Final Engineering Report

Volume I

Carol Cleaners, Staten Island Mall Site

Staten Island

Richmond County, New York

NYSDEC Site Number: 243020

JULY 1, 2026

PROJECT NUMBER 209-4213307

PRESENTED TO

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REPORT CERTIFICATION

Final Engineering Report
Carol Cleaners, Staten Island Mall Site
Staten Island, Richmond County, NY

I, Erich Zimmerman, P.E., am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Design (RD) was implemented and that all construction activities were completed in substantial conformance with the Department-approved RD.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the RD and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the Department.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I, Erich Zimmerman, of Cornerstone Engineering and Geology, PLLC, am certifying as Owner's Designated Site Representative for the Site.

7/01/2026

Erich Zimmerman, P.E. Date
NY PE License No. 081831-01

It is a violation of Article 145 of the New York State Education Law, unless acting under the direction of a licensed Professional Engineer who affixes signature, date, seal and the words "altered by", for any person to alter this document in any way.

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
CAMP	Community Air Monitoring Plan
cis-1,2-DCE	cis-1,2-dichloroethylene
CPP	Community Participation Plan
CVOCs	chlorinated volatile organics
DER	Division of Environmental Remediation
DNAPL	dense non-aqueous phase
DUSR	Data Usability Summary Report
EC	Engineering Control
EE	Environmental Easement
EWP	Excavation Work Plan
FER	Final Engineering Report
FS	Feasibility Study
ft/d	feet per day
GGP	General Growth Properties
GWQS	NYSDEC groundwater quality standard
HASP	Health and Safety Plan
IC	Institutional Control
IRM	Interim Remedial Measure
JRW	JRW Bioremediation, LLC
LBGES	Leggette, Brashears & Graham Engineering Services
MNA	monitored natural attenuation
msl	mean sea level
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
P.E. or PE	Professional Engineer
PCE	tetrachloroethylene
PID	Photoionization Detector
ppm	parts per million

Acronyms/Abbreviations	Definition
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSD	Sub-slab Depressurization
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TCE	trichloroethylene
UIC	Underground Injection Control
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compounds
WSP	Williams Sale Partnership Limited

1.0 BACKGROUND AND SITE DESCRIPTION

This Final Engineering Report (FER) is a required element of the remedial program for the Former Carol Cleaners Site located in Staten Island, New York (hereinafter referred to as the "site"). See Figure 1. The site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 2-43-020, which is administered by the New York State Department of Environmental Conservation (NYSDEC or Department).

Brookfield Properties (Brookfield; formerly General Growth Properties (GGP) and before that The Rouse Company) entered into an Order on Consent on October 4, 2002, Index #D2-0002-02-08 (last amended on November 4, 2011 Index #R2-20111017-717) with the NYSDEC to remediate the site. The site location and boundaries of this site are shown on Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement (EE) provided in Appendix A.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC in consultation with NYSDOH's approval, and recorded with the Richmond County Clerk, requires compliance with this FER and all ECs and ICs placed on the site.

This FER was prepared by Tetra Tech (Tt), on behalf of Brookfield Properties, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC in consultation with NYSDOH's approval.

1.1 SITE LOCATION AND DESCRIPTION

The site is located in Staten Island, Richmond County, New York and is identified as Block 2400 and Lot 300 on the Richmond County Tax Map (Figure 2). The EE portion of the site is an approximately 1.821-acre area and is bounded by The Crossings Center to the north, Platinum Avenue to the south, Marsh Avenue to the east, and Ring Road to the west (Figure 2). The owner of the site parcel(s) at the time of issuance of this FER is Brookfield Properties Retail.

1.2 PHYSICAL SETTING

1.2.1 Land Use

The site consists of the following: a commercial mall building and associated parking areas. The site is zoned commercial and is currently utilized for commercial uses. Site occupants include a nail salon and an ice cream store with other commercial operators further north within the Crossings Center.

The properties adjoining the site and, in the neighborhood, surrounding the site include primarily commercial and residential properties. The properties immediately south of the site include commercial properties; the properties immediately north of the site include commercial properties; the properties immediately east of the site include residential properties; and the properties to the west of the site include commercial properties.

1.2.2 Geology and Hydrogeology

The prevailing depths to groundwater and bedrock at the site range from about 8 feet below grade (ft bg) to 14 ft bg, and 12 ft bg to 28 ft bg, respectively. The naturally occurring geologic materials at the site consist mainly of fine-grained deposits of clay, silt and fine sand (overburden), which are underlain by bedrock. The corresponding

bedrock surface generally slopes downwards in elevation from the vicinity of monitoring Well MW-1 where the bedrock elevation is 31 feet above mean sea level (msl) towards the southwest, proximal to monitoring well MW-16 where the bedrock elevation is 2 feet above msl. The generally southwestward slope of the bedrock surface is locally accentuated by several buried "channels" in the bedrock surface in the vicinity of Platinum Avenue. These channels are anticipated to impart a localized influence on the groundwater flow in the overburden.

Boring and monitoring-well logs were used to prepare a hydrogeologic cross-section that illustrates the vertical distribution (stratigraphy) of encountered geologic and hydrogeologic features across the site. The cross-section illustrates the general slope of the bedrock surface from northeast to southwest, and a similar slope in groundwater surface. The cross-section also illustrates the increase in thickness of the naturally occurring overburden materials (primarily fine sand and silt) from northeast to southwest. The geologic cross section is provided as Figure 3. A groundwater contour map from the most recent groundwater sampling round is provided as Figure 4. Groundwater elevation data are provided in Table 1. Groundwater monitoring well construction logs are provided in Appendix B.

1.3 INVESTIGATION AND REMEDIAL HISTORY

The following is a summary of the remedial history of the site and summary of the available project records to document key investigative and remedial milestones for the site. Full titles for each of the reports referenced below are provided in the reference section.

Following the NYSDEC issuance of the Order on Consent in 2002, Leggette, Brashears & Graham Engineering Services (LBGES) conducted an Interim Remedial Measure (IRM) investigation, followed by a Remedial Investigation (RI), on behalf of GGP. The IRM investigation and RI focused on identifying and locating the general source area and extent of tetrachloroethylene (PCE) and related chlorinated volatile organics (CVOCs) detected in the subsurface environment at the site. The investigative work addressed the following: 1) delineating the horizontal and vertical extent of CVOCs in soil and groundwater in the vicinity of the Carol Cleaners and Tumble Dry Cleaners (aka Damowa Laundry & Dry Cleaning) facilities; 2) assessing migration pathways for detected constituents; and 3) determining whether dense non-aqueous phase liquid (DNAPL) existed at the potential release location.

The IRM investigation and RI results indicated that the "source area" roughly corresponded to a parking/driveway area of broken-up asphalt at the rear of the Carol Cleaners tenant space [near existing monitoring well MW-3 (Figure 2)]. Based on the IRM and RI results, it was determined that no remediation of the overburden (soil) material was warranted due to: 1) the singular encounter of a slightly elevated PCE concentration detected at a depth above the groundwater surface at only one location; 2) the comparatively lower concentrations of PCE [all below the respective NYSDEC "Technical and Administrative Guidance Memorandum (TAGM)" objective of 1.4 parts per million (ppm)] detected in the immediately surrounding overburden; 3) the prevailing composition of the overburden (primarily fine sand and silt); 4) the absence of CVOC DNAPL; and 5) the isolation afforded by the prevalence of primarily impervious surfaces (e.g., roofs, parking lot, walkways) at the Site.

Results of groundwater sampling rounds conducted between 1995 and 2011 indicated the presence of dissolved PCE and one or more related CVOCs [trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE) and vinyl chloride (VC)] at concentrations above their respective NYSDEC groundwater/surface-water standards, as defined by 6 NYCRR Part 703, at several of the on-site and off-site monitoring wells. Groundwater monitoring also did not identify any potential DNAPL in the local groundwater bearing formations underlying the site. The groundwater flow direction, in conjunction with the distribution of the respective CVOCs dissolved in groundwater at the site, support the conclusions that the apparent source area occurs proximal to the Carol Cleaners tenant space, and the resulting plume extended off-site towards Platinum Avenue. The investigation also indicated that contaminant flow may have been influenced by the route of local subsurface utilities.

Based on in-situ hydraulic ("slug") testing conducted at several on-site monitoring wells, it was determined that the hydraulic conductivity of the overburden at the site is low to moderate [0.4 feet per day (ft/d) to 30 ft/d]. These values, along with the relatively consistent hydraulic gradient exhibited by the local groundwater, support the characterization that CVOC plume movement through on-site overburden is expected to occur at a slow rate, which in turn affords the potential for natural degradation (e.g., biologically-driven reductive dechlorination) of the respective constituents to occur. The analytical results for groundwater samples collected since 1995 indicate that PCE related to the on-site source area is clearly undergoing reductive dechlorination (i.e., breakdown to TCE, cis-1,2-DCE, and VC), which substantiates the occurrence of natural degradation at the site. The occurrence of natural degradation of PCE has been further corroborated by the general detection of methane, ethane, and/or ethene in groundwater samples collected from most of the monitoring wells in the plume area.

The RI report associated with the previously completed investigations was submitted to the NYSDEC in October 2011, followed in November 2011 by the Feasibility Study (FS) associated with the identification of potential future remedial activities. The FS established the Remedial Action Objectives (RAOs) for the site and identified in-situ bioremediation as the proposed selected remedial technology. The Record of Decision (ROD) for the site was issued in March 2012 and required completion of a pilot study prior to the implementation of any full-scale remedial efforts. As per the ROD, a workplan for a Pilot Study (the Workplan) to evaluate in-situ bioremediation as a possible remedial technology was submitted to and approved by the NYSDEC in consultation with the NYSDOH in September 2013. In addition, the ROD indicated that any indoor air impacts potentially resulting from existing conditions and/or future remedial efforts as identified in the RI and FS would need to be addressed prior to beginning the pilot study.

The results of the April 2006 and February 2008 indoor air and sub-slab vapor sampling, summarized in the RI report submitted in 2008, indicated that PCE and related CVOCs had impacted the indoor air in the Babies R Us space, and the adjacent strip mall spaces occupied by SI Shoe Repair, Carol Cleaners, Mon Amie Nails and Carvel (the focus area). The areas where indoor air impacts appear to be greatest generally coincided with areas corresponding to the nearby groundwater plume. Based on the detected concentrations and respective New York State Department of Health (NYSDOH) guidelines, an SSD system was installed to mitigate these impacts.

The initial round of post-mitigation heating season indoor air sampling results indicated that concentrations of PCE and related CVOCs still exceeded their respective NYSDOH guidelines within multiple tenant spaces. Additional investigation into the cause of the persistent elevated PCE and related CVOC concentrations determined that the dry cleaning tenant (French Cleaning by Carol) occupying the Carol Cleaners tenant space was using equipment which was emitting PCE into the indoor air at concentrations in exceedance of the respective NYSDOH guideline. The tenant was subsequently vacated from the property by GGP. Follow-up indoor air sampling indicated that PCE vapor remained an indoor air issue at the Carvel tenant space. As a result, an additional SSD suction point was installed within the Carvel tenant space in February 2015. Subsequent heating season indoor air sampling at the Carvel tenant space indicated compliance with the respective NYSDOH guidelines.

The SSD system is currently operating and maintaining depressurization of the targeted tenant spaces. The SSD system is inspected weekly by Brookfield representatives and, as of the November 14, 2022 was operating at normal vacuums, with each of the three SSDS fans achieving the specified vacuum confirming effective depressurization. The record drawing for the SSDS is provided in Appendix C.

As part of baseline groundwater monitoring activities, grab samples of standing water were obtained from several catch basins at the site during October 2016. Analytical results indicated that chlorinated VOCs (primarily PCE and cis-1,2-dichloroethene) were identified in several catch basins at concentrations above NYSDEC Surface water and/or groundwater standards, with a maximum detected PCE concentration of 272 micrograms per liter. In response to the detection of PCE in the standing water samples collected from the stormwater system, and in connection with the Interim Site Management Plan (Interim SMP) activities identified for the site, stormwater

system cleaning activities were initiated in November 2016. The cleaning activities involved the removal of sediment from each of the accessible catch basins associated with the on-site stormwater system. Approximately two to three feet of sediment was encountered at each of the accessed catch basins. Sediment was removed and placed into roll off boxes for subsequent characterization and disposal. Based on the results of waste characterization sampling, approximately 22 tons of non-hazardous sediment was transported to Cycle Chem in Elizabeth, New Jersey, and approximately 11.5 tons of sediment was transported to Michigan Disposal, Inc. in Belleville, Michigan for disposal as hazardous waste.

Based on analytical results for eighty-nine soil samples collected on and off-site between 2002 and 2011 near the suspected “source area”, only one exceedance of the NYSDEC SCOs was encountered for PCE and related CVOCs. The results are shown on Figure 5A and Table 3.1. PCE was detected in soil boring B-1-6” during the initial IRM investigation conducted during 2002 by Legette, Brashears & Graham, Inc. and the results of this work were outlined in a July 2003 report (LBG, 2003). The detected exceedance was minor (2.05 mg/kg) and isolated, occurring in only one soil sample (B-1-6') collected at a depth of about 6-feet below ground surface (bgs), just above the local ground-water surface. The boring from which the sample was collected was completed at a location proximal to the suspected “source” area (area of concentrated asphalt breakage near a building rooftop storm water leader) at the rear of the Carol Cleaners (near Monitoring Well MW-3).

In May 2006, eight (8) soil borings (B-26 through B-33) were advanced by S2C2, of Warren, New Jersey, and used to assess the potential for residual CVOCs in the on-site overburden. The results are shown on Figure 5B and Table 3.2. Eleven soil borings (SB-1 through SB-11) were advanced between May and July 2011 (Figure 5C). Soil samples were collected from depths of approximately 1.5 to 18 ft bg. Out of the nineteen samples collected, the results indicated low-level CVOC-impacts in the soil samples collected adjacent to the sampled storm water catch basins (Table 3.3).

In June 2017, eighteen (18) soil borings (SWB-1 through SWB-18) were advanced using a Geoprobe® rig at locations intended to assess the potential for CVOC-impacts to soil from on-site subsurface utility routes, specifically storm water lines, and as such were advanced in the parking areas on the eastern and southern sides of The Crossings Mall building proximal to storm drain catch basins (Figure 5D).

The borings were mostly advanced to the top of bedrock with completion depths ranging from approximately 3 to 19 feet below grade (ft bg). Soil samples were continuously collected from the respective boreholes using a macro-core device with dedicated, disposable, clear-acetate sleeves. The respective soil boring logs are provided in Appendix D. The overburden materials encountered at each of the boring locations were consistent with those encountered during previous on-site subsurface explorations elsewhere at the Site. The naturally occurring materials generally consisted of fine-grained deposits of clay, silt, and fine sand with varying amounts of gravel. A total of thirty-six (36) soil samples were collected for subsequent laboratory analyses at depths corresponding to immediately above the encountered groundwater surface (typically about 5 ft bg) and/or above refusal at each boring location.

The analytical results for the respective soil samples did not indicate the occurrence of any of the CVOCs of interest at concentrations in exceedance of the respective NYSDEC Restricted Use Commercial Soil Cleanup Objectives (SCOs). These results are shown in Table 3.4. No evidence of DNAPL was encountered at any of the boring locations. Based on the results of the soil sampling efforts, the implementation of sub-slab vapor sampling at the nearby tenant spaces was not warranted. Historical soil sampling results are provided in Appendix E.

In-situ bioremediation pilot testing was conducted between November 2014 and October 2015 in accordance with the approved Work Plan. The injectant (WILCLEAR PLUS®) was a sodium lactate mixture consisting of a blend of fatty acids and fermentables (e.g., sodium lactate) manufactured by JRW Bioremediation, LLC (JRW). WILCLEAR PLUS® is designed specifically for bioremediation use, and is a light to dark brown, low viscosity, miscible liquid with a pH between 6 and 8. It is manufactured from food-grade ingredients, primarily fatty acids and fermentables, which eventually get consumed by natural microbes in the subsurface and groundwater. The

injectant was mixed with 9 parts of water to one part of sodium lactate to facilitate the injection process. Once the reductive dechlorination (anaerobic driven) process is completed, only the innocuous end products consisting of carbon dioxide, ethene, ethane, water, and chloride ions remain in the groundwater. Following completion, a Pilot Test Summary Report was prepared and submitted to the NYSDEC in December 2015. The Pilot Test Summary Report was approved by the NYSDEC in consultation with the NYSDOH on April 13, 2016, and a Full-Scale Remedial Design Work Plan was prepared and submitted to the NYSDEC in May 2016. The Full-Scale Remedial Design Work Plan was approved by the NYSDEC in consultation with the NYSDOH on June 29, 2016.

The full-scale remediation commenced in October 2018 following the previously discussed storm drain investigation/remediation activities using Monitoring Wells MW-3, MW-5, MW-7, MW-16 through MW-24 as injection wells. The injectant (treatment solution) used in connection with the full-scale remedial activities is the same product used during the pilot test.

Sodium lactate injections were conducted in October 2018, December 2018, October 2019 and October 2020. The 2018 and 2019 injection events consisted of injecting 4,400 gallons of sodium lactate solution, while the 2020 injection round consisted of injecting 2,200 gallons of sodium lactate solution. Injection locations and amounts are summarized on the following table:

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

The RAOs for the site as listed in the March 28, 2012 Record of Decision are as follows:

2.1.1 Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

2.1.2 Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.1.3 Soil Vapor RAOs

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.2 DESCRIPTION OF THE SELECTED REMEDY

The site was remediated in accordance with the remedy selected by the NYSDEC in the ROD dated March 28, 2012.

The factors considered during the selection of the remedy are those listed in 6NYCRR 375-1.8. The following are the components of the selected remedy:

1. A remedial program was implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques were implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

2. Maintenance of the existing cover system, which consists of asphalt paving and commercial building construction to prevent human exposure to remaining contaminated groundwater and/or soil vapor;
3. Enhanced natural degradation of chlorinated volatile organics through injection of sodium lactate electron donor materials into groundwater;Installation and operation of a sub-slab depressurization system to prevent the migration of vapors into the building from soil and/or groundwater;
4. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to any contamination remaining at the site.
5. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans

for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;

6. Periodic certification of the institutional and engineering controls listed above.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

The remedy for this site was performed as a single project, and no interim remedial measures, operable units or separate construction contracts were performed.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC- Remedial Design Report (RDR) for the Carol Cleaners, Staten Island Mall Site (June 2018). All deviations from the RDR are noted below.

4.1 GOVERNING DOCUMENTS

4.1.1 Site Specific Health & Safety Plan (HASP)

The previously-approved Health and Safety Plan prepared in connection with activities previously completed at the Site, were followed as part of the Remedial Design Report (RDR) work activities.

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site.

4.1.2 Site Management Plan (SMP)

The site contains residual contamination left after completion of the remedial action (soil source removal). Engineering and institutional controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. The engineering and institutional controls along with operations maintenance and monitoring requirements are documented in the SMP.

4.1.3 Quality Assurance Project Plan (QAPP)

The previously-approved QAPP prepared in connection with activities previously completed at the Site, were followed as part of the RDR work activities. The QAPP describes the specific policies, objectives, organization, functional activities and quality assurance/ quality control activities designed to achieve the project data quality objectives.

All sampling conducted during the remedial investigation phase and remedial action (long term monitoring) phase was conducted in accordance with the QAPP. The plan also managed performance of the RI/RA tasks through designed and documented QA/QC methodologies applied in the field and in the lab. The plan provided a detailed description of the observation and testing activities that were used to monitor sampling quality and confirm that sampling was done in conformance with the remediation objectives and specifications.

4.1.4 Community Air Monitoring Plan (CAMP)

The previously-approved Community Air Monitoring Program (CAMP) prepared in connection with activities previously completed at the Site, were followed as part of the RDR work activities. The CAMP was utilized to guide real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when ground intrusive activities were conducted at the site. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. Appropriate air monitoring in accordance with the CAMP was conducted during injection activities, installation of new wells and during the sampling of all monitoring wells.

4.1.5 Community Participation Plan (CPP)

As noted in the 2003 OM&M Manual, the limited nature of the OM&M Work Plan obviates the need for citizen participation in the implementation of the remedy at the Carol Cleaners. Carol Cleaners will periodically undertake the preparation and distribution of fact sheets to adjacent property owners and other interest groups as determined to be necessary by the NYSDEC.

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Contractors and Consultants

- The RI report associated with the previously completed investigations was submitted to the NYSDEC in October 2011, followed in November 2011 by the Feasibility Study (FS) associated with the identification of potential future remedial activities.
- Tetra Tech is the Engineer of Record responsible for inspecting/certifying the remedial work conducted at the site. The ROD for the Site was issued in March 2012.
- Active Environmental under the guidance of JRW Bioremediation, LLC (JRW) performed all follow up injections at the Site. The in-situ bioremediation pilot test was conducted by LBGES between November 2014 and October 2015 in accordance with the approved workplan. Injectant was introduced into the subsurface using ten (10) injection wells (IP-1 through IP-10), between November 19 and 25, 2014.
- Submit Drilling Co. under the guidance of Williams Sale Partnership Limited USA (WSP) - Installed all soil borings during the RD phase.
- AmeriDrill, Inc. under the guidance of WSP - Installed all monitoring wells required for long term monitoring under the RD.
- A sub-slab depressurization system (SSDS) was installed in the Carol Cleaners and Babies R Us spaces in April 2014.
- Tetra Tech - performed all sampling and reporting required by the SMP.

4.2.2 Site Preparation

A complete list of agency approvals required by the RAWP is included in Appendix F. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency.

The former Carol Cleaners Site is in a commercial development consisting of a mall with paved parking areas, concrete sidewalks and paved streets. No clearing, grubbing or other site preparation activities were necessary prior to the performance of the remedial action. Subsequent to approval of the RDR, monitoring/injection wells associated with the full-scale remedial design were installed at the site between August 24 and 26, 2016.

Documentation of agency approvals required by the RAWP is included in Appendix F.

All SEQRA requirements and all substantive compliance requirements for attainment of applicable natural resource or other permits were achieved during this Remedial Action.

A NYSDEC-approved project sign was erected at the project entrance and remained in place during all phases of the Remedial Action.

4.2.3 General Site Controls

The site is an active shopping center. All contaminated media at the site (soil and ground water) are below asphalt pavement, concrete building foundations, and de minimis landscaped areas covered with a clean soil buffer. As such, the site is open with no access controls to the site deemed necessary.

4.2.4 Nuisance controls

Due to the minimally invasive nature of the selected remedy, (monitored natural attenuation) the no nuisance control plan (i.e., truck wash and egress, housekeeping, dust control, odor control, etc.) was deemed necessary.

4.2.5 Community Air Monitoring Plan (CAMP) Results

Air monitoring was conducted with a PID in the breathing zone downwind of the work site during any drilling and sampling activities. No PID readings above background concentrations were ever detected during site monitoring.

4.2.6 Best Management Practices

Several Best Management Practices (BMPs) have been employed during the remediation and post-remedial monitoring at the former Carol Cleaners Site. These include:

- The selection of a remedial alternative with a smaller footprint - As indicated in the NYSDEC-approved 2016 Remedial Design Work Plan, two remedial approaches were evaluated for implementation at the site. The first potential remedial approach consisted of a larger, more extensive injection well network and the pressurized injection of electron donor material. This potential remedial approach offered the benefit of a shorter remedial timeframe, with only a single injection event required. The potential downside of this remedial approach, based on the results of the pilot study, was the potential for daylighting of electron donor material due the presence of preferential subsurface pathways and potential impacts to the vapor mitigation system;

  The selected remedial approach consisted of a smaller, more focused network of injection wells and the gravity injection of electron donor material over several injection events. By implementing a more focused remedial approach, Brookfield opted to limit the extent potential environmental impacts associated with the remedial approach at the expense of a longer remedial timeline;

- The electron donor injection process used groundwater within the site to mix and dilute the electron donor material, reducing water use by approximately 5,000 gallons and also minimizing the movement of groundwater during injection events; and

  Monitoring well purge water generated during post-remedial groundwater monitoring is treated by passing the purge water through a 5-gallon carbon bucket to remove VOCs prior to discharge to the ground surface near the well. The use of a carbon bucket minimizes the generation of purge water and the need for offsite disposal of the water.

4.2.7 Reporting

Progress reports were prepared by WSP on a monthly basis during the ground water sampling conducted in accordance with the RAWP. All progress reports have been previously submitted to NYSDEC. Photos taking during remedial activities are included in electronic format in Appendix G.

4.3 CONTAMINATED MATERIALS REMOVAL

As outlined within Section 1.3 above, grab samples of standing water were obtained from several catch basins at the site during October 2016. Analytical results indicated that chlorinated VOCs (primarily PCE and cis-1,2-dichloroethene) were identified in several catch basins at concentrations above NYSDEC Surface water and/or groundwater standards, with a maximum detected PCE concentration of 272 micrograms per liter.

In response to the detection of PCE in the standing water samples collected from the stormwater system, and in connection with the Interim Site Management Plan (Interim SMP) activities identified for the site, stormwater system cleaning activities were initiated in November 2016. The cleaning activities involved the removal of sediment from each of the accessible catch basins associated with the on-site stormwater system. Approximately two to three feet of sediment was encountered at each of the accessed catch basins. Sediment was removed and placed into roll off boxes for subsequent characterization and disposal. Based on the results of waste characterization sampling, approximately 22 tons of non-hazardous sediment was transported to Cycle Chem in Elizabeth, New Jersey, and approximately 11.5 tons of sediment was transported to Michigan Disposal, Inc. in Belleville, Michigan for disposal as hazardous waste.

No contaminated soil was removed from the site as part of this remedial effort.

4.4 REMEDIAL PERFORMANCE/DOCUMENTATION SAMPLING

Injections were conducted in October 2018, December 2018, October 2019 and October 2020. The 2018 and 2019 injection events consisted of injecting 4,400 gallons of sodium lactate solution, while the 2020 injection round consisted of injecting 2,200 gallons of sodium lactate solution. Injection locations and amounts are summarized in the following table 1.1:

Table 1.1 Injection Locations and Quantity Injected – 2018 Through 2020

Injection Well	10/2018 Injection Event Quantity	12/2018 Injection Event Quantity	10/2019 Injection Event Quantity	10/2020 Injection Event Quantity
MW-3	400	400	400	250
MW-5	400	320	300	350
MW-7	360	400	300	400
MW-16	360	320	450	375
MW-17	360	370	500	425
MW-18	360	400	500	400
MW-19	360	430	500	0
MW-20	360	350	400	0
MW-21	360	350	400	0
MW-22	360	360	400	0
MW-23	360	400	125	0

MW-24	360	300	125	0
Totals	**4,400**	**4,400**	**4,400**	**2,200**

The initial baseline pre-injection groundwater sampling round was conducted in October 2016. The baseline sampling event consisted of sampling all monitoring wells for VOCs, metals, dissolved metals, nitrite, nitrate, sulfate, methane, ethane, ethene, carbon dioxide, chemical oxygen demand, biological oxygen demand, total organic carbon, and alkalinity. Additional field analyses included dissolved oxygen, oxidation-reduction potential, pH, temperature and specific conductance. Follow-up post-injection sampling on a quarterly basis generally consisted of sampling fifteen monitoring wells for the above-referenced analyses and three monitoring wells for VOCs and metals only. The table 1.2 below summarizes the sampling pre- and post-injection sampling regimen.

Table 1.2 Pre- and Post-Injection Groundwater Sampling Summary

Monitoring Well ID	Injection Monitoring		
	Pre-Injection Baseline	Monitoring Wells Within Treatment Area	Monitoring Wells Outside Treatment Area
MW-1	X	---	---
MW-2	X	---	X
MW-3 (Zone 1 injection)	X	X (injection)	---
MW-3D	X	X	---
MW-4	X	X	---
MW-5 (Zone 1 injection)	X	X (injection)	---
MW-6R	X	---	X
MW-7 (Zone 2 injection)	X	X (injection)	---
MW-8	X	X	---
MW-9 (Abandoned)	---	---	---
MW-10	X	---	X
MW-11	X	---	---
MW-12	X	---	---
MW-13	X	---	---
MW-14	X	---	---
MW-15	X	---	---
MW-16 (Zone 3 injection)	X	X (injection)	---

MW-17 (Zone 3 injection)	X	X (injection)	---
MW-18 (Zone 3 injection)	X	X (injection)	---
MW-19 (Zone 3 injection)	X	X (injection)	---
MW-20 (Zone 2 injection)	X	X (injection)	---
MW-21 (Zone 2 injection)	X	X (injection)	---
MW-22 (Zone 2 injection)	X	X (injection)	---
MW-23 (Zone 2 injection)	X	X (injection)	---
MW-24 (Zone 2 injection)	X	X (injection)	---

Post-injection quarterly groundwater sampling rounds commenced in January 2019 following the second injection event that occurred in December 2018. The pre- and post-injection quarterly groundwater sampling data are summarized in Tables 2. Based on the data, the sodium lactate injections were successful, as CVOC concentrations significantly decreased. Specifically, the previously elevated source area monitoring wells, MW-3, MW-4 and MW-5 have exhibited a decrease in PCE concentrations when comparing the pre- and post-injection laboratory analyses. Monitoring well MW-3 exhibited a decrease in PCE concentrations from 8,340 ug/l in July 2004 (pre-injection baseline of 89 ug/l in July 2017) to 1.0 ug/l in September 2021. Monitoring well MW-4 exhibited a decrease in PCE concentrations from 8,810 ug/l in April 2008 (pre-injection baseline of 1.4 ug/l in July 2017) to non-detect in September 2021. Monitoring well MW-5 exhibited a decrease in PCE concentrations from 72.4 ug/l in September 2009 (pre-injection baseline of 4.2 ug/l in July 2017) to non-detect in September 2021. Concentrations of CVOCs rebounded, slightly, over the last several years as outlined below; however, the most recent groundwater sampling event confirms that CVOC concentrations are significantly below those detected prior to the injections.

The NYSDEC/NYSDOH recently requested that Brookfield conduct an investigation to assess the potential offsite migration of PCE-impacted groundwater from the former Carol Cleaners to the Pergament Mall property located south of Platinum Avenue. Tetra Tech mobilized to the site on July 26, 2022 to perform groundwater sampling. Groundwater samples were collected from a total of nine (9) on-site monitoring wells and submitted to SGS Laboratory (SGS) in Dayton, New Jersey. Samples were obtained from monitoring wells MW-3, MW-3D, MW-5, MW-7, MW-8, MW-17, MW-18, MW-19, and MW-23. All nine (9) groundwater samples were analyzed for Volatile Organic Compounds (VOCs) by USEPA Method 8260, TAL Metals (both filtered and unfiltered), Nitrate/Nitrite, Sulfate, Hardness, Alkalinity, Chemical Oxygen Demand, Biochemical Oxygen Demand, Total Organic Carbon, Carbon Dioxide, Methane, Ethane, and Ethene.

Groundwater sampling was conducted on the Pergament Mall property on July 28 and 29, 2022, and consisted of the installation of temporary groundwater sampling points. Tetra Tech attempted to collect samples from 10 locations within the Pergament Mall parking area; however, only three locations could be completed as temporary well locations due to subsurface refusal (thought to be a concrete slab). Each temporary well was constructed with a 1-inch diameter PVC riser and a 5-feet length of slotted screen. Groundwater samples were collected from the three wells using a peristaltic pump after purging three well volumes. The collected groundwater samples were analyzed for VOCs via EPA Method 8260 and one trip blank was submitted each day for VOC analysis. Each temporary well was removed after sampling was completed and the borehole (along with the other 7 attempted locations) filled with cuttings and/or a bentonite hole plug per NYSDEC requirements. The backfilled boreholes were covered with asphalt patch. Purge water generated from this sampling event was discharged to a carbon bucket prior to release on site. Results of this work were submitted under separate cover to the NYSDEC

and NYSDOH. The results of onsite groundwater sampling for July 2022 are provided within Appendix H along with the offsite sampling results.

During this sampling event, the only constituent of concern detected on the former Carol Cleaners Site (north of Platinum Avenue) at a concentration above New York Groundwater Quality Standards (GWQS) was Vinyl Chloride. It was identified in MW-3 and MW-8 at concentrations of 3.0 ug/l and 2.2 ug/l, respectively, which is above the GWQS of 2.0 ug/l for this constituent. This further confirmed the success of the sodium lactate injections.

The highest concentration of vinyl chloride was identified in MW-19 just south of Platinum Avenue, at a concentration of 16.1 ug/l. MW-19 also exceeded the GWQS of 5.0 ug/l for cis-1,2-Dichloroethene with a result of 27.8 ug/l. There were no additional exceedances of the GWQS for VOCs in samples obtained from existing monitoring wells.

Tetrachloroethene, Trichloroethene and cis-1,2-Dichloroethene were each detected in two of the three temporary wells (TW-9 and TW-1) at concentrations above the GWQS of 5 ug/l for these constituents, with the exception of TCE at TW-9. No chlorinated constituents were detected in temporary well TW-7, which is located closest to the former Corniche Dry Cleaners on the Pergament Mall property. The table 1.3 below summarizes the off-site sampling results and results of this work are presented within Appendix H along with a Data Usability Summary Report (DUSR).

Table 1.3 Off-site sampling results

Well Location	PCE	TCE	Cis-1,2-DCE
TW-1	23.3	7.6	12.7
TW-9	7.5	3.7	13.7

Results provided in ug/l

The most recent round of groundwater sampling was conducted from March 3 to March 7, 2025, using low-flow sampling methodology. Peristaltic pumps were used to purge each location until stable water quality readings were attained over three successive readings.

Results of this work were submitted to the NYSDEC in a draft report dated July 18, 2025. As indicated within that report, Tetrachloroethene (PCE) was identified in monitoring wells MW-3, MW-8, MW-18, MW-19, MW-22 and MW-23 at estimated concentrations of 3.4 µg/l, 1.4 J µg/l, 1.5 µg/l, 1.7 J µg/l, 3.3 J µg/l, and 1.1 µg/l, respectively. These concentrations are below the groundwater quality standard (GWQS) of 5 µg/l for this compound.

Trichloroethylene (TCE) was identified in monitoring well MW-3 at concentrations of 50.9 µg/l, which exceeded the GWQS of 5 µg/l for this compound. Trichloroethylene (TCE) was also detected; but at concentrations below the GWQS, in monitoring wells MW-17, MW-18, MW-19, and MW-23 at concentrations of 1.5 µg/l, 1.4 µg/l, 2.3 µg/l, and 0.54 J µg/l, respectively. Cis-1,2-dichloroethene (Cis-1,2-DCE) was identified in monitoring wells MW-3 and MW-17 at concentrations of 156 µg/l, and 71.9 µg/l, respectively, which exceeded the GWQS of 5 µg/l for this compound. Cis-1,2-DCE was also detected; but at concentrations below the GWQS, in monitoring wells MW-7, MW-16, MW-18, MW-19, MW-22, and MW-23 at concentrations of 2.2 µg/l, 0.80 J µg/l, 2.5 µg/l, 1.4 µg/l, 0.64 J µg/l, and 0.85 J µg/l, respectively. Trans-1,2-Dichloroethene (Trans-1,2-DCE) was detected in monitoring wells MW-3 and MW-17 at concentrations of 1.4 µg/l, and 1.9 µg/l, respectively. These concentrations are below the GWQS of 5 µg/l for this compound. Vinyl chloride (VC) was detected in monitoring wells MW-3 and MW-17 at concentrations of 25.2 µg/l and 24.8 µg/l, respectively, which exceeded the GWQS of 2 µg/L for this compound. VC was also detected; but at concentrations below the GWQS, in monitoring wells MW-7, MW-18 and MW-19 at concentrations of 1.1 µg/l, 1.5 µg/l, and 0.54 J µg/l, respectively.Several Inorganics (the TAL metals aluminum, barium, iron, manganese and sodium) also exceeded their respective GWQS in most wells; however, none of the

exceedances are believed to be related to previous dry-cleaning activities. Results of groundwater sampling conducted during the period from 2021 through 2025 are provided within Appendix I along with available DUSRs.

4.5 CONTAMINATION REMAINING AT THE SITE

4.5.1 Soil

Based on analytical results for eighty-nine soil samples collected on and off-site between 2002 and 2011 near the suspected “source area”, only one exceedance of the NYSDEC SCOs was encountered for PCE and related CVOCs. The results are shown on Figure 5A and Table 3.1. PCE was detected in soil boring B-1-6” during the initial IRM investigation conducted during 2002 by Legette, Brashears & Graham, Inc. and the results of this work were outlined in a July 2003 report (LBG, 2003). The detected exceedance was minor (2.05 mg/kg) and isolated, occurring in only one soil sample (B-1-6') collected at a depth of about 6-feet below ground surface (bgs), just above the local ground-water surface. The boring from which the sample was collected was completed at a location proximal to the suspected “source” area (area of concentrated asphalt breakage near a building rooftop storm water leader) at the rear of the Carol Cleaners (near Monitoring Well MW-3).

In May 2006, eight (8) soil borings (B-26 through B-33) were advanced by S2C2, of Warren, New Jersey, and used to assess the potential for residual CVOCs in the on-site overburden. The results are shown on Figure 5B and Table 3.2. Eleven soil borings (SB-1 through SB-11) were advanced between May and July 2011 (Figure 5C). Soil samples were collected from depths of approximately 1.5 to 18 ft bg. Out of the nineteen samples collected, the results indicated low-level CVOC-impacts in the soil samples collected adjacent to the sampled storm water catch basins (Table 3.3).

In June 2017, eighteen (18) soil borings (SWB-1 through SWB-18) were advanced using a Geoprobe® rig at locations intended to assess the potential for CVOC-impacts to soil from on-site subsurface utility routes, specifically storm water lines, and as such were advanced in the parking areas on the eastern and southern sides of The Crossings Mall building proximal to storm drain catch basins (Figure 5D).

The analytical results for the respective soil samples did not indicate the occurrence of any of the CVOCs of interest at concentrations in exceedance of the respective NYSDEC Restricted Use Commercial SCOs. These results are shown in Table 3.4. Also, no evidence of DNAPL was encountered at any of the boring locations. Based on the results of the soil sampling efforts.The analytical results for the respective soil samples did not indicate the occurrence of any of the CVOCs of interest at concentrations in exceedance of the respective NYSDEC Restricted Use Commercial SCOs.

The extent and degree of PCE-impacted soil at the site is minimal, localized, and does not appear to be acting as a continuing source of groundwater impacts. The soil in the corresponding area is effectively capped, as the entire property is covered by asphalt, concrete, and the footprint of the mall building. As such, this FER assumes the use of this cap to address the impacted soil is an appropriate Institutional Control (IC) for the Site.

4.5.2 Groundwater

The source of PCE and related CVOC contamination at the site appears to be related to a historic point source discharge event associated with activities at the former Carol Cleaners tenant space. Based on historical distribution of PCE and related breakdown products (TCE, cis-1,2-DCE, and VC) in groundwater, the corresponding plume generally followed the local direction of groundwater flow, which is southwesterly from the site towards Platinum Avenue.

A summary of historical CVOC-impacted groundwater sampling results is provided in Table 2. Figures 6A through 6E depict the extent of the PCE, Cis-1,2 DCE, Trans-1,2 DCE, VC and Chloroform plumes from July 21, 2004, which represent CVOC concentrations prior to injections. Figure 7 depicts the extent of the PCE plume in

July 2017, which represents pre-injection conditions. More recent post-injection groundwater sampling results show that PCE and TCE have been remediated to below their respective GQSs on site as shown in the most recent groundwater sampling data from the post-injection quarterly sampling rounds conducted between July 2017 and March 2025 (Figures 8A & 8B). The remaining CVOC concentrations are associated with break-down constituents, mainly cis-1,2-DCE and vinyl chloride. Figures 8A and 8B show the most recent CVOC distribution in the monitoring wells that are part of the injection monitoring program. Table 2 summarizes the historical CVOC impacted groundwater concentrations over time. Table 3 summarizes the summary of metals exceedances and field parameters for treatment zone monitor wells. The data in this table confirm the decrease in PCE and TCE concentrations on site, the increase and subsequent decrease in break-down constituent concentrations at the various monitoring wells that are part of the monitoring program.

Groundwater sampling results from on March 3 to March 7, 2025 indicate that tetrachloroethene (PCE) was identified in monitoring wells MW-3, MW-8, MW-18, MW-19, MW-22 and MW-23 at estimated concentrations of 3.4 µg/l, 1.4 J µg/l, 1.5 µg/l, 1.7 J µg/l, 3.3 J µg/l, and 1.1 µg/l, respectively. These concentrations are below the groundwater quality standard (GWQS) of 5 µg/l for this compound. PCE concentration isopleths are provided on Figure 9A.

Trichloroethylene (TCE) was identified in monitoring well MW-3 at concentrations of 50.9 µg/l, which exceeded the GWQS of 5 µg/l for this compound. Trichloroethylene (TCE) was also detected; but at concentrations below the GWQS, in monitoring wells MW-17, MW-18, MW-19, and MW-23 at concentrations of 1.5 µg/l, 1.4 µg/l, 2.3 µg/l, and 0.54 J µg/l, respectively. These concentrations are below the GWQS of 5 µg/l for this compound. TCE concentration isopleths are provided on Figure 9B.

Cis-1,2-dichloroethene (Cis-1,2-DCE) was identified in monitoring wells MW-3 and MW-17 at concentrations of 156 µg/l, and 71.9 µg/l, respectively, which exceeded the GWQS of 5 µg/l for this compound. Cis-1,2-DCE was also detected; but at concentrations below the GWQS, in monitoring wells MW-7, MW-16, MW-18, MW-19, MW-22, and MW-23 at concentrations of 2.2 µg/l, 0.80 J µg/l, 2.5 µg/l, 1.4 µg/l, 0.64 J µg/l, and 0.85 J µg/l, respectively. Cis-1,2-DCE concentration isopleths are provided on Figure 9C.

Trans-1,2-Dichloroethene (Trans-1,2-DCE) was detected in monitoring wells MW-3 and MW-17 at concentrations of 1.4 µg/l, and 1.9 µg/l, respectively. These concentrations are below the GWQS of 5 µg/l for this compound. Trans-1,2-DCE concentration isopleths are provided on Figure 9D.

Vinyl chloride (VC) was detected in monitoring wells MW-3 and MW-17 at concentrations of 25.2 µg/l and 24.8 µg/l, respectively, which exceeded the GWQS of 2 µg/L for this compound. VC was also detected; but at concentrations below the GWQS, in monitoring wells MW-7, MW-18 and MW-19 at concentrations of 1.1 µg/l, 1.5 µg/l, and 0.54 J µg/l, respectively. Vinyl chloride concentration isopleths are provided on Figure 9E.

Several Inorganics (the TAL metals aluminum, barium, iron, manganese and sodium) also exceeded their respective GWQS in most wells; however, none of the exceedances are believed to be related to previous dry-cleaning activities.

1,4 Dioxane was not detected in any of the six (6) monitoring wells that were sampled (MW-2, MW-3, MW-16, MW-17, MW-19, and MW-22).

Perfluorooctanoic acid (PFOA) was detected in all six (6) monitoring wells MW-2, MW-3, MW-16, MW-17, MW-19 and MW-22 at a concentration of 0.266 µg/l, 0.0287 µg/l, 0.0169 µg/l, 0.0331 µg/l, 0.014 µg/l, and 0.0257 µg/l, which exceeds the GWQS of 0.0067 µg/L for this compound.

Perfluorooctanesulfonic acid (PFOS) was detected in three (3) monitoring well MW-2, MW-3 and MW-17 at a concentration of 0.14 µg/l, 0.0087 µg/l, and 0.0043 µg/l, which, which exceeds the GWQS of 0.0027 µg/L for this compound. PFOS was also detected in the remaining three (3) monitoring wells sampled (MW-16, MW-19, and MW-22) at concentrations below the GWQS for this compound.

Water samples collected on October 3, 2016 from select catch basins located along the eastern and southern portions of the site indicated the presence of PCE and related CVOCs at concentrations ranging from non-detect (ND) to 272 µg/l. In response to the detection of PCE in the standing water samples collected from the stormwater system, and in connection with the Interim Site Management Plan (Interim SMP) activities identified for the site, stormwater system cleaning activities were performed during November 2016. The cleaning activities involved the removal of sediment from each of the accessible catch basins associated with the on-site stormwater system, with field screening of catch basin sediment using a photoionization detector. Field screening results from the catch basins ranged from zero parts per million (ppm) to 6,560 ppm. Sediment samples were also collected from each catch basin and submitted to SGS Accutest Laboratories and analyzed for VOCs plus tentatively-identified compounds (TICs) by USEPA Method 8260. Results of sediment sampling indicated that PCE was identified at concentrations ranging from ND to 124,000 milligrams per kilogram (mg/kg), or approximately 12.4 percent by weight in soil. Impacted sediment removed from the system was segregated between two 20-cubic-yard roll off boxes based on field screening results. Composite samples of the sediment within the roll off boxes were subsequently collected and submitted for VOCs plus TICs using USEPA 8260 as well as for toxicity characteristics using the Toxicity Characteristic Leachate Procedure (TCLP). Based on the results, approximately 11 cubic yards was transported to U.S. Ecology in Michigan for disposal as a hazardous waste, and approximately 22 cubic yards was transported to Cycle Chem of Elizabeth, New Jersey for disposal as a non-hazardous soil.

Following sediment removal, the stormwater system was jetted with clean water. The removed sediment and residual jetting water was containerized on site in seven poly tanks for sampling. Results of sampling indicated that water with the poly tanks contained PCE at concentrations ranging from 1,710 µg/l to 129,000 µg/l. The contained water, approximately 6,000 gallons in total, was subsequently shipped under manifest to Clean Earth of North Jersey in Kearny, New Jersey. A

Subsequent stormwater system investigation activities included the installation of three monitoring wells along the eastern side of The Crossings building proximal to the most impacted catch basins. These monitoring wells did not exhibit CVOC-impacts in groundwater in this area of the Site. Results of catch basin sampling and subsequent cleanout activities were submitted to the NYSDEC in the *Supplemental Remedial Investigation Workplan* dated March 2017 (Leggette, Brashears & Graham, Inc. 2017).

4.5.3 Soil Vapor

CVOC impacted groundwater, proximal to the Carol Cleaners, acted as a source for CVOCs in the soil vapor (the air spaces between particles) in the unsaturated (vadose) zone beneath the building slab. Through pressure differences between the indoor building space and the unsaturated zone, the PCE and related CVOC vapors are able to migrate through preferential pathways such as cracks and foundation holes into indoor air. The analytical results for indoor air and sub-slab air samples collected at the mall building in 2006 and 2008 indicated that VOCs were present at concentrations above NYSDOH Air Matrix guidance values, indicating the potential need for reducing exposure to PCE and TCE at the breathing level.

A sub-slab depressurization (SSD) system was installed at the Crossings between March and April 2014. The SSD system became operational in April 2014. Indoor air sampling following start-up of the system indicated that the Carvel tenant space required additional action. As a result, the SSD system was modified in February 2015 to include installation and connection to a new suction point in the Carvel tenant space. Indoor air sampling following installation of the additional suction point indicated compliance with the respective NYSDOH Air Matrix Guidelines. Results of indoor air/sub-slab vapor sampling from June 2022, December 4, 2023 and March 7, 2025 are included in Appendix J.

The SSD system was shut down on May 5, 2022 in preparation for subsequent indoor air and sub-slab vapor sampling, and due to damage suffered during building renovation activities. Indoor air and sub-slab vapor

sampling were performed during June 2022, and the results of this work indicated that chlorinated VOCs were detected in several sub-slab and indoor air sampling locations; however, detected compounds were not identified at concentrations above "No Further Action" guidance values within Air Matrices A, B and C. The SSD system was repaired on August 18, 2022, and fan inspections and a vacuum test conducted since that time indicate the system is operating as intended.

Sampling was conducted over a 24-hour period from December 4-5, 2023 and the results of this work were submitted to the NYSDEC in a letter report dated June 13, 2024. A copy of the report is included within Appendix J. As outlined in the report, results of the December 2023 sampling indicated that none of the compounds regulated within Air Matrices A, B or C were detected within indoor air samples at concentrations above their respective method detection limits except for methylene chloride. Methylene chloride was detected at low concentrations, ranging from the detection limit of 0.76 µg/m^3 to a maximum concentration of 2.6 µg/m^3. Methylene chloride was also identified within ambient/outdoor air sample AA-1-23 at a concentration of 1.8 µg/m^3.

For sub-slab samples, cis-1,2-dichloroethene (DCE), trichloroethene (TCE), methylene chloride (MC), tetrachloroethene (PCE) and vinyl chloride (VC) were each identified within sub-slab vapor samples. These compounds were identified at the following frequency:

- Cis-1,2-DCE was identified within SS-2-23 at a concentration of 15 µg/m^3. Based on Air Matrix A no further action is necessary associated with this compound;
- TCE was identified in four of five samples, at concentrations ranging from 2.6 µg/m^3 within sample SS-3-23 to a concentration of 181 µg/m^3 within sample SS-2-23. Based on Air Matrix A the sub-slab concentration of 181 µg/m3 in sub-slab sample SS-2-23 requires mitigation. No further action is necessary at the other locations;
- MC was identified within sub-slab sample SS-4-23 at a concentration of 9 µg/m^3. Based on Air Matrix B no further action is necessary associated with this compound;
- PCE was identified within five of five sub-slab samples, at concentrations ranging from 4.5 µg/m^3 within sample SS-3-23 to 489 µg/m^3 within sample SS-2-23. Based on Air Matrix B no further action is necessary associated with this compound; and
- VC was identified within sample SS-4-23 at a concentration of 3.1 µg/m^3. Based on Air Matrix C no further action is necessary associated with this compound.

Based on a comparison of the indoor air and sub-slab vapor samples obtained, continued mitigation is required due solely to the concentration of TCE identified within sub-slab vapor sample SS-2-23; however, as indicated above, no site-related constituents (including TCE) were detected within any of the indoor air samples obtained after the SSDS had been shut down for at least 30 days.

SSDS vacuum radius of influence testing was performed on January 15, 2024, and a memo outlining the results of vacuum testing and indoor air/sub-slab vapor sampling was submitted to the Department on February 21, 2024. Results of vacuum radius of influence testing are provided within Table 4.

Cornerstone mobilized to the site and performed indoor air/sub-slab vapor sampling on March 6 and March 7, 2025. Results of indoor air/sub-slab vapor sampling are provided within Table 5, for indoor air samples, the site-related constituents tetrachloroethene (PCE) and methylene chloride (MC) were each identified. Trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-DCE), trans-1,2-dichloroethene (trans-DCE), and vinyl chloride (VC) were not detected in indoor air samples. For sub-slab samples, PCE, TCE, cis-DCE, trans-DCE and MC were each identified within sub-slab vapor samples. VC was not detected in any of the sub slab samples. The sample results are shown on Figure 11.

As recertification of the SSDS occurred after completion of the most recent round of indoor air/sub-slab vapor sampling at least two to three rounds of sampling will be required before a system deactivation request may be submitted. The next round of indoor air/sub-slab vapor sampling is proposed during the 2025/2026 heating season.

5.0 ENGINEERING CONTROLS

Since remaining contaminated groundwater exists beneath the site, Engineering Controls are required to protect human health and the environment. The site has the following primary Engineering Controls, as described in the following subsections.

5.1 COVER (OR CAP) SYSTEM

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. This cover system is comprised of existing asphalt-covered roads and parking lot, concrete-covered sidewalks, and concrete building slabs. The thickness of the cover system ranges, generally, from four to six inches for asphalt roads and parking lots, and four to eight inches for typical concrete sidewalks and concrete building slabs.

Based on analytical results for soil samples collected on and off-site near the suspected “source area”, only one soil sample exhibited an exceedance of the NYSDEC SCOs for PCE of 1.4 milligram per kilogram (mg/kg) at Soil Boring B-1 with a concentration of 2.05 mg/kg at a depth of approximately 6 feet below grade.

Most of the Site is covered with buildings and asphalt paving. In order to prevent exposure to any residual soil contamination, the EC for this Site is the existing buildings and pavement.

Figure 10 presents the location of the cover system and applicable demarcation layers. Any disturbance of the site’s cover system must be overseen by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) licensed in New York State, or a qualified person who reports directly to a PE licensed in New York State.

5.2 SUB-SLAB DEPRESSURIZATION SYSTEM

The SSD system was permitted by the New York City Department of Buildings (NYCDOB) on February 19, 2014. The SSD system began operating in April 2014 and was supplemented with the incorporation of a new suction point at the Carvel tenant space in February 2015. Currently, the SSD system uses three suction points in the former Carol Cleaners space, three suction points in the former baby supply retail store (Babies R Us), and one suction point in the ice cream store (Carvel), all of which occupy the southern end of The Crossings building which parallels Platinum Avenue. The associated blowers (fans) are located on the roof of the building and the vacuum gages are located on the building’s southern wall which faces Platinum Avenue.

Indoor air and sub-slab vapor sampling were most recently conducted by Cornerstone on December 4-5, 2023 as outlined within Section 5.2.3 above. Brookfield reactivated the SSDS on or about December 7, 2023, and system pressures were again allowed to equilibrate under operating conditions for at least 30 days. Cornerstone subsequently mobilized to the site on January 15, 2024 to install additional vapor sampling points and obtain vacuum readings from these locations as well as sampling ports installed during prior indoor air/sub-slab vapor sampling. The goal of this work was to confirm that the SSDS induced a vacuum beneath the entire building footprint. The results of this work were submitted to the NYSDEC in a letter report dated June 13, 2024, and a copy of this report is included within Appendix J. As indicated in that report, the results of sub-slab vacuum testing confirmed that the SSDS was inducing a vacuum beneath the entire building footprint, and results were consistent with those obtained during the original installation and testing of the system.

Procedures for operating and maintaining the SSD system are documented in the Operation and Maintenance Plan in the Site Management Plan. A record drawing of the SSDS prepared by Cornerstone, based on a drawing previously prepared by Leggett, Brashears & Graham, Inc. is included in Appendix C. Figure 10 shows the location of the ECs for the site. The SSDS will remain in-place and operational until permission to discontinue its use is granted in writing by the NYSDEC project manager in consultation with the NYSDOH project manager.

5.3 STORM WATER SYSTEM MANAGEMENT

As indicated above, accumulated sediment and associated CVOC-impacted material were removed from the storm water system during 2016. As part of the operations and maintenance of the site under the SMP, the stormwater system was monitored for accumulation of sediment by conducting visual inspections at the catch basins located between monitoring wells MW-6R and MW-20. If excessive sediment accumulation is observed, the storm drain basins will be cleared of accumulated sediment and debris.

5.4 CRITERIA FOR COMPLETION OF REMEDIATION/ TERMINATION OF REMEDIAL SYSTEMS

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the site. Confirmation samples require Category B deliverables and a Data Usability Summary Report (DUSR).

As discussed below, the NYSDEC may approve termination of a groundwater monitoring program. When a remedial party receives this approval, the remedial party will decommission all site-related monitoring, injection and recovery wells per NYSDEC CP-43 policy.

The remedial party will also conduct any needed site restoration activities, such as asphalt patching and decommissioning treatment system equipment. In addition, the remedial party will conduct any necessary restoration of vegetation coverage, trees and wetlands, and will comply with NYSDEC and United States Army Corps of Engineers regulations and guidance. Also, the remedial party will ensure that no ongoing erosion is occurring on the site.

5.4.1 Cover

The cover system (or cap) is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with the SMP.

5.4.2 Sub-Slab Depressurization (SSD) System

The active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC and NYSDOH.

Based on the lack of CVOC-impacted soil and the observed decrease in CVOC concentrations in groundwater proximal to the on-site buildings as a result of the recent groundwater bioremediation activities, testing of the sub-slab vapor and indoor air located in the premises that have the active SSD system in use will be conducted to determine the need for on-going operation of the SSD system. This includes shutting down the system for a period of 30 days subsequent to authorization from the NYSDEC and then conducting the testing by having sub-slab and indoor air samples collected from the Carvel, former Carol Cleaners, and former Babies R Us (now Hobby Lobby) tenant spaces. At least two heating season sampling events will be conducted.

If monitoring data indicate that the SSD system may no longer be required, a proposal to discontinue the SSD system will be submitted by the remedial party to the NYSDEC and NYSDOH.

5.4.3 Monitoring Wells associated with Monitored Natural Attenuation and Bioremediation

Groundwater monitoring activities to assess natural attenuation and the bioremediation will continue, as determined by the NYSDEC project manager in consultation with NYSDOH project manager, until residual groundwater concentrations are found to be consistently below GWQSs, the site SCGs, or have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicate that monitoring for natural attenuation may no longer be required (i.e., two consecutive annual sampling rounds that exhibit groundwater sample results at or below the respective NYS TOGs for the CVOCs of concern – PCE, TCE, cis-1,2-DCE and VC), a proposal to discontinue the monitoring will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional injections, additional source removal, treatment and/or control measures will be evaluated.

6.0 INSTITUTIONAL CONTROLS

6.1 GENERAL

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of ICs/ECs at the site. The IC/EC Plan was one component of the SMP and was subject to revision by the NYSDEC project manager in consultation with the NYSDOH.

This plan provides:

- A description of all ICs/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs; and
- Any other provisions necessary to identify or establish methods for implementing the ICs/ECs required by the site remedy, as determined by the NYSDEC project manager in consultation with the NYSDOH project manager.

6.2 INSTITUTIONAL CONTROLS

A series of ICs is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the site to commercial and industrial uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under the SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 10. These ICs are:

- The Controlled Area (property, specifically a portion thereof) may be used for commercial and industrial use;
- All ECs must be operated and maintained as specified in the SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Richmond County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
- Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to site management of the Controlled Area must be reported at the frequency and in a manner as defined in the SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in the SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 10, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the site are prohibited; and
- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

7.0 DEVIATIONS FROM THE RAWP

There were no deviations from the approved RAWP.

8.0 REFERENCES

6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

TABLES

TABLE 1

CAROL CLEANERS - THE CROSSINGS AT STATEN ISLAND MALL
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Monitoring Well Construction and Groundwater Elevation Data - March 3, 2025

Well ID[1]	Date Completed	Total Depth (ft bg) [2]	Depth to Bedrock (ft bg)	Flush-Mount Rim Elevation (ft amsl) [3]	Top of PVC Elevation (ft amsl)	Screen Setting Interval (ft bg)	Depth to Water (ft bg)	Groundwater Elevation (ft amsl)
MW-1	7/26/1995	13.5	13.5	44.58	44.28	8.5-13.5	NS	---
MW-2	7/26/1995	12.0	12.0	37.97	37.74	7.0-12.0	8.19	29.55
MW-3	7/28/1995	14.8	13.0	32.59	32.12	9.8-14.8	7.05	25.07
MW-3D[4]	5/26/2006	43.5	25.0	32.85	32.46	35.5-43.5	NS	---
MW-4	7/27/1995	14.6	17.0	33.02	32.68	9.6-14.6	8.18	24.50
MW-5	7/27/1995	14.0	14.0	31.98	31.60	9.0-14.0	9.62	21.98
MW-6R[5]	9/23/2002	15.0	13.0	35.16	34.85	10.0-15.0	7.24	27.61
MW-7	9/24/2002	15.0	13.0	32.35	32.05	10.0-15.0	7.93	24.12
MW-8	9/24/2002	15.0	13.0	31.86	31.31	10.0-15.0	8.75	22.56
MW-9[6]	10/31/2002	16.0	15.0	31.30	31.06	11.0-16.0	NS	---
MW-10	5/26/2006	20.0	19.0	34.53	34.21	15.0-20.0	8.50	25.71
MW-11	3/12/2008	17.0	16.0	31.19	30.71	12.0-17.0	NS	---
MW-12	3/11/2008	18.0	17.0	32.13	31.77	13.0-18.0	NS	---
MW-13	3/11/2008	18.0	17.0	33.81	33.38	13.0-18.0	NS	---
MW-14	3/11/2008	17.0	16.0	32.23	31.67	12.0-17.0	NS	---
MW-15	3/12/2008	17.0	16.2	36.97	36.51	12.0-17.0	NS	---
MW-16[4]	7/22/2011	28.0	28.0	29.72	29.46	23.0-28.0	9.15	20.31
MW-17[4]	7/22/2011	26.0	26.0	30.47	30.05	21.0-26.0	9.44	20.61
MW-18[4]	7/22/2011	20.5	20.5	31.05	30.67	15.5-20.5	9.80	20.87
MW-19[4]	7/22/2011	20.5	20.5	32.37	31.82	15.5-20.5	10.61	21.21
MW-20	8/26/2016	25.5	25.5	29.79	29.53	20.5-25.5	8.82	20.71
MW-21	8/24/2016	17.0	17.0	30.48	30.19	12.0-17.0	8.98	21.21
MW-22	8/24/2016	14.5	14.5	31.65	31.31	9.5-14.5	8.60	22.71
MW-23	8/25/2016	10.0	10.0	33.43	33.05	5.0-10.0	6.14	26.91
MW-24	8/25/2017	11.0	11.0	33.90	33.28	6.0-11.0	7.26	26.02
MW-25	6/29/2017	13.0	13.0	41.87	41.41	8.0-13.0	NS	---
MW-26	6/28/2017	14.0	14.0	39.18	38.77	9.0-14.0	NS	---
MW-27	6/28/2017	10.0	10.0	34.47	34.10	5.0-10.0	NS	---
MW-28	6/29/2017	22.5	22.5	29.06	28.69	17.5-22.5	NS	---
MW-29	6/29/2017	24.0	24.0	31.57	31.28	19.0-24.0	NS	---

NOTES:
(1) See Figure 2 for locations. Monitoring wells completed with 4-inch diameter, Schedule 40 PVC riser and screen, and flush-mount surface casings except where noted.
(2) Feet below ground surface.
(3) Feet above mean sea level.
(4) Constructed with 2-inch diameter, Schedule 40 PVC riser and screen.
(5) Replacement for Monitoring Well MW-6 (installed 7/28/1995).
(6) Monitoring Well MW-9 was abandoned with approval from the NYSDEC on June 7, 2017.
NS - Not sampled this round.

TABLE 2

CAROL CLEANERS - THE CROSSINGS AT STATEN ISLAND MALL
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Reductive Dechlorination Indicator Parameters
January 2013 Pre-Injection through March 2025 Post-Injection

Well ID[1]	Date	Methane	Ethane	Ethene	Acetone	MEK[11]	Sulfate	Carbon Dioxide	BOD[2]	COD[3]	TOC[4]	Alkalinity
		Concentration (ug/L)[5]					Concentration (mg/L)[6]					
Injection Wells - Zone 1												
MW-3	1/30/2013	0.15	ND	ND	ND	ND	31.3	291	<4.5	<20	1.3	228
	1/20/2015	20.7	0.13	1	ND	ND	28	1.72	15	47.6	13.5	227
	4/7/2015	38.8	0.22	1.5	ND	ND	<10	3,700	201	279	92.7	492
	6/30/2015	5.1	ND	0.93	5.0 J	ND	10.9	3,630	26.8	71.3	19.9	433
	10/7/2015	ND	ND	ND	ND	ND	26.4	933	<3.4	<20	2.5	227
	10/6/2016	9	ND	0.43	ND	ND	33.6	980	<3.4	<20	1.3	245
	1/10/2019	66.1	ND	ND	ND	ND	323	147,000	>7,030 [10]	57,600	<500 [10]	7,460 [10]
	4/18/2019	9,010	ND	ND	278	776	<2.0	37,800	2,460	2,020	774	704
	7/18/2019	4,450	ND	ND	ND	ND	11.7	37,900	<270	13,000	86.1	NA
	10/25/2019	3,040	ND	ND	ND	ND	2.3	22,700	ND	475	71.6	ND
	1/29/2020	3,380	ND	ND	ND	ND	ND	11,400	168	381	137	ND
	4/21/2020	2,640	ND	ND	ND	ND	5.5	8,330	120	359	84.1	590
	7/7/2020	3,340	0.67	ND	ND	ND	3.5	6,350	353	269	97.3	600
	10/20/2020	2,630	0.8	ND	ND	ND	ND	6,340	31.1	179	95.5	523
	3/18/2021	3,800	ND	ND	ND	ND	6.3	3,960	49.8	134	44.9	273
	5/27/2021	2,090	6.25	42.2	ND	ND	21.1	1,440	66.2	27.9	12.2	205
	9/29/2021	1,330	66	1.2	ND	ND	ND	1,610	ND	83.5	ND	233
	7/26/2022	1,020	15.7	0.97	ND	ND	8	1,270	1.9	27	12	140
	12/6/2023	75	1.9	3.79	ND	ND	31.4		1.7	27	3.3	177
	3/4/2025	44	0.29	2.7	ND	ND	24.6	1,620	2.2	<20	2.8	191 [c]
MW-5	1/30/2013	ND	ND	ND	ND	ND	35.4	3,090	<3.4	<20	3.4	141
	1/20/2015	77.3	ND	ND	7.9 J	ND	ND	16.5	<43	181	68.3	830
	4/7/2015	5.9	ND	ND	ND	ND	ND	7,200	<5.0	<20	8.6	178
	6/30/2015	0.32	ND	ND	ND	ND	39.9	10,600	<3.4	75.9	20	360
	10/7/2015	ND	ND	ND	ND	ND	50.2	8,400	<5.0	82.5	27.9	406
	10/6/2016	22.4	ND	ND	ND	ND	25.5	9,680	<3.4	36	11.9	299
	1/9/2019	12.4	ND	ND	7.1 J	7.4 J	4.1	17,900	89.7	237	76.5	564
	4/18/2019	9880	ND	1.1	8.4 J	9.7 J	9.2	15,700	50.6	73	19.6	351
	7/18/2019	6210	ND	0.61	ND	ND	17	25,300	<200	50.2	13.6	NA
	10/29/2019	4820	ND	0.72	30	171	5.4	44,700	222	863	181	ND
	1/28/2020	8580	ND	ND	ND	ND	13.7	12,900	158	63.5	18.5	ND
	4/21/2020	608	ND	ND	ND	ND	19.4	8,240	167	43.6	7.8	265
	7/7/2020	656	ND	ND	ND	ND	22	8,230	263	ND	5	136
	10/23/2020	685	ND	ND	ND	554		139,000	1550	7760	5460	3500
	3/19/2021	5910	ND	ND	358	1,470	5.8	37,100	334	1240	408	3750
	5/27/2021	4730	0.33	ND	266	767	7.8	10,100	141	521	228	1970
	9/29/2021	6820	0.8	ND	15.2	ND	ND	8,020	ND	86	ND	505
	7/27/2022	4,620	1.8	2.5	6.0 J	ND	10.2	4,970	13.9	97.2	64.2	275
	12/5/2023	599	ND	ND	ND	ND	24.9		6.6	35.1	4.8	177
	3/5/2025	43	ND	ND	ND	ND	54.6	4,050	2.6	36	8.1	120 [c]
Injection Area - Zone 2												
MW-7	1/30/2013	0.39	ND	ND	4.8 J	ND	37	182	<3.4	<20	1.5	238
	10/7/2015	ND	ND	ND	ND	ND	32.2	454	<2.0	<20	1.6	197
	10/6/2016	ND	ND	ND	ND	ND	33	865	<3.4	<20	1.1	223
	1/9/2019	0.26	ND	ND	39.3 J	501	419	152,000	>6,600 [10]	56,800	13,100	10,200
	4/17/2019	5,470	ND	0.54	144	1,590	2.9	91,300	>6,860	17,600	4,180	2,590
	7/18/2019	6,050	ND	ND	329	2,800	<2.0	63,000	<2,700	14,600	1,170	NA
	10/25/2019	5,850	ND	ND	ND	ND	3.9	34,600	ND	1,430	259	ND
	1/28/2020	4,140	ND	ND	ND	ND	6	17,100	362	809	260	ND
	4/21/2020	2,590	ND	ND	ND	ND	3.4	9,440	191	256	101	563
	7/7/2020	2,540	ND	1.6	ND	ND	7.3	4,010	338	114	43.9	312
	10/23/2020	1,170	ND	1.2	59	103	ND	118,000	1,560	7,530	1,020	918
	3/17/2021	7,610	ND	ND	797	3,250	4	37,200	232	2,930	771	5,100
	5/26/2021	4,890	ND	ND	1,100	4,320	91.5	13,800	140	1,670	737	5,060
	9/28/2021	5,200	ND	ND	ND	ND	ND	22,700	3.6	627	215	5,290
	7/26/2022	3,790	0.38	ND	8.0 J	ND	<2.0	5,900	17.6	116	232	1,350
	12/7/2023	ND	ND	ND	15.6 J	ND	ND		10.5	431	69.5	622
	3/5/2025	470	0.62	0	ND	ND	14	2,790	4.4	61	7.6	255 [c]
MW-20	10/4/2016	7.5	0.43	ND	ND	ND	36.4	4,110	<2.0	<20	2.6	327
	1/8/2019	2,270	ND	ND	232	243	10.1	97,700	4,160	5,700	1,830	1,870
	4/17/2019	11,000	ND	ND	390	735	<2.0	68,700	917	1,930	619	1,750
	7/23/2019	8,890	ND	ND	ND	ND	8.5	48,500	<330	511	177	1,890
	10/29/2019	473	ND	ND	70.9	145	246	140,000	15,100	28,600	11,000	ND
	1/28/2020	7,070	ND	ND	1,380	3,140	2.2	33,900	2,410	2,670	1,210	ND
	4/21/2020	3,050	ND	ND	ND	ND	2.7	24,200	373	1,330	500	3,960
	7/8/2020	1,840	ND	ND	ND	ND	ND	27,400	128	829	235	2,050
	10/20/2020	5,300	ND	0.68	ND	ND	5.9	20,800	36.1	308	120	1,400
	3/16/2021	5,580	ND	1.4	13.8	ND	6.6	13,600	121	142	39.7	178
	5/26/2021	1,240	ND	3.99	ND	ND	36.3	2,000	3	78.4	26.6	392
	9/30/2021	72.9	ND	ND	6.6	ND	27	4,240	1	27.8	15.3	342
	12/7/2023	ND	ND	ND	ND	ND	30.5		1	21.6	3	297
	3/5/2025	18	ND	ND	ND	ND	25.1	1,850	1	44.5	4	278 [c]
MW-21	10/6/2016	2.3	ND	ND	ND	ND	40.8	1,400	<3.4	<20	1.4	252
	1/9/2019	296	ND	ND	21.7	20.9	13.5	7,710	81.7	131	13.2	130 [10]
	4/17/2019	3,500	ND	ND	7.4 J	11.5	12.3	10,800	18.4	70.3	14.9	118
	7/23/2019	2,550	ND	ND	9.1 J	ND	8.5	20,700	<330	97.5	23.7	138
	10/29/2019	937	ND	ND	36.3	194	114	89,900	15200	28200	12100	ND
	1/28/2020	4,980	ND	ND	592	3,480	ND	31,800	2770	2570	1520	ND
	4/21/2020	3,520	ND	ND	368	728	3.9	6,540	373	1230	358	2500
	7/8/2020	6,520	ND	ND	ND	ND	ND	33,800	123	878	276	2050
	10/20/2020	6,400	ND	ND	7.7	ND	18.7	24,500	19.8	308	96.5	373
	3/17/2021	4,220	ND	ND	ND	ND	8.9	19,400	396	179	30.5	823
	5/26/2021	1,110	ND	ND	ND	ND	24.3	7,140	1.4	38	16.5	62
	9/29/2021	1,270	ND	ND	ND	ND	17.1	5,990	ND	50.6	15	286
	12/6/2023	639	ND	ND	ND	ND	29.6		11.3	29.7	5.6	219
	3/5/2025	11	ND	ND	ND	ND	32.7	1,160	5.3	114.0	9.6	116 [c]
MW-22	10/6/2016	2.8	ND	ND	ND	ND	39.7	1,210	<3.4	24	1.1	256
	1/9/2019	15	ND	ND	ND	805 J	59	126,000	>6,610 [10]	24500	21400	9,300 [10]
	3/17/2021	8,590	ND	ND	ND	ND	13.1	14,200	146	147	43	413
	5/26/2021	3,020	ND	ND	ND	ND	28.3	9,550	34.8	53.1	14.4	269
	9/29/2021	2,050	ND	ND	4.5	ND	11.1	6,430	13.3	50.6	16	234
	12/7/2023	ND	ND	ND	3.7 J	ND	23		8.8	37.8	4.7	297
	3/4/2025	1,000	ND	ND	15.1	5.0 J	30.1	2,950	2.3	<20	3.6	262 [c]
MW-23	10/5/2016	4	ND	ND	ND	ND	27.3	3,080	<3.4	<20	<1.0	241
	1/8/2019	5,980	ND	ND	518	970	7.2	75,900	>2,210 [10]	4410	1450	1,860 [10]
	3/18/2021	437	ND	ND	ND	ND	27	2,040	227	31.6	1.8	119
	5/28/2021	189	ND	ND	ND	ND	27.4	1,310	76	28	3.4	215
	9/28/2021	277	ND	ND	ND	ND	ND	1,170	ND	ND	3.8	204
	7/26/2022	300	ND	ND	3.7 J	ND	21.8	1,720	8.1	<20	42.9	201
	12/6/2023	5.5	ND	ND	ND	ND	25.3		2.6	ND	1.2	216
	3/5/2025	0.3	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 [c]

TABLE 2

CAROL CLEANERS - THE CROSSINGS AT STATEN ISLAND MALL
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Reductive Dechlorination Indicator Parameters
January 2013 Pre-Injection through March 2025 Post-Injection

Well ID[1]	Date	Methane	Ethane	Ethene	Acetone	MEK[11]	Sulfate	Carbon Dioxide	BOD[2]	COD[3]	TOC[4]	Alkalinity
		Concentration (ug/L)[5]					Concentration (mg/L)[6]					
MW-24	10/5/2016	0.27	ND	ND	ND	ND	23.2	1120	<1.0	<20	<1.0	230 c
	1/8/2019	0	ND	ND	ND	ND	23	1,120	<1.0	<20	<1.0	230 c
	4/17/2019	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	7/18/2019	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	10/25/2019	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	1/29/2020	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	4/21/2020	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	7/7/2020	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	10/20/2020	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	3/18/2021	0.27	ND	ND	ND	ND	23.2	1,120	<1.0	<20	<1.0	230 c
	5/28/2021	ND	ND	ND	ND	ND	22.3	1,180	146	33	5.1	269
	9/29/2021	0.84	ND	ND	ND	ND	ND	1,170	ND	144	ND	238
	12/6/2021	0.32	ND	ND	3.7 J	ND	20.3		4.4	27	3.7	219
	3/7/2025	ND	ND	ND	ND	ND	17.9	1390	2.3	61.2	4.9	104 a
Injection Area - Zone 3												
MW-9	1/29/2013	3.6	ND	ND	ND	ND	39.5	319	<5.0	<20	3.4	243
	10/6/2015	ND	ND	ND	ND	ND	<10	1,770	<3.4	<20	5.1	61.7
	10/4/2016	NS[7]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	WELL MW-9 ABANDONED											
MW-11	1/29/2013	1.8	ND	ND	ND	ND	36.6	526	<5.0	<20	2	253
	10/6/2015	2.7	ND	ND	ND	ND	<10	4,790	<2.0	<20	2.5	315
	10/10/2016	451	0.28	ND	ND	ND	27.3	329	<3.4	<20	2	307
MW-12	1/29/2013	62.1	ND	ND	ND	ND	40	1,290	<5.0	<20	4.9	426
	10/6/2015	0.92	ND	ND	ND	ND	20.1	14,500	<3.4	<20	5.8	316
	10/10/2016	415	1	ND	ND	ND	22.2	10,000	<3.4	45.6	5.7	321
	4/17/2019	744	0.31	ND	ND	ND	25.5	10,100	917	40.5	5.4	377
	7/23/2019	1320	0.54	ND	ND	ND	22.2	13,300	24	30	6.8	456
	10/28/2019	2.8	ND	ND	229	199	202	150,000	14000	29500	8720	ND
	1/30/2020	3990	ND	ND	376	538	ND	50,200	2210	3690	1310	ND
	4/22/2020	2860	ND	ND	595	701	ND	53,000	1430	2100	394	2,300
	7/9/2020	3960	ND	ND	140	210	ND	50,200	203	561	140	2,150
	10/20/2020	1470	ND	ND	ND	ND	ND	48,700	15.4	308	99.3	1,870
MW-13	1/29/2013	2.9	ND	ND	ND	ND	43	759	<5.0	<20	3.2	342
	10/6/2015	2.4	ND	ND	ND	ND	12.6	1,870	<2.0	<20	3.7	299
	10/4/2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/17/2019	8,300	ND	1.2	8.3 J	8.4 J	13.6	16,600	57.6	122	40.2	482
	7/23/2019	10,800	0.92	ND	11	13	10.7	18,300	<330	25	14.8	444
	10/28/2019	4,740	0.51	ND	ND	ND	18.9	17,300	54.2	90.9	19.3	ND
	1/29/2020	3,890	ND	ND	ND	ND	11.3	8,890	15.7	147	46.9	ND
	4/22/2020	3,720	1.1	ND	ND	ND	28.9	7,170	4.5	59	11.4	445
	7/9/2020	4,820	1.1	ND	7	ND	6.6	3,720	7.8	ND	12.8	369
	10/20/2020	2,690	0.83	ND	ND	ND	26.7	5,240	9.3	68.6	13.9	325
Monitor Wells within Treatment Area												
MW-3D	2/1/2013	0.96	ND	ND	ND	ND	10.4	ND	<3.4	<20	<1.0	229
	1/20/2015	40.5	ND	0.25	ND	ND	ND	ND	46	76.2	21.1	249
	4/7/2015	11.4	ND	0.29	ND	ND	10.7	ND	8.6	27.8	8.7	181
	6/30/2015	0.21	ND	ND	ND	ND	<10	ND	<3.4	<20	1.8	203
	10/7/2015	ND	ND	ND	ND	ND	<10	ND	<2.0	<20	1.5	211
	10/5/2016	0.98	ND	ND	ND	ND	10.4	ND	<3.4	<20	<1.0	268
	1/10/2019	3.7	ND	ND	ND	ND	8.3	ND	<3.4	<20	4.2	257
	4/18/2019	0.33	ND	ND	ND	ND	13.4	ND	16.3	29.7	1.6	143
	7/18/2019	6.7	ND	ND	ND	ND	10.8	ND	<3.4	<20	1	NA
	10/25/2019	6.7	ND	ND	ND	ND	11.5	ND	ND	ND	ND	ND
	1/29/2020	4.7	ND	ND	ND	ND	6.7	ND	2.7	ND	1.5	ND
	4/21/2020	2.2	ND	ND	ND	ND	8.3	ND	1.5	ND	1.2	116
	7/7/2020	3.6	ND	ND	ND	ND	10.4	ND	ND	ND	1.2	224
	10/20/2020	4.1	ND	ND	ND	ND	11.2	ND	ND	ND	1.7	174
	3/18/2021	0.18	ND	ND	ND	ND	9.2	ND	3	31.6	1.2	105
	5/27/2021	ND	ND	ND	ND	ND	15.2	ND	ND	ND	3.1	170
	7/26/2022	0.3	ND	ND	ND	ND	14.6	ND	<1	<20	2.4	114
MW-4	1/30/2013	2	0.26	ND	ND	ND	35.6	1,730	<3.4	<20	1.3	241
	1/20/2015	40.8	2.9	7.3	ND	ND	ND	4.66	108	143	61.6	380
	4/7/2015	48.8	1.2	4	ND	ND	<10	4,840	273	354	94	426
	6/30/2015	21.2	ND	2.3	ND	ND	<10	8,350	>227	1,490	158	578
	10/7/2015	12.1	ND	ND	26	41.9	16.5	13,000	16	52.5	18.1	521
	10/5/2016	1,340	0.28	14.4	ND	ND	30.8	7,940	4.7	<20	3.4	332
	1/8/2019	957	ND	ND	ND	356 J	298	157,000	7,520	57,600	23,500	13,400
	4/18/2019	5,250	ND	ND	430	1,190	<2.0	108,000	6,530	2,280	2,480	2,370
	7/18/2019	4970	ND	ND	435	1,390	16.6	71,900	2,720	14,300	1,210	NA
	10/29/2019	560	ND	ND	71.5	272	318	136,000	15,100	28,200	16,400	ND
	1/28/2020	4830	ND	ND	1,720	10,300	3.3	64,000	17,000	10,700	11,900	ND
	4/21/2020	3890	ND	ND	1,910	8,140	ND	57,800	14,800	47,500	9,740	10,300
	7/7/2020	6470	ND	ND	1,810	8,300	ND	14,800	15,700	19,500	6,320	9,350
	10/23/2020	1700	ND	ND	39.1	462	ND	104,000	4,910	7,530	2,650	2,130
	3/19/2021	7270	ND	ND	913	5,840	ND	54,700	6,370	8,440	5,270	8,080
	5/27/2021	5,230	ND	ND	947	4250	ND	16,400	4,060	10,500	5,880	11,200
	9/29/2021	2,360	ND	ND	1510	8120	ND	34,400	14,400	12,300	6,300	11,600
	12/6/2023	3020	ND	0.28 J	56.7 J	171	ND		93.6	3920	751	7150
	3/7/2025	4560	ND	0.26 J	16.1 J	ND	<40	12500	95.7 d	1180	481	3600 f
MW-8	1/30/2013	4.9	ND	ND	ND	ND	41.3	1,340	<3.4	<20	1.1	227
	10/7/2015	ND	ND	ND	ND	ND	33.2	3,690	<3.4	<20	4	192
	10/6/2016	22.7	ND	ND	ND	ND	39.2	4,940	<3.4	26.4	1	224
	1/9/2019	16.8	ND	ND	ND	ND	29	2,250	<5.0	30.6	3.5	202
	4/17/2019	9.8	ND	ND	ND	ND	31.7	5,740	<5.0	37.8	6.7	192
	7/18/2019	19	ND	ND	ND	ND	31.8	8,960	ND	23.8	3.8	ND
	10/29/2019	0.45	ND	ND	171	84.1	262	33,000	15100	29500	8090	ND
	1/28/2020	6340	ND	ND	252	718	ND	25,800	657	904	313	ND
	4/21/2020	4500	ND	ND	23.2	38.8	3.3	10,200	312	210	91.9	705
	7/7/2020	5860	ND	ND	ND	ND	3.7	6,100	68	107	38	528
	10/23/2020	200	ND	ND	30.7	21.5	ND	14,700	257	1060	521	453
	3/17/2021	9520	ND	ND	21.9	ND	3.2	11,100	632	189	43.4	1200
	5/26/2021	5900	ND	ND	9.9	ND	17.7	5,730	24.8	309	103	1200
	9/29/2021	2980	ND	ND	ND	ND	ND	6,290	33.5	434	102	1000
	7/26/2022	1,180	ND	3.68	ND	ND	25.7	12,000	2.0	48.6	35.1	320
	12/6/2023	163	0.16 J	2.70	ND	ND	31.3		1.3	29.7	3.2	230
	3/7/2025	2.17	ND	0.27 J	3.2 J	ND	29.6	726	2.3	44.5	7.7	169 a
Monitor Wells Outside Treatment Area												
MW-1	2/1/2013	5.7	ND	ND	ND	ND	49.7	1,890	<3.4	40.9	4.3	305
	10/8/2015	ND[8]	ND	ND	ND	ND	44.1	6,350	<2.0	<20	2	263
	10/4/2016	ND	ND	ND	ND	ND	52.1	6,700	116	182	45.4	256

TABLE 2

CAROL CLEANERS - THE CROSSINGS AT STATEN ISLAND MALL
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Reductive Dechlorination Indicator Parameters
January 2013 Pre-Injection through March 2025 Post-Injection

Well ID[1]	Date	Methane	Ethane	Ethene	Acetone	MEK[11]	Sulfate	Carbon Dioxide	BOD[2]	COD[3]	TOC[4]	Alkalinity
		Concentration (ug/L)[5]					Concentration (mg/L)[6]					
MW-2[9]	2/1/2013	8.2	ND	ND	48.3	ND	60.8	259	117	904	74.8	29.2
	10/8/2015	17.6	ND	ND	4.1 J	ND	11.4	6,200	25.3	74.2	32	408
	10/4/2016	4370	ND	ND	ND	ND	<10	4,290	8.4	67.2	58.6	210
	1/9/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/19/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/18/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/29/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/29/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/22/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/8/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/17/2021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/24/2021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/29/2021	1670	0.32	ND	13.8	ND	ND	5,999	ND	48.1	676	485
	12/8/2023	419	ND	ND	24.1	10.4	37.9		17.8	823	6	402
	3/7/2025	78.2	ND	ND	10.5	ND	45.6	4,820	15.1 d	147	9.5	300 a
MW-6R	2/1/2013	ND	ND	ND	ND	ND	35.4	156	<3.4	<20	2.1	270
	10/7/2015	ND	ND	ND	ND	ND	32.8	567	<2.0	<20	1.9	194
	10/5/2016	ND	ND	ND	ND	ND	30.3	749	<3.4	<20	3.3	166
	1/9/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/19/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/18/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/29/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/22/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/8/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/18/2021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/24/2021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/29/2021	0.16	ND	ND	ND	ND	ND	362	ND	ND	2.7	172
	12/6/2023	0.13	ND	ND	ND	ND	20		ND	ND	1.9	212
	3/5/2025	ND	ND	ND	ND	ND	3.8	153	<1.0	<20	<1.0	70.4 c
MW-10	1/31/2013	0.89	ND	ND	ND	ND	48.2	611	<3.4	<20	2.4	294
	10/8/2015	ND	ND	ND	ND	ND	44.2	1200	<2.0	<20	1.5	258
	10/5/2016	1.2	ND	ND	ND	ND	44.8	1730	<2.0	<20	1.2	280
	1/9/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/19/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/18/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/29/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/22/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/8/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/17/2021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/24/2021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/29/2021	0.6	ND	ND	5.1	ND	31.6	2550	ND	ND	9.9	240
	12/7/2023	ND	ND	ND	ND	ND	30.8		ND	ND	1.7	224
	3/7/2025	0.10 J	ND	ND	ND	ND	31.5	3030	2.3	58.4	3.6	216 a
MW-14	1/31/2013	27.9	ND	ND	ND	ND	48.4	3,950	<3.4	<20	3.5	261
	10/8/2015	ND	ND	ND	ND	ND	43.3	8,330	<3.4	<20	2.9	290
	10/4/2016	4.3	ND	ND	ND	ND	38.2	15,000	<3.4	<20	59.4	301
MW-15	1/28/2013	0.39	ND	ND	ND	ND	50	701	<5.0	<20	2.1	364
	10/8/2015	ND	ND	ND	ND	ND	43.1	2,670	<2.0	<20	1.8	302
	10/4/2016	1.8	ND	ND	ND	ND	39.1	2,990	<2.0	<20	2.3	308
MW-16	1/31/2013	0.17	ND	ND	ND	ND	40.5	1,580	<3.4	<20	2.4	265
	10/8/2015	ND	ND	ND	ND	ND	35.7	4,510	<2.0	<20	1.7	218
	10/7/2016	ND	ND	ND	ND	ND	37.9	4,870	<3.4	<20	1.5	253
	1/9/2019	1,670	ND	ND	ND	882 J	<20 [10]	181,000	>7,000 [10]	645	<200 [10]	3,900 [10]
	4/17/2019	8,660	ND	0.34	325	473	3.1	69,700	2,910	4,390	928	2,150
	7/23/2019	8,840	ND	ND	204	365	7.2	64,500	<410	1,090	154	3,750
	10/28/2019	2,420	ND	0.5	108	491	211	122,000	14,200	28,200	9940	ND
	1/30/2020	3,930	ND	ND	1,020	3,790	ND	38,900	10,700	25,600	5760	ND
	4/22/2020	3,780	ND	ND	669	1,790	ND	33,200	2,340	6,360	1790	853
	7/9/2020	4,750	ND	ND	ND	ND	ND	37,200	225	1,390	550	3,950
	10/22/2020	5,810	ND	ND	ND	ND	2.7	20,900	33.8	894	263	2,520
	3/16/2021	9,120	ND	ND	ND	ND	5.3	25,400	289	667	23.4	2,870
	5/25/2021	1,590	0.43	ND	7.4	ND	6.8	8,970	48	690	193	2,140
	9/30/2021	6,220	0.82	ND	ND	ND	9.4	16,600	7	98.7	101	453
	12/7/2023	ND	ND	ND	ND	ND	4.6		3.1	51.3	8.9	167
	3/4/2025	1,150	0.29	ND	ND	ND	12.4	1,340	6.2 d	26.7	5.6	217 c
MW-17	1/31/2013	1.1	ND	ND	ND	ND	38.9	607	<3.4	<20	1.1	237
	10/8/2015	1.4	ND	ND	ND	ND	28.6	1,650	<2.0	<20	1.6	240
	10/7/2016	8.6	ND	ND	ND	ND	35.7	2,380	<3.4	<20	1.3	268
	1/10/2019	979	ND	ND	ND	85.9	<10 [10]	34,200	856	1,460	518	4,460 [10]
	4/18/2019	5,390	ND	ND	213	492	23.6	28,500	2,380	1,300	773	1,990
	7/23/2019	7,640	ND	2.8	53.6	402	12.3	47,900	<410	724	105	1,930
	10/28/2019	1,950	ND	2.4	ND	141	258.0	148,000	14,100	29,100	7610	ND
	1/30/2020	5,900	ND	20.2	1,470	9,450	ND	49,600	17,200	46,400	7260	ND
	4/23/2020	4,690	4	8.1	1,100	4,910	3.2	33,200	3,690	8,690	2690	2,910
	7/9/2020	6,340	9.8	2.9	440	1,460	6.7	25,900	380	1,190	284	ND
	10/22/2020	6,590	3.7	5.5	79	968	ND	59,300	1,560	7,760	2050	1,990
	3/16/2021	8,390	12.3	ND	ND	28.2	5.6	26,000	89.1	1,090	38.1	3,100
	5/25/2021	6,460	24.5	2	5.7	ND	8.6	5,670	40	809	189	2,210
	9/30/2021	6,840	19.7	3.09	ND	ND	8.6	9,360	2.2	91.1	27.8	499
	7/27/2022	3,040	12.2	0.51	8.2 J	113	18.9	5,770	12.8	113	98.3	724
	12/7/2023	ND	ND	ND	ND	ND	ND		13.3	372	70.2	931
	3/4/2025	4,790	7.35	0.45	ND	ND	25.4	3,750	8.5	117	29.8	371 c
MW-18	1/31/2013	68.5	ND	ND	ND	ND	38.7	3,500	<3.4	<20	2.4	262
	10/8/2015	0.27	ND	ND	ND	ND	38.9	8,810	<2.0	25.6	6.6	356
	10/7/2016	18.7	ND	ND	ND	ND	29.8	9,000	<3.4	33.6	2.1	254
	1/10/2019	467	0.26	1.8	ND	641	<10 [10]	183,000	>2,340 [10]	13,100	<100 [10]	2,940 [10]
	4/18/2019	6,810	2.4	1.7	241	754	8.1	98,800	2,330	1,380	544	2,120
	7/23/2019	9,350	3.6	ND	ND	6.9 J	12.0	51,500	<330	100	25.9	613
	10/28/2019	2,000	0.24	ND	468	3,630	22.6	82,600	9,900	18,200	5120	ND
	1/30/2020	4,870	ND	ND	485	2,530	ND	30,600	1,540	1,760	426	ND
	4/23/2020	4,230	1.2	ND	20.6	88.7	ND	29,500	363	126	254	2,450
	7/9/2020	6,210	1.6	ND	ND	ND	9.6	17,300	59.9	119	64.5	915
	10/22/2020	2,150	1.9	0.74	ND	ND	26.1	4,600	4.8	27.9	7.3	343
	3/16/2021	2,310	1.1	0.61	ND	ND	28.5	1,420	99.7	55.2	7.1	355
	5/25/2021	1,560	1.4	1.4	ND	ND	33.8	1,180	29	60.8	6.5	265
	9/30/2021	1,580	1.4	1.1	ND	ND	31	1,780	ND	25.3	6.1	263
	7/27/2022	420	0.54	ND	ND	ND	30	1,580	2.7	<20	3.4	240
	12/8/2023	49.4	0.17 J	ND	ND	ND	30.3		ND	ND	2.1	249
	3/4/2025	16.2	0.20 J	ND	ND	ND	30.1	1,300	1.8 e	<20	1.0	250 c

TABLE 2

CAROL CLEANERS - THE CROSSINGS AT STATEN ISLAND MALL
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Reductive Dechlorination Indicator Parameters
January 2013 Pre-Injection through March 2025 Post-Injection

Well ID[1]	Date	Methane	Ethane	Ethene	Acetone	MEK[11]	Sulfate	Carbon Dioxide	BOD[2]	COD[3]	TOC[4]	Alkalinity
		Concentration (ug/L)[5]					Concentration (mg/L)[6]					
MW-19	1/30/2013	ND	ND	ND	ND	ND	32.3	882	<3.4	<20	1.2	205
	10/8/2015	2.1	ND	ND	ND	ND	24.2	4,270	<2.0	<20	2.9	268
	10/7/2016	92.6	0.41	ND	ND	ND	30.6	2,950	<3.4	26.4	1.8	280
	1/10/2019	2,000	ND	ND	300	734	<20 [10]	189,000	>7,920 [10]	12,900	<200 [10]	4,460 [10]
	4/18/2019	11,000	ND	6.3	178	769	<2.0	53,900	1,920	1,160	408	1,670
	7/23/2019	8,820	ND	ND	12.8	26.1	7.2	39,500	<330	255	37.6	888
	10/28/2019	3,380	ND	0.32	ND	230	187	85,700	14,000	30,000	9850	ND
	1/30/2020	5,160	ND	ND	2,870	17,400	5.9	41,400	11,200	23,800	7880	ND
	4/23/2020	4,820	0.3	ND	1,180	6,790	13.9	27,000	1,340	2,830	1130	5,400
	7/9/2020	6,140	0.56	0.56	13.1	65.8	7.5	19,100	105	585	183	1,520
	10/22/2020	7,130	1.6	3	ND	14.2	48.8	8,430	26.9	198	88	893
	3/16/2021	9,690	1.5	ND	ND	ND	19.5	5,620	128	311	94.5	628
	5/25/2021	6,740	1	ND	ND	ND	21.7	2,200	18.5	104	30.2	360
	10/1/2021	1,970	0.69	ND	9.2	ND	18.1	2,310	8.6	86	17	337
	7/27/2022	1,840	0.31	0.55	6.3 J	ND	22	1,420	3.8	27	16	252
	12/8/2023	609	0.15 J	ND	ND	ND	20.6		ND	21.6	3.1	233
	3/4/2025	481	ND	ND	3.6 J	ND	22.1	504	2.4 e	<20	1.9	235 c

Notes:
[1] See Figure 2.
[2] BOD - Biological Oxygen Demand.
[3] COD - Chemical Oxygen Demand.
[4] TOC - Total Organic Carbon.
[5] Micrograms per liter.
[6] Milligrams per liter.
[7] NS - Not Sampled. MW-9 and MW-13 were not accessible due to street paving activities at the time of sampling
[8] ND - Not Detected.
[9] Monitoring Well MW-2 is located within the perimeter zone upgradient of the source area. This monitoring well routinely exhibits microbiological activity
[10] Elevated sample detection limit due to difficult sample matrix (sodium lactate content required 3 separate dilutions)
[11] MEK - 2-Butanone

TABLE 3

CAROL CLEANERS SITE
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 1 Injection Wells

Well ID[1]	MW-3																			NYSDEC Class GA Groundwater Standards
Date Sampled	**01/30/13**	**01/20/15**	**04/07/15**	**06/30/15**	**10/07/15**	**10/05/16**	**01/10/19**	**04/18/19**	**07/18/19**	**10/24/19**	**01/29/20**	**04/21/20**	**07/07/20**	**10/20/20**	**03/18/21**	**05/27/21**	**09/29/21**	**07/26/22**	**12/06/23**	**03/04/25**	
Constituent																				
Total Metals																				
Aluminum	<100	**167**	**129**	<200[4]	<200[4]	<200[4]	**10,800** [4]	**272**	**<400** [4]	**ND (2000) c**	<2000	<2000	**225**	<1000	<1000	<200	**691**	NA	**435**	<200	**100**
Barium	<200	<200	269	316	352	257	<2,000 [4]	<200	<400 [4]	ND (2000) c	<2000	<2000	<200	<1000	<1000	<200	<200	NA	<200	<200	**1,000**
Cobalt	<5.0	<5.0	<5.0	<50[4]	<50[4]	<50[4]	<500 [4]	<50	<100 [4]	ND (500) c	<500	<500	<50	<250	<250	<50	<50	NA	<50	<50	**5**
Iron	**307**	**1,710**	**2,260**	**2,780**	**1,530**	**540**	**135,000** [4]	**23,600**	**10,300** [4]	**12500 c**	**9,520**	**9,070**	**7,510**	**5,460**	**16,800**	**896**	**1,790**	NA	**2,740**	**777**	**300/500**[3]
Manganese	155	**1,600**	**7,940**	**3,660**	**1,190**	**429**	**9,070** [4]	**3,010**	**1,780** [4]	**2270 c**	**1,630**	**1,900**	**1,620**	**1,140**	**593**	88	**350**	NA	**691**	293	**300/500**[3]
Nickel	14	<10	<10	<10	<10	<10	**613** [4]	15	24.4 [4]	ND (100) c	<100	<100	34	<50	<50	<10	26	NA	<10	<10	**100**
Sodium	**133,000**	**150,000**	**217,000**	**169,000**	**210,000**	**191,000**	**7,570,000** [4]	**535,000**	**276,000** [4]	**454000 c**	**397,000**	**567,000**	**639,000**	**526,000**	**211,000**	**38,300**	**168,000**	NA	**148,000**	**166,000**	**20,000**
Dissolved Metals																					
Aluminum	<100	<100	<100	<200[4]	<200[4]	<200[4]	**9,410** [4]	<200	<200	ND (2000) c	<2000	<1000	<200	<200	<1000	<200	<200	NA	NA	<200	**100**
Barium	<200	<200	247	285	325	223	<2,000 [4]	<200	<200	ND (2000) c	<2000	<1000	<200	<200	<1000	<200	<200	NA	NA	<200	**1,000**
Cobalt	<5.0	<5.0	<5.0	<50[4]	<50[4]	<50[4]	<500 [4]	<50	<50	ND (500) c	<500	<250	<50	<50	<250	<50	<50	NA	NA	<50	**5**
Iron	<100	<100	<100	<100	<100	<100	**117,000** [4]	**14,700**	**6,480**	**7730 c**	**3,210**	**2,720**	**1,970**	**2,780**	**1,380**	120	**785**	NA	NA	<100	**300/500**[3]
Manganese	<15	**1,470**	**7,420**	**3,700**	**1,390**	**491**	**7,700** [4]	**3,450**	**1,680**	**2030 c**	**1,360**	**1,040**	**1,330**	**703**	283	18	**311**	NA	NA	239	**300/500**[3]
Nickel	<10	<10	<10	<10	<10	<10	**545** [4]	14	17	ND (100) c	<100	<50	26	25	<50	<10	21	NA	NA	<10	**100**
Sodium	**138,000**	**143,000**	**208,000**	**160,000**	**193,000**	**180,000**	**7,000,000** [4]	**615,000**	**359,000**	**443000 c**	**386,000**	**317,000**	**588,000**	**360,000**	**274,000**	**21,200**	**163,000**	NA	NA	160,000	**20,000**
Nitrates and Nitrites (mg/L)[5]																					
Nitrogen, Nitrate	2	<0.11	<0.11	<0.11	0	-	0	<0.15	<0.11	**290 h**	0	0	<0.15	<10	<0.11	0	<0.2	1.4	0.22	<0.11 b	**10 (total)**
Nitrogen, Nitrate + Nitrite	2	<0.10	<0.10	0	0	-	0	<0.10	<0.10	**290**	0	0	0	<0.1	<0.1	0	0	1.4	0.22	<0.10	
Nitrogen, Nitrite	<0.010	<0.010	<0.010	<0.010	<0.002	-	<0.010	<0.050	<0.010	ND (100)	<0.01	0	0	10	<0.01	0	<0.1	<0.010	<0.010	<0.010	
Field Parameters																					
pH (s.u.)[6]	8.18	8.37	6.94	7.71	8.39	8.37	6.68	6.63	7.8	7.18	7.29	7.32	7.44	6.84	**6.18**	8.37	7.84	7.68	7.41	6.94	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	1.27	1.35	2.1	1.67	1.91	1.5	19	2.52	1.76	2.39	2.36	1.56	2.17	1.63	1.36	1.5	0.721	0.692	0.932	9.31	--
Turbidity (NTU)[8]	**15.9**	**24**	**11.11**	**6.9**	2.5	**5.4**	**709**	**44**	**57.7**	**51.6**	**50.5**	**14.5**	**14.3**	**10.3**	3.1	**5.4**	**25.2**	**39.3**	1.9	1.9	**5**
Dissolved Oxygen (mg/L)	1.66	0.51	10.31	6.11	0.33	6.9	4.48	0.95	1.65	0	7.48	4.45	0	0.68	7.72	6.9	6	1.82	0.1	0	--
Temperature (°C)[9]	16.18	14.74	14.26	19.33	23.45	23.39	13.23	13.76	22.59	22.58	13.74	15.25	20.04	21.6	23.24	23.39	22.97	22.6	18.94	13.42	--
REDOX (mV)[10]	157	-42	-199	-231	-60	-37	-236	-53	-112	-62	-86	-101	-148	-114	-112	-37	-130	-161	-163	-64	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

NR - Not recorded

TABLE 3

CAROL CLEANERS SITE
BROOKFIELD RETAIL PROPERTIES
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 1 Injection Wells

Well ID[1]	MW-5																			NYSDEC Class GA Groundwater Standards
Date Sampled	**01/30/13**	**01/20/15**	**04/09/15**	**06/30/15**	**10/07/15**	**10/06/16**	**01/09/19**	**04/18/19**	**07/18/19**	**10/29/19**	**01/28/20**	**04/21/20**	**07/07/20**	**10/23/20**	**03/19/21**	**05/27/21**	**09/29/21**	**07/27/22**	**12/05/23**	**03/04/25**	
Constituent																				
Total Metals																				
Aluminum	<100	**1,310**	--	**257**	**3,380**	**2,220**	**1,630**	<200	<200	**1,090**	**805**	**1,310**	**339**	<10000	<2000	<1000	**627**	NA	**1,400**	**512**	**100**
Barium	<200	<200	826	314	<200	<200	<200	<200	<200	<1000	<200	<200	<200	<10000	<2000	<1000	<200	NA	<200	<200	**1,000**
Cobalt	<5.0	**6**	**98**	<50[4]	<50[4]	<50[4]	<50	<50	<50	<250	<50	<50	<50	<2500	<500	<250	<50	NA	<50	<50	**5**
Iron	194	**8,190**	**12,000**	**4,410**	**2,530**	**3,210**	**6,010**	**25,500**	**13,200**	**7,040**	**12,000**	**7,860**	**14,400**	**39,500**	**33,900**	**41,300**	**6,820**	NA	**21,800**	**789**	**300/500[3]**
Manganese	<15	**11,800**	**35,700**	**13,500**	**2,480**	**865**	**813**	**5,110**	**4,020**	**719**	**1,800**	**958**	**3,000**	**3,340**	**4,100**	**7,200**	**1,370**	NA	**875**	**674**	**300/500[3]**
Nickel	<10	14	100	21	47	28	17	<10	<10	<50	<10	11.2	<10	<500	<100	<50	<10	NA	36.5	20.9	**100**
Sodium	**177,000**	**280,000**	**2,420,000**	**1,430,000**	**494,000**	**379,000**	**368,000**	**658,000**	**586,000**	**406,000**	**289,000**	**251,000**	**282,000**	**3,880,000**	**1,990,000**	**1,680,000**	**491,000**	NA	**168,000**	**492,000**	**20,000**
Dissolved Metals																				
Aluminum	<100	<100	<200[4]	<200[4]	**1,250**	**521**	**205**	<200	<200	<1000	<200	<200	<200	<1000	<2000	<2000	<200	NA	NA	<200	**100**
Barium	<200	<200	802	311	<200	<200	<200	<200	<200	<1000	<200	<200	<200	<1000	<2000	<2000	<200	NA	NA	<200	**1,000**
Cobalt	<5.0	**6**	**106**	<50[4]	<50[4]	<50[4]	<50	<50	<50	<250	<50	<50	<50	<250	<500	<500	<50	NA	NA	<50	**5**
Iron	<100	**1,350**	**4,290**	**229**	**1,050**	**978**	**3,490**	<100	**418**	**5,660**	**981**	**917**	**242**	**35,400**	**20,300**	**8,710**	**454**	NA	NA	106	**300/500[3]**
Manganese	<15	**13,600**	**35,000**	**13,500**	**2,350**	**662**	**796**	**4,810**	**3,970**	**653**	**1,580**	**815**	**2,360**	**2,990**	**3,330**	**6,820**	**1,210**	NA	NA	**717**	**300/500[3]**
Nickel	<10	14	**134**	19	59	18	12	<10	<10	<50	<10	<10	<10	89	<100	<100	<10	NA	NA	19	**100**
Sodium	**172,000**	**325,000**	**2,390,000**	**1,430,000**	**518,000**	**380,000**	**397,000**	**652,000**	**620,000**	**389,000**	**276,000**	**200,000**	**282,000**	**4,120,000**	**1,870,000**	**1,700,000**	**442,000**	NA	NA	**502,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]																				
Nitrogen, Nitrate	1.3	<0.11	0	<0.11	1.5	-	<0.11	<0.11	<0.11	0	<0.11	<0.11	<0.11	<3	**26.9**	<0.11	<0.2	<0.11	<0.11	0.68 [b]	**10 (total)**
Nitrogen, Nitrate + Nitrite	1.3	<0.10	0	<0.10	1.5	-	<0.10	<0.10	<0.10	0	0	<0.1	<0.1	<2	**26.9**	<0.1	<0.1	<0.10	<0.10	1	
Nitrogen, Nitrite	<0.010	<0.010	0	<0.010	<0.002	-	<0.01	<0.010	<0.010	<0.05	0	<0.01	<0.01	<1	<1	<0.01	<0.1	<0.01	<0.010	<0.010	
Field Parameters																				
pH (s.u.)[6]	**6.38**	7.86	7.47	7.22	6.57	7.05	6.94	6.99	**8.95**	**6.4**	6.89	7.03	6.74	**6.43**	7.04	7.05	6.85	7.27	6.79	7.19	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	0.559	1.53	0.76	7.76	2.44	2.27	1.46	3.22	3.1	1.69	1.41	1.07	1.39	10.6	2.95	2.27	1.9	1.73	1.21	3.23	--
Turbidity (NTU)[8]	**28.4**	**10**	1	**16.9**	4.1	**36.7**	**19.8**	**20.7**	**10.15**	**83.2**	**51.5**	**30.8**	4.4	**428**	**320**	**367**	3.2	NR	0	7.1	**5**
Dissolved Oxygen (mg/L)	4.2	3.79	3.71	0.98	0.97	0	4.52	0.5	1.61	0	9.79	2.75	0	0.49	4.85	0	0	0.8	0	8.32	--
Temperature (°C)[9]	12.96	12.05	10.58	19.2	21.39	23.9	13.39	12.05	22.75	21.87	11.32	13.65	19.95	21.04	25.83	23.9	22.36	21.01	17.37	14.27	--
REDOX (mV)[10]	199	-9	-26	-130	105	168	-92	-80	-105	-35	-83	-82	-78	-122	-145	-168	-121	-103	-108	67	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

NR - Not recorded

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 2 Injection Wells

Well ID[1]	MW-7																	NYSDEC Class GA Groundwater Standards
Date Sampled	**01/30/13**	**10/07/15**	**10/06/16**	**01/09/19**	**04/17/19**	**07/18/19**	**10/25/19**	**01/28/20**	**04/21/20**	**07/07/20**	**10/23/20**	**03/17/21**	**05/26/21**	**09/28/21**	**07/26/22**	**12/07/23**	**03/05/25**	
Constituent																		
Total Metals																		
Aluminum	<100	<200[4]	<200	**16,800** [4]	**2,330** [4]	<2,000 [4]	<10000	<2000	<2000	<200	<2000	<1000	<2000	<200	NA	**556**	<200	**100**
Barium	203	<200	<200	<2,000 [4]	<1,000 [4]	<2,000 [4]	<10000	<2000	<2000	<200	<2000	<1000	<2000	<200	NA	<200	<200	**1,000**
Cobalt	<5.0	<50	<50	<500 [4]	<250 [4]	<500 [4]	<2500	<500	<500	<50	<500	<250	<500	<50	NA	<50	<50	**5**
Iron	286	208	**264**	**215,000** [4]	**161,000** [4]	**54,100** [4]	**26,600**	**16,900**	**11,500**	**9,660**	**14,100**	**27,200**	**10,500**	**3,090**	NA	**2,670**	**1,220**	**300/500**[3]
Manganese	<15	<15	<15	**10,400** [4]	**14,100** [4]	**5,990** [4]	**3,320**	**2,270**	**1,180**	**1,720**	**712**	**825**	<150	50	NA	137	**310**	**300/500**[3]
Nickel	<10	<10	<10	**609** [4]	**913** [4]	**362** [4]	<500	**156**	<100	32	<100	**151**	**197**	**123**	NA	**161**	<10	**100**
Sodium	**167,000**	**164,000**	**186,000**	**10,900,000**	**4,840,000**	**1,890,000** [4]	**1,360,000**	**1,290,000**	**567,000**	**385,000**	**708,000**	**3,680,000**	**3,710,000**	**1,280,000**	NA	**494,000**	**372,000**	**20,000**
Dissolved Metals																		
Aluminum	<100	<200	<200	**15,500** [4]	<400 [4]	<400 [4]	<10000	<2000	<1000	<1000	<200	<1000	<2000	<200	NA	NA	<200	**100**
Barium	<200	<200	<200	<2,000 [4]	<400 [4]	<400 [4]	<10000	<2000	<1000	<1000	<200	<1000	<2000	<200	NA	NA	<200	**1,000**
Cobalt	<5.0	<50	<50	<500 [4]	<129 [4]	<100 [4]	<2500	<500	<250	<50	<50	<250	<500	<50	NA	NA	<50	**5**
Iron	<100	<100	<100	**215,000** [4]	**97,100** [4]	**25,600** [4]	**17,100**	**16,400**	**5,070**	**3,450**	**13,000**	**12,300**	**8,910**	**3,090**	NA	NA	205	**300/500**[3]
Manganese	<15	<15	<15	**10,600** [4]	**17,300** [4]	**4,300** [4]	**2,580**	**2,280**	**898**	**1,350**	**657**	**627**	<150	34	NA	NA	275	**300/500**[3]
Nickel	<10	<10	<10	**604** [4]	**563** [4]	**248** [4]	<500	**152**	74	27	59	**139**	**181**	**125**	NA	NA	<10	**100**
Sodium	**164,000**	**167,000**	**178,000**	**10,600,000**	**3,160,000**	**2,100,000** [4]	**1,220,000**	**1,350,000**	**486,000**	**355,000**	**810,000**	**3,880,000**	**3,580,000**	**1,310,000**	NA	NA	**351,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]																		
Nitrogen, Nitrate	1.90	1.40	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.20	<0.11	<1.0	<0.11 [b]	**10 (total)**
Nitrogen, Nitrite	<0.010	<0.0020	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.10	<0.10	<1.0	<0.010	
Nitrogen, Nitrate + Nitrite	1.90	1.40	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.10	<0.01	<0.010	<0.10	
Field Parameters																		
pH (s.u.)[6]		8.55	8.31	6.70	6.61	8.33	7.30	7.13	7.56	7.23	**5.74**	7.09	**6.31**	7.93	7.93	7.55	7.20	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	1.27	1.60	1.95	22.20	9.30	7.49	5.88	5.81	1.53	1.77	2.60	1.46	1.95	5.95	5.88	3.02	2.39	--
Turbidity (NTU)[8]	**15.90**	**6.00**	**18.40**	**830.00**	**142.00**	**241.00**	**156.00**	**106.00**	**330.00**	**30.10**	**114.00**	**114.00**	**181.00**	**6.70**	**8.00**	**28.10**	**9.80**	**5**
Dissolved Oxygen (mg/L)	1.66	0.78	0.00	3.87	1.83	2.29	0.00	7.89	4.98	0.00	0.25	5.63	0.00	0.50	1.71	0.00	0.00	--
Temperature (°C)[9]	16.18	23.10	23.00	14.41	13.74	22.97	23.19	12.34	14.90	20.96	21.84	27.95	23.00	23.55	22.31	18.27	12.28	--
REDOX (mV)[10]	157	40	243	-243	-88	-179	-143	-102	-125	-136	-21	-173	-24	-176	-240	-130	45	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 2 Injection Wells

Well ID[1]	**MW-20**														**NYSDEC Class GA Groundwater Standards**
Date Sampled	**10/04/16**	**01/08/19**	**04/17/19**	**07/23/19**	**10/29/19**	**01/28/20**	**04/21/20**	**07/08/20**	**10/20/20**	**03/16/21**	**05/26/21**	**09/30/21**	**12/07/23**	**03/05/25**	
Constituent															
Total Metals															
Aluminum	<200	<2,000 [4]	**432** [4]	<400	<200	<10000	<2000	<2000	<2000	<200	<200	<200	<200	<200	**100**
Barium	551	<2,000 [4]	780 [4]	784	479	<10000	<2000	<2000	<2000	<200	479	544	4.5	456	**1,000**
Cobalt	<50	<500 [4]	<100 [4]	<100	<50	<2500	<500	<500	<500	<50	<50	<50	<50	<50	**5**
Iron	<100	**47,000** [4]	**52,900** [4]	**43,700**	**1,040**	**53,400**	**30,800**	**18,000**	**9,320**	**3,380**	**1,040**	**1,210**	**799**	**617**	**300/500**[3]
Manganese	204	**14,700** [4]	**10,600** [4]	**9,460**	262	**3,110**	**2,270**	**2,080**	**925**	**536**	262	**1,080**	**961**	**533**	**300/500**[3]
Nickel	<10	**280** [4]	**200** [4]	**113**	<10	<500	**183**	<100	<100	<10	<10	<10	<10	<10	**100**
Sodium	**238,000**	**1,320,000** [4]	**1,060,000**	**1,050,000**	**394,000**	**2,360,000**	**1,920,000**	**1,380,000**	**740,000**	**229,000**	**394,000**	**371,000**	**326,000**	**325,000**	**20,000**
Dissolved Metals															
Aluminum	<200	<2,000 [4]	<400 [4]	<200	<200	<2000	<1000	<2000	<1000	<200	<200	<200	NA	<200	**100**
Barium	536	<2,000 [4]	<400 [4]	347	453	<2000	<1000	<2000	<1000	<200	453	504	NA	446	**1,000**
Cobalt	<50	<500 [4]	<100 [4]	<50	<50	<500	<250	<500	<250	<50	<50	<50	NA	<50	**5**
Iron	<100	**40,000** [4]	**6,930** [4]	**10,600**	110	**20,400**	**7,680**	**7,000**	**1,780**	**2,450**	110	<100	NA	<100	**300/500**[3]
Manganese	204	**14,100** [4]	**10,800** [4]	**9,200**	256	**2,180**	**1,660**	**1,720**	**1,040**	**519**	256	**1,170**	NA	**575**	**300/500**[3]
Nickel	<10	**262** [4]	**196** [4]	83	<10	**135**	**122**	<100	54	<10	<10	<10	NA	<10	**100**
Sodium	**232,000**	**1,270,000** [4]	**1,180,000**	**995,000**	**375,000**	**1,630,000**	**1,630,000**	**1,240,000**	**907,000**	**229,000**	**375,000**	**373,000**	NA	**310,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]															
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.11	0.12	<0.11 b	**10 (total)**
Nitrogen, Nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.10	<0.010	<0.010	
Nitrogen, Nitrate + Nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	0.12	<0.10	
Field Parameters															
pH (s.u.)[6]	**8.62**	**6.18**	7.09	**8.02**	6.73	7.26	7.26	7.40	6.98	**6.39**	6.62	7.62	7.33	7.36	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	3.12	5.15	5.75	5.62	19.00	7.95	6.71	4.90	3.94	3.10	3.12	3.05	4.27	3.24	--
Turbidity (NTU)[8]	4.40	**338.00**	**200.00**	**184.00**	**695.00**	**569.00**	**314.00**	**64.80**	**34.50**	**60.10**	4.40	0.00	0.00	3.70	**5**
Dissolved Oxygen (mg/L)	2.30	3.31	1.79	2.31	0.00	1.90	2.50	2.42	3.25	5.95	2.30	4.84	0.00	7.33	--
Temperature (°C)[9]	19.97	12.76	14.59	14.65	21.01	14.62	15.29	18.41	19.89	20.81	19.97	19.62	18.91	14.56	--
REDOX (mV)[10]	146	-26	-136	-152	-84	-190	-157	-171	-144	-115	-146	-137	-131	-12	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 2 Injection Wells

Well ID[1]	**MW-21**														**NYSDEC Class GA Groundwater Standards**
Date Sampled	**10/06/16**	**01/09/19**	**04/17/19**	**07/23/19**	**10/29/19**	**01/28/20**	**04/21/20**	**07/08/20**	**10/20/20**	**03/17/21**	**05/26/21**	**09/29/21**	**12/06/23**	**03/05/25**	
Constituent															
Total Metals															
Aluminum	<200	**1,620**	**344**	**247**	**94,500**	**23,300**	**19,400**	**12,500**	**11,700**	**870**	**409**	**987**	**7,550**	**1,070**	**100**
Barium	320	<200	<200	<200	<10000	<10000	<2000	<2000	<1000	<200	<200	<200	216	<200	**1,000**
Cobalt	<50	<50	<50	<50	<2500	<2500	<500	<500	<250	<50	<50	<50	<50	<50	**5**
Iron	<100	**9,770**	**3,330**	**5,820**	**75,700**	**36,500**	**33,000**	**36,000**	**23,600**	**7,200**	**531**	**6,240**	**9,750**	**4,090**	**300/500[3]**
Manganese	288	**565**	**388**	**1,390**	**9,270**	**4,830**	**4,660**	**4,890**	**2,680**	**1,110**	35	**1,150**	**712**	135	**300/500[3]**
Nickel	<10	17	<10	<10	<500	<500	<100	<100	<50	11	<10	12	16	14	**100**
Sodium	**225,000**	**93,100**	**582,000**	**130,000**	**4,950,000**	**1,870,000**	**1,530,000**	**1,270,000**	**707,000**	**892,000**	**36,300**	**328,000**	**213,000**	**793,000**	**20,000**
Dissolved Metals															
Aluminum	<200	<200	<200	<200	<10000	<2000	<1000	<2000	<200	<200	<200	<200	NA	<200	**100**
Barium	311	<200	<200	<200	<10000	<2000	<1000	<2000	<200	<200	<200	<200	NA	<200	**1,000**
Cobalt	<50	<50	<50	<50	<2500	<500	<250	<500	<50	<50	<50	<50	NA	<50	**5**
Iron	<100	**1,310**	**451**	**1,600**	**59,600**	**14,200**	**13,100**	**22,600**	**7,770**	343	159	121	NA	199	**300/500[3]**
Manganese	268	**491**	**405**	**1,410**	**6,920**	**3,600**	**3,600**	**3,930**	**969**	**1,160**	32	**1,120**	NA	201	**300/500[3]**
Nickel	<10	<10	<10	<10	<500	<100	<50	<100	11	11	<10	<10	NA	<10	**100**
Sodium	**221,000**	**90,000**	**634,000**	**131,000**	**5,840,000**	**1,640,000**	**1,560,000**	**1,090,000**	**266,000**	**913,000**	**36,900**	**341,000**	NA	**1,130,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]															
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14	0.31	0.41 [b]	**10 (total)**
Nitrogen, Nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	
Nitrogen, Nitrate + Nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14	0.31	0.42	
Field Parameters															
pH (s.u.)[6]	**9.31**	6.60	7.02	6.95	6.79	7.19	7.28	7.18	**6.29**	**6.11**	7.35	7.51	7.22	7.02	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	2.41	0.75	3.59	0.31	18.60	7.39	5.84	4.97	1.66	2.79	2.41	2.84	2.16	4.29	--
Turbidity (NTU)[8]	0.00	**142.00**	**34.50**	**12.80**	**>999**	**>999**	**>999**	**359.00**	**448.00**	**11.40**	0.00	**35.90**	**16.00**	109.00	**5**
Dissolved Oxygen (mg/L)	1.29	6.93	10.53	2.94	0.00	1.75	5.48	0.25	0.79	8.53	1.29	0.52	0.00	4.69	--
Temperature (°C)[9]	21.48	11.63	13.36	20.30	21.94	12.14	14.92	20.06	21.40	19.73	21.48	21.51	17.63	12.06	--
REDOX (mV)[10]	-78	-14	-65	24	-132	-130	-138	-172	-69	-10	-78	-121	-131	142	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 2 Injection Wells

Well ID[1]	**MW-22**							**MW-23**								**NYSDEC Class GA Groundwater Standards**
Date Sampled	**10/06/16**	**01/09/19**	**03/17/21**	**05/26/21**	**09/29/21**	**12/07/23**	**03/04/25**	**10/05/16**	**01/08/19**	**03/18/21**	**05/28/21**	**09/28/21**	**07/26/22**	**12/06/23**	**03/05/25**	
Constituent																
Total Metals																
Aluminum	<200	**5,800** [4]	<1000	<200	<200	**3,220**	**3,580**	**1,090**	<2,000 [4]	<200	<200	<200	NA	**746**	<200	**100**
Barium	333	<2,000 [4]	<1000	722	573	**1,450**	479.0	246	<2,000 [4]	269	338	333	NA	528	<200	**1,000**
Cobalt	<50	<500 [4]	<250	<50	<50	<50	<50	<50	<500 [4]	<50	<50	<50	NA	<50	<50	**5**
Iron	179	**545,000** [4]	**24,800**	**27,500**	**16,300**	**103,000**	**31,100**	**1,460**	**41,800** [4]	**1,830**	**899**	**809**	NA	**12,800**	190	**300/500[3]**
Manganese	**635**	**56,100** [4]	**6,030**	**9,040**	**5,810**	**11,500**	**1,900**	238	**13,800** [4]	**1,180**	**1,120**	**1,060**	NA	**645**	**308**	**300/500[3]**
Nickel	<10	**907** [4]	<50	<10	<10	97.5	22	25	**921** [4]	<10	<10	<10	NA	41.1	<10	**100**
Sodium	**259,000**	**7,580,000**	**539,000**	**456,000**	**364,000**	**340,000**	**255,000**	**120,000**	**1,260,000**	**141,000**	**156,000**	**152,000**	NA	**135,000**	**111,000**	**20,000**
Dissolved Metals																
Aluminum	<200	4,380 [4]	<1000	<200	<200	NA	<200	<200	<2,000 [4]	<200	<200	<200	NA	NA	<200	**100**
Barium	327	<2,000 [4]	<1000	543	439	NA	355	231	<2,000 [4]	254	319	313	NA	NA	<200	**1,000**
Cobalt	<50	<500 [4]	<250	<50	<50	NA	<50	<50	<500 [4]	<50	<50	<50	NA	NA	<50	**5**
Iron	<100	**452,000** [4]	**1,030**	**1,300**	**1,520**	NA	188	<100	**35,300** [4]	<100	<100	<100	NA	NA	<100	**300/500[3]**
Manganese	**581**	**44,300** [4]	**5,410**	**8,770**	**5,610**	NA	**1,990**	172	**13,000** [4]	**1,260**	**1,110**	**1,050**	NA	NA	**302**	**300/500[3]**
Nickel	<10	**736** [4]	<50	<10	<10	NA	<10	<10	**857** [4]	<10	<10	<10	NA	NA	<10	**100**
Sodium	**258,000**	**6,230,000**	**498,000**	**452,000**	**359,000**	NA	**300,000**	**118,000**	**1,160,000**	**149,000**	**155,000**	**147,000**	NA	NA	**111,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]																
Nitrogen, Nitrate	NA	NA	NA	NA	0.12	0.22	0.28 b	NA	NA	NA	NA	NA	0.19	0.51	0.17 b	**10 (total)**
Nitrogen, Nitrite	NA	NA	NA	NA	0.026	<0.010	0.02	NA	NA	NA	NA	NA	0.20	0.01	<0.010	
Nitrogen, Nitrate + Nitrite	NA	NA	NA	NA	0.15	0.22	0.30	NA	NA	NA	NA	NA	<0.01	0.52	0.18	
Field Parameters																
pH (s.u.)[6]	**8.86**	6.53	7.10	7.06	6.91	7.02	7.35	7.21	**5.47**	**6.30**	7.21	7.82	7.91	7.48	7.81	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	2.56	20.20	3.33	2.56	3.33	3.91	3.20	1.54	4.77	1.60	1.54	1.46	1.37	1.33	0.98	--
Turbidity (NTU)[8]	**11.20**	**372.00**	**32.40**	**11.20**	0.40	**6.80**	8.50	**49.60**	**168.00**	**10.50**	**49.60**	0.00	2.40	0.00	0.00	**5**
Dissolved Oxygen (mg/L)	0.83	1.95	5.64	0.83	0.70	0.03	1.00	0.00	12.36	1.29	0.00	0.07	0.02	0.00	0.01	--
Temperature (°C)[9]	23.89	12.57	27.30	23.89	23.17	18.52	14.81	25.22	13.05	24.70	25.22	26.26	25.11	18.36	13.91	--
REDOX (mV)[10]	85	-193	-133	-85	-111	-121	-100	251	-115	-116	-51	-147	-101	-57	35	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 2 Injection Wells

Well ID[1]	MW-24														NYSDEC Class GA Groundwater Standards
Date Sampled	**10/05/16**	**01/08/19**	**04/17/19**	**07/18/19**	**10/25/19**	**01/29/20**	**04/21/20**	**07/07/20**	**10/20/20**	**03/18/21**	**05/28/21**	**09/28/21**	**12/06/23**	**03/07/25**	
Constituent															
Total Metals															
Aluminum	**1,580**	<200	**1,780**	**8,400**	**9,050**	**1,590**	**372**	**6,660**	**1,880**	**740**	**795**	**121,000**	**701**	**615**	**100**
Barium	275	<200	<200	<200	<400	<200	<200	<200	<200	<200	<200	606	<200	<200	**1,000**
Cobalt	<50	<50	<50	<50	<100	<50	<50	<50	<50	<50	<50	181	<50	<50	**5**
Iron	**6,030**	**548**	**2,440**	**4,930**	**5,560**	**1,250**	**394**	**5,090**	**1,390**	**922**	**699**	**109,000**	**1,320**	**1,070**	**300/500[3]**
Manganese	147	**518**	**330**	**147**	193	46	33	176	58	47	25	4,870	61.9	23.1	**300/500[3]**
Nickel	**258**	39	32	**32**	38	<10	<10	41	19	<10	11	1,300	14.4	<10	**100**
Sodium	**193,000**	**158,000**	**299,000**	**95,200**	**156,000**	**318,000**	**107,000**	**79,100**	**93,700**	**408,000**	**186,000**	**129,000**	**38,100**	**394,000**	**20,000**
Dissolved Metals															
Aluminum	<200	<200	<200	**<200**	<200	<200	<200	<200	<200	<200	<200	<400	NA	<200	**100**
Barium	252	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<400	NA	<200	**1,000**
Cobalt	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<100	NA	<50	**5**
Iron	<100	<100	<100	**<100**	<100	<100	<100	<100	<100	<100	<100	<200	NA	<100	**300/500[3]**
Manganese	<15	**495**	<15	**<15**	<15	<15	<15	<15	<15	<15	<15	<30	NA	<15	**300/500[3]**
Nickel	<10	32	<10	12	10	<10	<10	<10	<10	<10	<10	<20	NA	<10	**100**
Sodium	**186,000**	**151,000**	**343,000**	**106,000**	**156,000**	**322,000**	**103,000**	**73,400**	**93,400**	**424,000**	**179,000**	**127,000**	NA	**481,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]															
Nitrogen, Nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.56	<0.11	1.1 b	**10 (total)**
Nitrogen, Nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.010	<0.010	
Nitrogen, Nitrate + Nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.56	0.10	1.10	
Field Parameters															
pH (s.u.)[6]	**8.90**	7.69	7.78	8.39	7.66	7.69	NA	7.66	7.04	7.42	7.90	8.27	7.11	7.42	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	1.890	0.845	1.680	0.856	0.802	1.930	NA	0.802	0.684	1.940	1.890	0.613	0.627	3.82	--
Turbidity (NTU)[8]	**33.10**	**51.30**	**72.80**	**294.00**	**371.00**	**194.00**	NA	**371.00**	**247.00**	0.00	**33.10**	**30.10**	**>1000**	33.20	**5**
Dissolved Oxygen (mg/L)	4.45	11.01	10.69	4.66	7.50	6.85	NA	7.50	5.50	3.46	4.45	7.79	1.63	3.24	--
Temperature (°C)[9]	24.32	12.78	14.47	22.84	22.38	12.18	NA	22.38	21.79	26.55	24.32	23.66	16.54	10.37	--
REDOX (mV)[10]	116	-81	197	-43	239	-40	NA	239	97	-99	-116	119	-41	150	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 3 Injection Wells

Well ID[1]	**MW-9**						**MW-11**						**NYSDEC Class GA Groundwater Standards**
Date Sampled	**01/29/13**	**01/21/15**	**04/07/15**	**06/29/15**	**10/06/15**	**10/04/16**	**01/29/13**	**01/21/15**	**04/06/15**	**06/29/15**	**10/06/15**	**10/10/2016**	
Constituent													
Total Metals													
Aluminum	**675**	**1,830**	**1,410**	**1,220**	**886**	NS	**1,310**	**371**	**3,520**	**219**	**487**	**869**	**100**
Barium	<200	311	207	<200	<200	NS	<200	201	231	238	284	233	**1000**
Cobalt	<5.0	<250	<5.0	<50	<50	NS	<5.0	<50	<5.0	<50	<50	<50	**5**
Iron	**6,910**	**18,600**	**7,240**	**5,740**	**4,500**	NS	**2,010**	**522**	**6,610**	**272**	**644**	**1,760**	**300/500[3]**
Manganese	**624**	**1,210**	**733**	**724**	**438**	NS	**928**	**139**	**1,770**	**542**	**579**	**872**	**300/500[3]**
Nickel	<10	<50	12	<10	<10	NS	62	11.4	100	23.8	28.9	40.7	**100**
Sodium	**398,000**	**2,210,000**	**587,000**	**118,000**	**85,900**	NS	**157,000**	**224,000**	**209,000**	**251,000**	**330,000**	**282,000**	**20,000**
Dissolved Metals													
Aluminum	<100	--	--	--	<200	NS	<100	--	--	--	<200	<200	**100**
Barium	<200	--	--	--	<200	NS	<200	--	--	--	267	238	**1000**
Cobalt	<5.0	--	--	--	<50	NS	<5.0	--	--	--	<50	<50	**5**
Iron	<100	--	--	--	241	NS	<100	--	--	--	<100	<100	**300/500[3]**
Manganese	419	--	--	--	475	NS	<15	--	--	--	377	271	**300/500[3]**
Nickel	<10	NA	NA	NA	<10	NS	<10	NA	NA	NA	17.2	16.8	**100**
Sodium	**423,000**	NA	NA	NA	**92,400**	NS	**180,000**	NA	NA	NA	**312,000**	**321,000**	**20000**
Field Parameters													
pH (s.u.)[6]	7.29	7.62	**9.72**	6.22	7.23	NS	7.29	8.15	8.15	7.28	6.7	**8.52**	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	3.38	14.8	5.65	0.77	0.301	NS	0.828	2.07	2.07	2.38	2.64	2.55	--
Turbidity (NTU)[8]	**74.4**	**77**	**41**	**199**	**145**	NS	**83.6**	4	4	**8.7**	4	**73.9**	**5**
Dissolved Oxygen (mg/L)	2.27	0	0	2.05	0.31	NS	9.26	1.9	1.9	8.13	1.83	4.22	--
Temperature (°C)[9]	13.25	11.88	13.21	19.26	25.67	NS	13.15	11.36	11.36	18.42	21.12	21.25	--
REDOX (mV)[10]	81	136	-94	3	-21	NS	156	87	87	145	186	132	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 3 Injection Wells

Well ID[1]	**MW-12**													**NYSDEC Class GA Groundwater Standards**
Date Sampled	**01/29/13**	**01/20/15**	**04/06/15**	**06/29/15**	**10/06/15**	**10/10/2016**	**4/17/2019**	**7/23/2019**	**10/28/2019**	**1/30/2020**	**4/22/2020**	**7/9/2020**	**10/20/2020**	
Constituent														
Total Metals														
Aluminum	**899**	**593**	**435**	<200	**2,620**	**210**	<200	<200	<10000	<10000	<2000	<2000	<2000	**100**
Barium	<200	<200	212	365	263	254	294	281	<10000	<10000	<2000	<2000	<2000	**1000**
Cobalt	<5.0	<5.0	<5.0	<50	<50	<50	<50	<50	<2500	<2500	<500	<500	<500	**5**
Iron	**1,680**	**1,590**	**1,960**	**2,180**	**6,440**	**2,400**	**8,160**	**4,400**	**240,000**	**123,000**	**102,000**	**50,300**	**31,600**	**300/500**[3]
Manganese	**1,680**	**2,630**	**3,360**	**4,240**	**3,450**	**3,150**	**4,200**	**2,660**	**27,900**	**13,500**	**17,100**	**7,730**	**5,460**	**300/500**[3]
Nickel	15	10	23	<10	29	<10	<10	<10	540	<500	<100	<100	<100	**100**
Sodium	**248,000**	**261,000**	**314,000**	**394,000**	**355,000**	**328,000**	**440,000**	**462,000**	**5,490,000**	**1,700,000**	**1,380,000**	**1,150,000**	**1,270,000**	**20,000**
Dissolved Metals														
Aluminum	**140**	--	--	--	<200	<200	<200	<200	<10000	<2000	<1000	<200	<200	**100**
Barium	<200	--	--	--	266	247	249	256	<10000	<2000	<1000	237	<200	**1000**
Cobalt	<5.0	--	--	--	<50	<50	<50	<50	<2500	<500	<250	<50	<50	**5**
Iron	**158**	--	--	--	**122**	<100	157	<100	**224,000**	**96,400**	**59,900**	**32,200**	**1,560**	**300/500**[3]
Manganese	**1,540**	--	--	--	**3,470**	**3,150**	**3,700**	**2,470**	**26,200**	**13,400**	**15,000**	**7,010**	**4,780**	**300/500**[3]
Nickel	<10	NA	NA	NA	<10	<10	<10	<10	<500	**122**	84	46.9	35.9	**100**
Sodium	**269,000**	NA	NA	NA	**373,000**	**327,000**	**427,000**	**460,000**	**5,170,000**	**1,370,000**	**1,490,000**	**1,200,000**	**1,330,000**	**20000**
Field Parameters														
pH (s.u.)[6]	7	**8.72**	6.7	6.85	7.24	7.93	7.43	7.9	**6.49**	6.5	6.8	6.95	6.76	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	2.51	3.08	3.57	3.94	3.38	3.05	3.71	3.38	15.4	7.25	6.78	6.36	6.7	--
Turbidity (NTU)[8]	**72.9**	0	0.4	3.92	**65**	**9.7**	**64.4**	**49.6**	**503**	**172**	**167**	**41.1**	**41**	**5**
Dissolved Oxygen (mg/L)	0	4.54	4.49	3.48	0.13	1.34	1.06	2.7	0	9.55	3.63	0	1.44	--
Temperature (°C)[9]	12.57	11.64	11.66	17.94	22.29	23.04	13.07	21.41	21.35	10.82	13.81	20.65	21.38	--
REDOX (mV)[10]	11	45	-22	-71	-60	-13	-79	-109	-90	-78	-113	-148	-129	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

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GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Zone 3 Injection Wells

Well ID[1]	**MW-13**													**NYSDEC Class GA Groundwater Standards**
Date Sampled	**01/29/13**	**01/19/15**	**04/06/15**	**06/29/15**	**10/06/15**	**10/04/16**	**04/17/19**	**07/23/19**	**10/28/19**	**01/29/20**	**04/22/20**	**07/09/20**	**10/20/20**	
Constituent														
Total Metals														
Aluminum	**528**	<100	**207**	<200	<200	NS	**213**	**8,760**					**409**	**100**
Barium	<200	<200	217	299	252	NS	<200	534					211	**1000**
Cobalt	<5.0	<5.0	<5.0	<50	<50	NS	<50	<50					<50	**5**
Iron	**1,270**	206	**677**	**889**	**1,930**	NS	**14,800**	**47,300**					**7,790**	**300/500[3]**
Manganese	**356**	116	**745**	**2,330**	**2,170**	NS	**10,400**	**12,600**					**2,360**	**300/500[3]**
Nickel	29.9	<10	20.1	12	19	NS	17.5	**345.0**					20.2	**100**
Sodium	**334,000**	**289,000**	**323,000**	**405,000**	**212,000**	NS	**516,000**	**553,000**					**267,000**	**20,000**
Dissolved Metals														
Aluminum	**146**	--	--	--	<200	NS	<200	<200					<200	**100**
Barium	<200	--	--	--	235	NS	<200	211					<200	**1000**
Cobalt	<5.0	--	--	--	<50	NS	<50	<50					<50	**5**
Iron	<100	--	--	--	<100	NS	**8,220**	212					<100	**300/500[3]**
Manganese	<15	--	--	--	**1,830**	NS	**11,600**	**10,000**					**1890**	**300/500[3]**
Nickel	<10	NA	NA	NA	<10	NS	13.2	10					<10	**100**
Sodium	**386,000**	NA	NA	NA	**216,000**	NS	**563,000**	**496,000**					**258,000**	**20000**
Field Parameters														
pH (s.u.)[6]	7.41	**9.11**	6.74	6.85	7.21	NS	7.22	7.95	7.1	7.28	7.14	7.52	7.18	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	3.01	2.47	3.15	3.73	2.1	NS	4.4	3.26	3.92	7.56	3.37	2.06	1.46	--
Turbidity (NTU)[8]	**26.1**	0	0	**5.5**	0.2	NS	**72.6**	**49.6**	**38.4**	**127**	**73.6**	**29.3**	**35**	**5**
Dissolved Oxygen (mg/L)	6.07	0.52	10.57	7.25	7.3	NS	1.13	2.7	6.34	0.53	2.78	4.87	3	--
Temperature (°C)[9]	11.91	11.96	10.97	18.41	20.74	NS	13.27	21.41	20.76	11.64	11.81	20.81	20.5	--
REDOX (mV)[10]	157	60	85	-15	-9	NS	-99	-109	-55	-25	-90	-96	-68	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

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GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Monitor Wells within Treatment Area

Well ID[1]	**MW-3D**																	**NYSDEC Class GA Groundwater Standards**
Date Sampled	**02/01/13**	**01/20/15**	**04/07/15**	**06/30/15**	**10/07/15**	**10/05/16**	**01/10/19**	**04/18/19**	**07/18/19**	**10/25/19**	**01/29/20**	**04/21/20**	**07/07/20**	**10/20/20**	**03/18/21**	**05/27/21**	**07/26/22**	
Constituent																		
Total Metals																		
Aluminum	<100	<100	<100	<200[4]	<200[4]	<200	<200	<200	<200	<200	<200	<200	<200	<200	**384**	<200	NA	**100**
Barium	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	NA	**1,000**
Cobalt	<5.0	<5.0	<5.0	<50[4]	<50[4]	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	NA	**5**
Iron	190	223	204	<100	<100	<100	<100	<100	**393**	250	124	**475**	221	**326**	**2380**	**486**	NA	**300/500**[3]
Manganese	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	51.9	15.3	NA	**300/500**[3]
Nickel	<10	<10	10.8	<10	<10	<10	<10	<10	15.1	<10	<10	13	<10	<10	11.8	<10	NA	**100**
Sodium	**97,800**	**125,000**	**371,000**	**184,000**	**139,000**	**121,000**	**143,000**	**343,000**	**134,000**	**143000**	**52300**	**67900**	**91200**	**89500**	**162000**	**166000**	NA	**20,000**
Dissolved Metals																		
Aluminum	<100	<100	<100	<200[4]	<200[4]	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	NA	**100**
Barium	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	NA	**1,000**
Cobalt	<5.0	<5.0	<5.0	<50[4]	<50[4]	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	NA	**5**
Iron	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	NA	**300/500**[3]
Manganese	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	NA	**300/500**[3]
Nickel	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	**100**
Sodium	**98,300**	**125,000**	**417,000**	**192,000**	**138,000**	**114,000**	**132,000**	**339,000**	**133,000**	**140,000**	**53,000**	**66,700**	**108,000**	**101,000**	**166,000**	**153,000**	NA	**20,000**
Nitrates and Nitrites (mg/L)[5]																		
Nitrogen, Nitrate	0.26	<0.11	<0.11	<0.11	<0.10	--	<0.11	0.57	0.26	0.13	1.2	0.87	0.81	0.99	1.2	1.1	1.4	**10 (total)**
Nitrogen, Nitrate + Nitrite	0.28	<0.10	<0.10	<0.10	<0.10	--	<0.10	0.57	0.26	0.15	1.2	0.87	0.81	0.99	1.2	1.1	1.4	
Nitrogen, Nitrite	0.16	0.019	<0.010	0.013	0.0088	--	0.025	<0.010	<0.010	0.019	0.01	<0.01	<0.01	<0.01	<0.01	0.024	<0.010	
Field Parameters																		
pH (s.u.)[6]	**10.52**	**9.88**	**9.72**	**9.63**	**9.23**	**10.45**	**10.03**	**9.46**	**10.95**	**10.32**	**10.05**	**9.88**	**10.21**	**9.58**	**6.02**	**10.45**	**10.59**	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	0.556	0.615	3.18	1.33	0.701	0.607	0.589	1.93	0.98	0.531	0.581	0.575	0.561	0.537	0.8	0.607	0.651	--
Turbidity (NTU)[8]	**38.1**	2	0	2.7	0.3	3.7	1.5	**42.5**	**14.8**	1.7	**69.2**	**11.3**	4	**18.2**	2.6	3.7	3.0	**5**
Dissolved Oxygen (mg/L)	0	0	0.17	1.18	1.21	0	5.85	3.58	1.93	0	5.52	4.81	4.69	8.87	7.3	0	1.34	--
Temperature (°C)[9]	14.44	15.03	16.91	18.84	19.88	20.85	11.84	15.98	22.46	10.17	15.09	16.7	19	18.56	21.09	20.85	21.6	--
REDOX (mV)[10]	44	-278	-158	-156	85	68	-85	66	-69	64	-221	-94	-107	-34	-70	68	-95	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

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GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Monitor Wells within Treatment Area

Well ID[1]	**MW-4**																		**NYSDEC Class GA Groundwater Standards**
Date Sampled	**01/30/13**	**01/20/15**	**04/07/15**	**06/30/15**	**10/07/15**	**10/05/16**	**01/08/19**	**04/18/19**	**07/18/19**	**10/29/19**	**01/28/20**	**04/21/20**	**07/07/20**	**10/23/20**	**03/19/21**	**05/27/21**	**09/29/21**	**12/06/23**	**03/07/25**	
Constituent																				
Total Metals																				
Aluminum	<100	**218**	**315**	<200[4]	<200[4]	<200	**8,160**	<400[4]	<1,000 (4)	**18,200**	<10000	<2000	<2000	<2000	<2000	<200	1,010	<200	569	**100**
Barium	<200	**1,910**	667	796	**1,090**	411	<2,000	595[4]	<1,000 (4)	<10000	<10000	**2,120**	<2000	<2000	<2000	<200	641	<200	<200	**1,000**
Cobalt	<5.0	**15.4**	**7**	<50[4]	<50[4]	<50	<500	<100[4]	<250 (4)	<2500	<2500	<500	<500	<500	<500	<50	<100	<50	80	**5**
Iron	**118**	**4,660**	**4,640**	**5,060**	**5,610**	**3,290**	**228,000**	**76000[4]**	**44,400 (4)**	**93,400**	**250,000**	**210,000**	**168,000**	**19,200**	**42,600**	**3,290**	**16,300**	**505**	**3,510**	**300/500[3]**
Manganese	**1,100**	**21,700**	**14,100**	**11,100**	**10,700**	**6,080**	**66,700**	**40600[4]**	**21,400 (4)**	**18,200**	**53,400**	**48,100**	**37,100**	**2,080**	**4,000**	246	825	<15	157	**300/500[3]**
Nickel	11.5	**130**	46.5	13.1	14.3	12.2	**2,220**	**390[4]**	**103,000 (4)**	**905**	**1,050**	**1,170**	**555**	**200**	**464**	69	2,840	**140**	**979**	**100**
Sodium	**146,000**	**262,000**	**325,000**	**360,000**	**540,000**	**266,000**	**10,700,000**	**1,730,000**	**2,130,000 (4)**	**9,640,000**	**9,560,000**	**7,550,000**	**7,020,000**	**1,770,000**	**5,490,000**	**644,000**	**6,820,000**	**330,000**	**1,330,000**	**20,000**
Dissolved Metals																				
Aluminum	<100	<100	**228**	<200[4]	<200[4]	<200	**7,550**	<400[4]	<400 (4)	<10000	<10000	<1000	<2000	<1000	<2000	<2000	<400	NA	<200	**100**
Barium	<200	**2,080**	588	757	998	387	<2,000	<400[4]	<400 (4)	<10000	<10000	**1800**	<2000	<1000	<2000	<2000	692	NA	<200	**1,000**
Cobalt	<5.0	**5.6**	<5.0	<50[4]	<50[4]	<50	<500	<100[4]	<100 (4)	<2500	<2500	<250	<500	<250	<500	<500	<100	NA	67	**5**
Iron	<100	**236**	**2,820**	**201**	**370**	**620**	**215,000**	**31100[4]**	**12,400 (4)**	**87,500**	**182,000**	**181,000**	**152,000**	**17,700**	**42,900**	**20,000**	**17,700**	NA	**3,450**	**300/500[3]**
Manganese	56.9	**18,600**	**9,910**	**9,750**	**8,500**	**4,200**	**62,600**	**35300[4]**	**19,100 (4)**	**16,500**	**38,900**	**46,900**	**34,700**	**1,960**	**3,980**	**1,730**	**874**	NA	34	**300/500[3]**
Nickel	<10	**114**	24.5	<10	11.2	<10	**2,050**	**345[4]**	**96 (4)**	**790**	**685**	**978**	**432**	**128**	**465**	**507**	**2200**	NA	**964**	**100**
Sodium	**148,000**	**310,000**	**323,000**	**384,000**	**544,000**	**258,000**	**10,100,000**	**1,600,000**	**2,120,000 (4)**	**9,200,000**	**7,100,000**	**6,570,000**	**6,400,000**	**1,760,000**	**5,870,000**	**4,790,000**	**6,640,000**	NA	**1,470,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]																				
Nitrogen, Nitrate	1.2	<0.11	<0.11	<0.11	<0.10	--	0.39	<0.11	<0.11	0.96	<0.6	<0.15	0.26	<2	<11	<0.2	<0.6	<1.0	<0.11 b	**10 (total)**
Nitrogen, Nitrate + Nitrite	1.2	<0.10	<0.10	<0.10	<0.10	--	0.39	<0.10	<0.10	0.96	0.27	<0.1	0.26	<1	<10	0.13	0.49	<1.0	<0.010	
Nitrogen, Nitrite	<0.012	<0.010	<0.010	<0.010	<0.002	--	<0.010	<0.010	<0.010	<0.5	<0.5	<0.05	<0.1	<1	<1	<0.1	<0.5	<0.010	<0.10	
Field Parameters																				
pH (s.u.)[6]	6.96	**8.62**	7.35	6.98	7.66	8.15	6.78	6.66	8.21	6.86	**6.09**	6.79	7.03	**6.07**	7.29	8.15	7.67	8.02	7.72	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	0.71	3.35	3.13	4.17	4.54	1.4	23.2	9.11	8.12	20.6	20.2	16.9	17.2	5.5	2.61	1.4	33.9	15.9	8.24	--
Turbidity (NTU)[8]	1.9	**38.7**	**51.54**	**6.5**	3.6	1	**541**	**107**	**193**	**654**	**376**	**260**	**211**	**347**	**332**	1	546	**79.9**	**113**	**5**
Dissolved Oxygen (mg/L)	0.28	2.49	0.15	1.2	0.22	1	2.78	3.31	2.21	0	1.48	1.16	0	0.41	5.9	1	0.77	0	0	--
Temperature (°C)[9]	14.68	12.5	11.68	17.87	22.06	23	13.33	12.21	22.75	21.41	11.41	13.31	20.85	20.75	20.99	23	17.11	16.3	9.18	--
REDOX (mV)[10]	140	-89	-196	-153	-161	-60	-178	-83	-176	-139	-170	-140	-167	-68	-138	-60	-218	-74	-77	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Metals Exceedances and Field Parameters for Treatment Zone Monitor Wells - January 2013 Pre-Injection through 2025 - Monitor Wells within Treatment Area

Well ID[1]	**MW-8**																**NYSDEC Class GA Groundwater Standards**
Date Sampled	**01/30/13**	**10/07/15**	**10/06/16**	**01/08/19**	**04/17/19**	**07/18/19**	**10/29/19**	**01/28/20**	**04/21/20**	**07/07/20**	**10/23/20**	**03/17/21**	**05/26/21**	**09/29/21**	**09/29/21**	**03/07/25**	
Constituent																	
Total Metals																	
Aluminum	**139**	**473**	<200	<200	<200	<200	**36,100**	<2000	<2000	**516**	**265**	<1000	<2000	**8,730**	NA	**421**	**100**
Barium	340	350	427	345	335	526	<10000	<2000	<2000	271	<200	<1000	<2000	368	NA	226	**1,000**
Cobalt	<5.0	<50	<50	<50	<50	<50	<2500	<500	<500	<50	<50	<250	<500	<50	NA	<50	**5**
Iron	**285**	**441**	**273**	121	131	158	**58,300**	**21,300**	**13,800**	**11,900**	**3,850**	**9,930**	**9,800**	**20,900**	NA	**1,890**	**300/500**[3]
Manganese	**1,450**	**831**	**1,100**	**1,330**	**2,480**	**3,650**	**123,000**	**14,300**	**8,320**	**16,300**	**1,080**	**859**	**1,430**	**1,890**	NA	**2,370**	**300/500**[3]
Nickel	<10	<10	<10	<10	14	21	**2,500**	**171**	<100	19	22	<50	<100	**140**	NA	20	**100**
Sodium	**212,000**	**248,000**	**263,000**	**250,000**	**296,000**	**334,000**	**6,250,000**	**753,000**	**479,000**	**718,000**	**376,000**	**296,000**	**530,000**	**760,000**	NA	**200,000**	**20,000**
Dissolved Metals																	
Aluminum	<100	<200	<200	<200	<200	<200	<10000	<2000	<1000	<200	<200	<1000	<2000	<200	NA	<200	**100**
Barium	321	305	407	339	321	597	<10000	<2000	<1000	<200	<200	<1000	<2000	<200	NA	219	**1,000**
Cobalt	<5.0	<50	<50	<50	<50	<50	<2500	<500	<250	<50	<50	<250	<500	<50	NA	<50	**5**
Iron	<100	132	<100	<100	<100	<100	**49,500**	**8,980**	**2,330**	**710**	**3,500**	**3,090**	**<1000**	**3190**	NA	**367**	**300/500**[3]
Manganese	**543**	**533**	**557**	**1,050**	**2,220**	**5,920**	**107,000**	**12,600**	**7,020**	**15,600**	**1,060**	**753**	**1,500**	**1410**	NA	**2,500**	**300/500**[3]
Nickel	<10	<10	<10	<10	11.4	54.7	2140	114	<50	21.4	19.6	<50	<100	54.3	NA	17	**100**
Sodium	**211,000**	**253,000**	**269,000**	**256,000**	**317,000**	**328,000**	**5,400,000**	**701,000**	**424,000**	**738,000**	**408,000**	**316,000**	**664,000**	**845,000**	NA	**203,000**	**20,000**
Nitrates and Nitrites (mg/L)[5]																	
Nitrogen, Nitrate	<0.010	2.9	--	2.1	1.4	0.53	<25	<0.11	0.11	<0.15	<0.6	<0.11	<0.15	<0.2	<0.20	2.1	**10 (total)**
Nitrogen, Nitrate + Nitrite	1.5	<0.0020	--	2.1	1.4	0.54	0.42	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.1 b	
Nitrogen, Nitrite	1.5	2.9	--	<0.010	<0.010	<0.010	<25	<0.01	<0.01	<0.05	<0.5	<0.01	<0.05	<0.1	<0.1	<0.010	
Field Parameters																	
pH (s.u.)[6]	8.18	8.39	7.27	7.94	7.32	8.1	6.68	7.11	7.03	7.2	**6.2**	7.24	**6.27**	7.36	7.16	6.87	**6.5 - 8.5**
Specific Conductivity (mS/cm)[7]	1.27	1.91	2.93	1.95	2.57	2.81	15.9	3.71	3.31	3.54	1.73	2.4	2.93	2.03	4.97	1.59	--
Turbidity (NTU)[8]	**15.9**	2.5	**15.7**	4.7	**7.4**	**15.5**	**452**	**434**	**156**	**74.1**	**96.7**	**76.2**	**65.7**	**7.9**	2.1	**9.9**	**5**
Dissolved Oxygen (mg/L)	1.66	0.33	0	2.38	1.16	6.35	0	3.62	0.91	4.88	1.15	1.88	0	0.21	0.21	0.33	--
Temperature (°C)[9]	16.18	23.45	23.56	14.93	12.98	22.22	21.47	10.85	13.67	21.68	21.22	22.22	23.56	22.21	23.45	10.69	--
REDOX (mV)[10]	157	-60	259	15	-42	-20	-164	-101	-115	-124	-20	-136	-25	-151	-112	96	--

NOTES:

[1] See Figure 2.

[2] All concentrations are presented in micrograms per liter (ug/L) unless otherwise specified. Bold and red values indicate the concentrations which exceed the respective NYSDEC Groundwater Standards.

[3] The groundwater standard for beryllium is 11 ug/L when hardness is less than 75 ppm (mg/L) and 1,100 ug/L when hardness is greater than 75 ppm (mg/L).

[3] The individual groundwater standard for iron and manganese is 300 ug/L and the total groundwater standard for iron and manganese concentrations combined is 500 ug/L.

[4] The detection limit is raised due to dilution required for possible matrix interference.

[5] There is no Class A groundwater standard for this constituent.

[5] Milligrams per liter (mg/L).

[6] Standard units (s.u.).

[7] Microsiemens per centimeter (mS/cm).

[8] Nephelometric turbidity units (NTU).

[9] Degrees Celcius (°C).

[10] Millivolts (mV).

TABLE 3.1

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Soil Sampling Results
For September 17-20, and October 31, 2002

Boring[1]	B-1		B-2		B-3		B-4		NYSDEC Residential SCO[7]	NYSDEC Commercial SCO[7]	NYSDEC Protection of Groundwater SCO[7]
Approximate Depth to Water (ft bg)[2]	6.8		7.9		13.5		10.4				
Approximate Depth to Bedrock (ft bg)	12		18.5		18		14				
Approximate Bedrock Elevation (ft msl)[3]	18.6		11.9		12.3		16.2				
Sample Depth (ft bg)	6	11.5	7.5	18	13	17	10	14			
Tetrachloroethene	**2.05**[4]	0.0082	0.0096	0.0022	0.0027	0.0038	0.0061	0.0023	**5.5**	**150**	**1.3**
Trichloroethene	0.109	ND[5]	ND	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
Total Organic Carbon	<1,200	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	ND[6]	ND[6]	ND[6]

Notes: (1) See Figure 5A for sample location.
(2) Depth presented in feet below grade (ft bg). Ground-water level determined from soil sample saturation observed in field, or projected from nearby monitor-well data.
(3) Elevation in feet above mean sea level (fl msl), and projected from grade elevations surveyed for nearby monitor wells.
(4) Concentrations expressed in milligrams per kilogram [mg/kg, equivalent to parts per million (ppm)].
(5) Compound not detected.
(6) Not applicable.
(7) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).

TABLE 3.1

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Soil Sampling Results
For September 17-20, and October 31, 2002

Boring[1]	**B-5**			**B-6**		**B-7**			**NYSDEC Residential SCO**[7]	**NYSDEC Commercial SCO**[7]	**NYSDEC Protection of Groundwater SCO**[7]
Approximate Depth to Water (ft bg)[2]	7.2			7.7		9.2					
Approximate Depth to Bedrock (ft bg)	11.5			12		12.5					
Approximate Bedrock Elevation (ft msl)[3]	18.9			18.2		17.5					
Sample Depth (ft bg)	5	6.5	11	7	12	7	9	12			
Tetrachloroethene	0.41	0.0397	0.0138	0.044	0.0322	ND[4]	.0054[5]	0.109	**5.5**	**150**	**1.3**
Trichloroethene	0.0542	0.0033	ND	0.005	0.0085	ND	ND	0.0217	**10**	**200**	**0.47**
Total Organic Carbon	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	ND[6]	ND[6]	ND[6]

Notes: (1) See Figure 5A for sample location.
(2) Depth presented in feet below grade (ft bg). Ground-water level determined from soil sample saturation observed in field, or projected from nearby monitor-well data.
(3) Elevation in feet above mean sea level (fl msl), and projected from grade elevations surveyed for nearby monitor wells.
(4) Concentrations expressed in milligrams per kilogram [mg/kg, equivalent to parts per million (ppm)].
(5) Compound not detected.
(6) Not applicable.
(7) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).

TABLE 3.1

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Soil Sampling Results
For September 17-20, and October 31, 2002

Boring[1]	**B-8**		**B-9**		**B-10**		**B-11**		**NYSDEC Residential SCO**[1]	**NYSDEC Commercial SCO**[1]	**NYSDEC Protection of Groundwater SCO**[1]
Approximate Depth to Water (ft bg)[2]	8.7		8.3		7.8		7.8				
Approximate Depth to Bedrock (ft bg)	11.0		11.0		14.5		12.5				
Approximate Bedrock Elevation (ft msl)[3]	18.9		18.8		15.5		17.4				
Sample Depth (ft bg)	8	11	8	11	7	14	7	12			
Tetrachloroethene	ND	0.0049	0.0049	ND	0.0054	0.0073	0.0018	ND	**5.5**	**150**	**1.3**
Trichloroethene	ND	ND	0.0015	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
Total Organic Carbon	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,200	<1,100	ND[6]	ND[6]	ND[6]

Notes: (1) See Figure 5A for sample location.
(2) Depth presented in feet below grade (ft bg). Ground-water level determined from soil sample saturation observed in field, or projected from nearby monitor-well data.
(3) Elevation in feet above mean sea level (fl msl), and projected from grade elevations surveyed for nearby monitor wells.
(4) Concentrations expressed in milligrams per kilogram [mg/kg, equivalent to parts per million (ppm)].
(5) Compound not detected.
(6) Not applicable.
(7) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).

TABLE 3.1

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Soil Sampling Results
For September 17-20, and October 31, 2002

Boring[1]	**B-12**		**B-13**			**B-14**			**B-15**		**NYSDEC Residential SCO**[7]	**NYSDEC Commercial SCO**[7]	**NYSDEC Protection of Groundwater SCO**[7]
Approximate Depth to Water (ft bg)[2]	7.5		12.5			9.5			7.7				
Approximate Depth to Bedrock (ft bg)	12.5		13.5			13.5			19.5				
Approximate Bedrock Elevation (ft msl)[3]	17.7		16.5			16.1			10.7				
Sample Depth (ft bg)	7	12	6	12	13	9	11	13	7	19			
Tetrachloroethene	0.126	ND	0.0047	ND	ND	ND[4]	.0021[5]	ND	ND	0.012	**5.5**	**150**	**1.3**
Trichloroethene	0.0026	ND	0.0024	ND	ND	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
Total Organic Carbon	2320	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	ND[6]	ND[6]	ND[6]

Notes: (1) See Figure 5A for sample location.
(2) Depth presented in feet below grade (ft bg). Ground-water level determined from soil sample saturation observed in field, or projected from nearby monitor-well data.
(3) Elevation in feet above mean sea level (fl msl), and projected from grade elevations.surveyed for nearby monitor wells.
(4) Concentrations expressed in milligrams per kilogram [mg/kg, equivalent to parts per million (ppm)].
(5) Compound not detected.
(6) Not applicable.
(7) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).

TABLE 3.1

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Soil Sampling Results
For September 17-20, and October 31, 2002

Boring[1]	**B-16**		**B-17**		**B-18**		**B-19**		**B-20**		**NYSDEC Residential SCO**[7]	**NYSDEC Commercial SCO**[7]	**NYSDEC Protection of Groundwater SCO**[7]
Approximate Depth to Water (ft bg)[2]	8.4		8.6		9.5		NOT ENCOUNTERED		NOT ENCOUNTERED				
Approximate Depth to Bedrock (ft bg)	13.5		15.5		9.5		8.5		8.5				
Approximate Bedrock Elevation (ft msl)[3]	16.5		14		31.5		32		31				
Sample Depth (ft bg)	8	13	8	15	5	9	7	8	7	8			
Tetrachloroethene	ND	ND	ND	0.0051	0.0204	ND	ND	0.0027	ND	ND	**5.5**	**150**	**1.3**
Trichloroethene	ND	ND	ND	0.0016	0.002	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
Total Organic Carbon	<1,100	<1,100	<1,100	<1,200	2,860	<1,100	<1,100	<1,100	<1,100	<1,100	ND[6]	ND[6]	ND[6]

Notes: (1) See Figure 5A for sample location.
(2) Depth presented in feet below grade (ft bg). Ground-water level determined from soil sample saturation observed in field, or projected from nearby monitor-well data.
(3) Elevation in feet above mean sea level (fl msl), and projected from grade elevations.surveyed for nearby monitor wells.
(4) Concentrations expressed in milligrams per kilogram [mg/kg, equivalent to parts per million (ppm)].
(5) Compound not detected.
(6) Not applicable.
(7) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).

TABLE 3.1

THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK

Summary of Soil Sampling Results
For September 17-20, and October 31, 2002

Boring[1]	B-21		B-22		B-23		B-24		B-25		NYSDEC Residential SCO[7]	NYSDEC Commercial SCO[7]	NYSDEC Protection of Groundwater SCO[7]
Approximate Depth to Water (ft bg)[2]	8.5		7.8		10.5		10.5		7.4				
Approximate Depth to Bedrock (ft bg)	12.5		12.5		16.5		17.5		15.5				
Approximate Bedrock Elevation (ft msl)[3]	17.5		18.2		22		17.5		15.3				
Sample Depth (ft bg)	8	12	7	12	10	16	10	17	7	15			
Tetrachloroethene	ND[4]	ND	ND	ND	ND	ND	ND	ND	.0198[5]	ND	**5.5**	**150**	**1.3**
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	0.0036	ND	**10**	**200**	**0.47**
Total Organic Carbon	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	ND[6]	ND[6]	ND[6]

Notes: (1) See Figure 5A for sample location.
(2) Depth presented in feet below grade (ft bg). Ground-water level determined from soil sample saturation observed in field, or projected from nearby monitor-well data.
(3) Elevation in feet above mean sea level (fl msl), and projected from grade elevations.surveyed for nearby monitor wells.
(4) Concentrations expressed in milligrams per kilogram [mg/kg, equivalent to parts per million (ppm)].
(5) Compound not detected.
(6) Not applicable.
(7) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).

TABLE 3.2

CAROL CLEANERS, STATEN ISLAND MALL SITE
STATEN ISLAND, NEW YORK

Geoprobe Soil Sampling[(1)] Summary
May 11 - 12, 2006

Compound (mg/kg)	B-26 (6.5-7)	B-26 (11.5-12)	B-27 (7.5-8)	B-27 (14.3-14.8)	NYSDEC Residential SCO[(1)]	NYSDEC Commercial SCO[(1)]	NYSDEC Protection of Groundwater SCO[(1)]
Tetrachloroethene (PCE)	ND[(2)]	ND	ND	ND	**5.5**	**150**	**1.3**
Trichloroethene (TCE)	ND	ND	ND	ND	**10**	**200**	**0.47**
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.0023 J	0.0221	ND	ND	**59**	**500**	**0.25**
Carbon Disulfide	ND	ND	ND	ND	**100**	**-**	**2.7**
Ethylbenzene	ND	ND	ND	ND	**30**	**390**	**1**
Xylene (Total)	ND	ND	ND	ND	**total = 100**	**total = 500**	**total = 1.6**
2-Butanone (MEK)	ND	ND	ND	ND	**100**	**500**	**0.12**
Volatile Organic Chemicals (VOC) TIC's	ND	ND	ND	ND	**-**	**-**	**-**
TOC[(5)]	<1100	<1200	<1100	<1100	**-**	**-**	**-**

NOTES:
(1) See Figure 5B for sample locations. All soil cleanup objectives (SCOs) are in mg/kg or parts per million (ppm).
(2) ND-Not Detected.
(3) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).
(4) Concentrations for TOC are in mg/kg or parts per million (ppm).
(5) J-Estimated concentration.
(6) Bold and highlighted in yellow exceed the NYSDEC Protection of Groundwater SCO.

TABLE 3.2

CAROL CLEANERS, STATEN ISLAND MALL SITE
STATEN ISLAND, NEW YORK

Geoprobe Soil Sampling[(1)] Summary
May 11 - 12, 2006

Compound (mg/kg)	B-28 (7.5-8)	B-28 (12.5-13)	B-29 (8.8-9.3)	B-29 (12.5-13)	B-30 (7.7-8.3)	NYSDEC Residential SCO[(1)]	NYSDEC Commercial SCO[(1)]	NYSDEC Protection of Groundwater SCO[(1)]
Tetrachloroethene (PCE)	ND	ND	0.0031 J[(3)]	ND	ND	**5.5**	**150**	**1.3**
Trichloroethene (TCE)	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
cis-1,2-Dichloroethene (cis-1,2-DCE)	ND	ND	ND	ND	ND	**59**	**500**	**0.25**
Carbon Disulfide	ND	ND	ND	ND	ND	**100**	**-**	**2.7**
Ethylbenzene	ND	ND	ND	ND	ND	**30**	**390**	**1**
Xylene (Total)	ND	ND	ND	ND	ND	**total = 100**	**total = 500**	**total = 1.6**
2-Butanone (MEK)	ND	ND	ND	ND	ND	**100**	**500**	**0.12**
Volatile Organic Chemicals (VOC) TIC's	ND	ND	ND	ND	ND	**-**	**-**	**-**
TOC[(5)]	<1100	<1100	<1200	<1100	<1100	**-**	**-**	**-**

NOTES:
(1) See Figure 5B for sample locations. All soil cleanup objectives (SCOs) are in mg/kg or parts per million (ppm).
(2) ND-Not Detected.
(3) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).
(4) Concentrations for TOC are in mg/kg or parts per million (ppm).
(5) J-Estimated concentration.
(6) Bold and highlighted in yellow exceed the NYSDEC Protection of Groundwater SCO.

TABLE 3.2

CAROL CLEANERS, STATEN ISLAND MALL SITE
STATEN ISLAND, NEW YORK

Geoprobe Soil Sampling[(1)] Summary
May 11 - 12, 2006

Compound (mg/kg)	B-30 (14.5-15)	B-31 (4.5-5)	B-31 (15.5-16)	B-32 (5.3-5.8)	NYSDEC Residential SCO[(1)]	NYSDEC Commercial SCO[(1)]	NYSDEC Protection of Groundwater SCO[(1)]
Tetrachloroethene (PCE)	ND	0.0183	ND	ND	**5.5**	**150**	**1.3**
Trichloroethene (TCE)	ND	0.0192	ND	ND	**10**	**200**	**0.47**
cis-1,2-Dichloroethene (cis-1,2-DCE)	ND	0.0198	ND	ND	**59**	**500**	**0.25**
Carbon Disulfide	ND	0.0029 J	ND	ND	**100**	**-**	**2.7**
Ethylbenzene	ND	ND	0.00069 J	ND	**30**	**390**	**1**
Xylene (Total)	ND	ND	0.0013 J	ND	**total = 100**	**total = 500**	**total = 1.6**
2-Butanone (MEK)	ND	ND	0.0073 J	ND	**100**	**500**	**0.12**
Volatile Organic Chemicals (VOC) TIC's	ND	0.0133	ND	ND	**-**	**-**	**-**
TOC[(5)]	<1200	2410	<1100	<1200	**-**	**-**	**-**

NOTES:
(1) See Figure 5B for sample locations. All soil cleanup objectives (SCOs) are in mg/kg or parts per million (ppm).
(2) ND-Not Detected.
(3) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).
(4) Concentrations for TOC are in mg/kg or parts per million (ppm).
(5) J-Estimated concentration.
(6) Bold and highlighted in yellow exceed the NYSDEC Protection of Groundwater SCO.

TABLE 3.2

CAROL CLEANERS, STATEN ISLAND MALL SITE
STATEN ISLAND, NEW YORK

Geoprobe Soil Sampling[(1)] Summary
May 11 - 12, 2006

Compound (mg/kg)	B-32 (11.5-12)	B-33 (6.2-6.7)	B-33 (12.5-13)	NYSDEC Residential SCO[(1)]	NYSDEC Commercial SCO[(1)]	NYSDEC Protection of Groundwater SCO[(1)]
Tetrachloroethene (PCE)	ND	0.0053 J	0.0305	**5.5**	**150**	**1.3**
Trichloroethene (TCE)	ND	ND	0.0046 J	**10**	**200**	**0.47**
cis-1,2-Dichloroethene (cis-1,2-DCE)	ND	ND	0.0044 J	**59**	**500**	**0.25**
Carbon Disulfide	ND	ND	ND	**100**	**-**	**2.7**
Ethylbenzene	ND	ND	ND	**30**	**390**	**1**
Xylene (Total)	ND	ND	ND	**total = 100**	**total = 500**	**total = 1.6**
2-Butanone (MEK)	0.0058 J	ND	ND	**100**	**500**	**0.12**
Volatile Organic Chemicals (VOC) TIC's	ND	ND	ND	**-**	**-**	**-**
TOC[(5)]	<1100	<1100	<1100	**-**	**-**	**-**

NOTES:
(1) See Figure 5B for sample locations. All soil cleanup objectives (SCOs) are in mg/kg or parts per million (ppm).
(2) ND-Not Detected.
(3) Bold and red values exceed the NYSDEC Residential Soil Cleanup Objectives (SCO).
(4) Concentrations for TOC are in mg/kg or parts per million (ppm).
(5) J-Estimated concentration.
(6) Bold and highlighted in yellow exceed the NYSDEC Protection of Groundwater SCO.

TABLE 3.3
THE CROSSINGS
GGP STATEN ISLAND MALL, LLC. STATEN ISLAND, NEW YORK
Summary of Soil Boring Sampling Results - May 2011

Boring ID	**SB-1**	**SB-2**	**SB-4**	**SB-5**			**SB-6**			**SB-7**		**NYSDEC Residential SCO[3]**	**NYSDEC Commercial SCO[3]**	**NYSDEC Protection of Groundwater SCO[3]**
Sample Depth (ft bg)	**6**	**4.5**	**5.5**	**4.5**	**5.5**	**8**	**1.5**	**4.5**	**7**	**7**	**16**			
Date Sampled	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**5/12/2011**	**7/20/2011**	**7/20/2011**			
Constituent/Compound	**Constituent Concentration (mg/kg)[2]**													
Acetone	ND[5]	ND	ND	ND	ND	ND	0.0623	ND	ND	ND	ND	**100**	**500**	**0.05**
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.9**	**44**	**0.06**
Bromobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.12**
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	-	**2.7**
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
tert-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	**22**	**0.76**
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**1.9**
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**10**	**350**	**0.37**
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
o-Chorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
p-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**17**	**280**	**2.4**
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**9.8**	**130**	**1.8**
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**240**	**0.27**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	**30**	**0.02**
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.33**
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	0.00041 J	ND	ND	ND	**59**	**500**	**0.25**
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.19**
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,3-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
2,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Ethylbenzene	ND	ND	ND	ND	ND	ND	0.00051 J[6]	0.00057 J	ND	ND	ND	**30**	**390**	**1**
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**3.9**
p-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Methyl tert butyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**62**	**500**	**0.93**
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**1**
Methylene bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**51**	**500**	**0.05**

TABLE 3.3
THE CROSSINGS
GGP STATEN ISLAND MALL, LLC. STATEN ISLAND, NEW YORK
Summary of Soil Boring Sampling Results - May 2011

Boring ID	**SB-1**	**SB-2**	**SB-4**	**SB-5**			**SB-6**			**SB-7**		**NYSDEC Residential SCO[3]**	**NYSDEC Commercial SCO[3]**	**NYSDEC Protection of Groundwater SCO[3]**
Sample Depth (ft bg)	**6**	**4.5**	**5.5**	**4.5**	**5.5**	**8**	**1.5**	**4.5**	**7**	**7**	**16**			
Date Sampled	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**05/12/11**	**5/12/2011**	**7/20/2011**	**7/20/2011**			
Constituent/Compound	**Constituent Concentration (mg/kg)[2]**													
Naphthalene(4)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Styrene	ND	ND	ND	0.00039 J	ND	ND	0.00038 J	0.00068 J	0.00028 J	ND	ND	-	-	-
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**35**	-	**0.6**
Tetrachloroethene	ND	ND	ND	ND	ND	0.0054 J	ND	0.0103	ND	0.00058 J	0.0022 J	**5.5**	**150**	**1.3**
Toluene	ND	ND	ND	ND	ND	ND	ND	0.00052 J	ND	ND	ND	**100**	**500**	**0.7**
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**3.4**
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.68**
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	0.0008 J	ND	ND	ND	**10**	**200**	**0.47**
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,3,5-Trimethylbenzene	0.00037 J	ND	0.00031 J	0.00024 J	0.00032 J	ND	0.00041 J	0.0004 J	ND	ND	ND	-	-	-
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.21**	**13**	**0.02**
Xylenes (total)	0.00061 J	ND	0.00061 J	0.00098 J	0.0013	0.00088 J	0.0029	0.0031	0.00054 J	ND	ND	**total = 100**	**total = 500**	**total = 1.6**

Notes:
(1) See Figure 5C.
(2) All concentrations presented in milligrams per kilogram; bold numbers represent exceedance of NYSDEC SCOs.
(3) New York State Department of Environmental Protection (NYSDEC) Soil Cleanup Objectives (SCOs).
(4) Napthalene SCOs are from the semi-volatile organic compound list.
(5) ND - Compound not detected at laboratory detection limits.
(6) J - Estimated value.

TABLE 3.3
THE CROSSINGS
GGP STATEN ISLAND MALL, LLC. STATEN ISLAND, NEW YORK
Summary of Soil Boring Sampling Results - May 2011

Boring ID	**SB-8**		**SB-9**		**SB-10**		**SB-11**		**NYSDEC Residential SCO[3]**	**NYSDEC Commercial SCO[3]**	**NYSDEC Protection of Groundwater SCO[3]**
Sample Depth (ft bg)	**7**	**18**	**9**	**13**	**9**	**15**	**9**	**14**			
Date Sampled	**7/21/2011**	**7/21/2011**	**7/20/2011**	**7/20/2011**	**7/21/2011**	**7/21/2011**	**7/21/2011**	**7/21/2011**			
Constituent/Compound	**Constituent Concentration (mg/kg)[2]**										
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.05**
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	**2.9**	**44**	**0.06**
Bromobenzene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.12**
n-Butylbenzene	ND	ND	ND	ND	ND	ND	0.00049 J	ND	**100**	**-**	**2.7**
sec-Butylbenzene	ND	ND	ND	ND	ND	0.00027 J	0.00067 J	ND	**-**	**-**	**-**
tert-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	**22**	**0.76**
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**1.9**
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	**10**	**350**	**0.37**
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
o-Chorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
p-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	**17**	**280**	**2.4**
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	**9.8**	**130**	**1.8**
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**240**	**0.27**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	**30**	**0.02**
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.33**
cis-1,2-Dichloroethene	ND	0.0045 J	ND	ND	ND	ND	ND	ND	**59**	**500**	**0.25**
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.19**
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,3-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
2,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,1-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	**30**	**390**	**1**
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**3.9**
p-Isopropyltoluene	ND	ND	ND	ND	ND	ND	0.00052 J	ND			
Methyl tert butyl ether	ND	ND	ND	ND	ND	ND	ND	ND	**62**	**500**	**0.93**
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**1**
Methylene bromide	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND	**51**	**500**	**0.05**

TABLE 3.3
THE CROSSINGS
GGP STATEN ISLAND MALL, LLC. STATEN ISLAND, NEW YORK
Summary of Soil Boring Sampling Results - May 2011

Boring ID	**SB-8**		**SB-9**		**SB-10**		**SB-11**		**NYSDEC Residential SCO[3]**	**NYSDEC Commercial SCO[3]**	**NYSDEC Protection of Groundwater SCO[3]**
Sample Depth (ft bg)	**7**	**18**	**9**	**13**	**9**	**15**	**9**	**14**			
Date Sampled	**7/21/2011**	**7/21/2011**	**7/20/2011**	**7/20/2011**	**7/21/2011**	**7/21/2011**	**7/21/2011**	**7/21/2011**			
Constituent/Compound	**Constituent Concentration (mg/kg)[2]**										
Naphthalene(4)	ND	ND	ND	ND	ND	ND	0.0034 J	ND	-	-	-
n-Propylbenzene	ND	ND	ND	ND	ND	ND	0.00048 J	ND	-	-	-
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	**35**	-	**0.6**
Tetrachloroethene	ND	0.0286	ND	0.00039 J	ND	ND	ND	ND	**5.5**	**150**	**1.3**
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.7**
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**3.4**
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.68**
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Trichloroethene	ND	0.003 J	ND	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.0023 J	ND	-	-	-
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.00066 J	ND	-	-	-
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	**0.21**	**13**	**0.02**
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	**total = 100**	**total = 500**	**total = 1.6**

Notes:
(1) See Figure 5C.
(2) All concentrations presented in milligrams per kilogram; bold numbers represent exceedance of NYSDEC SCOs.
(3) New York State Department of Environmental Protection (NYSDEC) Soil Cleanup Objectives (SCOs).
(4) Napthalene SCOs are from the semi-volatile organic compound list.
(5) ND - Compound not detected at laboratory detection limits.
(6) J - Estimated value.

TABLE 3.4
CAROL CLEANERS - THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK
Summary of Soil boring Sampling Results - May and June 2017

Sample ID	SWB-1(5')	SWB-1(12')	SWB-2(7')	SWB-2(11.5')	SWB-3(3')	SWB-3(9')	SWB-4(5')	SWB-4(7')	SWB-5(4')	SWB-6(3')	SWB-7(5')	SWB-7(7')	NYSDEC Residential SCO[1]	NYSDEC Commercial SCO[1]	NYSDEC Protection of Groundwater SCO[1]
Laboratory ID	**JC44543-6**	**JC44543-7**	**JC44543-3**	**JC44543-13**	**JC44543-8**	**JC44543-4**	**JC44543-1**	**JC44543-5**	**JC44543-2**	**JC44408-11**	**JC44543-9**	**JC44543-10**			
Date Sampled	**06/01/17**	**06/01/17**	**06/01/17**	**06/01/17**	**06/01/17**	**06/01/17**	**06/01/17**	**06/01/17**	**06/01/17**	**05/31/17**	**06/01/17**	**06/01/17**			
Constituent/Compound	**Constituent Concentration (mg/kg)[1]**														
Acetone	ND[2]	0.0066 J[3]	0.0068 J	ND	ND	0.0071 J	0.0084 J	0.0113	0.0379	ND	ND	ND	**100**	**500**	**0.05**
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.9**	**44**	**0.06**
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.12**
Carbon disulfide	ND	ND	ND	ND	ND	ND	ND	ND	0.0021 J	ND	ND	ND	**100**	**-**	**2.7**
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	**22**	**0.76**
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**1.9**
Chloroform	ND	0.0016 J	ND	0.0012 J	0.0013 J	ND	ND	ND	ND	0.00078 J	0.0011 J	0.00096 J	**10**	**350**	**0.37**
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**17**	**280**	**2.4**
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**9.8**	**130**	**1.8**
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**240**	**0.27**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	**30**	**0.02**
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.33**
cis-1,2-Dichloroethene	ND	ND	0.00050 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	**59**	**500**	**0.25**
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.19**
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Ethylbenzene	ND	ND	ND	ND	ND	ND	0.00025 J	ND	ND	ND	ND	ND	**30**	**390**	**1**
Freon 113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**-**	**6**
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**3.9**
Methyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Methylcyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Methyl Tert Butyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**62**	**500**	**0.93**
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**1**
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0032 J	ND	ND	**51**	**500**	**0.05**
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**35**	**-**	**0.6**
Tetrachloroethene	ND	ND	0.0222	0.0024	0.0013 J	ND	0.0029	0.0041	ND	0.0014 J	ND	ND	**5.5**	**150**	**1.3**
Toluene	0.00018 J	ND	ND	0.00024 J	ND	0.00027 J	ND	0.00021 J	ND	ND	ND	0.00035 J	**100**	**500**	**0.7**
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**3.4**
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.68**
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Trichloroethene	ND	ND	0.00045 J	ND	0.00081 J	ND	ND	ND	ND	ND	ND	ND	**10**	**200**	**0.47**
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**-**	**-**	**-**
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.21**	**13**	**0.02**
Xylene (total)	ND	ND	ND	ND	ND	ND	0.00079 J	ND	0.00029 J	ND	ND	ND	**total = 100**	**total = 500**	**total = 1.6**

NOTES:
(1) All concentrations presented in milligrams per kilogram; bold numbers represent an exceedance of the NYSDEC Soil Cleanup Objectives (SCO).
(2) ND - Compound not detected at laboratory detection limits.
(3) J - Estimated value.

TABLE 3.4
CAROL CLEANERS - THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK
Summary of Soil boring Sampling Results - May and June 2017

Sample ID	SWB-8(4')	SWB-8(9')	SWB-9(6')	SWB-10(4')	SWB-10(11')	SWB-11(7')	SWB-11(11')	SWB-12(4')	SWB-12(13')	SWB-13(7')	SWB-13(15')	SWB-14(5')	NYSDEC Residential SCO[1]	NYSDEC Commercial SCO[1]	NYSDEC Protection of Groundwater $SCO_{(1)}$
Laboratory ID	JC44543-12	JC44543-11	JC44408-10	JC44543-15	JC44543-17	JC44408-9	JC44408-8	JC44543-20	JC44543-21	JC44408-6	JC44408-7	JC44408-1			
Date Sampled	06/01/17	06/01/17	05/31/17	06/02/17	06/02/17	05/31/17	05/31/17	06/02/17	06/02/17	05/31/17	05/31/17	05/31/17			
Constituent/Compound	Constituent Concentration (mg/kg)[1]														
Acetone	ND	ND	0.0054 J	ND	ND	0.02	ND	ND	ND	0.0064 J	ND	ND	**100**	**500**	**0.05**
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.9**	**44**	**0.06**
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.12**
Carbon disulfide	ND	ND	ND	ND	ND	0.0016 J	ND	ND	ND	ND	ND	ND	**100**	-	**2.7**
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	**22**	**0.76**
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**1.9**
Chloroform	0.0014 J	0.0020 J	0.00031 J	0.00087 J	0.00071 J	ND	0.00089 J	0.0011 J	0.00094 J	0.00081 J	0.0014 J	0.0014 J	**10**	**350**	**0.37**
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**17**	**280**	**2.4**
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**9.8**	**130**	**1.8**
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**240**	**0.27**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	**30**	**0.02**
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.33**
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0323	ND	0.0013	**59**	**500**	**0.25**
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00040 J	ND	ND	**100**	**500**	**0.19**
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**30**	**390**	**1**
Freon 113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	-	**6**
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**3.9**
Methyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Methylcyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Methyl Tert Butyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**62**	**500**	**0.93**
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**1**
Methylene chloride	ND	ND	0.0020 J	ND	ND	0.0018 J	0.0014 J	ND	ND	0.0018 J	0.0016 J	0.0016 J	**51**	**500**	**0.05**
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**35**	-	**0.6**
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0048	0.00040 J	0.0058	**5.5**	**150**	**1.3**
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.7**
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**3.4**
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.68**
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0051	ND	0.00039 J	**10**	**200**	**0.47**
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00089 J	ND	ND	**0.21**	**13**	**0.02**
Xylene (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00029 J	ND	ND	**total = 100**	**total = 500**	**total = 1.6**

NOTES:
(1) All concentrations presented in milligrams per kilogram; bold numbers represent an exceedance of the NYSDEC Soil Cleanup Objectives (SCO).
(2) ND - Compound not detected at laboratory detection limits.
(3) J - Estimated value.

TABLE 3.4
CAROL CLEANERS - THE CROSSINGS
GGP STATEN ISLAND MALL, LLC.
STATEN ISLAND, NEW YORK
Summary of Soil boring Sampling Results - May and June 2017

Sample ID	SWB-14(10')	SWB-14(16')	SWB-15(8')	SWB-15(13.5')	SWB-16(8')	SWB-16(12')	SWB-17(5')	SWB-17(13')	SWB-17(17')	SWB-18(5')	SWB-18(11')	SWB-18(18')	NYSDEC Residential SCO[1]	NYSDEC Commercial SCO[1]	NYSDEC Protection of Groundwater $SCO_{(1)}$
Laboratory ID	**JC44408-2**	**JC44408-3**	**JC44543-18**	**JC44543-22**	**JC44543-24**	**JC44543-27**	**JC44543-19**	**JC44543-14**	**JC44543-26**	**JC44543-16**	**JC44543-23**	**JC44543-25**			
Date Sampled	**05/31/17**	**05/31/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**	**06/02/17**			
Constituent/Compound	**Constituent Concentration (mg/kg)[1]**														
Acetone	0.0128	0.0097	ND	0.0059 J	0.0152	0.0092 J	0.0121 J	ND	0.0088 J	0.0159	ND	ND	**100**	**500**	**0.05**
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.9**	**44**	**0.06**
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.12**
Carbon disulfide	0.0046	0.0024	ND	0.00027 J	0.00088 J	ND	0.00051 J	ND	ND	0.00052 J	ND	ND	**100**	-	**2.7**
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	**22**	**0.76**
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**1.9**
Chloroform	0.00035 J	ND	0.00087 J	0.00076 J	0.00098 J	ND	0.0018 J	0.0015 J	0.00095 J	0.00079 J	0.00071 J	0.0011 J	**10**	**350**	**0.37**
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**1.1**
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**17**	**280**	**2.4**
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**9.8**	**130**	**1.8**
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**240**	**0.27**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3**	**30**	**0.02**
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.33**
cis-1,2-Dichloroethene	0.0014	0.137	0.0024	ND	0.0054	ND	ND	0.0011	ND	ND	ND	ND	**59**	**500**	**0.25**
trans-1,2-Dichloroethene	ND	0.00036 J	ND	ND	0.00017 J	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.19**
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**30**	**390**	**1**
Freon 113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	-	**6**
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Isopropylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**3.9**
Methyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Methylcyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Methyl Tert Butyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**62**	**500**	**0.93**
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**1**
Methylene chloride	0.0017 J	0.0016 J	ND	ND	ND	0.0015 J	ND	ND	ND	ND	ND	ND	**51**	**500**	**0.05**
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**35**	-	**0.6**
Tetrachloroethene	0.0029	0.0214	0.0093	0.003	0.0087	0.00050 J	0.0017 J	0.0068	0.0014 J	ND	0.00031 J	0.00088 J	**5.5**	**150**	**1.3**
Toluene	ND	ND	0.00019 J	0.00025 J	0.00017 J	ND	ND	ND	ND	0.00025 J	ND	ND	**100**	**500**	**0.7**
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	**3.4**
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**500**	**0.68**
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Trichloroethene	0.001	0.0224	0.0021	ND	0.0034	ND	ND	0.0011	ND	ND	0.00020 J	ND	**10**	**200**	**0.47**
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-
Vinyl chloride	ND	0.00038 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.21**	**13**	**0.02**
Xylene (total)	0.00034 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**total = 100**	**total = 500**	**total = 1.6**

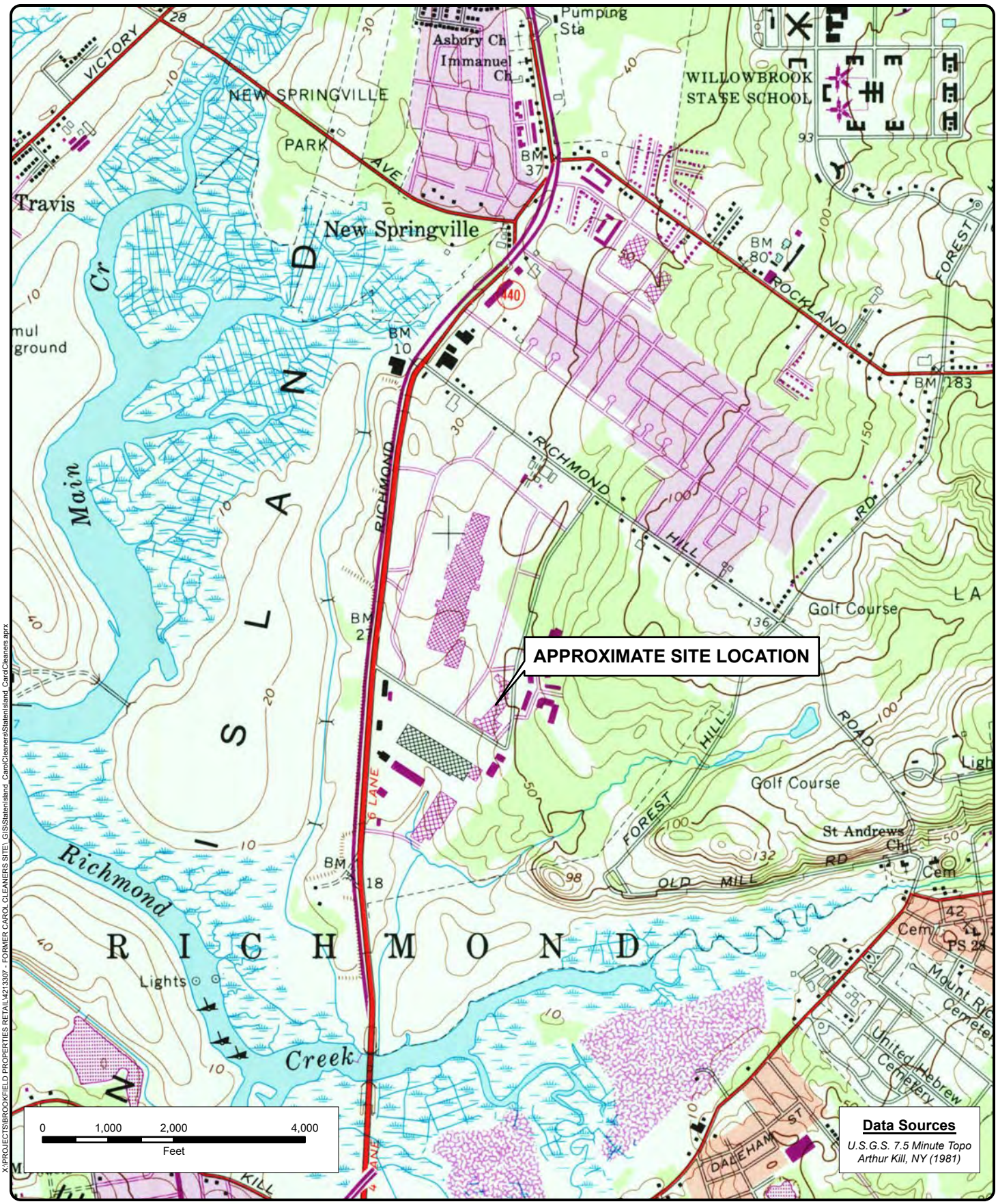
NOTES:
(1) All concentrations presented in milligrams per kilogram; bold numbers represent an exceedance of the NYSDEC Soil Cleanup Objectives (SCO).
(2) ND - Compound not detected at laboratory detection limits.
(3) J - Estimated value.

Table 4
Former Carol Cleaners
280-30 Marsh Ave. Staten Island, NY

Sub-Slab Vapor Pressure Testing Pressure Readings - January 2024

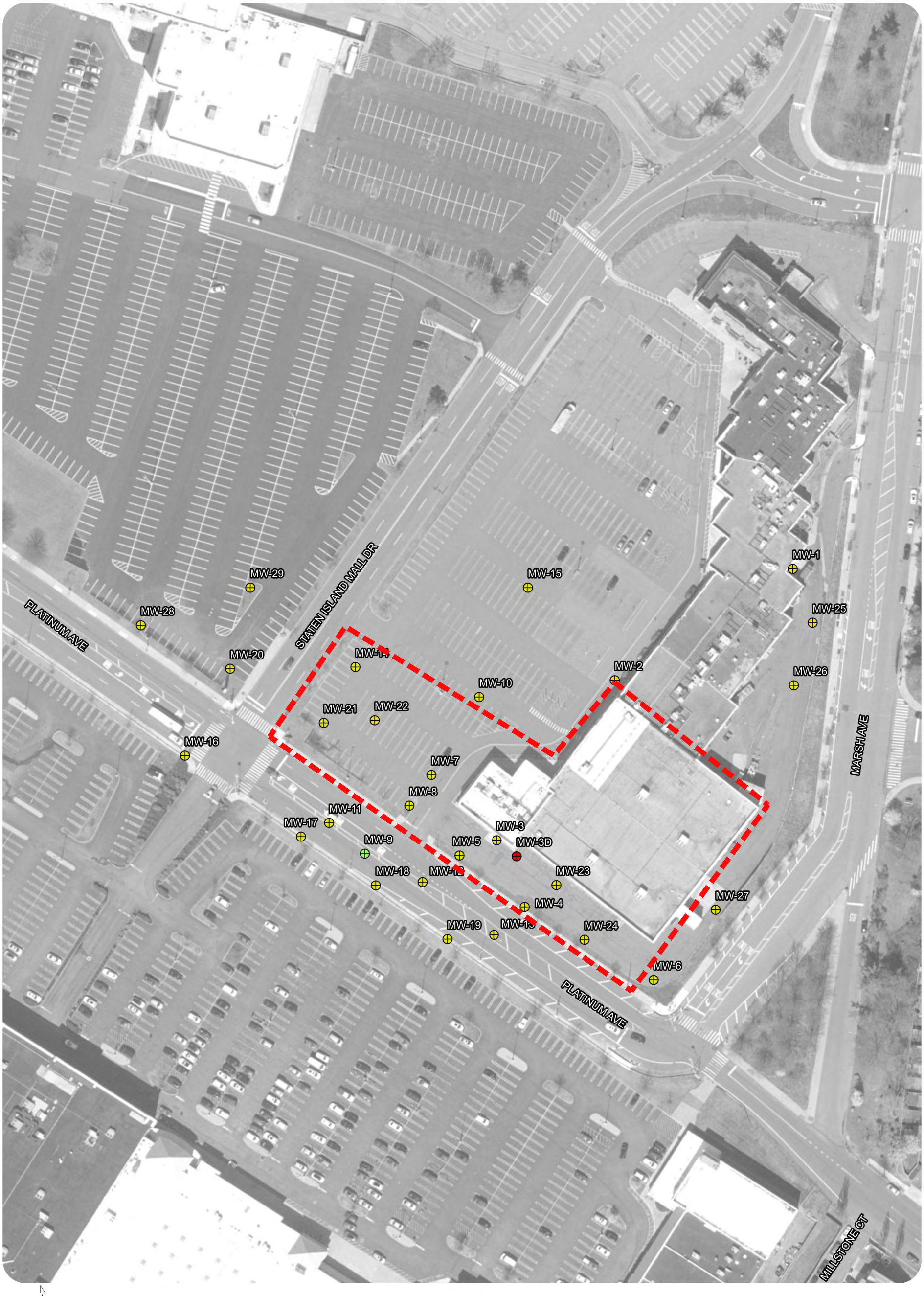
Vacuum Testing Location	Pressure Reading (inches of water)
SI Mall-VT-1	-0.032
SI Mall-VT-2	-0.102
SI Mall-VT-3	-0.651
SI Mall-VT-4	-0.158
SI Mall-VT-5	-0.085
SI Mall-VT-6	-2.275
SI Mall-VT-7	-0.04

FIGURES



X:\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_GIS\StatenIsland_CarolCleanersStatenIsland_CarolCleaners.aprx

PREPARED BY: AGB APPROVED BY: MGA DATE CREATED: 7/14/2021	TETRA TECH PREPARED BY: TETRATECH 	GGP STATEN ISLAND MALL, LLC CARL CLEANERS - THE CROSSINGS STATEN ISLAND, NEW YORK **SITE LOCATION**	FIGURE NO. **1** PROJECT NO. 4201222



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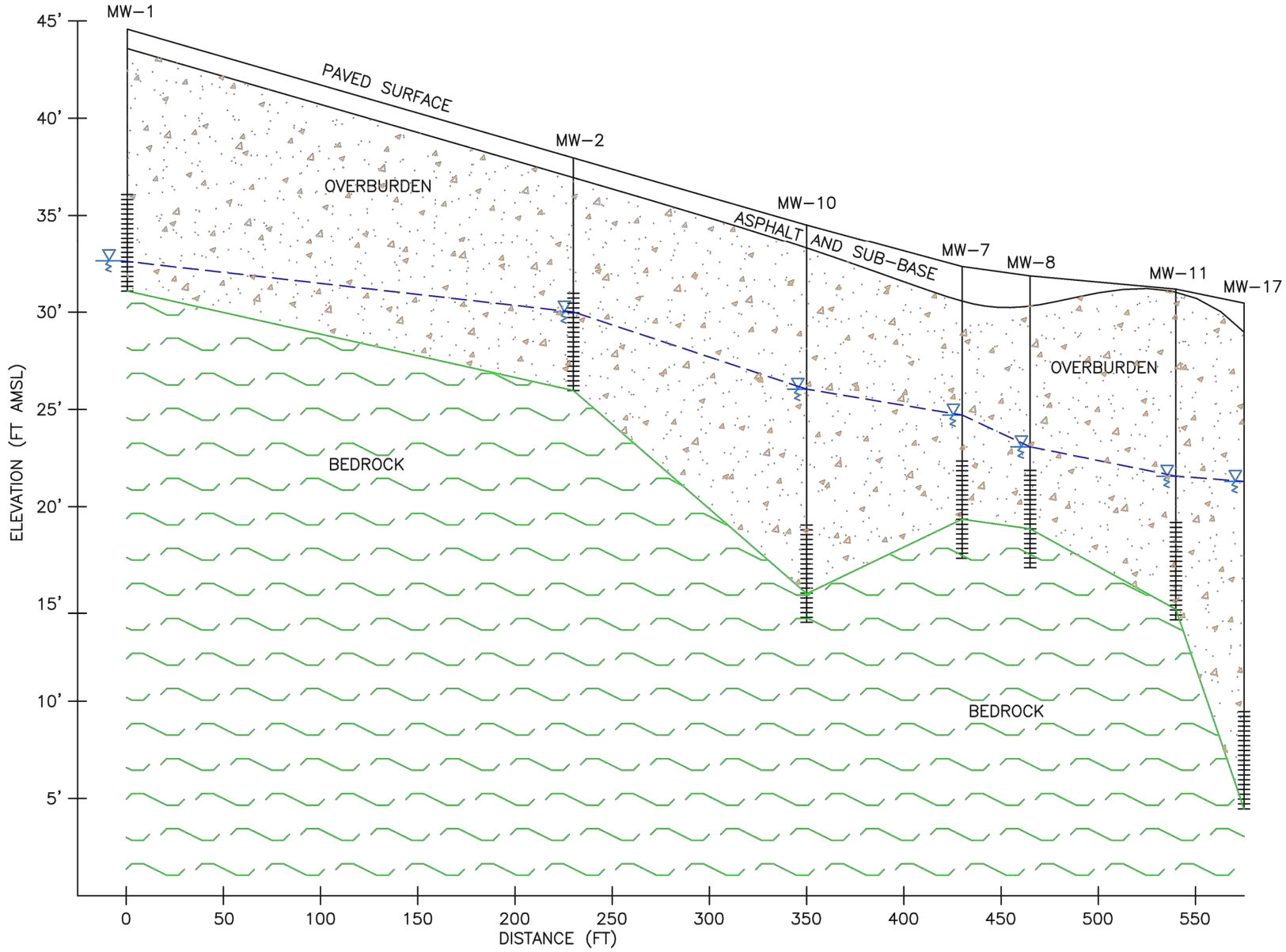
FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

SITE PLAN

FIGURE NO. 2
PROJECT NO. 4201222



LEGEND

SCREENED INTERVAL

GROUNDWATER ELEVATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE

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STATEN ISLAND, NEW YORK

GEOLOGIC CROSS SECTION

SHEET NO.

3

PROJECT NO.
4201222

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\Border.dwg Layout: ANSI-B-L User: JISS.PHILIP May 30, 2023 - 11:59am

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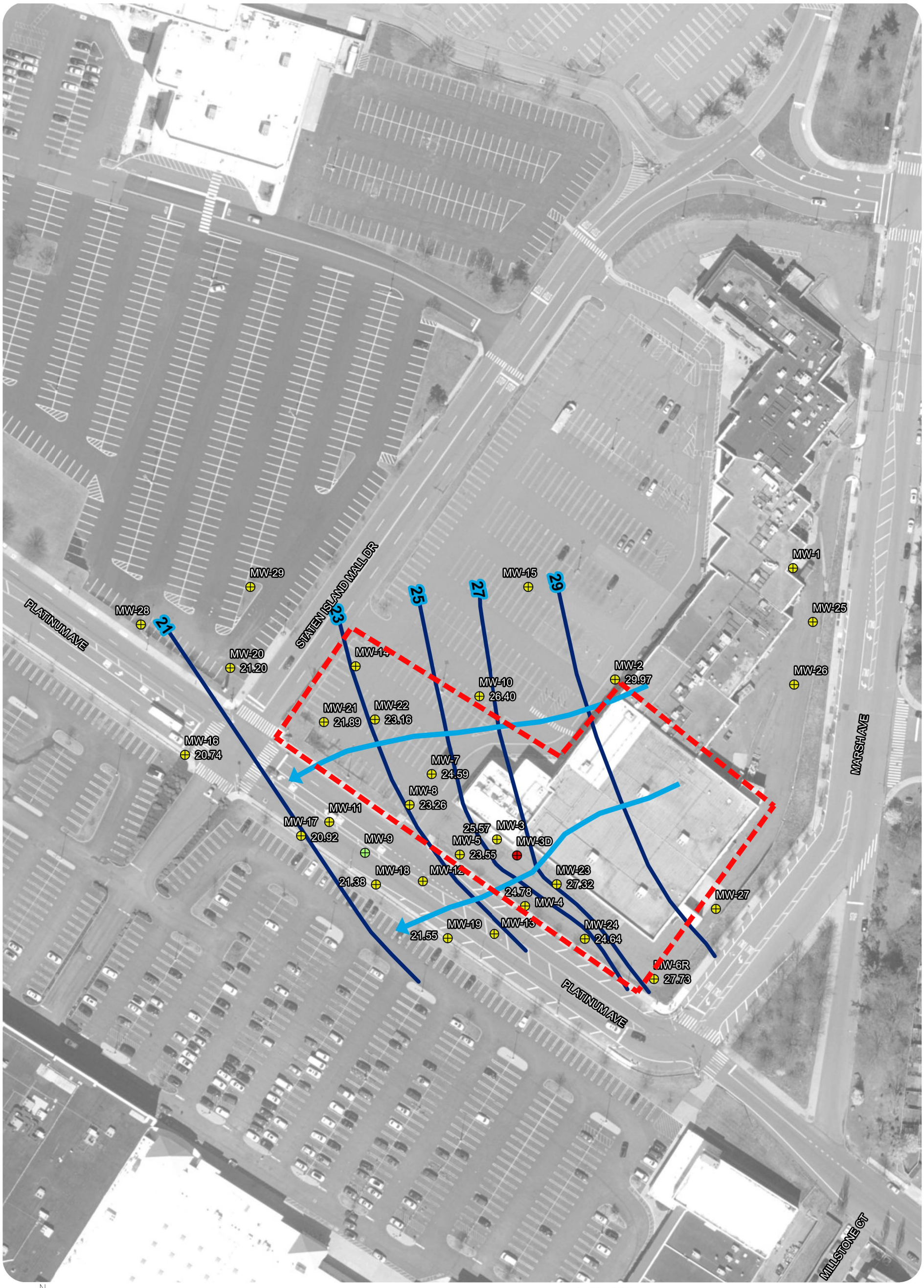

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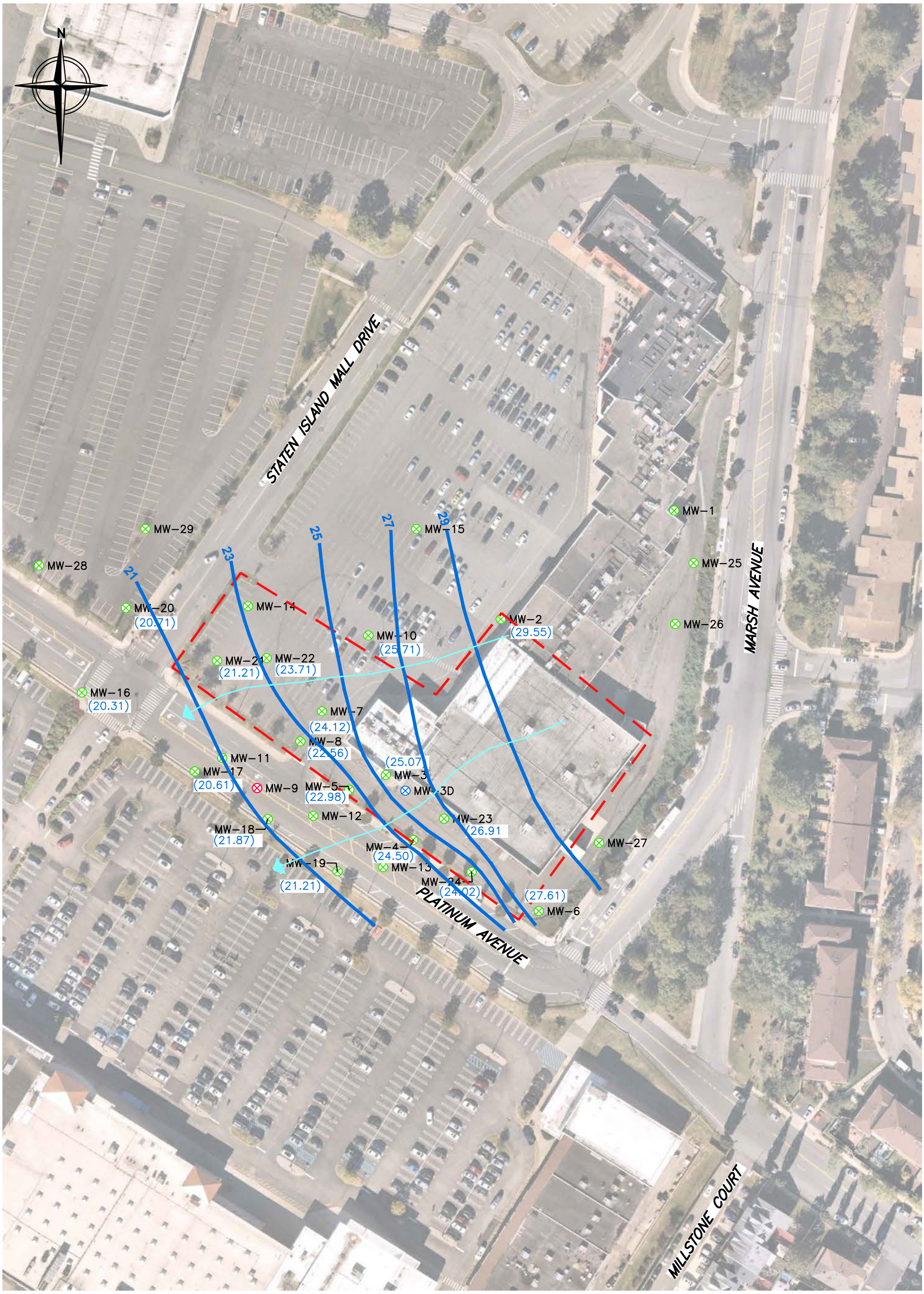
STATEN ISLAND, NEW YORK

GROUNDWATER CONTOURS AND FLOW DIRECTION - SEPT 28, 2021

FIGURE NO.
4A
PROJECT NO.
4201222

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\Border.dwg Layout: Figure 4 User: JISS.PHILIP May 31, 2023 - 12:37pm



LEGEND:

- MW-9 — ABANDONED WELL
- MW-3D — BEDROCK WELL
- MW-13 — OVERBURDEN WELL
- SITE BOUNDARY
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

0 100 200

SCALE IN FEET

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

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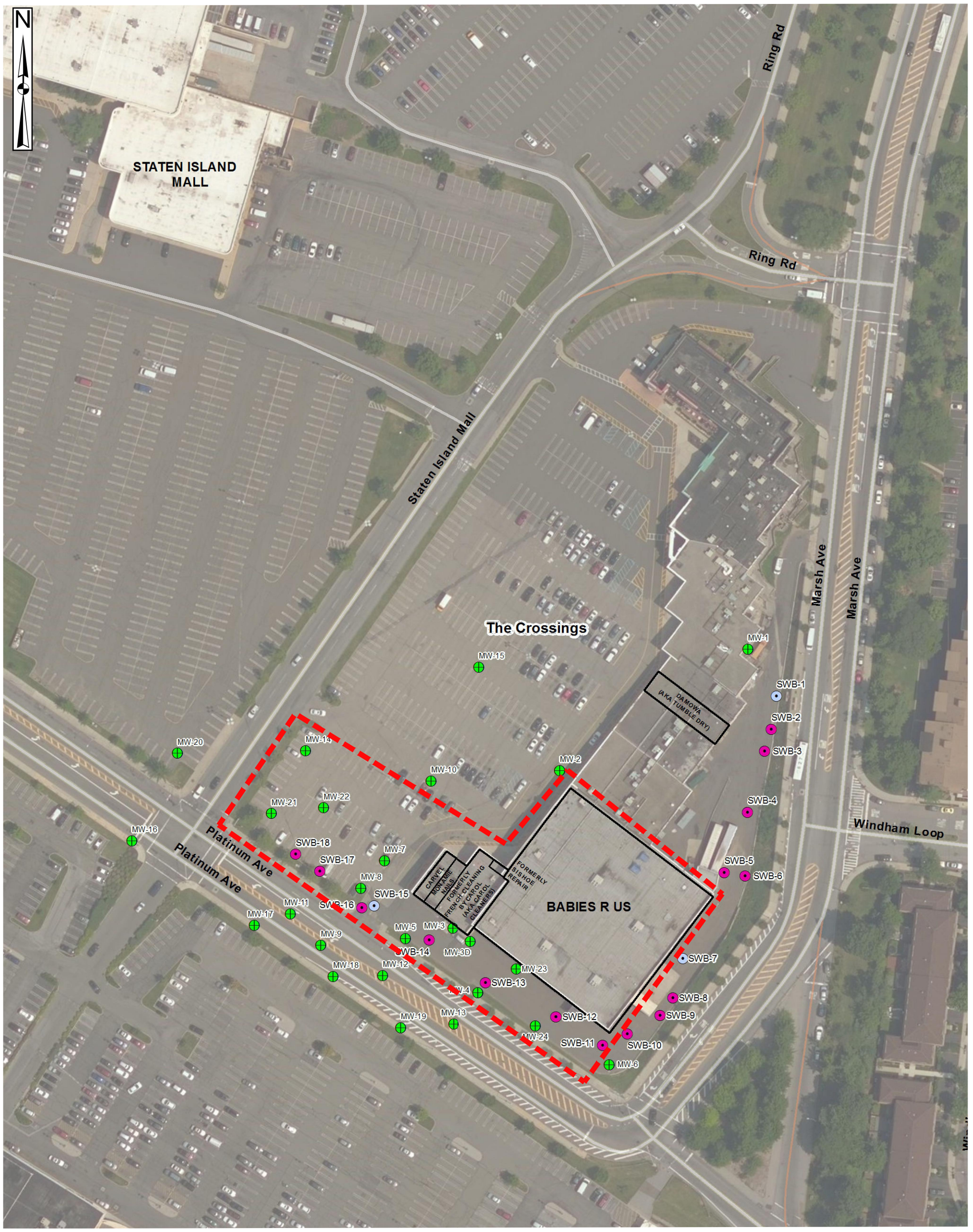
CAROL CLEANERS – THE CROSSINGS
STATEN ISLAND, NEW YORK
GROUNDWATER CONTOURS AND FLOW DIRECTION MARCH 3, 2025

FIGURE NO. **4**

PROJECT NO. 4213307

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 – FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-0X-GW CONTOURS MARCH25.DWG Layout: FIGURE 04 User: JISS.PHILIP Apr 08, 2025 – 1:45pm



Legend

- Monitor Well with ID
- Soil Boring with ID
- Temporary Well Point with ID
- Site Boundary

100 50 0 100 Feet

DATE OF ISSUE

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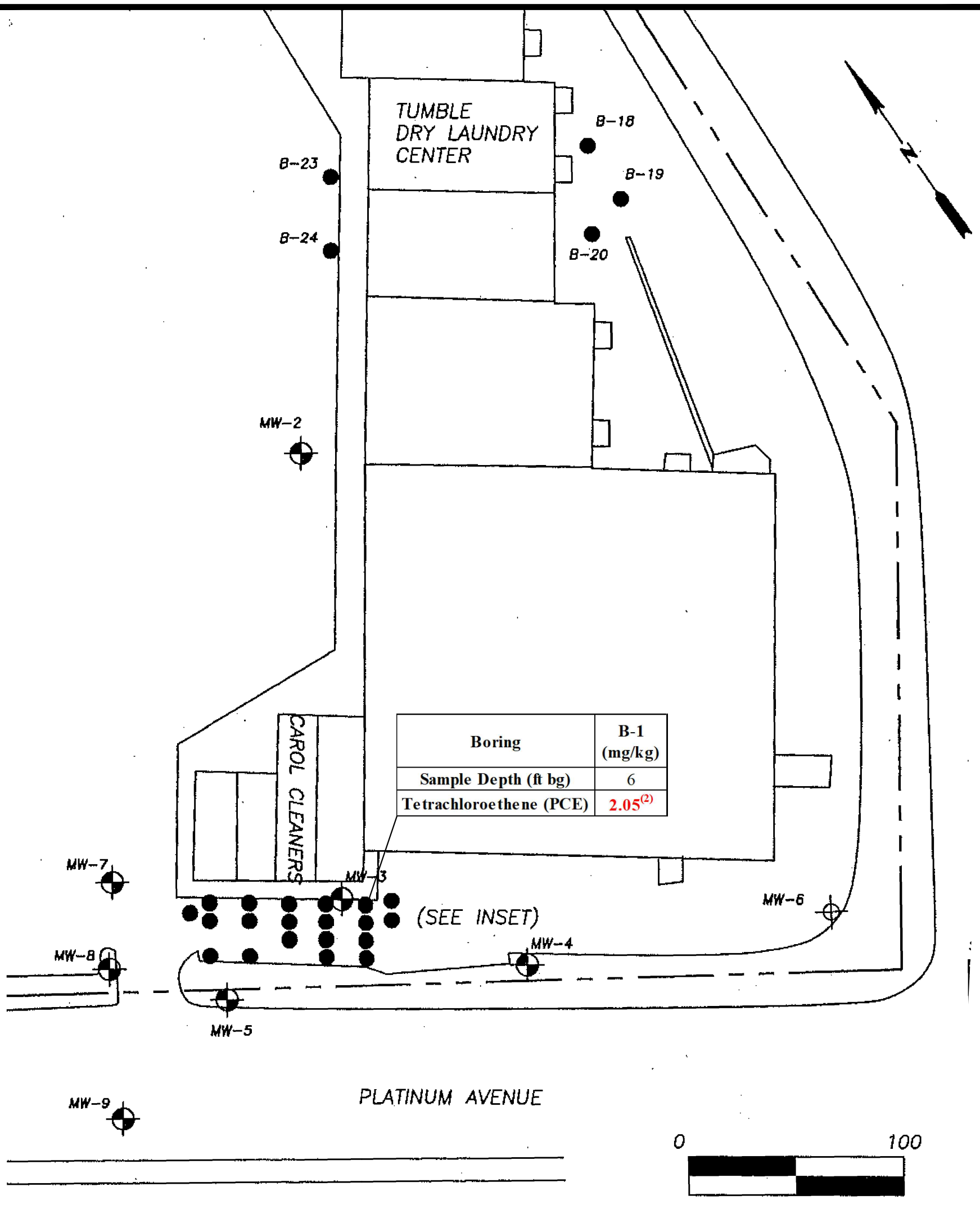
FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

HISTORICAL 2017 SOIL BORING LOCATIONS ASSOCIATED WITH CATCH BASIN INVESTIGATION

FIGURE NO. **5**

PROJECT NO. 4201222

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\Figures for SMP.dwg Layout: Figure 5D User: JISS.PHILIP Apr 25, 2025 - 4:37pm



	Tetrachloroethene (mg/kg)
NYSDEC Residential SCO	5.5
NYSDEC Commercial SCO	150
NYSDEC Protection of Groundwater SCO	1.3

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM FIGURE 3 PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 06/26/2022, AND INCLUDED WITHIN REMEDIAL INVESTIGATION REPORT JULY 2003.
2. CONCENTRATIONS EXPRESSED IN MILLIGRAMS PER KILOGRAM [MG/KG, EQUIVALENT TO PARTS PER MILLION (PPM)].
3. FROM TABLE 11-2. FINAL RESTRICTED USE SOIL CLEANUP OBJECTIVES (SCOS) AS PRESENTED IN 6 NYCRR PART 375-6.8(B).

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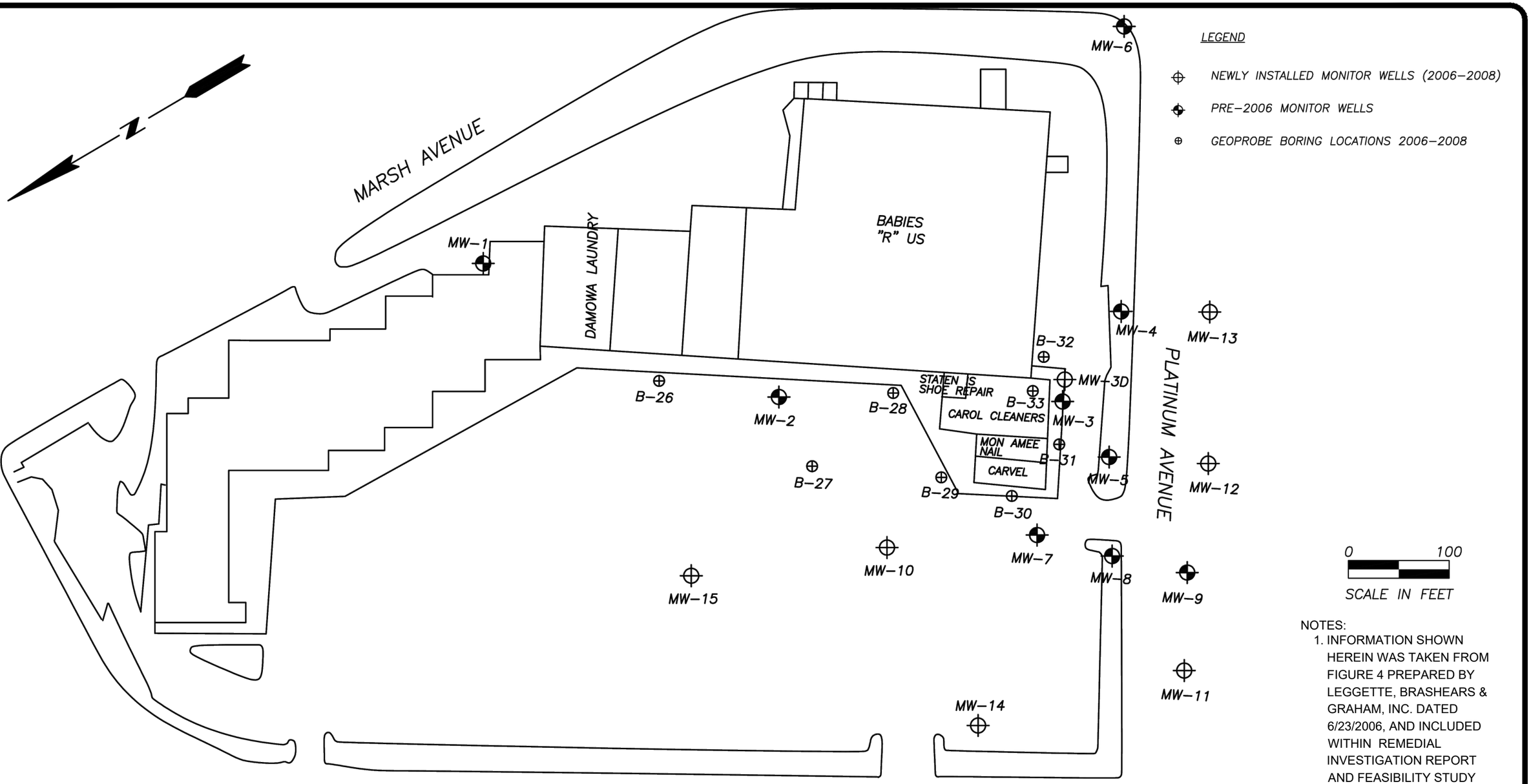
STATEN ISLAND, NEW YORK

HISTORICAL 2002 SOIL BORING LOCATIONS

FIGURE NO. **5A**
PROJECT NO. 4201222



NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM FIGURE 4 PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 6/23/2006, AND INCLUDED WITHIN REMEDIAL INVESTIGATION REPORT AND FEASIBILITY STUDY SUBMITTED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED JUNE 2009.

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HISTORICAL 2006 SOIL BORING LOCATIONS

SHEET NO.

5B

PROJECT NO.
4201222

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\Figures for SMP_recover.dwg Layout: Figure 5B User: JISS.PHILIP May 15, 2025 - 1:

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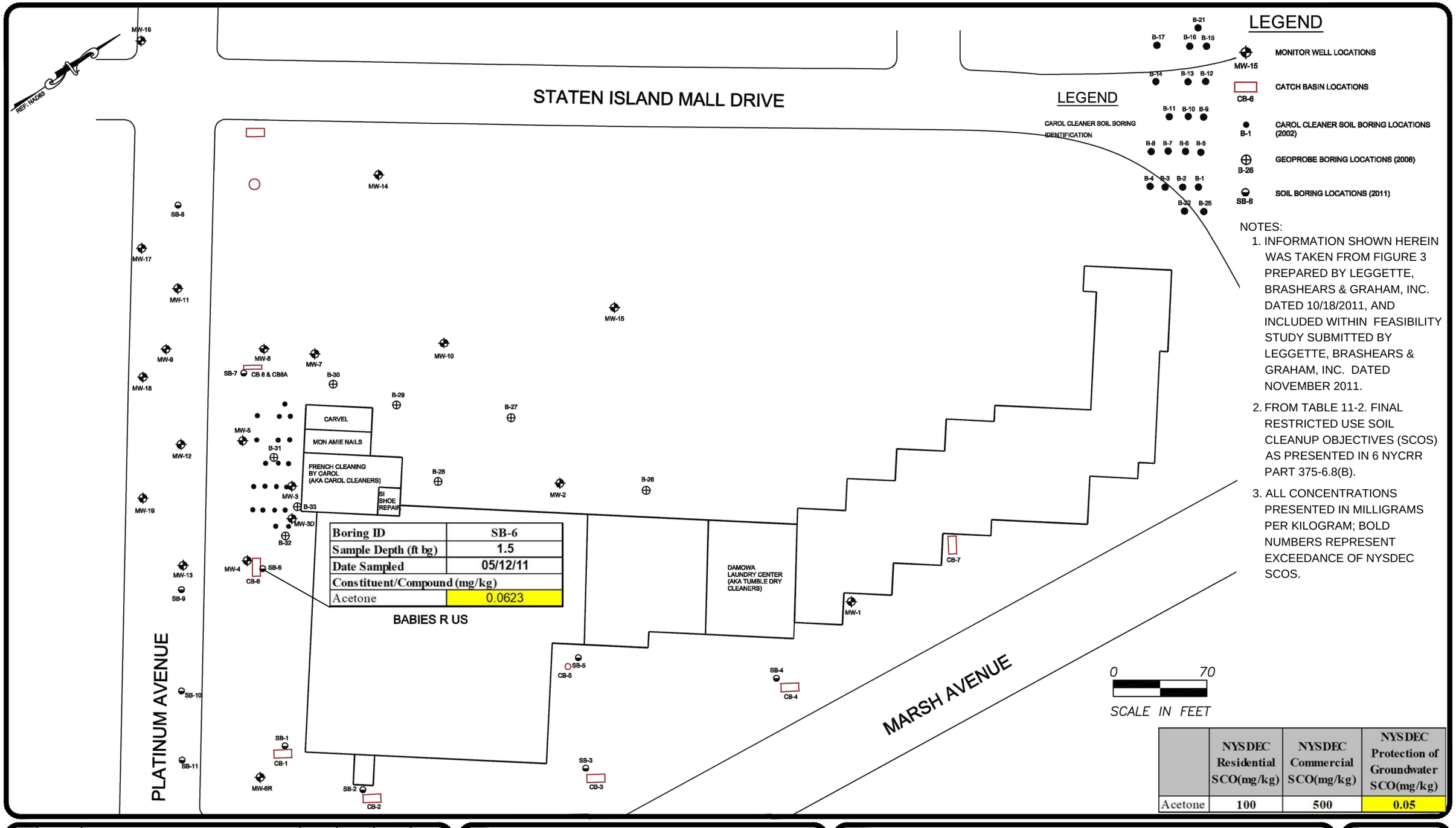

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM FIGURE 3 PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 10/18/2011, AND INCLUDED WITHIN FEASIBILITY STUDY SUBMITTED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED NOVEMBER 2011.
2. FROM TABLE 11-2. FINAL RESTRICTED USE SOIL CLEANUP OBJECTIVES (SCOS) AS PRESENTED IN 6 NYCRR PART 375-6.8(B).
3. ALL CONCENTRATIONS PRESENTED IN MILLIGRAMS PER KILOGRAM; BOLD NUMBERS REPRESENT EXCEEDANCE OF NYSDEC SCOS.

	NYSDEC Residential SCO(mg/kg)	NYSDEC Commercial SCO(mg/kg)	NYSDEC Protection of Groundwater SCO(mg/kg)
Acetone	100	500	0.05

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HISTORICAL 2011 SOIL BORING LOCATIONS

SHEET NO.
5C
PROJECT NO.
4201222

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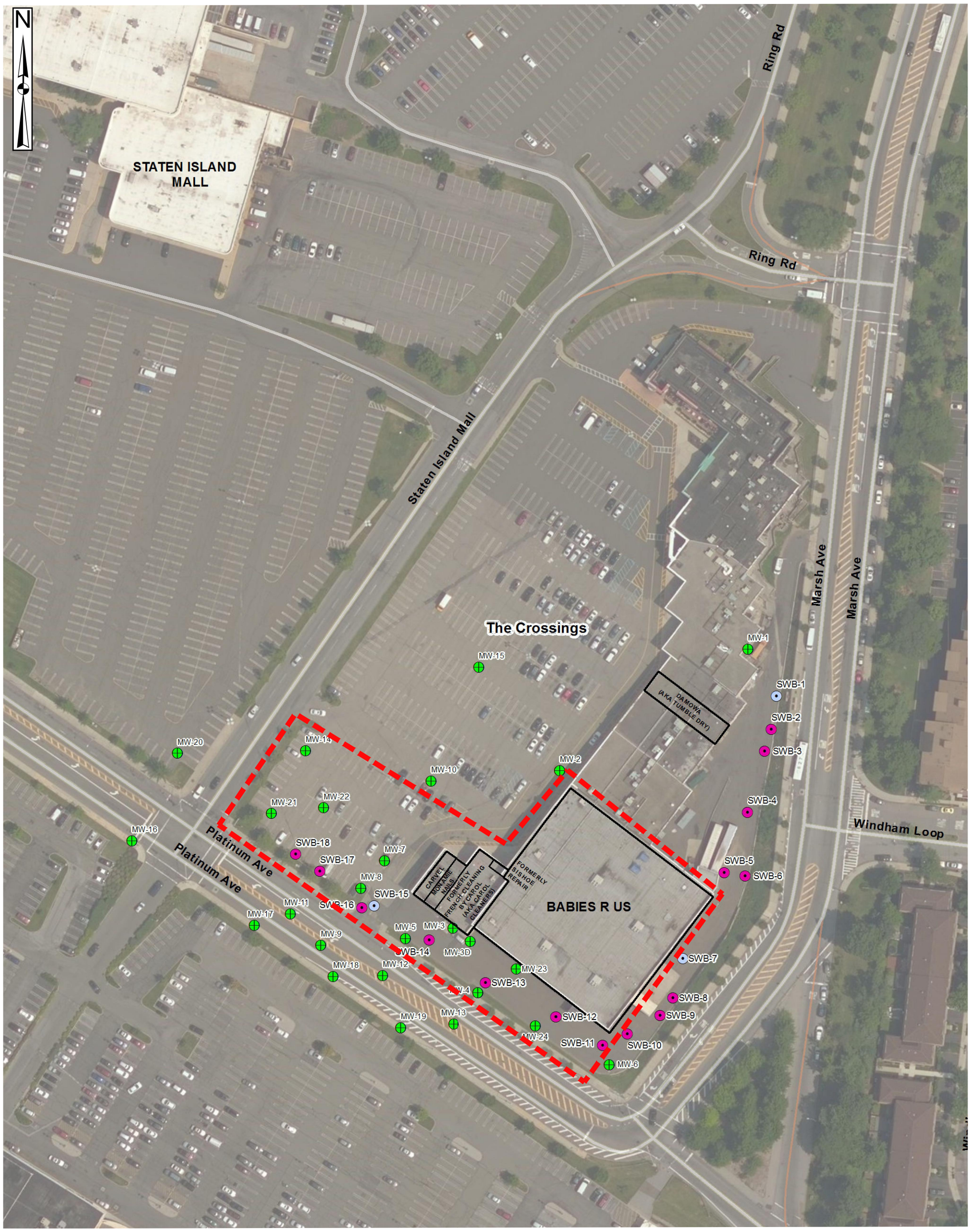

Legend

- Monitor Well with ID
- Soil Boring with ID
- Temporary Well Point with ID
- Site Boundary

100 50 0 100 Feet

DATE OF ISSUE

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FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

HISTORICAL 2017 SOIL BORING LOCATIONS ASSOCIATED WITH CATCH BASIN INVESTIGATION

FIGURE NO.
5D
PROJECT NO.
4201222

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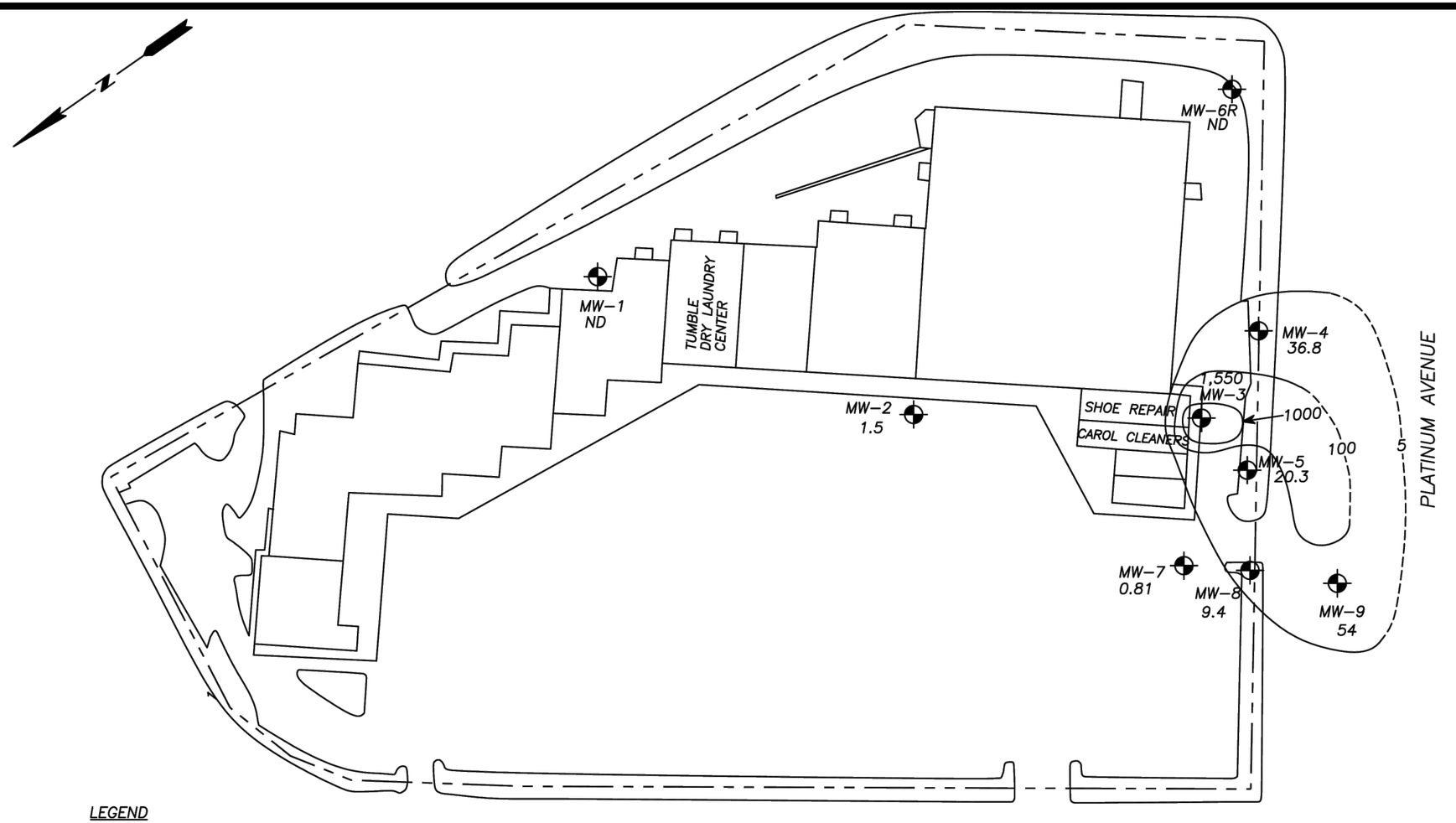

LEGEND

——— – – ———	*PROPERTY BOUNDARY*
MW–2 ⊕	*MONITOR WELL LOCATION WITH CORRESPONDING TRICHLOROETHENE CONCENTRATION IN PARTS PER BILLION (PPB)*
5	*TRICHLOROETHENE ISOCONCENTRATION CONTOUR IN PPB, DASHED WHERE INFERRED*
ND	*TRICHLOROETHENE NOT DETECTED*

SOURCE: "SURVEY MAP", BY NORTH ALLISON & ETTLINGER, CITY SURVEYORS, 3/27/00

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 08/06/2004.

0 *100*

SCALE IN FEET

ERICH ZIMMERMAN, P.E.

N.Y.P.E. Lic. No. 081831–01 Date

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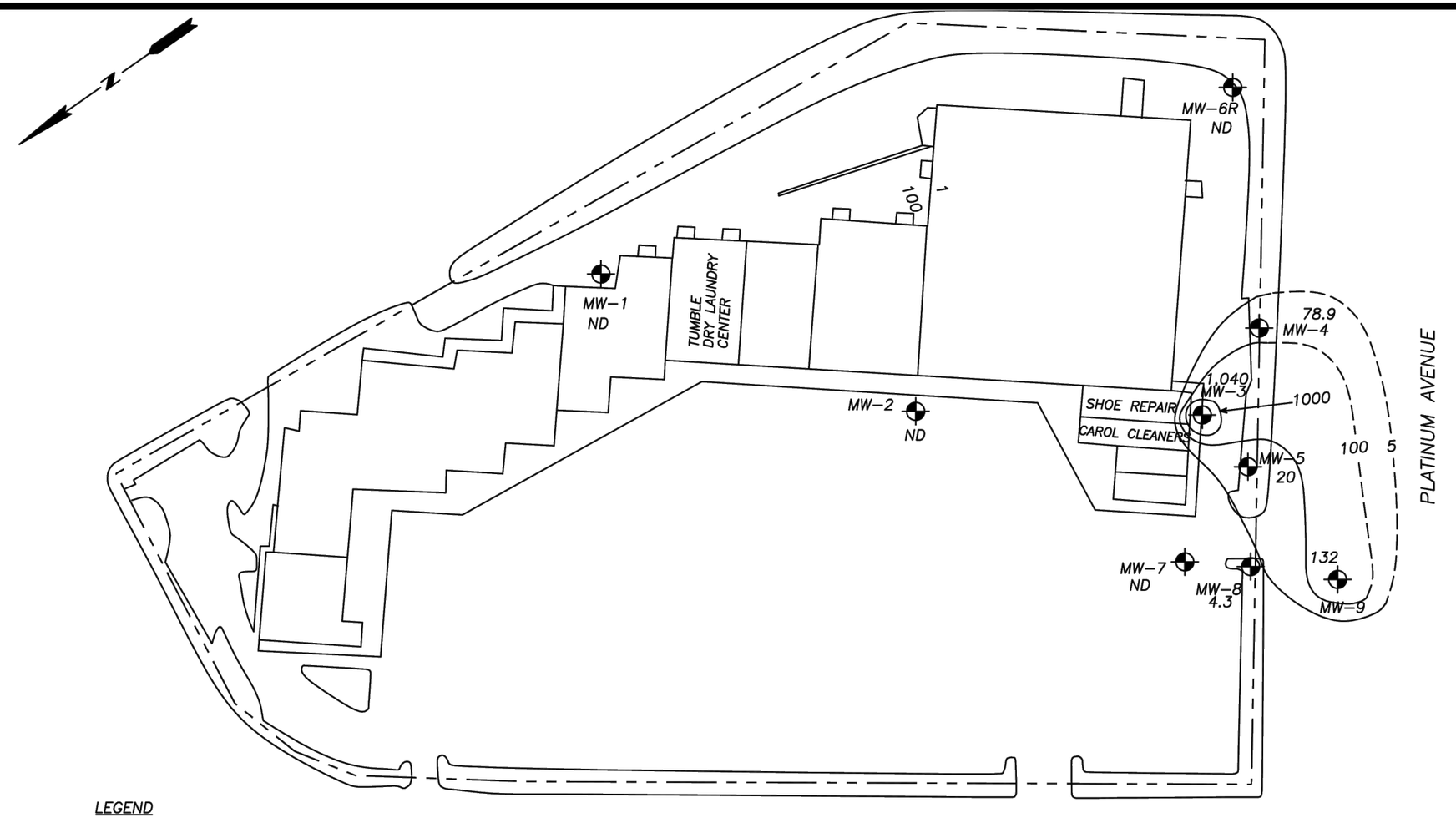
FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

TRICHLOROETHENE CONCENTRATIONS IN GROUNDWATER ON 7/21/2004

PREPARED BY: LBG ENGINEERING SERVICES, PC

SHEET NO.
6A
PROJECT NO.
4201222

1" 1/2" 0" 1"



LEGEND

——— – – ———	*PROPERTY BOUNDARY*
MW–2	*MONITOR WELL LOCATION WITH CORRESPONDING CIS–1,2 DICHLOROETHENE CONCENTRATION IN PARTS PER BILLION (PPB)*
5	*CIS–1,2 DICHLOROETHENE ISOCONCENTRATION CONTOUR IN PPB, DASHED WHERE INFERRED*
ND	*CIS–1,2 DICHLOROETHENE NOT DETECTED*

0 *100*

SCALE IN FEET

SOURCE: "SURVEY MAP", BY NORTH ALLISON & ETTLINGER, CITY SURVEYORS, 3/27/00

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 08/06/2004.

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N.Y.P.E. Lic. No. 081831–01 Date

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FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

CIS-1,2 DICHLOROETHENE CONCENTRATIONS IN GROUNDWATER ON 7/21/2004

PREPARED BY: LBG ENGINEERING SERVICES, PC

SHEET NO.
6B
PROJECT NO.
4201222

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 – FORMER CAROL CLEANERS SITE_Project Drawings\Figures 2004.dwg Layout: 6B User: JISS.PHILIP Jul 01, 2024 – 4:21pm

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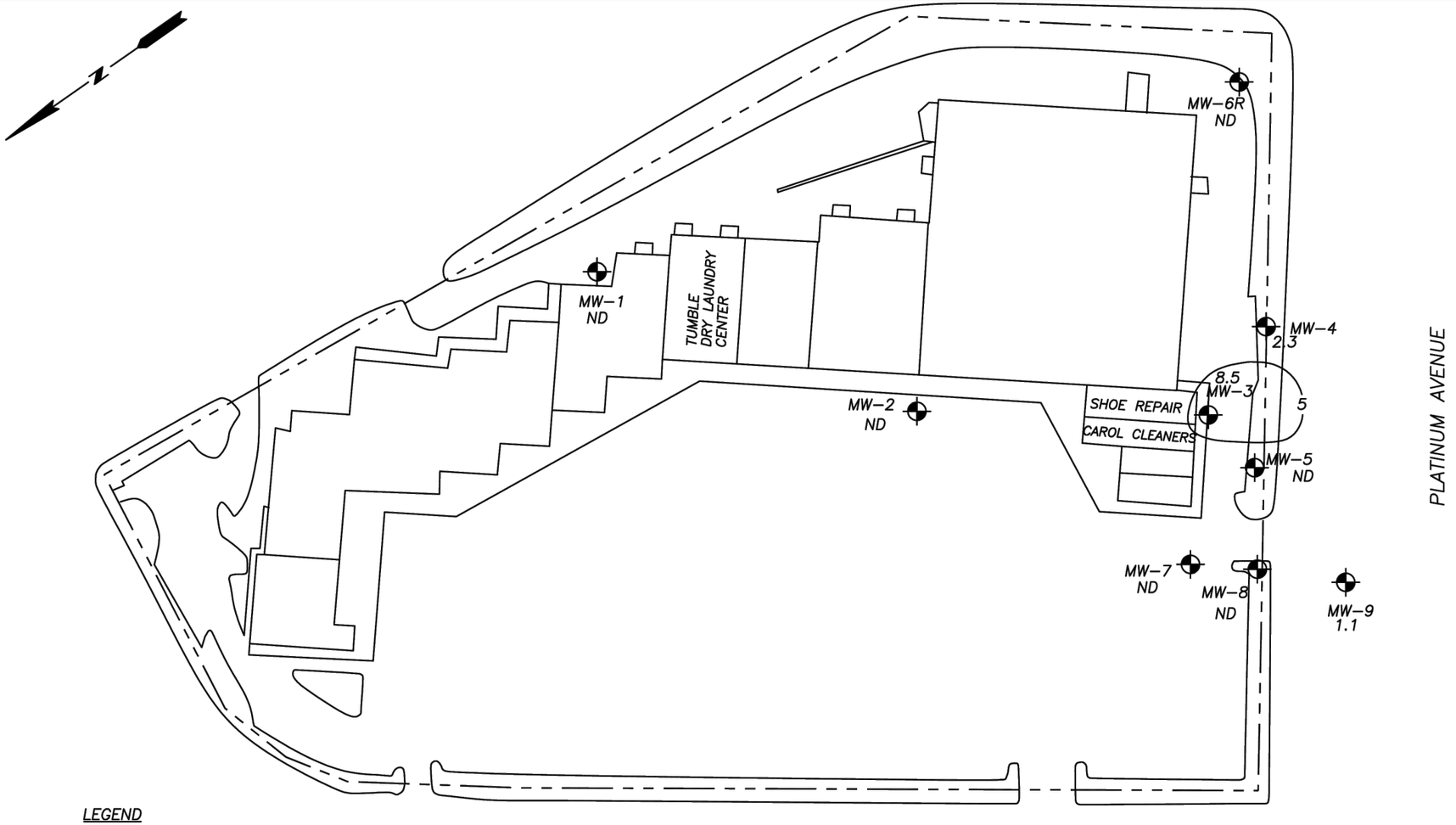

LEGEND

PROPERTY BOUNDARY

MW-2 — MONITOR WELL LOCATION WITH CORRESPONDING TRANS-1,2 DICHLOROETHENE CONCENTRATION IN PARTS PER BILLION (PPB)

5 — TRANS-1,2 DICHLOROETHENE ISOCONCENTRATION CONTOUR IN PPB, DASHED WHERE INFERRED

ND — TRANS-1,2 DICHLOROETHENE NOT DETECTED

0 100

SCALE IN FEET

SOURCE: "SURVEY MAP", BY NORTH ALLISON & ETTLINGER, CITY SURVEYORS, 3/27/00

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 08/06/2004.

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STATEN ISLAND, NEW YORK

TRANS-1,2 DICHLOROETHENE CONCENTRATIONS IN GROUNDWATER ON 7/21/2004

PREPARED BY: LBG ENGINEERING SERVICES, PC

SHEET NO. 6C

PROJECT NO. 4201222

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\Figures 2004.dwg Layout: 6C User: JISS.PHILIP Jul 01, 2024 - 4:22pm

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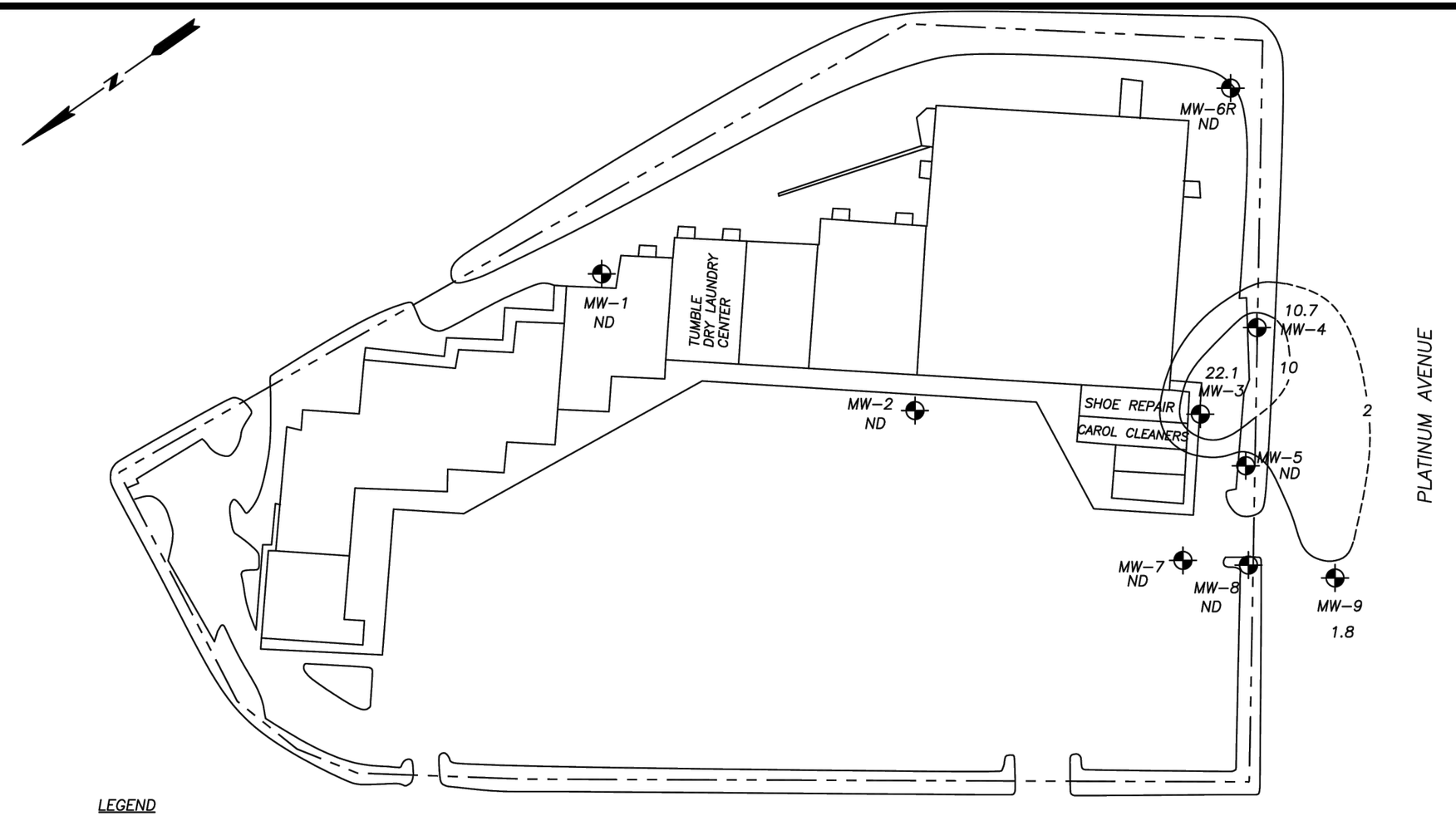

LEGEND

PROPERTY BOUNDARY

MW–2 — *MONITOR WELL LOCATION WITH CORRESPONDING VINYL CHLORIDE CONCENTRATION IN PARTS PER BILLION (PPB)*

VINYL CHLORIDE ISOCONCENTRATION CONTOUR IN PPB, DASHED WHERE INFERRED

ND — *VINYL CHLORIDE NOT DETECTED*

0 100

SCALE IN FEET

SOURCE: "SURVEY MAP", BY NORTH ALLISON & ETTLINGER, CITY SURVEYORS, 3/27/00

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 08/06/2004.

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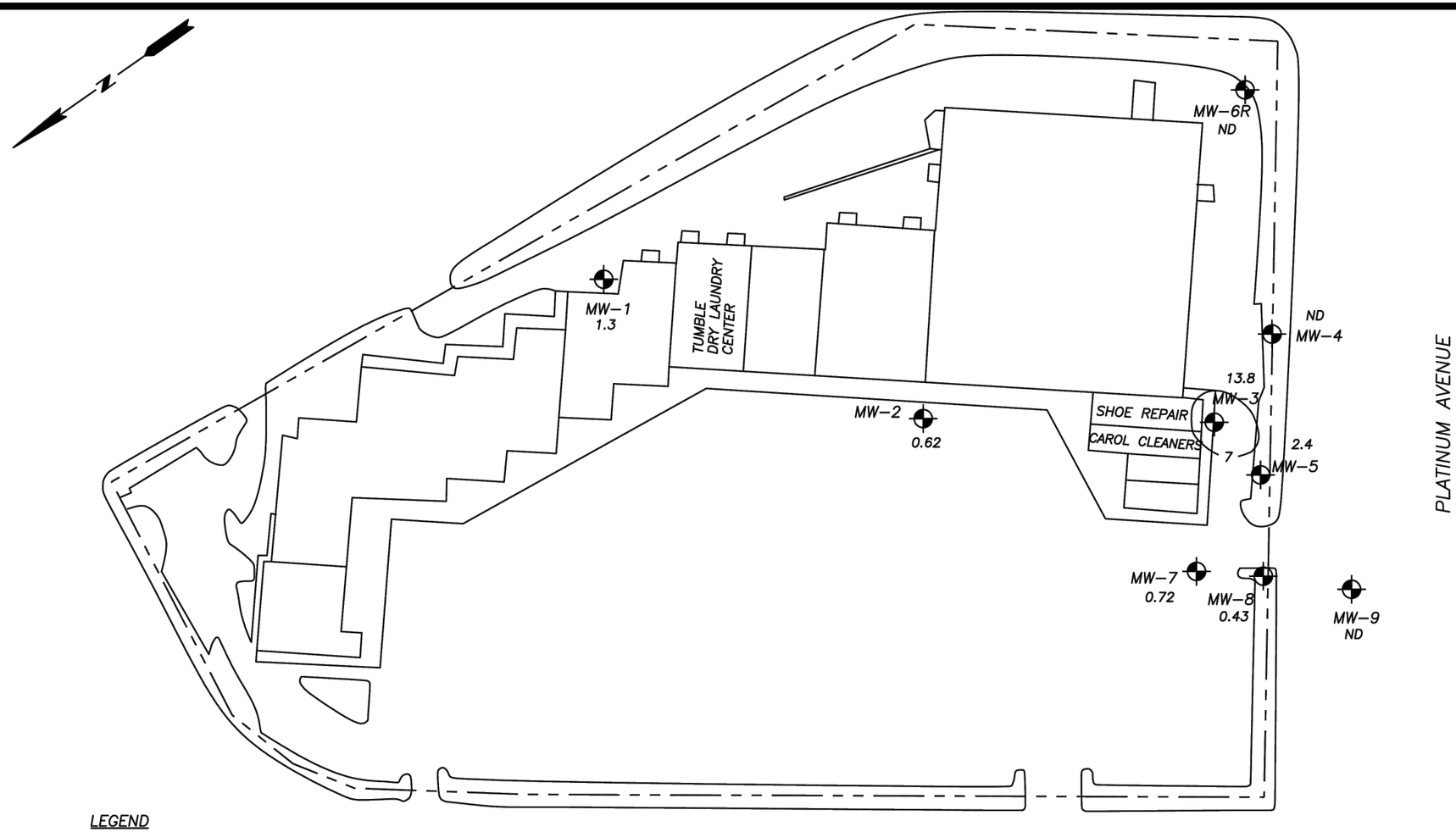
STATEN ISLAND, NEW YORK

VINYL CHLORIDE CONCENTRATIONS IN GROUNDWATER ON 7/21/2004

PREPARED BY: LBG ENGINEERING SERVICES, PC

SHEET NO.
6D
PROJECT NO.
4201222



LEGEND

PROPERTY BOUNDARY

MW-2 — MONITOR WELL LOCATION WITH CORRESPONDING CHLOROFORM CONCENTRATION IN PARTS PER BILLION (PPB)

7 — CHLOROFORM ISOCONCENTRATION CONTOUR IN PPB

ND — CHLOROFORM ISOCONCENTRATION NOT DETECTED

0 100

SCALE IN FEET

SOURCE: "SURVEY MAP", BY NORTH ALLISON & ETTLINGER, CITY SURVEYORS, 3/27/00

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 08/06/2004.

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FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

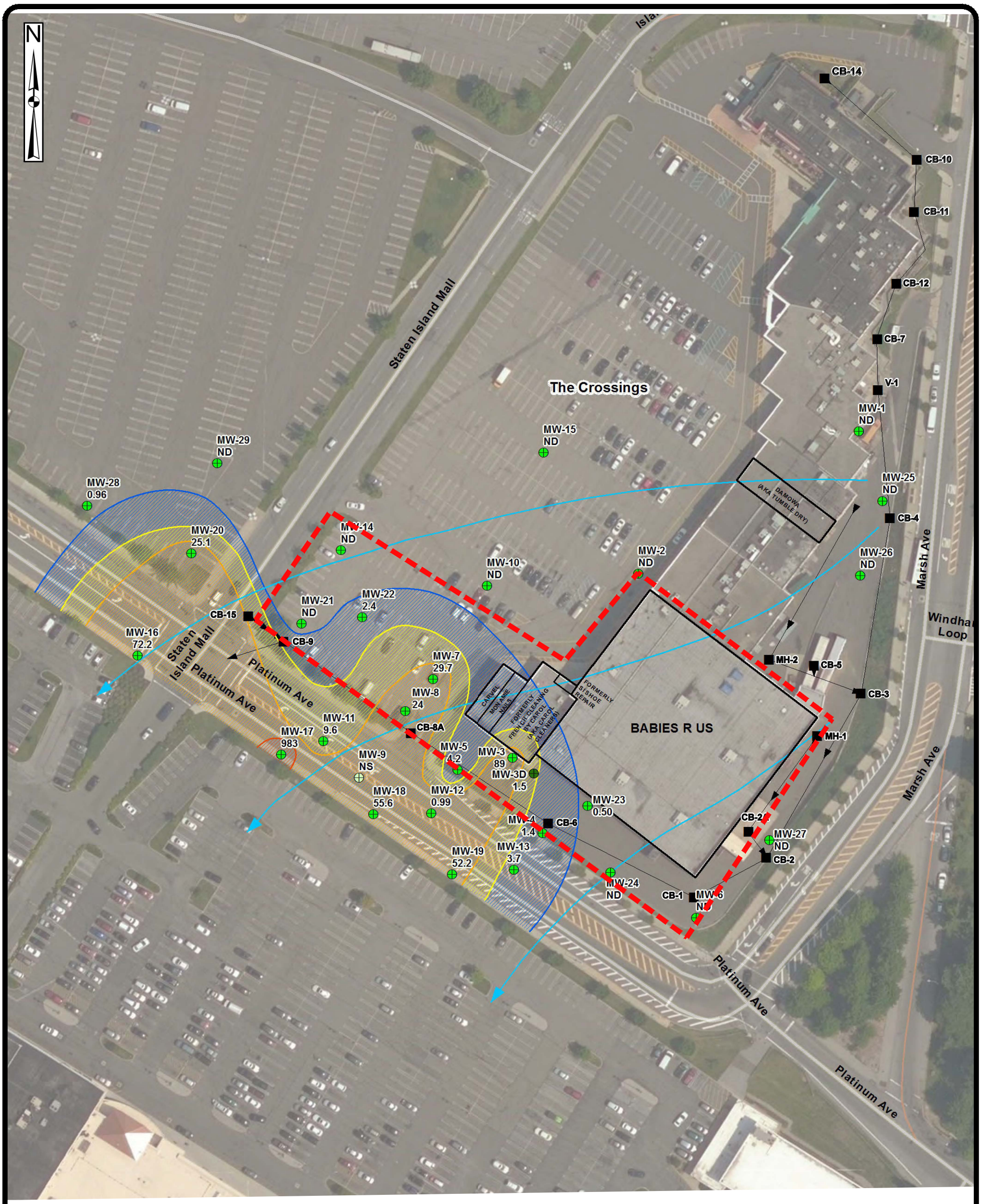
CHLOROFORM CONCENTRATIONS IN GROUNDWATER ON 7/21/2004

PREPARED BY: LBG ENGINEERING SERVICES, PC

SHEET NO. 6E

PROJECT NO. 4201222

1" 1/2" 0" 1"



Legend

- MW-1 ND = Monitor Well with ID and Concentration in ppb
- MW-3D 1.5 = Bedrock Monitor Well with ID and Concentration in ppb
- MW-9 = Abandoned Monitor Well
- CB-4 = Stormwater System Component with Arrow Indicating Direction of Flow

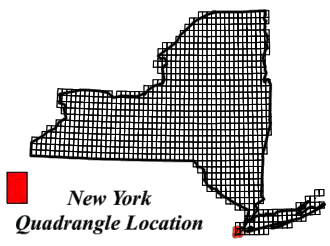
PCE Concentration Contour (ppb)

- ≥1
- ≥5
- ≥10
- ≥100

= Approximate Groundwater Flow Direction

— — Site Boundary

100 50 0 100 Feet



Notes: ND = Non-detect; NS = Not Sampled; J = Estimated Value; MW-3D is completed in bedrock and was not used for contours.

DATE OF ISSUE _____ DRAWN BY _____ CHECKED BY _____
DESIGNED BY _____ APPROVED BY _____

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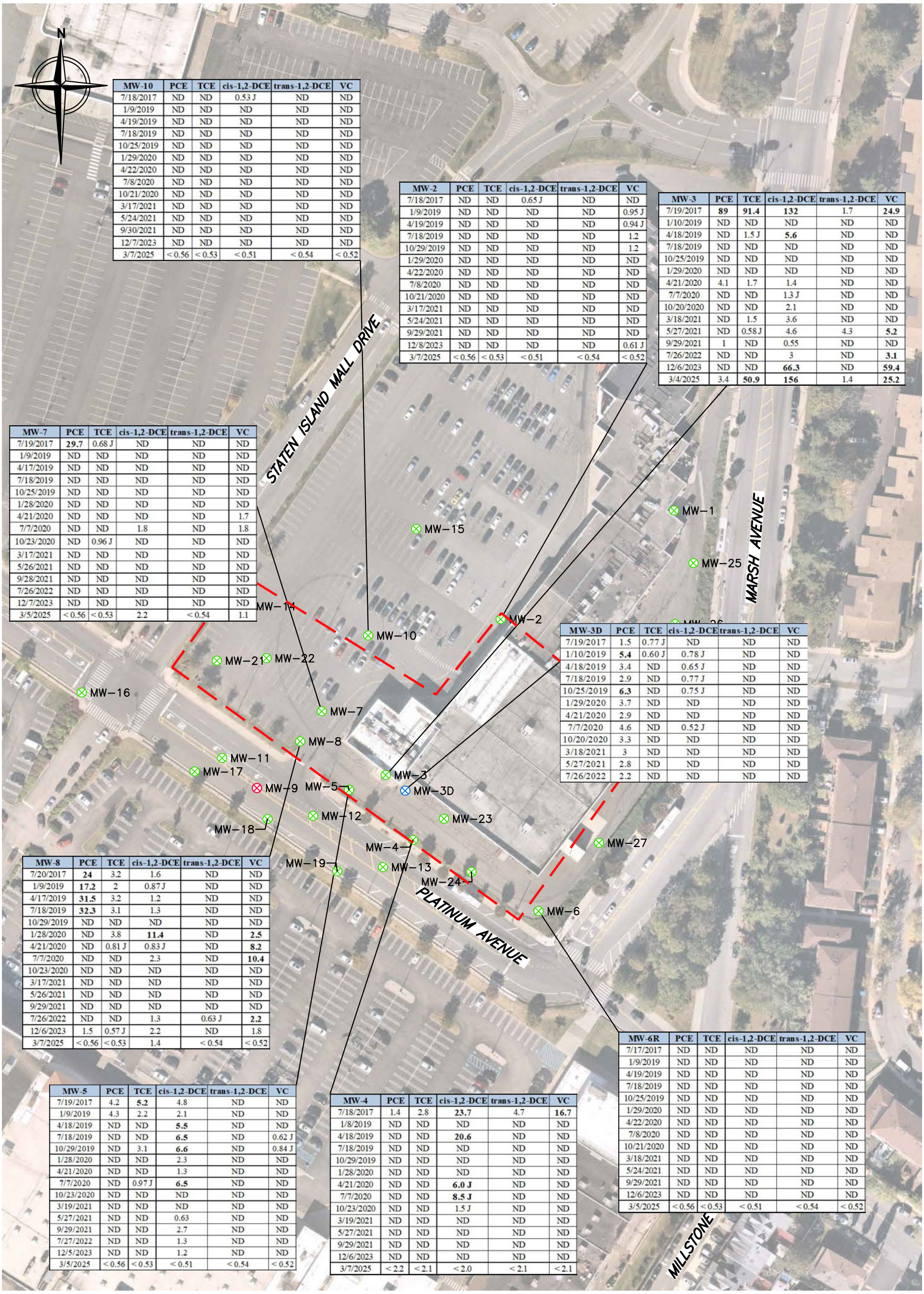
GGP STATEN ISLAND MALL, LLC
FORMER CAROL CLEANERS SITE
STATEN ISLAND, NEW YORK

PCE ISOPLETH MAP
JULY 2017

FIGURE NO. 7
PROJECT NO. 4201222



MW-10	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/18/2017	ND	ND	0.53 J	ND	ND
1/9/2019	ND	ND	ND	ND	ND
4/19/2019	ND	ND	ND	ND	ND
7/18/2019	ND	ND	ND	ND	ND
10/25/2019	ND	ND	ND	ND	ND
1/29/2020	ND	ND	ND	ND	ND
4/22/2020	ND	ND	ND	ND	ND
7/8/2020	ND	ND	ND	ND	ND
10/21/2020	ND	ND	ND	ND	ND
3/17/2021	ND	ND	ND	ND	ND
5/24/2021	ND	ND	ND	ND	ND
9/30/2021	ND	ND	ND	ND	ND
12/7/2023	ND	ND	ND	ND	ND
3/7/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-2	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/18/2017	ND	ND	0.65 J	ND	ND
1/9/2019	ND	ND	ND	ND	0.95 J
4/19/2019	ND	ND	ND	ND	0.94 J
7/18/2019	ND	ND	ND	ND	1.2
10/29/2019	ND	ND	ND	ND	1.2
1/29/2020	ND	ND	ND	ND	ND
4/22/2020	ND	ND	ND	ND	ND
7/8/2020	ND	ND	ND	ND	ND
10/21/2020	ND	ND	ND	ND	ND
3/17/2021	ND	ND	ND	ND	ND
5/24/2021	ND	ND	ND	ND	ND
9/29/2021	ND	ND	ND	ND	ND
12/8/2023	ND	ND	ND	ND	0.61 J
3/7/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-3	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/19/2017	**89**	**91.4**	**132**	1.7	**24.9**
1/10/2019	ND	ND	ND	ND	ND
4/18/2019	ND	1.5 J	**5.6**	ND	ND
7/18/2019	ND	ND	ND	ND	ND
10/25/2019	ND	ND	ND	ND	ND
1/29/2020	ND	ND	ND	ND	ND
4/21/2020	4.1	1.7	1.4	ND	ND
7/7/2020	ND	ND	1.3 J	ND	ND
10/20/2020	ND	ND	2.1	ND	ND
3/18/2021	ND	1.5	3.6	ND	ND
5/27/2021	ND	0.58 J	4.6	4.3	**5.2**
9/29/2021	1	ND	0.55	ND	ND
7/26/2022	ND	ND	3	ND	**3.1**
12/6/2023	ND	ND	**66.3**	ND	**59.4**
3/4/2025	3.4	**50.9**	**156**	1.4	**25.2**

MW-7	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/19/2017	**29.7**	0.68 J	ND	ND	ND
1/9/2019	ND	ND	ND	ND	ND
4/17/2019	ND	ND	ND	ND	ND
7/18/2019	ND	ND	ND	ND	ND
10/25/2019	ND	ND	ND	ND	ND
1/28/2020	ND	ND	ND	ND	ND
4/21/2020	ND	ND	ND	ND	1.7
7/7/2020	ND	ND	1.8	ND	1.8
10/23/2020	ND	0.96 J	ND	ND	ND
3/17/2021	ND	ND	ND	ND	ND
5/26/2021	ND	ND	ND	ND	ND
9/28/2021	ND	ND	ND	ND	ND
7/26/2022	ND	ND	ND	ND	ND
12/7/2023	ND	ND	ND	ND	ND
3/5/2025	< 0.56	< 0.53	2.2	< 0.54	1.1

MW-3D	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/19/2017	1.5	0.77 J	ND	ND	ND
1/10/2019	**5.4**	0.60 J	0.78 J	ND	ND
4/18/2019	3.4	ND	0.65 J	ND	ND
7/18/2019	2.9	ND	0.77 J	ND	ND
10/25/2019	**6.3**	ND	0.75 J	ND	ND
1/29/2020	3.7	ND	ND	ND	ND
4/21/2020	2.9	ND	ND	ND	ND
7/7/2020	4.6	ND	0.52 J	ND	ND
10/20/2020	3.3	ND	ND	ND	ND
3/18/2021	3	ND	ND	ND	ND
5/27/2021	2.8	ND	ND	ND	ND
7/26/2022	2.2	ND	ND	ND	ND

MW-8	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/20/2017	**24**	3.2	1.6	ND	ND
1/9/2019	**17.2**	2	0.87 J	ND	ND
4/17/2019	**31.5**	3.2	1.2	ND	ND
7/18/2019	**32.3**	3.1	1.3	ND	ND
10/29/2019	ND	ND	ND	ND	ND
1/28/2020	ND	3.8	**11.4**	ND	**2.5**
4/21/2020	ND	0.81 J	0.83 J	ND	**8.2**
7/7/2020	ND	ND	2.3	ND	**10.4**
10/23/2020	ND	ND	ND	ND	ND
3/17/2021	ND	ND	ND	ND	ND
5/26/2021	ND	ND	ND	ND	ND
9/29/2021	ND	ND	ND	ND	ND
7/26/2022	ND	ND	1.3	0.63 J	**2.2**
12/6/2023	1.5	0.57 J	2.2	ND	1.8
3/7/2025	< 0.56	< 0.53	1.4	< 0.54	< 0.52

MW-6R	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/17/2017	ND	ND	ND	ND	ND
1/9/2019	ND	ND	ND	ND	ND
4/19/2019	ND	ND	ND	ND	ND
7/18/2019	ND	ND	ND	ND	ND
10/25/2019	ND	ND	ND	ND	ND
1/29/2020	ND	ND	ND	ND	ND
4/22/2020	ND	ND	ND	ND	ND
7/8/2020	ND	ND	ND	ND	ND
10/21/2020	ND	ND	ND	ND	ND
3/18/2021	ND	ND	ND	ND	ND
5/24/2021	ND	ND	ND	ND	ND
9/29/2021	ND	ND	ND	ND	ND
12/6/2023	ND	ND	ND	ND	ND
3/5/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-5	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/19/2017	4.2	**5.2**	4.8	ND	ND
1/9/2019	4.3	2.2	2.1	ND	ND
4/18/2019	ND	ND	**5.5**	ND	ND
7/18/2019	ND	ND	**6.5**	ND	0.62 J
10/29/2019	ND	3.1	**6.6**	ND	0.84 J
1/28/2020	ND	ND	2.3	ND	ND
4/21/2020	ND	ND	1.3	ND	ND
7/7/2020	ND	0.97 J	**6.5**	ND	ND
10/23/2020	ND	ND	ND	ND	ND
3/19/2021	ND	ND	ND	ND	ND
5/27/2021	ND	ND	0.63	ND	ND
9/29/2021	ND	ND	2.7	ND	ND
7/27/2022	ND	ND	1.3	ND	ND
12/5/2023	ND	ND	1.2	ND	ND
3/5/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-4	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/18/2017	1.4	2.8	**23.7**	4.7	**16.7**
1/8/2019	ND	ND	ND	ND	ND
4/18/2019	ND	ND	**20.6**	ND	ND
7/18/2019	ND	ND	ND	ND	ND
10/29/2019	ND	ND	ND	ND	ND
1/28/2020	ND	ND	ND	ND	ND
4/21/2020	ND	ND	**6.0 J**	ND	ND
7/7/2020	ND	ND	**8.5 J**	ND	ND
10/23/2020	ND	ND	1.5 J	ND	ND
3/19/2021	ND	ND	ND	ND	ND
5/27/2021	ND	ND	ND	ND	ND
9/29/2021	ND	ND	ND	ND	ND
12/6/2023	ND	ND	ND	ND	ND
3/7/2025	< 2.2	< 2.1	< 2.0	< 2.1	< 2.1

LEGEND:

- ABANDONED WELL
- BEDROCK WELL
- OVERBURDEN WELL
- SITE BOUNDARY

0 100 200

SCALE IN FEET

NOTES:

1. PARAMETERS SAMPLED INCLUDE TETRACHLOROETHENE (PCE), TRICHLOROETHENE (TCE), CIS-1,2-DICHLOROETHENE (cis-1,2-DCE), TRANS-1,2-DICHLOROETHENE (trans-1,2-DCE), AND VINYL CHLORIDE (VC).
2. CONCENTRATIONS MEASURED IN ug/L.
3. BOLDED VALUES INDICATED EXCEEDANCES.

NYSDEC Groundwater Standards				
PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
5	5	5	5	2

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

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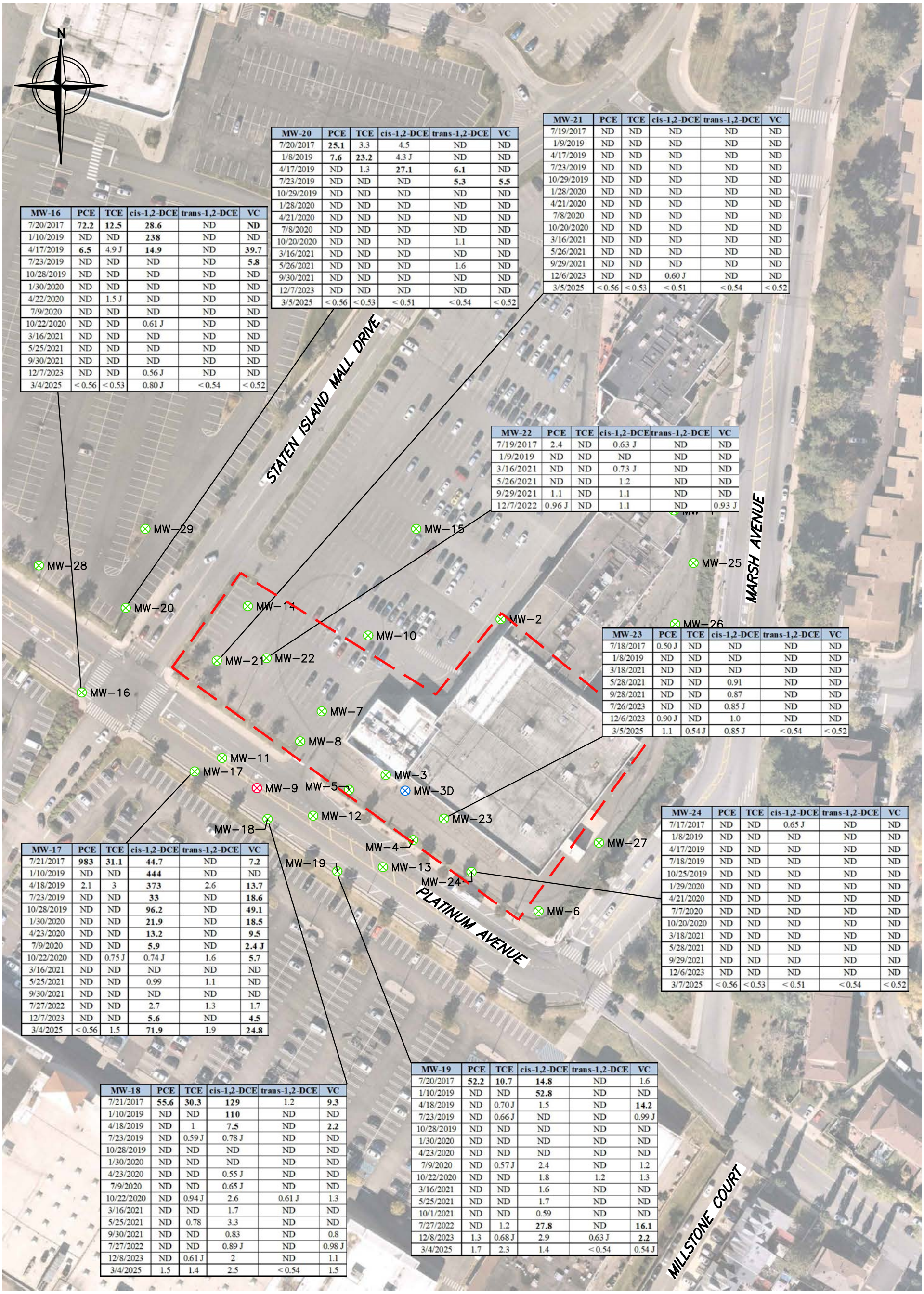
GGP STATEN ISLAND MALL, LLC
CAROL CLEANERS – THE CROSSINGS
STATEN ISLAND, NEW YORK
GROUNDWATER SAMPLING RESULTS
JULY 2017 THROUGH MARCH 2025

FIGURE NO.
8A
PROJECT NO.
4213307



MW-16	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/20/2017	**72.2**	**12.5**	**28.6**	ND	**ND**
1/10/2019	ND	ND	**238**	ND	ND
4/17/2019	**6.5**	4.9 J	**14.9**	ND	**39.7**
7/23/2019	ND	ND	ND	ND	**5.8**
10/28/2019	ND	ND	ND	ND	ND
1/30/2020	ND	ND	ND	ND	ND
4/22/2020	ND	1.5 J	ND	ND	ND
7/9/2020	ND	ND	ND	ND	ND
10/22/2020	ND	ND	0.61 J	ND	ND
3/16/2021	ND	ND	ND	ND	ND
5/25/2021	ND	ND	ND	ND	ND
9/30/2021	ND	ND	ND	ND	ND
12/7/2023	ND	ND	0.56 J	ND	ND
3/4/2025	< 0.56	< 0.53	0.80 J	< 0.54	< 0.52

MW-20	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/20/2017	**25.1**	3.3	4.5	ND	ND
1/8/2019	**7.6**	**23.2**	4.3 J	ND	ND
4/17/2019	ND	1.3	**27.1**	**6.1**	ND
7/23/2019	ND	ND	ND	**5.3**	**5.5**
10/29/2019	ND	ND	ND	ND	ND
1/28/2020	ND	ND	ND	ND	ND
4/21/2020	ND	ND	ND	ND	ND
7/8/2020	ND	ND	ND	ND	ND
10/20/2020	ND	ND	ND	1.1	ND
3/16/2021	ND	ND	ND	ND	ND
5/26/2021	ND	ND	ND	1.6	ND
9/30/2021	ND	ND	ND	ND	ND
12/7/2023	ND	ND	ND	ND	ND
3/5/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-21	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/19/2017	ND	ND	ND	ND	ND
1/9/2019	ND	ND	ND	ND	ND
4/17/2019	ND	ND	ND	ND	ND
7/23/2019	ND	ND	ND	ND	ND
10/29/2019	ND	ND	ND	ND	ND
1/28/2020	ND	ND	ND	ND	ND
4/21/2020	ND	ND	ND	ND	ND
7/8/2020	ND	ND	ND	ND	ND
10/20/2020	ND	ND	ND	ND	ND
3/16/2021	ND	ND	ND	ND	ND
5/26/2021	ND	ND	ND	ND	ND
9/29/2021	ND	ND	ND	ND	ND
12/6/2023	ND	ND	0.60 J	ND	ND
3/5/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-22	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/19/2017	2.4	ND	0.63 J	ND	ND
1/9/2019	ND	ND	ND	ND	ND
3/16/2021	ND	ND	0.73 J	ND	ND
5/26/2021	ND	ND	1.2	ND	ND
9/29/2021	1.1	ND	1.1	ND	ND
12/7/2022	0.96 J	ND	1.1	ND	0.93 J

MW-23	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/18/2017	0.50 J	ND	ND	ND	ND
1/8/2019	ND	ND	ND	ND	ND
3/18/2021	ND	ND	ND	ND	ND
5/28/2021	ND	ND	0.91	ND	ND
9/28/2021	ND	ND	0.87	ND	ND
7/26/2023	ND	ND	0.85 J	ND	ND
12/6/2023	0.90 J	ND	1.0	ND	ND
3/5/2025	1.1	0.54 J	0.85 J	< 0.54	< 0.52

MW-24	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/17/2017	ND	ND	0.65 J	ND	ND
1/8/2019	ND	ND	ND	ND	ND
4/17/2019	ND	ND	ND	ND	ND
7/18/2019	ND	ND	ND	ND	ND
10/25/2019	ND	ND	ND	ND	ND
1/29/2020	ND	ND	ND	ND	ND
4/21/2020	ND	ND	ND	ND	ND
7/7/2020	ND	ND	ND	ND	ND
10/20/2020	ND	ND	ND	ND	ND
3/18/2021	ND	ND	ND	ND	ND
5/28/2021	ND	ND	ND	ND	ND
9/29/2021	ND	ND	ND	ND	ND
12/6/2023	ND	ND	ND	ND	ND
3/7/2025	< 0.56	< 0.53	< 0.51	< 0.54	< 0.52

MW-17	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/21/2017	**983**	**31.1**	**44.7**	ND	7.2
1/10/2019	ND	ND	**444**	ND	ND
4/18/2019	2.1	3	**373**	2.6	**13.7**
7/23/2019	ND	ND	**33**	ND	**18.6**
10/28/2019	ND	ND	**96.2**	ND	**49.1**
1/30/2020	ND	ND	**21.9**	ND	**18.5**
4/23/2020	ND	ND	**13.2**	ND	**9.5**
7/9/2020	ND	ND	**5.9**	ND	**2.4 J**
10/22/2020	ND	0.75 J	0.74 J	1.6	**5.7**
3/16/2021	ND	ND	ND	ND	ND
5/25/2021	ND	ND	0.99	1.1	ND
9/30/2021	ND	ND	ND	ND	ND
7/27/2022	ND	ND	2.7	1.3	1.7
12/7/2023	ND	ND	**5.6**	ND	**4.5**
3/4/2025	< 0.56	1.5	**71.9**	1.9	**24.8**

MW-18	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/21/2017	**55.6**	**30.3**	**129**	1.2	**9.3**
1/10/2019	ND	ND	**110**	ND	ND
4/18/2019	ND	1	**7.5**	ND	**2.2**
7/23/2019	ND	0.59 J	0.78 J	ND	ND
10/28/2019	ND	ND	ND	ND	ND
1/30/2020	ND	ND	ND	ND	ND
4/23/2020	ND	ND	0.55 J	ND	ND
7/9/2020	ND	ND	0.65 J	ND	ND
10/22/2020	ND	0.94 J	2.6	0.61 J	1.3
3/16/2021	ND	ND	1.7	ND	ND
5/25/2021	ND	0.78	3.3	ND	ND
9/30/2021	ND	ND	0.83	ND	0.8
7/27/2022	ND	ND	0.89 J	ND	0.98 J
12/8/2023	ND	0.61 J	2	ND	1.1
3/4/2025	1.5	1.4	2.5	< 0.54	1.5

MW-19	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
7/20/2017	**52.2**	**10.7**	**14.8**	ND	1.6
1/10/2019	ND	ND	**52.8**	ND	ND
4/18/2019	ND	0.70 J	1.5	ND	**14.2**
7/23/2019	ND	0.66 J	ND	ND	0.99 J
10/28/2019	ND	ND	ND	ND	ND
1/30/2020	ND	ND	ND	ND	ND
4/23/2020	ND	ND	ND	ND	ND
7/9/2020	ND	0.57 J	2.4	ND	1.2
10/22/2020	ND	ND	1.8	1.2	1.3
3/16/2021	ND	ND	1.6	ND	ND
5/25/2021	ND	ND	1.7	ND	ND
10/1/2021	ND	ND	0.59	ND	ND
7/27/2022	ND	1.2	**27.8**	ND	**16.1**
12/8/2023	1.3	0.68 J	2.9	0.63 J	**2.2**
3/4/2025	1.7	2.3	1.4	< 0.54	0.54 J

LEGEND:

- ABANDONED WELL
- BEDROCK WELL
- OVERBURDEN WELL
- SITE BOUNDARY

0 100 200

SCALE IN FEET

NOTES:

1. PARAMETERS SAMPLED INCLUDE TETRACHLOROETHENE (PCE), TRICHLOROETHENE (TCE), CIS–1,2–DICHLOROETHENE (cis–1,2–DCE), TRANS–1,2–DICHLOROETHENE (trans–1,2–DCE), AND VINYL CHLORIDE (VC).
2. CONCENTRATIONS MEASURED IN ug/L.
3. BOLDED VALUES INDICATED EXCEEDANCES.

NYSDEC Groundwater Standards				
PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
5	5	5	5	2

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021–10–19.

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GGP STATEN ISLAND MALL, LLC
CAROL CLEANERS – THE CROSSINGS
STATEN ISLAND, NEW YORK
GROUNDWATER SAMPLING RESULTS
JULY 2017 THROUGH MARCH 2025

FIGURE NO. **8B**

PROJECT NO. 4213307

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 – FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-4B-RESULTSMARCH25.dwg Layout: FIGURE 04 User: JISS.PHILIP Jul 28, 2025 – 9:45am

LEGEND:

MW-9	ABANDONED WELL
MW-3D	BEDROCK WELL
MW-13	OVERBURDEN WELL
	PCE ISOPLETH (ug/L)
	SITE BOUNDARY

NOTES:

1. PARAMETERS SAMPLE RESULTS FOR TETRACHLOROETHENE (PCE).
2. CONCENTRATIONS MEASURED IN UG/L.
3. NYSDEC GROUNDWATER STANDARDS (PCE) – 5 UG/L.

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

0 100 200

SCALE IN FEET

cornerstone PLLC

GGP STATEN ISLAND MALL, LLC
CAROL CLEANERS – THE CROSSINGS
STATEN ISLAND, NEW YORK

PCE ISOPLETH - MARCH 2025

FIGURE NO. **9A**

PROJECT NO. 4213307

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 – FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-05A-PCE ISO MARCH25.DWG Layout: FIGURE 05A User: JISS.PHILIP Apr 08, 2025 – 11:46am

LEGEND:

MW-9	ABANDONED WELL
MW-3D	BEDROCK WELL
MW-13	OVERBURDEN WELL
	TCE ISOPLETH (ug/L)
	SITE BOUNDARY

0 100 200

SCALE IN FEET

NOTES:

1. PARAMETERS SAMPLE RESULTS FOR TRICHLOROETHENE (TCE).
2. CONCENTRATIONS MEASURED IN ug/L.
3. NYSDEC GROUNDWATER STANDARDS (TCE) – 5 ug/L.

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

cornerstone PLLC

GGP STATEN ISLAND MALL, LLC
CAROL CLEANERS – THE CROSSINGS
STATEN ISLAND, NEW YORK

TCE ISOPLETH - MARCH 2025

FIGURE NO.
9B
PROJECT NO.
4213307

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 – FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-05B-TCE ISO MARCH25.DWG Layout: FIGURE 05B User: JISS.PHILIP Apr 08, 2025 – 11:46am

LEGEND:

- MW-9 — ABANDONED WELL
- MW-3D — BEDROCK WELL
- MW-13 — OVERBURDEN WELL
- CIS-1,2-DCE ISOPLETH (ug/L)
- SITE BOUNDARY

0 100 200

SCALE IN FEET

NOTES:

1. PARAMETERS SAMPLE RESULTS FOR CIS-1,2-DICHLOROETHENE (CIS-1,2-DCE).
2. CONCENTRATIONS MEASURED IN UG/L.
3. NYSDEC GROUNDWATER STANDARDS (CIS-1,2-DCE) - 5 UG/L.

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

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GGP STATEN ISLAND MALL, LLC
CAROL CLEANERS - THE CROSSINGS
STATEN ISLAND, NEW YORK

CIS-1,2-DCE ISOPLETH - MARCH 2025

FIGURE NO. **9C**

PROJECT NO. 4213307

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-05C-Cis-1,2-DCE ISO MARCH25.DWG Layout: FIGURE 05C User: JISS.PHILIP Apr 08, 2025 - 11:47am

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 - FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-05D-trans-1,2-DCE ISO MARCH25.DWG Layout: FIGURE 05A User: JISS.PHILIP Apr 08, 2025 - 11:48am

LEGEND:

- MW-9 — ABANDONED WELL
- MW-3D — BEDROCK WELL
- MW-13 — OVERBURDEN WELL
- TRANS-1,2-DCE ISOPLETH (ug/L)
- SITE BOUNDARY

0 100 200

SCALE IN FEET

NOTES:

1. PARAMETERS SAMPLE RESULTS FOR TRANS-1,2-DICHLOROETHENE (TRANS-1,2-DCE).
2. CONCENTRATIONS MEASURED IN UG/L.
3. NYSDEC GROUNDWATER STANDARDS (TRANS-1,2-DCE) - 5 UG/L.

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

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CAROL CLEANERS - THE CROSSINGS
STATEN ISLAND, NEW YORK

TRANS-1,2-DCE ISOPLETH - MARCH 2025

FIGURE NO.
9D
PROJECT NO.
4213307

LEGEND:

MW-9	ABANDONED WELL
MW-3D	BEDROCK WELL
MW-13	OVERBURDEN WELL
	VC ISOPLETH (ug/L)
	SITE BOUNDARY

NOTES:

1. PARAMETERS SAMPLE RESULTS FOR VINYL CHLORIDE (VC).
2. CONCENTRATIONS MEASURED IN UG/L.
3. NYSDEC GROUNDWATER STANDARDS (VC) – 2 UG/L.

SOURCE:

BACKGROUND AERIAL DOWNLOADED FROM NEAR MAP PROGRAM, DATED 2021-10-19.

0 100 200

SCALE IN FEET

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STATEN ISLAND, NEW YORK

VC ISOPLETH - MARCH 2025

FIGURE NO.
9E
PROJECT NO.
4213307

File: \\tt.local\ceg\625\PROJECTS\BROOKFIELD PROPERTIES RETAIL\4213307 – FORMER CAROL CLEANERS SITE_Project Drawings\213307-F-05E-VC ISO MARCH25.DWG Layout: FIGURE 05E User: JISS.PHILIP Apr 08, 2025 – 11:48am

N

STATEN ISLAND MALL

Ring Rd

Ring Rd

Staten Island Mall

The Crossings

Marsh Ave

Marsh Ave

Windham Loop

Platinum Ave

Platinum Ave

MW-1 - ND
MW-2 - ND
MW-3 - 478
MW-4 - 886
MW-5 - 41.1
MW-6 - NS
MW-7 - 9.5
MW-8 - 29.1
MW-9 - 219
MW-10 - ND
MW-11 - 318
MW-12 - 125
MW-13 - 857
MW-14 - 0.29
MW-15 - ND
MW-16 - 72.6
MW-17 - 1,050
MW-18 - 315
MW-19 - 313
MW-20
MW-21
MW-22
MW-23
MW-24
MW-3D - (3.4)
CB-1 - NS
CB-2 - NS
CB-3 - NS
CB-4 - NS
CB-6 - NS
CB-8 - NS
CB-8A - NS

1
2
3
4
5
6

FORMERLY SI SHOE REPAIR

CCCGBR76
CCCANTECH225
BRUGBR76
Carol Cleaners Gages

BABIES R US

Babies R Us Gages

Legend

- Monitor Well with ID
- SSD System Blower Location (on roof)
- SSD System Suction Point (in slab)
- SSD System Magnahelic Gage
- Catch Basin
- General Layout
- Environmental Easement Area
- Unpaved Areas within Environmental Easement Area

100 50 0 100
Feet

New York
Quadrangle Location

1, 2, 3, 4, 5, 6 Points of Bearing from Schedule A

ENGINEERING CONTROL - CAP/COVER (ASPHALT AND BUILDINGS)
ENGINEERING CONTROL - SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM

NOTES:
1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 10/07/2016, AND INCLUDED WITHIN CAROL CLEANERS EASEMENT WITH RECORDED DATED OF JUNE 6, 2016 AND SIGNED BY ROBERT W. SCHICK, DIRECTOR OF DIVISION OF ENVIRONMENTAL REMEDIATION, ON PAGE 6 PRESENTS SCHEDULE A.

STATE OF NEW YORK ERICH ZIMMERMAN 081831 LICENSED PROFESSIONAL ENGINEER

DATE OF ISSUE

CHECKED BY

APPROVED BY

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FORMER CAROL CLEANERS SITE
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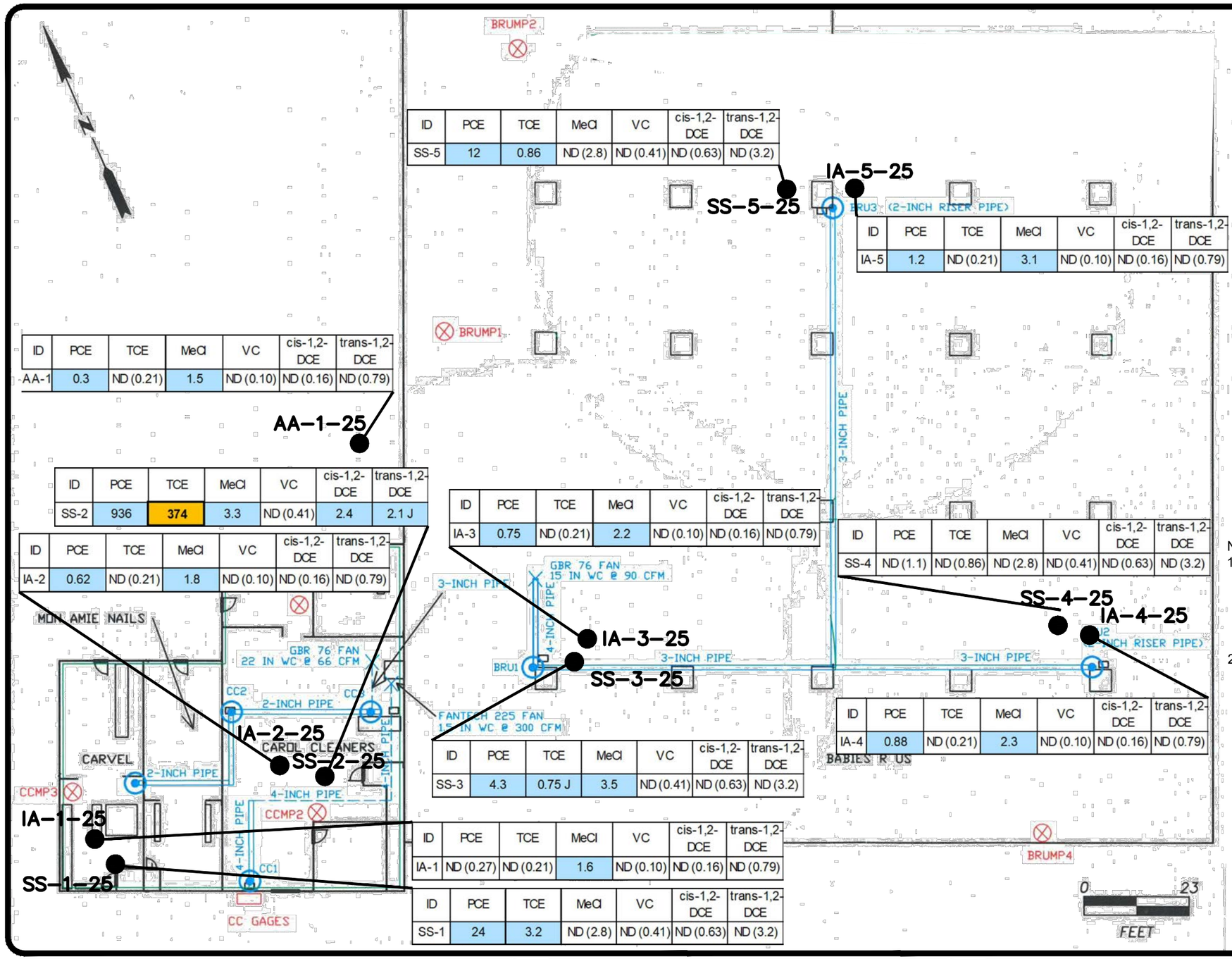
INSTITUTIONAL AND ENGINEERING CONTROL BOUNDARIES

FIGURE NO.
10
PROJECT NO.
4201222



LEGEND

- SUCTION POINT LOCATION WITH DESIGNATION (CC1)
- TEST LOCATION WITH DESIGNATION
- PVC PIPING
- PIPING LOCATED ON ROOF OF BUILDING
- LOCATION OF FAN ON ROOF OF BUILDING WITH TYPE (GBR 76 FAN)

IA-5-25
SS-5-25
MARCH 2025 INDOOR AIR AND SUB-SLAB SAMPLING LOCATION

MAGNAHELIC GAGE LOCATION

NOTES:

1. INFORMATION SHOWN HEREIN WAS TAKEN FROM A DRAWING PREPARED BY LEGGETTE, BRASHEARS & GRAHAM, INC. DATED 2/18/2015, AND INCLUDED WITHIN A FINAL ENGINEERING DESIGN REPORT SUBMITTED BY WSP DATED 6/26/2018 AND STAMPED BY WILLIAM K. BECKMAN, P.E., NYS PE #063219-1
2. ALL RESULTS IN MICROGRAMS PER CUBIC METER AIR (UG/M3).

PCE - TETRACHLOROETHYLENE
TCE - TRICHLOROETHYLENE
MECL - METHYLENE CHLORIDE
VC - VINYL CHLORIDE
CIS- 1,2-DCE - CIS-1,2-DICHLOROETHYLENE
TRANS-1,2-DCE - TRANS-1,2-DICHLOROETHYLENE

374 — NUMBER IN BOLD AND YELLOW BACKGROUND INDICATES AN EXCEEDANCE OF NYSDOH INDOOR/OUTDOOR AIR GUIDELINES

24 — NUMBER WITH BLUE BACKGROUND INDICATES THE CONSITUENT WAS DETECTED, BUT DOES NOT EXCEED THE NYSDOH INDOOR/ OUTDOOR AIR GUIDELINES

ERICH ZIMMERMAN, P.E.

N.Y.P.E. Lic. No. 081831-01 Date 05/18/2023

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INDOOR AIR AND SUB-SLAB SAMPLE RESULTS

BASE DRAWING PREPARED BY: LBG ENGINEERING SERVICES, PC

SHEET NO. 11

PROJECT NO. 4201222