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Date: June 30, 2025
Our Ref: 30202919.00003
Subject: Addendum to Supplemental Soil Investigation Work Plan for Parcel IV
Former Citizens Gas Works Manufactured Gas Plant Site
Borough of Brooklyn, Kings County, New York
NYSDEC Site No. 224012

Dear Mr. Fischer,

This letter has been prepared by Arcadis of New York, Inc. (Arcadis), on behalf of The Brooklyn Union Gas Company d/b/a National Grid NY ("National Grid"), to present the proposed scope of groundwater monitoring well installation and groundwater sampling activities to be conducted as part of the supplemental soil investigation (SSI) for Block 468, Lot 25 (hereinafter, "Parcel IV") of the former Citizens Gas Works manufactured gas plant (MGP) site (hereinafter, the "Site") in Brooklyn, New York (Figure 1). Parcel IV of the Site is located at 38 4th Street and is currently in the State Superfund Program (designated as Site No. 224012), which is administrated by the New York State Department of Environmental Conservation (NYSDEC). The approximately 1.05-acre property, which is privately owned, is generally bounded by 4th Street to the north, privately-owned properties to the west, Hoyt Street to the east and southeast, and 5th Street to the southwest (Figure 2). It contains a two-story truck maintenance facility and an approximately 0.9-acre paved commercial vehicle parking lot. Topographic elevations range from approximately 27.0 feet above the North American Vertical Datum of 1988 (NAVD88) near 4th Street to approximately elevation 13.0 feet NAVD88 near the intersection of Hoyt and 5th Streets. The property is enclosed by a 10-foot high chain-link fence and is generally secure from public access.

The scope of the SSI for Parcel IV of the Site was presented in the *Supplemental Soil Investigation Work Plan for Parcel IV* (Work Plan; Arcadis 2021), which was approved by NYSDEC on November 2, 2021. As described in the Work Plan, the SSI will generally include the excavation of several test pits to verify the locations of former MGP-related structures and drilling and soil sampling to further delineate visible MGP-related impacts (i.e., staining, sheens, non-aqueous phase liquid [NAPL] blebs/globs, NAPL coatings, and/or NAPL saturation) in shallow and intermediate zone[1] soils. The proposed monitoring well installation and groundwater sampling activities described

[1] As described in the *Final Remedial Investigation Report* (GEI Consultants, Inc. [GEI] 2005), the shallow zone generally extends from the water table (approximately elevation 16.0 feet to approximately elevation -2.0 feet NAVD88) to the bottom of the discontinuous alluvial/marsh deposits (approximately elevation -10.0 feet to approximately elevation -24.0 feet NAVD88) and the intermediate zone generally extends from the bottom of the discontinuous alluvial/marsh deposits (approximately elevation -10.0 feet to approximately elevation -24.0 feet NAVD88) to the bottom of the discontinuous glacial silt and glacial clay layers (approximately elevation -90.0 feet NAVD88).

herein will be conducted as part of the SSI to: (1) characterize existing conditions with respect to groundwater quality and flow direction in the shallow and intermediate zones at Parcel IV of the Site; and (2) further delineate dissolved-phase concentrations of MGP-related constituents of concern. The remainder of this letter presents the proposed scope, anticipated report contents, and schedule for the SSI monitoring well installation and groundwater sampling activities at Parcel IV of the Site.

Proposed Field Activities

As described below, the proposed field activities will include the: (1) installation of new shallow and intermediate zone groundwater monitoring wells; and (2) collection and analysis of groundwater samples from the existing and new monitoring wells on Parcel IV of the Site. Table 1 summarizes the proposed location, depth, and objective of each SSI test pit and soil boring identified in the Work Plan, as well as the location and objective of each proposed monitoring well. Construction details for the existing and proposed monitoring wells on Parcel IV of the Site are summarized in Table 2. The previous investigation locations (surface soil samples, soil borings, and monitoring wells) and proposed SSI test pits, soil borings, and monitoring wells are shown on Figure 3. Borings/wells may be relocated in the field and construction details may be modified based on accessibility, obstructions (refusal), observed conditions, and related factors. As appropriate, the field activities will be conducted in accordance with the: (1) NYSDEC-approved Work Plan; (2) *Field Sampling Plan* (GEI Consultants, Inc. [GEI] 2008a) and *Quality Assurance Project Plan* (GEI 2008b) for the Site; and (3) *Standard Practice for Design and Installation of Groundwater Monitoring Wells* (ASTM International 2024).

Monitoring Well Installation

New monitoring wells CGMW-68S/CGMW-68I, CGMW-69S/CGMW-69I, and CGMW-70S/CGMW-70I will be installed in soil borings CGP4SB-07, CGP4SB-09, and CGP4SB-20, respectively, in conjunction with the drilling and soil sampling activities described in the Work Plan (Figure 3). As indicated in Table 2, new monitoring wells will be constructed of nominal 2-inch diameter flush-threaded Schedule 40 polyvinyl chloride riser and 0.010-inch slotted screen. The new shallow and intermediate zone monitoring wells at each location are anticipated to be installed as nested pairs within a single borehole. Figure 4 shows the typical construction details for a standard (single) monitoring well and a nested monitoring well pair. As shown on Figure 4, each well pair will be finished with a flush-mounted, traffic-rated well manhole. The damaged flush-mounted surface completions for existing monitoring wells CGMW-05S and CGMW-05I will also be repaired/replaced in conjunction with these activities.

Following installation, each new monitoring well will be developed and surveyed to record its actual ground surface elevation, measuring point elevation, and horizontal location, referenced to Site datum. Existing monitoring wells CGMW-05S and CGMW-05I will also be redeveloped and surveyed in advance of the groundwater sampling activities described below.

Groundwater Sample Collection and Analysis

Groundwater samples will be collected using low-flow purging and sampling techniques from existing monitoring wells CGMW-05S and CGMW-05I and new monitoring wells CGMW-68S, CGMW-68I, CGMW-69S, CGMW-69I, CGMW-70S, and CGMW-70I (Figure 3). Prior to sampling, monitoring wells will be gauged using an oil-water interface probe to measure the depth to groundwater and verify the absence of NAPL. Samples will not be collected from monitoring wells where NAPL is detected.

Each groundwater sample will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program-certified environmental laboratory for the following MGP-related constituents of concern:

- Benzene, ethylbenzene, toluene, and total xylenes in accordance with United States Environmental Protection Agency (USEPA) SW-846 Method 8260D;
- Polycyclic aromatic hydrocarbons, consisting of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene, in accordance with USEPA SW-846 Method 8270E; and
- Total cyanide in accordance with USEPA SW-846 Method 9012B.

Quality control samples, including trip blanks, equipment/rinse blanks, field duplicates, matrix spikes, and matrix spike duplicates, will also be collected and analyzed in accordance with the *Quality Assurance Project Plan* (GEI 2008b) for the Site.

Investigation-Derived Waste Management and Disposal

Soil cuttings, well purge water, and other investigation-derived waste (IDW) generated during the SSI will be stored in UN-rated 55-gallon steel drums. Drums will be properly-labeled and temporarily staged on Block 471, Lot 1 (hereinafter, “Parcel I”) or Block 471, Lot 100 (hereinafter, “Parcel II”) of the Site. Once characterized and profiled, IDW-containing drums will be transported off-Site for disposal in accordance with applicable laws and regulations.

Community Air Monitoring

Real-time community air monitoring for total volatile organic compounds (VOCs) and respirable dust (particulate matter less than 10 micrometers in diameter [PM_{10}]) will be performed during work hours on a daily basis during the SSI drilling, soil sampling, and well installation activities. Portable air monitoring stations will be deployed at the start of each work day before any ground-intrusive or dust-generating activities are initiated. In general, one upwind monitoring location and one downwind monitoring location will be selected at the perimeter of the work area based on the predominant wind direction. Security, accessibility, and the proximity of the work area to potential receptors will also be considered in selecting monitoring locations each day. Each air monitoring station will include a data-logging photoionization detector for measuring the airborne concentration of total VOCs and a data-logging aerosol photometer for measuring the airborne concentration of PM_{10}. The monitoring equipment will be housed in portable, weather-tight enclosures, which will be mounted on surveying tripods at a height of approximately 4.5 to 5.5 feet (breathing zone height). Community air monitoring procedures and action levels for total VOCs and PM_{10} will comply with the NYSDOH *Generic Community Air Monitoring Plan* (NYSDOH 2009).

Community air monitoring locations and results will be documented in the daily field reports described below.

Reporting

Daily Field Reports

Daily field reports will be prepared and submitted to NYSDEC and NYSDOH throughout the SSI to summarize the progress of the investigation, including activities completed, key/notable field observations, sample(s) collected/submitted for laboratory analysis, and community air monitoring locations and results.

Supplemental Soil Investigation Report

As described in the Work Plan, the results of the SSI will be presented in a Supplemental Soil Investigation Report. Specific to the monitoring well installation and groundwater sampling activities described herein, the report is anticipated to include the following:

- Brief narrative describing the field activities and groundwater sample results;
- Tables summarizing the well construction details and validated groundwater sample data;
- Well construction log for each new monitoring well;
- Groundwater sampling logs; and
- NYSDEC Analytical Services Protocol Category B laboratory deliverable(s) and data usability summary report(s) for the groundwater sample data.

The Supplemental Soil Investigation Report for Parcel IV of the Site will be submitted to NYSDEC within 60 days after the completion of the field activities and receipt of all laboratory data. An electronic data deliverable for the groundwater samples collected during the SSI will also be submitted electronically to NYSDEC's Environmental Information Management System administrator.

Schedule

As NYSDEC is aware, National Grid continues to coordinate with the Parcel IV property owner to obtain access for the implementation of the SSI, including the monitoring well installation and groundwater sampling activities described herein. An anticipated schedule for the start of the SSI will be provided to NYSDEC once National Grid secures access to the property. In the meantime, please contact Mr. Patrick Van Rossem of National Grid with any questions regarding the information presented herein.

Sincerely,
Arcadis of New York, Inc.

Michael Benoit, PE
Principal Environmental Engineer

Mr. Aaron Fischer, PE
New York State Department of Environmental Conservation
June 30, 2025

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CC. Scott Deyette, NYSDEC
Lisa Gorton, PE, NYSDEC
Heidi Dudek, PE, NYSDEC
Patrick Van Rossem, National Grid
Andrew Prophete, National Grid
John Alonzo, de maximis
Terry Young, PE, Arcadis

Enclosures:

Tables:

Table 1. Summary of Proposed Investigation Locations
Table 2. Monitoring Well Construction Summary

Figures:

Figure 1. Site Location Map
Figure 2. Site Plan
Figure 3. Parcel IV Investigation Plan
Figure 4. Typical Monitoring Well Construction Details

References:

Arcadis. 2021. *Supplemental Soil Investigation Work Plan for Parcel IV*. Former Citizens Gas Works MGP Site, Brooklyn, New York. Prepared for National Grid. October 12.

ASTM International. 2024. *Standard Practice for Design and Installation of Groundwater Monitoring Wells*. ASTM D5092/D5092M-16(2024). Book of Standards Volume 04.08. West Conshohoken, Pennsylvania. June 21.

GEI. 2005. *Final Remedial Investigation Report*. Former Citizens Gas Works MGP Site, Carroll Gardens/Public Place, Brooklyn, New York. Prepared for KeySpan Corporation. October.

GEI. 2008a. *Field Sampling Plan*. Former Citizens Gas Works MGP Site, Carroll Gardens/Public Place, Brooklyn, New York. Prepared for National Grid. December.

GEI. 2008b. *Quality Assurance Project Plan*. Former Citizens Gas Works MGP Site, Carroll Gardens/Public Place, Brooklyn, New York. Prepared for National Grid. December.

NYSDOH. 2009. *Generic Community Air Monitoring Plan*. Center for Environmental Health, Bureau of Environmental Exposure Investigation. December.

Tables

Table 1
Summary of Proposed Investigation Locations
Addendum to Supplemental Soil Investigation Work Plan for Parcel IV

National Grid
Former Citizens Gas Works Manufactured Gas Plant Site
Borough of Brooklyn, Kings County, New York
NYSDEC Site No. 224012

Location ID	Easting (feet NAD83)	Northing (feet NAD83)	Approximate Ground Surface Elevation (feet NAVD88)	Proposed Depth (feet bgs)	Objective
Test Pits					
CGP4TP-01	632288.08	671841.46	14.38	5.00	Locate foundation walls of former Governor House.
	632290.63	671839.87	14.20		
	632283.84	671834.68	14.27		
	632286.38	671833.09	14.08		
CGP4TP-02	632267.60	671862.75	15.78	5.00	Locate concrete retaining wall surrounding former Holder No. 4.
	632270.60	671862.95	15.69		
	632268.12	671854.77	15.55		
	632271.11	671854.97	15.48		
CGP4TP-03	632165.14	671995.57	24.86	5.00	Locate concrete retaining wall surrounding former Holder No. 4.
	632172.01	671991.47	24.61		
	632170.48	671988.90	24.51		
	632163.60	671993.00	24.75		
CGP4TP-04	632136.71	671950.42	23.34	5.00	Locate foundation walls of former Meter House.
	632148.73	671943.25	22.82		
	632147.19	671940.67	22.63		
	632135.17	671947.84	23.26		
CGP4TP-05	632121.09	671933.74	22.58	5.00	Locate foundation walls of former Meter House.
	632123.67	671932.20	22.37		
	632119.57	671925.33	21.56		
	632116.99	671926.86	21.70		
Soil Borings/Monitoring Wells					
CGP4SB-06	632317.55	671871.25	14.52	50.00	Delineate extent of visible impacts previously observed at soil borings CGGP-44 (6.7-10.0 feet bgs, 12.7-13.3 feet bgs, and 13.8-19.0 feet bgs) and CGP4SB-01 (9.0-13.0 feet bgs).

Table 1
Summary of Proposed Investigation Locations
Addendum to Supplemental Soil Investigation Work Plan for Parcel IV

National Grid
Former Citizens Gas Works Manufactured Gas Plant Site
Borough of Brooklyn, Kings County, New York
NYSDEC Site No. 224012

Location ID	Easting (feet NAD83)	Northing (feet NAD83)	Approximate Ground Surface Elevation (feet NAVD88)	Proposed Depth (feet bgs)	Objective
Soil Borings/Monitoring Wells (continued)					
CGP4SB-07/CGMW-68S/CGMW-68I	632302.08	671840.21	13.70	71.00	CGP4SB-07: Delineate extent of visible impacts previously observed at soil borings CGGP-10 (7.1-12.0 feet bgs), CGGP-44 (6.7-10.0 feet bgs, 12.7-13.3 feet bgs, and 13.8-19.0 feet bgs), and CGSB-17 (3.0-3.5 feet bgs, 8.0-10.0 feet bgs, 10.5-14.0 feet bgs, and 32.0-38.0 feet bgs) and facilitate the installation of monitoring wells CGMW-68S and CGMW-68I.
					CGMW-68S: Characterize existing conditions with respect to shallow zone groundwater quality and flow direction south of former Holder No. 4 and delineate extent of impacted shallow zone groundwater east of existing on-Site monitoring well CGMW-49 (Parcel I), north of existing on-Site monitoring well CGMW-54 (Parcel II), and southwest of existing off-Site monitoring well CGMW-18-CH2S (Hoyt Street Right-of-Way).
					CGMW-68I: Characterize existing conditions with respect to intermediate zone groundwater quality and flow direction south of former Holder No. 4 and delineate extent of impacted intermediate zone groundwater south of existing on-Site monitoring well CGMW-05I and southwest of existing off-Site monitoring well CGMW-18-CH6I (Hoyt Street Right-of-Way).
CGP4SB-08	632270.14	671836.69	14.87	50.00	Delineate extent of certain visible impacts previously observed at soil borings CGGP-10 (7.1-12.0 feet bgs), CGP4SB-03 (21.0-23.0 feet bgs and 33.0-33.8 feet bgs), and CGSB-17 (12.0-14.0 feet bgs and 32.0-38.0 feet bgs).
CGP4SB-09/CGMW-69S/CGMW-69I	632314.76	671924.10	16.76	74.00	CGP4SB-09: Delineate extent of certain visible impacts previously observed at soil borings CGGP-45 (10.0-15.0 feet bgs) and CGSB-40 (20.5-29.0 feet bgs and 33.0-40.5 feet bgs) and facilitate the installation of monitoring wells CGMW-69S and CGMW-69I.
					CGMW-69S: Characterize existing conditions with respect to shallow zone groundwater quality and flow direction within footprint of former Holder No. 4 and delineate extent of impacted shallow zone groundwater west of existing off-Site monitoring well CGMW-18-CH2S (Hoyt Street Right-of-Way).
					CGMW-69I: Characterize existing conditions with respect to intermediate zone groundwater quality and flow direction within footprint of former Holder No. 4 and delineate extent of impacted intermediate zone groundwater west of existing off-Site monitoring well CGMW-18-CH6I (Hoyt Street Right-of-Way) and southeast of existing on-Site monitoring well CGMW-05I.

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Former Citizens Gas Works Manufactured Gas Plant Site
Borough of Brooklyn, Kings County, New York
NYSDEC Site No. 224012

Location ID	Easting (feet NAD83)	Northing (feet NAD83)	Approximate Ground Surface Elevation (feet NAVD88)	Proposed Depth (feet bgs)	Objective
Soil Borings/Monitoring Wells (continued)					
CGP4SB-10	632300.28	671899.70	16.11	50.00	Delineate extent of certain visible impacts previously observed at soil borings CGGP-44 (7.0-10.0 feet bgs, 12.7-13.3 feet bgs, and 13.8-19.0 feet bgs), CGGP-45 (8.5-15.0 feet bgs), CGP4SB-01 (9.0-13.0 feet bgs), CGSB-17 (12.0-14.0 feet bgs, and 32.0-38.0 feet bgs),and CGSB-40 (20.5-29.0 feet bgs and 33.0-40.5 feet bgs).
CGP4SB-11	632283.80	671871.32	15.47	50.00	Delineate extent of certain visible impacts previously observed at soil borings CGGP-10 (7.1-12.0 feet bgs), CGGP-44 (12.7-13.3 feet bgs and 13.8-19.0 feet bgs), CGGP-45 (8.5-15.0 feet bgs), CGP4SB-01 (9.0-13.0 feet bgs), CGP4SB-03 (21.0-23.0 feet bgs and 33.0-33.8 feet bgs), CGSB-17 (3.0-3.5 feet bgs, 8.0-10.0 feet bgs, 10.5-14.0 feet bgs, and 32.0-38.0 feet bgs), and CGSB-40 (20.5-29.0 feet bgs and 33.0-40.5 feet bgs).
CGP4SB-12	632277.02	671983.20	20.62	50.00	Delineate extent of certain visible impacts previously observed at soil borings CGSB-18 (20.0-39.0 feet bgs), CGSB-40 (20.5-29.0 feet bgs and 33.0-40.5 feet bgs), and CGSB-41 (16.5-18.0 feet bgs, 28.0-29.5 feet bgs, 30.0-31.5 feet bgs, and 33.0-42.0 feet bgs).
CGP4SB-13	632211.05	671879.38	17.58	50.00	Delineate extent of certain visible impacts previously observed at soil borings CGP4SB-03 (21.0-23.0 feet bgs and 33.0-33.8 feet bgs), CGP4SB-04 (13.0-17.7 feet bgs, 29.0-35.0 feet bgs, and 38.0-40.0 feet bgs), CGSB-18 (20.0-39.0 feet bgs), and CGSB-40 (20.5-29.0 feet bgs and 33.0-40.5 feet bgs).
CGP4SB-14	632194.83	671915.46	19.82	50.00	Delineate extent of certain visible impacts previously observed at soil borings CGP4SB-04 (13.0-17.7 feet bgs, 29.0-35.0 feet bgs, and 38.0-40.0 feet bgs), CGP4SB-05 (19.0-23.0 feet bgs, 28.0-30.0 feet bgs, 33.0-35.0 feet bgs, and 48.0-50.0 feet bgs), and CGSB-18 (20.0-39.0 feet bgs).
CGP4SB-15	632196.89	671998.35	24.76	50.00	Delineate extent of visible impacts previously observed at soil boring CGSB-41 (16.5-18.0 feet bgs, 28.0-29.5 feet bgs, 30.0-31.5 feet bgs, and 33.0-42.0 feet bgs).
CGP4SB-16	632152.60	671910.77	19.86	50.00	Delineate extent of visible impacts previously observed at soil borings CGP4SB-04 (13.0-17.7 feet bgs, 29.0-35.0 feet bgs, and 38.0-40.0 feet bgs) and CGP4SB-05 (19.0-23.0 feet bgs, 28.0-30.0 feet bgs, 33.0-35.0 feet bgs, and 48.0-50.0 feet bgs).
CGP4SB-17	632134.57	671922.56	21.16	50.00	Delineate extent of visible impacts previously observed at soil boring CGP4SB-05 (19.0-23.0 feet bgs, 28.0-30.0 feet bgs, 33.0-35.0 feet bgs, and 48.0-50.0 feet bgs).
CGP4SB-18	632161.64	671995.52	24.88	50.00	Delineate extent of visible impacts previously observed at soil boring CGSB-41 (16.5-18.0 feet bgs, 28.0-29.5 feet bgs, 30.0-31.5 feet bgs, and 33.0-42.0 feet bgs).

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Location ID	Easting (feet NAD83)	Northing (feet NAD83)	Approximate Ground Surface Elevation (feet NAVD88)	Proposed Depth (feet bgs)	Objective
Soil Borings/Monitoring Wells (continued)					
CGP4SB-19	632146.79	671971.51	23.98	50.00	Delineate extent of certain visible impacts previously observed at soil boring CGP4SB-05 (19.0-23.0 feet bgs, 28.0-30.0 feet bgs, 33.0-35.0 feet bgs, and 48.0-50.0 feet bgs), CGSB-18 (20.0-39.0 feet bgs), and CGSB-41 (16.5-18.0 feet bgs, 28.0-29.5 feet bgs, 30.0-31.5 feet bgs, and 33.0-42.0 feet bgs).
CGP4SB-20/CGMW-70S/CGMW-70I	632127.64	671941.62	23.12	81.00	CGP4SB-20: Delineate extent of visible impacts previously observed at soil boring CGP4SB-05 (19.0-23.0 feet bgs, 28.0-30.0 feet bgs, 33.0-35.0 feet bgs, and 48.0-50.0 feet bgs) and facilitate the installation of monitoring wells CGMW-70S and CGMW-70I.
					CGMW-70S: Characterize existing conditions with respect to shallow zone groundwater quality and flow direction west of former Holder No. 4 and delineate extent of impacted shallow zone groundwater north of existing on-Site monitoring well CGMW-49 (Parcel I).
					CGMW-70I: Characterize existing conditions with respect to intermediate zone groundwater quality and flow direction west of former Holder No. 4 and delineate extent of impacted intermediate zone groundwater southwest of existing on-Site monitoring well CGMW-05I.

Notes:

1. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone.
2. Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).
3. bgs: below ground surface.

Table 2
Monitoring Well Construction Summary
Addendum to Supplemental Soil Investigation Work Plan for Parcel IV

National Grid
Former Citizens Gas Works Manufactured Gas Plant Site
Borough of Brooklyn, Kings County, New York
NYSDEC Site No. 224012

Location ID	Date Completed	Property or General Location	Easting (feet NAD83)	Northing (feet NAD83)	Ground Surface Elevation (feet NAVD88)	Measuring Point Elevation (feet NAVD88)	Casing Type	Screen Type	Nominal Diameter (inches)	Screen Slot Size (inches)	Screen Length (feet)	Screened Zone[3]	Screened Interval		Sump Length (feet)	Total Depth (feet bgs)
													Depth (feet bgs)	Elevation (feet NAVD88)		
Existing Monitoring Wells																
CGMW-05S	NA	Parcel IV	632221.50	672046.60	26.10	25.68	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Shallow	25.00 - 35.00	1.10 - -8.90	2.00	37.00
CGMW-05I	4/2/2003	Parcel IV	632216.53	672051.80	26.40	26.14	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Intermediate	54.00 - 64.00	-27.60 - -37.60	2.00	66.00
Proposed Monitoring Wells																
CGMW-68S	--	Parcel IV	632440.78	672082.73	13.70	--	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Shallow	9.00 - 19.00	4.70 - -5.30	2.00	21.00
CGMW-68I	--	Parcel IV	632440.78	672082.73	13.70	--	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Intermediate	59.00 - 69.00	-45.30 - -55.30	2.00	71.00
CGMW-69S	--	Parcel IV	632715.28	671854.05	16.76	--	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Shallow	12.00 - 22.00	4.76 - -5.24	2.00	24.00
CGMW-69I	--	Parcel IV	632715.28	671854.05	16.76	--	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Intermediate	62.00 - 72.00	-45.24 - -55.24	2.00	74.00
CGMW-70S	--	Parcel IV	633174.57	671803.22	23.12	--	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Shallow	19.00 - 29.00	4.12 - -5.88	2.00	31.00
CGMW-70I	--	Parcel IV	633174.57	671803.22	23.12	--	Sch. 40 PVC	Sch. 40 PVC	2.00	0.010	10.00	Intermediate	69.00 - 79.00	-45.88 - -55.88	2.00	81.00

Notes:

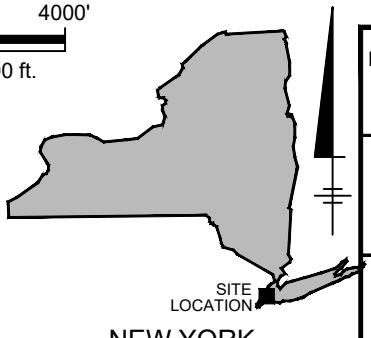
1. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone.
2. Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).
3. As described in the *Final Remedial Investigation Report* (GEI Consultants, Inc. 2005), the shallow zone generally extends from the water table (approximately elevation 16.0 feet to approximately elevation -2.0 feet NAVD88) to the bottom of the discontinuous alluvial/marsh deposits (approximately elevation -10.0 feet to approximately elevation -24.0 feet NAVD88) and the intermediate zone generally extends from the bottom of the discontinuous alluvial/marsh deposits (approximately elevation -10.0 feet to approximately elevation -24.0 feet NAVD88) to the bottom of the discontinuous glacial silt and glacial clay layers (approximately elevation -90.0 feet NAVD88).
4. bgs: below ground surface.
5. NA: not available.
6. PVC: polyvinyl chloride.
7. Sch.: Schedule.

Figures

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., BROOKLYN, NY, 2013, AND JERSEY CITY, NY-NJ, 2014.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



NATIONAL GRID
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
ADDENDUM TO SUPPLEMENTAL SOIL INVESTIGATION WORK PLAN FOR PARCEL IV

SITE LOCATION MAP

ARCADIS

FIGURE 1

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Arcadis Logo.png
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BLOCK 468, LOT 25
(PARCEL IV)
45,888 SF OR 1.053 AC.

BLOCK 471, LOT 1
(PARCEL I)
177,203 SF OR 4.068 AC.

BLOCK 471, LOT 100
(PARCEL II)
75,008 SF OR 1.722 AC.

BLOCK 471, LOT 200
(PARCEL III)
164,876 SF OR 3.785 AC.

BLOCK 471, LOT 104
BLOCK 471, LOT 110
BLOCK 471, LOT 114
BLOCK 471, LOT 116
BLOCK 990, LOT 138
(CITIZENS GATE STATION)
BLOCK 990, LOT 369

4TH STREET (60' ROW)
5TH STREET (55' ROW)
HOYT STREET (60' ROW)
SMITH STREET (60' ROW)
7TH STREET AS SHOWN ON BROOKLYN BOROUGH SECTIONAL MAP NO. 23 DATED 8-10-95
HUNTINGTON STREET (50' ROW)

APPROXIMATE LOCATION OF STORM SEWER EASEMENT PER LIBER 684, PG. 1425

APPROXIMATE LOCATION OF REPUTED SEWER EASEMENT

9TH STREET TURNING BASIN

7TH STREET TURNING BASIN

GOWANUS CANAL

LEGEND:

- LIMIT OF BROWNFIELD CLEANUP PROGRAM SITE NO. C224012 (PARCELS I AND II)
- LIMIT OF BROWNFIELD CLEANUP PROGRAM SITE NO. C224012B (PARCEL III/459 SMITH STREET SITE)
- LIMIT OF STATE SUPERFUND SITE NO. 224012 (PARCEL IV)
- PROPERTY LINE (APPROXIMATE)
- EASEMENT LINE (APPROXIMATE)
- 21 TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
- 5 BATHYMETRIC CONTOUR (1-FOOT INTERVAL)
- EDGE OF WATER
- TREE
- EDGE OF VEGETATION
- EDGE OF PAVEMENT/CONCRETE
- EDGE OF GRAVEL
- EDGE OF SOIL/AGGREGATE PILE (APPROXIMATE)
- EDGE OF BULKHEAD
- CHAIN-LINK FENCE
- BUILDING
- MTA RAILROAD TRACK
- CONCRETE WALL
- OH OVERHEAD WIRES
- BOLLARD
- SIGN
- UTILITY POLE
- HYDRANT
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- WATER MANHOLE
- GAS MANHOLE
- TELECOMMINICATIONS MANHOLE
- ELECTRICAL MANHOLE
- MANHOLE (TYPE UNKNOWN)
- CB CATCH BASIN
- E ELECTRICAL BOX
- W WATER VALVE
- G GAS VALVE
- MH-1 HYDRAULIC RELIEF SYSTEM MANHOLE
- CO-1A HYDRAULIC RELIEF SYSTEM CLEANOUT
- CGPZ-07 PIEZOMETER
- CGMW-01S MONITORING WELL
- CGRW-08 RECOVERY WELL
- SEALED BULKHEAD BARRIER WALL

0 50' 100'
GRAPHIC SCALE

NOTES:

1. HORIZONTAL REFERENCE DATUM IS THE NORTH AMERICAN DATUM OF 1983 (NAD83), NEW YORK STATE PLANE EAST ZONE.
2. VERTICAL REFERENCE DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

REFERENCE DRAWINGS:

1. GEOD CORPORATION. DRAWING TITLED "BOUNDARY & TOPOGRAPHIC SURVEY, BLOCK 471, LOTS 1, 100 & 200, BLOCK 468, LOT 25, BOROUGH OF BROOKLYN, KINGS CO., CITY AND STATE OF NEW YORK", DATED JANUARY 15, 2016. PREPARED FOR ARCADIS OF NEW YORK, INC.
2. OCEAN SURVEYS, INC. DRAWING NUMBER 1, SHEET NUMBER 2 OF 3, TITLED "MULTIBEAM HYDROGRAPHY, GOWANUS CANAL, BROOKLYN, NEW YORK", DATED NOVEMBER 11, 2014. PREPARED FOR GEOSYNTEC CONSULTANTS, INC.

NATIONAL GRID
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ADDENDUM TO SUPPLEMENTAL SOIL INVESTIGATION WORK PLAN FOR PARCEL IV

SITE PLAN

ARCADIS

FIGURE
2

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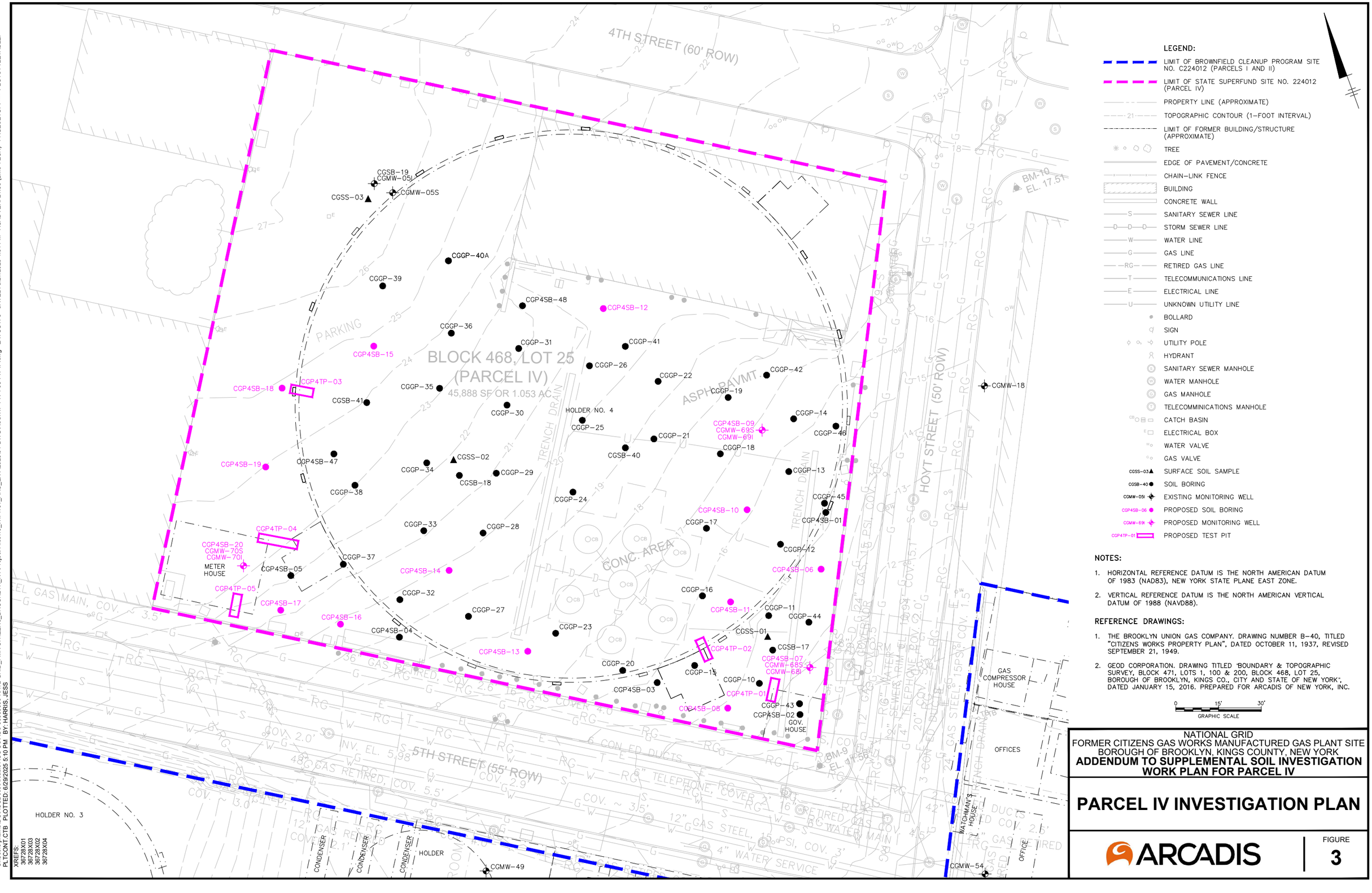

LEGEND:

- LIMIT OF BROWNFIELD CLEANUP PROGRAM SITE NO. C224012 (PARCELS I AND II)
- LIMIT OF STATE SUPERFUND SITE NO. 224012 (PARCEL IV)
- PROPERTY LINE (APPROXIMATE)
- TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
- LIMIT OF FORMER BUILDING/STRUCTURE (APPROXIMATE)
- TREE
- EDGE OF PAVEMENT/CONCRETE
- CHAIN-LINK FENCE
- BUILDING
- CONCRETE WALL
- SANITARY SEWER LINE
- STORM SEWER LINE
- WATER LINE
- GAS LINE
- RETIRED GAS LINE
- TELECOMMUNICATIONS LINE
- ELECTRICAL LINE
- UNKNOWN UTILITY LINE
- BOLLARD
- SIGN
- UTILITY POLE
- HYDRANT
- SANITARY SEWER MANHOLE
- WATER MANHOLE
- GAS MANHOLE
- TELECOMMINICATIONS MANHOLE
- CATCH BASIN
- ELECTRICAL BOX
- WATER VALVE
- GAS VALVE
- CGSS-03 SURFACE SOIL SAMPLE
- CGSB-40 SOIL BORING
- CGMW-05I EXISTING MONITORING WELL
- CGP4SB-06 PROPOSED SOIL BORING
- CGMW-69I PROPOSED MONITORING WELL
- CGP4TP-01 PROPOSED TEST PIT

NOTES:

1. HORIZONTAL REFERENCE DATUM IS THE NORTH AMERICAN DATUM OF 1983 (NAD83), NEW YORK STATE PLANE EAST ZONE.
2. VERTICAL REFERENCE DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

REFERENCE DRAWINGS:

1. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER B-40, TITLED "CITIZENS WORKS PROPERTY PLAN", DATED OCTOBER 11, 1937, REVISED SEPTEMBER 21, 1949.
2. GEOD CORPORATION. DRAWING TITLED "BOUNDARY & TOPOGRAPHIC SURVEY, BLOCK 471, LOTS 1, 100 & 200, BLOCK 468, LOT 25, BOROUGH OF BROOKLYN, KINGS CO., CITY AND STATE OF NEW YORK", DATED JANUARY 15, 2016. PREPARED FOR ARCADIS OF NEW YORK, INC.

0 15' 30'
GRAPHIC SCALE

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ADDENDUM TO SUPPLEMENTAL SOIL INVESTIGATION WORK PLAN FOR PARCEL IV

PARCEL IV INVESTIGATION PLAN

ARCADIS

FIGURE 3

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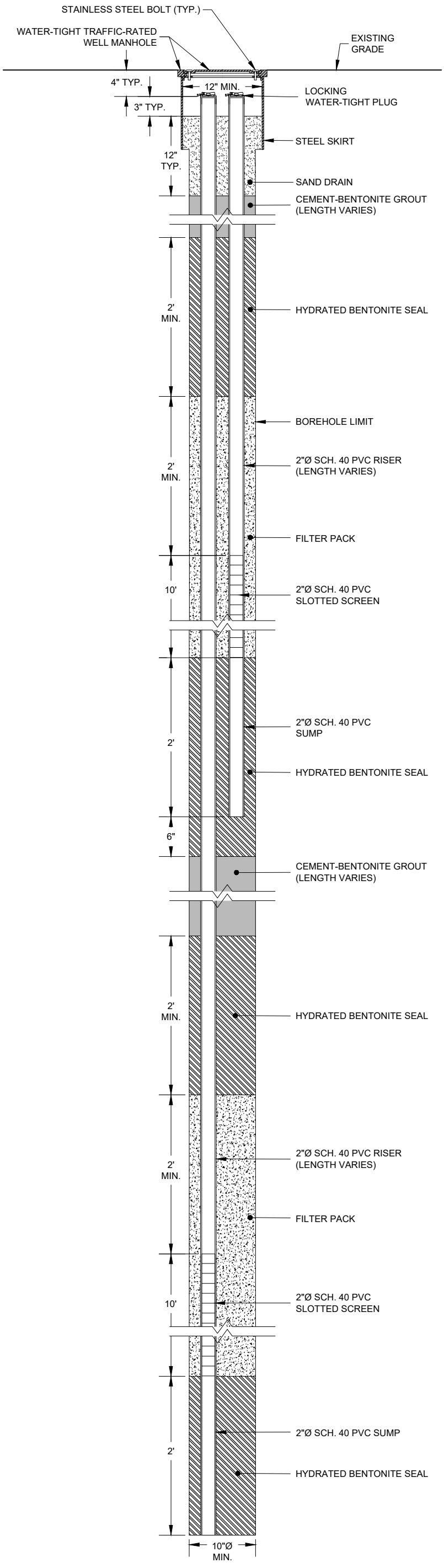
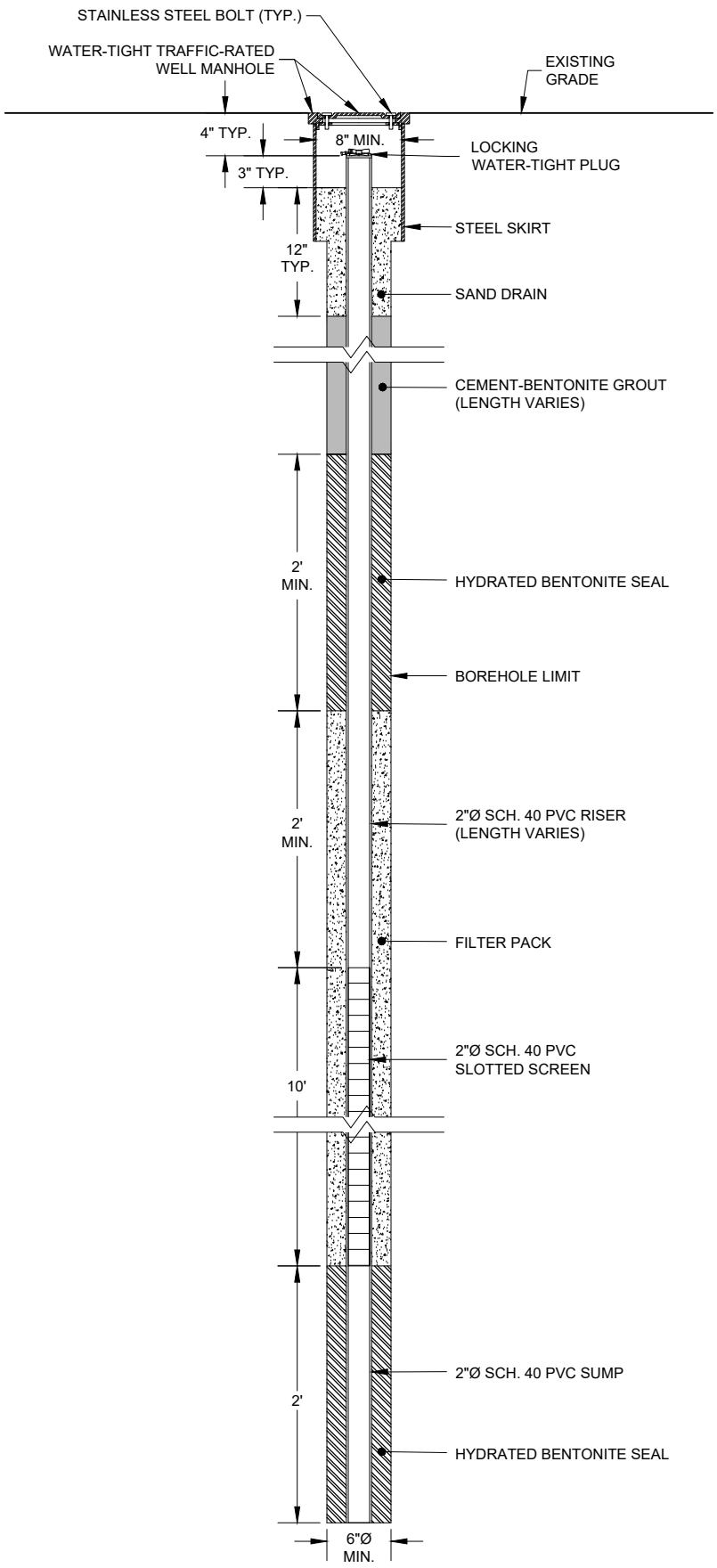


SECTION

TYPICAL NESTED MONITORING WELL PAIR (1)



SECTION

TYPICAL MONITORING WELL (2)

1' 6" 0 1'
1 1/2"=1'-0"
GRAPHIC SCALE

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FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
ADDENDUM TO SUPPLEMENTAL SOIL INVESTIGATION WORK PLAN FOR PARCEL IV

TYPICAL MONITORING WELL CONSTRUCTION DETAILS

ARCADIS

FIGURE
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