

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO.	B-14
SHEET 1 OF	3
FILE NO.	9446
SURFACE ELEV.	10.4
RES. ENGR.	RANDOLPH NUNEZ

DAILY		SAMPLE		SAMPLE DESCRIPTION	STRATA	RES. ENGR. RANDOLPH NUNEZ		REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"			DEPTH	CASING BLOWS	
06:30	1D	0.0	20-23	Black fine to medium sand, some silt, trace gravel, cinders (Fill) (SM)	F		DRILLED	WC=73
12-12-00		2.0	15-18				AHEAD	
Friday	2D	2.0	10-21	Black brown coarse to fine sand, some silt, trace cinders, gravel, brick (Fill) (SM)			4"	
Light Snow		4.0	18-23					
30°F								
	3D	5.0	1-1	Blk brn silty fine to coarse sand, tr gravel, cinders, brick, vegetation (Fill) (SM)			5	
		7.0	1-2					
	4D	7.0	3-1	Do 3D (Fill) (SM)				
		9.0	3-3					
	5NR	10.0	1-1	No recovery		10		
		12.0	1-1					
	6D	12.0	1-1	Black cinders (Fill)				
		14.0	1-1					
	7D	15.0	1-1	Gray coarse to fine sand, some silt, trace clay, cinders (Fill) (SM)		15		
		17.0	1-1					
	8D	17.0	2-2	Soft gray organic silty clay, trace vegetation (OH)		17		
		19.0	2-2					
	9D	20.0	1-1	Do 8D (OH)	O	20		
		22.0	2-2				WC=58	
						22		
	10D	25.0	8-13	Brown fine to medium sand, some silt (SM)	S1	25		
		27.0	16-18					
						28.5		
	11D	30.0	7-5	Gray brown fine to medium sandy silt, trace clay pocket (ML)	M	30		
		32.0	7-7				WC=24	
							Percent Passing	
							No. 200 Sieve=76	
							11D: Petroleum	
							odor.	
	12D	35.0	12-17	Brown fine to medium sand, some silt (SM)		33.5		
		37.0	21-22			35		
	13D	40.0	11-12	Gray brown fine to medium sand, some silt (SM)	S1	40		
		42.0	12-11					
	14D	45.0	10-11	Gray brown silty fine sand, trace clay (SM)		45		
		47.0	14-13					
	15D	50.0	9-12	Gray brown silty fine sand (SM)		50		
		52.0	17-14					

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PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-14
 SHEET 2 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.4
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
Cont'd								
12-12-00								
Friday								
Light Snow								
30°F								
	16D	55.0	15-16	Do 15D, trace fine to medium sand seams (SM)	S1		55	
		57.0	25-20					
	17D	60.0	100/5"	Brown fine to medium sand, trace silt (SP-SM)		60		REC=3"
		60.4						
						</		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-14
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.4
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL <u> </u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID <u> </u>	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
BARGE <u> </u>	OTHER <u> </u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
OTHER <u> </u>			

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE:	TYPE <u> </u>	ID, IN. <u> </u>	LENGTH, FT. <u> </u>	TOP ELEV. <u> </u>
INTAKE ELEMENT:	TYPE <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	TIP ELEV. <u> </u>
FILTER:	MATERIAL <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	BOT. ELEV. <u> </u>

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>80.3</u>	NO. OF 3" SHELBY TUBE SAMPLES <u> </u>	
3.5" DIA. U-SAMPLE BORING	LIN. FT. <u> </u>	NO. OF 3" UNDISTURBED SAMPLES <u> </u>	
CORE DRILLING IN ROCK	LIN. FT. <u> </u>	OTHER: OBSTRUCTION (BOULDERS) <u> </u>	<u>1.7</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO., INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-22-00

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-15
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.7
RES. ENGR. RANDOLPH NUNE

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
06:30	1D	0.0	13-5	Brown fine to coarse sand, some silt, trace brick, cinders (Fill) (SM)	F		DRILLED	
02-22-00		2.0	8-6				AHEAD	
Friday	2D	2.0	6-5	Brown medium to fine sand, trace silt (Fill) (SP)			4"	
Light		4.0	4-5					
Snow	3D	4.0	3-2	Gray brown medium to fine sand, trace silt, brick, cinders (Fill) (SP-SM)		5		
30°F		6.0	2-2					
	4D	6.0	2-2	Gray brown fine to coarse sand, some silt, trace cinders, vegetation (Fill) (SM)				
		8.0	2-2					
	5D	8.0	3-2	Black fine to coarse sand, some cinders, silt, trace gravel, brick, clay (Fill) (SM)		10		
		10.0	2-2					
	6D	10.0	1-1	Brown silty fine to medium sand, trace cinders, vegetation, gravel (Fill) (SM)	O			
		12.0	1-1					
	7D	12.0	1-1	Gray brown fine to coarse sand, sm cinders, tr silt, gravel, brick (Fill) (SP-SM)		14		
		14.0	1-1					
	8D	14.0	1-1	Brown soft organic silty clay, some vegetation (OH)		15		WC=214
		16.0	2-1					
	9D	16.0	2-2	Do 8D (OH)				REC=4"
		18.0	2-2					Water in jar.
						19		
	10D	20.0	1-2	Gray brown fine sand, some silt, trace vegetation (SM)	S1	20	↓	
		22.0	3-3					
	11D	25.0	6-6	Brown fine sand, some silt (SM)		25		
		27.0	10-11					
						28.5		
	12D	30.0	3-2	Brown fine sandy silt (ML)	M	30		WC=23
		32.0	2-5					
						33.5		
	13D	35.0	3-4	Gray brown fine sand, some silt (SM)	S1	35		
		37.0	9-12					
						40		
	14D	40.0	6-7	Brown fine sand, some silt (SM)	M			
		42.0	9-9					
						45		
	15D	45.0	5-4	Brown fine to medium sand, trace silt (SP-SM)	M			
		47.0	6-8					
						48.5		
	16D	50.0	1-1	Soft gray clayey silt, trace fine sand (ML)	M	50		WC=39
		52.0	1-1					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT:
LOCATION :

LOWE'S HOME CENTER
BROOKLYN, NEW YORK

BORING NO.	B-15
SHEET 2 OF	3
FILE NO.	9446
SURFACE ELEV.	10.7
RES. ENGR.	RANDOLPH N

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	SURFACE ELEV. 3446 RES. ENGR. RANDOLPH N 10.7				
	NO.	DEPTH	BLOWS/6"		STRATA	DEPTH	CASING BLOWS	REMARKS	
Cont'd									
02-22-00									
Friday									
Light									
Snow									
30°F	17D	55.0	10-14	Gray brown fine sand, some silt (SM)	M				
		57.0	15-17						
	18D	60.0	11-12	Red brown silty fine to medium sand, some gravel (SM)	S1	53.5			
		62.0	11-10				55		
							58		Hard drilling at 58'.
	19D	65.0	10-13	Red brown silty fine to medium sand, trace gravel (SM)	S2	60			
		67.0	12-14						Hard drilling at 62'.
							65		
	20D	70.0	24-15	Red brown fine to coarse sand, some gravel, silt (SM)					
		72.0	17-37						
	21D	75.0	29-65	Do 20D (SM)					
		77.0	40-38				75		
	22D	80.0	25-21	Red brown gravelly coarse to fine sand, some clay (SC)					
		82.0	46-52				80		
									End of Boring at 82'.
							82		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-15
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.7
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-75</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN.	DEPTH, FT. FROM TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM TO
OTHER			

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 2-15/16, 3-7/8, 5-7/8
 TYPE OF DRILLING MUD QUICK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*AUTOMATIC HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT: TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER: MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>79.1</u>	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER: OBSTRUCTION (BOULDERS)	<u>2.9</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-22-00

BORING NO. B-15

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-15AS
 SHEET 1 OF 2
 FILE NO. 9446
 SURFACE ELEV. 10.7
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
10:00							DRILLED	Drilled ahead to 50';
01-24-01							AHEAD	obtained 1S tube.
Wednesday							4"	No sampling in the
Partly								top 50'.
Cloudy						5		For strata, see
30°F								Boring Log B-15.
					F			
						10		
						14		
						15		
					O			
						19		
						20	▼	
					S1	25		
						28.5		
						30		
					M			
						33.5		
						35		
						40		
					S1			
						45		
						48.5		
						50		
	1S	50.0	PUSH=24"	Soft gray organic silty clay, some fine sand	M/O			End of Boring at
12:00		52.0	REC=24"	(OH)		52		52'.

BORING NO. B-15AS

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-15AS
 SHEET 2 OF 2
 FILE NO. 9446
 SURFACE ELEV. 10.7
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG CME-55 TYPE OF FEED DURING CORING MECHANICAL CASING USED ☒ YES ☐ NO
 TRUCK CME-55 MECHANICAL DIA., IN. 4 DEPTH, FT. FROM 0 TO 20
 SKID HYDRAULIC X DIA., IN. DEPTH, FT. FROM TO
 BARGE OTHER DIA., IN. DEPTH, FT. FROM TO
 OTHER

TYPE AND SIZE OF:

D-SAMPLER
 U-SAMPLER
 S-SAMPLER SHELBY TUBE
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. AVERAGE FALL, IN.
 SAMPLER HAMMER, LBS. AVERAGE FALL, IN.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
 INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
 FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 52 NO. OF 3" SHELBY TUBE SAMPLES 1
 3.5" DIA. U-SAMPLE BORING LIN. FT. NO. OF 3" UNDISTURBED SAMPLES
 CORE DRILLING IN ROCK LIN. FT. OTHER:

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 1-24-01
 BORING NO. B-15AS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-16
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 11.1
RES. ENGR. RANDOLPH NUNEZ

DAILY	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"				BLOWS	
06:30	1D	0.0	55-100/5"	Gray white gravel, trace concrete, coarse to fine sand, cinders (Fill) (GP-GM)	F		DRILLED	4" Asphalt at surface.
12-27-00		0.9					AHEAD	
Wednesday	2D	1.0	34-26	Black coarse to fine sand, some silt, trace gravel, cinders (Fill) (SM)			4"	
		3.0	7-5					
19°F	3D	3.0	3-3	Brown fine to coarse sand, some silt, trace gravel, cinders, brick (Fill) (SM)		5		
		5.0	2-3	Black brown coarse to fine sand, some silt, cinders, trace gravel, brick (Fill) (SM)				
	4D	5.0	3-3	Black brown coarse to fine sand, some silt, cinders, trace gravel, brick (Fill) (SM)				
		7.0	3-6	Do 4D (Fill) (SM)				
	5D	7.0	3-4			10		
		9.0	3-3					
	6D	9.0	1-1	Brown silty fine to coarse sand, trace gravel, brick (Fill) (SM)				
		11.0	2-1					
	7D	11.0	1-1	Brown gray fine to coarse sand, some silt, trace gravel, wood, cinders (Fill) (SM)				
		13.0	1-1					
	8D	13.0	3-2	Brown fine to coarse sand, some silt, gravel, trace wood, cinders (Fill) (SM)		15		
		15.0	2-3			16		
	9D	15.0	1-2	Brown peat, trace vegetation (Pt)	O			WC=286
		17.0	1-2					
	10D	17.0	2-2	Do 9D (Pt)				WC=322
		19.0	2-2		S1	19.5		
	11D	20.0	2-2	Red brown fine sand, some silt, trace vegetation (SM)				
		22.0	1-1					
	12D	25.0	5-7	Red brown fine to medium sand, trace silt (SP-SM)		25		
		27.0	7-9					
					S1			
	13D	30.0	2-4	Brown fine sand, some silt, silt layers (SM)		30		
		32.0	4-4					
					S1			
	14D	35.0	2-3	Gray medium sand, some silt (SM)		35		
		37.0	7-8					
					S1			
	15D	40.0	4-4	Gray fine to medium sand, trace silt (SP-SM)		40		
		42.0	7-10					
					S1			
	16D	45.0	3-4	Gray fine sand, some silt (SM)		45		
		47.0	3-3					
					M			
						48.5		
						50		
	17D	50.0	WH/18"	Top 18": Gray fine sandy silt (ML)				17D Top: WC=32
		52.0	4	Bot 6": Gray silty fine sand (SM)		51.5		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-16
 SHEET 2 OF 3
 FILE NO. 9446
 SURFACE ELEV. 11.1
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
Cont'd					M			
12-27-00						51.5		
Wednesday								
19°F					S1	55		
	18D	55.0	8-11	Gray brown fine sand, some silt, gravel (SM)				
		57.0	12-12					
						58.5		
						60		
	19NR	60.0	30-39	No recovery				
		62.0	50-47					Wash in sample.
								Hard drilling at 63.5'.
						65		
	20D	65.0	20-20	Red brown fine to coarse sand, some gravel, silt, trace clay (SM)				
		67.0	25-27					Hard drilling at 69'.
					S2	70		
	21D	70.0	18-19	Red brown fine to coarse sand, some gravel, silt (SM)				
		72.0	19-21					
						75		
	22D	75.0	27-23	Do 21D (SM)				
		77.0	25-26					
						80		
	23D	80.0	24-22	Do 21D (SM)				End of Boring at 82'.
14:15		82.0	19-28					
						82		
								WC=Water Content in percent of dry weight.
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-16
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 11.1
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-75</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>25</u>
SKID	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.	DEPTH, FT. FROM TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM TO
OTHER			

TYPE AND SIZE OF:	DRILLING MUD USED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D-SAMPLER <u>2" O.D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>3-7/8, 4-7/8</u>
U-SAMPLER	TYPE OF DRILLING MUD <u>QUIK - GEL</u>
S-SAMPLER	
CORE BARREL	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT	TYPE AND DIAMETER, IN.
DRILL RODS <u>N</u>	

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*AUTOMATIC HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-27-00	14:15	82	25	9	MUD/WATER UPON COMPLETION.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>79.5</u>	NO. OF 3" SHELBY TUBE SAMPLES _____	
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____	
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: OBSTRUCTION (BOULDERS)	<u>2.5</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-27-00

BORING NO. B-16

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-17
 SHEET 1 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
06:45	1D	0.0	77-100/1"	Gray white fine to coarse sand, gravel, trace silt, concrete (Fill) (SP-SM)	F		DRILLED	Drilled ahead to 1'.
12-18-00		0.5					AHEAD	2D-4D, 13D-14D:
Monday	2D	1.0	6-4	Black brown fine to coarse sand, sm gravel, tr silt, brick, cinders (Fill) (SP-SM)			4"	Petroleum odor.
		3.0	4-5					
30°F	3D	3.0	4-3	Black brown coarse to fine sand, some silt, trace gravel, cinders, brick (Fill) (SM)		5		
		5.0	6-6				MUD	
	4D	5.0	3-3	Gray brown fine to coarse sand, some silt, trace gravel, cinders, brick (Fill) (SM)				
		7.0	2-5					
	5D	7.0	2-2	Gray brown coarse to fine sand, some silt, gravel, trace cinders, brick (Fill) (SM)		10		
		9.0	6-5					
	6D	9.0	1-1	Gray black fine to coarse sand, some silt, cinders, trace shells (Fill) (SM)				REC=5"
		11.0	1-1		S1			
	7D	11.0	1-1	Gray silty fine to coarse sand, trace gravel, shells, brick, cinders (Fill) (SM)				
		13.0	1-2					
	8D	13.0	2-1	Gray silty fine sand, trace wood, mica (Fill) (SM)		15		
		15.0	1-3					
	9D	15.0	1-2	Gray silty fine sand, trace vegetation (Fill) (SM)				
		17.0	2-2					
	10D	17.0	1-2	Gray silty fine sand, some silt, trace organic clay layers, brick (Fill) (SM)		20	↓	
		19.0	2-1					
	11D	20.0	1-2	Gray fine sand, some silt, trace vegetation (Fill) (SM)				
		22.0	1-1					
					S1	23.5		
						25	↓	
	12D	25.0	4-6	Gray fine sand, some silt, trace mica (SM)				
		27.0	8-11		M			
						28.5		
						30		WC=23
	13D	30.0	5-3	Gray silt, trace fine sand (ML)	S1			
		32.0	5-5					
						33.5		
						35		
	14D	35.0	4-8	Gray fine sand, some silt, trace silt layers, trace mica (SM)				
		37.0	11-13					
					S1	40		
	15D	40.0	6-5	Brown silty fine sand, trace clay pockets, mica (SM)				
		42.0	9-7					
	16D	45.0	9-10	Do 15D (SM)		45		
		47.0	13-13					
						50		
	17D	50.0	10-12	Red brown silty fine sand with medium to fine sand layers (SM)				Sand layer in middle of sample.
		52.0	13-20					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO.	B-17
SHEET 2 OF	3
FILE NO.	9446
SURFACE ELEV.	10.5
RES. ENGR.	RANDOLPH NUNEZ

[illegible]

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-17
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME-75</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER				

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER _____
 S-SAMPLER _____
 CORE BARREL _____
 CORE BIT _____
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

*AUTOMATIC HAMMER USED.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>82</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER:	_____

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ

DATE 12-18-00

BORING NO. B-17

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-18
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. +10.5
RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
06:30	1D	0.0	19-24	Brown fine to coarse sand, some silt, trace gravel, brick, cinders (Fill) (SM)	F		DRILLED	5D-6D: Petroleum odor. REC=6"
12-15-00		2.0	22-18				AHEAD	
Friday	2D	2.0	15-15	Gray coarse to fine sand, trace silt, brick, cinders, concrete (Fill) (SP-SM)			4"	
		4.0	12-10					
30°F	3D	4.0	2-2	Brown fine to coarse sand, some silt, trace brick, cinders (Fill) (SM)		5		
		6.0	4-2					
	4D	6.0	2-2	Black brown fine to coarse sand, some silt, trace cinders (Fill) (SM)				
		8.0	5-5					
	5D	8.0	4-3	Black fine to coarse sand, some silt, trace gravel, cinders (Fill) (SM)		10		
		10.0	5-7					
	6D	10.0	2-3	Black gray fine to coarse sand, some silt, trace brick, cinders (Fill) (SM)	O			8D Bot: WC=236 WC=302
		12.0	4-3					
	7D	12.0	4-3	Red brown silty fine to medium sand, trace gravel (Fill) (SM)				
		14.0	1-1					
	8D	15.0	WH/18"	Top 7": Brn f-m sand, sm silt, tr gvl (SM)	S1	15		WC=23
		17.0	1	Bot 6": Soft gray brn org si cl, sm veg (OH)				
	9D	17.0	1-1	Do 8D, Bottom (OH)		16.4		
		19.0	3-2					
	10D	20.0	1-1	Gray silty fine sand, trace vegetation (SM)	M	19.5		WC=27
		22.0	1-2					
	11D	25.0	5-7	Gray fine sand, some silt (SM)	S1	25		WC=31
		27.0	6-9					
	12D	30.0	4-1	Gray silt, some fine sand, trace clay (ML)	M	28.5		15D Top: WC=32
		32.0	1-2			30		
	13D	35.0	1-2	Medium clayey silt, trace fine sand (ML)	S1	35		
		37.0	3-5					
	14D	40.0	6-7	Gray brown fine sand, trace silt (SP-SM)	M	38.5		
		42.0	9-11			40		
	15D	45.0	1-4	Top 14": Medium gray clayey silt, trace mica, fine sand (ML)	S1	43.5		
		47.0	13-12	Bot 10": Gray fine sand, some silt, trace mica (SM)		45		
	16D	50.0	9-12	Red brown micaceous fine sand, some silt (SM)	S2	46.2		
		52.0	13-16			48.5		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-18
 SHEET 2 OF 3
 FILE NO. 9446
 SURFACE ELEV. +10.5
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
Cont'd								
12-15-00								
Friday								
30°F								
	17D	55.0	17-12	Red brown fine to medium sand, some silt, gravel, trace clay, mica (SM)		55		Hard drilling from 54' to 55'.
		57.0	9-14					
	18D	60.0	18-5	Red brown fine to medium sand, some gravel, silt (SM)		60		Hard drilling from 59' to 60'; possible boulder.
		62.0	15-11					
	19D	65.0	34-17	Red brown coarse to fine sandy gravel, some silt (GM)		65		Hard drilling from 67.5' to 69'; possible boulder.
		67.0	30-19					
	20D	70.0	14-44	Red brown fine to medium sand, some silt, gravel, trace clay (SM)		70		Hard drilling boulder from 74' to 75'.
		72.0	82-37					
	21D	75.0	100/5"	Red brown fine to medium sand, some gravel, silt, trace coarse sand (SM)	S2	75		REC=5" Rods chattering at 76'. Hard drilling from 76' to 77.5'; possible boulder.
		77.0						
	22D	80.0	20-25	Red brown fine to medium sand, some silt, gravel (SM)		80		REC=3"; hard drilling from 85.2' to 87.5'; possible boulder.
		82.0	24-25					
	23D	85.0	100/3"	Red brown fine to medium sand, some silt, gravel, trace clay (SM)		85		Rock fragments in tip of spoon. WC=Water Content in percent of dry weight.
		87.0						
	24D	90.0	46-26	Red brown gravelly fine to medium sand, some silt, trace clay (SM)		90		End of Boring at 102'.
		92.0	23-27					
	25D	95.0	53-41	Gray brown gravel, trace fine to medium sand, silt (GP-GM)		95		
		97.0	52-39					
	26D	100.0	29-30	Red brown fine to medium sand, some gravel, silt, trace clay (SM)		100		
15:40		102.0	23-20			102		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-18
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. +10.5
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME-75</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER				

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN.
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*AUTOMATIC HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-15-00	15:40	102	20	10	MUD/WATER UPON COMPLETION.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT: TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER: MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>102</u>	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER: OBSTRUCTIONS	<u>6</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ

DATE 12-15-00

BORING NO. B-18

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-19
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUN

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS		
06:30	1D	0.0	5-6	Brown coarse to fine sand, some gravel silt, trace brick, concrete (Fill) (SM)	F				2D-4D, 8D, 13D: Petroleum odor. Hard drilling from 4' to 7'. REC=6" REC=1" WC=289 Sheen in wash at 20'.
12-13-00		2.0	4-4						
Wednesday	2D	2.0	4-5	Light gray coarse to fine sand, some gravel, silt (Fill) (SM)					
Sunny		3.6	25-50/1"						
20°F									
	3D	7.0	5-3	Black brown silty fine to coarse sand, trace gravel, vegetation (Fill) (SM)					
		9.0	2-3						
	4D	9.0	2-1	Black coarse to fine sand, some silt, cinders, trace shells (Fill) (SM)					
		11.0	2-2	Do 4D (Fill) (SM)		10			
	5D	11.0	2-2		O				
		13.0	1-2						
	6D	13.0	2-2	Do 4D (Fill) (SM)					
		15.0	3-6						
	7D	15.0	1-2	Black cinders (Fill)		15			
		17.0	3-1						
	8D	17.0	2-2	Brown peat (Pt)		17			
		19.0	2-2						
	9D	20.0	2-2	Brown fine sand, some silt, trace vegetation, mica (SM)		19.5			
		22.0	3-2		S1				
	10D	25.0	8-9	Gray brown fine sand, some silt, trace mica (SM)		25			
		27.0	12-12						
	11D	30.0	8-8	Gray brown fine sand, some clay pockets, silt (SM)		30			
		32.0	6-7						
	12D	35.0	4-4	Medium gray clayey silt, some micaceous fine sand (ML)		33.5			
		37.0	3-4			35			
					M				pp=1.0, WC=30
	13D	40.0	6-4	Gray fine to medium sand, some silt, trace mica (SM)	S1	37.5			
		42.0	3-17			40			
	14D	45.0	6-8	Gray fine to medium sand, trace silt (SP-SM)	M	45			15D: WC=20 Percent Passing No. 200 Sieve=74
		47.0	10-7						
	15D	50.0	4-2	Gray brown micaceous fine sandy silt, trace clay (ML)	M	48.5			
		52.0	2-3			50			

BORING LOG

LOWE'S HOME CENTER

BROOKLYN, NEW YORK

BORING NO. B-19

SHEET 2 OF 3

FILE NO. 9446

SURFACE ELEV. 10.5

RES. ENGR. RANDOLPH NUNEZ

[illegible]

BORING NO. B-19

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-19
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 DATUM BOROUGH PRESIDENT OF
BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-75</u>	MECHANICAL <u> </u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID <u> </u>	HYDRAULIC <u>X</u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
BARGE <u> </u>	OTHER <u> </u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
OTHER <u> </u>			

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*AUTOMATIC HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-13-00	14:00	82		10	CASING REMOVED UPON COMPLETION.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE:	TYPE <u> </u>	ID, IN. <u> </u>	LENGTH, FT. <u> </u>	TOP ELEV. <u> </u>
INTAKE ELEMENT:	TYPE <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	TIP ELEV. <u> </u>
FILTER:	MATERIAL <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	BOT. ELEV. <u> </u>

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>80.2</u>	NO. OF 3" SHELBY TUBE SAMPLES <u> </u>	
3.5" DIA. U-SAMPLE BORING	LIN. FT. <u> </u>	NO. OF 3" UNDISTURBED SAMPLES <u> </u>	
CORE DRILLING IN ROCK	LIN. FT. <u> </u>	OTHER: BOULDER <u>1.8</u>	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-13-00

BORING NO. B-19

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-20
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
13:45	1D	0.0	11-38	Brown fine to coarse sand, some silt, trace brick, cinders, gravel (Fill) (SM)	F		DRILLED	2D, 4D-5D, 7D: REC=3"
12-20-00		2.0	49-56	Do 1D (Fill) (SM)			AHEAD	
Wednesday	2D	2.0	100/6"				4"	
Windy,		2.5						
Clear						5		
30°F-50°F	3D	5.0	8-2	Black brown coarse to fine sand, some silt, trace cinders, brick (Fill) (SM)				3D, 18D: REC=2" Petroleum odor.
		7.0	4-5	Do 3D (Fill) (SM)				
	4D	7.0	7-3					
		9.0	3-2					
	5D	10.0	2-1	Do 3D (Fill) (SM)		10		
		12.0	1-1					REC=1"
	6D	12.0	1-2	Black silty fine to coarse sand, trace gravel, cinders (Fill) (SM)				
		14.0	1-1					
	7D	15.0	3-3	Black coarse to fine sand, some silt, cinders, trace brick (Fill) (SM)		15		
		17.0	3-3					
	8D	17.0	4-5	Top 22": Brown peat (Pt)	O	17		8D Top: WC=292
		19.0	8-5	Bot 2": Brown silty fine sand, trace peat (SM)		18.9		
16:15						20		
06:30	9D	20.0	2-2	Gray silty fine sand, trace concrete, vegetation (Fill) (SM)	S1			
12-21-00		22.0	4-4					
Thursday								
Cloudy								
20°F						25		
	10D	25.0	10-17	Brown fine sand, some silt (SM)				
		27.0	20-14					
	11D	30.0	3-6	Brown silty fine sand (SM)		30		
		32.0	5-5					
					M			
						33.5		
	12D	35.0	5-4	Soft gray clayey silt, trace fine sand, mica (ML)		35		WC=38
		37.0	2-2					
						40		pp=0.5, WC=44
	13D	40.0	2-2	Soft gray clayey silt, trace fine sand, trace mica (ML)				
		42.0	2-2					
	14D	45.0	WR/12"	Do 13D (ML)		45		WC=39
		47.0	2-2					
	15D	50.0	WR-2	Do 13D (ML)		50		WC=38
		52.0	2-3					

BORING NO. B-20

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-20
 SHEET 2 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 RES. ENGR. RANDOLPH NUNEZ

DAILY				SAMPLE		SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"							
Cont'd										
12-21-00										
Thursday										
Cloudy										
20°F										
	16D	55.0	14-15	Gray brown fine to medium sand, some silt, trace mica (SM)	M					
		57.0	18-19							
	17D	60.0	20-20	Red brown silty fine to coarse sand, trace gravel (SM)	S1					
		62.0	35-37							
	18D	65.0	100/2"	Do 17D (SM)	S2					
		65.2								
	19D	70.0	20-100/5"	Gray brown gravel, trace fine to coarse sand, silt (GP-GM)						
		70.9								
	20D	75.0	41-32	Red brown silty fine to medium sand, trace gravel (SM)						
		77.0	32-43							
	21D	80.0	36-38	Red brown fine to medium sand, some gravel, silt (SM)						
12:45		82.0	56-51							

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-20
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL <u> </u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID <u> </u>	HYDRAULIC <u>X</u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
BARGE <u> </u>	OTHER <u> </u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
OTHER <u> </u>			

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE:	TYPE <u> </u>	ID, IN. <u> </u>	LENGTH, FT. <u> </u>	TOP ELEV. <u> </u>
INTAKE ELEMENT:	TYPE <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	TIP ELEV. <u> </u>
FILTER:	MATERIAL <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	BOT. ELEV. <u> </u>

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>100</u>	NO. OF 3" SHELBY TUBE SAMPLES <u> </u>	
3.5" DIA. U-SAMPLE BORING	LIN. FT. <u> </u>	NO. OF 3" UNDISTURBED SAMPLES <u> </u>	
CORE DRILLING IN ROCK	LIN. FT. <u> </u>	OTHER: OBSTRUCTION (BOULDERS) <u> </u>	<u>2</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-21-00

BORING NO. B-20

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 2
 FILE NO. 9446
 BORING NO. B20M
 SURFACE ELEV.

PROJECT Low's Home CNR

PROJECT LOCATION BROOKLYN NY

RES. ENGR. R. NUNGEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
1/24/01 WED. 0715 Rocky clay 30' soft				Drilled ahead 35 ft, obtained			Drilled ahead	
				2 - U-TUBES, no sampling in the		5		
				top 35 ft.			MD	
						10		
						15		
						20	↓	
						25		
						30		
						35		
	1U	35 37	P=24" R=20	soft gray org. silty clay, Tr. F (OH) (OH)				
0930					⊙	40		
						45		
	2U	45 47	P=24" L=19"	DO-1U(OH)				
						47		E.O.B. @ 47 FT

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT Leona's Home Center
 LOCATION Brooklyn NY
 BORING LOCATION 5 ft east of B20

BORING NO. B-20Au
 SHEET 2 OF 2
 FILE NO. 9446
 SURFACE ELEV. _____
 DATUM _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG WSS TYPE OF FEED DURING CORING _____ CASING USED ☒ YES ☐ NO
 TRUCK _____ MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO 20
 SKID _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____
 TYPE AND SIZE OF: _____ DRILLING MUD USED ☒ YES ☐ NO
 D-SAMPLER _____ DIAMETER OF ROTARY BIT, IN. 3 1/8
 U-SAMPLER Shelby Tube TYPE OF DRILLING MUD Guillote
 S-SAMPLER _____
 CORE BARREL _____ AUGER USED ☐ YES ☒ NO
 CORE BIT _____ TYPE AND DIAMETER, IN. _____
 DRILL RODS N _____
 CASING HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 SAMPLER HAMMER, LBS. _____ AVERAGE FALL, IN. _____

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>no observation</u>

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
 STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 43 NO. OF 3" SHELBY TUBE SAMPLES 2
 3.5" DIA. U-SAMPLE BORING LIN. FT. 4 NO. OF 3" UNDISTURBED SAMPLES 1
 CORE DRILLING IN ROCK LIN. FT. _____ OTHER: _____

BORING CONTRACTOR JBORCO
 DRILLER R. Lynch HELPERS G. Falciano
 REMARKS Quoted borehole upon completion
 RESIDENT ENGINEER R. A. White DATE 01/24/01

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B20Au

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO.	B-20P
SHEET 1 OF	4
FILE NO.	9446
SURFACE ELEV.	10.5
RES. ENGR.	RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
08:00							DRILLED	Drilled to 30' for piezometer instal- lation. Drilled borehole with water. For strata, see Boring Log B-20.
12-21-00							AHEAD	
Thursday							4"	
Cloudy								
20°F						5		
					F	10		
						15		
						17		
						18.9		
						20	▼	

BORING NO. B-20P

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT Loew's Home Center PIEZOMETER NO. B-20P
 LOCATION Brooklyn N.Y.
 PIEZOMETER LOCATION 4 ft ± Northeast from boring B-20 DATE OF INSTALLATION 12/21/00
☐ SEE SKETCH ON BACK RES. ENG. R. NUNGEZ

STRATA		PIEZOMETER INSTALLATION DETAILS	DEPTH (FT.)	PIEZOMETER TYPE <u>SCH40 slotted PVC</u>			
GROUND SURFACE ELEV. _____			0	INTAKE POINT depth to bottom, ft = <u>30</u> depth to top, ft = <u>24</u> length, ft = <u>6</u> = L diameter, in = <u>4</u> , ft = _____ = 2R			
Sand	14		STANDPIPE/RISER elevation of rim, ft = <u>10.2</u> diameter, in = <u>1 1/4</u> , ft = _____ = 2r				
	20						
	22.5						
	24						
Gravel	25						
Grout	30						
				READING TIME	DEPTH - RIM TO WATER (ft.)	ELEVATION OF WATER	REMARKS
			DATE	CLOCK			
			12/21/00	0850	7.6		Riser → 0.3 ft below ground surface
			12/21/00	0915	7.6		Surface
			12/21/00	1300	7.55		
			12/28	0715	7.5		
			12/29	0710	7.7		
			01/02	1135	7.9		
			01/03	1024	7.8		
				1245	7.85		
			01/04	0720	7.7		
			01/05	0940	7.7		
			01/08	0754	7.8		
			01/09	0813	7.75		
			01/10	1210	7.9		
			01/12	0915	7.9		
			01/16	1123	7.5		
			01/19	1120	7.2		
			01/23	1150	7.2		

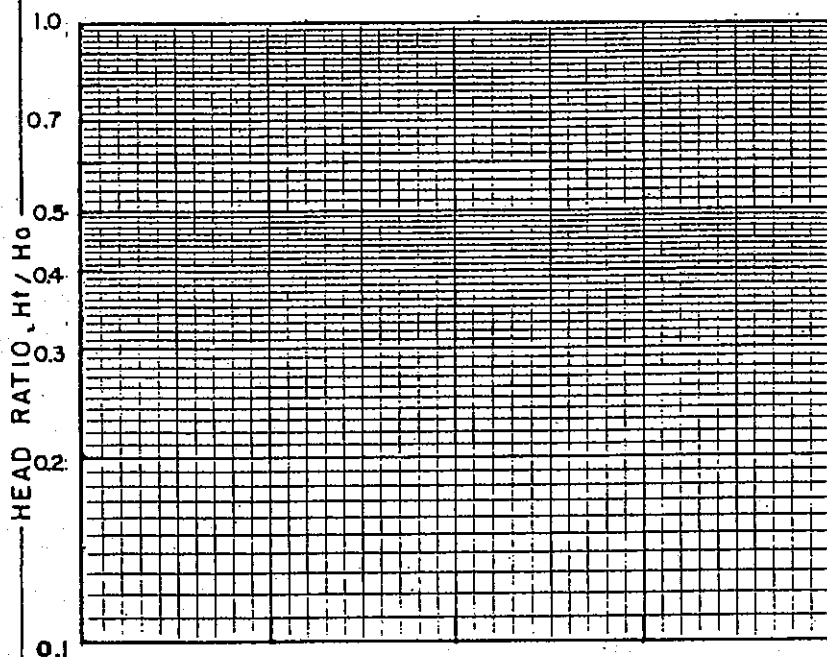
Sand Bentonite
 Gravel Grout

GROUND SURFACE ELEV. 10.5

PIEZOMETER NO. B-20P

VARIABLE HEAD PERMEABILITY TEST☐ BOREHOLE OR ☒ PIEZOMETER NO. B-20PTEST NO. 1PROJECT LOWE'S HOME CENTER RES. ENG. R. NUNEZLOCATION BROOKLYN, NY CALC. BY _____ DATE _____

PIEZOMETER LOCATION _____ CH'KD BY _____ DATE _____

INTAKE POINTdepth to bottom, ft = 30depth to top, ft = 24length, ft = 6 = Ldiameter, in = 4, ft = _____ = 2RSTANDPIPE / RISERdiameter, in = 1 1/4, ft = _____ = 2r

depth of casing, ft = _____

depth to which stand-
pipe was bailed, ft = _____ = ZELAPSED TIME, Δt , MIN.

READING TIME			TEST DEPTH- RIM TO WATER ft.	DEPTH- RIM TO TIDE OR GWL ft.	UNBALANCED HEAD H ft.	HEAD RATIO Ht/Ho	REMARKS
DATE	CLOCK	Δt MIN.					
12/27/00	0855	—	0.0	7.6	0		STATIC WATER LEVEL
		0.5	0.8				Riser is 0.3 ft. below ground
		1	1.8				surface
		2	2.4				min depth (cont test)
		3	3.1			15	7.3
		4	4.0			16	7.35
		5	4.9			17	7.45
		6	5.4			18	7.5
		7	5.8			19	7.5
		8	6.0			20	7.6
		9	6.3				
		10	6.55				
		11	6.9				
		12	7.0				
		13	7.1				
		14	7.2				

PIEZOMETER NO. B-20P

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-20P
 SHEET 4 OF 4
 FILE NO. 9446
 SURFACE ELEV. 10.5
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE	OTHER	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER				

TYPE AND SIZE OF:

D-SAMPLER _____
 U-SAMPLER _____
 S-SAMPLER _____
 CORE BARREL _____
 CORE BIT _____
 DRILL RODS N

DRILLING MUD USED ☐ YES ☒ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8
 TYPE OF DRILLING MUD _____

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 SAMPLER HAMMER, LBS. _____ AVERAGE FALL, IN. _____

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-27-00	8:50			7.6	PIEZOMETER READING.
12-27-00	9:15			7.6	AFTER FALLEN HEAD TEST.

PIEZOMETER INSTALLED ☒ YES ☐ NO SKETCH SHOWN ON SEE SHEET 3 OF 4

STANDPIPE: TYPE	<u>SCHEDULE 40 PVC</u>	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE	<u>SLOTTED PVC</u>	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL	<u>SAND</u>	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. _____	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: BORING WITHOUT SAMPLING	<u>30 LIN. FT.</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS PLACED MANHOLE COVER 5" DIAMETER.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-21-00

BORING NO. B-20P

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-21
 SHEET 1 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
06:45	1D	0.0	40-29	Brown fine to coarse sand, some silt, trace gravel, brick (Fill) (SM)	F		DRILLED	WC=125
12-18-00		2.0	32-31				AHEAD	
Monday	2D	2.0	9-20	Brown coarse to fine sand, some gravel, silt, trace brick (Fill) (SM)			4"	
		4.0	23-15					
30°F						5		
	3D	5.0	1-3	Brown fine to coarse sand, some silt, trace brick, cinders, vegetation (Fill) (SM)				
		7.0	3-3					
	4D	7.0	1-1	Brown gray peat, some silty clay (Pt)				
		9.0	1-1			10		
	5D	10.0	1-1	Brown peat, trace vegetation (Pt)	O			WC=281
		12.0	1-1					
	6D	12.0	5-7	Top 7": Do 5D, tr gravel, bricks, glass (Pt)				6D Top: WC=351
		14.0	9-6	Bot 12": Gray brown fine to medium sand, some silt, trace gravel, mica (SM)		15		
	7D	15.0	1-1	Brown fine sand, some silt (SM)				Sample saturated with water.
		17.0	2-2					
	8D	17.0	3-1	Top 11" Do 7D, trace vegetation (SM)		17.9		
		19.0	2-2	Bot 13": Brown peat, trace vegetation (Pt)				8D Bot: WC=259
						19.5		
	9D	20.0	1-1	Gray silty fine sand, trace peat (SM)	S1			
		22.0	2-1					
						25		
	10D	25.0	10-12	Gray silty fine sand, trace mica (SM)				Petroleum odor.
		27.0	16-19					
						28.5		
						30		
	11D	30.0	5-3	Soft gray clayey silt, trace fine sand (ML)	M			WC=25
		32.0	6-5					
						35		
	12D	35.0	WH/12"	Top 10": Do 11D (ML)		36		12D Top: pp=0.5,
		37.0	13-17	Bot 7": Gray brown fine sand, some silt, mica (SM)		S1		WC=33
						38.5		
						40		
	13D	40.0	WR-4	Soft gray clayey silt, some fine sand, trace mica (ML)	M			WC=32
		42.0	4-3					
						43.5		
						45		
	14D	45.0	15-20	Brown fine sand, some silt, trace gravel (SM)		S1		Petroleum odor; sheens.
		47.0	21-23					
					50			
	15D	50.0	18-26	Brown fine sand, some silt, trace mica (SM)				
		52.0	24-26					

BORING NO. B-21

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO.	B-21
SHEET 2 OF	3
FILE NO.	9446
SURFACE ELEV.	10.5
RES. ENGR.	RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS	
	NO.	DEPTH	BLOWS/6"						
Cont'd									
12-18-00									
Monday									
30°F						55			
	16D	55.0	16-19	Brown fine sand, some silt, vegetation, mica (SM)	S1			Petroleum odor.	
		57.0	28-21						
						60			
	17D	60.0	17-19	Brown fine sand, some silt, mica (SM)					
		62.0	22-24						
						65			
	18D	65.0	16-18	Brown fine to medium sand, some silt, trace gravel (SM)					
		67.0	22-20						
					70				
	19D	70.0	19-18	Brown gravelly coarse to fine sand, some silt (SM)			Heavy petroleum odor.		
		72.0	26-31						
					75				
	20D	75.0	36-37	Do 19D (SM)					
		77.0	48-36						
					80				
	21D	80.0	50-100/3"	Brown silty fine to coarse sand, some gravel (SM)		80.8	REC=5"		
		80.8					End of Boring at 80.8'.		
					85		pp=Pocket Penetrometer		
							Unconfined Compressive Strength in tsf.		
					90		WC=Water Content in percent of dry weight.		
					95				
					100				

BORING NO. B-21

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-21
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.5
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL <u> </u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID <u> </u>	HYDRAULIC <u>X</u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
BARGE <u> </u>	OTHER <u> </u>	DIA., IN. <u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
OTHER <u> </u>			

TYPE AND SIZE OF:	DRILLING MUD USED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D-SAMPLER <u>2" O.D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>3-7/8</u>
U-SAMPLER <u> </u>	TYPE OF DRILLING MUD <u>QUIK - GEL</u>
S-SAMPLER <u> </u>	
CORE BARREL <u> </u>	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT <u> </u>	TYPE AND DIAMETER, IN. <u> </u>
DRILL RODS <u>N</u>	

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE:	TYPE <u> </u>	ID, IN. <u> </u>	LENGTH, FT. <u> </u>	TOP ELEV. <u> </u>
INTAKE ELEMENT:	TYPE <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	TIP ELEV. <u> </u>
FILTER:	MATERIAL <u> </u>	OD, IN. <u> </u>	LENGTH, FT. <u> </u>	BOT. ELEV. <u> </u>

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>82</u>	NO. OF 3" SHELBY TUBE SAMPLES <u> </u>	
3.5" DIA. U-SAMPLE BORING	LIN. FT. <u> </u>	NO. OF 3" UNDISTURBED SAMPLES <u> </u>	
CORE DRILLING IN ROCK	LIN. FT. <u> </u>	OTHER: <u> </u>	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-18-00

BORING NO. B-21

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-22
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS	
	NO.	DEPTH	BLOWS/6'						
13:00	1D	0.0	33-26	Brown fine to coarse sand, some gravel, silt, trace brick (Fill) (SM) No Recovery	F		DRILLED	3D, 5D, 9D: Petrol- leum odor. Sheen in wash.	
12-13-00		2.0	21-34				AHEAD		
Wednesday	2NR	2.0	100/1"				.4 "		
		2.1					MUD		
30°F	3D	4.0	2-1	Black fine to coarse sand, some silt, trace gravel, brick (Fill) (SM) Do 3D (Fill) (SM)		5			REC=5"
		6.0	2-2						
	4D	6.0	4-6						
		8.0	19-14						
						10		REC=1" Driller placed new trap; 19' clay in wash.	
	5D	10.0	3-5	Brown fine to coarse sand, some silt, trace gravel (Fill) (SM) Brown silty fine sand, trace gravel, trace wood (Fill) (SM) Brown silty fine sand, some gravel, trace vegetation (Fill) (SM) Brown fine sand, some silt, gravel (Fill) (SM)					
		12.0	4-4						
	6D	12.0	4-10						
		14.0	10-7						
	7D	14.0	11-8			15			S1
		16.0	9-2						
	8D	16.0	1-1	Brown silty fine sand, trace vegetation (SM)					
		18.0	1-1						
	9D	20.0	1-1						
		22.0	3-3						
					25	↓	M		
				Gray fine sand, some silt (SM)					
	10D	25.0	10-13						
14:30		27.0	22-16						
06:30				Gray fine sandy silt, trace fine sand (ML)	28.5			Percent Passing No. 200 Sieve=90 WC=36	
12-15-00						30			
Friday									
30°F	11D	30.0	5-5						
		32.0	5-10						
						35			
	12D	35.0	4-3		Medium gray clayey silt, some fine sand (ML)				pp=0.75, WC=31
		37.0	6-6						
				Stiff gray clayey silt, some fine sand (ML)	40		pp=1.0, WC=35		
	13D	40.0	2-3						
		42.0	3-4						
				Brown fine sand, some silt (SM)	43.5		S1		
						45			
	14D	45.0	9-13						
		47.0	19-13						
				Brown silty fine sand, trace micaceous (SM)				50	
	15D	50.0	7-20						
		52.0	19-22						

BORING NO. B-22

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-22
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
Cont'd 12-15-00 Friday 30°F					S1			
						55		
	16D	55.0	11-15	Gray brown fine sand, some silt (SM)				
		57.0	20-24					
						58.5		
						60		
	17D	60.0	18-30	Red brown silty fine sand, trace gravel, trace micaceous (SM)				
		62.0	28-20					
					S2			
						65		REC=6"
	18D	65.0	16-23	Red brown fine sand, some silt, trace gravel (SM)				
		67.0	38-43					
						70		
	19D	70.0	28-35	Red brown fine to medium sand, some gravel, silt (SM)				
		72.0	40-22					
						75		
						80		Driller overdrilled to 80'.
	20D	80.0	23-30	Red brown fine to medium sand, some gravel, silt (SM)				
		82.0	22-24					
						85		
	21D	85.0	60-88	Red brown fine to coarse sand, some gravel, silt (SM)				Rock fragments in the tip of spoon.
		86.3	100/4"					
						90		
	22D	90.0	62-53	Red brown fine to coarse sand, some gravel, silt (SM)				REC=5"
		92.0	50-31					pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						95		
	23D	95.0	46-68	Red brown fine to coarse sand, some gravel, silt (SM)				WC=Water Content in percent of dry weight.
		96.0	100/2"					REC=7"
								End of Boring at 102'.
	24D	100.0	76-64	Do-23D (SM)				
15:00		102.0	55-36			102		

BORING NO. B-22

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. 8-22
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.4
 DATUM BOROUGH PRESIDENT OF
BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>25</u>
SKID	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.	DEPTH, FT. FROM TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM TO
OTHER			

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN.
 TYPE OF DRILLING MUD QUIK - GEL
 AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT: TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER: MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>98.5</u>	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER: OBSTRUCTION (BOULDERS)	<u>3.5</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-15-00

BORING NO. B-22

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. B-23
 SHEET 1 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.4
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
11:00	1D	0.0	5-9	Brown fine to coarse sand, some silt, gravel, trace brick, concrete (Fill) (SM) Do 1D (Fill) (SM)	F		DRILLED	REC=13"
02-12-00		2.0	23-32				AHEAD	
Tuesday	2D	2.0	36-50				4"	
Windy		4.0	38-100/3"					
						5		
	3NR	5.0	100/0"	No recovery				Spoon bouncing.
								Hard drilling from
	4NR	7.0	100/0"	No recovery				5' to 7'. Spoon
						10		bouncing.
								4NR: Rock frag-
					O			ments in wash.
	5D	12.0	1-2	Gray silty fine to coarse sand, trace peat, wood (SM)				Hard drilling from
		14.0	2-2					5' to 11.5'.
						15		5D: WC=46
	6D	15.0	4-2	Soft gray organic silty clay, some vegetation, fine sand layers (OH)				WC=124
		17.0	2-2		S1			
	7D	17.0	1-2	Soft gray organic silty clay, some vegetation, trace fine sand (OH)				WC=107
		19.0	1-1			19.5		
	8D	20.0	4-6	Gray brown silty fine sand, trace mica (SM)	M			
		22.0	10-13					
						25		
	9D	25.0	9-18	Do 8D (SM)	S1			
		27.0	24-26					
						28.5		
						30		
	10D	30.0	5-6	Red brown fine sandy silt, trace fine sand seams (ML)	M			WC=23
		32.0	6-7					
						35		
	11D	35.0	1-2	Soft gray clayey silty trace micaceous fine sand (ML)	S1			WC=33
		37.0	2-5					Percent Passing
						40		No. 200 Sieve=93
14:30	12D	40.0	1-2	Soft gray fine sandy silt (ML)	S1			WC=37
06:30		42.0	2-2					Percent Passing
12-13-00								No. 200 Sieve=64
Wednesday						45		
Sunny					S1			WC=31
20°F	13D	45.0	4-3	Do 12D (ML)				
		47.0	4-4					
						48.5		
					S1	50		
	14D	50.0	4-15	Brown fine sand, some silt, trace mica (SM)				
		52.0	19-23					

BORING NO. B-23

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. B-23
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
Cont'd 12-13-00 Wednesday Sunny 20°F					S1			
						53.5		
						55		
	15D	55.0	15-13	Red brown silty fine to medium sand, trace gravel (SM)				
		57.0	18-21					
						60		
	16D	60.0	50-28	Do 15D (SM)				Hard drilling from 62.5' to 65'; possible boulders. Spoon bouncing.
		62.0	15-14					
						65		
	17NR	65.0	100/2"	No recovery	S2			Possible boulder. Hard drilling from 65' to 69'.
		65.2						
						70		
	18D	70.0	40-67	Red brown fine to medium sand, some gravel, silt, trace coarse sand, clay pockets, mica (SM)				
		72.0	38-32					
						75		
	19D	75.0	45-51	Red brown fine to medium sand, some gravel, silt, trace coarse sand, mica (SM)				
		77.0	43-41					
						80		End of Boring at 81'.
12:30	20D	80.0	41-100/6"	Red brown fine to medium sand, some silt, gravel, trace coarse sand (SM)		81		
		81.0						WC=Water Content in percent of dry weight.
						85		
						90		
						95		
						100		

BORING NO. B-23

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. B-23
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 10.4
 DATUM BOROUGH PRESIDENT OF
BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>15</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE	OTHER	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER				

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER _____
 S-SAMPLER _____
 CORE BARREL _____
 CORE BIT _____
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8
 TYPE OF DRILLING MUD QUIK - GEL
 AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>81</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER:	_____

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-13-00

BORING NO. B-23

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
 FILE NO. Q446
 BORING NO. PR-1
 SURFACE ELEV. _____
 RES. ENGR. E. NUNEZ

PROJECT Lowie's Home Center

PROJECT LOCATION Brooklyn, NY

RES. ENGR. _____

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
2/19/80 RAB. KMS	10	3	35-31	concrete (fill) (con-c)	①			Drilled with Hammer 3 ft. from surface
	5	38-34						
	20	5	11-17	BRN M. f. sand, silty, blk. Tr. Brick (fill) (con)		5		R=2"
	7	18-18					400	
	30	7	15-14	RED-BRN silty M. f. sand, silty Brick Tr. and (fill) (con)				
	9	15-17						
	40	10	4-2	BRN silty M. f. sand, silty cinders Tr. Brick (fill) (con)	②	10		R=2"
	12	2-1						
	50	12	2-2	NO Recovery				
	14	2-2						
						14.5		WOOD IN WASH.
	60	15	6-4	gray org silty clay, silty sand, Tr. wood (OH)				
	17	2-2						
	70	17	1-2					
	19	2-1				20	V	
	80	20	1-1	gray org silty clay, silty sand (OH)				
	22	1-1						
						25		
	90	25	1-2	DO-80, Tr. shell (OH)	③			
	27	1-1						
						28.5		
	100	30	7-10	gray f. c. sand, Tr. silt (sp-sil)		30		
	32	12-14						
						35		
	110	35	5-8	gray-brn f. c. sand, Tr. silt (sp-sil)				
	37	17-16						
						40		
	120	40	14-9	gray M. f. sand, Tr. silt (sp-sil)				
	42	22-15						
						45		
	130	45	10-11	gray f. c. sand, Tr. silt, blk (sp-sil)				
	47	12-14						
						50		
	140	50	7-9	DO-130 (sp-sil)				
	52	14-16						

SHEET 2 OF 3
FILE NO. 7446
BORING NO. PD-1
SURFACE ELEV. _____

Lowes Home Cntr

Brooklyn, NY

RES. ENGR

Z. NUNEZ

BORING NO. PB-1

MUESER RUTLEDGE CONSULTING ENGINEERS

 BORING NO. PB-1

 SHEET 3 OF 3

 FILE NO. 9446

SURFACE ELEV. _____

DATUM _____

 PROJECT Low's Home Center

 LOCATION Brooklyn NY

 BORING LOCATION As shown

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME 55</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER				

TYPE AND SIZE OF:

 D-SAMPLER 2" O.D. split spoon

U-SAMPLER _____

S-SAMPLER _____

CORE BARREL _____

CORE BIT _____

 DRILL RODS N

 DRILLING MUD USED ☒ YES ☐ NO

 DIAMETER OF ROTARY BIT, IN. 3 7/8, 5 1/8

 TYPE OF DRILLING MUD QUIK GEL

 AUGER USED ☐ YES ☒ NO

TYPE AND DIAMETER, IN. _____

 CASING HAMMER, LBS. 300

 AVERAGE FALL, IN. 21

 SAMPLER HAMMER, LBS. 140

 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>No observation.</u>

 PIEZOMETER INSTALLED ☐ YES ☒ NO

SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>82</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER:	_____

 BORING CONTRACTOR JSD Co.

 DRILLER R. Lynch HELPERS E. Feliando

 REMARKS Shutted boreholes upon completion

 RESIDENT ENGINEER R. NUNEZ DATE 12/29/00

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NRI to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the ROD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

 BORING NO. PB-1

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
 FILE NO. 9446
 BORING NO. PR-2
 SURFACE ELEV. 72.10
 TR. NUMBER 72.10

PROJECT LEWIS'S HOME CENTER

PROJECT LOCATION BROOKLYN NY

RES. ENGR. TR. NUMBER

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
3/12/01 Fries. clear windy 18°F 5% Wind chill UPHUS	10	0	14-16	BKN H. f. SAND, SM S.I.P. Tr. silty, silty (fill) (SM)	⑤			Drilled safety hammer
	2	2	19-19					
	20	2	48-100/2	BKN. BKN H. f. SAND, Tr. silty, silty, concrete (fill) (SP-2)				
	2.7							
	30	5	14-16	gray gravel, Tr. metal (SP) (fill)		5		
	7		10-12					
	40	7	8-8	gray gravel, Tr. core. (fill) (SP)				R=3"
	9		11-13					R=4"
	50	10	10-9	RED-BKN H. f. SAND, SM S.I.P. Tr. silty (SP-2)		10		
	12		12-20			12		
	60	12	8-2	gray org. silty clay, SM veg. (OH)				
	14		2-2					
	70	15	1-1	soft gray org. silty clay, Tr. P. SAND, shells (OH)		15		
	17		1-1					
	80	17	1-1	DO-70, Tr. veg. (OH)				
	19		1-1					
	90	20	1-1	NO RECOVERY	⑤	20		Drilled down to 20' sample depth, unable to take specimen below sample 90.
	22		3-3					
						21.5		
	100	25	1-1	gray silty H. f. SAND, Tr. mica (SM)		25		
	27		3-4					
	110	30	13-22	BKN H. f. SAND, Tr. S.I.P. mica (SP-2)		30		
	32		28-21					
	120	35	10-12	RED-BKN silty P. SAND (SM)		35		
	37		13-16					
	130	40	12-18	RED-BKN H. f. SAND, Tr. S.I.P. mica (SP-2)		40		
	42		13-14					
	140	45	9-9	BKN H. f. SAND, Tr. S.I.P. mica (SP-2)	⑤	45		
	47		12-12					
	150	50	12-13	DO-140 (SP-2)		50		
	52		14-15					

SHEET 2 OF 3
FILE NO. 9446
BORING NO. P-52
SURFACE ELEV. _____
R. NUMBER _____

PROJECT

LOWE'S HOME CENTER

PROJECT LOCATION

Berkyn NU

我姓王，ENG族

SURFACE ELEV.

Z. NVW6Z

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05/03/01
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180F
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0915

BORING NO. 00-5

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT Low's Home Intz.
LOCATION Brooklyn NY
BORING LOCATION _____

BORING NO. PB-2
SHEET 3 OF 3
FILE NO. 7446
SURFACE ELEV. _____
DATUM _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED ☒ YES ☐ NO
TRUCK SM 55 MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO 20
SKID _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
OTHER _____

TYPE AND SIZE OF: _____ DRILLING MUD USED ☒ YES ☐ NO
D-SAMPLER 2" O.D. split spoon DIAMETER OF ROTARY BIT, IN. 3 1/8", 4 1/8", 2 1/2"
U-SAMPLER _____ TYPE OF DRILLING MUD Quik Gel
S-SAMPLER _____ AUGER USED ☐ YES ☒ NO
CORE BARREL _____ TYPE AND DIAMETER, IN. _____
CORE BIT _____
DRILL RODS N

CASING HAMMER, LBS. 500 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>no observation.</u>

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 82 NO. OF 3" SHELBY TUBE SAMPLES _____
3.5" DIA. U-SAMPLE BORING LIN. FT. _____ NO. OF 3" UNDISTURBED SAMPLES _____
CORE DRILLING IN ROCK LIN. FT. _____ OTHER: _____

BORING CONTRACTOR JRBD Co.
DRILLER R. Lynch HELPERS G. Feliciano

REMARKS Grouted borehole upon completion

RESIDENT ENGINEER R. MUEZ DATE 01/03/01

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress columns indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-2

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
 FILE NO. 9446
 BORING NO. PB-3
 SURFACE ELEV.

PROJECT Low's Home Center

PROJECT LOCATION Brooklyn, NY

RES. ENGR. R. NURETZ

DAILY
 PROGRESS
 12/20/00
 RNR
 CJS/SLB
 MNR
 JTF
 MNR
 RNR

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
	10	0.5	5-6	BLK C-f sand, sm silt, Tr. silty, cinders (fill)(sm)	④		Drilled	Automatic Hammer
	2	2	6				Hand	4' max. at surface
	20	2	5-8	BLK C-f sand, sm silt, asphalt, Tr. silty				
		4	17-16	same (fill)(sm)				
	30	4	4-7	BLK C-f sand, sm silt, silty, Tr. cinders (fill)(sm)		5		
		6	21-15				Hand	
	40	6	10-12	BRN C-f sand, sm silt, Tr. silty, cinders (fill)(sm)				
		8	13-16					
	50	8	8-7	BLK C-f sand, sm cinders, Tr. silty, silty (fill)(sm)		10		
		10	7-4					
	60	10	2-1	gray BRN C-f sand, sm silty, silty, cinders, wood (fill)(sm)				
		12	2-2					
	70	12	2-4	DO-60, Tr. Brick (fill)(sm)				
		14	1-1					
	80	15	2-1	Top (7") - DO-70 (fill)(sm)	⑤	15		
		17	2-1	Bot (6") - HOD gray org. silty clay, Tr. silty (OH)		16.5		P.P. = 75 T.S.F.
	90	17	2-1	DO-80 BOT, Tr. wood (OH)				
		19	2-2					
	100	20	Wash/10"	soft gray silty org. silty clay, Tr. f sand (OH)		20	V	P.P. < 25 T.S.F.
		22	1	Tr. shells				
	110	25	Wash/10"	HOD gray org. silty clay, Tr. f sand (OH)		25		P.P. = 0.15 T.S.F.
		27	1					
	120	30	2-2	DO-110 (OH)		30		
		32	1-2					
	130	35	9-6	BRN M-f sand, sm silt, (sm)	⑥	35		
		37	8-8			38		
	140	40	5-8	BRN M-f sand, Tr. silt (sp-sm)		40		
		42	8-7					
	150	45	5-7	BRN C-f sand, sm silty, Tr. silt (sp-sm)		45		
		47	6-6					
	160	50	5-4	DO-150 (sp-sm)		50		
		52	5-6					

BORING NO. PB-3

RES. ENGR. E. NUNER

PROJECT LOCATION BROOKLYN NY

1430hrs

BORING NO. DB-3

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT Levee's Home Int'l.
 LOCATION Brooklyn NY
 BORING LOCATION As planned

BORING NO. PB-3
 SHEET 3 OF 3
 FILE NO. 9946
 SURFACE ELEV. _____
 DATUM _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>ONE SS</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO _____
SKID _____	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
BARGE _____	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
OTHER _____			

TYPE AND SIZE OF:
 D-SAMPLER 2" dia split spoon
 U-SAMPLER _____
 S-SAMPLER _____
 CORE BARREL _____
 CORE BIT _____
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 2 1/4" 5 7/8" 3 7/8"
 TYPE OF DRILLING MUD Quick gel

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
 STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. _____	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER:	_____

BORING CONTRACTOR JRD Co.
 DRILLER M. Blegwas HELPERS D. Keith
 REMARKS Grouted borehole upon completion
 RESIDENT ENGINEER R. NUNEZ DATE 12/28/00

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, Shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-3

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3

FILE NO. 9996

BORING NO. PB-4

SURFACE ELEV. _____

PROJECT Love's Home CenterPROJECT LOCATION Brooklyn, NYRES. ENGR. K. NUNZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
12/1/80 Pia 7:00 windy clear 64-65	10	0	100/6"	BRN C-F SAND, TR. SILT, GR. CL. (FILL) (SP-SH)	F		Drilled N-1000	Automatic transfer
		0-5						
	20	2	22-18	BRN C-F SAND, TR. SILT, GR. CL. (FILL) (SP-SH)				
		4	12-7					
	30	4	8-2	DO-20 (FILL) (SH)		5		
		6	2-2				MUD	
	40	6	1-1	Gray Bk-M-F SAND, TR. SILT, TR. CL. (FILL) (SH)				
		8	1-1					
	50	8	2-1	DO-40 (FILL) (SH)		10		
		10	2-1					
	60	10	2-2	BRN F-C SAND, TR. SILT, TR. BRICK (FILL) (SH)				Sample saturated w/ water R=5.5
		12	2-2					R=6"
	70	12	2-2	DO-60 (FILL) (SH)		14.5		
		14	3-3			15		
	80	15	10-10"	Soft gray org. silty clay, Tr. F SAND, shells (OH)				
		17	2-3					
	90	17	10-6"	Soft gray org. silty clay, Tr. F SAND, shells (OH)	G	20		
		19	10-10"					
	100	20	1-3	DO-90 (OH)				
		22	3-3					
						23.5		
						25		
	110	25	1-1	Gray M-F SAND, TR. SILT, TR. CL. (FILL) (SH)				
		27	2-1					
						30		
	120	30	13-19	BRN C-F SAND, TR. SILT (SP-SH)				
		32	23-24					
						35		
	130	35	5-7	RED-BN Silty F-SAND (SH)				
		37	9-8					
						40		
	140	40	6-8	BRN M-F SAND, TR. SILT (SP-SH)				
		42	10-10					
					H	45		
	150	45	5-6	BRN C-F SAND, TR. GR. SILT (SP-SH)				
			6-7					
						50		
	160	50	4-5	BRN M-F SAND, TR. SILT (SP-SH)				
		52	6-8					

BORING NO. DR-1

SURFACE ELEV

PROJECT Lowes Home CTR

PROJECT LOCATION Brooklyn NY

RES. ENGR. E. NUNOZ[illegible]

BORING NO. 10-4

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-4

SHEET 3 OF 3

FILE NO. 9446

SURFACE ELEV. _____

DATUM _____

PROJECT Loan's Home Entry

LOCATION Brooklyn NY

BORING LOCATION As Shown

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>CHEV 75</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
BARGE	OTHER	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
OTHER			

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. split spoon

U-SAMPLER _____

S-SAMPLER _____

CORE BARREL _____

CORE BIT _____

DRILL RODS N

DRILLING MUD USED

DIAMETER OF ROTARY BIT, IN. 3 1/8 4 1/2

TYPE OF DRILLING MUD Quik Gel

AUGER USED

TYPE AND DIAMETER, IN. ☐ YES ☒ NO

CASING HAMMER, LBS. 300

AVERAGE FALL, IN. 24

DAMPLER HAMMER, LBS. 140

AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>no observation</u>

PIEZOMETER INSTALLED

☐ YES

☒ NO

SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>82</u>	NO. OF 3" SHELBY TUBE SAMPLES	<u>-</u>
3.5" DIA. U-SAMPLE BORING	LIN. FT. <u>-</u>	NO. OF 3" UNDISTURBED SAMPLES	<u>-</u>
CORE DRILLING IN ROCK	LIN. FT. <u>-</u>	OTHER:	<u>-</u>

BORING CONTRACTOR

DRILLER M. Blugas JBD Co. HELPERS D. Keith

REMARKS Quik Gel barite used completion

RESIDENT ENGINEER E. Nunez DATE 12/29/00

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, Shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-4

SHEET 1 OF 4
FILE NO. 9446
BORING NO. PB-4P
SURFACE ELEV. _____

PROJECT LOCATION BROOKLYN, NY

RES. ENGR. J. NUNGER

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
2/10/01				Piezometer installation.				
Clear				Drilled to 30 ft.				
18°F				No sampling.		5		
34°F Wind						10		
Clear						15		
0800						20	V	
						25		
						30		END OF H

BORING NO. PR 4LP

MUESER RUTLEGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT Lower Ave Center PIEZOMETER NO. PB-4P
 LOCATION Brooklyn NY
 PIEZOMETER LOCATION _____ DATE OF INSTALLATION 01/02/01
☐ SEE SKETCH ON BACK RES. ENG. R. NUNEZ

STRATA		PIEZOMETER INSTALLATION DETAILS	DEPTH (FT)	PIEZOMETER TYPE <u>stuffed PVC</u>			
GROUND SURFACE ELEV. _____			0	INTAKE POINT			
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">F</div>				depth to bottom, ft = <u>30</u>		depth to top, ft = <u>22</u>	
				length, ft = <u>8</u> = L		diameter, in = <u>4</u> , ft = _____ = 2R	
				STANDPIPE/RISER			
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">C</div>		14.5	elevation of rim, ft = _____		diameter, in = <u>1 1/4</u> , ft = _____ = 2r		
			DEPTH - RIM TO WATER		ELEVATION OF WATER		REMARKS
			DATE		CLOCK		
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">S</div>		20	01/02/01 1147		7.5		
			01/02/01 1030		7.3		
			01/02/01 1250		7.2		
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">S</div>		22	01/04/01 0725		7.1		
			01/05/01 0930		7.1		
			01/08/01 0946		6.8		
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">S</div>		25					
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">S</div>		30					
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px;">S</div>		30					

Sand Bentonite
 Gravel Grout

GROUND SURFACE ELEV. _____

PIEZOMETER NO. PB-4P

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 4

FILE NO. 0446

SUBCODE _____

VARIABLE HEAD PERMEABILITY TEST

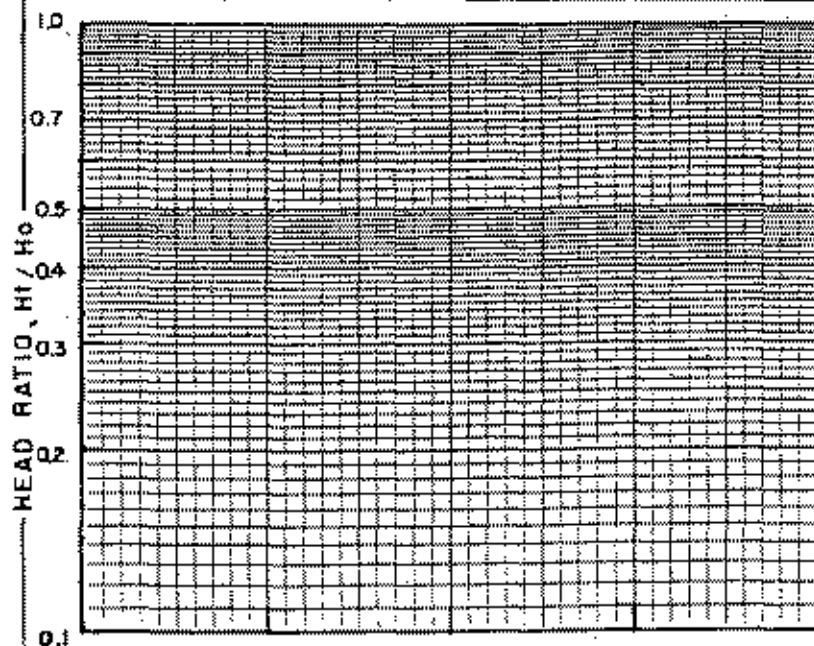
☐ BOREHOLE OR ☒ PIEZOMETER NO. PB-4P

TEST NO. 1

PROJECT Lowie's Home Center RES. ENG. R. NUNEZ

LOCATION Brooklyn NY CALC. BY _____ DATE _____

PIEZOMETER LOCATION _____ CH'KD BY _____ DATE _____



INTAKE POINT

depth to bottom, ft = 30

depth to top, ft = 22

length, ft = 8 = L

diameter, in = 4, ft = _____ = 2R

STANDPIPE / RISER

diameter, in = 1 1/4, ft = _____ = 2r

depth of casing, ft = _____

depth to which stand-
pipe was bailed, ft = _____ = Z

ELAPSED TIME, Δt , MIN.

READING TIME			TEST DEPTH- RIM TO WATER ft.	DEPTH- RIM TO TIDE OR GWL ft.	UNBALANCED HEAD H ft.	HEAD RATIO Ht/Ho	REMARKS
DATE	CLOCK	Δt MIN.					
01/06/01	0948	0		4.8	0		STATIC WATER LEVEL
		0.5	0.8				
		1	1.8				
		2	3.2				
		3	4.3				
		4	5.0				
		5	5.6				
		6	5.8				
		7	5.9				
		8	6.1				
		9	6.4				
		10	6.45				
		11	6.55				
		12	6.6				
		13	6.7				
		14	6.75				
		15	6.75				
		16	6.8				

PIEZOMETER NO. PB-4P

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT Loe's Home Center
 LOCATION Brooklyn NY
 BORING LOCATION _____

BORING NO. PB4P
 SHEET 4 OF 4
 FILE NO. 9446
 SURFACE ELEV. _____
 DATUM _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED ☒ YES ☐ NO
 TRUCK CHEV 75 MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO 20
 SKID _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____

TYPE AND SIZE OF: _____ DRILLING MUD USED ☐ YES ☒ NO
 D-SAMPLER _____ DIAMETER OF ROTARY BIT, IN. 3 1/8
 U-SAMPLER _____ TYPE OF DRILLING MUD _____
 S-SAMPLER _____
 CORE BARREL _____ AUGER USED ☐ YES ☒ NO
 CORE BIT _____ TYPE AND DIAMETER, IN. _____
 DRILL RODS N

CASING HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 SAMPLER HAMMER, LBS. _____ AVERAGE FALL, IN. _____

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
5/1/02/01	1147			7.3	Piez. Reading approx. one hour after installation

PIEZOMETER INSTALLED ☒ YES ☐ NO SKETCH SHOWN ON _____
 STANOPIPE: TYPE SCA 40 ID, IN. 1 1/4" LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE stated PVC OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL SAND OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 30 NO. OF 3" SHELBY TUBE SAMPLES _____
 3.5" DIA. U-SAMPLE BORING LIN. FT. _____ NO. OF 3" UNDISTURBED SAMPLES _____
 CORE DRILLING IN ROCK LIN. FT. _____ OTHER: _____

BORING CONTRACTOR JRD CO.
 DRILLER M. Blagovos HELPERS D. Keith
 REMARKS _____

RESIDENT ENGINEER Z. KUNOZ DATE 5/1/02/01

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB4P

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3

FILE NO. 9446

BORING NO. PB-5

SURFACE ELEV. _____

PROJECT Louise's Home Center

PROJECT LOCATION Brooklyn NY

RES. ENGR. _____

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
2/25/00 THURS. scratches winch down 20°F w/ wind well	10	1	6-28	WHT f-c sand Tr. silt (fill) ?	④			Safety Harness 1' cone at surface.
	3		56-37	Bot (10) - blk f-c sand Tr. silt Tr. wood (fill) (fill)				
	20	3	104/6"	No Recovery				
	30	5	4-3	Rock frag. Tr. conc. (fill)		5		
	40	7	2-1				MUD	
	45	9	1-1	NO RECOVERY				
	50	10	1-1	blk c-f silt Tr. f-c sand shells (fill)		10		
		12	1-1	(CINDER)				
	60	12	2-2	Rock frag. Tr. wood (fill)				
		14	3-7		⑤			R=3" R=2" R=1"
	70	15	4-2	NO RECOVERY		15		
		17	2-2					
	80	17	2-4	Top (15) - soft gray blk org. silty clay, Tr.				
		19	4-3	f-c sand, Tr. wood (OH)				
				Bot (19) - gray silty f-c sand Tr. wood (OH) (fill)				
	90	20	2-1	gray stone, Tr. org clay (fill) (GP)		20		
		22	2-1					
	100	25	1-1	gray silty m-f sand Tr. clay (sm)		25	↓	
		27	1-1		⑥			RP=0.75 TSIF 2.5
						27.5		
	110	30	Wht-2	med gray org. silty clay, Tr. f-c sand		30		
		32	2-3	veg (OH)				
	120	35	Wht-12	BRN c-f sand Tr. silt, qtz (sp)	⑦	33.5		
		37	16-22			35		
	130	40	2-10	BRN f-c sand Tr. silt (sp-sm)	⑧	40		
		42	13-16					
	140	45	10-10	BRN c-f sand Tr. silt (sp-sm)	⑨	45		
		47	16-19					
	150	50	9-17	BRN gravelly c-f sand Tr. silt (sp-sm)	⑩	48.5		10 halom in sample
		52	18-13			50		

BORING NO. PB-5

BORING NO. PD-5

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CTR
LOCATION BROOKLYN NY
BORING LOCATION AS PLANNED

BORING NO. PB-5
SHEET 3 OF 3
FILE NO. Q446
SURFACE ELEV. _____
DATUM _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED ☒ YES ☐ NO
TRUCK ONE SS MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM _____ TO 25
SKID _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
OTHER _____

TYPE AND SIZE OF: _____ DRILLING MUD USED ☒ YES ☐ NO
D-SAMPLER 2" O.D. split spoon DIAMETER OF ROTARY BIT, IN. 2 1/4", 4 1/2", 3 7/8"
U-SAMPLER _____ TYPE OF DRILLING MUD Quick Gel
S-SAMPLER _____
CORE BARREL _____ AUGER USED ☐ YES ☒ NO
CORE BIT _____ TYPE AND DIAMETER, IN. _____
DRILL RODS N

CASING HAMMER, LBS. 350 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 82 NO. OF 3' SHELBY TUBE SAMPLES _____
3.5" DIA. U-SAMPLE BORING LIN. FT. - NO. OF 3' UNOBTAINED SAMPLES _____
CORE DRILLING IN ROCK LIN. FT. - OTHER: _____

BORING CONTRACTOR JBD CO.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER JC. MUNEZ DATE 12/28/00

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, Shelby tube samples S, fixed piston samples U. Assign NFI to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-5

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3

FILE NO. 9440

PROJECT Low's Home Center

BORING NO. PB6

SURFACE ELEV.

PROJECT LOCATION Brooklyn NY

RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
12/27/00 OG 30 WED. RNE	10	1	2-4	BLK-BRN f-c sand, silty, Tr. silty, Brk (F11) (sm)	⑤			Drilled safety Hammer AHEAD
	3	4-5						
	20	3	2-3	BLK-BRN H-f sand, silty, Tr. silty, Brk (F11) (sm)				
	5	4-4		BLK-BRN (F11) (sm)				
	30	5	1-1	Gray-BRN f-c sand, silty, Tr. silty, Brk (F11) (sm)		5		
	7	1-1						
	40	7	1-1	Gray-BRN H-f sand, silty, Tr. silty, Brk (F11) (sm)				
	9	1-1						
						9.5		
	10	1-1		Self	⑥	10		
	12	1-1		Gray org. silty clay, Tr. veg. f sand (OH)				
	60	12	2-1	Self				
	14	2-1		Self				
	70	15	1-1	DO-60 (OH)		15		
	17	1-1						
	80	17	1-2	DO-60 (OH)				
	19	1-1						
	90	20	3-4	Gray-BN silty f-c sand, Tr. clay (sm)		20		
	22	8-16			⑦			
	100	25	5-7	BLK-gray silty H-f sand (sm)		25		
	27	8-10						
	110	30	11-20	BLK f-c sand, Tr. silty (sp-sm)		30		
	32	20-10						
	120	35	12-13	DO-110 (sp-sm)		35		
	32	11-12						
	130	40	14-26	DO-110 (sp-sm)		40		
	42	31-38						
	140	45	15-20	BLK H-f sand, Tr. silty (sp-sm)	⑧	45		
	47	21-25						
	150	50	13-11	BLK f-c sand, Tr. silty (sp-sm)		50		
	52	13-14						

BORING NO. PB6

BORING NO. 62.5

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT Lowie's Home Center
 LOCATION Brooklyn NY
 BORING LOCATION 21st & 1st Ave

BORING NO. PB-6
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. _____
 DATUM _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED _____
 TRUCK SKISS MECHANICAL _____ DIA., IN. 4 ☒ YES ☐ NO
 SKID _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM 0 TO 5
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____ DEPTH, FT. FROM _____ TO _____

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. Split spoon
 U-SAMPLER _____
 S-SAMPLER _____
 CORE BARREL _____
 CORE BIT _____
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3 1/8, 4 1/8
 TYPE OF DRILLING MUD GLUE GEL
 AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. 360 AVERAGE FALL, IN. 24
 SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
 STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 82 NO. OF 3" SHELBY TUBE SAMPLES _____
 3.5" DIA. U-SAMPLE BORING LIN. FT. _____ NO. OF 3" UNDISTURBED SAMPLES _____
 CORE DRILLING IN ROCK LIN. FT. _____ OTHER: _____

BORING CONTRACTOR JBD Co.
 DRILLER R. Lynch HELPERS E. Feliciano
 REMARKS Grouted boreholes upon completion.
 RESIDENT ENGINEER R. NUNO DATE 12/27/00

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-6

MUESER RUTLEDGE CONSULTING ENGINEERS

 SHEET 1 OF 3

 FILE NO. 9416

 PROJECT LOWE'S HOME CENTER

 BORING NO. PB-7

 PROJECT LOCATION BROOKLYN, NY

 RES. ENGR. MUESER

 SURFACE ELEV. 100.00

DAILY PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/14/00 MON 30°C 145th	10	0	1-13	Brown f. sand, Tr. silt, gl. (sp. sm)	①		Drilled	Automatic Hammer
	2		15-16				HEAD	
	20	2	9-26	dk gray c.f. sand, sm. silt, Tr. silt, (sp. sm)				
	4		26-16					
	30	4	6-8	gray f.-m. sand, sm. silt, Tr. silt (sp. sm)		5		
	6		7-5				run	
	40	6	1-1	gray f.-m. sand, sm. silt, Tr. silt, (sp. sm)				
	8		1-1					
	50	8	1-1	DO-40 (sp. sm)				
	10		1-1			10		
	60	10	WOB-1	Brown f.-c. sand, Tr. silt, gl., veg. brick (sp. sm)	②			
	12		1-1					
	70	12	1-1	dk gray f.-m. sand, sm. silt, Tr. silt, (sp. sm)				2-2"
	14		1-2	WOB (sp. sm)				
	80	14	WOB-1	dk gray f.-m. sand, sm. silt, Tr. silt, (sp. sm)		15		RP-0575F
	16		1-1	WOB (sp. sm)				
	90	16	WOB-1/12"	DO-80 (sp. sm)				
	18		WOB-1/12"					
						18-5		
						20		
1645 12/14/00 Tues. 30°C clear 6645th	100	20	1-3	Brown f.-m. sand, sm. silt (sm)	③			
	22		2-3					
						25		
	110	25	4-7	Brown f.-m. sand, Tr. silt, gl. (sp. sm)				
	27		7-8					
						30		
	120	30	6-5	Brown f.-m. sand, sm. silt (sm)				
	32		8-9					
						35		
	130	35	8-10	Brown f.-m. sand, Tr. silt, gl., mica (sp. sm)				
	87		4-3					
						40		
	140	40	5-8	Brown f.-m. sand, sm. silt, Tr. silt, mica (sm)	④			
	42		11-11					
						45		
	150	45	5-5	Brown f.-m. sand, Tr. silt, gl., mica (sp. sm)				
	47		6-5					
						50		
	160	50	3-5	Brown c.f. sand, Tr. silt, gl., mica (sp. sm)				
	52		5-7					

 BORING NO. PB-7

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. PB-7
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 8.9
RES. ENGR. RANDOLPH NUNEZ

DAILY	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"					
Cont'd				S1				
12-19-00								
Tuesday								
Cloudy								
30°F						55		
	17D	55.0	6-6					
		57.0	8-7					
						58.5		
						60		
	18D	60.0	13-13	S2				
		62.0	12-10					
						65		
	19D	65.0	9-8					
		67.0	6-7					
	20D	70.0	18-15			70		
		72.0	22-20					
					75			
	21D	75.0	18-37					
		77.0	17-16					
						80		
	22D	80.0	14-15					
		82.0	24-19			82		
11:35								
						85		
					90			
					95			
					100			

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. PB-7
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 8.9
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME-75</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>20</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE	OTHER	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER				

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER _____
 S-SAMPLER _____
 CORE BARREL _____
 CORE BIT _____
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8
 TYPE OF DRILLING MUD QUIK - GEL

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*AUTOMATIC HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-19-00		82	20	11	MUD/WATER UPON COMPLETION.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>82</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER:	_____

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-19-00

BORING NO. PB-7

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: LOWE'S HOME CENTER
 LOCATION: BROOKLYN, NEW YORK

BORING NO. PB-8
 SHEET 1 OF 3
 FILE NO. 9446
 SURFACE ELEV. 7.4
 RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS		
	NO.	DEPTH	BLOWS/6"				BLOWS			
12-18-00 Monday 30°F	1D	0.0	16-26	Brown medium to fine sand, some silt, trace gravel, brick, cinders (Fill) (SM) Do 1D, some gravel (Fill) (SM)	F		DRILLED	3D, 7D, 10D-12D & 17D: Petroleum odor.		
		2.0	30-31				AHEAD			
	2D	2.0	17-19				4"			
		4.0	16-14							
						5				
	3D	5.0	2-2	Brown fine to medium sand, some silt, trace gravel (Fill) (SM) Do 3D (Fill) (SM)					3D, 7D, 10D-12D & 17D: Petroleum odor.	
		7.0	2-2							
	4D	7.0	2-2							
		9.0	3-4							
						10				
5D	10.0	2-3	Red brown fine to medium sand, some silt, trace gravel (Fill) (SM) Do 5D (Fill) (SM)				3D, 7D, 10D-12D & 17D: Petroleum odor.			
	12.0	6-6								
6D	12.0	4-4								
	14.0	6-8								
				15						
7D	15.0	3-2	Gray brown fine to medium sand, some silt, trace gravel, metal, cinders (Fill) (SM) Brown fine to medium sand, some silt, rock fragments, trace wood (Fill) (SM)							3D, 7D, 10D-12D & 17D: Petroleum odor.
	17.0	3-3								
8D	17.0	5-16								
	19.0	31-14								
				20						
9D	20.0	12-7	Rock fragments (Fill)					3D, 7D, 10D-12D & 17D: Petroleum odor.		
	22.0	9-9								
				23.5						
12-19-00 Tuesday Cloudy 30°F	10D	25.0	Brown fine to medium sand, some silt (SM)	S1	25	✓			3D, 7D, 10D-12D & 17D: Petroleum odor.	
		20-16								
						29				
				30						
11D	30.0	5-9	Stiff gray brown clayey silt, trace fine sand (MH)	M			3D, 7D, 10D-12D & 17D: Petroleum odor.			
	32.0	14-18								
						33.5				
				35						
12D	35.0	7-12	Brown gray silty fine to medium sand (SM)	S1						3D, 7D, 10D-12D & 17D: Petroleum odor.
	37.0	12-12								
						40				
13D	40.0	9-13	Brown silty fine sand (SM)							
	42.0	14-13								
						45				
14D	45.0	10-12	Brown fine sand, some silt (SM)					3D, 7D, 10D-12D & 17D: Petroleum odor.		
	47.0	12-14								
						50				
15D	50.0	11-15	Brown fine to medium sand, some silt (SM)			3D, 7D, 10D-12D & 17D: Petroleum odor.				
	52.0	26-29								

BORING NO. PB-8

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION: BROOKLYN, NEW YORK

BORING NO. PB-8
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 7.4
RES. ENGR. RANDOLPH NUNEZ

DAILY	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS		
PROGRESS	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS			
Cont'd										
12-19-00										
Tuesday										
Cloudy										
30°F						55				
	16D	55.0	8-14	Brown fine to medium sand, trace silt (SP-SM)	S1					
		57.0	15-19							
	17D	60.0	5-15	Gray brown fine to medium sand, some silt, gravel (SM)			60		Hard drilling at 62.5'. Possible boulder & cobbles from 62.5' to 65'.	
		62.0	38-55							
	18D	65.0	18-15	Gray fine to medium sand, some gravel, silt, trace coarse sand (SM)			65			
		67.0	15-8							
	19D	70.0	22-18	Red brown silt, some fine sand, trace clay seams, gravel (ML)	S2	68.5				
		72.0	18-18				70			
	20D	75.0	27-27	Red brown silty fine to medium sand, trace gravel, coarse sand, clay (SM)			75			
		77.0	25-16							
	21D	80.0	48-26	Red brown fine to medium sand, some silt, trace gravel, coarse sand (SM)			80		End of Boring at 82'.	
11:45		82.0	28-15				82			
						85				
						90				
						95				
						100				

BORING NO. PB-8

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NEW YORK
 BORING LOCATION SEE PLAN

BORING NO. PB-8
 SHEET 3 OF 3
 FILE NO. 9446
 SURFACE ELEV. 7.4
 DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>CME-55</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>25</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER				

TYPE AND SIZE OF:
 D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL
 CORE BIT
 DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
 DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16
 TYPE OF DRILLING MUD QUIK - GEL
 AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.
 CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT: TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER: MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>79.5</u>	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER: OBSTRUCTION (BOULDER)	<u>2.5</u>

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
 DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
 REMARKS BOREHOLE GROUTED UPON COMPLETION.
 RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-19-00

BORING NO. PB-8

INFORMATIO

GOWANUS CANAL

PB-1



PB-3

FEET

PROPOSED LOWE'S
PARKING LOT

PB-5

CANAL INLET

P

FEET

EXISTING SUPERMA
PROPERTY

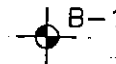
FEET

EXISTING SUPER
PARKING LO

BORINGS B-5 &
B-10 NOT COMPLETED.

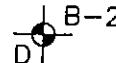
Jc

LEGEND



B-1

- PROPOSED BUILDING BORING,
82 FEET DEEP



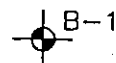
B-2

- PROPOSED BUILDING BORING,
102 FEET DEEP



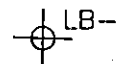
PB-1

- PROPOSED PARKING LOT
BORING, 82 FEET DEEP



B-1P

- 30 FOOT DEEP OBSERVATION WELL
TO BE INSTALLED IN BORING



LB-1

- EXISTING BORING



RB-1

- EXISTING BORING

PRELIMINARY

LOWE'S HOME CENTER

BROOKLYN

NEW YORK

AKRF ENGINEERING, P.C.

NEW YORK

NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, N.Y. 10017

SCALE

MADE BY J.C.

DATE 10-28-00

FILE NO.

GRAPHIC

CH'D BY

DATE

9446

PROPOSED BORING
LOCATION PLAN

DRAWING NO.

PB-1

SCALE

100'

FIELD LOG

SHEET 1 OF 2

BORING NO. T1

SURFACE ELEV. 10.2 ±

PROJECT LOWES HOME CENTER

PROJECT LOCATION: BROOKLYN, NY

RES. ENGR

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS	
	NO.	DEPTH	BLOWS/6"						
FRIDAY 5 NOV 02 PARTLY CLOUDY ~55°F 1200	1D	0'-	8-11	BROWN C-F SAND, SM GVL, TR BRICK, SILT (FILL) (SP-SM)	F		3" 4"		
		2'	10-7						
	2D	2'-	6-5	BROWN C-F SAND, SM GVL, TR BRICK, WOOD, CONCRETE, SILT (FILL) (SP-SM)					
		4'	6-14						
	3D	4'-	17-17	BROWN C-F SAND, CONCRETE, SM GVL, TR BRICK, SILT (FILL) (SP-SM)			5		
		6'	18-21						
	4D	6'-	13-11	GRAY C-F SAND, SM GVL, TR BRICK, SILT (FILL) (SP-SM)					
		8'	9-7						
	5D	8'-	9-6	GRAY C-F SAND, SM GVL, CONCRETE, TR BRICK (FILL) (SM)			10		
		10'	9-14						
	6D	10'-	10-16	GRAY C-F SAND, SM CONCRETE, GVL, TR BRICK, GLASS (FILL) (SM)					
		12'	23-56						
	7D	12'-	11-9	CONCRETE, GVL, SM C-F SAND, TR BRICK (FILL) (SM)					POOR RECOVERY
		14'	6-6						
	8D	14'-	11-14	GRAY C-F SAND, SM GVL, TR BRICK, (FILL) (SM)			15		POOR RECOVERY
	16'	10-8							
9D	16'-	6-8	GRAY C-F SAND, SM GVL, TR BRICK (FILL) (SM)				PETROLEUM ODOR PRESENCE		
	18'	5-5							
10D	18'-	6-100/4'	SPUN CASING THRU CONCRETE, CONCRETE IN BAG		18.5 CONC.	19.5	CONCRETE @ ~18.5' CONCRETE ENDED @ ~19' REL: ~7" CONC. * 2" BRICK 22'-28' PETROLEUM		
	20'								
11NR	20'-	2-2	NO RECOVERY	?					
	22'	3-5			22				
12D	22'-	6-5	GRAY SILTY F-SAND (SM)						
	24'	6-10							
13D	24'-	11-10	"DO 12D" (SM)	S	25				
	26'	13-15							
14D	26'-	11-11	"DO 12D" (SM)						
	28'	16-10			28		EOBC @ 28'		
1530									

BORING NO. 77

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING NO. T1
 SHEET 2 OF 2
 FILE NO. 9854
 SURFACE ELEV. 10.2 ±
 DATUM BROOKLYN HWY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>X</u>	MECHANICAL _____	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u> TO <u>20</u>
SKID _____	HYDRAULIC _____	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>4</u>
BARGE _____	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
OTHER _____			

TYPE AND SIZE OF:	DRILLING MUD USED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D-SAMPLER <u>2" O.D. S.S.</u>	DIAMETER OF ROTARY BIT, IN. <u>2 7/8, 3 7/8</u>
U-SAMPLER _____	TYPE OF DRILLING MUD _____
S-SAMPLER _____	
CORE BARREL _____	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT _____	TYPE AND DIAMETER, IN. _____
DRILL RODS _____	

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>28</u>	NO. OF 3" SHELBY TUBE SAMPLES _____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: <u>SPIN CASING THRU 12" CONCRETE</u>

BORING CONTRACTOR ADT, INC
 DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
 REMARKS _____
 RESIDENT ENGINEER A. MODICAP DATE 15 NOV 02

NOTES:

1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. T1

FIELD LOG

SHEET 1 OF 6
FILE NO. 9854
BORING NO. T2
SURFACE ELEV. 10.0 ±
MODICA

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY

RES. ENGR. A[illegible]

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING NO. T2
 SHEET 2 OF 2
 FILE NO. 9851
 SURFACE ELEV. 10.0 ±
 DATUM BROOKLYN HWY.

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>K</u>	MECHANICAL _____	DIA., IN. <u>4"</u>	DEPTH, FT. FROM <u>0</u> TO <u>12</u>
SKID _____	HYDRAULIC _____	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
BARGE _____	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
OTHER _____			

TYPE AND SIZE OF:	DRILLING MUD USED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D-SAMPLER <u>2" O.D. S.S.</u>	DIAMETER OF ROTARY BIT, IN. <u>3 7/8", 4 7/8"</u>
U-SAMPLER _____	TYPE OF DRILLING MUD _____
S-SAMPLER _____	
CORE BARREL _____	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT _____	TYPE AND DIAMETER, IN. _____
DRILL RODS _____	

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 SAMPLER HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 *AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>24</u>	NO. OF 3" SHELBY TUBE SAMPLES _____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: <u>SPUN CASING THRU 18" CONCRETE</u>

BORING CONTRACTOR A.D.T. INC.
 DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
 REMARKS _____

RESIDENT ENGINEER A. MONICA DATE 13 NOV 02

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. T2

FIELD LOG

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY

RES. ENGR. A. M. M. M. M.

FORM NO. B-1

BORING NO. T3

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T3
 SHEET 2 OF 2
 FILE NO. 9854
 SURFACE ELEV. 10.5 ±
 DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>6</u>	MECHANICAL _____	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u> TO <u>13</u>
SKID _____	HYDRAULIC _____	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>4</u>
BARGE _____	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
OTHER _____			

TYPE AND SIZE OF:	DRILLING MUD USED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D-SAMPLER <u>2" O.D. S.S.</u>	DIAMETER OF ROTARY BIT, IN. <u>3 7/8</u> , <u>2 7/8</u>
U-SAMPLER _____	TYPE OF DRILLING MUD <u>QUIK GEL</u>
S-SAMPLER _____	
CORE BARREL _____	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT _____	TYPE AND DIAMETER, IN. _____
DRILL RODS _____	

CASING HAMMER, LBS. <u>300</u>	AVERAGE FALL, IN. <u>24</u>
SAMPLER HAMMER, LBS. <u>140</u>	AVERAGE FALL, IN. <u>30</u>

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>NONE MADE</u>

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>24</u>	NO. OF 3" SHELBY TUBE SAMPLES _____	_____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: _____	<u>SPUN CASING THRU 12" CONCRETE</u>

BORING CONTRACTOR ADT, INC
 DRILLER DAVID CARTER HELPERS LIONEL EDWARDS

REMARKS _____
 RESIDENT ENGINEER A. MOORE DATE 15 NOV 02

NOTES:

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2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash-water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. T3

FIELD LOG

SHEET 1 OF 2FILE NO. 9854BORING NO. T4SURFACE ELEV. 10.5 ±PROJECT LOWE'S HOME CENTERPROJECT LOCATION BROOKLYN, NYRES. ENGR. A. MODRA

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
125. JOV 02 UNNY 450°F 200	1D	0'-	10-14	BROWN C-F SAND, SM GVL, CONCRETE,	F		3" 4"	
		2'	27-26	TR BRCK GLASS (FILL) (SM)				
	2D	2'-	10-29	CONCRETE, BROWN C-F SAND, SM				
		4'	19-15	GVL, BRCK, TR SILT, GLASS (FILL) (SP-SM)				
	3D	4'-	4-7	CONCRETE		5		FOR RECOVERY,
		6'	10-100 1/2"			5.5		RECOVERED 2" OF
	4C	6'-		SPUN 3" CASING THRU 12" CONCRETE,		6.5		CONCRETE IN TIP OF
		8'		IN BAG		7.5		S.S.
	4D	8'-	2-2	BROWN C-F SAND, SM GVL, SILT		10		-STARTED CORING
		10'	3-2	(SM)				@ 5.5' STOPPED @ 6.5'
130	5D	10'-	10-7	BROWN C-F SAND, SM GVL, TR SILT	F?			REL - 8" CONCRETE
		12'	4-8	(SP-SM)				-@ VOID RIG LOST
	6D	12'-	10-14	BROWN M-F SAND, SM SILT, TR GVL				ALOT OF WATER
		14'	10-7	(SM)		15		
	7D	14'-	9-10	BROWN M-F SAND, SM SILT, TR GVL				
		16'	5-4	(SM)				
	8D	16'-	4-12	SOFT GRAY CLAY, SM VEGETATION		18		EOB @ 18'
		18'	6-7	(OH)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T4
 SHEET 2 OF 2
 FILE NO. 9854
 SURFACE ELEV. 10.5 ±
 DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>X</u>	MECHANICAL _____	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>8</u>
SKID _____	HYDRAULIC _____	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>4</u>
BARGE _____	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER _____				

TYPE AND SIZE OF:

D-SAMPLER 2" OD S.S.

U-SAMPLER _____

S-SAMPLER _____

CORE BARREL _____

CORE BIT _____

DRILL RODS _____

DRILLING MUD USED ☒ YES ☐ NO

DIAMETER OF ROTARY BIT, IN. 3 7/8", 2 7/8"

TYPE OF DRILLING MUD QUIK GEL

AUGER USED ☐ YES ☒ NO

TYPE AND DIAMETER, IN. _____

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24"

SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>NONE MADE</u>

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE: TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT: TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER: MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>18</u>	NO. OF 3" SHELBY TUBE SAMPLES _____	
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____	
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: <u>SPUN CASING THRU 12" CONCRETE</u>	

BORING CONTRACTOR ADT, INC

DRILLER DAVID CARTER HELPERS LIONEL EDWARDS

REMARKS _____

RESIDENT ENGINEER A. M. Jones DATE 14 NOV 02

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash-water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. T4

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. T5
SURFACE ELEV. 11.0 ±
MODICA

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY

RES. ENGR. MODICA

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
WEDS. NOV 02 SHOWERS/ CLOUDY 50°F 30	1D	0'-	4-6	BROWN C-M SAND, SM GVL, CONCRETE	F		4"	
		2'	11-24	TR SILT, BRICK, GLASS (FILL) (SP-SM)				
	2D	2'-	17-10	BROWN C-M SAND, SM CONCRETE, GVL, TR				
		4'	12-14	BRICK, GLASS, SILT (FILL) (SP-SM)				
	3DR	4'-	5-5	NO RECOVERY, HIT (FILL) (SP-SM)		5		CONCRETE JAMMED IN TIP OF SPOON
		6'	4-2					
	4D	6'-	2-3	CONCRETE, BROWN C-M SAND, SM				
		8'	12-3	GVL, TR WOOD, BRICK, GLASS (FILL) (SM)				
	5D	8'-	4-7	GRAVEL				
		10'	5-4			10		
1500 THURSDAY NOV 02 SUNNY ~45°F 0700	6D	10'-	4-3	CONCRETE, SM BROWN C-M SAND, TR	CONCRETE 2 WOOD			
		12'	3-5 1/2"	GVL, SILT (SP-SM)		11.5		CONCRETE @ 11'-6"
	1C	12'-		SPUN CASING THRU 24" CONCRETE,				
		14'		REC 13" IN BAG		13.5		ENDS @ 13'-6"
	7DR	14'-	4-3	NO RECOVERY		15		WOOD JAMMED IN TIP OF SS. POOR RECOVERY
		16'	3-3					
	8D	16'-	5-2	WOOD				
		18'	3-3					
	9D	18'-	2-2	WOOD, SM BLACK M-C SAND, TR GVL				POOR RECOVERY
		20'	2-2			20		
900	10D	20'-	2-2	WOOD	W/WOOD S/O			
		22'	2-3					POOR RECOVERY 24" RECOVERY
	11D	22'-	3-4	TOP 4" - WOOD				
		24'	3-5	BOTTOM 20" - BLACK PEAT (PE)		24		
	12D	24'-	4-8	GRAY SILTY F-SAND W/ POCKETS OF ORG. BLACK CLAYEY SILT.		25		HIT EDGE OF TIMBER PILE 1/2 OF S.S. IS WOOD, OTHER 1/2 IS SAND (24' → 28')
		26'	11-13	DO 12D				
	13D	26'-	10-13					
		28'	16-16					
	14D	28'-	7-10	BROWN F-M SAND, TR SILT (SP-SM)				
		30'	14-13			30		
	15D	30'-	6-12	BROWN SILTY F-SAND (SM)				
		32'	9-9			32		EOB @ 32'

BORING NO. T5

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T5
 SHEET 2 OF 2
 FILE NO. 9854
 SURFACE ELEV. 11.0 ±
 DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED ☒ YES ☐ NO
 TRUCK X MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO _____
 SKID _____ HYDRAULIC _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____
 TYPE AND SIZE OF: _____ DRILLING MUD USED ☒ YES ☐ NO
 D-SAMPLER 2" OD. SS. DIAMETER OF ROTARY BIT, IN. 2 7/8", 3 7/8"
 U-SAMPLER _____ TYPE OF DRILLING MUD QUIK GEL
 S-SAMPLER _____
 CORE BARREL _____ AUGER USED ☐ YES ☒ NO
 CORE BIT _____ TYPE AND DIAMETER, IN. _____
 DRILL RODS _____

CASING HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>NONE MADE</u>

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
 STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 32 NO. OF 3" SHELBY TUBE SAMPLES _____
 3.5" DIA. U-SAMPLE BORING LIN. FT. _____ NO. OF 3" UNDISTURBED SAMPLES _____
 CORE DRILLING IN ROCK LIN. FT. _____ OTHER: SPUN CASING THRU 24" CONCRETE

BORING CONTRACTOR ADT, INC
 DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
 REMARKS _____
 RESIDENT ENGINEER A. Modica DATE _____

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. T5

FIELD LOG

FILE NO. 9854

BORING NO. TC-1

SURFACE ELEV. 10.2 ±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY

RES. ENGR.

A. Мобильна

FORM NO. B-1

BORING NO. T-1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. TO-1
 SHEET 2 OF 2
 FILE NO. 9854
 SURFACE ELEV. 10.24
 DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED ☐ YES ☒ NO
 TRUCK X MECHANICAL _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 SKID _____ HYDRAULIC _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____
 TYPE AND SIZE OF: _____ DRILLING MUD USED ☒ YES ☐ NO
 D-SAMPLER 2" O.D. S.S. DIAMETER OF ROTARY BIT, IN. 2 7/8" 3 1/8"
 U-SAMPLER _____ TYPE OF DRILLING MUD QUICK GEL
 S-SAMPLER _____
 CORE BARREL _____ AUGER USED ☐ YES ☒ NO
 CORE BIT _____ TYPE AND DIAMETER, IN. _____
 DRILL RODS _____

CASING HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 SAMPLER HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 *AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
 STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 16 NO. OF 3" SHELBY TUBE SAMPLES _____
 3.5" DIA. U-SAMPLE BORING LIN. FT. _____ NO. OF 3" UNDISTURBED SAMPLES _____
 CORE DRILLING IN ROCK LIN. FT. _____ OTHER: _____

BORING CONTRACTOR A.D.T. INC
 DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
 REMARKS _____

RESIDENT ENGINEER A. MODICA DATE 13 NOV 02

NOTES:

- Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
- In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
- All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelly tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
- Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
- Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
- List changes of material in strata column and list generalized strata descriptions.
- List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
- For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
- Include sample description by Unified Soil Classification System.
- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. TO-1

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
 FILE NO. 9854
 BORING NO. TO-2
 SURFACE ELEV. 10.7±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY

RES. ENGR. A. Modica

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
WEDAY NOV 02 CLOUDY/SHOWERS ~65°F 1930	1D	0'-	8-26	BROWN M-C SAND, SM GUL, BRICK,	F		4"	
		2'	27-29	TR GLASS, PORCELAIN (FILL) (SM)				
	2D	2'-	17-13	BLK M-C SAND, SM GUL, TR BRICK				
		4'	13-10	(FILL) (SM)				
	3D	4'-	7-17	GRY-BLK C-M SAND, SM GUL, TR		5		PETROLEUM ODOR
		6'	15-9	CONCRETE, BRICK, SILT (FILL) (SP-SM)		6		
	4D	6'-	6-10	BROWN C-M SAND, SM GUL				PETROLEUM ODOR
		8'	6-3	(SM)				
	5D	8'-	4-3	BROWN M-F SILTY SAND, TR				
		10'	2-4	C-SAND (SM)		10		
	6D	10'-	3-2	BROWN M-F SAND UVD/W BLACK				
		12'	3/12"	F-SAND POCKETS (SM)				
1230	7D	12'-	WH	GRY SILTY F-SAND, TR GUL (SM)	S ₂			
		14'						
	8D	14'-	WR	BLK PE, TR GUL, GRY F-SAND, SILT		15		POOR RECOVERY
		16'	1-1	(PE)		16		
	9D	16'-	WR-1	BLK-BROWN PEAT (PE)				
		18'	1-2			18		
	10D	18'-	WH/12"	GRY SILTY F-SAND (SM)				
		20'	2-2			20		
	11D	20'-	2-3	"DO 10D" (SM)				
		22'	4-6					
	12D	22'-	5-5	"DO 10D" (SM)				
		24'	6-12			24		EOB @ 24'

BORING NO. TO-2

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. To-2
 SHEET 2 OF 2
 FILE NO. 9854
 SURFACE ELEV. 10.7 ±
 DATUM BROOKLYN HWY.

PROJECT LOWE'S HOME CENTER
 LOCATION BROOKLYN, NY
 BORING LOCATION _____

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED DURING CORING _____ CASING USED ☒ YES ☐ NO
 TRUCK X MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO 8
 SKID _____ HYDRAULIC _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____
 TYPE AND SIZE OF: _____ DRILLING MUD USED ☒ YES ☐ NO
 D-SAMPLER 2" O.D. S.S. DIAMETER OF ROTARY BIT, IN. 3 7/8"
 U-SAMPLER _____ TYPE OF DRILLING MUD QUICK GEL
 S-SAMPLER _____ AUGER USED ☐ YES ☒ NO
 CORE BARREL _____ TYPE AND DIAMETER, IN. _____
 CORE BIT _____
 DRILL RODS _____ CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 SAMPLER HAMMER, LBS. _____ AVERAGE FALL, IN. _____
 * AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					<u>NONE MADE</u>

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____
 STANDPIPE: TYPE _____ ID, IN. _____ LENGTH, FT. _____ TOP ELEV. _____
 INTAKE ELEMENT: TYPE _____ OD, IN. _____ LENGTH, FT. _____ TIP ELEV. _____
 FILTER: MATERIAL _____ OD, IN. _____ LENGTH, FT. _____ BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 24' NO. OF 3" SHELBY TUBE SAMPLES _____
 3.5" DIA. U-SAMPLE BORING LIN. FT. _____ NO. OF 3" UNDISTURBED SAMPLES _____
 CORE DRILLING IN ROCK LIN. FT. _____ OTHER: _____

BORING CONTRACTOR AQUIFER DRILLING & TESTING, INC.
 DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
 REMARKS _____

RESIDENT ENGINEER A. MODICA DATE 11 NOV 02

NOTES:

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- Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. To-2