

February 13, 2018

Mr. John Miller, P.E.
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7017

Re: Phase 3 (Area 8) Soil Boring and Well Installation Plan
Phase 2/3 Remedial Investigation
Greenpoint Energy Center Former Manufactured Gas Plant
287 Maspeth Avenue, Brooklyn, New York
Site No. 224052

Dear Mr. Miller:

The Greenpoint Energy Center Remedial Investigation (RI) is being implemented following the New York State Department of Environmental Conservation (NYSDEC)-approved Phase 2/3 Remedial Investigation Work Plan (RIWP) for the Greenpoint Energy Center Former Manufactured Gas Plant (MGP) site (Site), dated October 31, 2013. Phase 3 of the RI program is currently underway.

GEI Consultants, Inc., P.C. (GEI) is planning to continue Phase 3 of the RI soil boring and well installation program in the Liquefied Natural Gas (LNG) portion (Area 8) of the Site. The RI field investigation program remains as outlined in the RIWP and includes the following approach:

- Identify general areas of concern (AOC) based on review of historical plant drawings/documents (completed for Area 8).
- Refine AOC based on a detailed review of historical equipment operations (completed for Area 8).
- Excavate test pits to the water table to assess NAPL presence or absence in the soil and on the groundwater surface (completed for Area 8).
- Develop a soil boring program to further delineate test pit findings, with NYSDEC approval.

The test pit program in Areas 8 was largely completed in January 2018. Three locations GPEC-TP555, GPEC-TP557 and GPEC-TP558 were not completed due to ongoing LNG process operations and will be completed at a later date, when LNG operations allow access to the area. **Table 1** provides a summary of the findings of the test pit program and provides rationale for the planned soil boring and monitoring well locations. Test pit logs are included as **Attachment 1**.

Mr. John Miller
New York State Department of Environmental Conservation
February 12, 2018
Page 2

Based on the review of the test pit logs, the soil boring and monitoring well plan for Area 8 included in the Phase 2/3 RIWP was updated (**Figure 1**). The updated plan includes soil boring and monitoring well locations previously approved as part of the Phase 2/3 RIWP. Final locations will be determined in the field based on access, surrounding conditions, and the presence of subsurface infrastructure. Additional soil borings and monitoring wells may be added based on observations of subsurface conditions.

The previously planned soil borings will be advanced and the monitoring wells installed using rotary-sonic techniques. The newly added locations will be advanced to a minimum of 30 feet below ground surface (bgs), or at least 10 feet below the deepest identified impacts to delineate impacts observed in nearby test pits. The newly added locations will not be sampled due to their proximity to other planned or previously sampled locations. The soil borings and monitoring wells will be installed in accordance with the approved Phase 2/3 RIWP. Well development, investigative-derived waste (IDW) management and the implementation of a community air monitoring program (CAMP) will also be conducted in accordance with the RIWP.

A series of soil borings (GPEC-SB700 and 800 series) advanced as part of geotechnical projects were previously completed in Area 8. The soil boring logs for these geotechnical soil borings are included as **Attachment 2**. The locations of these geotechnical soil borings are shown on **Figure 1**. As shown on the figure, no impacts were identified in the borings.

If you have any questions or require additional information, please feel free to contact me at 718-608-5102 or by e-mail at brian.bermingham@nationalgrid.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Bermingham". The signature is written in a cursive style with a small "for" written below the first name.

Brian Bermingham, P.E.
Project Manager

Enclosures

cc: G. Cross (NYSDEC)
D. Hetrick (NYSDOH)
W. Ryan (N. Grid)

Table

Table 1. Area 8 - Test Pit Summary and Boring and Well Installation Rationale
Phase 3 Remedial Investigation
Greenpoint Energy Center
Former MGP Site

Current Test Pit ID	Sample Area	Phase 2/3 Remedial Investigation Rationale & Test Pit Purpose	Completion Depth (ft bgs.)	Zones Sampled (ft)	Max. PID Readings (ppm)	Notes	Impact Summary	Planned Borings and Wells in Area
GPEC-TP517	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Generator House	10	2-3, 8-9	58.7	Fill, concrete foundation wall, and piping encountered. Contains solidified NAPL with a naphthalene-like odor, staining, a petroleum-like odor, fragmented coal, and ash.	Gray soil staining from 1-3' bgs; solidified NAPL fragments with a naphthalene-like odor, gray soil staining, fragmented coal, and ash from 3-7' bgs; gray soil staining and a petroleum-like odor from 7-10' bgs.	GPEC-SB524 (EL. -60) and GPEC-SB525 (30' bgs). The GPEC-SB524 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts. GPEC-SB525 will be performed in the area where GPEC-TP517 was originally proposed, but was moved due to utilities in the area.
GPEC-TP518	Area 8 - SE of Tank #2	Test pit to determine location of underground utilities.	6	3-4	0.0	Fill and concrete foundation wall encountered. Contains solidified NAPL fragments, black staining, a layer of fragmented coal, and clinkers. Encountered groundwater at 6' bgs.	Black soil staining and clinkers from 0-2' bgs; layer of fragmented coal from 2-3' bgs; solidified NAPL fragments, black soil staining and clinkers from 3-6' bgs;	GPEC-SB525 (30' bgs).
GPEC-TP519	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Generator House	10	1-2	0.6	Fill and concrete foundation wall encountered. Contains soil staining and a petroleum-like odor.	Soil staining and a slight petroleum-like odor from 0-2' bgs.	None.
GPEC-TP520	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Generator House	10	3-4	100.1	Fill and concrete foundation wall encountered. Contains solidified NAPL fragments, black and gray staining, petroleum-like odor, and oxidation staining.	Fragments of hardened solidified NAPL, black soil staining, a moderate to strong petroleum-like odor, and oxidation staining from 3-4' bgs; fragments of solidified NAPL, gray soil staining, a slight petroleum-like odor, and oxidation staining from 4-5' bgs; fragments of slightly pliable solidified NAPL, gray soil staining, and a slight petroleum-like odor from 5-6' bgs; a slight petroleum-like odor from 6-8' bgs; gray soil staining and a moderate petroleum-like odor from 8-10' bgs.	GPEC-SB523 (30' bgs).
GPEC-TP521	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Generator House	10	1-2	0.6	Fill encountered. No foundation elements were encountered. Contains dark gray staining, ash, fragmented coal, and clinkers.	Dark gray soil staining from 1-2' bgs; dark gray soil staining, ash, fragmented coal, and clinkers from 5-10' bgs.	None.
GPEC-TP522	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Relief Holder #1	10	3-4	134.8	Fill and concrete foundation wall encountered. Contains pieces of solidified NAPL, black and dark gray staining, a petroleum-like odor, and clinkers.	Pieces of slightly pliable to hardened solidified NAPL, black soil staining, a strong petroleum-like odor, and clinkers from 2-3' bgs; dark gray soil staining, a strong petroleum-like odor, and clinkers from 3-10' bgs.	GPEC-SB522 (EL. -100). The GPEC-SB522 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP523	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Relief Holder #1	10	2-3	67.2	Fill and a brittle concrete-like material encountered. Contains solidified NAPL, dark gray and black staining, and a petroleum-like odor.	Slightly pliable solidified NAPL from 0-2' bgs; slightly pliable solidified NAPL, dark gray to black soil staining, and a strong petroleum-like odor from 2-4' bgs; gray soil staining and a slight petroleum-like odor from 4-6' bgs; black soil staining and a slight petroleum-like odor from 7-10' bgs.	GPEC-SB520 (EL. -60). The GPEC-SB520 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP524	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Oil Storage Tank	9	1-2	180.5	Fill, concrete foundation wall, and asphalt encountered. Contains solidified NAPL fragments, black staining, petroleum-like odor, burned wood/timbers, cinders, ash, and charcoal. Groundwater encountered at 9' bgs.	Some solidified NAPL fragments, black soil staining, and a petroleum-like odor from 1-3' bgs; trace black soil staining from 3-5' bgs; burned wood/timbers, cinders, ash, and charcoal from 3.5-5' bgs in southern portion of test pit; some solidified NAPL fragments, black soil staining, and a petroleum-like odor from 5-9' bgs.	GPEC-SB518 (30' bgs) and GPEC-SB519 (EL. -100). The GPEC-SB519 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP525	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Treatment Tank	10	1-2	2.6	Fill, concrete foundation wall, and concrete slab encountered. Contains solidified NAPL fragments, gray staining, and a naphthalene-like odor.	Solidified NAPL fragments, gray soil staining, and naphthalene-like odor from 0-2' bgs.	None.
GPEC-TP526	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Tar Separator	9	7-8	399.3	Fill, concrete foundation wall, and piping encountered. Contains solidified NAPL fragments, black staining, a naphthalene-like odor, and a petroleum-like odor.	Solidified NAPL fragments, black soil staining, a moderate petroleum-like odor, and a moderate naphthalene-like odor from 3-6' bgs; black soil staining and a strong petroleum-like odor from 6-9' bgs.	GPEC-SB523 (30' bgs).
GPEC-TP527	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Salt Water Condensers	10	2-3	16.0	Fill and concrete foundation wall encountered. Contains solidified NAPL layer, black and gray staining, and a petroleum-like odor.	2-3" thick solidified NAPL layer containing gravel and clinkers at 2' bgs; black soil staining and a strong petroleum-like odor from 1-3'; dark gray soil staining and a slight petroleum-like odor from 6-10' bgs.	GPEC-SB522 (EL. -100). The GPEC-SB522 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.

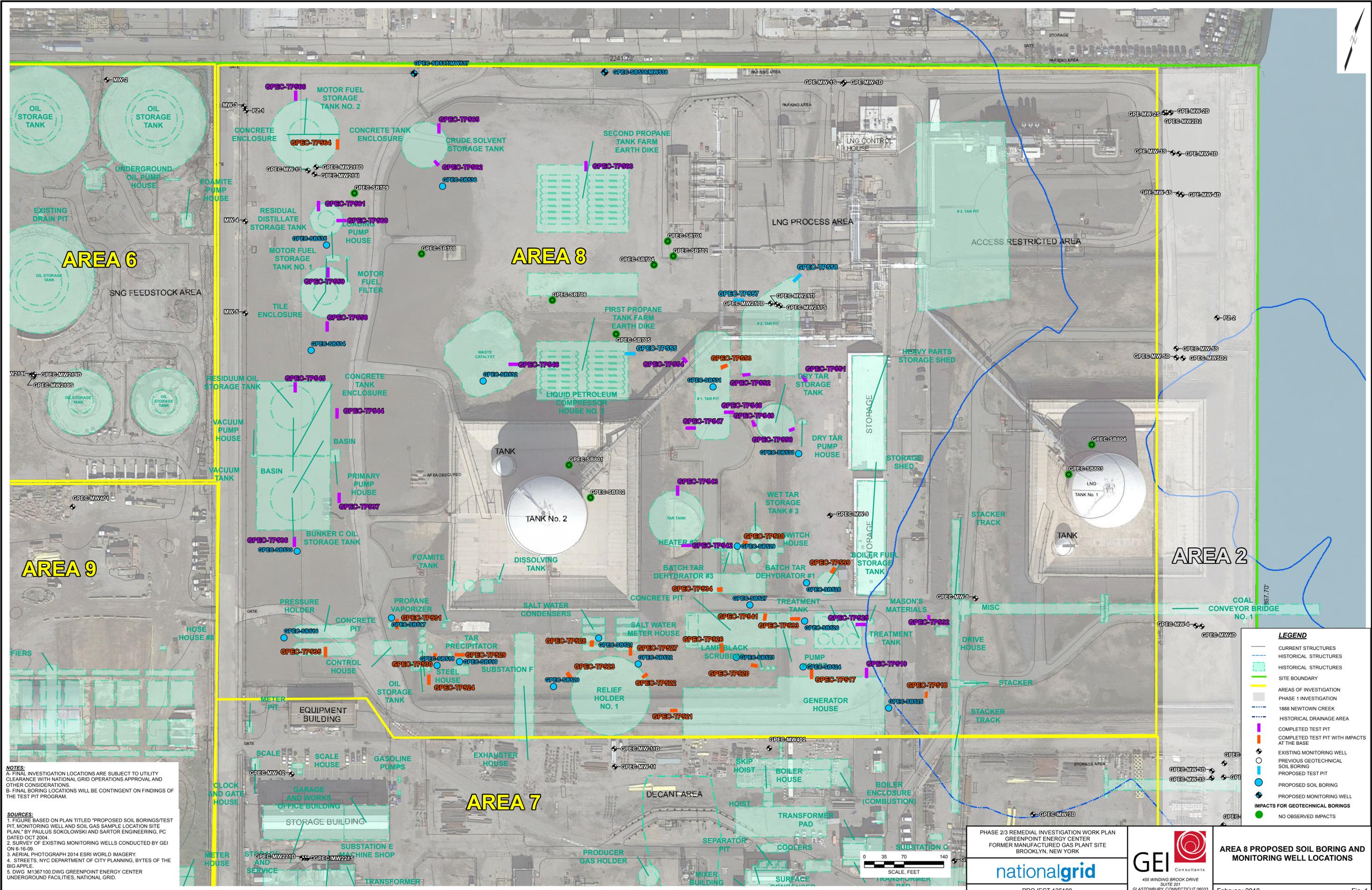
Table 1. Area 8 - Test Pit Summary and Boring and Well Installation Rationale
Phase 3 Remedial Investigation
Greenpoint Energy Center
Former MGP Site

Current Test Pit ID	Sample Area	Phase 2/3 Remedial Investigation Rationale & Test Pit Purpose	Completion Depth (ft bgs.)	Zones Sampled (ft)	Max. PID Readings (ppm)	Notes	Impact Summary	Planned Borings and Wells in Area
GPEC-TP528	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Salt Water Condensers	10	6-7	696.8	Fill encountered. No foundation elements encountered. Contains saturated NAPL, black and gray staining, and a petroleum-like odor.	Gray-dark gray soil staining and a slight petroleum-like odor from 1.5-3' bgs; black soil staining and a strong petroleum-like odor from 3-6' bgs; saturated NAPL, black soil staining, and a strong petroleum-like odor from 6-10' bgs.	GPEC-SB521 (30' bgs).
GPEC-TP529	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Scrubber	9	7-8	394	Fill and concrete foundation wall encountered. Contains NAPL blebs, sheen, black and gray staining, and a petroleum-like odor. Encountered groundwater at 9' bgs with sheen.	Trace black soil staining from 0-2' bgs; NAPL blebs, sheen, black soil staining, and strong petroleum-like odor from 4-6' bgs; trace sheen, black to gray soil staining, and a strong petroleum-like odor from 6-9' bgs.	GPEC-SB518 (30' bgs) and GPEC-SB519 (El. -100). The GPEC-SB519 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP530	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Gas Mixer	10	2-3	271.6	Fill, vertical steel cylindrical structures, and piping encountered. Contains dark gray staining and a petroleum-like odor.	Petroleum-like odor from 0-1' bgs; dark gray soil staining and a petroleum-like odor from 1-10' bgs.	GPEC-SB518 (30' bgs) and GPEC-SB519 (El. -100). The GPEC-SB519 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP531	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Spent Oil Tank	8	5-6	22.7	Fill and concrete foundation wall encountered. Groundwater encountered at 8' bgs.	Soil staining and petroleum-like odor from 0-8' bgs.	GPEC-SB517 (30' bgs).
GPEC-TP532	Area 8 - E of Tank #2	Test pit to determine location of underground utilities	7	2-3	0.3	Fill encountered. Contains solidified NAPL fragments, gray and black staining, and clinkers. Groundwater encountered at 7' bgs.	Dark gray-gray soil staining from 0-2' bgs; pliable to hardened solidified NAPL fragments, black soil staining, and clinkers from 2-4' bgs; organic-like odor from 4-7' bgs.	None.
GPEC-TP533	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Pump House	10	2-3, 8-9	401.6	Fill, concrete foundation wall, and piping encountered. Contains gray/dark gray staining and a petroleum-like odor.	Gray/dark gray soil staining and a petroleum-like odor from 2-3' bgs and 7-10' bgs; trace light gray soil staining and a petroleum-like odor from 3-7' bgs.	GPEC-SB526 (30' bgs).
GPEC-TP534	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Tar Separator	7	4-5	11.7	Fill encountered. No foundation elements encountered. Contains black staining, a petroleum-like odor, and clinkers. Groundwater encountered at 7' bgs.	Black soil staining, a moderate petroleum like odor, and clinkers from 2-7' bgs.	GPEC-SB527 (El. -60). The GPEC-SB527 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP535	Area 8 - S of Tank #2	Test pit to determine location of former MGP structures - Former Pressure Holder	10	2-3	1.3	Fill encountered. No foundation elements encountered. Contains solidified NAPL fragments, dark gray staining, and a sulfur-like odor.	Solidified NAPL fragments, dark gray staining, and a sulfur-like odor from 0-3' bgs; solidified NAPL fragments from 3-10' bgs.	GPEC-SB516 (El. -60). The GPEC-SB516 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP536	Area 8 - W of Tank #2	Test pit to determine location of former MGP structures - Former Bunker C Oil Storage Tank	10	4-5	0.1	Fill and demolished concrete foundation wall encountered. Contains dark gray to black staining.	Dark gray to black soil staining from 4-5' bgs.	GPEC-SB533 (El. -60). The GPEC-SB533 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP537	Area 8 - W of Tank #2	Test pit to determine location of former MGP structures - Former Bunker C Oil Storage Tank	10	2-3	323.8	Fill, concrete foundation wall, concrete slab, and piping encountered. Contains solidified NAPL fragments, gray-black staining, petroleum-like odor, and ash.	Solidified NAPL fragments, gray-black soil staining, a petroleum-like odor, and ash from 0-4' bgs.	None.
GPEC-TP538	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Batch Tar Dehydration Tank	10	2-3	395.7	Fill and concrete slab encountered. Contains solidified NAPL fragments, black and gray staining, petroleum-like odor, asbestos, ash, fragmented coal, and clinkers.	Slightly pliable solidified NAPL fragments, black soil staining, a slight petroleum-like odor, asbestos, ash, fragmented coal, and clinkers from 0-1' bgs; solidified NAPL fragments containing sediments, black soil staining, strong petroleum-like odor, ash, fragmented coal, clinkers from 1-4' bgs; gray soil staining and a slight petroleum-like odor from 4-5' bgs; gray soil staining from 5-10' bgs.	GPEC-SB529 (El. -60). The GPEC-SB529 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP539	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Boiler Fuel Storage Tank	7	1-2	25.2	Fill, concrete foundation wall, and concrete slab encountered. Encountered refusal at 7' bgs due to densely packed demolition debris. Contains black and gray staining and a petroleum-like odor.	Black soil staining and a moderate petroleum-like odor from 1-2' bgs; gray soil staining and a slight petroleum-like odor from 3-7' bgs.	GPEC-SB528 (30' bgs).
GPEC-TP540	Area 8 - E of Tank #2 - not on figure	Test pit to determine location of former MGP structures - Former Boiler Fuel Storage Tank	NA	NA	NA	Omitted due to proximity of underground utilities.	NA	GPEC-SB528 (30' bgs) will be performed in the area.
GPEC-TP541	Area 8 - SE of Tank #2	Test pit to determine location of former MGP structures - Former Tar Separator	5	4-5	6.8	Fill encountered. No foundation elements encountered. Encountered refusal at 5' bgs due to densely packed demolition debris. Contains solidified NAPL fragments, gray staining, and a petroleum-like odor.	Hardened solidified NAPL fragments from 3-4' bgs; hardened solidified NAPL fragments, gray staining, and a slight petroleum-like odor from 4-5' bgs.	GPEC-SB527 (El. -60). The GPEC-SB527 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP542	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Tar Tank	10	1-2	5.8	Fill encountered. No foundation elements encountered. Contains black staining and a petroleum-like odor.	Black soil staining and a slight petroleum-like odor from 0-1.5' bgs.	None.
GPEC-TP543	Area 8 - E of Tank #2	Test pit to determine location of former MGP structures - Former Tar Tank	10	1-2	0.4	Fill encountered. No foundation elements encountered. Contains dark gray staining and a petroleum-like odor.	Dark gray soil staining and a slight petroleum-like odor from 0-2' bgs.	None.
GPEC-TP544	Area 8 - W of Tank #2	Test pit to determine location of former MGP structures - Former Residuum Oil Storage Tank	10	2-3	0.0	Fill, concrete foundation wall, and concrete slab encountered.	No observed impacts.	None.
GPEC-TP545	Area 8 - W of Tank #2	Test pit to determine location of former MGP structures - Former Residuum Oil Storage Tank	10	9-10	0.0	Fill and concrete slab encountered.	No observed impacts	GPEC-SB534 (El. -60). The GPEC-SB534 location was previously approved in the Phase 2/3 Work Plan.

Table 1. Area 8 - Test Pit Summary and Boring and Well Installation Rationale
Phase 3 Remedial Investigation
Greenpoint Energy Center
Former MGP Site

Current Test Pit ID	Sample Area	Phase 2/3 Remedial Investigation Rationale & Test Pit Purpose	Completion Depth (ft bgs.)	Zones Sampled (ft)	Max. PID Readings (ppm)	Notes	Impact Summary	Planned Borings and Wells in Area
GPEC-TP546	Area 8 - N of Tank #2	Test pit to determine location of former MGP structures - Former Liquid Petroleum Compressor House #2	10	2.5-3	63.1	Fill encountered. No foundation elements were encountered. Contains black staining and a petroleum-like odor.	Black soil staining and petroleum-like odor from 2.5-3' bgs.	GPEC-SB532 (El. -100). The GPEC-SB532 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP547	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	10	1-2	3.8	Fill encountered. Contains a layer of solidified NAPL, black staining, and a naphthalene-like odor.	Layer of solidified NAPL containing sediments approximately 0.5' bgs and varying in thickness from 1'-3.5' west to east; black soil staining and a slight naphthalene-like odor from 0-4' bgs.	GPEC-SB531 (El. -60). The GPEC-SB531 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP548	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	10	2-3	13.1	Fill encountered. Contains a layer of solidified NAPL, black staining, and a naphthalene-like odor.	Layer of solidified NAPL containing sediments, black soil staining, and a naphthalene-like odor from 0-6' bgs.	GPEC-SB531 (El. -60). The GPEC-SB531 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP549	Area 8 - NE of Tank #2	Test pit to determine location of former MGP structures - Former Dry Tar Storage Tank	10	9.5-10	0.0	Fill encountered. No foundation elements encountered.	No observed impacts	None.
GPEC-TP550	Area 8 - NE of Tank #2	Test pit to determine location of former MGP structures - Former Dry Tar Storage Tank	10	1-2	9.1	Fill, concrete foundation wall, and piping encountered. Contains solidified NAPL, black staining, and a naphthalene-like odor.	Fragments and layers of solidified NAPL, black soil staining, and a slight naphthalene-like odor from 0-1.5' bgs.	GPEC-SB530 (El. -100). The GPEC-SB530 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP551	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	10	9.5-10	0.0	Fill encountered. No former MGP features encountered.	No observed impacts	None.
GPEC-TP552	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	8	7.5-8	0.0	Fill encountered. No former MGP features encountered. Groundwater encountered at 8' bgs.	No observed impacts	None.
GPEC-TP553	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	7	1-2	46.1	Fill encountered. Contains a solidified NAPL layer, gray and black staining, naphthalene-like odor, and a petroleum-like odor. Groundwater encountered at 7' bgs.	Solidified NAPL layer 5-8" thick, black soil staining, slight naphthalene-like odor, and a moderate petroleum-like odor from 0-1.5' bgs; gray soil staining and a slight petroleum-like odor from 1.5-3' bgs and 5-7' bgs.	GPEC-SB531 (El. -60). The GPEC-SB531 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP554	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	10	2-3	99.4	Fill encountered. Contains a solidified NAPL layer, gray-dark gray staining, and a petroleum-like odor.	3-5" thick solidified NAPL layer, gray-dark gray soil staining, and a petroleum-like odor from 1-4' bgs.	GPEC-SB531 (El. -60). The GPEC-SB531 location was previously approved in the Phase 2/3 Work Plan. The current location was moved slightly to investigate identified impacts.
GPEC-TP555	Area 8 - N of Tank #2	Test pit to determine location of former MGP structures - Former First Propane Storage Farm	NA	NA	NA	Unable to complete at this time due to proximity to a currently active LNG Facility Process Area.	NA	None.
GPEC-TP556	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Motor Fuel Storage Tank #1	10	3-4	0.1	Fill, concrete foundation wall, and concrete slab encountered. Contains dark gray-gray staining, burnt odor, ash, fragmented coal, clinkers, and oxidation staining.	Dark gray-gray soil staining increasing 1'-5' thick south to north, burnt odor, ash, fragmented coal, clinkers, and oxidation staining from 0-5' bgs.	GPEC-SB534 (El. -60). The GPEC-SB534 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP557	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	NA	NA	NA	Unable to complete at this time due to proximity to a currently active LNG Facility Process Area.	NA	None.
GPEC-TP558	Area 8 - NE of Tank #2	Test pit to determine location of former MGP feature - Former Tar Pond	NA	NA	NA	Unable to complete due to proximity to a currently active LNG Facility Process Area.	NA	None.
GPEC-TP559	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Motor Fuel Storage Tank #1	10	6-7	11.9	Fill, concrete foundation wall, and concrete slab encountered. Contains gray and black staining, burnt odor, and clinkers.	Gray soil staining and clinkers from 0-3' bgs; soil staining and a burnt odor from 3-7' bgs; black soil staining, burnt odor, and clinkers from 7-8' bgs.	GPEC-SB535 (El. -60). The GPEC-SB535 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP560	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Residual Distillate Storage Tank	10	4-5	0.2	Fill, concrete foundation wall, concrete slab, and piping encountered. Contains dark gray and bluish green staining and a burnt odor.	Dark gray and bluish-green soil staining from 0-5' bgs; burnt odor from 4-5' bgs.	GPEC-SB535 (El. -60). The GPEC-SB535 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP561	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Residual Distillate Storage Tank	10	1-2	1.2	Fill, concrete foundation wall, and concrete slab encountered. Contains solidified NAPL fragments, bluish-green staining, burnt odor, and clinkers.	Fragments of solidified NAPL and clinkers from 0-1' bgs; fragments of solidified NAPL, bluish-green soil staining, and clinkers from 1-3' bgs; solidified NAPL fragments, gray soil staining, burnt odor, and clinkers from 3-5' bgs.	GPEC-SB535 (El. -60). The GPEC-SB535 location was previously approved in the Phase 2/3 Work Plan. Soil boring GPEC-SB709 was previously completed in this area with no observed impacts.
GPEC-TP562	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Crude Solvent Storage Tank	10	0-1	0.0	Fill, concrete foundation wall, and piping encountered. Contains thin pieces of solidified NAPL and some black staining.	Thin pieces of solidified NAPL just below the surface, and black soil staining in NAPL area.	GPEC-SB536 (El. -60). The GPEC-SB536 location was previously approved in the Phase 2/3 Work Plan.
GPEC-TP563	Area 8 - N of Tank #2	Test pit to determine location of former MGP structures - Former Second Propane Storage Farm	7	2-3	2.1	Fill encountered. No foundation elements encountered.	No visual or olfactory impacts observed.	None.
GPEC-TP564	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Motor Fuel Storage Tank #2	10	5-6	140.9	Fill and concrete foundation wall encountered. Contains fragments of solidified NAPL, gray staining, a naphthalene-like odor, and a petroleum-like odor.	Fragmented solidified NAPL and a naphthalene-like odor from 3-5' bgs; fragmented solidified NAPL, gray soil staining, and a petroleum-like odor from 5-7' bgs; light gray soil staining and a petroleum-like odor from 7-10' bgs.	None. Soil borings GPEC-MW-13, GPEC-MW218I, GPEC-MW218D, and GPEC-SB709 were previously completed in this area with no observed impacts.
GPEC-TP565	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Crude Solvent Storage Tank	10	2-3	1.2	Fill and concrete foundation wall encountered. Contains solidified NAPL fragments, gray staining, sulfur-like odor, and clinkers.	Solidified NAPL fragments and spots of soil staining from 0-1' bgs; solidified NAPL fragments, dark gray soil staining, and a sulfur-like odor from 2-3' bgs.	None.
GPEC-TP566	Area 8 - NW of Tank #2	Test pit to determine location of former MGP structures - Former Motor Fuel Storage Tank #2	10	2-3	0.0	Fill and concrete foundation wall encountered. Contains solidified NAPL fragments.	Solidified NAPL fragments from 1-5' bgs.	None.

Figure



NOTES:
 A. FINAL INVESTIGATION LOCATIONS ARE SUBJECT TO UTILITY CLEARANCE WITH NATIONAL GRID OPERATIONS APPROVAL AND OTHER CONSIDERATIONS.
 B. FINAL BORING LOCATIONS WILL BE CONTINGENT ON FINDINGS OF THE TEST PIT PROGRAM.

SOURCES:
 1. FIGURE BASED ON PLAN TITLED "PROPOSED SOIL BORINGS/TEST PIT, MONITORING WELL AND SOIL GAS SAMPLE LOCATION SITE PLAN" BY PAULUS SOKOLOWSKI AND SARTOR ENGINEERING, PC DATED OCT 2004.
 2. SURVEY OF EXISTING MONITORING WELLS CONDUCTED BY GEI ON 6-16-09.
 3. AERIAL PHOTOGRAPH 2014 ESRI WORLD IMAGERY.
 4. STREETS, NYC DEPARTMENT OF CITY PLANNING, BYTES OF THE BIG APPLE.
 5. DWG M1367100.DWG GREENPOINT ENERGY CENTER UNDERGROUND FACILITIES, NATIONAL GRID.

LEGEND

- CURRENT STRUCTURES
- HISTORICAL STRUCTURES
- HISTORICAL STRUCTURES
- SITE BOUNDARY
- AREAS OF INVESTIGATION
- PHASE 1 INVESTIGATION
- 1888 NEWTOWN CREEK
- HISTORICAL DRAINAGE AREA
- COMPLETED TEST PIT
- COMPLETED TEST PIT WITH IMPACTS AT THE BASE
- EXISTING MONITORING WELL
- PREVIOUS GEOTECHNICAL SOIL BORING
- PROPOSED TEST PIT
- PROPOSED SOIL BORING
- PROPOSED MONITORING WELL
- IMPACTS FOR GEOTECHNICAL BORINGS
- NO OBSERVED IMPACTS

PHASE 2/3 REMEDIAL INVESTIGATION WORK PLAN
 GREENPOINT ENERGY CENTER
 FORMER MANUFACTURED GAS PLANT SITE
 BROOKLYN, NEW YORK

nationalgrid

PROJECT 125180

GEI Consultants
 455 WINDING BROOK DRIVE
 SUITE 301
 GLASTONBURY, CONNECTICUT 06033

AREA 8 PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS

February 2018 Fig. 1

Attachment 1

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP517	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	14.54
WEATHER	Clear, 75F			LOCATION NORTHING	688232.53
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650329.03
OBSERVED BY	Rich Crockett	DATE	8/30/2017, 8/31/2017	DATE STARTED	8/30/2017
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	8/31/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks	
5	GPEC-TP517 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, steel, cobbles and boulders, moist, dark brown-brown, FILL.	
		0.2		
		0.6	(1-3') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, steel, cobbles and boulders, gray staining, dark brown-brown, FILL. Encountered top of foundation wall 1.2' bgs on northern edge of test pit.	
	10	GPEC-TP517 (8-9)	7.5	(3-7') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, steel, cobbles and boulders, ash, fragmented coal, hardened solidified NAPL fragments up to 9" with a naphthalene-like odor, gray staining, dark brown-brown, FILL. Base of foundation wall observed at 6' bgs.
			3.5	
			1.6	
			0.2	
			10.9	(7-10') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~35% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick, and concrete, wood, steel, cobbles and boulders, gray staining, petroleum-like odor, moist, brown, FILL. Encounter 8" steel pipe running north-south 8' bgs.
			58.7	
			41.5	
34.9	Bottom of Test Pit at ~10.0 feet.			
Photograph 1: Encountered 8" steel pipe 8 ft. bgs.		Photograph 2: Completed test pit looking west.		
				

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NOTES:

Test pit to determine location of former MGP structures (former generator house).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP518		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Clear, 39F, SW 0-5 mph. Clear, 48F, SW 0-5 mph.			ELEVATION	8.67	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688263.83	
OBSERVED BY	Rich Crockett	DATE	1/10-1/11/2018	LOCATION EASTING	650531.65	
CHECKED BY	George Holmes	DATE	1/29/2018	DATE STARTED	1/10/2018	
				DATE FINISHED	1/11/2018	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
	GPEC-TP518 (3-4)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic silt, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented and whole red brick, fragmented concrete and glass, clinkers and spherical stones, black staining, moist, tight, dark brown-brown. FILL. Top of foundation wall encountered at 1.5' bgs.
		0.0	
		0.0	(2-3) Layer of fragmented coal up to 1", mixed with sand and silt (similar to above).
		0.0	(3-6) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic silt, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented and whole red brick, fragmented concrete and glass, clinkers and spherical stones, fragmented solidified NAPL, black staining, moist, tight, dark brown-brown. FILL. Base of foundation wall observed at 6' bgs.
5		0.0	
		0.0	Groundwater encountered at 6' bgs.
		0.0	Bottom of Test Pit at ~6.0 feet.
10			<p>Photograph 1: Completed test pit looking south.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of underground utilities.

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	6 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP520		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	16.43	
WEATHER	Cloudy, Snow, 31F, W 5-10 mph. Cloudy, 52F, SW 10-20 mph.			LOCATION NORTHING	688213.10	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650228.24	
OBSERVED BY	Rich Crockett	DATE	12/15-12-19/2017	DATE STARTED	12/15/2017	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	12/19/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
	GPEC-TP520 (3-4)	0.0	(0-3') SILTY SAND WITH GRAVEL (SM); ~40% fine to coarse sand, mostly fine ~40% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, oxidation staining, moist, tight, dark brown-brown. FILL. Encountered foundation wall at 2.5' bgs.
		0.0	
		0.0	
		34.7	(3-4') SILTY SAND WITH GRAVEL (SM); ~40% fine to coarse sand, mostly fine ~40% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, oxidation staining, hardened solidified NAPL fragments, black staining, moderate to strong petroleum-like odor, moist, tight, dark brown-brown. FILL.
5		100.1	(4-5') SILTY SAND WITH GRAVEL (SM); ~40% fine to coarse sand, mostly fine ~40% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, oxidation staining, hardened solidified NAPL fragments, gray staining, slight petroleum-like odor, moist, tight, dark brown-brown. FILL.
		2.7	
		0.0	
		0.0	(5-6') SILTY SAND (SM); ~80% fine to coarse sand, mostly fine ~20% non-plastic fines, slightly pliable solidified NAPL fragments, gray staining, slight petroleum-like odor, moist, loose, yellow. FILL.
		0.0	(6-8') SILTY SAND (SM); ~80% fine to coarse sand, mostly fine ~20% non-plastic fines, slight petroleum-like odor, moist, loose, yellow. FILL.
		10.2	
10		13.7	(8-10') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 7", gray staining, moderate petroleum-like odor, moist, loose, yellow. FILL.
		20.9	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking west. 

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NOTES: Test pit to determine location of former MGP structures (former generator house). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH <u>9 ft.</u> WIDTH <u>5 ft.</u> DEPTH <u>10 ft.</u>
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TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP521		
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	15.29	
WEATHER	Clear, 38F, NW 5-10 mph.			LOCATION NORTHING	688092.73	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650120.73	
OBSERVED BY	Rich Crockett	DATE	12/21/2017	DATE STARTED	12/21/2017	
CHECKED BY	George Holmes	DATE	1/29/2018	DATE FINISHED	12/21/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP521 (1-2)	0.0	(0-1') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 6", scrap metal and glass, moist, tight, dark brown-brown. FILL.
		0.4	
		0.6	(1-2') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 6", scrap metal and glass, dark gray staining, moist, tight, dark brown-brown. FILL.
		0.0	(2-3') SILTY SAND (SM); ~50% fine to coarse sand, mostly fine ~40% non-plastic to low plasticity fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", moist, tight, light brown-brown. FILL
		0.1	(3-5') NARROWLY GRADED SAND WITH SILT (SW-SM); ~90% fine to medium sand, 10% non-plastic fines, moist, light tan. Likely utility trench backfill.
		0.3	(5-10') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 6", scrap metal, glass, ash, fragmented coal and clinkers, dark gray staining, moist, tight, dark brown-brown. FILL.
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north. Photograph 2: Completed test pit looking west.



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NOTES:

Test pit to determine location of former MGP structures (former generator house).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP522	
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	16.11
WEATHER	Cloudy, Rain, 52F, S 10-15 mph. Cloudy, 41F, W 10-15 mph.			LOCATION NORTHING	688133.60
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650052.63
OBSERVED BY	Rich Crockett	DATE	12/5-12/8/2017	DATE STARTED	12/5/2017
CHECKED BY	George Holmes	DATE	1/29/2018	DATE FINISHED	12/8/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP522 (3-4)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 18", scrap metal, glass, marble scrap and clinkers up to 8", moist, tight, dark brown to brown. FILL. Encountered foundation wall at 1.5' bgs.
		0.0	
		31.9	(2-3) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 18", scrap metal, glass, marble scrap and clinkers up to 8", black staining, strong petroleum-like odor, contains pieces of slightly pliable to hardened solidified NAPL, moist, tight, dark brown to brown. FILL.
		105.3	
		134.8	(3-10) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 18", scrap metal, glass, marble scrap and clinkers up to 8", timbers, dark gray staining, strong petroleum-like odor, moist, tight, dark brown to brown. FILL. Base of foundation wall observed at 6' bgs.
		10.1	
		56.8	
		12.6	
		10.8	
		16.5	
10		14.4	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north. Photograph 2: Completed test pit looking south.



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<p>NOTES:</p> <p>Test pit to determine location of former MGP structures (former relief holder #1).</p> <p>Datum: New York State Plane NAVD 88.</p> <p>bgs - below ground surface.</p>		<p>LENGTH _____ 10 ft.</p> <p>WIDTH _____ 5 ft.</p> <p>DEPTH _____ 10 ft.</p>
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TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP523		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	15.97	
WEATHER	Clear, 53F, NW 10-15 mph. Cloudy, Rain, 53F, S 10-15 mph.			LOCATION NORTHING	688091.99	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649924.21	
OBSERVED BY	Rich Crockett	DATE	12/1-12/5/2017	DATE STARTED	12/1/2017	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	12/5/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP523 (2-3)	0.0	(0-2') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 16", scrap metal, glass, wood, slightly pliable solidified NAPL fragments, moist, tight, dark brown to brown. FILL.
		14.5	
		67.2	(2-4') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 16", scrap metal, glass, wood, slightly pliable solidified NAPL fragments, dark gray-black staining, strong petroleum-like odor, moist, tight, dark brown to brown. FILL.
		38.4	
		11.5	(4-6') SILTY SAND (SM); ~70% fine to medium sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", scrap metal, glass, splintered wood and timbers, gray staining, moderate petroleum-like odor, moist, dark brown-brown. FILL.
		5.9	
		0.0	(6-7') Brittle sandy concrete-like material.
		0.0	(7-10') SILTY SAND (SM); ~70% fine to medium sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", scrap metal, glass, splintered wood and timbers, black staining, slight petroleum-like odor, moist, dark brown-brown. FILL.
		0.4	
		0.8	
10		1.2	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east. Photograph 2: Completed test pit looking west.



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NOTES:

Test pit to determine location of former MGP structures (former relief holder #1).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT		Greenpoint Energy Center Phase 3 RI		GPEC-TP524	
LOCATION		287 Maspeth Ave, Brooklyn, NY 11211			
CLIENT		National Grid			
EQUIPMENT		Vac Truck (Guzzler CL) and Backhoe (CAT 430)		PROJECT NO. 125180-3-1302	
WEATHER		Partly Cloudy, 83F/Clear, 78F		ELEVATION -	
CONTRACTOR		O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING 688003.3
OBSERVED BY		George Holmes	DATE	9/27-28/2017	LOCATION EASTING 649694.5
CHECKED BY		Chris Morris	DATE	2/2/2018	DATE STARTED 9/27/2017
				DATE FINISHED	9/28/2017
Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks		
5	GPEC-TP524 (1-2)	0.9	(0-1)	SILTY SAND (SM); ~70% fine to medium sand, ~25% non-plastic fines, ~5% fine to coarse angular-subrounded gravel up to 4", contains red brick and glass fragments, brown-tan, moist, FILL. Concrete foundation wall encountered approximately 1' bgs along northern boundary of test pit.	
		180.5	(1-3)	SILTY SAND (SM); ~50% fine to medium sand, ~40% non-plastic fines, ~10% fine to coarse angular-subrounded gravel up to 4", contains cobbles/boulders, red/white bricks and fragments, concrete chunks, timbers, metal scrap, and plastic debris, some solid NAPL fragments, black staining, petroleum-like odor, black, moist, FILL.	
		117.4			
		0.1	(3-5)	CLAYEY SAND WITH GRAVEL (SC); ~50% fine to medium sand, ~30% low-plasticity fines, ~20% fine to coarse angular to subrounded gravel up to 4", contains cobbles/boulders, timbers, red bricks and fragments, concrete chunks, and metal scrap, trace black staining, gray to brown, moist, FILL. Approximately 1.5' south of the foundation wall extending to the southern boundary of the test pit was asphalt and asphalt millings from 3-3.5' bgs, and burned wood/timbers, cinders, ash, and charcoal from 3.5-5' bgs, with a slight burnt odor, loose, and black.	
		0.1			
		5.0	(5-9)	CLAYEY SAND WITH GRAVEL (SC); ~50% fine to medium sand, ~30% low-plasticity fines, ~20% fine to coarse angular to subrounded gravel up to 4", contains cobbles/boulders, timbers, red bricks and fragments, concrete chunks, and metal scrap, some solid NAPL fragments, black staining, petroleum-like odor, gray to black, wet at 6' bgs, FILL. Groundwater encountered at 9' bgs, and foundation wall still present.	
		5.2			
		8.1			
		10.4			
		25.4			
10		Bottom of Test Pit at ~9.0 feet.			
		Photograph 1: Interval of burned wood/cinders/ash. 		Photograph 2: Completed test pit looking east. 	
NOTES:				DRAFT LENGTH _____ 7 ft. WIDTH _____ 5 ft. DEPTH _____ 9 ft.	
Test pit to determine location of former MGP structures (former oil storage tank).					
Datum: New York State Plane NAVD 88.					
bgs - below ground surface.					
					

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP525	
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211				
CLIENT	National Grid			1	OF 1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Clear, 84F			ELEVATION	15.02
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688342.98
OBSERVED BY	Rich Crockett	DATE	9/1/2017, 9/5/2017	LOCATION EASTING	650382.72
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	9/1/2017
				DATE FINISHED	9/5/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP525 (1-2)	0.0	(0-2) SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick-whole brick, up to boulder size concrete, steel, cobbles and boulders, solidified NAPL, dark gray staining, naphtalene like odor, moist, dark brown-brown, FILL. Top of concrete foundation wall observed at grade. Concrete slab encountered at 1.6' bgs on west side of concrete foundation wall.
		2.6	
		0.0	(2-10') SILTY SAND (SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, moist, light brown-brown. Base of concrete foundation wall observed at 6' bgs.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10			Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north. Photograph 2: Completed test pit looking west.
			 

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NOTES:

Test pit to determine location of former MGP structures (former treatment tank).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP526	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	16.33
WEATHER	Clear, 51F, W 10-15 mph. Clear, 58F, W 10-15 mph.			LOCATION NORTHING	688224.72
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650163.29
OBSERVED BY	Rich Crockett, George Holmes	DATE	11/27-11/29/17	DATE STARTED	11/27/2017
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	11/29/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP526 (7-8)	0.0	(0-3) SILTY SAND WITH GRAVEL (SM); ~40% fine to medium sand, ~30% non-plastic fines, ~30% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red and white bricks, concrete chunks, asphalt, porcelain fragments, scrap metal, and timbers, dry, dark brown to brown. FILL.
		0.0	
		0.0	
		18.3	(3-6) SILTY SAND WITH GRAVEL (SM); ~40% fine to medium sand, ~30% non-plastic fines, ~30% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red and white bricks, concrete chunks, asphalt, porcelain fragments, scrap metal, and timbers, black staining, moderate petroleum-like odor, moderate naphthalene-like odor, hardened solidified NAPL fragments, dry, dark brown to brown. FILL. Top of concrete foundation wall encountered 3' bgs.
		18.8	
		55.1	
		88.8	(6-9) SILTY SAND (SM); ~70% fine to coarse sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented red brick and concrete, black staining, strong petroleum-like odor, moist. FILL. Encountered 12" steel pipe oriented east-west abutting south side of foundation wall at 6' bgs.
		399.3	
		343.7	
		377.1	
10			Refusal at 9' bgs due to impassable large timber
			Bottom of Test Pit at ~9.0 feet.
			<p>Photograph 1: Completed test pit looking south.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former tar separator).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	14 ft.
WIDTH	5 ft.
DEPTH	9 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP528		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Cloudy, 38F, SE 5-10 mph.			ELEVATION	16.02	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688157.19	
OBSERVED BY	Rich Crockett	DATE	11/30-12/1/17	LOCATION EASTING	649946.30	
CHECKED BY	George Holmes	DATE	1/30/2018	DATE STARTED	11/30/2017	
				DATE FINISHED	12/1/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP528 (6-7)	0.0	(0-1.5') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", clay pipe fragments, scrap metal and glass, moist, tight, tan to brown. FILL.
		0.0	
		3.5	(1.5-3') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", clay pipe fragments, scrap metal, and glass, gray-dark gray staining, slight petroleum-like odor, moist, tight, tan to brown. FILL.
		13.5	
		78.7	(3-6') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 18", clay pipe fragments, scrap metal, splintered wood, and glass, black staining, strong petroleum-like odor, moist, tight, tan to brown. FILL.
		423.9	
		696.8	(6-10') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented red brick and concrete, black staining, strong petroleum-like odor, saturated with NAPL, moist, brown. FILL.
		426.8	
		649.7	
		658.4	
10		588.7	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking south. Photograph 2: Completed test pit looking west.



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NOTES:

Test pit to determine location of former MGP structures (former salt water condensers).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	8 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP529		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	-	
WEATHER	Clear, 78F / Clear, 66F			LOCATION NORTHING	688062.44	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649732.16	
OBSERVED BY	George Holmes	DATE	9/28-29/2017	DATE STARTED	9/28/2017	
CHECKED BY	Chris Morris	DATE	2/2/2018	DATE FINISHED	9/29/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP529 (7-8)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~70% fine to medium sand, ~20% fine to coarse angular-subrounded gravel up to 4", ~20% non-plastic fines, contains cobbles/boulders, red/white bricks and fragments, concrete chunks, and metal scrap, trace black staining, brown-dark brown, dry, FILL. Concrete foundation wall encountered at grade along eastern boundary of test pit.
		0.5	
		0.0	(2-4) SILTY SAND WITH GRAVEL (SM); ~70% fine to coarse sand, ~20% fine to coarse angular-subrounded gravel up to 4", ~20% non-plastic fines, contains cobbles/boulders, red/white bricks and fragments, concrete chunks, metal scrap, brown-reddish brown, moist, FILL.
		0.0	
		0.0	(4-6) WIDELY GRADED SAND WITH GRAVEL (SW); ~75% fine to coarse sand, ~25% fine to coarse angular to subrounded gravel up to 4", contains cobbles/boulders, red bricks and fragments, concrete chunks, timbers, and metal scrap, some NAPL blebs, sheen, black staining, strong petroleum-like odor, wet, FILL. Base of concrete foundation wall observed at approximately 4' bgs.
10.5			
10	GPEC-TP529 (7-8)	293.7	(6-9) SANDY CLAY (CL); ~80% low to medium-plasticity clay, ~20% fine sand, contains organics, roots, twigs, trace sheen, strong petroleum-like odor, gray to black staining, wet. Groundwater encountered at 9' bgs with a sheen.
		394	
		344	
		188	Bottom of Test Pit at ~9.0 feet.
			<p>Photograph 1: Completed test pit looking east.</p> 
			<p>Photograph 2: Impacted soil/fill and groundwater.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former scrubber).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	7 ft.
WIDTH	5 ft.
DEPTH	9 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP531		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Cloudy, 79F			ELEVATION	19.35	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688077.55	
OBSERVED BY	Rich Crockett	DATE	8/28/2017, 8/29/2017	LOCATION EASTING	649609.77	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	8/28/2017	
				DATE FINISHED	8/29/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP531 (5-6)	0.0	(0-8") SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented-whole brick, up to boulder size concrete, steel, wood, cobbles and boulders, stained, petroleum-like odor, moist, dark brown-brown, FILL. Encountered top of concrete foundation wall 0.5' bgs.
		0.0	
		16.9	
		10.1	
		20.2	
		19.9	
		22.7	
		11.1	
		12.0	Groundwater encountered at 8' bgs.
		10	
		<p>Photograph 1: Completed test pit looking east.</p> 	<p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former spent oil tank).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	8 ft.

TEST PIT LOG				TEST PIT NUMBERS	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP532	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Clear, 25F, W 10-15 mph.			ELEVATION	6.74
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688393.12
OBSERVED BY	Rich Crockett	DATE	1/2/2018	LOCATION EASTING	650491.77
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	1/2/2018
				DATE FINISHED	1/2/2018

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP532 (2-3)	0.0	(0-2) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented to whole red brick, fragmented concrete, scrap metal, splintered wood, timbers, and glass, dark gray-gray staining, dry, tight, tan-brown. FILL.
		0.2	
		0.1	(2-3) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented to whole red brick, fragmented concrete, scrap metal, splintered wood, timbers, glass, clinkers, black staining, slightly pliable to hardened solidified NAPL fragments, dry, tight, tan-brown. FILL.
		0.3	
		0.1	(3-4) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented to whole red brick, fragmented concrete, scrap metal, splintered wood, timbers, glass, clinkers, oxidation staining, black staining, slightly pliable to hardened solidified NAPL, dry, tight, tan-brown. FILL. Encountered an approximately 1' wide piece of concrete oriented east-west through the center of the test pit from 3'-4' bgs.
		0.2	
		0.1	(4-7) SILTY SAND WITH GRAVEL (SM); ~70% fine to coarse sand, mostly fine ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", contains organic matter, organic-like odor, dark gray-gray. Groundwater encountered at 7' bgs.
10		0.2	Bottom of Test Pit at ~7.0 feet.
			<p>Photograph 1: Completed test pit looking east.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of underground utilities.

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	7 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP533	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	15.9
WEATHER	Clear 79F			LOCATION NORTHING	688314.53
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650270.25
OBSERVED BY	Rich Crockett	DATE	9/15/2017, 9/18/2017	DATE STARTED	9/15/2017
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	9/18/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP533 (2-3)	0.0	(0-2) SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented and whole brick, up to boulder size concrete pieces, cobbles and boulders, moist, dark brown-brown, FILL. Encountered top of foundation wall 0.5' bgs on eastern edge of test pit.
		1.7	
		68.7	(2-3) SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented and whole brick, up to boulder size concrete pieces, cobbles and boulders, stained, gray/dark gray, petroleum-like odor, moist, dark brown-brown, FILL.
		6.6	
		0.2	(3-4) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, trace light gray staining, petroleum-like odor, moist, brown.
10	GPEC-TP533 (8-9)	0.0	(4-7) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, trace light gray staining, petroleum-like odor, moist, brown. Base of foundation wall observed at 4' bgs.
		0.0	
		377.1	(7-10') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, gray/dark gray staining, petroleum-like odor, moist, brown. Encountered (2) 10" steel pipes running north-south 7' bgs.
		401.6	
		388.7	
		373.2	<p>Bottom of Test Pit at ~10.0 feet.</p> <p>Photograph 1: 10" steel pipes and staining at depth.</p> <p>Photograph 2: Completed test pit looking east.</p> <div style="display: flex; justify-content: space-around;">   </div>

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NOTES:

Test pit to determine location of former MGP structures (former pump house).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP538	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, 45F, N 5-7 mph. Cloudy, Rain, 55F, W 10-15 mph.			ELEVATION	16.93
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688409.35
OBSERVED BY	Rich Crockett	DATE	11/14-11/16/2017	LOCATION EASTING	650143.32
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	11/14/2017
				DATE FINISHED	11/16/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP538 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, fragmented concrete, scrap metal, asbestos, ash, fragmented coal, clinkers, slightly pliable solidified NAPL fragments, black staining and slight petroleum-like odor at 0.8' bgs, moist, tight, brown, FILL. Encountered concrete slab at 0.3' bgs.
		10.1	
		395.7	(1-4') SILTY SAND (SM); ~70% fine to coarse sand, ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, fragmented concrete, scrap metal, ash, fragmented coal, clinkers, solidified NAPL fragments containing sediments, black staining, strong petroleum-like odor, moist, tight, brown, FILL.
		224.6	
		16.2	(4-5') SILTY SAND WITH GRAVEL (SM); ~60% fine to coarse sand, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", gray staining, slight petroleum-like odor, moist, loose, tan to brown. FILL.
10		0.0	(5-10') SILTY SAND WITH GRAVEL (SM); ~60% fine to coarse sand, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", gray staining, moist, loose, tan to brown. FILL.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking north. 

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NOTES:

Test pit to determine location of former MGP structures (former pressure holder).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP539		
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Cloudy, 38F, W 20-30 mph. Cloudy, Snow, 31F, W 5-10 mph.			ELEVATION	16.24	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688416.17	
OBSERVED BY	Rich Crockett	DATE	12/13-12-15/2017	LOCATION EASTING	650305.69	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	12/13/2017	
				DATE FINISHED	12/15/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP539 (1-2)	0.0	(0-1) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, moist, tight, dark brown-brown. FILL. Encountered concrete foundation wall and slab at grade.
		25.2	
		3.9	(1-2) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, black staining, moderate petroleum-like odor, moist, tight, dark brown-brown. FILL. Base of concrete foundation wall observed at 2' bgs.
		2.2	
		0.3	(2-3) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, moist, tight, dark brown-brown. FILL.
		2.3	
		1.2	(3-7) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, gray staining, slight petroleum-like odor, moist, tight, dark brown-brown. FILL.
10		2.5	Refusal at 7' bgs due to densely packed demolition debris.
			Bottom of Test Pit at ~7.0 feet.
			<p>Photograph 1: Completed test pit looking south.</p> 
			<p>Photograph 2: Completed test pit looking east.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former boiler fuel storage tank).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	7 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP541	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	16.26
WEATHER	Cloudy, 43F, NW 10-20 mph.			LOCATION NORTHING	688300.06
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650218.69
OBSERVED BY	Rich Crockett	DATE	12/20/2017	DATE STARTED	12/20/2017
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	12/20/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP541 (4-5)	0.0	(0-3) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, moist, tight, dark brown-brown. FILL.
		0.0	(3-4) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, hardened solidified NAPL fragments, moist, tight, tan-light brown. FILL.
		2.2	(4-5) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, hardened solidified NAPL fragments, gray staining, slight petroleum-like odor, moist, tight, tan-light brown. FILL. Refusal at 5' bgs due to densely packed demolition debris.
		3.7	
10		6.8	Bottom of Test Pit at ~5.0 feet.
			<p>Photograph 1: Completed test pit looking north.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former tar separator).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	5 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP545		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Clear, 89F			ELEVATION	43.44	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688412.31	
OBSERVED BY	Rich Crockett	DATE	9/22/2017, 9/25/2017	LOCATION EASTING	649304.77	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	9/22/2017	
				DATE FINISHED	9/25/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP545 (9-10)	0.0	(0-10') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented and whole brick, up to boulder size concrete pieces, steel, cobbles and boulders, moist, dark brown-brown, FILL. Concrete slab observed at 8' bgs.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	<p>Bottom of Test Pit at ~10.0 feet.</p> <p>Photograph 1: Completed test pit looking north.</p>  <p>Photograph 2: Completed test pit looking east.</p> 

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<p>NOTES:</p> <p>Test pit to determine the location of former MGP structures (former residuum oil storage tank).</p> <p>Datum: New York State Plane NAVD 88.</p> <p>bgs - below ground surface.</p>		<p>LENGTH _____ 10 ft.</p> <p>WIDTH _____ 5 ft.</p> <p>DEPTH _____ 10 ft.</p>
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP546	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	17.05
WEATHER	Cloudy, 67F, NW 5-10 mph.			LOCATION NORTHING	688576.03
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649655.54
OBSERVED BY	George Holmes	DATE	10/25/2017	DATE STARTED	10/25/2017
CHECKED BY	Chris Morris	DATE	2/2/2018	DATE FINISHED	10/25/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP546 (2.5-3)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~50% fine sand, ~30% non-plastic fines, ~20% fine to coarse gravel, angular to subrounded up to 3", cobbles, contains fragmented to whole red brick, cobble sized chunks of concrete, metal scrap, wood fragments, plastic debris, cloth debris, organics/roots, brown, tight, dry. FILL.
		0.0	
		0.0	(2-2.5') SILTY GRAVEL WITH SAND (GM); ~50% fine to coarse gravel, rounded to subangular up to 3", ~30% non-plastic fines, ~20% fine sand, contains fragmented to whole red brick, cobble sized chunks of concrete, brown to orangey-tan, tight, dry. FILL.
		63.1	
		0.0	(2.5-3') SILTY SAND WITH GRAVEL (SM); ~50% fine sand ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to subangular up to 3", cobbles, contains fragmented to whole red brick, black staining, petroleum-like odor, dry, tight. FILL.
		0.0	
		0.0	(3-4') SILTY SAND WITH GRAVEL (SM); ~50% fine sand ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to subangular up to 3", cobbles, contains fragmented to whole red brick, brown, dry, tight. FILL.
		0.0	(4-9') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% fine to coarse gravel, rounded to subangular up to 3", ~30% fine to coarse sand, cobbles, tan, loose, dry.
		0.0	
		0.0	
10		0.0	(9-10') WIDELY GRADED SAND (SW); ~90% fine to coarse sand, ~10% fine to coarse gravel, subrounded to subangular up to 1.5", tan, dry, loose.
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking west. 

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NOTES: Test pit to determine location of former MGP structures (former liquid petroleum compressor house #2). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH _____ 7 ft. WIDTH _____ 5 ft. DEPTH _____ 10 ft.
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP548	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, Rain, 53F			ELEVATION	16.44
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688620.08
OBSERVED BY	Rich Crockett	DATE	11/8-11/9/2017	LOCATION EASTING	650041.95
CHECKED BY	George Holmes	DATE	2/1/2018	DATE STARTED	11/8/2017
				DATE FINISHED	11/9/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP548 (2-3)	0.0	(0-6') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% fine to coarse sand ~30% fine to coarse gravel, rounded to angular up to 3", ~10% non-plastic fines, cobbles up to 12", contains fragmented red brick, concrete, hardened solidified NAPL containing sediments from 0-6' bgs, black staining, naphthalene-like odor, brown, tight, moist, FILL.
		4.2	
		13.1	
		8.5	
		3.7	
10		2.1	
		1.6	(6-10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand ~10% fine to coarse gravel, rounded to angular up to 1", ~10% non-plastic fines, light brown-brown, moist, loose.
		0.0	
		0.0	
		0.0	
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking west. 

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NOTES:

Test pit to determine location of former MGP feature (former tar pond).
 Datum: New York State Plane NAVD 88.
 bgs - below ground surface.



LENGTH	12 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP550	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	18.88
WEATHER	Clear, 38F, W 10-15 mph.			LOCATION NORTHING	688627.27
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650156.16
OBSERVED BY	Rich Crockett	DATE	12/7/2017	DATE STARTED	12/7/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	12/7/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP550 (1-2)	0.0	(0-1.5') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 15", metal scrap, glass, fragments and layers of solidified NAPL slightly pliable to hardened, black staining, slight naphthalene-like odor, moist, tight, dark brown to brown. FILL. Concrete foundation wall encountered at 0.4' bgs.
		9.1	
		2.9	(2-6') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 15", metal scrap, glass, moist, tight, dark brown to brown. FILL. Encounter 4" steel pipe 3' bgs. Base of concrete foundation wall observed at 5' bgs.
		0.0	
		0.0	
10		0.0	(6-10') SILTY SAND (SM); ~70% fine to medium sand, mostly fine ~25% non-plastic fines, ~5% fine to coarse gravel, rounded to angular up to 1", loose, moist, light tan-tan.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking south.  Photograph 2: Completed test pit, pipe and wall base. 

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NOTES: Test pit to determine location of former MGP structures (former dry tar storage tank). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH _____ 10 ft. WIDTH _____ 5 ft. DEPTH _____ 10 ft.
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP553	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Partly Cloudy, 37F, W 10-15 mph.			ELEVATION	16.54
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688692.99
OBSERVED BY	Rich Crockett	DATE	11/20/2017	LOCATION EASTING	650008.17
CHECKED BY	George Holmes	DATE	2/1/2018	DATE STARTED	11/20/2017
				DATE FINISHED	11/20/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP553 (1-2)	0.0	(0-1.5') SILTY SAND (SM); ~60% fine to coarse sand, ~30% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 12", 5-8" thick hardened solidified NAPL layer, black staining, slight naphthalene-like odor, moderate petroleum-like odor, moist, tight, brown. FILL
		46.1	(1.5-3') SANDY SILT (MLS); ~60% non-plastic to low plasticity fines, ~30% fine to medium sand, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 7", gray staining, slight petroleum-like odor, moist, tight, tan-light brown.
		1.6	
		0.4	(3-4') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% fine to coarse sand, ~15% non-plastic fines, 15% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", oxidation staining, moist, tight, brown.
		0.0	(4-5') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% fine to coarse sand, ~15% non-plastic fines, 15% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", moist, moderately tight, tan.
		6.1	(5-7') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% fine to coarse sand, ~15% non-plastic fines, 15% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", gray staining, slight petroleum-like odor, moist, moderately tight, tan.
10		10.2	Groundwater encountered at 7' bgs.
		8.8	Bottom of Test Pit at ~7.0 feet.
			<p>Photograph 1: Completed test pit looking east.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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<p>NOTES:</p> <p>Test pit to determine location of former MGP feature (former tar pond).</p> <p>Datum: New York State Plane NAVD 88.</p> <p>bgs - below ground surface.</p>		<p>LENGTH</p> <p>WIDTH</p> <p>DEPTH</p>	<p>10 ft.</p> <p>5 ft.</p> <p>7 ft.</p>
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP556	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	47.33
WEATHER	Cloudy, 82F			LOCATION NORTHING	688531.93
CONTRACTOR	O'Leary Construction	OPERATOR	John O'Leary	LOCATION EASTING	649323.32
OBSERVED BY	Rich Crockett	DATE	8/22/17, 8/23/17	DATE STARTED	8/22/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	8/23/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP556 (3-4)	0.0	(0-5') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick, tile and concrete, steel, ash, fragmented coal, clinkers, and oxidation staining, dark gray-gray staining increasing from 1-5' thick south to north, burnt odor, dark brown- brown, moist, FILL. Concrete foundation wall observed at grade on northern edge of test pit.
		0.0	
		0.0	
		0.0	
		0.1	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10	GPEC-TP556 (3-4)	0.0	(5-10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3" moist, contains cobbles and boulders, reddish brown. Concrete slab observed 5' bgs and extends 4' off enclosure wall. Base of concrete foundation wall observed at 6' bgs.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
			Bottom of Test Pit at ~10.0 feet.
			Photograph 1: Completed test pit looking west.
			Photograph 2: Base of foundation wall.
			
			

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NOTES:

Test pit to determine location of former MGP structures (former motor fuel storage tank #1).
 Datum: New York State Plane NAVD 88.
 bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP560	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, Rain, 80F			ELEVATION	49.97
CONTRACTOR	O'Leary Construction	OPERATOR	John O'Leary	LOCATION NORTHING	688716.02
OBSERVED BY	Rich Crockett	DATE	8/18/2017, 8/21/2017	LOCATION EASTING	649286.83
CHECKED BY	George Holmes	DATE	2/1/2018	DATE STARTED	8/18/2017
				DATE FINISHED	8/21/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP560 (4-5)	0.0	(0-5) WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~10% fine to coarse rounded-subangular gravel up to 3", ~10% non-plastic fines, contains fragments of brick and concrete, steel, dark gray and bluish-green staining, dark brown-brown, moist, , FILL. Top of concrete foundation wall at 0.5' bgs on west end of test pit. Encountered 3" diameter steel pipe oriented east-west going into foundation wall 3' bgs, and an 8" diameter steel pipe oriented north-south abutting foundation wall 3' bgs.
		0.1	
		0.2	
		0.1	
		0.1	(4-5) WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~10% fine to coarse rounded-subangular gravel up to 3", ~10% non-plastic fines, contains fragments of brick and concrete, steel, dark gray and bluish-green staining, burnt odor, dark brown- brown, moist, , FILL
		0.0	
		0.0	(5-10) SILTY SAND (SM); ~60% fine to medium sand, mostly fine, ~35% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3" moist, reddish brown. Concrete slab observed 5' bgs.
		0.0	
		0.0	
		0.0	
10		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Blue-green material encountered.  Photograph 2: Foundation wall. 

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NOTES:

Test pit to determine location of former MGP structures (former residual distillate storage tank).
 Datum: New York State Plane NAVD 88.
 bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP564	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	50.70
WEATHER	Clear, 86F			LOCATION NORTHING	688840.23
CONTRACTOR	O'Leary Construction	OPERATOR	John O'Leary	LOCATION EASTING	649236.44
OBSERVED BY	Rich Crockett	DATE	8/16/2017	DATE STARTED	8/16/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	8/16/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP564 (5-6)	0.0	(0-3') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick and concrete, cobbles, boulders, grayish brown- brown, moist, FILL. Encountered top of concrete foundation wall 0.5' bgs.
		0.1	
		0.0	
		0.0	(3-5') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick and concrete, cobbles, boulders, fragmented solidified NAPL, naphthalene-like odor, reddish brown-brown, moist, FILL.
		10.7	
		140.9	(5-7') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick and concrete, cobbles, boulders, fragmented solidified NAPL, gray staining, petroleum-like odor, reddish brown-brown, moist, FILL. Base of foundation wall observed at 5' bgs.
		47.9	
		26.2	(7-10') SILTY SAND (SM); ~70% fine to coarse sand, ~25% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 1", contains cobbles and boulders, light gray staining, petroleum-like odor, reddish brown-brown, moist.
		14.7	
		9.9	
10		6.7	Bottom of Test Pit at ~10.0 feet. Photograph 1: Excavation looking east. Photograph 2: Base of foundation wall.  

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NOTES:

Test pit to determine location of former MGP structures (former motor fuel storage tank #2).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP565	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	47.45
WEATHER	Clear 77F			LOCATION NORTHING	688924.87
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649395.94
OBSERVED BY	Rich Crockett	DATE	9/11/2017	DATE STARTED	9/11/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	9/11/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP565 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~25% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick, tile and glass, up to boulder size concrete, solidified NAPL fragments, spots of staining, dark brown-brown, moist, FILL. Top of concrete foundation wall observed at 0.8' bgs.
		0.0	
		1.2	(1-2') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, cobbles and boulders, moist, brown, FILL.
		0.7	(2-3') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, cobbles and boulders, clinkers, solidified NAPL fragments, dark gray staining, sulfur-like odor, moist, brown, FILL.
		0.2	
		0.0	(3-10') SILTY SAND (SM); ~60% fine to medium sand, mostly fine, ~35% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, moist, reddish brown-brown. Base of foundation wall observed at 6 ft. bgs.
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking west.  Photograph 2: Completed test pit looking south. 

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NOTES: Test pit to determine location of former MGP structures (former crude solvent storage tank). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH _____ 10 ft. WIDTH _____ 5 ft. DEPTH _____ 10 ft.
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP566	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	51.15
WEATHER	Cloudy, 79F			LOCATION NORTHING	688897.05
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649138.96
OBSERVED BY	Rich Crockett	DATE	9/20/2017, 9/21/2017	DATE STARTED	9/20/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	9/21/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP566 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~25% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented-whole brick, up to boulder size concrete, steel, and cobbles, moist, dark brown-brown, FILL. Encountered top of concrete foundation wall 1.5' bgs.
		0.0	(1-5')
		0.0	WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles, boulders, fragmented solidified NAPL, moist, reddish brown-brown.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	(5-10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles, boulders, moist, reddish brown-brown. Base of foundation wall observed 5 ft. bgs.
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north.  Photograph 2: Completed test pit looking south. 

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<p>NOTES:</p> <p>Test pit to determine location of former MGP structures (former motor fuel storage tank #2).</p> <p>Datum: New York State Plane NAVD 88.</p> <p>bgs - below ground surface.</p>		<p>LENGTH _____ 10 ft.</p> <p>WIDTH _____ 5 ft.</p> <p>DEPTH _____ 10 ft.</p>
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TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP518		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	8.67	
WEATHER	Clear, 39F, SW 0-5 mph. Clear, 48F, SW 0-5 mph.			LOCATION NORTHING	688263.83	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650531.65	
OBSERVED BY	Rich Crockett	DATE	1/10-1/11/2018	DATE STARTED	1/10/2018	
CHECKED BY	George Holmes	DATE	1/29/2018	DATE FINISHED	1/11/2018	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP518 (3-4)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic silt, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented and whole red brick, fragmented concrete and glass, clinkers and spherical stones, black staining, moist, tight, dark brown-brown. FILL. Top of foundation wall encountered at 1.5' bgs.
		0.0	
		0.0	(2-3) Layer of fragmented coal up to 1", mixed with sand and silt (similar to above).
		0.0	(3-6) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic silt, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented and whole red brick, fragmented concrete and glass, clinkers and spherical stones, fragmented solidified NAPL, black staining, moist, tight, dark brown-brown. FILL. Base of foundation wall observed at 6' bgs.
		0.0	
		0.0	Groundwater encountered at 6' bgs.
		0.0	Bottom of Test Pit at ~6.0 feet.
10			<p>Photograph 1: Completed test pit looking south.</p> 
			<p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of underground utilities.

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	6 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP520		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	16.43	
WEATHER	Cloudy, Snow, 31F, W 5-10 mph. Cloudy, 52F, SW 10-20 mph.			LOCATION NORTHING	688213.10	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650228.24	
OBSERVED BY	Rich Crockett	DATE	12/15-12-19/2017	DATE STARTED	12/15/2017	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	12/19/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
0.0	GPEC-TP520 (3-4)	(0-3')	SILTY SAND WITH GRAVEL (SM); ~40% fine to coarse sand, mostly fine ~40% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, oxidation staining, moist, tight, dark brown-brown. FILL. Encountered foundation wall at 2.5' bgs.
0.0			
0.0			
34.7		(3-4')	SILTY SAND WITH GRAVEL (SM); ~40% fine to coarse sand, mostly fine ~40% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, oxidation staining, hardened solidified NAPL fragments, black staining, moderate to strong petroleum-like odor, moist, tight, dark brown-brown. FILL.
100.1			
5		(4-5')	SILTY SAND WITH GRAVEL (SM); ~40% fine to coarse sand, mostly fine ~40% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, oxidation staining, hardened solidified NAPL fragments, gray staining, slight petroleum-like odor, moist, tight, dark brown-brown. FILL.
2.7			
0.0			
0.0		(5-6')	SILTY SAND (SM); ~80% fine to coarse sand, mostly fine ~20% non-plastic fines, slightly pliable solidified NAPL fragments, gray staining, slight petroleum-like odor, moist, loose, yellow. FILL.
0.0			
10.2	(6-8')	SILTY SAND (SM); ~80% fine to coarse sand, mostly fine ~20% non-plastic fines, slight petroleum-like odor, moist, loose, yellow. FILL.	
10.2			
10			
13.7	(8-10')	SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 7", gray staining, moderate petroleum-like odor, moist, loose, yellow. FILL.	
13.7			
20.9			Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking west. 

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NOTES: Test pit to determine location of former MGP structures (former generator house). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH <u>9 ft.</u> WIDTH <u>5 ft.</u> DEPTH <u>10 ft.</u>
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TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP521		
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	15.29	
WEATHER	Clear, 38F, NW 5-10 mph.			LOCATION NORTHING	688092.73	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650120.73	
OBSERVED BY	Rich Crockett	DATE	12/21/2017	DATE STARTED	12/21/2017	
CHECKED BY	George Holmes	DATE	1/29/2018	DATE FINISHED	12/21/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP521 (1-2)	0.0	(0-1') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 6", scrap metal and glass, moist, tight, dark brown-brown. FILL.
		0.4	
		0.6	(1-2') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 6", scrap metal and glass, dark gray staining, moist, tight, dark brown-brown. FILL.
		0.0	(2-3') SILTY SAND (SM); ~50% fine to coarse sand, mostly fine ~40% non-plastic to low plasticity fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", moist, tight, light brown-brown. FILL
		0.1	(3-5') NARROWLY GRADED SAND WITH SILT (SW-SM); ~90% fine to medium sand, 10% non-plastic fines, moist, light tan. Likely utility trench backfill.
		0.3	(5-10') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 6", scrap metal, glass, ash, fragmented coal and clinkers, dark gray staining, moist, tight, dark brown-brown. FILL.
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north. Photograph 2: Completed test pit looking west.



DRAFT

NOTES:

Test pit to determine location of former MGP structures (former generator house).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP522	
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211				
CLIENT	National Grid			1	OF 1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, Rain, 52F, S 10-15 mph. Cloudy, 41F, W 10-15 mph.			ELEVATION	16.11
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688133.60
OBSERVED BY	Rich Crockett	DATE	12/5-12/8/2017	LOCATION EASTING	650052.63
CHECKED BY	George Holmes	DATE	1/29/2018	DATE STARTED	12/5/2017
				DATE FINISHED	12/8/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP522 (3-4)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 18", scrap metal, glass, marble scrap and clinkers up to 8", moist, tight, dark brown to brown. FILL. Encountered foundation wall at 1.5' bgs.
		0.0	
		31.9	(2-3) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 18", scrap metal, glass, marble scrap and clinkers up to 8", black staining, strong petroleum-like odor, contains pieces of slightly pliable to hardened solidified NAPL, moist, tight, dark brown to brown. FILL.
		105.3	
		134.8	(3-10) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 18", scrap metal, glass, marble scrap and clinkers up to 8", timbers, dark gray staining, strong petroleum-like odor, moist, tight, dark brown to brown. FILL. Base of foundation wall observed at 6' bgs.
		10.1	
		56.8	
		12.6	
		10.8	
		16.5	
10		14.4	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north. Photograph 2: Completed test pit looking south.
			 

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NOTES:

Test pit to determine location of former MGP structures (former relief holder #1).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP523		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	15.97	
WEATHER	Clear, 53F, NW 10-15 mph. Cloudy, Rain, 53F, S 10-15 mph.			LOCATION NORTHING	688091.99	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649924.21	
OBSERVED BY	Rich Crockett	DATE	12/1-12/5/2017	DATE STARTED	12/1/2017	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	12/5/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP523 (2-3)	0.0	(0-2') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 16", scrap metal, glass, wood, slightly pliable solidified NAPL fragments, moist, tight, dark brown to brown. FILL.
		14.5	
		67.2	(2-4') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 16", scrap metal, glass, wood, slightly pliable solidified NAPL fragments, dark gray-black staining, strong petroleum-like odor, moist, tight, dark brown to brown. FILL.
		38.4	
		11.5	(4-6') SILTY SAND (SM); ~70% fine to medium sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", scrap metal, glass, splintered wood and timbers, gray staining, moderate petroleum-like odor, moist, dark brown-brown. FILL.
		5.9	
		0.0	(6-7') Brittle sandy concrete-like material.
		0.0	(7-10') SILTY SAND (SM); ~70% fine to medium sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", scrap metal, glass, splintered wood and timbers, black staining, slight petroleum-like odor, moist, dark brown-brown. FILL.
		0.4	
		0.8	
10		1.2	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east. Photograph 2: Completed test pit looking west.
			 

DRAFT

NOTES:

Test pit to determine location of former MGP structures (former relief holder #1).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT		Greenpoint Energy Center Phase 3 RI		GPEC-TP524	
LOCATION		287 Maspeth Ave, Brooklyn, NY 11211			
CLIENT		National Grid			
EQUIPMENT		Vac Truck (Guzzler CL) and Backhoe (CAT 430)		PROJECT NO. 125180-3-1302	
WEATHER		Partly Cloudy, 83F/Clear, 78F		ELEVATION -	
CONTRACTOR		O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING 688003.3
OBSERVED BY		George Holmes	DATE	9/27-28/2017	LOCATION EASTING 649694.5
CHECKED BY		Chris Morris	DATE	2/2/2018	DATE STARTED 9/27/2017
				DATE FINISHED	9/28/2017
Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks		
5	GPEC-TP524 (1-2)	0.9	(0-1)	SILTY SAND (SM); ~70% fine to medium sand, ~25% non-plastic fines, ~5% fine to coarse angular-subrounded gravel up to 4", contains red brick and glass fragments, brown-tan, moist, FILL. Concrete foundation wall encountered approximately 1' bgs along northern boundary of test pit.	
		180.5	(1-3)	SILTY SAND (SM); ~50% fine to medium sand, ~40% non-plastic fines, ~10% fine to coarse angular-subrounded gravel up to 4", contains cobbles/boulders, red/white bricks and fragments, concrete chunks, timbers, metal scrap, and plastic debris, some solid NAPL fragments, black staining, petroleum-like odor, black, moist, FILL.	
		117.4			
		0.1	(3-5)	CLAYEY SAND WITH GRAVEL (SC); ~50% fine to medium sand, ~30% low-plasticity fines, ~20% fine to coarse angular to subrounded gravel up to 4", contains cobbles/boulders, timbers, red bricks and fragments, concrete chunks, and metal scrap, trace black staining, gray to brown, moist, FILL. Approximately 1.5' south of the foundation wall extending to the southern boundary of the test pit was asphalt and asphalt millings from 3-3.5' bgs, and burned wood/timbers, cinders, ash, and charcoal from 3.5-5' bgs, with a slight burnt odor, loose, and black.	
		0.1			
		5.0	(5-9)	CLAYEY SAND WITH GRAVEL (SC); ~50% fine to medium sand, ~30% low-plasticity fines, ~20% fine to coarse angular to subrounded gravel up to 4", contains cobbles/boulders, timbers, red bricks and fragments, concrete chunks, and metal scrap, some solid NAPL fragments, black staining, petroleum-like odor, gray to black, wet at 6' bgs, FILL. Groundwater encountered at 9' bgs, and foundation wall still present.	
		5.2			
		8.1			
		10.4			
		25.4			
10		Bottom of Test Pit at ~9.0 feet.			
		Photograph 1: Interval of burned wood/cinders/ash. 		Photograph 2: Completed test pit looking east. 	
NOTES:				DRAFT LENGTH _____ 7 ft. WIDTH _____ 5 ft. DEPTH _____ 9 ft.	
Test pit to determine location of former MGP structures (former oil storage tank).					
Datum: New York State Plane NAVD 88.					
bgs - below ground surface.					
					

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP525		
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Clear, 84F			ELEVATION	15.02	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688342.98	
OBSERVED BY	Rich Crockett	DATE	9/1/2017, 9/5/2017	LOCATION EASTING	650382.72	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	9/1/2017	
				DATE FINISHED	9/5/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP525 (1-2)	0.0	(0-2) SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick-whole brick, up to boulder size concrete, steel, cobbles and boulders, solidified NAPL, dark gray staining, naphtalene like odor, moist, dark brown-brown, FILL. Top of concrete foundation wall observed at grade. Concrete slab encountered at 1.6' bgs on west side of concrete foundation wall.
		2.6	
		0.0	(2-10') SILTY SAND (SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, moist, light brown-brown. Base of concrete foundation wall observed at 6' bgs.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10			Bottom of Test Pit at ~10.0 feet.
			<p>Photograph 1: Completed test pit looking north.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former treatment tank).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP528		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Cloudy, 38F, SE 5-10 mph.			ELEVATION	16.02	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688157.19	
OBSERVED BY	Rich Crockett	DATE	11/30-12/1/17	LOCATION EASTING	649946.30	
CHECKED BY	George Holmes	DATE	1/30/2018	DATE STARTED	11/30/2017	
				DATE FINISHED	12/1/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP528 (6-7)	0.0	(0-1.5') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", clay pipe fragments, scrap metal and glass, moist, tight, tan to brown. FILL.
		0.0	
		3.5	(1.5-3') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 10", clay pipe fragments, scrap metal, and glass, gray-dark gray staining, slight petroleum-like odor, moist, tight, tan to brown. FILL.
		13.5	
		78.7	(3-6') SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~20% fine to coarse gravel rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 18", clay pipe fragments, scrap metal, splintered wood, and glass, black staining, strong petroleum-like odor, moist, tight, tan to brown. FILL.
		423.9	
		696.8	(6-10') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented red brick and concrete, black staining, strong petroleum-like odor, saturated with NAPL, moist, brown. FILL.
		426.8	
		649.7	
		658.4	
10		588.7	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking south. Photograph 2: Completed test pit looking west.



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NOTES:

Test pit to determine location of former MGP structures (former salt water condensers).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	8 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP529		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF	1
CLIENT	National Grid			PROJECT NO.	125180-3-1302	
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	-	
WEATHER	Clear, 78F / Clear, 66F			LOCATION NORTHING	688062.44	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649732.16	
OBSERVED BY	George Holmes	DATE	9/28-29/2017	DATE STARTED	9/28/2017	
CHECKED BY	Chris Morris	DATE	2/2/2018	DATE FINISHED	9/29/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP529 (7-8)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~70% fine to medium sand, ~20% fine to coarse angular-subrounded gravel up to 4", ~20% non-plastic fines, contains cobbles/boulders, red/white bricks and fragments, concrete chunks, and metal scrap, trace black staining, brown-dark brown, dry, FILL. Concrete foundation wall encountered at grade along eastern boundary of test pit.
		0.5	
		0.0	(2-4) SILTY SAND WITH GRAVEL (SM); ~70% fine to coarse sand, ~20% fine to coarse angular-subrounded gravel up to 4", ~20% non-plastic fines, contains cobbles/boulders, red/white bricks and fragments, concrete chunks, metal scrap, brown-reddish brown, moist, FILL.
		0.0	
		0.0	(4-6) WIDELY GRADED SAND WITH GRAVEL (SW); ~75% fine to coarse sand, ~25% fine to coarse angular to subrounded gravel up to 4", contains cobbles/boulders, red bricks and fragments, concrete chunks, timbers, and metal scrap, some NAPL blebs, sheen, black staining, strong petroleum-like odor, wet, FILL. Base of concrete foundation wall observed at approximately 4' bgs.
10.5			
10	GPEC-TP529 (7-8)	293.7	(6-9) SANDY CLAY (CL); ~80% low to medium-plasticity clay, ~20% fine sand, contains organics, roots, twigs, trace sheen, strong petroleum-like odor, gray to black staining, wet. Groundwater encountered at 9' bgs with a sheen.
		394	
		344	
		188	Bottom of Test Pit at ~9.0 feet.
			<p>Photograph 1: Completed test pit looking east.</p> 
			<p>Photograph 2: Impacted soil/fill and groundwater.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former scrubber).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	7 ft.
WIDTH	5 ft.
DEPTH	9 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP531		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Cloudy, 79F			ELEVATION	19.35	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688077.55	
OBSERVED BY	Rich Crockett	DATE	8/28/2017, 8/29/2017	LOCATION EASTING	649609.77	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	8/28/2017	
				DATE FINISHED	8/29/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP531 (5-6)	0.0	(0-8") SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented-whole brick, up to boulder size concrete, steel, wood, cobbles and boulders, stained, petroleum-like odor, moist, dark brown-brown, FILL. Encountered top of concrete foundation wall 0.5' bgs.
		0.0	
		16.9	
		10.1	
		20.2	
		19.9	
		22.7	
		11.1	
		12.0	Groundwater encountered at 8' bgs.
		10	
		<p>Photograph 1: Completed test pit looking east.</p> 	<p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former spent oil tank).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	8 ft.

TEST PIT LOG				TEST PIT NUMBERS	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP532	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Clear, 25F, W 10-15 mph.			ELEVATION	6.74
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688393.12
OBSERVED BY	Rich Crockett	DATE	1/2/2018	LOCATION EASTING	650491.77
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	1/2/2018
				DATE FINISHED	1/2/2018

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP532 (2-3)	0.0	(0-2) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented to whole red brick, fragmented concrete, scrap metal, splintered wood, timbers, and glass, dark gray-gray staining, dry, tight, tan-brown. FILL.
		0.2	
		0.1	(2-3) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented to whole red brick, fragmented concrete, scrap metal, splintered wood, timbers, glass, clinkers, black staining, slightly pliable to hardened solidified NAPL fragments, dry, tight, tan-brown. FILL.
		0.3	
		0.1	(3-4) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine ~30% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3" cobbles up to 6", contains fragmented to whole red brick, fragmented concrete, scrap metal, splintered wood, timbers, glass, clinkers, oxidation staining, black staining, slightly pliable to hardened solidified NAPL, dry, tight, tan-brown. FILL. Encountered an approximately 1' wide piece of concrete oriented east-west through the center of the test pit from 3'-4' bgs.
		0.2	
		0.1	(4-7) SILTY SAND WITH GRAVEL (SM); ~70% fine to coarse sand, mostly fine ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", contains organic matter, organic-like odor, dark gray-gray. Groundwater encountered at 7' bgs.
10		0.2	Bottom of Test Pit at ~7.0 feet.
			<p>Photograph 1: Completed test pit looking east.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of underground utilities.

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	7 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP533	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	15.9
WEATHER	Clear 79F			LOCATION NORTHING	688314.53
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650270.25
OBSERVED BY	Rich Crockett	DATE	9/15/2017, 9/18/2017	DATE STARTED	9/15/2017
CHECKED BY	George Holmes	DATE	1/31/2018	DATE FINISHED	9/18/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP533 (2-3)	0.0	(0-2') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented and whole brick, up to boulder size concrete pieces, cobbles and boulders, moist, dark brown-brown, FILL. Encountered top of foundation wall 0.5' bgs on eastern edge of test pit.
		1.7	
		68.7	(2-3') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented and whole brick, up to boulder size concrete pieces, cobbles and boulders, stained, gray/dark gray, petroleum-like odor, moist, dark brown-brown, FILL.
		6.6	
10	GPEC-TP533 (8-9)	0.2	(3-4') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, trace light gray staining, petroleum-like odor, moist, brown.
		0.0	
		0.0	(4-7') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, trace light gray staining, petroleum-like odor, moist, brown. Base of foundation wall observed at 4' bgs.
		377.1	(7-10') SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, gray/dark gray staining, petroleum-like odor, moist, brown. Encountered (2) 10" steel pipes running north-south 7' bgs.
		401.6	
		388.7	
		373.2	Bottom of Test Pit at ~10.0 feet. Photograph 1: 10" steel pipes and staining at depth.  Photograph 2: Completed test pit looking east. 

DRAFT

NOTES:

Test pit to determine location of former MGP structures (former pump house).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP538	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, 45F, N 5-7 mph. Cloudy, Rain, 55F, W 10-15 mph.			ELEVATION	16.93
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688409.35
OBSERVED BY	Rich Crockett	DATE	11/14-11/16/2017	LOCATION EASTING	650143.32
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	11/14/2017
				DATE FINISHED	11/16/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP538 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, fragmented concrete, scrap metal, asbestos, ash, fragmented coal, clinkers, slightly pliable solidified NAPL fragments, black staining and slight petroleum-like odor at 0.8' bgs, moist, tight, brown, FILL. Encountered concrete slab at 0.3' bgs.
		10.1	
		395.7	(1-4') SILTY SAND (SM); ~70% fine to coarse sand, ~20% non-plastic fines, ~10% fine to coarse gravel rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, fragmented concrete, scrap metal, ash, fragmented coal, clinkers, solidified NAPL fragments containing sediments, black staining, strong petroleum-like odor, moist, tight, brown, FILL.
		224.6	
		16.2	(4-5') SILTY SAND WITH GRAVEL (SM); ~60% fine to coarse sand, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", gray staining, slight petroleum-like odor, moist, loose, tan to brown. FILL.
10		0.0	(5-10') SILTY SAND WITH GRAVEL (SM); ~60% fine to coarse sand, ~20% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", gray staining, moist, loose, tan to brown. FILL.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking north. 

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NOTES:

Test pit to determine location of former MGP structures (former pressure holder).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP539		
LOCATION	287 Maspeth Ave. Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Cloudy, 38F, W 20-30 mph. Cloudy, Snow, 31F, W 5-10 mph.			ELEVATION	16.24	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688416.17	
OBSERVED BY	Rich Crockett	DATE	12/13-12-15/2017	LOCATION EASTING	650305.69	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	12/13/2017	
				DATE FINISHED	12/15/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP539 (1-2)	0.0	(0-1) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, moist, tight, dark brown-brown. FILL. Encountered concrete foundation wall and slab at grade.
		25.2	
		3.9	(1-2) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, black staining, moderate petroleum-like odor, moist, tight, dark brown-brown. FILL. Base of concrete foundation wall observed at 2' bgs.
		2.2	
		0.3	(2-3) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, moist, tight, dark brown-brown. FILL.
		2.3	
		1.2	(3-7) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 6", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, gray staining, slight petroleum-like odor, moist, tight, dark brown-brown. FILL.
10		2.5	Refusal at 7' bgs due to densely packed demolition debris.
			Bottom of Test Pit at ~7.0 feet.
			<p>Photograph 1: Completed test pit looking south.</p> 
			<p>Photograph 2: Completed test pit looking east.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former boiler fuel storage tank).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	7 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP541	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, 43F, NW 10-20 mph.			ELEVATION	16.26
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688300.06
OBSERVED BY	Rich Crockett	DATE	12/20/2017	LOCATION EASTING	650218.69
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	12/20/2017
				DATE FINISHED	12/20/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP541 (4-5)	0.0	(0-3) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, and glass, moist, tight, dark brown-brown. FILL.
		0.0	(3-4) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, hardened solidified NAPL fragments, moist, tight, tan-light brown. FILL.
		2.2	(4-5) SILTY SAND WITH GRAVEL (SM); ~50% fine to coarse sand, mostly fine ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to angular up to 3", cobbles up to 9", contains fragmented to whole red brick, concrete chunks up to 8", scrap metal, splintered wood, glass, hardened solidified NAPL fragments, gray staining, slight petroleum-like odor, moist, tight, tan-light brown. FILL. Refusal at 5' bgs due to densely packed demolition debris.
		3.7	
		6.8	Bottom of Test Pit at ~5.0 feet.
10			<p>Photograph 1: Completed test pit looking north.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP structures (former tar separator).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	5 ft.

TEST PIT LOG				TEST PIT NUMBER		
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP545		
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211					
CLIENT	National Grid			1	OF	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302	
WEATHER	Clear, 89F			ELEVATION	43.44	
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688412.31	
OBSERVED BY	Rich Crockett	DATE	9/22/2017, 9/25/2017	LOCATION EASTING	649304.77	
CHECKED BY	George Holmes	DATE	1/31/2018	DATE STARTED	9/22/2017	
				DATE FINISHED	9/25/2017	

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP545 (9-10)	0.0	(0-10') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragmented and whole brick, up to boulder size concrete pieces, steel, cobbles and boulders, moist, dark brown-brown, FILL. Concrete slab observed at 8' bgs.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	<p>Bottom of Test Pit at ~10.0 feet.</p> <p>Photograph 1: Completed test pit looking north.</p>  <p>Photograph 2: Completed test pit looking east.</p> 

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<p>NOTES:</p> <p>Test pit to determine the location of former MGP structures (former residuum oil storage tank).</p> <p>Datum: New York State Plane NAVD 88.</p> <p>bgs - below ground surface.</p>		<p>LENGTH _____ 10 ft.</p> <p>WIDTH _____ 5 ft.</p> <p>DEPTH _____ 10 ft.</p>
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP546	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	17.05
WEATHER	Cloudy, 67F, NW 5-10 mph.			LOCATION NORTHING	688576.03
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649655.54
OBSERVED BY	George Holmes	DATE	10/25/2017	DATE STARTED	10/25/2017
CHECKED BY	Chris Morris	DATE	2/2/2018	DATE FINISHED	10/25/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP546 (2.5-3)	0.0	(0-2) SILTY SAND WITH GRAVEL (SM); ~50% fine sand, ~30% non-plastic fines, ~20% fine to coarse gravel, angular to subrounded up to 3", cobbles, contains fragmented to whole red brick, cobble sized chunks of concrete, metal scrap, wood fragments, plastic debris, cloth debris, organics/roots, brown, tight, dry. FILL.
		0.0	
		0.0	(2-2.5') SILTY GRAVEL WITH SAND (GM); ~50% fine to coarse gravel, rounded to subangular up to 3", ~30% non-plastic fines, ~20% fine sand, contains fragmented to whole red brick, cobble sized chunks of concrete, brown to orangey-tan, tight, dry. FILL.
		63.1	
		0.0	(2.5-3') SILTY SAND WITH GRAVEL (SM); ~50% fine sand ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to subangular up to 3", cobbles, contains fragmented to whole red brick, black staining, petroleum-like odor, dry, tight. FILL.
		0.0	
		0.0	(3-4') SILTY SAND WITH GRAVEL (SM); ~50% fine sand ~30% non-plastic fines, ~20% fine to coarse gravel, rounded to subangular up to 3", cobbles, contains fragmented to whole red brick, brown, dry, tight. FILL.
		0.0	
		0.0	(4-9') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% fine to coarse gravel, rounded to subangular up to 3", ~30% fine to coarse sand, cobbles, tan, loose, dry.
		0.0	
10		0.0	(9-10') WIDELY GRADED SAND (SW); ~90% fine to coarse sand, ~10% fine to coarse gravel, subrounded to subangular up to 1.5", tan, dry, loose.
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  

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NOTES: Test pit to determine location of former MGP structures (former liquid petroleum compressor house #2). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH _____ 7 ft. WIDTH _____ 5 ft. DEPTH _____ 10 ft.
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP548	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, Rain, 53F			ELEVATION	16.44
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688620.08
OBSERVED BY	Rich Crockett	DATE	11/8-11/9/2017	LOCATION EASTING	650041.95
CHECKED BY	George Holmes	DATE	2/1/2018	DATE STARTED	11/8/2017
				DATE FINISHED	11/9/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP548 (2-3)	0.0	(0-6') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~60% fine to coarse sand ~30% fine to coarse gravel, rounded to angular up to 3", ~10% non-plastic fines, cobbles up to 12", contains fragmented red brick, concrete, hardened solidified NAPL containing sediments from 0-6' bgs, black staining, naphthalene-like odor, brown, tight, moist, FILL.
		4.2	
		13.1	
		8.5	
		3.7	
10		2.1	
		1.6	(6-10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand ~10% fine to coarse gravel, rounded to angular up to 1", ~10% non-plastic fines, light brown-brown, moist, loose.
		0.0	
		0.0	
		0.0	
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking east.  Photograph 2: Completed test pit looking west. 

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NOTES:

Test pit to determine location of former MGP feature (former tar pond).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	12 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP550	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Clear, 38F, W 10-15 mph.			ELEVATION	18.88
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION NORTHING	688627.27
OBSERVED BY	Rich Crockett	DATE	12/7/2017	LOCATION EASTING	650156.16
CHECKED BY	George Holmes	DATE	2/1/2018	DATE STARTED	12/7/2017
				DATE FINISHED	12/7/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP550 (1-2)	0.0	(0-1.5') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 15", metal scrap, glass, fragments and layers of solidified NAPL slightly pliable to hardened, black staining, slight naphthalene-like odor, moist, tight, dark brown to brown. FILL. Concrete foundation wall encountered at 0.4' bgs.
		9.1	
		2.9	(2-6') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 8", contains fragmented to whole red brick, concrete chunks up to 15", metal scrap, glass, moist, tight, dark brown to brown. FILL. Encounter 4" steel pipe 3' bgs. Base of concrete foundation wall observed at 5' bgs.
		0.0	
		0.0	
10		0.0	(6-10') SILTY SAND (SM); ~70% fine to medium sand, mostly fine ~25% non-plastic fines, ~5% fine to coarse gravel, rounded to angular up to 1", loose, moist, light tan-tan.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking south.  Photograph 2: Completed test pit, pipe and wall base. 

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NOTES:

Test pit to determine location of former MGP structures (former dry tar storage tank).
 Datum: New York State Plane NAVD 88.
 bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP553	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	16.54
WEATHER	Partly Cloudy, 37F, W 10-15 mph.			LOCATION NORTHING	688692.99
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	650008.17
OBSERVED BY	Rich Crockett	DATE	11/20/2017	DATE STARTED	11/20/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	11/20/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP553 (1-2)	0.0	(0-1.5') SILTY SAND (SM); ~60% fine to coarse sand, ~30% non-plastic fines, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 12", 5-8" thick hardened solidified NAPL layer, black staining, slight naphthalene-like odor, moderate petroleum-like odor, moist, tight, brown. FILL
		46.1	(1.5-3') SANDY SILT (MLS); ~60% non-plastic to low plasticity fines, ~30% fine to medium sand, ~10% fine to coarse gravel, rounded to angular up to 3", cobbles up to 7", gray staining, slight petroleum-like odor, moist, tight, tan-light brown.
		1.6	
		0.4	(3-4') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% fine to coarse sand, ~15% non-plastic fines, 15% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", oxidation staining, moist, tight, brown.
		0.0	(4-5') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% fine to coarse sand, ~15% non-plastic fines, 15% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", moist, moderately tight, tan.
		6.1	(5-7') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% fine to coarse sand, ~15% non-plastic fines, 15% fine to coarse gravel, rounded to angular up to 3", cobbles up to 5", gray staining, slight petroleum-like odor, moist, moderately tight, tan.
10		10.2	Groundwater encountered at 7' bgs.
		8.8	Bottom of Test Pit at ~7.0 feet.
			<p>Photograph 1: Completed test pit looking east.</p>  <p>Photograph 2: Completed test pit looking west.</p> 

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NOTES:

Test pit to determine location of former MGP feature (former tar pond).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	7 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP556	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	47.33
WEATHER	Cloudy, 82F			LOCATION NORTHING	688531.93
CONTRACTOR	O'Leary Construction	OPERATOR	John O'Leary	LOCATION EASTING	649323.32
OBSERVED BY	Rich Crockett	DATE	8/22/17, 8/23/17	DATE STARTED	8/22/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	8/23/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP556 (3-4)	0.0	(0-5') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~20% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick, tile and concrete, steel, ash, fragmented coal, clinkers, and oxidation staining, dark gray-gray staining increasing from 1-5' thick south to north, burnt odor, dark brown- brown, moist, FILL. Concrete foundation wall observed at grade on northern edge of test pit.
		0.0	
		0.0	
		0.0	
		0.1	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10	GPEC-TP556 (3-4)	0.0	(5-10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3" moist, contains cobbles and boulders, reddish brown. Concrete slab observed 5' bgs and extends 4' off enclosure wall. Base of concrete foundation wall observed at 6' bgs.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
			Bottom of Test Pit at ~10.0 feet.
			Photograph 1: Completed test pit looking west.
			Photograph 2: Base of foundation wall.
			
			

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NOTES:

Test pit to determine location of former MGP structures (former motor fuel storage tank #1).
 Datum: New York State Plane NAVD 88.
 bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP560	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211				
CLIENT	National Grid			1	1
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			PROJECT NO.	125180-3-1302
WEATHER	Cloudy, Rain, 80F			ELEVATION	49.97
CONTRACTOR	O'Leary Construction	OPERATOR	John O'Leary	LOCATION NORTHING	688716.02
OBSERVED BY	Rich Crockett	DATE	8/18/2017, 8/21/2017	LOCATION EASTING	649286.83
CHECKED BY	George Holmes	DATE	2/1/2018	DATE STARTED	8/18/2017
				DATE FINISHED	8/21/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP560 (4-5)	0.0	(0-5) WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~10% fine to coarse rounded-subangular gravel up to 3", ~10% non-plastic fines, contains fragments of brick and concrete, steel, dark gray and bluish-green staining, dark brown-brown, moist, , FILL. Top of concrete foundation wall at 0.5' bgs on west end of test pit. Encountered 3" diameter steel pipe oriented east-west going into foundation wall 3' bgs, and an 8" diameter steel pipe oriented north-south abutting foundation wall 3' bgs.
		0.1	
		0.2	
		0.1	
		0.1	(4-5) WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~10% fine to coarse rounded-subangular gravel up to 3", ~10% non-plastic fines, contains fragments of brick and concrete, steel, dark gray and bluish-green staining, burnt odor, dark brown- brown, moist, , FILL
		0.0	
		0.0	(5-10) SILTY SAND (SM); ~60% fine to medium sand, mostly fine, ~35% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3" moist, reddish brown. Concrete slab observed 5' bgs.
		0.0	
		0.0	
		0.0	
10		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Blue-green material encountered.  Photograph 2: Foundation wall. 

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NOTES: Test pit to determine location of former MGP structures (former residual distillate storage tank). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH _____ 10 ft. WIDTH _____ 5 ft. DEPTH _____ 10 ft.
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP564	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	50.70
WEATHER	Clear, 86F			LOCATION NORTHING	688840.23
CONTRACTOR	O'Leary Construction	OPERATOR	John O'Leary	LOCATION EASTING	649236.44
OBSERVED BY	Rich Crockett	DATE	8/16/2017	DATE STARTED	8/16/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	8/16/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP564 (5-6)	0.0	(0-3) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick and concrete, cobbles, boulders, grayish brown- brown, moist, FILL. Encountered top of concrete foundation wall 0.5' bgs.
		0.1	
		0.0	
		0.0	(3-5) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick and concrete, cobbles, boulders, fragmented solidified NAPL, naphthalene-like odor, reddish brown-brown, moist, FILL.
		10.7	
		140.9	(5-7) SILTY SAND (SM); ~60% fine to coarse sand, mostly fine, ~30% non-plastic fines, ~10% fine to coarse rounded-subangular gravel up to 3", contains fragments of brick and concrete, cobbles, boulders, fragmented solidified NAPL, gray staining, petroleum-like odor, reddish brown-brown, moist, FILL. Base of foundation wall observed at 5' bgs.
		47.9	
		26.2	(7-10') SILTY SAND (SM); ~70% fine to coarse sand, ~25% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 1", contains cobbles and boulders, light gray staining, petroleum-like odor, reddish brown-brown, moist.
		14.7	
		9.9	
10		6.7	Bottom of Test Pit at ~10.0 feet. Photograph 1: Excavation looking east. Photograph 2: Base of foundation wall.  

DRAFT

NOTES:

Test pit to determine location of former MGP structures (former motor fuel storage tank #2).

Datum: New York State Plane NAVD 88.

bgs - below ground surface.



LENGTH	10 ft.
WIDTH	5 ft.
DEPTH	10 ft.

TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP565	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	47.45
WEATHER	Clear 77F			LOCATION NORTHING	688924.87
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649395.94
OBSERVED BY	Rich Crockett	DATE	9/11/2017	DATE STARTED	9/11/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	9/11/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP565 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~25% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick, tile and glass, up to boulder size concrete, solidified NAPL fragments, spots of staining, dark brown-brown, moist, FILL. Top of concrete foundation wall observed at 0.8' bgs.
		0.0	
		1.2	(1-2') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, cobbles and boulders, moist, brown, FILL.
		0.7	(2-3') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented brick and concrete, cobbles and boulders, clinkers, solidified NAPL fragments, dark gray staining, sulfur-like odor, moist, brown, FILL.
		0.2	
		0.0	(3-10') SILTY SAND (SM); ~60% fine to medium sand, mostly fine, ~35% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles and boulders, moist, reddish brown-brown. Base of foundation wall observed at 6 ft. bgs.
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	Bottom of Test Pit at ~10.0 feet.
			<p>Photograph 1: Completed test pit looking west.</p>  <p>Photograph 2: Completed test pit looking south.</p> 

DRAFT

<p>NOTES:</p> <p>Test pit to determine location of former MGP structures (former crude solvent storage tank).</p> <p>Datum: New York State Plane NAVD 88.</p> <p>bgs - below ground surface.</p>		<p>LENGTH _____ 10 ft.</p> <p>WIDTH _____ 5 ft.</p> <p>DEPTH _____ 10 ft.</p>
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TEST PIT LOG				TEST PIT NUMBER	
PROJECT	Greenpoint Energy Center Phase 3 RI			GPEC-TP566	
LOCATION	287 Maspeth Ave, Brooklyn, NY 11211			1	OF 1
CLIENT	National Grid			PROJECT NO.	125180-3-1302
EQUIPMENT	Vac Truck (Guzzler CL) and Backhoe (CAT 430)			ELEVATION	51.15
WEATHER	Cloudy, 79F			LOCATION NORTHING	688897.05
CONTRACTOR	O'Leary Construction	OPERATOR	Fergal Troy	LOCATION EASTING	649138.96
OBSERVED BY	Rich Crockett	DATE	9/20/2017, 9/21/2017	DATE STARTED	9/20/2017
CHECKED BY	George Holmes	DATE	2/1/2018	DATE FINISHED	9/21/2017

Depth Below Ground Surface (ft)	Sample Depth, No., and Type	PID (ppm)	Soil Description and Remarks
5	GPEC-TP566 (2-3)	0.0	(0-1') SILTY SAND (SM); ~70% fine to coarse sand, mostly fine, ~25% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains fragmented-whole brick, up to boulder size concrete, steel, and cobbles, moist, dark brown-brown, FILL. Encountered top of concrete foundation wall 1.5' bgs.
		0.0	(1-5')
		0.0	WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles, boulders, fragmented solidified NAPL, moist, reddish brown-brown.
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
		0.0	
10		0.0	(5-10') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% fine to coarse sand, mostly fine, ~15% non-plastic fines, ~5% fine to coarse rounded-subangular gravel up to 3", contains cobbles, boulders, moist, reddish brown-brown. Base of foundation wall observed 5 ft. bgs.
		0.0	Bottom of Test Pit at ~10.0 feet. Photograph 1: Completed test pit looking north.  Photograph 2: Completed test pit looking south. 

DRAFT

NOTES: Test pit to determine location of former MGP structures (former motor fuel storage tank #2). Datum: New York State Plane NAVD 88. bgs - below ground surface.		LENGTH _____ 10 ft. WIDTH _____ 5 ft. DEPTH _____ 10 ft.
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Attachment 2

BORING INFORMATION

NORTHING (ft): 688858.4
 GROUND SURFACE EL. (ft): 25.4
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 102.0
 LOGGED BY: M. Potros

EASTING (ft): 649846.2
 DATE START/END: 10/11/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB701

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: NA / NA
 DRILLING METHOD: Mud Rotary with Casing
 WATER LEVEL DEPTHS (ft): 24.1 10/12/2016 8:00 am Allowed groundwater to recharge overnight before measuring.
 CASING I.D./O.D.: 4.5 inch/ 4.75 inch
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		G1	0.7 to 1.5	10/10		Vacuum excavated to 9'. DCP _{SB701-1} @ D=1.6'; DPI=5 DCP _{SB701-2} @ D=4.0'; DPI=2 DCP _{SB701-3} @ D=6.7'; DPI=20 Advance Casing to 8.0'.	0- 3" Asphalt pavement. 3-11" Asphaltic Subbase. FILL (CLASS 7) at ~1 ft / El. 24.4	
	5	S1	8 to 10	24/22	7-7-8-6	DCP _{SB701-4} @ D=8.9'; DPI=15 Advance Casing to 10.0'.	S1: SILT WITH SAND (ML); ~80% nonplastic, slow dilatancy fines, low dry strength; ~20% fine sand; brown, dry. PID = 0.0 ppm.	
	10	S2	10 to 12	24/12	9-11-12-14		S2: SILT WITH SAND (ML); ~65% nonplastic, slow dilatancy fines, low dry strength; ~25% fine sand; ~10% crushed gravel fragments up to 2"; brown, dry. PID = 0.0 ppm.	
	15	S3	15 to 17	24/10	8-12-13-19	Advance Casing to 15.0'.	GLACIAL OUTWASH (CLASS 3B) at ~13 ft / El. 12.4	
	20	S4	20 to 22	24/0	28-26-31-32	Advance Casing to 20.0'.	S3: SILTY SAND (SM); ~80% fine to medium sand; ~20% nonplastic to low plasticity, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm. S4: No Recovery.	

NOTES: 2nd attempt at SB701. Refusal at 2.5 ft at 1st attempt.
 Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng/NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG - GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688858.4
 GROUND SURFACE EL. (ft): 25.4
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649846.2
 DATE START/END: 10/11/2016
 DRILLING COMPANY: New England Boring Contractors

BORING GPEC-SB701

PAGE 2 of 4

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
0	25	S5	25 to 27	24/7	8-8-9-10	Advance Casing to 25.0'	S5: NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% medium to coarse sand, ~25% rounded to subangular gravel up to 1.5" fragments; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 30.0'		
	30	S6	30 to 32	24/4	13-8-12-5		S6: NARROWLY GRADED SAND WITH GRAVEL (SP); ~65% medium to coarse sand, ~30% subrounded to angular gravel up to 1.5" fragments; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 35.0'		
-10	35	S7	35 to 37	24/9	5-7-8-6		S7: NARROWLY GRADED GRAVEL WITH SAND (GP); ~85% 1/8" to 1/4" subangular gravel up to 0.5"; 15% mostly medium sand; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 40.0'		
	40	S8	40 to 42	24/11	7-5-6-6		S8: NARROWLY GRADED SAND WITH GRAVEL (SP); ~75% medium to coarse sand, ~20% subrounded to subangular gravel up to 1.5" fragments; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 45.0'		
-20	45	S9	45 to 47	24/1	8-9-9-11		S9: NARROWLY GRADED SAND WITH GRAVEL (SP); Similar to S8. PID = 0.0 ppm.	
						Advance Casing to 50.0'		
	50	S10	50 to 52	24/10	8-9-10-11		S10: NARROWLY GRADED SAND WITH GRAVEL (SP); ~60% medium to coarse sand, ~35% subrounded to subangular gravel up to 2" fragments; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 55.0'		
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: 2nd attempt at SB701. Refusal at 2.5 ft at 1st attempt.
 Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng'NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



NORTHING (ft): 688858.4
 GROUND SURFACE EL. (ft): 25.4
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649846.2
 DATE START/END: 10/11/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB701
 PAGE 3 of 4

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S11	55 to 57	24/6	18-26-18-17		S11: NARROWLY GRADED SAND (SP); ~95% medium sand; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 60.0'.		
	60	S12	60 to 62	24/8	16-16-15-16		S12: NARROWLY GRADED SAND (SP); Similar to S11. PID = 0.0 ppm.	
						Advance Casing to 65.0'.		
-40	65	S13	65 to 67	24/5	12-13-20-24		S13: NARROWLY GRADED SAND (SP); Similar to S11. PID = 0.0 ppm.	
						Advance Casing to 70.0'.		
	70	S14	70 to 72	24/14	22-24-24-41		S14: NARROWLY GRADED SAND (SP); ~95% fine to medium sand, medium sand @ 0-6" and fine to medium sand @ 6-14"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 75.0'.	MARINE CLAY (CLASS 4A) at ~73.5 ft / El. -48.1	
-50	75	S15	75 to 77	24/19	28-44-52-63	Qv=4.3; Sv=0.9.	S15: LEAN CLAY (CL); low plasticity, no dilatancy fines, high dry strength, mottled black to gray, hard, dry. Gardiners Clay. LL=48, PI=28. PID = 0.0 ppm.	
						Advance Casing to 80.0'.		
	80	S16	80 to 81.9	23/23	25-32-45-100/5	Qv=1.0, 4.0; Sv=0.2.	S16: LEAN CLAY (CL); low plasticity, no dilatancy fines, high dry strength, gray, hard, dry. Gardiners Clay. PID = 0.0 ppm.	
						Advance Casing to 85.0'.		
-60	85	S17	85 to 86.3	16/3	23-40-100/4		S17: LEAN CLAY (CL); low plasticity, no dilatancy fines, high dry strength, mottled black to gray, hard, dry. Gardiners Clay. LL=31, PI=9. PID = 0.0 ppm.	

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG -1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: 2nd attempt at SB701. Refusal at 2.5 ft at 1st attempt.
 Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng/NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 1610397



NORTHING (ft): 688858.4
 GROUND SURFACE EL. (ft): 25.4
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649846.2
 DATE START/END: 10/11/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB701
 PAGE 4 of 4

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
						Advance Casing to 90.0'.		
	90	S18	90 to 90.3	3/0	100/3			S18: LEAN CLAY (CL); Similar to S17. PID = 0.0 ppm.
						Advance Casing to 95.0'.		
-70	95	S19	95 to 96.2	14/14	39-55-100/2	Qv=0.7, 2.5; Sv=0.2.		S19: LEAN CLAY (CL); Similar to S17. PID = 0.0 ppm.
						Advance Casing to 100.0'.		
	100	S20	100 to 102	24/22	31-44-58-77			S20: LEAN CLAY (CL); Similar to S17. PID = 0.0 ppm.
								Bottom of boring at depth 102 ft. Backfilled with grout and cold patched to match existing surface.
	105							
	110							
	115							
	-90							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: 2nd attempt at SB701. Refusal at 2.5 ft at 1st attempt.
 Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng'NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688850.6
 GROUND SURFACE EL. (ft): 25.3
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 62.0
 LOGGED BY: M. Potros

EASTING (ft): 649852.6
 DATE START/END: 10/12/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB702

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: NA / NA
 DRILLING METHOD: Mud Rotary with Casing
 WATER LEVEL DEPTHS (ft): 33.0 10/12/2016 2:10 pm Measured following mud rotary drilling.
 CASING I.D./O.D.: 4.5 inch/ 4.75 inch
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS:
 Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		G1	0.5 to 1.5	12/12		Vacuum excavated to 8'. DCP _{SB702-1} @ D=1.7'; DPI=7 DCP _{SB702-2} @ D=4.5'; DPI=4 DCP _{SB702-3} @ D=5.6'; DPI=26 Advance Casing to 8.0'. Advance HSA to 10.0'. Advance HSA to 15.0'. Advance Casing to 20.0'.	0-3" Asphalt pavement. 3-11" Asphaltic Subbase. FILL (CLASS 7) at ~0.9 ft / El. 24.4 G1: SANDY SILT (ML); ~60% nonplastic, slow dilatancy fines, low dry strength; ~40% fine sand; brown, dry. PID = 0.0 ppm. S1: SILT WITH SAND (ML); ~80% nonplastic, slow dilatancy fines, low dry strength; ~20% fine sand; brown, dry. PID = 0.0 ppm. S2: SANDY SILT (ML); ~65% nonplastic, slow dilatancy fines, low dry strength; ~25% fine sand; ~10% crushed gravel fragments up to 2"; brown, dry. PID = 0.0 ppm. GLACIAL OUTWASH (CLASS 3B) at ~13.5 ft / El. 11.8 S3: NARROWLY GRADED GRAVEL WITH SAND (GP); ~70% subrounded to subangular gravel up to 1.5" fragments; ~25% medium to coarse sand, <5% nonplastic fines; brown, wet. PID = 0.0 ppm. S4: NARROWLY GRADED GRAVEL WITH SAND (GP); 59.9% rounded to subangular gravel up to 1.5"; 37.5% fine to coarse sand; 2.6% nonplastic fines; brown, wet. PID = 0.0 ppm.	

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng/NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG - GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688850.6
 GROUND SURFACE EL. (ft): 25.3
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649852.6
 DATE START/END: 10/12/2016
 DRILLING COMPANY: New England Boring Contractors

**BORING
 GPEC-SB702**

PAGE 2 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
0	25	S5	25 to 27	24/6	7-8-10-11	Advance Casing to 25.0'	S5: NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% medium sand, ~25% rounded to subangular gravel up to 1.5" fragments; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 30.0'		
	30	S6	30 to 32	24/5	9-9-5-4		S6: NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% fine to medium sand, ~25% subrounded to angular gravel up to 1.5" fragments; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 35.0'		
-10	35	S7	35 to 37	24/12	5-8-8-8		S7: NARROWLY GRADED SAND WITH GRAVEL (SP); 74.5% mostly fine to medium sand, 21.8% subrounded to angular gravel up to 1.5"; 3.7% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 40.0'		
	40	S8	40 to 42	24/3	13-14-15-11		S8: NARROWLY GRADED GRAVEL WITH SAND (GP); ~70% subrounded to subangular gravel up to 1.5" fragments; ~25% medium to coarse sand, <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 45.0'		
-20	45	S9	45 to 47	24/14	12-10-12-18		S9: NARROWLY GRADED SAND (SP); ~90% medium sand, ~5% subrounded to subangular gravel up to 1/4"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 50.0'		
	50	S10	50 to 52	24/15	9-13-14-16		S10: NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% medium sand, ~25% subrounded to subangular gravel up to 2"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
						Advance Casing to 55.0'		
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



NORTHING (ft): 688850.6
 GROUND SURFACE EL. (ft): 25.3
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649852.6
 DATE START/END: 10/12/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB702
 PAGE 3 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S11	55 to 57	24/17	12-15-18-21	Advance Casing to 60.0'.	 <p>S11: NARROWLY GRADED SAND WITH GRAVEL (SP); 81.8% mostly medium sand, 16.7% subrounded to angular gravel up to 1.5"; 1.5% nonplastic fines; brown, wet. PID = 0.0 ppm.</p>	
	60	S12	60 to 62	24/11	12-25-27-34			<p>S12: NARROWLY GRADED SAND WITH GRAVEL (SP); Similar to S11. PID = 0.0 ppm.</p>
							<p>Bottom of boring at depth 62 ft. Backfilled with grout and cold patched to match existing surface.</p>	
	65							
	70							
	75							
	80							
	85							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688821.5
 GROUND SURFACE EL. (ft): 24.1
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 32.0
 LOGGED BY: M. Potros

EASTING (ft): 649832.7
 DATE START/END: 10/12/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB704

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: 3.25 inch / 6 inch
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): 23.6 10/16/2016 5:00 pm
 CASING I.D./O.D.: NA/ NA
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS:
 Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		G1	0.5 to 1.5	12/12		Vacuum excavated to 8.0'.	0-3" Clean 3/4" Gravel. FILL (CLASS 7) at ~0.3 ft / El. 23.8	
20	5					DCP _{SB704-1} @ D=3.2'; DPI=16	G1: SANDY SILT (ML); ~60% nonplastic, slow dilatancy fines, low dry strength; ~40% fine sand; brown, dry. PID = 0.0 ppm.	
		S1	8 to 10	24/21	41-10-9-10	Advance HSA to 8.0'.	S1(0-9"): SANDY SILT (ML); ~60% nonplastic, slow dilatancy fines, low dry strength; ~40% fine sand; brown, dry. PID = 0.0 ppm.	
	10	S2	10 to 12	24/21	14-16-16-21	Advance HSA to 10.0'.	S1(9-21"): SANDY SILT (ML); ~70% nonplastic, slow dilatancy fines, low dry strength; ~30% fine sand; brown, dry. PID = 0.0 ppm. GLACIAL OUTWASH (CLASS 3B) at ~10 ft / El. 14.1	
	15	S3	15 to 17	24/11	5-8-8-13	Advance HSA to 15.0'.	S2: NARROWLY GRADED SAND (SP): ~95% fine sand, <5% nonplastic fines, brown dry. PID = 0.0 ppm. S3: NARROWLY GRADED SAND (SP): ~85% medium sand; ~10% rounded to subrounded gravel up to 0.5"; <5% nonplastic fines, brown dry. PID = 0.0 ppm.	
	20	S4	20 to 22	24/5	6-20-16-6	Advance HSA to 20.0'.	S4: NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% medium to coarse sand, ~25% rounded to subangular gravel up to 2" fragments; <5% low plasticity fines; brown, wet. PID = 0.0 ppm.	

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng/NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG - GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688821.5
 GROUND SURFACE EL. (ft): 24.1
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649832.7
 DATE START/END: 10/12/2016
 DRILLING COMPANY: New England Boring Contractors

**BORING
 GPEC-SB704**

PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S5	25 to 27	24/5	3-4-5-8	Advance HSA to 25.0'	S5: NARROWLY GRADED SAND (SP); ~90% medium to coarse sand, ~5% rounded to subrounded gravel up to 0.25"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
	30	S6	30 to 32	24/19	14-20-22-31	Advance HSA to 30.0'		
	35						Bottom of boring at depth 32 ft. Backfilled with grout and cold patched to match existing surface.	
	40							
	45							
	50							
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688684.7
 GROUND SURFACE EL. (ft): 16.5
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 30.0
 LOGGED BY: M. Potros

EASTING (ft): 649809.1
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB705

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: 3.25 inch / 6 inch
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): 19.1 10/13/2016 4:40 pm
 CASING I.D./O.D.: NA/ NA
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
						Vacuum excavated to 8.0'.		FILL (CLASS 7) at ~0 ft / El. 16.5
	5	G1	2 to 4	24/24				G1: SILTY SAND (SM); 80.0% mostly fine to medium sand; 14.0% nonplastic, slow dilatancy fines, low dry strength; 6.0% subrounded gravel up to 3/4"; brown, dry. PID = 0.0 ppm.
	10	G2	5 to 7	24/24		Advance HSA to 8.0'.		G2: SILTY SAND (SM); ~80% mostly fine to medium sand; ~20% nonplastic, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.
	10	S1	8 to 10	24/18	7-8-8-9	Advance HSA to 10.0'.		S1: SILTY SAND (SM); ~80% mostly fine sand; ~20% nonplastic, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.
	10	S2	10 to 12	24/14	8-10-13-11	Advance HSA to 15.0'.		S2: SILTY SAND (SM); ~80% mostly fine sand; ~20% low plasticity, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.
	15	S3	15 to 15.3	4/0	100/4	Advance HSA to 20.0'.		S3: No Recovery.
	20	S4	20 to 22	24/14	10-9-9-9			GLACIAL OUTWASH (CLASS 3B) at ~16 ft / El. 0.5
								S4: NARROWLY GRADED SAND WITH GRAVEL (SP); ~80% medium to coarse sand, ~15% rounded to subangular gravel up to 3/4"; <5% low plasticity fines; brown, wet. PID = 0.0 ppm.

NOTES:

PROJECT NAME: CHI Eng'NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688684.7
 GROUND SURFACE EL. (ft): 16.5
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649809.1
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB705
 PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
-10	25	S5	25 to 27	24/19	29-14-15-19	Advance HSA to 25.0'	S5: NARROWLY GRADED SAND (SP); ~90% mostly medium to coarse sand, ~5% rounded to subrounded gravel up to 0.25"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
-30	30	S6	28 to 30	24/17	13-16-16-17	Advance HSA to 30.0'	S6: NARROWLY GRADED SAND (SP); ~90% mostly medium to coarse sand, ~5% subrounded to subangular gravel up to 1/4"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	
-30	30						Bottom of boring at depth 30 ft. Backfilled with grout.	

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES:

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688704.4
 GROUND SURFACE EL. (ft): 23.8
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 30.0
 LOGGED BY: M. Potros

EASTING (ft): 649683.4
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB706

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: 3.25 inch / 6 inch
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): Not measured
 CASING I.D./O.D.: NA/ NA
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
						Vacuum excavated to 8.0'.	FILL (CLASS 7) at ~0 ft / El. 23.8	
	20	G1	2 to 4	24/24			G1: SILTY SAND (SM); ~70% mostly fine sand; ~30% nonplastic to low plasticity, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.	
	5	G2	5 to 7	24/24		Advance HSA to 8.0'.	G2: NARROWLY GRADED GRAVEL WITH SILT AND SAND (GP-GM); 46.1% subrounded gravel up to 1.5"; 44.9% fine to medium sand; 9.0% low plasticity, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.	
	10	S1	8 to 10	24/7	4-5-7-7	Advance HSA to 10.0'.	S1: SILTY SAND (SM); ~70% mostly fine sand; ~30% low plasticity, slow dilatancy fines, low dry strength; 2.5" angularly fragmented crushed stone at 3"; brown, dry. PID = 0.0 ppm.	
	10	S2	10 to 12	24/16	8-7-7-6		S2: SILTY SAND (SM); ~60% mostly fine sand; ~30% low plasticity, slow dilatancy fines, low dry strength; ~10% subrounded gravel up to 1.5"; brown, dry. PID = 0.0 ppm.	
	10					Advance HSA to 15.0'.	GLACIAL OUTWASH (CLASS 3B) at ~13.5 ft / El. 10.3	
	15	S3	15 to 17	24/12	3-3-4-6		S3: NARROWLY GRADED SAND (SP); ~95% mostly fine to medium sand; <5% nonplastic fines; brown, dry. PID = 0.0 ppm.	
	20					Advance HSA to 20.0'.		
	20	S4	20 to 22	24/15	3-3-4-5		S4: NARROWLY GRADED SAND (SP); ~95% mostly fine to medium sand; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.	

NOTES:

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG - GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688704.4
 GROUND SURFACE EL. (ft): 23.8
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649683.4
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB706
 PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S5	25 to 27	24/6	5-10-11-13	Advance HSA to 25.0'	 <p>S5: NARROWLY GRADED SAND WITH GRAVEL (SP); ~80% mostly fine to medium sand; ~15% subrounded to subangular gravel up to 1/4"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.</p> <p>S6: NARROWLY GRADED SAND WITH GRAVEL (SP); ~80% mostly fine to medium sand; ~15% subrounded to subangular gravel up to 3/4"; <5% nonplastic fines; brown, wet. PID = 0.0 ppm.</p>	
	30	S6	28 to 30	24/24	13-14-17-22	Advance HSA to 30.0'		
	30						Bottom of boring at depth 30 ft. Backfilled with grout.	
	-10							
	35							
	40							
	-20							
	45							
	50							
	-30							
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES:

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688706.5
 GROUND SURFACE EL. (ft): 49.3
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 30.0
 LOGGED BY: M. Potros

EASTING (ft): 649439.2
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB708

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: 3.25 inch / 6 inch
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): Not measured
 CASING I.D./O.D.: NA/ NA
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		G1	0.7 to 2	16/16		Vacuum excavated to 8.0'. DCP _{SB708-1} @ D=0.6'; DPI=12	0- 6.5" Clean 3/4" Gravel. FILL (CLASS 7) at ~0.5 ft / El. 48.8 G1: SILTY SAND (SM); ~70% mostly fine sand; ~30% nonplastic, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.	
	5	G2	4 to 6	24/24		DCP _{SB708-2} @ D=2.0'; DPI=24 DCP _{SB708-3} @ D=4.6'; DPI=43	G2: SILTY SAND (SM); 83.3% mostly fine sand; 15.0% nonplastic, slow dilatancy fines, low dry strength; 1.7% subrounded gravel up to 3/8"; brown, dry. PID = 0.0 ppm.	
	10	S1	8 to 10	24/19	23-24-26-30	Advance HSA to 8.0'. Advance HSA to 10.0'. DCP _{SB708-4} @ D=6.5'; DPI=4	S1: SILTY SAND WITH GRAVEL (SM); ~55% mostly fine sand; ~30% nonplastic, slow dilatancy fines, low dry strength; ~15% angularly fragmented gravel up to 1.5"; brown, dry. PID = 0.0 ppm.	
	15	S3	15 to 17	24/21	57-48-27-25	Advance HSA to 15.0'. Advance HSA to 20.0'	MORaine DEPOSIT (CLASS 3A/3B) at ~13.5 ft / El. 35.8 S3: SILTY SAND WITH GRAVEL (SM); ~55% mostly fine sand; ~25% angularly fragmented and rounded gravel up to 1.5"; ~20% nonplastic, slow dilatancy fines, low dry strength; brown with multicolored gravel; dry. PID = 0.0 ppm.	
	20	S4	20 to 22	24/21	10-10-16-22		GLACIAL OUTWASH (CLASS 3B) at ~18.5 ft / El. 30.8 S4: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~65% mostly fine sand; ~25% angularly fragmented gravel up to 2.5"; ~10% nonplastic, slow dilatancy fines, low dry strength; brown, dry. PID = 0.0 ppm.	

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng/NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG - GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688706.5
 GROUND SURFACE EL. (ft): 49.3
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649439.2
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB708
 PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S5	25 to 27	24/10	10-13-12-12	Advance HSA to 25.0'	 <p>S5: NARROWLY GRADED SAND (SP); ~100% mostly fine sand; brown, dry. PID = 0.0 ppm.</p> <p>S6: NARROWLY GRADED SAND WITH GRAVEL (SP); ~75% mostly fine sand; ~25% subangular crushed gravel up to 1.5"; brown, dry. PID = 0.0 ppm.</p>	
	20	S6	28 to 30	24/7	14-21-23-28	Advance HSA to 30.0'		
	30						Bottom of boring at depth 30 ft. Backfilled with grout.	
	35							
	40							
	45							
	50							
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688768.6
 GROUND SURFACE EL. (ft): 50.2
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101
 TOTAL DEPTH (ft): 30.0
 LOGGED BY: M. Potros

EASTING (ft): 649292.8
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors
 DRILLER NAME: Mike St. John
 RIG TYPE: Mobile B-53 Truck Rig

BORING
GPEC-SB709

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Safety Hammer - spooling winch
 AUGER I.D./O.D.: 3.25 inch / 6 inch
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): Not measured
 CASING I.D./O.D.: NA/ NA
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS:
 Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
50						Vacuum excavated to 8.0'. DCP _{SB709-1} @ D=0.6'; DPI=16	0- 4" Clean 3/4" Gravel. FILL (CLASS 7) at ~0.3 ft / El. 49.9	
	5	G1	3 to 5	24/24		DCP _{SB709-2} @ D=2.0'; DPI=27	G1: SILTY SAND (SM); 80.4% mostly fine sand; 14.2% nonplastic, slow dilatancy fines, low dry strength; 5.4% subrounded gravel up to 3/4"; brown, dry. PID = 0.0 ppm.	
						Advance HSA to 8.0'.		
		S1	8 to 10	24/11	4-6-6-9		S1: SILTY SAND (SM); ~80% mostly fine sand; ~15% nonplastic, slow dilatancy fines, low dry strength; ~5% angularly fragmented gravel up to 1/4"; brown, dry. PID = 0.0 ppm.	
	10	S2	10 to 12	24/15	8-13-15-17		MORAINE DEPOSIT (CLASS 3A/3B) at ~10 ft / El. 40.2 S2: SILTY SAND (SM); 77.9% mostly fine sand; 15.7% nonplastic, slow dilatancy fines, low dry strength; 6.4% angularly fragmented gravel up to 3/4"; brown, dry. PID = 0.0 ppm.	
						Advance HSA to 10.0'.		
	15	S3	15 to 17	24/19	7-9-8-9		GLACIAL OUTWASH (CLASS 3B) at ~13.5 ft / El. 36.7 S3: NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% mostly fine sand; ~10% nonplastic to low plasticity fines; <5% subangular gravel up to 0.5"; brown with red tint; dry. PID = 0.0 ppm.	
						Advance HSA to 15.0'.		
	20	S4	20 to 22	24/22	7-8-8-11		S4: SILTY SAND (SM); ~60% mostly fine sand; ~40% nonplastic to low plasticity fines; reddish-brown; dry. PID = 0.0 ppm.	
						Advance HSA to 20.0'.		

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng'NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG - 1610397 CHI ENG - GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NORTHING (ft): 688768.6
 GROUND SURFACE EL. (ft): 50.2
 VERT./HORIZ. DATUMS: NAVD88/NAD83 NY Zone 3101

EASTING (ft): 649292.8
 DATE START/END: 10/13/2016
 DRILLING COMPANY: New England Boring Contractors

BORING
GPEC-SB709
 PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S5	25 to 27	24/23	19-15-20-19	Advance HSA to 25.0'	S5: SILT WITH SAND (ML); ~85% nonplastic, slow dilatancy, fines; ~15% fine sand; brown; dry. PID = 0.0 ppm. S6: SILT WITH SAND (ML); ~85% nonplastic, slow dilatancy, fines; ~15% fine sand; brown; dry. PID = 0.0 ppm.	
	30	S6	28 to 30	24/15	22-27-25-30	Advance HSA to 30.0'		
	30						Bottom of boring at depth 30 ft. Backfilled with grout.	
	35							
	40							
	45							
	50							
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG 1610397 CHI ENG- GPEC LNG VAPORIZER.GPJ GEI DATA TEMPLATE 2013.GDT 12/19/16

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.

PROJECT NAME: CHI Eng|NG - GPEC LNG Vaporizer

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1610397



BORING INFORMATION

NORTHING (ft): 688440.3
 GROUND SURFACE EL. (ft): 10.6
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83
 TOTAL DEPTH (ft): 61.0
 LOGGED BY: M. Hernandez-Cabal

EASTING (ft): 649805.4
 DATE START/END: 4/21/2017 - 4/24/2017
 DRILLING COMPANY: New England Boring
 DRILLER NAME: T. Roe
 RIG TYPE: Mobile B-53 Truck

BORING
GPEC-SB801

DRILLING INFORMATION

HAMMER TYPE: Automatic
 AUGER I.D./O.D.: NA / NA
 DRILLING METHOD: Rollerbit Drilling with Casing
 WATER LEVEL DEPTHS (ft): 7.6 4/21/2017

CASING I.D./O.D.: 4 inch/ 5 inch
 DRILL ROD O.D.: 2.5 inch

CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
10		G1	0.6 to 8	89		VacEx to 8' PID=0.0 ppm DCP01 @ D=0.6' ; DPI=17 DCP02 @ D=2.4' ; DPI=12 DCP03 @ D=4.6' ; DPI=19	0-7": CONCRETE with welded wire mesh reinforcing. FILL (CLASS 7) at ~0.6 ft / El. 10 G1: SILTY SAND (SM); ~80% mostly medium to coarse sand; ~20% low plasticity fines; brown.	
	10	S1	8 to 10	24/9	2-3-2-6	PID=0.0 ppm	S1: SILTY SAND (SM); ~70% mostly medium to coarse sand; ~20% low plasticity fines; ~10% subangular gravel up to 1"; brown.	
	10	S2	10 to 12	24/17	10-13-16-15	PID=0.0 ppm	S2: SILTY SAND (SM); Similar to S1, except gravel is up to 1.5".	
	15	S3	15 to 17	24/9	3-4-5-7	PID=0.0 ppm	S3: SILTY SAND (SM); Similar to S1; brick fragments observed.	
	20	S4	20 to 22	24/5	4-5-5-6	PID=0.0 ppm	GLACIAL OUTWASH SAND (CLASS 3B) at ~18.5 ft / El. -7.9 S4: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~80% mostly coarse sand; ~10% low plasticity fines; ~10% subangular gravel up to 1"; brown.	
						Gravel on drill return		

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NORTHING (ft): 688440.3
 GROUND SURFACE EL. (ft): 10.6
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 649805.4
 DATE START/END: 4/21/2017 - 4/24/2017
 DRILLING COMPANY: New England Boring

**BORING
 GPEC-SB801**

PAGE 2 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S5	25 to 27	24/0	3-4-5-7		S5: No recovery. 1.25" rock on sampler shoe.	
		S6	27 to 29	24/16	5-6-8-13	Sample advanced through previous interval	S6: NARROWLY GRADED SAND (SP); 90.5% mostly medium to coarse sand, coarser towards top; 4.8% nonplastic fines; 4.7% subangular gravel up to 1"; brown. [GRAIN SIZE TEST PERFORMED]	
-20	30	S7	30 to 32	24/0	7-7-8-10	Gravel and coarse sand on drill return	S7: No recovery. 2" rock in spoon.	
		S8	32 to 34	24/20	7-11-14-10	PID=0.0 ppm	S8: SILTY SAND (SM); ~80% mostly medium to coarse sand; ~20% low plasticity fines; brown.	
	35	S9	35 to 37	24/0	4-4-7-9	Gravel and coarse sand on drill return	S9: No recovery. 1.5" rock in spoon.	
		S10	37 to 39	24/0	9-11-13-17	Sample advanced through previous interval	S10: No recovery.	
-30	40	S11	40 to 42	24/0	3-4-8-10	Gravel and coarse sand on drill return	S11: No recovery.	
		S12	42 to 44	24/0	8-11-15-16	Sample advanced through previous interval	S12: No recovery.	
	45	S13	45 to 47	24/0	5-7-9-14	Gravel and coarse sand on drill return	S13: No recovery. 1" round gravel in spoon.	
		S14	47 to 49	24/14	11-15-13-20	Sample advanced through previous interval	S14: NARROWLY GRADED SAND WITH SILT (SP-SM); ~93.6% mostly medium to coarse sand, finer towards bottom; 6.4% nonplastic fines; brown. [GRAIN SIZE TEST PERFORMED]	
-40	50	S15	50 to 52	24/0	4-5-8-13	Gravel on drill return	S15: No recovery.	
		S16	52 to 54	24/0	8-13-16-21	Sample advanced through previous interval	S16: No recovery.	
	55					Gravel on drill return		

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



NORTHING (ft): 688440.3
 GROUND SURFACE EL. (ft): 10.6
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 649805.4
 DATE START/END: 4/21/2017 - 4/24/2017
 DRILLING COMPANY: New England Boring

BORING
GPEC-SB801
 PAGE 3 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S17	55 to 57	24/4	8-9-11-14	Sample advanced through previous interval Gravel on drill return Sample advanced through previous interval Gravel on drill return PID=0.0 ppm	S17: WIDELY GRADED GRAVEL (GW); 100% subangular gravel up to 2"; gray, brown, white, yellow. Possible soil wash material. S18: No recovery; Soil wash material. S19: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~40% low to medium plasticity, mostly silty fines; brown.	
		S18	57 to 59	24/0	5-10-15-22			
	60	S19	59 to 61	24/9	6-11-17-22			
-50							Bottom of boring at depth 61 ft. Grouted to surface.	
	65							
-60	70							
	75							
-70	80							
	85							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



BORING INFORMATION

NORTHING (ft): 688398.3
 GROUND SURFACE EL. (ft): 10.3
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83
 TOTAL DEPTH (ft): 62.0
 LOGGED BY: M. Hernandez-Cabal

EASTING (ft): 649860.2
 DATE START/END: 4/24/2017 - 4/25/2017
 DRILLING COMPANY: New England Boring
 DRILLER NAME: T. Roe
 RIG TYPE: Mobile B-53 Truck

**BORING
 GPEC-SB802**

PAGE 1 of 3

DRILLING INFORMATION

HAMMER TYPE: Automatic
 AUGER I.D./O.D.: NA / NA
 DRILLING METHOD: Rollerbit Drilling with Casing
 WATER LEVEL DEPTHS (ft): 7.7 4/21/2017
 CASING I.D./O.D.: 4 inch/ 5 inch
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./Rec. (in)	Blows per 6 in. or RQD			
10						VacEx to 8' DCP04 @ D=0.7' ; DPI=7 PID=0.0 ppm DCP05 @ D=2.5' ; DPI=17 DCP06 @ D=4.5' ; DPI=19	0-8": CONCRETE with welded wire mesh reinforcing. FILL (CLASS 7) at ~0.7 ft / El. 9.6 G1: SILTY SAND (SM); ~80% mostly medium to coarse sand; ~20% low plasticity fines; brown.	
	5							
		S1	8 to 10	24/12	2-3-6-7	Gravel and concrete fragments on drill return. Brown drill return throughout test boring. PID=0.0 ppm	S1: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~30% low plasticity fines; ~10% subangular gravel up to 1"; brown.	
	10	S2	10 to 12	24/19	6-7-9-12	PID=0.0 ppm	S2: SILTY SAND (SM); Similar to S1; finer towards top of sample; one 1.5" rock on top of sample.	
						Gravel on drill return		
	15	S3	15 to 17	24/6	15-19-20-21	PID=0.0 ppm	S3: SILTY SAND WITH GRAVEL (SM); ~60% mostly medium to coarse sand; ~25% low plasticity fines; ~15% subangular gravel up to 0.75"; brown; one 1.5" rock on top of sample.	
						Gravel on drill return		
	20	S4	20 to 22	24/9	9-14-17-18	PID=0.0 ppm	S4: SILTY SAND WITH GRAVEL (SM); ~60% mostly medium to coarse sand; ~20% low plasticity fines; ~20% subangular gravel up to 1"; brown; rock fragment at 7".	
						Gravel on drill return	GLACIAL OUTWASH SAND (CLASS 3A) at ~23.5 ft / El. -13.2	

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NORTHING (ft): 688398.3
 GROUND SURFACE EL. (ft): 10.3
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 649860.2
 DATE START/END: 4/24/2017 - 4/25/2017
 DRILLING COMPANY: New England Boring

BORING GPEC-SB802

PAGE 2 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S5	25 to 27	24/9	3-6-10-13			S5: NARROWLY GRADED SAND (SP); 92% mostly medium to fine sand; 4.6% subangular gravel up to 0.5"; 3.4% nonplastic fines; brown. [GRAIN SIZE TEST PERFORMED]
						Gravel on drill return		
-20	30	S6	30 to 32	24/6	5-7-10-14	PID=0.0 ppm		S6: NARROWLY GRADED SAND (SP); Similar to S5, except gravel is up to 1".
						Gravel on drill return		
	35	S7	35 to 37	24/3	4-5-10-14	PID=0.0 ppm		S7: NARROWLY GRADED SAND (SP); Similar to S5.
		S8	37 to 39	24/24	11-12-13-18	PID=0.0 ppm		S8: NARROWLY GRADED SAND (SP); Similar to S5, except gravel is up to 1"; sand is finer towards bottom of sample.
						Gravel on drill return		
-30	40	S9	40 to 42	24/0	6-7-10-13	PID=0.0 ppm		S9: No recovery. 1.75" rock in spoon.
		S10	42 to 44	24/24	11-12-19-21	PID=0.0 ppm		S10: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~40% low plasticity fines; brown; sand is finer towards bottom of sample; Mica noted on 0-12".
						Gravel on drill return. Mica observed on return. PID=0.0 ppm		
	45	S11	45 to 47	24/14	5-10-15-18	PID=0.0 ppm		S11: NARROWLY GRADED SAND (SP); Similar to S5; except sand is finer towards bottom of sample; mica noted.
						Gravel on drill return		
-40	50	S12	50 to 52	24/0	4-8-12-13	PID=0.0 ppm		S12: No recovery.
		S13	52 to 54	24/11	12-14-16-32	PID=0.0 ppm		S13: SILTY SAND (SM); ~80% mostly coarse sand; ~20% low plasticity fines; ~10% subangular gravel up to 1"; brown; mica noted.
						Gravel on drill return		
	55							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



NORTHING (ft): 688398.3
 GROUND SURFACE EL. (ft): 10.3
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 649860.2
 DATE START/END: 4/24/2017 - 4/25/2017
 DRILLING COMPANY: New England Boring

BORING
GPEC-SB802
 PAGE 3 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S14	55 to 57	24/0	4-7-10-12			S14: No recovery.
		S15	57 to 59	24/17	8-9-12-16	Sample advanced through previous interval		S15: WIDELY GRADED SAND WITH SILT (SW-SM); 91.3% mostly medium to fine sand; 8.6% nonplastic fines; 0.1% subrounded gravel up to 1"; brown; mica noted. [GRAIN SIZE TEST PERFORMED]
-50	60	S16	60 to 62	24/12	6-10-13-16	Gravel on drill return PID=0.0 ppm		S16: SILTY SAND (SM); ~70% mostly medium to coarse sand; ~20% low plasticity fines; ~10% subrounded gravel up to 1"; brown; mica noted.
								Bottom of boring at depth 62 ft. Grouted to surface.
	65							
	70							
	75							
	80							
	85							

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



BORING INFORMATION

NORTHING (ft): 688701.9
 GROUND SURFACE EL. (ft): 10.3
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83
 TOTAL DEPTH (ft): 62.0
 LOGGED BY: M. Hernandez-Cabal

EASTING (ft): 650629.9
 DATE START/END: 4/18/2017 - 4/19/2017
 DRILLING COMPANY: New England Boring
 DRILLER NAME: T. Roe
 RIG TYPE: Mobile B-53 Truck

BORING
GPEC-SB803

DRILLING INFORMATION

HAMMER TYPE: Automatic
 AUGER I.D./O.D.: NA / NA
 DRILLING METHOD: Rollerbit Drilling with Casing
 WATER LEVEL DEPTHS (ft): ∇ 5.2 4/18/2017

CASING I.D./O.D.: 4 inch/ 5 inch
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer
 S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger
 Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter
 NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
10						VacEx to 6'	0-14" CONCRETE with welded wire mesh reinforcing.	
		FILL (CLASS 7) at ~1.2 ft / El. 9.1						
		G1	1.2 to 2.5	16		DCP07 @ D=1.3'; DPI=11	G1: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~30% low plasticity fines; ~10% subangular gravel up to 1"; dark brown; brick fragments observed.	
		G2	2.5 to 4	18		DCP08 @ D=2.5'; DPI=9	G2: SILTY SAND (SM); Similar to G1.	
	5	G3	4 to 6	24		DCP09 @ D=4.1'; DPI=4	G3: SILTY SAND (SM); Similar to G1.	
		S1	6 to 8	24/16	10-12-9-11	PID=0.0 ppm	S1: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~30% low to medium plasticity fines; ~10% subrounded gravel up to 1"; brown and some black material; debris noted.	
						Rocks in casing		
	10	S2	10 to 12	24/0	2-1-2-1	Gravel and concrete fragments on drill return. Gray drill return throughout the test boring.	S2: No recovery.	
						Gravel on drill return		
	15	S3	15 to 17	24/0	4-1-0-1		S3: No recovery. One 2" gravel in spoon.	
		S4	17 to 19	24/3	2-1-1-0	PID=0.0 ppm	S4: SILTY SAND (SM); ~80% mostly coarse sand; ~20% low plasticity fines; brown.	
						Gravel on drill return		
	20	S5	20 to 22	24/0	4-2-1-2		S5: No recovery. Subangular gravel pieces up to 0.75" in spoon.	
		S6	22 to 24	24/12	2-2-2-2	PID=0.0 ppm	S6: SILTY SAND (SM); 71.9% mostly medium to fine sand; 21.7% nonplastic fines; 6.4% subangular gravel up to 0.5"; brown. [GRAIN SIZE TEST PERFORMED]	

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NORTHING (ft): 688701.9
 GROUND SURFACE EL. (ft): 10.3
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 650629.9
 DATE START/END: 4/18/2017 - 4/19/2017
 DRILLING COMPANY: New England Boring

BORING GPEC-SB803

PAGE 2 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S7	25 to 27	24/11	5-1-1-3	Gravel on drill return PID=0.0 ppm	S7: SILTY SAND (SM); ~70% mostly medium to coarse sand; ~20% low plasticity fines; ~10% subrounded gravel up to 1"; brown; 2" dark brown silty material from 0 to 2".	
						Gravel and brick fragments on drill return PID=0.0 ppm		
-20	30	S8	30 to 32	24/14	5-2-1-2	PID=0.0 ppm	S8(0-7"): SILTY SAND (SM); Similar to S6; dark gray. GLACIAL OUTWASH CLAY (CLASS 4B) at ~30.6 ft / El. -20.3 S8(7-14"): FAT CLAY (CH); ~90% medium to high plasticity clayey fines, LL=50, PI=26; ~10% fine sand; one 1.5" gravel; black; 4.2% organic content.	
						Gravel on drill return PID=0.0 ppm		
	35	S9	35 to 37	24/4	6-6-5-6	PID=0.0 ppm	S9: LEAN CLAY (CL); ~90% medium plasticity clayey fines; ~10% subangular gravel up to 0.5"; gray.	
						Gravel on drill return PID=0.0 ppm		
		S10	38 to 40	24/15	5-5-7-9	Gravel on drill return PID=0.0 ppm	S10: LEAN CLAY (CL); 96.8% medium plasticity clayey fines; 3.2% mostly fine sand; gray. [GRAIN SIZE TEST PERFORMED]	
-30	40	S11	40 to 42	24/4	3-4-3-5	PID=0.0 ppm		
						Gravel on drill return. Mica observed on return. PID=0.0 ppm	S11: LEAN CLAY WITH SAND (CL); 92.5% medium plasticity clayey fines, LL=38, PI=17; 7.5% mostly fine sand; one 1.5" gravel; gray. [GRAIN SIZE TEST PERFORMED]	
	45	S12	45 to 47	24/9	2-1-7-8	PID=0.0 ppm		
						Gravel on drill return PID=0.0 ppm	S12(0-5"): LEAN CLAY (CL); ~90% low to medium plasticity fines, LL=44, PI=22; ~10% fine sand; gray. GLACIAL OUTWASH SAND (CLASS 3B) at ~46.1 ft / El. -35.8 S12(5-9"): SILTY SAND (SM); ~70% mostly medium to coarse sand; ~30% low plasticity fines; gray.	
-40	50	S13	50 to 52	24/5	6-5-4-4	PID=0.0 ppm		
						Gravel on drill return PID=0.0 ppm	S13: WIDELY GRADED SAND WITH GRAVEL (SW); ~80% mostly medium to coarse sand; ~20% subangular gravel up to 1.25"; gray. Possible soil wash material.	
	55					PID=0.0 ppm		

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



NORTHING (ft): 688701.9
 GROUND SURFACE EL. (ft): 10.3
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 650629.9
 DATE START/END: 4/18/2017 - 4/19/2017
 DRILLING COMPANY: New England Boring

**BORING
 GPEC-SB803**

PAGE 3 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S14	55 to 57	24/9	4-5-5-5	Gravel on drill return PID=0.0 ppm	 <p>S14: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% mostly fine to medium sand; ~15% subangular gravel up to 0.5"; ~10% low plasticity fines; gray with multicolored particles; mica noted.</p> <p>S15: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~30% low plasticity fines; ~10% subangular gravel up to 1/2"; gray.</p> <p>S16: SILTY SAND (SM); ~80% mostly coarse sand; ~15% low plasticity fines; ~5% subrounded gravel up to 1.5"; gray.</p>	
		S15	58 to 60	24/5	6-4-6-6			
-50	60	S16	60 to 62	24/21	7-6-7-7			
							Bottom of boring at depth 62 ft. Grouted to surface.	

GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

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PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



BORING INFORMATION

NORTHING (ft): 688774.0
 GROUND SURFACE EL. (ft): 9.4
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83
 TOTAL DEPTH (ft): 60.0
 LOGGED BY: M. Hernandez-Cabal

EASTING (ft): 650664.9
 DATE START/END: 4/19/2017 - 4/21/2017
 DRILLING COMPANY: New England Boring
 DRILLER NAME: T. Roe
 RIG TYPE: Mobile B-53 Truck

**BORING
GPEC-SB804**

DRILLING INFORMATION

HAMMER TYPE: Automatic
 AUGER I.D./O.D.: NA / NA
 DRILLING METHOD: Rollerbit Drilling with Casing
 WATER LEVEL DEPTHS (ft): ∇ 5.7 4/19/2017

CASING I.D./O.D.: 4 inch/ 5 inch
 DRILL ROD O.D.: 2.5 inch
 CORE BARREL TYPE: NA
 CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS: Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		G1	0.8 to 8	86		VacEx to 8' DCP10 @ D=0.8' ; DPI=6 DCP11 @ D=2.5' ; DPI=5 DCP12 @ D=4' ; DPI=6	0-11": CONCRETE with welded wire mesh reinforcing. FILL (CLASS 7) at ~0.8 ft / El. 8.6 G1: SILTY SAND WITH GRAVEL (SM); ~60% mostly fine to medium sand; ~25% low plasticity fines; ~15% subangular gravel up to 1"; dark gray; brick fragments observed.	
		S1	8 to 10	24/6	18-27-19-10	HSA to bypass wood Sample advanced through previous interval	S1: Wood.	
		S2	10 to 12	24/17	15-11-7-5		S2: Wood.	
		S3	15 to 17	24/12	1 1/12" - 2/12"	Gravel on drill return. Gray drill return throughout the test boring. PID=0.0 ppm	S3: SILTY SAND (SM); ~70% mostly medium to coarse sand; ~30% low plasticity fines; gray; finer towards bottom.	
		S4	20 to 22	24/0	6-5-2-2	Gravel on drill return	S4: No recovery.	
		S5	22 to 24	24/13	5-6-4-5	PID=0.0 ppm	S5: SILTY SAND (SM); ~60% mostly medium to coarse sand; ~30% low plasticity fines; ~10% subrounded gravel up to 1"; brick fragments observed; gray; slight organic odor.	

NOTES: Dynamic Cone Penetrometer (DCP) Test.
 DCP_{Index} (DPI) provided above in mm/blow over test interval.
 Background PID = 0.0 ppm.
 Casing advanced to sampling depth and cleaned out using rollerbit drill before sampling.

PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ_GEI DATA TEMPLATE 2013.GDT 6/28/17

NORTHING (ft): 688774.0
 GROUND SURFACE EL. (ft): 9.4
 VERT./HORIZ. DATUMS: NAVD 88/NAD 83

EASTING (ft): 650664.9
 DATE START/END: 4/19/2017 - 4/21/2017
 DRILLING COMPANY: New England Boring

BORING GPEC-SB804

PAGE 2 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
	25	S6	25 to 27	24/8	8-7-5-2	Gravel and brick fragments on drill return PID=0.0 ppm		S6: SILTY SAND (SM); ~70% mostly medium to coarse sand; ~30% low plasticity fines; gray; one 1.5" subrounded gravel on top of sample.
	30	S7	30 to 32	24/0	14-15-12-11	Gravel, brick fragments, wood, glass on drill return. Organic odor		S7: No recovery.
		S8	32 to 34	24/19	9-11-11-5	PID=0.0 ppm Sample advanced through previous interval		S8: SILTY SAND WITH GRAVEL (SM); ~60% mostly medium to coarse sand; ~20% low plasticity fines; ~20% subrounded gravel up to 1"; brick fragments observed; gray; 1" rock fragment at 14"; 1.7% organic content.
	35	S9	35 to 37	24/0	WOH/24"	Gravel and brick fragments on drill return. Organic odor.		MARSH DEPOSITS (CLASS 6) at ~34.5 ft / El. -25.1 S9: No recovery. Spoon covered in black material with organic odor.
		S10	37 to 39	24/24	WOH/18" 4	PID=0.0 ppm PID=0.0 ppm Sample advanced through previous interval		S10(0-16"): ORGANIC SOIL (OL/OH); soft organic material; low plasticity; black; wood observed; 7.2% organic content.
	40	U1	39 to 39.8	9/9	P-U-S-H	Thin-walled tube sample at 39'. Qp=0.5 tsf, 1 tsf; Sv= 0.25 tsf		GLACIAL OUTWASH CLAY (CLASS 4C) at ~38.3 ft / El. -28.9 S10 (16-24"): FAT CLAY (CH); ~90% medium to high plasticity, high dry strength clayey fines, LL=54, PI=31; ~10% fine sand; gray; varved.
		S11	40 to 42	24/24	1-3-4-6	PID=0.0 ppm PID=0.0 ppm PID=0.0 ppm		U1: SANDY LEAN CLAY (CL); ~80% medium to high plasticity clayey fines, LL=41, PI=19; ~20% fine to medium sand; no dilatancy; gray; varved; C _c =0.147, C _r =0.021 S11: LEAN CLAY WITH SAND (CL); 88.3% medium plasticity clayey fines, LL=30, PI=11; 10.9% mostly fine sand; 0.8% subangular gravel up to 1/4"; varved; gray with some black on top of sample. [GRAIN SIZE TEST PERFORMED]
	45	S12	45 to 47	24/13	8-17-25-26	Gravel and brick fragments on drill return. Mica observed on return. PID=0.0 ppm		GLACIAL OUTWASH SAND (CLASS 3A) at ~43.5 ft / El. -34.1 S12: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); 74.5% mostly medium to fine sand; 17.6% subangular gravel up to 1"; 7.9% nonplastic fines; gray; slight organic odor. [GRAIN SIZE TEST PERFORMED]
						Gravel on drill return		GLACIAL OUTWASH CLAY (CLASS 4C) at ~48.5 ft / El. -39.1
	50	S13	50 to 52	24/24	3-1-2-7	PID=0.0 ppm PID=0.0 ppm PID=0.0 ppm		S13: SANDY LEAN CLAY (CL); ~50% medium to high plasticity clayey fines, LL=40, PI=18; ~20% medium to coarse sand; ~20% low plasticity fines; ~10% subangular gravel up to 0.25"; slow dilatancy; gray; varved.
						Gravel on drill return		
	55					PID=0.0 ppm		

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PROJECT NAME: NG-GPEC LNG Tanks Ice Shields

CITY/STATE: Brooklyn, New York

GEI PROJECT NUMBER: 1701736



GEI WOBURN STD 6-NORTH-EAST-GRAPHIC LOG LNG TANKS ICE SHIELDS BORING LOGS SB801 TO SB804.GPJ GEI DATA TEMPLATE 2013.GDT 6/28/17

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 DRILLING COMPANY: New England Boring

BORING
GPEC-SB804
 PAGE 3 of 3

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S14	55 to 57	24/8	5-5-3-4			S14(0-4"): SILTY SAND (SM); ~70% mostly medium to coarse sand; ~30% low plasticity fines; gray. S14(4-8"): SANDY LEAN CLAY (CL); ~80% medium to high plasticity clayey fines; ~20% fine sand; no dilatancy; varved; gray.
		S15	58 to 60	24/24	1-2-3-4	Gravel on drill return PID=0.0 ppm PID=0.0 ppm		S15: FAT CLAY (CH); 97.7% medium to high plasticity clayey fines, LL=50, PI=27; 2.3% mostly fine sand; varved; gray. [GRAIN SIZE TEST PERFORMED]
	60							Bottom of boring at depth 60 ft. Grouted to surface.
	65							
	70							
	75							
	80							
	85							

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