November 29, 2023

Christopher Allan
New York State Department of Environmental Conservation
Division of Environmental Remediation
47-20 21st Street
Long Island City, NY 11101
Christopher.Allan@dec.ny.gov

Re: Pilot Study Work Plan
IRM LNAPL Recovery
ABC Block 26
Long Island City, NY
BCP Site No. C241174
Langan Project No. 170340203

Dear Mr. Allan:

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C (Langan) presents this Pilot Study Work Plan for New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site No. C241174 (ABC Block 26 or the site). The site is located at 5-25 46th Avenue in Long Island City, New York and is identified as Queens Tax Block 26, Lots 17 and 21. A site location map is provided as Figure 1.

As discussed with the NYSDEC and New York State Department of Health (NYSDOH) during a conference call on June 27, 2023, Langan will complete a field pilot study that will consist of a light non-aqueous phase liquid (LNAPL) recovery event within an indoor space at the site to understand the potential impacts to air quality. The pilot study results will be used to refine the scope of work for the forthcoming NAPL recovery Interim Remedial Measures Work Plans (IRMWP) for the site and the other two ABC BCP sites (ABC Block 25 [BCP Site No. C241173] and ABC Block 27 [BCP Site No. C241175]).

SITE BACKGROUND

The ABC sites enrolled into the NYSDEC BCP in 2015. Remedial investigations (RI) and Supplemental Remedial Investigations (SRI) were performed on all three sites between August 2016 and February 2022. NAPL was identified on all three BCP sites during the RIs. On May 4, 2023, the NYSDEC approved Remedial Investigation Reports (RIR) for all three BCP sites. During a conference call on May 15, 2023, the NYSDEC agreed to a conceptual course of action to start addressing BCP requirements through IRMWPs, while the Participants pursue potential land use actions to enable the final remedy to occur in conjunction with future redevelopment of the sites.

During a subsequent meeting with the NYSDEC and NYSDOH, the NYSDEC agreed that the scope of the IRMWPs at all three BCP sites will include an inspection and repair of the current cover systems and LNAPL recovery events. The NYSDEC and NYSDOH asked the Participant to conduct a pilot study on one of the BCP sites to evaluate whether product recovery events could adversely impact indoor air at the sites before the IRMWPs are submitted.

Distinct sources of LNAPL were identified during the RIs at the ABC sites. Mineral spirits and diesel fuel related to the upgradient Paragon Paint and Varnish Corp. BCP site were identified in the eastern part of ABC Block 26. Residual/weathered LNAPL (without a clear hydrocarbon signature) related to historical on-site petroleum bulk storage was identified in defined areas on all three sites. Since these sources/types of LNAPL were observed at ABC Block 26, the NYSDEC and Langan agreed to utilize ABC Block 26 as the test site for the pilot study and utilize the results to support development of the IRMWP scope for all three BCP sites. We plan to utilize monitoring well MW30D (where the observed LNAPL is related to historical on-site petroleum bulk storage) and monitoring well MW34D (where the LNAPL is related to the Paragon Paint and Varnish Corp. BCP site) for the field pilot study.

PILOT STUDY IMPLEMENTATION

The pilot study will be completed during two separate field deployments (one field day each) to evaluate potential adverse impacts to indoor air during product recovery events. Each deployment will occur on weekends while sample/LNAPL recovery locations are not occupied by personnel of tenants.

Baseline Indoor Air Sampling and Absorbent Sock Deployment

During the first field deployment, Langan will complete a baseline air sampling event and subsequently install two absorbent socks[1] at monitoring wells MW30D and MW34D.

Before installation of the absorbent socks, a baseline product/chemical inventory, NYSDOH indoor air quality questionnaire, and a baseline indoor air and ambient air sampling event will be completed. The sampling event will occur after the inventory and questionnaire are completed. Before, during, and after the implementation of the baseline indoor air sampling event a photoionization detector (PID) will be used to periodically monitor volatile organic compounds (VOC) within the immediate area of the work zone. Two indoor (one for each monitoring well) and one ambient air sample will be collected over a 2-hour sampling period into laboratory-supplied batch-certified clean 2.7- or 6-liter Summa® canisters with calibrated flow controllers and analyzed for VOCs via United States Environmental Protection Agency (USEPA) method TO-15, Select Ion Monitoring (SIM) to achieve lower reporting for select compounds.[2,3] The indoor air

[1] New Pig® hydrophobic monitoring well skimming sock (1.5" x 18") or similar equivalent

[2] Analytical services protocol (ASP) Category B data packages will be requested from the laboratory.

[3] TO-15 SIM analysis will be used to provide reporting limits of 0.20 micrograms per cubic meter or lower for trichloroethene, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, and vinyl chloride.

samples will be collected at a height above the ground that represents the breathing zone (about 3 to 5 feet) and placed adjacent to each monitoring well. The ambient air sample will be collected from an upwind location to the fresh air intake for the building to evaluate potential outdoor air interferences. Mechanical heating, ventilation, and air conditioning (HVAC) systems will operate normally and windows and/or doors will be closed during the baseline air sampling.

Following collection of the baseline samples, the monitoring wells will be gauged for LNAPL thickness and depth to groundwater and absorbent socks will be deployed at each monitoring well. The proposed baseline air sampling locations are included on Figure 2. A proposed sample summary is included as Table 1.

Indoor Air Sampling and LNAPL Recovery Event

About one week after the first deployment, we will return to the site to change out the absorbent socks at monitoring wells MW30D and MW34D and collect indoor air and ambient air samples during the retrieval, change-out, and disposal process (estimated to take approximately 20 minutes during the 2-hour sampling event).

The spent absorbent socks will be collected from the monitoring wells and placed directly into a high-density polyethylene (HDPE) bucket with a lid, which will be used to transfer the spent socks to a 55-gallon drum stored in a secured outdoor area at the adjoining ABC Block 27 site. Before the air monitoring event, a chemical inventory and NYSDOH indoor air quality questionnaire will be completed. Before, during, and after the implementation of the LNAPL recovery indoor air sampling event a PID will be used to periodically monitor VOCs within the immediate area of the work zone. The sock change-out and disposal process will occur during the indoor air and ambient air sampling event. The indoor and ambient sampling locations will be the same as the baseline samples and sampling methodology will be consistent with the baseline event and as described below. Mechanical HVAC systems will operate normally and windows and/or doors will be closed during the air sampling.

The air sampling event during the LNAPL recovery effort will include the following steps:

1. Position Summa® canister adjacent to the monitoring well at the same distance and height as recorded during the baseline sampling event
2. Open flow controller about 30 minutes before absorbent sock retrieval and change-out
3. At about the 30-minute mark:
    a. open well cover and cap
    b. retrieve the absorbent sock and place it into a HDPE bucket with a lid
    c. gauge monitoring well for depth to LNAPL and water
    d. attach string to a new absorbent sock and deploy sock into the monitoring well
    e. affix string to well cap

f. close and tighten well cap and cover

4. Transfer spent absorbent sock from HDPE bucket to the outdoor storage drum.
5. Continue to monitor vacuum pressure and stop the sampling period before or at about the 120-minute mark.
6. Deliver sample canisters to the laboratory courier under standard chain of custody protocol to be analyzed for VOCs via USEPA method TO-15 SIM.

The proposed sample locations are included on Figure 2. A proposed sample summary is included as Table 1.

REPORTING

Langan will prepare a letter-style report that describes our methodologies and presents our field observations, analytical results, and conclusions. Analytical data will be validated consistent with the procedures outlined in the Remedial Investigation Work Plan (RIWPs) and submitted as electronic data deliverables (EDDs) to the NYSDEC EQuIS database. The report will also include site photographs, indoor air and ambient air sampling logs, copies of the chemical/product inventories, and the completed NYSDOH questionnaires.

SCHEDULE

Mobilization for the pilot study will commence after this work plan is approved pending coordination of access with tenants. Mobilization is expected to be about two weeks after receiving approval of the work plan. Once the pilot study is completed and the analytical data is validated, Langan will draft and submit the report. We anticipate delivering a draft report about four weeks after receipt and validation of analytical data.

CERTIFICATION

I, Jason J. Hayes, certify that I am currently a Qualified Environmental Professional [as defined in 6 NYCRR Part 375] and that this Pilot Study Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Sincerely,

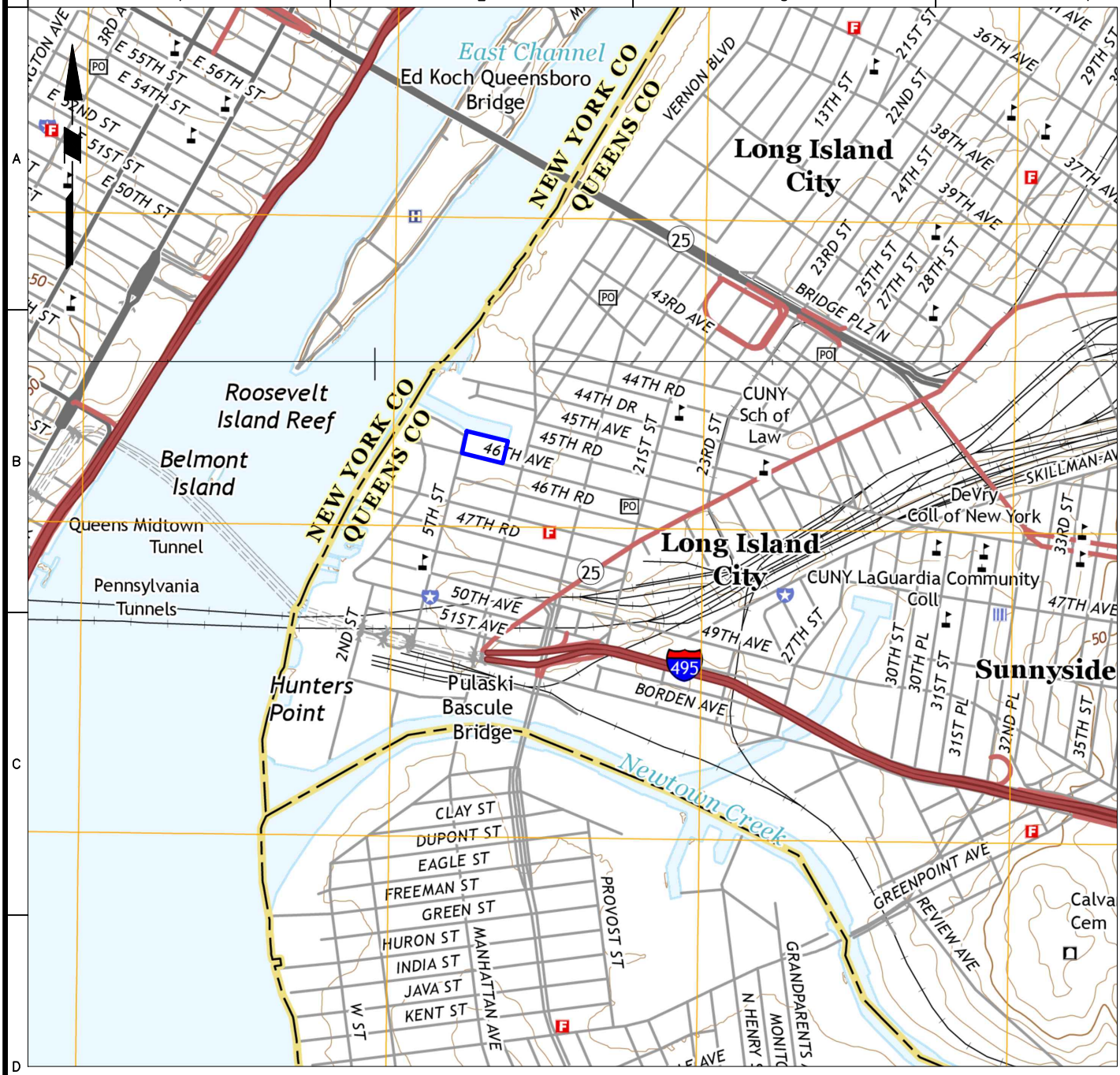
Langan Engineering, Environmental, Surveying
Landscape Architecture and Geology, D.P.C.

Jason J. Hayes, P.E.
Vice President/Principal

cc: J. O'Connell, C. Allan, M. Yau (NYSDEC)
S. Berninger (NYSDOH)
T. Pfohl, M. Quigley, P. Kirby, J. Hare (Plaxall)
E. Knauer (SPR)
M. Raygorodetsky, G. Wyka, A. Nesci (Langan)

Enclosures: Figure 1 – Site Location Map
Figure 2 – Proposed Sample Location Plan
Table 1 – Proposed Sample Summary

FIGURES



LEGEND

APPROXIMATE SITE BOUNDARY

SOURCE: UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHIC MAP, BROOKLYN (2016) AND CENTRAL PARK (2016)

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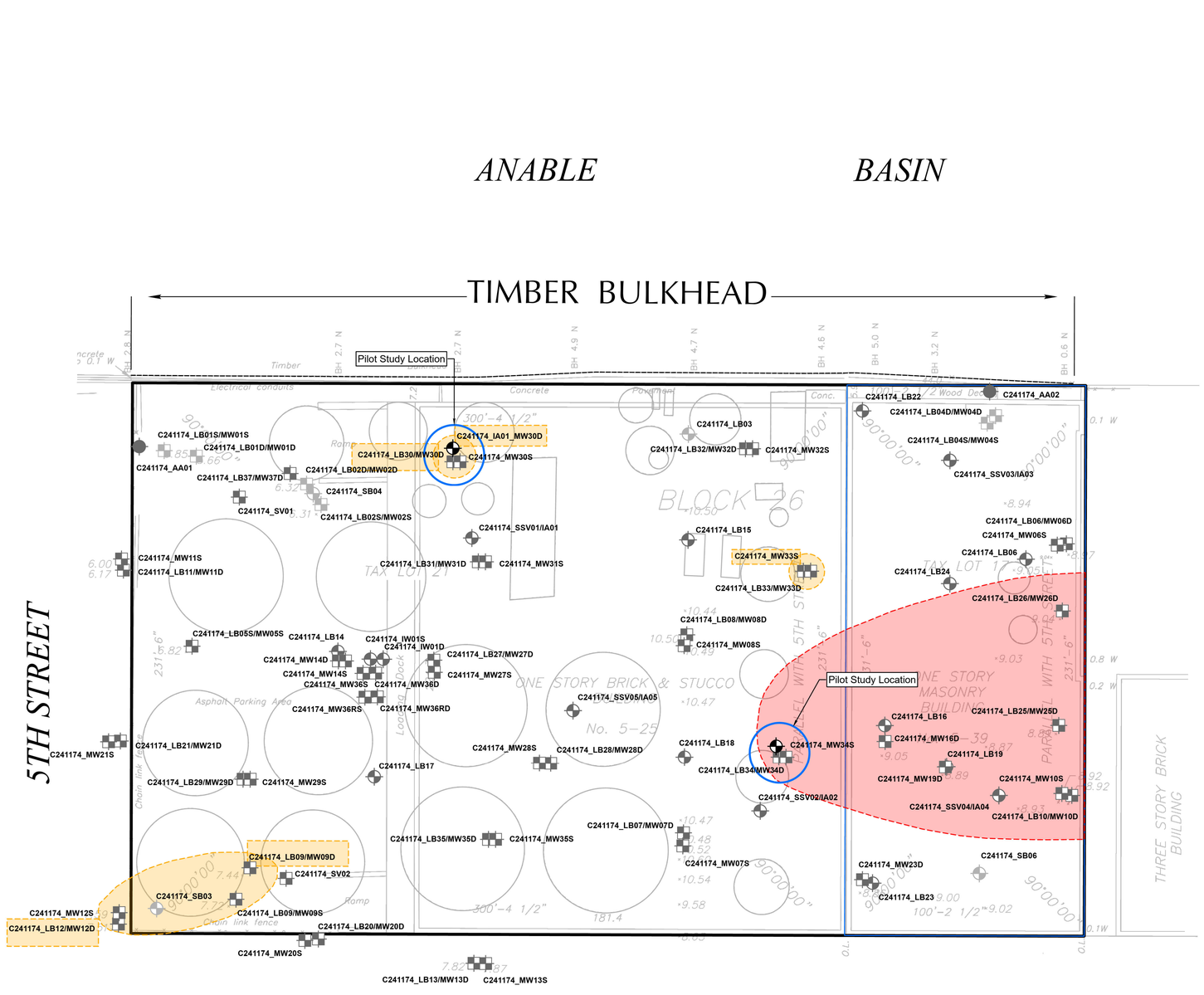
Project	Figure Title	Project No.	Figure No.
ABC - BLOCK 26 BLOCK No. 26, LOT Nos. 17 and 21 QUEENS NEW YORK	SITE LOCATION MAP	170340203 Date 8/9/2023 Drawn By ANN Checked By GW	1

Filename: \\langan.com\data\NYC\data2\170340201\Cadd Data - 170340201\SheetFiles\Environmental_Block 26 - C241174\LNAPL Pilot Study\Figure 1 - Site Location Map.dwg Date: 8/9/2023 Time: 13:22 User: anesci Style Table: Langan.stb Layout: ANSIA-BP



LEGEND

C241174_IA30	PILOT STUDY INDOOR AIR SAMPLE AND ID
C241174_LB06	RI SOIL BORING LOCATION AND ID
C241174_SB04	PREVIOUS SOIL BORING LOCATION AND ID (LANGAN APRIL 2015)
C241174_LB03	PREVIOUS SOIL BORING LOCATION AND ID (LANGAN DECEMBER 2015)
C241174_LB04D/MW04D	PREVIOUS SOIL BORING/MONITORING LOCATION AND ID (LANGAN DECEMBER 2015) S = SHALLOW - SCREEN ABOVE MEADOW MAT D = DEEP - SCREEN BELOW MEADOW MAT
C241174_LB06/MW06D	RI SOIL BORING/MONITORING WELL (DEEP) LOCATION AND ID
C241174_MW11S	RI SOIL BORING/MONITORING WELL (SHALLOW) LOCATION AND ID
C241174_SV01	RI SOIL VAPOR POINT LOCATION AND ID
C241174_SSV03/IA03	RI SUB-SLAB SOIL VAPOR POINT/INDOOR AIR LOCATION AND ID
C241174_AA01	RI AMBIENT AIR SAMPLE LOCATION AND ID
	APPROXIMATE BCP SITE BOUNDARY
	APPROXIMATE TAX LOT BOUNDARY
	APPROXIMATE EXTENT OF BULKHEAD ALONG SITE
	APPROXIMATE LOCATION OF HISTORICAL UNDERGROUND STORAGE TANK (UST) OR ABOVEGROUND STORAGE TANK (AST)
	APPROXIMATE EXTENT OF PARAGON LNAPL PRESENT IN MONITORING WELLS
	APPROXIMATE EXTENT OF OTHER LNAPL PRESENT IN MONITORING WELLS
	PILOT STUDY LOCATION

GENERAL NOTES

1. BASE MAP SOURCE: SURVEY BY ALBERT W. TAY DATED SEPTEMBER 6, 2012.
2. ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND WERE OBTAINED FROM GROUND SURVEYS BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING AND LANDSCAPE ARCHITECTURE, D.P.C.
3. HISTORICAL UST AND AST LOCATIONS ARE APPROXIMATE AND ARE BASED ON AVAILABLE SANBORN MAPS (1898, 1915, AND 1936) AND 2005 PHASE I ESA PREPARED BY FLEMING LEE SHUE, INC.
4. LNAPL = LIGHT NON-AQUEOUS PHASE LIQUID
5. RI = REMEDIAL INVESTIGATION
6. CVOCs = CHLORINATED VOLATILE ORGANIC COMPOUNDS

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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SCALE IN FEET

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Langan International LLC
Collectively known as Langan

Project

ABC - BLOCK 26

BLOCK No. 26, LOT No. 17 and 21
LONG ISLAND CITY

QUEENS NEW YORK

Figure Title

PROPOSED SAMPLE LOCATION PLAN

Project No. 170340203	Figure 2
Date 8/9/2023	
Scale 1" = 25'	
Drawn By MG	
Submission Date	Sheet 2 of 2

SUBMISSION DATE: XXXX ##, ####
PROJECT No. 170340203

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TABLES

Table 1
Pilot Study Work Plan
Proposed Sample Summary

ABC Block 26
NYSDEC BCP Site No. C241174
Long Island City, New York
Langan Project No. 170340203

INDOOR AIR SAMPLING - BASELINE						
No.	**Sample Name**	**Sample Type**	**Sample Location**	**Date**	**Time**	**Analysis**
1	C241174_BL-IA01_MW30D_XXXXXX	2-hour	BL-IA01	XX/XX/XXXX	XX:XX	TO-15 VOCs
2	C241174_BL-IA02_MW34D_XXXXXX		BL-IA02	XX/XX/XXXX	XX:XX	
3	C241174_AA01_XXXXXX		BL-AA01	XX/XX/XXXX	XX:XX	
INDOOR AIR SAMPLING - LNAPL RECOVERY						
4	C241174_LR-IA01_MW30D_XXXXXX	2-hour	LR-IA01	XX/XX/XXXX	XX:XX	TO-15 VOCs
5	C241174_LR-IA02_MW34D_XXXXXX		LR-IA02	XX/XX/XXXX	XX:XX	
6	C241174_AA02_XXXXXX		LR-AA02	XX/XX/XXXX	XX:XX	

Notes:
1. VOC = Volatile Organic Compound