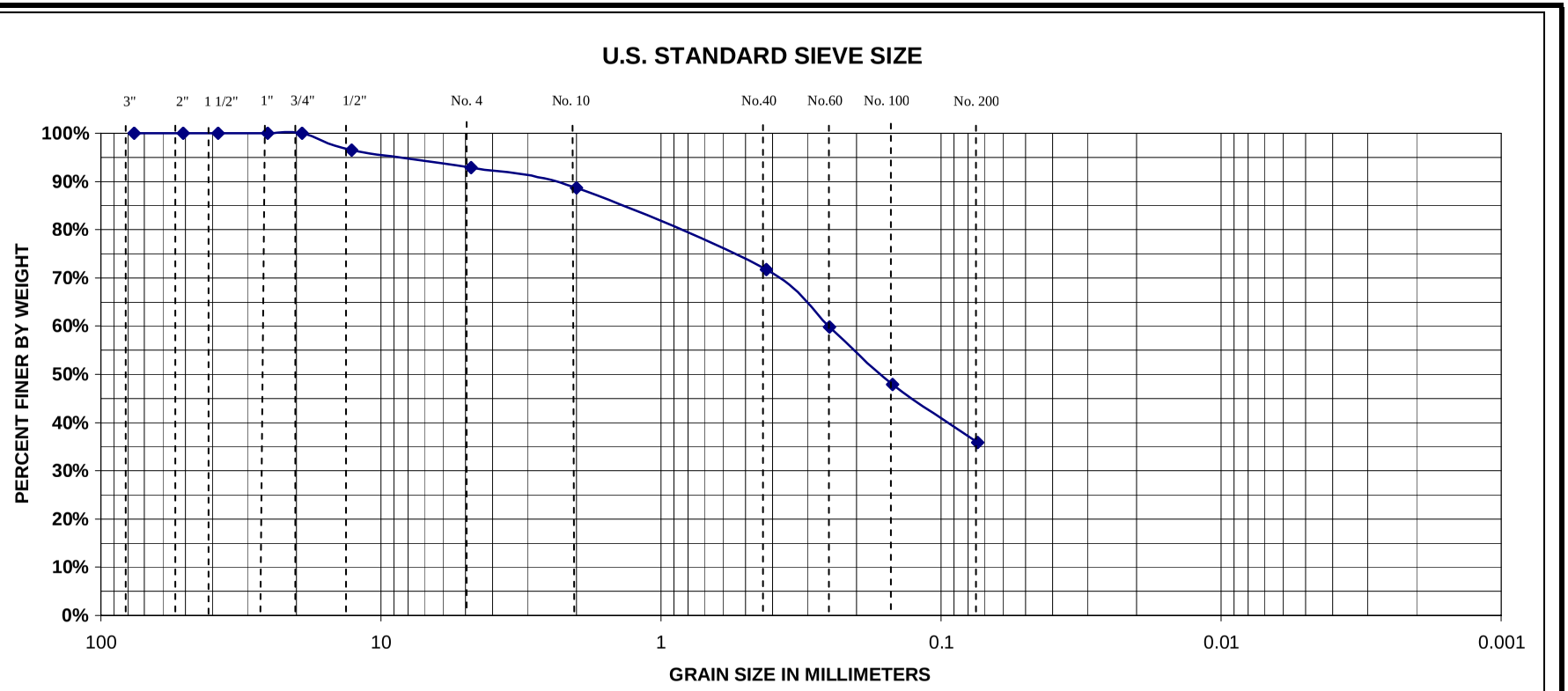
BORING NO.	BE 4
SAMPLE NO.	S-3
DEPTH	10'-12'
TECH.	PAK
REVIEWER	ULF
DATE	10/18/06
FILE NO.	0321-005.0

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
6 of 6	Split Spoon Sample	Fine to coarse SAND, some Silt, trace fine Gravel

GeoDesign Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

Stateline Retail Center

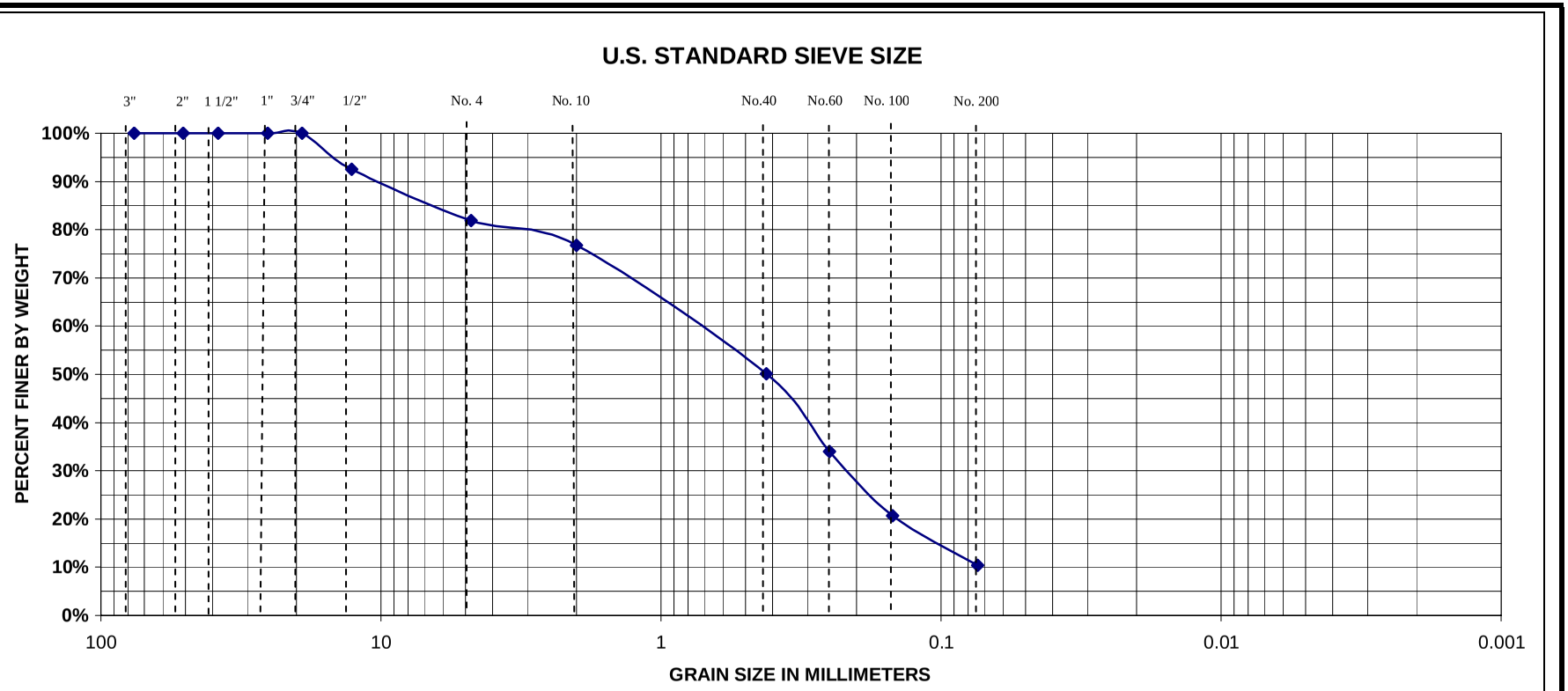
BORING NO.	BE 4
SAMPLE NO.	S-2
DEPTH	5'-7'
TECH.	PAK
REVIEWER	ULF
DATE	10/18/06
FILE NO.	0321-005.0

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
2 of 6	Split Spoon Sample	Fine to medium SAND amd Silt, little fine to coarse Gravel

GeoDesign Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION TEST

Stateline Retail Center

BORING NO.	BW-5
SAMPLE NO.	S-3
DEPTH	10'-10'5"
TECH.	PAK
REVIEWER	ULF
DATE	10/18/06
FILE NO.	0321-005.0

BURMISTER SOIL CLASSIFICATION SYSTEM

TEST NO.	MATERIAL SOURCE	DESCRIPTION
4 of 6	Split Spoon Sample	Fine to coarse SAND, little (+) fine Gravel, little (-) Silt

GeoDesign Inc.
984 Southford Road
Middlebury, Connecticut 06762

(203) 758 8836 (voice)
(203) 758 8842 (fax)
www.geodesign.net

IN-SITU FALLING HEAD TEST DATA

Stateline Retail Center

Southeast, New York

Calculation of Soil Permeability from Falling Head Test Data

Well No.:	BE-3	**Driller:**	Tim Carpenter
Test Type:	Falling Head	**Engineer:**	Chi Zhang
Date:	10/6/2006	**Weather:**	Cloudy, 60's

Ground surface El.:	482.2	(ft.)	Depth to Top of Wick:	10.0	(ft.)	Length of Wick (L):	2.0	(ft.)
Top of Casing El.:	484.7	(ft.)	Depth to Bottom of Wick:	12.0	(ft.)	Radium of Wick (R):	0.19	(ft.)
Top of Wick El.:	472.2	(ft.)						
			Depth to Groundwater:	8.8	(ft.)	ln(L/R):	2.36712	
			Groundwater Elevation:	473.4	(ft.)	R^2/2L:	0.10547	(in.)

Elapsed Time (min.)	t2 - t1 (min.)	DTW (in.)	h1 (in.)	h2 (in.)	ln(h1/h2)	k (in/min)	k (cm/sec)	k (ft/day)
0.00	0.00	0.0	136.1					
1.00	1.00	1.8	134.3	134.3	0.0133	**3.32E-03**	**1.41E-04**	**3.99E-01**
2.00	1.00	2.1	134.0	134.0	0.0022	**5.58E-04**	**2.36E-05**	**6.70E-02**
4.00	2.00	3.5	132.6	132.6	0.0105	**1.31E-03**	**5.55E-05**	**1.57E-01**
5.00	1.00	6.0	130.1	130.1	0.0190	**4.75E-03**	**2.01E-04**	**5.70E-01**
8.00	3.00	7.0	129.1	129.1	0.0077	**6.42E-04**	**2.72E-05**	**7.71E-02**
10.00	2.00	9.0	127.1	127.1	0.0156	**1.95E-03**	**8.25E-05**	**2.34E-01**
12.00	2.00	9.5	126.6	126.6	0.0039	**4.92E-04**	**2.08E-05**	**5.91E-02**
14.00	2.00	10.5	125.6	125.6	0.0079	**9.90E-04**	**4.19E-05**	**1.19E-01**
16.00	2.00	11.0	125.1	125.1	0.0040	**4.98E-04**	**2.11E-05**	**5.98E-02**
18.00	2.00	12.0	124.1	124.1	0.0080	**1.00E-03**	**4.24E-05**	**1.20E-01**
20.00	2.00	13.0	123.1	123.1	0.0081	**1.01E-03**	**4.28E-05**	**1.21E-01**
22.00	2.00	14.0	122.1	122.1	0.0082	**1.02E-03**	**4.31E-05**	**1.22E-01**
24.00	2.00	15.0	121.1	121.1	0.0082	**1.03E-03**	**4.35E-05**	**1.23E-01**
26.00	8.00	16.0	120.1	120.1	0.0328	**1.02E-03**	**4.33E-05**	**1.23E-01**
30.00	4.00	17.0	119.1	119.1	0.0084	**5.22E-04**	**2.21E-05**	**6.26E-02**
75.00	45.00	28.0	108.1	108.1	0.0969	**5.38E-04**	**2.28E-05**	**6.45E-02**
					Maximun k Value	**4.75E-03**	**2.01E-04**	**5.70E-01**
					Minimun k Value	**4.92E-04**	**2.08E-05**	**5.91E-02**
					Average k Value	**1.29E-03**	**5.47E-05**	**1.55E-01**

Notes:
1. Ground surface elevations were interpolated from existing contours, and are approximate.
2. Groundwater levels were measured during drilling.

Stateline Retail Center

Southeast, New York

Calculation of Soil Permeability from Falling Head Test Data

Well No.:	BE-4	**Driller:**	Tim Carpenter
Test Type:	Falling Head	**Engineer:**	Chi Zhang
Date:	10/6/2006	**Weather:**	Cloudy, 60's

Ground surface El.:	473.0	(ft.)	Depth to Top of Wick:	10.0	(ft.)	Length of Wick (L):	2.4	(ft.)
Top of Casing El.:	476.0	(ft.)	Depth to Bottom of Wick:	12.0	(ft.)	Radium of Wick (R):	0.20	(ft.)
Top of Wick El.:	463.0	(ft.)						
			Depth to Groundwater:	13.8	(ft.)	ln(L/R):	2.44925	
			Groundwater Elevation:	459.3	(ft.)	R^2/2L:	0.10547	(in.)

Elapsed Time (min.)	t2 - t1 (min.)	DTW (in.)	h1 (in.)	h2 (in.)	ln(h1/h2)	k (in/min)	k (cm/sec)	k (ft/day)
0.75	0.00	57.6	143.5					
1.25	0.50	74.4	126.7	126.7	0.1245	**6.43E-02**	**2.72E-03**	**7.72E+00**
1.75	0.50	81.6	119.5	119.5	0.0585	**3.02E-02**	**1.28E-03**	**3.63E+00**
2.25	0.50	87.6	113.5	113.5	0.0515	**2.66E-02**	**1.13E-03**	**3.19E+00**
2.75	0.50	91.2	109.9	109.9	0.0322	**1.66E-02**	**7.05E-04**	**2.00E+00**
3.25	0.50	96.0	105.1	105.1	0.0447	**2.31E-02**	**9.77E-04**	**2.77E+00**
3.75	0.50	99.6	101.5	101.5	0.0348	**1.80E-02**	**7.62E-04**	**2.16E+00**
4.25	0.50	103.2	97.9	97.9	0.0361	**1.87E-02**	**7.90E-04**	**2.24E+00**
5.25	1.00	108.0	93.1	93.1	0.0503	**1.30E-02**	**5.50E-04**	**1.56E+00**
6.75	1.50	112.8	88.3	88.3	0.0529	**9.11E-03**	**3.86E-04**	**1.09E+00**
7.75	1.00	117.6	83.5	83.5	0.0559	**1.44E-02**	**6.11E-04**	**1.73E+00**
8.75	1.00	120.0	81.1	81.1	0.0292	**7.53E-03**	**3.19E-04**	**9.04E-01**
15.00	6.25	129.6	71.5	71.5	0.1260	**5.21E-03**	**2.20E-04**	**6.25E-01**
18.90	3.90	132.0	69.1	69.1	0.0341	**2.26E-03**	**9.57E-05**	**2.71E-01**
22.83	3.93	134.4	66.7	66.7	0.0353	**2.32E-03**	**9.83E-05**	**2.79E-01**
27.83	5.00	136.8	64.3	64.3	0.0366	**1.89E-03**	**8.01E-05**	**2.27E-01**
34.67	6.84	138.0	63.1	63.1	0.0188	**7.11E-04**	**3.01E-05**	**8.53E-02**
44.50	9.83	140.4	60.7	60.7	0.0388	**1.02E-03**	**4.31E-05**	**1.22E-01**
					Maximun k Value	**6.43E-02**	**2.72E-03**	**7.72E+00**
					Minimun k Value	**3.02E-02**	**1.28E-03**	**3.63E+00**
					Average k Value	**2.66E-02**	**1.13E-03**	**3.19E+00**

Notes:
1. Ground surface elevations were interpolated from existing contours, and are approximate.
2. Groundwater levels were measured during drilling.
3. Volume of pea stone used to fill the wick was approaximately 139% of the theoratical volume of cavity (casing O.D. x length of wick) Raidus and length of wick were adjusted accordingly using the actual volume of pea stone used.

Stateline Retail Center

Southeast, New York

Calculation of Soil Permeability from Falling Head Test Data

Well No.:	BE-5	**Driller:**	Jeff Leavitt
Test Type:	Falling Head	**Engineer:**	Chi Zhang
Date:	10/9/2006	**Weather:**	Cloudy, 60's

Ground surface El.:	469.0	(ft.)	Depth to Top of Wick:	13.0	(ft.)	Length of Wick (L):	2.1	(ft.)
Top of Casing El.:	471.6	(ft.)	Depth to Bottom of Wick:	15.0	(ft.)	Radium of Wick (R):	0.19	(ft.)
Top of Wick El.:	456.0	(ft.)						
			Depth to Groundwater:	12.9	(ft.)	ln(L/R):	2.40131	
			Groundwater Elevation:	456.1	(ft.)	R^2/2L:	0.10547	(in.)

Elapsed Time (min.)	t2 - t1 (min.)	DTW (in.)	h1 (in.)	h2 (in.)	ln(h1/h2)	k (in/min)	k (cm/sec)	k (ft/day)
0.00	0.00	0.0	186.5					
0.50	0.50	16.8	169.7	169.7	0.0944	**4.78E-02**	**2.02E-03**	**5.74E+00**
1.50	1.00	25.2	161.3	161.3	0.0508	**1.29E-02**	**5.44E-04**	**1.54E+00**
2.00	0.50	26.4	160.1	160.1	0.0075	**3.78E-03**	**1.60E-04**	**4.54E-01**
2.50	0.50	31.2	155.3	155.3	0.0304	**1.54E-02**	**6.53E-04**	**1.85E+00**
3.00	0.50	33.6	152.9	152.9	0.0156	**7.89E-03**	**3.34E-04**	**9.47E-01**
4.25	1.25	39.6	146.9	146.9	0.0400	**8.11E-03**	**3.43E-04**	**9.73E-01**
5.75	1.50	43.2	143.3	143.3	0.0248	**4.19E-03**	**1.77E-04**	**5.03E-01**
7.75	2.00	58.8	127.7	127.7	0.1153	**1.46E-02**	**6.18E-04**	**1.75E+00**
10.00	2.25	68.4	118.1	118.1	0.0782	**8.80E-03**	**3.72E-04**	**1.06E+00**
13.00	3.00	80.4	106.1	106.1	0.1072	**9.05E-03**	**3.83E-04**	**1.09E+00**
15.00	2.00	88.8	97.7	97.7	0.0825	**1.04E-02**	**4.42E-04**	**1.25E+00**
20.00	5.00	103.2	83.3	83.3	0.1595	**8.08E-03**	**3.42E-04**	**9.69E-01**
25.00	5.00	115.2	71.3	71.3	0.1556	**7.88E-03**	**3.34E-04**	**9.46E-01**
30.00	5.00	126.0	60.5	60.5	0.1643	**8.32E-03**	**3.52E-04**	**9.99E-01**
					Maximun k Value	**4.78E-02**	**2.02E-03**	**5.74E+00**
					Minimun k Value	**3.78E-03**	**1.60E-04**	**4.54E-01**
					Average k Value	**1.19E-02**	**5.06E-04**	**1.43E+00**

Notes:
1. Ground surface elevations were interpolated from existing contours, and are approximate.
2. Groundwater levels were measured during drilling.
3. Volume of pea stone used to fill the wick was approaximately 115% of the theoratical volume of cavity (casing O.D. x length of wick) Raidus and length of wick were adjusted accordingly using the actual volume of pea stone used.

Stateline Retail Center

Southeast, New York

Calculation of Soil Permeability from Falling Head Test Data

Well No.:	BE-8	**Driller:**	Tim Carpenter
Test Type:	Falling Head	**Engineer:**	Chi Zhang
Date:	10/9/2006	**Weather:**	Sunny, 70's

Ground surface El.:	460.8	(ft.)	Depth to Top of Wick:	10.5	(ft.)	Length of Wick (L):	2.1	(ft.)
Top of Casing El.:	463.3	(ft.)	Depth to Bottom of Wick:	12.5	(ft.)	Radium of Wick (R):	0.19	(ft.)
Top of Wick El.:	450.3	(ft.)						
			Depth to Groundwater:	8.0	(ft.)	ln(L/R):	2.38816	
			Groundwater Elevation:	452.8	(ft.)	R^2/2L:	0.10547	(in.)

Elapsed Time (min.)	t2 - t1 (min.)	DTW (in.)	h1 (in.)	h2 (in.)	ln(h1/h2)	k (in/min)	k (cm/sec)	k (ft/day)
0.00	0.00	0.0	125.5					
0.50	0.50	5.0	120.5	120.5	0.0406	**2.05E-02**	**8.67E-04**	**2.46E+00**
1.50	1.00	13.0	112.5	112.5	0.0687	**1.73E-02**	**7.32E-04**	**2.08E+00**
2.00	0.50	16.0	109.5	109.5	0.0270	**1.36E-02**	**5.76E-04**	**1.63E+00**
2.50	0.50	18.0	107.5	107.5	0.0184	**9.28E-03**	**3.93E-04**	**1.11E+00**
3.00	0.50	21.0	104.5	104.5	0.0283	**1.43E-02**	**6.03E-04**	**1.71E+00**
4.25	1.25	26.0	99.5	99.5	0.0490	**9.88E-03**	**4.18E-04**	**1.19E+00**
5.75	1.50	31.0	94.5	94.5	0.0515	**8.66E-03**	**3.66E-04**	**1.04E+00**
7.75	2.00	38.0	87.5	87.5	0.0769	**9.69E-03**	**4.10E-04**	**1.16E+00**
10.00	2.25	44.0	81.5	81.5	0.0710	**7.95E-03**	**3.37E-04**	**9.54E-01**
13.00	3.00	52.0	73.5	73.5	0.1033	**8.67E-03**	**3.67E-04**	**1.04E+00**
14.00	1.00	55.0	70.5	70.5	0.0417	**1.05E-02**	**4.44E-04**	**1.26E+00**
15.00	1.00	57.0	68.5	68.5	0.0288	**7.25E-03**	**3.07E-04**	**8.70E-01**
24.00	9.00	73.0	52.5	52.5	0.2659	**7.44E-03**	**3.15E-04**	**8.93E-01**
30.00	6.00	82.0	43.5	43.5	0.1880	**7.89E-03**	**3.34E-04**	**9.47E-01**
43.00	13.00	91.0	34.5	34.5	0.2317	**4.49E-03**	**1.90E-04**	**5.39E-01**
53.00	10.00	98.0	27.5	27.5	0.2266	**5.71E-03**	**2.42E-04**	**6.85E-01**
63.00	10.00	102.0	23.5	23.5	0.1571	**3.96E-03**	**1.67E-04**	**4.75E-01**

Maximun k Value	**2.05E-02**	**8.67E-04**	**2.46E+00**
Minimun k Value	**3.96E-03**	**1.67E-04**	**4.75E-01**
Average k Value	**9.82E-03**	**4.16E-04**	**1.18E+00**

Notes:
1. Ground surface elevations were interpolated from existing contours, and are approximate.
2. Groundwater levels were measured during drilling.
3. Volume of pea stone used to fill the wick was approaximately 109% of the theoratical volume of cavity (casing O.D. x length of wick) Raidus and length of wick were adjusted accordingly using the actual volume of pea stone used.

Stateline Retail Center

Southeast, New York

Calculation of Soil Permeability from Falling Head Test Data

Well No.:	BW-6	**Driller:**	Tim Carpenter
Test Type:	Falling Head	**Engineer:**	Chi Zhang
Date:	10/13/2006	**Weather:**	Sunny, 60's

Ground surface El.:	486.0	(ft.)	Depth to Top of Wick:	15.0	(ft.)	Length of Wick (L):	2.0	(ft.)
Top of Casing El.:	488.1	(ft.)	Depth to Bottom of Wick:	17.0	(ft.)	Radium of Wick (R):	0.19	(ft.)
Top of Wick El.:	471.0	(ft.)						
			Depth to Groundwater:	11.4	(ft.)	ln(L/R):	2.36712	
			Groundwater Elevation:	474.6	(ft.)	R^2/2L:	0.10547	(in.)

Elapsed Time (min.)	t2 - t1 (min.)	DTW (in.)	h1 (in.)	h2 (in.)	ln(h1/h2)	k (in/min)	k (cm/sec)	k (ft/day)
0.00	0.00	0.0	162.4					
1.50	1.50	0.3	162.1	162.1	0.0015	**2.56E-04**	**1.09E-05**	**3.08E-02**
2.50	1.00	0.8	161.6	161.6	0.0031	**7.71E-04**	**3.26E-05**	**9.25E-02**
3.50	1.00	1.0	161.4	161.4	0.0015	**3.87E-04**	**1.64E-05**	**4.64E-02**
4.25	0.75	1.3	161.1	161.1	0.0016	**5.16E-04**	**2.18E-05**	**6.19E-02**
5.00	0.75	1.5	160.9	160.9	0.0016	**5.17E-04**	**2.19E-05**	**6.20E-02**
5.83	0.83	1.8	160.6	160.6	0.0016	**4.66E-04**	**1.97E-05**	**5.59E-02**
6.33	0.50	2.0	160.4	160.4	0.0016	**7.83E-04**	**3.31E-05**	**9.40E-02**
7.00	0.67	2.3	160.1	160.1	0.0016	**5.81E-04**	**2.46E-05**	**6.98E-02**
7.83	0.83	2.5	159.9	159.9	0.0016	**4.68E-04**	**1.98E-05**	**5.62E-02**
8.50	0.67	2.8	159.6	159.6	0.0016	**5.86E-04**	**2.48E-05**	**7.03E-02**
9.00	0.50	3.0	159.4	159.4	0.0016	**7.83E-04**	**3.31E-05**	**9.39E-02**
10.50	1.50	3.5	158.9	158.9	0.0031	**5.23E-04**	**2.21E-05**	**6.28E-02**
11.83	1.33	4.0	158.4	158.4	0.0032	**5.92E-04**	**2.51E-05**	**7.10E-02**
13.00	1.17	4.5	157.9	157.9	0.0032	**6.75E-04**	**2.86E-05**	**8.10E-02**
14.67	1.67	5.0	157.4	157.4	0.0032	**4.74E-04**	**2.01E-05**	**5.69E-02**
17.58	2.91	6.0	156.4	156.4	0.0064	**5.46E-04**	**2.31E-05**	**6.56E-02**
20.75	3.17	7.0	155.4	155.4	0.0064	**5.06E-04**	**2.14E-05**	**6.07E-02**
24.00	3.25	8.0	154.4	154.4	0.0065	**4.96E-04**	**2.10E-05**	**5.95E-02**
27.25	3.25	9.0	153.4	153.4	0.0065	**4.99E-04**	**2.11E-05**	**5.99E-02**
31.17	3.92	10.0	152.4	152.4	0.0065	**4.17E-04**	**1.77E-05**	**5.00E-02**
					Maximun k Value	**7.83E-04**	**3.31E-05**	**9.40E-02**
					Minimun k Value	**3.87E-04**	**1.64E-05**	**4.64E-02**
					Average k Value	**5.45E-04**	**2.31E-05**	**6.54E-02**

Notes:
1. Ground surface elevations were interpolated from existing contours, and are approximate.
2. Groundwater levels were measured during drilling.

Stateline Retail Center

Southeast, New York

Calculation of Soil Permeability from Falling Head Test Data

Well No.:	BW-8	**Driller:**	Tim Carpenter
Test Type:	Falling Head	**Engineer:**	Chi Zhang
Date:	10/13/2006	**Weather:**	Sunny, 60's

Ground surface El.:	462.9	(ft.)	Depth to Top of Wick:	15.0	(ft.)	Length of Wick (L):	2.0	(ft.)
Top of Casing El.:	465.2	(ft.)	Depth to Bottom of Wick:	17.0	(ft.)	Radium of Wick (R):	0.19	(ft.)
Top of Wick El.:	447.9	(ft.)						
			Depth to Groundwater:	11.4	(ft.)	ln(L/R):	2.36712	
			Groundwater Elevation:	451.5	(ft.)	R^2/2L:	0.10547	(in.)

Elapsed Time (min.)	t2 - t1 (min.)	DTW (in.)	h1 (in.)	h2 (in.)	ln(h1/h2)	k (in/min)	k (cm/sec)	k (ft/day)
0.00	0.00	29.0	135.5					
1.00	1.00	30.0	134.5	134.5	0.0074	**1.85E-03**	**7.83E-05**	**2.22E-01**
1.50	0.50	34.0	130.5	130.5	0.0302	**1.51E-02**	**6.38E-04**	**1.81E+00**
2.00	0.50	36.0	128.5	128.5	0.0154	**7.71E-03**	**3.26E-04**	**9.25E-01**
2.50	0.50	38.0	126.5	126.5	0.0157	**7.83E-03**	**3.32E-04**	**9.40E-01**
3.50	1.00	41.0	123.5	123.5	0.0240	**5.99E-03**	**2.54E-04**	**7.19E-01**
4.00	0.50	43.0	121.5	121.5	0.0163	**8.15E-03**	**3.45E-04**	**9.78E-01**
4.50	0.50	44.0	120.5	120.5	0.0083	**4.13E-03**	**1.75E-04**	**4.95E-01**
5.00	0.50	46.0	118.5	118.5	0.0167	**8.36E-03**	**3.54E-04**	**1.00E+00**
6.00	1.00	48.0	116.5	116.5	0.0170	**4.25E-03**	**1.80E-04**	**5.10E-01**
7.00	1.00	49.0	115.5	115.5	0.0086	**2.15E-03**	**9.11E-05**	**2.58E-01**
8.00	1.00	51.0	113.5	113.5	0.0175	**4.36E-03**	**1.85E-04**	**5.23E-01**
9.00	1.00	52.5	112.0	112.0	0.0133	**3.32E-03**	**1.41E-04**	**3.99E-01**
11.00	2.00	55.5	109.0	109.0	0.0271	**3.39E-03**	**1.43E-04**	**4.07E-01**
13.00	2.00	58.0	106.5	106.5	0.0232	**2.90E-03**	**1.23E-04**	**3.48E-01**
15.00	10.00	60.0	104.5	104.5	0.1257	**3.14E-03**	**1.33E-04**	**3.77E-01**
17.00	2.00	62.0	102.5	102.5	0.0193	**2.41E-03**	**1.02E-04**	**2.89E-01**
19.00	2.00	64.0	100.5	100.5	0.0197	**2.46E-03**	**1.04E-04**	**2.95E-01**
23.00	4.00	68.0	96.5	96.5	0.0406	**2.53E-03**	**1.07E-04**	**3.04E-01**
27.00	4.00	71.0	93.5	93.5	0.0316	**1.97E-03**	**8.34E-05**	**2.36E-01**
30.00	3.00	73.0	91.5	91.5	0.0216	**1.80E-03**	**7.62E-05**	**2.16E-01**
37.00	7.00	76.0	88.5	88.5	0.0333	**1.19E-03**	**5.03E-05**	**1.43E-01**
41.00	4.00	78.0	86.5	86.5	0.0229	**1.43E-03**	**6.04E-05**	**1.71E-01**
					Maximun k Value	**1.51E-02**	**6.38E-04**	**1.81E+00**
					Minimun k Value	**1.19E-03**	**5.03E-05**	**1.43E-01**
					Average k Value	**3.97E-03**	**1.68E-04**	**4.77E-01**

Notes:
1. Ground surface elevations were interpolated from existing contours, and are approximate.
2. Groundwater levels were measured during drilling.

TABLES

Table No. 1

Groundwater and Well Data

Stateline Retail Center
Southeast, NY

																									October Data Only				
Well	Ref.	G.S.	Stickup	Well Depth	10/6/2006			10/9/2006			10/10/2006			10/11/2006			10/12/2006			10/13/2006			10/16/2006			10/18/2006			Max	Min.	Mean	Range between	DTW
No.	Elev.	Elev.		Below GS	DBR	DTW	Elev.	DBR	DTW	Elev.	DBR	DTW	Elev.	DBR	DTW	Elev.	DBR	DTW	Elev.	DBR	DTW	Elev.	DBR	DTW	Elev.	DBR	DTW	Elev.	Elev.	Elev.	Elev.	Min and Max	from mean
BE-1	488.1	484.9	3.2	18.5	9.1	5.8	479.1	10.4	7.1	477.8													9.2	5.9	479.0	10.3	7.1	477.8	**479.1**	**477.8**	**478.4**	**1.3**	**5.85**
BE-2	493.4	490.9	2.5	31.0				12.9	10.4	480.5	12.8	10.3	480.6										12.2	9.7	481.2	12.2	9.7	481.2	**481.2**	**480.5**	**480.9**	**0.7**	**9.66**
BE-3	484.7	482.2	2.5	12.0				11.0	8.5	473.7	11.1	8.6	473.6													10.2	7.7	474.5	**474.5**	**473.6**	**474.0**	**0.9**	**7.66**
BE-4	476.0	473.0	3.0	13.6				12.0	9.0	464.0													9.7	6.7	466.3	10.6	7.6	465.4	**466.3**	**464.0**	**465.2**	**2.3**	**6.72**
BE-5	471.6	469.0	2.6	17.5							15.5	12.8	456.2	15.5	12.8	456.2							15.4	12.7	456.3	15.2	12.5	456.5	**456.5**	**456.2**	**456.3**	**0.3**	**12.52**
BE-6	472.1	468.8	3.3	23.5							11.5	8.2	460.6	11.5	8.2	460.6							11.4	8.1	460.7	11.3	8.0	460.8	**460.8**	**460.6**	**460.7**	**0.3**	**7.98**
BE-7	456.6	454.6	2.0	26.2							4.2	2.2	452.4										4.0	2.0	452.6	3.8	1.8	452.8	**452.8**	**452.4**	**452.6**	**0.4**	**1.76**
BE-8	463.3	460.8	2.5	25.0							9.3	6.9	453.9	9.2	6.7	454.1							9.1	6.6	454.2				**454.2**	**453.9**	**454.1**	**0.2**	**6.64**
BW-1	532.1	529.9	2.2	25.0													26.4	24.2	505.7							26.4	26.4	505.7	**505.7**	**505.7**	**505.7**	**0.0**	**24.25**
BW-2	519.4	517.1	2.3	30.0																27.8	25.4	491.7							**491.7**	**491.7**	**491.7**	**0.0**	**25.41**
BW-3	522.3	519.5	2.8	25.0										23.9	21.2	498.3				25.5	22.8	496.7				25.5	22.8	496.7	**498.3**	**496.7**	**497.3**	**1.6**	**21.16**
BW-4	501.2	498.6	2.6	25.0										17.3	14.7	483.9				17.7	15.1	483.5				17.9	15.3	483.3	**483.9**	**483.3**	**483.6**	**0.6**	**14.71**
BW-5	478.3	475.9	2.4	25.0																15.2	12.9	463.1	15.3	13.0	463.0	15.3	13.0	463.0	**463.1**	**463.0**	**463.0**	**0.1**	**12.85**
BW-6	488.1	486.0	2.1	20.0																			12.8	10.7	475.3	12.6	10.5	475.5	**475.5**	**475.3**	**475.4**	**0.2**	**10.47**
BW-7	499.5	497.4	2.1	28.5													26.4	24.4	473.0	26.6	24.6	472.8				26.6	24.6	472.8	**473.0**	**472.8**	**472.9**	**0.2**	**24.37**
BW-8	465.21	462.90	2.31	25.0																7.8	5.5	457.4							**457.41**	**457.41**	**457.41**	**0.00**	**5.5**

Notes:

1) Ref Elev. = Reference Elevation marked on top of solid PVC well riser inside protective casing.

2) DTW = Depth to Water Below Ground Surface

3) GS = Ground Surface

4) Elev. = Groundwater Surface Elevation

5) DBR = Depth below reference

6) All data is stated in feet.

7) Well locations located by GeoDesign by taping from existing site features. Well elevations surveyed by Insite Engineering.

TABLE No. 2
Summary of Depth to Bedrock

Stateline Retail Center
Southeast, NY

East SSDS Area

Boring	Ground Surface Elevation (ft.)	Depth to Top of Bedrock (ft.)	Bedrock Elevation (ft.)	RQD 0-5' run (%)	RQD 5'-10' run (%)	Notes
BE-1A	484.0	8.5	475.5	100	90	
BE-2	490.0	21.0	469.0	90	70	A layer of cobbles and boulders exists from Elev.479 to Elev. 469
BE-3	483.0	7.0	476.0	N/A	N/A	Weathered Rock inferred from spoon sample and roller bit
BE-4	473.0	N/A	N/A	N/A	N/A	Spoon Refusal at Elev. 459.4
BE-5	471.0	10.8	460.2	N/A	N/A	Weathered Rock inferred from spoon sample and roller bit
BE-6	473.0	N/A	N/A	N/A	N/A	Spoon Refusal at Elev. 449.5
BE-7	454.0	N/A	N/A	N/A	N/A	Spoon Refusal at Elev. 427.8
BE-8A	460.0	N/A	N/A	N/A	N/A	Spoon Refusal at Elev. 434.7

West SSDS Area

Boring	Ground Surface Elevation (ft.)	Depth to Top of Bedrock (ft.)	Bedrock Elevation (ft.)	RQD 0-5' run (%)	RQD 5'-10' run (%)	Notes
BW-1	0.00	20	-20.00	N/A	N/A	Roller bit 10 feet through the weathered rock to refusal, did not core
BW-2	0.00	26	-26.00	N/A	N/A	Roller bit 5 feet through the weathered rock to refusal, did not core
BW-3	0.00	N/A	N/A	N/A	N/A	Spoon Refusal: infer bedrock
BW-4	0.00	17	-17.00	N/A	N/A	Roller bit 8 feet through the weathered rock to refusal, did not core
BW-5	0.00	13	-13.00	N/A	N/A	Roller bit 4 feet through the weathered rock to refusal, did not core
BW-6	0.00	18	-18.00	N/A	N/A	Roller bit 2 feet through the weathered rock to refusal, did not core
BW-7	0.00	13.5	-13.50	14.4	50	Roller bit 6.5 into decomposed rock and core 10 feet
BW-8	0.00	19	-19.00	N/A	N/A	Roller bit 5 feet through the weathered rock to refusal, did not core

Note: 1. RQD = Rock Quality Designation. Defined as the total length of sound core pieces, 4 inches or greater in length, expressed as a percentage of the total length cored.

Table No. 3
Summary of Average Soil Permeability

Stateline Retail Center
Southeast, New York

Falling Head Test Data				
Area	**Well No.**	**Permeability**		
		(in/sec)	**(cm/sec)**	**(ft/day)**
East Area	BE-3	1.29E-03	5.47E-05	1.55E-01
	BE-4	2.66E-02	1.13E-03	3.19E+00
	BE-5	1.19E-02	5.06E-04	1.43E+00
	BE-8	9.82E-03	4.16E-04	1.18E+00
	Average	**1.24E-02**	**5.26E-04**	**1.49E+00**
West Area	BW-6	5.45E-04	2.31E-05	6.54E-02
	BW-8	3.97E-03	1.68E-04	4.77E-01
	Average	**2.26E-03**	**9.56E-05**	**2.71E-01**

Table No. 4
Kozeny - Carman Analyses
to Estimate Coefficient of Permability

Stateline Retail Center
Southeast, New York

Area	Test Boring No.	Sample No.	Sample Depth (ft.)	D_{10} (mm)	SPT "N-value (blows / ft)	Descriptive Density	Relative Density (%)	in-situ void ratio e	in-situ porosity n	Coefficient of Permability k (cm/sec)	Coefficient of Permability k (ft/day)
West Area	BW-2	S-4	15'-15'10"	0.007	100	Very dense	100	0.140	0.12	5.54E-07	1.57E-03
	BW-2	S-6	25'-25'4"	0.007	160	Very dense	100	0.140	0.12	5.54E-07	1.57E-03
	BW-5	S-3	10'-10'5"	0.075	100	Very dense	100	0.140	0.12	6.36E-05	1.80E-01
East Area	BE-4	S-2	5'-7'	0.075	23	Medium Dense	50	0.495	0.33	2.14E-03	6.08E+00
	BE-4	S-3	10'-12'	0.015	7	Loose	25	0.673	0.40	1.92E-04	5.45E-01
	BE-6	S-2	5'-7'	0.003	17	Medium Dense	45	0.531	0.35	4.13E-06	1.17E-02

SPT (bl/ ft)	Descriptive Density	Relative Density (%)
0 to 4	Very loose	0 to 15
4 to 10	Loose	15 to 35
10 to 30	Medium Dense	35 to 65
30 to 50	Dense	65 to 85
50 +	Very dense	85 to 100

e_{min}	e_{max}
0.14	0.85

West Area	Minimum:	5.54E-07	1.57E-03
	Maximum:	6.36E-05	1.80E-01
	Average:	**2.16.E-05**	**6.12E-02**
East Area	Minimum:	4.13E-06	1.17E-02
	Maximum:	2.14E-03	6.08E+00
	Average:	**7.80.E-04**	**2.21E+00**

References:

1.) Lambe & Whitman p 30 and p 287 and Kozeny-Carman Method

Table No. 5
Effluent Flow Analysis

Stateline Retail Center
Southeast, New York

effluent flow gal/day	input source flow (ft*3/d)	East Area Input over 8 50-ft long cells (north-south direction) No. of cells = 8 Q total	West Area Input over 4 50-ft long cells (north-south direction) No. of cells = 4 Q total
500	66.8	4,000 gpd	2,000 gpd
625	83.6	5,000 gpd	2,500 gpd
750	100.3	6,000 gpd	3,000 gpd
875	117.0	7,000 gpd	3,500 gpd
1000	133.7	8,000 gpd	4,000 gpd
1250	167.1	10,000 gpd	5,000 gpd
1500	200.5	12,000 gpd	6,000 gpd
2000	267.4	16,000 gpd	8,000 gpd
3000	401.1	24,000 gpd	12,000 gpd

Avg. Width of Recharge Area (East West Direction)	400 feet	800 feet

Flow into model (at cell 10)

from Darcy Q=kia, max flow into model is about 2.8 ft^3@/day per foot

2.8 450 1260 ft^3/day

say 1000 ft^3/day
also no rainfall flow

Adjustment to Transmissivity resulting from increased saturated flow thickness

		East Area		West Area
Existing Site Avg. Depth to Water		8 ft		17
Existing Site Avg. Sat Thickness		13.6 ft		8
Max gw rise	(8' - 3' = 5')	5	(17' - 3' = 14')	14
Proposed Max Sat Thickness		18.6		22
	ratio	1.37		2.75
	Say	1.3		2

Table No. 6A

Historical Precipitation at Station KPOU
Poughkeepsie, NY

Precip. (in)	Month												
	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
1835	-	-	-	-	-	-	-	-	-	-	-	-	-
1836	-	-	-	-	-	-	-	-	-	-	-	-	-
1837	-	-	-	-	-	-	-	-	-	-	-	-	-
1838	-	-	-	-	-	-	-	-	-	-	-	-	-
1839	-	-	-	-	-	-	-	-	-	-	-	-	-
1840	-	-	-	-	-	-	-	-	-	-	-	-	-
1841	-	-	-	-	-	-	-	-	-	-	-	-	-
1842	-	-	-	-	-	-	-	-	-	-	-	-	-
1843	-	-	-	-	-	-	-	-	-	-	-	-	-
1844	-	-	-	-	-	-	-	-	-	-	-	-	-
1845	-	-	-	-	-	-	-	-	-	-	-	-	-
1846	-	-	-	-	-	-	-	-	-	-	-	-	-
1847	-	-	-	-	-	-	-	-	-	-	-	-	-
1848	-	-	-	-	-	-	-	-	-	-	-	-	-
1849	-	-	-	-	-	-	-	-	-	-	-	-	-
1850	-	-	-	-	-	-	-	-	-	-	-	-	-
1851	-	-	-	-	-	-	-	-	-	-	-	-	-
1852	-	-	-	-	-	-	-	-	-	-	-	-	-
1853	-	-	-	-	-	-	-	-	-	-	-	-	-
1854	-	-	-	-	-	-	-	-	-	-	-	-	-
1855	-	-	-	-	-	-	-	-	-	-	-	-	-
1856	-	-	-	-	-	-	-	-	-	-	-	-	-
1857	-	-	-	-	-	-	-	-	-	-	-	-	-
1858	-	-	-	-	-	-	-	-	-	-	-	-	-
1859	-	-	-	-	-	-	-	-	-	-	-	-	-
1860	-	-	-	-	-	-	-	-	-	-	-	-	-
1861	-	-	-	-	-	-	-	-	-	-	-	-	-
1862	-	-	-	-	-	-	-	-	-	-	-	-	-
1863	-	-	-	-	-	-	-	-	-	-	-	-	-
1864	-	-	-	-	-	-	-	-	-	-	-	-	-
1865	-	-	-	-	-	-	-	-	-	-	-	-	-
1866	-	-	-	-	-	-	-	-	-	-	-	-	-
1867	-	-	-	-	-	-	-	-	-	-	-	-	-
1868	-	-	-	-	-	-	-	-	-	-	-	-	-
1869	-	-	-	-	-	-	-	-	-	-	-	-	-
1870	-	-	-	-	-	-	-	-	-	-	-	-	-
1871	-	-	-	-	-	-	-	-	-	-	-	-	-
1872	-	-	-	-	-	-	-	-	-	-	-	-	-
1873	-	-	-	-	-	-	-	-	-	-	-	-	-
1874	-	-	-	-	-	-	-	-	-	-	-	-	-
1875	-	-	-	-	-	-	-	-	-	-	-	-	-
1876	-	-	-	-	-	-	-	-	-	-	-	-	-
1877	-	-	-	-	-	-	-	-	-	-	-	-	-
1878	-	-	-	-	-	-	-	-	-	-	-	-	-
1879	-	-	-	-	-	-	-	-	-	-	-	-	-
1880	-	-	-	-	-	-	-	-	-	-	-	-	-
1881	-	-	-	-	-	-	-	-	-	-	-	-	-
1882	-	-	-	-	-	-	-	-	-	-	-	-	-
1883	-	-	-	-	-	-	-	-	-	-	-	-	-
1884	-	-	-	-	-	-	-	-	-	-	-	-	-
1885	-	-	-	-	-	-	-	-	-	-	-	-	-
1886	-	-	-	-	-	-	-	-	-	-	-	-	-
1887	-	-	-	-	-	-	-	-	-	-	-	-	-
1888	-	-	-	-	-	-	-	-	-	-	-	-	-
1889	-	-	-	-	-	-	-	-	-	-	-	-	-
1890	-	-	-	-	-	-	-	-	-	-	-	-	-
1891	-	-	-	-	-	-	-	-	-	-	-	-	-
1892	-	1.00	2.30	-	-	-	5.86	-	-	-	-	-	-
1893	2.17	6.24	-	-	-	-	-	-	-	-	-	-	-
1894	-	-	-	-	-	-	-	1.37	-	-	-	-	-
1895	-	-	-	-	-	-	-	-	1.16	3.45	3.70	3.03	-
1896	1.05	5.49	6.12	0.87	3.28	3.57	3.96	2.92	4.30	2.31	2.98	1.37	38.22
1897	2.11	2.22	2.74	2.41	5.42	2.77	15.71	3.75	1.62	1.06	4.46	4.39	48.66
1898	3.54	3.46	2.23	3.35	6.38	0.95	3.87	8.77	3.35	5.08	3.16	2.68	46.82
1899	2.70	4.00	5.32	1.69	1.75	4.57	5.84	0.86	6.51	1.26	1.78	1.79	38.07
1900	2.82	5.33	3.36	1.81	4.20	2.17	4.28	3.14	2.78	2.80	3.86	2.07	38.62
1901	1.57	0.70	4.88	8.26	6.43	1.23	6.47	7.20	3.59	2.28	1.66	6.16	50.43

Table No. 6A

Historical Precipitation at Station KPOU
Poughkeepsie, NY

Precip. (in)	Month												
	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
1902	2.38	4.13	4.12	3.28	2.33	4.55	7.57	2.34	6.21	5.56	0.99	5.37	48.83
1903	3.09	4.40	3.88	2.61	0.74	10.90	3.26	7.96	2.29	6.17	1.53	2.73	49.56
1904	2.51	2.35	2.91	3.34	2.29	2.65	4.48	6.00	4.20	2.74	1.34	1.84	36.65
1905	3.27	1.35	2.75	2.28	0.79	4.10	4.30	4.46	4.79	2.16	1.74	2.73	34.72
1906	2.56	2.05	3.72	4.82	3.71	2.84	6.36	3.10	2.26	3.56	1.43	4.21	40.62
1907	3.19	2.39	2.08	2.15	3.50	3.42	2.53	2.04	6.11	4.95	4.35	4.39	41.10
1908	2.38	5.13	2.15	2.11	5.93	1.43	4.48	3.81	0.78	1.99	0.63	2.43	33.25
1909	3.00	4.79	2.66	5.41	2.25	2.15	2.96	5.46	3.60	0.90	1.31	3.66	38.15
1910	4.93	2.86	1.03	4.77	2.77	4.38	2.10	4.11	2.04	1.39	3.43	2.05	35.86
1911	2.20	2.61	2.99	2.80	1.88	5.43	2.82	6.46	2.44	5.67	2.67	3.01	40.98
1912	1.24	1.91	5.87	3.55	3.72	1.54	3.00	3.66	2.96	2.86	2.25	4.12	36.68
1913	3.13	2.29	4.68	4.52	2.50	1.02	1.64	3.62	3.13	6.46	2.18	2.47	37.64
1914	3.57	2.03	3.77	3.24	2.65	2.80	4.63	2.01	0.24	2.52	2.48	4.10	34.04
1915	4.79	4.75	0.42	1.75	2.10	2.79	6.10	7.30	2.32	2.57	1.08	5.73	41.70
1916	0.98	3.34	2.66	2.71	2.62	4.87	6.50	1.99	2.49	1.04	2.65	4.09	35.94
1917	2.79	1.67	3.04	1.71	2.66	3.60	2.55	1.67	0.95	4.61	1.05	2.77	29.07
1918	3.33	2.19	1.39	4.10	3.52	3.44	4.69	3.36	3.42	1.23	2.31	3.82	36.80
1919	2.70	2.96	4.46	2.66	3.99	2.03	7.17	4.40	4.21	3.17	4.01	2.55	44.31
1920	2.19	4.33	3.04	3.83	1.93	5.21	4.26	4.04	5.75	1.87	3.04	4.32	43.81
1921	2.10	2.95	2.76	4.94	2.07	3.38	4.33	2.81	2.60	1.05	3.72	2.04	34.75
1922	1.12	2.35	3.54	2.40	4.64	6.49	5.68	3.47	2.02	1.88	0.97	3.20	37.76
1923	4.22	1.87	2.43	2.98	2.33	3.32	3.07	1.82	2.87	3.87	3.90	3.44	36.12
1924	3.60	2.46	0.90	5.35	4.60	1.79	1.94	2.34	4.38	0.44	2.12	1.66	31.58
1925	3.75	2.61	3.30	1.74	2.57	4.13	7.10	1.76	2.97	3.52	3.39	2.43	39.27
1926	1.82	3.91	1.77	2.47	1.50	2.34	3.62	4.66	2.71	3.78	3.08	2.54	34.20
1927	2.17	2.51	1.40	2.20	5.15	2.80	4.08	6.59	2.89	5.57	7.14	4.34	46.84
1928	2.05	3.86	2.11	4.52	2.32	7.06	7.92	8.27	2.64	0.75	2.26	1.09	44.85
1929	3.18	3.14	2.14	6.55	3.25	1.82	2.67	3.02	2.73	3.61	2.43	3.69	38.23
1930	2.13	1.80	2.28	2.07	3.04	4.22	2.72	3.48	2.22	1.20	3.65	2.57	31.38
1931	1.39	1.77	2.60	3.07	4.93	5.91	6.55	3.73	1.46	1.82	1.31	2.44	36.98
1932	3.00	1.83	3.24	1.79	3.09	3.01	4.24	4.34	1.65	5.60	7.27	1.76	40.82
1933	1.31	2.56	4.04	4.52	2.09	2.70	2.31	9.25	5.48	2.10	0.99	2.23	39.58
1934	2.36	2.14	2.74	3.93	4.31	3.62	5.44	2.75	8.14	2.20	4.25	2.22	44.10
1935	3.32	2.45	1.84	3.08	1.79	3.45	3.56	1.29	2.92	2.35	4.83	1.09	31.97
1936	3.94	2.86	4.99	3.38	2.48	3.38	4.34	6.99	3.13	3.19	1.71	4.66	45.05
1937	6.42	1.86	2.73	4.51	4.08	6.38	2.95	3.91	3.11	2.96	2.92	2.32	44.15
1938	2.95	1.55	1.61	2.06	4.39	5.95	7.08	5.97	9.85	1.83	2.24	2.51	47.99
1939	2.26	3.78	2.75	4.28	1.18	2.48	2.70	2.04	2.24	4.27	1.32	1.22	30.52
1940	0.98	2.01	3.66	4.69	5.58	3.33	4.45	3.13	2.64	2.00	4.35	2.88	39.70
1941	2.17	2.22	0.95	0.78	1.64	4.80	5.01	2.39	0.87	1.78	1.92	2.64	27.17
1942	2.76	1.81	4.98	0.87	2.79	2.68	4.03	4.37	3.40	3.87	4.54	4.59	40.69
1943	2.67	1.56	2.58	3.14	5.51	4.46	6.47	1.10	1.73	6.67	3.70	0.51	40.10
1944	0.98	1.33	4.22	3.28	1.79	5.08	3.50	0.61	4.87	1.45	4.88	2.98	34.97
1945	4.06	3.50	1.89	4.77	7.49	5.82	10.77	5.73	5.60	2.40	4.41	3.81	60.25
1946	1.14	2.62	1.58	1.50	4.61	2.93	5.97	2.95	3.68	1.42	0.76	2.12	31.28
1947	2.53	1.84	2.39	4.30	5.06	4.32	4.36	3.24	2.85	2.43	6.09	3.18	42.59
1948	3.06	1.92	3.12	4.57	4.41	4.34	2.10	2.35	0.78	1.99	3.85	7.40	39.89
1949	4.69	2.48	1.19	2.37	4.60	0.99	3.19	4.26	2.54	2.34	1.90	4.03	34.58
1950	3.79	3.01	2.80	2.42	4.34	4.02	4.12	3.68	2.29	1.24	5.69	3.09	40.49
1951	3.30	3.28	5.07	2.89	3.78	3.52	3.53	5.87	3.17	3.62	5.26	3.50	46.79
1952	4.01	1.69	3.28	7.41	5.33	4.96	4.32	5.87	4.73	0.85	2.35	3.69	48.49
1953	4.09	2.23	6.63	5.58	5.22	3.15	2.52	2.19	2.33	4.31	1.86	4.64	44.75
1954	1.52	1.88	3.07	2.97	4.57	1.57	2.09	5.18	5.48	1.45	6.77	3.27	39.82
1955	0.79	2.85	4.38	3.62	1.75	2.37	0.82	12.71	2.59	10.40	4.42	0.54	47.24
1956	1.84	3.63	3.71	4.41	2.78	1.68	4.36	1.72	6.30	2.49	1.72	4.25	38.89
1957	1.80	1.15	2.13	4.60	2.94	1.19	2.23	1.66	2.29	3.11	3.05	5.71	31.86
1958	4.32	2.54	3.60	6.01	3.85	1.82	2.92	2.20	3.95	5.04	3.73	0.62	40.60
1959	2.92	2.56	2.43	3.01	1.83	3.58	3.98	3.56	0.72	6.81	3.26	2.93	37.59
1960	2.34	2.81	1.71	3.13	3.51	4.75	5.65	2.28	6.08	2.21	1.76	1.63	37.86
1961	2.35	3.47	3.08	4.78	4.10	3.14	2.96	1.99	2.52	1.54	4.12	2.69	36.74
1962	3.03	5.20	1.11	2.94	1.36	2.82	1.43	3.85	1.91	2.59	2.33	2.99	31.56
1963	2.69	2.18	2.57	1.04	1.36	4.32	4.16	1.81	3.12	0.36	5.36	2.22	31.19
1964	2.12	1.79	2.26	3.41	0.94	2.98	1.99	2.35	1.30	0.89	1.67	2.82	24.52
1965	2.24	2.24	1.13	2.40	1.05	1.54	2.91	4.38	2.66	2.92	2.16	2.08	27.71
1966	1.89	2.21	1.99	2.20	3.13	1.04	0.96	0.87	6.86	4.49	3.14	2.23	31.01
1967	1.23	1.52	4.44	3.44	2.91	7.23	5.32	5.76	1.48	2.92	2.54	4.16	42.95
1968	1.20	0.72	3.86	2.37	6.50	5.57	0.72	2.05	3.83	2.16	3.88	3.87	36.73

Table No. 6A

Historical Precipitation at Station KPOU
Poughkeepsie, NY

Precip. (in)	Month												
	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
1969	1.45	1.85	2.51	4.21	3.27	4.16	5.06	3.60	3.25	1.56	6.41	4.15	41.48
1970	0.43	2.97	2.01	3.82	2.96	2.96	1.89	4.03	3.31	2.93	3.96	3.10	34.37
1971	1.68	3.58	1.99	2.62	5.03	1.47	5.22	10.92	3.98	3.51	3.41	2.70	46.11
1972	2.23	3.53	3.22	4.75	7.74	7.99	4.13	2.14	1.93	3.68	8.11	5.33	54.78
1973	2.81	1.82	3.83	6.50	6.17	4.89	2.43	1.24	2.71	1.61	1.76	8.65	44.42
1974	4.20	1.12	3.86	3.94	4.46	4.65	4.25	3.82	5.20	2.55	2.82	3.08	43.95
1975	3.51	3.11	3.99	1.88	3.14	3.99	13.63	3.15	7.19	4.31	4.35	2.98	55.23
1976	3.67	2.76	1.79	2.28	3.36	2.67	5.10	7.27	3.90	6.78	0.67	2.09	42.34
1977	1.27	3.33	6.11	4.17	2.59	3.38	1.43	3.24	5.95	4.72	5.25	4.45	45.89
1978	7.09	1.13	3.38	1.08	7.08	3.29	2.83	4.14	2.76	1.97	1.70	3.38	39.83
1979	6.65	3.09	2.05	3.95	5.82	1.62	2.10	4.32	5.71	4.02	3.50	1.85	44.68
1980	0.64	0.92	4.55	5.18	1.86	3.62	2.79	2.50	1.83	3.15	3.07	0.57	30.68
1981	0.77	5.42	0.15	4.01	4.82	3.81	3.79	0.64	2.81	4.12	1.28	3.61	35.23
1982	3.76	3.15	2.78	3.63	2.97	8.39	3.58	3.86	2.14	1.60	3.00	0.93	39.79
1983	3.72	2.23	7.39	8.51	6.84	4.03	1.28	4.00	2.36	3.57	4.91	6.60	55.44
1984	1.33	3.37	3.70	5.14	11.49	1.58	5.53	1.90	0.84	2.20	2.04	2.65	41.77
1985	1.00	2.04	2.58	1.71	4.19	3.34	4.66	4.68	5.31	1.72	6.11	2.23	39.57
1986	3.48	3.52	2.96	1.68	2.10	5.87	9.00	2.84	0.46	2.51	5.23	3.28	42.93
1987	3.65	0.32	3.12	6.47	2.22	2.35	4.51	3.79	6.59	4.70	1.27	1.50	40.49
1988	2.11	2.97	1.61	1.36	4.51	0.30	8.49	4.54	1.93	1.50	7.10	0.88	37.30
1989	1.72	2.29	3.00	2.78	11.81	7.21	1.63	3.63	6.71	6.54	1.86	1.01	50.19
1990	4.10	3.49	3.25	3.05	6.04	3.28	3.30	7.91	1.19	5.85	2.70	5.00	49.16
1991	1.50	1.63	3.82	3.58	5.05	2.21	2.72	4.92	4.81	4.07	3.70	3.03	41.04
1992	1.70	1.92	3.08	3.12	2.83	3.34	7.18	2.81	1.98	1.31	4.60	4.16	38.03
1993	2.28	2.70	5.69	5.17	1.07	2.71	1.32	1.95	6.05	3.82	3.46	3.62	39.84
1994	3.69	2.86	5.25	3.06	3.63	5.62	5.12	5.97	3.03	1.23	3.56	2.67	45.69
1995	4.49	2.52	2.53	3.76	3.51	2.34	11.27	1.80	3.30	9.98	5.40	2.62	53.52
1996	7.41	2.21	3.26	6.56	3.71	4.06	11.62	1.39	5.94	7.48	2.58	7.09	63.31
1997	2.68	1.47	4.11	4.86	5.15	2.24	4.29	4.52	2.70	1.83	6.01	3.50	43.36
1998	3.72	2.54	4.17	4.26	6.33	10.79	2.23	2.67	3.78	3.74	1.39	1.06	46.68
1999	6.16	2.53	5.36	1.57	3.38	1.50	2.11	4.22	6.94	3.47	2.40	2.08	41.72
2000	2.95	3.31	4.58	4.90	8.10	7.02	4.23	5.28	3.70	1.77	2.63	4.27	52.74
2001	2.18	2.25	6.37	0.11	2.69	4.64	2.85	3.24	4.76	0.79	0.85	2.08	32.81
2002	1.03	0.87	2.39	3.96	4.51	4.12	3.84	4.05	2.74	5.63	5.18	2.91	41.23
2003	2.58	2.56	3.08	1.47	3.78	4.47	2.44	4.31	9.22	4.34	4.31	3.98	46.54
2004	1.95	1.86	1.87	2.92	2.27	1.74	4.94	6.23	8.14	1.8	2.93	3.48	40.13
2005	4.79	1.58	3.88	3.78	1.95	4.7	7.78	2.01	0.61	17.59	4.68	3.57	56.92
2006	5.76	1.03	0.7	3.95	7.68	6.49	1.68	5.06	4.93	4.21	4.9		46.39
1896 to 2006													
Mean	2.79	2.59	3.13	3.46	3.78	3.71	4.35	3.89	3.53	3.26	3.23	3.12	**40.81**
Min.	0.43	0.32	0.15	0.11	0.74	0.30	0.72	0.61	0.24	0.36	0.63	0.51	24.52
Max.	7.41	5.49	7.39	8.51	11.81	10.90	15.71	12.71	9.85	17.59	8.11	8.65	63.31
Median	2.67	2.46	3.00	3.28	3.50	3.38	4.08	3.63	2.97	2.59	3.04	2.96	40.13

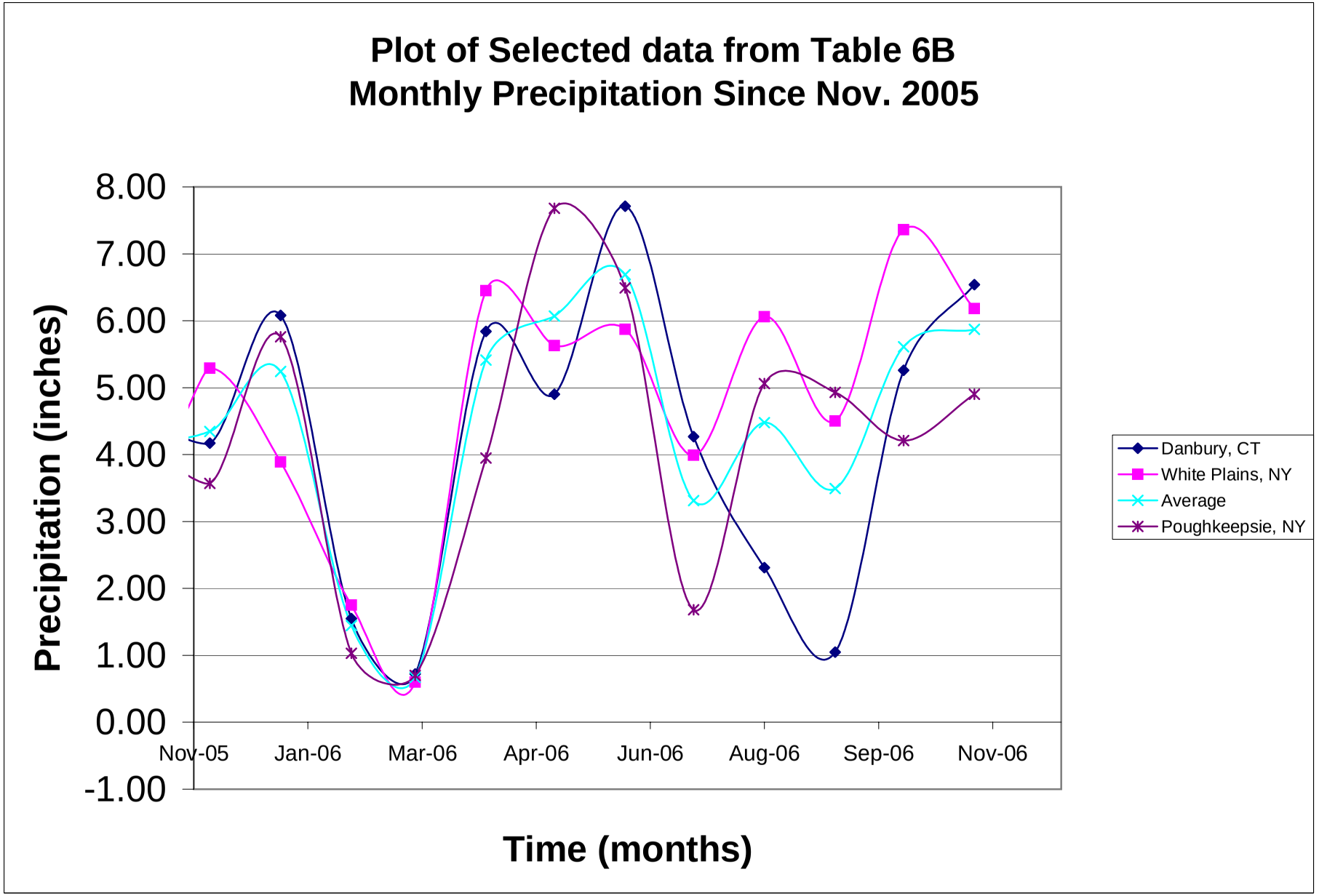
Notes:

1. All data from Station KPOU (Poughkeepsie) except for select dates from 1995 through 2001 where data at this station was unavailable. Data from these dates collected from West Point, NY Station or Danbury, CT Station.

Table No. 6B

Monthly Precipitation since January 2003

Month	Poughkeepsie, NY (KPOU)	Danbury, CT (KDXR)	White Plains, NY (KHPN)	Average
Jan-03	2.58	2.60	2.07	2.42
Feb-03	2.56	2.74	1.15	2.15
Mar-03	3.08	3.86	3.90	3.61
Apr-03	1.47	2.42	2.84	2.24
May-03	3.78	4.33	4.44	4.18
Jun-03	4.47	8.87	7.98	7.11
Jul-03	2.44	4.07	1.78	2.76
Aug-03	4.31	6.83	4.57	5.24
Sep-03	9.22	7.99	7.25	8.15
Oct-03	4.34	5.03	4.35	4.57
Nov-03	4.31	4.11	4.14	4.19
Dec-03	3.98	6.19	5.45	5.21
Jan-04	1.95	1.57	1.83	1.78
Feb-04	1.86	2.21	2.62	2.23
Mar-04	1.87	3.33	3.87	3.02
Apr-04	2.92	5.31	5.31	4.51
May-04	2.27	3.11	3.92	3.10
Jun-04	1.74	2.46	3.19	2.46
Jul-04	4.94	4.75	7.04	5.58
Aug-04	6.23	2.50	3.46	4.06
Sep-04	8.14	8.10	11.50	9.25
Oct-04	1.80	2.23	1.34	1.79
Nov-04	2.93	3.87	3.86	3.55
Dec-04	3.48	4.13	3.15	3.59
Jan-05	4.79	3.98	3.89	4.22
Feb-05	1.58	2.32	2.94	2.28
Mar-05	3.88	3.35	3.59	3.61
Apr-05	3.78	5.14	4.93	4.62
May-05	1.95	2.01	1.32	**1.76**
Jun-05	4.70	2.75	3.81	**3.75**
Jul-05	7.78	3.74	8.60	**6.71**
Aug-05	2.01	0.65	1.93	**1.53**
Sep-05	0.61	1.88	1.36	**1.28**
Oct-05	17.59	15.35	15.58	**16.17**
Nov-05	4.68	4.98	3.91	**4.52**
Dec-05	3.57	4.17	5.29	**4.34**
Jan-06	5.76	6.08	3.89	**5.24**
Feb-06	1.03	1.55	1.75	**1.44**
Mar-06	0.70	0.72	0.60	**0.67**
Apr-06	3.95	5.84	6.45	**5.41**
May-06	7.68	4.90	5.63	**6.07**
Jun-06	6.49	7.71	5.87	**6.69**
Jul-06	1.68	4.27	3.99	**3.31**
Aug-06	5.06	2.31	6.06	**4.48**
Sep-06	4.93	1.05	4.50	**3.49**
Oct-06	4.21	5.26	7.36	**5.61**
Nov-06	*4.90*	*6.54*	*6.18*	**5.87**
2003 Annual Total	46.54	59.04	49.92	**51.83**
2004 Annual Total	40.13	43.57	51.09	**44.93**
2005 Annual Total	56.92	50.32	57.15	**54.80**
2006 Annual Total thru Oct.	41.49	39.69	46.10	**42.43**
April 2006 - Oct. 2006	**34.00**	**31.34**	**39.86**	**35.07**
(6 months preceeding				
date of Estimated Flows)				


Plot of Selected data from Table 6B
Monthly Precipitation Since Nov. 2005
Precipitation (inches)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
Nov-05
Jan-06
Mar-06
Apr-06
Jun-06
Aug-06
Sep-06
Nov-06
Time (months)
Danbury, CT
White Plains, NY
Average
Poughkeepsie, NY

LIMITATIONS

LIMITATIONS

Explorations

1. The analyses and conclusions submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may become evident with further investigation. If such variations appear, it will be necessary to reevaluate the conclusions of this report.

2. The stratification lines on the logs and soil profile described in the text are intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

3. Water level readings have been made in the drill holes and observation wells at times and under conditions stated on the logs. These data have been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater and flow rates may occur due to variations in rainfall, temperature and other factors occurring since the time measurements were made.

Analyses

4. Preliminary one-dimensional calculations were made during this study. Efforts have been made to check the validity of the assumptions for the simulations performed to-date, and in our opinion, the results have been reasonable. However, it is recognized that calculations developed using different methodologies and/or different assumptions could produce different flow patterns. It should also be noted that fluctuations in the flow patterns variations will occur due to changes in rate and sequence of applications of sewage flows, seasonal precipitation and other climatic fluctuations, as well as other factors. Final analyses using additional data including water level readings made during the wet seasons are required to confirm the results included herein.

Review

5. In the event that any changes in the nature, design or location of the proposed subsurface disposal systems or other proposed site development features affecting groundwater recharge are planned, the preliminary conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by Geo**Design**, Inc. It is recommended that this firm be provided the opportunity to perform final design phase studies to confirm the predicted flow rates.

Uses of Report

6. This report has been prepared for the exclusive use of Camarda Development Company for specific application to the proposed subsurface disposal system at the proposed Stateline Retail Center, U.S. Route 6, Southeast, New York in accordance with generally accepted hydrogeologic practices. No other warranty, express or implied, is made.