APPENDIX L ARCHAEOLOGICAL MONITORING REPORT (DRAFT)

ARCHAEOLOGICAL MONITORING REPORT

30% FIELD ACTIVITIES, RESTORATION OF FIRST STREET TURNING BASIN GOWANUS CANAL

BOROUGH OF BROOKLYN, NEW YORK

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Prepared for



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Submitted by:



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List of Acronyms

bgs below ground surface

CAG Community Advisory Group

CEQR City Environmental Quality Review

CERCLA Comprehensive Environmental Response, Compensation, and

Liability Act of 1980, as amended, 42 U.S.C §§ 9601-9675

CFR Code of Federal Regulations

CSO combined sewer overflow

EPA U.S. Environmental Protection Agency

FROGG Friends & Residents of Greater Gowanus

LPC New York City Landmarks Preservation Commission

MLLW mean lower low water

MRCE Mueser Rutledge Consulting Engineers

NAVD88 North American Vertical Datum of 1988

NPL National Priorities List
NPS National Park Service

NR National Register of Historic Places

NYAC New York Archaeological Council

NYC New York City

NYCDDC New York City Department of Design and Construction

RA remedial action

RAO remedial action objectives

RD remedial design

ROD Record of Decision

SHPO State Historic Preservation Office

SOW Statement of Work

USACE U.S. Army Corps of Engineers

1. Introduction

1.1 Project Overview

This Archaeological Monitoring Report ("the Monitoring Report") describes the archaeological field and analytical tasks completed during ground surface disturbing activities associated with the 30% Field Activities performed for developing a remedial design for the excavation and restoration of the former First Street Turning Basin located in Brooklyn, New York ("former basin" or "Site"). A location map of the former basin is provided as Figure 1.

The selected remedy was described in the Record of Decision (ROD) issued by the United States Environmental Protection Agency (EPA) on September 27, 2013 under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) for the Gowanus Canal Superfund Site (EPA 2013). This Monitoring Report was prepared in accordance with the Administrative Order for Remedial Design ("the Order") issued to New York City (NYC) by the EPA on May 28, 2014, which included a Statement of Work (SOW) further defining the selected remedy and remedial action (RA) (EPA 2014).

NYC procured a contractor (AKRF-KSE Joint Venture) for the remedial design for the excavation and restoration of the filled-in former First Street Turning Basin. The objective of the remedial design (RD) is to collect data, design various components for the selected remedy, and prepare drawings, specifications, and project plans for implementation of the remedial action (RA) achieving the criteria identified in the ROD, Order, and associated SOW for implementation of the selected remedy.

1.2 Monitoring Report Organization

This Monitoring Report was prepared in accordance with relevant EPA guidance (EPA 2003) and to satisfy the requirements set forth in the ROD (EPA 2013) and Order SOW (EPA 2014). This report has been organized into sections as described below.

- **Section 1–Introduction**: Provides an overview of this Monitoring Report, the regulatory framework, and a description of the selected remedy.
- **Section 2–Methods**: Provides a description of the monitoring methods followed during the 30% Field Activities.
- Section 3–Site Description and History: Provides background information on the Gowanus Canal (canal), its historic development, previous cultural resource investigations, and a description of the types of archaeological and historic resources that could be affected by the 30% Field Activities and implementation of the RA.
- Section 4–Results of Survey: Provides a description of the results of monitoring the excavated test pits, a review of the bulkhead inspection report, and a review of the geotechnical and environmental soil boring logs.



- Section 5–Conclusions and Recommendations: This final section provides conclusions of the monitoring effort and recommendations for future monitoring and consultation that will be incorporated into the archaeological monitoring procedures followed during the RA.
- Section 6–References: Provides a list of references used in preparation of this Monitoring Report.

1.3 Regulatory Framework

EPA is the lead regulatory agency for the First Street Turning Basin and the Gowanus Canal Superfund Site. This federal agency will review and approve plans, drawings, reports, and schedules submitted for the 30% Field Activities, RD, and RA as documented in the Order and SOW (EPA 2014). This Monitoring Report has been prepared for the review of the New York State Historic Preservation Office (SHPO), the New York City Landmarks Preservation Commission (LPC), and the Archaeology Committee of the Community Advisory Group (CAG)¹.

1.4 Remedial Action Objectives

Performance standards include the cleanup standards, Remedial Action Objectives (RAOs), and other measures of achievement of the goals of the remedy selected in the ROD (EPA 2013). The RD will be developed pursuant to the SOW such that the RA will achieve compliance with the Performance Standards (EPA 2014). The RD Work Plan does not address reduction of combined sewer overflow (CSO) solids to the canal, remediation of contaminated sediments in the canal itself, nor the remediation of upland sources of contamination from the three former Manufactured Gas Plant (MGP) sites and other sites adjacent to the canal (referred to as the upland sites).

As stated in the ROD, the selected remedy for the former basin is "excavation and restoration of approximately 475 linear feet of the filled-in former First Street Turning Basin" (EPA 2013).

The selected remedy substantially consists of the following elements:

- Removal of soil and buried sediment to a presumptive depth of approximately 26 feet below ground surface (bgs) at approximately -18 feet (North American Vertical Datum of 1988 [NAVD88]).
- Installation of a cap on the exposed surface at the excavation bottom.
- Restoration/installation of three sides of the perimeter of the restored basin (north, south, and east) with a bulkhead and/or wetland vegetation.
- Restoration of the fourth side of the perimeter (west) such that the former basin is again open to the canal.

¹ The SHPO, LPC, and Archaeology Committee will also be consulted as necessary during the course of completing the RA.

2. Methods

The monitoring methods followed were previously described in a Monitoring Plan dated May 2017 prepared in coordination with EPA and approved by NYC Department of Design and Construction (DDC) in July 2017. All archaeological work followed the rules and regulations established by Section 106 of the National Historic Preservation Act, 36 CFR 800—Protection of Historic Properties, and was undertaken in keeping with the current guidelines of SHPO, LPC, and the New York Archaeological Council (NYAC). The State and National Register of Historic Places (S/NR)-eligible Gowanus Canal Bulkhead and potential sunken ships were the primary focus of this Monitoring Plan. Since the entirety of the former basin is sensitive for the presence of these two resource types, a field archaeologist was present to monitor all excavation activities. This section describes the types of ground surface disturbing activities that occurred during the 30% Field Activities and details the field methods followed during the course of the monitoring effort.

2.1 Objectives and Research Goals of Monitoring

The objectives of this monitoring program were to (1) ascertain the presence or absence of archaeological resources in the ground surface disturbed areas; (2) to determine the integrity of encountered archaeological resources; (3) to assess the likelihood of the RA to affect additional archaeological resources; and (4) provide guidance regarding archaeological monitoring activities to be completed during the RA. The specific goals of the field investigation are to document encountered resources; identify functional characteristics, construction technology, and materials used; and to document and/or sample artifacts in the fill present in the former basin or contained within the timber cribwork associated with the bulkhead to attempt to establish the composition and possibly the origin of the fill.

2.2 Ground Surface Disturbing Activities

Ground surface disturbing activities consisted of the advancement of soil borings, installation of groundwater monitoring wells (or piezometers), and the excavation of test pits. As part of these activities, a non-invasive geophysical survey (e.g., ground penetrating radar) was conducted to attempt to locate any underground utilities or sub-surface obstructions/structures that may interfere with soil borings advancement and/or test pit excavation in a safe manner.²

Soil borings were performed to assess the nature and quality of the fill/soil material and support the RD, as well as to confirm the presence or absence of coal tar-related MGP contamination.

A total of six test pits were excavated by a track-mounted excavator. The test pits ranged in length from 10 to over 30 feet and were all excavated to at least 8 feet bgs.

² Due to the presence of large quantities of metallic refuse in the fill the geophysical survey was unsuccessful.

2.3 Archaeological Monitoring

A field archaeologist was on-site to monitor the excavation activities. The field archaeologist was positioned in close proximity to the excavations, within the limits of acceptable worker safety (29 CFR 1926, Subpart P–Excavations) and ensured that the excavator operator was aware of the types of resources that may be encountered during excavation. During monitoring, the field archaeologist periodically requested that excavation pause to allow the archaeologist to enter the test pit to inspect and document the test pit, when possible. When it was not possible to enter the test pit due to its depth or other reason, all observations were made from the ground surface adjacent to the excavation. The archaeologist collected artifacts from the excavated soil and took photographs as necessary.

Each test pit was documented using standard nomenclature and its location was established using measuring tapes and an on-site datum. Artifacts were noted but were not systematically collected do to their lack of archeological significance, recent origin, and the disturbed context of the soils within which they were observed.

2.4 Artifact Processing

The artifacts observed during excavation of the test pits were encountered within mixed soil layers of unknown origin that were used to incrementally and informally fill in the basin during the 1960s and 1970s. These materials consisted almost exclusively of modern refuse such as plastic packaging material, demolition debris, and automotive parts such as car tires. Due to the total lack of archaeological research value and context, artifacts were not systematically collected and analysis was unnecessary.

3. Site Description and History

3.1 Site Description

The Gowanus Canal is a brackish, tidal arm of the New York-New Jersey Harbor Estuary, extending approximately 1.8 miles through Brooklyn, New York (Figure 1). The approximately 100-foot-wide channel runs southwest from Butler Street to Gowanus Bay and Upper New York Bay. Based on historical aerial photographs, the former First Street Turning Basin was approximately 475 to 560 feet long by 50 to 60 feet wide, and part of the Gowanus Canal surface waterway system until between 1954 and 1966, when it was filled in by unknown party(s). The approximate boundaries of the former basin project area are illustrated on Figure 2.

3.2 Site History

According to the ROD, the former basin was originally utilized, among other purposes, to deliver coal via barges to an adjacent electric generating station ("the Powerhouse") originally built to provide power to the former Brooklyn Rapid Transit Authority subway system, which was later incorporated into the NYC's Transit system in 1940. The Powerhouse began operation in 1904. During operations, it consumed large quantities of coal, fed from coal piles which surrounded the building and were located adjacent to the canal. Based on a review of aerial photographs, the former basin was filled during the 1950s and 1960s, after the Powerhouse became obsolete and was removed from service, although additional filling may have occurred during more recent decades. The Powerhouse itself was dismantled over the years, and by 1969, the currently extant section of the Powerhouse was the only part of the complex still standing. In 2012, the Powerhouse was purchased for potential re-development as non-profit artist studios and display space.

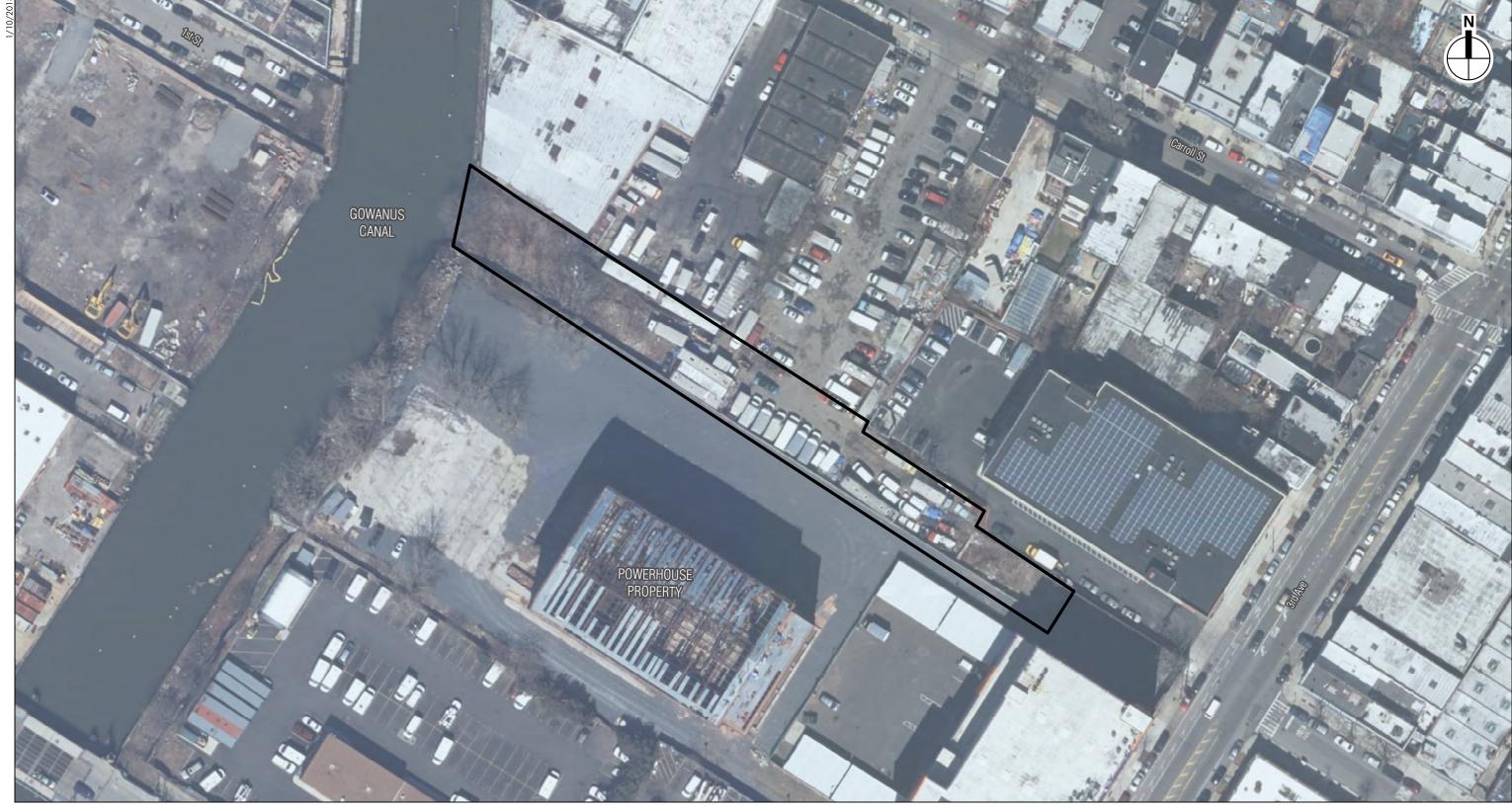
3.3 Previous Cultural Resource Investigations

The archaeological sensitivity of the canal and its immediate vicinity has been the subject of the following comprehensive surveys:

- National Register of Historic Places Eligibility Evaluation and Cultural Resources Assessment for the Gowanus Canal³, prepared for the United States Army Corps of Engineers (USACE) by Hunter Research, Inc., Raber Associates, and Northern Ecological Associates, Inc. (Hunter et al. 2004);
- Archaeological Sensitivity Study, Gowanus Canal⁴, prepared for the United States Environmental Protection Agency (USEPA) by Hunter Research, Inc. (Hunter et al. 2011); and

³ Conducted as part of an ecosystem restoration study of the Gowanus Canal.

⁴ Conducted as part of EPA's process of assessing the feasibility and alternatives for remediating environmental contamination associated with the Gowanus Canal.



Legend 180 FEET

Approximate Site Boundary

• Gowanus Canal Area Historic Resources Inventory and Limited Phase 1A Documentary & Archaeological Sensitivity Report⁵, prepared for Friends & Residents of Greater Gowanus (FROGG) by Gregory Dietrich Preservation Consulting and Chrysalis Archaeological Consultants, Inc. (Chrysalis) (Loorya and Dietrich 2012).

In addition to the above studies, several smaller project sites in the vicinity of canal have been the subject of various levels of archaeological survey and the Archaeology Committee of the CAG has compiled information concerning the likely pre-canal activities/uses associated with areas in close proximity to the former basin.

The Sensitivity Study specifically identifies two classes of "sites of potential archaeological interest": sites with a "very low to low" likelihood of being intact and sites with a "greater certainty" of being intact (Hunter Research, Inc. 2011). The *Sites of Low Archaeological Potential* identified in the report located in the general vicinity of the basin consist of the following:

- *Prehistoric Archaeological Potential*—An area of prehistoric archaeological sensitivity was identified in the vicinity of the canal between Douglass Street and 3rd Street.
- *Tide Mill Complex Sensitivity*—This complex was located on the east side of the canal between Sackett Street and 3rd Street.
- Revolutionary War Burial Sensitivity—Two potential sites of Revolutionary War burials have been identified, one on the east side of the canal between 1st and 3rd Streets and the second in the vicinity of 7th Street and 8th Street on Third Avenue, approximately 500 feet east of the canal.

The Sites of High Archaeological Potential identified in the report consist of:

- Canal Bulkhead Sensitivity—The canal's bulkheads and associated cribbing and fill extend the entire length of the approximately 2-mile canal, including the former basin.
- *Sunken Ship Sensitivity*—At least four sunken ships have been identified within the canal and there is a potential that several additional ship hulls have survived within the former basin fill.

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⁵ Conducted to support the establishment of the Gowanus Canal National Register Historic District.

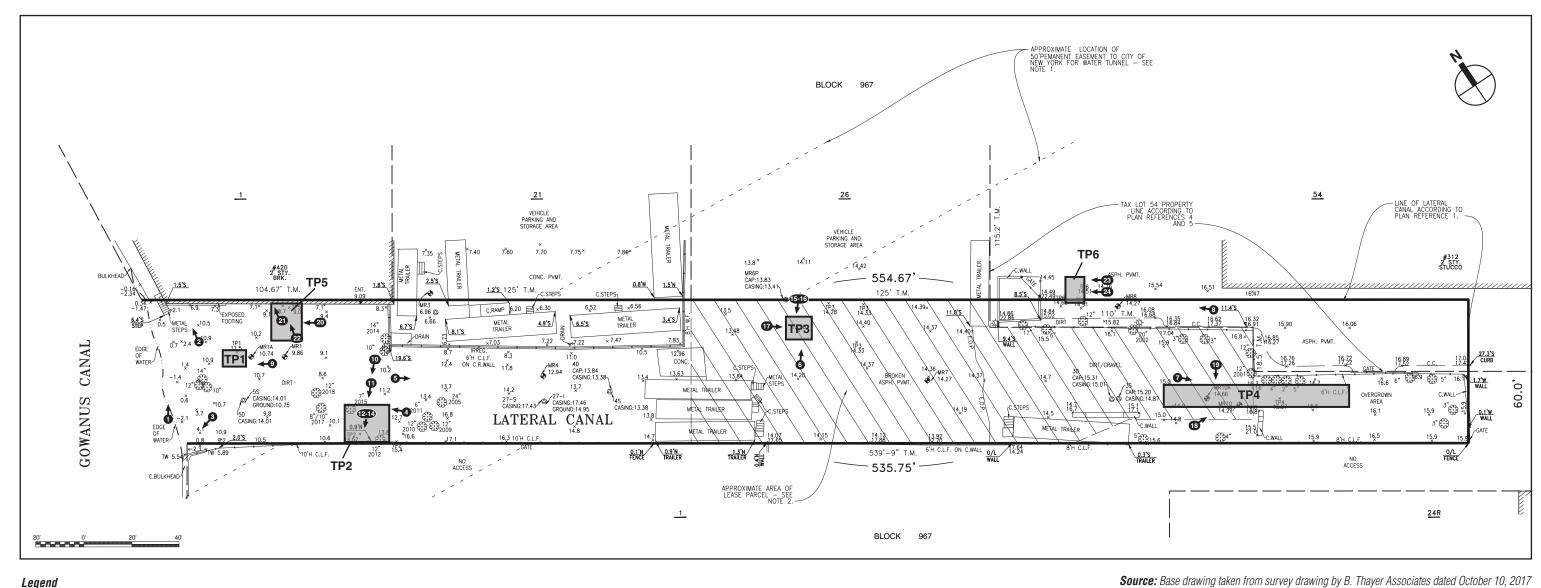
4. Results of Survey

The project area consists of a partially paved and partially undeveloped, roughly 475-feet long (east-west) and 60-feet wide (north-south) strip of land extending from the canal on the west, along an undeveloped area behind a modern brick building, through an active parking lot in the center of the former basin, to another undeveloped area and another paved area to the east (Figure 3). Photographs 1, 2, and 3 depict the western end of the former basin at the point where it adjoins the open water of the canal. Photograph 1 shows the former basin's loose fill material and large quantity of modern refuse spilling into the open canal and is indicative of the informal nature of the former basin's fill. The northern and southern corners of the western end are depicted in Photographs 2 and 3, where the boundaries of the former basin appear to be comprised of concrete, wooden fenders, and scattered cobble riprap. The undeveloped western portion of the former basin is depicted in Photographs 4 and 5. The topography undulates and rises gradually to the east from the canal and there are a number of trees and abandoned cars across the area. As can be seen in Photograph 6, the central portion of the former basin is paved and is currently being used as an active parking lot. A portion of the eastern end of the former basin is undeveloped (Photograph 7) and a portion is being used as a parking lot for a storage facility (Photograph 8).

The following is a summary of the primary survey components: test pit excavation monitoring, review of the bulkhead inspection report, and review of geotechnical and environmental boring logs.

4.1 Results of Test Pit Excavation Monitoring

Fieldwork consisted of monitoring the excavation of six test pits that were located across the extent of the former basin. Table #4-1 below provides a summary of the location and results of each test pit and their locations are depicted on Figure 3. All of the test pits were excavated during the course of several days in August 2017. Three of the test pits (Test Pits 2, 5, and 6) were positioned in locations with the objective of encountering remains of the bulkhead, if present. The other three test pits were positioned entirely within the filled-in portion of the basin, at the conceptual boundaries of the RD, and would not be expected to encounter the bulkhead. Of the three test pits that could have encountered the bulkhead, only one of them, Test Pit 2, encountered the bulkhead. None of the test pits were excavated deeply-enough to encounter the former basin bottom, deeply-buried resources that could be lying on the buried former basin bottom such as ship hulls, or the possibly natural marsh deposits located at deeper depths. Aside from the portion of the bulkhead encountered in Test Pit 2, no archaeological resources, features, or artifact concentrations were encountered during test pit excavation.



Legend

Photograph View Direction and Reference Number



Test Pit Location

Test Pit Locations and Photo Key Figure 3

Table 4-1 Geotechnical Test Pits

Test Pit	Location	Dimensions (length,	
Number	(see Figure 3)	width, depth [feet, bgs])	Results
1	West end of basin at midpoint between northern and southern sides	10 x 7 x 8	Loose sandy fills and modern refuse to 8 feet bgs
2	Western end of basin along southern side	10 x 10 x 9	Below 5 feet of loose sandy fill, encountered a deteriorating portion of a concrete and timber bulkhead
3	Paved area at the approximate center of basin, several feet south of the northern side	11 x 9 x 12	Gravelly fill, brick and concrete demolition debris, and modern refuse to over 12 feet bgs
4	Eastern end of basin at midpoint between northern and southern sides	38 x 6 x 8	Mixed fills, demolition debris, and modern refuse to over 12 feet bgs
5	Western end of basin along the northern side, adjacent to modern brick building	12 x 12 x 6	Mixed fills and modern refuse to over 6 feet below ground surface. The adjacent modern brick building is supported by a concrete foundation and a concrete footer supported by timber piles
6	Eastern end of the basin and extending across original location of basin's northern side	10 x 6 x 13	Mixed fill, demolition debris, and utility lines to over 10 feet bgs

4.1.1 Test Pit 1

Test Pit 1 was excavated at the western end of the former basin, close to where it formerly adjoined the canal (Figure 3 and Photograph 4). The soils of this 8-foot bgs test pit consisted entirely of loose sandy fills and a high concentration of modern refuse including plastic sheeting, furniture, rugs, car parts, and modern packaging material (Photograph 9). No archaeological resources were observed in Test Pit 1.

4.1.2 Test Pit 2

Test Pit 2 was excavated in the western portion of the former basin adjacent to the chain-link fence aligned with boundary between the former basin and the Powerhouse property to the south (Figure 3 and Photograph 10). Below an approximately 5-foot-thick layer of loose brown sandy fill, the excavation encountered a 1-foot-thick slab of decomposing concrete. The concrete slab was encountered below and parallel to the chain-link fence. Below the concrete slab, careful hand and mechanized excavation revealed a bulkhead comprised of a series of horizontally-oriented squared timbers (Photograph 11). At this point the test pit was widened to the west to a total width of 10 feet and excavation proceeded to a total depth of 9 feet bgs. The test pit sloped upward to the ground surface to the north and west to allow access to the bulkhead. An approximately 8-foot-long portion of the bulkhead was exposed, which consisted of a series of three courses of squared timbers (two of which had a diameter of 12 inches and one had a diameter of 9 inches), though the bulkhead likely continues deeper; the timbers were held together with a series of 1-inch diameter iron spikes (Photographs 12 through 14).

The condition of the exposed timbers was poor and they exhibit moderate to severe rot. The concrete slab is in similarly poor condition. Despite the fragile condition of the bulkhead it appears to be structurally intact and its burial beneath several feet of soil will likely protect it from further decay.

According to the site supervisor overseeing remediation efforts at the Powerhouse Site immediately to the south of the former basin, excavations to a depth of 15 feet bgs were conducted approximately 5 feet south of the chain-link fence in the vicinity of Test Pit 2. According to the site supervisor, this deep excavation encountered sandy fills but did not encounter timber cribbing or cobble fill. This suggests that either the former basin bulkhead was constructed in this area without a supporting cribbing system or that it has been previously removed. No other archaeological resources were observed in Test Pit 2.

4.1.3 Test Pit 3

Test Pit 3 was excavated in a paved area used for car and truck parking in the approximate center of the former basin, a few feet south northern boundary (Figure 3 and Photograph 6). This test pit was initially excavated as a 5-foot wide pit but its width was doubled to 9 feet when excavation encountered substantial deposits of loose construction debris collapsing into the pit. Excavation extended to a depth of 12 feet bgs, and the encountered soils consisted of mixed sandy fills and a substantial quantity of construction debris consisting of brick and concrete (Photographs 15 through 17). A plastic *Bic* ballpoint pen was recovered from soils excavated from the bottom of this test pit. No archaeological resources were observed in Test Pit 3.

4.1.4 Test Pit 4

Test Pit 4 was excavated towards the eastern end of the former basin at the approximate mid-point between the expected location of the northern and southern bulkhead walls (Figure 3 and Photograph 5). This was the first test pit to be excavated and it was much larger than any of the other pits, reaching a length of approximately 38 feet. This test pit was excavated to a depth of 8 feet bgs and the excavated soils consisted of mixed sandy fills and demolition debris (Photograph 18), including large chunks of concrete and brick, and a variety of modern refuse such as plastic sheeting, fuel tanks, and car tires (Photograph 19). No archaeological resources were observed in Test Pit 4.

4.1.5 Test Pit 5

Test Pit 5 was excavated towards the western end of the former basin adjacent to the expected location of the northern bulkhead, at the base of a modern brick building (Figure 3 and Photographs 4 and 20). This large 12-foot-square test pit encountered loose sandy fills and modern refuse such as automobile parts to a depth of 6 feet bgs. Though the field archaeologist observed no evidence of the bulkhead, they did encounter the brick building's foundation, which consisted of a 3-foot thick concrete slab supported by a 2.5 foot-wide by 2.5 foot-deep concrete footer, which was supported by at least one timber pile (Photographs 22 and 23). The soils adjacent to the concrete footer beneath the foundation consisted of loose mixed fill containing modern refuse including plastic. No archaeological resources were observed in Test Pit 5.

4.1.6 Test Pit 6

Test Pit 6 was excavated in the parking lot of a storage facility at the eastern end of the former basin and it was positioned at the anticipated location of the northern bulkhead wall (Figure 3 and Photograph 8). This test pit extended several feet beyond the anticipated bulkhead location to the area where timber cribbing filled with cobbles has been encountered along other portions of the canal. The field archaeologist observed no evidence of the bulkhead or timber cribbing. The encountered soils consisted of layers of loose, mixed sandy fills and thick layers of demolition debris (Photographs 23 and 24) to a maximum depth of 13 feet bgs, deeper than any of the other test pits. Excavation encountered three north-south oriented utility lines with diameters of 2 to 6 inches at a depth of 5 to 6 feet bgs. The utility lines had been abandoned but appear to be in their original location. No archaeological resources were observed in Test Pit 6.

4.2 Bulkhead Inspection

On May 9, 2017, Moffatt & Nichol Engineering, P.C was contracted by the AKRF-KSE Joint Venture to perform a detailed visual inspection of bulkheads along the eastern shore of the canal at the former basin. The objective of the inspection was to assess the condition of the bulkheads in support of the RD. The inspection was performed by a diver walking and swimming within close proximity of the shoreline. Approximately 350 feet of the canal bulkhead line was inspected, including the property to the north of the former basin (420 Carroll Street), the mouth of the former basin itself, and the property to the south of the former basin (323 Third Avenue).

The following is a summary of the results of the bulkhead inspection by property, as presented in Moffatt & Nichol's inspection report (2017):

4.2.1 420 Carroll Street (Property to the North)

At the 420 Carroll Street retaining wall or bulkhead to the north of the former basin, approximate 50 percent of the top course of timber beams are missing, allowing for erosion of soil above and behind the wall. The missing timbers are resting on the canal mudline. The remaining timber elements typically exhibit moderate to severe rot. Where the top course of timber beams are missing, there are voids due to rot on top of the timber beams that are now exposed. The upland building located on 420 Carroll Street, which is located approximately 7 feet away from the bulkhead, was observed to have undermining, approximately 2 to 3 feet in height and 3 feet deep, exposing the foundation.

4.2.2 Mouth of the First Street Turning Basin

The earth embankment of the former basin is not an engineered slope and appears to have been constructed by placing fill material until it reached its natural angle of repose. The surface is littered with stones, concrete debris, trash, and unmaintained vegetation. In general, the earth embankment appears to be stable and is considered to be in fair condition. Below water, the mudline is soft consisting of a mud and gravel mix. The mudline depth was observed to be shallow, essentially at mean lower low water (MLLW) at the bulkhead line and approximately 4 feet below MLLW approximately 5 feet offshore of the bulkhead line. In comparison,

the water depth at the timber crib retaining wall to the south is 5 feet below MLLW at the bulkhead line. No large obstructions were observed below water within the first 5 to 8 feet of the bulkhead line.

4.2.3 323 3rd Avenue (Property to the South)

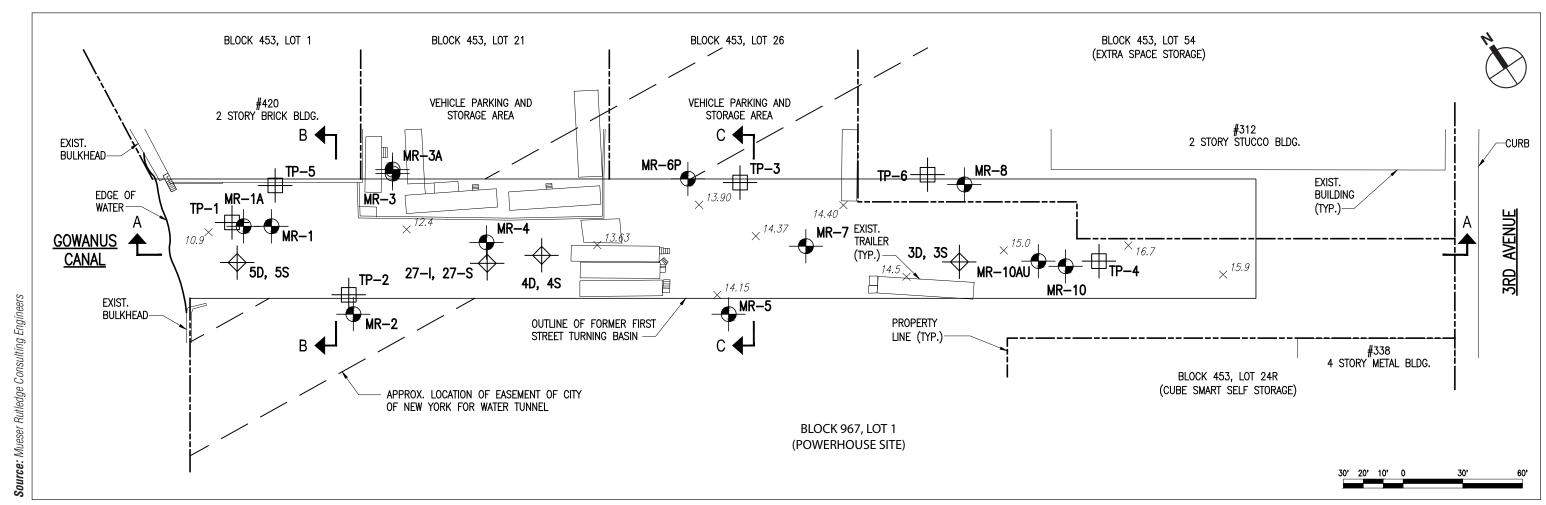
The timber crib retaining wall or bulkhead at 323 3rd Avenue (the Powerhouse Site) supports a concrete seawall, which has large voids due to erosion and spalls. This area of severe deterioration extends from the southern extent of the former basin to approximately 50 feet south. Several missing pieces of concrete were observed along the base of the structure on the mudline. The observed timber crib elements at 323 3rd Avenue are in better condition than the timber crib at 420 Carroll Street. The missing timber members at the top of the 323 3rd Avenue retaining structure do not expose the upland fill as seen at 420 Carroll Street, however does expose the base of the concrete seawall. The remaining timber beams still typically exhibit moderate to severe rot similar to those at 420 Carroll Street.

Both retaining wall structures (420 Carroll Street and 323 3rd Avenue) were observed to return into the former basin and appear to maintain the same type of construction. The retaining walls are only exposed for approximately 10 feet then are buried by the upland fill material.

4.3 Results of Geotechnical Borings

A total of nine geotechnical soil borings were performed in August and September 2017 during the project's associated geotechnical investigation under the oversight of Mueser Rutledge Consulting Engineers (MRCE), who was contracted by the AKRF-KSE Joint Venture. Four of the borings (MR-1, MR-4, MR-7, and MR-10) were within the boundary of the anticipated former basin, while three (MR-3, MR-6P, and MR-8) were along the former basin boundary, and two (MR-2 and MR-5) were just outside the boundary, as shown on Figure 4. Three borings (MR-1, MR-3, and MR-10) had to be offset, since their initial boring was obstructed by inclusions at a shallower depth, in order to reach the terminal depth. The borings extended to a depth of over 67 feet bgs or to an elevation of -53.5 feet (NAVD88). Table 4-2 below provides a summary of the observations included in MRCE's boring logs that could pertain to the possible depth of "fill" and natural marsh deposits that would have pre-dated construction of the canal and former basin. The geotechnical boring logs themselves are provided as Appendix A.

The boring logs only provide a brief description of the MRCE's resident engineer's observations and rarely, if ever, include interpretive nomenclature such as "fill", "natural", or "native". In order to distill possibly helpful archaeological information from the boring logs, they were examined for terms such as "brick", "cinders", or "concrete" which likely indicate a soil layer intentionally deposited as "fill". "Wood" could also indicate "fill" or structural debris associated with the use or operation of the former basin. Additionally, soil descriptions could help to identify natural marsh deposits.



MR-6P

- MRCE BORING DRILLED IN 2017

- "P" INDICATES PIEZOMETER

- "A" INDICATES OFFSET

- "U" INDICATES UNDISTURBED SAMPLES

TP1

- MRCE TEST PIT PERFORMED IN 2017

3S, 3D

- MONITORING WELL CLUSTER INSTALLED BY OTHERS (SEE APPENDIX E)

- "S" SHALLOW MONITORING WELLS SET IN THE FILL STRATUM

- "D" DEEP MONITORING WELLS SET IN THE UPPER SAND STRATUM

 $imes^{ extit{10.9}}$ - ground surface spot elevation

Table 4-2 **Summary of Geotechnical Borings**

	D 41	E1 /*	Summary of Geolecumical Borings
Boring	Depth (feet bgs)	Elevation (NAVD88)	Observation
	14	-4.14	Brick and concrete
	15	-5.14	Wood debris
MR-1	32	-21.26	Wood and "trace debris"
	60	-49.26	Brick
	32 to over 80	-21.26 to over -69.26	Brown fine to coarse sands with silt and gravel
	0 to 21	13.5 to -7.5	"Fill"
) (D 2	32	-18.5	Brick
MR-2	25 to 30	-11.5 to -16.5	Several inches of wood
	19 to 67	-5.5 to -53.5	Brown fine to coarse sands with silt and gravel
	7	-0.04	Wood
MR-3	17	-10.04	"Trace wood"
	22 to 77	-15.04 to -70.04	Brown fine to coarse sands with silt and gravel
	10 and 17	2.94 and -4.06	Brick
MR-4	25 to 27	-12.06 to -14.06	Soft black organic silty clay, fine to coarse sand, peat, and wood
	32 to 75	-19.06 to -62.06	Brown fine to coarse sands with silt and gravel
	10	6	Intermittent brick
MR-5	20	-4	Black organic silty wood with peat silt and organics
MR-3	35 to 37	-19 to -21	Gray silty clay and "some clay layer"
	45 to 77	-29 to -61	Brown fine to coarse sands with silt and gravel
	5	8.41	Trace brick
MR-6P	21 and 25	-7.17 and -11.17	Trace clay and wood
MIK-OP	27	-13.17	Trace black "silt seams"
	32 to 77	-18.17 to -63.17	Brown fine to coarse sands with silt and gravel
	15 and 20	-0.73 and -5.73	Brick
MR-7	20 to 30	-5.73 to -15.73	Some wood
	35 to 77	-20.73 to -62.73	Brown fine to coarse sands with silt and gravel
	7	7.27	Brick
MR-8	7 and 17	7.27 and -2.73	Some cinder
IVIX-0	27	-12.73	Soft black organic silty clay with a trace of fine sand
	30 to 77	-15.73 to 62.73	Brown to red brown fine to coarse sands with silt and gravel
	10 and 17	4.27 and -2.73	Brick
MR-10	37 and 42	-22.34 and -27.34	Brick
	42 to 97	-27.34 to -82.34	Brown fine to coarse sands with silt and gravel

Fill Layer

Most of the borings encountered brick (8 of the 9 borings) and it was predominately encountered (7 of the 8 borings that encountered brink) at the ground surface to an elevation of -6 feet (NAVD88). Brick was also identified at deeper elevations of -18.5, -22 to -27, and -49 feet (NAVD88). The observance of brick indicates that the associated material was likely intentionally deposited as "fill". For the borings within the former basin, the "fill" was likely intentionally deposited within the former basin when it was filled-in after

its period of active use. For the borings located just outside the former basin, the fill was likely intentionally deposited when the canal and/or the former basin was constructed.

"Wood", "wood debris," or "trace wood" were encountered in most of the borings (7 of the 9 borings). The borings located along and just outside the anticipated boundary noted wood as shallow as an elevation of 0 feet (NAVD88) and as deep as an elevation of -16.5 feet (NAVD88). This wood may be associated with the former bulkhead located along the boundary of the former basin and the adjacent properties, supporting the upland soil or "fill". Interestingly, two of the four borings located within the former basin describe wood at an elevation between -10 and -14 feet, while one of the borings also observed wood at a deeper elevation of -15 feet (NAVD88). Since the bottom of the canal is comprised of silt and/or clay and has no structural component, this wood layer could be the accumulation of timber associated with the use of the former basin for shipping that dropped into the former basin over time. It is also possible that this wood is associated with the barges that used the former basin or pieces of the bulkheads that fell into the former basin. Wood was also identified at a shallower elevation of -5 feet (NAVD88) in two of the borings located within the former basin, which may be associated with the "fill" that was intentionally deposited within the former basin when it was filled-in.

Native Organic Silty or Clayey Layer

In three of the borings, the MRCE resident engineer described an organic silty or clayey layer at an elevation of -7 to -14 feet and in one boring at a deeper elevation of -19 to -21 feet (NAVD 88). This layer is variously described as soft, black, and organic or as containing peat. It is possible that this layer represents vegetation that developed within the former basin during its years of operation or the remains of the marsh deposits that pre-date construction of the canal and could also be considered native soils. In either case that layer appears to be shallow in three of the four borings and absent in the remaining five borings.

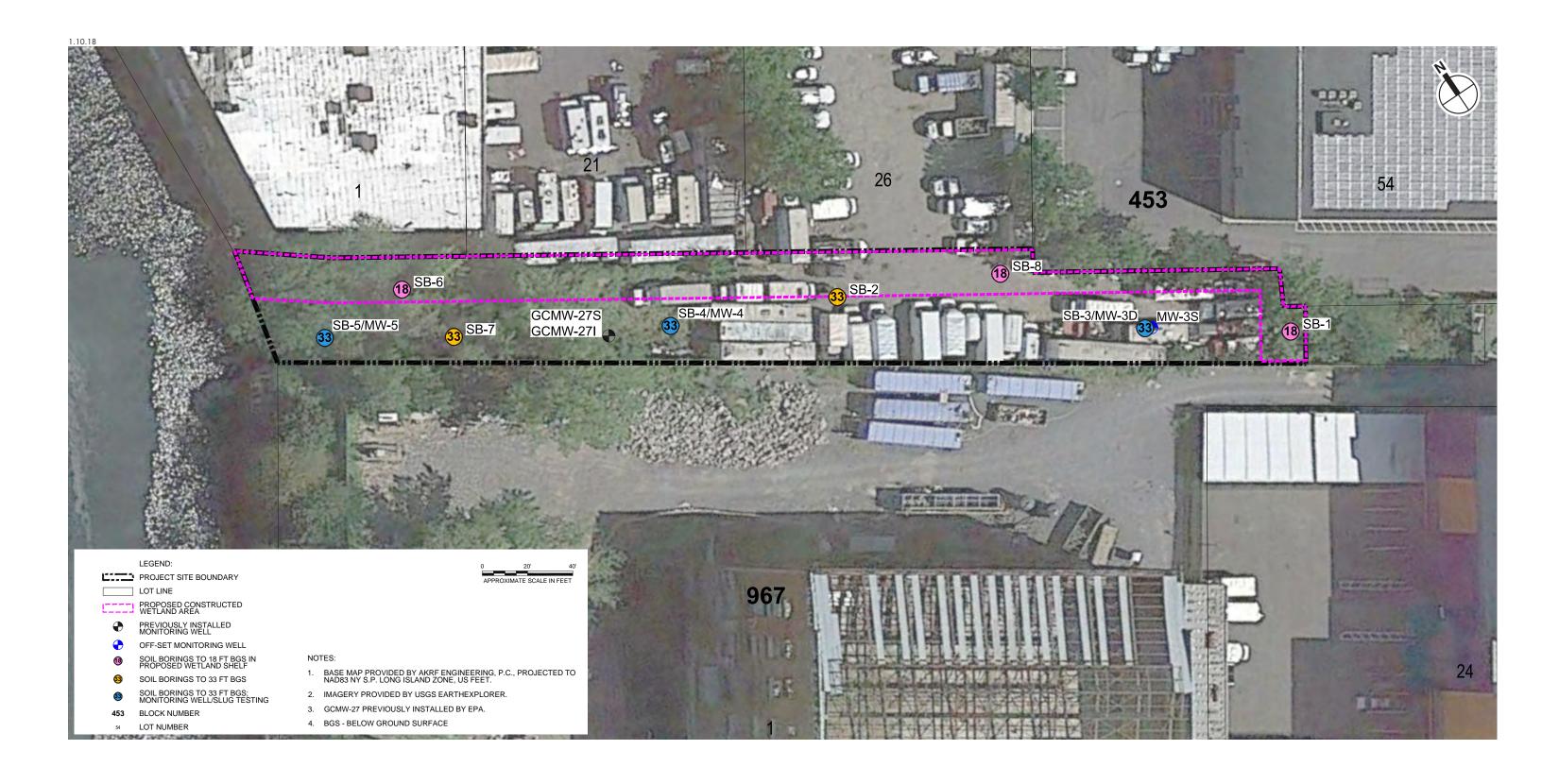
Native Sand Layer

All of the borings encountered layers of brown or gray-brown, fine to coarse sands, sometimes with traces of silt and/or gravel. These sands were predominately encountered (8 of the 9 borings) at an elevation beginning at between -15 to -29 feet (NAVD 88). In one boring these sands were also identified beginning at a shallower elevation of -5.5 feet (NAVD88). These sands are likely quite old and probably pre-date development of the Gowanus Marsh and could be considered native soils.

4.4 Results of Environmental Borings

A total of nine environmental soil borings were performed in August 2017 by Preferred Environmental Services, who was contracted by the AKRF-KSE Joint Venture. All of these borings were performed within the boundary of the former basin. Each of the borings extended to a depth of either 18 or 33 feet bgs. Table 4-3 below provides a summary of the observations included in Preferred Environmental Services' boring logs that could pertain to the possible depth of fill and natural marsh deposits that would have pre-dated construction of the canal and the former basin; their location is depicted on Figure 5. The environmental boring logs themselves are provided as Appendix B.

Once again the boring logs only provide a brief description of the resident engineer's observations and do not include interpretive nomenclature such as "natural" or "native". Most of the soils are described as "Fill"



containing "construction and demolition debris" or simply "debris" to at least 16 feet bgs and in several cases to a depth of over 20 feet bgs (SB-3, SB-3/MW-3S, SB-4, and SB-5). Presumably natural silts, clays, and sands were encountered below a depth of 20 feet bgs, though often with hydrocarbon-like odor and/or staining.

Table 4-3 **Summary of Environmental Borings**

Boring	Depth (feet bgs)	Observation
CD 1	5 to 18	Fill with wood, demolition debris, and hydrocarbon-like odor
SB-1	18	End of boring
	5 to 16	Fill with wood, demolition debris, and petroleum odor
SB-2	20 to 33	Mixed sands with gravel
	33	End of boring
	10 to 23	Fill with wood and demolition debris
SB-3	23 to 33	Gravels, sands, and clay layers with hydrocarbon-like odor and staining
	33	End of boring
SB-3/ MW-	5 to 20	Fill with demolition debris with hydrocarbon-like odor and staining
3S	20	End of boring
	5 to 22	Fill with wood, demolition debris, and hydrocarbon-like odor
SB-4	22 to 33	Gravels, sands, and clay layers with hydrocarbon-like odor and staining
	33	End of boring
	5 to 15	Fill with demolition debris
SB-5	15 to 26	Fill, black silty clay with chemical odor and staining
3D-3	26 to 28	Fill, sand with demolition debris (brick)
	33	End of boring
	10 to 14	Fill, brown/black mixed sands
SB-6	14 to 18	Fill, demolition debris (wood/debris)
	18	End of boring
CD 7	0 to 15	Fill with wood, demolition debris, and hydrocarbon-like odor
SB-7	33	End of boring
CD 0	5 to 18	Fill with wood, demolition debris, and hydrocarbon-like odor
SB-8	18	End of boring

5. Conclusions and Recommendations

Previous research efforts have determined that the filled-in former First Street Turning Basin has a high sensitivity for the presence of bulkheads and associated cribbing and fill associated with the S/NR-eligible Gowanus Canal and historic ship hulls buried within the filled-in basin. Ground-surface disturbing activities associated with the 30% Field Activities consisted of the excavation of six test pits and a number of geotechnical and environmental borings across the extent of the former basin. Archaeological fieldwork consisted of monitoring the test pit excavation. Additionally, this Monitoring Report also includes a review of the bulkhead inspection reported prepared by Moffatt & Nichol Engineering, P.C. and a review of the soil boring logs (included as Appendices A and B). Three of the six test pits were positioned in the anticipated location of the former basin's bulkheads, while the remaining three test pits were positioned entirely within the basin along the conceptual RD boundaries (Figure 3). The test pits were excavated to depths of between 8 and 13 feet bgs.

5.1 Conclusions of Test Pit Monitoring

The soils encountered in the six test pits consisted of mixed sandy fills with modern refuse and demolition debris. The field archaeologist observed low-to-high-density concentrations of modern refuse and demolition debris, including the following: architectural materials such as bricks, concrete, cinder block, window glass, and fasteners; modern packaging material such as plastic food packaging and bottles; automotive parts such as tires, car body parts, and electronics (several abandoned vehicles are present on the ground surface in the project area); and a range of other miscellaneous objects such as plastic sheeting, cloth, unidentified metal, and a plastic *bic* ballpoint pen observed at a depth of 11 feet bgs. The field archaeologist also observed, intermixed with the above items, small quantities of household waste such as tableware and food waste.

Of the three trenches that were excavated in a location that would be expected to encounter the bulkhead, only one, Test Pit 2, excavated along the southern boundary of the filled-in basin at its western end, encountered an intact portion of the bulkhead. The approximately 8-foot-long portion of bulkhead was encountered at a depth of five feet below the current ground surface and consisted of a 1-foot-thick slab of decomposing concrete on top of a series of deteriorating, horizontally-oriented squared timbers with metal fasteners (Photographs 11 through 14). None of the test pits were excavated to a sufficient depth to address the potential for historic ship hulls buried within the filled-in former basin.

The following conclusions are provided based on the results of monitoring the six test pits:

- The chaotic and variable nature of the fills, both within individual test pits and across the length of the *former* basin, and the modern refuse contained within the fill, indicates an informal and incremental filling process that occurred during the mid-twentieth century.
- Due to their lack of archaeological context or research value and recent origin, the observed artifacts have no *archaeological* significance.

- The portion of intact bulkhead encountered in Test Pit 2 is in poor condition but supports the sensitivity of the First Street Turning Basin for the presence of the bulkhead. The absence of the bulkhead in Test Pits 5 and 6 (which were excavated in locations that would have encountered the bulkhead had it been present) indicate that portions of the bulkhead either deteriorated prior to the basin's being filled in or may have been removed over the past several decades.
- The intact portion of bulkhead encountered in Test Pit 2 was in poor condition. This observation suggests that other intact portions of the bulkhead present within the basin may also be in poor condition.
- One of the test pits, Test Pit 6, extended beyond the anticipated location of the bulkhead to the anticipated location of the wooden cribbing that supports the bulkhead along other portions of the canal. However, no timber cribbing was observed in this area. Additionally, according to the site supervisor overseeing remediation efforts at the Powerhouse Site immediately to the south of the former basin, excavations to a depth of 15 feet bgs were conducted approximately 5 feet south of the chain-link fence, the likely location of the bulkhead along the southern side of the basin. According to the site supervisor, this deep excavation encountered sandy fills but did not encounter cribbing or cobble fill. This suggests that either the turning basin bulkhead was constructed in this area without a supporting bulkhead system or that it has been subsequently removed in locations.

5.2 Conclusions of Review of Soil Boring Logs

An archaeologist reviewed the logs of the geotechnical and environmental soil borings for information related to the depths of fill, native marsh deposits, and older stratigraphy predating the formation of Gowanus Marsh. The following conclusions are provided based on this review:

- "Wood", "wood debris," or "trace wood" was identified in many of the borings from just below ground surface to as deep as 30 feet bgs. This wood may be associated with fill material, the former bulkhead, or the accumulation of timber associated with the use of the basin for shipping that dropped into the basin over time. It is also possible that this wood is associated with the barges that used the basin or pieces of the bulkheads that fell into the basin.
- An organic silty or clayey layer is present at elevations ranging from -7 to as deep as -21 feet (NAVD88). This layer is variously described as soft, black, and organic or as containing peat and may have developed within the basin during its years of operation or before as remains of the marsh deposits that pre-date construction of the canal.
- All of the deeper borings encountered layers of brown or gray-brown, fine to coarse sands, sometimes with traces of silt and/or gravel at a depth of -15 (NAVD 88). These sands are likely quite old and probably pre-date development of the Gowanus Marsh and could be considered native soils.

5.3 Recommendations

Based on the conclusions stated above, the First Street Turning Basin retains its sensitivity for the presence of historic ship hulls and structural components of the canal itself such as the bulkhead but the

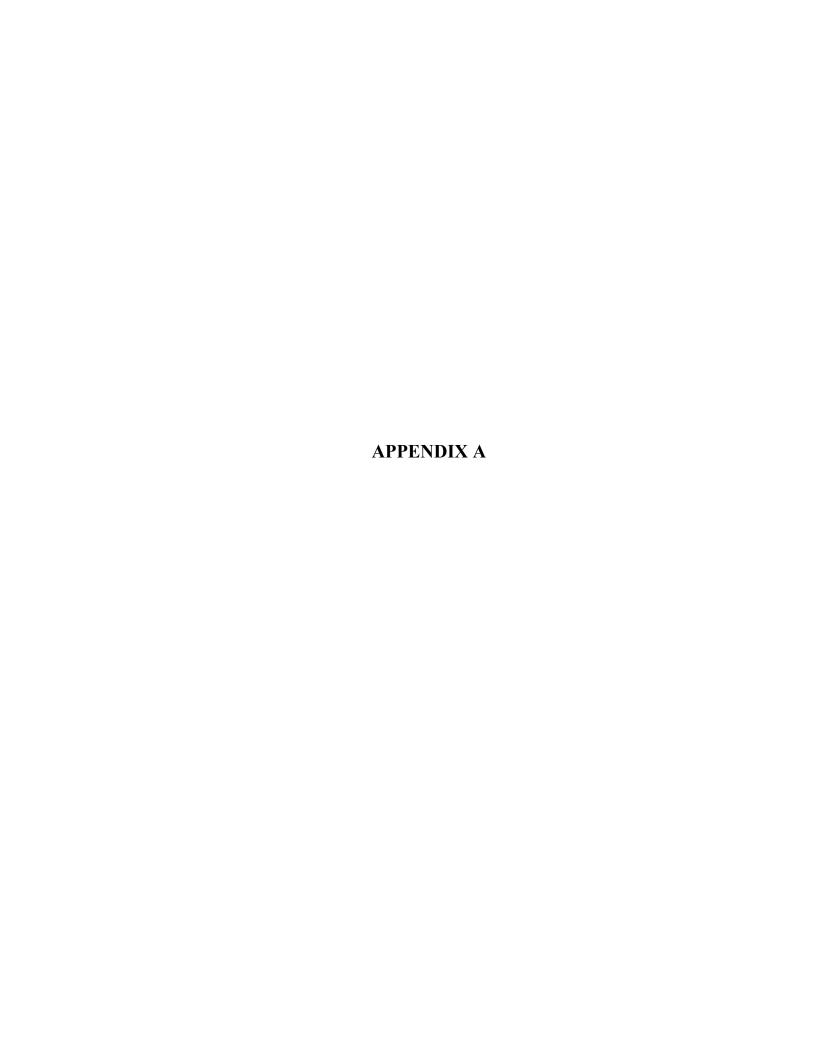
soils used to fill-in the basin to a depth of approximately 8 to 13 feet bgs have no archaeological sensitivity.

It is recommended that archaeological monitoring occur during implementation of the RA to document any buried ship hulls present on the bottom of the filled-in basin. However, due to the poor condition of the portion of bulkhead observed within the basin during this monitoring effort and its similarity to extant bulkheads to the north and south of the basin along the canal, consultation with SHPO and LPC is recommended to determine the need for documentation and relevant research questions.

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MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN LOCATION: BROOKLYN, NEW YORK

BORING NO. MR-1

SHEET 1 OF 2

FILE NO. 12541

SURFACE ELEV. +9.90

RES. ENGR. ARI ESLAMINEJAD

				-		IVEO	. LIVGIV.	AKI ESLAMIMEJAD
DAILY		SAME	PLE	CAMPLE DECORIDEION			CASING	DEMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
08:30	1D	0.0	2-2	Brown fine sand, some silt, trace medium to	2.10(1/1			PID=0.0
	יוו	2.0	2-2					REC=5"
08-31-17	0.0			coarse sand, gravel (SM)				
Thursday	2D	2.0	1-1	Brown fine sand, some silt, trace medium to				PID=0.0
81°F		4.0	1-1	coarse sand, gravel (SM)				REC=4"
	3D	4.0	6-6	Top 4": Brn silty f-c sand, sm brick, gravel (SM)		5		Soft dig to 5'.
		6.0	11-5	Bot 3": Gray si f-m sand, sm cl, tr c sa, gvl (SM)				3D Top: PID=0.0
	4D	6.0	1-1	Brown fine to medium sand, some silt, brick,				3D Bot: PID=0.0
		8.0	3-5	gravel, black silt pockets (SM)				4D: PID=0.0
					F	10		
	5NR	10.0	4-4	No recovery	F			PID=0.0
	SINIX	12.0	2-2	lvo recovery				Plastic debris in tip
	cD.			Daniel fine to come and come bride comments				=
	6D	12.0	3*-5*	Brown fine to coarse sand, some brick, concrete,				5NR: 3" Split spoon.
		14.0	5*-6*	trace silt, gravel (SP-SM)				6D: 3" Split spoon.
						15		6D: PID=0.0
	7D	15.0	5*-4*	Wood debris, some brown medium to coarse				Concrete piece in tip.
		17.0	2*-7*	sand, trace silty gravel (SP)				7D: PID=35.1
								3" Split spoon.
								REC=4"
15:30						19.5	_	Wood; loosing water;
								mix mud.
								Borehole terminated
								due to obstruction
								at 19.5'.
						25		*3" Split spoon blow
						25		
								counts.
								PID=Photoionization
								Detector.
						30		
						35		
						40		
						70		
						45		
						50		
					1	1		1

MUESER RUTLEDGE CONSULTING ENGINEERS

						BORING NO.	MR-1
						SHEET 2	OF 2
PROJECT	Γ		FIRST STREET T	URNING BASIN		FILE NO.	12541
LOCATIO			BROOKLYN, I			SURFACE ELEV.	+9.90
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		<u>B(</u>	ORING EQUIPMEN	T AND METHODS	OF STABILIZIN	G BOREHOLE	
			OF FEED				
_		RIG DURIN			SING USED	X YES	NO TO SO
TRUCK	DIETRICH		CHANICAL		4	DEPTH, FT. FROM	0 TO20
SKID			DRAULIC OTHER			DEPTH, FT. FROM	TO TO
BARGE OTHER				DIA., IN.		DEPTH, FT. FROM	10
	TVDE AN	ND SIZE OF		DDIII	LING MUD USED	X YES	NO
D 0444D1 ==							NO
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U-SAMPLE S-SAMPLE				TYPE OF I	DRILLING MUD		CETCO
CORE BAR	RREL			A	UGER USED	YES	X NO
CORE BIT				TYPE AND	DIAMETER, IN.		
DRILL ROD	DS NWJ					-	
				*CASING I	HAMMER, LBS.	140 AVERAGE	FALL, IN30
				*SAMPLEF	R HAMMER, LBS.	140 AVERAGE	FALL, IN30
				*HAMMER	TYPE (DONUT/SA	FETY/AUTOMATIC):	AUTOMATIC
			WATER LE	VEL OBSERVATI	IONS IN BOREH	<u>OLE</u>	
DATE	TIME	DEPTH O	F DEPTH OF	DEPTH TO		CONDITIONS OF OBS	ERVATION .
		HOLE	CASING	WATER			
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09-07-17 09-08-17	07:30 07:00	57 82	50 80	6		/ERNIGHT MUD LEVE /ERNIGHT MUD LEVE	
09-00-17	07.00	02	80	0	01	LENIGHT MODILEVE	LE READING.
	5*-4*						
PIEZON	IETER INS	TALLED	YES	X NO SKET	TCH SHOWN ON		
STANDPIP		TYPE		ID, IN.	LEN	GTH, FT.	TOP ELEV.
INTAKE EL	EMENT:	TYPE		OD, IN.	LEN	GTH, FT.	TIP ELEV.
FILTER:		MATERIAL_		OD, IN.	LEN	GTH, FT	BOT. ELEV.
PA	Y QUANTI	ΓIES <u></u>					
3.5" DIA. D	RY SAMPLE	BORING	LIN. FT.		NO. OF 3" SHELE	BY TUBE SAMPLES	
3.5" DIA. U	-SAMPLE B	ORING	LIN. FT.		NO. OF 3" UNDIS	TURBED SAMPLES	
CORE DRII	LLING IN RO	OCK	LIN. FT.		OTHER:		
BORING (CONTRAC	TOR		ASSOCIATED	ENVIRONMENT	TAL SERVICES LTD).
DRILLER		<u> </u>	CHRIS SANCHEZ		HELPERS		GARCIA JR.
REMARK	S						
-	T ENGINE	-		ARI ESLAMINEJA		DATE	09-01-17
CLASSIFI	CATION C	HECK:	CHERYL.	J. MOSS	TYPING CHEC	CK: ARI	ESLAMINEJAD

MRCE Form BS-1

BORING NO.

MR-1

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. 10.7

RES. ENGR. ARI ESLAMINEJAD

DAIIN		SAMF	DI E			KES	1	ARI ESLAMINEJAD
DAILY PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STDATA	DEDTH	CASING BLOWS	REMARKS
08:15	NO.	DEPIR	BLUVVS/0		SIKAIA	DEPIN		Offset 10' west from
09-01-17								Boring MR-1.
Friday							4"	Boning Witt-1.
-							1	
Sunny 70°F						5		-
70 F								
					F	10		
					Г			
						15		
								Color change black.
								Joseph Gridding Didden.
						19.5		Loosing water.
	8D	20.0	4*-3*	Black organic silty clay, some wood, organics,				WC=116, PID=6.2
		22.0	1*-2*	trace fine sand (OH)				2" & 2nd attempt 3"
	9UNR	22.0	PUSH=24"	No recovery				split spoon; no
		24.0	REC=0"	,				recovery.
						25		
	10D	25.0	4*-5*	Black organic silty clay, some fine sand, wood,	0			WC=101, PID=18.7
		27.0	4*-4*	organics (OH)				
14:30						30		11D-24D: 3" Split
07:30	11D	30.0	3*-3*	Black organic silty clay, some gravel, wood,				spoon.
09-05-17		32.0	3*-3*	trace debris (OH)		32		11D: PID=19; clean
Tuesday	12UD		PUSH=24"	Black medium to coarse sand, some medium				black silt towards tip.
Sunny		34.0	REC=0"	to coarse gravel, trace silt (SP-SM)				12D: PID=0.0
85°F						35		Cobble in tip of tube;
	13D	35.0	8*-7*	Black coarse to fine sand, some silt, gravel				tube bent; 3" split spoon.
		37.0	7*-6*	(SM)				Mix mud at 34'.
								13D: PID=0.0
						40		
	4.15	40.0	40* 0*			40		DID 00
	14D	40.0	12*-8*	Brown gravelly coarse to medium sand, trace				PID=0.0
		42.0	6*-6*	fine sand, silt (SP)	S1			
						<u> </u>		
						AE		
	15D	4F 0	7* C*	Do 14D (SD)		45		PID=0.0
	וטט	45.0 47.0	7*-6* 7*-7*	Do 14D (SP)				רוט=U.U
		47.0	1 -1"					
						50		
	16D	50.0	24*-10*	Do 14D (SP)		- 30		PID=0.0
	עטו	52.0	7*-6*	ואט (פר)				ט.ט=עו ו
		JZ.U	1 -0				7	

BORING NO. MR-1A

MR-1A

BORING NO.

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

MRCE Form BL-1

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. RES. ENGR. ARI ESLAMINEJAD

		SAMF						ARI ESLAMINEJAD
DAILY	NO			SAMPLE DESCRIPTION	0.70 4.74	DEDT	CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"		STRATA	DEPTH	BLOWS	
Cont'd							DRILLED	
09-05-17					S1		AHEAD	
Tuesday						50 F	4"	
Sunny						53.5		
15:00						55		
07:30	17D	55.0	10*-27*	Top 8": Dark gray fine to coarse sand, trace				17D Top: PID=20.8
09-07-17		57.0	34*-29*	gravel, silt (SP)				17D Bot: PID=0.0
Thursday				Bot 8": Brown gravelly fine to coarse sand, trace				Loosing mud.
Sunny				silt (SP)				
74°F						60		
	18D	60.0	24*-21*	Brown fine to coarse sand, some gravel, brick,				PID=3.0
		62.0	19*-20*	trace silt (NAPL) (SP-SM)				
						65		
	19D	65.0	17*-19*	Brown medium to fine sand, some gravel, trace				PID=0.0
		67.0	22*-25*	cobble, silt (SP)				2.5" Cobble top of
								3" spilt spoon.
								4" Cobble at 67'.
						70		
	20D	70.0	30*-45*	Brown gravelly fine to coarse sand, trace silt	S2			PID=0.0
		72.0	35*-46*	(SP-SM)	32			
								Gravel in tip; wash.
								Rig chatter from 72' to
						75		75'.
	21D	75.0	6*-25*	Brown gravelly fine to coarse sand, trace silt				PID=0.0
		77.0	39*-48*	(SP-SM)				
								Loosing mud.
						80		
	22D	80.0	24*-28*	Brown gravelly coarse to fine sand, trace silt				PID=0.0
		82.0	30*-28*	(SP-SM)				2=0.0
		02.0	00 Z0	(Of Civi)				
15:30						85	-	
06:30	23D	85.0	23*-27*	Do 22D (SP-SM)		- 00	, , , , , , , , , , , , , , , , , , ,	PID=0.5
	200	87.0		DO 22D (OI -OIVI)				1 15=0.5
09-08-17 Friday		07.0	31-31					
Sunny						88.5		*3" Split spoon blow
77°F						90		counts.
//·F	24D	90.0	33*-36*	Brown fine to medium sand, some silt, gravel,		30		PID=0.0
	240	92.0		· · · · · · · · · · · · · · · · · · ·	_			FID=0.0
		92.0	56*-55*	trace coarse sand (SM)	Т			Dig shotter from 02' to
	-					<u> </u>		Rig chatter from 93' to 94'.
40.15	-					OF		<u> 1</u>
10:45						95		Hard drilling from 94' to
	-							95'.
							1	End of Boring at 95'.
						<u> </u>	1	WC=Water Content
						400		in percent of dry
	-					100		weight.
	<u></u>							PID=Photoionization
								Detector.

BORING NO. MR-1A

MR-1A

BORING NO.

MUESER RUTLEDGE CONSULTING ENGINEERS

						BORING NO.	MR-1A
						SHEET 3	OF 3
PROJECT	Г		FIRST STREET TI			FILE NO.	12541
LOCATIO			BROOKLYN, N			SURFACE ELEV.	10.7
BORING I	LOCATION	J	SEE BORING LO	CATION PLAN		DATUM	NAVD 88
		<u>BOI</u>	RING EQUIPMENT	Γ AND METHODS	OF STABILIZIN	G BOREHOLE	
TVDE 01			OF FEED	0.40	WING HOED		
_		RIG DURING			SING USED	X YES	NO TO OF
TRUCK	DIETRICH		IANICAL		4	DEPTH, FT. FROM	0 TO 85
SKID						DEPTH, FT. FROM	TO
BARGE OTHER			HER	DIA., IN.		DEPTH, FT. FROM	то
OTTIER							
	TYPE AI	ND SIZE OF		DRIL	LING MUD USED	X YES	NO
D-SAMPLE	ER <u>2" & 3</u>	3" O. D. SPLIT 9	SPOON	DIAMETER	R OF ROTARY BIT	, IN	
U-SAMPLE				TYPE OF I	DRILLING MUD		CETCO
S-SAMPLE					HOED HOED	V50	NO.
CORE BAR	KKEL				UGER USED DIAMETER, IN.	YES	X NO
DRILL ROD	os NWJ			I I PE AINL	DIAMETER, IN.		
DIVILL IVOL	14470			*CASING I	HAMMER. LBS.	140 AVERAGE	FALL. IN. 30
					=	140 AVERAGE	
						AFETY/AUTOMATIC):	· —
			WATERIE	VEL OBSERVATI			
	I				IONO IN BOILET	<u> </u>	
DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER		CONDITIONS OF OBS	SERVATION
09-05-17	07:45	27	20	5	OVE	RWEEKEND MUD LE	VEL READING.
09-07-17	07:30	57	50	8	0\	/ERNIGHT MUD LEVE	EL READING.
09-08-17	07:00	82	80	6	0\	/ERNIGHT MUD LEVE	EL READING.
PIEZOM	IETER INS	TALLED	YES 2	K NO SKET	TCH SHOWN ON	<u> </u>	
STANDPIP	E:	TYPE				GTH, FT	TOP ELEV.
INTAKE EL	EMENT:	TYPE		OD, IN.	LEN	GTH, FT.	TIP ELEV.
FILTER:		MATERIAL		OD, IN.	LEN	GTH, FT	BOT. ELEV.
PA	Y QUANTI	TIES					
3.5" DIA. D	RY SAMPLE	E BORING	LIN. FT.		NO. OF 3" SHELE	BY TUBE SAMPLES	
3.5" DIA. U	-SAMPLE B	ORING	LIN. FT.		NO. OF 3" UNDIS	TURBED SAMPLES	
CORE DRII	LLING IN RO	OCK	LIN. FT.		OTHER:		
ROPING (CONTRAC	TOR		ASSOCIATED) ENI/IDANMENT	TAL SERVICES LTD	1
DRILLER			CHRIS SANCHEZ		HELPERS		GARCIA JR.
REMARK			5. II (15 6/ (140) ILZ			JOSE	O, a COI) COIC.
	T ENGINE	ER	,	ARI ESLAMINEJA	D	DATE	09-01-17
-	CATION C			I. MOSS			ESLAMINEJAD

MRCE Form BS-1

BORING NO.

MR-1A

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN LOCATION: BROOKLYN, NEW YORK

 BORING NO.
 MR-2

 SHEET 1 OF
 3

 FILE NO.
 12541

 SURFACE ELEV.
 13.5

RES. ENGR. K. BARBAGIANIS/A. ESLAMINEJAD

DAHN	SAMPLE		DI E					ASING	
DAILY	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STDATA	DEDTLI	BLOWS	REMARKS	
PROGRESS 09:15	INO.	חברוח	DLOVV 3/0		SIRAIA	חרנום		Slight water loss from	
08-21-17								1' to 23'.	
Monday							4"	1 10 20 .	
Partly Cloudy							i		
80°F						5		Rig chatter & hard	
,	1NR	5.5	100/1"	Wash, wood				drilling from 4.5' to 5.5'.	
		5.6		,				1NR: PID=0.7	
								Wood observed in	
	2D	8.0	100/5.5"	Black fine to coarse sand, trace silt, gravel				wash.	
		8.5		(Fill) (SP-SM)		10		Hard drilling from 5.7'	
								to 6.3'.	
								2D: PID=0.0	
								REC=5.5"	
								Hard drilling & rig	
	3D	14.0	17-84	Wood, trace fine to coarse sand, silt (Fill)		15		chatter from 11' to 14'.	
		15.5	100/4"		F			3D: PID=0.0	
					•			Rig chatter from 15.5'	
								to 17.5'.	
	4D	19.0	11-7	Dark brown fine to coorse and come group!		20		PID=0.0	
	40	21.0	10-10	Dark brown fine to coarse sand, some gravel, silt, trace wood (Fill) (SM)		20		PID=0.0	
	5NR	21.0	20-19	No recovery				PID=0.0	
15:40	JIVIX	23.0	50-38	INO recovery				1 1D=0.0	
07:15		20.0	30-30				•		
08-22-17						25		Water loss.	
Tuesday	6D	25.0	16-14	Top 5": Wood				Introduce mud at 27'.	
Sunny		27.0	15-14	Bot 8": Brown fine to coarse sand, some silt,					
88°F				gravel (SM)					
						30			
'	7D	30.0	14-12	Top 2": Wood					
		32.0	12-9	Bot 5": Brown fine to coarse sand, some gravel,				7D Bot: PID=0.0	
				trace silt, brick (SP-SM)		32.5			
			- / "			35			
	8D	35.0	6/12"	Brown coarse to fine sand, some gravel, trace				PID=0.0	
		37.0	2-3	silt (SP)				No positive head.	
						40			
,	9D	40.0	4-4	Do 8D (SP)		+0		PID=5.9	
	30	42.0	5-6	D0 0D (01)				110-0.0	
		12.0	0.0		S1				
						45			
!	10D	45.0	7-5	Brown fine to medium sand, trace silt, gravel,				PID=0.0	
		47.0	7-6	coarse sand (SP-SM)					
						50			
	11D	50.0	5-4	Brown fine to coarse sand, trace silt, gravel				PID=0.0	
		52.0	4-4	(SP)					

BORING NO. MR-2

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

BORING NO. SHEET 2 OF 3 PROJECT: FIRST STREET TURNING BASIN 12541 FILE NO. LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. 13.5

LOCATIC				BROOKETN, NEW TORK	RES. ENGR. K. BARBAGIANIS/A. ESLAMINEJAD				
DAILY	SAMPLE			SAMPLE DESCRIPTION			CASING		
PROGRESS	NO.	DEPTH	BLOWS/6"	57 <u>22</u> 22001 1101.1	STRATA	DEPTH	BLOWS		
Cont'd									
08-22-17									
Tuesday									
Sunny									
•	400	55.0		T 7" D ("		55		10D T DID 0.0	
45.45	12D	55.0	5-5 7-8	Top 7": Brown fine sand, trace silt (SP-SM) Bot 8": Brown fine to medium sand, trace silt				12D Top: PID=0.0 12D Bot: PID=0.0	
15:15		57.0	7-0	(SP-SM)				12D BOL PID=0.0	
06:45 08-23-17				(SF-3IVI)	S1				
Vednesday					0.	60			
artly Cloudy	13D	60.0	11-8	Brown fine to coarse sand, some gravel, trace				PID=0.0	
84°F	102	62.0	9-9	silt (SP-SM)				Mud loss.	
		0.2.0		(3. 2)					
								Rig chatter from 64' to	
						65		65 ['] .	
•	14D	65.0	13-13	Brown fine to coarse sand, trace gravel, silty				No recovery 1st	
10:00		67.0	11-12	gravel (SP-SM)		67		attempt.	
								2nd attempt, REC=4"	
								14D: PID=0.0	
·						70		End of Boring at 67'.	
								PID=Photoionization	
								Detector.	
						75			
						90			
						80			
						85			
,									
						90			
•									
						95			
						465			
						100			
	l					1		[

MR-2 BORING NO.

MR-2

	I OCATION	SE BORIN TYPE OF RIG DURING C	ORING	W YORK ATION PLAN AND METHODS CAS DIA., IN.	S OF STABILIZIN SING USED 4	BORING NO. SHEET FILE NO. SURFACE ELEV DATUM GBOREHOLE X YES DEPTH, FT. FRO	NAVD 88
SKID BARGE		HYDRA OTHE	-	DIA., IN. DIA., IN.		DEPTH, FT. FRC	
OTHER				DIA., IN.	-	DEF III, I I. I KC	JW 10
D-SAMPLER U-SAMPLER S-SAMPLER CORE BARR CORE BIT DRILL RODS	2" & 3 R R REL	ND SIZE OF		DIAMETER TYPE OF I A TYPE AND *CASING I *SAMPLER *HAMMER		YES 140 AVERA 140 AVERA AFETY/AUTOMATIC	NO 3-7/8 SUPER GEL-X X NO AGE FALL, IN. 30 AGE FALL, IN. 30 C): AUTOMATIC
		5-5-10-	•		IONS IN BOREH	<u>OLL</u>	
DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER		CONDITIONS OF C	DBSERVATION
08-22-17	07:30	27	23	12		/ERNIGHT MUD LI	
08-23-17	06:45	57	23	14		/ERNIGHT MUD LI	EVEL NEADING.
PIEZOME	ETER INS	TALLED	YES X	NO SKE	TCH SHOWN ON		
STANDPIPE	i:	TYPE		ID, IN.		GTH, FT	TOP ELEV.
INTAKE ELE	EMENT:	TYPE		OD, IN.		GTH, FT.	TIP ELEV.
FILTER:		MATERIAL		OD, IN.	LEN	GTH, FT	BOT. ELEV.
<u>PAY</u> 3.5" DIA. DR	QUANTIT		LIN. FT.		NO. OF 3" SHELE	BY TUBE SAMPLE	S
3.5" DIA. U-S			LIN. FT.			TURBED SAMPLE	S
CORE DRIL	LING IN RO	OCK	LIN. FT.		OTHER:		
BORING C	ONTRAC		IRIS SANCHEZ	ASSOCIATED	ENVIRONMENTHELPERS		TD. SE GARCIA JR.
REMARKS		WOOL	FOUND IN CAS	ING AT 17' ON (08-21-17; AFTER	IT HAD BEEN D	RILLED OUT.
RESIDENT	_	-		RI ESLAMINEJA		DAT	
CLASSIFIC	CATION C	HECK:	CHERYL J. I	MOSS	TYPING CHEC		RI ESLAMINEJAD
MRCE Form BS-	1					E	BORING NO. MR-2

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +7.0

RES. ENGR. ARI ESLAMINEJAD

		ARI ESLAMIINEJAD						
DAILY		SAM		SAMPLE DESCRIPTION			CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	GAMIN EL DEGGIAN FIGH	STRATA			
07:10							DRILLED	Concrete & reinforced
09-21-17							AHEAD	concrete to 4.5'.
Thursday					CONC		4"	
Sunny							<u> </u>	
80°F						4.5		
80 1	1D	5.0	3-2	Brown coarse to fine sand, trace gravel, silt	F	6		PID=0.0; liner.
	יטו				-	U		FID=0.0, liner.
	0.0	7.0	8-50/3"	(SP)	WOOD			DID 00
	2D	7.0	11-29	Wood, trace medium to coarse sand, silt	WOOD			PID=0.0
09:15		9.0	14-13			9		Bottom 5" wood.
						10		
								Borehole terminated
								due to 4" casing not
								plumb.
								•
						15		End of Boring at 9'.
	 					.5		Lind of Dolling at 3.
								PID=Photoionization
								Detector.
								Detector.
						20		
						25		
						30		
						30		
						35		
						40		
	<u> </u>					45		
						40		
	<u> </u>							
						50		
L.	1			<u> </u>	1			

BORING NO. MR-3

MR-3

				В	ORING NO.	MR-3
				S	HEET	2 OF 2
PROJECT	FI	RST STREET TUI	RNING BASIN	FI	ILE NO.	12541
LOCATION		BROOKLYN, NE	EW YORK	S	URFACE ELEV	+7.0
BORING LOCATIO	N S	EE BORING LOCA	ATION PLAN	D.	ATUM	NAVD 88
	BODI	NO FOLUDATNIT	AND METHODS		DODELIOI E	
			AND METHODS	OF STABILIZING	BOKEHOLE	
TYPE OF BORING	TYPE OI		CAS	SING USED	X YES	NO
TRUCK DIETRICH					DEPTH, FT. FRO	
SKID BIETRIOI	HYDRA				DEPTH, FT. FRO	
BARGE	OTH		DIA IN		DEPTH, FT. FRO	
OTHER			Div, iiv.		DEI 111, 1 1.110	10
TYPE A	ND SIZE OF		DRIL	LING MUD USED	X YES	NO
D-SAMPLER 2" &	3" O. D. SPLIT SP	POON	DIAMETER	R OF ROTARY BIT, I	N	
U-SAMPLER			TYPE OF	DRILLING MUD		CETCO
S-SAMPLER						
CORE BARREL			A	UGER USED	YES	X NO
CORE BIT			TYPE AND	DIAMETER, IN.		
DRILL RODS NW.	J					
				HAMMER, LBS.	140 AVERA	· · · · · · · · · · · · · · · · · · ·
				R HAMMER, LBS.		GE FALL, IN. 30
			*HAMMER	TYPE (DONUT/SAF	ETY/AUTOMATIC	C): AUTOMATIC
		WATER LEV	EL OBSERVAT	IONS IN BOREHO	<u>LE</u>	
DATE TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CC	ONDITIONS OF O	BSERVATION
				NO WA	TER LEVEL OBSI	ERVATIONS MADE.
PIEZOMETER IN	STALLED	YES X	NO SKE	TCH SHOWN ON		
STANDPIPE:	TYPE		ID, IN.	LENG	TH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE				TH, FT.	TIP ELEV.
FILTER:	MATERIAL		OD, IN.		TH, FT.	BOT. ELEV.
						
PAY QUANT	<u>ITIES</u>					
3.5" DIA. DRY SAMPL	E BORING	LIN. FT.		NO. OF 3" SHELBY	TUBE SAMPLES	3
3.5" DIA. U-SAMPLE I		LIN. FT.		NO. OF 3" UNDIST		
CORE DRILLING IN R		LIN. FT.		OTHER:		
						_
BORING CONTRAC			ASSOCIATED	ENVIRONMENTA	L SERVICES L	TD.
DRILLER	CI	HRIS SANCHEZ		HELPERS	JOS	E GARCIA JR.
REMARKS						
RESIDENT ENGINE	-		RI ESLAMINEJA		DAT	
CLASSIFICATION	CHECK:	CHERYL J.	MOSS	TYPING CHECK	-	RI ESLAMINEJAD
MRCE Form BS-1					В	ORING NO. MR-3

PROJECT: FIRST STREET TURNING BASIN FILE NO.
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV.

 BORING NO.
 MR-3A

 SHEET 1 OF
 4

 FILE NO.
 12541

 JRFACE ELEV.
 +7.0

RES. ENGR. ARI ESLAMINEJAD

DAILY		SAME	PLE	OAMBLE DECORPTION			CASING	DEMARKO
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
07:10								Offset 2' north from
09-21-17								Boring MR-3.
Thursday					CONC		4" 3"	Doming with or
80°F							1 1	
00 1						4.5		
						7.5	V	{
						10		
	20	10.0	2.0	Duality sing to modify a condition		10		DID 0.0: lines
	3D	10.0 12.0	3-6 7-8	Brown silty fine to medium sand, some gravel				PID=0.0; liner. Wash color white.
		12.0	7-0	(SM)	F			
								Wash color brown.
						45		
	45	45.0	10.10			15		
	4D	15.0	10-10	Gray brown fine to coarse sand, some gravel,				PID=0.0; liner.
		17.0	12-15	silt, trace wood (SM)				
						19.5		
	5NR	20.0	11-12	No recovery				PID=0.0
		22.0	11-12					2 Attempts; REC=0".
	6D	22.0	6-11	Gray fine to coarse sand, some silt, gravel (SM)				Loosing water.
		24.0	12-15					6D: PID=0.0
						25		Gravel in shoe.
	7D	25.0	10-10	Brown fine to coarse gravelly medium to coarse				REC=5"
		27.0	10-17	sand, trace silt, pyrite (GP)				7D: PID=0.0
						30		
	8D	30.0	7-7	Gray brown gravel, trace coarse to fine sand,				PID=0.0; liner.
		32.0	10-8	silt (GP)				1st Attempt; REC=0".
	9D	32.0	10-8	Gray brown gravel, trace coarse to fine sand,				2nd Attempt; REC=3".
		34.0	9-15	silt (GP-GM)				9D: PID=0.0; liner.
14:30						35		REC=5"
09:20	10D	35.0	8-4	Brown fine to medium sand, some gravel, trace	S1			PID=0.0; liner.
09-22-17		37.0	5-5	silt (SP)	.			REC=4"
Friday								
80°F								
						40		
	11D	40.0	3-4	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		42.0	3-4	(SW)				,
						45		
	12D	45.0	4-4	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		47.0	5-5	(SP)				REC=4"
			- -					-
						50		
	13D	50.0	3-4	Brown fine to coarse sand, trace silt (SP)				PID=0.0; liner.
	. 55	52.0	4-6					REC=5"
	1	02.0	. 0			l	7	5 – 5

BORING NO. MR-3A

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +7.0
RES. ENGR. ARI ESLAMINEJAD

DAILY		SAMF	PLE	CAMPLE DECORIDEION			CASING	DEMARKO
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
Cont'd							DRILLED	
09-22-17							AHEAD	
Friday							3"	
						55		
	14D	55.0	5-8	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		57.0	10-8	(SP)				REC=5"
						60		
	15D	60.0	5-6	Brown fine to medium sand, trace silt, coarse				PID=0.0; liner.
		62.0	6-7	sand (SP-SM)				REC=6"
					S1			
						65		
	16D	65.0	5-10	Top 3": Brown coarse to fine sand, trace gravel,				PID=0.0; liner.
		67.0	7-5	silt (SP)				
				Bot 6": Brown fine to medium sand, trace silt,				
				gravel (SP-SM)				
						70	•	
	17D	70.0		Brown fine to medium sand, trace silt, gravel,				PID=0.0; liner.
		72.0	10-10	coarse sand (SP-SM)				REC=6"
						75		
	18D	75.0		Brown fine to medium sand, some silt, trace				PID=0.0; liner.
14:30		77.0	8-9	coarse sand (SM)		77		REC=6"
								End of Boring at 77'.
						80		PID=Photoionization
								Detector.
						85		
						65		
						90		
						95		
						100		

BORING NO. MR-3A

MR-3A

							BORING N	IO.	MR-3	Ą
							SHEET	4	OF	4
PROJECT			FIRST STREE	T TURN	IING BASIN		FILE NO.		12541	
LOCATION			BROOKL				SURFACE	ELEV.		7.0
BORING L	OCATION		SEE BORING	LOCAT	ION PLAN		DATUM		NAVD 88	
TYPE OF	BORING DIETRICH TYPE AN R 2" O. R R REL	BO TYPI RIG DURII D120 MEG HY	DRING EQUIPN E OF FEED NG CORING CHANICAL DRAULIC DTHER		DIA., IN. DIA., IN. DIA., IN. DIAMETER TYPE OF I TYPE AND *CASING F		DEPTH, F DEPTH, F DEPTH, F D X T, IN.	YES T. FROM T. FROM T. FROM YES YES	0 NO CETCO X NO	ΤΟ <u>5</u> ΤΟ <u>70</u> ΤΟ <u>30</u> 30
DATE 09-22-17	TIME 09:30	DEPTH C HOLE 30		OF	DEPTH TO WATER		CONDITION		ERVATION L READING.	
DIEZOM	ETED INC	TALLED	VEC	X	NO SKET	TOU SHOWN OF				
PIEZUIVIE	ETER INS	IALLED	YES	Χ	NO SKET	CH SHOWN OI	·			
STANDPIPE		TYPE				LEN	-		-	
INTAKE ELE	EMENT:	TYPE			OD, IN.		NGTH, FT.		TIP ELEV	
FILTER:		MATERIAL_			OD, IN.	LEN	NGTH, FT.		BOT. ELE	/
PAY	QUANTIT	<u>IES</u>								
3.5" DIA. DR	RY SAMPLE	BORING	LIN. FT.			NO. OF 3" SHEL	BY TUBE SA	MPLES	-	
3.5" DIA. U-	SAMPLE B	ORING	LIN. FT.			NO. OF 3" UNDI	STURBED S	AMPLES		
CORE DRIL	LING IN RO	CK	LIN. FT.			OTHER:				
BORING C	ONTRAC	TOR			ASSOCIATED	ENVIRONMEN	TAL SERVI	CES LTD.	_	
DRILLER	, 	-	CHRIS SANC			HELPERS			GARCIA JR.	
REMARKS	;					_				
RESIDENT	ENGINE	ER .		ARI	ESLAMINEJAI	D		DATE	09-2	2-17
RESIDENT ENGINEER CLASSIFICATION CHECK:						TYPING CHE	CK:	ARI F	SLAMINEJA	\D

MRCE Form BS-1

BORING NO.

MR-3A

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN LOCATION: BROOKLYN, NEW YORK

BORING NO. MR-4

SHEET 1 OF 3

FILE NO. 12541

SURFACE ELEV. +12.9

RES. ENGR. ARI ESLAMINEJAD

	1					KES		ARI ESLAMINEJAD
DAILY		SAME	PLE	SAMPLE DESCRIPTION			CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	OAMI LE DECORII HON	STRATA	DEPTH	BLOWS	KEWAKKS
09:00							DRILLED	
09-11-17	1D	1.0	3-3	Brown silty fine to coarse sand, some gravel,			AHFAD	PID=0.0
	יו	3.0	8-12	trace brick (SM)			4" 3"	1 10=0.0
Monday	o.D.			· · ·			4 3	DID 0.0
Sunny	2D	3.0	8-8	Brown silty fine to coarse sand, some gravel,	F			PID=0.0
75°F		5.0	2-8	brick (SM)		5		
	3D	5.0	6-5	Brown gravelly fine to coarse sand, some silt,				PID=0.0
		7.0	5-7	brick (SM)		7		2" Split spoon; no
	4D	7.0	24-47	Do 3D (SM)		8.1		recovery.
		9.0	50/2"	Do ob (om)	OBSTR.			3" Split spoon; REC=6".
		9.0	30/2		OBSTK.			
						10		3D: Cobble in tip.
	5D	10.0	10*-18*	Brown gravelly coarse to fine sand, some brick,				4D-7D: 3" Split spoon.
		12.0	27*-18*	trace silt (SP)				4D: PID=0.0
								5D: PID=0.0
						15		
	0.0	45.0	40+0+	T 0" D	F	15		OD T DID OO
	6D	15.0	10*-6*	Top 2": Brown coarse to fine sandy gravel,				6D Top: PID=0.0
		17.0	12*-11*	some brick, trace silt (GP-GM)				6D Bot: PID=15.4
				Bot 6": Black gravel, some coarse sand, silt				Wood from 17' to 17.5';
				(GM)				loosing water.
				()		20	1	incoming manager
	70	20.0	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Disale assess to fine sound some silt wood		21	- 	DID 7.0
	7D	20.0	WH/6"*-4*	Black coarse to fine sand, some silt, wood,		21		PID=7.2
		22.0	50/3"*	trace brick, debris metal (SM)				Loosing water.
					WOOD			
					WOOD			*3" Split spoon blow
						25		counts.
•	8D	25.0	4-3	Soft black organic silty clay, some fine to				WC=54
	00				0			
14:00		27.0	3-5	medium sand, trace coarse sand, peat, wood				PID=6.7
08:00				(OH)		28.5		
09-12-17								
Tuesday						30		
Sunny	9D	30.0	5-8	Top 10": Black fine to medium sand, trace silt				9D Top: PID=2.0;
	30	32.0	9-10	(SP-SM)				liner.
81°F		32.0	9-10	'				iirier.
				Mid 3": Brown fine to medium sand, some silt				
				(SP-SM)				
				Bot 3": Brown silty fine sand (SM)		35		9D Bot: WC=24
	10D	35.0	3-5	Soft brown silty clay, trace fine sand (CL)				PID=0.0
		37.0	7-6	, , , , , , , , , , , , , , , , , , , ,				10D: WC=33, pp=0.7
		07.0	7 0					10D: W 0=30, pp=0.7
					S1	40		Loosing water.
	11D	40.0	4-5	Brown fine to medium sand, some silt & black				PID=16.8
		42.0	6-8	fine to medium sand, trace silt, (NAPL) (SM)				
				10 20, 1. 200, (1. 1. 1. 2) (0)				
						45		
	12D	45.0	6-6	Brown fine to coarse sand, some gravel, trace				PID=0.0
		47.0	5-5	silt (SP-SM)				
		-		, ,				
						ΕO		
.	4.5.5					50		DID 00 "
	13D	50.0	5-6	Brown fine to coarse sand, trace silt (SP-SM)				PID=0.0; liner.
		52.0	7-7				\psi	

BORING NO. MR-4

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

MRCE Form BL-1

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +12.9

RES. ENGR. ARI ESLAMINEJAD

							ARI ESLAMINEJAD	
DAILY		SAMF	PLE	SAMPLE DESCRIPTION			CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	JAINIPLE DESCRIPTION	STRATA	DEPTH	BLOWS	IVEINIALI/9
							DRILLED	
09-12-17							AHEAD	
Tuesday							3"	
Sunny						55		
81°F	4.45		4.0	5 (1)		<u> </u>		DID 0 0 11
	14D	55.0	4-2	Brown fine to coarse sand, trace silt, gravel (SP)				PID=0.0; liner.
		57.0	4-8					
					S1	60		
1	15D	60.0	7-8	Brown coarse to fine sand, trace gravel, silt				PID=0.0; liner.
		62.0	7-8	(SP)				
						65		
	16D	65.0	3-4	Brown fine to coarse sand, some gravel, silt		- 03		PID=0.0; liner.
45.45	100	67.0	5- 4 5-5	(SP)				1 ID=0.0, liner.
15:15		67.0	5-5	(3P)				
07:30								
09-13-17						68.5		
Wednesday						70	*	
Sunny	17D	70.0	14-13	Brown fine to coarse sand, trace silt, gravel				PID=0.0; liner.
83°F		72.0	14-14	(SP)				
					S2			
					02			
						75		
1	18D	75.0	13-21	Brown fine to medium sand, trace gravel,				PID=0.0; liner.
08:30	100	77.0	25-27	coarse sand, silt (SP-SM)		77		End of Boring at 77'.
08.30		11.0	25-21	coarse saria, siit (or -own)				End of Boning at 77.
								MC Mater Content
						00		WC=Water Content
						80		in percent of dry
								weight.
								pp=Pocket
								Penetrometer
						85		Unconfined Compres-
								sive Strength in tsf.
								-
								PID=Photoionization
								Detector.
						90		_ 3.00.01
						- 33		
						-		
		_				95		
						100		
						-		

BORING NO. MR-4

MR-4

						BORING NO.	MR-4	
						SHEET 3	OF	3
PROJEC1	Γ	FII	RST STREET TU			FILE NO.	12541	
LOCATIO			BROOKLYN, NI			SURFACE ELEV.	+12.9	
BORING I	LOCATION	ISE	E BORING LOCA	ATION PLAN		DATUM	NAVD 88	
		<u>BORI</u>	NG EQUIPMENT	AND METHODS	OF STABILIZIN	G BOREHOLE		
		TYPE OF	FEED					
TYPE OF	F BORING	RIG DURING	ORING	CAS	ING USED	X YES	NO	
TRUCK	DIETRICH	D120 MECHAN	NICAL	DIA., IN.	4	DEPTH, FT. FROM	0 TO	20
SKID		HYDRA	ULIC X	DIA., IN.	3	DEPTH, FT. FROM	0 TO	70
BARGE		OTHI	ER	DIA., IN.		DEPTH, FT. FROM	TO	
OTHER								
	TYPE AN	ND SIZE OF		DRIL	LING MUD USED	YES	X NO	
D-SAMPLE	ם מייס		OON	DIAMETER	R OF ROTARY BIT.	INI		
		B" O. D. SPLIT SPO	DON		R OF ROTARY BIT, DRILLING MUD	IIN		
U-SAMPLE S-SAMPLE				TIPE OF L	JUITTING MICH	-		
CORE BAR				Δ	UGER USED	YES	X NO	
CORE BIT					DIAMETER, IN.	120	X NO	
DRILL ROD	os NWJ			THEAND	DIAMETER, IIV.			
DIVILL NOE	14110			*CASING H	HAMMER, LBS.	140 AVERAGE	E FALL, IN.	30
					R HAMMER, LBS.			30
						FETY/AUTOMATIC):	· —	
					,	,		
			WATER LEV	EL OBSERVATI	ONS IN BOREH	<u>OLE</u>		
DATE	TIME	DEPTH OF	DEPTH OF	DEPTH TO	(CONDITIONS OF OBS	SERVATION	
DATE	TIIVIL	HOLE	CASING	WATER	· ·	301101110110001 000	DERVATION	
09-12-17	06:30	27	25	14	+	VERNIGHT MUD LEV		
09-13-17	07:10	67	65	9	0'	VERNIGHT MUD LEV	EL READING.	
PIEZON	IETER INS	TALLED	YES X	NO SKE	TCH SHOWN ON			
STANDPIP	E:	TYPE		ID, IN.	LEN	GTH, FT.	TOP ELEV.	
INTAKE EL		TYPE		OD, IN.		GTH, FT.	TIP ELEV.	
FILTER:		MATERIAL		OD, IN.	LEN	GTH, FT.	BOT. ELEV.	
							_	-
PA	Y QUANTII	TIES						
3 5" DIA DI	RY SAMPLE	BORING	LIN. FT.		NO OF 3" SHELB	Y TUBE SAMPLES		
	-SAMPLE BO		LIN. FT.			TURBED SAMPLES	-	
	LLING IN RO		LIN. FT.		OTHER:	TORDED OAWII EEG		
JOIL DIVIL					JIIILIN.			
BORING	CONTRAC	TOR		ASSOCIATED) ENVIRONMENT	TAL SERVICES LTE) .	
DRILLER			IRIS SANCHEZ	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	HELPERS		GARCIA JR.	
REMARKS			0, 0,			3332	2, 1311 1311	
	T ENGINE	ER	Al	RI ESLAMINEJA	D	DATE	09-13-1	17
_	CATION C		CHERYL J.		TYPING CHEC		ESLAMINEJAD	
MRCE Form BS					_			MR-4

PROJECT: FIRST STREET TURNING BASIN
LOCATION: BROOKLYN, NEW YORK

BORING NO. MR-5
SHEET 1 OF 3
FILE NO. 12541
SURFACE ELEV. +16

RES. ENGR. ARI ESLAMINEJAD

PRODERISES NO DEPTH BLOWS STRATA STRATA DEPTH BLOWS STRATA	DAILY		CAMI	ח ב				CASING		CINIC		
13.0 14.0 0.0 14.0 1		NO.			SAMPLE DESCRIPTION	STRATA	DEPTH			REMARKS		
Re-24-77 3.0 AUGER trace wood (SM)					Brown fine to coarse sand, some silt, gravel	• • • • • • • • • • • • • • • • • • • •						
Monday												
Summy 84°F 2D 5.0			0.0	7.002.1	lado wood (em)							
SeT	1 -								, <u>J</u>			
20 5.0 4-5	1						5					
Top 8: Medium Gray sitty Clay, some fine to medium sand, trace sitt, gravel (SU)	04 1	2D	5.0	4-5	Brown coarse to fine sand, some brick, gravel		,					
3D 7.0 9-8 3D 70 9-8 3D 70 9-8 3D 7D 9-8 3D 7D 9-8 3D 7D 9-8 3D 7D 3D 7D 3D 7D 7D 7D		20			_					110=0.0		
9-0		3D								3D Top: PID-0.0		
Sot 4": Red brick Black fine to coarse sand, some silt, brick, PID=0.0 3" spoon, REC=2"; loosing water. Wash color reddish brown at 12.		30				_						
AD 10.0 12.0 2-1 Black fine to coarse sand, some silt, brick, gravel (SM) Sirpon, REC=2"; loosing water. Wash color reddish brown at 12. 17.2 17.3 17.2 17.3			9.0	9-0		F	10					
12.0	1	40	10.0	4.4			10					
15 15 15 15 15 15 15 15		40										
16:00			12.0	2-1	graver (Sivi)					4 -		
15												
17.2 17.2							15					
16:00 5D 20.0 17-2 Top 3": Black organic silty wood, some peat, silt, organics (OH) Bot 6": Gray fine sand, trace silt (SP-SM) SD Bot: PID=3.0 SD Bot: PID=3.0	<u> </u>						15			brown at 12.		
16:00 5D 20.0 17-2 Top 3": Black organic silty wood, some peat, silt, organics (OH) Bot 6": Gray fine sand, trace silt (SP-SM) SD Bot: PID=3.0 SD Bot: PID=3.0										-		
16:00 5D 20.0 17-2 Top 3": Black organic silty wood, some peat, silt, organics (OH) Bot 6": Gray fine sand, trace silt (SP-SM) SD Bot: PID=3.0 SD Bot: PID=3.0							17 2			-		
SD 20.0 17-2 Top 3°: Black organic silty wood, some peat, silt, organics (OH) Bot 6°: Gray fine sand, trace silt (SP-SM) SD Bot: PID=3.0 SD SD SD SD SD SD SD S												
16:00						0	20			-		
16:00	İ	5D	20.0	17-2	Top 3": Black organic silty wood, some peat,					5D Top: PID=17.8		
Bot 6": Gray fine sand, trace silt (SP-SM) SD Bot: Petroleum odor. SD Bot: WC=28, PID=5.5 SD Bot: WC=28, PID=5.5 SD Bot: Petroleum odor. SD Bot: WC=28, PID=0.5 SD Bot: WC=20, SD Bot: WC=	16:00											
Note										5D Bot: Petroleum		
Tuesday Sunny 6D 25.0 5-7 27.0 9-11 80 t 6": Black silty fine sand (SM) Brown fine sandy silt, trace to black silty fine to medium sand (SP-SM&SM) S1 S1 S1 S1 S1 S1 S1 S					, , , , , , , , , , , , , , , , , , , ,							
Sunny Sunn	Tuesdav						25					
S3°F 27.0 9-11 9-8 9-8 9-10 9-8 9-10 9-8 9-10 9-8 9-10 9-8 9-10 9-8 9-10 9-10 9-8 9-10 9-10 9-8 9-10 9-10 9-8 9-10 9-10 9-8 9-10	1 1	6D	25.0	5-7	Top 12": Brown fine to medium sandy silt (ML)					R -		
TD 27.0 9-8 9-10 Brown fine sandy silt, trace to black silty fine to medium sand (SP-SM&SM) PID=5.5 6D Bot: WC=20, PID=0.5 7D: WC=22, PID=6.1												
29.0 9-10 to medium sand (SP-SM&SM) 6D Bot: WC=20, 30 PID=0.5 7D: WC=22, PID=6.1		7D										
S1 S1 S1 S1 S1 S1 S1 S1												
S1 S1 S1 S1 S1 S1 S1 S1					(5. 5)		30			4		
S1 S1 S1 S1 S1 S1 S1 S1												
SD 35.0 6-7 7-9 Top 8': Medium Gray silty clay, some fine to medium sand, trace gravel (CL) Bot 16": Medium Brown fine clayey sand, trace medium sand (SC) PID=0.0 8D Bot: WC=28, PID=0.0 Mix mud. PID=0.0												
SD 35.0 6-7 7-9 Top 8': Medium Gray silty clay, some fine to medium sand, trace gravel (CL) Bot 16": Medium Brown fine clayey sand, trace medium sand (SC) PID=0.0 8D Bot: WC=28, PID=0.0 Mix mud. PID=0.0												
SD 35.0 6-7 7-9 Top 8': Medium Gray silty clay, some fine to medium sand, trace gravel (CL) Bot 16": Medium Brown fine clayey sand, trace medium sand (SC) PID=0.0 8D Bot: WC=28, PID=0.0 Mix mud. PID=0.0							0.5					
37.0 7-9 medium sand, trace gravel (CL) Bot 16": Medium Brown fine clayey sand, trace medium sand (SC) PID=0.0 8D Bot: WC=28, PID=0.0 Mix mud. Mix mud.	<u> </u>	0.0	05.0	0.7	T 01 M 11 0 11 1 1 1 1 1 1 1 1 1 1 1 1 1		35	1	<u> </u>	0D T WO 04		
Bot 16": Medium Brown fine clayey sand, trace medium sand (SC)		80				S 1						
medium sand (SC)			37.0	7-9		0.						
9D 40.0 10-12 Brown fine to medium sand, trace silt, coarse 40 Mix mud. PID=0.0												
9D 40.0 10-12 Brown fine to medium sand, trace silt, coarse sand (SP) 42.0 14-15 Sand (SP) 45					medium sand (SC)		40					
42.0	<u> </u>	0.0	40.0	10.10	Drawn fine to modify a condition		40			-		
10D 45.0 8-8 Brown coarse to fine sand, trace silt, gravel 9-8 (SW-SM) PID=0.0 3" Split spoon.		90			, , ,					PID=0.0		
10D 45.0 8-8 Brown coarse to fine sand, trace silt, gravel 9-8 (SW-SM) 3" Split spoon. 50			42.0	14-15	sand (SP)					-		
10D 45.0 8-8 Brown coarse to fine sand, trace silt, gravel 9-8 (SW-SM) 3" Split spoon. 50												
10D 45.0 8-8 Brown coarse to fine sand, trace silt, gravel 9-8 (SW-SM) 3" Split spoon. 50							45			_		
47.0 9-8 (SW-SM) 3" Split spoon. 50		10D	45.0	8-8	Brown coarse to fine sand, trace silt, gravel					PID=0.0		
50					_							
			-	-						' '		
11D 50.0 5-4 Brown grayelly coarse to fine sand (GP)							50					
	[11D	50.0	5-4	Brown gravelly coarse to fine sand (GP)					11D: PID=0.0		
52.0 6-8 Loosing mud.			52.0	6-8					\	Loosing mud.		

BORING NO. MR-5

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +16

RES. ENGR. ARI ESLAMINEJAD

						KES	. ENGR.	ARI ESLAMINEJAD
DAILY		SAME	PLE	OAMBLE DECORIDEION			CASING	DEMARKO
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
	140.	DEI III	DEOVVO/0		OTTOTIO	DEI III	DRILLED	
Cont'd								
08-24-17							AHEAD	
Tuesday							3"	
Sunny								
83°F						55		
03 1	400	FF 0	0.0	Ton Olly Drown fine to economic and trace ground		- 33		40D Ton: DID 0.0
	12D	55.0	6-6	Top 3": Brown fine to coarse sand, trace gravel,				12D Top: PID=0.0
		57.0	7-7	silt (SP)				12D Bot: PID=0.0
				Bot 9": Brown fine to coarse sand, trace gravel,				
				silt (SP)				
						60		
	400	00.0	0.0	D 6 4		- 00		DID 00
	13D	60.0	6-8	Brown fine to coarse sand, trace gravel, silt				PID=0.0
		62.0	9-11	(SP-SM)	S1		₩	Running sands 4'.
						65		
	4.45	05.0	40.40			65		DID 00
	14D	65.0	10-10	Brown fine to medium sand, trace silt, coarse				PID=0.0
		67.0	13-15	sand (SP-SM)				
						70		
						70		
	15D	70.0	9-9	Brown fine to medium sand, trace silt (SP)				PID=0.0
		72.0	10-12					
			_					
						73.5		
						75		
	16D	75.0	11-13	Top 7": Brown fine sand, some silt, trace	S2			16D Top: PID=0.0
15:15		77.0	15-21	gravel (SM)		77		•
10.10		11.0	.0 2 .	Bot 10": Brown fine to coarse sand, trace silt,				16D Bot: PID=0.0
				gravel (SP-SM)				End of Boring at 77'.
						80		
								WC=Water Content
								in percent of dry
								weight.
						85		PID=Photoionization
								Detector.
								_ 5.55.5
						90		
	1 7							
						95		
						93		
						100		
						100		
·								

BORING NO. MR-5

MR-5

							BORING NO.		MR-5	
							SHEET	3	OF	3
PROJECT		FIF	RST STREE	T TURI	NING BASIN		FILE NO.		12541	
LOCATION			BROOKLY				SURFACE EL	.EV.	+1	6
BORING LOCA	ATION	SE	E BORING	LOCAT	TION PLAN		DATUM		NAVD 88	
TYPE OF BO	DINC DIC	TYPE OF	FEED	ENT A		OF STABILIZIN		_	NO.	
TYPE OF BOI						ING USED	X YES	<u> </u>	NO T	0 25
TRUCK DIET	RICH D120	MECHAN HYDRA		Х		3	DEPTH, FT. F DEPTH, FT. F	_	0 T	
BARGE OTHER		OTHE			DIA., IN. DIA., IN.		DEPTH, FT. F	_	Т	
TY	PE AND SI	ZE OF			DRILL	ING MUD USE	D X YES	s	NO	
D-SAMPLER	2" & 3" O. [D. SPLIT SPO	OON			OF ROTARY BIT	Γ, IN			
U-SAMPLER					TYPE OF I	ORILLING MUD			CETCO	
S-SAMPLER CORE BARREL					^	UGER USED	X YES	e [NO	
CORE BIT						DIAMETER, IN.	X IL	L	ND AUGER	
DRILL RODS	NWJ				111 27 1110	<i>51,</i> 1112 1211, 111.		117	ND NOOLN	
			WATER	R LEVE	SAMPLER *HAMMER	HAMMER, LBS. HAMMER, LBS. TYPE (DONUT/S ONS IN BOREH	AVE AFETY/AUTOM <i>A</i>	RAGE F	FALL, IN. FALL, IN. AUTOMA	
DATE TI	ME DI	EPTH OF HOLE	DEPTH CASIN	-	DEPTH TO WATER		CONDITIONS O	F OBSE	RVATION	
08-24-17 06	5:30	22	20		17	0	VERNIGHT MU) LEVEL	READING.	
PIEZOMETE	R INSTALI	_ED	YES	Х	NO SKET	CH SHOWN O	N			
STANDPIPE:	Τ\	/PE			ID, IN.	I FN	NGTH, FT.		TOP ELEV.	
INTAKE ELEMEN		/PE			OD, IN.		NGTH, FT.		TIP ELEV.	
FILTER:	MAT	ERIAL			OD, IN.		NGTH, FT.		BOT. ELEV.	
PAY QU	ANTITIES									
3.5" DIA. DRY SA		DING	LIN. FT.			NO. OF 3" SHEL	DV TI IDE CAMO	1 50		
3.5" DIA. U-SAM			LIN. FT.			NO. OF 3" UNDIS		_		
CORE DRILLING	_	O	LIN. FT.	-		OTHER: HAND A		_	3'	
BORING CONT	TRACTOR				ASSOCIATED	ENVIRONMEN	TAL SERVICE	S LTD.		
DRILLER			IRIS SANCI		-o:	HELPERS			ARCIA JR.	
REMARKS	CINEED	N	IRCE OFFI			MPLE AT 10' IN				1 17
RESIDENT ENGINEER CLASSIFICATION CHECK: CHE			CHED		ARI ESLAMINEJAD J. MOSS TYPING CHECK			ARLE	08-2 ² SLAMINEJA	
MRCE Form BS-1			OHER	1 L J. IVI		. THING ONE	<u> </u>		NG NO.	MR-5

PROJECT: FIRST STREET TURNING BASIN LOCATION: BROOKLYN, NEW YORK

BORING NO. MR-6P

SHEET 1 OF 4

FILE NO. 12541

SURFACE ELEV. +13.8

RES. ENGR. ARI ESLAMINEJAD

DAILY		SAMPLE SAMPLE DESCRIPTION					CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REWIARRS
09:45	1HA	0.0	HAND	Brown gravelly fine to coarse sand, some silt,			DRILLED	Hand auger from 0' to
08-17-17		5.0	AUGER	trace brick (SM)			AHEAD	
Thursday							4"	1HA: PID=0.0
Sunny								
84°F						5		
	2D	5.0	2-20	Brown fine to coarse sand, some silt, gravel	F			PID=0.0; brick.
	0110	7.0	22-10	(SM)				0 1: 0" 1:
	3NR	7.0	2-2	No recovery				Gravel in 3" split spoon,
		9.0	3-1			10		REC=6"
	4NR	10.0	4-2	No recovery		10		3" Split spoon; no
	41111	12.0	4-2 1-1	No recovery		12		recovery.
		12.0	1-1			12		recovery.
					WOOD	15		*3" Split spoon blow
								counts.
						17		
	5D	17.0	2-2	Top: Dark gray silty clay, sm wood, tr f sand (ML)				5D Top: WC=34,
	_	19.0	2-3	Bot: Gray fine sandy silt, trace clay (ML)				PID=8.8
	6NR	19.0	9-4	No recovery		20		5D Bot: WC=15,
,		21.0	3-4	·	F			PID=1.6
	7D	21.0	5-2	Gray silty fine sand, trace clay, wood (SM)	Г			Loosing water.
		23.0	3-5					2" & 2nd Attempt 3"
	8D	23.0	4-9	Gray fine to medium sand, trace silt, coarse				split spoon; no
		25.0	8-7	sand, clay, wood (SM)		25		recovery.
	9D	25.0	6-8	Medium Brown fine to medium sandy clay, trace				Macro core; REC=5".
16:00		27.0	8-15	black silt seams, gravel (CL)				6NR: 2" & 2nd Attempt
07:30								3" split spoon; no
08-18-17						20		recovery.
Friday	10D	20.0	6.7	Tani Brown fine to ecoree and trace silt		30		Macro core; no
Rain	10D	30.0 32.0	6-7 7-7	Top: Brown fine to coarse sand, trace silt, gravel (SP)				recovery. 7D: WC=17, PID=0.0
84°F		32.0	7-7	Bot: Brown fine to medium sand, trace silt,				REC=6"
				coarse sand (SM)				Smell; black wash.
				Coarse sand (Givi)		35		8D: PID=0.0
	11NR	35.0	2-3	No recovery				9D: WC=16, PID=0.0
		37.0	5-5					10D Top: PID=0.0
	12D	37.0	7-6	Brown coarse to fine sand, some gravel, trace				10D Bot: PID=0.0
		39.0	5-4	silt (SP)	S1			11NR: Wash; 2" & 2nd
						40		attempt 3" split spoon;
	13D	40.0	14*-8*	Brown coarse to fine sand, trace gravel, silt				no recovery.
		42.0	6*-7*	(SP)				Gravel in tip.
								12D: PID=0.0
								REC=4"
						45		13D-15D: 3" Split
	14NR	45.0	12*-7*	No recovery				spoon.
	47.0 8*-8*					13D: PID=0.0		
								14NR: PID=0.0
						50		Gravel in tip; wash.
	15D	50.0	10-5	Brown fine to coarse sand trace silt gravel		5 0		PID=0.0
14:30	טטו	52.0	5-5	Brown fine to coarse sand, trace silt, gravel (SP-SM)				Wash.
14.30		JZ.U	J-J	(Oi Oivi)			▼	vvasii.

BORING NO. MR-6P

MRCE Form BL-1

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +13.8
RES. ENGR. ARI ESLAMINEJAD

						.,	. LITOIT.	ARI ESLAMINEJAD
DAILY		SAME	PLE	CAMPLE DECORPTION			CASING	DEMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
12:30	110.	DL: 111	B20110/0		•	DE: 111	DRILLED	
08-25-17							AHEAD	
Friday							4"	
Sunny								
83°F						55	—	
001	16D	55.0	5-7	Brown fine to medium sand, trace gravel, coarse			V	PID=0.0
	עטו							P1D=0.0
		57.0	10-10	sand (SP)	S1			
						60		
	17D	60.0	9-10	Tony Brown fine to see read and trace silt (CD)				17D Ton: DID 0.0
	טוו			Top: Brown fine to coarse sand, trace silt (SP)				17D Top: PID=0.0
		62.0	10-12	Mid: Coarse to fine sand, some gravel, trace				17D Mid: PID=0.0
				silt (SP)				17D Bot: PID=0.0
				Bot: Brown fine to coarse sand, trace silt (SP)		63.5		
				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		65		
,	400	05.0	40.40	Drawn fine to madicine and trace silt accuse		- 03		DID 0.0
	18D	65.0	12-13	Brown fine to medium sand, trace silt, coarse				PID=0.0
		67.0	16-19	sand (SP)				
						70		
					S2	70		
	19D	70.0	10-11	Brown fine to coarse sand, trace gravel, silt	32			PID=0.0
		72.0	14-12	(SP)				
				` /				
						75		
	20D	75.0	26-36	Brown coarse to fine sand, some gravel, trace				PID=0.0
15:30		77.0	33-26	silt (SP-SM)		77		End of Boring at 77'.
10.00		77.0	00 20					End of Boning at 77.
								WC=Water Content
						80		in percent of dry
'								weight.
								PID=Photoionization
								Detector.
						85		
						—		
						90		
1								
						-		
						95		
						- 55		
						100		
,						100		

BORING NO. MR-6P

MR-6P

Mueser Rutledge Consulting Engineers 14 Penn Plaza - 225 West 34th Street New York, NY 10122

T: 917 339-9300 F: 917 339-9400

www.mrce.com

PIEZOMETER OR BORING NO. MR-6P

SHEET 3 OF _

PIEZOMETER RECORD

FILE NO. 12541 INSTALLATION DATE 9/13/17

RES ENGR. A. ESIAMINAGO

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
PIEZOMETER LOCATION:

☐ SEE SKETCH ON BACK

STRATA	PIEZOMETER	DEPTH		PIEZON	METER TYPE	Stand Pipe	
	INSTALLATION	(FT)					
	DETAILS					KE POINT	
GROUND					depth t	o bottom, ft =	30
SURFACE					der	oth to top, ft = length, ft =	25_
ELEV.	7					length, ft = _	<u>5</u> =L
////////		0			diameter, in =2	, ft = _	.083 = 1
						NDPIPE/RISER	
						on of rim, ft = _	
					diameter, in =	<u></u>	. 17 = 2
FILL			DE ADIMO TI			1	
			DATE C	LOCK	DEPTH – RIM TO WATER	ELEVATION OF WATER	REMARKS
				710	10.73	1+2.67	
				955	10.88	+2.52	
		\		56	10.71	+2.69	
	/// ///			359	11.08	+ 2.32	120
				455	11.01	†2.39	
MOOD	7// ///	N		152	11.03	†2.37	
)		635	10,87	12.53	
				340	10.93	+2.47	
			NEW 17 10	270	19.75	1 401 11 1	
	2220	20					
		2					
		20					
	· · ·	平 23					
	[2]						
		+ 25		i			
SANDS							
טעאוונט							
	1 , 1 , 1	+ 30				 	
							
					T1-15-11-1-		
						-	
	1			h			

* * * * * * * * * * * * * * * * * * * *	SAND
DADD	GRAVE



GROUND SURFACE ELEV. +13.8

PIEZOMETER NO. MR-6P

								BORING N	IO.	MR-6	P
								SHEET	4	OF	4
PROJEC1	Γ		FIF	RST STR	EET TUF	RNING BASIN		FILE NO.		12541	
LOCATIO	N			BROOK	LYN, NE	W YORK		SURFACE	ELEV.	+1	3.8
BORING I	LOCATION		SE	E BORII	NG LOCA	ATION PLAN		DATUM		NAVD 88	
			BORIN	NG EQUI	PMENT A	AND METHODS	OF STABIL	IZING BOREH	<u>OLE</u>		
		-	YPE OF								
	F BORING						ING USED		YES	NO	
TRUCK	DIETRICH	D120	MECHAN	_			4	DEPTH, F			ΓO <u>55</u>
SKID			HYDRA	_	X			DEPTH, F			το
BARGE			OTH	ER _		DIA., IN.		DEPTH, F	T. FROM		го
OTHER											
	TYPE AN	ID SIZE	OF			DRII I	ING MUD U	ISED Y	YES	NO	
									ILO	INO	
D-SAMPLE		8" O. D. S	PLIT SP	OON			OF ROTARY	· —		OFTOO	
U-SAMPLE	-					TYPE OF L	DRILLING MU			CETCO	
S-SAMPLE	-						UGER USEI	,	YES	NO	
CORE BIT							DIAMETER,			AND AUGER	
DRILL ROE	os NWJ					TIPE AND	DIAIVIETEK,		П	AND AUGER	
DIVILL NOL	14773					CASING H	AMMER, LBS	140	AVERAGE	FALL, IN.	30
							HAMMER, LE		AVERAGE	_	30
						<i>0,</i> ==. (,,,,,,,,,,		
				\A/ A T	ED LEVI	EL OBSEDVATI	ONE IN DOI	DEUOLE			
				WAI	ER LEVI	<u>EL OBSERVATI</u>	ONS IN BOI	KEHOLE			
DATE	TIME	DEPT			H OF	DEPTH TO		CONDITION	S OF OBSE	ERVATION	
08-18-17	07:30	HO 2			SING 4	WATER 4		OVERN	IIGHT REAI	DING	
08-28-17	08:00	7			0	12		OVER THE \			
00 20	00.00		•					0.1			
				l		7					_
PIEZON	<u>IETER INS</u>	TALLED	<u> </u>	YES		NO SKET	CH SHOWN	N ON	SEE	SHEET NO.	3
STANDPIP	E:	TYPE		P,	/C	ID, IN.	2	LENGTH, FT.	30	TOP ELEV	' .
INTAKE EL	EMENT:	TYPE		SLOTT	ED PVC	OD, IN.	2	LENGTH, FT.	5	TIP ELEV	
FILTER:		MATERI	AL	FILTER	RSAND	OD, IN.	4	LENGTH, FT.	7	BOT. ELE\	<i>1</i> .
			_								
<u>PA'</u>	Y QUANTII	<u> TIES</u>									
3.5" DIA. D	RY SAMPLE	BORING	}	LIN. F	Г.		NO. OF 3" SI	HELBY TUBE SA	AMPLES		
3.5" DIA. U	3.5" DIA. U-SAMPLE BORING			LIN. F	г.		NO. OF 3" UI	NDISTURBED S			
CORE DRILLING IN ROCK			LIN. F	г		OTHER: HAN	ND AUGER			5'	
BORING (CONTRAC	TOR				ASSOCIATED	ENVIRONM	MENTAL SERV	ICES LTD.	•	
DRILLER			CH	IRIS SAN	ICHEZ		HELPER	-	JOSE C	GARCIA JR.	
REMARK							TER INSTAL	LED.			
_	RESIDENT ENGINEER					RI ESLAMINEJAI			DATE		25-17
CLASSIFI	CLASSIFICATION CHECK:			CHI	ERYL J. I	MOSS	TYPING C	CHECK:	ARI E	ESLAMINEJA	\D

MRCE Form BS-1

BORING NO.

MR-6P

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +14.3

BORING NO.
SHEET 1 OF
FILE NO.
URFACE ELEV.
RES. ENGR.
CASING
DEPTH BLOWS

MR-7

3
12541

+14.3
ARI ESLAMINEJAD

REMARKS

DAILY		SAMF	PLE	SAMPLE DESCRIPTION			CA	ASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BL	ows	KEWIAKKS
13:00							DR	ILLED	Soft dig to 5'.
09-14-17							Al	HEAD	1 -
Thursday								l" 3"	
Cloudy									
85°F						5			-
	1D	5.0	25-25	Brown fine to medium sand, some silt, gravel,					PID=0.0
		7.0	7-9	brick, trace coarse sand (SM)					12 0.0
	2D	7.0	10-5	Brown gravelly fine to coarse sand, some silt	F				PID=0.0; liner.
	20	9.0	7-8	(SM)					REC=5"
		9.0	7-0	(OIVI)		10			INEC-5
	3D	10.0	<i>F</i> 0	Brief, fine to ecores conductively come silt (CM)		10			DID 0.0. lines
	30	10.0	5-9 5-0	Brick, fine to coarse sandy gravel, some silt (SM)					PID=0.0; liner.
		12.0	5-8						3" Split spoon.
									REC=5"
						14			Boulder from 14' to
15:00					BLDR	15			15'.
08:00	4D	15.0	6-5	Brick, gravel (Fill)					PID=0.0; liner.
09-15-17		17.0	4-12						3" Split spoon.
Friday									REC=3"
Sunny									
Partly Cloudy						20	1	,	
80°F	5D	20.0	7-2	Wood, some brick, coarse to fine sand, trace					PID=8.9; liner.
		22.0	27-16	silt (Fill)					,
	6D	22.0	9-12	Black gravelly fine to coarse sand, some silt	F				PID=8.9
		24.0	18-16	(NAPL) (SM)	Г				12 3.3
			10 10			25			-
	7D	25.0	5-2	Black fine sandy silt, some wood, gravel					PID=10.3; liner.
	70	27.0	3-3	(SM)					1 1D=10.3, liner.
		21.0	3-3	(OIVI)					-
									-
						30			-
	0.D	20.0	0.0	Tan 411. Disable site of the same and same wood (CM)		30.5			0D T DID 40 F
	8D	30.0	6-9	Top 4": Black silty fine sand, some wood (SM)		30.5			8D Top: PID=10.5
		32.0	10-10	Bot 6": Brown fine to medium sand, trace silt,					
				schnene (SP-SM)					
12:00						35			
08:50	9D	35.0	4-5	Brown fine to medium sand, trace silt, coarse					PID=0.0; liner.
09-18-17		37.0	6-5	sand (SP)					
Monday									_
Cloudy									
75°F						40			
	10D	40.0	5-5	Brown fine to coarse sand, trace gravel, silt					PID=0.0; liner.
		42.0	6-6	(SP)	S1				
									1
						45			Mix mud.
	11D	45.0	5-8	Brown medium to fine sand, trace silt (SP-SM)					PID=0.0; liner.
		47.0	7-6	, , , , , , , , , , , , , , , , , , , ,					·
		•							1
						1			-
						50		-	-
1	12D	50.0	7-10	Brown fine to medium sand, trace silt (SP-SM)		- 30		_	PID=0.0; liner.
	120	52.0	7-10 11-11	brown fine to medium sand, trace sitt (37-3141)		1			ו וט–ט.ט, וווופו.
		JZ.U	11-11				<u> </u>	₹	

BORING NO. MR-7

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +14.3
RES. ENGR. ARI ESLAMINEJAD

						KES	. ENGR.	ARI ESLAMINEJAD
DAILY		SAME	PLE	CAMPLE DESCRIPTION			CASING	REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REWARKS
Cont'd							DRILLED	
09-18-17							AHEAD	
							3"	
Monday							3	
Cloudy								
75°F						55		
	13D	55.0	6-9	Top 6": Brown fine to coarse sand, some silt				13D Top: PID=0.0;
		57.0	10-11	(SM)				liner.
				Bot 10": Brown silty fine to medium sand (SM)				
					S1	60		
	14D	60.0	6-7	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		62.0	8-7	(SP)				1 12—0.0, m.o
		02.0	0-7	(61)				
						0.5		
	=					65		
	15D	65.0	7-9	Brown fine to coarse sand, trace silt (SP)				PID=0.0; liner.
		67.0	10-11					
						68.5		
						70	V	
	16D	70.0	14-17	Brown fine to coarse sand, trace silt (SP-SM)			,	PID=0.0; liner.
		72.0	19-18					
		72.0	13 10		00			
					S2			
						75		
	475	75.0	44.40	T 401 B 6 4		75		17D T DID 0.0
	17D	75.0	11-18	Top 12": Brown fine to coarse sand, trace				17D Top: PID=0.0
13:45		77.0	20-22	gravel, silt (SP)		77		End of Boring at 77'.
				Bot 4": Brown fine sand, some silt, trace				
				medium sand (SP-SM)				PID=Photoionization
						80		Detector.
						85		
						- 00		
						90		
						Ì		
						95		
						-		
						-		
						<u> </u>		
						465		
						100		

BORING NO. MR-7

MR-7

					BORING NO.	MR-7		
					SHEET 3	OF	3	
PROJECT	I	FIRST STREET TU	RNING BASIN		FILE NO.	12541		
LOCATION		BROOKLYN, N	EW YORK		SURFACE ELEV.	+14	.3	
BORING LOCATION	ON	SEE BORING LOC	ATION PLAN		DATUM	NAVD 88		
SKID BARGE OTHER TYPE A D-SAMPLER U-SAMPLER S-SAMPLER CORE BARREL	TYPE (G RIG DURING H D120 MECH	ANICAL RAULIC X HER	DIA., IN. DIA., IN. DIA., IN. DIA. DIA., IN. DRILI DIAMETER TYPE OF I	LING MUD USED R OF ROTARY BIT DRILLING MUD	X YES DEPTH, FT. FROM DEPTH, FT. FROM DEPTH, FT. FROM	0 TO	70	
DRILL RODS NW			TYPE AND	DIAMETER, IN.				
DATE TIME	DEPTH OF HOLE	DEPTH OF CASING	*HAMMER		E FALL, IN. AUTOMA SERVATION RVATIONS MADE			
PIEZOMETER IN		YES X		TCH SHOWN ON		TOPELEY		
STANDPIPE:	TYPE		ID, IN.		GTH, FT.	TOP ELEV.		
INTAKE ELEMENT: FILTER:	TYPE		OD, IN.		GTH, FT.	TIP ELEV.		
FILIEK:	MATERIAL		OD, IN.	LEN	GTH, FT.	BOT. ELEV.		
PAY QUANT 3.5" DIA. DRY SAMP 3.5" DIA. U-SAMPLE CORE DRILLING IN	LE BORING BORING	LIN. FT. LIN. FT. LIN. FT.			BY TUBE SAMPLES TURBED SAMPLES			
BORING CONTRA DRILLER REMARKS	CTOR	CHRIS SANCHEZ	ASSOCIATED		TAL SERVICES LT JOSE	D. GARCIA JR.		
RESIDENT ENGIN	EER	А	RI ESLAMINEJA	D	DATE	09-18	s-17	
CLASSIFICATION	CHECK:	CHERYL J.	MOSS	TYPING CHEC	CK: AR	I ESLAMINEJAD		
MRCE Form BS-1				=	-	RING NO.	MR-7	

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN LOCATION: BROOKLYN, NEW YORK

BORING NO. MR-8

SHEET 1 OF 3

FILE NO. 12541

SURFACE ELEV. 14.3

RES. ENGR. ARI ESLAMINEJAD

SAMPLE CASING DAILY **SAMPLE DESCRIPTION REMARKS** PROGRESS NO. DEPTH BLOWS/6" STRATA DEPTH BLOWS DRILLED Soft dig to 5'. 07:20 AHEAD PID=0.0; liner. 1D 1.0 8-4 Brown fine to coarse sand, some silt, gravel, 09-19-17 3.0 1-1 brick (SM) Tuesday 2D 2-1 Brown fine to coarse sand, trace silt, brick PID=0.0: liner. 3.0 Cloudy F 5 82°F 5.0 1-1 (SP-SM) REC=5" 3D 5.0 2-2 Brown medium to coarse sand, some silt, PID=0.0: liner. gravel, trace brick (SM) 7.0 5-8 4D 7.0 7-11 Brown coarse to fine sand, gravel, some cinder, PID=0.0: liner. 9 9.0 trace silt (SP) RFC=4" 8-8 **BLDR** 10 Obstruction at 10'. 5D 10.0 Tan gravelly fine to coarse sand, some silt PID=0.0 2-1 REC=4"; liner. 12.0 1-5 (SM) 15 6D 15.0 10-4 Tan fine to medium sand, some gravel, trace PID=0.0; liner. F silt, cinder (SP-SM) 17.0 4-1 20 7D 20.0 6-3 Black gravelly fine to coarse sand, some silt PID=10.7 22.0 10-8 (SM) REC=4" 23.5 3" Split spoon; gravel; liner. 0 25 8D 26 25.0 8-13 Top 6": Soft black organic silty clay, trace fine 8D Top: WC=50, 27.0 24-25 sand, gravel (OH) PID=8.8 Bot 10": Brown fine to medium sand, trace silt 8D Bot: PID=14.8; (SP) NAPL 30 9D 30.0 12-16 Brown fine to medium sand, some silt, trace PID=2.0; liner. 32.0 19-20 coarse sand, gravel (SM) 35 10D 35.0 11-14 Red brown fine to coarse sand, trace silt PID=0.0; liner. 37.0 15-16 (SP-SM) Mixed mud. **S1** 40 11D 40.0 10-13 Do 10D (SP-SM) PID=0.0; liner. 42.0 12-12 45 12D 45.0 6-8 Red brown fine to medium sand, some silt, PID=0.0; liner. 47.0 9-8 trace coarse sand, gravel (SM) 50 13D PID=0.0; liner. 50.0 7-8 Do 12D (SM) 52.0 9-8

BORING NO. MR-8

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. 14.3

RES. ENGR. ARI ESLAMINEJAD

								ARI ESLAMINEJAD
DAILY		SAME	PLE	CAMPLE DECORIDATION			CASING	DEMARKO
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
	IVO.	DEI III	DLOVV 3/0		OTIVATA	DEI III		
Cont'd							DRILLED	
09-19-17							AHEAD	
Tuesday							3"	
Cloudy								
						55		
82°F						၁၁		
	14D	55.0	5-6	Brown medium to fine sand, some silt, trace				PID=0.0; liner.
		57.0	6-6	coarse sand, gravel (SW)				
				, ,				
					S1			
					31	60		Loosing mud.
	15D	60.0	3-4	Gravel, some coarse to fine sand, trace silt				PID=0.0
13:30		62.0	6-5	(GP)				
		02.0	0-3	(01)				
9:55								
09-20-17						L		
Wednesday						65		
Cloudy	16D	65.0	7-8	Brown fine sand, trace silt, coarse to medium				PID=0.0; liner.
	יטטי					<u> </u>		1 1D=0.0, IIII61.
81°F		67.0	7-10	sand (SP-SM)				
						68.5		
						70		
						70		"
	17D	70.0	13-14	Brown fine sand, trace silt (SP-SM)				PID=0.0; liner.
		72.0	15-16					
					CO			Loosing mud.
					S2			Loosing maa.
						75		
	18D	75.0	10-11	Brown fine to medium sand, trace silt (SP-SM)				PID=0.0; liner.
11:20		77.0	14-13	,		77		,
11.20		77.0	1110					End of Boring at 77'
								End of Boring at 77'.
						80		WC=Water Content
'								in percent of dry
								weight.
								weight.
								PID=Photoionization
						85		Detector.
,								
						90		
						30		
						1		
						-		
						95		
						-		
						100		
						—		

BORING NO. MR-8

MR-8

							BORING N	Ю	MR-	8
							SHEET	3	OF _	3
PROJECT					RNING BASIN		FILE NO.		12541	
LOCATION	OATION.				W YORK		SURFACE	ELEV.		4.3
BORING LO	CATION		SEE BORIN	G LOCA	TION PLAN		DATUM		NAVD 88	3
				MENT /	AND METHODS	OF STABILIZIN	NG BOREH	<u>OLE</u>		
TYPE OF B	ODING E		OF FEED		CAS	ING USED	V	YES	NO	
	ETRICH D		HANICAL				DEPTH, F			TO 20
SKID	LIKIOIIL		RAULIC	X	DIA., IN.	3	DEPTH, F			TO 70
BARGE			THER		DIA., IN.		DEPTH, F			TO
OTHER					DIA., IN.		_ DLI III, I	1. I IXOIVI		
Т	YPE AN	D SIZE OF			DRILI	LING MUD USE	D X	YES	NO	
D-SAMPLER	2" & 3"	O. D. SPLIT	SPOON			R OF ROTARY BI	T, IN			
U-SAMPLER S-SAMPLER					TYPE OF I	DRILLING MUD			CETCO	
CORE BARRE					Λ	UGER USED		YES	X NO	
CORE BIT	·L					DIAMETER, IN.		ILO	A NO	
DRILL RODS	NWJ				THEANE	DIAWETER, IIV.				
DIVILE NODO	11110				*CASING F	HAMMER, LBS.	140	AVERAGE	FALL IN.	30
						R HAMMER, LBS.		AVERAGE	_	30
						TYPE (DONUT/S				
			\A/A ==	-D E\				,		
			WAIL	K LEV	EL OBSERVATI	ONS IN BUREF	10LE			
DATE	TIME	DEPTH OF HOLE	DEPTI CASI		DEPTH TO WATER		CONDITION	S OF OBSI	ERVATION	
		HOLE	CASI	ING	WATER	NO V	VATERIEVE	I OBSERV	/ATIONS MAI	DF
						110 1	***************************************	L ODOLIKI	77110110110111111	J.
PIEZOMET	ER INST	ALLED	YES	Х	NO SKET	TCH SHOWN O	N			
STANDPIPE:		TYPE			ID, IN.	LEI	NGTH FT		TOP ELE	·/
INTAKE ELEM	IFNT [.]	TYPE			OD, IN.		NGTH, FT.		TIP ELE\	
FILTER:		MATERIAL			OD, IN.	-	NGTH, FT.		BOT. ELE	-
.	·						,			·
<u></u>	<u>UANTITI</u>									
3.5" DIA. DRY	_		LIN. FT.			NO. OF 3" SHEL		_		
3.5" DIA. U-SA	MPLE BO	RING	LIN. FT.			NO. OF 3" UNDI	STURBED S	AMPLES		
CORE DRILLIN	NG IN RO	CK	LIN. FT.			OTHER:			-	
BORING CO	NTDACT	ΩP			٨٩٩٨٨٨٢٢٢	ENVIRONMEN	ITAI CEDV	CEGITO		
DRILLER	NINACI	<u> </u>	CHRIS SAN	CHE7	ASSOCIATEL	HELPERS	IIAL SERVI		GARCIA JR.	
REMARKS			JI II II JAIN	JI 166		- IILLI LING	-	300L (J, 11 (OIA UI).	
RESIDENT E	NGINEE	R		AF	RI ESLAMINEJA	D		DATE	09-	20-17
CLASSIFICATION CHECK:			CHF		MOSS		CK:		 ESLAMINEJ	

MRCE Form BS-1

BORING NO.

MR-8

MUESER RUTLEDGE CONSULTING ENGINEERS BORING LOG

PROJECT: FIRST STREET TURNING BASIN
LOCATION: BROOKLYN, NEW YORK SURF

BORING NO. MR-10

SHEET 1 OF 2

FILE NO. 12541

SURFACE ELEV. +14.3

RES. ENGR. ARI ESLAMINEJAD SAMPLE **CASING** DAILY SAMPLE DESCRIPTION **REMARKS** PROGRESS NO. DEPTH BLOWS/6" STRATA DEPTH BLOWS DRILLED PID=0.0 1D 0.0 4-5 Brown fine to coarse sand, some silt, brick, 12:30 6-3 AHEAD Soft dig to 5'. 2.0 gravel (Fill) (SM) 08-16-17 2D 5-5 Top 8": Red brown f-c sand, tr silt, gvl (SP-SM) PID=0.0 2.0 Wednesday 37-37 Bot 9": Brown f-c sand, sm silt, gravel (SP-SM) 4.0 Sunny 5 3D Red brown gravel, some silty fine to coarse PID=0.0 88°F 4.0 12-11 REC=5" 6.0 19-29 sand (GM) 4D Top: Gravel & brick, trace silty f-c sand (GP) 6.0 15-10 8.0 7-4 Bot: Black silty fine to coarse sand, trace gravel (SM) 10 5D 10.0 4-5 Gravel & brick, trace coarse to fine sand (GP) F 12.0 2-2 15 6D 15.0 9-3 Black fine to medium sand, some silt, trace PID=0.0 17.0 gravel, brick (SM) REC=3" 2-1 20 Wash color black. 7NR 20.0 1-7 No recovery Loosing water. 22 15:30 22.0 15-11 Spin shoe & 5' of casing lost. Hole abandoned. 25 abandoned. End of Boring at 22'. PID=Photoionization Detector. 30 35 40 45 50

BORING NO. MR-10

				1	BORING NO.	MR-10	
				:	SHEET	2 OF	2
PROJECT	FI	RST STREET TU	RNING BASIN		FILE NO.	12541	
LOCATION		BROOKLYN, NE	W YORK	;	SURFACE ELE	V. +14.3	
BORING LOCATIO	N S	EE BORING LOCA	ATION PLAN		DATUM	NAVD 88	
	POPI.	NG EQUIPMENT	AND METHODS	OE STABII IZINI	C BODEHOLE		
	TYPE OI		AND METHODS	OF STABILIZIN	G BUKEHULE		
TYPE OF BORING	_		CAS	ING USED	X YES	NO	
TRUCK DIETRICI				4	DEPTH, FT. FRO		20
SKID	HYDRA				DEPTH, FT. FRO		
BARGE	OTH		DIA IN.		DEPTH, FT. FRO		-
OTHER							-
TYPE A	AND SIZE OF		DRIL	LING MUD USED	X YES	NO	
D-SAMPLER 2" &	3" O. D. SPLIT SP	OON	DIAMETER	R OF ROTARY BIT,	IN		
U-SAMPLER			TYPE OF	DRILLING MUD		CETCO	
S-SAMPLER							
CORE BARREL			A	UGER USED	YES	X NO	
CORE BIT			TYPE AND	DIAMETER, IN.			
DRILL RODS NW	J						
				HAMMER, LBS.			30
				R HAMMER, LBS. $_$		· —	30
			*HAMMER	TYPE (DONUT/SA	FETY/AUTOMAT	IC): AUTOMATI	С
		WATER LEV	EL OBSERVAT	IONS IN BOREH	<u>OLE</u>		
DATE TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	C	CONDITIONS OF	OBSERVATION	
	TIOLL	CASINO	WATER	NO W	ATERIEVELORS	SERVATIONS MADE.	
				110 117	THE REVEL OF	DETERMINATION OF WINDE.	
PIEZOMETER IN	STALLED	YES X	NO SKE	TCH SHOWN ON			
STANDPIPE:	TYPE		ID, IN.	I FN	GTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE				GTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		GTH, FT.	BOT. ELEV.	-
PAY QUANT	<u>ITIES</u>						
3.5" DIA. DRY SAMPI	LE BORING	LIN. FT.		NO. OF 3" SHELB	Y TUBE SAMPLE	S	
3.5" DIA. U-SAMPLE	BORING	LIN. FT.		NO. OF 3" UNDIS	TURBED SAMPLE		
CORE DRILLING IN F	ROCK	LIN. FT.		OTHER:			
				. E. II (ID C)	055055		
BORING CONTRA		HRIS SANCHEZ	ASSOCIATED	ENVIRONMENT HELPERS		LTD. SE GARCIA JR.	
REMARKS	Ci	INIO OANOHEZ		_ IILLFLNO _	30	OL GANGIA JN.	
RESIDENT ENGIN	EER	AF	RI ESLAMINEJA	D	DA	TE 08-16-1	17
CLASSIFICATION		CHERYL J.		TYPING CHEC		ARI ESLAMINEJAD	
MRCE Form BS-1				_			ЛR-10

PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +14.7

RES. ENGR. ARI ESLAMINEJAD

DAILY		SAME	PLE	CAMPLE DESCRIPTION			CASING	DEMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	BLOWS	REMARKS
								Offset west from
							AHEAD	Boring MR-10.
							4" 3"	
						5		
						_		i
						10		-
								-
								-
					F			-
					•			_
						15		-
,								-
								_
								_
						20		-
10:15						20		-
10:15								_
08-28-17								_
Tuesday								_
Sunny						25		
76°F		25.0	WH/24"			23		O" 9 Ond Attompt O"
		25.0	VV H/∠4					2" & 2nd Attempt 3"
	0.D			Disale agreemin nitre place greened two as fine and				split spoon; no
	8D	27.0		Black organic silty clay, gravel, trace fine sand				recovery. Macro core
		29.0		(OH)		20		from 25' to 29'; smell.
	ΔLI	20.0	DUCLL 04"	Disale agreemin nitre place greened two as fine and	0	30		8D: WC=63, PID=42
	9U	30.0	PUSH=24"	Black organic silty clay, gravel, trace fine sand				WC=46, PID=13.1 Smell.
	40D	32.0	REC=24"	(OH)				
	10D	32.0	4-3	Black organic silty clay, some fine to coarse				WC=46, PID=11.3
		34.0	4-7	sand, gravel (OH-CL)		25		3" Split spoon; smell.
15:15	445	05.0	44.45	Disch fire to see a seed see a silt tosse		35		Rig chatter from 33' to
07:30	11D	35.0	14-15	Black fine to coarse sand, some silt, trace	S1			34'.
08-29-17		37.0	8-9	gravel, brick (SM)	01	20.5		11D: PID=0.0
Wednesday						38.5		3" Split spoon.
Cloudy						40		_
70°F	400	40.0		T 01 D 6 4		40	▼	J
	12D	40.0	3-7	Top 3": Brown fine to coarse sand, trace silt,				12D Top: PID=0.0
		42.0	6-7	brick (SP)				_
				Bot 4": Brown coarse to fine sand, trace gravel,				
				silt (SP)		4.5		_
	401.5	45.0	0.7		S2	45		
	13NR		3-5	No recovery				2" & 2nd Attempt 3"
		47.0	6-5					split spoon; no
								recovery; Macro core
						F 0		no recovery.
	4.45	50.	0.5			50		14D: PID=0.0
	14D	50.0	6-6	Brown fine to medium sand, trace coarse				Casing moving.
		52.0	7-6	sand, silt (SW-SM)			<u></u>	

BORING NO. MR-10AU

MR-10AU

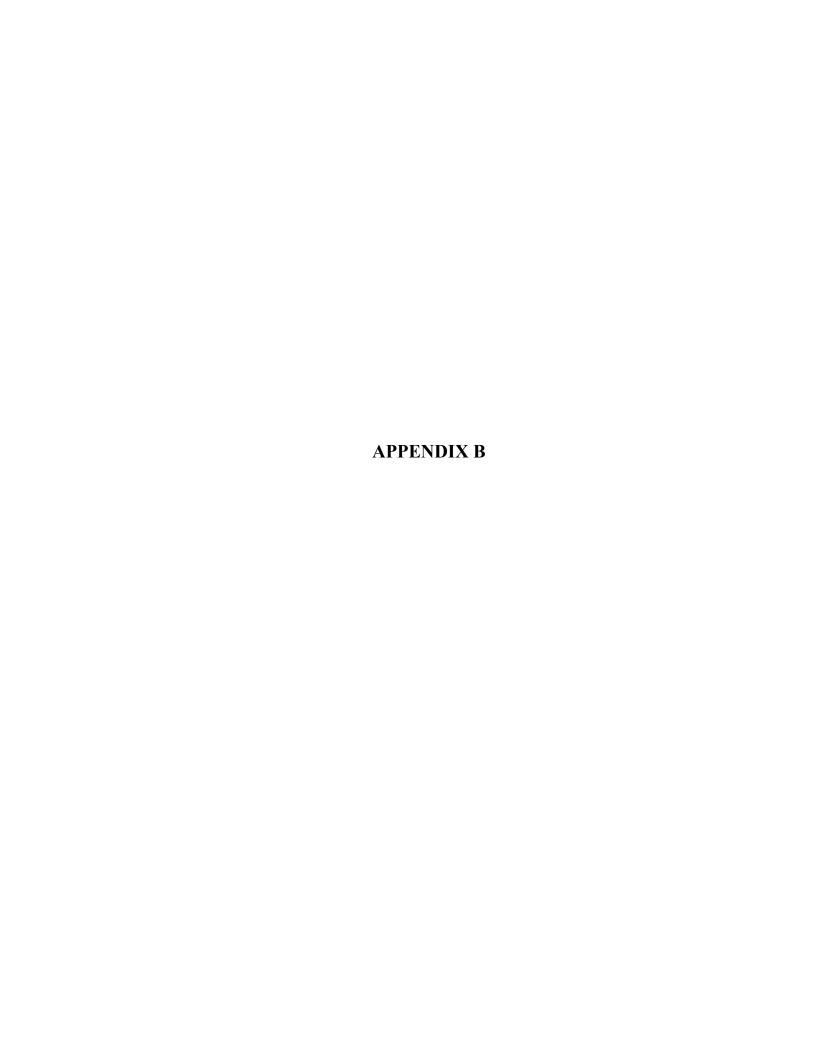
PROJECT: FIRST STREET TURNING BASIN FILE NO. 12541
LOCATION: BROOKLYN, NEW YORK SURFACE ELEV. +14.7
RES. ENGR. ARI ESLAMINEJAD

DAILY	SAMPLE			OAMBLE DECORIDEION			CASING	DEMARKO	
PROGRESS	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH		REMARKS	
Cont'd							DRILLED		
08-29-17							AHEAD		
Wednesday							3"		
Cloudy							Ĭ		
70°F						55			
701	15D	55.0	7-6	Do 14D (SW-SM)		- 33		PID=0.0	
	130	57.0	7-8	DO 14D (OVV-SIVI)				1 10=0.0	
		37.0	7-0						
						60			
	16D	60.0	5 7	Brown fine to medium sand, trace silt, mica		- 00	V	PID=0.0	
	עסו	62.0	5-7					PID=0.0	
		62.0	8-9	(SP-SM)					
					S1	0.5			
	470	05.0	7.0		31	65		DID 00	
	17D	65.0	7-8	Brown fine to medium sand, trace silt, mica				PID=0.0	
14:15		67.0	9-9	(SP-SM)					
08:30									
08-30-17									
Thursday						70			
Sunny	18D	70.0	7-8	Brown fine to medium sand, trace silt, trace				PID=0.0	
80°F		72.0	11-12	coarse sand, mica (SP-SM)					
						75			
		75.0	11-10	Do 18D (SP-SM)				PID=0.0	
		77.0	12-14						
						78.5			
						80			
	20D	20D 80.0	10-11	Brown silty fine sand, trace mica (SM)				PID=0.0	
		82.0	17-20						
						85			
	21D	85.0	10-12	Top 12": Do 20D (SM)				21D Top: PID=0.0	
	2.0	87.0	10-16	Bot 4": Brown silty fine sand, trace clay (SM)	S2			21D Bot: PID=0.0	
		01.0	10 10	Dot 1: Drown only mile dama, trace day (citi)				212 2011 12-010	
								PID=Photoionization	
						90		Detector.	
	22D	90.0	7-11	Brown silty fine sand, trace clay (SM)				PID=0.0	
	220	92.0	13-19	brown sitty line sand, trace day (Sivi)				WC=Water Content	
		32.0	10-18			-		in percent of dry	
						93.5		weight.	
						95.5		Obstruction from 94.5'	
	23D	95.2	24.27	Brown silty approx to fine send some gravel		90		J.	
	230		31-37	Brown silty coarse to fine sand, some gravel,				to 95.2'.	
		97.2	62-55	trace mica (SM)				Gravel in tip of spoon.	
					Т			Hard from 97.2' to	
						400		100'.	
	0.75	100.0		D 00D (011)		100		Loosing water.	
	24D	100.0	94-100/3"	Do 23D (SM)					
12:30		102.0				102		End of Boring at 102'.	

BORING NO. MR-10AU

MR-10AU

PROJECT LOCATIOI BORING L	N	I SE	RST STREET TUI BROOKLYN, NE EE BORING LOCA NG EQUIPMENT	EW YORK ATION PLAN		BORING NO. SHEET 4 FILE NO. SURFACE ELEV. DATUM G BOREHOLE	MR-10AU OF 4 12541 +14.7 NAVD 88		
		TYPE OF	FEED						
TYPE OF	BORING	RIG DURING	ORING	CAS	ING USED	X YES	NO		
TRUCK	DIETRICH	D120 MECHAN	NICAL	DIA., IN.	4	DEPTH, FT. FROM	0 TO 40		
SKID		HYDRA	ULIC X			DEPTH, FT. FROM	0 TO 60		
BARGE		OTHE	ER	DIA., IN.		DEPTH, FT. FROM	TO		
OTHER									
	TYPE A	ND SIZE OF		DRILI	LING MUD USED	X YES	NO		
D-SAMPLE		B" O. D. SPLIT SP	NOC		R OF ROTARY BIT,	IN			
U-SAMPLE	-			TYPE OF I	DRILLING MUD		CETCO		
S-SAMPLEI	-								
CORE BAR	REL				UGER USED	YES	X NO		
CORE BIT	S NWJ			TYPE AND	DIAMETER, IN.				
			WATER LEV	*SAMPLEF *HAMMER	HAMMER, LBS. R HAMMER, LBS. TYPE (DONUT/SA ONS IN BOREHO	140 AVERAG FETY/AUTOMATIC):	E FALL, IN. 30		
DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	C	CONDITIONS OF OB	SERVATION		
08-17-17	08:00	22	20	14.5	OV	ERNIGHT MUD LEV	EL READING.		
08-29-17	07:45	35	30	3.5	OV	ERNIGHT MUD LEV	EL READING.		
08-30-17	08:30	67	60	5	OV	ERNIGHT MUD LEV	EL READING.		
PIEZOM STANDPIPE	ETER INS	TALLED TYPE	YES X	NO SKET	TCH SHOWN ON	GTH, FT.	TOP ELEV.		
INTAKE EL		TYPE		OD, IN.		GTH, FT.	TIP ELEV.		
FILTER:	LIVILINI.	MATERIAL		OD, IN.		GTH, FT.	BOT. ELEV.		
	QUANTIT			OD, IIV.	LLIV				
3.5" DIA. DI			LIN. FT.		NO OF ALCUEUS	Y TUBE SAMPLES	4		
							1		
3.5" DIA. U-			LIN. FT.			TURBED SAMPLES			
CORE DRIL	LING IN RO	JUK	LIN. FT.		OTHER:				
BORING O	CONTRAC		IRIS SANCHEZ	ASSOCIATED	ENVIRONMENT	AL SERVICES LT	D. GARCIA JR.		
REMARKS	3	<u> </u>			 -	3302			
RESIDEN		ER	AF	RI ESLAMINEJAI	D	DATE	08-30-17		
CLASSIFI	_		CHERYL J.		TYPING CHEC		ESLAMINEJAD		
MRCE Form BS					_		RING NO. MR-10AU		



				PRC	DJECT: PW770	GOWAN						
					NATION. First	Street Turning Basin			SO	L BOR	RING LOG	
				Loc	ATION: FIISI-	Street Turning Basin	Soil Boring ID:	SB-1				
				DAT	E: 8/7/17			0.5	_			
						SHEET 1 OF 1						
				3.9877102°		LOGGED BY: Bryan Comey, Preferred Environmental Services MEASURING POINT ELEVATION: N/A						
	ATE: 8/7	E ELEVAT 7/17	ION:			DRILLING CO.: TWS	VATION: N/A					
INISH DA		7/17				DRILLERS NAME: Stev	e E.					
		D: Continu	uous			DRILLING METHOD AND		Sonic				
				ī	1							
DEPTH	DEPTH	SAMPLE REC.	PID	GRAPHIC		MATERIAL DESCRI	PTION		UNI	FIED	SOIL CLASSIFICATION AND	
(FT)	(FT)	(FT)	(PPM)	LOG		MINTERIAL DEGOTAL					SYMBOL CHART	
1										GW	Well-Graded Gravels, Gravel - Sand	
								8		5	Mixtures, Little or No Fines	
	0-5		0.0	N/A	Soft dug t	to 5 feet below grade sur	face prior to drillir	ng.	0,000	GP	Poorly-Graded Gravels, Gravel- Sand	
									00.00	GP	Mixtures, Little or No Fines	
5									06.00	CM	City Course Course Course City Minteres	
				XXXXX	Fill: Gray, po	orly graded fine to mediu	m sand with grave	el and	29.00	GM	Silty Gravels, Gravel - Sand - Silt Mixtures	
	5-7					on and demolition debris,	-		W2148			
-	7.0	3	0.0		Fill: Tan and	d black poorly graded fin	e to medium sand	and		GC	Clayey Gravels, Gravel- Sand- Clay Mixtures	
	7-8	3	0.0		gr	ravel with glass, no stain	ing or odors.		XXXXXXX			
	8-10				Fill: Black	k ash, construction and d staining or odor		no		sw	Well-Graded Sands, Gravelly Sands, Little or No Fines	
10												
	10-12	1.5	0.0		Fill: Dark gray	y poorly graded fine to m	edium sand and s	ilt with		SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines	
7		1.5				wood, no staining or	odors.					
V	12-13		4.3		F.11. 0					SM	Silty Sands, Sand - Silt Mixtures	
	13-14		18.3			ete, wood, and debris wi n odors. Wet at 13 feet b				SIVI	Silty Salids, Salid - Silt Mixtures	
	11 15		10.0		petroleun	rodoio. Wet at 10 leet t	ciow grade sariat	, ,	inini			
15	14-15		79.8		Fill: Black,	poorly graded fine to coa		with		sc	Clayey Sands, Sand - Clay Mixtures	
	15-16	4.5	80.3			gravel and debr	IS.					
-	10 17	1.0	00.0		Fill: Brown an	nd gray poorly graded fine	e to coarse sand a	and silt				
	16-17		11.2			vel and debris, petroleum					Inorganic Silts and Very Fine Sands,	
	17-18					wn poorly graded fine to heavy petroleum odor ar			111	ML	Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity	
18	17-10		35.8		with wood, i	liquid present.		liasc				
					End o	of Boring at 18 feet below				[Inorganic Clays of Low Medium Plasticity	
										CL	Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	
								Ě		01	Organic Silts and Organic Silty Clays of	
								-		OL	Low Plasticity	
								1	11111111			
											Inorganic Silts, Micaceous or	
									11111111	MH	Diatomaceous Fine Sand or Silty Sands	
								,	///////			
										СН	Inorganic class of High Plasticity	
								3	******		Organic Clays of Medium to High	
									*******	ОН	Plasticity, Organic Silts	
								3	*******			
									47 47 47 1	гт	Peat, Humus, Swamp Soils with High	
									4 474 474 47	PT	Organic Contents	
								5				
										FILL	Fill Material	
											Peat, Humus, Swamp Soils with High	
									70 50 50 50 50 50 50 5	PT	Organic Contents	
											I	

Notes: Composite samples collected from SB-1: (0'-10'); (10'-18'). Grab samples collected from SB-1: (9.5'-10'); (14'-14.5').

				PRO	JECT: PW77GOWAN		SOII	L BOR	ING LOG	
				LOC	ATION: First-Street Turning Basin	Soil Boring ID: SB-2				
				DAT	TE: 8/8/17		1			
						SHEET 1 OF	1			
				73.9882869°	LOGGED BY: Bryan Comey, Preferred Environmental Services MEASURING POINT ELEVATION: N/A					
START D		E ELEVAT 8/17	ION: N/A	1	DRILLING CO.: TWS	ATION: N/A				
FINISH D	ATE : 8/	/8/17			DRILLERS NAME: Steve E.					
SAMPLIN	IG METHO	D: Contin	uous		DRILLING METHOD AND F	RIG TYPE: Roto-Sonic				
DEPTH (FT)	DEPTH	SAMPLE REC.	PID	GRAPHIC LOG	MATERIAL DESCRIPT	ION	UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART			
	(FT)	(FT)	(PPM)				-		T	
1					Soft dug to 5 feet below grade surface	e prior to drilling, no	, vosyc	GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines	
	0-5		0.0	N/A	odors or staining.	, , , , , , , , , , , , , , , , , , , ,	00.00	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines	
5							00.00	GM	Silty Gravels, Gravel - Sand - Silt Mixtures	
	5-10	2.5	0		Fill: Brown to gray poorly sorted fine to with construction and demolition debris,			GC	Clayey Gravels, Gravel- Sand- Clay Mixtures	
10					with construction and demonitori debris,		SW	Well-Graded Sands, Gravelly Sands, Little or No Fines		
$\neg \lor$	10-11	1	1.8		Fill: Brown/Black construction and dem		SP	Poorly-Graded Sands, Gravelly Sand,		
	11-12		3.6		and wood, chemical odor, no staining.	Wet at 11 feet below	2	SF	Little or no Fines	
	12-13		4.5		grade surface.					
	13-14	4.5	59.8					SM	Silty Sands, Sand - Silt Mixtures	
15	14-15		10.3			wood with fine sand and silt, chemical odor, no				
	15-16		8.3		staining.			SC	Clayey Sands, Sand - Clay Mixtures	
								ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or	
	16-20		N/A		No Recovery			IVIL	Clayey Silts with Slight Plasticity	
	10-20		IN/A		No Recovery			CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays,	
20									Lean Clays	
	20-20.5		21.3		OL: Black clay with trace organics, of staining.	chemical odor, no	====		Organic Silts and Organic Silty Clays of	
	20.5-21				GW: Black well graded coarse sand w	ith gravel, chemical		OL	Low Plasticity	
	21-22	5	11.6 186		odor, no staining.		mini			
	22-23		100				ШШШ		Inorganic Silts, Micaceous or	
	22-23		205		OL: Black clay with trace organics, o	hemical odor and		МН	Diatomaceous Fine Sand or Silty Sands	
	23-24		287		staining.					
25	24-25		187							
-	25-26.5		119					СН	Inorganic class of High Plasticity	
		3			OL: Black poorly graded fine to coarse	sand with gravel and	********			
	26.5-27	ŭ	143		silt, heavy petroleum odor an		*******	ОН	Organic Clays of Medium to High	
	27-28			OB PS			*******		Plasticity, Organic Silts	
			81.3	34.90	GM: Gray poorly graded fine to coarse		********			
	28-29		80.6	2000	liquid present.	etroleum odor and staining, non-aqueous phase liquid present.			Peat, Humus, Swamp Soils with High Organic Contents	
30	29-30	A E	60.2	of pr			77 77 77 77		Siguillo Contollo	
	30-31	4.5	25.4	38.60	GM: Gray poorly graded fine to coarse	sand and gravel with		FILL	Fill Material	
	31-32		7.0	OF COPS	silt, heavy petroleum odor an	•				
	32-33		3.2	አው _• ቆፘ			4			
					End of boring at 33 feet below g	rade surface.	1			

Notes: Composite samples collected from SB-2: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-2: (7.5'-8'); (13.5'-14'); (23'-23.5').

PROJECT: PW77GOWAN LOCATION: First-Street Turning Basin DATE: 8/8/17 Soil Boring ID: SB-3 Soil Boring ID: SB-3 SHEET 1 OF 1 BORING LOCATION: 40.6766820° -073.9879056° LOGGED BY: Bryan Comey, Preferred Environmental Services GROUND SURFACE ELEVATION: N/A START DATE: 8/8/17 DRILLING CO.: TWS

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DRILLERS NAME: Steve E

FINISH DATE: 8/8/17
SAMPLING METHOD: Continuous

SAMPLE					i	UNIFIED COIL OF ACCIEICATION AND CYMPOL			
DEPTH (FT)	DEPTH (FT)	REC. (FT)	PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION	UNIFIED	O SOIL CLASSIFICATION AND SYMBO CHART		
1					Coff due to E foot below grade quefoce prior to drilling an		GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines	
	0-5		0.0		Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.	00.0°C	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines	
5						00.00 00.00	GM	Silty Gravels, Gravel - Sand - Silt Mixtures	
_	5-10		N/A		No Recovery.		GC	Clayey Gravels, Gravel- Sand- Clay Mixtures	
10							SW	Well-Graded Sands, Gravelly Sands, Little or No Fines	
— ı —	10-13				Fill: Construction and demolition debris (crushed brick), no odors or staining.		SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines	
	10.15	5	0.0		Fill: Construction and demolition debris (crushed gray		SM	Silty Sands, Sand - Silt Mixtures	
15	13-15				concrete), no odors or staining.		sc	Clayey Sands, Sand - Clay Mixtures	
$\overline{\nabla}$	15-18	2.5	4.3		Fill: Construction and demolition debris (crushed brick), no odors or staining.		ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayer Silts with Slight Plasticity	
20	18-20		5.7		Fill: Construction and demolition debris (crushed gray concrete), no odors or staining, wet at 18 feet below grade surface.		CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	
	20-21		2.3		E''I Bi da di da d		OL	Organic Silts and Organic Silty Clays of	
	21-22	3	35.7		Fill: Black clay with organics and glass, chemical odor, no staining.		OL	Low Plasticity	
	22-23		29.6		Ç	!!!!!!!!!!			
	23-23.5		80.7		GW: Black well graded coarse sand with gravel, chemical odor, no staining.		МН	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands	
	23.5-24		53.6						
25	24-25	5	35.8		OL: Black, low plasticity clay with wood and organics, heavy		СН	Inorganic class of High Plasticity	
	25-26		24.3		petroleum odor and staining.		J		
	26-27		25.8				ОН	Organic Clays of Medium to High	
	27-28		14.6					Plasticity, Organic Silts	
	28-29		18.8		OH: Black medium plasticity clay, heavy petroleum odor and	자 자 자 자 : 자 자 자 가 : : 4 : 4 : 4 : 4 : 4 : 4 : 4 : 4 : 4 :	PT	Peat, Humus, Swamp Soils with High Organic Contents	
30	29-30		11.7		staining, non-aqueous phase liquid present.				
	30-31	5	8.2		GM: Gray poorly graded fine to medium sand with silt and		FILL	Fill Material	
	31-32		2.4	3063	gravel, heavy petroleum odor and staining.				
	32-33		2.2	20.60	GM: Gray poorly graded fine to medium sand with silt and gravel, heavy petroleum odor and staining.			•	
					End of boring at 33 feet below grade surface.				

Notes: Composite samples collected from SB-3: (10'-20'); (20'-33'). Grab samples collected from SB-3: (18'-18.5'); (23'-23.5'). Soil boring SB-3 completed as MW-3D and MW-3S. MW-3S was unable to be utilized as a monitoring well due to collapse of the screen. MW-3S was re-drilled approximately 3 feet east of MW-3D.

PROJECT: PW77GOWAN SOIL BORING LOG LOCATION: First-Street Turning Basin Soil Boring ID: SB-3/MW-3S **DATE:** 8/18/17 SHEET 1 OF **BORING LOCATION:** 40.6766693° -073.9879169° LOGGED BY: Dan Prisco-Buxbaum, Preferred Environmental Services MEASURING POINT ELEVATION: N/A GROUND SURFACE ELEVATION: N/A **START DATE**: 8/18/17 DRILLING CO.: TWS FINISH DATE: 8/18/17 DRILLERS NAME: Steve E. SAMPLING METHOD: Continuous **DRILLING METHOD AND RIG TYPE: Roto-Sonic** SAMPLE **UNIFIED SOIL CLASSIFICATION AND DEPTH** GRAPHIC **MATERIAL DESCRIPTION** DEPTH REC. PID LOG SYMBOL CHART (FT) (PPM) (FT) (FT) Well-Graded Gravels, Gravel - Sand GW Mixtures, Little or No Fines Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no 0-5 3 0.7 Poorly-Graded Gravels, Gravel- Sand GP staining. Mixtures, Little or No Fines Silty Gravels, Gravel - Sand - Silt Mixtures GM 5-6 0.5 0.6 6-7 0.5 0.5 Fill: Brown poorly sorted fine to medium sand with silt and Clayey Gravels, Gravel- Sand- Clay GC Mixtures 7-8 0.5 0.6 construction and demolition debris, chemical odors, no staining. 8-9 0.5 0.8 Well-Graded Sands, Gravelly Sands, Little SW or No Fines 0.5 9-10 0.5 10 Poorly-Graded Sands, Gravelly Sand, SP Little or no Fines Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no 10-15 3 0.4 SM Silty Sands, Sand - Silt Mixtures staining. SC Clayey Sands, Sand - Clay Mixtures Inorganic Silts and Very Fine Sands, Rock SM: Gray/brown sandy silt with construction and demolition ML Flour, Silty or Clayey Fine Sands or Claye 15-20 1 0.5 debris, chemical odors, no staining. Wet at 16 feet below Silts with Slight Plasticity grade surface. Inorganic Clays of Low Medium Plasticity, CL Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays 20 End of boring at 20 feet below grade surface. Organic Silts and Organic Silty Clays of OL Low Plasticity Inorganic Silts, Micaceous or МН Diatomaceous Fine Sand or Silty Sands CH Inorganic class of High Plasticity Organic Clays of Medium to High

Notes: Composite sample collected from SB-3: (0'-10'). Grab sample collected from SB-3: (8.5'-9'). Soil boring SB-3 completed as MW-3S.

ОН

FILL

14 14 14 1

4 44 44 44

Plasticity, Organic Silts Peat, Humus, Swamp Soils with High

Organic Contents

Fill Material

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

Soil Boring ID: SB-4

DATE: 8/09/17

SHEET 1 OF 1

SOIL BORING LOG

BORING LOCATION: 40.6770076° -073.9885535° **LOGGED BY:** Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION: N/A
START DATE: 8/09/17

MEASURING POINT ELEVATION: N/A
DRILLING CO.: TWS

FINISH DATE: 8/09/17 DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH		SAMPLE		CRARING	<u>I</u>	LIMIEIE	SOII	CLASSIFICATION AND SYMBOL
(FT)	DEPTH (FT)	REC. (FT)	PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION	UNIFIEL	JOIL	CHART
1	(11)	(F1)	(11111)		Soft dug to 5 feet below grade surface prior to drilling, no		GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
	0-5			N/A	odors or staining.	00.0c	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
5	5-7				Fill: Brown poorly graded fine to coarse sand with silt and	00.00 00.00	GM	Silty Gravels, Gravel - Sand - Silt Mixtures
	7-8	3.5	0.0		construction and demolition debris, no odors or staining. Fill: Construction and demolition debris (crushed brick), no		GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
-	7-0	3.5	0.0		odors or staining. Fill: Brown poorly graded fine-coarse sand with gravel with	XXXXXX		
10	8-10				construction and demolition debris, (crushed concrete), no odors or staining.		SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
	10-11		1.4	-	Fill: Brown poorly graded fine to coarse sand and gravel with construction and demolition debris (brick), no odors or staining.	-	SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
	11-14	4.5	0.0		Fill: Brown poorly graded fine to coarse sand with silt, no odors or staining.		SM	Silty Sands, Sand - Silt Mixtures
15	14-15 15-16		1.8		Fill: Construction and demolition debris (crushed concrete with wood), no odors or staining. Fill: Brown poorly graded fine to coarse sand with silt and		sc	Clayey Sands, Sand - Clay Mixtures
	16-17		6.8		wood, no odors or staining. Wet at 15 feet below grade			Inorganic Silts and Very Fine Sands, Rock
	17-18	5	13.4	-	surface.	1	ML	Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
	18-19	5	2.4	-	Fill: Gray clay and fine sand and crushed rock, no odors or staining.			Inorganic Clays of Low Medium Plasticity,
20	19-20		206.3		Fill: Construction and demolition debris (wood) with chemical odor and staining.		CL	Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
	20-21		36.2		Fill: Construction and demolition debris (bricks).		OL	Organic Silts and Organic Silty Clays of Low Plasticity
	21-22		103.7	Z892X89	GC: Black poorly graded fine to coarse sand silt, chemical	nninn		LOW Flasticity
	22-23	4.5	55.4		odor and staining. GC: Black poorly graded fine to medium sand with gravel,	-	МН	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
	23-24		78.6		petroleum odor and staining, non-aqueous phase liquid			
25	24-25		192.7		present.		СН	Inorganic class of High Plasticity
	25-26	,	204.3		 OH: Black low plasticity clay with organics, chemical odor and			
	26-27 27-28	3	190.6 76.8		staining.		ОН	Organic Clays of Medium to High Plasticity, Organic Silts
	28-29		45.6	2000 M	GC: Black poorly graded fine to coarse sands with clay,	**************************************		
30	29-30	-	47.7		chemical odor and staining, non-aqueous phase liquid present.	ናጽ ላጽ ላጽ ላም ፣ ላጉ ላጉ ላጉ ት	PT	Peat, Humus, Swamp Soils with High Organic Contents
	30-31	5	34.3		OH: Gray high plasticity clay, chemical odor and staining, non- aqueous phase liquid present.		FILL	Fill Material
	31-32 32-33		76.8 19.4		SP: Gray poorly graded fine to medium sands, chemical odor and staining, non-aqueous phase liquid present.			
				100000000000000000000000000000000000000	End of boring at 33 feet below grade surface.	†		
Nata	` : .		11 4 .	d frame CD 4	(0! 10!), (10! 20!), (20! 22!) Crab camples callected from CD 4	/F FL OI)	(40 FI	201). (25 51 201) Cail barrier CD 2

Notes: Composite samples collected from SB-4: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-4: (5.5'-6'); (19.5'-20'); (25.5'-26'). Soil boring SB-3 as MW-4S and MW-4D.

PROJECT: PW77GOWAN LOCATION: First-Street Turning Basin DATE: 8/10/17 SOIL BORING LOG SOIL BORING LOG SOIL BORING LOG

OF

SHEET 1

BORING LOCATION: 40.6772239° -073.9888338°

GROUND SURFACE ELEVATION:

START DATE: 8/10/17

DRILLING CO.: TWS

FINISH DATE: 8/10/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH SAMPLE			GRAPHIC		UNIFIED SOIL CLASSIFICATION AND								
(FT)	DEPTH (FT)	REC. (FT)	PID (PPM)	LOG	MATERIAL DESCRIPTION			SYMBOL CHART					
1							GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines					
	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.	0000 0000	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines					
5						00000	GM	Silty Gravels, Gravel - Sand - Silt Mixtures					
	5-10	2	0.0		Fill: Brown poorly graded fine to medium sand with silt, construction and demolition debris and trash, no odors or		GC	Clayey Gravels, Gravel- Sand- Clay Mixtures					
10 7					staining.		sw	Well-Graded Sands, Gravelly Sands, Little or No Fines					
	10-11				Fill: Brown poorly graded fine to medium sand with silt, construction and demolition debris and trash, no odors or		SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines					
	11-13	4	0.0		staining. Wet at 11 feet below grade surface. Fill: Brown/gray poorly sorted fine to medium sand with silt,		SM	Silty Sands, Sand - Silt Mixtures					
 15	13-15				gravel and construction and demolition debris (brick), no odors or staining.		sc	Clayey Sands, Sand - Clay Mixtures					
	15-16		4.5		Fill: Black silt with fine sand, and organics (plant matter),			, .,					
	16-17		9.6		sheen noted on groundwater, organic odor.		ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey					
	17-18	5	29.6				IVIL	Silts with Slight Plasticity					
	18-19		113.6				CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays,					
20	19-20		38.5		Fill: Black silty low plasticity clay, chemical odor and staining.			Lean Clays					
	20-21		84.6				OL	Organic Silts and Organic Silty Clays of					
	21-22		46.5					Low Plasticity					
	22-23	5	73.6		Fill: Black silty clay with poorly graded fine to medium sand,		МН	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands					
	23-24		86.5		chemical odor and staining.			Diatornaceous Fine Sand of Silty Sands					
25	24-25		58.3		Fills Disable site with manyly and adding to a sound of the second of th		СН	Inorganic class of High Plasticity					
	25-26		13.8		Fill: Black silt with poorly graded fine to coarse sand, sheen noted on groundwater and chemical odor.		CII	morganic class of riight fasticity					
	26-27	3	9.6		Fill: Black poorly graded fine to coarse sand with silt, gravel		011	Organic Clays of Medium to High					
	27-28		6.7		and C&D (brick).		ОН	Plasticity, Organic Silts					
	28-29					. 44 44 44 4 	РТ	Peat, Humus, Swamp Soils with High					
30	30-31	N/A N	J N/A	N/A N/A		NI/A	A NI/A	NI/A NI/A		į.	78 48 48 48	1.1	Organic Contents
	31-32	IN/A	IN/A		No recovery from 28-33 feet below grade surface.		FILL	Fill Material					
	32-33												
					End of boring at 33 feet below grade surface.								

Notes: Composite samples collected from SB-5: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-5: (7.5'-8'); (18.5'-19'); (23'-23.5'). Soil boring SB-5 as MW-5D and MW-5D.

PROJECT: PW77GOWAN SOIL BORING LOG LOCATION: First-Street Turning Basin Soil Boring ID: SB-6 **DATE:** 8/11/17 SHEET 1 BORING LOCATION: 40.6772117° -073.9888628° LOGGED BY: Bryan Comey, Preferred Environmental Services **MEASURING POINT ELEVATION: N/A** GROUND SURFACE ELEVATION: N/A **START DATE**: 8/11/17 DRILLING CO.: TWS FINISH DATE: 8/11/17 DRILLERS NAME: Steve E. SAMPLING METHOD: Continuous DRILLING METHOD AND RIG TYPE: Roto-Sonic SAMPLE **UNIFIED SOIL CLASSIFICATION AND DEPTH GRAPHIC MATERIAL DESCRIPTION** DEPTH REC. PID LOG SYMBOL CHART (FT) (PPM) (FT.) (FT) Well-Graded Gravels, Gravel - Sand GW Mixtures, Little or No Fines Soft dug to 5 feet below grade surface prior to drilling, no 0.0 N/A 0-5 Poorly-Graded Gravels, Gravel- Sand odors or staining. GP Mixtures, Little or No Fines Silty Gravels, Gravel - Sand - Silt Mixtures Clayey Gravels, Gravel- Sand- Clay GC Mixtures 5-10 0.0 N/A No Recovery. Well-Graded Sands, Gravelly Sands, Little SW or No Fines 10 10-11 Fill: Brown poorly graded fine to medium sand with gravel, no Poorly-Graded Sands, Gravelly Sand, SP 0.0 Little or no Fines odor or staining. 11-12 Fill: Brown/black poorly graded fine to medium sands with 12-13 silt, sheen noted on groundwater, no odors. Wet at 13 feet 7.8 5 below grade surface. SM Silty Sands, Sand - Silt Mixtures Fill: Black poorly graded fine to coarse sand with silt, no 13-14 20.8 odors or staining.

Fill: Black construction and demolition debris (trash/wood),

no odors or staining.

Fill: Black silty high plasticity clay, no odors or staining.

Fill: Black silt with construction and demolition debris

(wood/debris), no odors or staining.

End of boring at 18 feet below grade surface.

SC

ML

CL

OL

ОН

FILL

44 44 44 44

14 44 44 44

Clayey Sands, Sand - Clay Mixtures

Inorganic Silts and Very Fine Sands, Rock

Flour, Silty or Clayey Fine Sands or Clayey

Silts with Slight Plasticity

Inorganic Clays of Low Medium Plasticity,

Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays

Organic Silts and Organic Silty Clays of

Low Plasticity

Inorganic Silts, Micaceous or
Diatomaceous Fine Sand or Silty Sands

Inorganic class of High Plasticity

Organic Clays of Medium to High

Plasticity, Organic Silts

Peat, Humus, Swamp Soils with High

Organic Contents

Fill Material

Notes: Composite samples collected from SB-6: (10'-18'). Grab samples collected from SB-6: (17.5'-18').

14-15

15-16

16-17

17-18

2

15

18

31.6

56.8

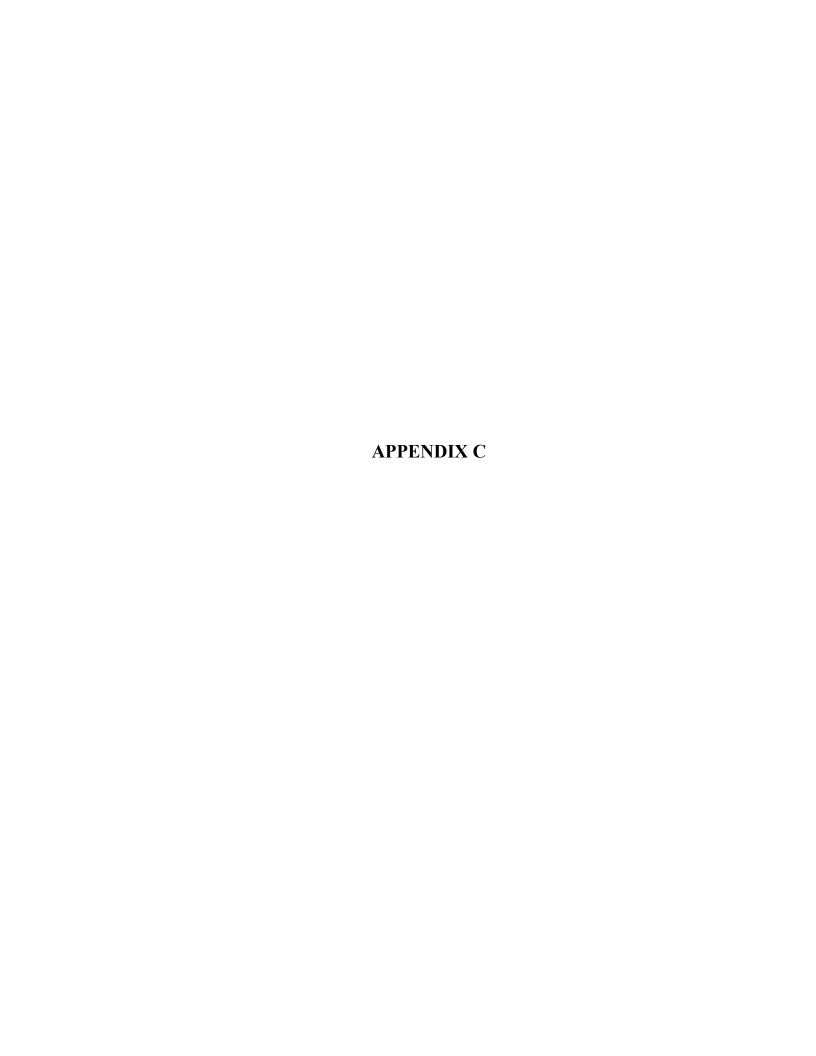
84.0

104.0

				LOG	CATION: First-Street Turning Basin Soil Boring ID: SB-7 TE: 8/18/17 SHEET 1 OF 1				SOIL BORING LOG			
BORING	I OCATIOI	N· 40 677	′1292° -07	'3.9888345°		LOGGED BY: Dan Prisco	-Buxbaum Preferred F	nvironme	ntal S	ervices		
GROUND						MEASURING POINT ELEV	•	IIIVIIOIIIIIC	intai O	CIVICCS		
START D	ATE : 8/	18/17				DRILLING CO.: TWS						
FINISH D		18/17				DRILLERS NAME: Steve						
SAMPLIN	GMEIHC	D: Continu	uous			DRILLING METHOD AND	RIG TYPE: Roto-Sonic					
		SAMPLE				<u>I</u>			FIED (COULCU ACCUTICATION AND		
DEPTH (FT)	DEPTH (FT)	REC. (FT)	PID (PPM)	GRAPHIC LOG		MATERIAL DESCRIP	UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART					
1									GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines		
	0-5	3	0.3			plack poorly sorted fine to etion and demolition debris		00.0°C	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines		
5	5-6	0.5	9.6					00000	GM	Silty Gravels, Gravel - Sand - Silt Mixture		
-	6-7	0.5	10.8			black poorly sorted fine to		78 JAN 87		Clayey Gravels, Gravel- Sand- Clay		
	7-8	0.5	94.8		and constru	uction and demolition debr staining.	is, chemical odor, no		GC	Mixtures		
-	8-9	0.5	81.2		ĉ	otaning.						
10	9-10	0.5	76.4			olack poorly sorted fine to uction and demolition deb odor, no staining	ris (wood), chemical		sw	Well-Graded Sands, Gravelly Sands, Littl or No Fines		
	10-11		70.3			plack poorly sorted fine to				Poorly Craded Sands, Crayally Sand		
	11-12	2	62.4		and constru	uction and demolition debr staining.	is, chemical odor, no		SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines		
	12-13 13-14	3	19.5 32.5		construction	plack poorly sorted sand wand demolition debris (wo	rood), chemical odor, no		SM	Silty Sands, Sand - Silt Mixtures		
15	14-15		29.3		stain	ing. Wet at 12 feet below	grade surface.		sc	Clayey Sands, Sand - Clay Mixtures		
	15-33		N/A		No recov	very from 15 to 33 feet bel	ow grade surface.		ML	Inorganic Silts and Very Fine Sands, Roc Flour, Silty or Clayey Fine Sands or Claye Silts with Slight Plasticity		
33									CL	Inorganic Clays of Low Medium Plasticity Gravelly Clays, Sandy Clays, Silty Clays Lean Clays		
					End	of boring at 33 feet below	grade surface.		OL	Organic Silts and Organic Silty Clays of Low Plasticity		
									МН	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands		
									СН	Inorganic class of High Plasticity		
									ОН	Organic Clays of Medium to High Plasticity, Organic Silts		
								森 华 森 泰 7 5 4 4 4 4 7 7 5 5 5 5 5 5	PT	Peat, Humus, Swamp Soils with High Organic Contents		
									FILL	Fill Material		
				d from SB-7: w grade surf		5'). Grab sample collecte	d from SB-7: (7.5'-8');	(11'-11.5')	. SB-7	was re-drilled after hitting		

PROJECT: PW77GOWAN SOIL BORING LOG LOCATION: First-Street Turning Basin Soil Boring ID: SB-8 **DATE:** 8/14/17 SHEET 1 OF BORING LOCATION: 40.6768319° -073.9880485° LOGGED BY: Bryan Comey, Preferred Environmental Services MEASURING POINT ELEVATION: N/A GROUND SURFACE ELEVATION: N/A **START DATE**: 8/14/17 DRILLING CO.: TWS FINISH DATE: 8/14/17 DRILLERS NAME: Steve E. SAMPLING METHOD: Continuous **DRILLING METHOD AND RIG TYPE: Roto-Sonic** SAMPLE **UNIFIED SOIL CLASSIFICATION AND DEPTH** GRAPHIC MATERIAL DESCRIPTION DEPTH REC. PID LOG SYMBOL CHART (FT) (PPM) (FT.) (FT) Well-Graded Gravels, Gravel - Sand GW Mixtures, Little or No Fines Soft dug to 5 feet below grade surface prior to drilling, no N/A 0-5 N/A Poorly-Graded Gravels, Gravel- Sand odor or staining. GP Mixtures, Little or No Fines Silty Gravels, Gravel - Sand - Silt Mixtures GM Fill: Brown poorly sorted fine to medium sand and silt with Clayey Gravels, Gravel- Sand- Clay GC Mixtures 5-10 0.0 construction and demolition debris (bricks), no odor or staining. Well-Graded Sands, Gravelly Sands, Little SW or No Fines Fill: Red construction and demolition debris (crushed brick) Poorly-Graded Sands, Gravelly Sand, SP 10-12 5.0 Little or no Fines with poorly sorted fine to medium sand, silt and clay, no odor or staining. Wet at 11 feet below garade surface. 12-13 4 7.8 SM Silty Sands, Sand - Silt Mixtures 13-14 12.9 Fill: Black/gray construction and demolition debris (concrete) 14-15 14.8 15 with poorly sorted fine to medium sand and silt, petroleum SC Clayey Sands, Sand - Clay Mixtures odor, no staining. 15-16 10.2 3 Inorganic Silts and Very Fine Sands, Rock 16-17 0.4 Fill: Red/brown poorly graded fine to medium sand with silt Flour, Silty or Clayey Fine Sands or Clayey MI and construction and demolition debris, no odor or staining. Silts with Slight Plasticity 17-18 0.0 18 Inorganic Clays of Low Medium Plasticity, End of boring at 18 feet below grade surface. CL Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays Organic Silts and Organic Silty Clays of OL Low Plasticity Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands Inorganic class of High Plasticity Organic Clays of Medium to High ОН Plasticity, Organic Silts Peat, Humus, Swamp Soils with High 47 47 47 Organic Contents 4 44 44 44 FILL Fill Material

Notes: Composite samples collected from SB-8: (0'-10'); (10'-18'). Grab samples collected from SB-8: (7.5'-8'); (12.5'-13').



Photograph Captions

Photograph 1 - Facing north along the western edge of the filled-in First Street Turning Basin showing accumulated debris, loose soils spilling into the canal, and the absence of a retaining wall.

Photograph 2 - Facing northwest towards the foundation of a brick building located adjacent to the northern edge of the former basin at its western-end. The brick building is supported by a concrete foundation with a wooden fender.

Photograph 3 - Facing southwest towards the chain-link fence along the southern edge of the former basin at its western-end. The fence rests on a concrete foundation with a wooden fender.

Photograph 4 - Facing west towards western portion of in the former basin. The former basin originally extended from approximately the brick building on the right to the chainlink fence on the left.

Photograph 5 - Facing east along former basin from western half. The topography is irregular in this area. CubeSmart Self Storage on 3rd Avenue is visible in the background.

Photograph 6 - Facing north from paved central portion of filled-in basin used for parking. Test Pit 3 is located in the center of photograph. The parking area continues to the north to Carroll Street.

Photograph 7 - Facing east from the eastern un-paved portion of the filled-in basin. Test Pit 4 was excavated in this area.

Photograph 8 - Facing west from within the Extra Space storage facility parking lot located northeast of the filled-in basin. The northern edge of the basin was likely located somewhere between the front of the excavator and the curb line.

Photograph 9 - Facing west showing completed excavation of Test Pit 1. Note loose sandy fill and extensive modern refuse. The canal is in the background.

Photograph 10 - Facing southwest showing excavation of Test Pit 2 at base of chain-link fence extending along southern edge of the former basin.

Photograph 11 - Facing south into Test Pit 2 showing portion of the wooden bulkhead beneath concrete wall approximately 5 feet below base of fence.

Photograph 12 - Facing south in Test Pit 2 showing portion of wooden bulkhead and fasteners beneath decomposing concrete wall approximately 5 feet below base of fence. Three separate horizontal squared timbers are visible. Base of trench is approximately 9 feet below ground surface.

Photograph 13 - Facing south in Test Pit 2 showing portion of wooden bulkhead and fasteners beneath decomposing concrete wall approximately 5 feet below base of fence. Three separate horizontal squared timbers are visible.

Photograph 14 - Detail of metal fasteners extending into wooden bulkhead in Test Pit 2, immediately below decomposing concrete wall.

Photograph 15 - Facing south into partially excavated Test Pit 3. Note multiple layers of fill and brick demolition debris.

Photograph 16 - Facing south into Test Pit 3. Note multiple layers of fill and loose sandy fill at bottom.

Photograph 17 - Test Pit 3 at completion. Bottom of test pit is approximately 10 feet below the parking lot ground surface.

Photograph 18 - Facing east showing partially excavated Test Pit 4. Note loose sandy fills and modern refuse.

Photograph 19 - Modern refuse and car tire encountered in Test Pit 4.

Photograph 20 - Facing west towards the canal showing the excavation of Test Pit 5 at base of the brick building on right.

Photograph 21 - Facing northwest at the building foundation at the northern side of Test Pit 5. The brick building is resting on a concrete foundation supported by a concrete footer within a matrix of mixed fill. Remains of the wooden form used to pour the concrete footer are still present.

Photograph 22 - Facing northwest at building foundation at northern side of Test Pit 5 showing timber pile that is supporting the concrete footer. Soils at bottom of photo are approximately 6.5 feet below base of brick building.

Photograph 23 - Facing west showing upper portion of western wall of Test Pit 6. Note multiple layers of loose fill and demolition debris. A 2-inch diameter pipe is located at the bottom of the photo.

Photograph 24 - Facing west showing lower portion of western wall of Test Pit 6. Note multiple layers of loose fill and demolition debris. Note 6-inch diameter pipe extending into the test pit from the left. Base of trench is approximately 10 feet below ground surface in this photo.



Facing north along the western edge of the filled-in 1st Street Turning Basin showing accumulated debris, loose soils spilling into the canal, and the absence of a retaining wall.



Facing northwest towards foundation of brick building located adjacent to northern edge of basin at its western end. Building is supported by a concrete foundation with a wooden fender.



Facing southwest towards chainlink fence lining the southern edge of the basin at its western end. The fence rests on a concrete foundation with a wooden fender.

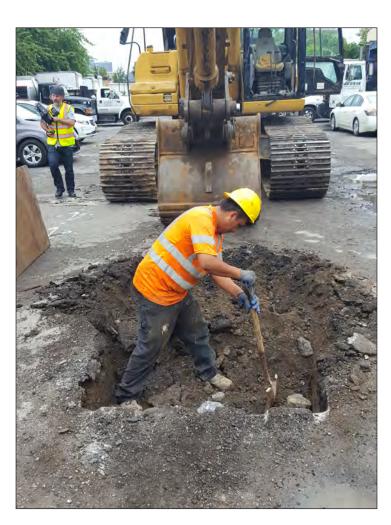


Facing west towards western portion of filled-in basin. The former turning basin originally extended from approximately the brick building on the right to the chainlink fence on the left.



Facing east along filled-in turning basin from western half. Topography is irregular in this area. CubeSmart Self Storage on 3rd Avenue is visible in the background.





Facing north from paved central portion of filled-in basin used for parking. TP3 is located in the center of photograph. The parking area continues to the north to Carroll Street.



Facing east from the eastern un-paved portion of the filled-in basin. TP4 was excavated in this area.



Facing west from within the Extra Space Storage storage facility parking lot located northeast of the filled-in basin. The northern edge of the basin was likely located somewhere between the front of the excavator and the curb line.

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Facing west showing completed excavation of TP1. Note loose sandy fill and extensive modern refuse. The Gowanus Canal is in the background.



Facing southwest showing excavation of TP2 at base of chain-link fence extending along southern edge of turning basin.



Facing south into TP2 showing portion of wooden bulkhead beneath concrete wall approximately 5 feet below base of fence.



Facing south in TP2 showing portion of wooden bulkhead and fasteners beneath decomposing concrete wall approximately 5 feet below base of fence. Three separate horizontal squared timbers are visible. Base of trench is approximately 9 feet below ground surface.



Facing south in TP2 showing portion of wooden bulkhead and fasteners beneath decomposing concrete wall approximately 5 feet below base of fence. Three separate horizontal squared timbers are visible.



Detail of metal fasteners extending into wooden bulkhead in TP2, immediately below decomposing concrete wall.



Facing south into partially excavated TP3. Note multiple layers of fill and brick demolition debris.



16 Facing south into TP3. Note multiple layers of fill and loose sandy fill at bottom.



TP3 at completion. Bottom of trench is approximately 10 feet below the parking lot ground surface.



Facing east showing partially excavated TP4. Note loose sandy fills and modern refuse.



Modern refuse and car tire encountered in TP4.



Facing west towards Gowanus Canal showing excavation of TP5 at base of brick building on right.



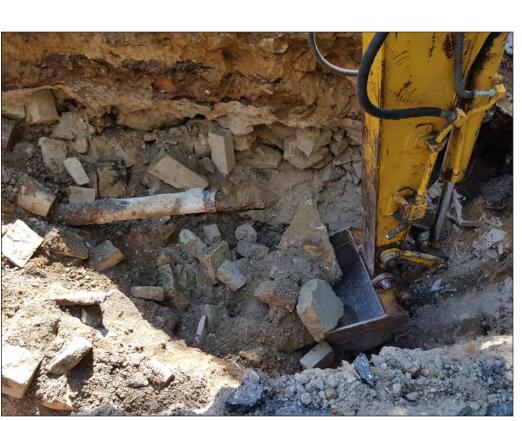
Facing northwest at building foundation at northern side of TP5. Brick building is resting on a concrete foundation supported by a concrete footer within a matrix of mixed fill. Remains of the wooden form used to pour the concrete footer are still present.



Facing northwest at building foundation at northern side of TP5 showing timber pile that is supporting the concrete footer. Soils at bottom of photo are approximately 6.5 feet below base of brick building.



Facing west showing upper portion of western wall of TP6. Note multiple layers of loose fill and demolition debris. A 2-inch diameter pipe is located at the bottom of the photo.



Facing west showing lower portion of western wall of TP6. Note multiple layers of loose fill and demolition debris. Note 6-inch diameter pipe extending into trench from the left. Base of trench is approximately 10 feet below grade in this photograph.