N Supplemental Geotechnical Data Collection

Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

GZA GeoEnvironmental of NY
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August 9, 2018
File No. 41.0162548.10

Valerie Monastra, AICP, Director of Planning
Vanasse Hangen Brustlin, Inc. (VHB)
50 Main Street, Suite 360
White Plains, NY 10606

Re: Supplemental Geotechnical Data Collection
Soil Borings and Monitoring Well Installation
Hampshire Country Club
1025 Cove Road West, Mamaroneck, NY 10543

Dear Ms. Monastra:

As requested, GZA Environmental of New York (GZA) completed additional soil borings at for the above-referenced Hampshire Country Club property (Site). This work was performed in accordance with GZA's additional data collection proposal dated June 20, 2018.

GZA observed our drilling subconsultant, EPhase 2, LLC of Huntington Station, New York, perform 12 soil borings (OW-02, OW-02A, OW-3, OW-04, OW-04A, and SP-01 through SP-07) as part of this supplemental data collection program. Three observation wells (OW-02 through OW-04) were installed in three of the soil borings. A figure showing the locations of the soil borings and observation wells is provided as **Figure 1,** and completed soil boring logs for the observation wells are provided in **Attachment A.** Representative site photographs are included in **Attachment B**.

Four soil samples were collected from the three observation well soil borings and were sent to Thielsch Engineering Inc. of Cranston, Rhode Island for grain size analysis to check field soil sample classifications. Results of the analysis were incorporated into the soil boring logs and a copy of the laboratory report is provided as **Attachment C**.

GZA collected three days of groundwater depth measurements of the newly installed wells. The first two days were collected during the drilling program in June 2018. We returned to the Site on July 12, 2018 and measured the water depths below ground surface. This data is summarized in **Table 1**.

We are pleased to be able to provide consulting services to VHB on this project. Please contact us should you have additional questions.

Very truly yours,
GZA GEOENVIRONMENTAL OF NEW YORK

Stephen M. Kline, P.E.
Vice President

Patrick D. Mahon, P.E.
Consultant Reviewer

CC: Mike Junghans, Kimley-Horn

ATTACHMENTS:

Table 1 – Groundwater Depth Measurements

Figure 1 - Boring Location Plan

Attachment A - Soil Boring Logs and Well Installation Logs
Attachment B – Site Photographs
Attachment C - Geotechnical Laboratory Report


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TABLES

TABLE 1
Hampshire Country Club
Groundwater Depth Measurements

Well ID	Approx. Ground Surface Elevation (NAVD 88)	Minimum Depth to Groundwater (6/18-6/19/2018)	Highest Groundwater Elevation (6/18-6/19/2018)	Depth to Groundwater (7/12/2018)	Groundwater Elevation (7/12/2018)
OW-2	4.0	6.4	-2.4	9.7	-5.7
OW-3	1.0	5.1	-4.1	3.7	-2.7
OW-4	3.0	2.2	0.8	1.1	1.9

Notes:
Measurements relative to the approximate ground surface
All measurements in feet


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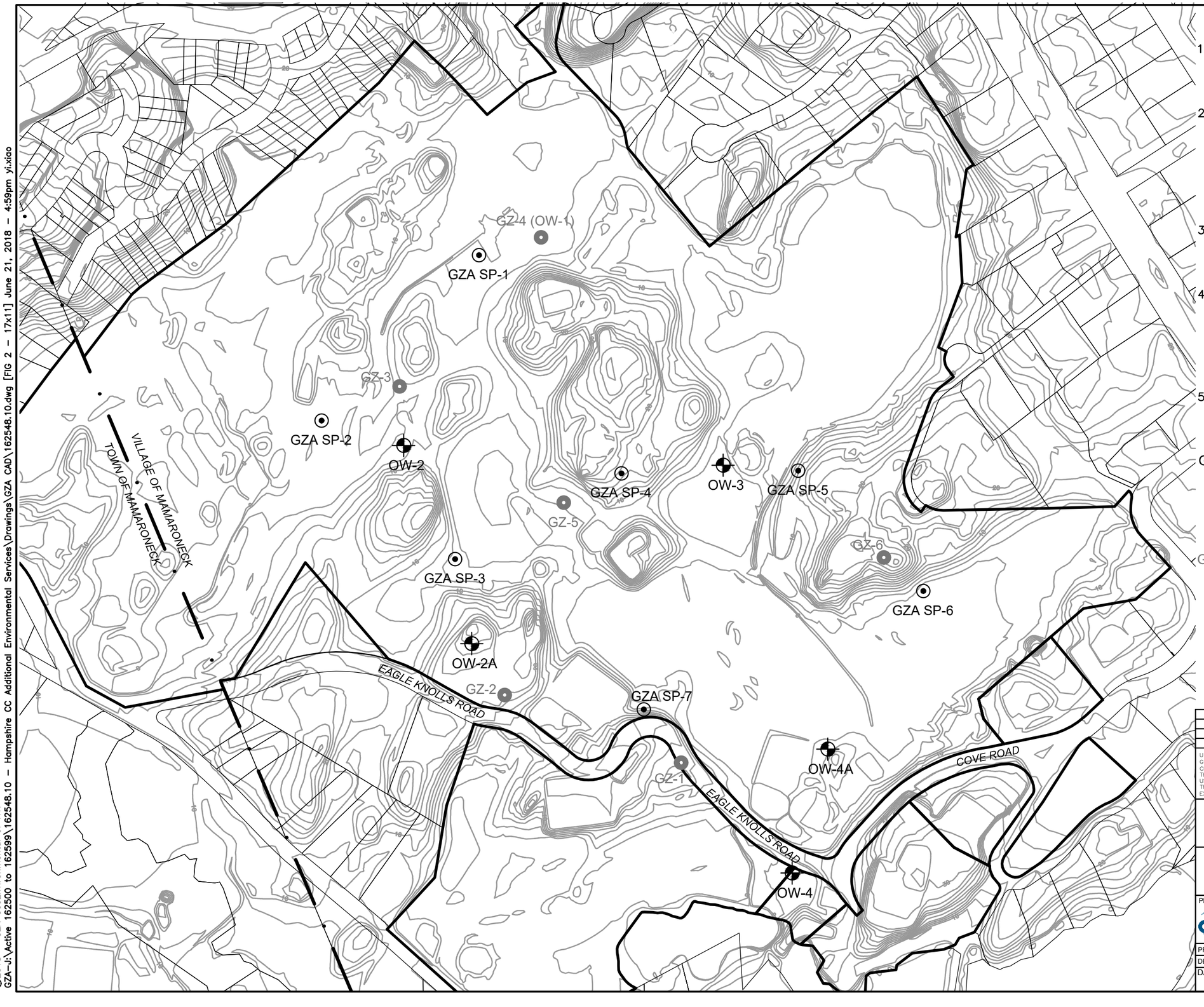
FIGURES



GENERAL NOTES

1. BASE MAP DEVELOPED FROM MUNICIPAL TAX PARCEL DATA PROVIDED ON WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEB SITE, DATED FEBRUARY 2017.
2. TOPOGRAPHIC CONTOURS DEVELOPED FROM 2–FOOT TOPO PROVIDED ON WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS WEB SITE, DATED APRIL 2004. THE DATA WAS DERIVED FROM THE SPRING 2004 PHOTOGRAMMETRIC BASE MAP OF WESTCHESTER COUNTY BY BUCHART–HORN (YORK, PENNSYLVANIA). DATA DEPICTS CONTOUR LINES FOR EVERY 2–FOOT CHANGE IN ELEVATION.
3. LOCATION OF GEOTECHNICAL SOIL PROBES AND OBSERVATION WELLS WERE APPROXIMATED BY GZA STAFF DURING FIELD ACTIVITIES BETWEEN JUNE 18 AND 19, 2018.
4. THE PURPOSE OF THIS DRAWING IS TO LOCATE, DESCRIBE, AND REPRESENT THE POSITIONS OF EXPLORATIONS IN RELATION TO THE SUBJECT SITE. THIS DRAWING IS NOT CONSIDERED A LAND SURVEY. THE LOCATIONS SHOWN SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. VERTICAL DATUM IS NAVD88.

LEGEND

- GZA SP-# — GEOTECHNICAL SOIL PROBE (SP) LOCATION (JUNE 2018)
- GZ-# — GEOTECHNICAL OBSERVATION WELL (OW) LOCATION (JUNE 2018)
- GZ-# / GZ-# (OW-#) — GEOTECHNICAL SOIL PROBE / OBSERVATION WELL LOCATION (MARCH 2016)

N W E S

0 125 250 500

SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

HAMPSHIRE COUNTRY CLUB
1025 COVE ROAD
MAMARONECK, NY 10543

BORING LOCATION PLAN

PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental of NY Engineers and Scientists www.gza.com		VHB ENGINEERING SURVEYING & LANDSCAPE ARCHITECTURE, P. C.	
PROJ MGR: RM	REVIEWED BY: SK	CHECKED BY: SK	FIG 1
DESIGNED BY: RM	DRAWN BY: YX	SCALE: 1" = 250'	SHEET NO.
DATE: AUG 2018	PROJECT NO. 41.0162548.10	REVISION NO.	

G:\Active 162500 to 162599\162548.10 – Hampshire CC Additional Environmental Services\Drawings\GZA CAD\162548.10.dwg [FIG 2 – 17x11] June 21, 2018 – 4:59pm yi.xiao

ATTACHMENT A

SOIL BORING LOGS AND WELL INSTALLATION LOGS

LOG KEY

GZA
Geo Environmental, Inc.
Engineers and Scientists

BURMISTER SOIL CLASSIFICATION

COMPONENT	NAME	PROPORTIONAL TERM	PERCENT BY WEIGHT
MAJOR	GRAVEL, SAND, FINES*		>50
Minor	Gravel, Sand, Fines*	and	35 - 50
		some	20-35
		little	10-20
		trace	0-10

*See identification of fines table.

IDENTIFICATION OF FINES

Material	PI	Atterberg Thread Dia.
SILT	0	Cannot Roll
Clayey SILT	1-5	1/4"
SILT & CLAY	5-10	1/8"
CLAY & SILT	10-20	1/16"
Silty CLAY	20-40	1/32"
CLAY	>40	1/64"

GRADATION DESIGNATION	PROPORTION OF COMPONENT
Fine to coarse	All fractions > 10%
Medium to coarse	<10% fine
Fine to medium	<10% coarse
Coarse	<10% fine and medium
Medium	<10% coarse and fine
Fine	<10% coarse and medium

PLASTIC SOILS

Consistency	Blows/Ft. SPT N-Value
Very Soft	< 2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

GRAVEL & SAND

Density	Blows/Ft. SPT N-Value
Very Loose	< 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) (ASTM D 2487)

MAJOR DIVISIONS			Group Symbols
Coarse Grained Soils More than 50% of material larger than No. 200 sieve.	Gravel More than 50% larger than No. 4 sieve.	Clean Gravels (Little or no fines)	GW GP
		Gravels with Fines (Appreciable amount of fines)	GM GC
	Sand More than 50% smaller than No. 4 sieve.	Clean Sands (Little or no fines)	SW SP
		Sands with Fines (Appreciable amount of fines)	SM SC
Fine Grained Soils More than 50% of material smaller than No. 200 sieve.		Silts and Clays Liquid Limit <50	ML CL
		Silts and CLays Liquid Limit >50	OL MH CH OH
		Highly Organic Soils	Pt

ORGANIC SOIL CLASSIFICATION

Fibrous PEAT (Pt) - Lightweight, spongy, mostly visible organic matter, water squeezes readily from sample. Typically near top of deposit.
Fine Grained PEAT (Pt) - Lightweight, spongy, little visible organic matter, water squeezes readily from sample. Typically below fibrous peat.
Organic Silt (OL) - Typically gray to dark gray, often has strong H2S odor. Typically contains shells or shell fragments. Lightweight. Usually found near coastal regions. May contain wide range of sand fractions.
Organic Clay (OH) - Typically gray to dark gray, high plasticity. Usually found near coastal regions. May contain wide range of sand fractions. Need organic content test for final identification.

ABBREVIATIONS

MR = Mud Rotary
HSA = Hollow Stem Auger
SSA = Solid Stem Auger
SS = Split Spoon Sampler
U = Undisturbed Sample (Shelby Tube)
MC = Modified California Sampler
V = Vibracore
M = Macrocore

USCS = Unified Soil Classification System (ASTM D2487)
NYCBC = New York City Building Code
WOR = Weight of Rods
WOH= Weight of Hammer
SPT = Standard Penetration Test (ASTM D1586)

Tv = Field Vane Shear Test (Torvane) Shear Strength
PP = Pocket Penetrometer Shear Strength
PI = Plasticity Index
Wn = Moisture Content
CO = Consolidation
UC = Unconfined Compression Test
UU = Unconsolidated Undrained (Triaxial) Test
SI = Sieve Analysis
DS = Direct Shear
PID = Photoionization Detector
ppm = Parts Per Million
REC = Recovery
RQD = Rock Quality Designation
▼ = Measured Water Level

N-Value = Cumulative number of uncorrected blows for the middle two six-inch intervals (blows/foot).

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: OW-02
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 14
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/18/2018	01:52 PM		7.90	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	12	10 7 5 8	12	S-1: Medium dense, brown/tan SILT and fine SAND, trace Gravel (Top 6": Black, fine SAND and SILT, trace Grass)			0.5	TOPSOIL	
		S-2	2.0-4.0	24	24	17 9 8 16	17	S-2: Medium dense, brown, fine to medium SAND, some Silt, little Gravel.					
5		S-3	4.0-6.0	24	18	8 10 6 10	16	S-3: Medium dense, brown, fine to medium SAND, some Silt, little Gravel.				SILTY SAND	
		S-4	6.0-8.0	24	24	12 17 11 8	28	S-4: Medium dense, brown, fine to coarse SAND, some Gravel, little Silt.					
		S-5	8.0-10.0	24	16	12 12 9 15	21	S-5: Medium dense, brown, fine to coarse SAND, little Silt, Decomposed Bedrock fragments.			8		
10		S-6	10.0-12.0	24	24	20 18 14 12	32	S-6: Dense, brown, fine SAND, little Silt, trace Gravel.				DECOMPOSED ROCK	
15								End of exploration at 14 feet.	1 2		14		
20													
25													
30													

REMARKS

1 - Sent a 3" steel casing with rapid hammer to 14 feet to check for bedrock. No advancement at 14 feet bgs.
2 - Upon completion at 14 feet, groundwater observation well was installed (10' of screen).

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: OW-02

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: OW-02A
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 0.2
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
0		S-1	0.0					S-1: Top 2": Grass Bottom: Bedrock	1		0.2	GRASS	
								End of exploration at 0.2 feet.	2				
5													
10													
15													
20													
25													
30													

REMARKS

1 - Bedrock was visible at ground surface in vicinity of the boring.
2 - End of exploration at 0.2'. Soil boring relocated to the north.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: OW-02A

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: OW-03
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 17.5
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/18/2018	07:25 AM		6.50	
06/19/2018	12:33 PM		5.10	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	10	4 2 3 3	5	S-1: Top 6": Black, fine SAND, some Silt. Bottom 4": Medium stiff, tan, Clayey SILT, trace Sand.			0.5	TOPSOIL	
		S-2	2.0-4.0	24	16	6 6 5 6	11	S-2: Medium dense, brown-gray, fine to medium SAND and SILT & CLAY, trace Gravel.				SILT	
5		S-3	4.0-6.0	24	18	5 5 6 7	11	S-3: Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt.			2.7		
		S-4	6.0-8.0	24	24	8 7 7 10	14	S-4: Medium dense, brown, fine to medium SAND, trace Silt.				SAND	
		S-5	8.0-10.0	24	24	7 6 5 6	11	S-5: Top 20": Medium dense, brown, fine to medium SAND, trace Silt. Bottom 4": Gray SILT, trace Sand.			9.7		
10											10.5	SILT	
												SAND	
15		S-6	15.0-17.0	24	24	9 8 7 9	15	S-6: Medium dense, brown, fine to medium SAND, trace Silt.					
								End of exploration at 17.5 feet.	1 2		17.5		
20													
25													
30													

REMARKS

1 - Send 3" steel casing using rapid hammer to check for bedrock. No advancement at 17.5 feet.
2 - Upon completion, 15 foot observation well installed (10' of screen).

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: OW-03

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TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: OW-04
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 8.5
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/19/2018	08:50 AM		2.60	
06/19/2018	01:20 PM		2.20	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0					S-1: Brown, fine SAND, some Silt			0.4	TOPSOIL	
												FILL	
		S-2	2.0-4.0	24	16	2 2 3 WH	5	S-2: Top 12": Brown, fine to medium SAND, little Gravel, trace Silt Bottom 4": Medium stiff, brownish gray, SILT & CLAY, trace roots			2		
5		S-3	4.0-6.0	24	8	WH 1 WH WH	1	S-3: Very soft, brownish-gray CLAY & SILT, some fine to medium Sand				SILT & CLAY	
		S-4	6.0-8.0	24	24	4 4 4 5	8	S-4: Medium stiff, brownish gray SILT & CLAY, little Sand					
		S-5	8.0-8.5	6	6	7 50/0"	R	S-5: Top 10"": Black PEAT Medium stiff, gray, SILTY CLAY, little Sand	1 2		8.5		
10								End of exploration at 8.5 feet.					
15													
20													
25													
30													

REMARKS

1 - Bedrock like material on SS tip (8.5 feet bgs).
2 - Upon completion at 8.5 feet groundwater observation well was installed (5 feet of screen).

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: OW-04

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TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: OW-04A
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 0.2
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		0.2	0.0					0.2: Top 2": Grass Bottom: Bedrock	1 2		0.2	GRASS	
								End of exploration at 0.2 feet.					

REMARKS

1 - Bedrock was visible on ground surface in vicinity of boring.
2 - End of exploration at 0.2'. Hole was not drilled. Soil boring relocated to the west.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: OW-04A

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TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-01
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 19.8
Date Start - Finish: 6/19/2018 - 6/19/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/19/2018	10:13 AM		2.70	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	12			S-1: Black/gray, SILT, some Gravel, trace Grass.	1		0.33	TOPSOIL	
		S-2	2.0-4.0	24	10	8 5 3 2	8	S-2: Loose, gray, fine SAND and SILT.	2				
5		S-3	4.0-6.0	24	24	7 6 4 4	10	S-3: Loose, gray, fine SAND and SILT, trace Gravel.					
		S-4	6.0-8.0	24	24	3 4 4 3	8	S-4: Loose, gray, fine SAND and SILT.					
		S-5	8.0-10.0	24	24	3 4 4 4	8	S-5: Loose, gray, SILT and fine SAND.				SAND AND SILT	
10		S-6	10.0-12.0	24	24	1 1 2 6	3	S-6: Very loose, gray, fine SAND and SILT.	3				
15		S-7	15.0-17.0	24	24	1 2 2 50	4	S-7: Top 3': Very loose, fine SAND and SILT. Bottom 2': Blue/gray, Gravel.			17	DECOMPOSED ROCK	
20								End of exploration at 19.8 feet.			19.8		
25													
30													

REMARKS

1 - First 2' hammered with rapid hammer (No SPT values).
2 - Based on soil observation, GW at approximately 2.3 bgs.
3 - Sent 3" steel casing to take sample from 20-22'. Drilling refusal at 19.8'.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: SP-01

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-02
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 6.9
Date Start - Finish: 6/19/2018 - 6/19/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/19/2018	10:55 AM		6.60	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		H-1	0.0-2.0	24	18			H-1: Gray/brown SILT, little Gravel, little Sand	1		0.5	TOPSOIL	
		S-2	2.0-4.0	24	14	5 5 5 4	10	S-2: Top 8": Gray/brown SILT, little Gravel, little Sand Bottom 6": Stiff, gray, Silty CLAY, trace Sand				SILTY CLAY	
5		S-3	4.0-6.0	24	6	6 6 4 6	10	S-3: Stiff, gray/brown, Silty CLAY, little Sand, little Silt					
		S-4	6.0-6.9	11	7	4 50/5"	R	S-4: Very hard, gray/brown, Silty CLAY, little Sand Bottom 3": Decomposed Bedrock	2		6.5	DECOMPOSED ROCK	
								End of exploration at 6.9 feet.					
10													
15													
20													
25													
30													

REMARKS

1 - First two feet hammered with rapid hammer (No SPTs values).
2 - Drilling refusal at 6.9 feet.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: SP-02

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-03
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 0.2
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
0		S-1	0.0					S-1: Top 2": Grass Bottom: Bedrock	1		0.2	GRASS	
								End of exploration at 0.2 feet.	2				
5													
10													
15													
20													
25													
30													

REMARKS

1 - Bedrock was visible on ground surface near boring location.
2 - End of exploration at 0.2' due to drill rig refusal.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: SP-03

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-04
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 8.1
Date Start - Finish: 6/19/2018 - 6/19/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/19/2018	12:30 PM		6.20	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	18			S-1: Brown SILT, little Gravel, little Sand, trace Gravel.	1		0.4	TOPSOIL	
		S-2	2.0-4.0	24	24	7 8 7 9	15	S-2: Stiff, tan SILT, trace Sand.			4	SILT	
5		S-3	4.0-6.0	24	24	6 15 12 11	27	S-3: Medium dense, brown, fine to medium SAND, little Gravel, little Silt (2" of black, fine Gravel) (wet)				SILTY SAND	
		S-4	6.0-8.0	24	0	8 15 16 18	31	S-4: No recovery	2		8.1		
								End of exploration at 8.1 feet.	3				
10													
15													
20													
25													
30													

REMARKS

1 - First 2' hammered with rapid hammer (NO SPTs values).
2 - Rock observed in split spoon tip.
3 - Sent a 3" steel casing with rapid hammer to check for bedrock. No advancement at 8.1 feet.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: SP-04

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-05
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 18
Date Start - Finish: 6/19/2018 - 6/19/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		H-1	0.0-2.0	24				H-1: Black, fine to medium SAND, some Gravel, little Silt, trace Grass.	1		0.4	TOPSOIL	
		S-1	2.0-4.0	24	12	4 6 5 8	11	S-1: Medium dense, tan, fine to medium SAND, some Silt, little Gravel.					
5		S-2	4.0-6.0	24	24	10 9 6 7	15	S-2: Medium dense, brown, fine to medium SAND, little Gravel, trace Silt (wet).	2				
		S-3	6.0-8.0	24	24	6 10 10 10	20	S-3: Medium dense, brown, fine to coarse SAND, little Silt, trace Gravel.				SILTY SAND	
		S-4	8.0-10.0	24	24	9 9 6 12	15	S-4: Top 22": Medium dense, brown, fine to coarse SAND, little Gravel, little Silt. Bottom 2": Gray SILT, little Gravel, trace Sand.					
10		S-5	10.0-12.0	24	24	15 18 10 8	28	S-5: Medium dense, gray, fine to coarse SAND, some Gravel, trace Silt. (Decomposed Bedrock fragments)					
		S-6	12.0-14.0	24	24	35 22 10 12	32	S-6: Dense, gray, fine to coarse SAND, some Gravel, little Silt. (Decomposed Bedrock fragments)			12		
15		S-7	15.0-18.0	36	30			S-7: Gray, fine to coarse SAND, some Gravel, little Silt, Bedrock fragments.				DECOMPOSED BEDROCK	
											18		
								End of exploration at 18 feet.	3 4				
20													
25													
30													

REMARKS

1 - First two feet hammered with rapid hammer (No SPT values).
2 - Based on soil observation, groundwater level is at 4.5 feet.
3 - Macro core from 15 to 18 feet. No spilt spoon samples collected.
4 - Sent a 3" steel casing with rapid hammer to check for bedrock. No advancement at 18 feet.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: SP-05

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-06
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 4.4
Date Start - Finish: 6/19/2018 - 6/19/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		H-1	0.0-2.0	24	24			H-1: Black, fine SAND and SILT, trace roots	1		0.4	TOPSOIL	
		S-1	2.0-4.0	24	15	6 7 9 4	16	S-1: Top 11": Medium dense, gray SILT, trace Sand Bottom 4": Medium dense, brown, fine to medium SAND, little Silt				SILT	
5		S-2	4.0-4.4	5	4	100/5"		S-2: Very dense, brown, fine to medium SAND, bedrock fragments			2	SILTY SAND	
								End of exploration at 4.4 feet.			4.4		
10													
15													
20													
25													
30													

REMARKS

1 - First 2 feet hammered with rapid hammer (No SPT values).

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: SP-06

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

TEST BORING LOG

GZA GeoEnvironmental of NY
Engineers and Scientists

Hampshire Country Club
Mamaroneck, NY

EXPLORATION NO.: SP-07
SHEET: 1 of 1
PROJECT NO: 41.0162548.10
REVIEWED BY: S. Kline

Logged By: J. Diaz Fanas
Drilling Co.: Ephase 2, LLC
Foreman: Carlos F.

Type of Rig: Geoprobe
Rig Model: 6712 DT
Drilling Method: Direct Push

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 4.7
Date Start - Finish: 6/18/2018 - 6/18/2018

H. Datum:
V. Datum: NAVD 88

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 2

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
06/19/2018	06:50 AM		4.25	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	18	5 4 5 5	9	S-1: Loose, brown, fine to medium SAND and SILT, trace Gravel, trace roots			0.4	TOPSOIL	
		S-2	2.0-4.0	24	16	4 6 25 12	31	S-2: Dense, brown/tan SAND and SILT, little Gravel				SAND AND SILT	
5		S-3	4.0-4.7	8	8	49 50/2"	R	S-3: Very dense, brown, fine to medium SAND and SILT, trace Gravel	1		4.7		
								End of exploration at 4.7 feet.					
10													
15													
20													
25													
30													

REMARKS

1 - Bedrock like material at SS tip.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

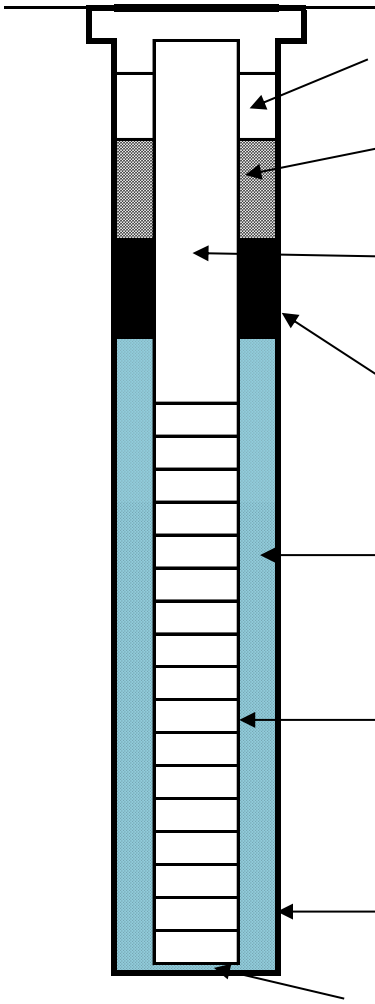
Exploration No.: SP-07

GZA TEMPLATE TEST BORING - GZA 2016_09_22.GDT - 8/9/18 15:25 - J:\GINT PROJECT DATABASES\41.0162500\41.0162548.10.GPJ

OBSERVATION WELL CONSTRUCTION LOG

Well No. OW-2

Project: Hampshire Country Club	Location: Mamaroneck, NY	Page 1 of 1		
Project No.: 41.0162548.10	Contractor: Ephase 2, LLC	Depth to Water (in feet) **		
Surface Elevation *: 4	Driller: Carlos F.	Date	Time	Depth
Top of PVC Casing Elevation: N/A	GZA Rep.: Jan Diaz Fanas	06/18/18	13:52	7.1
		06/19/18	7:50	6.8
		06/19/18	12:56	6.4
Datum: Grade NAVD88	Date of Completion: 06/18/18			



Thickness

Concrete Seal, from 0.5 ft. to 1.5 ft. 1.0 ft.

Backfill with cuttings from 1.0 ft. to 3.0 ft. 2.0 ft.

Riser Pipe from 0.0 ft. to 5.0 ft.

Bentonite seal from 2.0 ft. to 3.0 ft. 1.0 ft.

Filter pack from 3.0 ft. to 14.0 ft. 11.0 ft.

Sand Size: Sized for 0.02-slot size

Well screen from 4.0 ft. to 14.0 ft.

Diameter 2 inches
Slot size 0.02 inches
Type PVC

Borehole diameter: 3 inches
Bottom of cap at 14.0 ft.

Bottom of Borehole at 14.0 ft. to top of Rock

Note:

* Surface elevation was approximated from topographic contours developed from 2-foot Topographic Map on the Westchester County Geographic Information Systems Site, dated April 2004, and is based on the North American Vertical Datum of 1988 (NAVD88).

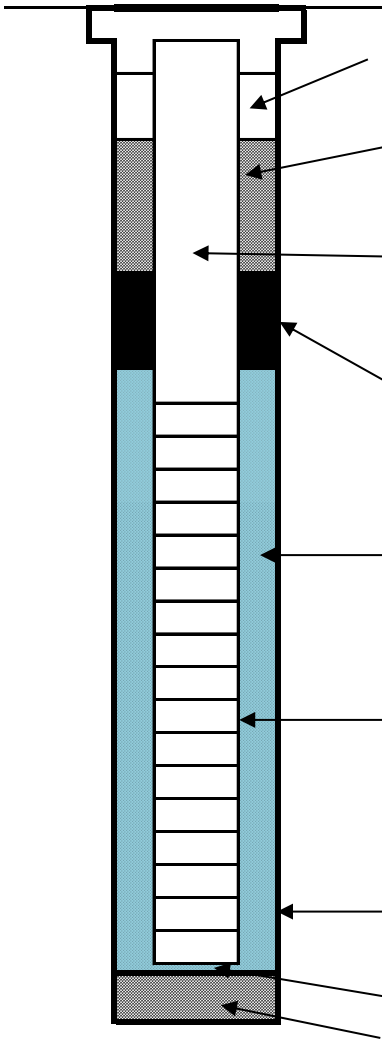
** Depth to water table are appromixiamate measures from the ground surface at 0 feet.

(NOT TO SCALE)

OBSERVATION WELL CONSTRUCTION LOG

Well No. OW-3

Project: Hampshire Country Club	Location: Mamaroneck, NY	Page 1 of 1		
Project No.: 41.0162548.10	Contractor: Ephase 2, LLC	Depth to Water (in feet) **		
Surface Elevation *: 1	Driller: Carlos F.	Date	Time	Depth
Top of PVC Casing Elevation: N/A	GZA Rep.: Jan Diaz Fanas	06/18/18	16:32	6.1
		06/19/18	7:25	6.5
		06/19/18	12:33	5.1
Datum: Grade NAVD88	Date of Completion: 06/18/18			



Flush Mount Protective Cap

Ground Surface

Thickness

Concrete Seal, from 0.5 ft. to 1.5 ft. 1.0 ft.

Backfill with cuttings from 1.0 ft. to 3.5 ft. 2.5 ft.

Riser Pipe from 0.0 ft. to 5.0 ft.

Bentonite seal from 3.5 ft. to 4.5 ft. 1.0 ft.

Filter pack from 4.5 ft. to 17.5 ft. 13.0 ft.

Sand Size: Sized for 0.02-slot size

Well screen from 5.0 ft. to 15.0 ft.

Diameter 2 inches
Slot size 0.02 inches
Type PVC

Borehole diameter: 3 inches

Bottom of cap at 15.0 ft.

Bottom of Borehole at 17.5 ft. to top of rock

Note:

* Surface elevation was approximated from topographic contours developed from 2-foot Topographic Map on the Westchester County Geographic Information Systems Site, dated April 2004, and is based on the North American Vertical Datum of 1988 (NAVD88)

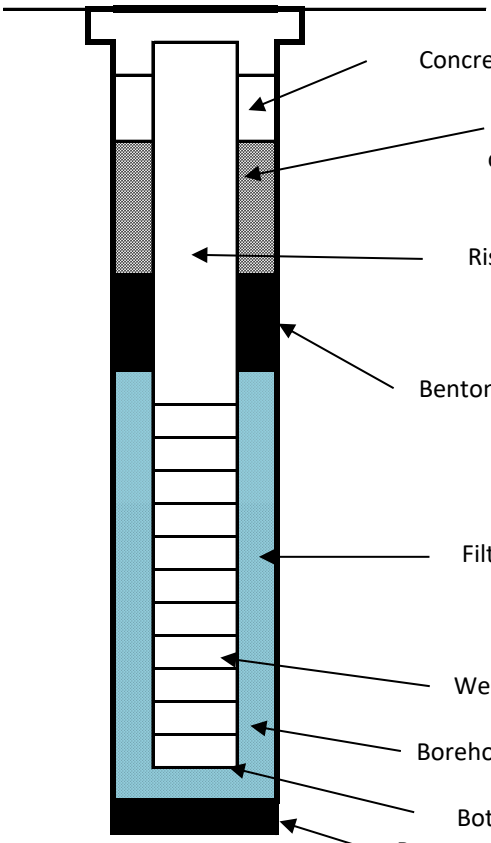
** Water table elevation were measured from the surface.

(NOT TO SCALE)

OBSERVATION WELL CONSTRUCTION LOG

Well No. OW-4

Project: Hampshire Country Club	Location: Mamaroneck, NY	Page 1 of 1		
Project No.: 41.0162548.10	Contractor: Ephase 2, LLC	Depth to Water (in feet) **		
Surface Elevation *: 3	Driller: Carlos F.	Date	Time	Depth
Top of PVC Casing Elevation: N/A	GZA Rep.: Jan Diaz Fanas	06/19/18	8:50	2.6
		06/19/18	13:20	2.2
Datum: Grade NAVD88	Date of Completion: 06/19/19			



Thickness

Concrete Seal, from 0.5 ft. to 1.0 ft. — 0.5 ft.

Backfill with cuttings from 1.0 ft. to 2.0 ft. — 1.0 ft.

Riser Pipe from 0.0 ft. to 3.5 ft.

Bentonite seal from 2.0 ft. to 3.5 ft. — 1.5 ft.

Filter pack from 3.5 ft. to 8.5 ft. — 5.0 ft.

Sand Size: Sized for 0.02-slot size

Well screen from 3.5 ft. to 8.5 ft.

Borehole diameter: 3 inches

Diameter 2 inches
Slot size 0.02 inches
Type PVC

Bottom of cap at 8.5 ft.

Bottom of Borehole at 8.5 ft. to top of Rock

Note:

* Surface elevation was approximated from topographic contours developed from 2-foot Topographic Map of the Westchester County Geographic Information Systems Site, dated April 2004, and is based on the North American Vertical Datum of 1988 (NAVD88)

** Water table elevation were measured from the surface.

(NOT TO SCALE)

ATTACHMENT B

SITE PHOTOGRAPHS

Photographic Log

Client Name: VHB	**Site Location:** Hampshire Country Club Mamaroneck, NY	**Project No.** 41.0162548.10

Photo No.	**Date:**
1	6/18/18

Direction Photo Taken:
North

Description:
Golf Course

Photo No.	**Date:**
2	6/18/18

Direction Photo Taken:
North towards the maintenance garage

Description:
OW-1 has been damaged and is not useable for groundwater measurements

Photographic Log

Client Name: VHB	**Site Location:** Hampshire Country Club Mamaroneck, NY	**Project No.** 41.0162548.10

Photo No.	**Date:**
3	6/18/18

Direction Photo Taken:
At ground

Description:
OW-2

Photo No.	**Date:**
4	6/18/18

Direction Photo Taken:
At ground

Description:
OW-3

Photographic Log

Client Name: VHB	**Site Location:** Hampshire Country Club Mamaroneck, NY	**Project No.** 41.0162548.10

Photo No.	**Date:**
5	6/18/18

Direction Photo Taken:
At ground

Description:
OW-4

Photo No.	**Date:**
6	7/12/18

Direction Photo Taken:
At ground

Description:
Preparing to gauge OW-3

ATTACHMENT C

GEOTECHNICAL ANALYTICAL RESULTS

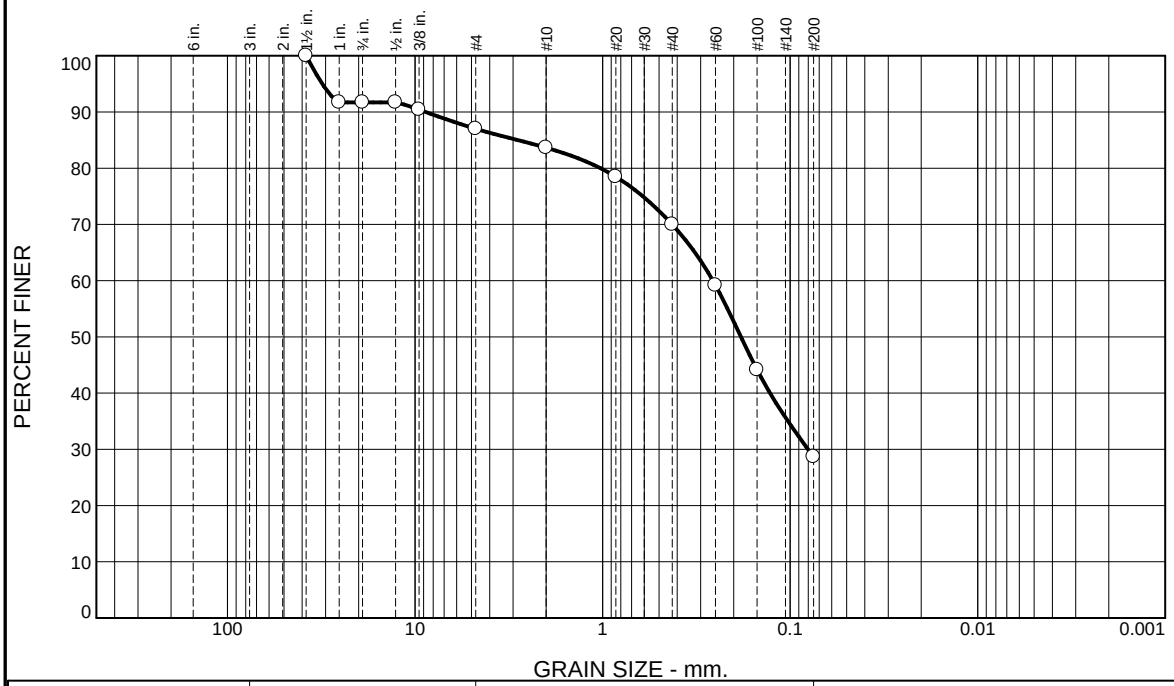
THIELSCH ENGINEERING	195 Frances Avenue Cranston RI, 02910 Phone: (401)-467-6454 Fax: (401)-467-2398 http://www.thielsch.com *Let's Build a Solid Foundation*	Client Information: GZA GeoEnvironmental New York, NY PM:Reinbill Maniquez Assigned By: Jan C. Diaz Fanas Collected By: Jan C. Diaz Fanas	Project Information: **Hampshire Country Club, Mamaroneck, NY** **Mamaroneck, NY** GZA Project Number: 41.0162548.00 Summary Page: 1 of 1 Report Date: 6/29/2018

LABORATORY TESTING DATA SHEET

Boring No.	Sample No.	Depth (ft)	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G_s	Dry unit wt. pcf	Test Water Content %	γ_d MAX (pcf) W_{opt} (%)	γ_d MAX (pcf) W_{opt} (%) (Corr.)	Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Perme-ability cm/sec	
OW-2	S-2	2-4	S-1				13.0	58.3	28.7											Brown f-m SAND, some Silt, little f-c Gravel
OW-2	S-4	6-8	S-2				22.9	59.0	18.1											Brown f-c SAND, some f-c Gravel, little Silt
OW-3	S-2	2-4	S-3				1.9	51.2	46.9											Brown Grey f-m SAND and SILT & CLAY, trace fine Gravel
OW-4	S-3	6-8	S-4				0.0	25.1	74.9											Brownish Grey CLAY & SILT, some f-m SAND

Reviewed By _____ 06.30.2018

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.3	4.7	3.3	13.7	41.3	28.7	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1"	91.7		
0.75"	91.7		
0.5"	91.7		
0.375"	90.4		
#4	87.0		
#10	83.7		
#20	78.5		
#40	70.0		
#60	59.2		
#100	44.2		
#200	28.7		

* (no specification provided)

Material Description

Brown f-m SAND, some Silt, little f-c Gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 8.7736 D_{85}= 2.8285 D_{60}= 0.2581
D_{50}= 0.1829 D_{30}= 0.0803 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 06.25.18 **Date Tested:** 06.29.18

Tested By: MN / JS

Checked By: Steven Accetta

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 2-4' **Date Sampled:**
Sample Number: OW-2 / S-2

Thielsch Engineering Inc.

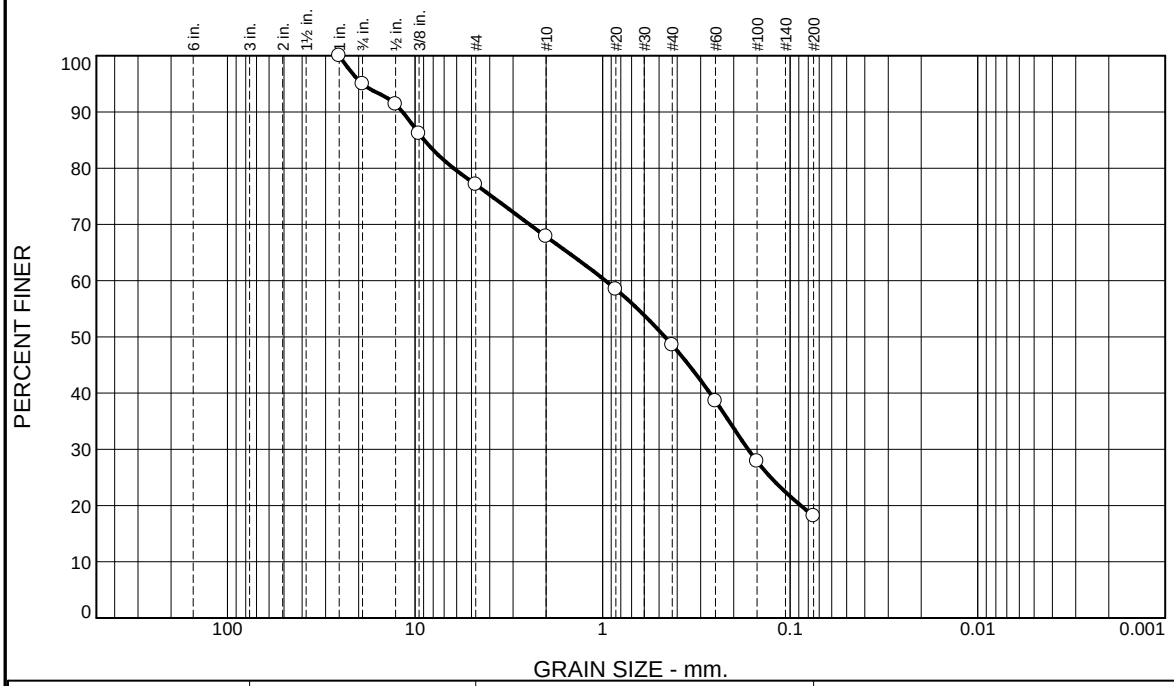
Cranston, RI

Client: GZA GeoEnvironmental / Vanasse Hangen Brustilin, Inc

Project: Hampshire Country Club, Mamaroneck, NY
Mamaroneck, NY

Project No: 41.0162548.10 **Figure** S-1

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.0	17.9	9.3	19.3	30.4	18.1	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	95.0		
0.5"	91.4		
0.375"	86.2		
#4	77.1		
#10	67.8		
#20	58.5		
#40	48.5		
#60	38.6		
#100	27.9		
#200	18.1		

* (no specification provided)

Material Description

Brown f-c SAND, some f-c Gravel, little Silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 11.6344 D_{85}= 8.9303 D_{60}= 0.9651
D_{50}= 0.4650 D_{30}= 0.1675 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 06.25.18 **Date Tested:** 06.29.18

Tested By: MN / JS

Checked By: Steven Accetta

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 6-8' **Date Sampled:**
Sample Number: OW-2 / S-4

Thielsch Engineering Inc.

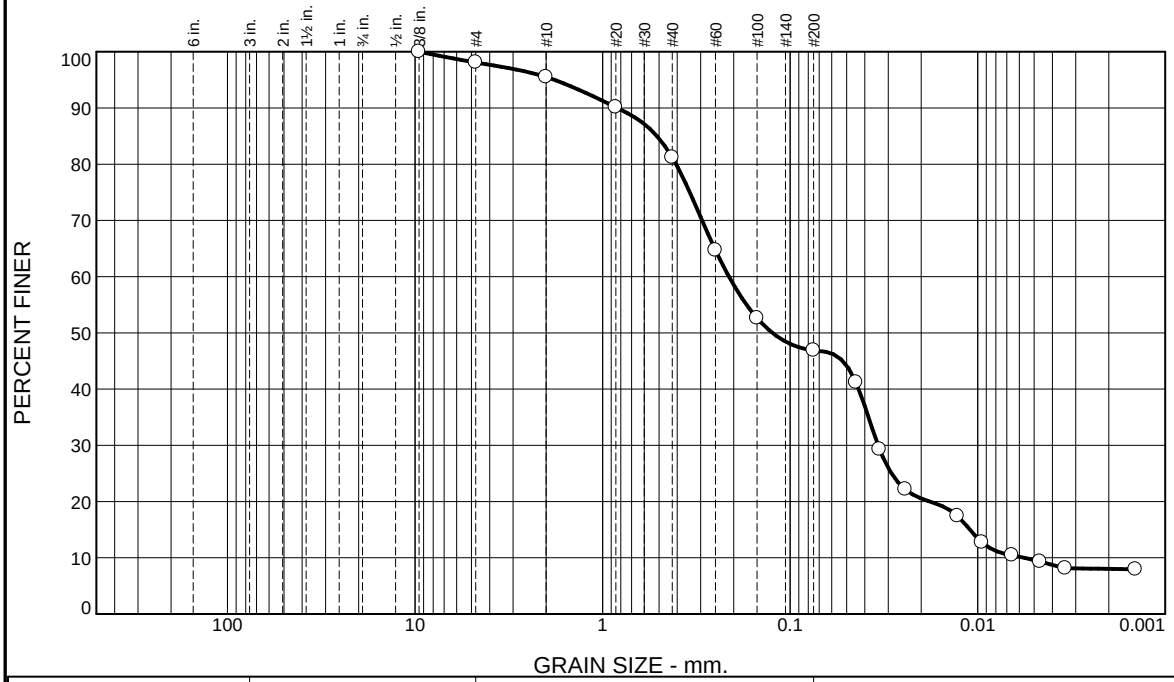
Cranston, RI

Client: GZA GeoEnvironmental / Vanasse Hangen Brustilin, Inc

Project: Hampshire Country Club, Mamaroneck, NY
Mamaroneck, NY

Project No: 41.0162548.10 **Figure** S-2

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	2.6	14.3	34.3	38.9	8.0

Test Results (D7928 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	98.1		
#10	95.5		
#20	90.1		
#40	81.2		
#60	64.7		
#100	52.6		
#200	46.9		
0.0446 mm.	41.2		
0.0334 mm.	29.3		
0.0243 mm.	22.2		
0.0128 mm.	17.4		
0.0095 mm.	12.7		
0.0066 mm.	10.4		
0.0046 mm.	9.3		
0.0034 mm.	8.1		
0.0014 mm.	8.0		

* (no specification provided)

Material Description

Brown Grey f-m SAND and SILT & CLAY, trace fine Gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.8350 D_{85}= 0.5127 D_{60}= 0.2119
D_{50}= 0.1242 D_{30}= 0.0340 D_{15}= 0.0110
D_{10}= 0.0057 C_u= 37.50 C_c= 0.96

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Date Received: 06.25.18 **Date Tested:** 06.29.18

Tested By: MN / JS

Checked By: Steven Accetta

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 2-4' **Date Sampled:**
Sample Number: OW-3 / S-2

Thielsch Engineering Inc.

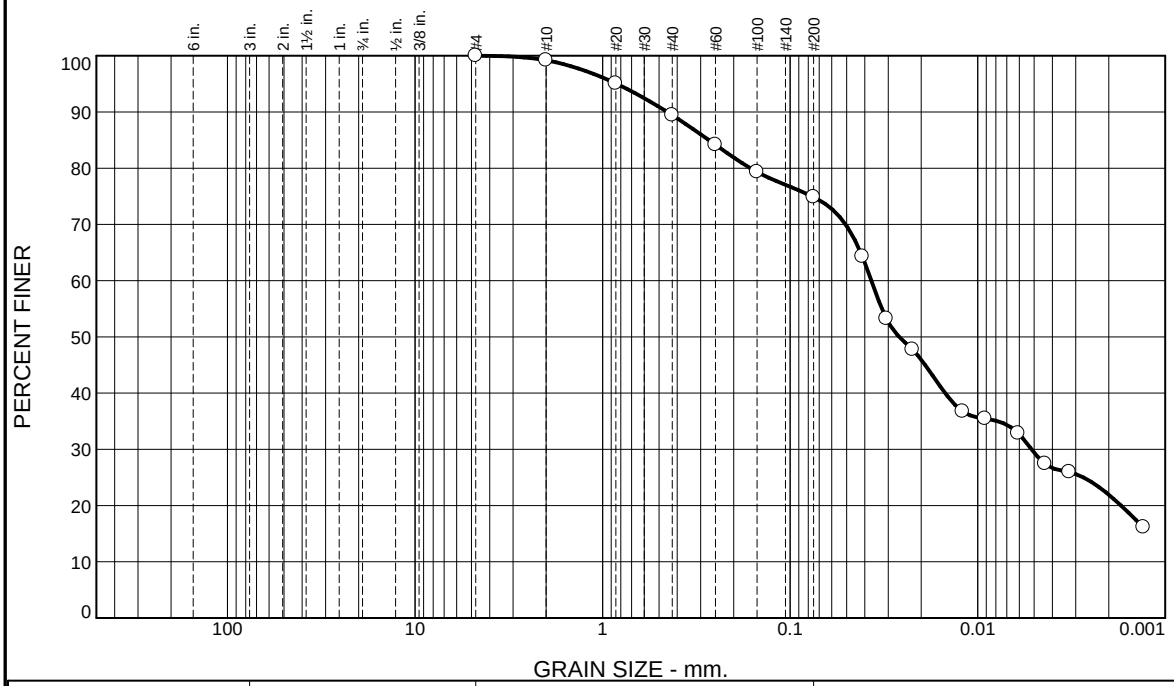
Cranston, RI

Client: GZA GeoEnvironmental / Vanasse Hangen Brustilin, Inc

Project: Hampshire Country Club, Mamaroneck, NY
Mamaroneck, NY

Project No: 41.0162548.10 **Figure** S-3

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	9.8	14.5	53.0	21.9

Test Results (D7928 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.2		
#20	95.1		
#40	89.4		
#60	84.2		
#100	79.3		
#200	74.9		
0.0412 mm.	64.3		
0.0307 mm.	53.3		
0.0223 mm.	47.8		
0.0120 mm.	36.7		
0.0091 mm.	35.5		
0.0061 mm.	32.8		
0.0044 mm.	27.4		
0.0033 mm.	26.0		
0.0013 mm.	16.1		

* (no specification provided)

Material Description

Brownish Grey CLAY & SILT, some f-m SAND

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.4516 D_{85}= 0.2710 D_{60}= 0.0369
D_{50}= 0.0262 D_{30}= 0.0052 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample visually classified as plastic. Sample rolled to 1/16".

Date Received: 06.25.18 **Date Tested:** 06.29.18

Tested By: MN / JS

Checked By: Steven Accetta

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 6-8' **Date Sampled:**
Sample Number: OW-4 / S-3

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental / Vanasse Hangen Brustilin, Inc

Project: Hampshire Country Club, Mamaroneck, NY
Mamaroneck, NY

Project No: 41.0162548.10 **Figure** S-4