



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

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WW-MW-01

GROUND SURFACE ELEVATION (FT): 21.55 LOCATION: Wythe Ave  
NORTHING (FT): 688406 EASTING (FT): 642399 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/16/2009 - 6/17/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 16.00 6/16/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	60/NM	0.4			WWW-01 (0.5-5)	(0'- 0.5') CONCRETE. (0.5'- 6.5') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; light brown, hand cleared from 0-5 ft.	
20	5	S2	60/39	1.3				(6.5'- 8.3') SANDY SILT (ML); ~60% fines, medium plasticity, ~40% sand, fine; slight organic-like odor, light brown.	
15	10	S3	60/46	1.2				(8.3'- 10') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight organic-like odor, light brown.	
10	15	S4	60/52	1.1			WWW-01 (16-17)	(10'- 13.9') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; light brown, soap-like odor.	
5	20							(13.9'- 14.5') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight sulfur-like odor, brown.	
								(14.5'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, fine to coarse, ~15% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5, gray, possible cobble.	
								(15'- 16.3') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, low plasticity; light brown.	
								(16.3'- 17.1') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, slight sulfur-like odor, gray.	
								(17.1'- 20') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, medium plasticity; brown.	

## NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR






CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 3 <b>WW-MW-01</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
20	0	S5	60/40	0.8				(20'- 20.9') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, medium plasticity; brown, ash, two pieces of 2 inch gravel at the top of sample. (20.9'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown.	
25	-5	S6	60/44	1.2				(25'- 28.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown.	
30	-10	S7	60/39	0.7		SLO		(28.4'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight sulfur-like odor, black. (30'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown, gravelly lens from 31.9 to 32.3 ft.	
35	-15	S8	60/40	0.5		OLO		(35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight organic-like odor, brown, light brown and orange colored layers, possible iron oxide staining.	
40	-20	S9	60/39	0.8				(40'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown.	
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS			
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)								
	45	S10	60/38	0.8								
-25												
	50	S11	60/40	1.4								
-30												
	55	S12	60/44	1.1								
-35												
	60	S13	60/39	0.9								
-40												
	65											
<b>WWW-01 (63-64)</b>								(50'- 52.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, low plasticity; light brown.  (52.1'- 54') SILTY SAND (SM); ~70% sand, fine, ~30% fines, low plasticity; light brown.  (54'- 55') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown. (55'- 56.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; light brown.  (56.8'- 57.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, low plasticity; light brown. (57.5'- 61.4') SILT (ML); ~80% fines, low plasticity, ~20% sand, fine; brown, interbeds of silty sand, similar to 52.1 to 54 ft.  (61.4'- 62.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; light brown.  (62.9'- 65') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish brown.				
End of Boring at 65 feet. Grouted												
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**BORING LOG**

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**WW-MW-02**

GROUND SURFACE ELEVATION (FT): 19.19 LOCATION: North 11th Street  
NORTHING (FT): 688484 EASTING (FT): 642129 TOTAL DEPTH (FT): 55.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Melissa Felter DATE START / END: 7/10/2009 - 7/13/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 12.00 7/10/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0								(0'- 2') CONCRETE.	
		S1	36/22	1.9				WWW-MW-02 (2-5)	(2'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines; ~5% to 10% brick and coal, dry, brown and gray, loose, hand cleared. FILL.	
	5	S2	60/25	0.6					(5'- 10') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines; ~5% to 10% brick and coal, dry to moist, brown and gray, loose. FILL.	
	10	S3	60/51						(10'- 12') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine, ~5% fines; ~5% brick and coal, moist, brown, loose. FILL.	
				224			PLO		(12'- 14') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine; slight petroleum-like odor, wet, gray, dense.	
	15	S4	60/48				PLO	WWW-MW-02 (15-17)	(14'- 17') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; moderate petroleum-like odor, wet, gray, loose, gray stained.	
				315					(17'- 20') SANDY SILT (ML); ~60% fines, ~35% sand, fine to coarse, ~5% gravel, fine; moist, reddish brown, dense.	
	20									

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ALO = ASPHALT LIKE ODOR

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/48	5.7	[Pattern]				(20'- 21.5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to medium, ~20% gravel, fine to coarse, ~10% fines; moist, brown and reddish brown, dense. (21.5'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; wet, brown, loose.	
	25	S6	60/51	7.8						
	30	S7	60/NM	14.2						
	35	S8	60/53	1.9	[Pattern]				(35'- 44') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines; wet, brown, lens of gravel at 37.5 feet.	
	40	S9	60/58	9.5						
	45									
	44.5								(44'- 44.5') WIDELY GRADED SAND (SW); ~95% sand,	



  

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		<b>PROJECT:</b> <u>Williamsburg MGP RI</u>			
		<b>CITY/STATE:</b> <u>Brooklyn, New York</u>		<b>PAGE</b> 3 of 3	<b>WW-MW-02</b>
		<b>GEI PROJECT NUMBER:</b> <u>093060</u>			

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	60/60	2.2					fine to medium, ~5% fines; wet, gray, loose. (44.5'- 45') SILT (ML); ~90% fines, ~10% sand, fine; moist, reddish brown, dense, layered. (45'- 50') SILT WITH SAND (ML); ~60% fines, ~40% sand, fine; moist, brownish gray, dense, non cohesive.	
	50	S11	60/60					WWW-02 (50-53)	(50'- 53') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines; wet, grayish brown, dense.	
	55								(53'- 55') SANDY LEAN CLAY (CL); moist, red and gray, very dense, cohesive.	

End of Boring at 55 feet.  
Grouted

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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**BORING LOG**

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**WW-MW-03**

GROUND SURFACE ELEVATION (FT): 13.99 LOCATION: North 12th Street  
NORTHING (FT): 688684 EASTING (FT): 642208 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/23/2009 - 6/26/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 13.00 6/23/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0	S1	24/NM					WWMW-03 (2-5)	(0'- 0.5') CONCRETE. (0.5'- 5.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, brown, dry, brick fragments, hand cleared from 0-5 ft. FILL.	
			36/22	0.0						
	5	S2	60/46	0.0					(5.5'- 9.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; light brown.	
	10	S3	60/47				OLO		(9.8'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate organic-like odor. (10'- 14.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; light brown.	
	15	S4	60/49	5.7			OLO		(14.1'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate organic-like odor. (15'- 15.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; light brown. (15.4'- 20') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, low plasticity; moderate organic-like odor, moist, brown, organics, roots.	
	20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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**BORING LOG**  
**WW-MW-03**  
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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/NM						(20'- 25') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, low plasticity; slight petroleum-like odor, wet, brown, organics, roots, lens of gray sand.	
				61.2			PLO			
	25	S6	60/38				NLO		(25'- 27.2') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, low plasticity; moderate naphthalene-like odor, wet, brown, organics, roots, sheen, moderate petroleum-like odor.	
				>9999			PLO	WWMW-03 (28-30)	(27.2'- 27.5') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, low plasticity; moderate petroleum-like odor, wet, brown, black staining.	
							NLO		(27.5'- 29.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown, tar-like staining with lenses of coating.	
	30	S7	60/35	777			NLO		(29.5'- 30') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, low plasticity; moderate naphthalene-like odor, moist, brown, organics, roots, sheen.	
							NLO		(30'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.	
	35	S8	60/60	161			NLO		(35'- 36.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.	
							PLO		(36.2'- 37.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, moist, brown.	
							PLO		(37.8'- 38.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, moist, brown, black staining.	
	40	S9	60/42	149			PLO		(38.2'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, moist, brown.	
							PLO		(40'- 41.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, moist, brown.	
							PLO		(41.2'- 43.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, moist, brown, sheen.	
	30						NLO		(43.1'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.	

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GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-MW-04**

GROUND SURFACE ELEVATION (FT): **13.34** LOCATION: **50 Kent Ave**  
NORTHING (FT): **688734** EASTING (FT): **642033** TOTAL DEPTH (FT): **65.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Maura MacLeod** DATE START / END: **6/14/2009 - 6/15/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 8.20 6/15/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0								(0'- 0.5') ASPHALT. (0.5'- 5') CONCRETE; ~80% concrete, ~20% medium to coarse gravel, hand cleared. FILL.	
	5	S1	60/17	37.1				WWMW-04 (5-10)	(5'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moist to wet, brown to gray.	
	10	S2	60/60	1635			PLO		(10'- 11.5') SILT WITH GRAVEL (ML); ~65% fines, low plasticity, ~20% gravel, fine to coarse, ~15% sand, fine to coarse; max. size 1, moderate petroleum-like odor, wet, black, sheen. (11.5'- 12.4') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, medium plasticity; moderate naphthalene-like odor, wet, gray. (12.4'- 15') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; moderate petroleum-like odor, wet, brown, gray, and black interbeds.	
	15	S3	60/40	1440			NLO		(15'- 15.8') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, brown, black staining, moderate fuel-like odor. (15.8'- 18.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight petroleum-like odor, brown, black petroleum-like staining. (18.5'- 20') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate petroleum-like odor,	
	20						PLO			

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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2 of 3

**WW-MW-04**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S4	60/40				PLO		brown and black, moderate fuel-like odor, tar-like staining. (20'- 21') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight petroleum-like odor, reddish brown, slight fuel-like odor.	
	-10			1795			NLO		(21'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, tar-like staining; moderate petroleum-like odor.	
	25	S5	60/39	7860			NLO		(25'- 27.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, tar-like staining.	
	-15						PLO		(27.1'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate petroleum-like odor, brown, tar-like staining.	
	30	S6	60/31	> 9999			NLO	WWW-04 (31-33)	(30'- 33.5') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating.	
	-20						NLO		(33.5'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, sheen.	
	35	S7	60/41				NLO		(35'- 36.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.	
	-25								(36.7'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.	
	40	S8	60/42	1845			NLO		(40'- 43.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.	
	-30								(43.8'- 45') WIDELY GRADED SAND (SW); ~95% sand,	

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FT. = FEET








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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-MW-04</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S9	60/31	58.5				<b>WWW-04 (58-59)</b>	fine to medium, ~5% fines, non plastic; brown. (45'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.	
						NLO				
	50	S10	60/43	78.9			NLO			
						NLO				
									(51.3'- 52.2') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight naphthalene-like odor, reddish brown.	
						NLO				
									(52.2'- 52.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.	
						NLO				
	55	S11	60/23	56.9				(52.9'- 56.7') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine to medium; slight naphthalene-like odor, brown.		
						NLO				
									(56.7'- 60') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.	
						NLO				
	60	S12	60/43	194				(60'- 65') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; slight naphthalene-like odor, red.		
						NLO				
	65	End of Boring at 65 feet. Grouted								

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL	ppm = PARTS PER MILLION	NLO = NAPHTHALENE LIKE ODOR	CrLo= CREOSOTE LIKE ODOR
REC = RECOVERY LENGTH OF SAMPLE	IN. = INCHES	PLO = PETROLEUM LIKE ODOR	OLO = ORGANIC LIKE ODOR
PID = PHOTOIONIZATION DETECTOR READING (PPM)	FT. = FEET	TLO = TAR LIKE ODOR	SLO = SULFUR LIKE ODOR
JHS = JAR HEADSPACE PID READING (PPM)		CLO = CHEMICAL LIKE ODOR	MLO = MUSTY LIKE ODOR
		ALO = ASPHALT LIKE ODOR	

NA = NOT APPLICABLE	Qp = POCKET PENETROMETER
NM = NOT MEASURED	Sv = TORVANE PEAK



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

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1 of 3

WW-MW-05

GROUND SURFACE ELEVATION (FT): 12.48 LOCATION: 50 Kent Ave  
NORTHING (FT): 688776 EASTING (FT): 641946 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/10/2009 - 6/11/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 10.00 6/10/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0	S1	60/NM	377				WWW-MW-05 (0.75-5)	(0'- 0.75') ASPHALT.	
10	5	S2	60/56	>9999			NLO		(0.75'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, dry, brown, hand cleared.	
5	5						NLO		(5'- 7.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, dry, brown, organics/wood fragments, lens of black color with sulfur/petroleum-like odor from 6.5 to 6.7 ft.	
5	7.4						NLO		(7.4'- 7.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, dry, brown, organics/wood fragments, sheen.	
10	7.9	S3	60/60	>9999			NLO		(7.9'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, dry, brown, organics/wood fragments.	
0	10						NLO	WWW-MW-05 (12-13)	(10'- 11.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, wet, brown, organics/wood fragments, sheen, tar-like blebs, faint sulfur-like odor.	
0	11.7						NLO		(11.7'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, wet, brown, organics/wood fragments, sheen with interbedded layers of tar-like staining and coating.	
15	15	S4	60/22	973			NLO		(15'- 16.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, brown, organics/wood fragments, sheen, tar-like staining.	
-5	16.4						NLO		(16.4'- 20') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight naphthalene-like odor, brown, organics/wood fragments.	
-20	20									

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FT. = FEET

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TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR


CrLO = CREOSOTE LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-MW-05</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	60/32				NLO		(45'- 48') SILTY SAND WITH GRAVEL (SM); ~40% fines, ~30% gravel, fine to coarse, ~30% sand, fine to medium; max. size 1, moderate naphthalene-like odor, brown.  (48'- 50') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25, strong naphthalene-like odor, brown with reddish brown, tar-like staining.  (50'- 50.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25, strong naphthalene-like odor, brown with reddish brown, tar-like staining. (50.9'- 51.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25, strong naphthalene-like odor, brown with reddish brown, tar-like coating. (51.5'- 53.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25, strong naphthalene-like odor, brown with reddish brown, tar-like staining. (53.2'- 54.9') SILT (ML); ~90% fines, ~5% gravel, fine, ~5% sand, fine; moderate naphthalene-like odor, brown gray, dense. (54.9'- 55') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25, strong naphthalene-like odor, brown with reddish brown. (55'- 60') SILT (ML); ~90% fines, ~5% gravel, fine, ~5% sand, fine; slight naphthalene-like odor, brown gray, dense.  (60'- 63.2') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.25, slight naphthalene-like odor, brown.  (63.2'- 65') LEAN CLAY (CL); ~95% fines, ~5% sand, fine; red and gray.	
							NLO			
				4673			NLO			
	50	S11	60/39				NLO			
				3595			NLO			
							NLO			
							NLO			
	55	S12	60/25				NLO			
				218			NLO			
							NLO			
	60	S13	60/31	10.4			NLO			
							NLO			
	65							WWW-05 (63-64)		
									End of Boring at 65 feet. Grouted	
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL      ppm = PARTS PER MILLION      NLO = NAPHTHALENE LIKE ODOR      ClLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE      IN. = INCHES      PLO = PETROLEUM LIKE ODOR      OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)      FT. = FEET      TLO = TAR LIKE ODOR      SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)      ALO = ASPHALT LIKE ODOR NA = NOT APPLICABLE      Qp = POCKET PENETROMETER NM = NOT MEASURED      Sv = TORVANE PEAK										





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455 Winding Brook Road  
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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-MW-06

GROUND SURFACE ELEVATION (FT): 12.23 LOCATION: North 11th Street  
NORTHING (FT): 688730 EASTING (FT): 641824 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/17/2009 - 6/18/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 2.50 6/17/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0	S1	60/NM	0.4				WWW-MW-06 (0.5-1.5)	(0'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, brown, hand cleared.	
5	5	S2	60/60				NLO		(5'- 6.5') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, brown.	
5	5			581			NLO		(6.5'- 10') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, brown, black stained interbeds, lenses of petroleum-like odor.	
10	10	S3	60/51				NLO		(10'- 11') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, brown, sheen.	
0	0			1601			NLO		(11'- 13') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like blebs, staining, and pockets of coating.	
15	15	S4	60/36				PLO		(13'- 14.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating.	
-5	-5			3194			NLO		(14.4'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong petroleum-like odor, black, sheen, black petroleum-like staining.	
-5	-5						NLO		(15'- 15.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, moderate petroleum and sulfur-like odor.	
-20	-20						OLO		(15.6'- 17.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating.	
-20	-20						OLO		(17.1'- 18.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong	

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13







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 455 Winding Brook Road  
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 (860) 368-5300

CLIENT: **National Grid**  
 PROJECT: **Williamsburg MGP RI**  
 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG

PAGE 3 of 3  
 WW-MW-06

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	60/16	9316			NLO		(45'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like staining.	
	-35						NLO			
	50	S11	60/50	>9999				WWMW-06 (50-52)	(50'- 54') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, lens of fine sand from 53.3 to 53.6 ft, tar-like coating.	
	-40						NLO			
	55	S12	60/27				NLO		(54'- 55') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; strong naphthalene-like odor, brown. (55'- 57.6') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; moderate naphthalene-like odor, brown.	
	-45						NLO			
				94.9			NLO	WWMW-06 (58-60)	(57.6'- 59.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown. (59.1'- 59.8') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; moderate naphthalene-like odor, brown. (59.8'- 60') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; moderate naphthalene-like odor, reddish brown. (60'- 65') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish brown.	
	60	S13	60/27	0.0			NLO			
	-50						NLO			
	65								End of Boring at 65 feet. Grouted	

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CrLO= CREOSOTE LIKE ODOR  
 OLO = ORGANIC LIKE ODOR  
 SLO = SULFUR LIKE ODOR  
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 NM = NOT MEASURED

Q<sub>p</sub> = POCKET PENETROMETER  
 S<sub>v</sub> = TORVANE PEAK



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**BORING LOG**

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**WW-MW-07**

GROUND SURFACE ELEVATION (FT): 10.69 LOCATION: North 12th Street  
NORTHING (FT): 688890 EASTING (FT): 641971 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/22/2009 - 6/23/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 4.00 6/22/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0	S1	60/NM	2.3				WWMW-07 (4-5)	(0'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max size 0.5, wet, brown, hand cleared.	
10	5	S2	60/0						(5'- 10') no recovery.	
5	10	S3	60/0						(10'- 15') no recovery.	
0	15	S4	60/60						(15'- 16.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, medium plasticity; moderate naphthalene-like odor, wet, gray, sheen.	
-5							NLO		(16.8'- 19.1') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, medium plasticity; moderate naphthalene-like odor, gray, lens of widely graded sand from 17.6 to 17.8 ft, tar-like staining, moderate petroleum-like odor.	
							NLO		(19.1'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, medium plasticity; strong	
	20			> 9999			NLO			

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-MW-07**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
-10	20	S5	60/20	3372	[Pattern]		NLO		naphthalene-like odor, wet, gray, sheen, tar-like staining. (20'- 20.5') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, dense. (20.5'- 20.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, dense, tar-like staining. (20.8'- 21.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, dense. (21.8'- 22') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, dense, tar-like staining. (22'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, dense. (25'- 30') WIDELY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to coarse, ~10% fines, medium plasticity, ~5% gravel, fine; max. size 0.5, brown, dense, slight solvent/ burnt-like odor. (30'- 31.9') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% fines, medium plasticity, ~5% gravel, fine; max. size 0.5, moderate naphthalene-like odor, brown, dense. (31.9'- 35') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, slight naphthalene-like odor, brown. (35'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, brown.	
							NLO			
							NLO			
							NLO			
-15	25	S6	60/56	784	[Pattern]					
-20	30	S7	60/56	1982	[Pattern]		NLO			
							NLO			
-25	35	S8	60/NM	565	[Pattern]					
-30	40	S9	60/NM	401	[Pattern]					

**NOTES:**

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FT. = FEET

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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

GEI Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>			BORING LOG PAGE 3 of 3 <b>WW-MW-07</b>		
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	60/53	> 9999			NLO		(45'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, strong petroleum-like odor from 46.3 to 49.4 ft, tar-like staining.	
							NLO	WWW-MW-07 (48.5-49.5)		
	50	S11	60/46	1269			NLO			(49.2'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown. (50'- 52.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, moderate petroleum-like odor.
							NLO		(52.8'- 54.1') SILTY SAND (SM); ~85% sand, fine, ~15% fines, medium plasticity; slight naphthalene-like odor, brown, slight petroleum-like odor.	
							NLO		(54.1'- 54.3') WIDELY GRADED SAND (SW); fine to coarse; moderate naphthalene-like odor, brown, moderate petroleum-like odor.	
	55	S12	60/48	0.0			NLO		(54.3'- 55') SILTY SAND (SM); ~85% sand, fine, ~15% fines, medium plasticity; slight naphthalene-like odor, brown, slight petroleum-like odor.	
							NLO		(55'- 57.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, slight petroleum-like odor.	
							PLO		(57.1'- 59.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, wet, brown.	
	60							WWW-MW-07 (59-60)	(59.6'- 59.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, slight solvent-like odor. (59.8'- 60') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red gray. End of Boring at 60 feet. Grouted	

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ppm = PARTS PER MILLION  
 IN. = INCHES  
 FT. = FEET

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 PLO = PETROLEUM LIKE ODOR  
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 ALO = ASPHALT LIKE ODOR

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 OLO = ORGANIC LIKE ODOR  
 SLO = SULFUR LIKE ODOR  
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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-MW-08**

GROUND SURFACE ELEVATION (FT): **9.93** LOCATION: **North 11th Street**  
NORTHING (FT): **688854** EASTING (FT): **641671** TOTAL DEPTH (FT): **50.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Maura MacLeod** DATE START / END: **6/19/2009 - 6/19/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 2.00 6/19/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0		24/NM						(0'- 2') hand cleared f. FILL.	
		S1	36/19	540			NLO	WWMW-08 (2-5)	(2'- 3.9') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, brown, brick fragments, hand cleared. FILL.	
							PLO		(3.9'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate petroleum-like odor, brown, black staining, hand cleared.	
5	5	S2	60/50				NLO		(5'- 7') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, brown, black staining from 5 to 5.9 ft, wood fragments from 6.8 to 7 ft, moderate petroleum-like odor.	
				3038			NLO	WWMW-08 (7.5-8.5)	(7'- 7.6') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, brown, petroleum-like odor.	
							NLO		(7.6'- 8.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like saturation, petroleum-like odor.	
0	10	S3	60/0						(8.6'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, brown.	
									(10'- 15') No Recovery.	
-5	15	S4	60/32	197					(15'- 15.5') SILTY SAND (SM); black.	
							NLO		(15.5'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown.	
	20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 3 <b>WW-MW-08</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/19	221	[Pattern]		NLO		(20'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown, color change at 22.9 ft to brown.  (25'- 25.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown. (25.8'- 26.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown. (26.4'- 26.7') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish brown, 0.5 inch of widely graded fine to medium sand lens. (26.7'- 27.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown. (27.3'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, color change at 28.9 ft to blackish brown. (30'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown, silty lenses up to 0.5 inch throughout sample.  (35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; light brown and brown, silty lenses up to 1 inch throughout sample, varved clay from 36.7 to 37 ft.  (40'- 40.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown. (40.7'- 45') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red, gray silt varves, 2 inches of the clay has ~30% fine sand content.	
	25	S6	60/33	56.2			NLO			
							NLO			
							NLO			
	30	S7	60/32	178	[Pattern]		NLO		(40'- 40.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown. (40.7'- 45') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red, gray silt varves, 2 inches of the clay has ~30% fine sand content.	
							NLO			
	35	S8	60/32	0.1	[Pattern]					
	40	S9	60/23		[Pattern]		NLO	WWMW-08 (40-45)		
					[Pattern]					


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 JHS = JAR HEADSPACE PID READING (PPM)

NA = NOT APPLICABLE      Q<sub>p</sub> = POCKET PENETROMETER  
 NM = NOT MEASURED      S<sub>v</sub> = TORVANE PEAK

NLO = NAPHTHALENE LIKE ODOR      CrLO = CREOSOTE LIKE ODOR  
 PLO = PETROLEUM LIKE ODOR      OLO = ORGANIC LIKE ODOR  
 TLO = TAR LIKE ODOR      SLO = SULFUR LIKE ODOR  
 CLO = CHEMICAL LIKE ODOR      MLO = MUSTY LIKE ODOR  
 ALO = ASPHALT LIKE ODOR



 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		BORING LOG  <b>WW-MW-08</b>						
		PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>				PAGE 3 of 3				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
-35	45	S10	60/19						(45'- 50') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red, gray silt varves, higher silt content 5 to 15 inches.	
-40	50								End of Boring at 50 feet. Grouted	
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK										





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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

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WW-MW-10

GROUND SURFACE ELEVATION (FT): 8.07 LOCATION: North 12th Street  
NORTHING (FT): 689119 EASTING (FT): 641686 TOTAL DEPTH (FT): 49.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/8/2009 - 9/9/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/8/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0	S1	60/NM						(0'- 0.5') ASPHALT. (0.5'- 2') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, dry, brown, hand cleared. (2'- 4') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, dry, light brown, hand cleared.	
	5			62.6				WWMW-10 (4-5)	(4'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown, sheen, tar-like blebs, black staining, moderate petroleum-like odor, hand cleared. (5'- 7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, gray brown, sheen, slight petroleum-like odor. (7'- 8.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, gray brown, sheen, tar-like blebs, slight petroleum-like odor. (8.9'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, gray brown, sheen, slight petroleum-like odor. (10'- 12.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, sheen and tar-like blebs, slight petroleum-like odor. (12.2'- 18.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown, slightly silty lenses.	
	5	S2	60/38	253			NLO			
							NLO			
	0						NLO			
	10	S3	60/54	119			NLO	WWMW-10 (10-11.5)		
							NLO			
	-5									
	15	S4	60/55	11.3						
	-10									
	20								(18.5'- 18.8') SILTY SAND (SM); ~70% sand, fine, ~30% fines, low plasticity; moist, brown. (18.8'- 19.1') SANDY SILT (ML); ~70% fines, low	

## NOTES:

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FT. = FEET

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PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-MW-10**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/40		[Pattern]				plasticity, ~30% sand, fine; moist, black. (19.1'- 20') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine; max. size 0.5, moist, brown. (20'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, loose, slight burnt-like odor.	
	-15			51.7			NLO			
	25	S6	60/27						(25'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, loose, slight burnt-like odor.	
	-20			65.9			NLO			
	30	S7	60/35		[Pattern]				(30'- 35') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, moist, brown, dense, slight petroleum-like odor.	
	-25			69.6			NLO			
	35	S8	60/41	36.1			NLO		(35'- 35.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.	
	-30						NLO		(35.7'- 37') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, moist, brown, dense. (37'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown.	
	40	S9	60/44	9.0	[Pattern]					
	-35									

**NOTES:**

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REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE  
NM = NOT MEASURED  
Q<sub>p</sub> = POCKET PENETROMETER  
S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>			BORING LOG PAGE 3 of 3 <b>WW-MW-10</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	48/45	6.2			NLO		(45'- 49') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.	
	40									
End of Boring at 49 feet. Refusal at 49 feet. Grouted										
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK										



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

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WW-MW-11

GROUND SURFACE ELEVATION (FT): 9.20 LOCATION: North 11th Street  
NORTHING (FT): 688957 EASTING (FT): 641530 TOTAL DEPTH (FT): 45.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/21/2009 - 8/25/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 8/21/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0	S1	60/NM						(0'- 0.2') ASPHALT. (0.2'- 2.3') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine, ~15% gravel, fine, ~10% fines, non plastic; ~40% concrete fragments up to 4 inches, max. size 0.5, dry, olive brown, hand cleared. FILL. (2.3'- 5') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, fine to coarse, ~40% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5, moist, gray to black, hand cleared. FILL.	
	5	S2	60/37	35.0				WWW-MW-11 (3-5)	(5'- 6.4') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, slight naphthalene-like odor, brown black, coal and brick fragments. FILL. (6.4'- 8.8') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, slight naphthalene-like odor, moist, brown black, coal and brick fragments, sheen. FILL. (8.8'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, moist, brown black, coal and brick fragments, tar-like staining. FILL. (10'- 14') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, black, coal fragments, sheen, tar-like staining.	
	10	S3	60/29	479				WWW-MW-11 (11-14)	(14'- 15') SILT (ML); ~90% fines, low plasticity, ~10% sand, fine; moderate naphthalene-like odor, moist, black, tar-like staining, slight petroleum-like odor. (15'- 16.7') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, black, coal fragments, sheen, tar-like staining. (16.7'- 18.4') SILT (ML); ~90% fines, low plasticity, ~10% sand, fine; slight naphthalene-like odor, moist, black, tar-like staining, slight petroleum-like odor. (18.4'- 20') SILT (ML); ~90% fines, low plasticity, ~10% sand, fine; moist, gray.	
	15	S4	60/47	608						
	20			5.6						

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JHS = JAR HEADSPACE PID READING (PPM)

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IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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CLO = CHEMICAL LIKE ODOR  
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CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Qp = POCKET PENETROMETER  
NM = NOT MEASURED Sv = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-MW-11**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/61				NLO		(20'- 20.7') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, black, coal fragments, sheen, tar-like staining. (20.7'- 22.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, low plasticity; slight naphthalene-like odor, moist, brown, gray petroleum-like staining, moderate petroleum-like odor. (22.2'- 27.4') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, wet, brown, loose.  (27.4'- 30') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, wet, brown, dense.  (30'- 35') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2.5, moist, brown.  (35'- 40') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, wet, brown, dense.  (40'- 45') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight naphthalene-like odor, reddish gray.	
				4.3			NLO			
	25	S6	60/40	0.3						
	30	S7	60/NM	0.2						
	35	S8	60/13							
				0.1						
	40	S9	60/59	0.3				WWMW-11 (39-40)		
							NLO			
	45									

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NA = NOT APPLICABLE      Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED      S<sub>v</sub> = TORVANE PEAK

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>			BORING LOG			
				PROJECT: <u>Williamsburg MGP RI</u>			PAGE 3 of 3			
CITY/STATE: <u>Brooklyn, New York</u>			GEI PROJECT NUMBER: <u>093060</u>			WW-MW-11				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45						NLO		End of Boring at 45 feet. Grouted	
<p><b>NOTES:</b></p> <div> <div> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  REC = RECOVERY LENGTH OF SAMPLE  PID = PHOTOIONIZATION DETECTOR READING (PPM)  JHS = JAR HEADSPACE PID READING (PPM) </div> <div> ppm = PARTS PER MILLION  IN. = INCHES  FT. = FEET </div> <div> NLO = NAPHTHALENE LIKE ODOR  PLO = PETROLEUM LIKE ODOR  TLO = TAR LIKE ODOR  CLO = CHEMICAL LIKE ODOR  ALO = ASPHALT LIKE ODOR </div> <div> CrLO= CREOSOTE LIKE ODOR  OLO = ORGANIC LIKE ODOR  SLO = SULFUR LIKE ODOR  MLO = MUSTY LIKE ODOR </div> </div> <div> NA = NOT APPLICABLE  NM = NOT MEASURED </div> <div> Q<sub>p</sub> = POCKET PENETROMETER  S<sub>v</sub> = TORVANE PEAK </div>										



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PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 2

**WW-MW-12**

GROUND SURFACE ELEVATION (FT): 7.89 LOCATION: North 11th Street  
NORTHING (FT): 689011 EASTING (FT): 641395 TOTAL DEPTH (FT): 40.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/28/2009 - 8/31/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 10.00 8/31/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0	S1	60/NM	0.1				WWW-12 (0.5-3)	(0'- 0.5') CONCRETE. (0.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, dry, brown, hand cleared. FILL.	
	5									
	5	S2	60/41						(5'- 10') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75, dry, brown, brick and coal fragments. FILL.	
	0						NLO		(7.7'- 8.2') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, ~40% sand, ~5% fines, non plastic; max. size 1.25, slight naphthalene-like odor, dry, brown gray.	
	10	S3	60/11	464			NLO	WWW-12 (9-10)	(8.2'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, ~40% sand, ~5% fines, non plastic; max. size 1.25, moderate naphthalene-like odor, wet, brown gray, sheen. (10'- 17.4') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, brown black, moderate petroleum-like odor.	
	-5						NLO			
	15	S4	60/57	1472						
	-10						NLO		(17.4'- 20') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight naphthalene-like odor, moist, slight petroleum-like odor.	
	20									

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IN. = INCHES  
FT. = FEET

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TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 2

**WW-MW-12**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/36	787			NLO		(20'- 22.2') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, brown black, moderate petroleum-like odor.	
	-15								(22.2'- 25') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75, moist, light brown.	
	25	S6	60/57	14.4			NLO		(25'- 30') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75, slight naphthalene-like odor, moist, light brown, slight petroleum-like odor.	
	-20									
	30	S7	60/47	28.1			PLO		(30'- 35') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75, slight petroleum-like odor, moist, light brown.	
	-25									
	35	S8	60/38	215			NLO		(35'- 40') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75, slight naphthalene-like odor, moist, light brown, slight petroleum-like odor.	
	-30									
	40								End of Boring at 40 feet. Refusal at 40 feet. Grouted	

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GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-MW-13

GROUND SURFACE ELEVATION (FT): 7.07 LOCATION: North 12th Street  
NORTHING (FT): 689224 EASTING (FT): 641557 TOTAL DEPTH (FT): 58.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/15/2009 - 9/15/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/15/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0		S1	60/24						(0'- 0.5') CONCRETE.	
5				21.9				WWMW-13 (2-5)	(0.5'- 2.7') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, dry, brown, hand cleared. FILL.	
5		S2	60/19	3008			NLO	WWMW-13 (5-10)	(2.7'- 5') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight naphthalene-like odor, moist, black, coal fragments, petroleum-like staining, moderate petroleum-like odor, hand cleared. FILL.	
0							NLO		(5'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2, strong naphthalene-like odor, wet, black, brick, coal, organic fragments, tar-like staining, pockets of coating. FILL.	
10		S3	60/29	2463			NLO		(10'- 12.9') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, fine to coarse, ~15% sand, fine to coarse, ~5% fines, non plastic; max. size 2, moderate naphthalene-like odor, wet, black, coal and brick fragments, tar-like staining and blebs. FILL.	
-5							NLO		(12.9'- 15') SILT WITH SAND (ML); ~80% fines, medium plasticity, ~20% sand, fine; slight naphthalene-like odor, moist, black, lens of organics, moderate petroleum-like odor.	
15		S4	60/22	377			NLO		(15'- 16.8') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, brown, pockets of petroleum-like staining, moderate petroleum-like odor.	
-10							NLO		(16.8'- 17.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, brown, pockets of tar-like coating, moderate petroleum-like odor.	
-20							NLO		(17.5'- 20') SILTY SAND (ML); ~80% sand, fine to	

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IN. = INCHES  
FT. = FEET








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PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
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CrLO = CREOSOTE LIKE ODOR  
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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 3 <b>WW-MW-13</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/37	518			NLO		coarse, ~15% fines, low plasticity, ~5% gravel, fine to coarse; max. size 1, slight naphthalene-like odor, moist, brown, slight petroleum-like odor. (20'- 22.7') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, moist, brown, sheen and tar-like staining. (22.7'- 25') SILTY SAND (ML); ~80% sand, fine to coarse, ~15% fines, low plasticity, ~5% gravel, fine to coarse; max. size 1, slight naphthalene-like odor, moist, brown, slight petroleum-like odor.	
	-15						NLO			
	25	S6	60/35	52.9			NLO		(25'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, reddish brown.	
	-20									
	30	S7	60/43	114					(30'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.	
	-25									
	35	S8	60/43	99.8			NLO			
	-30									
	40	S9	60/35	24.2						
	-35									


**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL	ppm = PARTS PER MILLION	NLO = NAPHTHALENE LIKE ODOR	CrLO= CREOSOTE LIKE ODOR
REC = RECOVERY LENGTH OF SAMPLE	IN. = INCHES	PLO = PETROLEUM LIKE ODOR	OLO = ORGANIC LIKE ODOR
PID = PHOTOIONIZATION DETECTOR READING (PPM)	FT. = FEET	TLO = TAR LIKE ODOR	SLO = SULFUR LIKE ODOR
JHS = JAR HEADSPACE PID READING (PPM)		CLO = CHEMICAL LIKE ODOR	MLO = MUSTY LIKE ODOR
		ALO = ASPHALT LIKE ODOR	

NA = NOT APPLICABLE	Q <sub>p</sub> = POCKET PENETROMETER
NM = NOT MEASURED	S <sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG  <b>WW-MW-13</b>						
		PAGE 3 of 3								
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	60/43	50.7	[Pattern]		NLO		(45'- 58') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, reddish brown.	
	50	S11	60/38	207			NLO			
	55	S12	36/NM							
	-50								End of Boring at 58 feet. Refusal at 58 feet. Grouted	
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK										



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455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-MW-14**

GROUND SURFACE ELEVATION (FT): 6.75 LOCATION: North 11th Street  
NORTHING (FT): 689121 EASTING (FT): 641313 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/1/2009 - 9/2/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/1/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0								(0'- 0.5') ASPHALT.	
		S1	54/12						(0.5'- 1.7') wood fragments, hand cleared. FILL.	
	5			5.0				WWW-14 (3-5)	(1.7'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, dry, blackish brown, wood fragments, hand cleared. FILL.	
	5	S2	60/20						(5'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, wet to moist, brown, brick fragments. FILL.	
	0			15.8						
	10	S3	60/25	4.4					(10'- 15') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight naphthalene-like odor, wet, brown, brick fragments. FILL.	
	-5						NLO			
	15	S4	60/33						(15'- 16.7') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight naphthalene-like odor, wet, brown, brick fragments, sheen, slight petroleum-like odor. FILL.	
	-10						NLO		(16.7'- 17.3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~50% sand, fine to coarse, ~40% gravel, fine to coarse, ~10% fines, non plastic; max. size 1.5, slight naphthalene-like odor, wet, black, organics, wood, and root fragments, sheen, slight petroleum-like odor.	
	-10						NLO			
	20			578						

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET


NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>			BORING LOG PAGE 2 of 3 <b>WW-MW-14</b>			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/46	973			NLO	WWMW-14 (36-37)	(17.3'- 20') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~50% sand, fine to coarse, ~40% gravel, fine to coarse, ~10% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, wet, black, organics, wood, and root fragments, sheen, slight petroleum-like odor. (20'- 22.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, wet, black, tar-like coating, slight petroleum-like odor. (22.2'- 25') SANDY ORGANIC SOIL (OL); ~60% fines, low plasticity, ~40% sand, fine; moderate naphthalene-like odor, moist, black, organics, roots, wood fragments, tar-like staining, slight petroleum-like odor. (25'- 26.6') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight naphthalene-like odor, wet, brown, brick fragments, slight petroleum-like odor. (26.6'- 28.6') SANDY ORGANIC SOIL (OL); ~60% fines, low plasticity, ~40% sand, fine; moderate naphthalene-like odor, moist, black, organics, roots, wood fragments, tar-like staining, slight petroleum-like odor. (28.6'- 28.8') WIDELY GRADED SAND (SW); tar-like coating. (28.8'- 29.1') SANDY ORGANIC SOIL (OL); ~60% fines, low plasticity, ~40% sand, fine; moderate naphthalene-like odor, moist, black, organics, roots, wood fragments, tar-like staining, slight petroleum-like odor. (29.1'- 30') ORGANIC SOIL WITH SAND (OL); ~80% fines, low plasticity, ~20% sand, fine; moderate naphthalene-like odor, moist, black, organics, roots, wood fragments, tar-like staining, slight petroleum-like odor. (30'- 32.1') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, slight petroleum-like odor. (32.1'- 33.9') SILTY SAND (SM); ~75% sand, fine to medium, ~20% fines, non plastic, ~5% gravel, fine; max. size 0.25, slight naphthalene-like odor, brown, lenses of silt and white burnt-like material, slight petroleum-like odor. (33.9'- 35') SILT (ML); ~90% fines, low plasticity, slow dilatancy, ~10% sand, fine; slight naphthalene-like odor, wet, gray, slight petroleum-like odor. (35'- 36.6') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.5, strong naphthalene-like odor, black, tar-like coating, slight petroleum-like odor. (36.6'- 36.9') SLIT (ML); gray. (36.9'- 40') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to medium, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, slight naphthalene-like odor, wet, gray, slight petroleum-like odor. (40'- 42.1') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to medium, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, slight naphthalene-like odor, wet, gray, silty lenses, tar-like	
-15							NLO			
	25	S6	60/55	1345			NLO			
-20							NLO			
							NLO			
	30	S7	60/33	348			NLO			
-25							NLO			
							NLO			
	35	S8	60/35	1313			NLO			
-30							NLO			
							NLO			
	40	S9	60/56	1044			NLO			
-35							NLO			
							NLO			
							NLO			

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLo= CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE  
NM = NOT MEASURED

Q<sub>p</sub> = POCKET PENETROMETER  
S<sub>v</sub> = TORVANE PEAK

## NOTES:

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 FT. = FEET

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 TLO = TAR LIKE ODOR  
 CLO = CHEMICAL LIKE ODOR  
 ALO = ASPHALT LIKE ODOR

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 OLO = ORGANIC LIKE ODOR  
 SLO = SULFUR LIKE ODOR  
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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT - 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid		<b>BORING LOG</b>				
				<b>PROJECT:</b> Williamsburg MGP RI		<b>PAGE</b> 3 of 3				
		<b>CITY/STATE:</b> Brooklyn, New York		<b>GEI PROJECT NUMBER:</b> 093060		<b>WW-MW-14</b>				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	45	S10	60/54				NLO	<b>WWMW-14 (55-57)</b>	coating, slight petroleum-like odor. (42.1'- 43.9') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, ~10% fines, non plastic; max. size 1.25, moderate naphthalene-like odor, wet, brown, sheen, tar-like blebs, slight petroleum-like odor. (43.9'- 47.9') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown. (47.9'- 50') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moist, brown. (50'- 54.8') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine to coarse; max. size 1, slight naphthalene-like odor, moist, brown, slight petroleum-like odor.	
	50	S11	60/43							
	55	S12	60/53	55.3						
	60						NLO		(54.8'- 55') SANDY LEAN CLAY (CL); ~70% fines, medium plasticity, ~30% sand, fine; moist, reddish brown. (55'- 57') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75, slight naphthalene-like odor, moist, brown, lenses of clay, slight petroleum-like odor. (57'- 60') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight naphthalene-like odor, moist, reddish gray, lens of sand, slight petroleum-like odor.	
									End of Boring at 60 feet. Grouted	
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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-MW-15**

GROUND SURFACE ELEVATION (FT): 6.35 LOCATION: North 12th Street  
NORTHING (FT): 689377 EASTING (FT): 641365 TOTAL DEPTH (FT): 21.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/24/2009 - 9/29/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 6.50 9/28/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0	S1	60/NM					WWW-MW-15 (1-4)	(0'- 0.5') CONCRETE.	
5				323					(0.5'- 1.5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, dry, brown, hand cleared. FILL.	
							NLO		(1.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, ~20% gravel, ~5% fines, non plastic; max. size 2, slight naphthalene-like odor, moist, brown, pockets of petroleum-like staining, moderate petroleum-like odor, hand cleared. FILL.	
5		S2	60/27						(5'- 6.5') slight petroleum-like odor, wood fragments. FILL.	
0							PLO			
				1927			NLO		(6.5'- 10') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, wet, black, wood fragments, moderate petroleum-like odor, strong organic-like odor. FILL.	
10		S3	60/54					WWW-MW-15 (12-13)	(10'- 13.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, wet, brown black, wood fragments, moderate petroleum and organic-like odor. FILL.	
-5				3102			NLO			
							NLO		(13.1'- 13.9') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines; max. size 1, slight naphthalene-like odor, wet, gray, slight petroleum-like odor, moderate organic-like odor. FILL.	
15		S4	60/53						(13.9'- 15') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, low plasticity; moderate naphthalene-like odor, moist, black, organics, moderate tar-like staining, moderate petroleum-like staining and odor. FILL.	
-10				1437			NLO		(15'- 17.2') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, wet, gray, wood fragments, moderate petroleum-like odor, strong organic-like odor. FILL.	
							NLO		(17.2'- 18.3') SILTY SAND (SM); ~70% sand, fine to	
20										

**NOTES:**


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 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 2 <b>WW-MW-15</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	12/54	1015			NLO NLO		coarse, ~30% fines, low plasticity; moderate naphthalene-like odor, moist, black, organics, moderate tar-like staining, moderate petroleum-like odor. FILL. (18.3'- 20') SANDY SILT (ML); ~70% fines, medium plasticity, ~30% sand, fine; moderate naphthalene-like odor, moist, black, moderate petroleum-like odor. FILL. (20'- 20.4') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, moist, black, moderate petroleum-like odor. FILL. (20.4'- 20.8') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, low plasticity; moderate naphthalene-like odor, moist, black, organics, moderate tar-like staining, moderate petroleum-like staining and odor. FILL. (20.8'- 21') wood fragments. FILL. End of Boring at 21 feet. Refusal at 21 feet. Grouted	
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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-MW-16

GROUND SURFACE ELEVATION (FT): 9.99 LOCATION: Kent Ave  
NORTHING (FT): 688980 EASTING (FT): 642266 TOTAL DEPTH (FT): 52.5  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 7/27/2009 - 8/11/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.60 8/10/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	0	S1	60/NM	1.3				WWMW-16 (2-3.5)	(0'- 0.9') CONCRETE.	
									(0.9'- 2') SILTY GRAVEL WITH SAND (GM); ~50% gravel, fine to coarse, subangular, ~35% sand, fine to coarse, ~15% fines, non plastic; max. size 2.5, moist, dark brown, concrete, brick fragments, and cobbles, hand cleared. FILL.	
									(2'- 3.5') SILTY SAND WITH GRAVEL (SM); ~55% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~20% fines, non plastic; max. size 1.5, moist, brown to dark brown, coal and brick fragments, hand cleared. FILL.	
									(3.5'- 5') SILTY SAND (SM); ~60% sand, fine to medium, ~30% fines, non plastic, ~10% gravel, fine, subangular; max. size 0.75, moist, brown to dark brown, hand cleared.	
	5	S2	60/57	4843			PLO		(5'- 5.6') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines, non plastic; max. size 1, dry, brown.	
									(5.6'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate petroleum-like odor, wet, brown.	
	10	S3	60/47	3520			PLO		(10'- 10.9') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75, moderate petroleum-like odor, wet, brown, sheen.	
									(10.9'- 12.2') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; wet, brown, sheen.	
							PLO		(12.2'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, wet, brown.	
	15	S4	60/62	65.6			PLO		(15'- 18.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, wet, brown, silty sand lenses from 16.6 to 17.6 ft.	
									(18.3'- 20') SANDY ORGANIC SOIL (OL); ~60% fines, low plasticity, ~40% sand, fine; moderate organic-like odor, moist, brown black, organics, roots, seeds, plant matter.	
	20						OLO			

## NOTES:

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REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
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CLO = CHEMICAL LIKE ODOR  
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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

GEI Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>			BORING LOG	
				PROJECT: <u>Williamsburg MGP RI</u>			PAGE 2 of 3	WW-MW-16
CITY/STATE: <u>Brooklyn, New York</u>								
GEI PROJECT NUMBER: <u>093060</u>								

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS	
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)							
	20	S5	60/58	8564			PLO	WWMW-16 (20-21)	(20'- 20.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate petroleum-like odor, wet, brown. (20.9'- 22') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, wet, brown. (22'- 22.8') SANDY ORGANIC SOIL (OL); ~60% fines, low plasticity, ~40% sand, fine; moderate organic-like odor, moist, brown black, organics, roots, seeds, plant matter. (22.8'- 23.6') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight petroleum-like odor, moist, gray. (23.6'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, reddish gray. (25'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, gray, slight fruit-like, possibly petroleum odor.		
	PLO										
	OLO										
	PLO										
	PLO										
-15	25	S6	60/54	81.2				WWMW-16 (38-40)	(30'- 31.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, loose, moderate fruit-like, possibly petroleum odor. (31.2'- 31.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine; max. size 0.5, moist, brown, silty seams, fruit-like, possibly petroleum odor. (31.8'- 32.9') LEAN CLAY (CL); ~70% fines, medium plasticity, ~30% sand, fine; reddish gray, slight fruit-like, possibly petroleum odor. (32.9'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, slight fruit-like, possibly petroleum odor. (35'- 37.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, gray, slight fruit-like, possibly petroleum odor.  (37.4'- 40') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, brown, slight fruit-like, possibly petroleum odor.		
-20	30	S7	60/59	0.8				WWMW-16 (38-40)	(40'- 48.1') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; brown, dense, slight fruit-like, possibly petroleum odor.		
-25	35	S8	60/46	5.7				WWMW-16 (38-40)	(40'- 48.1') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; brown, dense, slight fruit-like, possibly petroleum odor.		
-30	40	S9	60/62	12.7				WWMW-16 (38-40)	(40'- 48.1') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; brown, dense, slight fruit-like, possibly petroleum odor.		

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION

IN. = INCHES

FT. = FEET

NLO = NAPHTHALENE LIKE ODOR

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SLO = SULFUR LIKE ODOR

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NA = NOT APPLICABLE

NM = NOT MEASURED

Qp = POCKET PENETROMETER

Sv = TORVANE PEAK

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 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>			BORING LOG PAGE 3 of 3 <b>WW-MW-16</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
-35	45	S10	60/60	4.2					(48.1'- 52.5') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown, slight fruit-like, possibly petroleum odor.	
-40	50	S11	30/51							
End of Boring at 52.5 feet. Refusal at 52.5 feet. Grouted										
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK										



GEI Consultants, Inc.  
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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-MW-17

GROUND SURFACE ELEVATION (FT): 11.62 LOCATION: 50 Kent Ave  
NORTHING (FT): 688917 EASTING (FT): 641758 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/8/2009 - 6/9/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0	S1	60/NM	2.1				WWW-MW-17 (1-2)	(0'- 0.33') CONCRETE. (0.3'- 5') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; brown, hand cleared.	
10	5	S2	60/24				NLO	WWW-MW-17 (7-8)	(5'- 8.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max size 2, slight naphthalene-like odor, brown.	
5				868			NLO		(8.3'- 10') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max size 2, moderate naphthalene-like odor, brown, sheen, tar-like staining.	
10		S3	60/49	349			NLO		(10'- 12.9') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2, slight naphthalene-like odor, brown, sand and gravel lenses.	
0									(12.9'- 15') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2, brown, sand and gravel lenses.	
15		S4	60/45	1281			NLO		(15'- 15.2') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2, slight naphthalene-like odor, black, organics.	
-5							NLO		(15.2'- 15.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2, slight naphthalene-like odor, black, organics, tar-like coating.	
							NLO		(15.3'- 17') SILTY SAND (SM); ~80% sand, ~15% fines, non plastic, ~5% gravel; max. size 2, slight naphthalene-like odor, black, organics, sandy silt lens	
20										

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-MW-17**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/35	71.3						
	-10						NLO		from 16.3 to 16.7 ft. (17'- 17.6') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2, slight naphthalene-like odor, black, organics, sheen. (17.6'- 18.2') SILTY SAND (SM); ~55% sand, fine, ~45% fines, low plasticity; slight naphthalene-like odor, black. (18.2'- 20') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; gray, shells from 19.2 to 20 ft. (20'- 23.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2, slight naphthalene-like odor, brown. (23.3'- 25') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; brown gray. (25'- 30') SILTY SAND (SM); ~60% sand, fine to coarse, ~30% fines, non plastic, ~10% gravel, fine to coarse; max. size 2, brown.	
	25	S6	60/19	0						
	-15									
	30	S7	60/44	0					(30'- 35.3') SILTY SAND (SM); ~70% sand, fine to coarse, ~20% fines, non plastic, ~10% gravel, fine to coarse; max. size 2, brown, gravel layer from 43.9 to 44.4 ft.	
	-20									
	35	S8	60/47	0					(35.3'- 36.1') WIDELY GRADED GRAVEL WITH SAND (GW); ~50% gravel, fine to coarse, ~45% sand, fine to coarse, ~5% fines, non plastic; max. size 2, gray. (36.1'- 38') SILTY SAND (SM); ~70% sand, fine to coarse, ~20% fines, non plastic, ~10% gravel, fine to coarse; brown, 1" lens of fine to coarse gravel at 37.9 ft. (38'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown.	
	-25									
	40	S9	60/41	6.2					(40'- 41.6') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines, non plastic; moderate organic-like odor, brown. (41.6'- 46.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, black, lens of brown silty sand from 43.9 to 44.4 ft, organic odor.	
	-30						OLO			
							NLO			

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG						
				PROJECT: <u>Williamsburg MGP RI</u>		PAGE 3 of 3	WW-MW-17					
		CITY/STATE: <u>Brooklyn, New York</u>										
		GEI PROJECT NUMBER: <u>093060</u>										
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS		
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)								
	45	S10	60/39	11.6			NLO	WWMW-17 (54-55)	(46.8'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown, silty sand lenses.  (49.2'- 50') SILT (ML); ~80% fines, non plastic, ~20% sand, fine; brown. (50'- 50.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown. (50.3'- 50.7') SILTY SAND (SM); ~70% sand, fine, ~30% fines, non plastic; slight naphthalene-like odor, gray. (50.7'- 51.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown. (51.8'- 52.4') SANDY SILT (ML); ~60% fines, non plastic, ~40% sand, fine; slight naphthalene-like odor, gray. (52.4'- 54.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown. (54.7'- 55') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; slight naphthalene-like odor, reddish brown. (55'- 60') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; brown, reddish brown varves.			
-35												
	50	S11	60/38	55			NLO NLO NLO					
-40						NLO						
	55	S12	60/20	1.4								
-45												
	60											
										End of Boring at 60 feet. Grouted		
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 4

WW-MW-18

GROUND SURFACE ELEVATION (FT): 8.72 LOCATION: 26 N 12th St  
NORTHING (FT): 689179 EASTING (FT): 641982 TOTAL DEPTH (FT): 85.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/27/2010 - 10/28/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 10/27/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM	23.2			WW-MW-18 (1-2)	(0'- 0.5') ASPHALT. (0.5'- 5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, coarse, ~10% fines; hand cleared.	
	5	S-1	60/28	2.4		PLO	WW-MW-18 (6-7)	(5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subrounded; max. size 1.5, slight petroleum-like odor, wet, grayish brown to brown.	
	10	S-2	60/14	8.9		PLO		(10'- 15') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 2, slight petroleum-like odor, wet, brown, mostly fine to medium sand.	
	15	S-3	120/95			OLO		(15'- 16.8') SILT WITH SAND (ML); ~85% fines, low plasticity, rapid dilatancy, ~15% sand, fine; slight organic-like odor, wet, dark gray, lenses of brown fine to coarse sand up to 1.5 inches thick; wood pieces from ~15.3 to 15.8 feet.	
	-10			8.0		OLO		(16.8'- 21.5') SANDY ORGANIC SOIL (OL); ~70% fines, low plasticity, slow dilatancy, ~30% sand, fine; moderate organic-like odor, wet, gray, lenses of black organic silt up to 1 inch thick.	
	-20								

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GEI Consultants  
 455 Winding Brook Road  
 Glastonbury, CT 06033  
 (860) 368-5300

CLIENT: **National Grid**  
 PROJECT: **Williamsburg MGP RI**  
 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG  
 PAGE 2 of 4  
**WW-MW-18**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20					OLO			
				6.8				(21.5'- 24.5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; wet, light reddish brown.	
	25	S-4	120/117					(24.5'- 25') CLAYEY SAND WITH GRAVEL (SC); ~50% sand, fine to coarse, ~35% fines, medium plasticity, no dilatancy, ~15% gravel, fine, subangular; max. size 0.5, wet, light brown. (25'- 25.8') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines; max. size 2, wet, brown, mostly fine to medium sand. (25.8'- 26') CLAYEY SAND (SC); ~55% sand, fine to coarse, ~35% fines, medium plasticity, no dilatancy, ~10% gravel, fine to coarse, subrounded; max. size 4, wet, brown. (26'- 30') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, subangular, ~10% fines; max. size 1.5, wet, brown.	
	30							(30'- 31.2') CLAYEY SAND (SC); ~70% sand, fine to coarse, ~20% fines, medium plasticity, no dilatancy, ~10% gravel, fine to coarse, subrounded; max. size 2, wet, brown. (31.2'- 40.5') NARROWLY GRADED SAND WITH GRAVEL (SP); ~80% sand, fine, ~15% gravel, fine to coarse, subrounded, ~5% fines; max. size 2, wet, brown.	
	35	S-5	120/85						
				1.8					
	40								
				6.5				(40.5'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, reddish brown.	
				2.2					

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NA = NOT APPLICABLE  
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Q<sub>p</sub> = POCKET PENETROMETER  
 S<sub>v</sub> = TORVANE PEAK

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S-6	120/92					(49.2'- 52') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; wet, brown.	
-40				13.8					
-50									
-45				20.4				(52'- 55') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines; max. size 2, wet, brown.	
	55	S-7	120/95					(55'- 56.4') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1, wet, grayish brown. (56.4'- 56.7') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray. (56.7'- 59') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1.5, wet, brown.	
-50									
-60									
	60							(59'- 61.8') SILTY SAND (SM); fine to coarse, subangular, ~85% sand, fine to medium, ~15% fines; max. size 1.25, wet, light brown, mostly fine sand.	
-55				8.2				(61.8'- 65') ELASTIC SILT WITH SAND (MH); ~85% fines, low plasticity, slow dilatancy, ~15% sand, fine to medium; moist, gray, lens of brown fine sand up to 1/8 inch thick.	
	65	S-8	60/16					(65'- 71') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; wet, brown.	
-60				7.8					

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JHS = JAR HEADSPACE PID READING (PPM)


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 4 of 4 <b>WW-MW-18</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70	S-9	36/36	5.2			<b>WW-MW-18 (72-73)</b>  (71'- 73') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1, wet, brown.  (73'- 74') CLAYEY SAND (SC); ~50% sand, fine to coarse, ~40% fines, ~10% gravel, fine to coarse, subangular; max. size 0.75, wet, reddish brown. (74'- 75.5') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray.  (75.5'- 80') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, dark gray and gray, red mottling.  (80'- 85') SANDY LEAN CLAY (CL); ~60% fines, medium plasticity, no dilatancy, ~40% sand, fine to coarse; wet, light gray.		
	-65	S-10	144/136	3.3					
	75			4.1					
	-70								
	80			0.0					
	-75								
	85								
End of Boring at 85 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 5

WW-MW-19

GROUND SURFACE ELEVATION (FT): 7.13 LOCATION: 26 N 12th St  
NORTHING (FT): 689382 EASTING (FT): 641853 TOTAL DEPTH (FT): 95.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber/Alex Royko DATE START / END: 11/2/2010 - 11/2/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 11/2/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM				WW-MW-19 (1-2)	(0'- 5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, ~10% fines, ~5% gravel; hand cleared. FILL.	
	5								
	5	S-1	60/29	26.7			WW-MW-19 (5-6)	(5'- 9') ORGANIC SOIL WITH SAND (OL); ~85% fines, low plasticity, rapid dilatancy, ~10% sand, fine, ~5% gravel, fine to coarse, subangular; with organics, slight organic-like odor, wet, black, FILL.	
	0					OLO			
	10	S-2	60/0			OLO		(9'- 10') WOOD; moderate organic-like odor, stained black with organics. FILL. (10'- 15') No Recovery, possibly due to wood. FILL.	
	-5								
	15	S-3	60/48			OLO		(15'- 18') ORGANIC SOIL (OL); ~90% fines, low plasticity, rapid dilatancy, ~10% sand, fine; with ~40% wood fibers, slight organic-like odor, wet, black, FILL.	
	-10			107		CLO		(18'- 20') WOOD; moderate chemical-like odor, light brown, odor possibly odor from wood treatment. FILL.	
	20								

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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 5

**WW-MW-19**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S-4	60/28	12.4		OLO		(20'- 24') SANDY ORGANIC SOIL (OL); ~70% fines, low plasticity, rapid dilatancy, ~30% sand, fine to medium; with ~15% wood fibers, slight organic-like odor, wet, black to dark gray, FILL.	
-15									
	25	S-5	60/39	5.6		PLO		(24'- 27') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines; slight petroleum-like odor, wet, gray.	
-20									
	30	S-6	60/41	7.5		PLO		(27'- 30') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, slight petroleum-like odor, wet, brown.	
-25									
	35	S-7	120/78					(30'- 32.5') SILTY SAND WITH GRAVEL (SM); ~70% sand, fine to coarse, ~15% gravel, fine to coarse, subangular, ~15% fines; slight petroleum-like odor, moist, brownish gray.	
-30									
	40							(32.5'- 35') SANDY SILT (ML); ~60% fines, non plastic, rapid dilatancy, ~40% sand, fine; moist, brownish gray.	
-35									
								(35'- 55') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; wet, brown.	

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

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Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

BORING LOG	
PAGE 3 of 5	WW-MW-19

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S-8	120/72	27.5				(55'- 64') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, brown.	
-40									
-50									
-45									
	55	S-9	120/86	32.5				(64'- 66.5') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to medium, ~20% gravel, fine to coarse, subrounded, ~20% fines; wet, brown, 2 inch lens of gray silt with sand at ~60.5 ft.	
-50				10.7					
-60									
-55				10.5					
	65	S-10	120/NM					(66.5'- 73.8') ELASTIC SILT WITH SAND (MH); ~85% fines, low plasticity, slow dilatancy, ~15% sand, fine to medium; moist, gray.	
-60				12.9					

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<div><div>GEI</div><div><div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div></div></div>		CLIENT: <b>National Grid</b>		BORING LOG					
		PROJECT: <b>Williamsburg MGP RI</b>		PAGE 4 of 5	<b>WW-MW-19</b>				
CITY/STATE: <b>Brooklyn, New York</b>									
GEI PROJECT NUMBER: <b>093060</b>									
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								
	-65			7.8				(73.8'- 75') CLAYEY SAND (SC); ~60% sand, fine, ~40% fines, medium plasticity, no dilatancy; moist, light gray with white.	
	75	S-11	120/120					(75'- 81') CLAYEY SAND (SC); ~65% sand, fine, ~35% fines; moist, light gray.	
	-70			5.5					
	80							(81'- 84.3') CLAYEY SAND (SC); ~75% sand, fine, ~25% fines; moist, whiteish gray.	
	-75			5.7					
	85	S-12	120/96					(84.3'- 87') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines; moist, whiteish gray.	
	-80			5.6				(87'- 95') CLAYEY SAND (SC); ~60% sand, fine, ~40% fines, medium plasticity, no dilatancy; moist, light gray with white.	
	90								
	-85			4.2					
<b>NOTES:</b> <div><div><div>PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL</div><div>REC = RECOVERY LENGTH OF SAMPLE</div><div>PID = PHOTOIONIZATION DETECTOR READING (PPM)</div><div>JHS = JAR HEADSPACE PID READING (PPM)</div></div><div><div>ppm = PARTS PER MILLION</div><div>IN. = INCHES</div><div>FT. = FEET</div></div><div><div>NLO = NAPHTHALENE LIKE ODOR</div><div>PLO = PETROLEUM LIKE ODOR</div><div>TLO = TAR LIKE ODOR</div><div>CLO = CHEMICAL LIKE ODOR</div><div>ALO = ASPHALT LIKE ODOR</div></div><div><div>CrLO= CREOSOTE LIKE ODOR</div><div>OLO = ORGANIC LIKE ODOR</div><div>SLO = SULFUR LIKE ODOR</div><div>MLO = MUSTY LIKE ODOR</div></div><div><div>NA = NOT APPLICABLE</div><div>NM = NOT MEASURED</div><div>Qp = POCKET PENETROMETER</div><div>Sv = TORVANE PEAK</div></div></div>									

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG  <b>WW-MW-19</b>					
		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 5 of 5			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	95								
End of Boring at 95 feet. Grouted									
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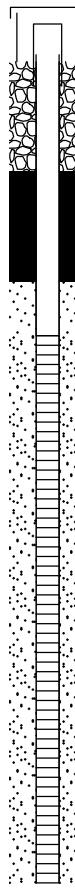
CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 2

**WW-MW-20**

GROUND SURFACE ELEVATION (FT): 16.13 LOCATION: Kent Ave  
NORTHING (FT): 688469 EASTING (FT): 641882 TOTAL DEPTH (FT): 25.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber/Alex Royko DATE START / END: 11/4/2010 - 11/22/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 9.00 11/4/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0		60/NM				WW-MW-20 (1.5-3)	(0'- 5') hand cleared.	
15									
5	5	S-1	60/36				WW-MW-20 (9-10)	(5'- 10') SILTY SAND (SM); ~75% sand, fine to medium, ~15% fines, ~10% gravel, fine to coarse, subangular; max. size 1.5, moist to wet, brown with black, wet at ~9 feet.	
10				1.3					
10	10	S-2	120/50					(10'- 18') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, ~5% gravel, fine to coarse, subangular; max. size 1, wet, brown, pockets of gray sandy silt throughout.	
5									
15									
0	0			36.2				(18'- 21') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, ~0% gravel; slight petroleum-like odor, wet, brown.	
20						PLO			

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG  <b>WW-MW-20</b>					
		PAGE 2 of 2							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S-3	60/36			PLO		(21'- 25') NARROWLY GRADED SAND WITH SILT (SP-SM); ~80% sand, fine to medium, ~10% gravel, fine to coarse, subangular, ~10% fines; max. size 1.5, wet, grayish brown and brown.	
	25			1.9					
End of Boring at 25 feet. Grouted									
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
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GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-MW-21

GROUND SURFACE ELEVATION (FT): 10.98 LOCATION: Private property - End of N 10th Street  
NORTHING (FT): 688524 EASTING (FT): 641589 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Chris Anastasiou DATE START / END: 11/14/2012 - 11/14/2012  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 10.00 11/14/2012  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.					
0	0		60/NM			WW-MW-21 (3-5)	(0'- 0.2') ASPHALT. (0.2'- 1') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~20% gravel, fine to coarse; black, brick fragments, rocks and cobbles, hand cleared. FILL. (1'- 2') COBBLESTONE; hand cleared. (2'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% sand, fine to coarse, ~30% gravel, fine to coarse, ~10% fines; max. size 3, brown, rocks and cobbles, hand cleared.	
10	5		60/40				(5'- 10') SILT WITH SAND (ML); ~60% fines, ~20% gravel, fine to coarse, ~20% sand, fine to coarse; brown.	
5	10		60/40				(10'- 13') SILTY SAND (SM); ~80% sand, fine, ~20% fines; wet, brown.	
0	0					WW-MW-21 (10-11)	(13'- 13.5') SILT (ML); moderate organic-like odor, black, bog-like material. (13.5'- 15') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; brown.	
10	15		60/44				(15'- 17.3') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; gray brown.	
0	20						(17.3'- 20') SILTY SAND (SM); ~80% sand, fine, ~20% fines; reddish brown.	

## NOTES:

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PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

CrLO= CREOSOTE LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid <b>PROJECT:</b> Williamsburg MGP RI <b>CITY/STATE:</b> Brooklyn, New York <b>GEI PROJECT NUMBER:</b> 093060		<b>BORING LOG</b>  <b>WW-MW-21</b>		
						<b>PAGE</b> 3 of 3		
ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.					
	45		60/48			WW-MW-21 (50-52)	(48.8'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; dark brown.	
-35								
	50		60/48				(50'- 52.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines; brown.	
-40								
	55		60/48				(52.5'- 55') LEAN CLAY (CL); ~90% fines, ~10% sand, fine; gray.	
-45							(55'- 55.8') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; brown.	
	60						(55.8'- 60') LEAN CLAY (CL); red.	
End of Boring at 60 feet. Grouted								
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)       CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR ALO = ASPHALT LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK								



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg Works Former MGP**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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1 of 3

**WW-MW-22**

GROUND SURFACE ELEVATION (FT): **7.38** LOCATION: **Private property - End of N 10th Street**  
NORTHING (FT): **688828** EASTING (FT): **641223** TOTAL DEPTH (FT): **55.0**  
DRILLED BY: **Boart Longyear / Frank Gardella** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Chris Anastasiou** DATE START / END: **11/12/2012 - 11/12/2012**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0	0		60/NM					WW-MW-22 (3-5)	(0'- 0.3') ASPHALT. (0.3'- 1') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine to coarse, ~5% fines; max. size 2, brown, hand cleared. FILL. (1'- 3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% sand, fine to coarse, ~30% gravel, fine to coarse, ~10% fines; black, organic fill material, brick fragments, hand cleared. FILL. (3'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine to coarse, ~5% fines; black, organic fill material, brick fragments, hand cleared. FILL. (5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, ~5% gravel, fine to coarse; black, rock fragments stuck in rod at about 4". FILL.	
5	5		60/12							
10	10		60/48	59					(10'- 13.8') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~40% gravel, fine to coarse; moderate naphthalene-like odor, black, staining and coating. FILL.	
15	15		60/28	40.2					(13.8'- 15') CLAYEY SAND (SC); ~60% sand, fine to coarse, ~40% fines; red, brick fragments. FILL. (15'- 17.1') CLAYEY SAND (SC); ~60% sand, fine to coarse, ~35% fines, ~5% gravel, fine to coarse; black, staining and coating. (17.1'- 20') LEAN CLAY (CL); ~85% fines, ~10% gravel, fine to coarse, ~5% sand, fine; red.	
20	20									

**NOTES:**

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET



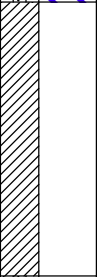
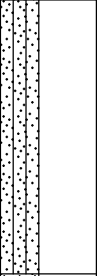


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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 7/26/13



<div><div>GEI</div><div><div>GEI Consultants</div></div></div>		<div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div>		<div>CLIENT: <b>National Grid</b></div> <div>PROJECT: <b>Williamsburg Works Former MGP</b></div> <div>CITY/STATE: <b>Brooklyn, New York</b></div> <div>GEI PROJECT NUMBER: <b>093060</b></div>		<div>BORING LOG</div> <div>PAGE 2 of 3</div> <div>WW-MW-22</div>			
ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
		TYPE and NO.	PEN/REC IN./IN.						
	20		60/48	298		NLO	WW-MW-22 (24-25)	(20'- 24.2') WIDELY GRADED SAND WITH GRAVEL (SW); ~50% sand, fine to coarse, ~45% gravel, fine to coarse, ~5% fines; moderate naphthalene-like odor, black, staining.	
	-15								
	25		60/48	175		NLO		(24.2'- 25') SILTY SAND (SM); ~70% sand, fine, ~30% fines; moderate naphthalene-like odor, black, staining. (25'- 30') LEAN CLAY (CL); ~90% fines, ~10% sand; slight naphthalene-like odor, black, bog-like material, organic matter.	
	-20								
	30		60/48					(30'- 35') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to medium, ~15% gravel, fine to coarse, ~15% fines; ~10% cobbles, max. size 4, gray.	
	-25								
	35		60/36					(35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, brown.	
	-30								
	40		60/48					(40'- 51.3') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines; brown.	
	-35								
<div>NOTES:</div> <div><div><div>PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL</div><div>REC = RECOVERY LENGTH OF SAMPLE</div><div>PID = PHOTOIONIZATION DETECTOR READING (PPM)</div><div>JHS = JAR HEADSPACE PID READING (PPM)</div></div><div><div>ppm = PARTS PER MILLION</div><div>IN. = INCHES</div><div>FT. = FEET</div></div><div><div>NLO = NAPHTHALENE LIKE ODOR</div><div>PLO = PETROLEUM LIKE ODOR</div><div>TLO = TAR LIKE ODOR</div><div>CLO = CHEMICAL LIKE ODOR</div><div>ALO = ASPHALT LIKE ODOR</div></div><div><div>CrLO= CREOSOTE LIKE ODOR</div><div>OLO = ORGANIC LIKE ODOR</div><div>SLO = SULFUR LIKE ODOR</div><div>MLO = MUSTY LIKE ODOR</div></div><div><div>NA = NOT APPLICABLE</div><div>NM = NOT MEASURED</div><div>Qp = POCKET PENETROMETER</div><div>Sv = TORVANE PEAK</div></div></div>									

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 7/26/13





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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-01**

GROUND SURFACE ELEVATION (FT): 16.19 LOCATION: North 11th Street  
NORTHING (FT): 688566 EASTING (FT): 642027 TOTAL DEPTH (FT): 26.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Melissa Felter DATE START / END: 7/10/2009 - 7/10/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 10.00 7/10/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0		S1	60/38					WWSB-01 (1-5)	(0'- 0.5') CONCRETE. (0.5'- 5') SILTY SAND (SM); ~80% sand, fine, ~20% fines; ~5% brick, moist, brown, soft, hand cleared. FILL.
15				0.2					
5		S2	60/45					WWSB-01 (14-15)	(5'- 8') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines; ~5% brick, moist, brown, loose. FILL.
10									
				256					
10		S3	60/43				PLO		(8'- 8.2') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines; dry, light brown, loose. (8.2'- 9') SANDY SILT (ML); ~60% fines, ~40% sand, fine; moist, brown, soft. (9'- 10') SANDY SILT (ML); ~60% fines, ~40% sand, fine; moderate petroleum-like odor, moist, black, soft, black stained. (10'- 14.5') SANDY SILT (ML); ~50% fines, ~45% sand, fine to medium, ~5% gravel, fine to coarse; moderate petroleum-like odor, wet, black and brown, black stained lenses.
5							PLO		
				524					
15		S4	60/60	582			PLO		(14.5'- 16.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine; moderate petroleum-like odor, wet, gray, loose, gray stained.
0									(16.5'- 18.5') SANDY SILT (ML); ~60% fines, ~35% sand, fine, ~5% gravel, fine to coarse; moist, gray and reddish brown, dense.
									(18.5'- 19.5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine; moist, reddish brown, dense.
20									

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ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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				<b>PROJECT:</b> <u>Williamsburg MGP RI</u>			<b>PAGE</b> 2 of 2		<b>WW-SB-01</b>
				<b>CITY/STATE:</b> <u>Brooklyn, New York</u>					
				<b>GEI PROJECT NUMBER:</b> <u>093060</u>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/52						(19.5'- 20') SILTY SAND (SM); ~80% sand, fine, ~15% fines, ~5% gravel, fine to coarse; moist, brown, dense. (20'- 23') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; wet, brown, loose.
				64					
	25	S6	12/12	21					(23'- 25') SILTY SAND (SM); ~60% sand, fine, ~25% gravel, fine to coarse, ~15% fines; wet, brown and grayish brown, dense, lens of crushed rock 24-24.5 ft.  (25'- 26') SANDY SILT (ML); ~60% fines, ~30% sand, fine, ~10% gravel, fine; moist, gray, very dense.
									End of Boring at 26 feet. Refusal at 26 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER    MLO = MUSTY LIKE ODOR NM = NOT MEASURED    NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
1 of 3

**WW-SB-02**

GROUND SURFACE ELEVATION (FT): **13.19** LOCATION: **N 12th Street**  
NORTHING (FT): **688735** EASTING (FT): **642160** TOTAL DEPTH (FT): **55.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Maura MacLeod** DATE START / END: **7/8/2009 - 7/9/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 8.00 7/8/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S1	60/18				WWSB-02 (2-5)	(0'- 0.5') CONCRETE. (0.5'- 2.2') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, gray, hand cleared.
	10			5.5		OLO		(2.2'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, moderate organic-like odor, brown, coal fragments and organics from 2.8 to 3.3 ft, hand cleared.
	5	S2	60/33	1322			WWSB-02 (10.5-11.5)	(5'- 6.1') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, brown. (6.1'- 6.5') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red. (6.5'- 8') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5, organics. (8'- 9.1') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5, slight petroleum-like odor, moist, organics, black layers. (9.1'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, gray. (10'- 10.6') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2, moist, brown. (10.6'- 11.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, wet, gray, moderate petroleum-like odor. (11.1'- 11.7') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; moderate naphthalene-like odor, wet, brown, moderate petroleum-like odor. (11.7'- 12.3') SILT (ML); ~70% fines, medium plasticity, ~30% sand, fine; slight petroleum-like odor, brown. (12.3'- 13.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight petroleum-like odor, brown and black. (13.9'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, brown. (15'- 16.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, black. (16.2'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.
	5					PLO		
	10	S3	60/60	1574		NLO		
						NLO		
						PLO		
	0					PLO		
	15	S4	60/58	15.9		PLO		
						PLO		
	-5							
	-20							

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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455 Winding Brook Road  
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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-SB-02**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20	S5	60/44	317		NLO		(20'- 22.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
						PLO		(22.2'- 23.4') SILTY SAND (SM); ~80% sand, fine, ~20% fines, low plasticity; slight petroleum-like odor, brown.
						PLO		(23.4'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, moist, brown.
	25	S6	60/49	356		NLO		(25'- 25.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
						NLO		(25.3'- 26.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown and black, moderate petroleum-like odor.
						NLO		(26.2'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, lens of gravel from 28.8 to 29 ft, slight petroleum-like odor.
	30	S7	60/55			PLO		(30'- 32') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, moist, brown.
						NLO		(32'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, moderate petroleum-like odor.
				761				
	35	S8	60/40			NLO		(35'- 38.6') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown.
						NLO		(38.6'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
				1014				
	40	S9	60/40	387		NLO		(40'- 44.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, slight petroleum-like odor.
						NLO		

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

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

	GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid		<b>BORING LOG</b>	
			<b>PROJECT:</b> Williamsburg MGP RI			
			<b>CITY/STATE:</b> Brooklyn, New York		<b>PAGE</b> 3 of 3	<b>WW-SB-02</b>
			<b>GEI PROJECT NUMBER:</b> 093060			

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45	S10	60/56	7.0		NLO NLO/		(44.3'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, silty seams, slight petroleum-like odor. (45'- 50') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, low plasticity; slight petroleum-like odor, gray.
	-35					PLO		
	50	S11	60/55	185				(50'- 52.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, loose.
	-40					PLO		(52.6'- 55') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; slight petroleum-like odor, brown.
	55							End of Boring at 55 feet. Refusal at 55 feet. Grouted

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL	ppm = PARTS PER MILLION	NLO = NAPHTHALENE LIKE ODOR	CrLO= CREOSOTE LIKE ODOR
REC = RECOVERY LENGTH OF SAMPLE	IN. = INCHES	PLO = PETROLEUM LIKE ODOR	OLO = ORGANIC LIKE ODOR
PID = PHOTOIONIZATION DETECTOR READING (PPM)	FT. = FEET	TLO = TAR LIKE ODOR	SLO = SULFUR LIKE ODOR
JHS = JAR HEADSPACE PID READING (PPM)		CLO = CHEMICAL LIKE ODOR	MLO = MUSTY LIKE ODOR
		ALO = ASPHALT LIKE ODOR	

NA = NOT APPLICABLE	Q <sub>p</sub> = POCKET PENETROMETER
NM = NOT MEASURED	S <sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-03**

GROUND SURFACE ELEVATION (FT): **14.12** LOCATION: **50 Kent Ave**  
NORTHING (FT): **688656** EASTING (FT): **641953** TOTAL DEPTH (FT): **22.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Sarah Hay** DATE START / END: **7/14/2009 - 7/14/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **7.50 7/14/2009**  
GENERAL NOTE:

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0								(0'- 3') hand cleared.
	10	S1	24/15	7.3				WWSB-03 (3-5)	(3'- 4.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~89% sand, fine to medium, ~10% fines, low plasticity fines, ~1% gravel, fine; max. size 0.5, dry, brown, brick fragments, hand cleared. FILL.
	5	S2	60/18				NLO		(4.1'- 4.3') CONCRETE; crushed concrete, hand cleared. FILL.
									(4.3'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~89% sand, fine to medium, ~10% fines, low plasticity fines, ~1% gravel, fine; max. size 0.5, dry, brown, brick fragments, hand cleared. FILL.
	5			769			NLO		(5'- 7.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~89% sand, fine to medium, ~10% fines, low plasticity fines, ~1% gravel, fine; max. size 0.5, slight naphthalene-like odor, dry, brown, brick fragments. FILL.
									(7.5'- 10') BRICK; moderate naphthalene-like odor, wet, crushed brick with sand. FILL.
	10	S3	60/22	1089			NLO		(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, ~25% sand, ~5% fines; ~20% brick fragments, max. size 2, strong naphthalene-like odor, wet, brown to black, FILL.
	15	S4	60/40	1777			NLO		(15'- 20') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 1.5, strong naphthalene-like odor, wet, brown to black, brick fragments, sheen, tar-like staining, trace tar-like blebs. FILL.
	-5								
	20								

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JHS = JAR HEADSPACE PID READING (PPM)



NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

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PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>			BORING LOG PAGE 2 of 2 <b>WW-SB-03</b>				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	24/21	3949				<b>WWSB-03 (20-22)</b>  (20'- 21') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to medium, ~5% fines; max. size 1.5, strong naphthalene-like odor, wet, brown to black, heavy tar-like staining, glass, coal ash, and brick fragments. FILL. (21'- 21.8') WIDELY GRADED GRAVEL WITH SILT (GW-GM); ~80% gravel, angular, ~10% sand, ~10% fines; max. size 2, strong naphthalene-like odor, wet, brick and concrete fragments, tar-like staining. FILL. (21.8'- 22') WIDELY GRADED GRAVEL WITH SILT (GW-GM); ~80% gravel, angular, ~10% sand, ~10% fines; max. size 2, strong naphthalene-like odor, wet, tar-like saturation. FILL. End of Boring at 22 feet. Refusal at 22 feet. Grouted	
						NLO			
						NLO			
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PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-04**

GROUND SURFACE ELEVATION (FT): 13.80 LOCATION: 50 Kent Ave  
NORTHING (FT): 688696 EASTING (FT): 641988 TOTAL DEPTH (FT): 20.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 10/5/2009 - 10/5/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 10/5/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	2.9				WWSB-04 (2-4)	(0'- 0.5') ASPHALT. (0.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, dry, brown, hand cleared. FILL.
	5	S2	60/16	299					(5'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, wet, brown, FILL.
	10	S3	60/26	1245					(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~75% gravel, fine to coarse, ~20% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, moderate naphthalene-like odor, wet, brown, sheen. FILL.
	15	S4	60/34	1601				WWSB-04 (18-20)	(15'- 20') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, strong naphthalene-like odor, wet, brown, tar-like staining. FILL.
	20								

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FT. = FEET

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 9/11/14

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG  <b>WW-SB-04</b>				
		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 2 of 2		
ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.					
End of Boring at 20 feet. Refusal at 20 feet. Grouted								
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GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-05**

GROUND SURFACE ELEVATION (FT): 13.38 LOCATION: 50 Kent Ave  
NORTHING (FT): 688735 EASTING (FT): 641857 TOTAL DEPTH (FT): 24.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Sarah Hay DATE START / END: 7/14/2009 - 7/14/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 4.50 7/14/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0								(0'- 3') CONCRETE; hand cleared.
	10	S1	24/11	283				WWSB-05 (3-5)	(3'- 4.5') CONCRETE; crushed concrete, hand cleared. FILL.
	5	S2	60/19	2324			NLO		(4.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.75, slight naphthalene-like odor, wet, brick/coal fragments, hand cleared. FILL. (5'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, angular, ~25% sand, fine to coarse, ~5% fines; strong naphthalene-like odor, wet, black staining. FILL.
	5						NLO		
	10	S3	60/14	3486					(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, angular, ~25% sand, fine to coarse, ~5% fines; strong naphthalene-like odor, wet, tar saturated. FILL.
	0						NLO		
	15	S4	60/23	3051					(15'- 24') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, angular, ~10% fines; max. size 1, strong naphthalene-like odor, black, tar saturated. FILL.
	-5						NLO		
	20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG  <b>WW-SB-05</b>					
		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 2 of 2			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	48/46	4567				WWSB-05 (20-24)	
	-10						NLO		
End of Boring at 24 feet. Refusal at 24 feet. Grouted									
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PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-06**

GROUND SURFACE ELEVATION (FT): **9.40** LOCATION: **50 Kent Ave**  
NORTHING (FT): **688765** EASTING (FT): **641905** TOTAL DEPTH (FT): **25.5**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Sarah Hay** DATE START / END: **7/16/2009 - 7/16/2006**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 5.00 7/16/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
0	0	S1	60/NM	11.9				(0'- 0.7') CONCRETE.
								(0.7'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, subangular to angular, ~5% fines; max. size 1.5, brown, hand cleared. FILL.
5	5	S2	60/19	852				(5'- 12.2') WIDELY GRADED GRAVEL WITH SILT AND SAND (GW-GM); ~70% gravel, subrounded to angular, ~20% sand, medium to coarse, ~10% fines; ~5% brick and wood fragments, max. size 1.5, moderate naphthalene-like odor, wet, black, heavy sheen, petroleum-like odor. FILL.
							NLO	
10	10	S3	60/34	5558				(12.2'- 13.5') BRICK; ~95% sand, medium to coarse, ~5% gravel; ~80% brick fragments, strong naphthalene-like odor, wet, black, tar-like staining. FILL.
							NLO	(13.5'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, subrounded to subangular, ~20% sand, medium to coarse; ~5% wood and paper-like debris, max. size 1.5, strong naphthalene-like odor, black, tar-like coating. FILL.
15	15	S4	60/15	> 9999				(15'- 23.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, ~20% sand, fine to coarse; ~15% brick fragments, max. size 1, strong naphthalene-like odor, heavy tar-like coating. FILL.
							NLO	
-10								
-20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13







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CLIENT: National Grid  
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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-07**

GROUND SURFACE ELEVATION (FT): 12.24 LOCATION: 50 Kent Ave  
NORTHING (FT): 688810 EASTING (FT): 641918 TOTAL DEPTH (FT): 22.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Sarah Hay DATE START / END: 7/15/2009 - 7/15/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 3.00 7/15/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0								(0'- 3') hand cleared.
	10								
		S1	24/NM	5.6			PLO	WWSB-07 (3-5)	(3'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.75, slight petroleum-like odor, wet, asphalt and brick fragments, hand cleared. FILL.
	5	S2	60/36				OLO		(5'- 7.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; slight organic-like odor, brown, FILL.
	5			8056			NLO		(7.4'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, angular, ~5% fines; max. size 0.75, moderate naphthalene-like odor, wet, wood fragments, tar-like staining, slight petroleum-like odor. FILL.
	10	S3	60/36						(10'- 15') BRICK AND CONCRETE; ~70% sand, fine to coarse, ~30% gravel; ~60% brick and concrete fragments, max. size 0.25, wet, sheen, tar-like staining and blebs. FILL.
	0			> 9999					
	15	S4	60/27						(15'- 20') BRICK AND CONCRETE; ~70% sand, fine to coarse, ~30% gravel; ~60% brick and concrete fragments, max. size 0.25, wet, wood fragments, heavy tar-like staining, tar-like blebs and partial coating. FILL.
	-5			> 9999				WWSB-07 (19-22)	
	20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <b>National Grid</b>			<b>BORING LOG</b>	
					PROJECT: <b>Williamsburg MGP RI</b>			PAGE 2 of 2	
CITY/STATE: <b>Brooklyn, New York</b>			GEI PROJECT NUMBER: <b>093060</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	24/24	> 9999					(20'- 22') BRICK AND CONCRETE; ~70% sand, fine to coarse, ~30% gravel; ~60% brick and concrete fragments, max. size 0.25, wet, tar-like coating with partial tar saturation. FILL.
End of Boring at 22 feet. Refusal at 22 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-08**

GROUND SURFACE ELEVATION (FT): **11.80** LOCATION: **50 Kent Ave**  
NORTHING (FT): **688829** EASTING (FT): **641958** TOTAL DEPTH (FT): **24.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Sarah Hay** DATE START / END: **7/15/2009 - 7/15/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 3.00 7/15/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S1	60/NM	457				(0'- 3') CONCRETE; crushed concrete and asphalt, hand cleared.
	10							
	5	S2	60/31				PLO	(3'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 1.5, slight petroleum-like odor, wet, dark gray, brick/rubber fragments, slight organic-like odor, hand cleared. FILL.
	5						NLO	(5'- 8') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 2, moderate naphthalene-like odor, wet, dark gray, brick fragments, tar-like coating. FILL.
	10			3929			NLO	(8'- 10') BRICK AND CONCRETE; ~100% sand, fine to coarse; ~90% brick and concrete fragments, strong naphthalene-like odor, wet, tar-like coating. FILL.
	10	S3	60/34	1904			NLO	(10'- 11') WIDELY GRADED SAND WITH GRAVEL (SW); ~85% sand, fine to coarse, ~10% gravel, ~5% fines; strong naphthalene-like odor, wet, dark gray, tar-like coating. FILL.
	0							(11'- 13') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, ~30% gravel, ~5% fines; max. size 2, wet, dark gray, tar-like coating. FILL.
	15						NLO	(13'- 15') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~15% gravel, ~15% fines; max. size 1, strong naphthalene-like odor, moist, light brown to gray, partial tar-like staining. FILL.
	15	S4	60/36				NLO	(15'- 17') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, ~5% fines; moderate naphthalene-like odor, dark gray to black, tar saturated. FILL.
	-5			>9999			NLO	(17'- 20') WIDELY GRADED GRAVEL WITH SAND (GW); ~95% sand, fine to coarse, ~5% fines; ~60% gravel and concrete fragments, ~5% wood fragments, strong naphthalene-like odor, wet, tar saturated. FILL.
	20							

**NOTES:**

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REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)




NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		<b>BORING LOG</b>  <b>WW-SB-08</b>				
		PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>				PAGE 2 of 2		
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20	S5	48/36				CrLO	(20'- 24') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, ~5% fines; slight creosote-like odor, wet, dark gray to black, wood fragments and fuzzy paper-like material 22.5-23 feet, tar-like coating. FILL.
	-10			9965				
End of Boring at 24 feet. Refusal at 24 feet. Grouted								
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-09**

GROUND SURFACE ELEVATION (FT): 12.28 LOCATION: 50 Kent Ave  
NORTHING (FT): 688913 EASTING (FT): 641906 TOTAL DEPTH (FT): 55.0  
DRILLED BY: Boart Longyear / Fred Lavoie DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/25/2009 - 7/13/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 7/13/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM						(0'- 1') WIDELY GRADED SAND WITH GRAVEL (SW); ~55% sand, fine to coarse, ~40% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 3, brown, fragments of coal, brick, and glass, hand cleared. FILL. (1'- 2') CONCRETE; FILL. (2'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 1, brown, fragments of brick and coal, hand cleared. FILL.
	10			2.1				WWSB-09 (2-4)	
	5	S2	120/87	2.2					(5'- 7.3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~15% gravel, fine to coarse, ~10% fines, non plastic; max. size 2, slight petroleum-like odor, brown, fragments of coal and brick. FILL.
	5						PLO		
	5						PLO		(7.3'- 8.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to medium, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 3, moderate petroleum-like odor, gray brown.
	10			1805			NLO		(8.4'- 10.5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 3, strong naphthalene-like odor, gray brown, tar-like staining.
	10						NLO	WWSB-09 (11-12)	(10.5'- 11.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown gray, sheen.
	0						NLO		(11.8'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown gray.
	15	S3	120/87	644					(15'- 17.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, low plasticity; moderate naphthalene-like odor, gray.
	-5						NLO		(17.4'- 18.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, low plasticity; moderate naphthalene-like odor, gray, sheen, tar-like staining.
	-5						NLO		(18.1'- 19.3') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, gray brown, sheen,
	-20						NLO		

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR



CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR







NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

CrLO= CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR



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		<b>PROJECT:</b> <u>Williamsburg MGP RI</u>			
		<b>CITY/STATE:</b> <u>Brooklyn, New York</u>		<b>PAGE</b> 3 of 3	<b>WW-SB-09</b>
		<b>GEI PROJECT NUMBER:</b> <u>093060</u>			

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S8	120/78	3159			NLO	WWSB-09 (53-54)	(45'- 47.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
							NLO		
	-35								(47.3'- 51.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like staining, lenses of tar-like coating.
	50			2435			NLO		
							NLO		(51.4'- 54') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong naphthalene-like odor, gray brown, sheen, tar-like staining and blebs.
	-40								(54'- 55') SILT (ML); ~80% fines, medium plasticity, ~20% sand, fine; gray.
	55								End of Boring at 55 feet. Grouted

<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL REC = RECOVERY LENGTH OF SAMPLE PID = PHOTOIONIZATION DETECTOR READING (PPM) JHS = JAR HEADSPACE PID READING (PPM)				ppm = PARTS PER MILLION IN. = INCHES FT. = FEET	NLO = NAPHTHALENE LIKE ODOR PLO = PETROLEUM LIKE ODOR TLO = TAR LIKE ODOR CLO = CHEMICAL LIKE ODOR ALO = ASPHALT LIKE ODOR	CrLO= CREOSOTE LIKE ODOR OLO = ORGANIC LIKE ODOR SLO = SULFUR LIKE ODOR MLO = MUSTY LIKE ODOR
NA = NOT APPLICABLE NM = NOT MEASURED	Q <sub>p</sub> = POCKET PENETROMETER S <sub>v</sub> = TORVANE PEAK					

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-10**

GROUND SURFACE ELEVATION (FT): **12.02** LOCATION: **50 Kent Ave**  
NORTHING (FT): **688818** EASTING (FT): **641756** TOTAL DEPTH (FT): **55.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Sarah Hay** DATE START / END: **6/25/2009 - 7/14/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 6.10 7/13/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	60/NM	5.6					(0'- 0.3') CONCRETE. (0.3'- 0.7') ASPHALT. (0.7'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 2, brown, coal and brick fragments, hand cleared. FILL.
10	5	S2	60/24					WWSB-10 (2-3)	(5'- 7.7') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.5, dry, tan, brick and shale fragments. FILL.
5				8623			NLO		(7.7'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.5, moderate naphthalene-like odor, wet, tan, wood fragments, tar-like staining and blebs, petroleum-like odor.
10		S3	60/50	3350			NLO		(10'- 11.8') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.5, moderate naphthalene-like odor, tan, sheen, tar-like blebs, petroleum-like odors.
0							NLO		(11.8'- 15') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic fines; moderate naphthalene-like odor, wet, brown.
15		S4	60/30						(15'- 20') SILTY SAND (SM); ~70% sand, ~30% fines, non plastic fines; moderate naphthalene-like odor, wet, brown to gray.
-5				426			NLO		
20									

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CrLO= CREOSOTE LIKE ODOR  
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SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-10**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/53	455			NLO		(20'- 23.5') WIDELY GRADED SAND (SW); ~94% sand, fine to medium, ~5% fines, ~1% gravel; slight naphthalene-like odor, wet, brown.
	-10								(23.5'- 25') SANDY SILT (ML); ~60% fines, ~40% sand, fine to medium; slight naphthalene-like odor, dry, brown.
	25	S6	36/16	0.0			PLO		(25'- 27.4') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; slight petroleum-like odor, gray.
	-15								(27.4'- 28') possible bolder. (28'- 28.9') possible bolder.
		S7	24/24	0.0					(28.9'- 29.8') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5, brown. (29.8'- 30') possible bolder. (30'- 35') no recovery, bolder plugged sampler.
	30	S8	60/0						
	-20								
	35	S9	120/120	435					(35'- 40') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5, brown.
	-25								
	40			173					(40'- 45') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.5, brown.
	-30								

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IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S10	120/94						(45'- 47.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, brown.
	-35						NLO		
				9999			NLO	WWSB-10 (49-50)	(47.7'- 49') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like staining and coating.
	50			2553			NLO		(49'- 51') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; moderate naphthalene-like odor, gray.
	-40						NLO	WWSB-10 (51-52)	(51'- 51.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
							NLO		(51.6'- 55') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight naphthalene-like odor, reddish gray.
	55								End of Boring at 55 feet. Geoprobe refusal at 26' with Zebra Environmental, boring completed by Boart Longyear using sonic drilling methods. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER    MLO = MUSTY LIKE ODOR NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK    ALO = ASPHALT LIKE ODOR									



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-11**

GROUND SURFACE ELEVATION (FT): 11.12 LOCATION: 50 Kent Ave  
NORTHING (FT): 688995 EASTING (FT): 641799 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Fred Lavoie DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/25/2009 - 7/14/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 14.00 7/14/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
0	0	S1	60/NM	1.0			WWSB-11 (1-2)	(0'- 0.3') WIDELY GRADED SAND WITH GRAVEL (SW); ~55% sand, fine to coarse, ~40% gravel, fine to coarse, ~5% fines, non plastic; max. size 3, brown, coal, brick, and glass fragments, hand cleared. FILL. (0.3'- 1') CONCRETE; FILL. (1'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 1, brown, coal fragments, hand cleared. FILL.
10	5	S2	120/48	1.8				(5'- 7.9') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 3, reddish brown, FILL.  (7.9'- 9.4') layer of brick. FILL.
5	10			114				(9.4'- 11') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, ~10% fines, non plastic; max. size 2, black, wood pieces, odor possibly related to wood preservative. FILL. (11'- 13.3') CONCRETE.
0	15	S3	120/83	150		PLO		(13.3'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, slight petroleum-like odor, wet, gray brown.
-5	20					NLO		(15'- 16.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown.  (16.2'- 17.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown. (16.8'- 20.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to medium, ~10% gravel, fine to coarse, ~10% fines, non plastic; max. size 1, gray, layer of wood fragments.

**NOTES:**

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-SB-11**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20			34.9				(20.1'- 21.4') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to medium, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, gray brown. (21.4'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; light brown.
	25	S4	120/101	0.9		PLO		(25'- 27.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, light brown.
	30					PLO		(27.3'- 30.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, light brown.
	35	S5	120/103	2.5		PLO		(30.3'- 35') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight petroleum-like odor.
	40					PLO		(35'- 36.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, ~5% fines; slight petroleum-like odor, wet, orange brown.
								(36.5'- 39.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to medium, ~10% fines; max. size 2, gray with red, dense.
								(39.4'- 40.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, ~5% fines; wet, orange brown.
								(40.1'- 42.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; slight naphthalene-like odor, gray brown.
								(42.3'- 52.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; moderate naphthalene-like odor, gray brown.

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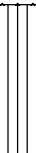


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NM = NOT MEASURED      S<sub>v</sub> = TORVANE PEAK

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45	S6	120/107			NLO	WWSB-11 (50-51)	(52.2'- 55') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight naphthalene-like odor, brown.
-35								
	50			546				
-40								
						NLO		
	55	S7	120/104	0.2			WWSB-11 (63-64)	(55'- 60') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; gray.
-45								
	60			0.3				
-50								
								(60'- 63.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.
								(63.7'- 65') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish gray.
	65							End of Boring at 65 feet. Grouted

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GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-13**

GROUND SURFACE ELEVATION (FT): 9.70 LOCATION: North 11th Street  
NORTHING (FT): 688891 EASTING (FT): 641611 TOTAL DEPTH (FT): 45.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/21/2009 - 8/24/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 9.10 8/24/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM						(0'- 0.2') ASPHALT. (0.2'- 0.8') NARROWLY GRADED SAND WITH SILT (SP-SM); ~75% sand, fine, ~15% gravel, fine, ~10% fines, non plastic; max. size 0.5, dry, olive brown, FILL. (0.8'- 5') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, fine to coarse, ~40% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5, moist, gray to black, asphalt, coal, brick fragments, hand cleared. FILL.
	5			4.2				WWSB-13 (4-5)	
	5	S2	60/39						(5'- 8.8') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine, ~5% fines, non plastic; max. size 0.75, dry, brown black, coal, brick, metal-like fragments. FILL.
	10			765			NLO		(8.8'- 9.1') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine, ~5% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, dry, brown black, coal, brick, metal-like fragments, slight petroleum-like odor. FILL.
	10	S3	60/45				NLO		(9.1'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine, ~5% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, moist, brown black, coal, brick, metal-like fragments, slight petroleum-like odor. FILL.
	15			1305			NLO	WWSB-13 (12-15)	(10'- 17.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, strong naphthalene-like odor, black, brick, coal, wood fragments, sheen, tar-like coating. FILL.
	15	S4	60/34				NLO		(17.5'- 19.3') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine, ~5% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, black, coal and wood fragments, sheen, tar-like coating. FILL.
	20			1021			NLO		(19.3'- 20') SANDY SILT (ML); ~60% fines, medium plasticity,

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-20   <									

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		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <u>National Grid</u>			BORING LOG	
					PROJECT: <u>Williamsburg MGP RI</u>			PAGE 3 of 3	
CITY/STATE: <u>Brooklyn, New York</u>			GEI PROJECT NUMBER: <u>093060</u>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-35	45						NLO		
									End of Boring at 45 feet. Grouted
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GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-14**

GROUND SURFACE ELEVATION (FT): 7.45 LOCATION: North 12th Street  
NORTHING (FT): 689182 EASTING (FT): 641609 TOTAL DEPTH (FT): 45.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/11/2009 - 9/14/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/11/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/29					WWSB-14 (1-5)	(0'- 0.5') ASPHALT. (0.5'- 1.3') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, dry, brown, hand cleared. (1.3'- 2.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight petroleum-like odor, moist, brown, petroleum-like staining, hand cleared. (2.5'- 4.2') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate petroleum-like odor, moist, brown, petroleum-like staining, hand cleared. (4.2'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown, petroleum-like staining, moderate petroleum-like odor, hand cleared. (5'- 10') no recovery.
	5			213			PLO		
	5	S2	60/NM				PLO		
	5						NLO		
	10	S3	60/57	373				WWSB-14 (10-11)	(10'- 11.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen, tar-like staining, pockets of tar-like coating. (11.1'- 12.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown, sheen. (12.1'- 13.6') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown. (13.6'- 14.6') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; slight naphthalene-like odor, moist, brown, slight burnt-like odor. (14.6'- 15') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, ~5% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown, slight burnt-like odor. (15'- 15.8') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; slight petroleum-like odor, moist, brown. (15.8'- 16.8') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight petroleum-like odor, moist, black, possible petroleum-like staining. (16.8'- 20') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, low plasticity; max. size 2.5, slight naphthalene-like odor, wet, brown.
	10						NLO		
	10						NLO		
	10						NLO		
	10						NLO		
	10						NLO		
	15	S4	60/52	58.6					
	15						PLO		
	15						PLO		
	15						NLO		
	20								

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






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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 3 <b>WW-SB-14</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/56	40.1			PLO		(20'- 21.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine to coarse; max. size 1.5, slight petroleum-like odor, moist, brown, seams of gray petroleum-like staining. (21.5'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, reddish brown, slight burnt-like odor, color change to brown at 24.2 ft.
	-15								
	25	S6	60/46	32.0			NLO		
	-20								
	30	S7	60/42	8.8			NLO		(30'- 35') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, fine, subrounded, ~5% fines, non plastic; max. size 0.75, slight naphthalene-like odor, wet, brown.
	-25								
	35	S8	60/56	3.1			NLO		(35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, lenses of silty sand from 36.6 to 36.7 and 27.2 to 27.3 ft.
	-30								
	40	S9	60/32	1.2			NLO		(40'- 45') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, fine, subangular, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, sight sweet/fruit-like odor.
	-35								
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				PROJECT: <b>Williamsburg MGP RI</b>		PAGE 3 of 3			
CITY/STATE: <b>Brooklyn, New York</b>		GEI PROJECT NUMBER: <b>093060</b>				<b>WW-SB-14</b>			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45						NLO		End of Boring at 45 feet. Refusal at 45 feet. Grouted
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GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
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**WW-SB-15**

GROUND SURFACE ELEVATION (FT): 7.11 LOCATION: North 12th Street  
NORTHING (FT): 689278 EASTING (FT): 641493 TOTAL DEPTH (FT): 53.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 9/17/2009 - 9/18/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 4.50 9/17/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/38						(0'- 0.5') CONCRETE.
	5								(0.5'- 2.9') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~45% sand, fine to coarse, ~40% gravel, fine to coarse, subangular, ~15% fines; max. size 1.5, gray brown, brick fragments, hand cleared. FILL.
	5			1445			NLO	WWSB-15 (3-5)	(2.9'- 4.6') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, non plastic, ~5% gravel, fine, subrounded; max. size 0.5, slight naphthalene-like odor, moist, dark gray to black, hand cleared.
	5	S2	60/18				NLO		(4.6'- 6.4') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, angular to subangular, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, dark gray, sheen, hand cleared to 5 ft.
	0			2637			NLO	WWSB-15 (7-9)	(6.4'- 8.3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to medium, ~20% gravel, fine to coarse, subangular, ~10% fines, medium plasticity; max. size 1.5, moderate naphthalene-like odor, wet, dark gray to black, sheen, tar-like staining.
	10						NLO		(8.3'- 9.4') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; moderate naphthalene-like odor, moist, dark gray to black, slight petroleum-like odor.
	10	S3	60/40	2283			NLO		(9.4'- 11.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, angular to subangular, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, dark gray to black, sheen, slight tar-like staining.
	-5						NLO		(11.5'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, wet, dark gray to black, lenses of silt and gravel, sheen.
	15	S4	60/57	837			NLO		(15'- 17.9') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, rounded to subrounded, ~5% fines; max. size 0.5, moderate naphthalene-like odor, wet, gray to black, seams of silt starting at 16.6 ft.
	-10						NLO		(17.9'- 18.4') SILT (ML); ~95% fines, non plastic, ~5% sand, fine to medium; moderate naphthalene-like odor, moist, gray.
	20						NLO		(18.4'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; slight naphthalene-like odor, wet, gray, color change to light brown at 19.6 ft.

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR


CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 3 <b>WW-SB-15</b>												
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION							
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)												
	20	S5	60/57	156					(20'- 21') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines, non plastic; moist, light brown, loose. (21'- 22.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, light brown, loose.  (22.4'- 23.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight naphthalene-like odor, moist, light brown. (23.3'- 24.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, moist, light brown. (24.4'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, light brown. (25'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, light brown to gray.							
-15																
	25									S6	60/36	34.0				NLO
-20																
	30	S7	60/42	152				NLO	(30'- 33.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, light brown.  (33.5'- 35') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, subangular to subrounded, ~10% fines; max. size 1.5, slight naphthalene-like odor, moist, light brown.							
-25																
	35	S8	60/33	759				NLO	(35'- 38.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, brown, dense.  (38.3'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% gravel, fine to coarse, subangular; max. size 1, brown, loose.							
-30																
	40	S9	60/39	65.5					(40'- 41.3') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines; moist, brown.  (41.3'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; moist, brown, lenses of silty sand.							
-35																




  

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PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL	ppm = PARTS PER MILLION	NLO = NAPHTHALENE LIKE ODOR	CrLO = CREOSOTE LIKE ODOR
REC = RECOVERY LENGTH OF SAMPLE	IN. = INCHES	PLO = PETROLEUM LIKE ODOR	OLO = ORGANIC LIKE ODOR
PID = PHOTOIONIZATION DETECTOR READING (PPM)	FT. = FEET	TLO = TAR LIKE ODOR	SLO = SULFUR LIKE ODOR
JHS = JAR HEADSPACE PID READING (PPM)		CLO = CHEMICAL LIKE ODOR	MLO = MUSTY LIKE ODOR
		ALO = ASPHALT LIKE ODOR	

NA = NOT APPLICABLE	Q <sub>p</sub> = POCKET PENETROMETER
NM = NOT MEASURED	S <sub>v</sub> = TORVANE PEAK

  GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG  <b>WW-SB-15</b>					
				PAGE 3 of 3					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S10	60/39	4.2					(45'- 53') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; moist, brown.
	50	S11	36/45	11.5					
	45								
End of Boring at 53 feet. Refusal at 53 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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455 Winding Brook Road  
Glastonbury, CT 06033  
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-16**

GROUND SURFACE ELEVATION (FT): 6.54 LOCATION: North 12th Street  
NORTHING (FT): 689339 EASTING (FT): 641416 TOTAL DEPTH (FT): 54.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/22/2009 - 9/28/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 7.50 9/17/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	60/NM	490				WWSB-16 (0.5-5)	(0'- 0.6') CONCRETE.
5									(0.6'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~5% fines; max. size 1, moderate naphthalene-like odor, brown to dark gray, sheen, moderate petroleum-like odor, hand cleared.
5		S2	60/26				NLO		
0									(5'- 7.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines; max. size 1.5, slight naphthalene-like odor, moist, black, black petroleum-like staining, moderate petroleum-like odor.
5				2835			NLO		(7.5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine to coarse; max. size 1, moderate naphthalene-like odor, wet, brown, organics, black petroleum-like staining, moderate petroleum-like odor.
10		S3	60/49				NLO		(10'- 11.9') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75, strong naphthalene-like odor, moist, black, petroleum-like staining, moderate petroleum-like odor.
-5				1161			NLO	WWSB-16 (12-13)	(11.9'- 13') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, ~5% fines, non plastic; max. size 2.5, strong naphthalene-like odor, wet, brown to gray, tar-like blebs, strong organic-like odor.
							NLO		(13'- 13.4') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, low plasticity; slight naphthalene-like odor, moist, black, organics, tar-like staining, petroleum-like staining and moderate odor, strong spicy-like odor.
							PLO		(13.4'- 15') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, low plasticity; moderate petroleum-like odor, moist, black, organics, petroleum-like staining, strong spicy odor.
15		S4	60/60				NLO		(15'- 16.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, wet, black.
-10				2607			NLO		(16.4'- 17.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 1, moderate naphthalene-like odor, wet, black, organics, strong spicy odor.
							NLO		(17.4'- 21.6') SILTY SAND (SM); ~70% sand, fine to medium,
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-20		S5	60/61	2286			NLO		~30% fines, low plasticity; moderate naphthalene-like odor, moist, black, organics, tar-like staining, moderate petroleum-like staining and odor.
-15							NLO		(21.6'- 21.8') SILT (ML). (21.8'- 24') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, reddish brown, gray varves of silty sand, petroleum-like staining, slight petroleum-like odor, spicy-like odor. (24'- 24.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown, slight spicy odor. (24.8'- 25') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, reddish brown, gray varves of silty sand, petroleum-like staining, slight petroleum-like odor, spicy-like odor. (25'- 27.7') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, brown, moderate spicy odor. (27.7'- 30') SILTY SAND (SW-SM); ~70% sand, fine to coarse, ~30% fines, low plasticity; moist, light brown, dense, moderate spicy odor.
-25		S6	60/42	28.5			NLO		(30'- 35') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, low plasticity; max. size 1.5, moist, brown, lens of silty sand, slight spicy odor.
-30		S7	60/52	28.7					
-35		S8	48/NM	7.0					(35'- 47') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight naphthalene-like odor, wet, brown.
-40		S9	48/53				NLO		
-45		S10	48/56						

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455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-17**

GROUND SURFACE ELEVATION (FT): 14.77 LOCATION: Kent Ave  
NORTHING (FT): 688591 EASTING (FT): 641925 TOTAL DEPTH (FT): 48.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/12/2009 - 8/13/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 6.00 8/12/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	0.0				WWSB-17 (2-4)	(0'- 0.5') CONCRETE. (0.5'- 5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; dry, brown, hand cleared. FILL.
	5	S2	60/56	0.0					(5'- 7.3') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; brown, wet at 6 ft. FILL.
	10								(7.3'- 8.7') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; wet, gray, iron oxide mottling. FILL.
	15								(8.7'- 10') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines, non plastic; max. size 0.5, wet, orange brown to gray, FILL.
	20	S3	60/60						(10'- 12') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; dry, brown, FILL.
	25								(12'- 16.6') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 1, wet, brown to gray brown, lens of cobble from 13.2 to 13.4 ft. FILL.
	30	S4	24/51	0.1					(16.6'- 16.8') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, subangular, ~25% sand, fine to medium, ~5% fines, non plastic; max. size 1.5, wet, reddish brown, FILL.
	35	S4B	36/0						(16.8'- 17') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, subangular, ~10% fines, non plastic; max. size 0.5, wet, dark gray, FILL.
	40								(17'- 20') no recovery. FILL.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-SB-17**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/60	4.7					(20'- 20.8') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine, subangular, ~5% fines, non plastic; max. size 0.5, moist, light brown, FILL. (20.8'- 21.1') WIDELY GRADED GRAVEL WITH SAND (GW); ~75% gravel, fine to coarse, subangular, ~20% sand, fine to coarse, ~5% fines, non plastic; max. size 1.25, gray, possible cobble fragments. FILL. (21.1'- 25') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine, subangular; max. size 0.75, moist, dark gray, cinders, brick, coal fragments. FILL.
	25	S6	60/44	1099			NLO		(25'- 28.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown to black, moderate sheen.
	30	S7	60/58	8326			NLO		(28.9'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown to black, moderate tar-like staining. (30'- 33') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, wet, dark brown, sheen, tar-like staining, lenses of tar-like coating.
	35	S8	60/48	8.2			NLO	WWSB-17 (32-33)	(33'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, dark brown. (35'- 38.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.
	40	S9	60/58	166			NLO		(38.6'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown. (40'- 43.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.
							NLO		(43.4'- 45') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown

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ALO = ASPHALT LIKE ODOR

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		BORING LOG  <b>WW-SB-17</b>					
		PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>				PAGE 3 of 3			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-30	45	S10	36/57	385			NLO	<b>WWSB-17 (45-46)</b>  to reddish brown. (45'- 46.8') SANDY SILT (ML); ~65% fines, low plasticity, slow dilatancy, ~35% sand, fine; slight naphthalene-like odor, wet, grayish brown, lenses of silty sand.  (46.8'- 48') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, lens of sandy silt from 47.2 to 47.4 ft.  End of Boring at 48 feet. Refusal at 48 feet. Grouted	
							NLO		
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



GEI Consultants, Inc.  
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

BORING LOG	
PAGE 1 of 3	WW-SB-18

GROUND SURFACE ELEVATION (FT):	11.09	LOCATION:	Kent Ave
NORTHING (FT):	688861	EASTING (FT):	642171
DRILLED BY:	Zebra Environmental / Luke Caballero		TOTAL DEPTH (FT):
LOGGED BY:	Kari Weber	DATUM VERT. / HORZ.:	NAVD 88 / NAD83 NY East Zone
DRILLING DETAILS:	Geoprobe	DATE START / END:	7/27/2009 - 8/7/2009
WATER LEVEL DEPTHS (FT):	▽ 6.90 8/7/2009		
GENERAL NOTE:			

[illegible]

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				<b>PROJECT:</b> Williamsburg MGP RI <b>CITY/STATE:</b> Brooklyn, New York <b>GEI PROJECT NUMBER:</b> 093060					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S10	60/56	102	[Pattern: Dotted]			WWSB-18 (51-53)	(45'- 48.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
	-35						NLO		
	50	S11	60/59	5.9	[Pattern: Vertical Lines]				(50'- 50.9') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
	-40						NLO		(50.9'- 52.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
					[Pattern: Horizontal Lines]				(52.9'- 53.8') SILTY SAND (ML); ~60% fines, low plasticity, ~40% sand, fine; slight naphthalene-like odor, moist, brown, slight petroleum-like odor, sand lens from 53.7 to 53.8 ft.
	55						NLO		(53.8'- 55') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight naphthalene-like odor, reddish gray, sand lens from 54.7 to 54.9 ft.
									End of Boring at 55 feet. Grouted
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GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-19**

GROUND SURFACE ELEVATION (FT): **16.10** LOCATION: **35 Kent Ave**  
NORTHING (FT): **688521** EASTING (FT): **642165** TOTAL DEPTH (FT): **55.0**  
DRILLED BY: **Boart Longyear / Fred Lavoie** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Maura MacLeod** DATE START / END: **7/28/2009 - 7/30/2009**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 15.00 7/13/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	60/NM						(0'- 0.7') CONCRETE.
15				23.5				WWSB-19 (2-3)	(0.7'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, brown, brick and coal fragments, hand cleared. FILL.
5	5	S2	120/50					WWSB-19 (4-5)	(5'- 10') rock in sample casing, no recovery.
10									
5	10								(10'- 13') CONCRETE; ~95% sand, fine to coarse, ~5% fines; ~70% concrete fragments, max. size 3, light gray, loose, concrete-like odor. FILL.
15				119			PLO	WWSB-19 (14-15)	(13'- 15') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, ~10% gravel, fine to coarse, angular; max. size 1, slight petroleum-like odor, moist, brown to grayish brown, brick and concrete fragments, lenses of silt. FILL.
0	15	S3	120/106				PLO		(15'- 16.3') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 3, moderate petroleum-like odor, wet, brown, loose, slight sheen.
							PLO		(16.3'- 18') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, wet, brown, slight sheen.
							PLO		(18'- 19.6') SILTY SAND WITH GRAVEL (SM); ~65% sand, fine to medium, ~20% fines, non plastic, ~15% gravel, fine to coarse; max. size 2.5, moderate petroleum-like odor, brown.
20							PLO		(19.6'- 20.6') WIDELY GRADED SAND (SW); ~95% sand, fine to

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG <b>WW-SB-19</b>			
				PAGE 3 of 3					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S6	120/64	6.0			WWSB-19 (47-50)	(45'- 48.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; brown, loose.	
-30									
	50								
-35									
	55							End of Boring at 55 feet. Grouted	

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GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-20**

GROUND SURFACE ELEVATION (FT): 15.94 LOCATION: 35 Kent Ave  
NORTHING (FT): 688605 EASTING (FT): 642141 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Fred Lavoie DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/29/2009 - 7/21/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 10.00 7/15/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0		S1	60/NM						(0'- 0.5') CONCRETE.
15				0.4				WWSB-20 (3-5)	(0.5'- 10') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.5, reddish brown, brick fragments, possible ground brick, hand cleared to 5 feet. FILL.
5		S2	60/26	0.3					
10									
10		S3	60/20	32.8					(10'- 11.5') LEAN CLAY (CL); ~70% fines, medium plasticity, ~30% sand, fine to medium; gray, FILL.
5									(11.5'- 15') BRICK; brick fragments. FILL.
15		S4	120/76	21.6					(15'- 18.7') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 3, slight naphthalene-like odor, gray, red portions from brick. FILL.
0							NLO		
							NLO		(18.7'- 19.7') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, strong naphthalene-like odor,
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-20**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20			825			NLO		brown. (19.7'- 21.6') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, non plastic, ~10% gravel, fine; max. size 0.5, slight naphthalene-like odor, brown, very dense. (21.6'- 23.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, brown, moderate burnt-like odor. (23.2'- 25') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.75, slight naphthalene-like odor, gray brown, slight burnt-like odor. (25'- 26.3') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 2, slight petroleum-like odor, gray brown. (26.3'- 26.9') SILTY SAND (SP); ~85% sand, fine to medium, ~15% fines, non plastic; gray, moderate burnt rubber-like odor. (26.9'- 28.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; gray, moderate burnt-like odor. (28.1'- 33.2') SILTY SAND (SP); ~85% sand, fine to medium, ~15% fines, non plastic; gray, moderate burnt-like odor.  (33.2'- 33.8') Possible bolder. (33.8'- 35') SILTY SAND (SP); ~85% sand, fine to medium, ~15% fines, non plastic; gray, moderate burnt rubber-like odor.  (35'- 45') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, ~5% gravel; max. size 0.5, slight naphthalene-like odor, moist, brown, very dense.
	-5						NLO		
							NLO		
				377			NLO		
	25	S5	120/112	347			PLO		
	-10								
	30			313					
	-15								
	35	S6	120/56						
	-20								
	40			58					
	-25								
				1805					

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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S7	120/42				NLO		(45'- 52.6') WIDELY GRADED SAND (SW); ~100% sand, fine to medium; moderate naphthalene-like odor, wet, brown, loose.
	-30						NLO		
	50						NLO		(52.6'- 55') WIDELY GRADED SAND WITH GRAVEL (SW); ~85% sand, fine to coarse, ~15% gravel; ~5% cobbles, max. size 1, strong naphthalene-like odor, wet, brown, loose.
	-35						NLO		
	55	S8	120/89	2885			NLO	WWSB-20 (55-57)	(55'- 58') WIDELY GRADED SAND (SW); ~100% sand, medium to coarse; strong naphthalene-like odor, brown, very loose, tar-like staining and partial coating.
	-40						NLO		
	60						NLO	WWSB-20 (62-63)	(58'- 59.4') WIDELY GRADED SAND (SW); ~100% sand, medium to coarse; strong naphthalene-like odor, brown, very loose. (59.4'- 59.8') WIDELY GRADED SAND (SW); ~100% sand, fine to medium; moderate naphthalene-like odor, moist, brown. (59.8'- 63.1') SANDY SILT (ML); ~75% fines, ~25% sand, fine; slight naphthalene-like odor, brown gray, occasional sandy pockets.
	-45						NLO		
	65						SLO		(63.1'- 64') WIDELY GRADED SAND (SW); ~100% sand, fine to medium; slight sulfur-like odor. (64'- 65') LEAN CLAY (CL); ~100% fines; red, very dense.
									End of Boring at 65 feet. Geoprobe refusal at 10' with Zebra Environmental, boring completed by Boart Longyear using sonic drilling methods. Grouted
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**BORING LOG**

PAGE  
1 of 4

**WW-SB-21**

GROUND SURFACE ELEVATION (FT): **12.24** LOCATION: **35 Kent Ave**  
NORTHING (FT): **688662** EASTING (FT): **642188** TOTAL DEPTH (FT): **78.0**  
DRILLED BY: **Boart Longyear / Fred Lavoie** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Sarah Hay** DATE START / END: **7/1/2009 - 7/23/2009**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 9.00 7/1/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	0.4				WWSB-21 (1-2)	(0'- 0.67') CONCRETE.
	10						OLO		(0.67'- 5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate organic-like odor, reddish brown, brick fragments, hand cleared. FILL.
	5	S2	60/28	5.2					(5'- 7') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, light brown and dark brown, brick fragments. FILL.
	5								(7'- 7.8') layer of brick from 7 to 7.3 ft, layer of organics with roots from 7.3 to 7.8 ft. FILL.
	10								(7.8'- 9.2') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, light brown, brick fragments, layer of brick from 8.5 to 9 ft. FILL.
	10	S3	120/72						(9.2'- 10') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, slight petroleum-like odor, wet, light brown, brick fragments. FILL.
	0								(10'- 14.4') BRICK AND CONCRETE; ~95% sand, fine to coarse, ~5% fines; ~75% crushed brick and concrete, moderate naphthalene-like odor, wet, brown to brownish black, coal ash, and wood fragments. FILL.
	15			21.0					(14.4'- 17.4') WIDELY GRADED SAND WITH GRAVEL (SW); ~55% sand, fine to coarse, ~40% gravel, ~5% fines; strong naphthalene-like odor, moist, light brown, wood fragments, sheen. FILL.
	-5			2538					(17.4'- 20') WIDELY GRADED SAND (SW); ~80% sand, fine to medium, ~15% gravel, ~5% fines; ~15% brick and concrete fragments, strong naphthalene-like odor, moist, brown, orange lenses, sheen, 5 inch concrete fragment in sample tip. FILL.
	-20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
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**WW-SB-21**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S4	60/24						(20'- 25') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines; moist, gray to grayish brown, dense.
	-10			228					
	25	S5	60/60	149					(25'- 27.7') SANDY SILT (ML); ~70% fines, ~25% sand, fine to coarse, ~5% gravel, fine to coarse, angular to well rounded; max. size 2, moist, dark gray, dense, red sandstone particles from 27.3 to 27.7 ft.
	-15								(27.7'- 30') WIDELY GRADED SAND WITH SILT (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, angular to subrounded, ~10% fines; max. size 1.5, moist, dark gray, red sandstone.
	30	S6	120/104						(30'- 33.2') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; slight naphthalene-like odor, moist, brown, loose.
	-20			2114			NLO	WWSB-21 (33-34)	(33.2'- 35.4') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; strong naphthalene-like odor, moist, brown, loose, tar-like staining and blebs.
	-25						NLO		(35.4'- 40') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; moderate naphthalene-like odor, moist, brown, loose.
	35								
	-30						NLO		
	40	S7	120/96						(40'- 43.3') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; strong naphthalene-like odor, moist, dark brown, loose, moderate tar-like staining.
	-30			799			NLO		(43.3'- 44.8') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; slight naphthalene-like odor, moist, brown, loose.
							NLO		

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JHS = JAR HEADSPACE PID READING (PPM)


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13



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GEI Consultants, Inc.

455 Winding Brook Road

Glastonbury, CT 06033

(860) 368-5300

CLIENT: **National Grid**

PROJECT: **Williamsburg MGP RI**

CITY/STATE: **Brooklyn, New York**

GEI PROJECT NUMBER: **093060**

BORING LOG

PAGE  
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**WW-SB-21**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45				[Pattern: dots]				(44.8'- 46.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, rounded, ~5% fines; brown, loose, silty pockets approximately 0.5 inch deposits. (46.1'- 50') WIDELY GRADED SAND (SW); ~100% sand, medium to coarse; brown.
	35								
	50	S8	60/48						(50'- 55') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% gravel, fine to coarse, subrounded; max. size 1, moist, brown, loose.
	40			14.6	[Pattern: dots]				
	55	S9	60/60	8.5					(55'- 60') WIDELY GRADED SAND (SW); ~99% sand, medium to coarse, ~1% gravel; brown, loose, trace gravel.
	45								
	60	S10	96/123		[Pattern: vertical lines]				(60'- 63.7') SANDY SILT (ML); ~80% fines, ~20% sand, fine; slight sulfur-like odor, moist, gray.
	50			0.0			SLO		
	65								(63.7'- 68') WIDELY GRADED SAND (SW); ~99% sand, fine to coarse, ~1% fines; brown, loose, pockets of silt, trace red fines.
	55				[Pattern: dots]				
		S11	120/113				SLO	WWSB-21 (68-69)	(68'- 69.6') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; slight sulfur-like odor, brown, loose.



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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>			BORING LOG PAGE 4 of 4 <b>WW-SB-21</b>				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								(69.6'- 73.1') LEAN CLAY (CL); ~100% fines; red and brown gray, dense.  (73.1'- 78') SANDY SILT (ML); ~80% fines, ~20% sand, fine; moist, gray.
	-60			1.5					
	75								
	-65								
End of Boring at 78 feet. Geoprobe refusal at 10' with Zebra Environmental, boring completed by Boart Longyear using sonic drilling methods. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 4

**WW-SB-22**

GROUND SURFACE ELEVATION (FT): 16.04 LOCATION: 35 Kent Ave  
NORTHING (FT): 688642 EASTING (FT): 642078 TOTAL DEPTH (FT): 70.0  
DRILLED BY: Boart Longyear / Fred Lavoie DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 6/29/2009 - 7/27/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 10.50 7/1/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	60/NM	1.2				WWSB-22 (3-4)	(0'- 0.67') CONCRETE.
15							NLO		(0.67'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 0.75, slight naphthalene-like odor, brown, coal fragments, hand cleared.
5	5	S2	60/46	1.0				WWSB-22 (13-15)	(5'- 10') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines, non plastic; max size 0.5, brown.
10									
10	10	S3	60/48	61.9					(10'- 12.8') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines, non plastic; brown, moist from 10.5 to 15 ft, gravel layer from 12.6 to 12.8 ft.
5								PLO	(12.8'- 15') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines, non plastic; slight petroleum-like odor, brown, black staining.
15	15	S4	60/60	6.0					(15'- 20') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines, non plastic; slight petroleum-like odor, brown, wet from 15 to 16.7 ft, moist from 16.7 to 20 ft.
0								PLO	
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 4 <b>WW-SB-22</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
-5	20	S5	60/51	20.6			PLO	WWSB-22 (37-38)	(20'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, brown.	
-10	25	S6	60/48	18.6					NLO	(25'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown, slight petroleum-like odor.
-15	30	S7	60/52	24.0					PLO	(30'- 31.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, brown.
-20	35	S8	120/114	>9999					NLO	(31.3'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, slight petroleum-like odor.
-25	40				NLO	(35'- 36.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% gravel; max. size 3, strong naphthalene-like odor, brown, loose, tar-like staining.				
					NLO	(36.4'- 38.1') SILT WITH SAND (ML); ~80% fines, ~20% sand, fine to coarse; moderate naphthalene-like odor, brown, dense.				
					NLO	(38.1'- 42.2') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; strong naphthalene-like odor, brown, loose, lenses of tar-like staining.				
						OLO			(42.2'- 45') SILT WITH SAND (ML); ~90% fines, ~10% sand, fine to medium; strong organic-like odor, dry, dark brown, very dense.	
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 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG  
 PAGE 3 of 4  
**WW-SB-22**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S9	120/97	15.5	[Pattern: Dotted]		OLO		(45'- 48.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, moderate cement-like odor.
-30							NLO		
	50								
-35					[Pattern: Dotted]		OLO		(48.4'- 55') SILTY SAND (SM); ~80% sand, fine, ~20% fines, non plastic; slight organic-like odor, brown.
	55	S10	120/104				NLO		
-40				76.3					
	60				[Pattern: Dotted]		NLO		(55'- 56.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.
-45					[Pattern: Dotted]				(56.9'- 60.6') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; slight naphthalene-like odor, brown.
							PLO		
	65	S11	60/49	9.2	[Pattern: Dotted]			WWSB-22 (65-65.5)	(60.6'- 65') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, brown.
-50									
					[Pattern: Diagonal Lines]				(65'- 65.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.
									(65.6'- 70') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; reddish gray.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <b>National Grid</b>			<b>BORING LOG</b>	
					PROJECT: <b>Williamsburg MGP RI</b>			PAGE 4 of 4	
CITY/STATE: <b>Brooklyn, New York</b>			GEI PROJECT NUMBER: <b>093060</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								
End of Boring at 70 feet. Geoprobe refusal at 35 ft with Zebra Environmental, boring completed by Boart Longyear using sonic drilling methods. Grouted									
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**BORING LOG**

PAGE  
1 of 3

**WW-SB-23**

GROUND SURFACE ELEVATION (FT): 12.10 LOCATION: 50 Kent Ave  
NORTHING (FT): 688787 EASTING (FT): 641842 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Fred Lavoie DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Sarah Hay DATE START / END: 7/16/2009 - 7/17/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	54/48	188				WWSB-23 (1-4)	(0'- 0.7') CONCRETE.
10							PLO		(0.7'- 4.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% sand, fine to coarse, ~20% gravel, ~10% fines; ~5% brick and wood fragments, max. size 2, slight petroleum-like odor, light brown and brown, hand cleared. FILL.
5		S2	120/64	1081			PLO		(4.5'- 5') Rock. (5'- 7.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~15% fines, ~5% gravel, subangular; max. size 0.5, strong petroleum-like odor, asphalt fragments. FILL.
5									(7.5'- 13.1') SILTY SAND (SM); ~75% sand, fine to medium, ~20% fines, ~5% gravel, subrounded; max. size 0.5, strong naphthalene-like odor, brown to dark gray, slight petroleum-like odor.
10							NLO		
0									
15		S3	120/35	1076					(13.1'- 23.6') SILTY SAND (SM); ~75% sand, fine to medium, ~20% fines, ~5% gravel, subrounded; max. size 0.5, strong naphthalene-like odor, brown to dark gray, lenses of tar-like staining and blebs, slight petroleum-like odor.
-5							NLO		
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13



ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-SB-23</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
45									(44.5'- 48.2') WIDELY GRADED SAND (SW); ~100% sand; gray, tar-like coating, lenses of tar-like saturation.
-35									
50		S6	180/130						(48.2'- 50') SILTY SANDWELL GRADED GRAVEL WITH SANDSILTY SAND (SM); ~84% sand, fine, ~15% fines, ~1% gravel; strong naphthalene-like odor, moist, gray, dense, tar saturated seams.
-40									(50'- 54.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; moderate naphthalene-like odor, brown, tar saturated lenses.
55									
-45				>9999					(54.8'- 59.5') SILTY SAND (SW-SM); ~85% sand, fine to coarse, ~15% fines; strong naphthalene-like odor, lens of sand from 59.2 to 59.7 ft.
60									(59.5'- 60.4') WIDELY GRADED SAND (SW); ~100% sand, medium to coarse; strong naphthalene-like odor, wet, brown, sheen.
-50									(60.4'- 65') LEAN CLAY (CL); ~95% fines, ~5% sand; moderate organic-like odor, wet, red, dense, sand pocket at 61 ft.
65								WWSB-23 (62-63)	
									End of Boring at 65 feet. Grouted
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GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-24**

GROUND SURFACE ELEVATION (FT): 12.30 LOCATION: 50 Kent Ave  
NORTHING (FT): 688884 EASTING (FT): 641934 TOTAL DEPTH (FT): 55.0  
DRILLED BY: Boart Longyear / Fred Lavoie DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Sarah Hay DATE START / END: 7/16/2009 - 7/16/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 7/16/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	5.5					(0'- 0.5') CONCRETE.
	10						PLO		(0.5'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, angular, ~10% fines, non plastic; max. size 2, slight petroleum-like odor, moist, brown, slight organic-like odor, hand cleared. FILL.
	5	S2	120/78					WWSB-24 (4-5)	(5'- 7.6') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, angular to rounded, ~10% fines, non plastic; max. size 2, wet, dark gray, asphalt and brick fragments. FILL.
	5								(7.6'- 12.1') SILTY SAND (SM); ~70% sand, fine to medium, ~25% fines, ~5% gravel, subangular; slight naphthalene-like odor, dark gray to brown, lenses of sand with petroleum-like odor.
	10						NLO		
	0			8959			NLO		(12.1'- 15') SILTY SAND (SM); ~70% sand, fine to medium, ~25% fines, ~5% gravel, subangular; moderate naphthalene-like odor, brown, light tar-like staining, trace tar-like blebs.
	15	S3	120/96				NLO		(15'- 16.7') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, rounded, ~5% fines; max. size 0.25, strong naphthalene-like odor, dark gray, shells, tar-like staining, tar-like seam.
	-5			6418					(16.7'- 20.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, angular to rounded, ~10% fines; max. size 2.5, light brown to dark brown, tar-like staining and blebs.
	20								

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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13



 <div>GEI Consultants</div>		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>			BORING LOG	
				PROJECT: <u>Williamsburg MGP RI</u>			PAGE 3 of 3	WW-SB-24
CITY/STATE: <u>Brooklyn, New York</u>								
GEI PROJECT NUMBER: <u>093060</u>								

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S6	120/110						
	-35								
	50			31.8			NLO		(47.7'- 53.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, subangular, ~10% fines; moderate naphthalene-like odor, wet, brown, moderate organic-like odor.
	-40							WWSB-24 (53-55)	(53.4'- 55') LEAN CLAY (CL); ~95% fines, ~5% sand; red, very small sand lenses.
	55								End of Boring at 55 feet. Grouted

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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1 of 3

**WW-SB-25**

GROUND SURFACE ELEVATION (FT): **9.67** LOCATION: **North 12th Street**  
NORTHING (FT): **689045** EASTING (FT): **641849** TOTAL DEPTH (FT): **55.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Kari Weber** DATE START / END: **7/28/2009 - 7/29/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 5.60 7/28/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	1.9				WWSB-25 (1-3)	(0'- 5.6') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, ~5% gravel, fine; max. size 0.5, dry, brown, brick and coal fragments, hand cleared to 5 ft. FILL.
	5	S2	60/60						(5.6'- 7.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
							PLO		(7.5'- 8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
							OLO		(8'- 8.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight organic-like odor, wet, brown.
	0			1894			PLO		(8.7'- 8.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
							PLO		(8.8'- 9.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
	10	S3	60/0				PLO		(9.3'- 9.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate petroleum-like odor, wet, brown, sheen.
									(9.7'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
	-5								(10'- 15') no recovery.
	15	S4	60/60	4143			NLO		(15'- 15.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong naphthalene-like odor, wet, brown, seams of tar-like staining, slight petroleum-like odor.
							NLO		(15.5'- 16.6') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown, slight petroleum-like odor.
							OLO		(16.6'- 17.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
	-10						OLO		(17.9'- 18.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight
	20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
0 5 10 15 20 25 30 35 40	20	S5	60/52	586			NLO	WWSB-25 (34-35)	organic-like odor, wet, brown. (18.1'- 18.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown. (18.7'- 19.4') SANDY ORGANIC SOIL (OL); low plasticity, fine to medium; moderate organic-like odor, dark gray. (19.4'- 20') WIDELY GRADED SAND (SW); ~95% sand, ~5% fines, low plasticity; wet, brown. (20'- 21.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen, seams of tar and petroleum-like staining, strong petroleum-like odor. (21.3'- 21.6') WIDELY GRADED SAND (SW); ~85% sand, fine to medium, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, light brown to brown, very dense, sheen, moderate petroleum-like odor. (21.6'- 23.7') WIDELY GRADED SAND (SW); ~85% sand, fine to medium, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75, slight naphthalene-like odor, light brown to brown, very dense, slight petroleum-like odor. (23.7'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, slight petroleum-like odor. (25'- 25.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, strong petroleum-like odor. (25.9'- 26.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen and tar-like blebs, strong petroleum-like odor. (26.6'- 26.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, strong petroleum-like odor. (26.8'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown. (30'- 33.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen. (33.9'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, heavy tar-like coating. (35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown gray.	
						NLO				
						NLO				
	-15	25	S6	60/57	3197					NLO
							NLO			
							NLO			
	-20	30	S7	60/28	>15000					NLO
							NLO			
							NLO			
	-25	35	S8	60/20	116.6					NLO
							NLO			
							NLO			
-30	40	S9	60/28	180.7			NLO			
						NLO				

**NOTES:**



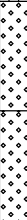

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		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG			
				PROJECT: <u>Williamsburg MGP RI</u>		PAGE 3 of 3	WW-SB-25		
		CITY/STATE: <u>Brooklyn, New York</u>							
		GEI PROJECT NUMBER: <u>093060</u>							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S10	60/50	57.9			NLO	WWSB-25 (52-53)	(45'- 48.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown gray, lenses of silty sand.
							NLO		(48.6'- 50') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; slight naphthalene-like odor, brown gray, dense.
							NLO		
-40	50	S11	60/45	76.1			NLO		(50'- 52') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; slight naphthalene-like odor, wet, brown, occasional gray sand lenses, slight petroleum-like odor.
									(52'- 54.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.5.
-45	55								(54.1'- 55') LEAN CLAY (CL); medium plasticity; moist, red and gray. End of Boring at 55 feet. Grouted

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GEI PROJECT NUMBER: **093060**

**BORING LOG**

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1 of 2

**WW-SB-26**

GROUND SURFACE ELEVATION (FT): **10.37** LOCATION: **North 12th Street**  
NORTHING (FT): **688965** EASTING (FT): **641945** TOTAL DEPTH (FT): **42.0**  
DRILLED BY: **Zebra Environmental / Luke Caballero** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Maura MacLeod** DATE START / END: **7/29/2009 - 7/30/2009**  
DRILLING DETAILS: **Geoprobe**  
WATER LEVEL DEPTHS (FT): **▽ 5.00 7/29/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
10	0	S1	60/NM	>15000				WWSB-26 (1-4)	(0'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate petroleum-like odor, dry, brown, coal and brick fragments, hand cleared. FILL.
							PLO		
	5	S2	60/51	>15000				WWSB-26 (12-13)	(5'- 5.7') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; moist, brown, FILL. (5.7'- 7.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, black petroleum-like staining. FILL. (7.1'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, FILL.
							PLO		
							PLO		
	10	S3	60/31	>15000				WWSB-26 (12-13)	(10'- 13.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, sheen. FILL.
							PLO		
							PLO		
	15	S4	60/51	44.5				WWSB-26 (12-13)	(13.4'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, FILL. (15'- 15.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight petroleum-like odor, wet, brown, FILL. (15.9'- 17') SILTY SAND (SM); ~85% sand, fine, ~15% fines; moderate petroleum-like odor, wet, gray, FILL. (17'- 18.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, gray brown, FILL.
							PLO		
							PLO		
	20								(18.7'- 19.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75, brown, FILL.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-27**

GROUND SURFACE ELEVATION (FT): 11.09 LOCATION: North 12th Street  
NORTHING (FT): 688923 EASTING (FT): 641999 TOTAL DEPTH (FT): 53.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/3/2009 - 8/5/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 1.30 8/3/2009  
GENERAL NOTE: Stepout of WWMW-07

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
▽ 10	0	S1	60/34						(0'- 4.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, brown, dry brick, wet at 1.3 ft, hand cleared. FILL.
	5	S2	60/54	84.3			PLO	WWSB-27 (4-5)	(4.7'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, slight petroleum-like odor, wet, brown, hand cleared. FILL.
	5			958			PLO		(5'- 6.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, moderate petroleum-like odor, wet, brown, FILL.
	10	S3	60/37				NLO		(6.5'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate petroleum-like odor, moist, brown, dense. FILL.
	0			2045			NLO	WWSB-27 (14-15)	(10'- 13.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown, loose, sheen, moderate petroleum-like odor. FILL.
	15	S4	60/53	8.4					(13.8'- 15.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, brick fragments from 15 to 15.9 ft, moderate petroleum-like odor. FILL.
	-5								(15.9'- 17.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown gray, moderate sweet/fruity-like odor.
							PLO		(17.7'- 18.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; greenish gray, moderate sweet/fruity-like odor.
	20						PLO		(18.4'- 18.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, black,

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid		<b>BORING LOG</b>  <b>WW-SB-27</b>	
				<b>PROJECT:</b> Williamsburg MGP RI			
				<b>CITY/STATE:</b> Brooklyn, New York		<b>PAGE</b> 2 of 3	
				<b>GEI PROJECT NUMBER:</b> 093060			

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-10	20	S5	60/59	3.6	[Pattern]			odor is sweet/fruity-like. (18.9'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, brown, odor is sweet/fruity-like. (20'- 23.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, medium plasticity; slight petroleum-like odor, light brown, odor is sweet/fruity-like. (23.1'- 23.7') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight petroleum-like odor, brown, dense, odor is sweet/fruity-like. (23.7'- 25') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, brown, dense. (25'- 25.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, wet, brown, loose, odor is sweet/fruity-like. (25.9'- 30') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, dry, brown, dense, iron oxide staining.	
							PLO		
							PLO		
-15	25	S6	60/58	5.0	[Pattern]			(30'- 30.6') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight petroleum-like odor, moist, brown, iron oxide staining. (30.6'- 33.5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, brown, dry, dense, iron oxide staining. (33.5'- 35') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight petroleum-like odor, moist, brown, odor is sweet/fruity-like. (35'- 38.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, moist, dark brown.	
							PLO		
-20	30	S7	60/59		[Pattern]			(38.6'- 40') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, brown, dry, dense, iron oxide staining. (40'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, moderate petroleum-like odor.	
							PLO		
-25	35	S8	60/33	17.5	[Pattern]			(40'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, moderate petroleum-like odor.	
							PLO		
-30	40	S9	60/40	229	[Pattern]			(40'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, moderate petroleum-like odor.	
							NLO		

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL      ppm = PARTS PER MILLION  
 REC = RECOVERY LENGTH OF SAMPLE                              IN. = INCHES  
 PID = PHOTOIONIZATION DETECTOR READING (PPM)              FT. = FEET  
 JHS = JAR HEADSPACE PID READING (PPM)

NA = NOT APPLICABLE      Q<sub>p</sub> = POCKET PENETROMETER  
 NM = NOT MEASURED      S<sub>v</sub> = TORVANE PEAK

NLO = NAPHTHALENE LIKE ODOR      ClO = CREOSOTE LIKE ODOR  
 PLO = PETROLEUM LIKE ODOR      OLO = ORGANIC LIKE ODOR  
 TLO = TAR LIKE ODOR      SLO = SULFUR LIKE ODOR  
 CLO = CHEMICAL LIKE ODOR      MLO = MUSTY LIKE ODOR  
 ALO = ASPHALT LIKE ODOR







GEI Consultants, Inc.  
455 Winding Brook Road  
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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-28**

GROUND SURFACE ELEVATION (FT): 13.13 LOCATION: North 11th Street  
NORTHING (FT): 688687 EASTING (FT): 641806 TOTAL DEPTH (FT): 30.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/14/2009 - 8/19/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 8/14/2009  
GENERAL NOTE: Stepout of WWMW-06

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/27	18.9				WWSB-28 (3-5)	(0'- 0.5') CONCRETE. (0.5'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight organic-like odor, moist, dark gray, hand cleared. FILL.
	10						OLO		
	5	S2	60/24	948					(5'- 8.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to medium, ~10% fines, non plastic, ~5% gravel, fine to coarse, subangular; max. size 1, slight naphthalene-like odor, wet, dark gray, FILL.
	5						NLO		
	10	S3	60/38	238					(8.8'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, ~10% fines, non plastic, ~5% gravel; max. size 1, moderate naphthalene-like odor, trace pottery fragments. FILL. (10'- 11.8') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, moist, dark gray.
	0								(11.8'- 14.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moist, gray.
	15	S4	60/56	1633			NLO		(14.7'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, moist, gray, slight tar-like staining.
							NLO		(15'- 17.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown gray.
	-5						NLO		(17.5'- 18.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, wet, brown gray, sheen, moderate tar-like staining and coating.
	20						NLO		(18.2'- 20') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight

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ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET








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PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



 <b>GEI</b> Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> <u>National Grid</u>		<b>BORING LOG</b>  <b>WW-SB-28</b>						
		<b>PROJECT:</b> <u>Williamsburg MGP RI</u> <b>CITY/STATE:</b> <u>Brooklyn, New York</u> <b>GEI PROJECT NUMBER:</b> <u>093060</u>				<b>PAGE</b> 2 of 2				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)						
	20	S5	60/47				NLO	<b>WWSB-28 (22-23)</b>	naphthalene-like odor, wet, brown. (20'- 22.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight naphthalene-like odor, wet, brown, slight tar-like staining.	
	-10			>9999					NLO	(22.1'- 23.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight naphthalene-like odor, wet, brown, moderate tar-like staining and coating.
	-15								NLO	(23.7'- 25') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight naphthalene-like odor, wet, brown, tar-like staining with blebs and globs. (25'- 30') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.75, slight naphthalene-like odor, dry, brown, dense.
	25	S6	60/29	384			NLO			
	-30									
									End of Boring at 30 feet. Refusal at 30 feet. Sample shoe chipped with rock in shoe. Grouted	
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PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-29**

GROUND SURFACE ELEVATION (FT): 11.51 LOCATION: North 11th Street  
NORTHING (FT): 688760 EASTING (FT): 641716 TOTAL DEPTH (FT): 28.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/18/2009 - 8/19/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 8/18/2009  
GENERAL NOTE: Stepout of WWSB-10

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0								(0'- 2') hand cleared.
	10	S1	36/21	101			PLO	WWSB-29 (2-5)	(2'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, slight petroleum-like odor, dry, brown, moist at 2.6 ft, hand cleared.
	5	S2	60/9	423			NLO		(5'- 10') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown, moderate petroleum-like odor.
	10	S3	60/54	51.4			NLO		(10'- 14.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, wet, gray brown, loose, slight petroleum-like odor.
	15	S4	60/59				NLO		(14.7'- 15') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, moist, brown, tar-like staining, pockets of tar-like coating.
	-5						NLO		(15'- 16.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown.
				1516			NLO		(16.6'- 19.6') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, moist, brown, sheen, pockets of tar-like coating and blebs.
	20						NLO		(19.6'- 20') WIDELY GRADED SAND (SW); ~90% sand, fine to

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 2 of 2 <b>WW-SB-29</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/59	96.1			NLO	WWSB-29 (20-22)	coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, strong naphthalene-like odor, moist, brown, sheen, pockets of tar-like coating and blebs. (20'- 21.9') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, moist, brown, sheen, tar-like blebs, and pockets of tar-like coating. (21.9'- 25') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1, moderate naphthalene-like odor, dry, reddish brown, very dense, sheen.
	-10						NLO		
	25	S6	36/16	315			NLO		(25'- 28') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown, dense.
	-15						NLO		
End of Boring at 28 feet. Refusal at 28 feet. Rock in sample shoe. Grouted									
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GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-30**

GROUND SURFACE ELEVATION (FT): 10.51 LOCATION: North 11th Street  
NORTHING (FT): 688819 EASTING (FT): 641642 TOTAL DEPTH (FT): 50.0  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/18/2009 - 8/20/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.90 8/18/2009  
GENERAL NOTE: Stepout of WWMW-08

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
10	0							(0'- 2') Hand cleared.
		S1	36/24	562		PLO	WWSB-30 (2-5)	(2'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate petroleum-like odor, dry, brown, coal fragments, organics, roots, hand cleared. FILL.
5	5	S2	60/47	747		PLO	WWSB-30 (7-9)	(5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate petroleum-like odor, dry, brown, brick and coal fragments, change to wet at 5.9 ft. FILL.
0	10	S3	60/0					(10'- 15') no recovery.
-5	15	S4	60/60	63.5				(15'- 17.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; wet, light brown.
						PLO		(17.9'- 18.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, light brown, lenses of silt.
						PLO		(18.7'- 19.4') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; slight petroleum-like odor, gray.
	20					PLO		

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <u>National Grid</u>			BORING LOG	
					PROJECT: <u>Williamsburg MGP RI</u>			PAGE 3 of 3	
CITY/STATE: <u>Brooklyn, New York</u>			GEI PROJECT NUMBER: <u>093060</u>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION	
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-35	45	S10	60/60	10.1			WWSB-30 (45-50)		
	50	End of Boring at 50 feet. Grouted							
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**BORING LOG**

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1 of 3

**WW-SB-31**

GROUND SURFACE ELEVATION (FT): 9.68 LOCATION: North 11th Street  
NORTHING (FT): 688864 EASTING (FT): 641586 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/26/2009 - 8/27/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 9.10 8/26/2009  
GENERAL NOTE: Step out of WWSB-13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	1365			PLO	WWSB-31 (1-5)	(0'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, moderate petroleum-like odor, brown, brick and coal fragments, black petroleum-like staining, hand cleared. FILL.
	5	S2	60/23	1809			NLO		(5'- 5.9') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, slight naphthalene-like odor, brown, brick and coal fragments, black petroleum-like staining and odor. FILL.
							NLO		(5.9'- 7.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, moderate naphthalene-like odor, brown, moderate petroleum-like odor. FILL.
							NLO		(7.4'- 9.1') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, moderate naphthalene-like odor, black, coal and brick fragments, moderate petroleum-like odor. FILL.
	10	S3	60/19	1767			NLO		(9.1'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, moderate naphthalene-like odor, wet, black, coal and brick fragments, tar-like staining, moderate petroleum-like odor. FILL.
							NLO		(10'- 12.9') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2, moderate naphthalene-like odor, black, brick and coal fragments, tar and petroleum-like staining. FILL.
	15	S4	60/57	2274			NLO	WWSB-31 (15-17)	(12.9'- 15') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine to coarse, ~5% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, brown black, moderate petroleum-like odor. FILL.
				754			PLO		(15'- 17.5') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, moderate tar and petroleum-like staining, moderate petroleum-like odor. FILL.
							OLO		(17.5'- 17.9') ORGANIC SOIL WITH SAND (OL); ~70% fines, low plasticity, ~30% sand, fine; strong petroleum-like odor, wet, black, wood fragments and organics, petroleum-like saturation. FILL.
	20								

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-20  <									

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
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				PROJECT: <b>Williamsburg MGP RI</b>		PAGE 3 of 3			
				CITY/STATE: <b>Brooklyn, New York</b>		<b>WW-SB-31</b>			
				GEI PROJECT NUMBER: <b>093060</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S10	60/41	8.3			NLO	<b>WWSB-31 (52-54)</b>	(45.9'- 47.8') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; moist, gray brown.  (47.8'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.  (50'- 53.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown.  (53.8'- 55') LEAN CLAY (CL); ~90% fines, ~10% sand, fine; red gray.  (55'- 60') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight naphthalene-like odor, reddish gray, dense.
	50	S11	60/54	23.7			NLO		
	55	S12	60/62	398			NLO		
	60								End of Boring at 60 feet. Grouted

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL	ppm = PARTS PER MILLION	NLO = NAPHTHALENE LIKE ODOR	CrLO = CREOSOTE LIKE ODOR
REC = RECOVERY LENGTH OF SAMPLE	IN. = INCHES	PLO = PETROLEUM LIKE ODOR	OLO = ORGANIC LIKE ODOR
PID = PHOTOIONIZATION DETECTOR READING (PPM)	FT. = FEET	TLO = TAR LIKE ODOR	SLO = SULFUR LIKE ODOR
JHS = JAR HEADSPACE PID READING (PPM)		CLO = CHEMICAL LIKE ODOR	MLO = MUSTY LIKE ODOR
		ALO = ASPHALT LIKE ODOR	

NA = NOT APPLICABLE	Q <sub>p</sub> = POCKET PENETROMETER
NM = NOT MEASURED	S <sub>v</sub> = TORVANE PEAK



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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 3

**WW-SB-32**

GROUND SURFACE ELEVATION (FT): 8.70 LOCATION: North 11th Street  
NORTHING (FT): 688932 EASTING (FT): 641502 TOTAL DEPTH (FT): 45.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 8/27/2009 - 8/28/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 3.00 8/27/2009  
GENERAL NOTE: Stepout of WWMW-11

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
▽	0	S1	60/28					WWSB-32 (4-5)	(0'- 1.4') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.5, dry, black, coal fragments, hand cleared. FILL.
							OLO		(1.4'- 3') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, moderate organic-like odor, dry, gray brown, hand cleared. FILL.
	5			651			PLO		(3'- 5.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, wet, gray, petroleum-like staining, hand cleared to 5 ft. FILL.
	5	S2	60/29				NLO		(5.7'- 7.1') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, moderate naphthalene-like odor, moist, black, coal fragments, petroleum-like staining, moderate petroleum-like odor. FILL.
							NLO	WWSB-32 (10-11)	(7.1'- 7.8') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine, ~10% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, dry, black, organics, moderate petroleum-like odor. FILL.
	0			1787			NLO		(7.8'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, fine to coarse, ~40% sand, fine to coarse, ~5% fines, non plastic; max. size 0.75, strong naphthalene-like odor, black, brick and coal fragments, yellow-green tar-like staining and coating. FILL.
	10	S3	60/32	1984			NLO		(10'- 11.3') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, fine to coarse, ~40% sand, fine to coarse, ~5% fines, non plastic; max. size 0.75, strong naphthalene-like odor, black, brick and coal fragments, tar-like staining and coating, slight petroleum-like odor. FILL.
							NLO		(11.3'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~55% gravel, fine to coarse, ~40% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, gray, pockets of black petroleum-like staining moderate petroleum-like odor.
	15	S4	60/27	1088			NLO		(15'- 17.2') WIDELY GRADED GRAVEL WITH SAND (GW); ~65% gravel, fine to coarse, ~30% sand, fine to coarse, ~5% fines, non plastic; max. size 1, strong naphthalene-like odor, moist, gray brown, tar-like staining, moderate petroleum-like odor.
							NLO		(17.2'- 18.7') WIDELY GRADED GRAVEL WITH SAND (GW); ~65% gravel, fine to coarse, ~30% sand, fine to coarse, ~5% fines, non plastic; max. size 1, strong naphthalene-like odor, moist, gray brown, moderate petroleum-like odor.
	-10						PLO		(18.7'- 20') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight petroleum-like odor, moist, black.
	20								

**NOTES:**

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REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)







ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR


CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

<div>GEI Consultants</div> <div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div>		CLIENT: <b>National Grid</b>		BORING LOG					
		PROJECT: <b>Williamsburg MGP RI</b>		PAGE 2 of 3	WW-SB-32				
		CITY/STATE: <b>Brooklyn, New York</b>							
		GEI PROJECT NUMBER: <b>093060</b>							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/50	1471			NLO		(20'- 21.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, gray black, strong petroleum-like odor. (21.2'- 22.6') WIDELY GRADED GRAVEL WITH SAND (GW); ~65% gravel, fine to coarse, ~30% sand, fine to coarse, ~5% fines, non plastic; max. size 1, strong naphthalene-like odor, moist, gray brown, tar-like staining, moderate petroleum-like odor. (22.6'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, moist, light brown.  (25'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, light brown, lens of gravel from 28.3 to 28.4 ft.  (30'- 33.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, moist, light brown.  (33.2'- 35') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moist, light brown.  (35'- 40') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, moist, light brown, dense, lenses of reddish-brown clay from 38.1 to 40 ft.  (40'- 43.6') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5, slight petroleum-like odor, moist, light brown, dense, lenses of reddish-brown clay.  (43.6'- 45') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight petroleum-like odor, moist, reddish gray,
							NLO		
							PLO		
	25	S6	60/49	5.6					
	30	S7	60/34	31.8			PLO		
	35	S8	60/35	29.6					
	40	S9	60/57				PLO		
				89.5			PLO	WWSB-32 (43-44)	
NOTES:									
PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL      ppm = PARTS PER MILLION      NLO = NAPHTHALENE LIKE ODOR      CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE      IN. = INCHES      PLO = PETROLEUM LIKE ODOR      OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)      FT. = FEET      TLO = TAR LIKE ODOR      SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)           CLO = CHEMICAL LIKE ODOR      MLO = MUSTY LIKE ODOR ALO = ASPHALT LIKE ODOR									
NA = NOT APPLICABLE      Qp = POCKET PENETROMETER NM = NOT MEASURED      Sv = TORVANE PEAK									

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

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		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 3 of 3			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45						PLO		dense. End of Boring at 45 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER    MLO = MUSTY LIKE ODOR NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK    CLO = CHEMICAL LIKE ODOR ALO = ASPHALT LIKE ODOR									



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-34**

GROUND SURFACE ELEVATION (FT): 7.47 LOCATION: North 12th Street  
NORTHING (FT): 689254 EASTING (FT): 641588 TOTAL DEPTH (FT): 26.5  
DRILLED BY: Zebra Environmental / Luke Caballero DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/16/2009 - 9/16/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/16/2009  
GENERAL NOTE: Stepout of WWMW-13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/30						(0'- 3.5') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, dry, brown, coal fragments, hand cleared. FILL.
	5			2011			NLO	WWSB-34 (2-5)	(3.5'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 1.5, slight naphthalene-like odor, moist, brown, coal fragments, black petroleum-like staining, strong petroleum-like odor, hand cleared. FILL.
	5	S2	60/25				NLO		(5'- 7.2') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, moist, brown, coal fragments, black petroleum-like staining, moderate petroleum-like odor. FILL.
	0			1150			NLO		(7.2'- 8.8') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, moderate naphthalene-like odor, moist, gray with brown, black petroleum-like staining, moderate petroleum-like odor.
	10	S3	60/35	1333			NLO	WWSB-34 (10-13)	(8.8'- 9.6') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, moist, gray with brown.
	-5						NLO		(9.6'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, moderate naphthalene-like odor, moist, gray with brown, black petroleum-like staining, moderate petroleum-like odor.
	15	S4	60/34	432			NLO		(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5, strong naphthalene-like odor, moist, gray with brown, sheen, tar-like blebs with pockets of staining and coating, pockets of petroleum-like staining.
	-10						PLO		(15'- 15.6') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5, slight naphthalene-like odor, moist, brown black, black petroleum-like staining, moderate petroleum-like odor.
	-10						NLO		(15.6'- 17.6') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight petroleum-like odor, moist, brown to black, wood, roots, and organics to 16 ft.
	-20								(17.6'- 25') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, moist, brown, slight petroleum-like odor.

**NOTES:**

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG  <b>WW-SB-34</b>					
		PAGE 2 of 2							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S5	60/7	83.2					
	-15						NLO		
	25	S6	18/30	70.8			NLO		
							NLO		
									(25'- 26') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, slight naphthalene-like odor, wet, brown, slight petroleum-like odor. (26'- 26.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine; max. size 0.75, slight naphthalene-like odor, moist, brown, slight petroleum-like odor, cobbles from 26.4 to 26.5 ft. End of Boring at 26.5 feet. Refusal at 26.5 feet. Cobble in sample shoe. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 1

**WW-SB-35**

GROUND SURFACE ELEVATION (FT): 7.45 LOCATION: North 12th Street  
NORTHING (FT): 689305 EASTING (FT): 641527 TOTAL DEPTH (FT): 10.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/24/2009 - 9/30/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/24/2009  
GENERAL NOTE: Stepout of WWSB-15; elevation estimated

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	60/NM	353				WWSB-35 (1-4.5)	(0'- 0.5') CONCRETE. (0.5'- 3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, ~10% fines, non plastic; max. size 3, dry, brown, hand cleared.
	5								
	5	S2	60/14				PLO		(3'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, ~10% fines, non plastic; max. size 3, moderate petroleum-like odor, moist, brown, pockets of petroleum-like staining, hand cleared. (5'- 8.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown.
	0			2342				WWSB-35 (8-10)	(8.2'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate petroleum-like odor, moist, brown, petroleum-like staining.
	10								

End of Boring at 10 feet.  
Refusal at 10 feet.  
Grouted

**NOTES:**

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PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK





GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 2

WW-SB-36

GROUND SURFACE ELEVATION (FT): 6.88 LOCATION: North 12th Street  
NORTHING (FT): 689416 EASTING (FT): 641383 TOTAL DEPTH (FT): 34.0  
DRILLED BY: Zebra Environmental / Quincy Brandt DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Maura MacLeod DATE START / END: 9/29/2009 - 9/30/2009  
DRILLING DETAILS: Geoprobe  
WATER LEVEL DEPTHS (FT): ▽ 5.00 9/29/2009  
GENERAL NOTE: Stepout of WWMW-15

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	60/NM						ASPHALT. (0.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 2, dry, brown, organics, wood, roots, and brick fragments, hand cleared. FILL.
5	5	S2	60/32	1.7				WWSB-36 (3-5)	
0	5						NLO		(5'- 8.4') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; slight naphthalene-like odor, wet, brown, loose, wood fragments from 5 to 5.6 ft.
10	10	S3	60/26	2846			NLO	WWSB-36 (9-10)	(8.4'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, brown, moderate petroleum-like staining and odor. (10'- 12.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
-5	15	S4	60/49	1867			NLO		(12.3'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5, moderate naphthalene-like odor, wet, brown to black, moderate petroleum-like staining and odor, organic odor.
-10	20			1173			NLO		(15'- 16.7') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75, moderate naphthalene-like odor, brown to black, moderate petroleum-like odor with sheen. (16.7'- 18.9') SILT WITH SAND (ML); ~80% fines, non plastic, ~20% sand, fine; moderate naphthalene-like odor, wet, brown, loose, moderate petroleum-like odor with sheen and staining from 16.7 to 17.2 ft.
							NLO		(18.9'- 20') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to

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



ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13



ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid		<b>BORING LOG</b>  <b>WW-SB-36</b>	
				<b>PROJECT:</b> Williamsburg MGP RI			
				<b>CITY/STATE:</b> Brooklyn, New York		<b>PAGE</b> 2 of 2	
				<b>GEI PROJECT NUMBER:</b> 093060			

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION		
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)							
-15	20	S5	60/58	555			NLO		coarse, ~10% fines, low plasticity; max. size 2, slight naphthalene-like odor, wet, brown to black, strong petroleum-like odor with staining and pockets of coating.		
											NLO
											PLO
-20	25	S6	60/38	65.5			NLO		(20'- 20.9') WIDELY GRADED GRAVEL WITH SILT AND SAND (GW-GM); ~60% gravel, fine to coarse, ~30% sand, fine to coarse, ~10% fines, non plastic; max. size 1.5, moderate naphthalene-like odor, wet, black, sheen, tar-like blebs and staining, pockets of petroleum-like coating, moderate petroleum-like odor. (20.9'- 21.6') SILT WITH SAND (ML); ~75% fines, low plasticity, ~20% sand, fine, ~5% gravel, fine; max. size 0.5, moderate naphthalene-like odor, black, pockets of tar-like staining and coating, moderate petroleum-like odor with pockets of coating. (21.6'- 25') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; slight petroleum-like odor, moist, black. (25'- 28') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2.5, slight naphthalene-like odor, moist, brown, silty seams.		
-25	30	S7	48/46	18.7			NLO		(28'- 30') SANDY ELASTIC SILT (MH); ~60% fines, medium plasticity, ~40% sand, fine to coarse; moist, whiteish gray.  (30'- 31.7') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, medium plasticity; slight naphthalene-like odor, moist, brownish white, slight burnt-like odor.		
											NLO
											NLO
									(31.7'- 32.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight burnt-like odor. (32.3'- 33.5') SANDY ELASTIC SILT (MH); ~60% fines, medium plasticity, ~40% sand, fine to coarse; slight naphthalene-like odor, moist, whiteish gray, slight burnt-like odor. (33.5'- 34') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown.		
End of Boring at 34 feet. Refusal at 34 feet. Grouted											

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REC = RECOVERY LENGTH OF SAMPLE	IN. = INCHES	PLO = PETROLEUM LIKE ODOR	OLO = ORGANIC LIKE ODOR
PID = PHOTOIONIZATION DETECTOR READING (PPM)	FT. = FEET	TLO = TAR LIKE ODOR	SLO = SULFUR LIKE ODOR
JHS = JAR HEADSPACE PID READING (PPM)		CLO = CHEMICAL LIKE ODOR	MLO = MUSTY LIKE ODOR
		ALO = ASPHALT LIKE ODOR	

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455 Winding Brook Road  
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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 5

**WW-SB-37**

GROUND SURFACE ELEVATION (FT): 12.96 LOCATION: 50 Kent Ave  
NORTHING (FT): 688768 EASTING (FT): 642054 TOTAL DEPTH (FT): 97.0  
DRILLED BY: Boart Longyear / Craig Marsh DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 12/28/2009 - 12/28/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S1	84/NM						(0.5'- 7') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines, non plastic; ~20% concrete fragments, max. size 1.5, dry, dark brown, hand cleared to 5 ft. FILL.
10	5								
5	5	S2	120/78						(7'- 10.1') CONCRETE.
10	10			127					
0	0						NLO		(10.1'- 12') SILTY SAND WITH GRAVEL (SM); ~65% sand, fine to coarse, ~20% fines, non plastic, ~15% gravel, fine to coarse, subangular to subrounded; max. size 4, moderate naphthalene-like odor, brown, sheen, lenses and seams of black staining.
0	0						NLO		(12'- 13.5') SILTY SAND WITH GRAVEL (SM); ~65% sand, fine to coarse, ~20% fines, non plastic, ~15% gravel, fine to coarse, subangular to subrounded; max. size 4, strong naphthalene-like odor, dark gray and black, sheen, lenses and seams of black staining, slight tar-like staining.
15	15						NLO		(13.5'- 13.9') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, non plastic, ~10% gravel, fine to coarse; max. size 2.5, slight naphthalene-like odor, moist, light brown, sheen.
15	15			46.2					(13.9'- 17') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, non plastic, ~10% gravel, fine to coarse; max. size 2.5, slight naphthalene-like odor, moist, light brown.
-5	-5	S3	60/96						(17'- 17.6') COBBLE.
-5	-5								(17.6'- 20.1') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse, subangular to subrounded; max. size 1.5, moist, light reddish brown.
20	20			239					

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
3 of 5

**WW-SB-37**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45			6.3					(45.2'- 45.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown. (45.6'- 49') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown, loose.
	-35	S7	120/180						
	50			9.8					(49'- 50.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown. (50.2'- 50.7') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines, non plastic; moist, brown. (50.7'- 57') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine to medium; moist, brown, dense, 4 inch sand lens at 52.3 feet.
	-40			105					
	55								
	-45	S8	120/156						(57'- 59.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown.
	60			3.2					(59.7'- 67') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red with gray, color change to gray at 64.3 feet, very dense.
	-50								
	65			2.4					
	-55	S9	120/144						(67'- 72') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; olive brown, color change to gray at 71.2 feet, very dense.
				2.1					

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
4 of 5

**WW-SB-37**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								
	-60			1.6					(72'- 74.5') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; moist, gray, dense.
	75								(74.5'- 75.8') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; dry, gray, dense, brittle.
	-65	S10	120/138	1.4					(75.8'- 78.3') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; moist, gray, dense.
	80								(78.3'- 79.2') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; moist, gray, dense.
	-70			1.3					(79.2'- 80.5') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; moist, gray, dense.
	85								(80.5'- 87.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, gray, loose.
	-75	S11	120/144	1.4					(87.4'- 90.3') SILTY SAND (SM); ~75% sand, fine to medium, ~25% fines, non plastic; moist, whitish gray, dense.
	90								(90.3'- 92.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, whitish gray, loose.
	-80								(92.8'- 93.3') SILTY SAND (SM); ~75% sand, fine to medium, ~25% fines, non plastic; moist, whitish gray, dense.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>			BORING LOG PAGE 5 of 5 <b>WW-SB-37</b>				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	95			1.4				WW-SB-37 (96-97)	(93.3'- 94.5') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines, non plastic; moist, whitish gray, loose, lens of fine to medium dark gray sand. (94.5'- 95.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, dark gray, dense. (95.3'- 97') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, gray.
End of Boring at 97 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CLIENT: National Grid  
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GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 5

**WW-SB-38**

GROUND SURFACE ELEVATION (FT): 14.58 LOCATION: 50 Kent Ave  
NORTHING (FT): 688633 EASTING (FT): 641969 TOTAL DEPTH (FT): 97.0  
DRILLED BY: Boart Longyear / Craig Marsh DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 12/28/2009 - 12/29/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	84/NM						(0'- 7') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, angular, ~10% fines, non plastic; max. size 2, slight naphthalene-like odor, dry, dark gray, brick fragments, hand cleared to 5 ft. FILL.
	5						NLO		
	10	S2	120/57	34.6					(7'- 17') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, moist, reddish brown, color change to gray at 10.7 feet, pepper-like odor, dark gray seam from 9.6 to 14.4 feet.
	15			80.1			NLO		
	20	S3	120/138						(17'- 18.7') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; moist, brown, dense, moderate pepper-like odor.
							NLO		(18.7'- 19.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight naphthalene-like odor, moist, brown.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-38**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20			32.7			NLO		(19.2'- 23.1') SILTY SAND WITH GRAVEL (SM); ~55% sand, fine to coarse, ~30% fines, non plastic, ~15% gravel; max. size 3.5, slight naphthalene-like odor, moist, brown, dense, slight pepper-like odor.
							NLO		(23.1'- 25.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown and grayish brown, pockets of silt, sheen, pockets of tar-like staining.
	25			1476			NLO		(25.3'- 26.6') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown, sheen, tar-like staining.
		S4	120/126				NLO		(26.6'- 27') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown.
				1491			NLO		(27'- 31.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, loose, sheen.
	30						NLO		(31.3'- 33.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, loose.
									(33.2'- 37') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown, loose.
	35			70.1					
		S5	120/126						(37'- 43.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown with gray, sheen.
	40			114			NLO		
							NLO		(43.2'- 46') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, reddish brown.

**NOTES:**

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
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PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR


CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE  
NM = NOT MEASURED  
Q<sub>p</sub> = POCKET PENETROMETER  
S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13







GEI Consultants  
 455 Winding Brook Road  
 Glastonbury, CT 06033  
 (860) 368-5300

CLIENT: **National Grid**  
 PROJECT: **Williamsburg MGP RI**  
 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG

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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-55	70								
-60	75			0.2					
-65	80	S9	120/120	0.2					(77'- 87') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; wet, whiteish gray, color change to gray at 86 feet.
-70	85			0.1					
-75	90	S10	120/144	0.2					
									(87'- 88.7') SILT WITH SAND (ML); ~85% fines, low plasticity, ~15% sand, fine; moist, grayish brown, dense.
									(88.7'- 89.1') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, non plastic; moist, brown.
									(89.1'- 89.5') SILT WITH SAND (ML); ~85% fines, low plasticity, ~15% sand, fine; moist, gray, dense.
									(89.5'- 92.8') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; moist, whiteish gray, dense, brittle.
									(92.8'- 93.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, whiteish gray.

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 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		<b>BORING LOG</b>					
		PROJECT: <b>Williamsburg MGP RI</b>							
CITY/STATE: <b>Brooklyn, New York</b>		GEI PROJECT NUMBER: <b>093060</b>		PAGE 5 of 5					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-80	95			0.2				WW-SB-38 (96.5-97)	(93.7'- 95.3') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; gray to blackish gray, dense.  (95.3'- 96.2') SILT WITH SAND (ML); ~85% fines, low plasticity, ~15% sand, fine; moist, gray, dense. (96.2'- 97') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moist, gray. End of Boring at 97 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 5

**WW-SB-39**

GROUND SURFACE ELEVATION (FT): 11.92 LOCATION: 50 Kent Ave  
NORTHING (FT): 688828 EASTING (FT): 641736 TOTAL DEPTH (FT): 97.0  
DRILLED BY: Boart Longyear / Craig Marsh DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 12/29/2009 - 12/30/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	84/NM						(0'- 0.3') ASPHALT. (0.3'- 0.8') CONCRETE. (0.8'- 7') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, ~10% fines, non plastic; ~30% brick and concrete fragments, max. size 2.5, hand cleared to 5 ft. FILL.
	10								
	5								
	5	S2	120/144				NLO		(7'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; ~30% brick and concrete fragments, moderate naphthalene-like odor, moist, brown with black, FILL.
	10			43.5			NLO		(10'- 12') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; slight naphthalene-like odor, moist, brown, brick fragments. FILL.
	0						NLO		(12'- 14') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown, sheen, pockets of tar-like staining and blebs.
	15			180			NLO		(14'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown.
	-5						NLO		(15'- 16.5') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, gray.
	20	S3	120/138				NLO		(16.5'- 17') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, brown, tar-like staining and coating.
				274			NLO		(17'- 18.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong naphthalene-like odor, moist, brown, sheen, tar-like blebs, and pockets of staining.
							NLO		(18.3'- 19.6') WIDELY GRADED SAND (SW); ~95% sand, fine to

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-39**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20								coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.
	-10								(19.6'- 24.4') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; moist, brown.
	25			73.6					(24.4'- 25.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown.
	-15	S4	120/84	4.3					(25.7'- 27') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; moist, brown.
	30								(27'- 34.9') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, non plastic, ~10% gravel, fine to coarse; max. size 1, moist, brown, dense.
	-20								
	35			20.4					(34.9'- 36.3') COBBLE.
	-25	S5	120/138						(36.3'- 37') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; moist, brown, dense.
	40			81.5					(37'- 43.5') SILTY SAND WITH GRAVEL (SM); ~65% sand, fine to coarse, ~20% fines, non plastic, ~15% gravel, fine to coarse; max. size 3.5.
	-30								
							NLO		(43.5'- 46.6') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor,

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT - 3/27/13



ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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				<b>PROJECT:</b> Williamsburg MGP RI		<b>PAGE</b> 4 of 5			
				<b>CITY/STATE:</b> Brooklyn, New York		<b>WW-SB-39</b>			
				<b>GEI PROJECT NUMBER:</b> 093060					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70			0.1					(71'- 71.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; dry, gray, brittle.
	-60								
	75			0.0					(71.8'- 81.8') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines, non plastic; moist, grayish brown, dense.
	-65	S9	120/150						
	80			0.0					(81.8'- 84.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, grayish brown.
	-70								
	85			0.0					(84.6'- 86.2') SILTY SAND (SM); ~75% sand, fine to medium, ~25% fines, non plastic; moist, whiteish gray, dense.
	-75								
	90	S10	120/162	0.0					(86.2'- 87') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, whiteish gray, loose. (87'- 88.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown, loose. (88.1'- 88.9') SILTY SAND (SM); ~60% sand, fine to medium, ~40% fines, non plastic; moist, brown, dense, wood fragments. (88.9'- 90.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown, loose, lens of silt at 89.6 feet. (90.3'- 91.1') SILTY SAND (SM); ~75% sand, fine to coarse, ~25% fines, non plastic; moist, brown, dense. (91.1'- 97') SILTY SAND (SM); ~60% sand, fine to medium, ~40% fines, non plastic; moist, gray with white, color change to greenish gray with white at 92.2 feet, dense.
	-80								
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		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <u>National Grid</u>			BORING LOG	
					PROJECT: <u>Williamsburg MGP RI</u>			PAGE 5 of 5	
CITY/STATE: <u>Brooklyn, New York</u>			GEI PROJECT NUMBER: <u>093060</u>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	95			0.0				WW-SB-39 (96-97)	
-85									End of Boring at 97 feet. Grouted
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**BORING LOG**

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1 of 5

**WW-SB-40**

GROUND SURFACE ELEVATION (FT): **11.70** LOCATION: **50 Kent Ave**  
NORTHING (FT): **688949** EASTING (FT): **641834** TOTAL DEPTH (FT): **97.0**  
DRILLED BY: **Boart Longyear / Craig Marsh** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Amy Malsbary** DATE START / END: **12/23/2009 - 12/23/2009**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 9.90 12/23/2009**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0								(0'- 7') hand cleared to 5 ft.
	10								
	5								
	5	<b>S1</b>	<b>120/84</b>						(7'- 9.9') SILTY SAND WITH GRAVEL (SM); ~55% sand, fine to coarse, ~30% gravel, fine to coarse, subrounded, ~15% fines, non plastic; max. size 3, moist, brown.
	10			<b>1.5</b>					(9.9'- 14.1') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; moderate naphthalene-like odor, wet, brown, sheen.
	0						<b>NLO</b>		
	15			<b>24.1</b>			<b>NLO</b>		(14.1'- 14.9') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen, tar-like staining and blebs.
	-5						<b>NLO</b>		(14.9'- 17') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; slight naphthalene-like odor, wet, brown, sheen.
	20	<b>S2</b>	<b>120/126</b>						(17'- 21.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown and dark gray.
				<b>48.2</b>			<b>NLO</b>		

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





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**BORING LOG**

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**WW-SB-40**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45								
	-35	S5	120/162						(47.7'- 49.6') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; moist, brown, dense.
	50			28.1					(49.6'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown, loose. (50'- 53.3') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; moist, brown, dense.
	-40								(53.3'- 55.5') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine to medium; moist, brown, lens of fine to coarse sand.
	55			3.0					(55.5'- 57.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, brown, loose, 2 inch lens with black staining and petroleum-like odor at 55.7 feet.
	-45	S6	120/144						(57.8'- 78.3') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; red and gray, gray only from 64.5 to 67 and 77 to 78.3 feet, very dense.
	60			21.8					
	-50			1.4					
	65								
	-55	S7	120/114	1.5					

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Q<sub>p</sub> = POCKET PENETROMETER  
S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		<b>BORING LOG</b>					
		PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>				PAGE 5 of 5	<b>WW-SB-40</b>		
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	95			1.1				<b>WW-SB-40 (95-95.5)</b>  (93.4'- 95.6') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, angular, ~5% fines, non plastic; max. size 2.5, light gray with white, seams of black.  (95.6'- 97') COBBLE; gray.	
	-85								
End of Boring at 97 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 5

**WW-SB-41**

GROUND SURFACE ELEVATION (FT): 12.40 LOCATION: 50 Kent Ave  
NORTHING (FT): 688784 EASTING (FT): 641834 TOTAL DEPTH (FT): 97.0  
DRILLED BY: Boart Longyear / Craig Marsh DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 12/21/2009 - 12/22/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 3.50 12/22/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	36/36						(0'- 0.2') CONCRETE.
									(0.2'- 1') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~50% sand, fine to coarse, ~40% gravel, fine to coarse, subangular to subrounded, ~10% fines, non plastic; max. size 2, moist, light brown to brown, hand cleared. FILL.
	10			3.8					(1'- 3') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, non plastic, ~10% gravel, fine to coarse, subrounded; ~30% brick fragments, max. size 1.5, moist, brown with red, hand cleared. FILL.
		S2	48/60				NLO		(3'- 3.5') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, non plastic, ~10% gravel, fine to coarse, subrounded; ~30% brick fragments, max. size 1.5, slight naphthalene-like odor, moist, brown with red, hand cleared. FILL.
	5			28.2			NLO		(3.5'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to medium, subrounded, ~5% fines, non plastic; max. size 0.5, moderate naphthalene-like odor, wet, black, hand cleared. FILL.
		S3	120/126	31.2					(5'- 5.75') WIDELY GRADED SAND WITH GRAVEL (SW); ~60% sand, fine to coarse, ~35% gravel, fine, subangular to subrounded, ~5% fines, non plastic; ~70% brick fragments, max. size 0.25, moist, red, FILL.
	5								(5.75'- 7') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, subrounded, ~5% fines, non plastic; max. size 3, slight naphthalene-like odor, wet, dark gray, FILL.
	10						NLO		(7'- 8') WIDELY GRADED SAND (SW); ~99% sand, fine to coarse, ~1% fines, non plastic; wet, dark brown, FILL.
									(8'- 9') WOOD; FILL.
	0						NLO		(9'- 9.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; ~80% wood fragments, moderate naphthalene-like odor, wet, brown to gray, sheen, slight tar-like staining. FILL.
				793			NLO		(9.5'- 11') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, subrounded, ~15% fines, non plastic; ~10% wood fragments, max. size 1, moderate naphthalene-like odor, moist, dark gray to brown, FILL.
	15						NLO		(11'- 14.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, rounded, ~5% fines, non plastic; max. size 1, slight naphthalene-like odor, dark gray with brown.
				797			NLO		(14.5'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, dark gray, sheen.
	-5	S4	120/156						(15'- 16') WIDELY GRADED SAND WITH GRAVEL (SW); ~55% sand, fine to coarse, ~40% gravel, fine to coarse, subangular to subrounded, ~5% fines, non plastic; max. size 4, strong naphthalene-like odor, moist, dark gray, sheen.
	20								

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ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET






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OLO = ORGANIC LIKE ODOR  
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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



<div><div>GEI</div><div><div>GEI Consultants</div></div></div>		<div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div>		CLIENT: <b>National Grid</b>			BORING LOG		
				PROJECT: <b>Williamsburg MGP RI</b>			PAGE 3 of 5	<b>WW-SB-41</b>	
CITY/STATE: <b>Brooklyn, New York</b>									
GEI PROJECT NUMBER: <b>093060</b>									
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45								
	-35	S7	120/156				NLO		
	50								
	-40						NLO		(52'- 52.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, moist, reddish brown, loose, dense silty lenses, tar-like staining. (52.8'- 57') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; slight naphthalene-like odor, red with gray, very dense.
	55			2447			NLO		
				332					
	-45	S8	120/144						(57'- 69.3') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red with gray, color change at 64.5 feet to gray, very dense.
	60			108					
	-50								
	65			20.2					
	-55	S9	120/156						

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

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Qp = POCKET PENETROMETER  
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CLIENT: **National Grid**  
 PROJECT: **Williamsburg MGP RI**  
 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG

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 WW-SB-41

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70			0.7					(69.3'- 70.8') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; dry, brown, dense.
	-60								(70.8'- 75.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; dry, brown, dense.
	75			0.3					
	-65	S10	120/138						(75.8'- 76.4') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, subangular to subrounded, ~5% fines, non plastic; max. size 1.5, dry, light brown. (76.4'- 77') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines, non plastic; dry, grayish brown, streaks of dark gray, dense. (77'- 78.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown. (78.3'- 83.1') SILT (ML); ~95% fines, non plastic, ~5% sand, fine; dark gray, very dense.
	80			0.4					
	-70								
	85			0.3					(83.1'- 85.3') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; light gray, very dense.
	-75	S11	120/144						(85.3'- 87') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; dark gray, dense.
	90			0.2					(87'- 92.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moist, grayish brown.
	-80			0.3					(92.4'- 94.1') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines, non plastic; wet, dark gray to light gray, loose.

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 SLO = SULFUR LIKE ODOR  
 MLO = MUSTY LIKE ODOR

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 NM = NOT MEASURED

Q<sub>p</sub> = POCKET PENETROMETER  
 S<sub>v</sub> = TORVANE PEAK

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>			BORING LOG  <b>WW-SB-41</b>				
		PAGE 5 of 5							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	95							WW-SB-41 (96-97)	(94.1'- 97') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; dry, light gray, dense.
End of Boring at 97 feet. Grouted									
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PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 5

**WW-SB-42**

GROUND SURFACE ELEVATION (FT): 12.50 LOCATION: 50 Kent Ave  
NORTHING (FT): 688874 EASTING (FT): 641917 TOTAL DEPTH (FT): 97.0  
DRILLED BY: Boart Longyear / Craig Marsh DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 12/22/2009 - 12/22/2009  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 7.00 12/22/2009  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0								(0'- 7') hand cleared to 5 ft. FILL.
	10								
	5								
	5	S1	120/84	385					(7'- 17') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; strong naphthalene-like odor, moist to wet, brown, sheen, seams of tar-like staining and blebs, coating from 14.5 to 15.6 feet, brick at 17 feet. FILL.
	10								
	0						NLO		
	15			1921					
	-5	S2	120/132						(17'- 21.5') SILTY SAND (SM); ~75% sand, fine to coarse, ~20% fines, non plastic, ~5% gravel, fine to coarse, subangular; max. size 3.5, moderate naphthalene-like odor, moist.
	20						NLO		

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-42**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20						NLO		
	-10			2634			NLO		(21.5'- 22.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, heavy sheen.
							NLO		(22.5'- 24.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, reddish brown with light brown, sheen, tar-like staining and coating.
	25						NLO		(24.3'- 26.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, ~10% fines, non plastic; max. size 1, strong naphthalene-like odor, moist, reddish brown, sheen.
				876			NLO		
	-15	S3	120/114						(26.5'- 27') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; strong naphthalene-like odor, brown, seams of tar-like coating.
				884					(27'- 32.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine to coarse, subangular; max. size 3, moist, brown, dense.
	30								
	-20						NLO		(32.8'- 35.9') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; moderate naphthalene-like odor, brown, dense, one large 4 inch cobble.
	35								
				1261			NLO		(35.9'- 37') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~10% gravel, fine to coarse, subrounded; max. size 1, moderate naphthalene-like odor, moist, reddish brown, two large 5 inch cobbles.
	-25	S4	120/156				NLO		(37'- 39.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, loose, sheen, tar-like staining, blebs from 37 to 37.8 feet, coating from 38.5 to 39.7 feet.
	40			3127			NLO		(39.7'- 40.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; ~15% cobbles, strong naphthalene-like odor, moist, brown, loose, slight tar-like staining.
							NLO		(40.5'- 42') SILTY SAND (SM); ~55% sand, fine to coarse, ~35% fines, non plastic, ~10% gravel, fine to coarse; slight naphthalene-like odor, brown, dense.
	-30						NLO		(42'- 43.5') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; slight naphthalene-like odor, brown, dense.
									(43.5'- 47') SILTY SAND (SM); ~60% sand, fine to coarse, ~40% fines, low plasticity; moist, brown, dense.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
3 of 5

**WW-SB-42**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45			886					
	-35	S5	120/126	554			NLO		(47'- 51.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, loose.
	50								
	-40								(51.3'- 57') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; red with gray, dense.
	55			112					
	-45	S6	120/144						(57'- 61.2') LEAN CLAY WITH SAND (CL); ~85% fines, medium plasticity, ~15% sand, fine; brown with gray, dense.
	60								
	-50			838			NLO	WW-SB-42 (62-62.5)	(61.2'- 61.6') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to medium, ~10% gravel, fine to coarse, angular, ~10% fines, non plastic; max. size 0.75, slight naphthalene-like odor, gray. (61.6'- 72') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, gray.
	65								
	-55	S7	120/144	6.3					

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
70				21.6					(72'- 85') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; gray, dense.
-60				2.3					
75									
-65		S8	120/150	1.8					
80									
-70									
85				1.8					(85'- 87.8') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, low plasticity; moist, light gray, very dense.
-75		S9	120/144	1.8					(87.8'- 89.5') WIDELY GRADED SAND (SW); ~95% sand, medium to coarse, ~5% fines, non plastic; wet, whiteish gray, loose.
90									(89.5'- 94.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; wet, whiteish gray, color change at 90.3 feet to dark brown.
-80				1.4				WW-SB-42	

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ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
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CrLO= CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>			BORING LOG  <b>WW-SB-42</b>				
		PAGE 5 of 5							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	95						(96.5-97)	(94.9'- 97') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines, non plastic; whiteish gray, dense.	
End of Boring at 97 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-43**

GROUND SURFACE ELEVATION (FT): 10.34 LOCATION: 26 N 12th St  
NORTHING (FT): 688969 EASTING (FT): 642206 TOTAL DEPTH (FT): 50.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/21/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 10/21/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
10	0		60/NM					WW-SB-43 (1-2)	(0'- 1.5') ASPHALT.  (1.5'- 2') BRICK. (2'- 5') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to coarse, ~20% gravel, fine to coarse, ~20% fines; dark gray, hand cleared.
5	5	S-1	60/36				NLO	WW-SB-43 (8-8.5)	(5'- 6.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~65% gravel, fine to coarse, ~30% sand, fine to coarse, ~5% fines; max. size 4, slight naphthalene-like odor, wet, gray, mostly coarse gravel. (6.5'- 7') SILTY SAND (SM); ~85% sand, fine, ~15% fines; slight naphthalene-like odor, wet, brownish gray. (7'- 9') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, subangular, ~35% sand, fine to coarse, ~5% fines; max. size 1.5, moderate naphthalene-like odor, wet, gray, heavy tar staining; mostly fine gravel and coarse sand. (9'- 10') SILTY SAND (SM); ~85% sand, fine, ~15% fines; slight naphthalene-like odor, wet, brownish gray. (10'- 15') SILTY SAND (SM); ~70% sand, fine to coarse, ~20% fines, ~10% gravel, fine to coarse, subrounded; max. size 2, slight naphthalene-like odor, wet, brownish gray to brown.
0	10	S-2	60/45				NLO		
-5	15	S-3	60/48				OLO		(15'- 20') PEAT; moderate organic-like odor, moist, dark brown.
-20	20			131					

**NOTES:**

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IN. = INCHES  
FT. = FEET

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NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13




<div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div>		CLIENT: National Grid		BORING LOG	
		PROJECT: Williamsburg MGP RI		PAGE 2 of 3	WW-SB-43
CITY/STATE: Brooklyn, New York					
GEI PROJECT NUMBER: 093060					

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-10	20	S-4	60/36				OLO		(20'- 20.5') SANDY ORGANIC SOIL (OL/OH); ~60% fines, low plasticity, ~40% sand; ~20% peat, moderate organic-like odor, wet, black. (20.5'- 24') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; slight organic-like odor, wet, light gray.  (24'- 25') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine to coarse, subangular, ~10% fines; wet, gray. (25'- 29.2') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; wet, grayish brown to brown.  (29.2'- 30') SILTY SAND (SM); ~70% sand, fine to medium, ~25% fines, ~5% gravel, coarse, subangular; max. size 2, wet, brown. (30'- 32') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines; max. size 2, wet, brown. (32'- 33.3') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to coarse, ~25% fines, ~15% gravel, coarse, subangular; max. size 4.5, wet, brown. (33.3'- 35') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines; max. size 2, wet, brown. (35'- 35.3') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray. (35.3'- 43.3') SANDY SILT (ML); ~70% fines, low plasticity, slow dilatancy, ~30% sand, fine; moist, gray, seams of fine to medium sand throughout.
				9.3			OLO		
-15	25	S-5	60/43						
				1.1					
-20	30	S-6	120/96						
				4.4					
-25	35								
-30	40	S-7	60/103						
				0.7				WW-SB-43	
								(43.3'- 44.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subrounded, ~5% fines; max. size 0.75, wet, brown.	

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Qp = POCKET PENETROMETER  
Sv = TORVANE PEAK  
  
ppm = PARTS PER MILLION  
IN. = INCHES  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-SB-43</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-35	45						(44-44.5)	(44.5'- 47') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray.	
				0.8				(47'- 47.5') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, ~5% gravel, fine to coarse; max. size 1, wet, brown.	
				0.7				(47.5'- 50') SANDY ELASTIC SILT (MH); ~80% fines, low plasticity, slow dilatancy, ~20% sand, fine; moist, gray, seams of fine to medium sand throughout.	
	50							End of Boring at 50 feet. Grouted	
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-SB-44

GROUND SURFACE ELEVATION (FT): 10.80 LOCATION: 26 N 12th St  
NORTHING (FT): 688948 EASTING (FT): 642046 TOTAL DEPTH (FT): 55.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/18/2010 - 10/19/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.75 10/18/2010 12:27 pm  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM						(0'- 0.5') ASPHALT.
	10			2046				WW-SB-44 (1-2)	(0.5'- 5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; ~60% rock fragments, ~20% brick fragments, max. size 6.5, strong organic-like odor, dry, brown, wood fragments, hand cleared. FILL.
	5	S-1	60/13					WW-SB-44 (7-8)	(5'- 8.1') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subangular; ~5% brick fragments, max. size 2, moderate petroleum-like odor, wet, dark brown, FILL.
	10	S-2	60/43						(8.1'- 9.2') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine to coarse, subangular, ~10% fines; ~5% brick fragments, max. size 2, strong organic-like odor, wet, dark brown, dark gray staining and heavy petroleum sheen. FILL.
	0								(9.2'- 10') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine; max. size 0.75, moderate petroleum-like odor, wet, brown.
	15	S-3	60/41						(10'- 13.4') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines; moderate petroleum-like odor, wet, light brown to brown, lens of gray silt from ~10.4-10.5 feet; dark gray bands up to 2 inches of discoloration from ~12-13.4 feet.
	-5			308					(13.4'- 15') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, dark gray, shells from ~14.5-15 feet.
	-20			49.8					(15'- 18.3') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; slight petroleum-like odor, wet, grayish brown, shells from ~15-15.5 feet; brown and gray mottling from ~17.6-18.3 feet.
									(18.3'- 20') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, subangular, ~10% fines; max. size 1.5, slight petroleum-like odor, wet, brown.

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CrLO = CREOSOTE LIKE ODOR  
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MLO = MUSTY LIKE ODOR

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-SB-44**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-10	20	S-4	120/97	33.0			PLO		(20'- 20.8') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, brown.
							PLO		(20.8'- 21.7') SILTY SAND WITH GRAVEL (SM); ~70% sand, fine to coarse, ~15% gravel, fine to coarse, subrounded, ~15% fines; slight petroleum-like odor, wet, brown.
							PLO		(21.7'- 23.5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, brown.
							PLO		(23.5'- 25.9') CLAYEY SAND WITH GRAVEL (SC); ~45% sand, fine to coarse, ~35% fines, medium plasticity, slow dilatancy, ~20% gravel, fine to coarse, subrounded; max. size 2, moderate petroleum-like odor, moist, gray and brown, pockets of gray elastic silt throughout.
-15	25	S-5	120/87	80.2			PLO		(25.9'- 32.6') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, brown, micaceous.
							PLO		
							PLO		
							PLO		
-20	30	S-6	120/102	151			PLO		(32.6'- 34.8') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, subrounded, ~10% fines; max. size 2.5, slight petroleum-like odor, wet, brown.
							PLO		(34.8'- 37.8') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subrounded, ~5% fines; max. size 0.75, slight petroleum-like odor, wet, brown.
							PLO		(37.8'- 40') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; slight petroleum-like odor, wet, grayish brown, lenses of silt up to 0.5 inches thick.
							PLO		(40'- 42.7') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; moderate petroleum-like odor, wet, grayish brown.
-30	40	S-6	120/102	179			PLO		(42.7'- 44.7') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine; max. size 0.5, brown.
							PLO		

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-SB-44</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45								(44.7'- 48.4') ELASTIC SILT WITH SAND (MH); ~85% fines, low plasticity, slow dilatancy, ~15% sand, fine to medium; moist, brownish gray.
	-35								
	50	S-7	60/48	6.9				WW-SB-44 (50-51)	(48.4'- 50') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine; max. size 0.5, brown.
	-40			5.9					(50'- 51.4') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, ~10% gravel, fine to coarse; max. size 1, wet, brown.
									(51.4'- 55') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray.
	55								End of Boring at 55 feet. Grouted

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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-45**

GROUND SURFACE ELEVATION (FT): 10.38 LOCATION: 26 N 12th St  
NORTHING (FT): 689021 EASTING (FT): 641965 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/18/2010 - 10/20/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 10.00 10/20/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
10	0		60/NM	665				WW-SB-45 (1-2)	(0'- 0.5') ASPHALT. (0.5'- 5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; ~50% rock fragments, ~30% brick fragments, max. size 5, strong organic-like odor, dry, brown, hand cleared.
							OLO		
5	5	S-1	60/41	1280					(5'- 10') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; strong organic-like odor, moist, gray, petroleum staining and sheen.
							OLO		
0	10	S-2	60/46	38.3					(10'- 15') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; slight petroleum-like odor, wet, light brown.
							PLO		
-5	15	S-3	60/54						(15'- 17.5') SANDY SILT (ML); ~60% fines, non plastic, rapid dilatancy, ~40% sand, fine; trace shells, slight petroleum-like odor, moist, gray.
							PLO		
				14.6					(17.5'- 20') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; slight petroleum-like odor, wet, brownish gray, 4 inch lens of fine to coarse sand at 18.9 feet.
							PLO		
	20								

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



 <b>GEI Consultants</b> GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid <b>PROJECT:</b> Williamsburg MGP RI <b>CITY/STATE:</b> Brooklyn, New York <b>GEI PROJECT NUMBER:</b> 093060		<b>BORING LOG</b>  <b>WW-SB-45</b>					
		<b>PAGE</b> 3 of 3							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-35	45			4.4					
				58.0					
-40	50	S-8	120/110				NLO	WW-SB-45 (53-54)	(50'- 51.5') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, strong naphthalene-like odor, wet, brown, moderate to heavy tar staining. (51.5'- 56.5') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, strong naphthalene-like odor, wet, brown, heavy tar coating with tar saturation.  (56.5'- 57.6') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, strong naphthalene-like odor, wet, brown, moderate tar coating. (57.6'- 58.5') SILTY SAND (SM); ~85% sand, fine, ~15% fines; moderate naphthalene-like odor, wet, grayish brown. (58.5'- 60') ELASTIC SILT WITH SAND (MH); ~75% fines, low plasticity, slow dilatancy, ~25% sand, fine to medium; moist, brownish gray. (60'- 64.5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, wet, brown, sand grades coarser with depth.
				4293			NLO		
-45	55						NLO		
				885			NLO		
-50	60	S-9	60/46					WW-SB-45 (64-64.5)	(64.5'- 65') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, gray with mottled red. End of Boring at 65 feet. Grouted
				28.4					
	65								

  
**NOTES:**  
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 REC = RECOVERY LENGTH OF SAMPLE      IN. = INCHES  
 PID = PHOTOIONIZATION DETECTOR READING (PPM)      FT. = FEET  
 JHS = JAR HEADSPACE PID READING (PPM)  
 NA = NOT APPLICABLE      Q<sub>p</sub> = POCKET PENETROMETER  
 NM = NOT MEASURED      S<sub>v</sub> = TORVANE PEAK  
 NLO = NAPHTHALENE LIKE ODOR      CrLO = CREOSOTE LIKE ODOR  
 PLO = PETROLEUM LIKE ODOR      OLO = ORGANIC LIKE ODOR  
 TLO = TAR LIKE ODOR      SLO = SULFUR LIKE ODOR  
 CLO = CHEMICAL LIKE ODOR      MLO = MUSTY LIKE ODOR  
 ALO = ASPHALT LIKE ODOR





GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-46**

GROUND SURFACE ELEVATION (FT): 9.38 LOCATION: 26 N 12th St  
NORTHING (FT): 689104 EASTING (FT): 641866 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/21/2010 - 10/25/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 4.50 10/21/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM						(0'- 0.5') ASPHALT. (0.5'- 1.5') BRICK AND CONCRETE.  (1.5'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines; max. size 2, moist, dark brown, hand cleared. FILL.
	5	S-1	60/18	297			PLO		(5'- 6.5') SILTY SAND (SM); ~75% sand, fine, ~20% fines, ~5% gravel, fine, subangular; ~10% shells, max. size 0.75, slight petroleum-like odor, wet, grayish brown and brown, slight petroleum sheen on water. FILL. (6.5'- 8') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine, ~20% gravel, fine to coarse, subangular, ~20% fines; ~20% shells, max. size 1, wet, grayish brown and brown, FILL. (8'- 10') wood, FILL.
	10	S-2	60/0						(10'- 15') No Recovery.
	15	S-3	60/44						(15'- 16.4') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; wet, grayish brown and brown. (16.4'- 19') SANDY ORGANIC SOIL (OL/OH); ~70% fines, non plastic, rapid dilatancy, ~30% sand, fine; ~20% organics, moderate organic-like odor, moist to wet, gray to black.
	-10			9.3					(19'- 20') WIDELY GRADED GRAVEL WITH SAND (GW); ~65% gravel, fine to coarse, subangular, ~30% sand, fine to coarse,
	20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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2 of 3

**WW-SB-46**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S-4	120/48						~5% fines; ~30% rock powder, moist, gray. (20'- 22.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; wet, brown.  (22.1'- 24') CLAYEY SAND (SC); ~55% sand, fine to medium, ~35% fines, medium plasticity, slow dilatancy, ~10% gravel, fine to coarse, subrounded; max. size 1, wet, brown and brownish gray, intermittent lenses of brown fine to coarse sand up to 2 inches thick. (24'- 24.8') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines; wet, brownish gray. (24.8'- 25') cobble. (25'- 30') No Recovery.
	-15			121					
	25								
	-20								
	30	S-5	120/111						(30'- 33.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; slight naphthalene-like odor, wet, brown.  (33.3'- 34') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, medium to coarse, ~25% gravel, fine to coarse, subangular, ~5% fines; max. size 1, strong naphthalene-like odor, wet, brown, tar saturation with heavy coating. (34'- 34.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; slight naphthalene-like odor, wet, brown, slight tar staining. (34.5'- 40') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, fine, subrounded, ~5% fines; max. size 1, slight naphthalene-like odor, wet, grayish brown.
	-25			4628			NLO	WW-SB-46 (33-34)	
	35						NLO		
	-30			2025			NLO		
	40	S-6	60/76						(40'- 54.3') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subrounded, ~5% fines; max. size 0.5, wet, brown.
	-35								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

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				PROJECT: <b>Williamsburg MGP RI</b>		PAGE 3 of 3			
				CITY/STATE: <b>Brooklyn, New York</b>					
				GEI PROJECT NUMBER: <b>093060</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45			258					
	50	S-7	60/46	147					
	55	S-8	60/53	5.2					
	60	S-9	60/36	2.9					(54.3'- 55') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brown. (55'- 60') SANDY SILT (ML); ~65% fines, non plastic, ~35% sand, fine; wet, gray, lenses of fine sand up to 1 inch throughout.  (60'- 61.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines; max. size 2, moist, brown. (61.5'- 65') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray.
	65								
End of Boring at 65 feet. Grouted									
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CLIENT: **National Grid**  
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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-47**

GROUND SURFACE ELEVATION (FT): **8.85** LOCATION: **26 N 12th St**  
NORTHING (FT): **689237** EASTING (FT): **641762** TOTAL DEPTH (FT): **70.0**  
DRILLED BY: **Boart Longyear / Frank Gardella** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Amy Malsbary/Kari Weber** DATE START / END: **10/26/2010**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 4.80 10/22/2010**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM	910				WW-SB-47 (1-2)	(0'- 0.6') ASPHALT. (0.6'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, ~10% fines; ~40% brick and concrete, max. size 5, moderate petroleum-like odor, moist, dark gray to black, cobbles, moderate petroleum sheen, hand cleared. FILL.
	5	S-1	60/36	264			PLO	WW-SB-47 (5-6)	(5'- 5.8') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, fine to coarse, subangular, ~5% fines; max. size 1.5, slight petroleum-like odor, wet, dark gray, slight petroleum sheen on water. (5.8'- 8.8') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, ~5% gravel, fine to coarse, subrounded; max. size 1, slight organic-like odor, wet, gray, lenses of black organic silt up to 1.5 inches.
	10	S-2	60/47				OLO		(8.8'- 10') NARROWLY GRADED SAND (SP); ~85% sand, fine to medium, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 2.5, wet, grayish brown. (10'- 14') ORGANIC SOIL WITH SAND (OL); ~75% fines, low plasticity, rapid dilatancy, ~25% sand, fine to medium; slight organic-like odor, wet, brown and gray, pockets of black organic silt throughout.
	15	S-3	60/43	8.7					(14'- 15.3') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, ~5% gravel, fine; max. size 0.75, wet, brown.
				7.7			OLO		(15.3'- 18.8') SILT WITH SAND (ML); ~85% fines, low plasticity, rapid dilatancy, ~15% sand, fine; slight organic-like odor, wet, gray, pockets of black organic silt.
	20								(18.8'- 20') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-47**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S-4	120/92						coarse, subrounded; max. size 1, wet, brown. (20'- 24') CLAYEY SAND (SC); ~65% sand, fine to coarse, ~30% fines, medium plasticity, slow dilatancy, ~5% gravel, fine to coarse, subrounded; max. size 1, slight chemical-like odor, wet, gray and brown, intermittent lenses of brown fine to coarse sand up to 2 inches thick; slight fruit-like odor.
	-15			21.5			CLO		
	25						CLO		(24'- 25') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine, subrounded; max. size 0.5, slight chemical-like odor, wet, brown, slight fruit-like odor. (25'- 27') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; slight chemical-like odor, wet, brown, slight fruit-like odor.
				187			NLO		(27'- 28.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; slight naphthalene-like odor, wet, brown.
	-20						NLO		(28.5'- 30') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; slight naphthalene-like odor, wet, brown.
	30	S-5	120/83						(30'- 36') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine, ~5% fines; max. size 0.5, wet, brown.
	-25			206					
	35								(36'- 40') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brown.
	-30			61.8					
	40	S-6	120/100						(40'- 44') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, coarse, subrounded, ~5% fines; max. size 2, wet, brown.
	-35			78.9					(44'- 62.5') NARROWLY GRADED SAND (SP); ~95% sand, fine,

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S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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					PAGE 4 of 4				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								
End of Boring at 70 feet. Grouted									
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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 4

**WW-SB-48**

GROUND SURFACE ELEVATION (FT): 8.19 LOCATION: 26 N 12th St  
NORTHING (FT): 689325 EASTING (FT): 641654 TOTAL DEPTH (FT): 70.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/27/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 1.00 10/27/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0		60/NM	910				WW-SB-48 (1-2)	(0'- 0.5') ASPHALT. (0.5'- 5') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, ~10% gravel, fine to coarse, subangular; ~20% brick and concrete fragments, max. size 3, slight petroleum-like odor, wet, dark gray, slight petroleum staining, hand cleared. FILL.
	5						PLO		
5	5	S-1	60/29	939			PLO	WW-SB-48 (7-8)	(5'- 5.5') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; max. size 1, moderate petroleum-like odor, brown, wood pieces. FILL.
							PLO		(5.5'- 6.7') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; <~5% brick fragments, max. size 1, moderate petroleum-like odor, brown, slight petroleum staining. FILL.
							PLO		(6.7'- 7') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; max. size 1, moderate petroleum-like odor, brown, FILL.
							PLO		(7'- 8') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; max. size 1, moderate petroleum-like odor, brown, slight to moderate petroleum staining. FILL.
10	10	S-2	60/53	329			PLO		(8'- 10') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; max. size 1, moderate petroleum-like odor, brown, FILL.
									(10'- 10.5') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; max. size 1, slight petroleum-like odor, brown, slight petroleum sheen. FILL.
									(10.5'- 15') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine, subangular, ~10% fines; max. size 1, slight petroleum-like odor, brown, lenses of fine to coarse sand up to 1 inch and lenses of black organic silt up to 1.5 inches, wood at ~14 feet. FILL.
									(15'- 19') No Recovery. FILL.
-10	15	S-3	48/0						
-20	20								(19'- 20') Hard drilling at ~19 feet, possible boulder. FILL.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



<div><div>GEI</div><div><div>GEI Consultants</div></div></div>		<div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div>		CLIENT: <b>National Grid</b>			BORING LOG	
				PROJECT: <b>Williamsburg MGP RI</b>			PAGE 2 of 4	<b>WW-SB-48</b>
CITY/STATE: <b>Brooklyn, New York</b>								
GEI PROJECT NUMBER: <b>093060</b>								

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S-4	120/0						(20'- 30') No Recovery.
	30	S-5	120/110	15.5			CLO		(30'- 31') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, slight chemical-like odor, brown, slight fruit-like odor. (31'- 40') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; brown, lens of medium to coarse sand from ~36.5-37 feet; slight chemical/fruit-like odor.
	40	S-6	120/96	1.6					(40'- 43') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brown.
									(43'- 51.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, wet, brown.

NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL

REC = RECOVERY LENGTH OF SAMPLE

PID = PHOTOIONIZATION DETECTOR READING (PPM)

JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION

IN. = INCHES

FT. = FEET

NLO = NAPHTHALENE LIKE ODOR

PLO = PETROLEUM LIKE ODOR

TLO = TAR LIKE ODOR

CLO = CHEMICAL LIKE ODOR

ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR

OLO = ORGANIC LIKE ODOR

SLO = SULFUR LIKE ODOR

MLO = MUSTY LIKE ODOR


NA = NOT APPLICABLE

NM = NOT MEASURED

Qp = POCKET PENETROMETER

Sv = TORVANE PEAK

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 455 Winding Brook Road  
 Glastonbury, CT 06033  
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BORING LOG

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 WW-SB-48

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45								
	40			1.7					
	50	S-7	120/96						
				0.7					(51.5'- 53') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brown.
	45								(53'- 56.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 2.5, wet, brown.
	55			0.7					(56.5'- 58') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brown.
	50								(58'- 64.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, wet, brown.
	60	S-8	120/100	0.5					
	55								
	65			0.4					(64.5'- 67') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brown.
	60							WW-SB-48 (65-66)	(67'- 70') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray.

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					PAGE 4 of 4				
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								
End of Boring at 70 feet. Grouted									
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**BORING LOG**

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**WW-SB-49**

GROUND SURFACE ELEVATION (FT): **8.09** LOCATION: **26 N 12th St**  
NORTHING (FT): **689371** EASTING (FT): **641543** TOTAL DEPTH (FT): **85.0**  
DRILLED BY: **Boart Longyear / Frank Gardella** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Amy Malsbary/Kari Weber** DATE START / END: **11/3/2010 - 11/3/2010**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 1.00 11/3/2010**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
▽	0		60/NM					WW-SB-49 (1-2)	(0'- 0.5') ASPHALT. (0.5'- 1') CONCRETE AND GRAVEL MIX; FILL.
	5						PLO		(1'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~10% fines; ~20% brick and fill fragments, max. size 1.5, moderate petroleum-like odor, wet, dark gray to black, slight petroleum staining, hand cleared. FILL.
	5	S-1	60/29				PLO	WW-SB-49 (9-10)	(5'- 8.5') SILTY SAND (SM); ~75% sand, fine to coarse, ~15% fines, ~10% gravel, fine to coarse, subangular; with wood, max. size 3, moderate petroleum-like odor, wet, gray, slight petroleum staining. FILL.
	0						PLO		(8.5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~10% fines; ~40% wood and organics, max. size 1.5, strong petroleum-like odor, wet, dark gray to black, heavy petroleum staining, brick fragments. FILL.
	10	S-2	120/101	1985			PLO		(10'- 11') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~10% fines; ~10% wood and organics, max. size 1.5, moderate petroleum-like odor, wet, dark gray to black, slight petroleum staining, brick fragments. FILL.
	-5			292			PLO		(11'- 14') ORGANIC SOIL (OL); ~90% fines, low plasticity, rapid dilatancy, ~10% sand, fine; slight petroleum-like odor, wet, gray, ~30% peat, moderate organic-like odor.
	15			12.7			PLO		(14'- 20.5') ORGANIC SOIL (OL); ~90% fines, low plasticity, rapid dilatancy, ~10% sand, fine; slight petroleum-like odor, wet, gray, pockets of black organic silt, moderate organic-like odor.
	-10								
	20								

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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-49**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20	S-3	120/78				PLO		(20.5'- 26') NARROWLY GRADED SAND WITH SILT (SP-SM); ~80% sand, fine to medium, ~10% gravel, fine, subangular, ~10% fines; max. size 0.75, slight chemical-like odor, brown, slight fruit-like odor.
	-15			1.4			CLO		
	25								(26'- 30') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, slight chemical-like odor, wet, brown, slight fruit-like odor.
	-20			1.8			CLO		
	30	S-4	120/89						(30'- 33') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines; max. size 0.75, slight chemical-like odor, wet, brown, slight fruit-like odor.
	-25			1.1			CLO		
	35								(33'- 55') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine to coarse, subangular, ~10% fines; max. size 1, wet, grayish brown.
	-30			4.4					
	40	S-5	120/91						
	-35			9.4					

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13



ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			<b>CLIENT:</b> National Grid <b>PROJECT:</b> Williamsburg MGP RI <b>CITY/STATE:</b> Brooklyn, New York <b>GEI PROJECT NUMBER:</b> 093060			<b>BORING LOG</b>	
		<b>PAGE</b> 4 of 4		<b>WW-SB-49</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70	S-8	60/39					(70'- 85') CLAYEY SAND (SC); ~80% sand, fine, ~20% fines, medium plasticity, no dilatancy; moist, light gray with white.	
				2.3					
	75	S-9	120/NM						
				1.1					
	-70								
	80								
	-75								
	85						WW-SB-49 (84-85)	End of Boring at 85 feet. Grouted	
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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SB-50**

GROUND SURFACE ELEVATION (FT): 7.54 LOCATION: 26 N 12th St  
NORTHING (FT): 689302 EASTING (FT): 641950 TOTAL DEPTH (FT): 75.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/1/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 11/1/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0		60/NM	60.5			WW-SB-50 (1-2)	(0'- 0.5') ASPHALT. (0.5'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); moderate petroleum-like odor, black, brick and wood debris, hand cleared. FILL.
	5					PLO		
	5	S-1	60/31	21.5			WW-SB-50 (5.5-6.5)	(5'- 9.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~10% fines; moderate petroleum-like odor, wet, brown.
	0					PLO		
	10	S-2	60/40	3.4				(9.5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~10% fines; ~30% black organics, slight petroleum-like odor, wet, brown, slight organic-like odor. (10'- 14') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~10% fines; slight petroleum-like odor, wet, brown.
	-5					PLO		
	15	S-3	120/110	1.3				(14'- 15') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, ~5% gravel, fine to coarse, subrounded; slight petroleum-like odor, wet, brown, 3 inch lens of gray sandy silt at ~14.5'. (15'- 21') ORGANIC SOIL WITH SAND (OL); ~80% fines, low plasticity, rapid dilatancy, ~20% sand, fine; moderate organic-like odor, wet, dark gray.
	-10					OLO		
	20							

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT 3/27/13



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		PROJECT: <b>Williamsburg MGP RI</b>		PAGE 2 of 4	WW-SB-50
CITY/STATE: <b>Brooklyn, New York</b>					
GEI PROJECT NUMBER: <b>093060</b>					

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20					OLO		(21'- 29.5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, grayish brown to brown, mostly fine sand.
	15			1.0				
	25	S-4	120/96			PLO		(29.5'- 36') CLAYEY SAND (SC); ~60% sand, fine to coarse, ~35% fines, medium plasticity, no dilatancy, ~5% gravel, fine to coarse, subrounded; max. size 1.5, wet, light gray to brown, lenses of fine to coarse sand up to 2 inches throughout.
	20			1.5				
	30							(36'- 45') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~10% fines; max. size 2, wet, grayish brown.
	25			1.0				
	35	S-5	120/89					
	30			2.8				
	40			1.4				
	35							

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**BORING LOG**

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**WW-SB-50**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45	S-5	120/66					(45'- 55') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subrounded; max. size 2, wet, brownish gray.
	-40			1.5				
	50							
	-45			0.8				
	55	S-6	120/87					(55'- 61') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 3, wet, grayish brown.
	-50			1.1				
	60							
	-55			1.0				(61'- 62') NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% sand, fine to medium, ~25% gravel, fine to coarse, subangular, ~5% fines; max. size 3, wet, grayish brown. (62'- 70') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 3, wet, grayish brown.
	65	S-7	120/85					
	-60			1.5				

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		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 4 of 4		
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	70							(70'- 71.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 2, wet, brown.  (71.5'- 75') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, red with mottled gray, color change to gray with mottled red and brown at ~74 feet.
	-65			0.7				
	75							End of Boring at 75 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK								



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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

# BORING LOG

PAGE  
1 of 3

WW-SB-51

GROUND SURFACE ELEVATION (FT): 9.16 LOCATION: 26 N 12th St  
NORTHING (FT): 689110 EASTING (FT): 642047 TOTAL DEPTH (FT): 55.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/19/2010 - 10/21/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 10/19/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0		60/NM	19.6		PLO	WW-SB-51 (1-2)	(0'- 0.5') ASPHALT; fine to medium; strong petroleum-like odor. (0.5'- 5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, ~10% fines; 70% brick fragments, moist, brown, hand cleared. FILL.
	5	S-1	60/48	2.5			WW-SB-51 (6-9)	(5'- 6.5') SILT WITH SAND (ML); ~80% fines, low plasticity, rapid dilatancy, ~20% sand, fine; wet, gray, pockets of black silt. (6.5'- 13') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, ~5% gravel, fine to coarse, subrounded; max. size 2.5, wet, gray.
	10	S-2	60/47	1.8		OLO		(13'- 15') SANDY ORGANIC SOIL (OL); ~50% sand, fine to medium, ~50% fines, low plasticity; slight organic-like odor, wet, gray with black.
	15	S-3	60/47	2.0				(15'- 20') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; wet, grayish brown.
	20							

## NOTES:

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JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-51**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20	S-4	60/42	6.2				(20'- 21.2') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, ~5% gravel, fine to coarse, subrounded; max. size 2.5, wet, gray.  (21.2'- 24.2') CLAYEY SAND (SC); ~45% sand, fine to medium, ~45% fines, ~10% gravel, fine to coarse, subrounded; max. size 2, moist, light gray, lenses of black organic soil at ~21.2-21.4 feet.
	25	S-5	60/43					(24.2'- 25') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, ~5% gravel, fine to coarse, subrounded; max. size 2.5, wet, gray. (25'- 30') SILTY SAND (SM); ~65% sand, fine to coarse, ~25% fines, ~10% gravel, fine to coarse, subrounded; max. size 2, wet, grayish brown, lenses and seams of clayey sand.
	30	S-6	60/41	2.4				(30'- 35') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, subangular, ~10% fines; max. size 2.5, moist, brown.
	35	S-7	120/92	2.8				(35'- 44.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, brown.
	40			0.7				
	-35							

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JHS = JAR HEADSPACE PID READING (PPM)



ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

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PLO = PETROLEUM LIKE ODOR  
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ALO = ASPHALT LIKE ODOR

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MLO = MUSTY LIKE ODOR

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Q<sub>p</sub> = POCKET PENETROMETER  
S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> National Grid <b>PROJECT:</b> Williamsburg MGP RI <b>CITY/STATE:</b> Brooklyn, New York <b>GEI PROJECT NUMBER:</b> 093060		<b>BORING LOG</b>  <b>WW-SB-51</b>		
						<b>PAGE</b> 3 of 3		
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45	S-8	60/43	0.8			<b>WW-SB-51</b> <b>(52.5-53)</b>	(44.5'- 45') SILT (ML); ~95% fines, ~5% sand, fine; moist, gray. (45'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, brown, 4 inch lens of silty sand at 45.5 ft.
	50	S-9	60/50	0.6				(50'- 53') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; wet, brown.
	55							(53'- 55') LEAN CLAY (CL); ~100% fines, high plasticity, no dilatancy; moist, gray with mottled red.
								End of Boring at 55 feet. Grouted
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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-52**

GROUND SURFACE ELEVATION (FT): **8.16** LOCATION: **26 N 12th St**  
NORTHING (FT): **689272** EASTING (FT): **641911** TOTAL DEPTH (FT): **70.0**  
DRILLED BY: **Boart Longyear / Frank Gardella** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Amy Malsbary/Kari Weber** DATE START / END: **10/29/2010**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 3.50 10/27/2010**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM						(0'- 0.2') ASPHALT. (0.2'- 0.8') CONCRETE. (0.8'- 3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~10% fines; max. size 1.5, slight petroleum-like odor, moist to wet, brown, hand cleared. FILL.
	5						PLO	WW-SB-52 (2-3)	
	5						PLO		(3'- 3.5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~10% fines; max. size 1.5, moderate petroleum-like odor, moist to wet, brown, petroleum sheen, hand cleared. FILL.
	5	S-1	60/41				PLO		(3.5'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~10% fines; max. size 1.5, slight petroleum-like odor, moist to wet, brown, hand cleared. FILL.
	0						NLO		(5'- 6') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~70% sand, fine to medium, ~20% gravel, fine to coarse, subangular, ~10% fines; with wood, trace brick fragments, max. size 2, moderate petroleum-like odor, wet, brown to olive brown, petroleum sheen. FILL.
	10			1141			NLO	WW-SB-52 (9.5-10)	(6'- 9') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subangular; little organics, trace, max. size 1, strong naphthalene-like odor, wet, brown to olive brown, moderate petroleum staining, strong petroleum-like odor. FILL.
	10	S-2	60/0						(9'- 10') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subangular; little organics, little wood, max. size 1, strong naphthalene-like odor, wet, brown to olive brown, moderate petroleum staining, moderate tar staining, strong petroleum-like odor. FILL.
	-5								(10'- 15') No Recovery.
	15	S-3	120/96						(15'- 17') ORGANIC SOIL (OL); ~90% fines, low plasticity, rapid dilatancy, ~10% sand, fine; ~5% shells, strong organic-like odor, wet, gray, lenses of black organics.
	-10			0.6			OLO		
	-10						OLO		(17'- 22.5') ORGANIC SOIL (OL); ~90% fines, low plasticity, rapid dilatancy, ~10% sand, fine; moderate organic-like odor, wet, gray.
	-20								

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IN. = INCHES  
FT. = FEET

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ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR


NA = NOT APPLICABLE Qp = POCKET PENETROMETER  
NM = NOT MEASURED Sv = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 9/9/14







		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300			CLIENT: <b>National Grid</b>			BORING LOG	
					PROJECT: <b>Williamsburg MGP RI</b>			PAGE 4 of 4	
CITY/STATE: <b>Brooklyn, New York</b>			GEI PROJECT NUMBER: <b>093060</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	70								dilatancy; moist, red with mottled gray.
									End of Boring at 70 feet. Grouted
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 2

**WW-SB-53**

GROUND SURFACE ELEVATION (FT): 8.74 LOCATION: 26 N 12th St  
NORTHING (FT): 689271 EASTING (FT): 641835 TOTAL DEPTH (FT): 25.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 10/27/2010 - 12/8/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 5.00 12/8/2010  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM					WW-SB-53 (1-2)	(0'- 5') Hand cleared.
	5	S-1	60/50	12.5			NLO	WW-SB-53 (7.5-8)	(5'- 8.2') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines; moderate naphthalene-like odor, wet, brown, moderate petroleum-like odor, sheen, pockets of blebs.
	0						NLO		(8.2'- 10') SILTY SAND (SM); ~85% sand, fine, ~15% fines; slight naphthalene-like odor, wet, brown, slight petroleum-like odor.
	10	S-2	60/38	12.3					(10'- 15') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; moist, brown.
	15	S-3	60/41	12.5			OLO		(15'- 20') SILT WITH SAND (ML); ~80% fines, ~20% sand, fine; slight organic-like odor, moist, brownish gray, shell fragments at ~16'.
	-10								
	-20								

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
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NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		BORING LOG								
				PROJECT: <b>Williamsburg MGP RI</b>		PAGE 2 of 2								
				CITY/STATE: <b>Brooklyn, New York</b>		<b>WW-SB-53</b>								
				GEI PROJECT NUMBER: <b>093060</b>										
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION					
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)										
	20	S-4	60/40	7.0				<b>WW-SB-53 (24.5-25)</b>	(20'- 20.3') WOOD; fragments. (20.3'- 22.4') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; moist, grayish brown.					
														(22.4'- 22.8') NARROWLY GRADED SAND (SP); ~95% sand, medium to coarse, ~5% fines; moist, dark gray. (22.8'- 24.8') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; moist, brown.
	-15													
	25													
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
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GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SB-54**

GROUND SURFACE ELEVATION (FT): 13.74 LOCATION: Private property - End of N 10th Street  
NORTHING (FT): 688425 EASTING (FT): 641709 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Chris Anastasiou DATE START / END: 11/15/2012 - 11/15/2012  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): ▽ 7.10 11/15/2012  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.			
	0		60/NM			(0'- 0.2') ASPHALT. (0.2'- 1') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~20% gravel, fine to coarse; brick and rock fragments, plastic lining at 8", hand cleared. FILL. (1'- 5') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines; brown, hand cleared.
	10				WW-SB-54 (3-5)	
	5	S-1	60/48			(5'- 7.1') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines; brown.
	7.1				WW-SB-54 (7-9)	
	10	S-2	60/48			(10'- 15') SILTY SAND (SM); ~70% sand, fine to coarse, ~20% fines, ~10% gravel, fine to coarse; brown.
	15	S-3	60/48			(15'- 20') SILTY SAND (SM); ~60% sand, fine, ~40% fines; brown.
	20					

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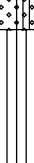
CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

<div><div>GEI</div><div><div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div></div></div>		CLIENT: <b>National Grid</b>		BORING LOG		
		PROJECT: <b>Williamsburg MGP RI</b>		PAGE 2 of 3	<b>WW-SB-54</b>	
CITY/STATE: <b>Brooklyn, New York</b>						
GEI PROJECT NUMBER: <b>093060</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.			
	20	S-4	60/48			(20'- 22.5') SANDY SILT WITH GRAVEL (ML); ~45% fines, ~40% sand, fine, ~15% gravel, fine to coarse; brown.
						(22.5'- 50') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines; brown.
	-10					
	25	S-5	60/48			
	-15					
	30	S-6	60/44			
	-20					
	35	S-7	60/50			
	-25					
	40	S-8	60/48			
	-30					
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)       CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR ALO = ASPHALT LIKE ODOR  NA = NOT APPLICABLE    Qp = POCKET PENETROMETER NM = NOT MEASURED    Sv = TORVANE PEAK						

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT 3/27/13

<div><div>GEI</div><div><div>GEI Consultants</div></div></div> <div>GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300</div>		CLIENT: <u>National Grid</u>		BORING LOG		
		PROJECT: <u>Williamsburg MGP RI</u>		PAGE 3 of 3	WW-SB-54	
CITY/STATE: <u>Brooklyn, New York</u>						
GEI PROJECT NUMBER: <u>093060</u>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO		STRATA	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.			
	45	S-9	60/48			(50'- 57.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines; brown.
	50	S-10	60/40			
	55	S-11	60/48			
					WW-SB-54 (57-59)	(57.5'- 60') SANDY SILT (ML); ~70% fines, ~30% sand, fine; brown.
	60					
End of Boring at 60 feet. Grouted						
<div>NOTES:</div> <div><div><div>PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL</div><div>REC = RECOVERY LENGTH OF SAMPLE</div><div>PID = PHOTOIONIZATION DETECTOR READING (PPM)</div><div>JHS = JAR HEADSPACE PID READING (PPM)</div></div><div><div>ppm = PARTS PER MILLION</div><div>IN. = INCHES</div><div>FT. = FEET</div></div><div><div>NLO = NAPHTHALENE LIKE ODOR</div><div>PLO = PETROLEUM LIKE ODOR</div><div>TLO = TAR LIKE ODOR</div><div>CLO = CHEMICAL LIKE ODOR</div><div>ALO = ASPHALT LIKE ODOR</div></div><div><div>CrLO= CREOSOTE LIKE ODOR</div><div>OLO = ORGANIC LIKE ODOR</div><div>SLO = SULFUR LIKE ODOR</div><div>MLO = MUSTY LIKE ODOR</div></div><div><div>NA = NOT APPLICABLE</div><div>NM = NOT MEASURED</div><div>Qp = POCKET PENETROMETER</div><div>Sv = TORVANE PEAK</div></div></div>						

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13



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455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: **National Grid**  
PROJECT: **Williamsburg Works Former MGP**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-55**

GROUND SURFACE ELEVATION (FT): **9.04** LOCATION: **Private property - End of N 10th Street**  
NORTHING (FT): **688688** EASTING (FT): **641390** TOTAL DEPTH (FT): **60.0**  
DRILLED BY: **Boart Longyear / Frank Gardella** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Chris Anastasiou** DATE START / END: **11/13/2012 - 11/13/2012**  
DRILLING DETAILS: **Sonic Coring**  
WATER LEVEL DEPTHS (FT): **▽ 10.00 11/13/2012**  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0		60/NM					WW-SB-55 (3-5)	(0'- 0.2') ASPHALT. (0.2'- 1') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~30% gravel, fine to coarse; 20% brick fragments, brown, hand cleared. FILL. (1'- 5') SILTY SAND WITH GRAVEL (SM); ~50% sand, fine to coarse, ~30% fines, ~20% gravel; brown, brick fragments, wood debris, hand cleared. FILL.
	5								
	5	S-1	60/24					WW-SB-55 (12-14)	(5'- 10') SANDY SILT WITH GRAVEL (ML); ~50% fines, ~30% sand, fine to coarse, ~20% gravel, fine to coarse; brown, FILL.
	10	S-2	60/48	1305			NLO		(10'- 13.8') SANDY SILT (ML); ~70% fines, ~30% sand, fine; moderate naphthalene-like odor, wet, gray, black staining.
	15	S-3	120/48	11.5			NLO		(13.8'- 15') SANDY SILT WITH GRAVEL (ML); ~50% sand, fine to coarse, ~35% fines, ~15% gravel, fine to coarse; moderate naphthalene-like odor, black, staining. (15'- 17.5') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines; black, staining.
	20						NLO		(17.5'- 22.5') SANDY SILT (ML); ~60% fines, ~40% sand, fine; slight naphthalene-like odor, gray.

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ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

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ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
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MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 7/26/13





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CLIENT: **National Grid**  
PROJECT: **Williamsburg Works Former MGP**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-55**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20						NLO		
	-15								(22.5'- 25') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines; black.
	25	S-4	60/48						(25'- 27.1') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines; gray.
	-20								(27.1'- 30') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines; light brown.
	30	S-5	60/48						(30'- 32.1') LEAN CLAY WITH SAND (CL); ~80% fines, ~20% sand, fine; brownish tan.
	-25								(32.1'- 35') SILTY SAND (SM); ~70% sand, fine to medium, ~20% fines, ~10% gravel, fine to coarse; brown, large cobble from 36-40".
	35	S-6	60/40						(35'- 41.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines; brown.
	-30								
	40	S-7	60/50						(41.2'- 43.4') LEAN CLAY WITH SAND (CL); ~80% fines, ~15% sand, fine, ~5% gravel, fine to coarse; gray.
	-35								(43.4'- 45') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; red orange.

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT 7/26/13



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CLIENT: **National Grid**  
PROJECT: **Williamsburg Works Former MGP**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SB-55**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S-8	60/48						(45'- 54.2') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; brown.
	50	S-9	60/48						
	55	S-10	60/48					WW-SB-55 (55-57)	(54.2'- 55') SILTY SAND (SM); ~60% sand, fine, ~40% fines; brown gray. (55'- 57.5') SILTY SAND (SM); ~80% sand, fine, ~20% fines; brown.
	60								(57.5'- 60') LEAN CLAY WITH SAND (CL); ~80% fines, ~20% sand, fine; red.

End of Boring at 60 feet.  
Grouted

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IN. = INCHES  
FT. = FEET

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CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT 7/26/13



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-01**

GROUND SURFACE ELEVATION (FT): -5.40 LOCATION: East River  
NORTHING (FT): 689140 EASTING (FT): 641205 TOTAL DEPTH (FT): 20.0  
DRILLED BY: Ocean Surveys, Inc. / Dave Kowaleski DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 9/30/2009 - 9/30/2009  
DRILLING DETAILS: Vibrocure  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	240/206	649			NLO	WW-SED-01 (0-0.5)	(0'- 1.2') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; ~30% organics, slight naphthalene-like odor, wet, black, slight petroleum-like odor, wood, sticks, and fibers.
				841			NLO	WW-SED-01 (1-2)	
									(1.2'- 2.3') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; ~30% organics, moderate naphthalene-like odor, wet, black, slight petroleum-like odor, wood, sticks, and fibers, tar-like staining.
							NLO		(2.3'- 5.8') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; ~30% organics, moderate naphthalene-like odor, wet, black, wood, sticks, and fibers.
	5			653					(5.8'- 7') SANDY ORGANIC SOIL (OL); ~70% fines, non plastic, ~30% sand, fine to medium; ~30% organics, wet, black, wood, sticks, and fibers.
							NLO		(7'- 8.2') SANDY ORGANIC SOIL (OL); ~70% fines, non plastic, ~30% sand, fine to medium; ~30% organics, moderate naphthalene-like odor, wet, black, wood, sticks, and fibers, moderate tar-like staining.
							NLO		(8.2'- 10') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~30% organics, slight naphthalene-like odor, wet, black, wood, sticks, and fibers, slight tar-like staining.
	10						NLO		(10'- 11.7') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~30% organics, slight naphthalene-like odor, wet, black, wood, sticks, and fibers.
									(11.7'- 12.6') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~30% organics, wet, black, wood, sticks, and fibers.
									(12.6'- 17.8') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~40% organics, slight naphthalene-like odor, wet, black, wood, sticks, and fibers, slight tar-like staining, layer of wood chips from 17.5 to 17.8 ft.
	15			187			NLO		
									(17.8'- 20') ORGANIC SOIL (OL); ~90% fines, non plastic, ~10% sand, fine; ~5% organics, slight naphthalene-like odor, wet, black, very soft, fibers and wood.
	20			35.0				WW-SED-01	

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IN. = INCHES  
FT. = FEET

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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG  <b>WW-SED-01</b>					
		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 2 of 2			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
								(19.5-20)	End of Boring at 20 feet.
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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-02**

GROUND SURFACE ELEVATION (FT): -5.00 LOCATION: East River  
NORTHING (FT): 689254 EASTING (FT): 641244 TOTAL DEPTH (FT): 12.0  
DRILLED BY: Ocean Surveys, Inc. / Dave Kowaleski DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 9/30/2009 - 9/30/2009  
DRILLING DETAILS: Vibrocure  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	144/144	457			NLO	WW-SED-02 (0-0.5)	(0'- 1.3') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine to medium; ~40% organics, slight naphthalene-like odor, wet, black, slight petroleum-like odor, wood, fibers, and sticks.
							NLO	WW-SED-02 (4-5)	(1.3'- 5') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine to medium; ~40% organics, moderate naphthalene-like odor, wet, black, wood, fibers, and sticks, slight tar-like staining.
-10	5			1460			NLO		(5'- 6.3') SILTY SAND (SM); ~75% sand, fine to medium, ~20% fines, non plastic, ~5% gravel, fine; ~25% organics, slight naphthalene-like odor, wet, black, wood and sticks, slight sewage-like odor.
							NLO		(6.3'- 7.8') GRAVELY SILT WITH SAND (ML); ~55% fines, non plastic, ~30% gravel, fine to coarse, ~15% sand, fine; max. size 1.5, slight naphthalene-like odor, wet, dark gray.
-15	10						NLO	WW-SED-02 (11-12)	(7.8'- 12') SANDY ORGANIC SOIL (OL); ~70% fines, non plastic, ~25% sand, fine to medium, ~5% gravel, fine; ~40% organics, max. size 0.5, slight naphthalene-like odor, wet, black, wood, fibers, and sticks.
				200					

End of Boring at 12 feet.  
Refusal at 12 feet.

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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SED-03**

GROUND SURFACE ELEVATION (FT): **-7.00** LOCATION: **East River**  
NORTHING (FT): **689360** EASTING (FT): **641269** TOTAL DEPTH (FT): **17.0**  
DRILLED BY: **Ocean Surveys, Inc. / Dave Kowaleski** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Kari Weber** DATE START / END: **9/30/2009 - 9/30/2009**  
DRILLING DETAILS: **Vibrocure**  
WATER LEVEL DEPTHS (FT):  
GENERAL NOTE:

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	204/204	143				WW-SED-03 (0-0.5)	(0'- 3.6') SANDY ORGANIC SOIL (OL); ~60% fines, non plastic, ~35% sand, fine to medium, ~5% gravel, fine, subangular; ~30% organics, max. size 0.25, strong naphthalene-like odor, wet, black, wood and sticks, tar-like staining.
				269			NLO		
	-10								
	5								(3.6'- 5') CLAYEY SAND WITH GRAVEL (SC); ~50% sand, fine to medium, ~30% gravel, fine to coarse, subrounded, ~20% fines, medium plasticity; max. size 2.5, moist, tannish brown, dense.
							NLO		(5'- 8.3') ORGANIC SOIL WITH SAND (OL); ~80% fines, low plasticity, ~20% sand, fine; ~30% organics, slight naphthalene-like odor, wet, black, wood, sticks, and glass pieces.
	-15								
	10			866			NLO	WW-SED-03 (9-10)	(8.3'- 10') SANDY ORGANIC SOIL (OL); ~65% fines, non plastic, ~35% sand, fine to medium; ~20% organics, strong naphthalene-like odor, wet, black, wood and sticks, 4 inch cobble at the top, lenses of heavy coating.
									(10'- 14.4') ORGANIC SOIL WITH SAND (OL); ~80% fines, low plasticity, ~20% sand, fine to medium; ~30% organics, wet, black, wood, sticks, and glass pieces.
	-20								
	15			49.0			NLO		(14.4'- 15') ORGANIC SOIL WITH SAND (OL); ~80% fines, low plasticity, ~20% sand, fine to medium; ~30% organics, slight naphthalene-like odor, wet, black, wood, sticks, and glass pieces.
				48.8				WW-SED-03 (16.5-17)	(15'- 17') ORGANIC SOIL WITH SAND (OL); ~80% fines, low plasticity, ~20% sand, fine to medium; ~30% organics, wet, black, wood, sticks, and glass pieces, sewage-like odor from 15-16 ft.
									End of Boring at 17 feet. Refusal at 17 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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1 of 1

**WW-SED-04**

GROUND SURFACE ELEVATION (FT): **-8.80** LOCATION: **East River**  
NORTHING (FT): **689418** EASTING (FT): **641284** TOTAL DEPTH (FT): **17.3**  
DRILLED BY: **Ocean Surveys, Inc. / Dave Kowaleski** DATUM VERT. / HORZ.: **NAVD 88 / NAD83 NY East Zone**  
LOGGED BY: **Kari Weber** DATE START / END: **9/30/2009 - 9/30/2009**  
DRILLING DETAILS: **Vibrocure**  
WATER LEVEL DEPTHS (FT):  
GENERAL NOTE:

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0		S1	208/208	203			NLO	WW-SED-04 (0-0.5)	(0'- 0.9') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~50% organics, slight naphthalene-like odor, wet, black, wood, sticks, and plastic pieces.
-10				760			NLO	WW-SED-04 (3-4)	(0.9'- 4.3') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~50% organics, slight naphthalene-like odor, wet, black, lenses of medium to coarse sand with staining, moderate to heavy tar-like coating.
5									(4.3'- 5') CLAYEY SAND WITH GRAVEL (SC); ~55% sand, fine to medium, ~25% fines, medium plasticity, ~20% gravel, fine to coarse, subrounded; max. size 1.5, moist, tannish brown, dense, fabric liner at 4.5 to 5 ft interface.
-15							OLO		(5'- 9.6') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; ~10% organics, slight organic-like odor, wet, black, wood, sticks, foil and plastic pieces.
10				79.2			NLO		(9.6'- 10') SANDY ORGANIC SOIL (OL); ~60% fines, non plastic, ~30% sand, fine to medium, ~10% gravel, fine, subangular; ~20% organics, max. size 0.25, moderate naphthalene-like odor, wet, black, wood and sticks.
-20				12.8					(10'- 13.8') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~5% organics, wet, black, wood and sticks.
15							PLO		(13.8'- 15') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~5% organics, slight petroleum-like odor, wet, black, wood and sticks.
-25				20.2				WW-SED-04 (16.75-17.3)	ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; ~5% organics, wet, black, wood and sticks.

End of Boring at 17.3 feet.  
Refusal at 17.3 feet.

**NOTES:**

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IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR

CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Qp = POCKET PENETROMETER  
NM = NOT MEASURED Sv = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



GEI Consultants, Inc.  
455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-05**

GROUND SURFACE ELEVATION (FT): -7.30 LOCATION: East River  
NORTHING (FT): 689230 EASTING (FT): 641119 TOTAL DEPTH (FT): 20.0  
DRILLED BY: Ocean Surveys, Inc. / Dave Kowaleski DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 9/29/2009 - 9/29/2009  
DRILLING DETAILS: Vibrocure  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	240/228	172				WW-SED-05 (0-0.5)	(0'- 2.5') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; wet, black, organics including sticks and fibers, plastic pieces from 0-1.5 ft, sheen.
	-10						PLO		
							PLO		
	5			729			NLO	WW-SED-05 (4.5-5)	(2.5'- 2.7') ORGANIC SOIL WITH GRAVEL (OL); ~80% fines, non plastic, ~20% gravel, fine, angular; moderate petroleum-like odor, wet, black, organics including sticks and fibers, sheen. (2.7'- 4.3') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; moderate petroleum-like odor, wet, black, organics including sticks and fibers, sheen. (4.3'- 5') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; moderate naphthalene-like odor, wet, black, organics including sticks and fibers, sheen, tar-like coating and staining. (5'- 9.6') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; slight organic-like odor, wet, black, organics including wood, grass, and roots.
	-15			26.5			OLO		
	10						NLO		(9.6'- 10') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; slight naphthalene-like odor, wet, black, organics including wood, grass, and roots. (10'- 13.8') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; slight organic-like odor, wet, black, organics decreasing with depth, occasional lenses with up to 40% fine sand.
	-20						OLO		
	15			26.4			PLO		(13.8'- 15') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; slight petroleum-like odor, wet, black, organics decreasing with depth, occasional sandy lenses. (15'- 16.8') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; slight organic-like odor, wet, black, shell fragments, organics decreasing with depth, occasional sandy lenses.
	-25						OLO		
							PLO		(16.8'- 17.3') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; moderate petroleum-like odor, wet, black, shell fragments, organics decreasing with depth, occasional sandy lenses, spotty sheen.
	20			29.3			PLO	WW-SED-05	(17.3'- 20') ORGANIC SOIL WITH SAND (OL); ~85% fines, non plastic, ~15% sand, fine; slight petroleum-like odor, wet, black, shell fragments, organics decreasing with depth, occasional sandy

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FT. = FEET

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13



[illegible]



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455 Winding Brook Road  
Glastonbury, CT 06033  
(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-06**

GROUND SURFACE ELEVATION (FT): -6.40 LOCATION: East River  
NORTHING (FT): 689367 EASTING (FT): 641159 TOTAL DEPTH (FT): 20.0  
DRILLED BY: Ocean Surveys, Inc. / Dave Kowaleski DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 9/29/2009 - 9/29/2009  
DRILLING DETAILS: Vibracore  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	240/222	345			NLO	WW-SED-06 (0-0.5)	(0'- 1.3') SILTY GRAVEL WITH SAND (GM); ~60% gravel, fine to coarse, subangular, ~20% sand, fine to medium, ~20% fines, non plastic; ~30% organics, max. size 1.75, strong naphthalene-like odor, wet, black, roots, wood, leaves, tar saturated.
							NLO		(1.3'- 3.3') SANDY ORGANIC SOIL WITH GRAVEL (OL); ~60% fines, non plastic, ~25% sand, fine, ~15% gravel, fine to coarse, subrounded; max. size 2, moderate naphthalene-like odor, dark gray to black, organics including wood, roots, and debris, lenses of tar-like coating.
							NLO		(3.3'- 5') SANDY ORGANIC SOIL WITH GRAVEL (OL); ~60% fines, non plastic, ~25% sand, fine, ~15% gravel, fine to coarse, subrounded; max. size 2, slight naphthalene-like odor, dark gray to black, organics including wood, roots, and debris.
	5						NLO	WW-SED-06 (9-10)	(5'- 9.2') SANDY ORGANIC SOIL (OL); ~70% fines, non plastic, ~25% sand, fine, ~5% gravel, fine; max. size 0.5, slight naphthalene-like odor, wet, black, organics including wood and root fibers.
							NLO		(9.2'- 10') SILTY GRAVEL WITH SAND (GM); ~60% gravel, fine to coarse, subangular, ~25% fines, non plastic, ~15% sand, fine to medium; max. size 1.75, strong naphthalene-like odor, wet, black, tar saturated.
							NLO		(10'- 12') SANDY ORGANIC SOIL (OL); ~70% fines, non plastic, ~30% sand, fine; slight naphthalene-like odor, wet, black, organics including wood and fibers, slight organic-like odor.
							NLO	WW-SED-06 (15-18.5)	(12'- 15') SANDY ORGANIC SOIL (OL); ~70% fines, non plastic, ~30% sand, fine; slight naphthalene-like odor, wet, black, organics including wood and fibers.
	15			87.3			NLO		
				13.9			OLO		(15'- 18.5') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; moderate organic-like odor, wet, black, odor decreasing with depth.
	20								

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IN. = INCHES  
FT. = FEET

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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG			
		PROJECT: <u>Williamsburg MGP RI</u>		CITY/STATE: <u>Brooklyn, New York</u>		PAGE 2 of 2	WW-SED-06		
GEI PROJECT NUMBER: <u>093060</u>									
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
End of Boring at 20 feet. Bottom 1.5 ft lost due to fall out during recovery on the barge.									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    NA = NOT APPLICABLE    Qp = POCKET PENETROMETER    MLO = MUSTY LIKE ODOR NM = NOT MEASURED    Sv = TORVANE PEAK    CLO = CHEMICAL LIKE ODOR    ALO = ASPHALT LIKE ODOR									



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**BORING LOG**

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**WW-SED-07**

GROUND SURFACE ELEVATION (FT): -11.20 LOCATION: East River  
NORTHING (FT): 689479 EASTING (FT): 641126 TOTAL DEPTH (FT): 15.7  
DRILLED BY: Ocean Surveys, Inc. / Dave Kowaleski DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 9/29/2009 - 9/29/2009  
DRILLING DETAILS: Vibracore  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S1	188/181	15.7			WW-SED-07 (0-0.5)	(0'- 5') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; slight organic-like odor, wet, black, organics including roots and sticks, lenses of medium to coarse sand.
	-15			125		OLO	WW-SED-07 (4-4.5)	(5'- 5.2') SANDY SILT (ML); ~60% fines, non plastic, ~35% sand, fine, ~5% gravel, fine; max. size 0.5, slight organic-like odor, wet, gray. (5.2'- 10.4') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; slight organic-like odor, wet, black, organics including roots and sticks, lenses of medium to coarse sand.
	5					OLO		
	-20			59.3		OLO		
	10							(10.4'- 15.7') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, ~20% sand, fine; wet, black, sewage-like odor from 10.4 to 11.5 ft.
	-25							
	15			7.6			WW-SED-07 (15-15.7)	End of Boring at 15.7 feet. Refusal at 15.7 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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PROJECT: Williamsburg MGP RI  
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**BORING LOG**

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**WW-SED-08**

GROUND SURFACE ELEVATION (FT): -13.23 LOCATION: East River  
NORTHING (FT): 689096 EASTING (FT): 641093 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/12/2010 - 11/12/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S-1	240/85					WW-SED-08 (0-0.5)	(0'- 5') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; strong organic-like odor, wet, dark gray to black.
	-15						OLO		
	5			13.3					(5'- 15') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; slight organic-like odor, wet, dark gray to black.
	-20								
	10						OLO		
	-25								
	15			32.8					(15'- 24.5') ORGANIC SOIL WITH SAND (OL); ~75% fines, ~20% sand, fine to coarse, ~5% gravel, fine to coarse, subangular; max. size 1, slight organic-like odor, wet, dark gray to black.
	-30						OLO		
	20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SED-08**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
45									
-60									
50				4.4					(50'- 63') CLAYEY SAND (SC); ~70% sand, fine to coarse, ~25% fines, ~5% gravel, fine to coarse, subangular; max. size 1, moist, gray to brown, rust colored mottling; intermittent lenses of gray and red clay up to 0.5 inches thick from 55-63'.
-65									
55		S-4	120/120						
-70									
60				2.8					
-75				2.3				WW-SED-08 (62-63)	(63'- 65') LEAN CLAY (CL); ~100% fines, medium plasticity, no dilatancy; moist, light gray to gray.
65									End of Boring at 65 feet. Grouted

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13



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**BORING LOG**

PAGE  
1 of 3

**WW-SED-09**

GROUND SURFACE ELEVATION (FT): -12.98 LOCATION: East River  
NORTHING (FT): 689225 EASTING (FT): 641092 TOTAL DEPTH (FT): 48.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/11/2010 - 11/11/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S-1	96/42					WW-SED-09 (0-0.5)	(0'- 4') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; strong organic-like odor, wet, dark gray to black.
-15							OLO		
5				51.6			PLO		(4'- 8') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; moderate petroleum-like odor, wet, dark gray to black, moderate organic-like odor.
-20		S-2	240/110						(8'- 14') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; slight naphthalene-like odor, wet, dark gray to black, slight organic-like odor.
10				310			NLO		
-25									(14'- 18.5') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; ~15% organic fibers, wet, dark gray to black.
15									
-30									
20							NLO		(18.5'- 24') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; ~30% organic fibers, moderate naphthalene-like odor, wet, dark gray to black, slight to moderate tar-like staining increasing with

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



 <div> <div>GEI</div> <div>Consultants</div> </div>		<div> <div>GEI Consultants, Inc.</div> <div>455 Winding Brook Road</div> <div>Glastonbury, CT 06033</div> <div>(860) 368-5300</div> </div>			<div> <div>CLIENT: National Grid</div> <div>PROJECT: Williamsburg MGP RI</div> <div>CITY/STATE: Brooklyn, New York</div> <div>GEI PROJECT NUMBER: 093060</div> </div>			<div> <div>BORING LOG</div> <div>PAGE 2 of 3</div> <div>WW-SED-09</div> </div>	
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
	20								depth.
	-35						NLO		
				1818				WW-SED-09 (23.5-24)	(24'- 28') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; wet, brownish gray.
	25								
	-40								
		S-3	240/162				NLO		(28'- 29.5') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine, subrounded, ~5% fines; max. size 0.5, slight naphthalene-like odor, wet, gray.
	30								(29.5'- 33') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine to coarse, subrounded, ~10% fines; max. size 2, wet, brown.
	-45								
									(33'- 37.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, wet, brown.
	35								
	-50								
									(37.5'- 38.5') ELASTIC SILT WITH SAND (MH); ~75% fines, low plasticity, no dilatancy, ~25% sand, fine; moist, dark gray.
	40							WW-SED-09 (39.5-40)	(38.5'- 40') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 1, wet, brown.
	-55								(40'- 48') LEAN CLAY (CL); ~100% fines, medium plasticity, no dilatancy; moist, red with mottled gray grading to gray with mottled red.
<div>NOTES:</div> <div> <div> <div>PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL</div> <div>REC = RECOVERY LENGTH OF SAMPLE</div> <div>PID = PHOTOIONIZATION DETECTOR READING (PPM)</div> <div>JHS = JAR HEADSPACE PID READING (PPM)</div> </div> <div> <div>ppm = PARTS PER MILLION</div> <div>IN. = INCHES</div> <div>FT. = FEET</div> </div> <div> <div>NLO = NAPHTHALENE LIKE ODOR</div> <div>PLO = PETROLEUM LIKE ODOR</div> <div>TLO = TAR LIKE ODOR</div> <div>CLO = CHEMICAL LIKE ODOR</div> <div>ALO = ASPHALT LIKE ODOR</div> </div> <div> <div>CrLO= CREOSOTE LIKE ODOR</div> <div>OLO = ORGANIC LIKE ODOR</div> <div>SLO = SULFUR LIKE ODOR</div> <div>MLO = MUSTY LIKE ODOR</div> </div> <div> <div>NA = NOT APPLICABLE</div> <div>NM = NOT MEASURED</div> </div> <div> <div>Q<sub>p</sub> = POCKET PENETROMETER</div> <div>S<sub>v</sub> = TORVANE PEAK</div> </div> </div>									

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG  <b>WW-SED-09</b>					
		PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>				PAGE 3 of 3			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45								
	-60								
End of Boring at 48 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-10**

GROUND SURFACE ELEVATION (FT): -15.11 LOCATION: East River  
NORTHING (FT): 689144 EASTING (FT): 641052 TOTAL DEPTH (FT): 70.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/16/2010 - 11/16/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S1	120/84	0.0				WW-SED-10 (0-0.5)	(0'- 7') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; slight organic-like odor, wet, dark gray.
	5			0.0			OLO		
	10	S2	240/153	1.7			OLO		(7'- 18') SANDY ORGANIC SOIL (OL); ~75% fines, ~25% sand, fine to medium; slight organic-like odor, wet, dark gray.
	15			334			NLO		
	20						NLO		(18'- 19.5') SANDY ORGANIC SOIL (OL); ~75% fines, ~25% sand, fine to medium; ~25% horse hair and organics, moderate naphthalene-like odor, wet, dark gray, slight organic-like odor, sheen.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
 PROJECT: **Williamsburg MGP RI**  
 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG

PAGE 2 of 4  
**WW-SED-10**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20			805			NLO	WW-SED-10 (20-21)	(19.5'- 22') SANDY ORGANIC SOIL (OL); ~75% fines, ~25% sand, fine to medium; ~25% horse hair and organics, moderate naphthalene-like odor, wet, dark gray, slight organic-like odor, slight to moderate tar-like staining, staining increases with depth.
									(22'- 30') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.5, moderate naphthalene-like odor, wet, brownish gray, spotty sheen throughout.
	25			362			NLO		
	30	S3	240/184						(30'- 32') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, ~5% gravel, fine; wet, brown.
				96.7					(32'- 34') CLAYEY SAND (SC); ~55% sand, fine to coarse, ~35% fines, ~10% gravel, fine; max. size 0.5, wet, gray.
	35			27.9					(34'- 44.5') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine to coarse, subrounded, ~10% fines; max. size 1.5, wet, brown.
	40			0.0					

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SED-10**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-60	45								(44.5'- 48') SILTY SAND (SM); ~75% sand, fine, ~25% fines; moist, gray with dark gray mottling.
				500			NLO		(48'- 48.3') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, coarse, subangular, ~5% fines; max. size 3, strong naphthalene-like odor, wet, brown to light brown, moderate tar-like coating.
-65	50	S4	240/151						(48.3'- 51') SILTY SAND (SM); ~75% sand, fine, ~25% fines; moist, gray with dark gray mottling.
									(51'- 53.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.5, wet, brown.
-70	55			0.0					(53.5'- 64') SILTY SAND (SM); ~75% sand, fine, ~25% fines; moist, gray, lens of brown widely graded fine to coarse sand from ~59-60'.
-75	60								
-80	65			0.0				WW-SED-10 (63-64)	(64'- 67') LEAN CLAY (CL); ~100% fines, medium plasticity, no dilatancy; moist, light gray to gray.
									(67'- 69') CLAYEY SAND (SC); ~70% sand, fine to coarse, ~20% fines, ~10% gravel, fine; max. size 0.5, wet, whiteish gray to white.

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		BORING LOG  <b>WW-SED-10</b>					
		PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>				PAGE 4 of 4			
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-85	70								(69'- 70') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, dark gray. End of Boring at 70 feet. Grouted
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**BORING LOG**

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**WW-SED-11**

GROUND SURFACE ELEVATION (FT): -14.01 LOCATION: East River  
NORTHING (FT): 689239 EASTING (FT): 641135 TOTAL DEPTH (FT): 63.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/10/2010 - 11/10/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S-1	96/90					WW-SED-11 (0-0.5)	(0'- 8') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; moderate organic-like odor, wet, dark gray.
	-15						OLO		
	5								
	-20								
		S-2	120/49	74.9					(8'- 17.5') ORGANIC SOIL WITH SAND (OL); ~80% fines, ~20% sand, fine; slight naphthalene-like odor, wet, dark gray, slight sheen on water, hair and organic fragments.
	10								
	-25						NLO		
	15								
	-30			14.6					
	17.5						NLO		(17.5'- 18') ORGANIC SOIL WITH SAND (OL); ~80% fines, ~20% sand, fine; moderate naphthalene-like odor, wet, dark gray, slight sheen on water, hair and organic fragments, slight tar-like staining.
		S-3	120/67						(18'- 25.5') ORGANIC SOIL WITH SAND (OL); ~80% fines, ~20% sand, fine; strong naphthalene-like odor, wet, dark gray,
	20						NLO		

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT - 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-SED-11</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45								~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subangular; max. size 1.5, wet, grayish brown, slight unknown/plastic-like odor from ~46-47'.  (51'- 55') CLAYEY SAND (SC); ~60% sand, fine to medium, ~40% fines; wet, grayish brown to whiteish gray, lenses of red lean clay (CL) up to 0.5 inches thick.  (55'- 58') ELASTIC SILT (MH); ~90% fines, low plasticity, slow dilatancy, ~10% sand, fine; moist, brownish gray with mottled dark gray.  (58'- 59') CLAYEY SAND (SC); ~75% sand, fine, ~25% fines; moist, grayish white. (59'- 63') LEAN CLAY (CL); ~100% fines, medium plasticity, no dilatancy; moist, gray with red mottling in top foot.
	-60			101					
		S-6	180/164						
	50								
	-65								
	55								
	-70			0.0			WW-SED-11 (58-59)		
	60								
	-75								
End of Boring at 63 feet. Grouted									
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**BORING LOG**

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**WW-SED-12**

GROUND SURFACE ELEVATION (FT): -15.82 LOCATION: East River  
NORTHING (FT): 689165 EASTING (FT): 640972 TOTAL DEPTH (FT): 80.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/15/2010 - 11/15/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S-1	60/18				WW-SED-12 (0-0.5)	(0'- 5') ORGANIC SOIL (OL); ~90% fines, ~10% sand; moderate organic-like odor, wet, dark gray.
				0.2		OLO		
	5	S-2	60/44					(5'- 21.8') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; slight organic-like odor, wet, dark gray, ~2" gravel at bottom of sample, possible boulder.
				0.2				
	10	S-3	60/34				OLO	
				0.2				
	15	S-4	60/42					
				0.2				
	20							

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**BORING LOG**

PAGE  
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**WW-SED-12**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20	S-5	120/66		OLO		WW-SED-12 22-23)	(21.8'- 28') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~20% gravel, fine to coarse, subrounded, ~10% fines; max. size 2.5, wet, grayish brown.
	25			0.2				(28'- 30') NARROWLY GRADED GRAVEL (GP); ~100% gravel, coarse, angular.
	30	S-6	24/24	0.2				(30'- 33') SILTY SAND WITH GRAVEL (SM); ~55% sand, ~30% gravel, ~15% fines; max. size 2, wet, brownish gray.
	35	S-7	12/4					(33'- 34') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~5% fines; max. size 2, wet, brown.
	40	S-8	60/47	0.2				(34'- 40') CLAYEY SAND (SC); ~85% sand, fine to medium, ~15% fines; moist, grayish white to gray with gray mottling, layer of fine to coarse brown sand from ~38-39'.
	45							
	50							
	55	S-9	120/64	0.2				(40'- 43') CLAYEY SAND (SC); ~65% sand, fine to medium, ~35% fines; moist, light gray.
	60							(43'- 50') SANDY ELASTIC SILT (MH); ~70% fines, low plasticity, slow dilatancy, ~30% sand, fine; moist, gray.

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CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE      Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED      S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45							
		S-10	120/101					
	50			0.2			(50'- 58') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; moist, light brownish gray to light pinkish gray.	
	55							
		S-11	180/161				(58'- 61.5') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; light gray.	
	60			0.2			(61.5'- 64.5') SILTY SAND (SM); ~65% sand, fine, ~35% fines; gray.	
	65						(64.5'- 65') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; gray.	
							(65'- 66.5') SILTY SAND (SM); ~75% sand, fine, ~25% fines; gray.	
							(66.5'- 71.5') NARROWLY GRADED SAND (SP); ~95% sand, medium to coarse, ~5% fines; gray.	

**NOTES:**


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PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
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 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>		BORING LOG  <b>WW-SED-12</b>				
		PAGE 4 of 4						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	70			0.2				(71.5'- 73') SILTY SAND (SM); ~70% sand, fine, ~30% fines; grayish white.  (73'- 80') SILTY SAND (SM); ~80% sand, fine, ~20% fines; moist, light grayish white.
		S-12	84/74					
	-90							
	75			0.2				
	-95							
	80						WW-SED-12 (79.5-80)	End of Boring at 80 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR  NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK								



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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-13**

GROUND SURFACE ELEVATION (FT): -15.70 LOCATION: East River  
NORTHING (FT): 689296 EASTING (FT): 641056 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/16/2010 - 11/16/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S-1	60/28					WW-SED-13 (0-0.5)	(0'- 6') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; moderate organic-like odor, wet, dark gray, odor decreases to slight from ~1-5'.
				0.0			OLO		
	5	S-2	60/45						(6'- 8.3') SANDY ORGANIC SOIL (OL); ~70% fines, ~30% sand, fine; slight organic-like odor, wet, dark gray.
							OLO		
				0.0					(8.3'- 15.5') SANDY ORGANIC SOIL (OL); ~70% fines, ~30% sand, fine; ~15% organic fibers, slight petroleum-like odor, wet, dark gray, slight organic-like odor.
	10	S-3	180/112	38.4					
							PLO		
									(15.5'- 19') SANDY ORGANIC SOIL (OL); ~70% fines, ~30% sand, fine; ~15% organic fibers, slight naphthalene-like odor, wet, dark gray, slight organic-like odor, slight petroleum-like odor.
							NLO		
				66.3			NLO		(19'- 19.5') WOOD; moderate naphthalene-like odor, tar-like staining.
							NLO		

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IN. = INCHES  
FT. = FEET

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <b>GEI</b> Consultants	 GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300	<b>CLIENT:</b> National Grid		<b>BORING LOG</b>	
		<b>PROJECT:</b> Williamsburg MGP RI			
		<b>CITY/STATE:</b> Brooklyn, New York		<b>PAGE</b> 2 of 3	<b>WW-SED-13</b>
		<b>GEI PROJECT NUMBER:</b> 093060			

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20								(19.5'- 25') SANDY ORGANIC SOIL (OL/OH); ~70% fines, ~30% sand, fine; ~10% organic fibers, moderate naphthalene-like odor, wet, dark gray, slight organic and petroleum-like odor, slight sheen and tar-like staining, moderate tar-like staining in wood at ~20-20.5', ~22.5-23', and ~24-25'.
				1121			NLO	WW-SED-13 (24-24.5)	
	25	S-4	240/176				NLO		(25'- 31.5') SANDY ORGANIC SOIL (OL/OH); ~70% fines, ~30% sand, fine; ~10% organic fibers, moderate naphthalene-like odor, wet, dark gray, slight sheen and tar-like staining throughout.
				667			NLO		
				743			NLO		(31.5'- 32.5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; moderate naphthalene-like odor, wet, brownish gray, slight sheen. (32.5'- 42') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~70% sand, fine to medium, ~20% gravel, fine to coarse, subrounded, ~10% fines; max. size 1.5, moist, brown to grayish brown.
				7.5					
				1.7					(42'- 44.5') SILTY SAND WITH GRAVEL (SM); ~70% sand, ~15% gravel, ~15% fines; max. size 2, wet, brown to reddish brown.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 3 of 3 <b>WW-SED-13</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45	S-5	180/110						(44.5'- 55') NARROWLY GRADED SAND (SP); ~85% sand, ~10% gravel, fine, subrounded, ~5% fines; max. size 0.75, wet, reddish brown.
	-65			0.0					
	50								
	-70			0.0					
	55						WW-SED-13 (54.5-55)		(55'- 58') LEAN CLAY (CL); ~90% fines, medium plasticity, no dilatancy, ~10% sand, fine; moist, red with gray and brown, intermittent lenses of elastic silt and fine to medium sand.
	-75								(58'- 60') CLAYEY SAND (SC); ~75% sand, fine to medium, ~25% fines; moist, gray.
	60								End of Boring at 60 feet. Grouted
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GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-14**

GROUND SURFACE ELEVATION (FT): -18.20 LOCATION: East River  
NORTHING (FT): 689411 EASTING (FT): 641074 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/11/2010 - 11/11/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
0	0	S-1	120/38	4.1				WW-SED-14 (0-0.5)	(0'- 6.4') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; moderate organic-like odor, wet, dark gray, organic odor decreases with depth.
-20							OLO		
5									
-25							OLO		(6.4'- 11.9') SANDY ORGANIC SOIL WITH GRAVEL (OL); ~55% fines, ~30% sand, fine to coarse, ~15% gravel, fine to coarse, subangular; max. size 1.5, slight organic-like odor, wet, dark gray, wood fragments.
10		S-2	60/24						
-30							NLO		(11.9'- 13.3') SANDY ORGANIC SOIL WITH GRAVEL (OL); ~55% fines, ~30% sand, fine to coarse, ~15% gravel, fine to coarse, subangular; max. size 1.5, slight naphthalene-like odor, wet, dark gray to black, sheen on water.
							NLO		(13.3'- 15') SANDY ORGANIC SOIL WITH GRAVEL (OL); ~55% fines, ~30% sand, fine to coarse, ~15% gravel, fine to coarse, subangular; max. size 1.25, moderate naphthalene-like odor, wet, dark gray to black, sheen.
15		S-3	120/81	930				WW-SED-14 (16-17)	(15'- 17.5') SANDY ORGANIC SOIL (OL); ~60% fines, ~30% sand, fine to coarse, ~10% gravel, fine to coarse, subangular; max. size 1.25, moderate naphthalene-like odor, wet, dark gray to black, sheen.
-35				962			NLO		(17.5'- 21.5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel, fine to coarse, subangular; max. size 1.5, slight naphthalene-like odor, wet, grayish brown to brown.
							NLO		
20									

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FT. = FEET

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

PAGE  
2 of 3

**WW-SED-14**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
20							NLO		(21.5'- 25') NARROWLY GRADED SAND WITH GRAVEL (SP); ~75% sand, medium to coarse, ~20% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, slight naphthalene-like odor, wet, brown, sand grades coarser with depth.
40				52.8			NLO		
25		S-4	180/107				NLO		
45				715					
30				164					
50									(25'- 26') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, slight naphthalene-like odor, wet, dark gray, sheen and occasional tar-like blebs. (26'- 40') NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% sand, fine to medium, ~15% gravel, fine to coarse, subrounded, ~10% fines; max. size 2, wet, grayish brown.
35									
55				11.9					
40		S-5	240/205						
60				3.7					
									(40'- 42.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1, wet, brown.
									(42.5'- 44.5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines; wet, brown.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

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ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45							<b>WW-SED-14 (52.5-53)</b>  (44.5'- 53') CLAYEY SAND (SC); ~75% sand, fine to medium, ~25% fines; wet, whitish gray to grayish brown with gray mottling.  (53'- 56.5') LEAN CLAY (CL); ~100% fines, medium plasticity, no dilatancy; moist, gray.  (56.5'- 60') CLAYEY SAND (SC); ~75% sand, fine, ~25% fines; moist, grayish white.  End of Boring at 60 feet. Grouted	
	65								
	50			2.1					
	70								
	55								
	75			5.8					
	60								

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GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-15**

GROUND SURFACE ELEVATION (FT): -19.59 LOCATION: East River  
NORTHING (FT): 689618 EASTING (FT): 641190 TOTAL DEPTH (FT): 51.0  
DRILLED BY: Boart Longyear / Frank Gardelle DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 11/9/2010 - 11/9/2010  
DRILLING DETAILS: \_\_\_\_\_  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-20	0	S1	72/45	0.3				WW-SED-15 (0-0.5)	(0'- 6') ORGANIC SOIL (OL); ~100% fines; strong organic-like odor, dark gray, loose.
-25	5	S2	60/14	0.0					(6'- 15') ORGANIC SOIL (OL); ~100% fines; slight organic-like odor, dark gray, loose.
-30	10	S3	60/44						
-35	15	S4	60/40	319				WW-SED-15 (15.5-16)	(15'- 16') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines; moderate petroleum-like odor, dark gray, petroleum-like sheen. (16'- 18.9') SILT (ML); ~90% fines, ~10% sand, fine; brownish gray.
-20	20								(18.9'- 20') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% sand, fine to coarse, ~30% gravel, coarse, ~10%

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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2 of 3

**WW-SED-15**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-40	20	S5	60/0	171					fines; max. size 2, slight petroleum-like odor, brownish gray. (20'- 21') SILTY SAND WITH GRAVEL (SM); ~55% sand, fine to coarse, ~30% fines, ~15% gravel, fine to coarse; max. size 1, light orangeish brown, dense. (21'- 26') No recovery.
-45	25	S6	60/35	6.2					(26'- 26.4') CLAYEY SAND (SC); ~60% sand, fine to medium, ~40% fines; light gray. (26.4'- 32.9') SILTY SAND (SM); ~60% sand, fine to medium, ~30% fines, ~10% gravel, fine; max. size 0.5, brown and reddish brown.
-50	30	S7	120/106	0.5					(32.9'- 33.6') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; brown. (33.6'- 34.8') CLAYEY SAND (SC); ~70% fines, ~30% sand, fine; red with brown, light gray bands.
-55	35			1.3					(34.8'- 36.1') SILTY SAND (SM); ~60% sand, fine to medium, ~30% fines, ~10% gravel, fine; max. size 0.5, brown and reddish brown. (36.1'- 36.7') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines; brown with reddish brown. (36.7'- 38.2') SILTY SAND WITH GRAVEL (SM); ~65% sand, fine to medium, ~20% fines, ~15% gravel, rounded; max. size 2, brown, light gray bands. (38.2'- 40.2') ELASTIC SILT (MH); ~60% fines, ~40% sand, fine; greenish gray, brown bands.
-60	40	S8	120/102	4.0					(40.2'- 41') SILTY SAND (SM); ~70% sand, fine to coarse, ~30% fines; reddish brown. (41'- 42') SILTY SAND (SM); ~80% sand, ~20% fines; brown.
									(42'- 47.3') LEAN CLAY (CL); ~100% fines; gray.

WW-SED-15  
(41.5-42)

**NOTES:**

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REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
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OLO = ORGANIC LIKE ODOR  
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MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <b>GEI</b> Consultants		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		<b>CLIENT:</b> <u>National Grid</u>				<b>BORING LOG</b>	
				<b>PROJECT:</b> <u>Williamsburg MGP RI</u>				<b>PAGE</b> 3 of 3	
<b>CITY/STATE:</b> <u>Brooklyn, New York</u>				<b>GEI PROJECT NUMBER:</b> <u>093060</u>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-65	45			3.5					(47.3'- 51') SANDY CLAY (CL); ~70% fines, ~30% sand, fine; light gray.
-70	50								
End of Boring at 51 feet. Grouted									
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-16**

GROUND SURFACE ELEVATION (FT): -15.48 LOCATION: East River  
NORTHING (FT): 689605 EASTING (FT): 641417 TOTAL DEPTH (FT): 65.0  
DRILLED BY: Boart Longyear / Frank Gardelle DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary DATE START / END: 11/9/2010 - 11/9/2010  
DRILLING DETAILS: \_\_\_\_\_  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S1	60/16	0.1			WW-SED-16 (0-0.5)	(0'- 5') ORGANIC SOIL (OL); ~100% fines; strong organic-like odor, dark gray.
						OLO		
	-20							
	5	S2	60/14	0.0				(5'- 10') ORGANIC SOIL (OL); ~100% fines; slight organic-like odor, dark gray.
						OLO		
	-25							
	10	S3	120/46	4.9				(10'- 20') ORGANIC SOIL (OL); ~100% fines; slight organic-like odor, dark gray, slight sulfur-like odor; wood fragments from 19.6-20'.
	-30							
	15					OLO		
	-35							
	20							

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FT. = FEET

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CLIENT: **National Grid**  
PROJECT: **Williamsburg MGP RI**  
CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SED-16**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20	S4	120/70	3.4	OLO		WW-SED-16 (27-28)	(20'- 26.2') ORGANIC SOIL (OL); ~100% fines; slight organic-like odor, dark gray, lenses of whitish gray silty sand from 20.9-21.1 and 22.2-22.6'.
	25			363				(26.2'- 29.7') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to medium, ~15% gravel, coarse, ~10% fines; max. size 1.5, brown.
	30	S5	120/33	0.0				(29.7'- 30.3') SANDY CLAY (CL); ~60% fines, ~40% sand, fine to medium; red with brown, bands of gray and white. (30.3'- 35.9') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% sand, fine to medium, ~30% gravel, coarse, ~10% fines; max. size 2.5.
	35							(35.9'- 38.8') SANDY CLAY (CL); ~60% fines, ~40% sand, fine to medium; red with brown, bands of gray and white.
	40	S6	60/45	0.0				(38.8'- 40') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% sand, fine to medium, ~30% gravel, coarse, ~10% fines; max. size 2.5. (40'- 35.9') NARROWLY GRADED SAND (SP); ~100% sand, fine to medium; brown. (41.2'- 41.2') SILTY SAND (SM); ~80% sand, fine, ~20% fines; brown. (42.4'- 43.7') SILTY SAND WITH GRAVEL (SM); ~55% sand, fine to coarse, ~30% fines, ~15% gravel, fine; max. size 0.25, brown, dense. (43.7'- 43.9') SANDY CLAY (CL); ~70% fines, ~30% sand, fine to medium; red with brown and gray.

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NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13





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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SED-16**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45	S7	120/52	0.0				(43.9'- 45') LEAN CLAY (CL); ~100% fines; red and gray, seams and lensed of fine to medium brown sand. (45'- 46') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; brown. (46'- 47.3') SILTY SAND (SM); ~50% sand, fine to medium, ~50% fines; brown, dense. (47.3'- 48.8') LEAN CLAY (CL); ~100% fines; red and gray, seams and lensed of fine to medium brown sand.  (48.8'- 55') SANDY SILT (ML); ~60% fines, ~40% sand, fine; brown.
	50							
	55	S8	120/100	0.0				(55'- 61.6') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; brown.
	60							(61.6'- 63.2') ELASTIC SILT (MH); ~90% fines, ~10% sand, fine; dry, whiteish gray, very dense. (63.2'- 64.7') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; brown. (64.7'- 65') LEAN CLAY (CL); ~100% fines; red with gray.
	65						WW-SED-16 (64-64.5)	End of Boring at 65 feet. Grouted

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FT. = FEET

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13



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CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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**WW-SED-17**

GROUND SURFACE ELEVATION (FT): -18.53 LOCATION: East River  
NORTHING (FT): 689512 EASTING (FT): 641088 TOTAL DEPTH (FT): 60.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/10/2010 - 11/10/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
0	0	S-1	120/52				WW-SED-17 (0-0.5)	(0'- 10') ORGANIC SOIL WITH SAND (OL); ~80% fines, non plastic, rapid dilatancy, ~20% sand, fine; ~10% organics, moderate organic-like odor, wet, dark gray to black.
-20								
	5			5.4		OLO		
-25								
	10	S-2	120/60					(10'- 20') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; slight organic-like odor, wet, dark gray.
-30								
	15			29.9		OLO		
-35								
	20							

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u> PROJECT: <u>Williamsburg MGP RI</u> CITY/STATE: <u>Brooklyn, New York</u> GEI PROJECT NUMBER: <u>093060</u>		BORING LOG  <b>WW-SED-17</b>				
		PAGE 3 of 3						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	45			55.3				
	-65							
	50	S-7	120/114				WW-SED-17 (53-54)	(49'- 50') CLAYEY SAND (SC); ~60% sand, fine, ~40% fines; moist, grayish white to gray. (50'- 52.5') SANDY LEAN CLAY (CL); ~60% fines, medium plasticity, no dilatancy, ~40% sand, fine; wet, whitish gray to dark gray with gray mottling.
	-70							(52.5'- 54') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; wet, gray to reddish brown.
	55			1.4				(54'- 57') LEAN CLAY (CL); ~100% fines, medium plasticity, no dilatancy; moist, gray.
	-75							(57'- 58.5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine, ~10% fines, ~5% gravel, fine, subrounded; max. size 0.5, wet, brown.
	60							(58.5'- 60') CLAYEY SAND (SC); ~60% sand, fine, ~40% fines; moist, grayish white to gray with black mottling.
								End of Boring at 60 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK								



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**BORING LOG**

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**WW-SED-18**

GROUND SURFACE ELEVATION (FT): -15.13 LOCATION: East River  
NORTHING (FT): 689050 EASTING (FT): 640955 TOTAL DEPTH (FT): 84.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/17/2010 - 11/17/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S-1	60/22	0.6			WW-SED-18 (0-0.5)	(0'- 9') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; wet, dark gray.
-20	5	S-2	48/36	0.7				
-25	10	S-3	120/142	4.5				(9'- 18.5') ORGANIC SOIL WITH SAND (OL); ~85% fines, ~10% sand, fine to medium, ~5% gravel, fine to coarse, subangular; ~5% organic fibers, max. size 1, wet, dark gray.
-30	15			65.9			WW-SED-18 (18.5-19)	(18.5'- 20') ORGANIC SOIL WITH SAND (OL); ~85% fines, ~10% sand, fine to medium, ~5% gravel, fine to coarse, subangular; ~5% organic fibers, max. size 1, slight petroleum-like odor, wet, dark gray,
	20					PLO		

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ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



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CITY/STATE: **Brooklyn, New York**  
GEI PROJECT NUMBER: **093060**

**BORING LOG**

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**WW-SED-18**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20							slight organic-like odor. (20'- 22') ORGANIC SOIL WITH SAND (OL); ~85% fines, ~10% sand, fine to medium, ~5% gravel, fine to coarse, subangular; ~5% organic fibers, max. size 1, wet, dark gray.
				6.8				(22'- 23') NARROWLY GRADED SAND WITH SILT (SP-SM); ~80% sand, fine to medium, ~10% gravel, fine to coarse, subangular, ~10% fines; max. size 2, wet, brown. (23'- 26') SILTY SAND (SM); ~75% sand, fine, ~25% fines; moist, gray.
-40	25							(26'- 28.5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; moist, gray to brown, lenses of sandy silt up to 0.5 inches throughout.
-45	30	S-4	120/68	15.2				(28.5'- 36') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subrounded, ~5% fines; max. size 1.5, wet, brown to grayish brown.
-50	35							(36'- 39') SILTY SAND (SM); ~65% sand, fine, ~35% fines; moist, gray, lenses of sandy silt up to 0.75 inches throughout, ~6" cobble at ~37.5'.
-55	40	S-5	120/0					(39'- 49') No Recovery, possible boulder.

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ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13



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BORING LOG  
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**WW-SED-18**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
-60	45							
-65	50	S-6	240/188	0.1				(49'- 50.5') NARROWLY GRADED SAND (SP); ~90% sand, fine, ~10% fines; moist, grayish brown.
-70	55							(50.5'- 56') SILTY SAND (SM); ~65% sand, fine, ~35% fines; moist, gray, lenses of sandy silt up to 0.5 inches throughout..
-75	60			0.0				(56'- 60') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; moist, brownish gray.
-80	65							(60'- 62') SANDY SILT (ML); ~55% fines, low plasticity, slow dilatancy, ~45% sand, fine; moist, dark brown to reddish brown.
								(62'- 66.5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; moist, gray to brown, lenses of elastic silt up to 0.75 inches throughout.
				0.7				(66.5'- 71') CLAYEY SAND (SC); ~65% sand, fine to medium, ~35% fines; moist, grayish white.

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 PLO = PETROLEUM LIKE ODOR  
 TLO = TAR LIKE ODOR  
 CLO = CHEMICAL LIKE ODOR  
 ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR  
 OLO = ORGANIC LIKE ODOR  
 SLO = SULFUR LIKE ODOR  
 MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE  
 NM = NOT MEASURED

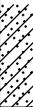

Q<sub>p</sub> = POCKET PENETROMETER  
 S<sub>v</sub> = TORVANE PEAK



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 455 Winding Brook Road  
 Glastonbury, CT 06033  
 (860) 368-5300

CLIENT: **National Grid**  
 PROJECT: **Williamsburg MGP RI**  
 CITY/STATE: **Brooklyn, New York**  
 GEI PROJECT NUMBER: **093060**

BORING LOG  
 PAGE 4 of 4  
**WW-SED-18**

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
-85	70	S-7	180/171					(71'- 78') CLAYEY SAND (SC); ~75% sand, fine to medium, ~25% fines; moist, grayish white with blue tint.
-90	75			0.0				
-95	80			0.0				(78'- 84') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; moist, light blueish gray with white.
WW-SED-18 (83.5-84)								End of Boring at 84 feet. Grouted

**NOTES:**  
 PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL  
 REC = RECOVERY LENGTH OF SAMPLE  
 PID = PHOTOIONIZATION DETECTOR READING (PPM)  
 JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
 IN. = INCHES  
 FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
 PLO = PETROLEUM LIKE ODOR  
 TLO = TAR LIKE ODOR  
 CLO = CHEMICAL LIKE ODOR  
 ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR  
 OLO = ORGANIC LIKE ODOR  
 SLO = SULFUR LIKE ODOR  
 MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE  
 NM = NOT MEASURED

Q<sub>p</sub> = POCKET PENETROMETER  
 S<sub>v</sub> = TORVANE PEAK





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(860) 368-5300

CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

BORING LOG

PAGE  
1 of 4

WW-SED-19

GROUND SURFACE ELEVATION (FT): -25.10 LOCATION: East River  
NORTHING (FT): 689383 EASTING (FT): 640984 TOTAL DEPTH (FT): 75.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 11/19/2010 - 11/19/2010

DRILLING DETAILS:

WATER LEVEL DEPTHS (FT):

GENERAL NOTE:

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S-1	180/64					WW-SED-19 (0-0.5)	(0'- 20') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; dark gray.
				5.5					
				8.7					
	15	S-2	240/174						
				48					
	20								

NOTES:

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REC = RECOVERY LENGTH OF SAMPLE  
PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR


CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR


NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT: 3/27/13

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG  <b>WW-SED-19</b>					
		PAGE 3 of 4							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-70	45			102					
-75	50			0.0					
-80	55	S-4	120/NM	0.0					(53'- 55') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; light grayish brown.  (55'- 55.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines; dark grayish brown. (55.3'- 65') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine, ~10% fines; grayish white.
-85	60			0.0					
-90	65	S-5	120/72						(65'- 75') SILT WITH SAND (ML); ~70% fines, ~30% sand, fine to medium; gray.
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR NA = NOT APPLICABLE    Qp = POCKET PENETROMETER NM = NOT MEASURED    Sv = TORVANE PEAK									

 GEI Consultants GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b> PROJECT: <b>Williamsburg MGP RI</b> CITY/STATE: <b>Brooklyn, New York</b> GEI PROJECT NUMBER: <b>093060</b>		BORING LOG PAGE 4 of 4 <b>WW-SED-19</b>					
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
-95	70								
-100	75			0.0				WW-SED-19 (74.5-75)	End of Boring at 75 feet. Grouted
<b>NOTES:</b> PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL    ppm = PARTS PER MILLION    NLO = NAPHTHALENE LIKE ODOR    CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE    IN. = INCHES    PLO = PETROLEUM LIKE ODOR    OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)    FT. = FEET    TLO = TAR LIKE ODOR    SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)    ALO = ASPHALT LIKE ODOR    CLO = CHEMICAL LIKE ODOR    MLO = MUSTY LIKE ODOR NA = NOT APPLICABLE    Q <sub>p</sub> = POCKET PENETROMETER NM = NOT MEASURED    S <sub>v</sub> = TORVANE PEAK									



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CLIENT: National Grid  
PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

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1 of 3

**WW-SED-20**

GROUND SURFACE ELEVATION (FT): -22.21 LOCATION: East River  
NORTHING (FT): 689401 EASTING (FT): 641016 TOTAL DEPTH (FT): 59.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Amy Malsbary/Kari Weber DATE START / END: 11/17/2010 - 11/17/2010  
DRILLING DETAILS: Sonic Coring  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	0	S-1	108/56					WW-SED-20 (0-0.5)	(0'- 17') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; slight organic-like odor, wet, dark gray.
	-25								
	5			3.2					
	-30								
	10	S-2	120/52				OLO		
	-35								
	15								
	-40			52.1			PLO		(17'- 30') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine to medium; ~10% organic fibers, slight petroleum-like odor, wet, dark gray, slight organic-like odor.
	20	S-3	240/159						

**NOTES:**

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PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
PLO = PETROLEUM LIKE ODOR  
TLO = TAR LIKE ODOR  
CLO = CHEMICAL LIKE ODOR  
ALO = ASPHALT LIKE ODOR








CrLO = CREOSOTE LIKE ODOR  
OLO = ORGANIC LIKE ODOR  
SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13

 <div>GEI Consultants</div>		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG			
				PROJECT: <u>Williamsburg MGP RI</u>		PAGE 2 of 3	WW-SED-20		
		CITY/STATE: <u>Brooklyn, New York</u>							
		GEI PROJECT NUMBER: <u>093060</u>							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	20								
	45			90.6					
	25						PLO		
	50			159					
	30								(30'- 33') NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to medium, ~10% fines, ~5% gravel; wet, ~4" cobble at ~31'.
	55			533			NLO		(33'- 34.5') NARROWLY GRADED SAND WITH GRAVEL (SP); ~75% sand, medium to coarse, ~20% gravel, fine to coarse, subangular, ~5% fines; max. size 1.5, moderate naphthalene-like odor, wet, brown, mostly coarse sand, sheen to light tar-like staining.
	35			12.1					(34.5'- 39') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine to coarse, subangular, ~5% fines; wet, brown.
	60								
	40	S-4	120/114				NLO		(39'- 41') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1, slight naphthalene-like odor, wet, brown, occasional spotty sheen.
							NLO		(41'- 42') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1, slight naphthalene-like odor, wet, brown.
	65			1083			NLO	WW-SED-20 (42-42.5)	(42'- 42.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, subangular, ~5% fines; max. size 1, moderate naphthalene-like odor, wet, brown, sheen throughout, ~1" of slight tar-like staining at ~42.3'. (42.5'- 45.5') SILTY SAND (SM); ~75% sand, fine, ~25% fines;
NOTES:									
PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL      ppm = PARTS PER MILLION      NLO = NAPHTHALENE LIKE ODOR      CrLO= CREOSOTE LIKE ODOR REC = RECOVERY LENGTH OF SAMPLE      IN. = INCHES      PLO = PETROLEUM LIKE ODOR      OLO = ORGANIC LIKE ODOR PID = PHOTOIONIZATION DETECTOR READING (PPM)      FT. = FEET      TLO = TAR LIKE ODOR      SLO = SULFUR LIKE ODOR JHS = JAR HEADSPACE PID READING (PPM)           CLO = CHEMICAL LIKE ODOR      MLO = MUSTY LIKE ODOR ALO = ASPHALT LIKE ODOR									
NA = NOT APPLICABLE      Qp = POCKET PENETROMETER NM = NOT MEASURED      Sv = TORVANE PEAK									

ENVIRONMENTAL BORING LOG WILLIAMSBURG W PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT: 3/27/13

		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <u>National Grid</u>		BORING LOG			
				PROJECT: <u>Williamsburg MGP RI</u>		PAGE 3 of 3	WW-SED-20		
		CITY/STATE: <u>Brooklyn, New York</u>							
		GEI PROJECT NUMBER: <u>093060</u>							
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)					
	45			10.3					wet, brown, silt lenses up to 0.5".  (45.5'- 46.5') LEAN CLAY WITH SAND (CL); ~80% fines, medium plasticity, ~20% sand; gray with red mottling, lenses of fine sand. (46.5'- 48.5') SILTY SAND (SM); ~80% sand, fine, ~20% fines; moist, gray.
	-70								(48.5'- 54') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; wet, gray.
	50	S-5	120/91	7.4					
	-75								
	55			45.3			CLO		(54'- 55.5') NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% sand, fine to medium, ~10% fines; slight chemical-like odor, wet, dark brown, slight unknown/chemical-like odor. (55.5'- 59') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines; moist, light gray to white.
	-80								
WW-SED-20 (58.5-59)									End of Boring at 59 feet. Grouted
NOTES:									
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PROJECT: Williamsburg MGP RI  
CITY/STATE: Brooklyn, New York  
GEI PROJECT NUMBER: 093060

**BORING LOG**

PAGE  
1 of 3

**WW-SED-21**

GROUND SURFACE ELEVATION (FT): -23.97 LOCATION: East River  
NORTHING (FT): 689492 EASTING (FT): 641052 TOTAL DEPTH (FT): 56.0  
DRILLED BY: Boart Longyear / Frank Gardella DATUM VERT. / HORZ.: NAVD 88 / NAD83 NY East Zone  
LOGGED BY: Kari Weber DATE START / END: 11/18/2010 - 11/18/2010  
DRILLING DETAILS: \_\_\_\_\_  
WATER LEVEL DEPTHS (FT): \_\_\_\_\_  
GENERAL NOTE: \_\_\_\_\_

ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	0	S-1	192/110				WW-SED-21 (0-0.5)	(0'- 16') ORGANIC SOIL (OL); ~90% fines, ~10% sand, fine; dark gray.
-25				4.0				
	5							
-30								
	10			0.5				
-35								
	15							
-40		S-2	240/145					(16'- 30') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines; moderate petroleum-like odor, dark gray.
				2.0		PLO		
-20								

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PID = PHOTOIONIZATION DETECTOR READING (PPM)  
JHS = JAR HEADSPACE PID READING (PPM)

NA = NOT APPLICABLE Q<sub>p</sub> = POCKET PENETROMETER  
NM = NOT MEASURED S<sub>v</sub> = TORVANE PEAK


ppm = PARTS PER MILLION  
IN. = INCHES  
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR  
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CrLO = CREOSOTE LIKE ODOR  
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SLO = SULFUR LIKE ODOR  
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG W. PREV. BORINGS.GPJ FULTON DATA TEMPLATE.GDT 3/27/13



<div><div>GEI</div><div><div>GEI Consultants</div></div></div>		GEI Consultants, Inc. 455 Winding Brook Road Glastonbury, CT 06033 (860) 368-5300		CLIENT: <b>National Grid</b>		BORING LOG		
		PROJECT: <b>Williamsburg MGP RI</b>		PAGE 2 of 3		WW-SED-21		
CITY/STATE: <b>Brooklyn, New York</b>		GEI PROJECT NUMBER: <b>093060</b>						
ELEV. FT.	DEPTH FT.	SAMPLE INFO			STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
		TYPE and NO.	PEN/REC IN./IN.	PID (PPM)				
	20							
	-45							
	25					PLO		
	-50							
	30							
	-55			197				(30'- 36') NARROWLY GRADED SAND (SP); ~85% sand, fine to medium, ~10% gravel, fine to coarse, ~5% fines; moderate chemical-like odor, light brown.
				3.2		CLO		
	35							
	-60	S-3	240/138			NLO	WW-SED-21 (37.5-38)	(36'- 37') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines; slight naphthalene-like odor, dark gray brown. (37'- 39') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines; dark gray brown.
				307				(39'- 42') NARROWLY GRADED SAND WITH SILT (SP-SM); ~80% sand, fine to medium, ~10% gravel, fine, ~10% fines; brown to light reddish brown.
	40							
	-65							(42'- 47') SILT (ML); ~90% fines, ~10% sand, fine; moderate chemical-like odor, gray.
						CLO		
<div>NOTES:</div> <div><div><div>PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL</div><div>REC = RECOVERY LENGTH OF SAMPLE</div><div>PID = PHOTOIONIZATION DETECTOR READING (PPM)</div><div>JHS = JAR HEADSPACE PID READING (PPM)</div></div><div><div>ppm = PARTS PER MILLION</div><div>IN. = INCHES</div><div>FT. = FEET</div></div><div><div>NLO = NAPHTHALENE LIKE ODOR</div><div>PLO = PETROLEUM LIKE ODOR</div><div>TLO = TAR LIKE ODOR</div><div>CLO = CHEMICAL LIKE ODOR</div><div>ALO = ASPHALT LIKE ODOR</div></div><div><div>CrLO= CREOSOTE LIKE ODOR</div><div>OLO = ORGANIC LIKE ODOR</div><div>SLO = SULFUR LIKE ODOR</div><div>MLO = MUSTY LIKE ODOR</div></div><div><div>NA = NOT APPLICABLE</div><div>NM = NOT MEASURED</div><div>Qp = POCKET PENETROMETER</div><div>Sv = TORVANE PEAK</div></div></div>								

ENVIRONMENTAL BORING LOG - WILLIAMSBURG W. PREV. BORINGS.GPJ - FULTON DATA TEMPLATE.GDT - 3/27/13

