Former Columbia Smelting

a.k.a. Red Hook Recreation Area

Ball Fields 5 – 8 and Ball Field 9

KINGS COUNTY

BROOKLYN, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: 224231

USEPA ID # NYR000231670

Prepared for:

New York City Department of Parks and Recreation
Olmsted Center
Flushing Meadows Corona Park
Flushing, NY 11368

Prepared by:

TRC Engineers, Inc.
1407 Broadway, Suite 3301
New York, NY 10018
(212) 221-7822

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

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JANURARY 2024

Former Columbia Smelting
a.k.a. Red Hook Recreation Area
Ball Fields 5 -8 and Ball Field 9
NYSDEC Site Number: 224231
Site Management Plan

CERTIFICATION STATEMENT

I, James Peronto, certify that I am currently a NYS registered professional engineer as in defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

NYS Professional Engineer #83861

Signature 

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

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List of Acronyms

ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CP	Commissioner Policy
DER	Division of Environmental Remediation
DIP	Design and Implementation Plan
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Control
IRM	Interim Remedial Measure
NYCDPR	New York City Department of Parks and Recreation
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation

NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
PCB	Poly Chlorinated Biphenyl
PID	Photoionization Detector
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SPPP	Stormwater Pollution Prevention Plan
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification:	Site No. 224231 – Former Columbia Smelting and Refining Works Site, Red Hook Recreation Area Ball Fields 5-9, Brooklyn, NY; Block 581, Lot 1 and Block 614, Lot 300
Institutional Controls:	1. The property may be used for restricted residential; use (which includes active recreational uses as defined in 6 NYCRR Subparagraph 375-1.8(g)(2)(ii));
	2. All ECs must be operated and maintained as specified in this SMP;
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP:
	4. The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health to render it safe for the intended use, and the user must first notify and obtain written approval to do so from the Department;
	5. Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
	6. All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
	7. Operation, maintenance, monitoring, inspection, and reporting of any physical component of the remedy shall be performed as defined in this SMP;

	8. 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 Notice.	
	9. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries, and any potential impacts that are identified must be monitored or mitigated; and	
	10. Vegetable gardens and farming on the site are prohibited.	
Engineering Controls:	1. Cover System: comprised of a minimum of one foot of synthetic turf cover; paved areas, clean topsoil, bonded aggregate, and/or permeable pavers underlain by a physical demarcation layer consisting of orange-colored plastic snow fencing or equivalent material.	
Inspections:		Frequency
1. Cover Inspection		Annually
Reporting:		
2. Periodic Review Report		Annually the first two years, with frequency thereafter to be determined. (1)

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

(1) After above-specified monitoring, the NYSDEC may be petitioned for its approval to discontinue or reduce monitoring, if conditions are warranted based on prior monitoring results.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Red Hook Ball Fields 5 through 8 and Ball Field 9 (Former Columbia Smelting) located at 98 Lorraine Street and 100 Bay Street, respectively, in Brooklyn, New York (hereinafter referred to as the "Site"). See Figure 1 for a Site Location Map. The site consists of Ball Fields 5, 6, 7, 8 (overlain by Soccer Field 7) and Ball Field 9 in the Red Hook Recreation Area. Ball Fields 5 through 8 comprise tax Block 581, Lot 1 and Ball Field 9 comprises tax Block 614, Lot 300. The Site is currently in the New York State (NYS) Site Superfund Program Site No. 224231 which is administered by New York State Department of Environmental Conservation (NYSDEC). NYSDEC has given the site a P classification indicating there is a potential for concern about site contamination.

The New York City Department of Parks and Recreation (NYCDPR) entered into an Administrative Settlement Agreement and Order on Consent (Index No. CERCLA-02-2016-2010) on July 7, 2016 with the USEPA to remediate the site. In addition, the NYCDPR entered into an Order on Consent and Administrative Settlement Agreement (Index No. R2-20170726-452) on April 1, 2021 with the NYSDEC and was assigned Site No. 224231. A figure showing the site location and boundaries of this site is provided in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of 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 Notice granted to the NYSDEC, and recorded with the Kings County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

This SMP was prepared to manage remaining contamination at the site until the Environmental Notice is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the

grantor of the Environmental Notice and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Declaration of Covenants and Restrictions ("Deed Restrictions"). Failure to properly implement the SMP is a violation of the Deed Restrictions, which is grounds for revocation of the Certificate of Completion (COC);

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the Order on Consent, (Index # R2-20170726-452; Site #224231) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Table 1 of this SMP.

This SMP was prepared by TRC Engineers, Inc (TRC), on behalf of New York City Department of Parks and Recreation (NYCDPR, or the Remedial Party), in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 3, 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Deed Restrictions for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Deed Restrictions for the site, the NYSDEC will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Order on Consent, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Order on Consent, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 on the following page and with the other tables at the end of the text includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Table 1.

Table 1: Site Emergency & Notifications Contact Information

Name	**Contact Information**
Emergency Contacts	
Medical, Fire, and Police:	911
Hospital, Lutheran Medical Center	(718) 630-7000
NY 811(formerly DigNet of NY and Long Island)	811 (at least 2 working days advance notice required for utility mark outs)
Poison Control Center	(800) 222-1222
National Response Center	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
NYCDEP Division of Emergency Response	311
NYCDPR Capital Projects Director of Environmental Remediation Kay Zias	(718) 760-6748
NYCDPR Brooklyn Borough Office Chief of Operations, M&O Jeff Sigadel	(718) 965-8922
TRC Engineers, Inc. Remedial Engineer Jim Peronto	(860) 298-6233
NYSDEC Project Manager Wendi Zheng	(718) 482-7541 wendi.zheng@dec.ny.gov
NYSDEC Regional HW Engineer Jane O'Connell	(718) 482-4599 jane.oconnell@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski	(518) 402-9553 Kelly.lewandowski@dec.ny.gov
NYSDOH Stephanie Selmer	(581) 402-7864 stephanie.selmer@health.ny.gov

* Note: Notification contacts are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in Brooklyn, Kings County, New York and is identified as Block 581 Lot 1, and portions of Block 602 Lot 1, and Block 614 Lot 300 on the Brooklyn Tax Map. The Site is an approximately 7.57-acre portion of the 58-acre Red Hook Recreation Area Park and is bounded by Lorraine Street to the north, Halleck Street to the south, Henry Street and Clinton Street to the east, and Hicks Street and Columbia Street to the west (see Figure 2 – Site Plan). The boundaries of the Site are more fully described in Appendix A that includes a property survey map of the Site with a legal metes and bounds property description. The owner of the site parcel at the time of issuance of this SMP is the New York City Department of Parks and Recreation (NYCDPR).

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a public park (Ball Fields 5 through 8 overlain with Soccer Field 7 and Ball Field 9) and associated planting strips as a part of the Red Hook Recreation Area. The Site is zoned as PARK for public park recreational use and is currently under construction and closed to the public.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include residential, recreational, and manufacturing/industrial properties. The properties immediately south of the Site include manufacturing/industrial and recreational properties (Red Hook Recreational Park Bulkhead); the properties immediately north of the Site include residential properties; the properties immediately east of the Site include recreational properties (Red Hook Recreational Center and Soccer Field 2); and the properties to the west of the Site include manufacturing/industrial and recreation properties (Red Hook Recreational Park Soccer Field 3 and Running Track).

2.2.2 Geology

The geology of Kings County consists of unconsolidated glacial deposits overlying crystalline bedrock. Based upon available literature (Buxton, Soren, Posner, and Shernoff, 1981), the subsurface geology for the Site likely includes the following formations: Pleistocene upper glacial deposits, Gardiners Clay, Jameco Gravel, Cretaceous Raritan Formation consisting of sands and clays, and crystalline bedrock. The depth to crystalline bedrock for the area is estimated to be approximately 200 feet bgs.

According to prior reports available for the Site, the Site was historically land under water (circa 1886) until filling occurred (in stages between 1886 and 1940). Prior investigations conducted at Ball Fields 5-8 found that in general, soil encountered at the Site consisted of uncontrolled historic fill material from ground surface to 8.5 to 19 feet bgs overlying gray to black silty clay to a depth of up to 22 feet bgs, underlain by sand to depth of at least 57 feet bgs (maximum boring depth). The Prior investigations at Ball Field 9 found that in general, soil encountered at the Site consisted of uncontrolled historic fill material from ground surface to 16 to 30 feet bgs overlying silty sand and clay from ground surface to 16 to 30 feet bgs overlying silty sand and clay from 16 to 32 feet bgs (maximum boring depth). The historic fill material consisted of dark brown, gray, sand, silt, and gravel, containing organics, bricks, glass, cinders, and other miscellaneous debris. In addition, an organic peat layer was identified above the clay in two boring locations. Site specific boring logs are provided in Appendix C.

2.2.3 Hydrogeology

Based on review of prior Site investigation reports, groundwater is present on Ball Fields 5 through 8 at 8.75 to 11.50 feet bgs (elevation -0.12 to 1.35 feet NAVD 88) and Ball Field 9 at 9.7 to 12.12 feet bgs (elevation 0.19 to 2.5 feet NAVD 88) and flows southeast toward Henry Street Basin. Ball Fields 5 through 8 is located approximately 575 feet northwest of the Henry Street Basin, 1,600 feet north of the Gowanus Bay, and 1,700 feet west of the Gowanus Canal, an extension of Gowanus Bay. Ball Field 9 is located approximately 100 feet northwest of the Henry Street Basin, 1,200 feet north of the Gowanus Bay, and 1,700 feet west of the Gowanus Canal. There are no groundwater monitoring wells remaining on the Site.

2.3 Investigation and Remedial History

2.3.1 - Ball Fields 5-8 Investigations

The Site was originally land under water and wetlands as a part of the Gowanus Bay. The Site was filled to raise the elevation some time prior to 1900 and was occupied as a shantytown in the 1920s. According to the USEPA, the Site was occupied by smelting and refining companies from the late 1920s through the late 1930s, including Columbia Smelting & Refining Works, Incorporated (Columbia). The Site was developed with a single-story, approximately 14,000-square-foot building from the mid to late 1920s, until it was demolished prior to 1940. A 1931 advertisement in the Standard Metal Directory for Columbia, located at 98-107 Lorraine Street, indicated that the company dealt with white metals and alloys as well as brass and bronze ingots. The advertisement also indicated that the company manufactured soft lead, antimonial lead, babbitt, solder, type metals, terse metal, britannia metal, die-cast metal, unbreakable metal, and rerun zinc; consumed pig percentage metal, cable lead, battery plates, soft lead, type metals, babbitt, joists, pewter and dresses; and dealt in pig tin, pig lead, copper, antimony, aluminum, spelter, scrap metals, and residues. A 1938 Sanborn fire insurance map shows that eight furnaces were present in the historic on-site building that operated as a refinery. The former Columbia Smelting & Refining Works facility was historically located within Ball Field 7 (northwest corner of the Site). Since demolition of the historic Site building in the late 1930s, the Site has been utilized as a public park dating back to 1940. The Site, including the planting strips, is currently closed to public access and is not utilized for any recreational or other purpose.

The following narrative provides a site investigation and remedial history timeline and a brief 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 Section 8.0 - References.

Final Soil Sampling Trip Report – April 9, 2015

In March 2015, Weston Solutions, Inc. on behalf of the USEPA collected 153 surface soil samples from 29 locations across the Site at depths of 0-1 inches, 1-6 inches, 6-12 inches, 12-18 inches, and 18-24 inches at each location. The "Final Soil Sampling Trip Report – Columbia Smelting & Refining Works Site, Brooklyn, New York" dated April 9, 2015 prepared by Weston Solutions, Inc. summarizes the results of the sampling event. Soil sample analytical results indicate lead, arsenic, and cadmium were detected above New York State Department of Environmental Conservation (NYSDEC) Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) and above USEPA Removal Management Levels (RMLs) in soil samples collected from 0 to 2 feet below ground surface (bgs) across the Site. Lead concentrations were detected in the upper foot of soil up to 2,590 ppm. Based on the results of the investigation, the USEPA determined the elevated contaminant levels are attributable to historic lead smelting operations at the Site.

Infiltration, Soil, and Groundwater Testing Report – June 9, 2016

TRC conducted an infiltration and geotechnical investigation in March 2016 t**o** assess the conditions of the Site for site-wide cover construction and provide data for the design of a cover, synthetic turf, and drainage infrastructure in association with DPR's Order on Consent with the USEPA. Oweis Engineering, Inc. (Oweis), under subcontract to TRC, was on-Site to perform the geotechnical investigation. TRC conducted soil and groundwater sampling concurrently with infiltration testing to obtain background chemical data for media that could be impacted by green infrastructure practices during Site reconstruction. Results of infiltration testing and associated soil and groundwater sampling are presented in the "Infiltration, Soil, and Groundwater Testing Report" prepared by TRC dated June 9, 2016 and summarized below.

The investigation consisted of the advancement of two (2) soil borings for infiltration and environmental testing at five locations across the Site to depths ranging between 17 and 21 feet bgs. Infiltration test borings were advanced at locations a minimum distance of 25 feet away from environmental borings. Soils from environmental borings were screened continuously to the boring completion depth, and samples were collected for laboratory chemical analysis from depths of 2 to 4 feet bgs, 5 to 7 feet bgs, and 8 to 10

feet bgs. No evidence of contamination (i.e., elevated photoionization detector (PID) readings, staining, or odors) were noted in any of the borings. Groundwater samples were collected from five temporary well points (RHGT-02, RHGT-03, RGHT-08, RGHT-13, and RGHT-14).

Soil and groundwater samples were analyzed for New York Codes Rules and Regulations (NYCRR) Part 375-6 semi-volatile organic compounds (SVOCs); Target Compound List (TCL) PCBs; NYCRR Part 375-6 Pesticides; NYCRR Part 375-6 Herbicides; Target Analyte List (TAL) Metals (total and dissolved); and cyanide. Soil analytical results were compared against NYSDEC Part 375-6.8 Environmental Remediation Program Restricted Residential Soil Cleanup Objectives (SCOs) and USEPA Removal Management Levels (RMLs) for Residential Soil. Groundwater sample analytical results were compared against NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values (Class GA). Infiltration tests were performed in accordance with the New York City Department of Environmental Protection (NYCDEP) Office of Green Infrastructure Procedure Governing Limited Geotechnical Investigation dated December 2015.

The results of the investigation indicated the following:

- Uncontrolled historic fill material was observed from ground surface to 8.5 to 19 feet bgs. This stratum consisted of dark brown, gray, sand, silt, and gravel, containing organics, bricks, glass, cinders and other miscellaneous debris. Groundwater was encountered in temporary monitoring wells from 8.75 to 11.50 feet bgs.
- The types and concentrations of SVOCs detected in the soil samples are consistent with the observed presence of historic fill at the Site. The concentrations of the SVOCs consisting of polycyclic aromatic hydrocarbons (PAHs) detected in soil samples above the RRUSCOs and RMLs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: ash, cinders, coal, slag, heavy oil, and/or asphalt. No SVOCs, including PAHs, were detected in the groundwater samples. PAHs generally have a relatively low water solubility and high affinity for particulate matter and as a result PAHs are usually not found in groundwater at notable concentrations.

- Metals (arsenic, barium, copper, lead and mercury) were detected in soil above the RRUSCOs. Generally, the concentrations of these metals decreased with soil depth. Arsenic, lead and cyanide were detected in one or more soil samples above the RMLs. The type and concentrations of metals detected in soil samples above the RRUSCOs and RMLs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: metal plating or smelting waste, ash, cinders, coal, slag, paint, and/or herbicides.

- No pesticides, herbicides or PCBs were detected in soil at a concentration exceeding the RRUSCOs or RMLs.

- There were no visual or olfactory indications of contamination observed in the groundwater samples collected. The results of the analyses of the field filtered groundwater samples revealed that barium was detected at a concentration of 1,120 µg/L and 1,040 µg/L at RHGT-08 and RHGT-13, respectively. Although these concentrations are above the Class GA Value of 1,000 µg/L for barium they are well below the respective NYSDEC Groundwater Effluent Limitation of 2,000 µg/L (Table 5 of NYSDEC TOGS 1.1.1). Silver was detected at a concentration of 66.8 µg/L in dissolved groundwater at one location (RHGT-02). Although this silver concentration is above the Class GA Value of 50 µg/L for silver, it is well below the respective NYSDEC Groundwater Effluent Limitation of 100 µg/L (Table 5 of NYSDEC TOGS 1.1.1). Although detected at elevated concentrations within soil, arsenic, copper, lead, and mercury were not detected in the field filtered groundwater samples. Iron, magnesium, manganese and sodium were detected in dissolved groundwater above Class GA Values; however, they are naturally occurring metals and their elevated presence in the Site groundwater may be a result of saltwater intrusion from the nearby basin and harbor. A contributing source of manganese, iron and arsenic in groundwater could be associated with anaerobic conditions generated by decomposition of organic deposits commonly found along low lying marshland in addition to historic fill. Notably, elevated levels of lead were not detected in the filtered groundwater samples.

- There were no SVOCs, pesticides, herbicides or PCBs detected at a concentration exceeding the Class GA Values in the groundwater samples collected from the five temporary monitoring wells.

- The measurable parameters of groundwater infiltration capability and correlated conclusions and the applicability of green infrastructure infiltration practices at each location can be found in Appendix C of the Report.

Geotechnical Report – December 8, 2016

Oweis Engineering, Inc. (Oweis), under subcontract to TRC, completed a geotechnical investigation in March 2016 to evaluate subsurface conditions and provide recommendations for the proposed reconstruction of the Site. The geotechnical investigation was performed along with TRC's infiltration and environmental investigation described above. The results of the geotechnical investigation were presented in the "Geotechnical Report – Red Hook Ball Fields 5 to 8, Borough of Brooklyn, New York" dated December 8, 2015.

Results of the Geotechnical Investigation indicate soils encountered at the Site generally consist of uncontrolled fill material to approximately 8.5 to 19 feet below grade (Stratum 1), black and dark gray peat with wood pieces at approximately 11.5 to 13.5 ft bgs (Stratum 2), soft to very soft dark gray/gray organic clay or silty clay at approximately 13.5 ft to 20+ ft bgs (Stratum 3), and brown to gray poorly graded sand at approximately 22 feet (Stratum 4).

Based on the results of the investigation, Oweis recommended a large portion of the fill be removed or replaced, if possible, or maintenance be provided over the life of the proposed synthetic turf field including removing and re-setting portions of the field section and minimizing settling of the fill through proper subgrade preparation consisting of surface stripping the top soil, and compacting the exposed subgrade. Oweis also recommended that the owner accept an expected settlement of fill from the planned construction of a chain link fence around the perimeter, potential for future maintenance if needed, and seismic vulnerability but attempt to reduce the impact of the settlement. Prior to constructing the proposed synthetic turf section, Oweis recommends the subgrade conditions and compaction effort should be observed by a geotechnical engineer to verify that subsurface conditions are similar to those encountered during the field investigation. Unless otherwise specified for drainage purposes, backfill materials should be granular soil free of debris and should contain less than 20% fines passing the No. 200 sieve. Boring logs can be found in Appendix A of the Geotechnical Investigation Report.

Supplemental Surface Soil Sampling Report – March 3, 2017

On behalf of the NYCDPR, TRC conducted additional soil sampling in February 2017 to characterize surface soil (0 to 6 inches bgs) at Ball Fields 5 through 8 for total lead and leachable lead and assess the hazardous waste characteristics of the soil planned for off-Site disposal. The results of the supplemental sampling event are presented in the "Supplemental Surface Soil Sampling Report" prepared by TRC dated March 3, 2017. To provide spatial coverage, the Site was divided into 11 grid boxes on the outfields (Grid Boxes 4, 5, 7 and 8), infields (Grid Boxes 2, 3, 6, and 9) and exterior planting strips (Grid Boxes 1, 10, and 11) of Ball Fields 5 through 8. Figure 2 from the supplemental soil investigation report depicting the sample locations is provided in Appendix C. One 5-point composite soil sample was collected from each grid box from 0 to 6 inches bgs and submitted for laboratory analysis of total lead by EPA Method 6010C and Toxicity Characteristic Leaching Procedure (TCLP) Lead by EPA Methods 1311 and 6010C.

In general, topsoil encountered in outfields and planting strips consisted of dark brown/black silty sand with organic material and trace clay and gravel and soil encountered in the infields consisted of tan brown medium to fine sand with clay from approximately 3 to 6 inches.

Soil sample results for total lead were compared to NYSDEC RRUSCOs and EPA RMLs for Residential Soil, and results for TCLP lead were compared to EPA Maximum Concentration of Contaminants for the Toxicity Characteristic for hazardous waste in Table 1 of 40 CFR Section 261.24 and 6 NYCRR Section 371.3(e).

Analytical results indicate total lead was detected in all 11 surface soil samples at concentrations ranging from 152 to 2,580 mg/kg. Eight (8) of the 11 surface soil samples exceeded the RRUSCO and RML of 400 mg/kg for total lead at concentrations ranging from 563 to 2,580 mg/kg; total lead was only detected in one of the infield clay samples (Ball Field 6) above the RRUSCO and RML. The highest concentrations of total lead levels were detected in the surface soil in the outfield areas and planting strip along Lorraine Street. TCLP lead was detected in three (3) of the surface soil samples collected from the infield at Ball Field 6 and outfields of Ball Fields 5 and 6 at concentrations ranging from 0.56 to 1.5 mg/L. None of the TCLP lead soil sample results exceeded the EPA hazardous waste toxicity characteristic criterion for lead (5 mg/L).

Based on the results of the sampling event, TRC concluded the subsurface soil at the Site would likely be characterized as a non-hazardous regulated material for off-site disposal.

Underground Storage Tank Closure Report – May 5, 2020

One (1) abandoned 4,000-gallon petroleum underground storage tank (UST) (PBS ID No. 2-613138) was discovered during construction activities performed at the Site as part of the Design and Implementation Plan for Red Hook Ball Fields 5 through 8. The UST was closed and removed by AARCO Environmental Services Corporation (AARCO) on February 27, 2020. A "UST Closure Report" prepared by AARCO dated May 2020 documents the permanent closure of the UST, which included collection of post-excavation soil verification samples in the vicinity of the former tank immediately following tank removal.

Post-excavation soil sampling analytical results revealed no volatile organic compounds (VOCs) and low concentrations of SVOCs were detected in soil samples collected. A comparison of analytical results for post-excavation end point soil samples to soil samples collected during the Site investigation conducted in 2016 indicates SVOC concentrations detected were consistent with those documented by prior investigations for historic fill across the Site. Elevated SVOC concentrations were detected in historic fill containing ash and cinders, which were also identified in soil excavated during UST removal. Based on the results of the UST Closure Report, TRC concluded potential human health exposure concerns associated with historic site fill, including that at the former UST location, would be addressed with the planned construction of a clean cover remedy for the entire Site.

2.3.2 Ball Field 9 Investigations

According to available historical photos and fire insurance maps, at least a portion, if not all, of Ball Field 9 was formerly land under water. The Sanborn fire insurance maps indicate that the Henry Street basin extended to Bay Street prior to 1886 and was present over the eastern portion of the current Ball Field 9 area until at least 1924. The Ball Field 9 Site area was filled in stages between 1886 and 1940. It was occupied as a shanty town

known as a Hooverville in at least the early 1930s and was otherwise vacant land prior to use as a public park.

Ball Field 9 is adjacent to and south of the Ball Fields 5 through 8 block which included the former Columbia Smelting & Refining Works, Incorporated (Columbia) facility.

The following narrative provides a site investigation and remedial history timeline and a brief 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 Section 8.0 – References.

Final Soil Sampling Trip Report – April 9, 2015

As part of the Removal Assessment of the Columbia Smelting and Refining Works Site, the EPA and its contractor, Weston Solutions, Inc. performed surface soil sampling to characterize the soil from zero to two feet below ground surface (bgs) on Ball Field 9 and associated planting strips along Bay Street, as well as other locations within Red Hook Park. Ball Field 9 was divided into quadrants numbered 31 through 41, and the planting strip along Bay Street was designated Quadrant 30. Five borings were advanced in each quadrant, and the samples from the same respective depth intervals in each boring were composited; one composite sample represented each depth interval within each quadrant. The depth intervals were 0 to 1 inch, 1 to 6 inches, 6 to 12 inches, 12 to 18 inches, and 18 to 24 inches bgs. A total of sixty (60) composite soil samples, plus quality assurance/quality control samples, were submitted for laboratory analysis of Target Analyte List (TAL) metals and tin.

Arsenic and lead were detected at maximum concentrations of 290 milligrams/kilograms (mg/kg) and 17,000 mg/kg respectively, exceeding the EPA Removal Management Levels (RMLs) for Residential Soil (HQ=1) and NYSDEC RRUSCOs in samples collected from Ball Field 9 and/or Ball Field 9 Planting Strips at depths greater than six inches bgs. Antimony and iron were detected at maximum concentrations of 230 mg/kg and 100,000 mg/kg respectively, exceeding the EPA RMLs for Residential Soil (HQ=1) in samples collected from Ball Field 9 at depths greater than

six inches bgs. In addition, barium, cadmium, copper, and zinc were frequently detected at concentrations below the EPA RML, but exceeding the NYSDEC RRUSCOs.

Red Hook Park Superfund Soil Sampling Field Reports – July 2015

Soil sampling was conducted by the EPA and its Weston contractors at the Columbia site. The DPR report titled "Red Hook Park Superfund Soil Sampling 2014-2015 Field Reports and Contaminant Results" dated July 30, 2015 (Soil Sampling Report) was prepared to summarize the results of soil sampling. The sampling included the Red Hook East Houses, a tree lawn along Lorraine Street, Ball Fields 5 through 9, Soccer Fields 1, 2, and 6, and limited areas of the Bay Street Planting Strips, Soccer Field 3 and west of Red Hook Pool, and was completed in October 2014, March 2015, and April 2015; the March 2015 sampling was discussed above. In general, lead was detected above EPA RML and NYSDEC RRUSCO in soil samples collected from 0.5 to 2 feet bgs in the majority of the sample locations on Ball Field 9. Samples collected from Ball Fields 5 through 8 generally contained concentrations of multiple SVOCs and Metals.

Limited Geotechnical, Soil, and Groundwater Sampling Report – March 6, 2017

The limited geotechnical testing and soil and groundwater sampling field activities were performed from December 19 through December 22, 2016 and December 27, 2016 by TRC and its subcontractors. Land, Air, Water, Environmental, Services, Inc. (LAWES), under subcontract to TRC, performed drilling services. Additionally, Oweis Engineering, Inc. (Oweis), under subcontract to TRC, performed a geotechnical investigation of the Site concurrent to TRC performing soil and groundwater sampling and infiltration testing.

As part of the investigation activities, two soil borings were completed at four locations designated as RHBF9-01, RHBF9-02, RHBF9-03, and RHBF9-04, for a total of eight (8) borings. Of the boring pairs, from the first boring, relative density testing, soil and groundwater sampling, and geotechnical investigation activities were performed. Permeability testing was performed at the second boring, which was a minimum of 25 feet from the corresponding coupled borehole at each of the four locations. The borings were advanced using direct-push drilling methods, via a track-mounted Geoprobe® drill rig.

A total of 13 soil samples, including one blind duplicate, were collected in accordance with the project QAPP and submitted for laboratory chemical analysis. The samples submitted for laboratory chemical analysis were collected at the locations and intervals identified in the table below for the following parameters: Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 semivolatile organic compounds (SVOCs), 6 NYCRR Part 375-6 pesticides, 6 NYCRR Part 375-6 silvex (a herbicide), Target Compound List (TCL) polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals plus mercury, hexavalent chromium, tin and total cyanide.

Groundwater sampling was conducted in accordance with United States Environmental Protection Agency (USEPA) low-flow sampling procedures and project QAPP. The completed groundwater purge and sampling logs are presented in Appendix B. A total of five groundwater samples, including one blind duplicate, were collected and submitted for laboratory analysis for the following parameters: 6 NYCRR Part 375-6 SVOCs, 6 NYCRR Part 375-6 pesticides, 6 NYCRR Part 375-6 herbicides, TCL PCBs, TAL metals (total and dissolved) plus mercury, hexavalent chromium, tin, and total cyanide.

No elevated PID readings, visual indicators, or odors were identified in any of the borings. The types and concentrations of SVOCs detected in the soil and groundwater samples are consistent with the observed presence of historic fill at the Site. The concentrations of the SVOCs consisting of polycyclic aromatic hydrocarbons (PAHs) detected in soil samples above the RRUSCOs and RMLs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: ash, cinders, coal, slag, heavy oil, and/or asphalt. SVOCs, including PAHs, were detected in the groundwater samples. SVOC concentrations exceeding Class GA Values detected in groundwater are attributed to the characteristics of fill material in Site soil. Metals (arsenic, iron, magnesium, manganese, and sodium) were detected in groundwater above the Class GA Values at maximum concentrations of 174 micrograms/liter (µg/L) (arsenic), 31,300 µg/L (iron), 64,700 µg/L (magnesium), 1,170 µg/L (manganese), and 365,000 µg/L (sodium) respectively. Antimony, arsenic, cobalt, iron, and lead were detected in one or more soil samples above the RMLs with maximum concentrations of 37.4 mg/kg

(antimony), 41.8 mg/kg (arsenic), 25.4 mg/kg (cobalt), 116,000 mg/kg (iron), and 4,230 mg/kg (lead) respectively.

The type and concentrations of metals detected in soil samples above the RRUSCOs and RMLs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: metal plating or smelting waste, ash, cinders, coal, slag, paint, and/or herbicides. No pesticides, herbicides, or PCBs were detected in the soil samples at a concentration exceeding the RRUSCOs or RMLs.

Oil was not detected during gauging with an oil/water interface probe at the temporary monitoring well points. There were no visual or olfactory indications of contamination observed in the groundwater samples collected. Arsenic was detected in one dissolved groundwater sample above Class GA Values. Iron, magnesium, manganese, and sodium were detected in dissolved groundwater above Class GA Values; however, they are naturally occurring metals and their elevated presence in the Site groundwater may be a result of salt water intrusion from the nearby basin and harbor. A contributing source of manganese, iron, and arsenic in groundwater could be associated with anaerobic conditions generated by decomposition of organic deposits commonly found along low-lying marshland in addition to historic fill. Notably, elevated levels of lead were not detected in the filtered groundwater samples.

There were no pesticides, herbicides, or PCBs detected at a concentration exceeding the Class GA Values in the groundwater samples collected from the four temporary monitoring wells.

Limited geotechnical tests were performed in accordance with the New York City Department of Environmental Protection Office of Green Infrastructure Limited Geotechnical Investigation Procedures for On-Site Green Infrastructure Practices (NYCDEP Procedure) dated November 2016. The ability of soil to allow groundwater to infiltrate can be estimated from three measurable parameters (i.e., relative density, permeability, and grain size) and correlated to standardized conclusions.

Results of the Geotechnical Investigation indicate soils encountered at the Site generally consist of uncontrolled historic fill material from ground surface to 16 to 30 feet bgs overlying silty sand and clay from ground surface to 16 to 30 feet bgs overlying silty

sand and clay from 16 to 32 feet bgs (maximum boring depth). The historic fill material consisted of dark brown, gray, sand, silt, and gravel, containing organics, bricks, glass, cinders, and other miscellaneous debris. In addition, an organic peat layer was identified above the clay.

The measurable parameters of groundwater infiltration capability, soil boring logs, and groundwater purge forms can be found in Appendix C.

2.3.3 Summary of Remedial Actions

A Design and Implementation Plan (D&IP) was prepared as a component of the Remedial Action Work Plan to describe the design details and planned logistics for the removal actions for Red Hook Ball Fields 5 through 9. This includes providing removal action specifications, removal action drawings, erosion and sediment control measures, equipment and materials staging, site security, traffic control, and environmental monitoring. The Design and Implementation Plan is included in Appendix K.

The scope of the removal action included the following key components for the Site:

1. Removal of approximately 6-inches of topsoil and infield clay layer and off-site disposal.
2. Installation of an approximately 1-foot thick synthetic turf cover system (turf/infill, polyethylene drainage/shock pad, porous aggregate, drainage panel, geogrid, clean imported fill) underlain by a demarcation layer;
3. Installation of a minimum 1-foot thick layer or more of clean soil cover underlain by a demarcation layer in the grassed lawn/planting areas;
4. Installation of up to a 1-foot thick layer of clean cover, paving, bonded aggregate, permeable pavers, mulch, and ground cover where existing mature trees will be maintained (and provided with fencing) or new paving or pavers were installed, underlain by a demarcation layer;
5. Implementation of a long-term Site inspection, maintenance, and monitoring program, the requirements of which are detailed in the SMP; and
6. Establishment of institutional controls including deed restrictions for the Site.

A Construction Completion Report was prepared to summarize the completed remedial activities at Ball Fields 5 through 8 and Ball Field 9. The Construction Completion Report is presented in Appendix L. As-built drawings for the cover system for Ball Fields 5-8 and Ball Field 9 are presented in Appendix F.

2.3.4 Summary of Waste Removals

Off-Site Management of Debris

Surface covers including asphalt and concrete were removed from the Site for recycling to accommodate removal action activities at Red Hook Ball Fields 5 through 8 and Ball Field 9. Recycled concrete generated from Ball Fields 5 through 8 and Ball Field 9 was transported to the following facility:

Allocco Recycling

540 Kingsland Avenue

Brooklyn, NY 11222

Recycled asphalt generated from Ball Field 9 was transported to the following facilities:

Allocco Recycling	Green Asphalt
540 Kingsland Avenue	37-98 Railroad Avenue
Brooklyn, NY 11222	Long Island City, NY 11101

A total of 1,272.04 tons of concrete was removed from Ball Fields 5 through 8 and 756.58 tons of concrete was removed from Ball Field 9 and transported to Allocco Recycling for recycling. A total of 744.85 tons of asphalt was removed from Ball Field 9 and transported to Allocco Recycling and Green Asphalt for recycling. Off-Site material disposal quantities and facilities are shown in Table 6.

Off-Site Management of Contaminated Soil

During the removal action at Red Hook Ball Fields 5 through 8 and Ball Field 9, soils were excavated and removed from the Site for proper off-Site disposal to accommodate installation of buried utilities and the construction of foundations. The USEPA hazardous waste generator identification number obtained by DPR for the Site is NYR000231670. The following disposal facility was used for the off-Site disposal of hazardous soil generated from Ball Fields 5-8 and Ball Field 9 and non-hazardous soil generated from the UST closure at Ball Fields 5 through 8:

Clean Earth of North Jersey, Inc. (CENJ)

115 Jacobus Avenue

Kearny, NJ 07032

The following disposal facility was used for the off-Site disposal of non-hazardous soil generated from the remainder of Ball Fields 5-8 and Ball Field 9:

Waste Management - Fairless Landfill	Clean Earth of Philadelphia
1000 Bordentown Road	3201 S. 61st Street
Morrisville, PA 19067	Philadelphia, PA 19153

Approximately 160.20 tons of non-hazardous contaminated soil was removed from the UST area at Ball Fields 5 through 8 and transported to CENJ on November 16, 2020. Approximately 170.83 tons of hazardous soil was removed from Ball Fields 5 through 8 and transported to CENJ on July 1, 2020. Approximately 4,832.94 tons of non-hazardous contaminated soil was removed from Ball Fields 5 through 8 and transported to Fairless Landfill between August 22, 2019 and November 6, 2019. Approximately 5,821.62 tons of non-hazardous contaminated soil was removed from Ball Field 9 and transported to Fairless Landfill between July 13, 2020 and December 1, 2022. Approximately 653.53 tons of non-hazardous contaminated soil was removed from Ball Field 9 and transported to Clean Earth of Philadelphia, Pennsylvania between February 23, 2022 and March 4, 2022. Approximately 1,311.94 tons of hazardous soil was removed from Ball Field 9 and transported to Waste Management at Kearny, New Jersey between May 26, 2021 and July 21, 2021. Off-Site material disposal quantities and facilities are shown in Table 6.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as based on the requirements in the Order on Consent and the Design and Implementation Plan dated [May, 2017] are as follows:

Groundwater

RAOs for Public Health Protection:

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

RAOs for Environmental Protection:

- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection:

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection:

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

2.5 Remaining Contamination

2.5.1 Soil

Ball Fields 5-8

The results of analyses of soil samples were compared to the NYSDEC Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) in Table 375-6.8(b) of 6 New York Codes, Rules, and Regulations (NYCRR) Part 375-6 (Remedial Program Soil Cleanup Objectives) (NYSDEC, 2006). The Restricted Residential Use category applies to sites to be used for active recreational uses, including public uses with a reasonable potential for soil contact.

The results of analyses of the soil samples were also compared to the EPA Removal Management Levels for Residential Soil (Hazard Quotient 1 [HQ1]), November 2015 (RMLs). The RMLs are used to support the decision for EPA to undertake a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The RMLs are risk-based concentrations derived from standardized equations combining exposure assumptions with toxicity data from the Superfund program's hierarchy. Although they are not necessarily protective for long-term exposures, exceedance of an RML does not imply that adverse health effects will occur. The RMLs contained in the RML table are generic. In other words, the RMLs are calculated without site-specific information (e.g., the time-frame over which individuals may potentially be exposed to site contaminants).

The results of the Infiltration, Soil, and Groundwater Testing Report dated June 9, 2016 indicate antimony, arsenic, cobalt, and lead were detected at concentrations exceeding the EPA RMLs and NYSDEC RRUSCOs (if a criteria exists) in soil samples collected from 0 to 2 feet bgs in the majority of sample locations during the investigation conducted in 2016. In addition, barium, cadmium, and mercury were detected at concentrations below the EPA RMLs but exceeding the NYSDEC RRUSCOs in a majority of sample locations. The type and concentrations of metals detected in soil samples above the RRUSCOs and RMLs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: metal plating or smelting waste, ash, cinders, coal, slag, paint, and/or herbicides.

The SVOC benzo(a)pyrene was detected at concentrations exceeding the EPA RML and NYSDEC RRUSCO in two soil samples selected from 2 to 4 feet bgs at the Site. Five additional SVOCs, all polycyclic aromatic hydrocarbons (PAHs), were detected in soil samples at concentrations above the RRUSCOs. The concentrations of SVOCs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: ash, cinders, coal, slag, heavy oil, and/or asphalt.

Pesticides, herbicides, and PCBs were not detected in soil at concentrations exceeding the RRUSCOs or RMLs.

Post-excavation soil samples collected in accordance with the UST Closure Report dated May 5, 2020 revealed elevated SVOC concentrations in Site soil consistent with those documented by prior investigations for historic fill across the Site.

Tables 1-4 of the Infiltration, Soil, and Groundwater Testing Report provided in Appendix C summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the Restricted Residential Use, and Protection of Groundwater Use SCOs at the Site after completion of remedial action. The locations of the remaining soil sample exceedances are provided on Figure 3.

Ball Field 9

The results of analyses of the soil samples were compared to the NYSDEC Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) in Table 375-6.8(b) of 6 New York Codes, Rules, and Regulations (NYCRR) Part 375-6 (Remedial Program Soil Cleanup Objectives) (NYSDEC, 2006). The Restricted Residential Use category applies to sites to be used for active recreational uses, including public uses with a reasonable potential for soil contact.

The results of analyses of the soil samples were also compared to the EPA Removal Management Levels for Residential Soil (Hazard Quotient 1 [HQ1]), June 2017 (RMLs). The RMLs are used to support the decision for EPA to undertake a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The RMLs are risk-based concentrations derived from standardized equations combining exposure assumptions with toxicity data from the Superfund program's hierarchy. Although they are not necessarily protective for long-term exposures, exceedance of an RML does not imply that adverse health effects will occur. The RMLs contained in the RML table are generic. In other words, the RMLs are calculated without site-specific information (e.g., the time-frame over which individuals may potentially be exposed to site contaminants).

Arsenic and lead were detected in soil samples above the RMLs and RRUSCOs and antimony, cobalt, and iron were detected in soil samples above RMLs in soil samples collected from 0.5 to 2 feet bgs in the majority of the sample locations. In addition, barium,

cadmium, copper, manganese, mercury and zinc were detected at concentrations below the EPA RMLs but exceeding the NYSDEC RRUSCOs. Generally, the concentrations of these metals decreased with soil depth. The type and concentrations of metals detected in soil samples above the RRUSCOs and RMLs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: metal plating or smelting waste, ash, cinders, coal, slag, paint, and/or herbicides.

Several SVOCs were detected at concentrations exceeding the EPA RMLs and NYSDEC RRUSCOs in one or more soil samples selected from 2 to 7 feet bgs at the Site. Two additional SVOCs, both polycyclic aromatic hydrocarbons (PAHs), were detected in soil samples at concentrations above the RRUSCOs. The concentrations of SVOCs may generally be attributed to the characteristics of historic fill material potentially containing one or more of the following: ash, cinders, coal, slag, heavy oil, and/or asphalt.

There were no pesticides, herbicides or PCBs detected in soil at concentrations exceeding the RMLs or RRUSCOs.

Tables 1 through 4 of the Infiltration, Soil, and Groundwater Testing Report for Ball Field 9 provided in Appendix C of this plan summarize the results of all soil samples collected that exceed the Restricted Residential Use SCOs and the EPA Removal Management Levels for Residential Soil. The locations of the remaining soil sample exceedances are provided on Figure 3.

2.5.2 Groundwater

The results of the analyses of groundwater samples were compared to New York State Class GA groundwater standards and guidance values (Class GA Values), in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values (NYSDEC, 1998).

Ball Fields 5-8

Barium was detected in two filtered groundwater samples and silver was detected in one filtered groundwater samples at concentrations slightly above the Class GA Values. Iron, magnesium, manganese, and sodium were detected in filtered groundwater above Class GA Values; however, they are naturally occurring metals and the concentrations

detected in the Site groundwater may be a result of salt water intrusion from the nearby basin and harbor. Tables 5-8 of the Infiltration, Soil, and Groundwater Testing Report for Ball Fields 5 through 8 provided in Appendix C summarize the results of all samples of groundwater that exceed the Class GA Values. The groundwater sample locations are show on Figure 6A.

Ball Field 9

Arsenic was detected at a concentration above the Class GA Value in one filtered groundwater sample. Although detected at elevated concentrations in soil, antimony, barium, cadmium, copper, lead, and mercury were not detected above the Class GA Values in the field filtered groundwater samples. Iron, magnesium, manganese and sodium were detected in field filtered groundwater above Class GA Values; however, they are naturally occurring metals and the concentrations detected in the Site groundwater may be a result of salt water intrusion from the nearby basin and harbor.

There were no pesticides, herbicides or PCBs detected at concentrations exceeding the Class GA Values in the groundwater samples collected. SVOCs, including PAHs, were detected in the groundwater samples. SVOC concentrations exceeding Class GA Values detected in groundwater are attributed to the characteristics of historic fill material in Site soil.

Tables 5-8 of the Infiltration, Soil, and Groundwater Testing Report for Ball Field 9 provided in Appendix C summarize the results of all samples of groundwater that exceed the Class GA Values. The groundwater sample locations are show on Figure 6.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 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 all IC/ECs at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/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 Deed Restrictions;
- 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, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix D) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the Site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the Order on Consent and Design and Implementation Plan 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 restricted residential uses only. Adherence to these ICs on the Site is required by the Deed Restriction and will be implemented under this SMP. ICs identified in the Deed Restrictions may not be discontinued without an amendment to or extinguishment of the Deed Restrictions. The IC boundaries are shown on Figures **3** and **4**. These ICs are:

- The property may be used for: restricted residential use;
- All ECs must be operated and maintained as specified in this 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 New York City Department of Health and Mental Hygiene 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.
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;

- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any physical component of the remedy shall be performed as defined in this 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 Deed Restrictions, and
- Vegetable gardens and farming on the Site are prohibited

3.3 Engineering Controls

3.3.1 Cover System

Exposure to remaining contamination at the Site is prevented by a cover system placed over the site. This cover system is comprised of a minimum of a 12 inch thick synthetic turf, clean cover, paving, bonded aggregated and permeable pavers, mulch, ground cover and/or fencing underlain by a physical demarcation layer consisting of orange snow fencing or equivalent material. Figures **4** and **5** present the location of the cover system and applicable demarcation layers. As-built drawings for the cover system for Ball Fields 5-8 and Ball Field 9 are presented in Appendix F. The as-built drawings include as-built environmental easement drawings, demarcation layer survey drawings, final condition as-built survey drawings, and remedial as-built drawings and cross sections for Ball Fields 5 through 8 and Ball Field 9.

The Excavation Work Plan (EWP) provided in Appendix D outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site.

A generic (minimal) HASP is provided in Appendix G. A site-specific HASP will be prepared by a qualified person for the contractor performing any Site construction activities that have the potential to penetrate the demarcation layer and otherwise expose or disturb underlying contaminated soils and potentially expose workers to soil or

groundwater contaminants. The site-specific HASP shall be prepared in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of OSHA, the U.S. Department of Labor, NYSDEC DER-10, as well as any other federal, state or local applicable statutes or regulations. At a minimum, the HASP will include a description of the health and safety procedures associated with the planned Site construction/maintenance activities. The HASP shall be submitted to the owner and NYSDEC/NYSDOH for review and approval prior to starting such Site construction activities. A copy of the site-specific HASP will be available at the site during the conduct of all such construction activities to which it is applicable.

A generic CAMP is provided in Appendix G. Based on any applicable changes to State and federal health and safety requirements and specific work activities and methods employed by Site workers, the CAMP will be updated to be activity-specific by the contractor or party conducting the ground intrusive work activities and shall be prepared in current compliance with NYSDEC DER-10, 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. The CAMP shall be submitted to the owner and NYSDEC/NYSDOH for review and approval prior to starting ground intrusive work activities.

3.3.2 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.

The remedial party will also conduct any needed site restoration activities, such as asphalt repair/patching. In addition, the remedial party will conduct any necessary restoration of vegetation coverage, trees and wetlands will comply with applicable 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.

Cover System

The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity or at a modified frequency and duration as approved by the Department.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC project manager. Details regarding the sampling requirements, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the Site are included in the Quality Assurance Project Plan provided in Appendix H.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling protocol and frequency;
- Analytical sampling program requirements; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site–wide Inspection

Site-wide inspections will be performed at a minimum of once per year. These periodic inspections must be conducted when the ground surface is visible (i.e., no snow cover). Site-wide inspections will be performed by a qualified environmental professional

as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs. During these inspections, an inspection form will be completed as provided in Appendix I – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restrictions;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 POST-REMEDIATION MEDIA MONITORING AND SAMPLING

Samples shall be collected from any soils proposed to be imported to the Site for use in maintaining the clean soil cover system on an as needed basis. Sampling required analytical parameters and schedule are provided below. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

POST REMEDIATION SAMPLING REQUIREMENTS AND SCHEDULE

Analytical Parameters

	VOCs (EPA Method 8260)	SVOCs (EPA Method 8270)	Pesticides/ PCBs (EPA Methods 8081/8082)	Metals (EPA Methods 6010/7470/ 7471)	PFAS (EPA Method 537.1)	**Schedule**
Imported Borrow Soils	X	X	X	X	X	As needed

The sampling and analytical quality assurance and quality control procedures and requirements are provided in Appendix H – Quality Assurance Project Plan. The below section includes a description of the soil sample collection procedures.

4.3.1 Soil Sampling

Soil sampling of proposed imported borrow soil source material will be performed as needed to assess the quality of the soil prior to importing it to the Site for use as clean cover soil. Soil sampling procedures including the frequency of borrow sample collection are described below and in the QAPP. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

Soil samples will be collected for chemical testing from off-site borrow soil sources proposed for import to the Site for use as clean soil cover or backfill. Unless a proposed off-site borrow source consists of virgin material (e.g., mined sand, quarry gravel or stone)

or has an existing NYSDEC beneficial use determination (BUD) applicable to the planned borrow material use on the Site, the proposed off-site borrow materials will be sampled and tested to characterize the material for import to the Site for use as clean soil cover and backfill. Proposed borrow soil sources consisting of documented virgin soil, will be sampled with a minimum of one soil sample analyzed from every new source in accordance with NYSDEC DER-10 5.4(e).

Proposed non-virgin soils must be sampled for full suite of target compound list/target analyte list (TCL/TAL) including the NYSDEC DER-10 Appendix 5 parameter listing analytical parameters as well as per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The soil sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing for soil covers and backfill must meet the requirements at 6 NYCRR Part 375-6.7(d). This includes the Restricted Residential Use Soil Cleanup Objectives (SCOs) for the protection of public health and for the Protection of Groundwater established at 6NYCRR Part 375-6.8(b) and presented in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances [January 2021 or date of current version, whichever is later] guidance values. Additionally, the imported clean fill and any backfill utilized in the clean cover layer at the Site must meet the criteria found within the most current soil lead guidance used by USEPA Region 2. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Stockpile soil sampling will consist of both discrete grab samples (VOC aliquot) and composite soil samples. The composite soil sample portions will be collected with decontaminated stainless-steel spoons and placed in decontaminated stainless-steel bowls for mixing/homogenization. The sample composite sample portions will be collected from representative locations throughout the stockpile volume being characterized. Each composite sample will consist of five grab samples collected from approximately five equal areas within the stockpile. Representative composite samples shall be collected from a minimum depth 6 inches below the surface of the stockpile. The five composite sample

aliquots will be collected in a dedicated bowl for mixing. The mixed/homogenized composite soil sample will then be transferred into the appropriate laboratory-supplied sample containers for all but the VOC analyses. The unused portion of homogenized soil will be returned to the stockpile.

As indicated above, the VOC sample fraction will be collected separately as a discrete sample with no mixing. The soil stockpile and composite sample locations will be screened for organic vapors with a portable photoionization ionization detector (PID) to aid in selecting VOC discrete sample locations. Representative discrete grab samples for VOCs analysis will be collected in accordance with EPA Method 5035 using dedicated new Terra Core or EnCore® samplers and approved laboratory-supplied sample containers with appropriate preservatives. The VOC sample fraction for each sample will be collected from the associated composite sample area as a discrete grab sample from a sample depth at least 12 inches below the surface.

Each soil sample will be geologically logged and any signs of potential contamination (e.g., PID readings, staining, debris, odors) will be recorded in a field notebook by the sampler. The sample depths will also be recorded and the locations of all sampled stockpiles and the stockpile samples will be indicated on a site sketch or map. Photographs of the soil stockpile and composite soil sample matrix will also be taken.

A list of the soil sample analysis methods, preservatives, holding times, and containers is provided in the project QAPP. The sample containers will be labeled and placed into a cooler with ice until receipt at the laboratory. A completed Chain-of-Custody form will accompany all sample shipments to the laboratory.

Dedicated decontaminated soil sampling equipment will be used at each location or cleaned between uses in accordance with the procedures presented in the project QAPP.

All used disposable sampling equipment (e.g., gloves) will be collected in trash bags and properly disposed by sampling personnel off site as solid waste after completion of the sampling event.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The Site remedy does not rely on any mechanical systems, such as groundwater treatment systems, sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

6.0 PERIODIC ASSESSMENTS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

Ball Fields 5 through 8

The Ball Fields 5 through 8 Site is located approximately 575 feet northwest of the Henry Street Basin, 1,600 feet north of the Gowanus Bay, and 1,700 feet west of the Gowanus Canal, an extension of Gowanus Bay. The Site is located within the Gowanus Bay 100-year floodplain. The elevation of the 100-year flood is 11 feet National Geodetic Vertical Datum of 1929 (NGVD29) in the vicinity of the Site.

According to the FEMA Flood Insurance Rate Map for the area (Map No. 3604970192G Effective 09/05/2007), the Site is located within an area designated as Zone AE that is defined as a special flood hazard area subject to inundation by the 1% annual

chance flood, where the Base Flood Elevation (BFE) has been determined. The BFE for the site is 11 feet.

A new curb wall was installed around the new sports field perimeter to raise the elevation to 11.25 feet NAVD 88 at the top of the curb, above the BFE of 11.0 feet, located approximately six feet from the existing curb wall towards the center of the block, and will provide enhanced flood protection and storm resiliency.

Ball Field 9

The Ball Field 9 Site is located approximately 100 feet northwest of the Henry Street Basin, 1,200 feet north of the Gowanus Bay, and 1,700 feet west of the Gowanus Canal, an extension of Gowanus Bay. Ball Field 9 is not located within the Gowanus Bay 100-year floodplain. The elevation of the 100-year flood is 11 feet National Geodetic Vertical Datum of 1929 (NGVD29) in the vicinity of the Site.

According to the FEMA Flood Insurance Rate Map for the area (Map No. 3604970192F Effective 09/05/2007), the majority of Ball Field 9 is located within an area designated as Zone X that is defined as an area of minimal flood hazard.

The majority of the sidewalks were installed at or above 11.00 feet NAVD 88, the sports field elevation ranges from 12 to 14.90 feet NAVD 88, with the majority of the reconstruction occurring above the BFE of 11.0 feet which will provide flood protection and storm resiliency.

There are no buildings or significant structures on the Site that would be considered critical infrastructure at risk due to flooding.

Based on the fact that there is no critical infrastructure located on the Site that would be at risk due to flooding, and the raising the site park grade to above BFE, a climate change vulnerability assessment has not been conducted and is not planned for the Site.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix I. These forms are subject to NYSDEC revision. All site management inspection, maintenance, and monitoring events will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

All applicable inspection forms and other records, including cover system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 2 and included with and summarized in the Periodic Review Report.

Table 2: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection Report	Annually (1)
Periodic Review Report	Annually, or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.
(1) Inspection Report for the cover system shall be provided to NYSDEC with the Periodic Review Report (PRR) at the frequency specified for the PRR.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);

- Copies of all field forms completed (e.g., site inspection logs, sample logs);
- A figure illustrating significant site inspection findings and photo locations;
- Any observations, conclusions, or recommendations; and

Routine cover maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the cover system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement materials etc., (attached to the checklist/form).

Non-routine cover maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for cover repair work, receipts for cover replacement materials, etc. (attached to the checklist/form).

Any associated site sample data (e.g., imported borrow soil testing) will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the completion of the remedial actions required under the USEPA Consent Order. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually every year to the Department or at another frequency as may be

required by the Department. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.
- Results of the required site inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any sample data (e.g., imported borrow soil testing) and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (soil, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted.
- Results of any sample analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A site remedy compliance evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
  - The operation and the effectiveness of all cover materials, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10: "*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *Use of the site is compliant with the deed restrictions;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program; and*
- *The information presented in this report is accurate and complete.*

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, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] for the site."

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH

Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

8.0 REFERENCES

Buxton, Soren, Posner, and Shernoff, 1981, "Reconnaissance of the Ground Water Resources of Kings and Queens Counties, New York".

Oweis Engineering, Inc., Geotechnical Report, Red Hook Ball Fields 5-8, Borough of Brooklyn, New York, December 8, 2016.

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

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation", May 2010.

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).

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

NYCDPR Red Hook Park Superfund Soil Sampling 2014-2015 Field Reports and Contaminant Results, June 30, 2015

United States Environmental Protection Agency Region 2, Administrative Settlement Agreement and Order on Consent For a Removal Action, Columbia Smelting and Refining Works Site, Brooklyn, New York, Index No. CERCLA-02-2016-2010, July 7, 2016.

TRC Engineers, Inc., Design and Implementation Plan for Removal Action, Red Hook Ball Fields 5, 6, 7, and 8, 98 Lorraine Street, Block 581, Lot 1, Brooklyn, New York, June 24, 2016.

TRC Engineers, Inc., Infiltration, Soil, and Groundwater Testing Report, Red Hook Ball Fields 5, 6, 7, and 8, 98 Lorraine Street, Block 581, Lot 1, Brooklyn, New York, June 9, 2016.

TRC Engineers, Inc., RE: Underground Storage Tank Closure Report, PBS No. 2-613138 Remediation and Reconstruction of Ball Fields 5-8, Red Hook Recreation Area, 98 Lorraine Street, Brooklyn, May 5, 2020.

TRC Engineers, Inc., Supplemental Surface Soil Investigation, Red Hook Ball Fields 5, 6, 7, and 8, 98 Lorraine Street, Block 581, Lot 1, Brooklyn, New York, March 3, 2017.

Weston Solutions, Inc., Final Soil Sampling Trip Report – Columbia Smelting & Refining Works Site, Brooklyn, New York, April 9, 2015.

TRC Engineers, Inc., Design and Implementation Plan, Red Hook Recreation Area Ball Field 9 and the Ball Field Planting Strips, Portions of Block 602, Lot 1 and Block 614 Lot 300, Brooklyn, New York, April 23, 2018.

TRC Engineers, Inc., Limited Geotechnical, Soil, and Groundwater Sampling Report, Red Hook Ball Field 9, Brooklyn, New York, March 6, 2017.

TABLES

Table 1

Site and Emergency Contact Information*
Red Hook Ball Fields 5 through 9, Brooklyn, New York

[As of January 2024]

Name	**Contact Information**
Emergency Contacts	
Medical, Fire, and Police:	911
Hospital, Lutheran Medical Center	(718) 630-7000
NY 811(formerly DigNet of NY and Long Island)	811 (at least 2 working days advance notice required for utility mark outs)
Poison Control Center	(800) 222-1222
National Response Center	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
NYCDEP Division of Emergency Response	311
NYCDPR Capital Projects Director of Environmental Remediation Kay Zias	(718) 760-6748
NYCDPR Brooklyn Borough Office Chief of Operations, M&O Jeff Sigadel	(718) 965-8922
TRC Engineers, Inc., Remedial Engineer Jim Peronto	(860) 298-6233
NYSDEC Project Manager Wendi Zheng	(718) 482-7541 wendi.zheng@dec.ny.gov
NYSDEC Regional HW Engineer Jane O'Connell	(718) 482-4599 jane.oconnell@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski	(518) 402-9553 Kelly.lewandowski@dec.ny.gov
NYSDOH Stephanie Selmer	(581) 402-7864 stephanie.selmer@health.ny.gov

* Note: Notification contacts are subject to change and will be updated as necessary.

Table 2: Schedule of Interim Monitoring/Inspection Reports

Former Columbia Smelting and Refining Works Site,
Red Hook Ball Fields 5 through 9, Brooklyn, New York

Task/Report	Inspection/Report Frequency*
Cover System Inspection Report	Annually[1]
Periodic Review Report	Annually or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

(1) Inspection Report for the cover system shall be provided to NYSDEC with the Periodic Review Report (PRR) at the frequency specified for the PRR.

Table 3

New York State Department of Conservation Restricted Residential Use Soil Cleanup Objective

Contaminant	Restricted Residential Use Soil Cleanup Objective Concentration (mg/kg)
METALS	
Arsenic	16
Barium	400
Cadmium	47
Chromium, Hexavalent	4.3
Chromium, Trivalent	19
Copper	180
Cyanide	270
Lead	400
Manganese	2000
Mercury (total)	0.73
Nickel	130
Selenium	4
Silver	8.3
Zinc	2480
Semi-Volatile Organic Compounds (SVOCs)	
Acenaphthene	98
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1

Benzo(b)fluoranthene	1
Benzo(g,h,i)perylene	100
Benzo(k)fluoranthene	1.7
Chrysene	1
Dibenz(a,h)anthracene	0.33*
Fluoranthene	100
Fluorene	100
Indeno(1,2,3-cd)pyrene	0.5
m-Cresol(s)	0.33*
Napthalene	12
o-Cresol(s)	0.33*
p-Cresol(s)	0.33
Petachlorophenol	0.8*
Phenanthrene	100
Phenol	0.33*
Pyrene	100

TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS001-0001-01	P001-SS001-0106-01	P001-SS001-0612-01	P001-SS001-1218-01	P001-SS001-1824-01	P001-SS002-0001-01	P001-SS002-0106-01	P001-SS002-0612-01	P001-SS002-1218-01	P001-SS002-1824-01	P001-SS003-0001-01	P001-SS003-0106-01
Sampling Date			3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015
Sample Depth (in)			0-1	1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1	1-6
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	6,300	6,500	5,500	5,000	9,200	3,900	4,900	5,700	4,200	4,400	6,000	6,400
Antimony	31	NS	26	26	67	36	11	3.8	5.8	39	92	190	7.0	57
Arsenic	34	16	38	17	24	24	10	10	13	38	27	89	15	48
Barium	15,000	350	620	400	390	390	180	140	140	500	520	540	220	550
Beryllium	160	14	0.45	0.29	0.28 U	0.27 U	0.28	0.29 U	0.28	0.30	0.27 U	0.25 U	0.30 U	0.32
Cadmium	70	2.5	4.7	2.3	2.5	5.2	0.76	0.99	1.3	4.8	3.0	4.7	2.0	4.2
Calcium	NS	NS	2,400	3,400	3,300	6,000	3,800	1,600	2,600	4,700	9,800	7,200	4,700	8,900
Chromium	NS*	NS**	40	22	25	22	20	16	18	28	24	23	26	31
Cobalt	23	NS	6.6	7.9	6.3	7.7	6.4	3.5	38	8.1	6.1	7.4	3.6	6.8
Copper	3,100	270	400	260	710	260	94	80	100	600	1,400	1,500	130	490
Iron	55,000	NS	27,000	25,000	26,000	51,000	19,000	14,000	18,000	55,000	36,000	43,000	17,000	31,000
Lead	400	400	2,400	1,300	3,300	2,200	550	410	430	2,600	4,700	7,600	760	2,900
Magnesium	NS	NS	1,900	1,700	2,200	1,800	2,100	1,100	1,400	1,800	1,700	1,600	1,700	2,300
Manganese	1,800	2,000	370	340	310	490	310	130	160	380	360	370	210	350
Nickel	1,500	140	33	37	29	27	23	9.0	10	31	28	42	15	33
Potassium	NS	NS	760	910	930	710	770	430	370	550	550	590	670	720
Selenium	390	36	2.0 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	2.0 U	2.0 U
Silver	390	36	0.78	0.51	1.2	0.51	0.46 U	0.48 U	0.47 U	0.85	1.3	1.9	0.50 U	1.2
Sodium	NS	NS	120	150	150	210	280	97 U	93 U	180	210	170	100 U	120
Thallium	0.78***	NS	2.0 U	1.8 U	1.9 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	1.7 U	2.0 U	2.0 U
Tin	47,000	NS	600	340	290	430	84	99	100	780	1,600	2,400	230	1,300
Vanadium	390	NS	56	31	28	31	34	24	26	32	20	17	30	36
Zinc	23,000	2,200	1,300	770	790	1,800	280	270	500	1,400	1,400	1,700	480	1,300

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS003-0612-01	P001-SS003-1218-01	P001-SS003-1824-01	P001-SS004-0001-01	P001-SS004-0106-01	P001-SS004-0106-02	P001-SS004-0612-01	P001-SS004-1218-01	P001-SS004-1824-01	P001-SS005-0001-01	P001-SS005-0106-01	P001-SS005-0612-01
Sampling Date			3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015	3/16/2015
Sample Depth (in)			6-12	12-18	18-24	0-1	1-6	1-6	6-12	12-18	18-24	0-1	1-6	6-12
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	5,400	5,100	4,800	8,700	6,100	6,200	5,400	5,700	4,900	2,500	4,000	7,200
Antimony	31	NS	54	19	15	9.8	17 J	32	10	3.6	8.4	1.9 U	7.1	11
Arsenic	34	16	25	14	14	15	19	21	12	13	11	4.9	21	17
Barium	15,000	350	570	370	280	270	400	430	380	180	160	36	200	340
Beryllium	160	14	0.27 U	0.27 U	0.29 U	0.42	0.29 U	0.29 U	0.29 U	0.27 U	0.26 U	0.29 U	0.35	0.29
Cadmium	70	2.5	3.2	1.5	1.8	2.5	3.0	3.1	1.7	0.54	0.59	0.29 U	2.5	1.9
Calcium	NS	NS	9,400	8,400	7,500	5,700	8,600	6,400	7,600	6,500	6,100	950	1,300	13,000
Chromium	NS*	NS**	25	24	24	28	27	30	33	20	22	11	19	23
Cobalt	23	NS	6.7	5.6	5.3	4.8	6.0	5.7	5.1	5.1	5.6	2.2	4.1	6.6
Copper	3,100	270	500	310	210	160	310	310	150	310	120	22	130	200
Iron	55,000	NS	35,000	20,000	18,000	20,000	23,000	25,000	18,000	18,000	17,000	11,000	31,000	24,000
Lead	400	400	2,500	1,300	960	910	2,500 J	1,900	940	2,900	950	110	750	1,300
Magnesium	NS	NS	2,300	2,400	2,100	2,100	2,100	2,300	2,300	2,600	2,200	620	2,000	2,600
Manganese	1,800	2,000	360	280	240	260	300	340	260	140	140	81	210	260
Nickel	1,500	140	34	27	27	19	25	27	27	26	26	4.4	12	30
Potassium	NS	NS	750	800	660	850	630	740	770	930	790	310	440	820
Selenium	390	36	1.8 U	1.8 U	1.9 U	2.2 U	1.9 U	2.0 U	1.9 U	1.8 U	1.7 U	1.9 U	1.6 U	1.7 U
Silver	390	36	0.63	0.44 U	0.48 U	0.54 U	0.62	0.50	0.48 U	0.44 U	0.43 U	0.48 U	0.41 U	0.43 U
Sodium	NS	NS	120	120	95 U	110 U	97 U	98 U	96 U	390	110	97 U	82 U	210
Thallium	0.78***	NS	1.8 U	1.8 U	1.9 U	2.2 U	1.9 U	2.0 U	1.9 U	1.8 U	1.7 U	1.9 U	1.6 U	1.7 U
Tin	47,000	NS	690	330	220	210	900	370	190	70	290	25	140	240
Vanadium	390	NS	26	20	20	38	33	32	24	18	16	17	33	26
Zinc	23,000	2,200	1,100	600	610	540	810	880	570	240	270	83	1,100	610

Notes:
All soil data reported in milligrams per kilogram (mg/kg).
All rinsate blank data reported in micrograms per liter (µg/L).
Detected concentrations are **Bolded.**
J - Indicates the reported value is an estimate.
U - Indicates the analyte was analyzed for but not detected.
[1] Standards obtained from the United States Environmental Protection Agency (EPA) Removal Management Levels (RMLs) for Residential Soil using a 10^{-6} Risk Level for Carcinogens or a Hazard Quotient (HQ) of 1 for Non-Carcinogens, January 2015.
[2] Standards obtained from the New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives (SCOs) for Residential Soil, December 14, 2006.
*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.
**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.
***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.
Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.
Results at or exceeding EPA RMLs for Residential Soil highlighted red. The detection also exceeds the NYSDEC SCO for Residential Soil, if one exists.

TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS005-1218-01	P001-SS005-1824-01	P001-SS006-0001-01	P001-SS006-0106-01	P001-SS006-0612-01	P001-SS006-1218-01	P001-SS006-1824-01	P001-SS007-0001-01	P001-SS007-0106-01	P001-SS007-0612-01	P001-SS007-1218-01	P001-SS007-1824-01
Sampling Date			3/16/2015	3/16/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015
Sample Depth (in)			12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	5,600	4,600	11,000	6,700	5,900	5,900	4,700	7,700	5,600	5,800	5,500	5,500
Antimony	31	NS	9.7	4.1	20	28	30	30	15	29	75	79	90	93
Arsenic	34	16	14	15	39	84	250	58	22	56	58	69	49	70
Barium	15,000	350	290	340	670	540	490	590	390	800	650	1,100	710	840
Beryllium	160	14	0.28 U	0.27 U	0.53	0.32	0.32	0.36	0.27 U	0.54	0.39	0.30 U	0.28	0.30 U
Cadmium	70	2.5	0.86	0.56	4.8	5.8	5.4	6.7	1.6	6.6	8.6	8.7	6.3	8.0
Calcium	NS	NS	7,900	12,000	5,100	4,800	4,600	8,300	5,100	7,500	5,300	8,100	7,900	9,000
Chromium	NS*	NS**	40	21	41	33	31	44	25	48	43	43	38	42
Cobalt	23	NS	6.9	6.3	7.1	8.0	7.8	8.6	5.5	7.1	8.8	11	11	10
Copper	3,100	270	200	200	440	450	510	430	420	540	540	910	760	980
Iron	55,000	NS	19,000	21,000	28,000	52,000	44,000	42,000	23,000	32,000	67,000	63,000	71,000	82,000
Lead	400	400	1,100	1,900	2,100	2,600	2,700	2,800	1,500	2,900	3,400	5,500	4,500	6,000
Magnesium	NS	NS	3,000	1,700	2,800	2,200	1,700	2,300	1,500	2,900	3,300	2,400	3,300	2,600
Manganese	1,800	2,000	280	240	370	450	420	400	380	410	490	550	550	640
Nickel	1,500	140	46	24	35	50	32	37	77	41	50	50	59	59
Potassium	NS	NS	920	710	880	490	850	660	560	930	860	690	820	1,100
Selenium	390	36	1.9 U	1.8 U	2.0 U	1.9 U	3.0	1.8 U	1.8 U	2.0 U	2.0 U	2.0 U	1.9 U	2.0 U
Silver	390	36	0.83	0.47	0.73	0.72	0.73	1.2	2.5	1.0	1.1	1.7	1.1	1.4
Sodium	NS	NS	310	410	99 U	110	160	160	180	100 U	130	220	160	160
Thallium	0.78***	NS	1.9 U	1.8 U	2.0 U	1.9 U	2.6	1.8 U	1.8 U	2.0 U	2.0 U	2.0 U	1.9 U	2.0 U
Tin	47,000	NS	200	130	560	800	850	760	470	820	870	1,700	1,500	1,900
Vanadium	390	NS	23	22	57	41	37	47	19	65	62	40	31	35
Zinc	23,000	2,200	450	390	1,300	1,600	1,700	2,000	740	1,700	2,300	2,600	2,300	2,800

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS008-0001-01	P001-SS008-0106-01	P001-SS008-0612-01	P001-SS008-0612-02	P001-SS008-1218-01	P001-SS008-1824-01	P001-SS009-0001-01	P001-SS009-0106-01	P001-SS009-0612-01	P001-SS009-1218-01	P001-SS009-1824-01	P001-SS010-0001-01
Sampling Date			3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/17/2015	3/18/2015
Sample Depth (in)			0-1	1-6	6-12	6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	8,200	6,100	5,600	5,400	5,600	5,900	9,100	6,000	5,900	5,800	6,200	9,300
Antimony	31	NS	21	30	38	41	32	19	25	37	23	22	14	13
Arsenic	34	16	42	48	61	53	26	25	36	32	31	24	19	45
Barium	15,000	350	600	600	700	620	510	430	730	540	450	480	390	570
Beryllium	160	14	0.58	0.41	0.35	0.39	0.25 U	0.28 U	0.57	0.30	0.28 U	0.37	0.35	0.45
Cadmium	70	2.5	5.9	8.2	6.9	7.0	3.6	4.0	6.9	5.2	2.9	2.8	2.2	3.1
Calcium	NS	NS	5,700	5,300	10,000	11,000	21,000	18,000	3,600	4,400	8,900	6,800	6,000	4,600
Chromium	NS*	NS**	43	41	37	39	29	30	48	37	28	30	26	34
Cobalt	23	NS	6.6	8.5	10	8.7	7.2	7.6	7.7	8.7	8.7	8.5	6.7	6.5
Copper	3,100	270	370	560	510	520	450	320	550	420	310	370	280	320
Iron	55,000	NS	30,000	55,000	34,000	42,000	30,000	54,000	32,000	34,000	33,000	41,000	30,000	25,000
Lead	400	400	2,300	3,200	2,900	2,900	2,100	1,900	2,900	2,800	2,000	2,700	2,100	1,700
Magnesium	NS	NS	2,400	2,200	4,700	3,700	10,000	2,800	2,400	2,800	2,300	2,000	1,800	2,500
Manganese	1,800	2,000	390	360	390	410	370	430	390	310	270	360	270	380
Nickel	1,500	140	33	30	38	40	37	36	41	32	38	35	27	26
Potassium	NS	NS	770	540	620	640	810	1,200	790	730	890	650	750	760
Selenium	390	36	2.0 U	2.0 U	1.8 U	1.7 U	1.7 U	1.9 U	2.0 U	1.9 U	1.9 U	2.2	2.0 U	2.0 U
Silver	390	36	0.75	0.98	1.0	1.0	0.64	0.70	2.0	0.76	0.56	0.71	0.50 U	0.51 U
Sodium	NS	NS	110 U	230	160	150	190	200	100 U	120	200	210	230	100 U
Thallium	0.78***	NS	2.2 U	2.0 U	1.8 U	1.7 U	1.7 U	1.9 U	2.0 U	1.9 U	1.9 U	2.0 U	2.0 U	2.0 U
Tin	47,000	NS	630	780	790	810	660	390	780	610	580	1,000	560	390
Vanadium	390	NS	62	63	55	56	31	32	78	46	33	32	32	46
Zinc	23,000	2,200	1,300	2,200	1,600 J	1,800	1,200	1,000	1,600	1,400	950	1,000	810	980

Notes:
All soil data reported in milligrams per kilogram (mg/kg).
All rinsate blank data reported in micrograms per liter (µg/L).
Detected concentrations are **Bolded.**
J - Indicates the reported value is an estimate.
U - Indicates the analyte was analyzed for but not detected.

[1] Standards obtained from the United States Environmental Protection Agency (EPA) Removal Management Levels (RMLs) for Residential Soil using a 10^{-4} Risk Level for Carcinogens or a Hazard Quotient (HQ) of 1 for Non-Carcinogens, January 2015.

[2] Standards obtained from the New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives (SCOs) for Residential Soil, December 14, 2006.

*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.

**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.

***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.

Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.

Results at or exceeding EPA RMLs for Residential Soil highlighted red. The detection also exceeds the NYSDEC SCO for Residential Soil, if one exists.

TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS010-0106-01	P001-SS010-0612-01	P001-SS010-1218-01	P001-SS010-1824-01	P001-SS011-0001-01	P001-SS011-0106-01	P001-SS011-0612-01	P001-SS011-1218-01	P001-SS011-1218-02	P001-SS011-1824-01	P001-SS012-0001-01	P001-SS012-0106-01
Sampling Date			3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015
Sample Depth (in)			1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18	12-18	18-24	0-1	1-6
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	5,600	5,300	4,400	4,800	6,900	5,800	5,600	5,900	5,300	4,200	8,400	5,800
Antimony	31	NS	13	18	8.1	28	23	6.3	75	40	53	150	23	28
Arsenic	34	16	50	170	110	84	39	40	33	32	38	77	37	33
Barium	15,000	350	550	800	500	820	670	600	690	880	810	840	1,200	620
Beryllium	160	14	0.40	0.50	0.53	0.59	0.53	0.65	0.50	0.66	0.57	0.63	0.63	0.66
Cadmium	70	2.5	2.4	2.8	1.7	3.3	6.3	9.2	5.0	3.8	4.1	6.1	7.0	7.3
Calcium	NS	NS	7,100	3,800	4,500	9,700	5,900	4,200	8,600	9,100	8,500	12,000	5,900	3,800
Chromium	NS*	NS**	32	44	23	55	44	47	41	34	63	59	52	43
Cobalt	23	NS	5.5	7.3	8.7	7.7	7.5	9.5	8.3	8.7	8.1	17	8.2	8.4
Copper	3,100	270	330	530	220	1,000	430	660	470	630	620	520	480	490
Iron	55,000	NS	21,000	44,000	25,000	45,000	30,000	69,000	60,000	54,000	55,000	100,000	30,000	45,000
Lead	400	400	1,800	2,800	1,400	17,000	2,600	2,900	4,400	4,300	3,700	7,300	2,800	2,900
Magnesium	NS	NS	2,300	1,700	1,100	1,200	2,400	2,100	2,100	1,900	1,700	2,900	2,700	2,000
Manganese	1,800	2,000	310	370	210	260	490	380	420	440	400	530	420	390
Nickel	1,500	140	26	35	25	27	38	55	40	35	36	51	43	38
Potassium	NS	NS	520	560	430	530	820	630	570	720	580	410	980	710
Selenium	390	36	1.9 U	2.0 U	2.0 U	1.9 U	2.1 U	1.8 U	1.7 U	1.8 U	1.7 U	1.8 U	2.1 U	1.9 U
Silver	390	36	0.48	0.82	1.0	0.79	0.86	0.90	0.86	0.92	0.78	1.0	1.0	0.91
Sodium	NS	NS	96 U	200	100	130	100 U	90 U	86	130	99	190	110 U	100
Thallium	0.78***	NS	1.9 U	2.0 U	2.0 U	1.9 U	2.1 U	1.8 U	1.7 U	1.8 U	1.7 U	1.8 U	2.1 U	1.9 U
Tin	47,000	NS	440	490	250	590	650	710	1,400	1,200	1,100	1,600	650	660
Vanadium	390	NS	29	29	22	24	63	65	34	28	31	31	72	60
Zinc	23,000	2,200	930	1,200	650	1,600	1,400	2,300	1,600	1,500	1,400	2,400	1,600	1,600

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS012-0612-01	P001-SS012-1218-01	P001-SS012-1824-01	P001-SS013-0001-01	P001-SS013-0106-01	P001-SS013-0612-01	P001-SS013-1218-01	P001-SS013-1824-01	P001-SS014-0001-01	P001-SS014-0106-01	P001-SS014-0612-01	P001-SS014-1218-01
Sampling Date			3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015
Sample Depth (in)			6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	5,800	5,500	6,000	5,900	6,600	5,900	5,200	8,100	4,700	4,500	5,600	5,400
Antimony	31	NS	22	35	57	11	24	16	14	28	7.4	22	28	56
Arsenic	34	16	29	33	27	18	18	16	15	18	14	28	75	140
Barium	15,000	350	470	510	480	390	520	460	370	480	200	240	570	790
Beryllium	160	14	0.57	0.49	0.40	0.34	0.48	0.40	0.40	0.63	0.31	0.48	0.56	0.50
Cadmium	70	2.5	3.5	3.0	4.3	3.0	2.4	1.9	1.7	1.1	1.8	2.6	5.8	7.0
Calcium	NS	NS	5,000	11,000	7,700	3,400	5,900	4,300	4,100	12,000	5,400	3,100	6,200	4,400
Chromium	NS*	NS**	39	35	37	28	27	22	26	25	22	22	41	47
Cobalt	23	NS	7.8	8.4	8.3	5.5	6.8	6.6	7.6	8.1	4.1	5.3	8.3	11
Copper	3,100	270	340	370	630	230	340	310	260	700	130	220	480	440
Iron	55,000	NS	39,000	48,000	55,000	20,000	28,000	26,000	36,000	20,000	17,000	26,000	37,000	93,000
Lead	400	400	2,400	2,500	3,300	1,300	1,700	1,800	1,500	1,800	730	1,100	2,700	6,200
Magnesium	NS	NS	2,500	5,200	3,000	2,000	2,200	2,200	2,500	2,600	2,400	1,400	1,900	1,700
Manganese	1,800	2,000	260	340	300	210	220	320	330	230	180	230	360	580
Nickel	1,500	140	36	30	33	21	34	26	32	33	14	17	35	37
Potassium	NS	NS	710	840	750	560	710	740	840	1,100	500	560	720	740
Selenium	390	36	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	1.7 U	2.0 U	2.0 U	1.8 U	1.8 U	1.7 U
Silver	390	36	0.78	0.90	0.94	0.48 U	0.45	0.90	0.43 U	0.65	0.49 U	0.44 U	0.83	1.7
Sodium	NS	NS	180	230	260	97 U	190	190	180	1,300	98 U	88 U	160	150
Thallium	0.78***	NS	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	1.7 U	2.0 U	2.0 U	1.8 U	1.8 U	1.7 U
Tin	47,000	NS	570	570	1,100	310	440	430	490	290	180	290	630	2,200
Vanadium	390	NS	34	27	27	44	29	22	24	30	32	38	50	47
Zinc	23,000	2,200	1,100	1,200	1,700	740	860	850	790	630	440	650	1,600	2,100

Notes:
All soil data reported in milligrams per kilogram (mg/kg).
All rinsate blank data reported in micrograms per liter (µg/L).
Detected concentrations are **Bolded.**
J - Indicates the reported value is an estimate.
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*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.
**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.
***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.
Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.
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TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS014-1824-01	P001-SS015-0001-01	P001-SS015-0106-01	P001-SS015-0612-01	P001-SS015-1218-01	P001-SS015-1824-01	P001-SS015-1824-02	P001-SS016-0001-01	P001-SS016-0106-01	P001-SS016-0612-01	P001-SS016-1218-01	P001-SS016-1824-01
Sampling Date			3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015
Sample Depth (in)			18-24	0-1	1-6	6-12	12-18	18-24	18-24	0-1	1-6	6-12	12-18	18-24
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	6,100	7,600	5,800	5,100	6,700	6,400	6,700	5,300	5,500	5,600	7,200	6,200
Antimony	31	NS	44	26	73	24	19	13	12	14	23	15	9.2	6.6
Arsenic	34	16	170	25	38	29	49	41	42	19	26	20	22	19
Barium	15,000	350	890	480	640	560	480	470	500	420	480	430	400	350
Beryllium	160	14	0.88	0.57	0.64	0.47	0.71	0.91	0.95	0.40	0.51	0.55	0.59	0.49
Cadmium	70	2.5	9.6	4.8	8.7	4.6	5.1	3.6	3.5	3.9	5.2	3.3	2.0	2.1
Calcium	NS	NS	6,000	4,600	3,900	3,800	7,900	7,900	9,500	3,600	2,900	5,400	6,600	6,700
Chromium	NS*	NS**	60	40	44	36	36	33	32	34	32	32	67	33
Cobalt	23	NS	11	6.7	8.8	7.6	8.5	11	11	5.6	6.9	7.4	9.5	9.4
Copper	3,100	270	770	300	600	1,400	720	480	440	260	370	380	430	500
Iron	55,000	NS	69,000	26,000	38,000	41,000	30,000	33,000	34,000	23,000	36,000	25,000	30,000	42,000
Lead	400	400	5,600	2,000	2,900	3,100	2,600	1,500	1,500	1,700	2,200	1,800	1,300	1,700
Magnesium	NS	NS	2,100	2,200	2,100	1,800	1,700	2,200	2,100	2,200	1,700	1,600	920	1,200
Manganese	1,800	2,000	750	370	530	370	390	300	350	290	310	290	350	360
Nickel	1,500	140	46	30	39	33	32	46	45	25	29	28	24	28
Potassium	NS	NS	810	860	720	690	690	770	690	670	680	680	720	740
Selenium	390	36	1.8 U	2.1 U	1.8 U	1.8 U	2.3	2.0	1.9	2.0 U	1.8 U	1.9 U	2.5	2.0 U
Silver	390	36	1.2	0.54	0.94	0.65	8.5	4.7	3.2	0.51	0.52	0.57	2.3	2.0
Sodium	NS	NS	220	110 U	92 U	94	180	220	210	100 U	90 U	140	230	330
Thallium	0.78***	NS	1.8 U	2.1 U	1.8 U	1.8 U	1.9 U	1.8 U	1.9 U	2.0 U	1.8 U	1.9 U	2.0 U	2.0 U
Tin	47,000	NS	1,000	500	660	850	310	250	320	430	600	370	300	730
Vanadium	390	NS	82	56	64	39	29	43	42	49	49	34	28	34
Zinc	23,000	2,200	3,200	1,100	1,700	1,300	1,500	1,000	1,100	960	1,400	970	830	1,100

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS017-0001-01	P001-SS017-0106-01	P001-SS017-0612-01	P001-SS017-1218-01	P001-SS017-1824-01	P001-SS018-0001-01	P001-SS018-0106-01	P001-SS018-0612-01	P001-SS018-1218-01	P001-SS018-1824-01	P001-SS019-0001-01	P001-SS019-0106-01
Sampling Date			3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/18/2015	3/18/2015
Sample Depth (in)			0-1	1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1	1-6
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	2,900	6,000	6,200	6,600	5,600	5,900	6,000	5,600	5,300	5,300	13,000	9,300
Antimony	31	NS	1.9 U	19	15	22	23	8.1	20	22	21	5.3	2.9	5.5
Arsenic	34	16	4.5	19	17	13	16	17	33	27	24	14	12	21
Barium	15,000	350	27	660	460	310	470	190	370	450	360	230	98	270
Beryllium	160	14	0.29 U	0.28	0.27	0.26 U	1.1	0.32 U	0.34	0.37	0.28 U	0.36	0.57	0.71
Cadmium	70	2.5	0.29 U	2.5	2.7	3.3	3.0	2.1	3.6	3.5	3.3	2.2	0.74	5.3
Calcium	NS	NS	3,300	6,800	6,100	7,800	5,200	7,200	13,000	5,200	4,100	3,000	2,700	3,000
Chromium	NS*	NS**	11	26	25	24	31	31	24	26	25	25	24	26
Cobalt	23	NS	2.7	7.4	6.6	8.5	8.3	4.7	5.6	7.5	7.6	6.7	5.3	6.5
Copper	3,100	270	16	380	260	240	360	150	280	360	280	190	76	260
Iron	55,000	NS	10,000	32,000	30,000	39,000	48,000	18,000	33,000	29,000	26,000	27,000	19,000	17,000
Lead	400	400	73	2,100	1,700	2,800	1,900	750	1,500	1,700	1,700	1,200	260	590
Magnesium	NS	NS	1,300	2,400	2,900	3,500	1,900	3,100	2,400	1,800	1,800	1,200	2,600	2,000
Manganese	1,800	2,000	90	330	290	460	380	220	330	310	260	210	370	260
Nickel	1,500	140	4.0	29	30	63	37	19	28	220	31	21	16	27
Potassium	NS	NS	340	770	830	1,300	650	790	640	760	800	640	810	690
Selenium	390	36	1.9 U	1.8 U	1.8 U	1.7 U	1.8 U	2.1 U	1.9 U	1.9 U	1.8 U	1.9 U	2.0 U	2.1 U
Silver	390	36	0.48 U	0.71	0.69	0.55	0.68	0.53 U	0.57	0.64	0.75	0.53	0.50 U	0.62
Sodium	NS	NS	95 U	210	180	180	220	140	140	300	300	360	390	100 U
Thallium	0.78***	NS	1.9 U	1.8 U	1.8 U	1.7 U	1.8 U	2.1 U	1.9 U	1.9 U	1.8 U	1.9 U	2.0 U	2.1 U
Tin	47,000	NS	15	390	340	500	610	190	380	440	450	270	36	57
Vanadium	390	NS	17	25	24	23	24	30	36	40	26	36	29	51
Zinc	23,000	2,200	51	940	1,100	1,100	1,400	660	1,000	960	880	600	240	410

Notes:
All soil data reported in milligrams per kilogram (mg/kg).
All rinsate blank data reported in micrograms per liter (µg/L).
Detected concentrations are **Bolded.**
J - Indicates the reported value is an estimate.
U - Indicates the analyte was analyzed for but not detected.

[1] Standards obtained from the United States Environmental Protection Agency (EPA) Removal Management Levels (RMLs) for Residential Soil using a 10^{-4} Risk Level for Carcinogens or a Hazard Quotient (HQ) of 1 for Non-Carcinogens, January 2015.

[2] Standards obtained from the New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives (SCOs) for Residential Soil, December 14, 2006.

*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.

**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.

***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.

Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.

Results at or exceeding EPA RMLs for Residential Soil highlighted red. The detection also exceeds the NYSDEC SCO for Residential Soil, if one exists.

TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS019-0612-01	P001-SS019-1218-01	P001-SS019-1824-01	P001-SS020-0001-01	P001-SS020-0106-01	P001-SS020-0612-01	P001-SS020-1218-01	P001-SS020-1824-01	P001-SS021-0001-01	P001-SS021-0106-01	P001-SS021-0612-01	P001-SS021-1218-01
Sampling Date			3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015
Sample Depth (in)			6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	7,400	6,200	7,300	12,000	12,000	7,400	6,500	7,300	16,000	10,000	8,100	8,000
Antimony	31	NS	230	11	39	3.0	1.9 U	18	19	13	2.0 U	1.8 U	4.8	9.8
Arsenic	34	16	17	17	23	10	8.5	26	23	15	14	12	20	23
Barium	15,000	350	920	400	670	96	82	600	450	290	120	100	240	280
Beryllium	160	14	0.65	0.67	0.70	0.53	0.67	0.54	0.51	0.51	0.64	0.58	0.55	0.50
Cadmium	70	2.5	2.5	1.2	8.4	0.80	0.44	3.6	2.7	2.0	1.5	1.9	3.7	2.9
Calcium	NS	NS	7,100	6,000	9,500	4,000	1,100	7,000	9,300	8,400	3,000	2,600	4,100	5,100
Chromium	NS*	NS**	26	28	44	24	18	36	29	35	22	17	27	35
Cobalt	23	NS	7.8	8.9	7.7	5.2	4.7	8.8	7.3	7.2	4.9	3.9	5.5	7.6
Copper	3,100	270	250	170	490	76	46	510	440	270	63	64	180	220
Iron	55,000	NS	16,000	21,000	27,000	18,000	16,000	35,000	24,000	20,000	18,000	14,000	16,000	20,000
Lead	400	400	1,300	1,500	1,600	260	150	1,600	1,900	1,000	190	480	550	870
Magnesium	NS	NS	1,500	880	2,100	2,900	3,200	2,600	2,700	2,300	2,400	1,700	2,200	2,400
Manganese	1,800	2,000	240	230	360	350	320	410	390	360	350	350	260	270
Nickel	1,500	140	28	27	35	17	12	44	34	28	16	13	24	31
Potassium	NS	NS	730	690	630	830	670	830	810	700	880	600	670	720
Selenium	390	36	2.2 U	2.0 U	1.8 U	2.0 U	1.9 U	2.0 U	1.8 U	1.9 U	2.0 U	1.8 U	1.7 U	1.8 U
Silver	390	36	0.68	0.50 U	0.55	0.50 U	0.47 U	1.2	0.96	0.55	0.50 U	0.45 U	0.43 U	0.45 U
Sodium	NS	NS	150	170	130	430	200	300	290	180	620	320	380	330
Thallium	0.78***	NS	2.2 U	2.0 U	1.8 U	2.0 U	1.9 U	2.0 U	1.8 U	1.9 U	2.0 U	1.8 U	1.7 U	1.8 U
Tin	47,000	NS	100	180	300	28	14	210	160	120	17	25	44	240
Vanadium	390	NS	39	37	41	28	24	30	29	26	33	25	38	32
Zinc	23,000	2,200	710	390	1,300	260	140	1,200	940	710	190	200	410	480

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS021-1824-01	P001-SS022-0001-01	P001-SS022-0106-01	P001-SS022-0612-01	P001-SS022-0612-02	P001-SS022-1218-01	P001-SS022-1824-01	P001-SS023-0001-01	P001-SS023-0106-01	P001-SS023-0612-01	P001-SS023-1218-01	P001-SS023-1824-01
Sampling Date			3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015
Sample Depth (in)			18-24	0-1	1-6	6-12	6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	9,700	11,000	7,600	7,900	8,100	6,600	6,600	16,000	11,000	12,000	7,400	8,300
Antimony	31	NS	8.6	2.1	1.1	3.2	2.6	4.9	3.3	2.0 U	1.9 U	1.9 U	8.2	13
Arsenic	34	16	15	9.8	11	15	16	22	23	11	13	12	23	38
Barium	15,000	350	240	110	98	130	150	180	190	88	77	63	370	770
Beryllium	160	14	0.51	0.40	0.50	0.67	0.66	0.56	0.45	0.66	0.57	0.62	0.53	0.54
Cadmium	70	2.5	5.7	2.8	4.2	6.5	6.8	4.9	1.7	0.48	0.71	0.41	6.6	13
Calcium	NS	NS	28,000	3,300	3,100	4,500	4,600	4,300	6,600	2,000	1,400	1,900	9,300	13,000
Chromium	NS*	NS**	27	26	23	25	25	30	24	21	16	15	29	51
Cobalt	23	NS	6.3	5.8	14	5.4	6.1	8.0	9.7	4.9	3.8	3.8	6.5	6.2
Copper	3,100	270	200	75	99	140	140	490	280	29	50	30	300	310
Iron	55,000	NS	19,000	18,000	17,000	15,000	17,000	53,000	32,000	18,000	14,000	15,000	27,000	33,000
Lead	400	400	800	270	250	320	310	610	580	72	170	75	1,000	2,300
Magnesium	NS	NS	4,000	2,400	2,000	2,000	2,100	2,000	2,400	2,400	1,700	1,800	2,400	2,400
Manganese	1,800	2,000	290	280	250	220	240	410	350	320	210	240	340	350
Nickel	1,500	140	32	20	20	26	27	33	32	13	12	9.4	25	23
Potassium	NS	NS	1,100	1,100	610	570	600	610	880	740	390	370	600	530
Selenium	390	36	1.7 U	2.0 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	2.0 U	1.9 U	1.9 U	1.7 U	1.8 U
Silver	390	36	0.42 U	0.50 U	0.43 U	0.45 U	0.46 U	0.70	0.44 U	0.51 U	0.48 U	0.47 U	0.42 U	0.48
Sodium	NS	NS	420	100 U	86 U	90 U	92 U	90 U	88 U	100 U	96 U	93 U	130	140
Thallium	0.78***	NS	1.7 U	2.0 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	2.0 U	1.9 U	1.9 U	1.7 U	1.8 U
Tin	47,000	NS	110	27	22	41	25	50	33	5.1	23	5.1	130	330
Vanadium	390	NS	34	40	38	50	52	57	35	30	24	22	32	28
Zinc	23,000	2,200	540	250	290	270	280	460	430	90	110	68	760	2,400

Notes:
All soil data reported in milligrams per kilogram (mg/kg).
All rinsate blank data reported in micrograms per liter (µg/L).
Detected concentrations are **Bolded.**
J - Indicates the reported value is an estimate.
U - Indicates the analyte was analyzed for but not detected.
[1] Standards obtained from the United States Environmental Protection Agency (EPA) Removal Management Levels (RMLs) for Residential Soil using a 10^{-4} Risk Level for Carcinogens or a Hazard Quotient (HQ) of 1 for Non-Carcinogens, January 2015.
[2] Standards obtained from the New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives (SCOs) for Residential Soil, December 14, 2006.
*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.
**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.
***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.
Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.
Results at or exceeding EPA RMLs for Residential Soil highlighted red. The detection also exceeds the NYSDEC SCO for Residential Soil, if one exists.

TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS024-0001-01	P001-SS024-0106-01	P001-SS024-0612-01	P001-SS024-1218-01	P001-SS024-1824-01	P001-SS025-0001-01	P001-SS025-0001-02	P001-SS025-0106-01	P001-SS025-0612-01	P001-SS025-1218-01	P001-SS025-1824-01	P001-SS026-0001-01
Sampling Date			3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/18/2015	3/19/2015
Sample Depth (in)			0-1	1-6	6-12	12-18	18-24	0-1	0-1	1-6	6-12	12-18	18-24	0-1
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	9,900	5,400	5,500	7,900	7,700	10,000	5,500	3,400	7,800	7,500	7,200	12,000
Antimony	31	NS	4.1	15	2.5	7.5	16	4.0	2.2	4.0	68	6.8	5.8	5.0
Arsenic	34	16	20	24	14	19	17	20	11	22	20	16	15	16
Barium	15,000	350	150	460	93	420	250	150	85	160	300	280	270	320
Beryllium	160	14	0.45	0.42	0.43	0.53	0.59	0.47	0.36	0.63	0.53	0.60	0.56	0.63
Cadmium	70	2.5	5.0	7.0	2.9	3.5	8.9	3.9	2.3	4.6	3.6	16	2.1	27
Calcium	NS	NS	7,500	11,000	18,000	6,300	7,000	7,700	9,500	3,200	5,500	11,000	4,500	4,600
Chromium	NS*	NS**	28	32	18	25	28	28	18	24	24	42	27	38
Cobalt	23	NS	6.4	8.9	3.8	5.8	6.9	6.4	4.1	6.1	6.8	7.3	6.7	7.8
Copper	3,100	270	140	680	90	190	210	130	78	150	340	210	180	240
Iron	55,000	NS	18,000	38,000	13,000	17,000	27,000	18,000	12,000	18,000	21,000	26,000	19,000	22,000
Lead	400	400	350	1,900	230	540	840	340	230	550	760	840	680	600
Magnesium	NS	NS	3,400	5,500	11,000	2,500	2,500	3,500	5,000	2,100	3,000	2,900	2,700	2,900
Manganese	1,800	2,000	320	410	190	260	320	350	190	310	410	330	340	380
Nickel	1,500	140	27	30	17	27	34	27	17	30	28	45	29	39
Potassium	NS	NS	900	860	490	710	690	970	570	740	850	800	760	1,000
Selenium	390	36	2.0 U	1.7 U	1.7 U	1.7 U	1.7 U	2.0 UJ	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	2.0
Silver	390	36	0.49 U	1.1	0.42 U	0.42 U	0.43 U	0.49 U	0.42 U	0.43 U	0.43 U	0.45 U	0.44 U	0.79
Sodium	NS	NS	98 U	120	170	84 U	87 U	98 U	83 U	86 U	86 U	100	90	100 U
Thallium	0.78***	NS	2.0 U	1.7 U	1.7 U	1.7 U	1.7 U	2.0 U	1.7 U	1.7 U	1.7 U	1.8 U	1.8 U	2.0 U
Tin	47,000	NS	44	130	24	56	140	38	27	37	390	180	47	38
Vanadium	390	NS	51	25	33	39	47	51	30	47	40	50	33	80
Zinc	23,000	2,200	300	1,700	190	380	610	290	170	360	460	600	510	580

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS026-0106-01	P001-SS026-0612-01	P001-SS026-1218-01	P001-SS026-1824-01	P001-SS027-0001-01	P001-SS027-0106-01	P001-SS027-0612-01	P001-SS027-1218-01	P001-SS027-1824-01	P001-SS028-0001-01	P001-SS028-0106-01	P001-SS028-0612-01
Sampling Date			3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015
Sample Depth (in)			1-6	6-12	12-18	18-24	0-1	1-6	6-12	12-18	18-24	0-1	1-6	6-12
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Aluminum	77,000	NS	7,700	7,000	6,800	6,300	9,100	9,300	7,300	7,200	6,400	9,600	6,200	2,600
Antimony	31	NS	3.5	6.7	4.7	2.3	5.2	2.9	2.6	4.9	2.0	2.1 U	1.9 U	1.6 U
Arsenic	34	16	9.4	23	14	8.3	23	37	50	290	77	7.9	5.2	5.6
Barium	15,000	350	170	430	340	190	520	130	150	190	75	100	79	36
Beryllium	160	14	0.40	0.44	0.39	0.27 U	1.3	0.61	0.30	0.27 U	0.26 U	0.31 U	0.28 U	0.36
Cadmium	70	2.5	18	6.1	12	3.2	100	18	4.2	12	5.1	1.6	2.1	4.4
Calcium	NS	NS	3,500	7,600	9,700	9,400	3,800	1,700	3,000	8,000	9,400	12,000	17,000	120,000
Chromium	NS*	NS**	20	48	26	19	62	23	18	24	16	25	13	20
Cobalt	23	NS	4.3	6.8	9.1	6.0	7.3	4.6	6.0	6.4	5.6	5.5	3.4	4.8
Copper	3,100	270	150	470	200	100	320	150	270	160	51	66	46	41
Iron	55,000	NS	14,000	25,000	26,000	20,000	19,000	15,000	17,000	17,000	12,000	15,000	11,000	11,000
Lead	400	400	320	720	640	340	960	290	350	390	130	170	120	97
Magnesium	NS	NS	1,700	2,200	2,700	2,800	1,800	1,900	2,500	3,700	5,400	3,800	8,800	75,000
Manganese	1,800	2,000	240	380	360	350	300	260	260	290	410	390	230	250
Nickel	1,500	140	24	32	31	26	59	35	32	55	47	20	15	10
Potassium	NS	NS	480	900	640	1,000	560	540	580	770	770	1,000	670	1,200
Selenium	390	36	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	1.9 U	1.7 U	1.8 U	1.8 U	2.1 U	1.9 U	1.6 U
Silver	390	36	0.49	0.78	0.46	0.45 U	2.0	0.54	0.44 U	0.53	0.47	0.52 U	0.47 U	0.40 U
Sodium	NS	NS	88 U	450	91 U	110	170	96 U	110	140	88 U	100 U	94 U	81 U
Thallium	0.78***	NS	1.8 U	1.7	1.8 U	1.8 U	2.1 U	1.9 U	1.7 U	1.8 U	1.8 U	2.1 U	1.9 U	1.6 U
Tin	47,000	NS	17	55	36	29	57	13	21	14	5.3	8.2	7.3	4.9
Vanadium	390	NS	56	44	49	30	220	92	39	47	28	30	21	31
Zinc	23,000	2,200	320	740	520	320	570	430	400	530	160	230	150	86

Notes:
All soil data reported in milligrams per kilogram (mg/kg).
All rinsate blank data reported in micrograms per liter (µg/L).
Detected concentrations are **Bolded.**
J - Indicates the reported value is an estimate.
U - Indicates the analyte was analyzed for but not detected.
[1] Standards obtained from the United States Environmental Protection Agency (EPA) Removal Management Levels (RMLs) for Residential Soil using a 10^{-4} Risk Level for Carcinogens or a Hazard Quotient (HQ) of 1 for Non-Carcinogens, January 2015.
[2] Standards obtained from the New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives (SCOs) for Residential Soil, December 14, 2006.
*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.
**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.
***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.
Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.
Results at or exceeding EPA RMLs for Residential Soil highlighted red. The detection also exceeds the NYSDEC SCO for Residential Soil, if one exists.

TABLE 4 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.

Table 2:
Validated Analytical Data Summary - TAL Metals + Tin
Columbia Smelting & Refining Works Site
March 16-19, 2015

RST 3 Sample ID	EPA RMLs for Residential Soil[1]	NYSDEC Remedial Program SCOs for Residential Soil[2]	P001-SS028-1218-01	P001-SS028-1824-01	P001-SS028-1824-02	P001-SS029-0001-01	P001-SS029-0106-01	P001-SS029-0106-02	P001-SS029-0612-01	P001-SS029-1218-01	P001-SS029-1824-01	RB_20150316	RB_20150317	RB_20150318	RB_20150319
Sampling Date			3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/19/2015	3/16/2015	3/17/2015	3/18/2015	3/19/2015
Sample Depth (in)			12-18	18-24	18-24	0-1	1-6	1-6	6-12	12-18	18-24	NA	NA	NA	NA
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Rinsate Blank	Rinsate Blank	Rinsate Blank	Rinsate Blank
Aluminum	77,000	NS	**5,900**	**5,600**	**5,400**	**9,700**	**5,200**	**5,900**	**4,800**	**7,300**	**6,000**	200 U	200 U	200 U	200 U
Antimony	31	NS	**13**	**6.1 J**	**5.3**	2.2 U	1.9 U	1.9 U	1.9 U	1.7 UJ	1.6 U	20 U	20 U	20 U	20 U
Arsenic	34	16	**15**	**9.0**	**6.5**	**7.2**	**4.1**	**4.5**	**4.0**	**4.8**	**4.6**	8.0 U	8.0 U	8.0 U	8.0 U
Barium	15,000	350	**400**	**220**	**210**	**120**	**64**	**71**	**120**	**38**	**21**	100 U	100 U	100 U	100 U
Beryllium	160	14	**0.32**	0.26 U	0.26 U	0.33 U	0.29 U	0.29 U	0.28 U	0.26 U	0.24 U	3.0 U	3.0 U	3.0 U	3.0 U
Cadmium	70	2.5	**3.4**	**1.4**	**1.1**	**1.6**	**0.73**	**0.79**	**0.96**	**0.29**	0.24 U	3.0 U	3.0 U	3.0 U	3.0 U
Calcium	NS	NS	**20,000**	**13,000**	**13,000**	**14,000**	**16,000**	**28,000**	**41,000**	**10,000**	**760**	500 U	500 U	500 U	500 U
Chromium	NS*	NS**	**26**	**23**	**16**	**24**	**12**	**11**	**9.6**	**11**	**9.1**	5.0 U	5.0 U	5.0 U	5.0 U
Cobalt	23	NS	**8.3**	**6.2**	**5.7**	**5.8**	**4.8**	**5.9**	**4.2**	**4.0**	**7.2**	20 U	20 U	20 U	20 U
Copper	3,100	270	**570**	**120**	**130**	**81**	**53**	**64**	**57**	**25**	**9.7**	10 U	10 U	10 U	10 U
Iron	55,000	NS	**31,000**	**18,000**	**14,000**	**16,000**	**11,000**	**12,000**	**11,000**	**15,000**	**12,000**	100 U	100 U	100 U	100 U
Lead	400	400	**910**	**480**	**700**	**190**	**97**	**110**	**100**	**65**	**22**	8.0 U	8.0 U	8.0 U	8.0 U
Magnesium	NS	NS	**12,000**	**2,300**	**2,400**	**4,100**	**5,500**	**15,000**	**16,000**	**5,000**	**1,800**	500 U	500 U	500 U	500 U
Manganese	1,800	2,000	**360**	**230**	**220**	**430**	**210**	**280**	**220**	**160**	**140**	5.0 U	5.0 U	5.0 U	5.0 U
Nickel	1,500	140	**31**	**24**	**27**	**23**	**11**	**13**	**11**	**11**	**13**	20 U	20 U	20 U	20 U
Potassium	NS	NS	**860**	**770**	**780**	**1,000**	**530**	**700**	**690**	**950**	**550**	500 U	500 U	500 U	500 U
Selenium	390	36	1.7 U	1.7 UJ	1.7 U	2.2 U	1.9 U	1.9 U	1.9 U	1.7 UJ	1.6 U	20 U	20 U	20 U	20 U
Silver	390	36	**0.58**	0.44 U	0.43 U	0.55 U	0.48 U	0.48 U	0.46 U	0.43 U	0.41 U	5.0 U	5.0 U	5.0 U	5.0 U
Sodium	NS	NS	83 U	87 U	85 U	110 U	95 U	**120**	93 U	86 U	81 U	1,000 U	1,000 U	1,000 U	1,000 U
Thallium	0.78***	NS	1.7 U	1.7 U	1.7 U	2.2 U	1.9 U	1.9 U	1.9 U	1.7 U	1.6 U	20 U	20 U	20 U	20 U
Tin	47,000	NS	**170**	**41**	**65**	**11**	**6.4**	**6.4**	**6.5**	**3.0**	0.81 U	10 U	10 U	10 U	10 U
Vanadium	390	NS	**35**	**19**	**20**	**31**	**21**	**27**	**23**	**28**	**16**	20 U	20 U	20 U	20 U
Zinc	23,000	2,200	**1,200**	**390**	**370**	**270**	**120**	**140**	**120**	**69**	**72**	20 U	20 U	20 U	20 U

Notes:

All soil data reported in milligrams per kilogram (mg/kg).

All rinsate blank data reported in micrograms per liter (µg/L).

Detected concentrations are **Bolded.**

J - Indicates the reported value is an estimate.

U - Indicates the analyte was analyzed for but not detected.

[1] Standards obtained from the United States Environmental Protection Agency (EPA) Removal Management Levels (RMLs) for Residential Soil using a 10^{-4} Risk Level for Carcinogens or a Hazard Quotient (HQ) of 1 for Non-Carcinogens, January 2015.

[2] Standards obtained from the New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives (SCOs) for Residential Soil, December 14, 2006.

*No standard for total chromium; EPA RMLs for Residential Soil are 120,000 mg/kg for trivalent chromium and 30 mg/kg for hexavalent chromium.

**No standard for total chromium; NYSDEC Remedial Program SCOs for Residential Soil are 36 mg/kg for trivalent chromium and 22 mg/kg for hexavalent chromium.

***In all samples, the EPA RML was lower than the Reporting Detection Limit; therefore, it is unknown whether the contaminant is present above these screening levels.

Results at or exceeding NYSDEC Remedial Program SCOs for Residential Soil highlighted yellow.

Results at or exceeding EPA RMLs for Residential Soil highlighted red. The detection also exceeds the NYSDEC SCO for Residential Soil, if one exists.

Table 5 - Remaining Groundwater Sample Exceedances

Table 5
City of New York Department of Parks and Recreation
Red Hook Ballfields 5-8
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Semivolatile Organic Compounds

		SAMPLE ID	RHGT-02		RHGT-03		RHGT-08		RHGT-13		RHGT-14		DUP-01	
		LAB SAMPLE ID	JC16719-12		JC16719-4		JC16719-8		JC16719-15		JC16719-18		JC16719-1	
		COLLECTION DATE	3/23/2016		3/22/2016		3/22/2016		3/23/2016		3/23/2016		3/22/2016	
		SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Semivolatile Organic Compounds	Class GA Value		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
2-Methylphenol	1*		2.1	U	2	U	2.4	U	2.1	U	2	U	2	U
3&4-Methylphenol	1*		2.1	U	2	U	2.4	U	2.1	U	2	U	2	U
Acenaphthene	20		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Acenaphthylene	NC		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Anthracene	50		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Benzo(a)anthracene	0.002		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Benzo(a)pyrene	ND		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Benzo(b)fluoranthene	0.002		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Benzo(g,h,i)perylene	NC		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Benzo(k)fluoranthene	0.002		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Chrysene	0.002		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Dibenzo(a,h)anthracene	NC		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Dibenzofuran	NC		5.3	U	5.1	U	6	U	5.3	U	5	U	5	U
Fluoranthene	50		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Fluorene	50		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Hexachlorobenzene	0.04		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Indeno(1,2,3-cd)pyrene	0.002		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Naphthalene	10		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Pentachlorophenol	1*		5.3	U	5.1	U	6	U	5.3	U	5	U	5	U
Phenanthrene	50		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U
Phenol	1*		2.1	U	2	U	2.4	U	2.1	U	2	U	2	U
Pyrene	50		1.1	U	1	U	1.2	U	1.1	U	1	U	1	U

Notes:

* - Applies to sum of phenolic compounds

µg/L - micrograms per liter

NC - No criterion

ND - Not detected

U - Non-detect

The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 6
The City of New York Department of Parks and Recreation
Red Hook Ballfields 5-8
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Metals and Cyanide

	SAMPLE ID	RHGT-02		RHGT-02		RHGT-03		RHGT-03		RHGT-08		RHGT-08		RHGT-13		RHGT-13		RHGT-14		RHGT-14		DUP-01		DUP-01	
	LAB SAMPLE ID	JC16719-12		JC16719-12F		JC16719-4		JC16719-4F		JC16719-8		JC16719-8F		JC16719-15		JC16719-15F		JC16719-18		JC16719-18F		JC16719-1		JC16719-1F	
	COLLECTION DATE	3/23/2016		3/23/2016		3/22/2016		3/22/2016		3/22/2016		3/22/2016		3/23/2016		3/23/2016		3/23/2016		3/23/2016		3/22/2016		3/22/2016	
	SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
		Total		Dissolved[2]		Total		Dissolved[2]		Total		Dissolved[2]		Total		Dissolved[2]		Total		Dissolved[2]		Total		Dissolved[2]	
Metals and Cyanide	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
Aluminum	NC	441		200	U	13400		200	U	397	J	200	U	1930		200	U	1450		200	U	272	J	200	U
Antimony	3	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U	6	U
Arsenic	25	**43**		31		57.7		5.2	J-	3.6	J-	3.7	J-	6.1	J-	4.5	J-	22.5	J-	3	UJ	3	UJ	3	UJ
Barium	1000	200	U	200	U	930		351		**1110**		**1120**		**1040**		**1040**		511		272		**1100**		**1190**	
Beryllium	3	1	U	1	U	1.5		1	U	1	U	1	U	1	U	1	U	1.3		1	U	1	U	1	U
Cadmium	5	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U
Calcium	NC	270000		264000		317000		295000		320000		325000		413000		455000		390000		393000		307000		337000	
Chromium	50	10	U	10	U	**50.9**		10	U	10	U	10	U	10	U	10	U	32.6		10	U	10	U	10	U
Chromium, Hexavalent	50	10	UR	--		11	J-	--		13	J-	--		20	J-	--		12	J-	--		11	J-	--	
Chromium, Trivalent	50[1]		NA	--		40	J	--		20	UJ	--		20	UJ	--		21	J	--		20	UJ	--	
Cobalt	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Copper	200	15.8		10	U	92.9		10	U	10	U	10	U	15.5		10	U	85.1		10	U	10	U	10	U
Iron	300	**19100**		**17800**		**48500**		**15300**		**49900**		**50200**		**38200**		**35900**		**21100**		**10500**		**48800**		**53500**	
Lead	25	**117**		3	U	**1020**		3	U	**80**	**J**	3	U	**138**		3	U	**468**		3	U	**57.5**	**J**	3	U
Magnesium	35000	**100000**		**98000**		**80000**		**82900**		**44400**		**45500**		**68800**		**75400**		**60900**		**64000**		**43700**		**48200**	
Manganese	300	**1480**		**1440**		**1490**		**1190**		**1220**		**1250**		**1180**		**1310**		**1900**		**1940**		**1190**		**1320**	
Mercury	0.7	0.2	U	0.2	U	0.2	U	0.2	U	0.31		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.24		0.2	U
Nickel	100	10	U	10	U	44		10	U	10	U	10	U	10	U	10	U	40.5		10	U	10	U	10	U
Potassium	NC	42400		41100		34600		35200		32100		32700		39300		42500		28600		29100		31500		34900	
Selenium	10	10	U	10	U	**19.5**		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	10	U	**66.8**		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Sodium	20000	**878000**		**866000**		**678000**		**711000**		**216000**		**225000**		**394000**		**408000**		**371000**		**374000**		**216000**		**239000**	
Thallium	0.5	4	U	4	U	2	U	2	U	2	U	4	UJ	4	UJ	4	UJ	4	UJ	4	UJ	2	U	4	UJ
Tin	NC	10	U	10	U	89.3		10	U	10	U	10	U	12.2		10	U	60		10	U	10	U	10	U
Vanadium	NC	50	U	50	U	72.2		50	U	50	U	50	U	50	U	50	U	60.1		50	U	50	U	50	U
Zinc	2000	496		340		923		20	U	46.3		20	U	80.9		20	U	441		20	U	36.2		20	U
Cyanide	200	10	UJ	--		10	UJ	--		10	UJ	--		10	UJ	--		10	UJ	--		10	UJ	--	

Notes:
-- - Not analyzed
[1] - There is no Class GA Value for trivalent chromium. The Class GA Value for total chromium is 50 µg/L.
[2] - Sample volume field filtered.
µg/L - micrograms per liter
J - Detected result is an estimated value
J- - Detected result is an estimated value with a potential low bias
NA - Not applicable; cannot be determined since the hexavalent chromium result was rejected
NC - No criterion
R - Rejected; result not usable for project objectives
U - Non-detect
UJ - Estimated nondetect result
Bold and shading indicates exceedance of Class GA Values.
The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 7
of New York Department of Parks and Recreation
Red Hook Ballfields 5-8
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Pesticides and Herbicides

	SAMPLE ID	RHGT-02		RHGT-03		RHGT-08		RHGT-13		RHGT-14		DUP-01	
	LAB SAMPLE ID	JC16719-12		JC16719-4		JC16719-8		JC16719-15		JC16719-18		JC16719-1	
	COLLECTION DATE	3/23/2016		3/22/2016		3/22/2016		3/23/2016		3/23/2016		3/22/2016	
	SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Pesticides and Herbicides	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
4,4'-DDD	0.3	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
4,4'-DDE	0.2	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
4,4'-DDT	0.2	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Aldrin	ND	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
alpha-BHC	0.01	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
alpha-Chlordane	0.05*	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
beta-BHC	0.04	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
delta-BHC	0.04	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Dieldrin	0.004	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endosulfan sulfate	NC	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endosulfan-I	NC	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endosulfan-II	NC	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endrin	ND	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
gamma-BHC (Lindane)	0.05	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Heptachlor	0.04	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
2,4,5-TP (Silvex)	0.26	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U

Notes:
µg/L - micrograms per liter
NC - No criterion
ND - Not detected
U - Non-detect
* Used GA value for Chlordane
The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 8
of New York Department of Parks and Recreation
Red Hook Ballfields 5-8
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Polychlorinated Biphenyls

	SAMPLE ID	RHGT-02		RHGT-03		RHGT-08		RHGT-13		RHGT-14		DUP-01	
	LAB SAMPLE ID	JC16719-12		JC16719-4		JC16719-8		JC16719-15		JC16719-18		JC16719-1	
	COLLECTION DATE	3/23/2016		3/22/2016		3/22/2016		3/23/2016		3/23/2016		3/22/2016	
	SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Polychlorinated Biphenyls	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
Aroclor 1016	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1221	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1232	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1242	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1248	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1254	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1260	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Total PCBs	0.09	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U

Notes:
µg/L - micrograms per liter
NC - No criterion
U - Non-detect

The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 5
The City of New York Department of Parks and Recreation
Red Hook Ball Field 9
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Semivolatile Organic Compounds

	SAMPLE ID	RHBF9-01		RHBF9-02		RHBF9-GW-DUP-01		RHBF9-03		RHBF9-04	
	LAB SAMPLE ID	JC34266-4		JC34266-8		JC34266-17		JC34266-12		JC34266-20	
	COLLECTION DATE	12/22/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016	
	SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Semivolatile Organic Compounds	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
2-Methylphenol	1*	2.0	U	2.2	U	2.0	U	2.0	U	2.1	U
3&4-Methylphenol	1*	2.0	U	2.2	U	2.0	U	2.0	U	2.1	U
Acenaphthene	20	1.0	U	0.44	J	0.55	J	1.0	U	7.9	
Acenaphthylene	NC	1.0	U	1.1	U	0.44	J	1.0	U	1.0	U
Anthracene	50	1.0	U	0.91	J	1.2		1.0	U	2.5	
Benzo(a)anthracene	0.002	**0.53**	**J**	**2.2**	**J**	**3.1**	**J**	1.0	U	**0.93**	**J**
Benzo(a)pyrene	ND	**0.53**	**J**	**2.5**		**3.3**		1.0	U	**0.83**	**J**
Benzo(b)fluoranthene	0.002	**0.54**	**J**	**2.5**	**J**	**3.7**	**J**	1.0	U	**0.82**	**J**
Benzo(g,h,i)perylene	NC	1.0	U	1.5	J	2.2	J	1.0	U	0.43	J
Benzo(k)fluoranthene	0.002	1.0	U	**0.86**	**J**	**1.2**		1.0	U	1.0	U
Chrysene	0.002	1.0	U	**2.2**		**2.9**		1.0	U	**1.3**	
Dibenzo(a,h)anthracene	NC	1.0	U	1.1	U	0.59	J	1.0	U	1.0	U
Dibenzofuran	NC	5.1	U	5.4	U	5.1	U	5.1	U	2.8	J
Fluoranthene	50	0.52	J	4.6	J	6.4	J	0.63	J	2.9	
Fluorene	50	1.0	U	0.47	J	0.57	J	1.0	U	5.2	
Hexachlorobenzene	0.04	1.0	U	1.1	U	1.0	U	1.0	U	1.0	U
Indeno(1,2,3-cd)pyrene	0.002	1.0	U	**1.7**	**J**	**2.4**	**J**	1.0	U	1.0	U
Naphthalene	10	1.0	U	1.1	U	0.50	J	1.0	U	**56.4**	
Pentachlorophenol	1*	4.1	U	4.3	UJ	4.0	UJ	4.0	UJ	4.1	UJ
Phenanthrene	50	1.0	U	3.4	J	4.7	J	0.82	J	11.3	
Phenol	1*	2.0	U	2.2	U	2.0	U	2.0	U	2.1	U
Pyrene	50	0.75	J	4.0	J	5.6	J	0.56	J	3.1	

Notes:
* - Applies to sum of phenolic compounds
µg/L - micrograms per liter
NC - No criterion
ND - Not detected.
J - Estimated value
U - Non-detect
UJ - Estimated non-detect.
Bold and shading indicates exceedance of Class GA Values.
The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 6
The City of New York Department of Parks and Recreation
Red Hook Ball Field 9
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Metals and Cyanide

SAMPLE ID		RHBF9-01		RHBF9-01		RHBF9-02		HBF9-GW-DUP-(		RHBF9-02		RHBF9-GW-DUP-0		RHBF9-03		RHBF9-03		RHBF9-04		RHBF9-04	
LAB SAMPLE ID		JC34266-4		JC34266-4F		JC34266-8		JC34266-17		JC34266-8F		JC34266-17F		JC34266-12		JC34266-12F		JC34266-20		JC34266-20F	
COLLECTION DATE		12/22/2016		12/22/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016	
SAMPLE MATRIX		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
		Total		Dissolved[(2)]		Total		Total		Dissolved[(2)]		Dissolved[(2)]		Total		Dissolved[(2)]		Total		Dissolved[(2)]	
Metals and Cyanide	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
Aluminum	NC	369		200	U	4400		4490		200	U	200	U	1600		200	U	2040		200	U
Antimony	3	6.0	U	6.0	U	**6.2**		**7.4**		6.0	U	6.0	U	6.0	U	6.0	U	6.0	U	6.0	U
Arsenic	25	11.5		10.1		**29.6**		**31.0**		12.7		12.4		10.0		9.7		**198**		**174**	
Barium	1000	528		494		538		523		245		255		277		289		569		556	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium	NC	186000		183000		80700		76300		76200		76500		496000		421000		232000		250000	
Chromium	50	10	U	10	U	30.2		28.6		10	U	10	U	50	U	50	U	12.7		10	U
Chromium, Hexavalent	50	10	UJ	10	UJ	10	UJ	14	J-	13	J-	18	J-	10	UJ	10	UJ	34	J-	10	UJ
Chromium, Trivalent	50[(1)]	20	UJ	20	UJ	22	J	20	UJ	20	UJ	20	UJ	60	UJ	60	UJ	30	UJ	20	UJ
Cobalt	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Copper	200	20.8		10	U	170		164		10	U	10	U	31.7		10	U	38.7		10	U
Iron	300	**32800**		**31300**		**29200**		**27600**		**16500**		**17000**		**5330**		**3530**		**19200**		**14200**	
Lead	25	**50.0**		3.0	UJ	**1160**		**1170**		3.0	UJ	10.1	J	**148**		15	UJ	**143**		3.0	UJ
Magnesium	35000	**39100**		**38600**		**50200**		**46200**		**47100**		**47900**		**78100**		**64700**		**44100**		**49000**	
Manganese	300	**1060**		**1020**		**412**		**404**		**328**		**324**		192		234		**1110**		**1170**	
Mercury	0.7	0.22		0.20	U	**4.8**		**4.0**		0.20	U	0.20	U	0.36		0.20	U	**1.9**		0.20	U
Nickel	100	10	U	10	U	17.8		17.4		10	U	10	U	10	U	10	U	10	U	10	U
Potassium	NC	28000		27500		28500		26300		26800		27200		47400		40300		23600		26900	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	**11.7**		10	U	10	U	10	U
Silver	50	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Sodium	20000	**71300**		**70100**		**52200**		**48100**		**50300**		**50500**		**152000**		**117000**		**324000**		**365000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	20	U	10	U	2.0	U	2.0	U
Tin	NC	10	U	10	U	107		107		10	U	10	U	10	U	10	U	10	U	10	U
Vanadium	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Zinc	2000	98.5		21.3		667		668		20	U	20	U	124		20	U	163		20	U
Cyanide	200	10	UJ	NA		10	UJ	10	UJ	NA		NA		10	UJ	NA		10	UJ	NA	

Notes:
[(1)] - There is no Class GA Value for trivalent chromium.
The Class GA Value for total chromium is 50 µg/L.
[(2)] - Sample volume field filtered.
µg/L - micrograms per liter
J - Estimated value.
J- - Estimated value; biased low.
NA - Not analyzed for listed analyte.
NC - No criterion
U - Non-detect
UJ - Estimated nondetect.
Bold and shading indicates exceedance of Class GA Values.
The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 7
The City of New York Department of Parks and Recreation
Red Hook Ball Field 9
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Pesticides and Herbicides

	SAMPLE ID	RHBF9-01		RHBF9-02		RHBF9-GW-DUP-01		RHBF9-03		RHBF9-04	
	LAB SAMPLE ID	JC34266-4		JC34266-8		JC34266-17		JC34266-12		JC34266-20	
	COLLECTION DATE	12/22/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016	
	SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Pesticides and Herbicides	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
4,4'-DDD	0.3	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
4,4'-DDE	0.2	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
4,4'-DDT	0.2	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Aldrin	ND	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
alpha-BHC	0.01	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
alpha-Chlordane	0.05*	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
beta-BHC	0.04	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
delta-BHC	0.04	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Dieldrin	0.004	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endosulfan sulfate	NC	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endosulfan-I	NC	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endosulfan-II	NC	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Endrin	ND	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
gamma-BHC (Lindane)	0.05	0.0067	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
Heptachlor	0.04	0.0067	UJ	0.0067	U	0.0067	U	0.0067	U	0.0067	U
2,4,5-TP (Silvex)	0.26	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U

Notes:
µg/L - micrograms per liter
J - Estimated value
NC - No criterion
U - Non-detect
UJ - Estimated non-detect.
* Used GA value for Chlordane
Bold and shading indicates exceedance of Class GA Values.
The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 5 - Remaining Groundwater Sample Exceedances

Table 8
The City of New York Department of Parks and Recreation
Red Hook Ball Field 9
Brooklyn, New York
Summary of Results of Analysis of Groundwater for Polychlorinated Biphenyls

	SAMPLE ID	RHBF9-01		RHBF9-02		RHBF9-GW-DUP-01		RHBF9-03		RHBF9-04	
	LAB SAMPLE ID	JC34266-4		JC34266-8		JC34266-17		JC34266-12		JC34266-20	
	COLLECTION DATE	12/22/2016		12/27/2016		12/27/2016		12/27/2016		12/27/2016	
	SAMPLE MATRIX	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Polychlorinated Biphenyls	Class GA Value	Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)		Result (µg/L)	
Aroclor 1016	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1221	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1232	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1242	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1248	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1254	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Aroclor 1260	NC	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Total PCBs	0.09	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U

Notes:
µg/L - micrograms per liter
NC - No criterion
U - Non-detect
The Class GA Values are from Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values.

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Ball Fields 5 Through 8				
Hazardous Contaminated Soil				
Red Hook Ballfields 5-8	7/1/2020	00 6853645	Clean Earth of North Jersey, Inc. (Direct Landfill)	19.66
	7/1/2020	00 6253875		19.00
	7/1/2020	00 6253613		20.31
	7/1/2020	00 6253872		19.72
	7/1/2020	00 6253877		19.62
	7/1/2020	00 6253878		16.70
	7/1/2020	00 6253876		18.00
	7/1/2020	00 6253873		18.00
	7/1/2020	00 6253874		19.82
	Subtotal			**170.83**
Non-Hazadous Contaminated Soil				
Red Hook Ballfields 5-8 Underground Storage Tank Closure	11/16/2020	3304054-8	Clean Earth of North Jersey, Inc. (Direct Landfill)	20.39
	11/16/2020	3304054-3		18.42
	11/16/2020	3304054-7		22.94
	11/16/2020	3304054-2		19.16
	11/16/2020	3304054-5		20.88
	11/16/2020	3304054-4		19.09
	11/16/2020	3304054-6		20.02
	11/16/2020	3304054-1		19.30
	Subtotal			**160.20**
Red Hook Ballfields 5-8	8/22/2019	WMNA-8506745	Fairless Landfill (Ultimate Disposal)	19.92
	8/22/2019	WMNA-8505722		17.12
	8/22/2910	WMNA-8505724		18.41
	8/22/2019	WMNA-8505726		22.12
	8/22/2019	WMNA-8505720		23.05
	8/22/2019	WMNA-8505727		22.06
	8/22/2019	WMNA-8505725		23.02
	8/22/2019	WMNA-8505723		22.74
	8/23/2019	WMNA-8506753		23.29
	8/23/2019	WMNA-8506752		22.43
	8/23/2019	WMNA-8506751		23.20
	8/23/2019	WMNA-8506750		24.12
	8/23/2019	WMNA-8506749		22.41
	8/23/2019	WMNA-8506748		19.37
	8/23/2019	WMNA-8506754		21.26
	8/23/2019	WMNA-8506747		23.04
	8/26/2019	WMNA-8533307		16.77
	8/26/2019	WMNA-8533309		17.97
	8/26/2019	WMNA-8533310		19.87
	8/26/2019	WMNA-8533311		18.06
	8/26/2019	WMNA-8533308		19.43
	8/26/2019	WMNA-8533312		18.90
	8/26/2019	WMNA-8533313		17.74
	8/26/2019	WMNA-8533318		18.56
	8/26/2019	WMNA-8533314		20.82
	8/26/2019	WMNA-8533317		23.09
	8/27/2019	WMNA-8533322		21.78
	8/27/2019	WMNA-8533319		20.52
	8/27/2019	WMNA-8533320		20.96
	8/27/2019	WMNA-8533321		21.21
	8/27/2019	WMNA-8533323		24.67
	8/27/2019	WMNA-8533324		24.42
	8/27/2019	WMNA-8533327		27.41
	8/27/2019	WMNA-8533325		24.05
	8/27/2019	WMNA-8533326		26.22
	8/27/2019	WMNA-8533330		24.39
	8/28/2019	WMNA-8533331		20.66
	8/28/2019	WMNA-8533342		21.29
	8/28/2019	WMNA-8533332		20.58
	8/28/2019	WMNA-8533333		20.99
	8/28/2019	WMNA-8533334		20.24
	8/28/2019	WMNA-8533335		21.63
	8/28/2019	WMNA-8533336		20.46
	8/28/2019	WMNA-8533337		22.27
	8/28/2019	WMNA-8533338		21.38
	8/29/2019	WMNA-8533343		20.58
	8/29/2019	WMNA-8533344		20.04
	8/29/2019	WMNA-8533345		19.42
	8/29/2019	WMNA-8533346		17.48
	8/29/2019	WMNA-8533347		16.72
	8/29/2019	WMNA-8533348		21.54
	8/29/2019	WMNA-8533349		21.00
	8/29/2019	WMNA-8533350		20.17
	8/29/2019	WMNA-8533351		19.75
	8/29/2019	WMNA-8533352		19.69
	8/30/2019	WMNA-8533355		20.76
	8/30/2019	WMNA-8533356		19.27

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ballfields 5-8	8/30/2019	WMNA-8533357	Fairless Landfill (Ultimate Disposal)	18.34
	8/30/2019	WMNA-8533366		22.54
	8/30/2019	WMNA-8533365		21.02
	8/30/2019	WMNA-8533354		20.29
	8/30/2019	WMNA-8533328		22.84
	8/30/2019	WMNA-8533329		20.62
	8/30/2019	WMNA-8533316		21.40
	8/30/2019	WMNA-8533315		20.80
	9/3/2019	WMNA-8533367		19.25
	9/3/2019	WMNA-8533368		19.75
	9/3/2019	WMNA-8533369		22.26
	9/3/2019	WMNA-8533370		19.81
	9/3/2019	WMNA-8533371		21.16
	9/3/2019	WMNA-8533372		22.98
	9/3/2019	WMNA-8533373		20.97
	9/3/2019	WMNA-8533374		23.14
	9/3/2019	WMNA-8533375		22.19
	9/3/2019	WMNA-8533376		24.27
	9/4/2019	WMNA-8533379		22.80
	9/4/2019	WMNA-8533380		22.97
	9/4/2019	WMNA-8533381		22.40
	9/4/2019	WMNA-8533382		22.51
	9/4/2019	WMNA-8533383		23.10
	9/4/2019	WMNA-8533384		21.90
	9/4/2019	WMNA-8533385		21.98
	9/4/2019	WMNA-8533386		22.19
	9/4/2019	WMNA-8533387		23.04
	9/4/2019	WMNA-8533388		22.75
	9/5/2019	WMNA-8533391		25.21
	9/5/2019	WMNA-8533392		42.10
	9/5/2019	WMNA-8533393		22.16
	9/5/2019	WMNA-8533394		25.76
	9/5/2019	WMNA-8533395		23.01
	9/5/2019	WMNA-8533396		24.69
	9/5/2019	WMNA-8533397		25.48
	9/5/2019	WMNA-8533398		26.09
	9/5/2019	WMNA-8533399		25.09
	9/5/2019	WMNA-8533400		22.24
	9/6/2019	WMNA-8533412		23.22
	9/6/2019	WMNA-8533411		24.38
	9/6/2019	WMNA-8533403		24.10
	9/6/2019	WMNA-8533404		23.78
	9/6/2019	WMNA-8533405		25.46
	9/6/2019	WMNA-8533406		23.56
	9/6/2019	WMNA-8533407		23.70
	9/6/2019	WMNA-8533408		21.56
	9/6/2019	WMNA-8533409		24.56
	9/9/2019	WMNA-8533413		23.02
	9/9/2019	WMNA-8533414		24.19
	9/9/2019	WMNA-8533415		25.42
	9/9/2019	WMNA-8533416		23.83
	9/9/2019	WMNA-8533417		23.65
	9/9/2019	WMNA-8533418		23.50
	9/9/2019	WMNA-8533419		21.90
	9/9/2019	WMNA-8533420		24.53
	9/9/2019	WMNA-8533421		19.52
	9/9/2019	WMNA-8533422		20.57
	9/10/2019	WMNA-8533358		23.55
	9/10/2019	WMNA-8533359		24.14
	9/10/2019	WMNA-8533364		23.36
	9/10/2019	WMNA-8533430		24.20
	9/10/2019	WMNA-8533363		23.74
	9/10/2019	WMNA-8533431		24.13
	9/10/2019	WMNA-8533432		20.81
	9/10/2019	WMNA-8533433		21.75
	9/10/2019	WMNA-8533429		22.83
	9/10/2019	WMNA-8533428		21.83
	9/11/2019	WMNA-8533339		23.56
	9/11/2019	WMNA-8533340		21.10
	9/11/2019	WMNA-8533341		19.36
	9/11/2019	WMNA-8533389		18.55
	9/11/2019	WMNA-8533390		20.96
	9/11/2019	WMNA-8533324		20.53
	9/11/2019	WMNA-8533353		18.18
	9/11/2019	WMNA-8533425		19.90
	9/11/2019	WMNA-8533378		20.02
	9/11/2019	WMNA-8533377		20.88
	9/12/2019	WMNA-8533434		21.82
	9/12/2019	WMNA-8533435		22.27
	9/12/2019	WMNA-8533436		20.42

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ballfields 5-8	9/12/2019	WMNA-8533437	Fairless Landfill (Ultimate Disposal)	20.86
	9/12/2019	WMNA-8533438		19.54
	9/12/2019	WMNA-8533439		22.36
	9/12/2019	WMNA-8533440		22.34
	9/12/2019	WMNA-8533441		20.17
	9/12/2019	WMNA-8533442		20.41
	9/12/2019	WMNA-8533443		20.34
	9/13/2019	WMNA-8533447		21.25
	9/13/2019	WMNA-8533448		22.85
	9/13/2019	WMNA-8533449		21.35
	9/13/2019	WMNA-8533450		21.58
	9/13/2019	WMNA-8533451		23.22
	9/13/2019	WMNA-8533452		19.34
	9/13/2019	WMNA-8533453		21.52
	9/13/2019	WMNA-8533454		23.53
	9/13/2019	WMNA-8533455		19.38
	9/13/2019	WMNA-8533456		19.86
	9/16/2019	WMNA-8533460		17.22
	9/16/2019	WMNA-8533461		17.49
	9/16/2019	WMNA-8533462		18.82
	9/16/2019	WMNA-8533463		19.25
	9/16/2019	WMNA-8533464		19.60
	9/16/2019	WMNA-8533465		21.73
	9/16/2019	WMNA-8533466		19.51
	9/16/2019	WMNA-8533467		23.78
	9/17/2019	WMNA-8533471		21.27
	9/17/2019	WMNA-8533472		22.30
	9/17/2019	WMNA-8533473		21.87
	9/17/2019	WMNA-8533474		20.40
	9/17/2019	WMNA_8533475		22.11
	9/17/2019	WMNA-8533476		20.94
	9/17/2019	WMNA-8533477		18.58
	9/17/2019	WMNA-8533478		21.75
	9/17/2019	WMNA-8533479		20.85
	9/17/2019	WMNA-8533480		21.57
	9/18/2019	WMNA-8533490		20.80
	9/18/2019	WMNA-8533491		24.25
	9/18/2019	WMNA-8533492		21.57
	9/18/2019	WMNA-8533493		20.24
	9/18/2019	WMNA-8533494		20.03
	9/18/2019	WMNA-8533483		21.15
	9/18/2019	WMNA-8533485		22.13
	9/20/2019	WMNA-8533495		16.71
	9/20/2019	WMNA-8533496		17.03
	9/20/2019	WMNA-8533497		19.50
	9/20/2019	WMNA-8533498		20.01
	9/20/2019	WMNA-8533499		21.56
	9/20/2019	WMNA-8533500		18.92
	9/20/2019	WMNA-8533501		18.08
	9/20/2019	WMNA-8533502		18.57
	9/20/2019	WMNA-8533503		19.48
	9/20/2019	WMNA-8533504		18.61
	9/23/2019	WMNA-8533507		18.59
	9/23/2019	WMNA-8533508		18.99
	9/23/2019	WMNA-8533509		18.99
	9/23/2019	WMNA-8533510		18.53
	9/23/2019	WMNA-8533511		17.88
	9/23/2019	WMNA-8533512		18.22
	9/23/2019	WMNA-8533513		17.57
	9/23/2019	WMNA-8533514		17.11
	9/23/2019	WMNA-8533515		17.30
	9/23/2019	WMNA-8533516		17.69
	9/24/2019	WMNA-8533519		17.95
	9/24/2019	WMNA-8533520		17.82
	9/24/2019	WMNA-8533521		17.54
	9/24/2019	WMNA-8533522		18.37
	9/24/2019	WMNA-8533523		15.40
	9/24/2019	WMNA-8533524		15.56
	9/24/2019	WMNA-8533525		16.61
	9/24/2019	WMNA-8533526		17.97
	9/25/2019	WMNA-8533527		19.55
	9/25/2019	WMNA-8533528		18.77
	9/25/2019	WMNA-8533529		15.30
	9/25/2019	WMNA-8533530		21.25
	9/25/2019	WMNA-8533531		19.55
	9/25/2019	WMNA-8533517		21.74
	9/25/2019	WMNA-8533518		RETURNED
	9/25/2019	WMNA-8533444		RETURNED
	9/25/2019	WMNA-8533446		RETURNED
	9/25/2019	WMNA-8533445		RETURNED

Table 6
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Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ballfields 5-8	11/4/2019	WMNA-8778899	Fairless Landfill (Ultimate Disposal)	21.68
	11/4/2019	WMNA-8778900		18.26
	11/4/2019	WMNA-8778901		17.01
	11/4/2019	WMNA-8778902		16.99
	11/4/2019	WMNA-8778903		21.13
	11/4/2019	WMNA-8778904		22.95
	11/4/2019	WMNA-8778905		20.42
	11/4/2019	WMNA-8778906		21.82
	11/4/2019	WMNA-8778907		22.18
	11/4/2019	WMNA-8778908		17.69
	11/4/2019	WMNA8778909		23.91
	11/4/2019	WMNA-8778910		24.54
	11/4/2019	WMNA-8778911		25.48
	11/6/2019	WMNA-8778912		21.08
	11/6/2019	WMNA-8778913		22.21
	Subtotal			**4,832.94**
Concrete				
Red Hook Ballfields 5-8	5/3/2019	1	Alloco Recycling - Brooklyn, NY	17.24
	5/3/2019	2		16.79
	5/3/2019	3		22.84
	5/3/2019	4		22.83
	5/3/2019	5		16.79
	5/3/2019	6		22.19
	5/6/2019	7		20.19
	5/6/2019	8		15.79
	5/6/2019	9		22.09
	5/6/2019	10		17.97
	5/6/2019	11		23.64
	5/6/2019	12		19.95
	5/8/2019	13		13.62
	5/8/2019	14		20.84
	5/8/2019	15		18.50
	5/8/2019	16		14.44
	5/8/2019	17		20.74
	5/8/2019	18		RETURNED
	5/8/2019	19		18.90
	5/8/2019	20		14.74
	5/8/2019	21		19.35
	5/9/2019	22		21.53
	5/9/2019	23		16.29
	5/9/2019	24		20.77
	5/9/2019	25		16.51
	5/9/2019	26		20.67
	5/9/2019	27		17.04
	5/13/2019	28		14.09
	5/13/2019	29		11.22
	5/13/2019	30		14.67
	5/13/2019	31		17.96
	5/13/2019	32		12.58
	5/13/2019	33		14.70
	5/13/2019	34		18.26
	5/13/2019	35		12.99
	5/13/2019	36		16.05
	5/14/2019	37		16.79
	5/14/2019	38		17.74
	5/14/2019	39		11.14
	5/14/2019	40		10.94
	5/14/2019	41		18.76
	5/14/2019	42		15.53
	5/14/2019	43		8.66
	5/14/2019	44		13.48
	5/14/2019	45		13.43
	5/21/2019	46		16.51
	11/7/2019	47		17.69
	2/14/2020	48		21.62
	3/11/2020	49		25.61
	3/11/2020	50		29.41
	9/14/2020	51		19.73
	9/14/2020	52		19.70
	9/14/2020	53		20.23
	10/21/2020	54		18.09
	10/21/2020	55		18.40
	11/13/2020	56		19.45
	11/13/2020	57		19.83
	11/13/2020	58		21.08
	12/7/2021	59		8.35
	9/24/2021	60		12.76
	9/24/2021	61		13.03
	9/24/2021	62		13.12
	9/27/2021	63		14.07
	9/27/2021	64		10.14

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ballfields 5-8	9/27/2021	65	Alloco Recycling - Brooklyn, NY	15.13
	10/4/2021	66		17.86
	10/5/2021	67		15.35
	10/5/2021	68		13.81
	10/6/2021	69		16.44
	10/6/2021	70		17.25
	10/6/2021	71		15.30
	10/7/2021	72		16.03
	10/7/2021	73		15.65
	10/7/2021	74		6.49
	10/14/2021	75		15.69
	10/14/2021	76		16.98
	Subtotal			**1,272.04**
Ball Field 9				
Hazardous Contaminated Soil				
Red Hook Ball Field 9	5/26/2021	6286743	Clean Earth of North Jersey, Inc. (Direct Landfill)	24.32
	5/26/2021	6286746		25.52
	5/26/2021	6286745		23.66
	5/27/2021	6294942		23.10
	5/27/2021	6294930		23.13
	5/27/2021	6294931		24.27
	5/27/2021	6294941		24.01
	5/27/2021	6294932		23.54
	5/27/2021	6294933		23.05
	5/27/2021	6294934		23.85
	5/27/2021	6294935		23.27
	5/27/2021	6294936		24.24
	5/27/2021	6294937		21.62
	5/27/2021	6294938		23.12
	5/27/2021	6294943		22.93
	5/28/2021	6294940		17.01
	5/28/2021	6294939		23.79
	7/12/2021	6283852		24.90
	7/12/2021	6283853		24.81
	7/12/2021	6283850		24.48
	7/12/2021	6282851		24.23
	7/13/2021	6283846		25.54
	7/13/2021	6283847		26.60
	7/13/2021	6283848		27.94
	7/13/2021	6283849		28.22
	7/14/2021	6283842		25.60
	7/14/2021	6283843		25.52
	7/14/2021	6283845		25.40
	7/14/2021	6283844		24.86
	7/15/2021	6283838		24.48
	7/15/2021	6283839		25.25
	7/15/2021	6283840		24.31
	7/15/2021	6283841		23.54
	7/16/2021	6283834		23.99
	7/16/2021	6282835		25.49
	7/16/2021	6283836		23.88
	7/16/2021	6283837		24.63
	7/19/2021	6283829		24.61
	7/19/2021	6283830		24.55
	7/19/2021	6283832		25.32
	7/19/2021	6283831		25.65
	7/20/2021	6283965		24.32
	7/20/2021	6283966		26.78
	7/20/2021	6283967		24.48
	7/20/2021	6283968		26.39
	7/21/2021	6283979		22.67
	7/21/2021	6283977		23.18
	7/21/2021	6283978		22.73
	7/21/2021	6283994		23.42
	7/21/2021	6283976		23.98
	7/21/2021	6283972		24.45
	7/21/2021	6283973		23.27
	7/21/2021	6283974		24.64
	7/21/2021	6283971		23.40
	Subtotal			**1,311.94**
Non-Hazardous Contaminated Soil				
Red Hook Ball Field 9	7/13/2020	WMNA-9472020	Fairless Landfill (Ultimate Disposal)	25.80
	7/13/2020	WMNA-9472021		25.58
	7/13/2020	WMNA-9472022		25.52
	7/13/2020	WMNA-9472023		23.95
	7/13/2020	WMNA-9472024		24.75
	7/13/2020	WMNA-9472025		25.86
	7/13/2020	WMNA-9472026		24.92
	7/13/2020	WMNA-9472027		25.15
	7/13/2020	WMNA-9472028		25.01
	7/13/2020	WMNA-9472029		25.16

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City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ball Field 9	7/13/2020	WMNA-9472030	Fairless Landfill (Ultimate Disposal)	26.14
	7/13/2020	WMNA-9472031		25.04
	7/13/2020	WMNA-9472032		24.86
	7/13/2020	WMNA-9472033		25.26
	7/13/2020	WMNA-9472034		26.76
	7/13/2020	WMNA-9472035		25.47
	7/13/2020	WMNA-9472036		24.09
	7/13/2020	WMNA-9472037		24.88
	7/14/2020	WMNA-9472038		25.20
	7/14/2020	WMNA-9472039		26.46
	7/14/2020	WMNA-9472040		25.96
	7/14/2020	WMNA-9472041		26.24
	7/14/2020	WMNA-9472042		25.80
	7/14/2020	WMNA-9472043		25.17
	7/14/2020	WMNA-9472044		25.45
	7/14/2020	WMNA-9472045		25.32
	7/14/2020	WMNA-9472046		25.24
	7/14/2020	WMNA-9472047		25.53
	7/14/2020	WMNA-9472048		25.15
	7/14/2020	WMNA-9472049		24.50
	7/14/2020	WMNA-9472050		25.44
	7/14/2020	WMNA-9472051		25.51
	7/14/2020	WMNA-9472052		25.71
	7/14/2020	WMNA-9472053		26.10
	7/14/2020	WMNA-9472054		25.43
	7/14/2020	WMNA-9472055		24.86
	7/14/2020	WMNA-9472056		24.42
	7/14/2020	WMNA-9472058		25.92
	7/14/2020	WMNA-9472059		24.52
	7/14/2020	WMNA-9472060		25.57
	7/14/2020	WMNA-9472061		24.81
	7/14/2020	WMNA-9472062		24.85
	7/14/2020	WMNA-9472063		24.68
	7/14/2020	WMNA-9472064		25.42
	7/14/2020	WMNA-9472065		25.29
	7/14/2020	WMNA-9472066		24.06
	7/14/2020	WMNA-9472067		24.09
	7/14/2020	WMNA-9472068		24.38
	7/15/2020	WMNA-9472069		25.28
	7/15/2020	WMNA-9472077		25.78
	7/15/2020	WMNA-9472071		24.78
	7/15/2020	WMNA-9472072		25.27
	7/15/2020	WMNA-9472073		25.20
	7/15/2020	WMNA-9472074		26.02
	7/15/2020	WMNA-9472075		26.00
	7/15/2020	WMNA-9472076		23.77
	7/15/2020	WMNA-9472078		26.13
	7/15/2020	WMNA-9472079		25.47
	7/15/2020	WMNA-9472082		24.29
	7/15/2020	WMNA-9472080		25.68
	7/15/2020	WMNA-9472081		25.33
	7/15/2020	WMNA-9472083		24.80
	7/15/2020	WMNA-9472084		24.87
	7/15/2020	WMNA-9472085		24.38
	7/15/2020	WMNA-9472086		22.91
	7/15/2020	WMNA-9472087		22.58
	7/15/2020	WMNA-9472088		21.96
	7/15/2020	WMNA-9472089		23.55
	7/15/2020	WMNA-9472090		23.18
	7/15/2020	WMNA-9472091		23.22
	7/15/2020	WMNA-9472092		23.22
	7/15/2020	WMNA-9472093		22.73
	7/15/2020	WMNA-9472094		22.33
	7/15/2020	WMNA-9472095		23.32
	7/15/2020	WMNA-9472096		23.27
	7/15/2020	WMNA-9472097		23.10
	7/15/2020	WMNA-9472098		21.98
	7/15/2020	WMNA-9472099		22.43
	7/16/2020	WMNA-9472100		23.95
	7/16/2020	WMNA-9472101		24.41
	7/16/2020	WMNA-9472102		23.89
	7/16/2020	WMNA-9472103		23.99
	7/16/2020	WMNA-9472104		24.63
	7/16/2020	WMNA-9472105		22.79
	7/16/2020	WMNA-9472106		23.26
	7/16/2020	WMNA-9472107		24.38
	7/16/2020	WMNA-9472108		23.84
	7/16/2020	WMNA-9472109		23.51
	7/16/2020	WMNA-9472110		22.03
	7/16/2020	WMNA-9472111		22.87
	7/16/2020	WMNA-9472112		21.90

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ball Field 9	7/16/2020	WMNA-9472113	Fairless Landfill (Ultimate Disposal)	23.06
	7/16/2020	WMNA-9472114		23.84
	7/16/2020	WMNA-9472115		22.96
	7/16/2020	WMNA-9472116		22.62
	7/16/2020	WMNA-9472117		23.69
	7/16/2020	WMNA-9472118		23.33
	7/16/2020	WMNA-9472120		22.47
	7/16/2020	WMNA-9472121		23.43
	7/16/2020	WMNA-9472122		23.23
	7/16/2020	WMNA-9472123		23.07
	7/16/2020	WMNA-9472124		24.21
	7/16/2020	WMNA-9472125		24.69
	7/16/2020	WMNA-9472126		23.68
	7/16/2020	WMNA-9472127		22.79
	7/16/2020	WMNA-9472128		23.49
	7/16/2020	WMNA-9472129		23.91
	7/16/2020	WMNA-9472130		22.61
	7/16/2020	WMNA-9472131		23.44
	7/16/2020	WMNA-9472132		25.91
	7/16/2020	WMNA-9472133		23.27
	7/16/2020	WMNA-9472134		23.30
	7/16/2020	WMNA-9472135		23.91
	7/16/2020	WMNA-9472136		22.87
	7/16/2020	WMNA-9472137		23.33
	7/16/2020	WMNA-9472138		23.64
	7/16/2020	WMNA-9472139		22.82
	7/16/2020	WMNA-9472140		24.17
	7/16/2020	WMNA-9472141		24.05
	7/16/2020	WMNA-9472142		24.23
	7/16/2020	WMNA-9472143		23.25
	7/16/2020	WMNA-9472144		22.97
	7/16/2020	WMNA-9472145		22.93
	7/17/2020	WMNA-9472146		23.86
	7/17/2020	WMNA-9472147		23.30
	7/17/2020	WMNA-9472148		22.85
	7/17/2020	WMNA-9472149		23.45
	7/17/2020	WMNA-9472150		22.82
	7/17/2020	WMNA-9472151		23.51
	7/17/2020	WMNA-9472152		22.88
	7/17/2020	WMNA-9472153		23.42
	7/17/2020	WMNA-9472154		23.29
	7/17/2020	WMNA-9472155		22.85
	7/17/2020	WMNA-9472156		23.26
	7/17/2020	WMNA-9472157		23.35
	7/17/2020	WMNA-9472158		22.07
	7/17/2020	WMNA-9472159		23.13
	7/17/2020	WMNA-9472160		23.18
	7/17/2020	WMNA-9472161		22.25
	7/17/2020	WMNA-9472162		24.07
	7/17/2020	WMNA-9472163		23.55
	7/17/2020	WMNA-9472164		23.75
	7/17/2020	WMNA-9472165		24.08
	7/17/2020	WMNA-9472166		23.49
	7/17/2020	WMNA-9472167		23.36
	7/17/2020	WMNA-9472168		24.29
	7/17/2020	WMNA-9472169		23.03
	7/17/2020	WMNA-9472170		23.40
	7/17/2020	WMNA-9472171		23.20
	7/17/2020	WMNA-9472172		24.35
	7/17/2020	WMNA-9472173		24.51
	7/17/2020	WMNA-9472174		23.60
	7/17/2020	WMNA-9472175		23.84
	7/17/2020	WMNA-9472176		24.36
	7/17/2020	WMNA-9472177		22.86
	7/17/2020	WMNA-9472178		23.97
	7/20/2020	WMNA-9472179		22.71
	7/20/2020	WMNA-9472180		23.65
	7/20/2020	WMNA-9472181		23.83
	7/20/2020	WMNA-9472182		23.37
	7/20/2020	WMNA-9472183		23.30
	7/20/2020	WMNA-9472184		23.39
	7/20/2020	WMNA-9472185		22.93
	7/20/2020	WMNA-9472186		22.78
	7/20/2020	WMNA-9472187		23.45
	7/20/2020	WMNA-9472188		22.56
	7/20/2020	WMNA-9472189		23.60
	7/20/2020	WMNA-9472190		24.89
	7/20/2020	WMNA-9472191		23.80
	7/20/2020	WMNA-9472192		22.50
	7/21/2020	WMNA-9472193		23.38
	7/21/2020	WMNA-9472194		23.39

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Red Hook Ball Field 9	6/3/2021	WMNA-10471957	Fairless Landfill (Ultimate Disposal)	25.12
	6/3/2021	WMNA-10471958		24.72
	6/3/2021	WMNA-1047959		24.40
	6/3/2021	WMNA-10471960		23.64
	6/3/2021	WMNA-10471961		22.64
	6/3/2021	WMNA-10471962		22.47
	6/3/2021	WMNA-10471963		23.38
	6/3/2021	WMNA-10471964		22.32
	6/4/2021	WMNA-10471965		23.59
	6/4/2021	WMNA-10471966		22.85
	6/4/2021	WMNA-10471969		23.70
	6/4/2021	WMNA-10471968		23.81
	6/4/2021	WMNA-10471970		24.54
	6/4/2021	WMNA-10471971		24.92
	6/4/2021	WMNA-10471972		25.89
	6/4/2021	WMNA-10471973		24.07
	6/7/2021	WMNA-10471974		25.81
	6/7/2021	WMNA-10471975		24.88
	6/7/2021	WMNA-10471976		23.83
	6/7/2021	WMNA-10471978		24.83
	6/7/2021	WMNA-10471979		25.10
	6/7/2021	WMNA-10471980		23.72
	6/8/2021	WMNA-10471981		21.26
	6/8/2021	WMNA-10471977		23.82
	10/20/2021	WMNA-10897913		25.19
	10/20/2021	WMNA-10897914		25.78
	10/20/2021	WMNA-10897915		24.68
	10/20/2021	WMNA-10897916		25.12
	10/20/2021	WMNA-10897917		26.58
	10/20/2021	WMNA-10897918		23.86
	10/20/2021	WMNA-10897919		25.59
	10/20/2021	WMNA-10897920		24.78
	10/20/2021	WMNA-10897921		25.71
	10/20/2021	WMNA-10897922		24.81
	10/20/2021	WMNA-10897924		24.98
	10/20/2021	WMNA-10897923		23.99
	10/20/2021	WMNA-10897925		23.91
	10/20/2021	WMNA-10897927		24.56
	10/20/2021	WMNA-10897928		23.99
	10/20/2021	WMNA-10897929		24.28
	10/20/2021	WMNA-10897930		24.72
	10/20/2021	WMNA-10897931		24.28
	10/20/2021	WMNA-10897932		23.97
	10/20/2021	WMNA-10897933		24.45
	10/21/2021	WMNA-10897934		23.97
	10/21/2021	WMNA-10897935		25.00
	10/21/2021	WMNA-10897936		25.36
	10/21/2021	WMNA-10897937		24.82
	10/21/2021	WMNA-10897938		25.16
	10/21/2021	WMNA-10897939		24.35
	10/21/2021	WMNA-10987940		25.31
	10/21/2021	WMNA-10897941		25.64
	11/17/2021	WMNA-10918435		25.64
	11/17/2021	WMNA-10918434		24.87
	2/23/2022	WMNA-2515752	Clean Earth of Philadelphia (Ultimate Disposal)	22.95
	2/23/2022	WMNA-2515753		22.95
	2/23/2022	WMNA-2515754		21.86
	2/23/2022	WMNA-2515755		23.02
	2/23/2022	WMNA-2515756		21.42
	2/23/2022	WMNA-2515757		22.49
	2/23/2022	WMNA-2515758		23.13
	2/23/2022	WMNA-2515759		23.69
	2/24/2022	WMNA-2515760		23.31
	2/24/2022	WMNA-2515761		23.20
	2/24/2022	WMNA-2515763		23.14
	2/24/2022	WMNA-2515762		23.76
	2/24/2022	WMNA-2515764		24.04
	2/24/2022	WMNA-2515765		23.35
	2/24/2022	WMNA-2515766		23.44
	2/24/2022	WMNA-2515767		23.03
	2/24/2022	WMNA-2515768		22.55
	2/24/2022	WMNA-2515769		22.60
	2/24/2022	WMNA-2515770		23.77
	2/24/2022	WMNA-2515771		22.38
	3/4/2022	2515863		23.09
	3/4/2022	2515864		22.96
	3/4/2022	2515865		24.32
	3/4/2022	2515866		26.27
	3/4/2022	2515867		23.40
	3/4/2022	2515868		24.45
	3/4/2022	2515869		23.96
	3/4/2022	2515870		25.00

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

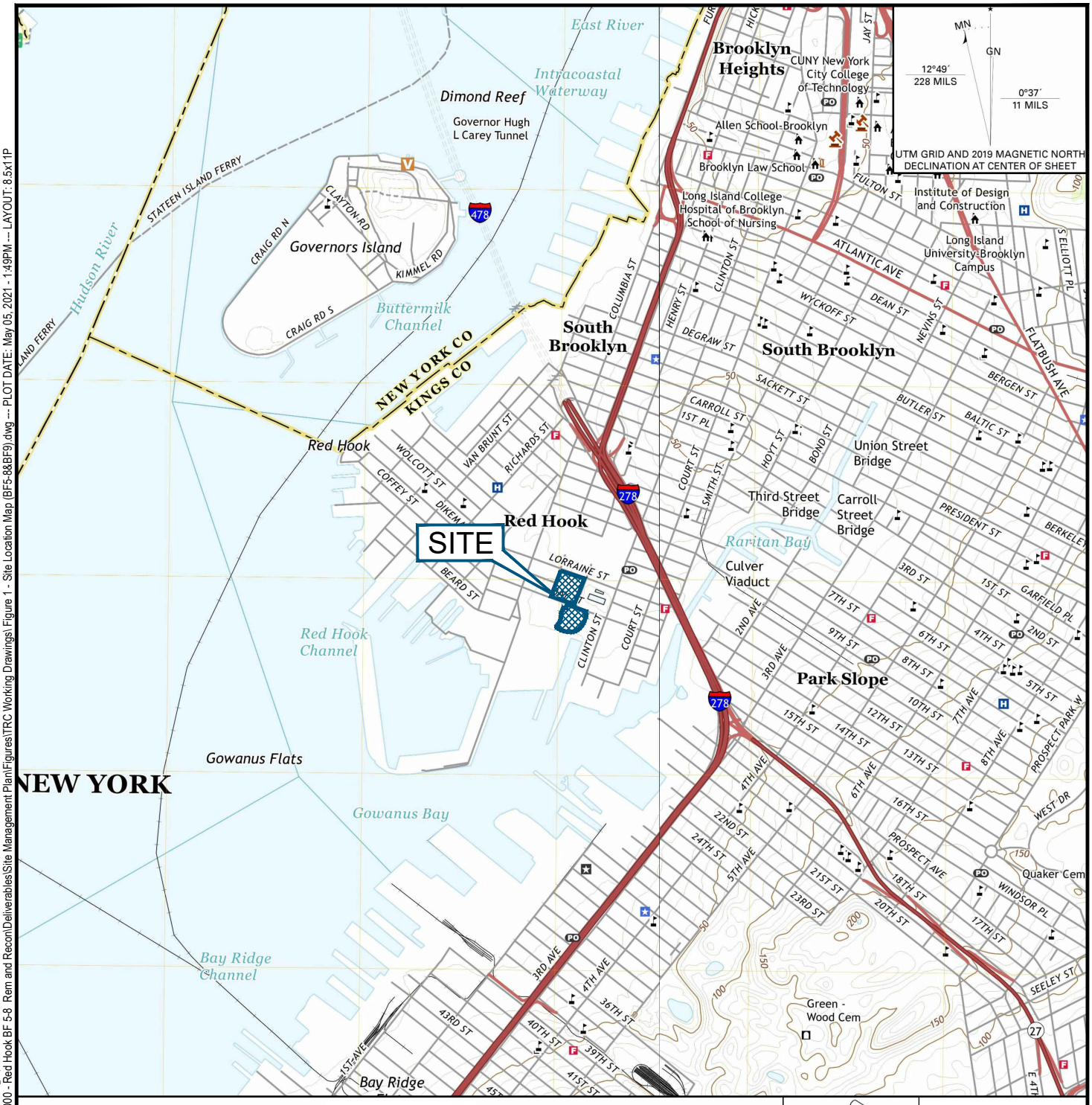
Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
	11/30/2022	WMNA-1215650	Fairless Landfill (Ultimate Disposal)	19.12
	11/30/2022	WMNA-1215651		23.35
	11/30/2022	WMNA-12154652		23.72
	11/30/2022	WMNA-12154656		20.14
	11/30/2022	WMNA-12154653		22.35
	11/30/2022	WMNA-12154654		23.24
	11/30/2022	WMNA-12154655		22.35
	11/30/2022	WMNA-12154659		22.45
	11/30/2022	WMNA-12154657		22.56
	11/30/2022	WMNA-12154658		23.56
	12/1/2022	WMNA-12154663		23.49
	12/1/2022	WMNA-12154662		21.95
	12/1/2022	WMNA-12154661		23.50
	12/1/2022	WMNA-12154660		22.41
	12/1/2022	WMNA-12154642		25.15
	12/1/2022	WMNA-12154643		24.18
	Subtotal			**6,475.15**
Ball Field 9 and Soccer Field 2				
Concrete				
Red Hook Ball Field 9	1/8/2020	747868	Allocco Recycling - Brooklyn, NY	23.97
	1/8/2020	747826		23.70
	1/8/2020	747784		22.64
	1/8/2020	747902		23.74
	1/10/2020	748218		23.13
	1/10/2020	748324		27.19
	1/13/2020	748612		22.58
	1/13/2020	748613		22.68
	1/17/2020	749436		28.15
	1/17/2020	749508		27.06
	1/24/2020	750575		25.76
	1/24/2020	750500		25.87
	1/27/2020	750888		25.60
	3/11/2020	758460		26.75
	8/3/2020	100738094		23.83
	8/3/2020	100738177		26.29
	10/8/2020	100947440		19.32
	10/8/2020	100947493		22.30
	10/9/2020	10094753		22.55
	10/9/2020	10094769		21.16
	10/9/2020	100947629		20.27
	11/13/2020	100947736		22.33
	11/19/2020	100953086		17.04
	11/19/2020	100953257		19.95
	11/19/2020	100953131		19.43
	4/9/2021	822818		15.70
	4/9/2021	128015		22.50
	4/12/2021	823236		19.02
	4/21/2021	825114		20.48
	4/21/2021	825047		18.59
	4/21/2021	824984		19.15
	4/29/2021	827302		18.67
	5/14/2021	829691		20.91
	5/14/2021	829640		18.27
	Subtotal			**756.58**

Table 6
City of New York Department of Parks and Recreation
Site Management Plan
Red Hook Park - Ball Fields 5, 6, 7, 8, & 9
Off-Site Soil/Waste Disposal Quantities and Facilities

Location	Date Transported Off-Site	Manifest Number	Disposal Facility	Net Weight (Tons)
Asphalt				
Red Hook Ball Field 9	10/14/2020	792279	Allocco Recycling - Brooklyn, NY and Green Asphalt - Queens, NY	22.98
	10/14/2020	792226		19.03
	10/15/2020	792361		21.46
	10/15/2020	113072		17.28
	10/15/2020	113062		17.88
	10/16/2020	113147		22.58
	10/16/2020	113128		18.01
	10/19/2020	113141		17.40
	10/19/2020	113246		20.89
	10/19/2020	113237		22.80
	10/19/2020	113258		22.33
	10/15/2020	113075		19.26
	1/19/2021	118175		19.62
	1/19/2021	119147		17.73
	1/20/2021	118201		18.36
	1/21/2021	118377		16.39
	1/21/2021	118351		18.35
	1/28/2021	118813		27.28
	1/28/2021	118850		29.56
	2/17/2021	119518		19.63
	2/17/2021	119498		19.33
	2/17/2021	111909		21.18
	2/26/2021	119960		26.40
	2/26/2021	119984		26.58
	2/26/2021	119985		15.82
	2/26/2021	119968		25.51
	2/26/2021	119988		21.20
	3/31/2021	464070		16.84
	4/7/2021	465090		28.14
	4/8/2021	464077		32.11
	4/8/2021	465159		37.17
	4/12/2021	465512		21.67
	4/29/2021	467962		16.27
	4/29/2021	467911		17.86
	5/14/2021	469659		9.95
	Subtotal			**744.85**
Total				**15,724.53**

Notes:
Soil/Waste includes concrete, asphalt, non-hazardous soil, and hazardous soil generated from Ball Fields 5-8 and Ball Field 9.

FIGURES



SCALE: 1:2400

1 0.5 0 KILOMETERS 1 2

1000 500 0 METERS 1000 2000

1 0.5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

QUADRANGLE LOCATION

MAP INCLUDES INFORMATION FROM THE FOLLOWING MAP SHEET(S):
TP, JERSEY CITY, NJ-NY, 7.5 MINUTE, DATED 2019,
E, BROOKLYN, NY, 7.5 MINUTE, DATED 2019.

MAP OBTAINED THROUGH USE OF NATIONAL GEOLOGIC MAP DATABASE PROJECT (NGMDB), IN SUPPORT OF THE TOPOGRAPHIC MAPPING PROGRAM, MANAGED BY THE USGS NATIONAL GEOSPATIAL PROGRAM (NGP).

TRC
1430 Broadway, 10th Floor
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

PROJECT:
CITY OF NEW YORK PARKS AND RECREATION - CAPITAL PROJECTS DIVISION
SITE MANAGEMENT PLAN
RED HOOK PARK - BALL FIELDS 5, 6, 7, 8, & 9
BOROUGH OF BROOKLYN, NY

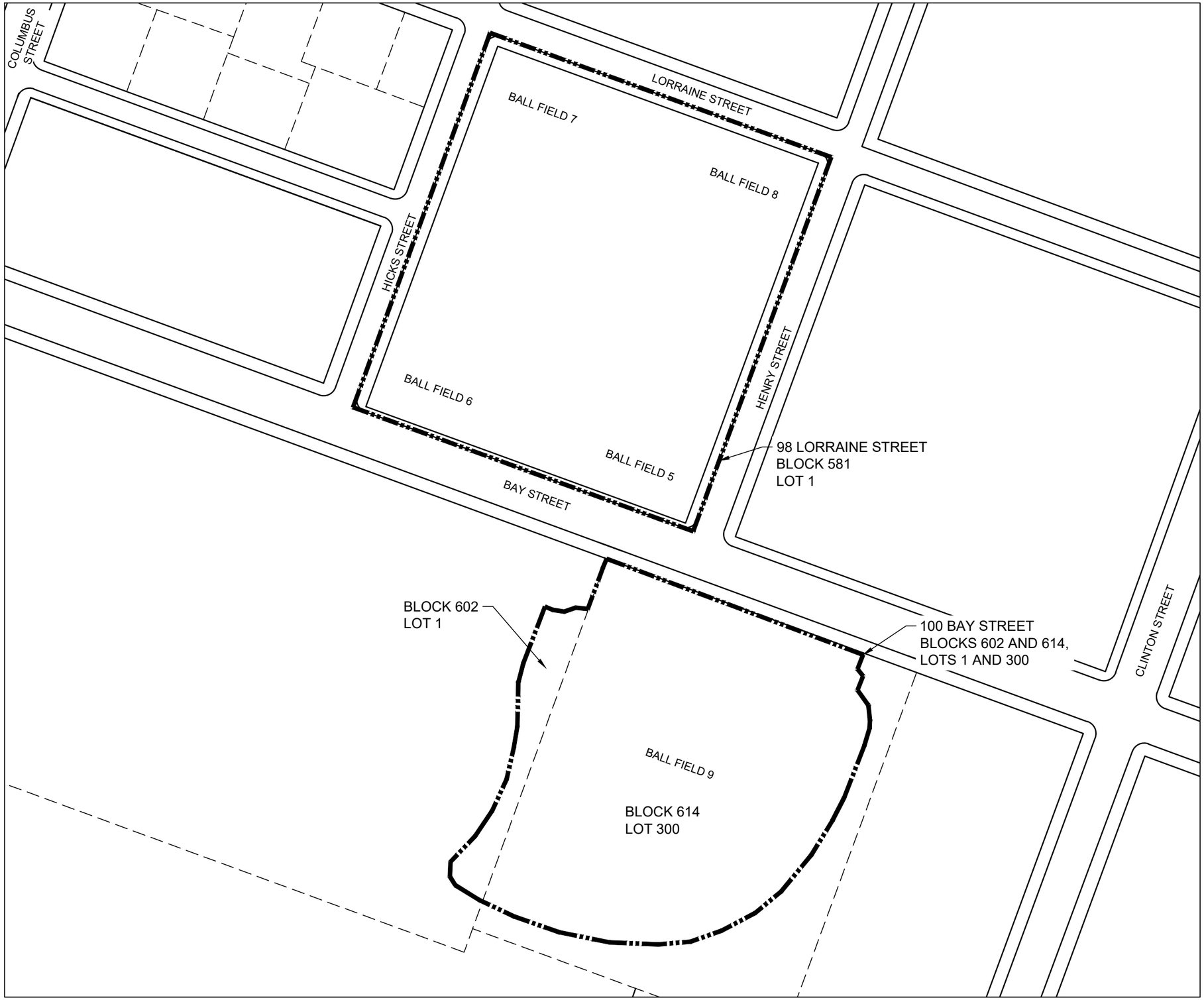
TITLE:

SITE LOCATION MAP

DRAWN BY:	H. DELGADO
CHECKED BY:	W. LINDEMUTH
APPROVED BY:	J. MIRANDA
DATE:	MAY 2021
PROJ. NO.:	246184.0000.0000
FILE:	Figure 1 - Site Location Map (BF5-8&BF9).dwg

FIGURE 1

8.5x11 --- ATTACHED XREF'S: --- ATTACHED IMAGES: NJ Jersey City 20191029_TIN, NY Brooklyn 20190925_TIN;
DRAWING NAME: I:\Projects\NYC Parks Contract 20166200181\246184.0000 - Red Hook BF 5-8 Rem and Recon\Deliverables\Site Management Plan\Figures\TRC Working Drawings\ Figure 1 - Site Location Map (BF5-8&BF9).dwg --- PLOT DATE: May 05, 2021 - 1:49PM --- LAYOUT: 8.5x11P



LEGEND (SYMBOLS NOT TO SCALE):

SITE BOUNDARY

LOT BOUNDARY

N

0 120' 240'

SCALE: 1" = 120'
SHEET SIZE: 11" BY 17"

ASSUMED GROUNDWATER FLOW DIRECTION

PROJECT:
CITY OF NEW YORK PARKS AND RECREATION - CAPITAL PROJECTS DIVISION
SITE MANAGEMENT PLAN
RED HOOK PARK - BALL FIELDS 5, 6, 7, 8, & 9
BOROUGH OF BROOKLYN, NY

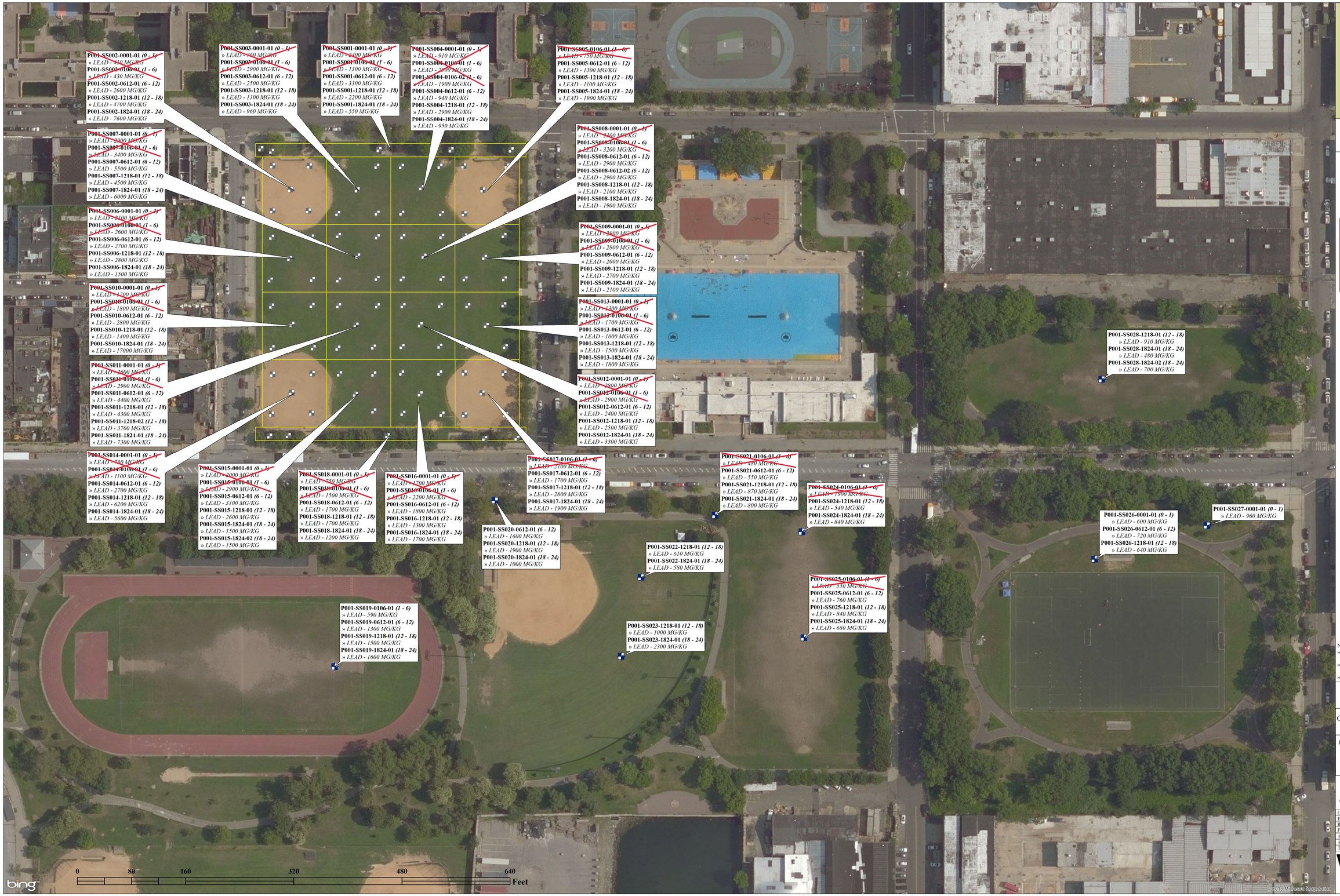
TITLE:
ORIGINAL SITE LAYOUT PLAN

DRAWN BY:	H. DELGADO	PROJ NO.:	246184.0000.0000
CHECKED BY:	W. LINDEMUTH		**FIGURE 2**
APPROVED BY:	J. MIRANDA		
DATE:	MAY 2021		

TRC
1430 Broadway
10th Floor
New York, NY 10018
Phone: 212.221.7822

FILE NO.: Figure 2 - Original Site Layout Plan (BF5-8&BF9).dwg

FIGURE 3 - Remaining Soil Sample Exceedances
Note that sample results shown with a Red X indicate the material was removed during Site reconstruction.



SCALE
1:780

LEGEND
- Grab Sample Location
- Sample Aliquot Location
- Sample Quadrant

400 mg/kg = Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) for Lead

400 mg/kg = USEPA Removal Management Levels (RMLs) for Lead

Note(s):
» All sample depths are listed in parenthesis and represented in inches.
» Only samples with Lead exceedances ≥ 400 MG/KG are depicted.
» MG/KG - Miligram per Kilogram

Figure 3:
Lead Exceedances

COLUMBIA SMELTING & REFINING
BROOKLYN, NEW YORK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

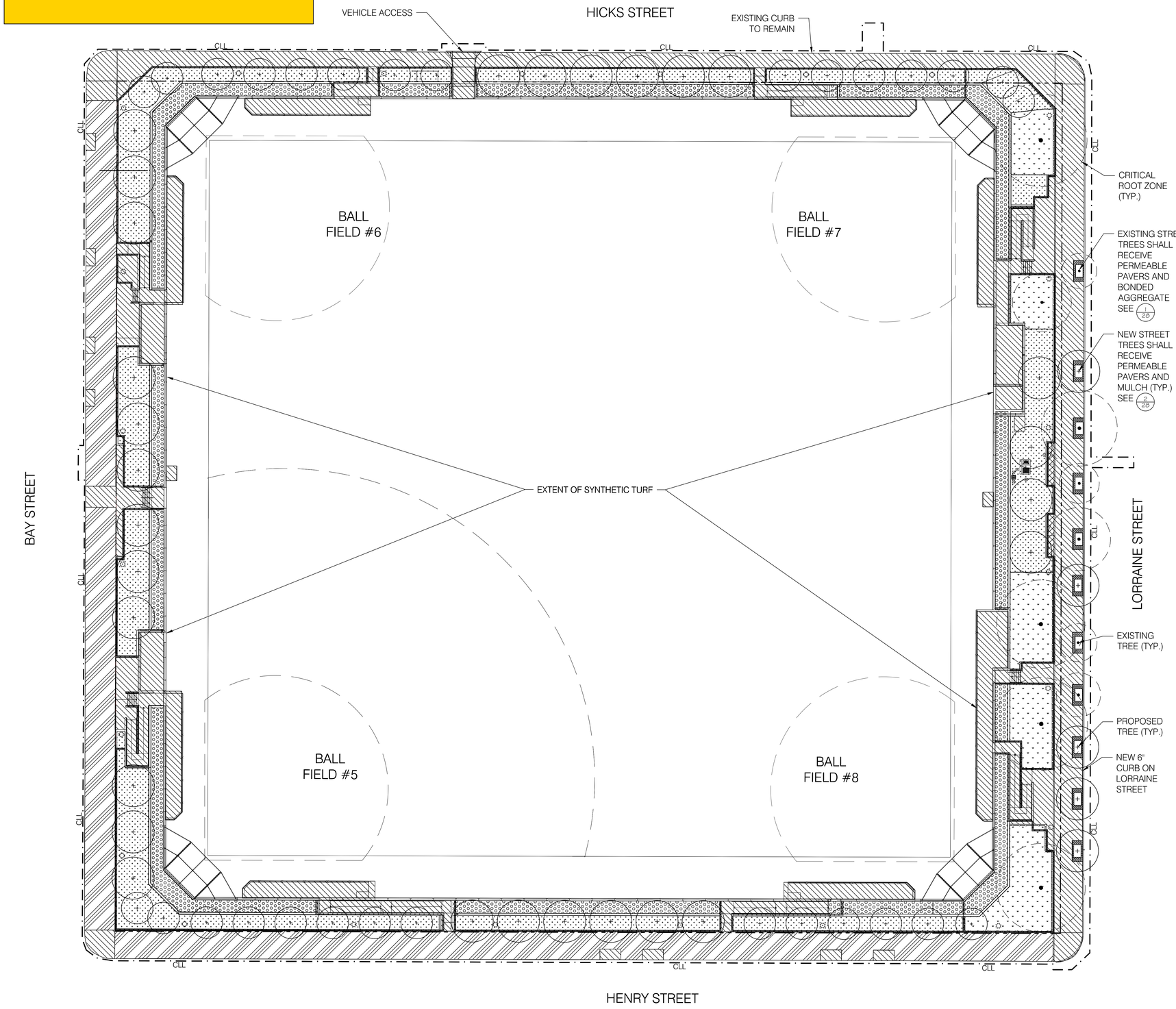
REMOVAL SUPPORT TEAM 3
CONTRACT # EP-S2-14-01

In Association With
Scientific and Environmental Associates, Inc.,
Environmental Compliance Consultants, Inc.,
Avatar Environmental, LLC, On-Site Environmental, Inc., and Sovereign Consulting, Inc.

GIS ANALYST:	F. CAMPBELL
EPA OSC:	M. GREGOR
RST SPM:	M. BEUTHE
FILENAME:	150406_ANALYTICRESULTS.MXD
FIGURE:	3
REVISION:	0
DATE MODIFIED:	4/8/2015

WESTON SOLUTIONS

FIGURE 4 - Remedial Plan BF 5-8



LEGEND (SYMBOLS NOT TO SCALE):

SHADING/HATCHING	TYPE OF COVER	REMEDIAL COVER
	SYNTHETIC TURF	MINIMUM OF 1-FOOT THICK LAYER OF CLEAN COVER WITH DEMARCATION LAYER BELOW.
	BIOSWALE	GRASSES WITH 3-INCH THICK LAYER OF MULCH ABOVE A MINIMUM 1-FOOT THICK LAYER OF CLEAN COVER WITH DEMARCATION LAYER BELOW.
	EXISTING PAVING (TO REMAIN)	APPROXIMATELY 10-INCH THICK LAYER OF CONCRETE AND SUBBASE. REMOVE AND REPLACE WITH MINIMUM OF 10-INCH THICK LAYER OF CONCRETE AND SUBBASE WITH DEMARCATION LAYER AS BID ALTERNATE.
	NEW PAVING (SEE NOTE 5)	MINIMUM OF 10-INCH THICK LAYER OF CONCRETE AND SUBBASE WITH DEMARCATION LAYER.
	EXISTING MATURE TREES WITHIN PLANTING STRIPS	REMOVE 0-6-INCHES OF SOIL AS PER THE HAND/PNEUMATIC EXCAVATION SPECIFICATION. PLACE DEMARCATION LAYER. CLEAN TOPSOIL AND COVER WITH 3-INCH THICK LAYER OF MULCH AND GROUND COVER. 4-FOOT FENCE.
	NEW TREES AND/OR PLANTINGS WITHIN PLANTING STRIPS	GROUND COVER WITH 3-INCH THICK LAYER OF MULCH ABOVE A MINIMUM 1-FOOT THICK LAYER OF CLEAN COVER WITH DEMARCATION LAYER BELOW.
	EXISTING MATURE TREE WITHIN TREE PITS	REMOVE 0-6-INCHES OF SOIL AS PER THE HAND/PNEUMATIC EXCAVATION SPECIFICATION. PLACE DEMARCATION LAYER, CLEAN TOP SOIL AND COVER WITH 2-INCH THICK LAYER OF BONDED AGGREGATE OR PERMEABLE PAVERS.
	NEW TREE WITHIN TREE PIT	REMOVE MINIMUM OF 12-INCHES OF SOIL. PLACE DEMARCATION LAYER, CLEAN TOP SOIL AND COVER WITH MULCH AND PERMEABLE PAVERS.

NEW TREE

EXISTING TREE TO REMAIN
CRITICAL ROOT ZONE

/ # DPR STANDARD DETAIL No. / DPR STANDARD DETAIL SHEET No.

/ L-# CUSTOM DETAIL No. / CUSTOM DETAIL SHEET No.

CLL CONTRACT LIMIT LINE

NOTES:

1. REFER TO DETAIL SHEETS FOR MORE DETAIL REGARDING REMEDIAL COVER SYSTEM.
2. UTILITIES NOT SHOWN.
3. DRAWING SHALL BE USED FOR REMOVAL WORK ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
4. UNDER NEW YORK STATE EDUCATION LAW ARTICLE 145 (ENGINEERING), SECTION 7209 (2), IT IS A VIOLATION OF THIS LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.
5. EXISTING SIDEWALK PAVING ALONG BAY AND HENRY STREETS SHALL BE REMOVED AND REPLACED AS BID ALTERNATE # 1.
6. ALL REMEDIAL COVERS SHALL BE INSTALLED PER PROJECT SPECIFICATIONS AND DRAWING DETAILS AND OTHER CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE ENVIRONMENTAL NOTES SHEET.

NORTH
0 5' 10' 20' 40'

REMEDIAL PLAN
SCALE: 1"=20'-0"

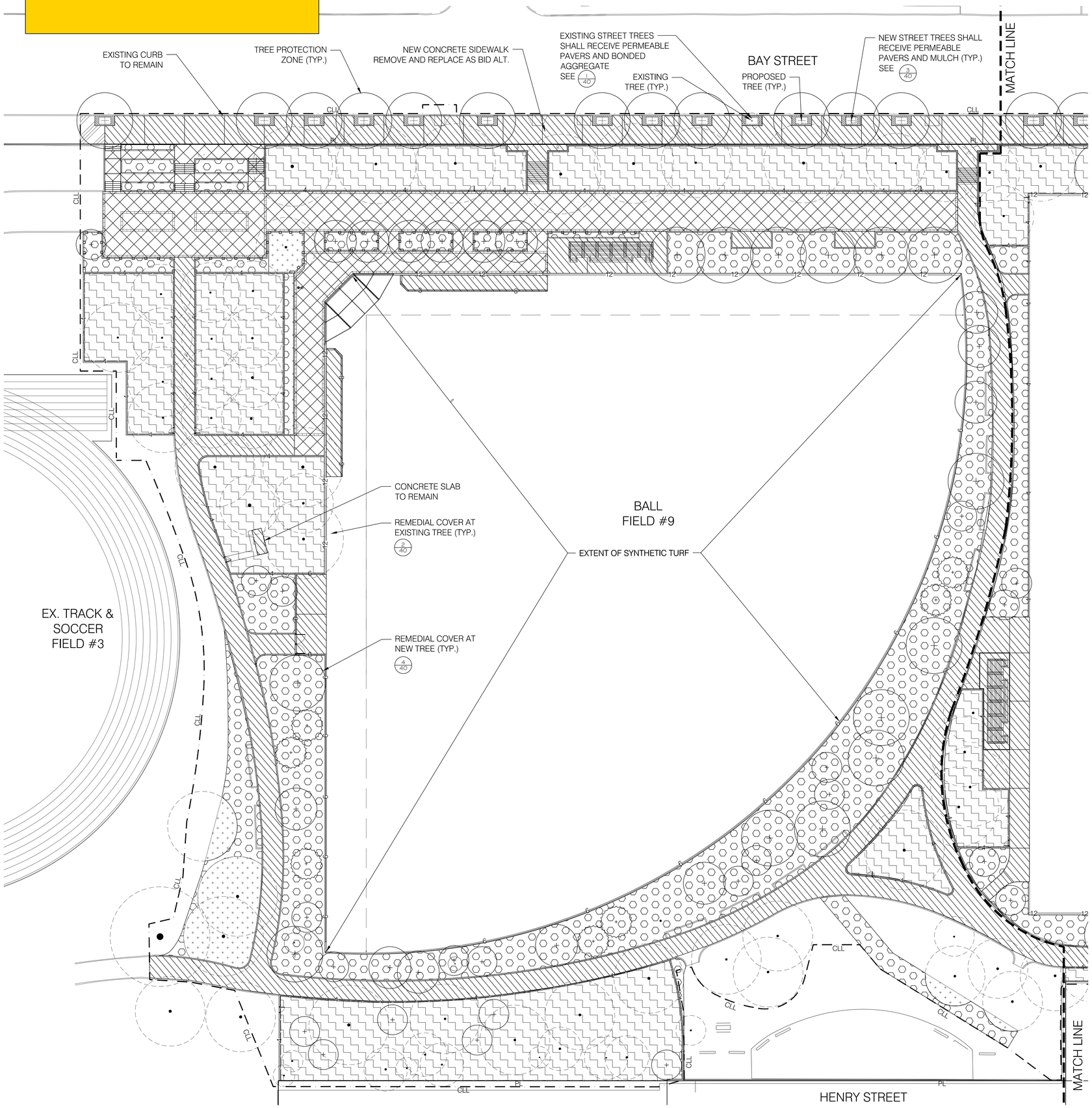
TRC Engineers, Inc.
Results you can rely on

Abel Bainnson Butz, LLP
LANDSCAPE ARCHITECTS I SITE PLANNERS

CITY OF NEW YORK
PARKS & RECREATION
OLMSTED CENTER
FLUSHING MEADOWS CORONA PARK
FLUSHING, NEW YORK 11368
NYC Parks

SEAL	
PROJECT TITLE	THE REMEDIATION AND RECONSTRUCTION OF BALL FIELDS 5-8 BOUNDED BY LORRAINE, BAY, HICKS, AND HENRY STREETS, IN THE RED HOOK RECREATION AREA, BOROUGH OF BROOKLYN
DRAWING TITLE	REMEDIAL PLAN
DESIGNED BY	TRC
DRAWN BY	HENRY DELGADO
CHECKED BY	JAMES PERONTO, P.E.
B-SCAN	
SCALE	1"=20'
DRAWING NO.	H201.00
CONTRACT NO.	B126-116M
DATE	5/2/2017
BLOCK	581
LOT	1
SHEET No.	10 OF 42 SHEETS

FIGURE 5 - Remedial Plan BF 9



LEGEND (SYMBOLS NOT TO SCALE):

HATCHING	TYPE OF COVER	REMEDIAL COVER
	SYNTHETIC TURF	REMOVE TOPSOIL/CLAY SOIL. MINIMUM OF 1-FOOT THICK LAYER OF CLEAN COVER WITH UNDERLYING DEMARCATION LAYER.
	NATURAL TURF / PLANTING	REMOVE 0-6 INCHES OF SOIL, PAVERS, OR ASPHALT. MINIMUM OF 1-FOOT THICK LAYER OF CLEAN SOIL COVER WITH UNDERLYING DEMARCATION LAYER.
	EXISTING PAVING (TO REMAIN)	APPROXIMATELY 10-INCH THICK LAYER OF CONCRETE AND SUBBASE.
	NEW CONCRETE PAVERS	REMOVE 0-10 INCHES OF SOIL, PAVERS, OR ASPHALT. MINIMUM OF 10-INCH THICK LAYER OF CONCRETE PAVERS AND SUBBASE WITH UNDERLYING DEMARCATION LAYER.
	NEW ASPHALT OR CONCRETE PAVING	REMOVE 0-10 INCHES OF SOIL, PAVERS, OR ASPHALT. MINIMUM OF 10-INCH THICK LAYER OF ASPHALT OR CONCRETE AND SUBBASE WITH UNDERLYING DEMARCATION LAYER.
	EXISTING TREES (PROPOSED FENCING)	REMOVE 0-12-INCHES OF SOIL (0-6-INCHES WITHIN THE TPZ) AS PER THE HAND/PNEUMATIC EXCAVATION SPECIFICATION. PLACE DEMARCATION LAYER, 0-12-INCHES OF CLEAN TOPSOIL AND COVER WITH 3-INCH THICK LAYER OF MULCH AND GROUND COVER. 4-FOOT HIGH FENCE.
	EXISTING TREES (NO PROPOSED FENCING)	STRUCTURALLY ANCHOR TREE AND REMOVE 12-INCH THICK LAYER OF SOIL AS PER THE HAND/PNEUMATIC EXCAVATION SPECIFICATION. PLACE DEMARCATION LAYER AND 12-INCHES OF CLEAN TOPSOIL. NO FENCE.
	EXISTING TREE WITHIN TREE PITS WITH PERMEABLE PAVERS	REMOVE 0-6-INCHES OF SOIL AS PER THE HAND/PNEUMATIC EXCAVATION SPECIFICATION. PLACE DEMARCATION LAYER, CLEAN TOPSOIL AND COVER WITH 2-INCH THICK LAYER OF BONDED AGGREGATE AND PERMEABLE PAVERS.
	NEW TREE WITHIN TREE PIT	REMOVE MINIMUM OF 12-INCHES OF SOIL. PLACE DEMARCATION LAYER, CLEAN TOPSOIL AND COVER WITH MULCH AND PERMEABLE PAVERS.

EXISTING EVERGREEN TREE TO REMAIN TREE PROTECTION ZONE

NEW TREE TREE PROTECTION ZONE

EXISTING TREE TO REMAIN TREE PROTECTION ZONE

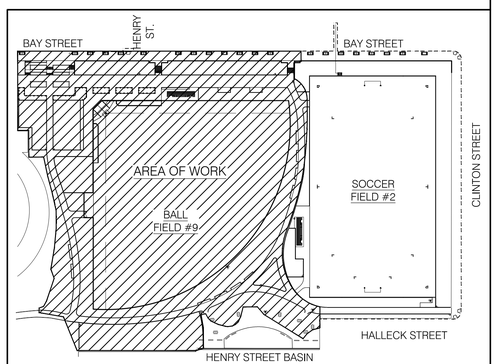
/ # — DPR STANDARD DETAIL No. / DPR STANDARD DETAIL SHEET No.

/ L-# — CUSTOM DETAIL No. / CUSTOM DETAIL SHEET No.

CLL — CONTRACT LIMIT LINE

NOTES:

1. REFER TO DETAIL SHEETS 38, 39, AND 40 FOR MORE DETAIL REGARDING REMEDIAL COVER SYSTEM.
2. UTILITIES NOT SHOWN.
3. DRAWING SHALL BE USED FOR REMEDIAL WORK ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
4. UNDER NEW YORK STATE EDUCATION LAW ARTICLE 145 (ENGINEERING), SECTION 7209 (2), IT IS A VIOLATION OF THIS LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.
5. ALL REMEDIAL COVERS SHALL BE INSTALLED PER PROJECT SPECIFICATIONS AND DRAWING DETAILS AND OTHER CONTRACT DOCUMENTS.
6. CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE ENVIRONMENTAL NOTES SHEET #11 H001.00.



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Abel Bainnson Butz, LLP
LANDSCAPE ARCHITECTS | SITE PLANNERS

NYC Parks

CITY OF NEW YORK
PARKS & RECREATION
OLMSTED CENTER
FLUSHING MEADOWS CORONA PARK
FLUSHING, NEW YORK 11368

NORTH
0 5' 10' 20' 40'

REMEDIAL PLAN 1
SCALE: 1"=20'-0"

SEAL	PROJECT TITLE: THE REMEDIATION AND RECONSTRUCTION OF BALL FIELD 9 AND SOCCER FIELD 2 LOCATED WEST OF CLINTON STREET BETWEEN BAY AND HALLECK STREETS, IN RED HOOK RECREATION AREA, BOROUGH OF BROOKLYN		
	DRAWING TITLE: REMEDIAL PLAN 1		
	DESIGNED BY: TRC	DRAWN BY: HENRY DELGADO	CHECKED BY: JAMES PERONTO, P.E.
	B-SCAN	SCALE: 1"=20' / DRAWING NO.: H201.00	CONTRACT NO.: B126-117M
BLOCK: 602/614/617		DATE: 06/29/2018	SHEET No. 12 OF 48 SHEETS
LOT: 1/300/1			

FIGURE 6 - Groundwater Sample Locations

LEGEND (SYMBOLS NOT TO SCALE):

- PROJECT SCOPE
- RHBF9-XX — APPROXIMATE GEOTECHNICAL, SOIL AND GROUNDWATER SAMPLING BORING LOCATION AND IDENTIFICATION NUMBER
- RHBF9-XX — APPROXIMATE PERMEABILITY TEST LOCATION AND IDENTIFICATION NUMBER

NOTES:

1. BORINGS INSTALLED DECEMBER 2016.
2. BASE MAP SOURCE: TOPOGRAPHIC SURVEY PREPARED BY MUNOZ ENGINEERING AND LAND SURVEYING, P.C. DATED JANUARY 2017.
3. ELEVATIONS SHOWN HEREON REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88)
4. SUBSURFACE UTILITY INFORMATION TAKEN FROM VARIOUS CITY MAPS AND PRIVATE UTILITY COMPANIES.
5. THE LOCATION OF UNDERGROUND UTILITIES AS SHOWN HEREON ARE BASED ON ABOVE GROUND STRUCTURES, PARKS RECORD DRAWINGS, AND CITY RECORD MAPS. LOCATION OF UNDERGROUND UTILITY / STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES / STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATION WAS MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES. BEFORE COMMENCING EXCAVATION, CONTRACTORS SHOULD CALL 1-800-272-4480 CODE RULE 53.

0 50' 100'

SCALE: 1"= 50'
SHEET SIZE: 11" X 17"

PROJECT:
CITY OF NEW YORK PARKS AND RECREATION - CAPITAL PROJECTS DIVISION
RED HOOK RECREATION AREA BALL FIELD 9
BOROUGH OF BROOKLYN, NEW YORK

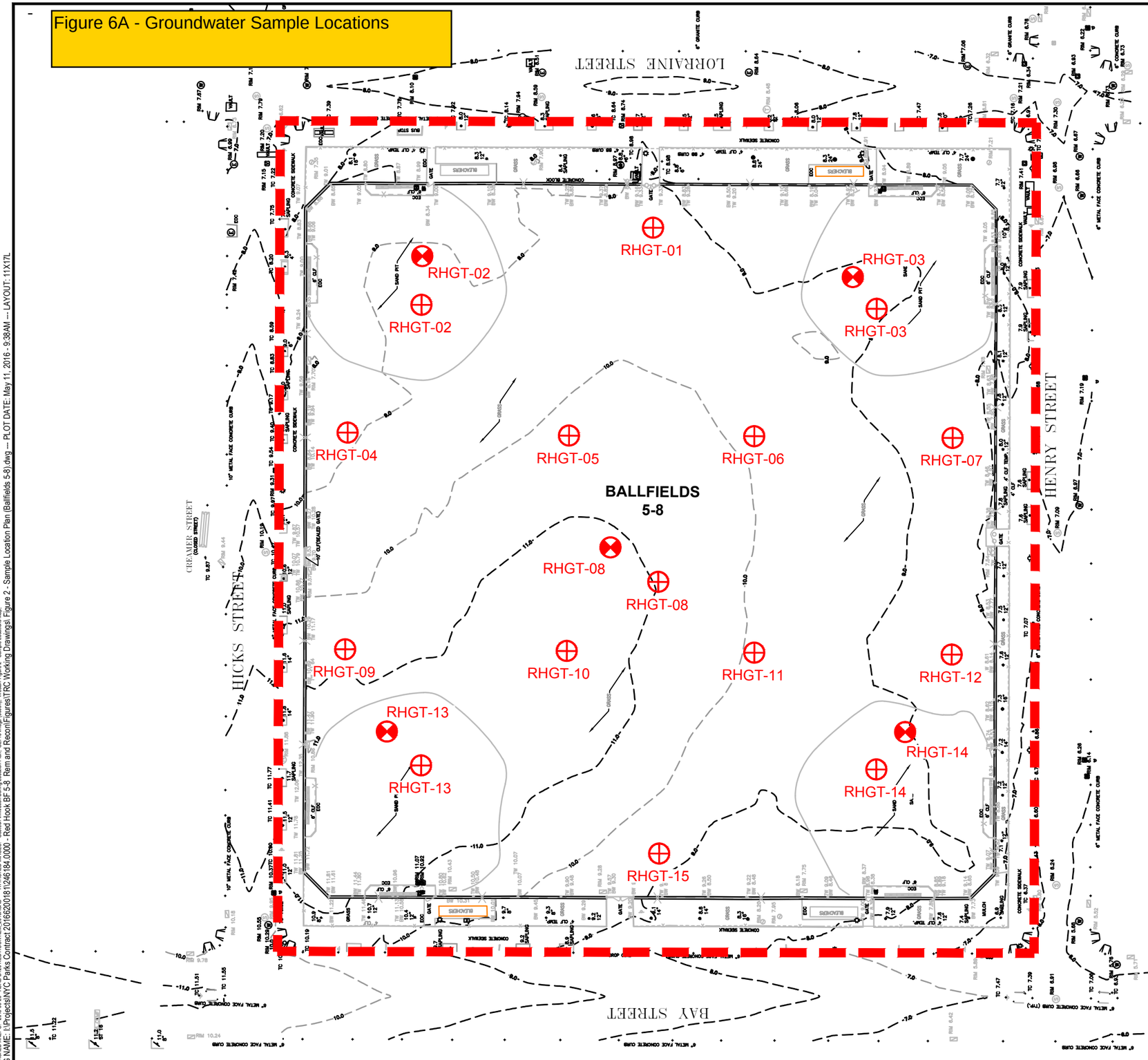
TITLE:
BORING LOCATION PLAN
INFILTRATION TESTING AND SOIL AND GROUNDWATER SAMPLING SUMMARY REPORT

DRAWN BY:	H. DELGADO	PROJ NO.:	246184.1000.0000
CHECKED BY:	E. EBERT		
APPROVED BY:	W. LINDEMUTH		**FIGURE 2**
DATE:	MARCH 2017		

TRC
1430 Broadway
10th Floor
New York, NY 10018
Phone: 212.221.7822

FILE NO.: Figure 2 - Boring Location Plan - Infiltration Test. Soil & GW Samp. (Ballfield 9).dwg

Figure 6A - Groundwater Sample Locations



LEGEND (SYMBOLS NOT TO SCALE):

- PROJECT SCOPE
- RHGT-XX — APPROXIMATE GEOTECHNICAL BORING LOCATION AND IDENTIFICATION NUMBER
- RHGT-XX — APPROXIMATE PERMEABILITY TEST LOCATION AND IDENTIFICATION NUMBER

NOTES:

1. SURVEYED BY THE CITY OF NEW YORK - PARKS AND RECREATION DATED 3/19/15.
2. ELEVATIONS SHOWN HEREON REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88)
3. SUBSURFACE UTILITY INFORMATION TAKEN FROM VARIOUS CITY MAPS AND PRIVATE UTILITY COMPANIES.
4. THE LOCATION OF UNDERGROUND UTILITIES AS SHOWN HEREON ARE BASED ON ABOVE GROUND STRUCTURES, PARKS RECORD DRAWINGS AND CITY RECORD MAPS. LOCATION OF UNDERGROUND UTILITY / STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES / STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATION WAS MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES. BEFORE COMMENCING EXCAVATION, CONTRACTORS SHOULD CALL 1-800-272-4480 CODE RULE 53.

0 60' 120'

SCALE: 1" = 60'
SHEET SIZE: 11"X17"

PROJECT:
CITY OF NEW YORK PARKS AND RECREATION - CAPITAL PROJECTS DIVISION
RED HOOK PARK: BALLFIELDS 5, 6, 7 AND 8
BOROUGH OF BROOKLYN, NEW YORK

TITLE:
SAMPLE LOCATION PLAN

DRAWN BY:	HD	PROJ NO.:	246184.0000.0000
CHECKED BY:	WL		**FIGURE 2**
APPROVED BY:	JM		
DATE:	MAY 2016		

TRC
1430 Broadway
10th Floor
New York, NY 10018
Phone: 212.221.7822

FILE NO.: Figure 2 - Sample Location Plan (Ballfields 5-8).dwg

APPENDIX A
PROPERTY DOCUMENTATION

APPENDIX B

DEED RESTRICTION

This Appendix will include a copy of the Deed Restrictions. The figure/survey and metes/bounds description of the restricted areas must also be included in this Appendix as one is not always filed with the county clerk. In addition, this Appendix should include copies of any required access agreements of other properties required to perform site management activities.

APPENDIX C
SITE INVESTIGATION REPORT DOCUMENTATION

APPENDIX D
EXCAVATION WORK PLAN

APPENDIX D – EXCAVATION WORK PLAN (EWP)

D-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Table 1.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix G of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

D-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g., photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination).

Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after approval of the SMP.

Excavated soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections D-6 and D-7, respectively, of this Appendix.

D-3 SOIL STAGING METHODS

Materials will be staged and stockpiled on-site at locations approved by the Owner/Operator. Differing materials shall be stockpiled separately to prevent mixing. Stormwater runoff shall be directed away from stockpile sites to prevent erosion or deterioration of materials.

Excavated contaminated stockpiled materials shall be placed on a base lined with a minimum of 30 mil. (or higher) polyethylene plastic sheeting. Stockpiles shall not exceed 35 feet in height with maximum side slopes of 2:1 (horizontal:vertical).

Soil stockpiles will be continuously encircled with a berm and/or silt fence. The underlying polyethylene plastic sheeting shall be extended over the bermed edges to prevent stormwater runon or runoff of stormwater or dewatered groundwater from stockpiled soils/fill material. The berm height shall be a minimum of 12 inches. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Hay bales and other best management practices will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps consisting of a minimum of 10-mil thick polyethylene plastic sheeting. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

D-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

If site construction activities are such that truck or construction equipment bodies or tires leaving the site have contacted contaminated soil/fill materials or are tracking clean soil cover materials off site, a truck wash will be operated on-site, by the associated contractor at a location approved by the owner. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials. Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

D-5 MATERIALS TRANSPORT OFF-SITE

All transport of regulated materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded. All proposed waste transporters must be preapproved by the owner for use on this project. Information on the proposed waste transporter to be submitted to the owner at least 14 days prior to any off-site transport of regulated waste materials will include: name, address; telephone number; contact person, EPA and NYS Transporter ID number and permits; and any and all necessary permit authorizations for waste to be transported from the site to treatment/storage/disposal facilities.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: trucks transporting contaminated or otherwise regulated soil or waste from the Site shall depart the site and proceed to Bay Street to the east, continue north toward Hamilton Avenue, and continue southeast or west the appropriate connecting roadway and ramp to the Brooklyn Queens Expressway (Interstate 278) leading to the east bound BQE (Prospect Expressway) or west bound BQE (Hamilton Avenue). Unless otherwise approved by the owner, the truck route must adhere to the NYCDOT Truck Route Map available at the NYCDOT web site address at http://www.nyc.gov/html/dot/html/motorist/trucks.shtml#routes. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

The off-site transport of all regulated wastes will be fully documented in accordance with applicable federal, state and local regulations/requirements. Approved shipping records consisting of hazardous waste manifests, non-hazardous waste manifests, or bill of lading forms will be required for each vehicle removing waste materials from the project site. Hazardous waste manifests will be provided for all off-site shipments of hazardous wastes. A non-hazardous waste manifest, bill of lading or other owner-approved shipping document will be provided for all off-site shipments of non-hazardous regulated waste materials. Certified scale tickets will also be provided for each waste load transported off-site.

D-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Disposal facility information including the method(s) of treatment/disposal that will be used and information on the proposed permitted treatment/disposal facilities to be submitted to NYSDEC and the owner for preapproval at least 14 days prior to any offsite transport of regulated waste materials will include: facility name; address; contact person; completed site-specific waste profiles; facility acceptance letter; and facility permits.

Off-site disposal locations for excavated soils/fill material will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic

Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6NYCRR Subpart 360-15 registered or permitted facility).

Copies of all completed and executed waste profiles, manifests, bills-of-lading, certified scale weight tickets, and records of final waste shipment and disposition (e.g., certificate of disposal) from the pre-approved permitted disposal facility and all other documentation relating to the off-site transportation and disposal of waste will be included in the PRR.

D-7 MATERIALS REUSE ON-SITE

This section provides all details for methods to be followed for materials reuse on-site. 'Reuse on-site' means reuse of material on-site that originates at the site and that does not leave the site during the excavation. Material reuse on-site will comply with the requirements of NYSDEC DER-10 Section 5.4(e)4. Excavated materials will be reused to the maximum extent practicable in on-site backfilling at the appropriate locations and depths in accordance with the requirements specified herein and in the SMP.

A demarcation layer consisting of orange-colored safety fence material is buried across the site as a demarcation between underlying potentially contaminated historic soils and overlying clean soils, gravel and other clean cover materials associated with the park construction. Materials excavated from above the demarcation layer may be reused at the same location or elsewhere on site below or above the demarcation layer as long as the material meets all other applicable reuse conditions indicated herein and in the SMP and required at the location (e.g., structural soil, topsoil, sandy loam). Materials recovered from below the clean cover materials and underlying demarcation layer may only be reused below the demarcation layer on the site or properly disposed off site. However, no grossly contaminated materials (e.g., petroleum staining, odors) may be reused on site or off site

and must be disposed at a permitted off-site regulated waste disposal facility (i.e., not a NYSDEC-registered construction demolition debris processing facility).

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

D-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, and decontamination waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering and decontamination fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Given the depth to groundwater at the Site (8 to 11 ft bgs), on-site dewatering is not anticipated during any future park construction activities. Any liquids generated as a result of dewatering efforts will be collected. Water shall be collected directly in a vacuum truck tanker (for excavation dewatering) or temporarily stored in an on-site portable frac tank and/or other suitable portable containers. The collected water will be tested to characterize the water for proper off-site disposal/treatment at a permitted facility. At a minimum, liquid disposal characterization will include testing for RCRA heavy metals, TCL VOCs, and TCL SVOCs and any other potential contaminants of concern or parameters required by the treatment/disposal facility.

If collected water is determined to be uncontaminated or can be treated to acceptable levels, it may be discharged to a permitted sanitary/combined City sewer discharge in accordance with a project-specific NYCDEP sewer connection permit/approval obtained by the contractor and associated permit/approval testing requirements. All such project-specific permits shall be obtained by the party performing the associated activity. Copies of all issued water discharge permits/approvals must be obtained by the contractor and provided to the owner and NYSDEC in advance of any discharge. If a NYCDEP sewer discharge permit is not obtained by the contractor for a water discharge, the water will be collected and transported off-site for treatment/disposal at a permitted off-site facility in accordance with applicable federal, state and local regulations.

Off-site water treatment/disposal facility information including the method(s) of treatment/disposal that will be used and information on the proposed permitted treatment/disposal facilities to be submitted to the owner and NYSDEC for preapproval at least 14 days prior to any offsite transport of regulated waste materials will include: facility name; address; contact person; completed site-specific waste profiles; facility acceptance letter; and facility permits.

Copies of all water transport and disposal waste profiles, manifests, gate receipts, bills-of-lading, and records of final waste shipment and disposition (e.g., certificate of disposal) will be included in the PRR.

D-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Design and Implementation Plan and SMP. The existing cover system is comprised of a minimum of a 12-inch thick synthetic turf cover system on athletic fields; clean cover in much of the planting strips; and clean cover, paving, bonded aggregated and permeable pavers, mulch, ground cover and fencing at some locations where existing mature trees will be maintained. The underlying demarcation layer, consisting of orange-colored plastic snow fencing material

will be replaced with equivalent material to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. Any such modifications will be consistent with other equivalent cover systems already approved and present on the site unless otherwise approved by NYSDEC. If a new cover type if proposed for the site, a figure showing the type (detailed cross section) and location of the proposed modified cover will be provided by the contractor to the owner for submittal and preapproval by NYSDEC. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

D-10 BACKFILL FROM OFF-SITE SOURCES

No off-site material will be accepted for use as backfill on the site without prior approval of the owner, NYSDEC, and Remedial Engineer.

Information on proposed sources of borrow material, including documentation of NYSDEC's beneficial use determination, if applicable, shall be provided to the owner and NYSDEC a minimum of four weeks prior to planned delivery of the material to the site. All borrow sources and materials must be pre-approved by the owner and NYSDEC prior to delivery to the site.

Representative samples of each material proposed for use as borrow shall be submitted by the contractor to the owner at least fifteen (15) working days prior to the proposed delivery of the materials to the site. The contractor shall arrange for the owner's representative to gain access to the proposed borrow source for inspection prior to its use. The owner's representative shall also be provided the option to collect soil samples for testing directly from designated borrow material stockpiles at the proposed source location. Borrow material shall not be delivered to the project site until approved by the owner and NYSDEC.

Proposed off-site borrow materials will be sampled and analyzed in accordance with the protocols and method described in Section 4.3.1 of the SMP and the QAPP. The chemical testing will be conducted by a NYSDOH ELAP certified laboratory. The chemical testing will be conducted on samples representative of the proposed borrow soils and the soil samples will be collected within approximately 2 to 4 weeks prior to the planned soil delivery to the site (i.e., representative current soil data) from the actual proposed soil stockpiles that may need to be quarantined at the proposed source for this project depending upon the source.

All materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. A copy of the form is presented in Appendix J.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d) and DER-10 Appendix 5 for restricted residential use. Based on a Restricted Residential land use, the applicability of the protection of groundwater and the absence of ecological resources on or adjacent to the Site, the resulting soil quality standards are listed in DER-10 Appendix 5 for Restricted Residential Use. Soils that meet 'general' fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases and stormwater contact. Stockpiled borrow materials shall be stockpiled in accordance with the stockpiling section D-3 in this plan.

D-11 STORMWATER POLLUTION PREVENTION

Smaller-scale soil disturbances for future utility maintenance and landscaping conducted in the completed park are not anticipated to require coverage under the general SPDES Permit or preparation of a Storm Water Pollution Prevention Plan (SWPPP). However, best management practices, such as the placement silt fencing and hay bales at the perimeter of soil stockpiles and/or the use of polyethylene liners and covers, will be implemented during small-scale soil disturbance.

For the disturbance of an area greater than one acre, erosion and sediment control measures will be implemented on the Site in accordance with the Stormwater Pollution Prevention Plan (SWPPP) prepared by the contractor for the Site. The SWPPP will be prepared in accordance with the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-15-002 and the NYCDEP Guidelines for the Design and Construction of Stormwater Management Systems. A Notice of Intent will be filed with NYSDEC/NYCDEP by the owner prior to the start of such construction activities.

All excavation and other intrusive activities shall be planned and conducted in a manner which minimizes stormwater pollution. Soil disturbing activities will be performed only after proper erosion and sediment controls are in place. The type and amount of controls is generally dependent upon the scope of excavation or ground intrusive activities. Generally, small excavations required for minor landscaping (e.g., shrub, tree planting) may not require controls if completed in a timely manner and not conducted directly adjacent to sensitive receptors (e.g., storm drain, waterways).

Soil erosion and sediment controls, including any appropriate silt fencing, stabilized construction entrance, soil stockpile covers, and catch basin inlet controls, will be installed in accordance with design drawings, NYSDEC guidelines, and SWPPP and inspected at least once a week and after every storm event by a qualified inspector to ensure that they are performing appropriately. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Generally, silt fencing and/or hay bales will be installed around the disturbed soil area, around nearby stormwater catch basin inlets, and at the locations indicated by the SWPPP. All stormwater pollution controls and measures shall meet the most current versions of the New York Standards and Specifications for Erosion and Sediment Control and New York State Stormwater Management Design Manual.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP and SWPPP (if applicable) shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

D-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Appropriately trained environmental remediation/spill response personnel will conduct the removal of any discovered contaminant sources (e.g., tanks, drums) or materials. At a minimum, personnel directly involved in the cleanup activities must have all applicable OSHA hazardous waste operations and emergency response (HAZWOPER) training (29 CFR 1910.120). Liquids will be removed/pumped from tanks or other containers prior to removal from the ground to minimize potential spills from deteriorated

or damaged containers. Licensed waste transporters and permitted treatment/ disposal facilities will be used for the off-site disposal of all regulated wastes. Documentation for any such removal activities including daily reports, waste manifests, bill of lading for recycling of steel tank, and detailed scaled site maps showing the locations of such materials will be included in the PRR.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

All petroleum spills that occur within New York State (NYS) must be reported to the NYSDEC spills hotline (1-800-457-7362) within 2 hours of discovery, except spills that meet all of the following criteria.

The quantity is known to be less than 5 gallons;

The spill is contained and under the control of the spiller;

The spill has not and will not reach the State's water or any land; and

The spill is cleaned up within 2 hours of discovery.

A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in a soil or gravel covered area is considered to have impacted land and is reportable.

D-13 COMMUNITY AIR MONITORING PLAN

Any ground intrusive or other site activities that breach the cover system must be conducted in accordance with the Community Air Monitoring Plan (CAMP) provided in Appendix G. Based on any applicable changes to State and federal health and safety requirements and specific work activities and methods employed by site workers, the CAMP will be updated by the party conducting the intrusive work activities and shall be prepared in current compliance with NYSDEC DER-10, 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations.

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in the Figure 2 of the CAMP in Appendix G. Generally, the prevailing winds are from the south such that upwind sampling would be performed along the south end of the site and downwind performed along the north ends of the site. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations depending on the scope/extent of the contaminated soil disturbance work and as required by NYSDEC and NYSDOH.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

D-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include limiting the size of excavation areas open at one time and secured plastic sheeting or tarps covers for stockpiled or otherwise exposed contaminated soil/fill materials. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

D-15 DUST CONTROL PLAN

The project CAMP includes provisions for dust or particulate monitoring during ground intrusive activities. Based on the dust monitoring results or the observed presence of visible dust, dust suppression will be required as specified by the CAMP.

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a nearby site hydrant and hose/spray head, a portable water supply tank with a hose/spray head, or potable water truck with a water spreader bar and misting across disturbed or exposed soil areas and roadways, wetting equipment and excavation faces, and spraying water on excavator buckets during excavation and dumping.
- Wind blocks, dust curtains, and tarps may be used on temporary fencing or existing perimeter fencing and over stockpiles and truck loads as temporary dust control measures.
- Vehicle speeds will be restricted to less than 10 mph.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

D-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX E

RESPONSIBILITIES OF OWNER AND OWNER'S CONTRACTOR

RESPONSIBILITIES

The responsibilities for implementing the Site Management Plan ("SMP") for the Former Columbia Smelting aka Red Hook Recreational Area Ball Fields 5 through 8 and Ball Field 9 site (the "site"), number 224231 , are divided between the site owner and the owner's Contractor, as defined below. The owner(s) is/are currently listed as: New York City Department of Parks and Recreation (the "owner").

The owner's Contractor varies and will be determined as the owner requires various contractors to perform work at the site that breaches the cover system,

Nothing on this document shall supersede the provisions of a Deed Restriction, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

SITE OWNER'S RESPONSIBILITIES:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the Site.
2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a Deed Restriction remain in place and continue to be complied with. The owner shall provide a written certification
in the site's Periodic Review Report (PRR) certification to the NYSDEC.
3) In the event the site is delisted, the owner remains bound by the Deed Restriction and shall submit, upon request by the NYSDEC, a written certification that the Deed Restriction is still in place and has been complied with.
4) The owner shall grant access to the site to the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.
5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. If damage to the remedial components or vandalism is evident, the owner shall notify the NYSDEC in accordance with the timeframes indicated in Section 1.3 Notifications.
6) If some action or inaction by the owner adversely impacts the site, the owner must notify the NYSDEC in accordance with the time frame indicated in Section 1.3- Notifications and coordinate the performance of necessary corrective actions.
7) The owner must notify the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site properties. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and

changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 1.3 of the SMP. A change of use includes, but is not limited to, any activity that may increase direct human or environmental exposure (e.g., day care, school or park). A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) The owner shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

9) 9) If the NYSDEC determines that an update of the SMP is necessary, the owner shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

10) The owner shall notify the NYSDEC of any changes in RP, ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system.

(Engineering Controls). The owner shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

10) The owner shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3- Notifications of the SMP.

11) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the owner shall submit to the NYSDEC for approval an amended SMP.

12) Any change in use, change in ownership, change in site classification (e.g., delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The owner shall contact the NYSDEC project manager to discuss the need to update such documents.

Change in RP, ownership and/or control and/or site ownership does not affect the owner's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

OWNER'S CONTRACTOR RESPONSIBILITIES:

1) The owner's Contractor shall follow the SMP provisions regarding any construction and/or excavation it undertakes at the Site.
2) The owner's Contractor shall prepare a site-specific HASP, including a community air monitoring program (CAMP), for review by the owner prior to Site work.
3) The owner's Contractor shall provide documentation of current OSHA 29 CFR 1910.120 HAZWOPER training for all Site workers to the owner prior to any on site work.
4) The owner's Contractor shall provide current chemical test data for all proposed imported borrow soils to the owner and NYSDEC.
5) The owner's Contractor shall provide copies of all current licenses, permits and approvals for all proposed subcontractors including but not limited to waste transporters and waste disposal facilities to the owner prior to any Site work.
6) The owner's Contractor shall provide copies of all final signed water transport and disposal waste profiles, manifests, gate receipts, bills-of-lading, and any other records of final waste transport and disposal (e.g., certificate of disposal) to the owner.

Future Site owners and owner's Contractor and their successors and assigns are required to carry out the activities set forth above.

APPENDIX F
AS-BUILT DRAWINGS

APPENDIX G

HEALTH AND SAFETY PLAN & COMMUNITY AIR MONITORING PLAN

APPENDIX H
QUALITY ASSURANCE PROJECT PLAN

APPENDIX I
SITE MANAGEMENT FORMS

APPENDIX J
REQUEST TO IMPORT/REUSE FILL OR SOIL FORM

APPENDIX K
DESIGN AND IMPLEMENTATION PLAN

APPENDIX L
CONSTRUCTION COMPLETION REPORT