FORMER EDGEWOOD WAREHOUSE SITE

CHAUTAUQUA COUNTY

DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C907032

Prepared for:

320 Roberts Road Freezer, LLC

4 Centre Drive
Orchard Park, New York 14127

Prepared by:

LaBella Associates D.P.C.

300 Pearl Street, Buffalo, New York

(716) 551-6281

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2019

CERTIFICATION STATEMENT

I Robert R. Napieralski certify that I am currently a [NYS registered professional engineer or Qualified Environmental Professional 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).

_____ [P.E., QEP]

12-2-19 DATE

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List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
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
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit

PID	Photoionization Detector
PRP	Potentially Responsible Party
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
RSO	Remedial System Optimization
SAC	State Assistance Contract
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
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

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 ID No.C907032 Former Edgewood Warehouse Site – 320 South Roberts Road, Dunkirk, New York
Institutional Controls:	1. The property may be used for commercial or industrial use
	2. All Engineering Controls (ECs) must be operated and maintained as specified in the Site Management Plan (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 New York State Department of Health (NYSDOH) or the Chautauqua County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
	5. Groundwater and other environmental or public health monitoring must be performed as defined in this SMP.
	6. Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP.
	7. All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP.
	8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP.
	9. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP.

Site Identification:	Site ID No.C907032 Former Edgewood Warehouse Site – 320 South Roberts Road, Dunkirk, New York

	10. Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
	11. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the Institutional Control (IC) boundaries, and any potential impacts that are identified must be monitored or mitigated.
	12. Vegetable gardens and farming on the site are prohibited.
Engineering Controls:	1. Cover system
	2. Sub-Slab Depressurization (SSD) system

Inspections:	Frequency
1. Cover inspection	Annually
2. SSD system inspection	Annually
Monitoring:	
1. Groundwater	Annually
Reporting:	
1. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this SMP.

1.0 INTRODUCTION

1.1 General

This SMP is a required element of the remedial program for the Former Edgewood Warehouse Site located in Dunkirk, New York (hereinafter referred to as the "site"). See Figure 1. The site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C907032, which is administered by New York State Department of Environmental Conservation (NYSDEC).

The Krog Group, LLC (Krog) entered into a Brownfield Cleanup Agreement (BCA) in September 2017 with the NYSDEC to remediate the site. Said BCA was amended on June 26, 2019 to reflect 320 Roberts Road Freezer, LLC (320 RRF) as the property owner and BCP Volunteer. A figure showing the 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 the Environmental Easement provided in Appendix 1.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". ICs and ECs have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Chautauqua 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 Easement 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 Easement 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 Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, 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 BCA (#C907032) 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 Appendix 2 of this SMP.

This SMP was prepared by LaBella Associates D.P.C., on behalf of 320 RRF, in accordance with the requirements of the NYSDEC's Division of Environmental Remediation (DER)-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 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 Environmental Easement 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 Environmental Easement 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.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 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 (EWP).
- 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 BCA, 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 below 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 Appendix 2.

Table 1: Notifications*

Name	**Contact Information**
Mr. David Locey, NYSDEC Project Manager	716-851-7220 david.locey@dec.ny.gov
Mr. Chad Staniszewski, NYSDEC Regional Engineer	716-851-7220 chad.staniszewski@dec.ny.gov
Kelly Lewandowski, Chief, Site Control Section	(518)402-9553 kelly.lewandowski@dec.ny.gov

* Note: Notifications 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 Dunkirk, Chautauqua County, New York and is identified as Section 079.016 Block 0002 and Lot 002 on the Chautauqua County Tax Map (see Figure 3). The site is an approximately 8.6-acre area and is bounded by a CSX rail yard to the north, South Roberts Road to the southwest, Former Roblin Steel Site (NYSDEC Site No.B00173-9) to the east, and Former Alumax Extrusions Site (NYSDEC Voluntary Cleanup Program (VCP) No.V00589-9) to the southeast (see Figure 2 – Site Layout Map). The boundaries of the site are more fully described in Appendix 1 –Environmental Easement. The owner of the site parcel at the time of issuance of this SMP is:

320 Roberts Road Freezer, LLC
4 Centre Drive
Orchard Park, New York 14127

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: an approximately 71,000 square-foot, newly constructed cold storage facility and an approximately 250 square-foot backflow/pump house. The remaining portions of the property generally consist of asphalt parking areas and roadways, a stormwater management area, a stone truck staging area, a stone fire access drive, and vegetated green space. The site is zoned for industrial use.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include manufacturing, commercial, residential, and railroad properties. The properties immediately south of the Site include a commercial property and the Former

Alumax Extrusions Site; the properties immediately north of the Site include an active CSX railyard property; the properties immediately east of the Site include the Former Roblin Steel Site; and the properties to the west of the Site include a manufacturing facility and residential properties.

2.2.2 Geology

The Site stratigraphy includes soil/fill overlying native material and shale bedrock across the site. The overburden stratigraphy can be divided into four significant units, which are listed in descending order.

- Soil/Fill Material
- Reworked Native Material
- Lacustrine Native Material
- Shale Bedrock

Soil/Fill Material

The soil/fill material on the Site is present as the uppermost unit at the site and varies in thickness from zero to seven feet. In general, the uppermost soil/fill material primarily consists of five types of material that included topsoil; clay and sandy soils; brick; railroad materials; construction and demolition debris; and a mixture of soil/fill materials. Topsoil was typically encountered to the north of the former warehouse and consisted of dark brown to black silty sand with various amounts of gravel and organic material. In areas not overlain with topsoil, the uppermost soil/fill material consisted of dark brown to light brown silty sands soils with varying amounts of gravel and brick fragments. Some areas contained remnants of old brick roads and railroad beds that have been partially covered with brown silty sand soils. In the southwestern corner of the site, demolition debris, concrete footers and brick basement walls were encountered to approximately seven feet below grade, at which depth refusal was generally encountered. Former pits and low areas were typically filled with various demolition type materials including pipes, bricks and slag mixed with sand, gravel and soil.

Reworked Native Material

A layer of reworked native material was sporadically encountered immediately below the soil/fill material throughout the site. This material was identified as native material based on comparisons to subsurface soil encountered at greater depths and was determined to be reworked based on chaotic layering and the presence of anthropogenic materials (viz., brick, pipes, plastic and metal). This material ranges in thickness from 0.2 to 8 feet and consists of the clay native soils that were encountered at greater depths throughout the site.

Lacustrine Native Material

A layer of lacustrine deposits, consisting of clayey silts and silty clay, was observed across the entire Site during the subsurface investigations. This layer typically ranged in thickness from one to fourteen feet. The thickest areas of native materials were encountered north of the former warehouse building. Some of the locations contained mottled silty clay and a thin layer (less than two inches) of saturated sand and/or gravel overlying lightly to heavily mottled silty clay. The silty clays were typically gray to tan in color and contained trace shale fragments.

Shale Bedrock

Weathered shale was encountered in several subsurface investigation points across the site. The weathered shale is part of the upper Dunkirk Shale, which is the uppermost bedrock layer that underlies the entire site. This layer is friable and ranges in color from gray to dark gray. Below the shale bedrock is competent shale bedrock that is also part of the Dunkirk Shale.

Site specific boring logs are provided in Appendix 3.

2.2.3 Hydrogeology

Groundwater was present in the soil/fill material, the reworked native material and in the native lacustrine deposits. The depths to groundwater generally ranged from approximately 3 to 12 feet below the existing ground surface, and groundwater flows generally to the west and northwest.

A groundwater contour map is shown in Figure 4. Groundwater elevation data is provided in Table 6 in Section 4.3.1. Groundwater monitoring well construction logs are provided in Appendix 3.

2.3 Investigation and Remedial History

The following narrative provides a 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.

2.3.1 Site History

The American Locomotive Company (ALCO) locomotive manufacturing complex operated at the Site from 1910-1930, and was later converted to manufacture process and military equipment, stainless steel components, and nuclear reactor components until 1963 when ALCO closed the plant. Following the ALCO facility closure, the property was used for manufacturing and storage by Plymouth Tube Company, Cenedella Wood Products, and several warehouse operations until 1997. Between 1997 and 2008, the property was utilized by several small businesses, including a limousine service, landscapers, and home improvement contractors. The County of Chautauqua acquired the Site via tax foreclosure in 2008 for the purpose of stimulating private redevelopment interests. The property has been vacant since 2008 and was acquired by 320 Roberts Road Freezer, LLC (320 RRF) in July 2018 for the purpose of

redevelopment. The Former Edgewood Warehouse and scalehouse building were demolished in the fall of 2018 in connection with redevelopment of the Site under the BCP.

2.3.2 Previous Phase I and II Environmental Site Assessments

Phase I and II Environmental Site Assessments (ESAs) were completed on the Site by Clough, Harbour & Associates LLP (CHA) in 1997 and 1999, respectively. The Phase I was prepared to identify potential environmental conditions in connection with the property. The Phase II was performed to investigate the Phase I ESA findings. The investigation included: advancement of 16 soil borings; installation of 8 monitoring wells, collection of surface, subsurface and groundwater samples; inspection and collection of accumulated sediment within sumps, pits and floor drains; and examination of electrical equipment for polychlorinated biphenyls (PCBs). The results of the Phase II ESA indicated: PCB containing light fixtures and ballasts were located on-Site and require proper removal and disposal; suspect sediments were identified in multiple pits, sumps, and floor drains; evidence of petroleum impacts (visual and olfactory) were noted; and elevated concentrations of aromatic and chlorinated hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), PCBs and metals were detected in the on-Site media.

2.3.3 Asbestos Survey

In 2008, Stohl Environmental LLC completed a pre-demolition asbestos survey. The survey identified 32,045 square feet and 90 linear feet of non-friable asbestos-containing material (ACM) and 820 linear feet of friable ACM. No further action was taken following the survey.

2.3.4 Remedial Investigation

A Remedial Investigation (RI) Report was completed by TVGA Consultants (TVGA) in May 2009. The RI included the collection of soil, groundwater, sediments and wood block flooring samples from interior and exterior locations throughout the Site. The

investigation results indicated that several semi-volatile organic compounds (SVOCs), metals and PCBs were present in soil and sediment samples at concentrations above the NYSDEC Part 375 Commercial Soil Cleanup Objectives (SCOs), wood block flooring contained elevated concentrations of lead (limited area characterized as hazardous), and several volatile organic compounds (VOCs) and metals are present in the groundwater at concentrations above NYSDEC Groundwater Quality Standards (GWQS).

2.3.5 Remedial Alternatives Analysis

An Alternatives Analysis Report (AAR) was completed by TVGA in September 2009. The AAR evaluated several remedial alternatives to address on-Site contamination. Five remedial alternatives were evaluated, and the recommended remedy included: asbestos abatement and off-Site disposal; excavation and off-Site disposal of contaminated sediments, wood-block flooring and subsurface soil "hot spots"; in-situ groundwater treatment to address chlorinated VOCs in groundwater; placement of a soil cover system; installation of a sub-slab depressurization system in future occupied buildings to mitigate soil vapor intrusion concerns; long-term groundwater monitoring; development of a SMP; and, placement of an Environmental Easement on the property, which would limit future Site use to commercial/industrial uses, prohibit use of groundwater as a potable or process water source, and provide provisions for annual certifications of the institutional and engineering controls placed on the Site.

2.3.6 Record of Decision

The NYSDEC issued the Record of Decision (ROD) for the former Edgewood Warehouse Site in March 2010. The ROD presents the NYSDEC's selected remedy for the Site. The selected remedy for the Site includes:

- limited excavation of soil in three areas containing elevated levels of SVOCs and metals;
- removal and off-Site disposal of contaminated sediments from pits and sumps and cleaning/closure of drainage structures;

- removal of asbestos and containers from the building;
- removal of contaminated wood flooring blocks;
- soil vapor mitigation;
- in-situ groundwater treatment of VOCs and groundwater monitoring;
- a cover system consisting of a soil cover system in vegetated areas and a six-inch pavement or concrete cover system in non-vegetated areas;
- development of a SMP describing institutional and engineering controls for the Site; and,
- an environmental easement with requirement for periodic certification.

2.3.7 Summary of Remedial Actions

The selected remedy for the Site is detailed in the NYSDEC ROD dated March 2010 and was completed in general conformance with the NYSDEC-approved Remedial Work Plan (RWP) prepared by LaBella dated May 2018. The following remedial program elements were completed:

1. A RWP was prepared by LaBella and subsequently approved by the NYSDEC in May 2018. The RWP described the planned remedial actions for the site as selected in the ROD.

2. Limited subsurface soil/fill removal (approximately 1,150 tons) from three contaminated "Hot Spot" areas (surrounding test pits TP-4 and TP-22, and monitoring well MW-6) that were potentially adversely affecting groundwater quality was performed. The concentrations of SVOCs, arsenic, and mercury in these three areas were elevated relative to the concentrations generally found across the site. The excavated soil/fill from these areas was transported off-site for disposal at the Chautauqua County Landfill. The limits of the excavations were confirmed with post-excavation sampling, extending to the points at which sample concentrations approach typical site levels. Refer to Figure 5 for a depiction of the three removal areas and the post-excavation sample locations.

3. Sediment from 21 drainage structures and the brick incinerator from within and proximate the Former Edgewood Warehouse structure and former scale house

was removed by LaBella Environmental LLC prior to demolition activities. The sediments within the structures were removed, placed in roll-off containers with the contents of the drums (as discussed below), characterized for disposal, and transported to the Chautauqua County Landfill for disposal. Inlets/outlets of the structures were sealed with a grout mixture. Structures not removed during the demolition of the buildings were filled with concrete to at least above the highest inlet/outlet and the remainder of the structure was backfilled with stone or processed building demolition debris (brick, concrete block, concrete, etc.). Refer to Figure 6 for a depiction of the locations of the drainage structures.

4. Forty 55-gallon drums of apparent food product waste were removed from the Former Edgewood Warehouse structure and placed in two roll-off containers with the sediment removed from the site drainage structure (as discussed above). The drum waste and sediment was transported to the Chautauqua County Landfill for disposal.

5. Abatement of friable and non-friable ACM was performed by Fibertech Environmental prior to the demolition of the Former Edgewood Warehouse structure and scale house. Controlled demolition with non-friable ACM in place was conducted by Wargo enterprises.

6. At the request of the NYSDEC deteriorated, loose, flaking, or peeling paint on brick, cement block, or concrete walls within the Former Edgewood Warehouse structure and the former scale house was removed via pressure washing and manual scraping. Paint debris was collected on filter fabric and disposed at approved landfill facilities as hazardous and non-hazardous waste.

7. Hazardous wood block flooring over an approximate 3,000 square foot area within the Former Edgewood Warehouse structure was removed and transported to Envirosafe Services of Ohio Inc. for disposal. The remaining non-hazardous wood block flooring within the Former Edgewood Warehouse structure was removed and transported to the Chautauqua County Landfill for disposal. Refer to Figure 6 for a depiction of the location of the former wood block flooring.

8. Controlled demolition with non-friable ACM in place of the Former Edgewood Warehouse structure and former scale house was conducted by Wargo enterprises. All unadulterated concrete block, concrete floor slabs/foundations and brick

removed were crushed on-site and stockpiled for use as backfill on-site under the final cover system. Steel building components were removed from the site and transported to a recycling facility. All other building components were transported off-site for disposal at the Chautauqua County Landfill. The west portion of the Former Edgewood Warehouse structure foundation and floor slab was removed along with select areas of the floor slab elsewhere within the former warehouse footprint to facilitate the construction of the foundation for the new cold storage facility. The unadulterated concrete was crushed on-site and stockpiled for use as backfill on-site under the final cover system. Stained concrete was observed on portions of the concrete floor slab that was removed as part of the Former Edgewood Warehouse structure demolition. Approximately 7.14 tons of stained concrete was transported to the Chautauqua County Landfill for disposal.

9. During removal of a portion of the foundation at the northeast corner of the Former Edgewood Warehouse structure, petroleum-impacted perched groundwater was observed entering the excavation. The water was pumped into a frac tank and upon approval from the City of Dunkirk was pumped through carbon for treatment and discharged to the municipal sanitary sewer system.

10. During the excavation of the new cold storage facility foundation associated with the mechanical room area on the southeast portion of the Site, two 3,000-gallon gasoline underground storage tanks (USTs) were encountered. The contents of the USTs were removed via a vacuum truck and the USTs properly removed in accordance with DER-10. No staining, odors, or elevated photoionization detector (PID) readings were observed in the UST excavation. Confirmatory soil samples were collected from the excavation and soil sample analytical results were below NYSDEC SCOs. Refer to Figure 5 for a depiction of the former USTs and the post-excavation sample locations.

11. During ground intrusive activities for the northeast portion of the new cold storage facility foundations, petroleum-impacted soil exhibiting odors, staining, and elevated PID readings was observed. Approximately 455 tons of petroleum impacted soil was transported to the Chautauqua County Landfill for disposal. An additional approximately 40 tons of petroleum impacted soil was encountered and disposed at the Chautauqua County Landfill during excavations for new utilities on the south and west portions of the Site.

12. The potential for soil vapor intrusion in the new cold storage facility was mitigated through the installation of a passive SSD system. The passive SSD system includes clean aggregate gas permeable layer under the building floor slabs, a polyethylene vapor barrier under the building floor slabs, and perforated fabric wrapped pipes buried in pea stone connected to polyvinyl chloride (PVC) riser vent pipes on the exterior of the building. The system was designed to be capable of activation should conditions warrant. Refer to Figure 7 for a depiction of the location of the SSD system.

13. Pre-remedial groundwater samples were collected and analyzed from four groundwater monitoring wells (MW-4R, MW-11, MW-12, and MW-13) In July and August of 2018 to evaluate the VOC concentrations at the site. Based on the results of the pre-remedial groundwater sampling, a NYSDEC-approved In-Situ Groundwater Treatment Plan was implemented. In-situ groundwater remediation included the construction of a permeable reactive barrier trench transecting the east portion of the site from the north site boundary to the south site boundary and direct-push injections over an approximate 18,300 square foot area along the east side of the new cold storage facility. Figure 4 illustrates the location of the trench and the injection area, along with the monitoring wells. Post-remedial groundwater samples were collected and analyzed from four groundwater monitoring wells (MW-4RR, MW-11, MW-15 and MW-16) in August 2019. The post-remedial groundwater results indicate the absence of VOCs in the two down-gradient monitoring well locations (MW-4RR and MW-16), with the exception of very low concentrations of one VOC in each well (5.3 µg/L of chloroethane in MW-4RR and 26 µg/L of vinyl chloride in MW-16). This contrasts with the concentration of total VOCs detected in the up-gradient monitoring well (MW-15) of 347 µg/L. Although total VOCs detected in MW-11 (350 µg/L), situated down-gradient of the PRB trench, are similar to the levels detected in the up-gradient well, the average linear groundwater flow velocity in the relatively fine grained overburden comprising the upper-most water bearing zone on the Site has been estimated at less than 1.0 feet/year based on previous investigations of the Site. The PRB trench is designed to remediate the CVOCs that are present in the groundwater migrating onto the Site from up-gradient locations as the groundwater passes through trench. Therefore, it is reasonable to expect that it will take additional time for treated groundwater that has passed through the PRB trench to reach MW-11.

14. A cover system was constructed to prevent exposure to remaining contamination in the soil/fill at the Site. The cover system includes a 12-inch clean soil cover for all vegetated areas. The soil cover consists of six inches of clean soil underlain by an orange plastic demarcation layer to clearly mark the top surface of the un-remediated soil/fill that remains on the Site. Six inches of topsoil was placed atop the clean soil to support vegetation. Stone parking or storage areas consist of 12-inches of clean stone cover underlain by a geotextile fabric and orange plastic demarcation mesh. Areas of the site covered by impermeable surfaces (buildings, roadways, parking lots, etc.) consist of a minimum of at least six inches of asphalt pavement or concrete slabs. The cover system types and areas are depicted on Figure 8.

15. Imposition of an institutional control in the form of an environmental easement that requires (a) limiting the use and development of the property to commercial use, which also permits industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the County health department; and (d) the property owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls.

16. Development of this site management plan which includes the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the NYSDEC; (b) continued evaluation of the potential for vapor intrusion for any additional new buildings developed on the site; (c) monitoring of groundwater; (d) identification of any use restrictions on the site; and (e) provisions for the continued proper operation and maintenance of the components of the remedy.

17. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification

or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

18. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation is technically impracticable or not feasible.

This section of the SMP will be updated upon the completion of remedial actions at the Site.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the ROD dated March 17, 2010 are as follows:

The remedial goals for this Site are to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the Site to SVOC and metals in surface soils;
- The release of contaminants from the soil into groundwater that may create exceedances of groundwater quality standards; and
- The release of contaminants from building sumps and drains into soil and groundwater through discharge of storm water.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards and
- meeting the requirements of 6 New York Codes, Rules and Regulations (NYCRR) Part 375 for commercial use.

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure to contaminated dust from site surface soil.
- Prevent the release of VOCs from subsurface soil under buildings into indoor air through soil vapor.

2.5 Remaining Contamination

Following the completion of the remedial program at the Site, some residual contamination remains in the subsurface of the Site. The remaining soil/fill contamination is located below the engineered cover system in all areas of the site that were not subject to remedial excavations. A demarcation layer marking the top of the remaining contamination in soil/fill was installed below the cover system across the entire site with the exception of the areas situated immediately below concrete building slabs. The remaining contamination in groundwater is located within the area of groundwater

impact. The following subsections describe the type, location and extent of remaining contamination that is present on the Site.

2.5.1 Soil

Soil/fill containing contaminant concentrations that exceed the Commercial Use SCOs remains on the Site below the cover system across the entire site with the exception of the hot spot excavation areas where contaminated soil/fill was removed and replaced with clean backfill. The remaining contamination in the site-wide soil/fill consists of SVOC, arsenic, barium, cadmium, chromium, iron, and PCB concentrations exceeding the Commercial Use SCOs. Additionally, petroleum-impacted soil/fill exhibiting nuisance characteristics (i.e., staining, odor) is also present sporadically throughout the site under the cover system. The contaminated soil/fill occurs immediately below the demarcation layer or bottom of the cover system to approximate depths of 5 to 8 ft bgs. The estimated volume of contaminated soil/fill remaining at the Site is 89,000 cubic yards.

Table 2 and Figure 9 summarize the results of all soil samples collected that exceed the Commercial Use SCOs at the site after completion of remedial action.

2.5.2 Groundwater

Residual groundwater contamination exists on a portion of the Site and is primarily characterized by the presence of chlorinated VOCs at relatively low concentrations that exceed the applicable standards, criteria and guidance (SCGs). In-situ groundwater treatment measures implemented at the Site are expected to result in the continued attenuation of contaminant levels in groundwater, which occurs at depths ranging from 3.4 to 7.73 ft bgs in the area of impact. The direction of the groundwater flow is generally to the west and northwest.

Table 3 and Figure 3 summarize the results of all samples of groundwater that exceed the SCGs after completion of the remedial action. Additionally, Figure 3 shows the estimated areal extent of residual groundwater contamination, which encompasses approximately 79,000 square feet.

2.5.3 Soil Vapor

Volatile organic contaminants may be present in soil vapor in areas of residual groundwater contamination on the Site as a result of the volatilization and release of VOCs from the groundwater into overlying soils. The area of potential soil vapor contamination coincides with the area of remaining VOC contamination in groundwater and is shown on Figure 7. The area of this zone of potential soil vapor contamination encompasses approximately 79,000 square feet. A soil vapor mitigation system was installed beneath the new warehouse building constructed on the Site thereby preventing the intrusion of contaminated soil vapor into the building. No off-site vapor intrusion concerns have been identified.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, ICs and 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 Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the EWP (as provided in Appendix 4) 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 ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to commercial uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued

without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 10. These ICs are:

- The property may be used for : commercial or industrial 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 Chautauqua County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- 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 mechanical or 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 Environmental Easement.
- The potential for vapor intrusion must be evaluated for any new buildings developed at the Site in the area within the IC boundaries noted on Figure 10, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the site are prohibited;

3.3 Engineering Controls

3.3.1 Cover (or Cap)

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 12 inches of clean soil, or at least six inches of asphalt pavement or concrete-covered sidewalks, and/or concrete building slabs. Figure 8 presents the location of the cover system and applicable demarcation layers. The EWP provided in Appendix 4 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 associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendix 5 and 6.

3.3.2 Sub-slab Depressurization System

A passive SSD system was installed under the entire footprint of the new cold storage facility on the Site to prevent vapor intrusion into the structure. As built drawings, signed and sealed by a professional engineer, are included in Appendix 7. Figure 7 shows the location of the SSD system for the site.

3.3.3 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.

3.3.3.1 - Cover (or Cap)

The composite 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.

3.3.3.2 - SSD System

The SSD system is a passive system that was design to enable conversion to an active system should conditions warrant. The integrity of accessible components of this passive system will be inspected at defined, regular intervals in accordance with this SMP. The system will remain a passive system unless the results of indoor air sampling to be conducted six months after completion of the construction of the building indicate that activation of the system is necessary.

Should the SSD system be activated in the future, the operation of the active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC and NYSDOH. In the event that monitoring data indicates that the SSD system may no longer be required, a proposal to discontinue the SSD system will be submitted by the remedial party to the NYSDEC and NYSDOH.

3.3.3.3 - Monitoring Wells associated with Monitored In-Situ Remediation

Groundwater monitoring activities to assess the effectiveness of the in-situ groundwater remediation program will continue, as determined by the NYSDEC with consultation with NYSDOH, until residual groundwater concentrations are found to be consistently below ambient water quality standards, the site SCGs, or have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicates that monitoring ~~for~~ may no longer be required, a proposal to discontinue the monitoring will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater

contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

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. Details regarding the sampling procedures, 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 8.

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

- Sampling and analysis of all appropriate media (e.g., groundwater);
- Assessing compliance with applicable NYSDEC SCGs, particularly groundwater standards; 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 locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; 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. 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 or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix 9 – 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 Environmental Easement;
- Achievement of remedial performance criteria; and

- If site records are complete and up to date; and

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 the groundwater monitoring well MW-11 on a routine basis. Sampling locations, required analytical parameters and schedule are provided in Table 4 –Post Remediation Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 4 – Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
	Target Compound List (TCL) VOCs (Environmental Protection Agency (EPA) Method 8260)	
MW-11	X	Annual
MW-15	X	Annual
MW-16	X	Annual
MW-4RR	X	Annual

Detailed sample collection and analytical procedures and protocols are provided Appendix 8 – Quality Assurance Project Plan (QAPP).

4.3.1 Groundwater Sampling

Groundwater monitoring will be performed annually to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of monitoring wells has been installed to monitor groundwater conditions at the site. The network of on-site wells has been designed based on the following criteria:

- The monitoring wells are located within the area of previously identified groundwater impacts;
- Spatially, the monitoring wells are positioned to monitor groundwater quality up-gradient, down-gradient and within the zone of in-situ treatment
- The monitoring wells intersect the upper-most water bearing zone in which contamination has been detected. The top of the screened sections are located

approximately 3.0 ft to 7.0 ft below ground surface. Monitoring well construction logs are included in Appendix 3.

Table 5 summarizes the identification numbers, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring the on-site well are sampled to evaluate the effectiveness of the passive treatment system.

Table 5 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Well Diameter (inches)	Elevation (above mean sea level)			
			Casing	Surface	Screen Top	Screen Bottom
MW-11	On-site	2	611.63	609.1	602.33	592.33
MW-4RR	On-Site	2	614.54	610.5	600.74	590.74
MW-15	On-site	2	613.55	609.9	606.25	598.75
MW-16	On-site	2	614.71	610.6	600.71	590.71

Table 6 – Monitoring Well Groundwater Elevations

Monitoring Well ID	Top of PVC Casing (TOC) Elevation	Depth to Bottom from TOC	Bottom Elevation	Depth to Groundwater from TOC	Groundwater Elevation
MW-11	611.70	19.3	592.40	7.2	604.50
MW-4RR	614.26	23.8	590.46	10.7	603.56
MW-15	613.34	14.8	598.54	7.6	605.74
MW-16	614.59	24.0	590.59	9.5	605.09

The locations of the groundwater monitoring wells are depicted on Figure 4.

Table 7 – Groundwater Sampling Analytical Summary

Monitoring Well ID	TCL VOCs (EPA Method 8260)	
	Method Detection Limit (MDL)	Reporting Limit (RL)
MW-11	2.0 µg/L	5.0 µg/L
MW-4R	2.0 µg/L	5.0 µg/L
MW-15	2.0 µg/L	5.0 µg/L
MW-16	2.0 µg/L	5.0 µg/L

The MDLs and RLs must be achieved by the Environmental Laboratory Approved Program certified laboratory

Monitoring well construction logs are included in Appendix 3 of this document.

If biofouling or silt accumulation occurs in the on-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.3.2 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix 9 - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the QAPP provided as Appendix 8 of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The site remedy does not rely on any mechanical systems, such as groundwater treatment systems, active 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.

Should post-remedial indoor air sampling identify indoor air quality concerns, the need for additional sampling and/or activation of the SSD system will be evaluated. If the SSD system is activated, the SMP will be updated to include an operation and maintenance plan for the active system.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

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.

A vulnerability assessment will be conducted subsequent to the completion of remediation of the Site and will be incorporated into this section. This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

The vulnerability assessment should include, but not be limited to, a discussion of potential vulnerabilities to be assessed during periodic reviews such as the following:

- Flood Plain: Identify whether the site is located in a flood plain, low-lying or low-groundwater recharge area.
- Site Drainage and Storm Water Management: Identify areas of the site which may flood during severe rain events due to insufficient groundwater recharge capabilities or inadequate storm water management systems.
- Erosion: Identify any evidence of erosion at the site or areas of the site which may be susceptible to erosion during periods of severe rain events.
- High Wind: Identify areas of the site and/or remedial system which may be susceptible to damage from the wind itself or falling objects, such as trees or utility structures during periods of high wind.

- Electricity: Identify the susceptibility of the site/remedial system to power loss and/or dips/surges in voltage during severe weather events, including lightning strikes, and the associated impact on site equipment and operations.

- Spill/Contaminant Release: Identify areas of the site and/or remedial system which may be susceptible to a spill or other contaminant release due to storm-related damage caused by flooding, erosion, high winds, loss of power etc.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

There are currently no active ECs at the Site; as such, the Green Remediation Evaluation is limited to fossil fuel usage for travel to and from the Site during inspection/sampling events and water usage for decontamination purposes during groundwater sampling. Fossil fuel usage is associated with travel to and from the site (approximately 100 miles roundtrip from LaBella's Buffalo, New York office) during the annual inspection and groundwater sampling event (anticipated to be completed concurrently). Water usage is anticipated to be limited to less than 10-gallons per year of deionized or distilled water to be used for decontamination purposes during the annual groundwater sampling event. This water will be obtained from an Environmental Laboratory Accreditation Program (ELAP)-certified laboratory or purchased from another source.

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

Consideration shall be given to:

- Coordination/consolidation of activities to maximize foreman/labor time. In addition, carpooling will be utilized whenever possible.

6.2.3 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix 8 – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document

consistent implementation of green remediation during site management and to identify corresponding benefits; a set of metrics has been developed.

6.3 Remedial System Optimization

A Remedial Site Optimization study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focuses on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and

improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

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 8. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and 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 8 and summarized in the Periodic Review Report.

Table 8: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
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.

All 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);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);

- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine 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 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 equipment, etc., (attached to the checklist/form).

Non-routine 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 repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data 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 PRR will be submitted to the Department beginning sixteen (16) months after the COC or equivalent document is issued. After submittal of the initial PRR, the next PRR shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix 1 -Environmental Easement. 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 annual 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 discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all 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 evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific ROD;
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and
  - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
  - 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 qualified environmental professional or 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;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement;*
- *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 generally accepted engineering practices;*
- *No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*
- *The information presented in this report is accurate and complete.*

Every five years the following certification will be added:

- *The assumptions made in the qualitative exposure assessment remain valid.*

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]

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.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3, upon completion of an RSO, an RSO report must be submitted to the Department for approval. A general outline for the RSO report is provided in Appendix 10. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

8.0 REFERENCES

Phase I Environmental Site Assessment Report, Clough, Harbour & Associates LLP. July 1997.

Phase II Environmental Site Assessment Report, Clough, Harbour & Associates LLP. May 7, 1999.

Remedial Investigation Report, TVGA Consultants. May 2009.

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TABLES

Table 2
Former Edgewood Warehouse Site
Site Management Plan
Remaining Soil Contamination
Summary of Analytical Results

	SOIL CLEANUP OBJECTIVE COMMERCIAL USE	PH II- SS-1	PH II- SS-2	PH II- SS-3	PH II- SS-4	PH II- SS-5	PH II- SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19	SS-20
Date Collected		Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08	Jun-08
Semi-Volatile Organic Compounds (µg/Kg)																					
Acenaphthene	500,000							260	11,000	650	560	330,000	8,700	2,400	7,900	370		34,000		250	110
Acenaphthylene	500,000					310		740	930	730	1,400	21,000	2,300	270			480	5,300	880		570
Acetophenone	500,000*											15,000	2,200					4,400			
Anthracene	500,000		690	3,600	430	590	5,000	140	20,000	1,500	2,400		21,000	4,500	12,000	940	640	65,000	1,000	510	840
Benzaldehyde	500,000*											10,000		1,100				2,700			
Benzo(a)anthracene	5,600	1,500	2,100	11,000	2,400	1,500	14,000	6,600	60,000	7,100	10,000	UJ	63,000	13,000	5,000 J	2,700	3,600	210,000	1,600	2,700	2,000
Benzo(a)pyrene	1,000	2,000 J	1,900	10,000 J	2,400	1,400	12,000	8,100 J	57,000	8,200 J	12,000 J	UJ	59,000	13,000	37,000	2,500	4,200 J	180,000	2,000	3,300 J	2,400
Benzo(b)fluoranthene	5,600	3,600 J	2,300	16,000 J	3,300	2,100	16,000	11,000 J	84,000	12,000 J	19,000 J	UJ	67,000	19,000	58,000	3,000	5,800 J	190,000	2,200	6,200 J	3,200
Benzo(g,h,i)perylene	500,000	1,500 J	880	5,600 J	970	760	9,100	5,400 J	22,000	5,900 J	6,700 J	350,000	25,000	6,900	22,000	1,000	2,700 J	53,000	710	810 J	540
Benzo(k)fluoranthene	56,000		1,000	5,300 J	1,100	580	6,000	5,500 J	41,000	4,500 J	6,600 J	UJ	39,000	9,600	20,000	1,700	2,800 J	98,000	1,700	2,200 J	2,000
1,1'-biphenyl	500,000*								1,100			29,000			780			2,200			
Carbazole	500,000*					590	4,300	590	10,000	1,200	1,100			3,800	10,000	670	260		270	400	590
Indeno(1,2,3-cd)pyrene	5,600		970	5,700 J	1,200	820	9,700	4,900 J	25,000	6,700 J	8,500 J	UJ	32,000	7,100	20,000	1,200	2,600 J	78,000	920	1,700 J	1,300
Chrysene	56,000	1,600	1,900	11,000	2,300	1,500	14,000	7,600	63,000	8,000	11,000	J	66,000	15,000	45,000	2,800	3,500	72,000	1,700	3,700	2,700
Dibenzo(a,h)anthracene	560				320			1,300 J	7,600	1,800 J	2,300 J	170,000		UJ	5,800 J	380	710 J	44,000	330	500 J	450
Dibenzofuran	500,000*							250	7,400	360	520	220,000	4,700	1,900	5,600	230		20,000			110
Bis(2-ethylhexyl)phthalate	500,000*								UJ	210 J	200 J	UJ			340 J				82 NJ		170
Fluoranthene	500,000	2,500	3,400	22,000	3,400	3,400	28,000	12,000	120,000	12,000	16,000	2,600,000	120,000	31,000	94,000	6,800	6,000	440,000	2,700	5,300	3,900
Fluorene	500,000					280		460	9,900	590	1,000	340,000	7,200	2,100	7,100	340	210	26,000	73		110
2-methylnaphthalene	500,000*							210	3,000		360	84,000	1,600	690	1,900			8,100	92		250
4-methylphenol	500,000*											4,800									
Naphthalene	500,000							210	6,600	320	410	430,000	4,400	2,300	7,900			20,000			200
Phenanthrene	500,000		2,200	17,000	2,000	3,100	23,000	5,400	100,000	7,400	9,600	2,100,000	78,000	19,000	81,000	4,500	2,500	310,000	920	3,000	1,700
Phenol	500,000											550,000									
Pyrene	500,000	3,100	3,200	24,000	3,700	3,100	25,000	16,000	110,000	19,000	21,000	2,000,000	100,000	32,000	92,000	6,300	7,600	340,000	2,800	6,100	3,500
TOTAL SVOCs	-	15,800	20,540	131,200	23,520	20,030	166,100	86,400	748,530	97,510	130,090	8,923,800 J	692,400	182,260	525,420	35,060	43,600	2,168,700	19,977	36,420	26,530
PCBs (µg/Kg)																					
Aroclor-1248	1,000							2100	360 J		2800 J						75	520 J	510 J	160 J	1,700
Aroclor-1254	1,000				1,000																
Metals (mg/Kg)																					
Total Solids	-	84.92	89.25	87.1	82.41	86.18	72.16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	10,000*	21,800	31,100	10,300	9,150	8,030	8,830	13,700	20,400	9,330	15,300	6,620	8,570	9,550	13,600	7,150	9,710	16,900	20,000	10,700	19,600
Antimony	10,000*	6.12					10	0.56 J	0.91 J	0.11 J	0.4 J	2.8 J	1.8 J	0.87 J	1.6 J	0.08 J	0.37 J	0.28 J	1.3 J	0.54 J	1.5 J
Arsenic	16				165		40.1	13 J	35.3 J	5 J	9.9 J	62.4 J	22.2 J	17.5 J	8.6 J	7.1 J	5.7 J	22.1 J	9.1 J	10 J	5.2 J
Barium	400	183	237	114	111	59	137	138	223	86.7	144	214	232	122	690	63.4	97	502	288	73.4	330
Berylium	590	4.23	5.76	1.61	0.979	0.456	0.938	1.7	2.8	1.3	2.5	0.67	0.54	0.51	0.99	0.35	1.5	2.2	3.5	0.53	1.9
Cadmium	9.3	3.26	2.94	0.582	1.89	1.37	1.45	0.52 J	1.3 J	0.68 J	0.99 J	2.2 J	1.3 J	1.3 J	3.1 J	0.31 J	0.22 J	19.9 J	2.9 J	0.38 J	2.4 J
Calcium	10,000*	110,700	155,000	90,400	15,400	1,890	17,400	66,700 J	101,000 J	67,000 J	132,000 J	9,280 J	4,470 J	8,750 J	22,700 J	1,160 J	136,000 J	54,000 J	133,000 J	21,500 J	76,300 J
Chromium	400	158	90.5	18	40.5	39.4	32.8	23.3	51.4	15	84.7	209	50	34.4	154	19.1	13.1	199	195	24.4	142
Cobalt	10,000*	4.57	2.45	3.67	7.81	5.77	5.39	4.9 J	8.1 J	3.3 J	4.2 J	8.5 J	10.6 J	10 J	8.7 J	6.3 J	2.7 J	10.3 J	5.6 J	9.2 J	3.9 J
Copper	270	49.9	35.4	30	72.9	34.3	59.9	37.1 J	65.9 J	17.8 J	42.6 J	166 J	250 J	51.9 J	103 J	30 J	18.6 J	193 J	106 J	46.4 J	45.2 J
Iron	10,000*	31,200	17,900	12,600	30,500	17,900	20,800	16,700	30,100	11,100	18,200	27,000	47,000	27,600	41,500	17,800	12,100	40,400	31,500	25,300	18,500
Lead	1,000	179	147	109	195	43.9	256	82.8	228	26.5	66.4	313	673	76	281	25.2	18.6	558	205	29.4	153
Magnesium	10,000*	30,000	49,900	14,400	4,220	2,590	5,030	11,600	21,100	9,820	37,000	2,460	3,170	3,180	10,600	2,530	13,500	13,000	23,400	5,750	8,420
Manganese	10,000	2,060	2,810	1,100	1,190	551	670	1370	1660	803	1580	450	685	718	958	780	1170	2550	2,100	807	3,000
Mercury	2.8				0.18	0.047	0.13	0.14 J	0.28 J	UJ	0.28 J	0.27 J	0.19 J	0.1 J	0.11 J	0.0098 J	UJ	0.38 J	0.1 J	0.012 J	0.084 J
Nickel	310	103	35.1	19.1	75.2	34.5	33.2	22.1	37.9	11.4	44.6	98.3	45.1	42	74.5	23.2	11.3	120	85	26.6	65.8
Potasium	10,000*	1,410	2,130	979	1,160	760	1,170	1,480	2,280	840	1,420	1,350	1,450	1,640	2,100	793	871	2,340	1,840	1,210	1,150
Selenium	1,500							UJ	3.6 J	1.5 J	2.2 J	4 J	UJ	0.8 J	4.4 J	2.9 J	0.24 J	8.1 J	UJ	1.7 J	2.4 J
Silver	1,500							0.52 J	0.65 J	0.44 J	0.86 J	2.4 J	3.3 J	2.3 J	0.5 J		0.8 J	1 J	1.3 J	0.047 J	1.1 J
Sodium	10,000*	697	1,120	313	158	57	144	450	867	310	778	285	89	77.8	203	48.1	347	666	663	111	510
Thallium	10,000*							1.8 J	1.6 J	0.94 J	0.39 J	UJ	UJ	UJ	UJ	0.75 J	UJ	1.4 J	2.6 J	UJ	6.9 J
Vandium	10,000*	11.2	10.3	16.9	15.8	13.1	15.3	19.6	24	11.4	13.6	19.2	17	17.7	29	11.7	10.6	22.5	16.6	15.8	13.8
Zinc	10,000	1,820	1870	140	582	575	215	164 J	336 J	86 J	285 J	708 J	478 J	340 J	818 J	122 J	59.7 J	1950 J	1320 J	236 J	1420 J

Notes:

1. Soil Cleanup Objectives source is 6NYCRR Part 375 Environmental Remediation Programs December 2006 Edition (Part 375)
2. Only compounds with one or more detections are shown.
3. µg/Kg = micrograms per Kilogram (equivalent to parts per billion or ppb)
4. mg/Kg = milligrams per Kilogram (equivalent to parts per million or ppm)
5. Blank spaces indicate that the analyte was not detected.
6. Analytical results from 1999, during the May 1999 Phase II ESA completed by Clough, Harbour & Associates LLP are differenciated with the prefix PH II. Analytical results from the Phase II were not validated by an independent validator, but by the analytical laboratory.
7. (*) = The cap for individual VOCs and SVOCs that do not have an SCO is 100,000 ug/Kg for residential use, 500,000 ug/Kg for commercial use and 1,000,000 ug/Kg for industrial use. The cap for individual metals that do not have an SCO is 10,000 mg/Kg.
8. (-) = No regulatory value is associated with this parameter
9. NA = parameter not analyzed
10. Analytes that were detected at concentrations exceeding Commercial Soil Cleanup Objectives are depicted in shaded cells
11. Remedial Investigation sample data qualifers were applied by Judy Harry, Data Validation Services
12. Analytical results from June 2008 where completed by TVGA Consultants during the Remedial Investigation for the Site

Table 2 (Continued)
Former Edgewood Warehouse Site
Site Management Plan
Remaining Soil Contamination
Summary of Analytical Results

	SOIL CLEANUP OBJECTIVE COMMERCIAL USE	PH II- MW-1	PH II- MW-4	PH II- MW-5	PH II- MW-7	PH II- MW-8	PH II- TB-1	PH II- TB-3	PH II- TB-4	PH II- TB-9	TP-2	TP-2	TP-2	TP-5
Date Collected		Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Mar-99	Jun-08	Jun-08	Jun-08	Jun-08
Interval Sampled (feet below grade)		2-4	2-3	2	2-4	2	1-3	1-3	1-3	1-3	2.5	3.5	8	1-5
Volatile Organic Compounds (µg/Kg)														
Acetone	500,000	130	47	61	130	100 J			100			8.7	UJ	
2-Butanone (MEK)	500,000*				37								UJ	
Benzene	44,000									7	UJ		UJ	
Carbon Disulfide	500,000*			8	7	26 J							UJ	
Carbon Tetrachloride	22,000								7		UJ		UJ	
Chloroethane	500,000*		12										UJ	
Chloroform	350,000					8 J							UJ	
Methylene Chloride	500,000					9 J							UJ	
Styrene	500,000*										UJ		UJ	UJ
Tetrachloroethene	150,000							370 J			UJ		UJ	UJ
Trichloroethene	200,000		19			8 J		47 J		23	UJ		3.5 J	
Xylene (Total)	500,000										UJ		10 J	UJ
1,1,1-Trichloroethane	500,000		25				10	25 J			UJ		UJ	
1,1,2,2-Tetrachloroethane	500,000*		6 J								UJ		UJ	UJ
1,1-Dichloroethane	240,000		12										UJ	
1,1-Dichloroethene	500,000									8			UJ	
Total VOCs	-	130	121	69	174	151	10	442	107	38	0 J	8.7	13.5 J	0 J
Semi-Volatile Organic Compounds (µg/Kg)														
Acenaphthene	500,000										220	52	140	4,100
Acenaphthylene	500,000					2,100					110			220
Anthracene	500,000		2,200			3,500					940	220	260	9,000
Benzo(a)anthracene	5,600	320	4,700			7,700					3,200	960	620	21,000
Benzo(a)pyrene	1,000		3,700			6,700					2,700 J	880	640 J	18,000 J
Benzo(b)fluoranthene	5,600		4,900			9,700					3,300 J	1,300	790 J	29,000 J
Benzo(g,h,i)perylene	500,000					2,600					640 J	270	170 J	4,500 J
Benzo(k)fluoranthene	56,000		1,600			3,500					1,700 J	470	570 J	12,000 J
Carbazole	500,000*		1,600			3,000					490	80	170	5,400
Indeno(1,2,3-cd)pyrene	5,600					3,100					700 J	300	170 J	4,700 J
Chrysene	56,000	310	5,100			8,100					2,300	1,100	750	21,000
Dibenz(a,h)anthracene	560										250 J	110	56 J	1,600 J
Dibenzofuran	500,000*					1,500					150		130	2,000
Bis(2-ethylhexyl)phthalate	500,000*								360					UJ
Fluoranthene	500,000	720	8,100			16,000					5,500	1,900	1,400	45,000
Fluorene	500,000		1,800			2,200					230	46	120	3,000
2-methylnaphthalene	500,000*										63		300	710
4-methylphenol	500,000*													72
Naphthalene	500,000					2,100					74		220	1,800
Phenanthrene	500,000	830	13,000			17,000					3,700	690	1,100	34,000
Pyrene	500,000	630	8,800			13,000					7,200	1,600	1,400	50,000
TOTAL SVOCs	-	2,810	55,500	0	0	101,800	0	0	360	0	33,247 J	9,926	8,866 J	263,222 J
PCBs (µg/Kg)														
Aroclor-1254	1,000					1,000								
Aroclor- 1260	1,000												94	
Metals (mg/Kg)														
Total Solids	-	81.1	77.45	78.67	63.14	78.34	84.21	66.71	71.33	81.18	NA	NA	NA	NA
Aluminum	10,000*	12,400	8,780	12,400	23,100	6,150	13,200	18,300	16,900	8,410	8,510	11,000	4,050	11,100
Antimony	10,000*										1.1 J	UJ	1.1 J	UJ
Arsenic	16		24.3				15.3				19.2 J	13.4 J	22.2 J	8.1 J
Barium	400	65	138	101	174	103	92.4	155	126	41	123	119	74.2	158
Berylium	590	0.691	1.1	0.758	1.11	0.422	1.14	1.03	0.929	0.494	1	0.63	0.84	1.4
Cadmium	9.3			0.93	1.36	0.865	0.637	1.29	1.2		0.47	0.19	0.45	0.4
Calcium	10,000*	2,010	9,880	1,890	3,300	3,140	20,600	2,620	1,710	9,570	49,900	26,400	7,280	76,800
Chromium	400	16.5	48.9	79.1	19.7	15.7	28.7	27	19.9	11.9	27	20.5	17.6	11.2
Cobalt	10,000*	10.4	10.6	15.9	7.02	6.01	11.4	15.9	13.1	9.41	7.1	12	5.9	3.9
Copper	270	18	231	43.1	31.1	214	26.4	15.8	13.9	25.9	102	57.9	128	26.5
Iron	10,000*	27,400	36,800	37,500	20,000	18,900	257,400	33,700	28,500	22,800	24,000	34,200	22,400	15,400
Lead	1,000	16.5	796	34.1	26.2	77	30	32.9	28.1	16.2	145	97.1	177	255
Magnesium	10,000*	3,340	2,910	3,510	3,250	2,260	5,880	3,750	3,010	8,050	11,800	6,860	1,530	10,400
Manganese	10,000	389	462	226	210	374	588	492	856	277	667	551	297	1,060
Mercury	2.8	0.018	0.066	0.023	0.43	0.3	0.2	1.1	0.039		0.29	0.085	0.96	0.093
Nickel	310	25.2	23	213	21.6	24.5	45.2	34.5	25.2	23.3	57.4	40.7	151	12.9
Potasium	10,000*	1,500	1,050	1,680	1,650	788	1,430	1,940	1,190	1,080	952	1,440	612	877
Selenium	1,500										1.2 J	UJ	UJ	3.3 J
Silver	1,500					12.9					0.79	0.5	0.54	0.46
Sodium	10,000*	153	165	114	128	88.8	164	146	129	116	344 J	242 J	181 J	429 J
Thallium	10,000*										UJ	UJ	UJ	UJ
Vandium	10,000*	24.6	31.9	21.9	24.8	13	20.4	33.9	31.3	17.4	14.2	20.1	14.2	15.7
Zinc	10,000	79.3	187	110	110	167	108	161	100	71.8	214	117	131	223

Notes:

1. Soil Cleanup Objectives source is 6NYCRR Part 375 Environmental Remediation Programs December 2006 Edition (Part 375)
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5. Blank spaces indicate that the analyte was not detected.
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7. (*) = The cap for individual VOCs and SVOCs that do not have an SCO is 100,000 ug/Kg for residential use, 500,000 ug/Kg for commercial use and 1,000,000 ug/Kg for industrial use. The cap for individual metals that do not have an SCO is 10,000 mg/Kg.
8. (-) = No regulatory value is associated with this parameter
9. NA = parameter not analyzed
10. Analytes that were detected at concentrations exceeding Commercial Soil Cleanup Objectives are depicted in shaded cells
11. Remedial Investigation sample data quailifers were applied by Judy Harry, Data Validation Services
12. Analytical results from June 2008 where completed by TVGA Consultants during the Remedial Investigation for the Site

Table 2 (Continued)
Former Edgewood Warehouse Site
Site Management Plan
Remaining Soil Contamination
Summary of Analytical Results

	SOIL CLEANUP OBJECTIVE COMMERCIAL USE	TP-8	TP-9	TP-10	TP-10	TP-11	TP-12	TP-13	TP-14	TP-15	TP-15	SP-1	SP-2	SP-3
Date Collected		Jun-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08
Depth		5	3	2	3.5	2	2	5	3	5	6	2	4	4
Volatile Organic Compounds (µg/Kg)														
Acetone	500,000	43 J	UJ		55	UJ	21 J	36		85	100			NA
2-Butanone (MEK)	500,000*	8.3 J	UJ		7.1	UJ	11 J	6	UJ	19	15			NA
4-Methyl-2-Pentanone	100,000*		UJ			UJ	20 J		UJ					NA
Carbon Disulfide	500,000*	UJ	UJ			UJ	4 J			9.3				NA
cis-1,2-Dichloroethene	500,000*	UJ	UJ			3.2 J	UJ	5.6	11					NA
Cyclohexane	500,000*		UJ			UJ	UJ		UJ	31				NA
Ethylbenzene	500,000*	UJ	UJ			UJ	UJ		UJ	7.2				NA
Isopropylbenzene	500,000*	UJ	UJ			UJ	UJ		UJ		13			NA
Methyl Acetate	500,000*		UJ			UJ	UJ		UJ					NA
Methylcyclohexane	500,000*		UJ			UJ	UJ		UJ	4.5	4.6			NA
Methylene Chloride	500,000	UJ	UJ			UJ	UJ							NA
Tetrachloroethene	150,000	UJ	UJ			UJ	UJ		UJ			5.4		NA
Trichloroethene	200,000		UJ			81 J	9.1 J	11	14 J	8.2				NA
Toluene	500,000	UJ	UJ			UJ	3.8 J		UJ			15	12	NA
Vinyl Chloride	13,000	UJ	UJ			UJ	UJ							NA
Xylene (Total)	500,000	UJ	UJ			15 J	6.9 J		5.2 J	13	10			NA
1,1,1-Trichloroethane	500,000		UJ			6.2 J	11 J	4.7	11 J					NA
1,1-Dichloroethane	240,000	UJ	UJ			UJ	UJ	22						NA
Total VOCs	-	51.3 J	0 J	0	62.1	105.4 J	86.8 J	85.3	41.2 J	177.2	142.6	20.4	12	NA
Semi-Volatile Organic Compounds (µg/Kg)														
Acenaphthene	500,000			51		140		60						
Acenaphthylene	500,000		100											
Anthracene	500,000	54	160	140		340		86	41	95	240			
Benzaldehyde	500,000*													
Benzo(a)anthracene	5,600	200	640	290		840			230	71				
Benzo(a)pyrene	1,000	140	650	250		810			260	76				
Benzo(b)fluoranthene	5,600	150	880	340		1,100	47	46	300	84	45			
Benzo(g,h,i)perylene	500,000		230	110		230			99					
Benzo(k)fluoranthene	56,000	110	680	140		750			270	63				
1,1'-biphenyl	500,000*													
Caprolactam	500,000*										950 J			
Carbazole	500,000*		66			210								
Indeno(1,2,3-cd)pyrene	5,600		270	130		260			120	42				
4-Chlorophenyl-phenylether	500,000*							420						
Chrysene	56,000	300	650	280		1,000		65	340	96	53		53	
Dibenz(a,h)anthracene	560		86			97			45					
Dibenzofuran	500,000*					170		82			290			
Fluoranthene	500,000	250	1,200	590		1,900	52	52	380	130	79		53	
Fluorene	500,000	43	44	54		130		99			340			
2-methylnaphthalene	500,000*	71	75			340		45	59		190			
4,6-dinitro-2-methylphenol	500,000*							1,100						
4-methylphenol	500,000*													
Naphthalene	500,000	44	54			280								
4-nitroaniline	500,000*							1,100						
N-nitrosodiphenylamine	500,000*							420						
Phenanthrene	500,000	130	640	420		1,600		180	230	86	1,300		57	
Pyrene	500,000	290	1,100	460		1,600	41	89	360	220	240			
TOTAL SVOCs	-	1,782	7,525	3,204	0	11,657	140	3,784	2,734	963	3,727 J	0	163	0
PCBs (µg/Kg)														
Aroclor-1248	1,000		84				280							
Aroclor- 1260	1,000		38											
Metals (mg/Kg)														
Total Solids	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	10,000*	8,940	10,500	14,600	12,600	9,760	21,900	11,900	8,540	10,000	17,600	10,300	14,400	14,200
Antimony	10,000*	0.76 J	0.31 J	2 J	UJ	0.67 J	2 J	UJ	UJ	0.19 J	UJ	0.18 J	UJ	0.51 J
Arsenic	16	10.7 J	19.6 J	15.7 J	19.4 J	17.5 J	10 J	12.5 J	22.4 J	13.7 J	8.4 J	3.9 J	10.8 J	8.9 J
Barium	400	75.9	102	153	83.5	142	602	167	137	78.7	88.7	112	131	136
Berylium	590	0.52	0.71	0.36	0.65	0.67	2.6	0.67	0.39	0.49	0.61	0.47	0.86	0.73
Cadmium	9.3	0.13	0.32	0.2		0.97	1.6	0.1		0.12		0.26	0.58	0.69
Calcium	10,000*	27,600	4,520	8,920		4,900	90,900	1,180	376	775	913	2,240	3,540	4,940
Chromium	400	14.8	15.5	626	17.8	214	93.4	15.6	19.7	12	18.9	12.5	19.9	19.3
Cobalt	10,000*	12.5	10.6 J	5.9 J	13.6 J	11.9 J	3.6 J	13.7 J	7 J	9.7 J	7.3 J	7.8	14	17.9
Copper	270	61	55.9	130	47.2	85.3	44.4	35.1	47.6	34.5	11.6	10.4	69.3	29.8
Iron	10,000*	37,400	28,900	33,200	32,300	41,000	14,300	29,900	44,900	23,400	28,600	20,800	28,200	31,300
Lead	1,000	36.9	94.1	116	20.8	121	455	22	44.4	19	13.6	15.5	107	24.7
Magnesium	10,000*	9,070	4,440	3,450	3,230	2,580	4,320	3,020	2,920	3,150	3,660	2,210	3,380	4,590
Manganese	10,000	427	723 J	232 J	311 J	484 J	7,640 J	323 J	222 J	422 J	195 J	744	205	1,650
Mercury	2.8	0.012	0.095			0.067		0.016	0.1	0.026	0.024	0.03	0.27	0.05
Nickel	310	34	31	50.2	30.6	110	38.6	32.5	22.4	23.6	18.1	13	27.5	37
Potasium	10,000*	1,600	931	2,770	860	1,180	1,240	959	1,500	698	982	722	1,510	1,140
Selenium	1,500	3.1 J	1.2 J	1.3 J	0.75 J	1.6 J	1.5 J	3.4 J	2.9 J	0.75 J	1.7 J	1.5 J	2.5 J	0.17 J
Silver	1,500	0.57	0.035	0.11	0.15	0.22	0.59	0.2	0.49	0.054	0.24	0.12		
Sodium	10,000*	118 J	96.5	683	100	126	835	99	122	66.9	177	118 J	122 J	141 J
Thallium	10,000*	1.5 J			1.6	0.46		0.87			0.65	0.51		0.85
Vandium	10,000*	17	15.1	28.2	21	31.4	15	20.7	15.8	15.2	27.9	17.7	24.6	25.2
Zinc	10,000	116	243 J	228 J	103 J	280 J	903 J	114 J	91.4 J	98 J	74.7 J	66.5 J	191 J	91.8 J

Notes:

1. Soil Cleanup Objectives source is 6NYCRR Part 375 Environmental Remediation Programs December 2006 Edition (Part 375)
2. Only compounds with one or more detections are shown.
3. µg/Kg = micrograms per Kilogram (equivalent to parts per billion or ppb)
4. mg/Kg = milligrams per Kilogram (equivalent to parts per million or ppm)
5. Blank spaces indicate that the analyte was not detected.
6. Analytical results from 1999, during the May 1999 Phase II ESA completed by Clough, Harbour & Associates LLP are differenciated with the prefix PH II. Analytical results from the Phase II were not validated by an independent validator, but by the analytical laboratory.
7. (*) = The cap for individual VOCs and SVOCs that do not have an SCO is 100,000 ug/Kg for residential use, 500,000 ug/Kg for commercial use and 1,000,000 ug/Kg for industrial use. The cap for individual metals that do not have an SCO is 10,000 mg/Kg.
8. (-) = No regulatory value is associated with this parameter
9. NA = parameter not analyzed
10. Analytes that were detected at concentrations exceeding Commercial Soil Cleanup Objectives are depicted in shaded cells
11. Remedial Investigation sample data quailifers were applied by Judy Harry, Data Validation Services
12. Analytical results from June/July 2008 where completed by TVGA Consultants during the Remedial Investigation for the Site

Table 2 (Continued)
Former Edgewood Warehouse Site
Site Management Plan
Remaining Soil Contamination
Summary of Analytical Results

	SOIL CLEANUP OBJECTIVE COMMERCIAL USE	SP-4	SP-6	SP-7	SP-8	SP-9	SP-9	SP-10	SP-12	SP-14	SP-15	TP-4 Sidewall 2	TP-4 Sidewall 8	TP-22 Sidewall 2	TP-22 Sidewall 5	TP-22 Sidewall 7	TP-22 Floor 3
Date Collected		Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Jul-08	Oct-18	Oct-18	Oct-18	Oct-18	Oct-18	Oct-18
Depth		2	4	1.5	10	2	7	6	3	2.5	9						
Volatile Organic Compounds (µg/Kg)																	
Acetone	500,000					NA	130	49		2400		NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500,000*	3.7			5.5	NA	47	16		110	6.5	NA	NA	NA	NA	NA	NA
Benzene	44,000					NA				5.7		NA	NA	NA	NA	NA	NA
Carbon Disulfide	500,000*					NA	7.1			3.1 NJ		NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500,000*					NA	4.9		80			NA	NA	NA	NA	NA	NA
Cyclohexane	500,000*					NA				44		NA	NA	NA	NA	NA	NA
Ethylbenzene	500,000*					NA				17		NA	NA	NA	NA	NA	NA
Isopropylbenzene	500,000*					NA				69		NA	NA	NA	NA	NA	NA
Methylcyclohexane	500,000*		13		12	NA	2.8			130	29	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150,000					NA	4.9		8.6			NA	NA	NA	NA	NA	NA
Trichloroethene	200,000					NA			280		8	NA	NA	NA	NA	NA	NA
Toluene	500,000	5	5.2		3.8	NA	7.1	5.8	3.2	44	7	NA	NA	NA	NA	NA	NA
Vinyl Chloride	13,000					NA	2.9					NA	NA	NA	NA	NA	NA
Xylene (Total)	500,000					NA				190		NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	500,000		2.6			NA						NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	500,000*					NA			2.6			NA	NA	NA	NA	NA	NA
Total VOCs	-	9	21	0	21	NA	207	71	374	3,013 J	51	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (µg/Kg)																	
Acenaphthene	500,000	51	69	57	98	2,300				51		NA	NA		69	1,800	150
Acenaphthylene	500,000	140		82		3,600	45			49		NA	NA	500	89	590	170
Anthracene	500,000	240	310	200	240	11,000				81		NA	NA		490	3,900	860
Benzaldehyde	500,000*	UJ	UJ	UJ	UJ	91 J	UJ	UJ	UJ	UJ	UJ	NA	NA				
Benzo(a)anthracene	5,600	400	250	640	350	3,500 J	56		45	140	120	NA	NA	2,900	1,300	12,000	1,800
Benzo(a)pyrene	1,000	340	270	520	290	16,000			40	120		NA	NA	2,800	1,100	10,000	1,700
Benzo(b)fluoranthene	5,600	450	350	680	410	20,000	96		49	150	190	NA	NA	3,300	1,100	14,000	2,000
Benzo(g,h,i)perylene	500,000	200	150	290	170	8,100	64			75	71	NA	NA	1,800	750	6,900	1,400
Benzo(k)fluoranthene	56,000	150	130	300	160	3,100				52	89	NA	NA	1,800		6,100	1,000
1,1'-biphenyl	500,000*					790						NA	NA				
Carbazole	500,000*	81	63	120	110	3,600						NA	NA		200	2,900	330
Indeno(1,2,3-cd)pyrene	5,600	230	140	300	190	9,100	60			79	60	NA	NA	1,700	680	6,100	1,100
Chrysene	56,000	390	270	640	370	17,000	58		41	160	320	NA	NA	2,500	1,300	11,000	1,800
Dibenz(a,h)anthracene	560	72	47	96	60	3,000 J						NA	NA				
Dibenzofuran	500,000*	150	59	57	98	6,200				62 NJ		NA	NA		130	1,200	490
2,4-dimethylphenol	500,000*					66						NA	NA		130		150
Bis(2-ethylhexyl)phthalate	500,000*	53		100		210 J	130			73 NJ	310	NA	NA				590
Fluoranthene	500,000	930	990	1,700	950	54,000	100		86	320	370	NA	NA	5,000	3,300	27,000	4,300
Fluorene	500,000	140	59	80	120	6,100				110		NA	NA		270	1,600	720
4-methylphenol	500,000*					150						NA	NA				
Naphthalene	500,000	460	150	76	88	2,100					68	NA	NA		1,400	2,100	770
Phenanthrene	500,000	850	740	1,200	980	56,000	74		66	130	270	NA	NA	1,500	2,600	20,000	4,400
Phenol	500,000					100						NA	NA				
Pyrene	500,000	820	520	1,500	780	42,000	93		75	280	170	NA	NA	4,200	2,900	21,000	4,100
TOTAL SVOCs	-	6,266	4,590	8,623	5,366	268,007 J	776	0	402	1,881 J	2,089	NA	NA	28,000	17,808	148,190	27,830
PCBs (µg/Kg)																	
Aroclors	1,000				UJ	UJ						NA	NA	NA	NA	NA	NA
Metals (mg/Kg)																	
Total Solids	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	10,000*	11,500	9,840	12,200	11,300	9,030	NA	12,200	8,480	9,760	11,900	NA	NA	NA	NA	NA	NA
Antimony	10,000*	UJ		UJ	UJ	UJ	NA	UJ	UJ	UJ	UJ	NA	NA	NA	NA	NA	NA
Arsenic	16	7.7 J	11.6	9.1 J	10.1 J	10.5 J	NA	4.9 J	16.5 J	11.6 J	10.1 J	17.5	16.6	NA	NA	NA	NA
Barium	400	104	132	191	133	108	NA	96.5	548	158	351	NA	NA	NA	NA	NA	NA
Berylium	590	0.55	0.78	0.6	0.62	0.56	NA	0.37	0.45	0.68	0.57	NA	NA	NA	NA	NA	NA
Cadmium	9.3	0.25	0.096	0.3	0.32	0.27	NA	0.17	0.44	0.53	0.43	NA	NA	NA	NA	NA	NA
Calcium	10,000*	6,630	9,110	27,300	18,700	8,000	NA	1,910	19,900	6,270	6,700	NA	NA	NA	NA	NA	NA
Chromium	400	15.7	20.3	19.3	18.4	18.5	NA	12.6	14.6	19.2	62.8	NA	NA	NA	NA	NA	NA
Cobalt	10,000*	9.8	11.9	14.5	14	11.3	NA	6.2	11	25	15.7	NA	NA	NA	NA	NA	NA
Copper	270	26.4	28	33	39.3	24.9	NA	9.5	45	68.4	30.8	NA	NA	NA	NA	NA	NA
Iron	10,000*	24,200	24,200	27,800	28,100	21,000	NA	20,100	32,800	35,800	22,000	NA	NA	NA	NA	NA	NA
Lead	1,000	17.8	29.9	22.1	38.9	33.8	NA	13.7	16.3	432	16.3	NA	NA	NA	NA	NA	NA
Magnesium	10,000*	4,180	2,400	10,600	3,920	3,270	NA	2,360	6,240	4,440	5,450	NA	NA	NA	NA	NA	NA
Manganese	10,000	231	282	361	276	303	NA	219	315	425	317	NA	NA	NA	NA	NA	NA
Mercury	2.8	0.038	0.013	0.011	0.017	0.074	NA	0.06	0.014	0.17	0.042	NA	NA	NA	NA	NA	NA
Nickel	310	26	22	38.5	27.8	23.1	NA	12.5	36.3	79.9	73.8	NA	NA	NA	NA	NA	NA
Potasium	10,000*	993	1,000	2,160	1,130	895	NA	835	1,020	1,280	1,110	NA	NA	NA	NA	NA	NA
Selenium	1,500	UJ	2	2.6 J	2.7 J	3 J	NA	1.4	1.1 J	4.3 J	2.1 J	NA	NA	NA	NA	NA	NA
Sodium	10,000*	157 J	102	203 J	123 J	199 J	NA	127	111 J	139 J	157 J	NA	NA	NA	NA	NA	NA
Thallium	10,000*						NA			0.33		NA	NA	NA	NA	NA	NA
Vandium	10,000*	19.6	19.6	19.9	19.6	17.8	NA	20.5	16.4	15.7	20.4	NA	NA	NA	NA	NA	NA
Zinc	10,000	76 J	75.9	85.4 J	77.8 J	90.6 J	NA	63.7	176 J	219 J	76.4 J	NA	NA	NA	NA	NA	NA

Notes:

1. Soil Cleanup Objectives source is 6NYCRR Part 375 Environmental Remediation Programs December 2006 Edition (Part 375)
2. Only compounds with one or more detections are shown.
3. µg/Kg = micrograms per Kilogram (equivalent to parts per billion or ppb)
4. mg/Kg = milligrams per Kilogram (equivalent to parts per million or ppm)
5. Blank spaces indicate that the analyte was not detected.
6. Analytical results from 1999, during the May 1999 Phase II ESA completed by Clough, Harbour & Associates LLP are differenciated with the prefix PH II. Analytical results from the Phase II were not validated by an independent validator, but by the analytical laboratory.
7. (*) = The cap for individual VOCs and SVOCs that do not have an SCO is 100,000 ug/Kg for residential use, 500,000 ug/Kg for commercial use and 1,000,000 ug/Kg for industrial use. The cap for individual metals that do not have an SCO is 10,000 mg/Kg.
8. (-) = No regulatory value is associated with this parameter
9. NA = parameter not analyzed
10. Analytes that were detected at concentrations exceeding Commercial Soil Cleanup Objectives are depicted in shaded cells
11. Remedial Investigation sample data quailifers were applied by Judy Harry, Data Validation Services
12. Analytical results from July 2008 where completed by TVGA Consultants during the Remedial Investigation for the Site

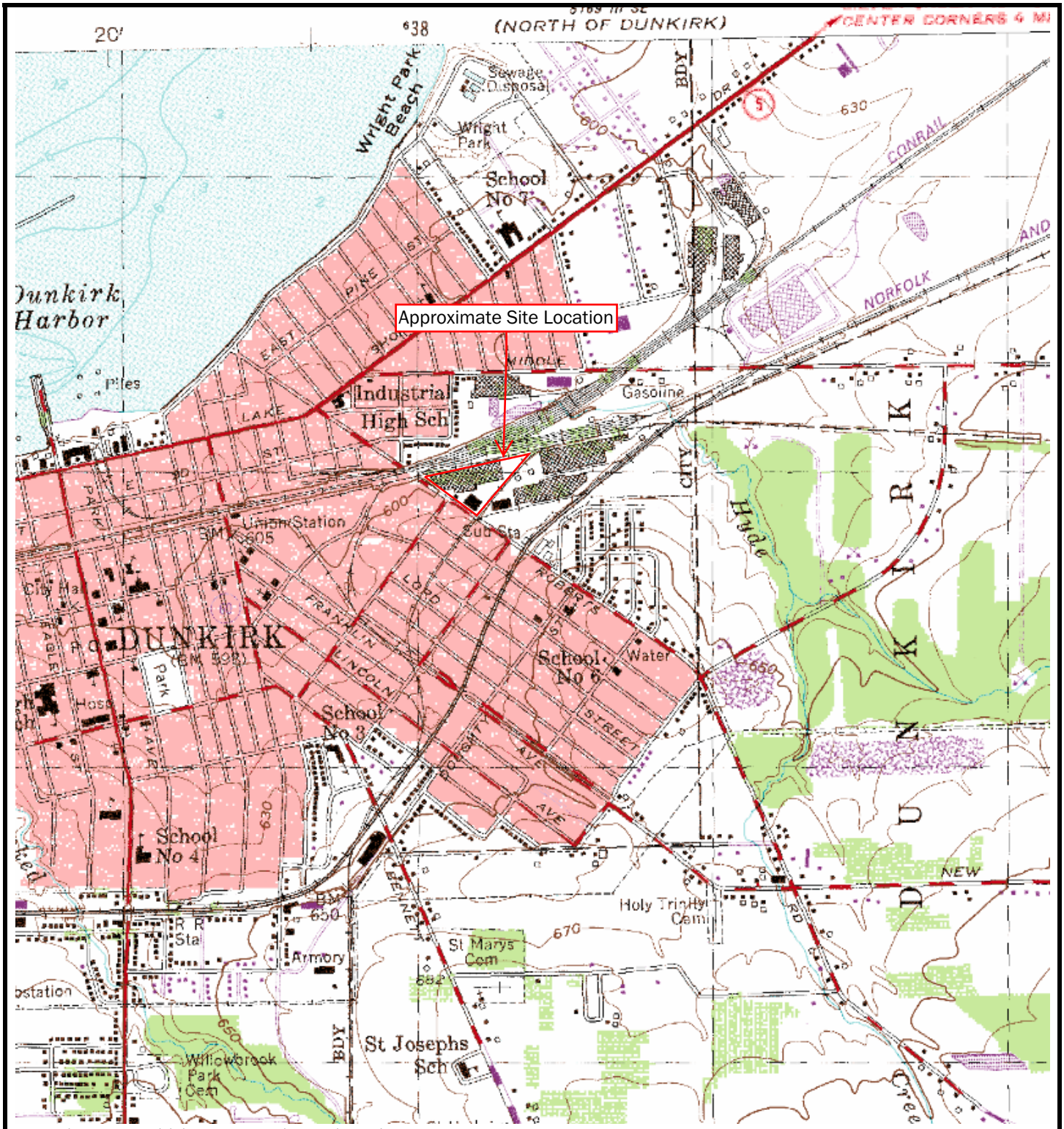
Table 3
Former Edgewood Warehouse Site
Summary of Post-Remedial Groundwater Analytical Results

	REGULATORY VALUE	MW-4RR (Replaced MW-4R)	MW-11	MW-15	MW-16
Date Collected		Aug-19	Aug-19	Aug-19	Aug-19
		Post-Remedial Groundwater Analytical Results			
Volatile Organic Compounds (µg/L)					
Acetone	50**	<	52	29	<
2-Butanone (MEK)	50**	<	190	22	<
Benzene	1	<	<	2.8	<
Chloroethane	5	5.3	32	<	<
Chloroform	7	<	<	<	<
cis-1,2-Dichloroethene	5	<	2.6	<	<
Cyclohexane	-	<	<	<	<
Ethylbenzene	5	<	<	14	<
Isopropylbenzene		<	<	7.0	<
4-Isopropyltoluene	5	<	<	2.0	<
Methylcyclohexane	-	<	<	7.9	<
Tetrachloroethene	5	<	<	<	<
Trichloroethene	5	<	<	<	<
Toluene	5	<	44	<	<
trans-1,2-Dichloroethene	5	<	<	<	<
Vinyl Chloride	2	<	8.2	<	26
Xylene (Total)	5**	<	<	53	<
1,1,1-Trichloroethane	5	<	<	<	<
1,1-Dichloroethane	5	<	21	2.8	<
1,1-Dichloroethene	5	<	<	<	<
1,2,4-Trimethylbenzene	5	<	<	130	<
1,3,5-Trimethylbenzene	5	<	<	37	<
Napthalene	10	<	<	8.6	<
n-Butylbenzene	5	<	<	9.5	<
n-Propylbenzene	5	<	<	21	<
1,2-Dichloroethane	-	<	<	<	<
Total VOCs	-	**5.3**	**350**	**347**	**26**

Notes:

1. Class GA regulatory values are derived from NYS Ambient Water Quality Standards TOGS 1.1.1 (Source of Drinking Water, groundwater), June 1998
2. Only compounds with one or more detections are shown.
3. µg/L = micrograms per Liter (equivalent to parts per billion or ppb)
4. < = analyte was not detected
5. (-) indicates that a regulatory value is not associated with this parameter
6. (**) = New York state guidance value was used where no groundwater standard was available
7. Shaded values represents concentration exceeded the Regulatory Value

FIGURES



7.5-minute, Dunkirk, New York quadrangle USGS Map

N

Not To Scale

FIGURE 1

SITE LOCATION MAP

Former Edgewood Warehouse Site
320 South Roberts Road
Dunkirk, New York

LaBella
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PROJECT NO.

2171946

NORTH

ASPHALT PAVEMENT

STONE FIRE LANE

STONE TRUCK STAGING AREA

CAR PARKING

STORMWATER MANAGEMENT AREA

FREEZER

OFFICE

DOCK/STAGING AREA

MECHANICAL ROOM

FORMER ROBLIN PARCEL

FORMER ALUMAX PARCEL

S. ROBERTS ROAD (COUNTY ROUTE 81)

TALCOTT STREET

TRUCK STORAGE AREA

ASPHALT PAVEMENT

EXISTING ASPHALT PAVEMENT

BUILDING
#440 S. ROBERTS ROAD

SITE LAYOUT

LaBella
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300 Pearl Street, Suite 130
Buffalo, NY 14202
716-551-6281

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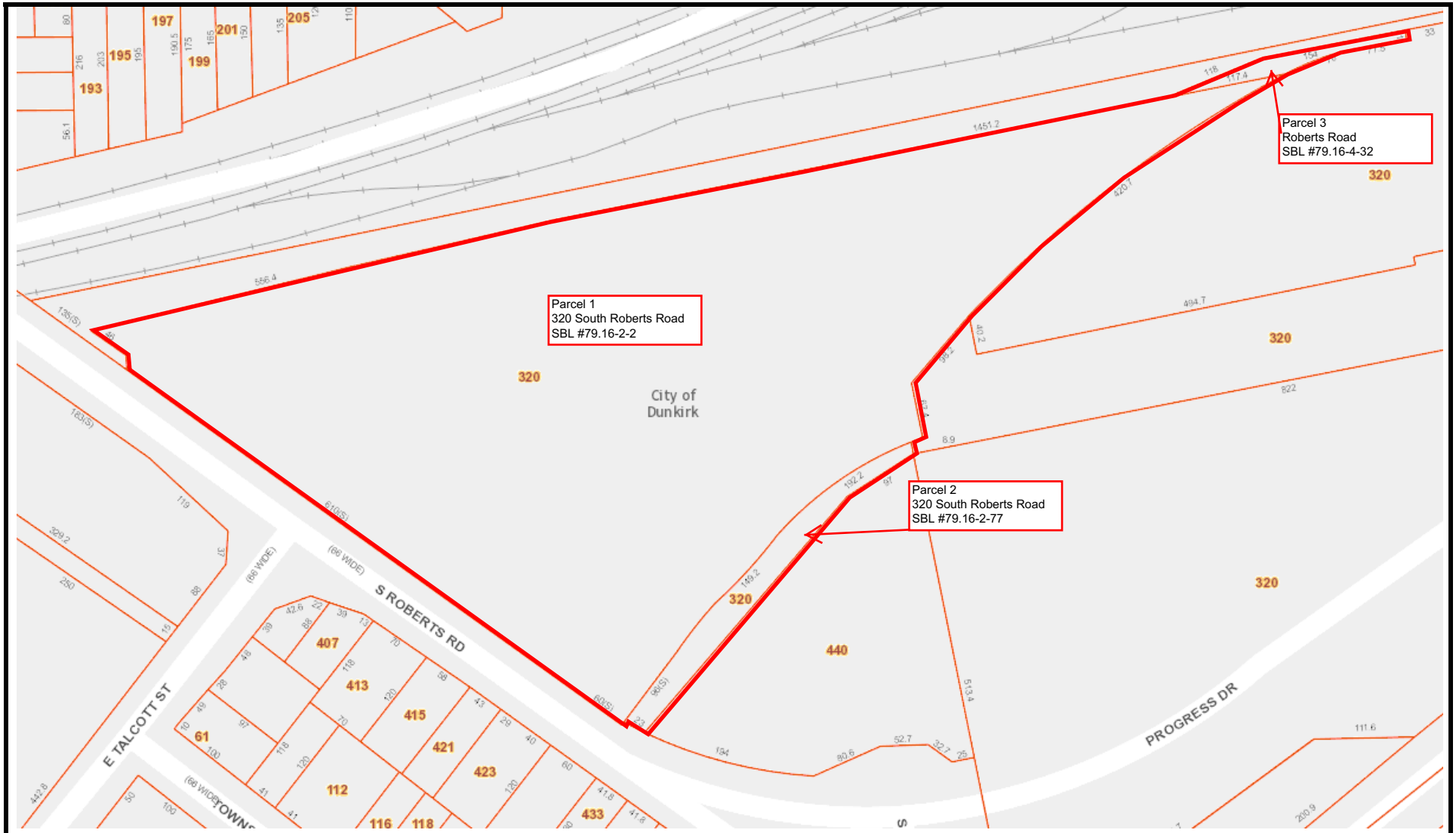
FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	FIGURE NO. 2



N

Not to Scale

FIGURE 3
COUNTY TAX MAP

Former Edgewood Warehouse Site
320 South Roberts Road
Dunkirk, New York 14048

LaBella
Powered by partnership.

PROJECT NO.

2171946

NORTH

MW 14
MW01
MW 11
ESTIMATE CVOC PLUME
MW-4RR
MW-4R
PH II-MW-4
604.0
604.5
605.0
605.5
DIRECT-PUSH
INJECTION AREA
MW 16
MW 15
PH II-MW-5
MW02R
EX-MW11R
PERMEABLE REACTIVE
BARRIER TRENCH
MW 10
MW 13
MW 12
EX-MW 12
SA CO
SA CO
NEW WAREHOUSE BUILDING
MW 9

LEGEND

- EXISTING MONITORING WELL
- OFF-SITE MONITORING WELL
- DECOMMISSIONED MONITORING WELL

GROUNDWATER CONTOUR MAP AND IN-SITU TREATMENT

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FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 4**

NORTH

STONE FIRE LANE

ASPHALT PAVEMENT

CAR PARKING

STORMWATER MANAGEMENT AREA

FREEZER

STONE TRUCK STAGING AREA

TP-22 HOTSPOT EXCAVATION

TP-22 SIDEWALL 6

TP-22 SIDEWALL 7

TP-22 FLOOR 3

TP-22 FLOOR 1

TP-22 SIDEWALL 1

TP-22 SIDEWALL 5

TP-22 SIDEWALL 4

TP-22 SIDEWALL 2

TP-22 FLOOR 2

TP-22 SIDEWALL 3

FORMER ROBLIN PARCEL

FORMER ALUMAX PARCEL

S. ROBERTS ROAD (COUNTY ROUTE 81)

OFFICE

TP-4 HOTSPOT EXCAVATION

USTs EXCAVATION

DOCK/STAGING AREA

TP-4 SIDEWALL 2

TP-4 SIDEWALL 1

TP-4 SIDEWALL 8

TP-4 SIDEWALL 7

MECHANICAL ROOM

UST 4

UST 3

UST 1

UST 2

UST FLOOR

TP-4 SIDEWALL 3

TP-4 FLOOR 1

TP-4 SIDEWALL 4

TP-4 FLOOR 2

TP-4 SIDEWALL 5

TP-4 SIDEWALL 6

MW-6 SIDEWALL 1

MW-6 SIDEWALL 2

MW-6 SIDEWALL 3

MW-6 SIDEWALL 4

MW-6 TP-A

MW-6 TP-B

MW-6 FLOOR

MW-6 HOTSPOT EXCAVATION

ASPHALT PAVEMENT

EXISTING ASPHALT PAVEMENT

TRUCK STORAGE AREA

TALCOTT STREET

BUILDING #440 S. ROBERTS RD

HOTSPOT SOIL AND UST REMOVAL AREAS

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Buffalo, NY 14202
716-551-6281

labellapc.com

FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 5**

NORTH

FORMER EDGEWOOD WAREHOUSE STRUCTURE (DEMOLISHED)

STRUCTURE 22

STRUCTURE 15

STRUCTURE 16

STRUCTURE 14

STRUCTURE 17

STRUCTURE 18

STONE FIRE LANE

ASPHALT PAVEMENT

CAR PARKING

HAZARDOUS WOOD BLOCK FLOOR

STONE TRUCK STAGING AREA

STRUCTURE 21

STORMWATER MANAGEMENT AREA

FREEZER

STRUCTURE 11

STRUCTURE 13

STRUCTURE 10

NON-HAZARDOUS WOOD BLOCK FLOOR

FORMER ROBLIN PARCEL

S. ROBERTS ROAD (COUNTY ROUTE 81)

STRUCTURE 19

STRUCTURE 20

OFFICE

STRUCTURE 8

STRUCTURE 12

FORMER EDGEWOOD WAREHOUSE STRUCTURE (DEMOLISHED)

DOCK/STAGING AREA

STRUCTURE 3

STRUCTURE 9

MECHANICAL ROOM

STRUCTURE 2

STRUCTURE 7

STRUCTURE 6

FORMER ALUMAX PARCEL

STRUCTURE 5

STRUCTURE 4

STRUCTURE 1

ASPHALT PAVEMENT

EXISTING ASPHALT PAVEMENT

TALCOTT STREET

TRUCK STORAGE AREA

BUILDING #440 S. ROBERTS ROAD

WOOD BLOCK FLOOR LEGEND	
	APPROXIMATE WOOD FLOORING EXTENT
	APPROXIMATE HAZARDOUS LEAD WOOD FLOORING EXTENT

DRAINAGE STRUCTURES AND WOOD BLOCK FLOORING

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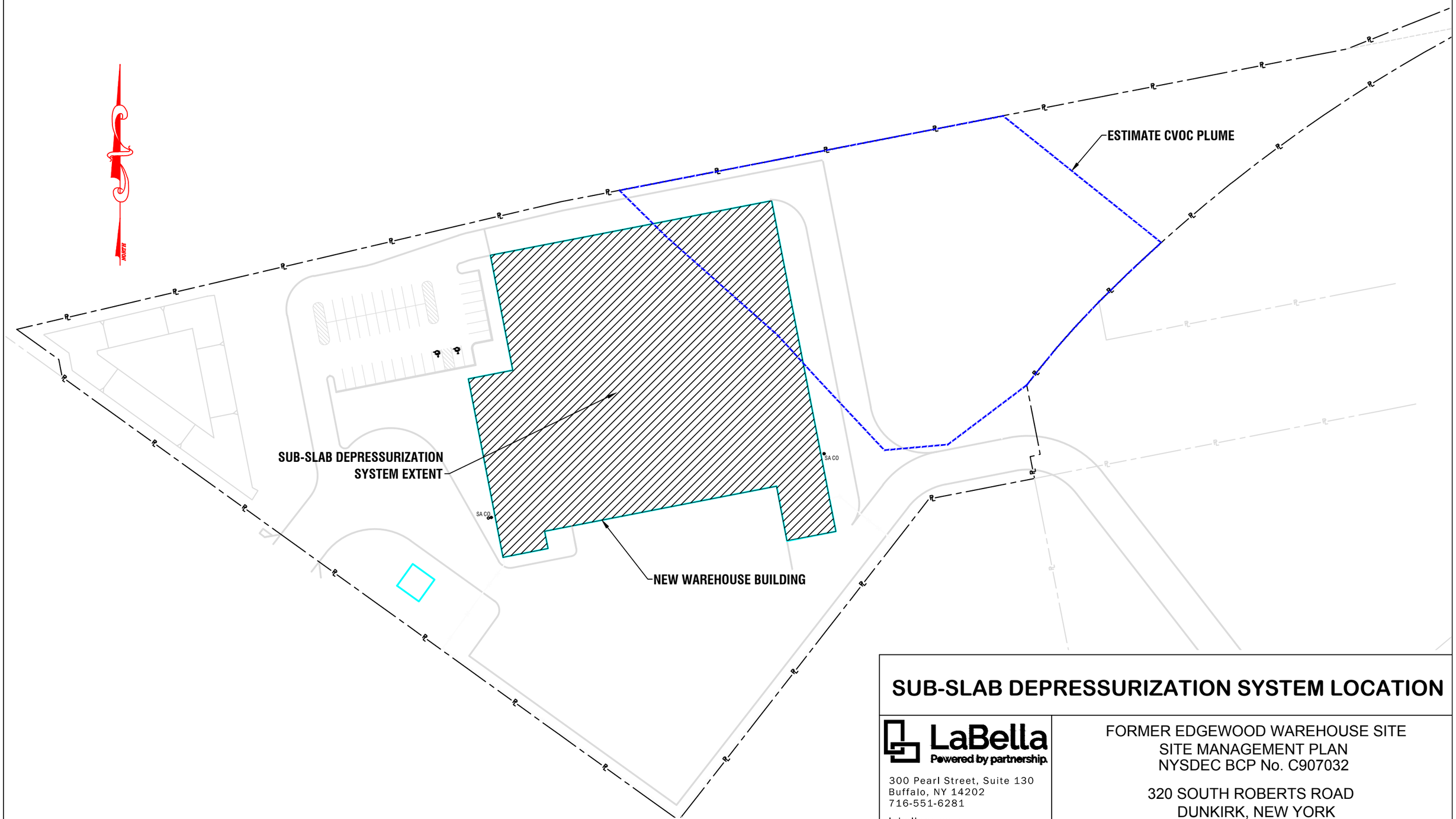
FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 6**



SUB-SLAB DEPRESSURIZATION SYSTEM LOCATION

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FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 7**

NORTH

S. ROBERTS ROAD (COUNTY ROUTE 81)

TALCOTT STREET

STORMWATER MANAGEMENT AREA

ASPHALT PAVEMENT

CAR PARKING

STONE FIRE LANE

FREEZER

OFFICE

DOCK/STAGING AREA

MECHANICAL ROOM

STONE TRUCK STAGING AREA

ASPHALT PAVEMENT

TRUCK STORAGE AREA

EXISTING ASPHALT PAVEMENT

BUILDING #440 S. ROBERTS RD.

FORMER ROBLIN PARCEL

LEGEND

- SOIL COVER SYSTEM
- GRAVEL COVER SYSTEM
- CONCRETE COVER SYSTEM
- ASPHALT COVER SYSTEM
- BUILDING SLAB COVER SYSTEM

COVER SYSTEM

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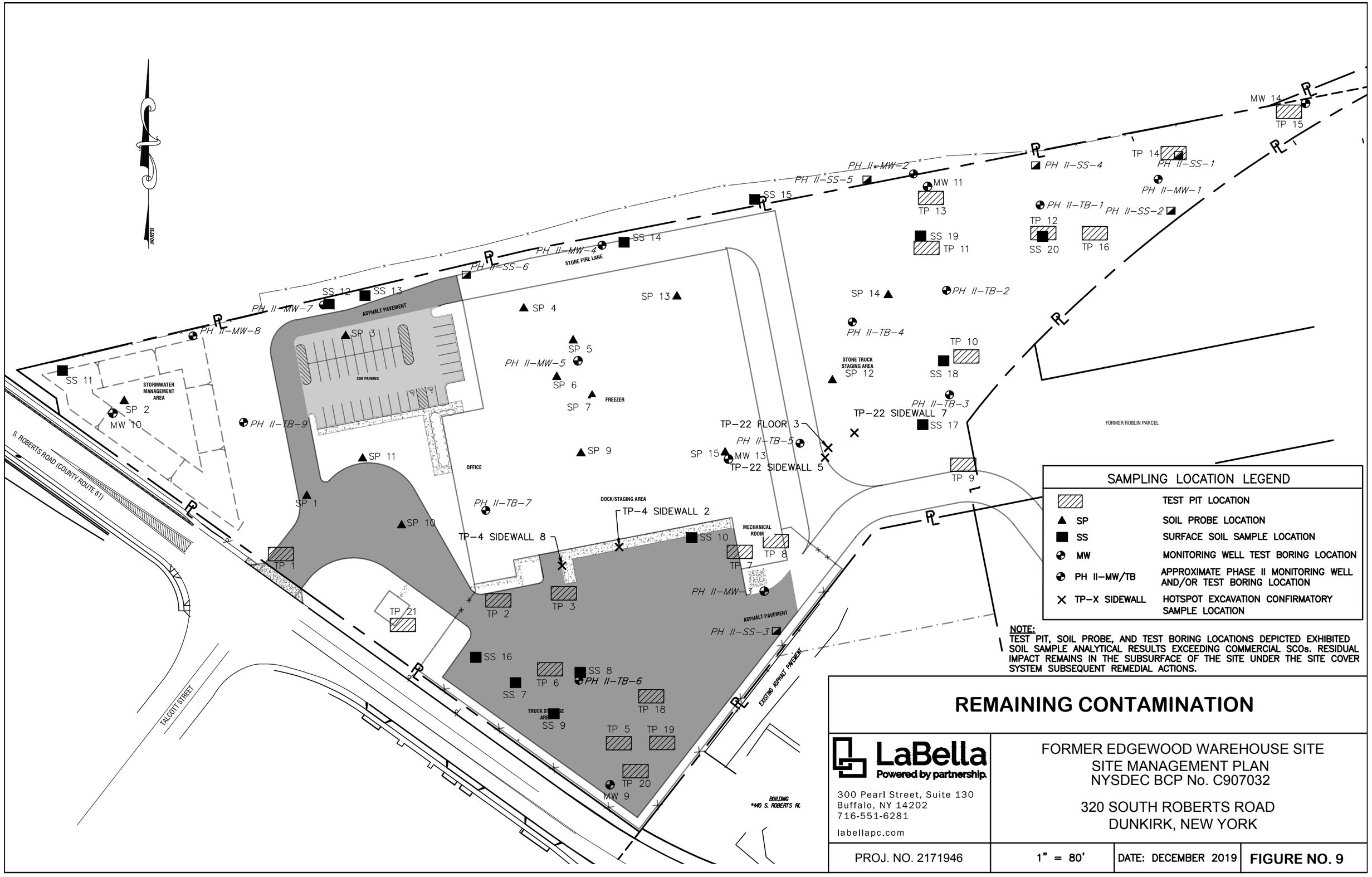
FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 8**



SAMPLING LOCATION LEGEND

▨	TEST PIT LOCATION
▲ SP	SOIL PROBE LOCATION
■ SS	SURFACE SOIL SAMPLE LOCATION
◒ MW	MONITORING WELL TEST BORING LOCATION
◒ PH II-MW/TB	APPROXIMATE PHASE II MONITORING WELL AND/OR TEST BORING LOCATION
× TP-X SIDEWALL	HOTSPOT EXCAVATION CONFIRMATORY SAMPLE LOCATION

NOTE:
TEST PIT, SOIL PROBE, AND TEST BORING LOCATIONS DEPICTED EXHIBITED SOIL SAMPLE ANALYTICAL RESULTS EXCEEDING COMMERCIAL SCOs. RESIDUAL IMPACT REMAINS IN THE SUBSURFACE OF THE SITE UNDER THE SITE COVER SYSTEM SUBSEQUENT REMEDIAL ACTIONS.

REMAINING CONTAMINATION

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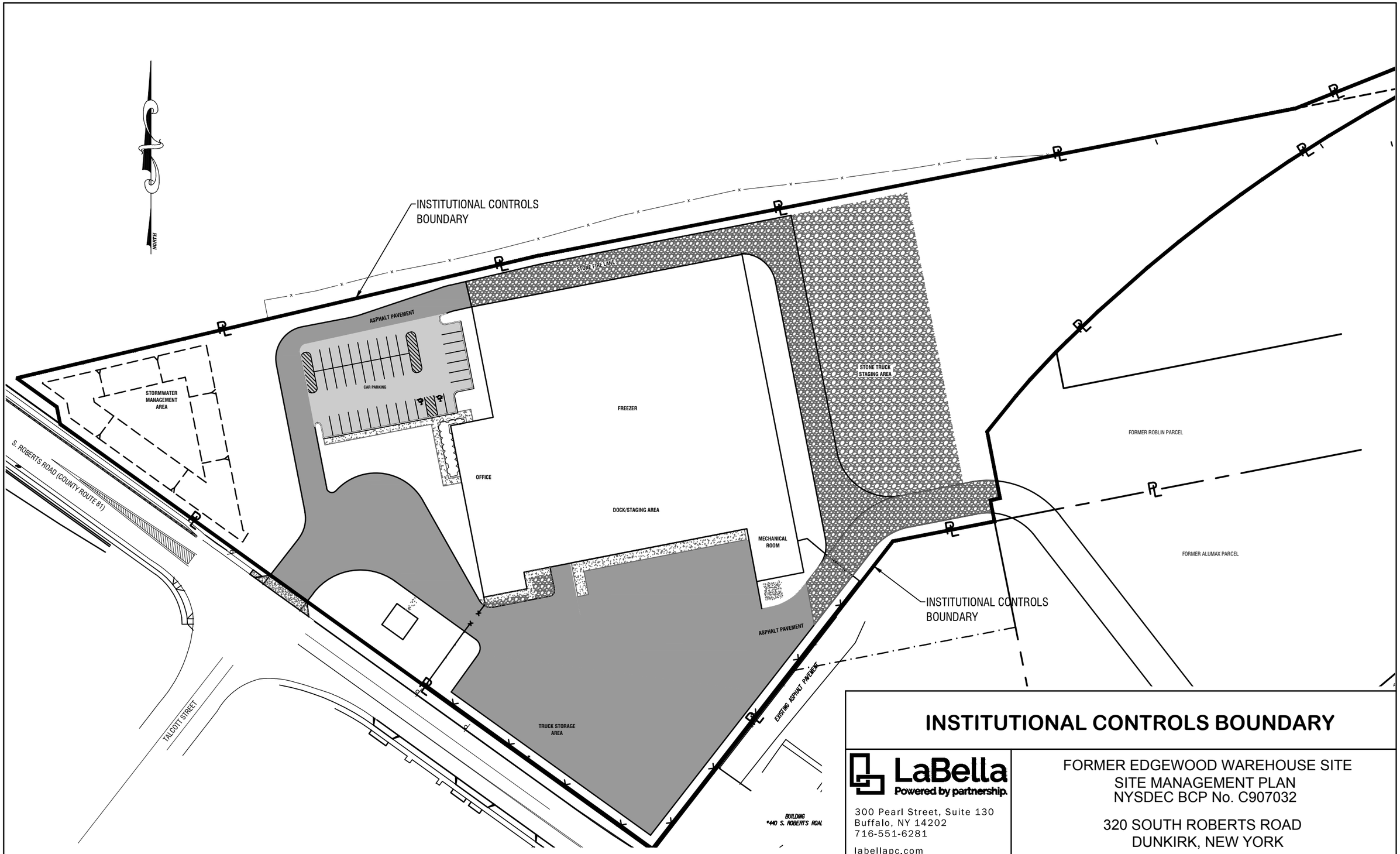
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 9**



INSTITUTIONAL CONTROLS BOUNDARY

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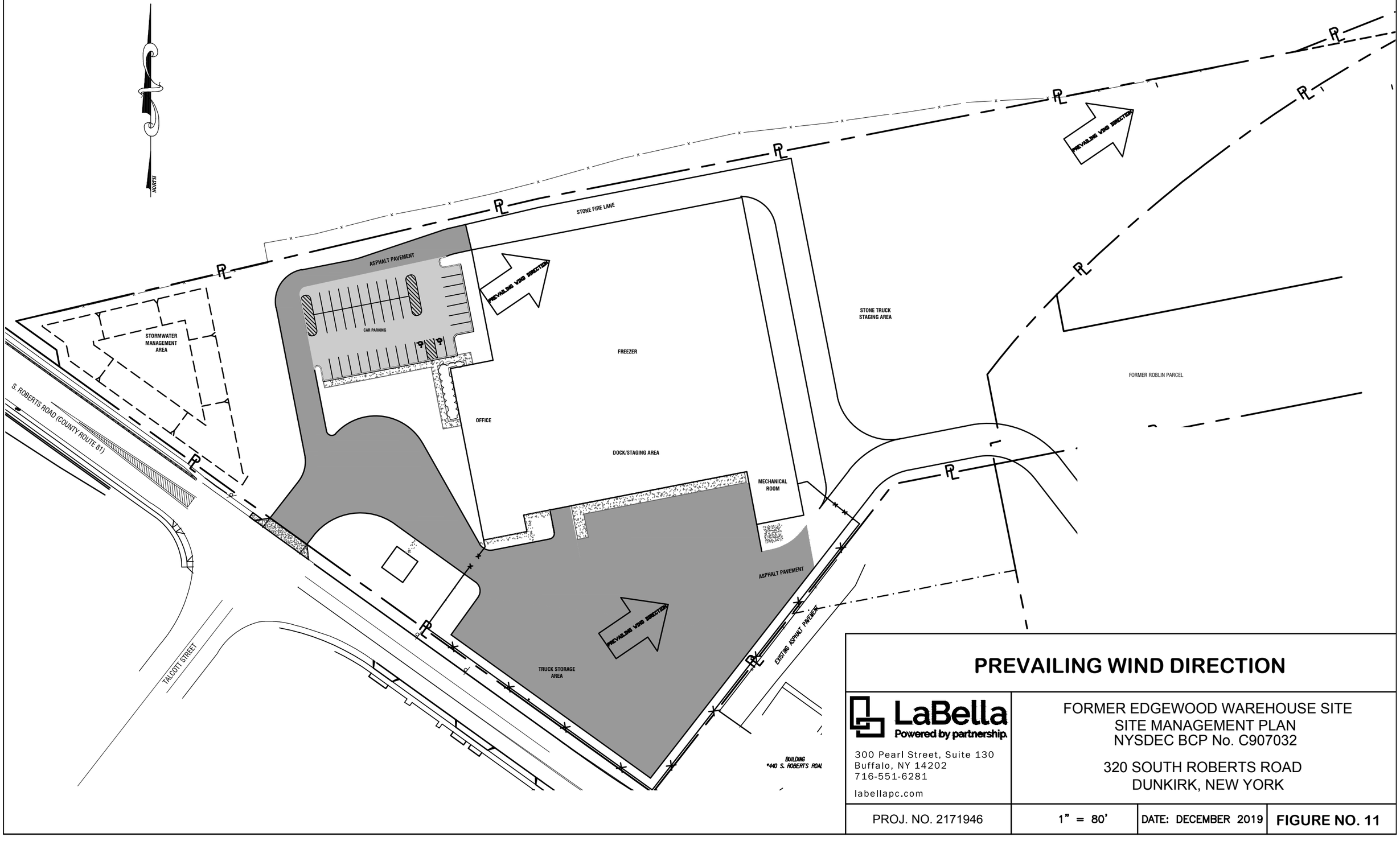
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	FIGURE NO. 10



PREVAILING WIND DIRECTION

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FORMER EDGEWOOD WAREHOUSE SITE
SITE MANAGEMENT PLAN
NYSDEC BCP No. C907032

320 SOUTH ROBERTS ROAD
DUNKIRK, NEW YORK

PROJ. NO. 2171946	1" = 80'	DATE: DECEMBER 2019	**FIGURE NO. 11**

APPENDIX 1

Environmental Easement

CHAUTAUQUA COUNTY CLERK

LARRY BARMORE

Receipt

Receipt Date: 12/11/2019 11:25:00 AM
RECEIPT # 201906262998

Recording Clerk: KAS
Cash Drawer: CASH8
Rec'd Frm: RUPP BAASE PFALZGRAF & CUNNINGHAM LLC

Instr#: DE2019008025
DOC: EASEMENT
DEED STAMP: TT2020002401
OR Party: 320 ROBERTS ROAD FREEZER LLC
EE Party: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Recording Fees	
Cover Page	$5.00
Recording Fee	$70.00
Cultural Ed	$14.25
Records Management - County	$1.00
Records Management - State	$4.75
Notations	$0.50
TP584	$5.00

Transfer Tax	
Transfer Tax	$0.00

DOCUMENT TOTAL: ----> $100.50

Receipt Summary
Document Count: 1
TOTAL RECEIPT: ----> $100.50
TOTAL RECEIVED: ----> $100.50

CASH BACK: ----> $0.00

PAYMENTS
Check # 7641 -> $100.50
RUPP BAASE PFALZGRAF & CUNNINGHAM LLC

1 No Erie St, PO Box 170, Mayville, NY 14757 Phone (716) 753-4331 Fax (716) 753-4293

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 5th day of December, 2019 between Owner, 320 Roberts Road Freezer LLC, having an office at 4 Centre Drive, Orchard Park, New York 14127, County of Erie, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 320 South Roberts Road in the City of Dunkirk, County of Chautauqua and State of New York, known and designated on the tax map of the County Clerk of Chautauqua as tax map parcel numbers: Section 79.16 Block 2 Lot 2; Section 79.16 Block 2 Lot 77; and Section 79.12 Block 4 Lot 32, being the same as that property conveyed to Grantor by deed dated July 13, 2018 and recorded in the Chautauqua County Clerk's Office in Instrument No. DE2018004402. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 7.94 +/- acres, and is hereinafter more fully described in the Land Title Survey dated December 2017 and last revised August 22, 2019 prepared by Douglas R. Hager, L.L.S. of KHEOPS Architecture, Engineering & Survey, DPC, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the

protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C907032-11-17 as amended June 26, 2019, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls 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 Chautauqua County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) 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 this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held

by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C907032
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail

and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

320 Roberts Road Freezer LLC:

By: _____

Print Name: Peter Kreog

Title: Mgr Date: 11/20/19

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ERIE)

On the 20th day of November in the year 2019, before me, the undersigned, personally appeared Peter Kreog, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

MARC A. ROMANOWSKI
Notary Public, State of New York
Registration No. 02RO6066651
Qualified in Erie County
My Commission Expires 11/19/2021

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting by and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 5th day of December, in the year 2019, before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2022

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Dunkirk, County of Chautauqua and State of New York. Being part of Lot No. 12, Township 6, Range 12 of the Holland Land Company's Survey and being more particularly bounded and described as Follows;

Commencing at a point on the centerline of South Roberts Road, said point being at the westerly corner of lands conveyed by Edgewood Investments, Inc. to Alumax Extrusions, Inc.as described in a warranty deed dated March 2, 1989 and recorded in the Chautauqua County Clerk's office in Liber 2186 of Deeds at page 513, said point also being N 54° 17' 36" W and 601.13 feet from the NW line of the Norfolk and Western Railroad as measured along centerline of said South Roberts Road;

Thence N 37° 54" 24" E a distance of 33.02 to the true point or place of beginning;

Thence continuing N 37° 54" 24" E and along the westerly line of Cliffstar LLC by Liber 2013 of Deeds at Page 6243 a distance of 362.98 feet to an existing iron pipe;

Thence N 78° 57' 24" E a distance of 95.96 feet to the northeast corner of said Cliffstar;

Thence N 11° 12' 36" W and along the westerly line of lands of the County of Chautauqua by Liber 2494 of Deeds at Page 59 a distance of 19.82 feet to a set rebar;

Thence along a curve to the right with a chord bearing of N 76° 24' 48" E and a radius of 281.44 feet and continuing along the line of the County of Chautauqua by Liber 2494 of Deeds at Page 59 an arc distance of 9.20 feet to an existing rebar;

Thence N 10° 58' 36" W and continuing along the line of the County of Chautauqua by Liber 2494 of Deeds at Page 59 a distance of 62.82 feet to an existing railroad spike;

Thence along a curve to the right with a chord bearing of N 40° 55' 31" E and a radius of 757.76 feet and to the corner of lands of the County of Chautauqua by Liber 2494 of Deeds at Page 59 and the County of Chautauqua by Liber 2494 of Deeds at Page 49 an arc distance of 98.22 feet;

Thence continuing along the northerly line of the County of Chautauqua by Liber 2494 of Deeds at Page 49 along a curve to the right with a chord bearing of N 53° 38' 38" E and a radius of 1364.49 feet an arc distance of 419.76 feet to an existing rebar;

Thence continuing along the northerly line of the County of Chautauqua by Liber 2494 of Deeds at Page 49 along a curve to the right with a chord bearing of N 70° 41' 38" E and a radius of 260.49 feet an arc distance of 76.07 feet to a set rebar;

Thence N 78° 56' 24" E and continuing along the northerly line of the County of Chautauqua by Liber 2494 of Deeds at Page 49 a distance of 77.46 feet to a set rebar;

Thence N 11° 03' 36" W a distance of 10.97 feet to an existing rebar in the southerly line of the now or formally Erie Lackawanna Railroad Company;

Thence the following four courses and distances along the southerly line of the now or formally Erie Lackawanna Railroad Company;

1. S 78° 56' 24" W a distance of 154.00 feet to an existing rebar
2. S 68° 19' 38" W a distance of 117.89 feet to an existing iron pipe
3. S 79° 00' 11" W a distance of 714.56 feet to an existing iron pipe
4. S 76° 48' 24" W a distance of 497.94 feet to an existing iron pipe;

Thence S 54° 17' 36" E a distance of 46.00 feet to an existing monument;

Thence S 10° 53' 06" E a distance of 16.01 feet to the northeasterly line of South Roberts road;

Thence S 54° 17' 36" E and along the said northeasterly line of South Roberts Road a distance of 677.04 feet to the point or place of beginning, containing 7.94 acres of land more or less.

APPENDIX 2

List of Site Contacts

APPENDIX 2 – LIST OF SITE CONTACTS

Name	Phone/Email Address
Mr. Patrick Sheedy, Vice President of The Krog Group, LLC.	716-667-1234/psheedy@kroggrp.com
Robert Napieralski, Qualified Environmental Professional	716-551-6283/rnapieralski@labellapc.com
Mr. David Locey, NYSDEC DER Project Manager	716-851-7220/david.locey@dec.ny.gov
Mr. Chad Staniszewski, NYSDEC Regional HW Engineer	716-851-7220/ chad.staniszewski@dec.ny.gov
Kelly Lewandowski, NYSDEC Chief, Site Control Section	518-402-9553/ kelly.lewandowski@dec.ny.gov
Mr. Marc Romanowski, Remedial Party Attorney	716-427-7100/mromanowski@hsr-legal.com

APPENDIX 3

Field Logs

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-1

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/15/99
FINISH DATE: 3/15/99

RIG TYPE: DEITRICH D-50

DRILLER: D. GRAMZA
INSPECTOR: M. Smeader

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	2.25	2"	
					HAMMER WT.:	140#		
					HAMMER FALL:	30"		

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

PPM BKG 1.3

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	18"	5-16 7-12	1.4		SILT, SLAG, MF GRAVEL, BRICK PIECES, CINDERS (ML) (FILL)
					1.2	
	S2	14"	6-9 6-4	1.5		SILT, some to little clay, little CMF sand, Trace Shale, Brown, Moist, Stiff (ML)
5	S3	13"	6-8 5-3	1.4	4.6	
					5.4	SHALE, WEATHERED, WET
	S4	16"	4-8 9-12	1.4		SILT, SOME TO LITTLE CLAY, LITTLE CMF SAND, TRACE SHALE, BROWN, MOIST STIFF, THIN F-VF Sand lenses (ML)
	S5	22"	4-8 9-11	1.5		
10	S6	22"	4-5 8-10	1.4	10.2	SILT w/ CLAY Thinly laminated Gray, Moist, Stiff (ML-CL)
	S7	20"	2-3 5-8	1.3	13.0	Silt, some to little clay, little MF sand, trace MF gravel, wet, M. stiff (ML)
15	S8	14"	8-24 34-44	1.4	15.0	
						SILT Little clay some to little CMF Sand, Some to little MF subangular to subrounded gravel, Gray, Moist to wet, Hard (ML) (TILL)
20						BORING COMPLETE @ 16.0' BGS

BLOWS/FT.	DENSITY
0–4	– VERY LOOSE
4–10	– LOOSE
10–30	– MEDIUM COMPACT
30–50	– COMPACT
50+	– VERY COMPACT

BLOWS/FT.	CONSISTENCY
0–2	– VERY SOFT
2–4	– SOFT
4–8	– MEDIUM STIFF
8–15	– STIFF
15–30	– VERY STIFF
>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

TB-1
BORING NO.

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-2

PROJECT & LOCATION: EDGEWOOD PHASE II

CLIENT: CLIFFSTAR

CONTRACTOR: NWES.

PROJECT NO.: 8779.07.02

SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/15/99

FINISH DATE: 3/15/99

RIG TYPE: D-50

DRILLER: D. GRANZA

INSPECTOR: P. Smaak

GROUNDWATER MEASUREMENT

DATE	TIME	WATER	BOTTOM OF CASING	BOTTOM OF BORING

IF BORING IS DRY, CHECK HERE

	CASING	SAMPLER	CORE BARREL
TYPE:	HSA	SSP	
SIZE I.D.:	4 1/4"	2"	
HAMMER WT.:	140 #	—	
HAMMER FALL:	30"	—	

DRILL FLUID: DEPTH INTRODUCED:

CHECKED BY:

DATE:

BKG 1.1

DEPTH IN FEET	SAMPLE NO.	RECOVERY LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	12"	50-49 13-8	4.0		.5 — BRICK, CRUSHED STONE SILT, LITTLE TO SOME CLAY, OLIVE GREEN TO D BROWN, MOIST, STIFF MOTTLED (ML)
	S2	14"	4-5 6-8	1.8		
5	S3	18"	1-1 2-3	1.3		
	S4	10"	5-2 3-7	1.3	water in Spoon	Similar - little c-f gravel
	S5	18"	5-4 3-6	1.4	"	
10	S6	2.0'	5-3 6-7	1.4	"	SILT AND CLAY, TRACE mf grvl, GRAY, MOIST, STIFF (ML-CL) THINLY LAMINATED
	S7	2'	5-19 20-27	1.3		SILT, LITTLE CLAY, LITTLE CMF Sand / MF GRVL, (ML) (TILL) Shale pieces @ 13.9'
15	S8	8"	48-50/5"	2.1		
						BORING COMPLETE @ 14.8' 545
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION
0–4	VERY LOOSE	0–2	VERY SOFT	S – SPLIT SPOON
4–10	LOOSE	2–4	SOFT	T – THIN WALL TUBE
10–30	MEDIUM COMPACT	4–8	MEDIUM STIFF	A – AUGER CUTTINGS
30–50	COMPACT	8–15	STIFF	W – WASH SAMPLE
50–	VERY COMPACT	15–30	VERY STIFF	
		>30	HARD	

BORING NO. TB-2

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-3

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURES WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/15/99
FINISH DATE: 3/15/99

RIG TYPE: DEITRICH D-50

DRILLER: D. Gramiga
INSPECTOR: P. Smeallie

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	2.25	2"	
					HAMMER WT.:	140#		
					HAMMER FALL:	30"		

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

PPM BKG 1.1

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	16"	7-5 6-7	2.1	0.3'	SILT Little Clay Some to little MF Sand, D. Brown, Moist, Stiff (ML) (TOPSOIL)
	S2	18"	5-2 3-3	1.3	3.0'	SILT Little to trace Clay, Some CMF Sand, cinders, Black Moist, M. Stiff (ML) (FILL)
5	S3	16"	3-3 3-3	1.2	4.0'	SILT Some Clay, Some CMF Sand, Moist to wet, Brown, Soft (ML)
	S4	16"	2-3 5-7	1.1		SILT w/ Clay, Olive Green w/ Black (Mottled), Moist, M. Stiff (ML/CL)
	S5	20"	3-3 5-6	1.8	8.5'	Color A - ~~Brown~~ - - - - - - - - - Thinly laminated - varved Moist, M. Stiff
10	S6	18"	2-3 6-50/2"	1.2	11.6'	
	S7	2"	75/3"	1.1	12.1'	SILT Some CMF Sand + Gravel, Trace to little Clay, Gray, Moist, Hard (ML/TILL)
15	S8	1"	50/1"	1.1	14.1'	Shale, Black, Mod. weathered, Moist
						Boring Complete @ 14.1' BGS
20						

BLOWS/FT.	DENSITY
0–4	– VERY LOOSE
4–10	– LOOSE
10–30	– MEDIUM COMPACT
30–50	– COMPACT
50+	– VERY COMPACT

BLOWS/FT.	CONSISTENCY
0–2	– VERY SOFT
2–4	– SOFT
4–8	– MEDIUM STIFF
8–15	– STIFF
15–30	– VERY STIFF
>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

TB-3
BORING NO.

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-4

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/17/99
FINISH DATE: 3/17/99

RIG TYPE: DEITRICH D-50

DRILLER: B. Bartz
INSPECTOR: V. Smeader

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	2.25	2"	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
					Drilled through	Concrete
						1.0
	S1	18"	3-4 4-5	1.8		SILT Some clay, Little to trace MF Sand, Brown, Moist, M. Stiff (ML)
						1.8
	S2	2"	3-3 4-4	1.7	Rock in Shoe	Similar - Color Δ ⇒ Gray
5						
	S3	16"	2-3 3-4	1.5	Gets WETTER	Similar - M. Stiff
	S4	9"	1-4 1-12	1.9		
10	S5	0	3-6 7-11	NA		
	S6	16"	7-8 9-9	1.6		
						11.0
						SILT Some clay, Brown Moist, V. Stiff (ML)
						12.0
						SILT w/ CLAY Varved, Gray, Moist, V. Stiff (ML-CL)
						13.0
15						Boring Complete @ 13.0' BGS
20						

PPM BKG 1.5

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

TB-4
BORING NO.

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-5

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURES WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/15/99
FINISH DATE: 3/15/99

RIG TYPE: DEITRICH D-50

DRILLER: D. Grainga
INSPECTOR: M. Smeadle

GROUNDWATER MEASUREMENT		DEPTH TO (FT.):				CASING	SAMPLER	CORE BARREL
DATE	TIME	WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSA	
					SIZE I.D.:	7.25	2"	
					HAMMER WT.:	140	—	
					HAMMER FALL:	30	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
					Drilled Through	Concrete
					1.0'	
	S1	15"	10-13 8-6	1.5		SILT some to little Clay, little to trace CMF Sand, Trace MF Gravel, Brown, Moist, V. Stiff (ML) FILL
	S2	14"	13-9 5-3	2.3	4.0	
5						SILT w/ Clay Dark Brown to Black, Moist, Stiff, w/ Roots (ML-CL)
	S3	18"	3-2 5-8	1.4		
	S4	20"	5-8 9-16	1.5	7.3	
						Color Δ → Brown (Mottled) Varved, V. Stiff (ML-CL)
10	S5	24"	5-7 8-16	1.5		
	S6	6"	10-50/2"	1.5	11.3	
						SILT, Little Clay, Some to little CMF Sand/Gvl, Gray, Moist, Hard (ML) (TILL)
	S7	1"	50/1"	1.3	13.0	
15						SHALE - BLACK MOD. WEATHERED
	S8	1"	50/5"	1.3	15.5	
						Boring complete @ 15.5' BGS.
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

TB-5
BORING NO.

USCHOG 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-6

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/12/99
FINISH DATE: 3/12/99

RIG TYPE: DEMRICH D-50

DRILLER: D. Gramiza
INSPECTOR: P. Smeulders

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	2.25	2"	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

PPM BKG 1.4

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	1.5	10-12 30-50/3"	1.5	Hit Solid Strata @ 1.7' BGS Moved 5' Southeast	SILT Some CMF Sand/MF Gravel, Little Foundry Sand, D. Brown, Moist, Hard (ML)(FILL)
	S2	0	15-12 11-8	—	Very Bouldery - Concrete Rubble	
5	S3	.5	3-4 5-5	1.5		Same
	S4	.4	4-7 50/4"	1.6	Spoon Bouncing @ 7.3' BGS	
					Concrete Slab 7.5 - 8.5	
	S5	.7	45-19 10-7	1.6		9.0
10	S6	.4	50/4"	1.5	Core pieces in shoe	SILT little to trace F-VF Sand Some clay, Gray to Brown (Mottled), Wet, V. Stiff. (ML)
					Augered to 13.5'	
	S7	.2	50/2"	1.5		MF Sand (inwash)
15					Augered to 16.0'	
	S8	.1	100/1"	1.4		SAND, SILT, & CLAY Trace CMF gravel, Wet, Gray.
						Boring Complete @ 16.1' BGS
20						

BLOWS/FT.	DENSITY
0–4	– VERY LOOSE
4–10	– LOOSE
10–30	– MEDIUM COMPACT
30–50	– COMPACT
50+	– VERY COMPACT

BLOWS/FT.	CONSISTENCY
0–2	– VERY SOFT
2–4	– SOFT
4–8	– MEDIUM STIFF
8–15	– STIFF
15–30	– VERY STIFF
>30	– HARD

SAMPLE IDENTIFICATION	
S	– SPLIT SPOON
T	– THIN WALL TUBE
A	– AUGER CUTTINGS
W	– WASH SAMPLE

TB-6
BORING NO.

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-7

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/17/99
FINISH DATE: 3/17/99

RIG TYPE: DEMRICH D-50

DRILLER: B. Barta
INSPECTOR: F. Smenden

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SS	
					SIZE I.D.:	2.25	2"	
					HAMMER WT.:	140#		
					HAMMER FALL:	30"		

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

PPM BKG 1.9

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
						1.5 Asphalt - Wood block floor
						1.0 Concrete
	S1	18"	8-10 7-3	3.3		SILT Some MF SA-SR Gravel, Crushed Stone, Moist, V. Stiff, - Trace brick (MF) (FILL)
	S2	6"	7-5 3-2	2.3		
5						5.0
	S3	22"	4-5 6-7	1.9		SILT Some to little Clay, little to trace MF Sand, Brown, Moist, Stiff (ML)
	S4	19"	4-4 6-8	1.9		
10	S5	20"	5-3 8-6	1.9		
	S6	24"	2-4 5-5	1.9		11.5
						SILT Some Clay, gray, Varved, Moist, Stiff (ML)
						13.0
15						End of Boring 13.0' BGS.
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

TB-7
BORING NO.

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. TB-9

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/17/99
FINISH DATE: 3/17/99

RIG TYPE: DEMTRICH D-50

DRILLER: B. Barty
INSPECTOR: P. Smeader

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	2.25	2"	
					HAMMER WT.:	140#		
					HAMMER FALL:	30"		

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

PPM BKG 3.1

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
					Drilled Through	1.5 Wood block / Asphalt floor
						1.0 Concrete
	S1	15"	4-4 17+18	3.3		SILT some to little clay, trace Shale, brown, moist, V. Stiff (ML)
	S2	0	7-12 9-7	NA		
5						
	S3	16"	7-6 4-5	3.9		Same - Lt sand lenses
	S4	15"	4-7 8-7	4.1		
10	S5	2.0'	3-4 4-4	4.3		
						10.3
	S6	0	2-2 2-3	NA		SILT some to little clay, little to trace Lt sand, gray, moist to wet, M. Stiff (ML)
	S7	22"	2-1 2-2	3.6		
15						Boring Complete @ 15.0' BGS
20						

BLOWS/FT.	DENSITY
0–4	– VERY LOOSE
4–10	– LOOSE
10–30	– MEDIUM COMPACT
30–50	– COMPACT
50+	– VERY COMPACT

BLOWS/FT.	CONSISTENCY
0–2	– VERY SOFT
2–4	– SOFT
4–8	– MEDIUM STIFF
8–15	– STIFF
15–30	– VERY STIFF
>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

TB-9
BORING NO.

BORING 11/18/96

CHA CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-1

PROJECT & LOCATION: EDGEWOOD
CLIENT: CLIFFSTAR
CONTRACTOR: NWES

PROJECT NO.: 8279.07 ??
SHEET NO.: 1 OF 1
ELEVATION:
START DATE: 3/16/99
FINISH DATE: 3/16/99
RIG TYPE: D-50
DRILLER: DS
INSPECTOR: PS

GROUNDWATER MEASUREMENT

DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING

IF BORING IS DRY, CHECK HERE

	CASING	SAMPLER	CORE BARREL
TYPE:	HSA	SSP	
SIZE I.D.:	4.25	2"	
HAMMER WT.:	140#		
HAMMER FALL:	30"		

DRILL FLUID: DEPTH INTRODUCED:

CHECKED BY:
DATE:

BKG 1.3

DEPTH IN FEET	SAMPLE NO.	RECOVERY LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	18"	7-12 10-14	1.5		SILT some CMF Sand/lt gravel, little to trace slag, D.Brown to BLK, Moist, V. Stiff (ML)(FILL)
					2.0	
	S2	16"	5-5 5-8	1.3		SILT some to little clay, trace mf Sand, Brown (mottled), Moist, stiff (ML)
5	S3	20"	1-2 3-6	1.5	5.0	SILT some to little clay, olive brown, moist w/roots, M. Stiff
	S4	16"	1-6 9-7	4.3		ML [CLAY] nearly vertical silty dessication cracks. (ML)
	S5	18"	2-6 10-11	3.4	9.0	SILT, little clay, little to trace CMF gravel, Gray, Moist, V. STIFF (ML) (TILL)
10	S6	22"	3-17 30-28	4.1		Same - HARD.
	S7	14"	10-26 50/5"	2.3		
					14.0	End of boring @ 14.0 BGS
15						
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION
0-4	- VERY LOOSE	0-2	- VERY SOFT	S - SPLIT SPOON
4-10	- LOOSE	2-4	- SOFT	T - THIN WALL TUBE
10-30	- MEDIUM COMPACT	4-8	- MEDIUM STIFF	A - AUGER CUTTINGS
30-50	- COMPACT	8-15	- STIFF	W - WASH SAMPLE
50-	- VERY COMPACT	15-30	- VERY STIFF	
		>30	- HARD	

BORING NO. MW-1

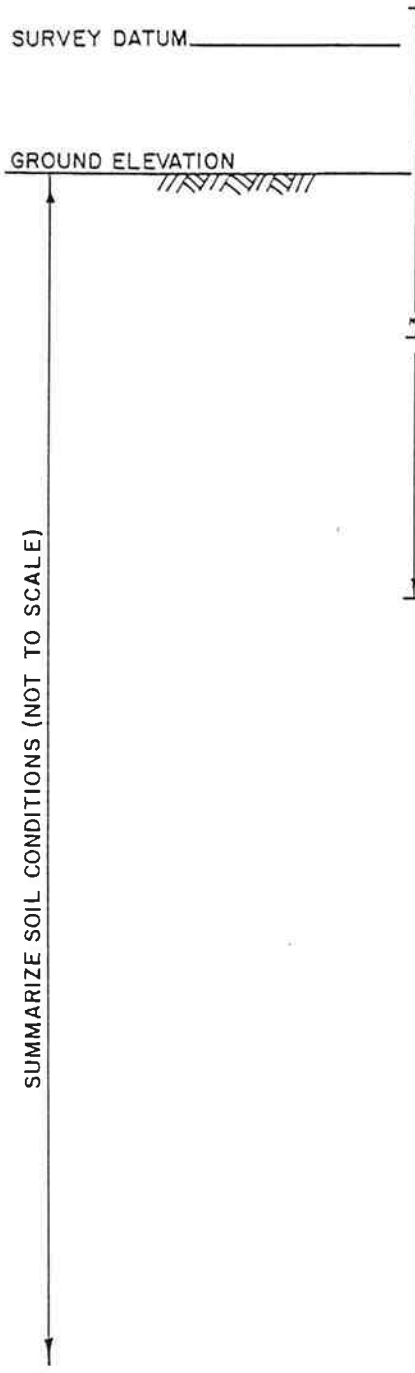
Boring 11/18/96

CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NWES
DRILLER: B. BARTZ INSPECTOR: P. Smeader
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8279.07.02
WELL NO.: 1 BORING NO.:
LOCATION:
DATE: 3/16/99



ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	1.0
TYPE OF SURFACE SEAL	CONCRETE
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	
TOP OF BENTONITE	1.0
TYPE OF CASING	FLUSH
INSIDE DIAMETER OF CASING	2"
ELEVATION/DEPTH OF BOTTOM OF CASING	1.0
INSIDE DIAMETER OF RISER PIPE	2"
TYPE OF BACKFILL AROUND RISER	Sand/GROUT
DIAMETER OF BOREHOLE	
TOP OF Sand	2.5
ELEVATION DEPTH OF BOTTOM OF RISER	3.5
TYPE OF POINT OR MANUFACTURER	PVC-SCH 40
SCREEN GAUGE OR SIZE OF OPENINGS	10 slot
DIAMETER OF WELLPOINT	2"
TYPE OF BACKFILL AROUND POINT	Sand
ELEVATION DEPTH OF BOTTOM OF POINT	13.5
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	14.0 BGS

[FIGURES REFER TO: EL. DEPTH]

[1.0 LENGTH OF CASING L] [3.0' LENGTH OF RISER PIPE (L_1) + 10' LENGTH OF POINT (L_2) = 14 PAY LENGTH]

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-2

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	4.25	2.0	
					HAMMER WT.:	140#		
					HAMMER FALL	30"		

DRILL FLUID: _____ DEPTH INTRODUCED: _____
CHECKED BY: _____
DATE: _____
IF BORING IS DRY, CHECK HERE

START DATE: 3/16/99
FINISH DATE: 3/16/99
RIG TYPE: DEITRICH D-50
DRILLER: D. Granja
INSPECTOR: P. Smolder

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
BKG 1.1						
	S1	19"	1-1 7-13	1.3		SILT, some to little clay, little to trace CMT Sand & gravel, Brown, Moist, M. Stiff (ML) (Topsoil)
1.8						
	S2	18"	2-3 3-4	1.3		Cinders / Foundry Sand, Black, Moist, M. Stiff (Fill)
	S3	18"	1-2 5-7	1.1		
4.5						Shale fragments
5.0						
	S4	20"	2-1 2-4	1.2		SILT little clay, little vf sand, Brown - olive green (Mottled), Soft, Moist (ML)
	S5	16"	2-5 6-6	1.1		
10						
	S6	2.0'	1-2 2-3	1.2		
	S7	2.0'	1-1 3-3	1.1		
13.0						SILT w/ Clay thinly laminated, (Varved), Gray, Moist, Soft (ML-CL)
15	S8	2.0'	1-1 2-3	1.1		
						Boring Complete @ 16.0' BGS
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

MW-2
BORING NO.

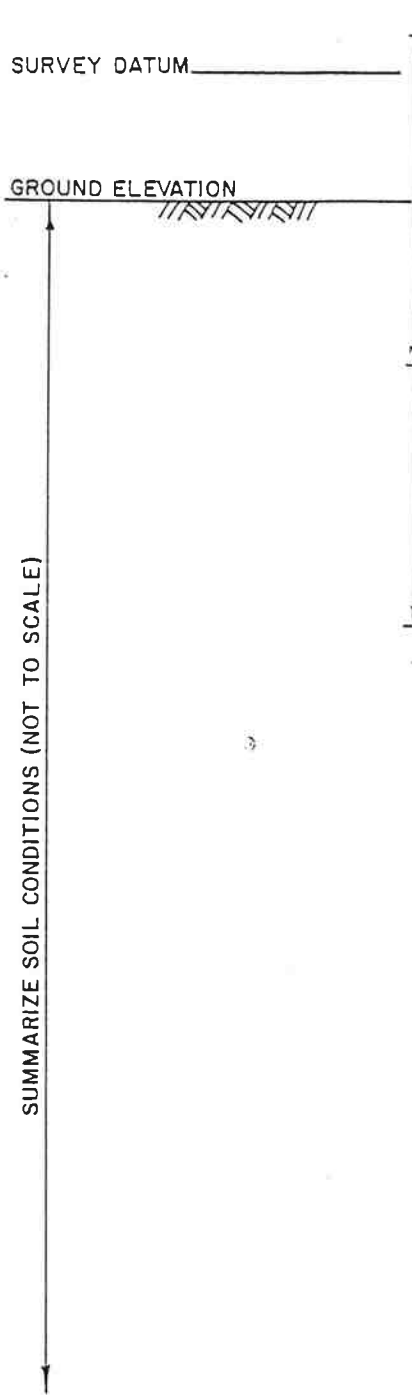
BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD
CLIENT: CLIFFSTAR
CONTRACTOR: NUES
DRILLER: D. GRAMZA INSPECTOR: P. SHEADER
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8729.07.02
WELL NO.: 2 BORING NO.:
LOCATION:
DATE: 3/16/99



ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	1'
TYPE OF SURFACE SEAL	
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	
TYPE OF CASING	FLUSH
INSIDE DIAMETER OF CASING	6"
ELEVATION/DEPTH OF BOTTOM OF CASING TOP of BENT.	1.5
INSIDE DIAMETER OF RISER PIPE	2"
TYPE OF BACKFILL AROUND RISER	SAND
DIAMETER OF BOREHOLE	7.5"
TOP OF SAND	3.5
ELEVATION DEPTH OF BOTTOM OF RISER	5.5
TYPE OF POINT OR MANUFACTURER	Sch. 40 PVC
SCREEN GAUGE OR SIZE OF OPENINGS	10 SLOT
DIAMETER OF WELLPOINT	2"
TYPE OF BACKFILL AROUND POINT	Sand.
ELEVATION DEPTH OF BOTTOM OF POINT	15.5
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	16.0

[FIGURES REFER TO: EL. DEPTH]

[____ LENGTH OF CASING L] [____ LENGTH OF RISER PIPE (L_1) + 10' LENGTH OF POINT (L_2) = ____ PAY LENGTH]

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-3

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/16/99
FINISH DATE: 3/16/99

RIG TYPE: DEMRICH D-50

DRILLER: D. Graniya
INSPECTOR: K. Smeader

GROUNDWATER MEASUREMENT					CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:		
					SIZE I.D.:		
					HAMMER WT.:		
					HAMMER FALL:		

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____
DATE: _____

IF BORING IS DRY, CHECK HERE

BKG 1.1

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	17"	3-20 18-10	1.6		SILT, Some to little slag / MF Gravel, Brown, Moist, Hard (ML) FILL
2.0						
	S2	2"	2-3 2-2	1.3		SILT, Some to little Clay, little CMF SA Gravel, Black to D. Brown, Moist, M. Stiff (ML)
4.0						
5	S3	11"	2-1 3-5	1.3		SILT w/ Clay trace MF Sand, Olive Brown (Mottled), Moist, Soft (ML)
6.0						
	S4	6"	4-6 10-9	1.6		Color Δ → Brown w/ Gray Silt dessication cracks
	S5	2.0'	3-5 8-12	1.4		thin vf sand lenses
10						
	S6	2.0'	4-6 13-17	1.4		
11.0						
	S7	10"	15- 50/5"	1.5		SILT Some to little Clay, Some to little CMF Sand / MF Gravel, Gray, Moist, V. Stiff (ML) (TILL)
12.8						
13.0						SHALE FRAGMENTS, Moderately weathered, BLACK
15						Boring Complete to 14.0' BGS
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

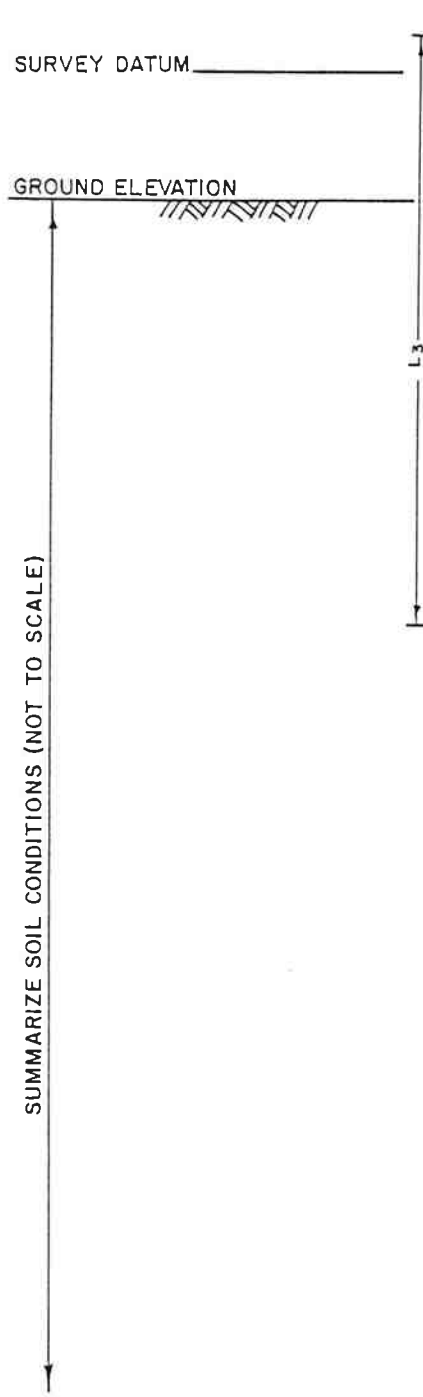
MW-3
BORING NO.

CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: JONES
DRILLER: D. GRIMZA INSPECTOR: R. SNEADER
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8279.07.02
WELL NO.: 3 BORING NO.:
LOCATION:
DATE: 3/16/99



ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	18"
TYPE OF SURFACE SEAL	CONCRETE
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	
TYPE OF CASING	FLUSH MOUNT
INSIDE DIAMETER OF CASING	
ELEVATION/DEPTH OF BOTTOM OF CASING	1.0
← TOP OF BENTONITE	1.5
INSIDE DIAMETER OF RISER PIPE	
TYPE OF BACKFILL AROUND RISER	Sand/Grout
DIAMETER OF BOREHOLE	6.25
— TOP OF SAND	2.5
ELEVATION DEPTH OF BOTTOM OF RISER	3.5
TYPE OF POINT OR MANUFACTURER	
SCREEN GAUGE OR SIZE OF OPENINGS	10 SLOT
DIAMETER OF WELLPOINT	2"
TYPE OF BACKFILL AROUND POINT	Sand
ELEVATION DEPTH OF BOTTOM OF POINT	13.5
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	14.0

[FIGURES REFER TO: EL. DEPTH]

[1.0 LENGTH OF CASING L] [3.0 LENGTH OF RISER PIPE (L_1) + 10' LENGTH OF POINT (L_2) = 14.0 PAY LENGTH]

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-4

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURES WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/18/99
FINISH DATE: 3/18/99

RIG TYPE: DEMRICH D-50

DRILLER: B. Beaty
INSPECTOR: F. Smendik

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	4.25	2.0	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	/	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	16"	3-7 4-5	1.6		1.0 CMF SAND, some to little silt, little to trace slag, Brown to Black, Moist, M. Comp (SP) (FILL)
						1.3 FOUNDRY SAND BLK (FILL)
	S2	16"	2-2 2-7	1.5		1.8 SILT, some CMF Sand, little clay, BROWN, Moist to wet, soft (ML)
5	S3	15"	2-1 1-1	3.9		SILT w/ CLAY, Gray to olive gray w/ Black Staining, little to trace MF Sand (ML-CL)
	S4	20"	3-1 1-2	1.5		
	S5	18"	4-3 4-5	1.8		8.0 SILT, some to little CMF Sand, Olive green, wet, Loose (ML)
10	S6	20"	2-1 2-1	1.5		9.5 SILT, some to little clay, Brown, MF Sand lenses, Moist to wet (ML)
	S7	18"	3-4 3-8	1.4		12.0 SILT, some clay, varved, Gray, Moist, M. Stiff (ML)
15	S8	24"	WH-1 2-2	1.4		13.5 SILT, little clay, some to little CMF Sand, trace SA-SR gravel (ML) (FILL)
						14.0 SILT, some clay, varved, soft (ML)
						16.0 Boring Complete @ 16.0' BGS
20						

PPM BKG 1.5

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

MW-4
BORING NO.

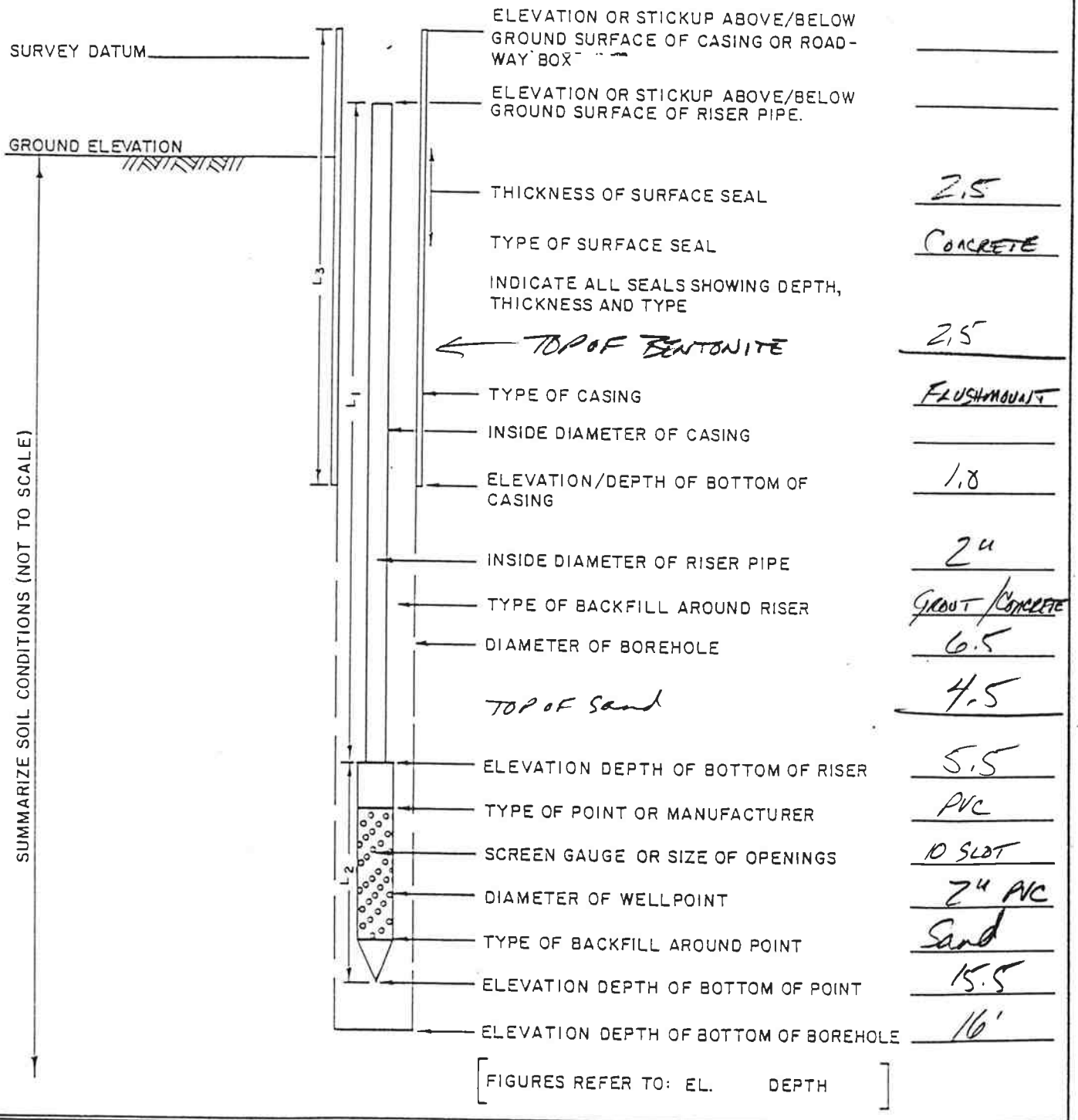
BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NUES
DRILLER: B. BARTZ INSPECTOR: K. Spruck
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8279.07.02
WELL NO.: 4 BORING NO.:
LOCATION:
DATE: 3/18/99



ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	2.5
TYPE OF SURFACE SEAL	CONCRETE
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	
← TOP OF BENTONITE	2.5
TYPE OF CASING	FLUSHMOUNT
INSIDE DIAMETER OF CASING	
ELEVATION/DEPTH OF BOTTOM OF CASING	1.8
INSIDE DIAMETER OF RISER PIPE	2"
TYPE OF BACKFILL AROUND RISER	GROUT / CONCRETE
DIAMETER OF BOREHOLE	6.5
TOP OF Sand	4.5
ELEVATION DEPTH OF BOTTOM OF RISER	5.5
TYPE OF POINT OR MANUFACTURER	PVC
SCREEN GAUGE OR SIZE OF OPENINGS	10 SLOT
DIAMETER OF WELLPOINT	2" PVC
TYPE OF BACKFILL AROUND POINT	Sand
ELEVATION DEPTH OF BOTTOM OF POINT	15.5
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	16'

[FIGURES REFER TO: EL. DEPTH]

1'	5'	+	10'	=	
LENGTH OF CASING	LENGTH OF RISER PIPE (L_1)		LENGTH OF POINT (L_2)		PAY LENGTH

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-5

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1
ELEVATION:
START DATE:
FINISH DATE:
RIG TYPE: DEITRICH D-50
DRILLER:
INSPECTOR: P. Smeader

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	4.25	2.25	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____
CHECKED BY:
DATE:
IF BORING IS DRY, CHECK HERE

BKG 1.7

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
					Drilled through	Concrete 1.0
	S1	14"	6-7 / 11-14	1.9		SILT Some to little clay, little CMF sand, brick, slag, Dark Brown to Black, Moist, V. Stiff (ML/CL)
	S2	17"	11-7 / 8-7	2.5	cuttings had petro odor (40-) ~41.5 PPM	
5	S3	13"	2-6 / 10-12	3.1	slight sheen on soil	SILT Some clay, little to trace CMF sand, Brown (mottled) trace MF gravel, Moist, V. Stiff (ML)
	S4	0	4-4 / 4-6	NA		Similar - wet
10	S5	8"	3-4 / 5-5	2.1		
	S6	20"	2-2 / 3-4	2.2		12.0
	S7	2.0'	1-2 / 3-2	1.9		SILT w/ Clay, Gray, thinly laminated (varved), Moist, soft (ML-CL)
15						15.0
						Boring Complete @ 15.0' BGS
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

MW-5
BORING NO.

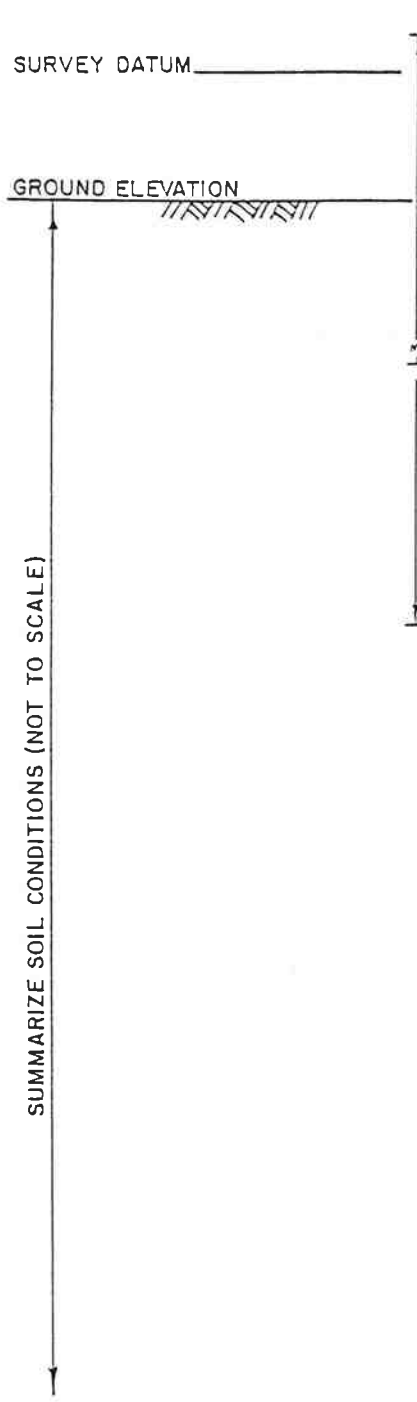
BORING 11/18/96

CHA CLOUGH, HARBOUR & ASSOCIATES ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD PHASE II
CLIENT: CLAYSTAR
CONTRACTOR: NWES
DRILLER: B. BARTZ INSPECTOR: P. Smeader
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8279.07.02
WELL NO.: 5 BORING NO.:
LOCATION:
DATE: 3/18/99



ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	2.0
TYPE OF SURFACE SEAL	CONCRETE
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	
TOP OF BENTONITE	2.0
TYPE OF CASING	FLUSH MOUNT
INSIDE DIAMETER OF CASING	6"
ELEVATION/DEPTH OF BOTTOM OF CASING	1.0
INSIDE DIAMETER OF RISER PIPE	2"
TYPE OF BACKFILL AROUND RISER	
DIAMETER OF BOREHOLE	6.25
TOP OF SAND	4.0
ELEVATION DEPTH OF BOTTOM OF RISER	5.0
TYPE OF POINT OR MANUFACTURER	PVC
SCREEN GAUGE OR SIZE OF OPENINGS	10 SLOT
DIAMETER OF WELLPOINT	2"
TYPE OF BACKFILL AROUND POINT	Sand
ELEVATION DEPTH OF BOTTOM OF POINT	15.0
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	15.5

[FIGURES REFER TO: EL. DEPTH]

[1.0 LENGTH OF CASING] [4.5 LENGTH OF RISER PIPE (L_1)] + [10' LENGTH OF POINT (L_2)] = [15.0 PAY LENGTH]

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-6

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 2

ELEVATION:

START DATE: 3/12/99
FINISH DATE: 3/12/99

RIG TYPE: DEITRICH D-50

DRILLER: D. Granja
INSPECTOR: P. Smeriglio

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	4.75	2.0	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

PPM BKG 1.1

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	1.4	15-25 12-10	1.1		1.25 — SICT, CMF SAND, F GRVL, BLK, V. compact, Moist (FILL) D. Brown to
	S2	0.6	9-4 5-5	1.1		SICT Some CMF Sand, trace clay, cinders, brick, D. Brown to Tan/Red, Moist Stiff (ML) (FILL)
5	S3	1.0	1-3 3-4	1.2		
	S4	1.4	3-3 2-6	1.2	(NATIVE) 7.8	
	S5	1.8	3-5 5-6	1.2		9.0 — SICT, LITTLE CLAY, TRACE TO Little, vf to f Sand, Brown, Moist, M. Stiff (ML)
10	S6	2.0	1-3 3-5	1.2		SILT Some clay, gray, moist, M. Stiff (ML)
	S7	1.8	1-2 3-10	1.5		
	S8	1.7	3-16 39-34	12.0	Shale odor	14.0 — SILT some to little CMF Sand, Trace to little clay, little SA-SR Gravel, Gray, Moist, Hard (ML)-(TILL)
	S9	1.9	13-37 43-30	17.7		
20	S10	2.0	17-18 25-28	1.1		

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

BORING NO. MW-6 1/2

BORING 11/18/96

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-6

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURES WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 2 OF 2

ELEVATION:

START DATE: 3/12/99
FINISH DATE: 3/12/99

RIG TYPE: DEMRICH D-50

DRILLER: D. Gramya
INSPECTOR: P. Smeader

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	H SA	SS	
					SIZE I.D.:	4.25	2"	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S11	2.0'	12-20 34-38	1.3		Siltstone/Shale Pieces
	S12	.2'	100/3"	1.1		Auger Refusal @ 27.8' BGS
25					WL @ 7.62' BGS @ 30 min 3/15/99	
30						
35						
40						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

BORING 11/18/96

MW-6 2/2
BORING NO.

CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD WAREHOUSE
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY
DRILLER: D. GRAMZA INSPECTOR: PJS
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8279.09.02
WELL NO. MW6 BORING NO.:
LOCATION:
DATE: 3/15/99

SURVEY DATUM

GROUND ELEVATION

SUMMARIZE SOIL CONDITIONS (NOT TO SCALE)

L_3 L_1 L_2

ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	
TYPE OF SURFACE SEAL	CONCRETE
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	2.0' TOP OF BENTONITE
TYPE OF CASING	F. MOUNT
INSIDE DIAMETER OF CASING	2"
ELEVATION/DEPTH OF BOTTOM OF CASING	12"
INSIDE DIAMETER OF RISER PIPE	2"
TYPE OF BACKFILL AROUND RISER	1' BENT
DIAMETER OF BOREHOLE	8 1/4"
	4.0' BGS TOP OF SAND
ELEVATION DEPTH OF BOTTOM OF RISER	5.5'
TYPE OF POINT OR MANUFACTURER	
SCREEN GAUGE OR SIZE OF OPENINGS	10 SLOT
DIAMETER OF WELLPOINT	2" PVC
TYPE OF BACKFILL AROUND POINT	SAND
ELEVATION DEPTH OF BOTTOM OF POINT	15.5'
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	22.8

[FIGURES REFER TO: EL. DEPTH]

[LENGTH OF CASING L_3] [LENGTH OF RISER PIPE (L_1)] + [10 FT LENGTH OF POINT L_2] = [PAY LENGTH]

CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-7

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURES WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1

ELEVATION:

START DATE: 3/19/99
FINISH DATE: 3/19/99

RIG TYPE: DEITRICH D-50

DRILLER: B. Barty
INSPECTOR: P. Smender

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	4.25	2.0	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____

CHECKED BY: _____

DATE: _____

IF BORING IS DRY, CHECK HERE

DEPTH IN FEET	SAMPLE NO.	RECOVERY LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
BKG 1.5						
	S1	2.0'	5-10 15-15	1.5		SILT Some to little CMF Sand, little to trace clay, Brown, Moist, V. Stiff (ML)(FILL)
2.0						
2.5						MF Sand (Foundry) - BLK
	S2	2"	7-8 7-7	1.5		
5	S3	18"	5-4 4-2	1.8		SILT Some to little clay, little to trace MF Sand, olive brown to gray, wet, M. Stiff (ML)
	S4	18"	1-2 2-2	1.5		
	S5	15"	1-2 2-3	1.4		
10						Similar
	S6	2.0'	1-3 3-3	1.8		
	S7	2.0'	4-5 6-5	1.5		
13.0						Silt w/ clay trace MF Sand, gray, moist stiff (ML-CL)
15	S8	19"	2-2 2-2	1.5		
16.0						Boring Complete @ 16.0' BGS
20						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION
S – SPLIT SPOON
T – THIN WALL TUBE
A – AUGER CUTTINGS
W – WASH SAMPLE

MW-7
BORING NO.

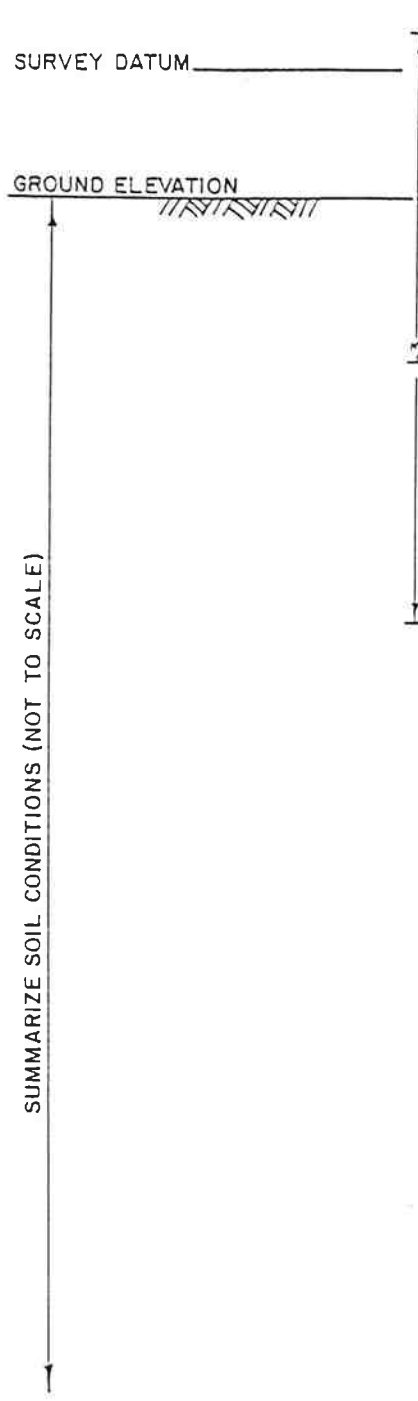
BORING 11/18/96

CHA CLOUGH, HARBOUR & ASSOCIATES ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NWES
DRILLER: B. BARTZ INSPECTOR: R Sweet
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV

FILE NO.: 8279.07.02
WELL NO.: 7 BORING NO.:
LOCATION:
DATE: 3/19/99



ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROADWAY BOX	
ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE.	
THICKNESS OF SURFACE SEAL	2.5
TYPE OF SURFACE SEAL	Concrete
INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE	Bentonite to 2.5
TYPE OF CASING	FLUSH MOUNT
INSIDE DIAMETER OF CASING	6"
ELEVATION/DEPTH OF BOTTOM OF CASING	1.0
INSIDE DIAMETER OF RISER PIPE	2"
TYPE OF BACKFILL AROUND RISER	
DIAMETER OF BOREHOLE	6"
Sand to	4.5
ELEVATION DEPTH OF BOTTOM OF RISER	5.5
TYPE OF POINT OR MANUFACTURER	PVC
SCREEN GAUGE OR SIZE OF OPENINGS	10 SLOT
DIAMETER OF WELLPOINT	2"
TYPE OF BACKFILL AROUND POINT	Sand
ELEVATION DEPTH OF BOTTOM OF POINT	15.5
ELEVATION DEPTH OF BOTTOM OF BOREHOLE	16.0

[FIGURES REFER TO: EL. DEPTH]

[1.0 LENGTH OF CASING L] [4.0 LENGTH OF RISER PIPE (L_1)] + [11.0 LENGTH OF POINT (L_2)] = [16.0 PAY LENGTH]

CHA CLOUGH, HARBOUR & ASSOCIATES LLP

TEST BORING LOG

BORING NO. MW-8

PROJECT & LOCATION: EDGEWOOD PHASE II
CLIENT: CLIFFSTAR
CONTRACTOR: NATURE'S WAY ENVIRONMENTAL SERVICES

PROJECT NO.: 8279.07.02
SHEET NO.: 1 OF 1
ELEVATION:
START DATE: 3/29/99
FINISH DATE: 3/29/99
RIG TYPE: DEITRICH D-50
DRILLER:
INSPECTOR: P. Smeader

GROUNDWATER MEASUREMENT						CASING	SAMPLER	CORE BARREL
DATE	TIME	DEPTH TO (FT.): WATER	BOTTOM OF CASING	BOTTOM OF BORING	TYPE:	HSA	SSP	
					SIZE I.D.:	4.25	2.0	
					HAMMER WT.:	140#	—	
					HAMMER FALL:	30"	—	

DRILL FLUID: _____ DEPTH INTRODUCED: _____
CHECKED BY:
DATE:
IF BORING IS DRY, CHECK HERE

DEPTH IN FEET	SAMPLE NO.	RECOVERY / LENGTH	SPT BLOWS PER 6"	PPM	NOTES	FIELD CLASSIFICATION
	S1	2.0	3-7 8-7	2.1	BKG 1.5	SILT some to little clay, trace to little CMF sand (foundry), trace slag, brown moist. V. Stiff (ML/FILL)
2.0						
	S2	10"	3-1 2-2	1.4		CMF Sand trace silt Tan moist (SP)(FILL)
2.2						
5.0	S3	16"	3-8 8-7	1.5		FOUNDRY SAND + SLAG
	S4	20"	4-6 6-6	1.4		SILT, some CMF Sand, trace to little clay, Tan w/ Red Brown, Moist, V. Stiff, (ML)
	S5	2.0'	2-2 1-2	1.5		trace f. gravel, moist to wet, soft,
11.3						
	S6	2.0'	2-3 3-3	1.4		SILT, some to little clay, little mf Sand gray, varved, wet, M. Stiff (ML)
12.0	S7	2.0'	1-2 2-2	1.4		SILT w/ CLAY, varved, gray, moist, soft. (ML-CL)
	S8	2.0'	WH-WH 1-1	1.4		Boring complete @ 16.0' BGS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0–4	– VERY LOOSE	0–2	– VERY SOFT
4–10	– LOOSE	2–4	– SOFT
10–30	– MEDIUM COMPACT	4–8	– MEDIUM STIFF
30–50	– COMPACT	8–15	– STIFF
50+	– VERY COMPACT	15–30	– VERY STIFF
		>30	– HARD

SAMPLE IDENTIFICATION: S – SPLIT SPOON; T – THIN WALL TUBE; A – AUGER CUTTINGS; W – WASH SAMPLE

MW-8
BORING NO.

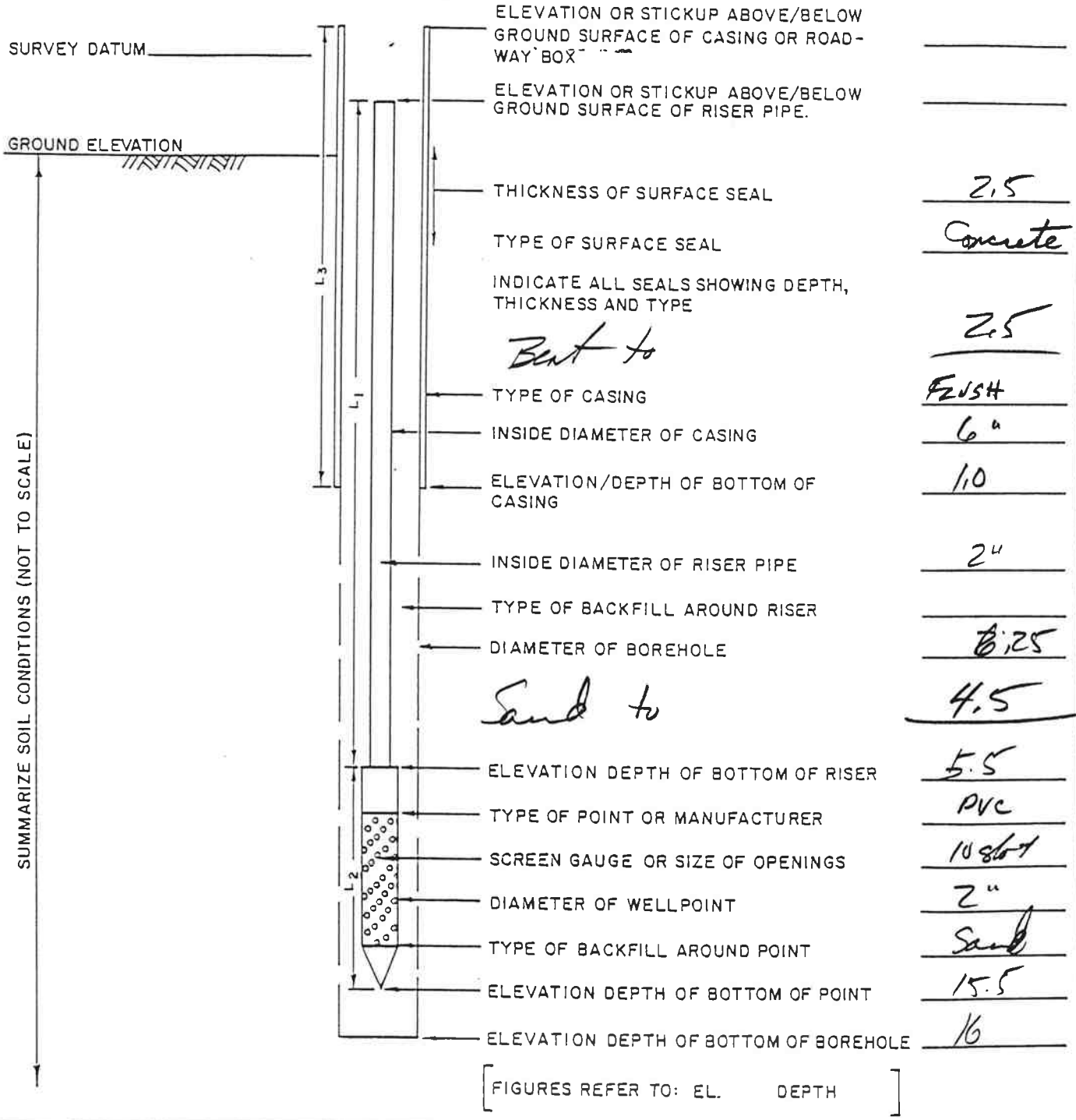
BORING 11/18/96

CHA CLOUGH, HARBOUR & ASSOCIATES ENGINEERS & PLANNERS

GROUND WATER OBSERVATION WELL REPORT

PROJECT: EDGEWOOD PHASE II
CLIENT: CUFFSTAR
CONTRACTOR: NWES
DRILLER: B. Bartz INSPECTOR: P. Smead
GROUND WATER: AT COMPLETION
BELOW TOP OF RISER ELEV.

FILE NO.: 8279.07.02
WELL NO.: B BORING NO.:
LOCATION:
DATE: 3/19/99



[1.0 LENGTH OF CASING L] [5.0 LENGTH OF RISER PIPE (L_1)] + [10.0 LENGTH OF POINT L_2] = [16.0 PAY LENGTH]

TVGA CONSULTANTS

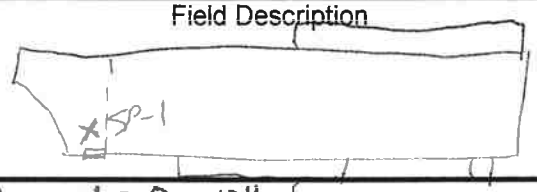
SOIL PROBE LOG

PROBE NO. SP-1

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/24/08
Finish Date
Driller Mike
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
20' N of western most building door 10' from wall				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
									
							Concrete 0-10" dry	23.8	
							10"-11" reddish sandy material. Brick color dry		
							11"-19" - stained black sandy silt dry	55.0	
	5						18-24" - sand and smooth gravel tan, dry	44	
				PCB, SVOC			24"-3.5' red silty clay with dark black streaks some tan + brown moist	104 @ 2'	
	10						3.5-3.8' silty clay and some sand tan and grey.	11.2	
							3.8-4- brown/grey silt with some grey gravel, wet		
	15			35			4-5.5' dark grey, wet clayey silt with black streaks some sand.	10.2	
							5.5-7 dark grey and some mottled silty clay		
	20						7-8 mottled native silty clay brown, tan and grey, wet		
							930 sample time		
	25								
							FEW-SP-1(3.5)		
	30								

FEW-SP-1(3.5) 930 metals + PCBs, SVOCs
FEW-SP-1(2) 930 VOCs

TVGA CONSULTANTS

SOIL PROBE LOG

PROBE NO. SP-2

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/24/08
Driller
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev

Equipment Data			
	Casing	Sampler	Core
Type	Acetate	Macro Core	
Diameter	1.75"	2.0"	
Weight			
Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
				4			Back corner of 'office' area. 0-10" concrete, dry		
							11"-13" black asphalt layer shiny dry	23	
	5						13"-3 streaked silty clay lightly mottled brown little tan + grey moist	28	
							3-3.5 brown, tan, grey silty clay some black streaks, moist		
	10						3.5-3.8 sandy layer tan, moist, damp some shale	15	
							3.8-4 - dark black silty clay moist to wet		
	15			4			4-5 dark grey silty clay	10	
							5-5.2 sandy silt black		
							5.2-6 red tan sandy soils		
	20						6-6.2 grey silty clay & red tan some sand		
							6.2-7 brown sand.		
	25						7-8 brown saturated ~~silt~~ clayey silt some sand		
							TCL VOCs, SVOCs, PCBs + Metals 950 sample time		
	30								

FEN-SP-2(4)@950

TVGA CONSULTANTS

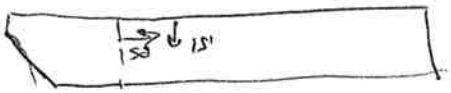
SOIL PROBE LOG

PROBE NO. SP-3

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/24/07
Driller
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev



Equipment Data			
	Casing	Sampler	Core
Type	Acetate	Macro Core	
Diameter	1.75"	2.0"	
Weight			
Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
	0						3" asphalt		
							3-10" wood blackflooring 7"		
							10"-14" light grey gravel + shale with ponded sandy silt light grey dry.		
	5						14"-2' - grey brown clayey silt with some sand, moist some peices of brick	5	
	8						2-4' brown silty clay and some sand + small peices of metal moist	7	
	10						4-8 dark grey sandy silt with peices of wood	9	
							6-7 # black saturated gravel appears similar to test pits.	0	
	15						7-8 grey, saturated silty clay lightly mottled. grey boulder trace sand.	1.5	
	20							0.5	
	25						Sample 4 feet 1040AM		
	30								

TVGA CONSULTANTS

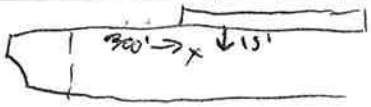
SOIL PROBE LOG

PROBE NO. SP-4

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/29/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev



Equipment Data			
	Casing	Sampler	Core
Type	Acetate	Macro Core	
Diameter	1.75"	2.0"	
Weight			
Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
	1						Area Lot N-11 Tried from 1050-1115 to get through first 6" 0-4 Asphalt 4-11" Wood block 11" - rig will not go through wood floor with any bit made 3 attempts 7/29/08 reattempted 7/30/08 another field sheet		
	5								
	10								
	15								
	20								
	25								
	30								

TVGA CONSULTANTS

SOIL PROBE LOG

PROBE NO. SP-4(R)

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev

Equipment Data	Casing	Sampler	Core
Type	Acetate	Macro Core	
Diameter	1.75"	2.0"	
Weight			
Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							0-3" asphalt 3-6" wood block 6-12" concrete		
	5		SAMPLE 1015 VOCs + PCBs, SVOCs. FEW-SP4(2)				1'-1.5' - brown and black sandy soils and gravel DRY	2.8	
							1.5-3.5 brown clayey silts lightly mottled greys and some orange also 2 layers of gravel 2" thick, moist reworked	6.8 14 gravel	
	10						3.5-4.5 grey clayey silts and gravel light odor, moist	20	
	(12)								
	15						4.5-6 grey clayey silt, wet little gravel	5	
	20						6-8 Grey and dingy brown light mottled clayey silt trace gravel some black No odor or PID	0	
	25						8-8.5 more brown than previous wet 8.5-9 brown sandy silt, saturated	0	
							9-12 brown/tan silt trace sand wet some redish hues		
	30						End 12		

TVGA CONSULTANTS

SOIL PROBE LOG

PROBE NO. SP-5

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/29/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							20' N of MW-5 in muddy area broken asphalt		
	3.8			12"			0-3" asphalt 3-6" woodblock 6"-1' black sandy gravelly material with 2" rocks	33*	
	5			4" 1" 1" 6"			1-2 brown clayey silt with some sand and gravel trace brick peice, damp	23	
	10						2-3.8 clayey silt brown some tan sand and gravel, wet		
	15						refusal 3.8 Note enough volume for sample.		
	20								
	25								
	30								

TVGA CONSULTANTS

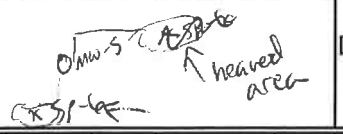
SOIL PROBE LOG

PROBE NO. SP-6

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/24/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			



Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							Heaved area. 20' SW of MW-5		
				0			0-3" Asphalt		
				0			3"-6" wood block floor		
				2"			6"-12" concrete		
	5						12-14" - dark black sandy silt odor solvent + petro?, wet	14	
				1'			14"-2' - dark grey silty clay wet	37	
	10						2-4 dark grey and brown silty clay, wet		
			SAMPLE		☆		4-5 'shiny' viscous silty clay and angular rocks, wet odor seen through site. ~~Sat~~ wet → saturated	84	
	20						5-5.3 Gravel layer seen through site. dark grey wet - saturated		
							5.3-8 dark brown ~~silt~~ clay silt odor - solvent? saturated some sand	5.2	
	25						SAMPLE 4 feet 1210 PM SP-6		
	30								

TVGA CONSULTANTS

SOIL PROBE LOG

PROBE NO. SP-7

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/30/08
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							20' SW of MW-5		
						NA	9" of concrete cant get through. Jackhammer was used 7/31/08		
	5						3" asphalt, 3" wood, 6" concrete } Jackhammered dry		
	10		DUSTM FEW-SP-7 (1.5)				1-1.5 sandy brown sandy soils and gravel, dry PID reading	118	
	12						1.5-3.0 light brown clayey silt mottled with grey some gravel	33	
	15						3-3.5 brown and black sandy silt mixed with gravel slightly mottled, moist	20	
							3.5-4 tan, brown, grey clay with trace clay, moist	25	
	20			5"			4-5 gravel viscous water shiny odor	13	
				5"			5-6 same as 3.5-4 saturated		
				8"			6-10 same as 4-5 saturated	10	
	25						10-12 - clayey silt, brown, saturated	18	
							VOCs collected from high PID - 1.5 PCB + Metals, SVOCs 1.5-2		
	30								

SP-7 (1.5) @ 1045

TVGA CONSULTANTS

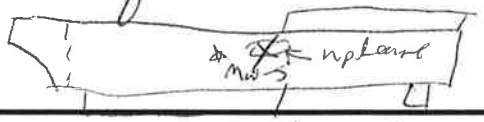
SOIL PROBE LOG

PROBE NO. SP-8

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/29/08
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/29/08				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							~30' west of MW-5 in the upheaved Area 		
	0						0-3" asphalt broken already		
							3-6" wood floor, tar on bottom	0	
							6"-1' concrete		
	5						1-1.3 black stained sandy soils low solvent/oily odor trace silt, moist	5.6	
							1.3-3.5 Grey clayey silt with some rock fragments, wet solvent/oily odor	3.4	
	10	(12)					FEW-SP-8(2) VOCs only due to low sample volume 1645		
	15						3.5-4.5' dark black + grey as seen in other SPs. Odor from liquid doesn't appear to be water solvent maybe?, wet	55@4'	
							4.5-5' Grey + black angular gravel layer seen in other SPs -		
	20						5-8' Dark grey silty clay some rocks wet to saturated		
							8-10' brown clayey silt with sheen saturated	58	
	25						10+2 Acetate liner dripping with machine oil. Substance grey clayey silt saturated with water oil	117	
	30						Strong odor dispite fairly low PID measurement		

FEW-SP-8(10) @1645 - VOCs, PCBs, SVOCs + Metals

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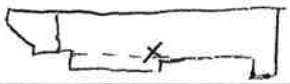
SOIL PROBE LOG

PROBE NO. SP-9

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/30/07
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							In front of Door to South portion of building 		
	0						~~0-0.5~~ asphalt wood concrete		
	5						1-1.2 black sandy soils slightly shinny	12	
			SAMP @ 1045 FEW-SP-9(9)				1.2-2 brown to silty clay with light black streaks moist	8	
	10						2-3.5 asphalt like material gritty with small black rocks	10	
	(12)						3.5-~~5~~ rusty colored shale, trace sandy soils and clay in between, moist	4@5'	
	15						5-6 brown medium silty soils and some gravel, saturated	5	
	20		SAMPLE 1050 FEW-SP-9(7)				6-8 Brown, Grey and black clayey silt, wet to ~~saturated~~ looks stained ~~odor~~ odor - low, trace sand		
	25						8-8.5 gravel, saturated brown muddy water shale	6	
							8.5-12 light brown sandy silt No	0.7 towards 8.5	
	30							0@10'	

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SOIL PROBE LOG

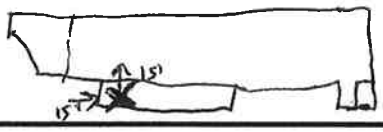
PROBE NO. SP-10

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date 7/30/08
Driller
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev
7/30/08	1115	A	

Equipment Data			
	Casing	Sampler	Core
Type	Acetate	Macro Core	
Diameter	1.75"	2.0"	
Weight			
Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							Approx 15' from buildings walls 		
	0						1-2.5 black sandy gravelly soil similar to other areas. Not enough to sample mostly rock	12.2	
	5						2.5-4.5 light brown and some black & grey silty soils. with shale and tiny rusted metal pieces trace sand.	4.0	
	10		SAMPLE SP10(6) 1120				4.5-7.6 Light brown/tan and grey becomes more grey as nears 6' silty clay moist-wet Dark grey streaks visible	0.2	
	12							0.1	
	15						7.6-8 tan/brown and grey mottled silty clay. moist.		
	20						8-12 tan/light brown silty clay trace of sand. little, saturated		
	25								
	30								

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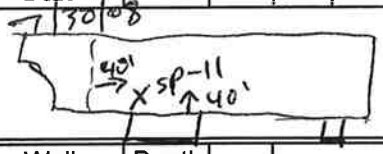
SOIL PROBE LOG

PROBE NO. SP-11

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/30/08
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			



Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Remarks PID Reading (ppm) Head
	0						14" of solid concrete		
							railroad jackhammer +		
	5						drill rig could not get		
							through lots of rebar		
	10						NO way to get through		
							this whole area appears to		
	15						be concrete + full of rails		
	20								
	25								
	30								

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SOIL PROBE LOG

PROBE NO. SP-12

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date 7/30/08
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							Asphalt wood concrete dry		
							1-1.1 Brown + black sandy + silty soils only 1" thick dry	13	
	5								
			FEW-SP-12(3) 1230				1.1-4.1 Light brown and some grey mottled & layey silt moist	8	
	10							6.7	
		12					4-5 Muddy gravel some sand brown. shale, saturated		
	15						5-6.5 Light brown light mottled light tan + grey silty soil saturated	3.4	
	20						6.5-8 Dark grey and brown silty soil, saturated mostly odor	0.5	
				13"			8-12 brown and grey mottled clayey silt, saturated	0	
	25								
	30								

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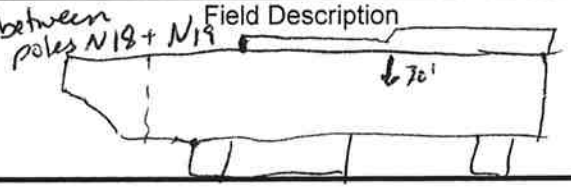
SOIL PROBE LOG

PROBE NO. SP-13

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/30/08
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08	1:15			Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Remarks PID Reading (ppm) Head
	5						between poles N18 + N19  asphalt concrete } Jackhammer 2" soil Driller got 16" down hit another concrete pad went a couple inches but couldn't get through 1340pm Rig got so hot melted acetate liner while trying to get through concrete		
	10								
	15								
	20								
	25								
	30								

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SOIL PROBE LOG

PROBE NO. SP-14

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev
7/30/08	1345	–	

Equipment Data			
	Casing	Sampler	Core
Type	Acetate	Macro Core	
Diameter	1.75"	2.0"	
Weight			
Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Remarks PID Reading (ppm) Head
	0						Near Eastern Entrance		
							0- Asphalt & concrete > jackhammer		
							Drill Rig got through 15" soil		
	5			2"			1-1.2 gray and black sandy silt	81	Accuracy ± 2
							1.2-2 grey and brown silty soil light mottling	141	
	10						2-2.5 black sandy silt. unsure if color is staining or natural. light odor may be from rig. Creek present	88	
							Concrete 2.5' down and got through		
	15								
							FEW-14(2.5) VOCs		
	20						FEW-14(1.5) SVOCs & PCBs Metals?		
							1400		
	25								
	30								

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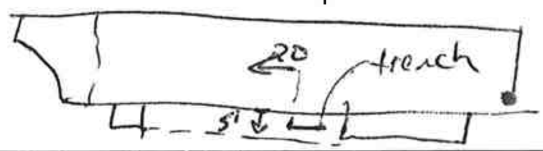
SOIL PROBE LOG

PROBE NO. SP-15

Project: Edgewood Warehouse	Project No. 2008.0011.00
Client: Chautauqua County	GS Elev
Contractor: Nature's Way	WS Ref Elev

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08	light drizzle 1420			Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date
Driller
Geologist JLK

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
									
							6" Concrete pad - jackhammer		
							0.5'-1 brown sandy gravelly soils No odor, moist (rain)		
pic#1 vis con rocks 5-5.5	5						1-2 reddish brown sandy and silty soils trace grey shale moist No odor		
pic#2 oily soils	10						2-3 Dark grey sandy soils and gravel (shale) No odor		
	(12)						3-5 reddish brown silt and shale thin layers wet in areas dry in others.		
	15	FEW-SP-15(9)					5-5.5 greyish shiny vis con a water seen in other areas mostly shale, saturated cleaner or solvent odor		PID reading 25 Ambient - No water
	20		~~2:30pm~~ 1430				5.5-7 Dark grey clayey silt wet		
	25						7-8 Grey, brown/tan mottled clayey silt, wet to moist No odor		
	30						8-9.5 Machine oil (visual + odor) "		
							9.5-11 Grey silt saturated		
							11-12 Grey silt saturated		

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SOIL PROBE LOG

PROBE NO. 16

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08				Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
				14"			In line with concrete wall on SSW portion of property SP-16 @ 1.5' 0-0.5 topsoil brown sandy soils smooth rocks 1" diameter, moist		
	5						0.5-1 black sandy soils and brick fragments, moist very light petroleum odor		
							1-7' Bricks and rocks pieces of plastic mixed with some tan soils sandy, moist		
	10						VOCs FEW-SP-16(4) 1508 Asbestos FEW-SP-16(2-5) mostly bricks & sand.		
	15								
	20								
	25								
	30								

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SOIL PROBE LOG

PROBE NO. 17

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date 7/30/08
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
7/30/08	1500			Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
	5						0-2' topsoil and gravel black and tan sandy silt with metal fragments light petro odor 2-2.5' brick peices 2.5-3.5 brown + grey mottled clay damp 3.5-8 brick reworked clay and sand. brown, black, grey, ~~4-6 brick~~ 6-7.5 brown clayey silt slight traces of brick. No odor, saturated 7.5 brown silty clay No odor End 8' NoT refusal FEW-SP-17 (4) Asbestos blacktop area FEW-SP-17 (2) 1510		
	10								
	15								
	20								
	25								
	30								

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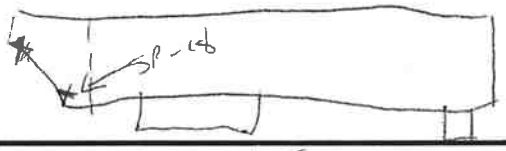
SOIL PROBE LOG

PROBE NO. SP-18

Project: Edgewood Warehouse
Client: Chautauqua County
Contractor: Nature's Way

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 7/30/08
Finish Date
Driller
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
	1530			Type	Acetate	Macro Core	
				Diameter	1.75"	2.0"	
				Weight			
				Fall			

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
									

0-5" Concrete
5"-6" silty clay brown reworked with
6-8" Concrete chunks
6-8" black sandy gravelly soils No odor
6-1' - rocks concrete but already taken
1-1.5 brown sandy soils
slightly stained w/ black light odor
1.5-4 same as above
slightly less black stained
very little petro odor
4-8 same as above less black
8-no black wet mottled clay
saturated last foot
FEW-18
1530
VOCs only
8-

SP-18 (3.5)
1530

Soil Probe Log\Soil Probe

TB-9/MW-9

TVGA CONSULTANTS

TEST BORING LOG

BORING NO. ~~TB-9~~/MW-9

Project: Former Edgewood Warehouse Site RI/AA
Client: Chautauqua County
ntractor:

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date
Driller Nalwès
Geologist JLK

Groundwater Data (feet)			
Date	Time	Depth	Elev
9-3-08	1100AM		

Equipment Data			
	Casing	Sampler	Core
Type	HSA	SS	
Diameter	4.25"	2.0"	
Weight		140 #	
Fall		30"	

Well struction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							South corner of property 5' from each fence		
			6 6				0-6" topsoil mixed with gravel and brick, dry		
			7 5	6"			6"-4.5' black cinder gravel + sand, dry No odor		
	5		3 2				4.5'-8.5 medium brown sandy silt with trace brick, damp.		
			2 3				8.5-9 brown grey silty clay lighter mottled trace brick, moist no odor		
	10		3 2				9-10 dark grey silty clay and black sandy silt. some brick + gravel, moist-wet		
			5 4				10-10.5 dark grey clayey silt trace gravel + brick,		
			4 5				10.5-12 dark grey trace brown (mottled) trace brick light petroodor-rig? moist		0
	15		6 5				12-12.5 gray clayey silt and some weathered shale. moist-wet some sand		
			5 14				12.5-14 Gray clayey silt and weathered shale some sand, dry.		
			14 28				14-16 weathered shale, wet → saturated grey clayey silt and trace sand		
			30 33				End 16.5 could not break through weathered shale		
	20		45 100 for 3"						
				3"					
	25								
	30								

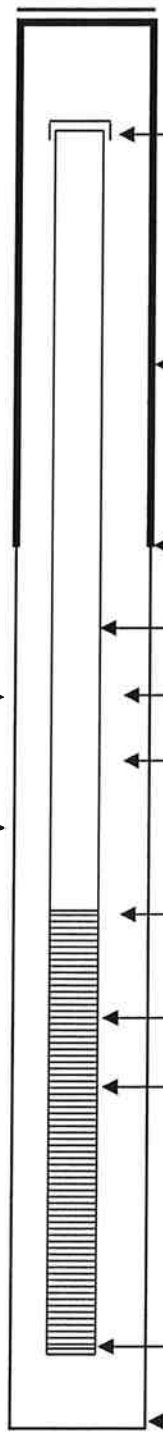
Boring Logs\Test Boring (OB)

TVGA CONSULTANTS

WELL INSTALLATION REPORT

Project Name: Former Edgewood Warehouse
Project Number: 2008.0011.00
Contractor: Nature's Way
Date of Installation: 9/3/08
Project Location: Dunkirk

Geologist: JLK
Driller: Mike Saeli
Well No.: MW-9
Boring No.: MW-9
Sheet ___ of ___



Lock No. _____

Survey Datum _____

Ground Elevation _____

2.4' Top of Seal

4.5 bgs Top of Sand

Elevation/Stick up Above/Below Ground Surface of Casing	2.5'
Elevation/Stick up Above/Below Ground Surface of Riser Pipe	~2.3'
Thickness of Surface Seal	2.5'
Type of Surface Seal	Cement
Type of Protective Casing	Round Metal
Inside Diameter of Protective Casing	4"
Elevation/Depth of Bottom of Protective Casing	2'
Inside Diamter of Riser Pipe	2"
Type of Backfill Around Riser	Bentonite Chip
Diamter of Bore Hole Within Test Section	5 3/8
Type of Coupling	Box thread
Elevation/Depth of Top of Screen	6.5' bgs
Type of Well Screen	PVC
Screen Slot Size	0.010
Diameter of Well Screen	2"
Type of Backfill Around Well Screen	#1 sand - 32 5lbs
Elevation/Depth of Bottom of Well Screen	16.5 bgs
Elevation/Depth of Bottom of Bore Hole	16.5 bgs

TVGA CONSULTANTS

TEST BORING LOG

BORING NO. MW-10

Project: Former Edgewood Warehouse Site RI/AA
Client: Chautauqua County
Contractor:

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date
Driller Nalco
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
9/3/08	13:15			Type	HSA	SS	
				Diameter	4.25"	2.0"	
				Weight		140 #	
				Fall		30"	

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							In NW corner of building.		
			Concrete				concrete rubble		
			6 6 8 10 13 13	2"			2-4' wet brown/grey sandy silt. No odor some cinder (asphalt)		
							4'-6' - Almost no recovery. brick in spoon. DRY		
	5		4 5 5 5				6'-6.5 dark grey sandy silt with dry brick fragments. fill area. moist		
			3 3 4 8				6.5-8 grey & tan sandy silt & silty clay No odor. slightly mottled. moist		
	10		3 3 3				8-9 tan & grey light mottled clayey silt trace sand		
							9-10 Grey clayey silt. wet No odor		
	15		2 2 2 2				10-12 Dark Grey w black streaks silt with trace sand. wet → sat		0
							12-14 Dark Grey ~~silty clay~~ clayey silt small pockets of sandy silt. wet → saturated No odor		
	20		3 3 4 4				14-16' wet - same ↑		
			2 2 3 3				16-18 "		
	25		hammer hammer 1 1 4 6 25 28				18-20 "		
							20-22 dark grey weathered shale & trace clayey silt. SATURATED		0.7
	30		100 for 3"				shale in boot		

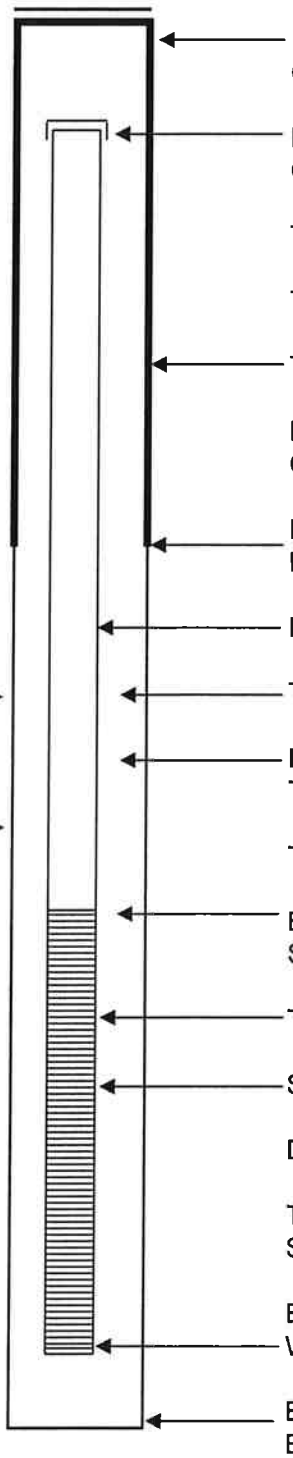
oring Logs\Test Boring (OB)

22.5

TVGA CONSULTANTS

WELL INSTALLATION REPORT

Project Name: Former Edgewood Warehouse
Project Number: 2008.0011.00
Contractor: Nature's Way
Date of Installation: 9/4/2008
Project Location: Dunkirk - NW corner of Warehouse
Geologist: JLK
Driller: Mike Saeli
Well No.: MW-
Boring No.: MW-
Sheet: of



Elevation/Stick up Above/Below Ground Surface of Casing	Flushmount
Elevation/Stick up Above/Below Ground Surface of Riser Pipe	3"
Thickness of Surface Seal	16"
Type of Surface Seal	Cement
Type of Protective Casing	flushmount-steel
Inside Diamater of Protective Casing	8"
Elevation/Depth of Bottom of Protective Casing	1' bgs
Inside Diamter of Riser Pipe	2"
Type of Backfill Around Riser	Bentonite
Diamter of Bore Hole Within Test Section	5 3/8
Type of Coupling	Box Thread
Elevation/Depth of Top of Screen	12.5
Type of Well Screen	PVC
Screen Slot Size	0.010
Diameter of Well Screen	2"
Type of Backfill Around Well Screen	#sand
Elevation/Depth of Bottom of Well Screen	22.5
Elevation/Depth of Bottom of Bore Hole	22.5

TVGA CONSULTANTS

TEST BORING LOG

BORING NO. MW-11

Project: Former Edgewood Warehouse Site RI/AA
Client: Chautauqua County
ntractor:

Project No.	2008.0011.00
GS Elev	
WS Ref Elev	
N-S Coord	
E-W Coord	
Start Date	9-4-08
Finish Date	
Driller	
Geologist	

Groundwater Data (feet)

Date	Time	Depth	Elev

Equipment Data

	Casing	Sampler	Core
Type	HSA	SS	
Diameter	4.25"	2.0"	
Weight		140 #	
Fall		30"	

Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							Approx 15' E of NE corner of bldg.		
			[illegible]	4"			0-6" brown topsoil some round gravel, dry 6"-2' darkbrown sandy gravelly soils, dry	0	
				1"			2-4' silty sandy clay very little recovery dry		
	5			8"			4-6 light brown silt some grey mottling trace gravel, damp		
				6"			6-8 Grey little brown silt mottled trace 8-1" inch pocket of gravel - saturated	0	
	10						8-10 brown + grey silt mottled clays trace gravel, moist.	17.1 @ 9'	
							stopped to get more clean augers restarted 1200		
	15						stopped split spoon sampling to get well in MW-2 was 16'		
	20						End 17'		
	25								
	30								

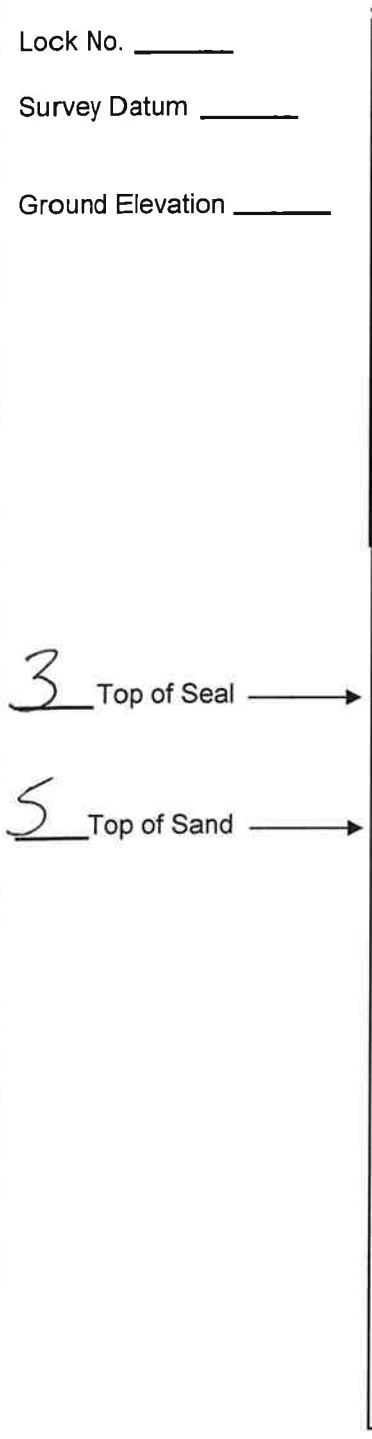
Mike 572-3208

TVGA CONSULTANTS

WELL INSTALLATION REPORT

Project Name: Former Edgewood Warehouse
Project Number: 2008.0011.00
Contractor: Nature's Way
Date of Installation: 9-4-2008
Project Location: Dunkirk

Geologist: JLK
Driller: Mike Saeli
Well No.: MW- 11
Boring No.: MW- 11
Sheet ___ of ___



Lock No.	
Survey Datum	
Ground Elevation	
Elevation/Stick up Above/Below Ground Surface of Casing	2.5'
Elevation/Stick up Above/Below Ground Surface of Riser Pipe	2.3
Thickness of Surface Seal	3
Type of Surface Seal	Cement
Type of Protective Casing	Round Metal
Inside Diamater of Protective Casing	4"
Elevation/Depth of Bottom of Protective Casing	2.5 bgs
Inside Diamter of Riser Pipe	2"
Type of Backfill Around Riser	Bentonite Chips
Diamter of Bore Hole Within Test Section	5 3/8
Type of Coupling	Box thread
Elevation/Depth of Top of Screen	7'
Type of Well Screen	PVC
Screen Slot Size	0.010
Diameter of Well Screen	2"
Type of Backfill Around Well Screen	#1 Sand
Elevation/Depth of Bottom of Well Screen	17'
Elevation/Depth of Bottom of Bore Hole	17' bgs

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TEST BORING LOG

BORING NO. MW-12

Project: Former Edgewood Warehouse Site RI/AA
Client: Chautauqua County
ıtractor:

Project No. 2008.0011.00
GS Elev
WS Ref Elev
'N-S Coord
E-W Coord
Start Date
Finish Date
Driller
Geologist

Groundwater Data (feet)			
Date	Time	Depth	Elev

Equipment Data			
	Casing	Sampler	Core
Type	HSA	SS	
Diameter	4.25"	2.0"	
Weight		140 #	
Fall		30"	

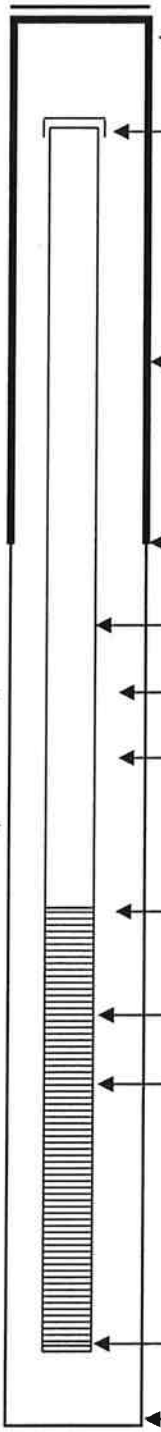
Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
	0		3 5 4 10	6"			0-2 brown to black mixture of what was next to PP- Gravel, sand, silt, damp	0.7	
			5 5 5 5	12"			2-4' Grey silty clay light odor some weathered shale, moist	22.9 @ 3'	
	5		4 2 2 5	14"			4-5 Gray clayey silt w/ trace sand moist → wet		
							5-6 gray and brown silty sand, wet	0	
	10		4 4 4 4	20"			6-8 Same, moist-wet clayey silt w trace sand.		
			3 4 5 6	15"			8-10 "	0	
	15		3 4 7	14"			10-11.5 " Grey trace shale		
			40 100 for 3"	3"			11.5-12 Gray shale and clayey silt, Saturated weathered shale	0	
	20						12.3		
	25						Put meter down auger 824 PID reading		
							start decon - 945 end 1010		
	30								

TVGA CONSULTANTS

WELL INSTALLATION REPORT

Project Name: Former Edgewood Warehouse
Project Number: 2008.0011.00
Contractor: Nature's Way
Date of Installation: 9-5-2008
Project Location: Dunkirk

Geologist: JLK
Driller: Mike Saeli
Well No.: MW-12
Boring No.: MW-12
Sheet ___ of ___



Elevation/Stick up Above/Below Ground Surface of Casing	2.5'
Elevation/Stick up Above/Below Ground Surface of Riser Pipe	2.3'
Thickness of Surface Seal	1'
Type of Surface Seal	Cement
Type of Protective Casing	Round-Metal
Inside Diamater of Protective Casing	4"
Elevation/Depth of Bottom of Protective Casing	2' bgs
Inside Diamter of Riser Pipe	2"
Type of Backfill Around Riser	Bentonite Chips
Diamter of Bore Hole Within Test Section	5 3/8
Type of Coupling	Box thread
Elevation/Depth of Top of Screen	3.3
Type of Well Screen	PVC
Screen Slot Size	0.010
Diameter of Well Screen	2"
Type of Backfill Around Well Screen	#1 Sand
Elevation/Depth of Bottom of Well Screen	12.3
Elevation/Depth of Bottom of Bore Hole	12.3

TVGA CONSULTANTS

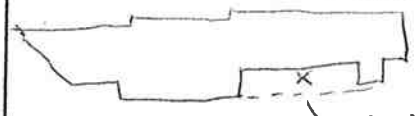
TEST BORING LOG

BORING NO. MW-13

Project: Former Edgewood Warehouse Site RI/AA
Client: Chautauqua County
ntractor:

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date 9/5/08
Finish Date
Driller Nalves
Geologist J. K

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
				Type	HSA	SS	
				Diameter	4.25"	2.0"	
				Weight		140 #	
				Fall		30"	

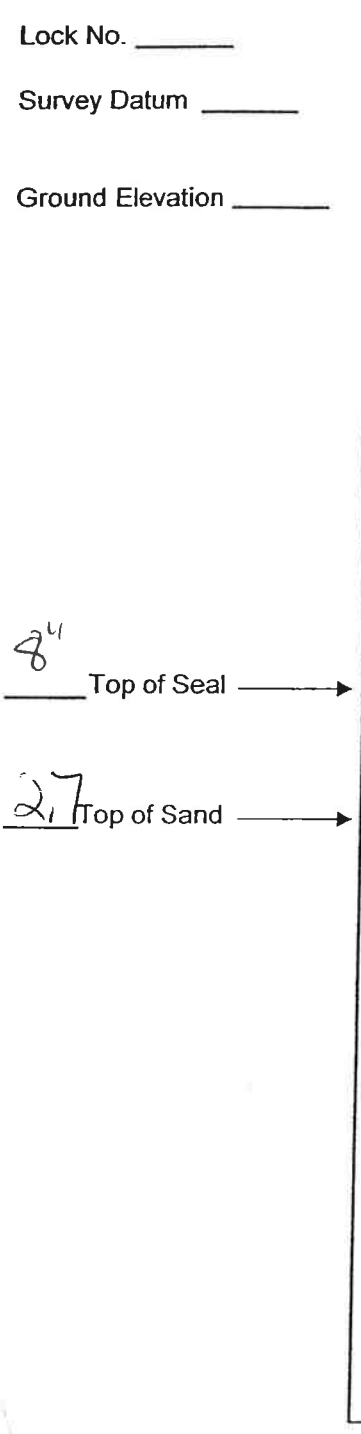
Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
							 MW-13 near SP-15		
							0-10" concrete		
			10 24	10"			10"-2' brown + grey sandy soils, wet weathered shale layers.	0	
	5		18 10 7 6	7"			2'-4' weathered shale, wet pockets others dry		
			10 10 6 6				4-5 weathered shale	4.2 @ 5'	
	10						5-6 mix of grey red brown clayey silt and weathered shale last inch wet	0	
			3 3 5 7	18"			6-6.5 brown sandy silt, moist		
	15						6.5-8 brown + grey light mottled clayey silt. moist.	0	
			3 4 4 8	20"			8-9 brown sandy silt, damp		
	20						9-10 brown, tan and grey clayey silt. damp	0	
			4 4 4 5				10-12 "	0	
	25		3 3 2 9	18"			12-13 Grey clayey silt, wet		
							13-14 Grey clayey silt and sandy silt saturated	0	
							End 15' after said 14'		
	30								

TVGA CONSULTANTS

WELL INSTALLATION REPORT

Project Name: Former Edgewood Warehouse Site RI/AA
Project Number: 2008.0011.00
Contractor: Nahreswan
Date of Installation: 9-5-2008
Project Location:

Geologist: JLK
Driller: Mike Snell
Well No.: MW-13
Boring No.:
Sheet: of



Elevation/Stick up Above/Below Ground Surfae of Casing	2.5'
Elevation/Stick up Above/Below Ground Surfae of Riser Pipe	~2.3'
Thickness of Surface Seal	10"
Type of Surface Seal	Cement
Type of Protective Casing	Metal round 4"OD
Inside Diameter of Protective Casing	3 5/8"
Elevation/Depth of Bottom of Protective Casing	2'
Inside Diameter of Riser Pipe	2"
Type of Backfill Around Riser	Bentonite Chips
Diameter of Bore Hole Within Test Section	4.25"
Type of Coupling	Box Thread
Elevation/Depth of Top of Screen	3'
Type of Well Screen	PVC
Screen Slot Size	0.010
Diameter of Well Screen	2"
Type of Backfill Around Well Screen	#1 sand
Elevation/Depth of Bottom of Well Screen	13'
Elevation/Depth of Bottom of Bore Hole	15'

TVGA CONSULTANTS

TEST BORING LOG

BORING NO. MW-14

Project: Former Edgewood Warehouse Site RI/AA
Client: Chautauqua County
Contractor: Nature Scape

Project No. 2008.0011.00
GS Elev
WS Ref Elev
N-S Coord
E-W Coord
Start Date
Finish Date
Driller Mikes.
Geologist JLK

Groundwater Data (feet)				Equipment Data			
Date	Time	Depth	Elev		Casing	Sampler	Core
				Type	HSA	SS	
				Diameter	4.25"	2.0"	
				Weight		140 #	
				Fall		30"	

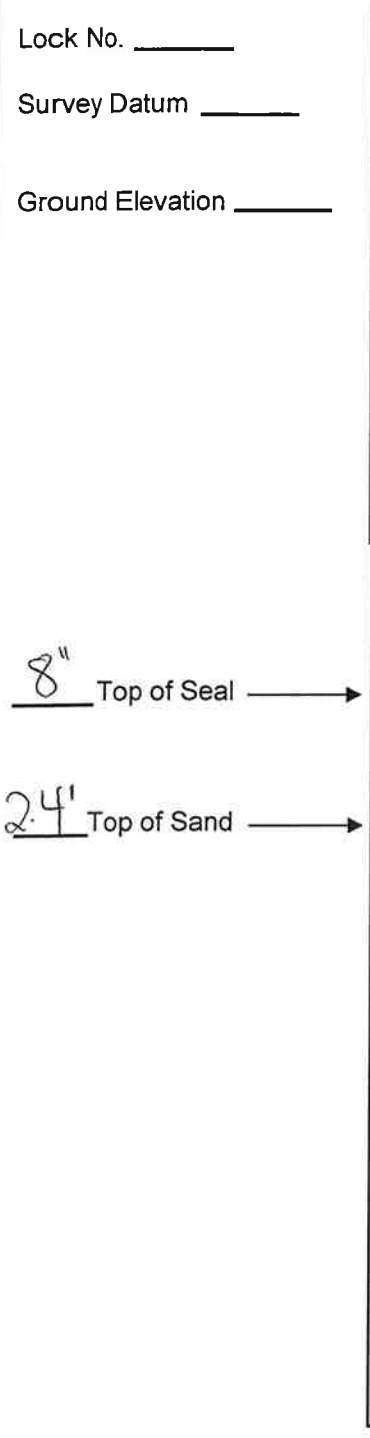
Well Construction	Depth (feet)	Sample No.	Blows per 6"	Recovery (in.)	Log	Unified	Field Description	Remarks PID Reading (ppm) Direct	Head
			8 5 6 7	12"			0-2 light brown sandy soils topsoil/some gravel, DRY trace brick pieces	0	
	5		5 5 3 3	8"			2-4 " 3-4 brown, black sandy silt with gravel and brick, moist	0	
	10		3 8 4 5	10"			4-6 Clay some brown light mottled clayey silt, moist light petro odor	0.4 @ 5'	
	15		3 5 5 8	14"			6-8 "	0	
			4 6 11 11	14" 6"			8-9.5 " 9.5-10 brown tan sandy gravelly soils moist - wet	6	
	20		4 12 7 10	13"			10-10.5 " wet - saturated 10.5-12 Dark grey light petro odor wet weathered shale/clayey silt 12-13 " saturated	0.4 1.8	
	25								
	30								

TVGA CONSULTANTS

WELL INSTALLATION REPORT

Project Name: Former Edgewood Warehouse
Project Number: 2008.0011.00
Contractor: Nature's Way
Date of Installation: 9-5-08
Project Location: Dunkirk

Geologist: JLK
Driller: Mike Saeli
Well No.: MW-14
Boring No.: MW-14
Sheet ___ of ___



Lock No.	
Survey Datum	
Ground Elevation	
Elevation/Stick up Above/Below Ground Surface of Casing	3'
Elevation/Stick up Above/Below Ground Surface of Riser Pipe	2.8'
Thickness of Surface Seal	12"
Type of Surface Seal	Cement
Type of Protective Casing	Round-Metal
Inside Diamater of Protective Casing	4"
Elevation/Depth of Bottom of Protective Casing	2'
Inside Diamter of Riser Pipe	2"
Type of Backfill Around Riser	Bentonite Chips
Diamter of Bore Hole Within Test Section	5 3/8
Type of Coupling	Box Thread
Elevation/Depth of Top of Screen	2.8
Type of Well Screen	PVC
Screen Slot Size	0.010
Diameter of Well Screen	2"
Type of Backfill Around Well Screen	#1 Sand
Elevation/Depth of Bottom of Well Screen	12.8
Elevation/Depth of Bottom of Bore Hole	12.8

LaBella
Powered by partnership
300 Pearl Street, Suite 130

TEST BORING LOG

Project Name: FORMER EDGEWOOD WAREHOUSE
Project Location: 320 SOUTH ROBERTS DUNKIRK NY

BORING: SB-MW-4R
Sheet 1 of
JOB:
Checked by:

CONTRACTOR: LABELLA LLC
DRILLER: DYLAN + PETE
LABELLA REPRESENTITIVE: ATB
START DATE: 8/6/18
END DATE:
TIME: 1235 to
DATUM:

TYPE OF DRILL RIG: DIRECT PUSH
AUGER SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD: OTHER:
DRIVE SAMPLER TYPE:
INSIDE DIAMETER: -

DEPTH (Feet)	BLOW COUNT	SAMPLE RECOVERY (Inches)	PID FIELD SCREEN (Parts per million)	STRATA CHANGE	REMARKS	VISUAL CLASSIFICATION
0		48"	0	0-2		FILL GRAVEL, BRICK, BLK COARSE SAND BRN-RUST SAND SILT LOOSE MOIST
			0	2-4.5		BRN CLAYEY SILT + GRAVEL LOW PLAS MOIST
			5.3	4.5-5		BRN-GRAY CLAY+SILT, W GRAVEL MID PLAST MOIST SLIGHT PETROL ODOR
5						
		45"	11.7	5-6'		GRAY SILTY CLAY MID PLAST. MOIST SLIGHT ODOR
			13.3	6-7		BLK STAIN SILT SLIG ODOR MOIST
			10.0	7-8'		GRAY SILTY CLAY MID PLAST LOOSE MOIST-WET ODOR SOLVENT?
			9.3	8-10		GRAY SILTY CLAY TIGHT MOIST
10						
		60"	4.5	0-12"		FALL BACK AA SAT ODOR
			2.3	12-36"		BRN FINE SAND, SAT, LOOSE LOW PLAS SLIGHT ODOR
			1.1	36-50"		BRN + GRAY SAND+SILT MID STIFF LOW PLAST MOIST-WET SLIGHT ODOR
			0	50-60"		GRAY-CLAYEY SILT MID STIFF LOW PLAST. WET NO ODOR
16'						
						Stop @ 16'

GROUNDWATER ENCOUNTERED

DATE	DEPTH	WELL INSTALLED	WELL ID

NOTES:
REPLACE PHII-MW-4

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300 Pearl Street, Suite 130
Buffalo, NY 14202

TEST BORING LOG

Former Edgewood Warehouse
820 S Roberts Rd.
Dunkirk, NY

BORING: SB-MW-15
Sheet 1 of 1
JOB:
Checked by:

CONTRACTOR: LaBella LLC
DRILLER: Matt Pepe
LABELLA REPRESENTITIVE: J. Dombrowski START DATE: 7/26/19 END DATE: 7/26/19
TIME: to
DATUM:

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD: Direct Push
DRIVE SAMPLER TYPE:
INSIDE DIAMETER: ~ 1.8-Inch
OTHER:

DEPTH (FT)	SAMPLE RECOVERY	PID FIELD SCREEN (PPM)	STRATA CHANGE	REMARKS	VISUAL CLASSIFICATION
0-1	3	0.0		No odors or staining	0'-1' Gravel & Brick Brown Sandy Silt (HP, MS, M).
1-2	2	0.0			1'-5' Gravel / Dark brownish Black Sandy Silt (HP, MS, M).
2-3	3	0.0			
3-4	3	0.0			
4-5	3	0.0			5'-9' Gray Silty clay (HP, MS, M).
5-6	10	0.0			
6-7	10	0.0			9'-11.8' Brown Silty clay (HP, MS, M)
7-8	10	0.0			
8-9	10	0.0			Refusal @ 11.8 ft bgs. - Shale Bedrock.
9-10	10	0.0			
10-11	5	0.0			
11-12	5	0.0		↓	

GROUNDWATER ENCOUNTERED

DATE	DEPTH	WELL INSTALLED	WELL ID
7/26/19	11.8	Yes	MW-15

NOTES: 10' pre-packed screen was cut down to make room for proper seal. Screen length 7.5'.

SB-MW-15

LaBella
Powered by partnership
300 Pearl Street, Suite 130
Buffalo, NY 14202

TEST BORING LOG

Former Edgewood Warehouse
320 S. Roberts Rd.
Dunkirk, NY

BORING: SB-MW-16
Sheet 1 of
JOB: 247 1946
Checked by: JD

CONTRACTOR: LaBella LLC
DRILLER: D. Hitchcock
LABELLA REPRESENTITIVE: S. Dalton
START DATE: 8/9/19 END DATE: 8/9/19
TIME: to
DATUM:

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD: Direct Push
DRIVE SAMPLER TYPE:
INSIDE DIAMETER: ~ 1.8-Inch
OTHER:

DEPTH (FT)	SAMPLE			REMARKS	VISUAL CLASSIFICATION
	SAMPLE RECOVERY	PID FIELD SCREEN (PPM)	STRATA CHANGE		
0-1	5	0.0		No odors or staining	0-1 Brown Sandy Silt (MP, MS, M)
1-2		0.0			1-2 Concrete
2-3		0.0			2-6 Brown/orange Silty clay w/ trace sand (MP, MS, M).
3-4		0.0			
4-5		0.0			6-7 Gray Silty clay (MP, MS, M).
5-6		0.0			7-8 Shale
6-7		0.0			8-12 Gray Silty clay w/ trace gravel (MP, MS, M).
7-8		0.0			
8-9		0.0			12-17 Gray Silty clay w/ trace gravel (MP, MS, Wet).
9-10		0.0			
10-11		0.0			
11-12		0.0			17-18 Shale
12-13		0.0			18-20 Gray Silty clay w/ trace gravel (MP, MS, Wet).
13-14		0.0		Manure smell	
14-15		0.0			
15-16		0.0			
16-17	4	0.0			
17-18		0.0			
18-19		0.0			
19-20		0.0			

GROUNDWATER ENCOUNTERED

DATE	DEPTH	WELL INSTALLED	WELL ID
8/9/19	20'	Yes	MW-16

NOTES: -10' Screen

SB-MW-16

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300 Pearl Street, Suite 130
Buffalo, NY 14202

TEST BORING LOG

Former Edgewood Warehouse
320 S. Roberts Rd.
Dunkirk, NY

BORING: SB-MW-4RR
Sheet 1 of 1
JOB: 2171946
Checked by:

CONTRACTOR: LaBella LLC
DRILLER: D. Hitchcock
LABELLA REPRESENTITIVE: S. Dalton
START DATE: 8/9/19 END DATE: 8/9/19
TIME: to
DATUM:

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD: Direct Push
DRIVE SAMPLER TYPE:
INSIDE DIAMETER: ~ 1.8-Inch
OTHER:

DEPTH (FT)	SAMPLE RECOVERY	PID FIELD SCREEN (PPM)	STRATA CHANGE	REMARKS	VISUAL CLASSIFICATION
0-1	3	0.0		No odors or staining	0-1 Brown Sandy Silt (MP, MS, M)
1-2	|	0.0		|	1-4 Dark brown Sandy Silt w/ trace gravel (MP, MS, M).
2-3	|	0.0		|	
3-4	|	0.0		|	
4-5	↓	0.0		|	4-5 Gray Sandy Silt w/ trace gravel (MP, MS, M).
5-6	6	0.0		|	5-7 Brown Silty Clay (MP, MS, M).
6-7	|	0.0		↓	7-9 Dark gray Sandy Silt (MP, MS, M)
7-8	|	0.0		Slight Pet odor	9-10 Gray Silty Clay (MP, MS, M)
8-9	|	0.0		" "	10-13 Gray Sandy Silt (MP, MS, Wet)
9-10	↓	0.0		No odors or staining	13-15 Brownish Gray Silty Clay
10-11	5	0.0		Slight Pet Odor	(MP, MS, Wet).
11-12	|	0.0		" "	15-17 Brown Silty Clay (MP, MS, Wet)
12-13	|	0.0		" "	17-20 Gray Silty Clay (MP, MS, M)
13-14	|	0.0		" "	
14-15	↓	0.0		No odor or staining	
15-16	7	0.0		|	
16-17	|	0.0		|	
17-18	|	0.0		|	
18-19	|	0.0		|	
19-20	↓	0.0		↓	

GROUNDWATER ENCOUNTERED

DATE	DEPTH	WELL INSTALLED	WELL ID
8/9/19	20'	Yes	MW-4RR

NOTES: -10' Screen

SB-MW-4RR

LaBella
Powered by partnership

PROJECT

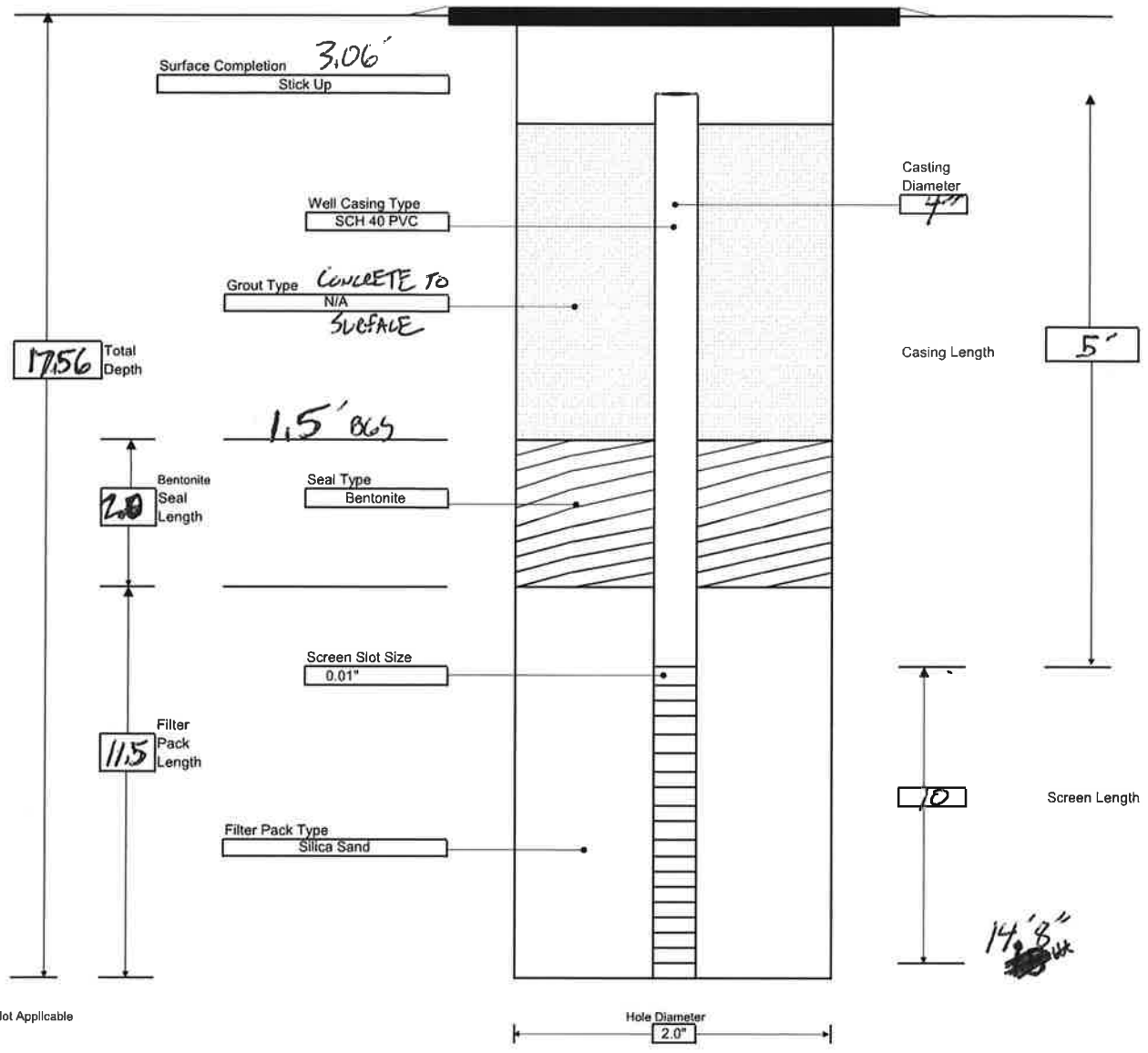
Well ID: MW-4R
SHEET 1 OF 1
JOB #
CHKD. BY:

CONTRACTOR:
DRILLER: LABELLA LLC
LABELLA REPRESENTATIVE: ATB

BORING LOCATION: SD-MW-4R
GROUND SURFACE ELEVATION: DATUM: Top of Riser
START DATE: 8/4/16 END DATE: 8/6/16

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE:
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: N/A

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS



NA-Not Applicable

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

LABELLA Associates, D.P.C
300 PEARL STREET, BUFFALO, NEW YORK
ENVIRONMENTAL ENGINEERING CONSULTANTS

PROJECT: Former Edgewood Warehouse
820 S. Roberts Rd. Dunkirk

Well ID: MW-4RR
SHEET 1 OF 1
JOB # 211946
CHKD. BY: JD

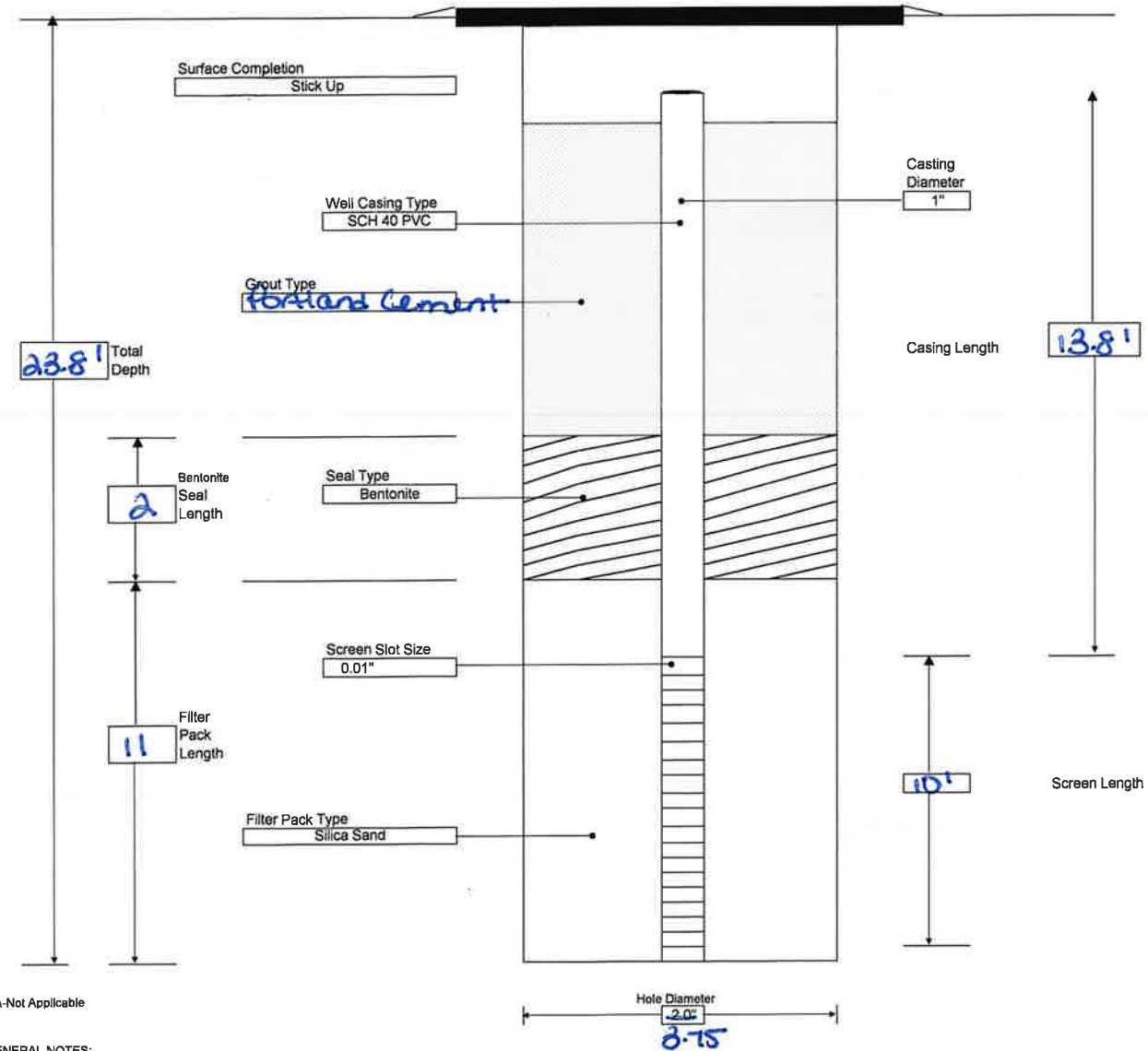
CONTRACTOR: LaBella LLC
DRILLER: D. Hitchcock
LABELLA REPRESENTATIVE: S. Deaton

BORING LOCATION: SB-MW-4RR
GROUND SURFACE ELEVATION: DATUM: Top of Riser
START DATE: 8/12/19 END DATE: 8/12/19

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE: 2 inch Direct Push
OVERBURDEN SAMPLING METHOD: 4-foot MacroCore® sampler
ROCK DRILLING METHOD: N/A

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS



NA-Not Applicable

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

LABELLA Associates, D.P.C
300 PEARL STREET, BUFFALO, NEW YORK
ENVIRONMENTAL ENGINEERING CONSULTANTS

PROJECT: Former Edgewood Warehouse
320 S. Roberts Rd. Dunkirk

Well ID: MW-15
SHEET 1 OF 1
JOB # 2171946
CHKD. BY: JD

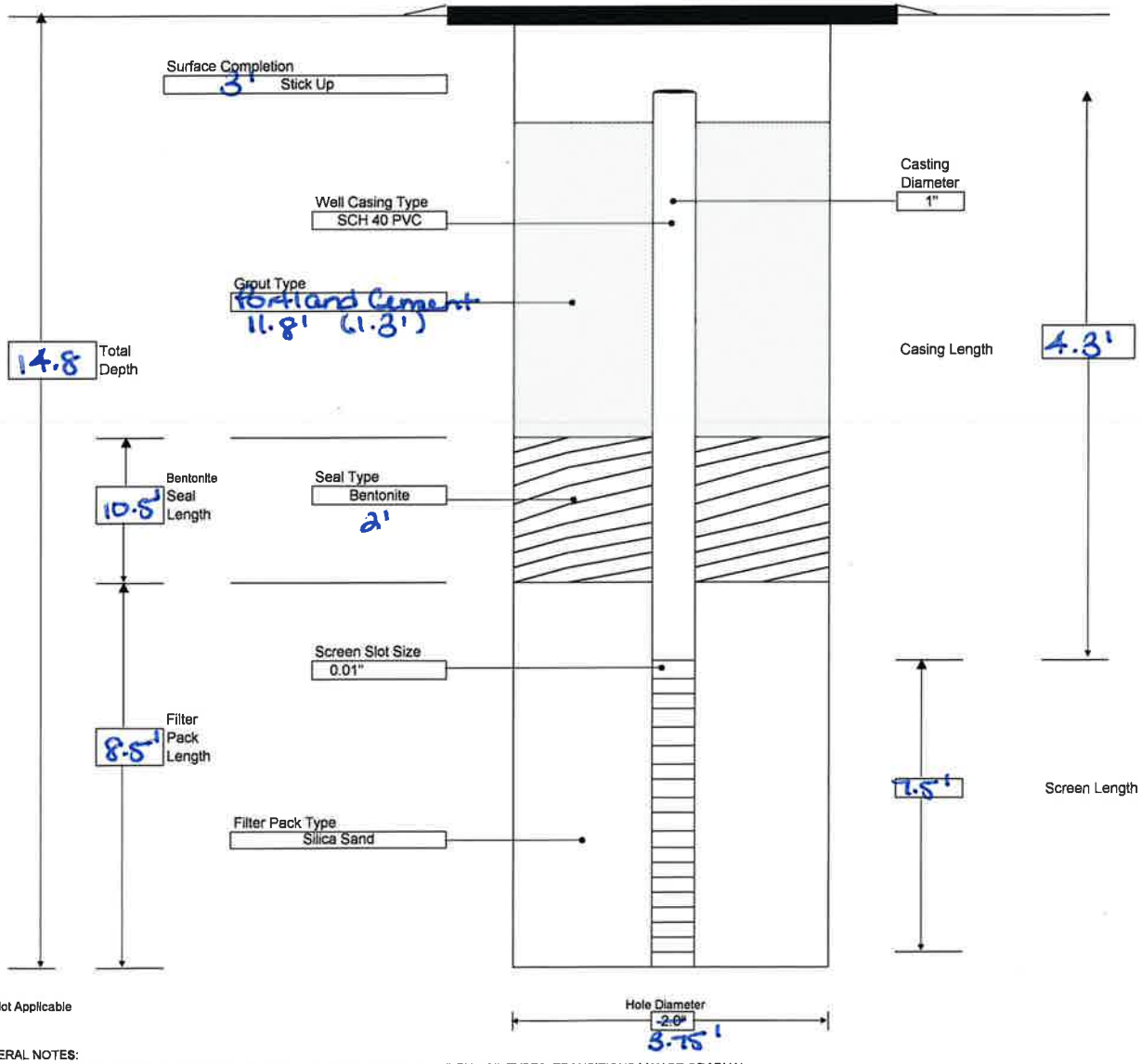
CONTRACTOR: LaBella LLC
DRILLER: Matt Pupa
LABELLA REPRESENTATIVE: J. Dombrowski

BORING LOCATION: SB-MW-15
GROUND SURFACE ELEVATION: DATUM: Top of Riser
START DATE: 7/26/19 END DATE: 7/26/19

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE: 2 inch Direct Push
OVERBURDEN SAMPLING METHOD: 4-foot MacroCore® sampler
ROCK DRILLING METHOD: N/A

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS



NA-Not Applicable

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

LABELLA Associates, D.P.C.
300 PEARL STREET, BUFFALO, NEW YORK
ENVIRONMENTAL ENGINEERING CONSULTANTS

PROJECT: Former Edgewood Clubhouse
320 S. Roberts Rd. Dunkirk

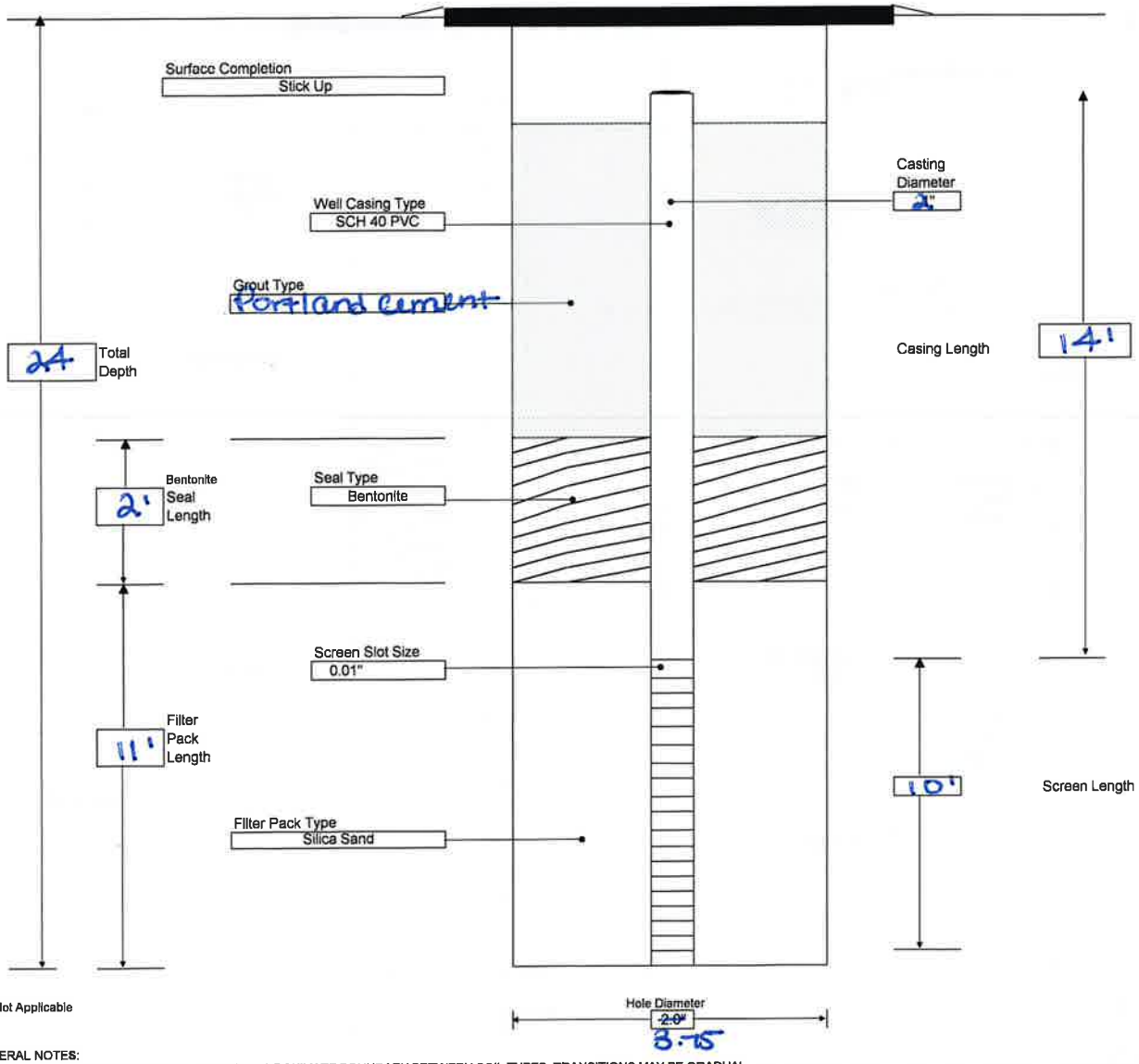
Well ID: MW-16
SHEET 1 OF 1
JOB # 217 1946
CHKD. BY: JD

CONTRACTOR: LaBella LLC
DRILLER: D. Hitchcock
LABELLA REPRESENTATIVE: S. Dalton

BORING LOCATION: SB-MW-16
GROUND SURFACE ELEVATION: DATUM: Top of Riser
START DATE: 8/9/19 END DATE: 8/9/19

TYPE OF DRILL RIG:
AUGER SIZE AND TYPE: 2 inch Direct Push
OVERBURDEN SAMPLING METHOD: 4-foot MacroCore® sampler
ROCK DRILLING METHOD: N/A

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS



NA-Not Applicable

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

APPENDIX 4

Excavation Work Plan

APPENDIX 4 – EXCAVATION WORK PLAN (EWP)

4-1 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 4-1 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 Appendix 2.

Table 4-1: Notifications*

[Central Office NYSDEC Representative]	[phone] [email address]
Mr. David Locey, Regional Office NYSDEC Representative	716-851-7220 david.locey@dec.ny.gov
Kelly Lewandowski, NYSDEC Chief, Site Control Section	518-402-9553 kelly.lewandowski@dec.ny.gov

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

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 soil 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 5 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.

4-2 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 issuance of the COC.

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 Section 4-6 and 4-7 of this Appendix.

4-3 SOIL STAGING METHODS

Soil/fill materials not direct-loaded onto trucks for off-site disposal will be stockpiled as follows:

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales 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. 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.

4-4 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 remedial party (if applicable) 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).

A truck wash will be operated on-site, as appropriate. 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.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

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.

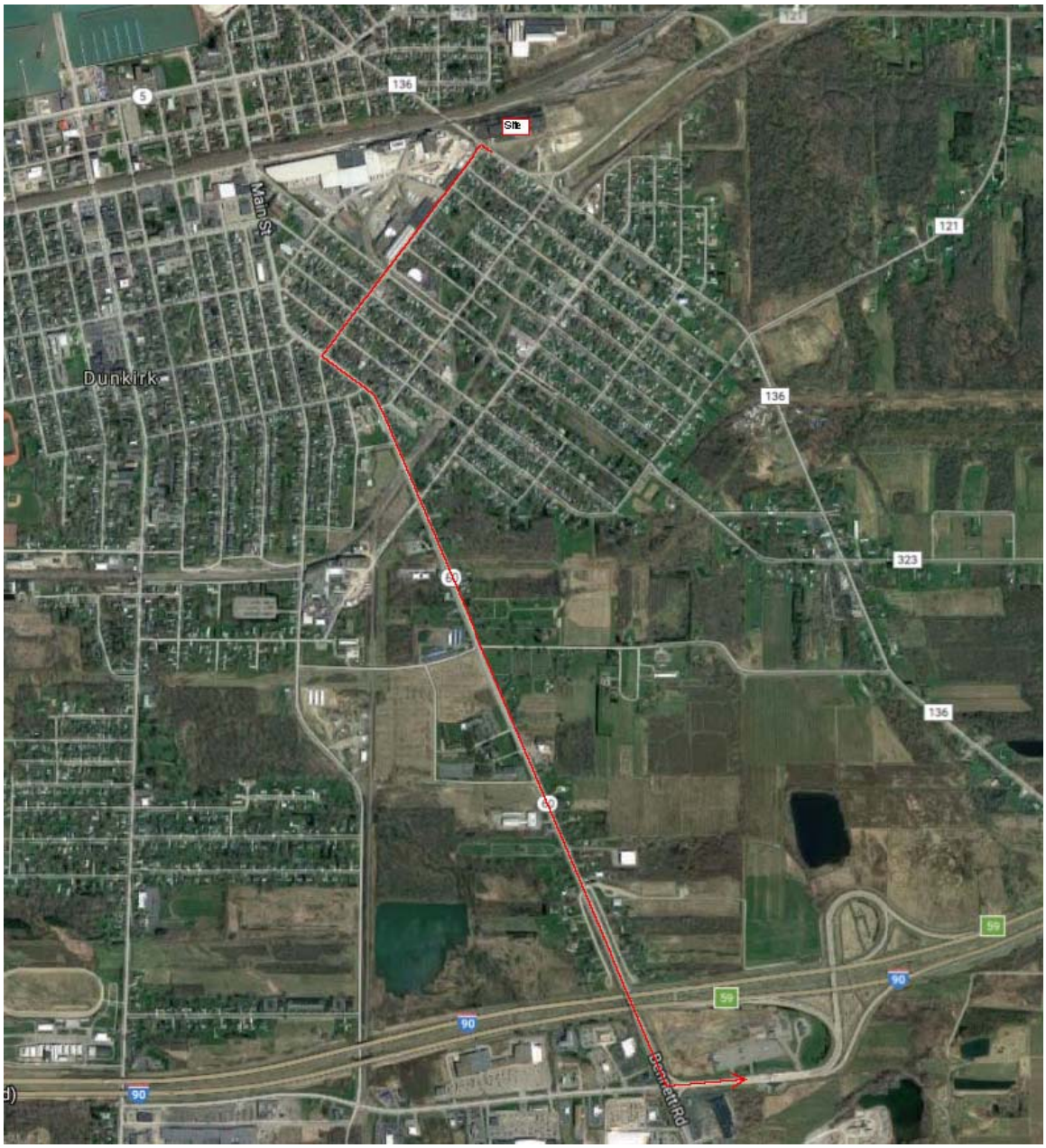
4-5 MATERIALS TRANSPORT OFF-SITE

All transport of 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.

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: Upon exiting the Site trucks shall travel northwest on South Roberts Road to E. Talcott Street, southwest on E. Talcott Street to Maple Avenue (NY-60), southeast on Maple Avenue (NY-60), Maple Avenue (NY-60) turns into Lamphere Street (NY-60), Lamphere Street (NY-60) turns into Bennett Road (NY-60), Bennett Road to NYS Thruway (I-90) ramp, and east on NYS Thruway (I-90) ramp.

Figure 4-1: Truck Transport Route



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.

4-6 MATERIALS DISPOSAL OFF-SITE

All 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 (including 6NYCRR Part 360) 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.

Off-site disposal locations for excavated soils 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 recycling 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, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

4-7 MATERIALS REUSE ON-SITE

Soil/fill material originating on the Site may be reused on the Site provided that the material does not exhibit visual or olfactory evidence of contamination and PID measurements of the atmosphere at the soil/fill interface do not exceed 5 parts per million above background levels.

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 or impervious surface, 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.

4-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge, and development water verified to be visually free of any product, non-aqueous phase liquid, odor, or other visual indications of impact, may be discharged on-site to the ground surface, with prior NYSDEC approval.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

4-9 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 Record of Decision. The existing cover system is comprised of a minimum of 12 inches of clean soil, asphalt pavement, concrete covered sidewalks and concrete building, etc. The demarcation layer, consisting of orange snow fencing material or equivalent material will be replaced 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. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

4-10 BACKFILL FROM OFF-SITE SOURCES

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.

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). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality

standards are listed in the following table. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, 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.

For each source of backfill that is imported to the Site, one of the following will be completed prior to importing the backfill.

a. Documentation will be provided to NYSDEC as to the source of the material and the consistency of the material in accordance with the exemption for no chemical testing listed in DER-10 Section 5.4(e)(5); **OR**
b. Chemical testing will be completed in accordance with the following table:

Recommended Number of Soil Samples for Soil Imported To or Exported From a Site			
Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Taken from DER-10 - Table 5.4(e)10

In the event that laboratory analytical testing is conducted, the results for each new source of fill must meet the values provided in Appendix 5 of DER-10 for Commercial Use and must receive approval by the NYSDEC.

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.

4-11 STORMWATER POLLUTION PREVENTION

For large excavations, but less than 1 acre, procedures for stormwater pollution prevention as specified in the EWP should be followed. For construction projects exceeding 1 acre, a. separate submission to NYSDEC will be required (i.e., State Pollution Discharge Elimination System (SPDES) Permit for Stormwater Pollution Prevention during construction activities.)

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 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.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

4-12 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.

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 ((Target Analyte List) 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.

4-13 COMMUNITY AIR MONITORING PLAN

The CAMP requires real-time monitoring for VOCs and particulates (i.e., dust) at the Site property boundary downwind of each designated work area when intrusive and certain non-intrusive activities are in progress at contaminated sites. All monitoring will be conducted in accordance with the Site-Specific CAMP included as Appendix 6 of the SMP.

A figure showing the location of air sampling stations based on generally prevailing wind conditions is shown in Figure 11. 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.

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

4-14 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 screening excavated soils with a PID and storage of soils with PID readings in excess of 100 parts per million (ppm) beneath tarps or possibly within an enclosed container. 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 PRR.

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.

4-15 DUST CONTROL PLAN

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 dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

4-16 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 5

Health and Safety Plan

Site Health and Safety Plan

Location:

Former Edgewood Warehouse Site
320 South Roberts Road
Dunkirk, New York
NYSDEC BCP Site #C907032

Prepared for:

320 Roberts Road Freezer, LLC
4 Centre Drive
Orchard Park, New York 14127

LaBella Project No. 2171946

July 2019

Olympic Towers, 300 Pearl Street, Suite 130 | Buffalo, NY 14202 | p 716-551-6281 | f 716-551-6282
www.labellapc.com

TABLE OF CONTENTS

SITE HEALTH AND SAFETY PLAN

Project Title:	Former Edgewood Warehouse Site – Site Management Plan
Project Location (Site):	320 South Roberts Road, Dunkirk, New York
Environmental Director:	Rob Napieralski (LaBella Associates D.P.C.)
Project Manager:	Andrew Benkleman (LaBella Associates D.P.C.)
Plan Review Date:	July 29, 2019
Plan Approval Date:	July 29, 2019
Plan Approved By:	Richard Rote, CIH (LaBella Associates D.P.C.)
Site Safety Supervisor:	Andrew Benkleman (LaBella Associates D.P.C.)
Site Contact:	Patrick Sheedy (320 Roberts Road Freezer LLC)
Safety Director:	Richard Rote, CIH (LaBella Associates D.P.C.)
Proposed Date(s) of Field Activities:	N/A
Site Conditions:	Relatively flat site, encompassing approximately 8.6 acres, developed with a 71,000 square foot cold storage facility.
Site Environmental Information Provided By:	Remedial Investigation, prepared by TVGA Consultants, dated May 2009.
Air Monitoring Provided By:	LaBella Associates D.P.C.
Site Control Provided By:	Contractor(s)

EMERGENCY CONTACTS

	Name	Phone Number
Ambulance:	As Per Emergency Service	911
Hospital Emergency:	Brooks Memorial Hospital	716-366-1111
Poison Control Center:	National Poison Control Center (serving Buffalo Area)	1-800-222-1222
Police (local, state):	Police Dunkirk Police	911 716-366-2266
Fire Department:	Dunkirk Fire Department	911
Site Contact:	Patrick Sheedy (320 Roberts Road Freezer LLC)	716-667-1234
Agency Contact:	David Locey (NYSDEC)	716-851-7220
Environmental Director:	Rob Napieralski (LaBella Associates D.P.C.)	Direct: 716-551-6283
Project Manager:	Andrew Benkleman (LaBella.)	Direct: 716-768-3184
Site Safety Supervisor:	Andrew Benkleman (LaBella.)	Direct: 716-768-3184
Safety Director	Richard Rote, CIH (LaBella Associates D.P.C.)	Direct: 704-941-2123

MAP AND DIRECTIONS TO THE MEDICAL FACILITY: BROOKS MEMORIAL HOSPITAL

320 S Roberts Rd
Dunkirk, NY 14048

1.	Head southwest toward E Courtney St	0.1 mi
2.	Keep right to continue toward County Touring Rte 81/S Roberts Rd	331 ft
3.	Slight right onto County Touring Rte 81/S Roberts Rd	0.1 mi
4.	Turn left onto Talcott St	0.5 mi
5.	Turn right onto Maple Ave	348 ft
6.	Turn left onto E 6th St	0.3 mi
7.	Turn right onto Central Ave Destination will be on the left	262 ft

Brooks Memorial Hospital
529 Central Ave, Dunkirk, NY 14048

1.0 INTRODUCTION

The purpose of this Health and Safety Plan (HASP) is to provide guidelines for responding to potential health and safety issues that may be encountered during future excavation work for the Project Site located at 320 South Roberts Road in the City of Dunkirk, Chautauqua County, New York. This document's project specifications and the Site-Specific Community Air Monitoring Plan are to be consulted for guidance in preventing and quickly abating any threat to human safety or the environment. The provisions of the HASP were developed in general accordance with 29 CFR 1910 and 29 CFR 1926 and do not replace or supersede any regulatory requirements of the USEPA, NYSDEC, OSHA or and other regulatory body. Furthermore, should the nature of the field activities and/or the site conditions warrant modifications or additions to this HASP, an addendum shall be prepared and issued by a qualified health and safety professional.

2.0 RESPONSIBILITIES

This HASP presents guidelines to minimize the risk of injury to project personnel, and to provide rapid response in the event of injury. The HASP is applicable only to activities of personnel implementing the SMP. It is the responsibility of said persons to follow the requirements of this HASP, and all applicable safety procedures. The Project Manager shall implement the provisions of this HASP for the duration of the applicable activities.

3.0 ACTIVITIES COVERED

The activities covered under this HASP include the following:

- Management of remediation activities
- Environmental monitoring
- Management of excavated soil and fill
- Management of groundwater, surface water, and excavation water
- Installation of engineering controls (i.e., site cover)

4.0 WORK AREA ACCESS AND SITE CONTROLS

The contractor(s) will have primary responsibility for work area access and site control.

5.0 POTENTIAL HEALTH AND SAFETY HAZARDS

This section lists some potential health and safety hazards that project personnel may encounter at the Project Site and some actions to be implemented by approved personnel to control and reduce the associated risk to health and safety. This is not intended to be a complete listing of any and all potential health and safety hazards. New or different hazards may be encountered as site environmental and site work conditions change. The suggested actions to be taken under this plan are not to be substituted for good judgment on the part of project personnel. At all times, the Site Safety Officer has responsibility for site safety and his or her instructions must be followed.

5.1 Hazards Due to Heavy Machinery

Potential Hazard:
Heavy machinery including trucks, excavators, backhoes, etc. will be in operation at the Project Site. The presence of such equipment presents the danger of being struck or crushed. Use caution when working near heavy machinery.

Protective Action:
Make sure that operators are aware of your activities, and heed operator's instructions and warnings. Wear bright colored clothing and walk safe distances from heavy equipment. A hard hat, safety glasses, and steel toe shoes are required.

5.2 Excavation Hazards

Potential Hazard:
Excavations and trenches can collapse, causing injury or death. Edges of excavations can be unstable and collapse. Toxic and asphyxiant gases can accumulate in confined spaces and trenches. Excavations that require working within the excavation will require air monitoring in the breathing zone (refer to Section 9.0).

Excavations left open create a fall hazard which can cause injury or death.

Protective Action:
Personnel must receive approval from the Project Manager to enter an excavation for any reason. Subsequently, approved personnel are to receive authorization for entry from the Site Safety Officer. Approved personnel are not to enter excavations over 4 feet in depth unless excavations are adequately sloped. Additional personal protective equipment may be required based on the air monitoring.

Personnel should exercise caution near all excavations at the Project Site as it is expected that excavation sidewalls will be unstable. The contractor will be responsible to ensure that all excavations are left in a safe condition.

Fencing and/or barriers accompanied by "no trespassing" signs should be placed around all excavations when left open for any period of time when work is not being conducted.

5.3 Cuts, Punctures, and Other Injuries

Potential Hazard:
In any excavation or construction work site there is the potential for the presence of sharp or jagged edges on rock, metal materials, and other sharp objects. Serious cuts and punctures can result in loss of blood and infection.

Protective Action:
The Project Manager is responsible for making First Aid supplies available at the work site to treat minor injuries. The Site Safety Officer is responsible for arranging the transportation of authorized on-site personnel to medical facilities when First Aid treatment in not sufficient. Do not move seriously injured workers. All injuries requiring treatment are to be reported to the Project Manager. Serious injuries are to be reported immediately to the Site Safety Officer.

5.4 Injury Due to Exposure of Chemical Hazards

Potential Hazards:
Volatile organic vapors from petroleum products, chlorinated solvents or other chemicals may be encountered during excavation activities at the Project Site. Inhalation of high concentrations of organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause irritation, chemical burn, or dermatitis.

Protective Action:
The presence of organic vapors may be detected by their odor and by monitoring instrumentation. Approved employees will not work in environments where hazardous concentrations of organic vapors are present. Air monitoring (refer Section 9.0 and to the Site-Specific Community Air Monitoring Plan in Appendix 6 of the SMP) of the work area will be performed at least every 60 minutes or more often using a Photoionization Detector (PID). Personnel are to leave the work area whenever PID measurements of ambient air exceed 25 ppm consistently for a 5 minute period. In the event that sustained total volatile organic compound (VOC) readings of 25 ppm is encountered personnel should upgrade personal protective equipment to Level C (refer to Section 8.0) and an Exclusion Zone should be established around the work area to limit and monitor access to this area (refer to Section 6.0).

5.5 Injury Due to Extreme Hot or Cold Weather Conditions

Potential Hazards:
Extreme hot weather conditions can cause heat exhaustion, heat stress and heat stroke or extreme cold weather conditions can cause hypothermia.

Protective Action:
Precaution measures should be taken such as dress appropriately for the weather conditions and drink plenty of fluid. If personnel should suffer from any of the above conditions, proper techniques should be taken to cool down or heat up the body and taken to the nearest hospital if needed.

6.0 WORK ZONES

In the event that conditions warrant establishing various work zones (i.e., based on hazards - Section 5.0), the following work zones should be established:

Exclusion Zone (EZ):
The EZ will be established in the immediate vicinity and adjacent downwind direction of site activities that elevate breathing zone VOC and/or dust concentrations to unacceptable levels based on field screening. These site activities include contaminated soil excavation and soil sampling activities. If access to the site is required to accommodate non-project related personnel then an EZ will be established by constructing a barrier around the work area (yellow caution tape and/or construction fencing). The EZ barrier shall encompass the work area and any equipment staging/soil staging areas necessary to perform the associated work. The contractor(s) will be responsible for establishing the EZ and limiting access to approved personnel. Depending on the condition for establishing the EZ, access to the EZ may require adequate PPE (e.g., Level C).

Contaminant Reduction Zone (CRZ):
The CRZ will be the area where personnel entering the EZ will don proper PPE prior to entering the EZ and the area where PPE may be removed. The CRZ will also be the area where decontamination of equipment and personnel will be conducted as necessary.

7.0 DECONTAMINATION PROCEDURES

Upon leaving the work area, approved personnel shall decontaminate footwear as needed. Under normal work conditions, detailed personal decontamination procedures will not be necessary. Work clothing may become contaminated in the event of an unexpected splash or spill or contact with a contaminated substance. Minor splashes on clothing and footwear can be rinsed with clean water. Heavily contaminated clothing should be removed if it cannot be rinsed with water. Personnel assigned to this project should be prepared with a change of clothing whenever on site.

Personnel will use the contractor's disposal container for disposal of PPE.

8.0 PERSONAL PROTECTIVE EQUIPMENT

Generally, Project Site conditions at this work site require level of protection of Level D or modified Level D. However, air monitoring will be conducted to determine if up-grading to Level C PPE is required (refer to Section 9.0). Descriptions of the typical safety equipment associated with Level D and Level C are provided below:

Level D:
Hard hat, safety glasses, rubber nitrile sampling gloves, steel toe construction grade boots, etc.

Level C:
Level D PPE and full or ½-face respirator and tyvek suit (if necessary). [*Note: Organic vapor cartridges are to be changed after each 8 hours of use or more frequently.*]

9.0 AIR MONITORING

According to 29 CFR 1910.120(h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection required for personnel working onsite. Air monitoring will consist at a minimum of the procedures described in LaBella's Site-Specific Community Air Monitoring Plan.

The Air Monitor will utilize a PID to screen the ambient air in the work areas for total VOCs and a DustTrak tm Model 8520 aerosol monitor or equivalent for measuring particulates. Work area ambient air will generally be monitored in the work area and downwind of the work area. Air monitoring of the work areas and downwind of the work areas will be performed at least every 60 minutes or more often using a PID, and the DustTrak meter.

If sustained PID readings of greater than 25 ppm are recorded in the breathing zone, then either personnel are to leave the work area until satisfactory readings are obtained or approved personnel may re-enter the work areas wearing at a minimum a ½ face respirator with organic vapor cartridges for an 8-hour duration (i.e., upgrade to Level C PPE). Organic vapor cartridges are to be changed

after each 8 hours of use or more frequently, if necessary. If PID readings are sustained, in the work area, at levels above 25 ppm for a 5 minute average, work will be stopped immediately until safe levels of VOCs are encountered or additional PPE will be required (i.e., Level B).

If dust concentrations exceed the upwind concentration by 150 µg/m^3 (0.15 mg/m^3) consistently for a 10 minute period within the work area or at the downwind location, then personnel may not re-enter the work area until dust concentrations in the work area decrease below 150 µg/m^3 (0.15 mg/m^3), which may be accomplished by the construction manager implementing dust control or suppression measures.

If ground intrusive activities are conducted at more than one location simultaneously, additional upwind and downwind perimeter sampling will be completed to comply with the intent of the Site-Specific Community Air Monitoring Plan.

10.0 EMERGENCY ACTION PLAN

In the event of an emergency, employees are to turn off and shut down all powered equipment and leave the work areas immediately. Employees are to walk or drive out of the Site as quickly as possible and wait at the assigned 'safe area'. Follow the instructions of the Site Safety Officer.

Employees are not authorized or trained to provide rescue and medical efforts. Rescue and medical efforts will be provided by local authorities.

11.0 MEDICAL SURVEILLANCE

Medical surveillance will be provided to all employees who are injured due to overexposure from an emergency incident involving hazardous substances at this site.

12.0 EMPLOYEE TRAINING

Personnel who are not familiar with this site plan will receive training on its entire content and organization before working at the Site.

Individuals involved with the field activities related to the implementation of the SMP must be 40-hour OSHA HAZWOPER trained with current 8-hour refresher certification.

APPENDIX 6

Community Air Monitoring Plan

Site-Specific Community Air Monitoring Plan

Location:

Former Edgewood Warehouse Site
320 South Roberts Road
Dunkirk, New York
NYSDEC BCP Site #C907032

Prepared for:

320 Roberts Road Freezer, LLC
4 Centre Drive
Orchard Park, New York 14127

LaBella Project No. 2171946

July 2019

Olympic Towers, 300 Pearl Street, Suite 130 | Buffalo, NY 14202 | p 716-551-6281 | f 716-551-6282
www.labellapc.com

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List of Attachments

Attachment 1: NYSDOH Community Air Monitoring Plan
Attachment 2: NYSDEC Fugitive Dust and Particulate Monitoring Plan

1.0 INTRODUCTION

The purpose of this Site-Specific Community Air Monitoring Plan (SSCAMP) is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases related to future excavation activities at the Site located at 320 South Roberts Road in the City of Dunkirk, Chautauqua County, New York. This SSCAMP is not intended for use in establishing action levels for worker respiratory protection.

This SSAMP requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust), at the downwind perimeter of each designated work area when certain activities are in progress at the Site. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the SSAMP will help to confirm that work activities have not spread contamination off-site through the air.

2.0 RESPONSIBILITIES

This SSAMP is applicable to the remedial and redevelopment activities of contractors, engineers, consultants, facility employees, and their authorized visitors. The Project Engineer shall implement the provisions of this SSAMP for the duration of the project. It is the responsibility of all remedial and redevelopment workers to follow the requirements of this SSAMP, and all applicable air safety procedures.

3.0 ACTIVITIES COVERED

The activities covered under this SSAMP include the following:

- Environmental monitoring
- Management of excavated soil and fill
- Management of groundwater, surface water, and excavation water

4.0 WORK AREA ACCESS AND SITE CONTROLS

The contractor(s) will have primary responsibility for work area access and site control.

5.0 VOLATILE ORGANIC COMPOUND MONITORING

Monitoring for volatile organic compounds (VOCs) will be implemented in accordance with the New York State Department of Health Generic Community Air Monitoring Plan, which is included in Attachment 1.

6.0 PARTICULATE MONITORING

Monitoring for dust will be implemented in accordance with the New York State Department of Health Generic Community Air Monitoring Plan (Attachment 1) as well as NYSDEC's Fugitive Dust and Particulate Monitoring (Attachment 2).

J:\THE KROG GROUP\2171946 - FORMER EDGEWOOD WAREHOUSE\REPORTS\SMP\DRAFT APPENDICES\SUPPORTING DOCUMENTS\APPENDIX 6_SITE SPECIFIC COMMUNITY AIR MONITORING PLAN.DOCX

ATTACHMENT 1

NYSDOH Community Air Monitoring Plan

Attachment 1
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

ATTACHMENT 2

NYSDEC Fugitive Dust and Particulate Monitoring Plan

Attachment 2
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX 7

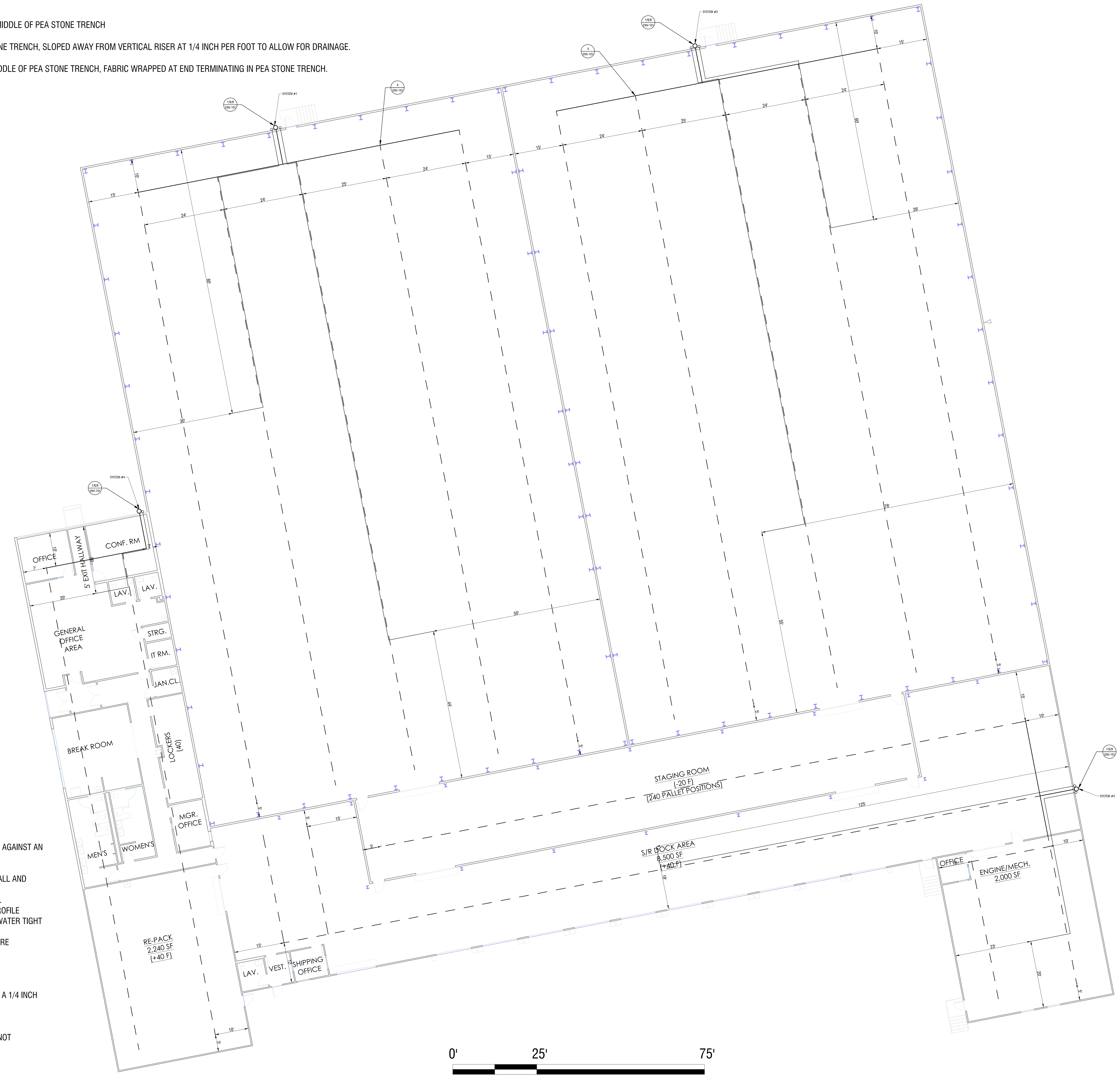
As-Built Drawings

LEGEND

- - - - - - FABRIC WRAPPED 4 INCH HDPE PERFORATED PIPE PLACED WITHIN MIDDLE OF PEA STONE TRENCH

——— 4 INCH SOLID SCH 40 PVC PIPE PLACED WITHIN MIDDLE OF PEA STONE TRENCH, SLOPED AWAY FROM VERTICAL RISER AT 1/4 INCH PER FOOT TO ALLOW FOR DRAINAGE.

——— 1/4 INCH STAINLESS STEEL MONITORING POINTS PLACED WITHIN MIDDLE OF PEA STONE TRENCH, FABRIC WRAPPED AT END TERMINATING IN PEA STONE TRENCH.



NOTES:

1. 1/4 INCH STAINLESS STEEL MONITORING POINTS MOUNTED APPROXIMATELY 3 FEET ABOVE FINAL GROUND SURFACE AGAINST AN EXTERIOR WALL. REFER TO DETAIL 1: PROFILE AT MONITORING POINT.
2. 1/4 STAINLESS STEEL TUBING TERMINATED IN MIDDLE OF SUBBASE STONE WITH FABRIC WRAPPED END.
3. 4 INCH SCHEDULE 40 PVC RISER LOCATED 6 INCHES FROM WALL AND VENTED UP ALONG THE EXTERIOR OF THE WALL AND TERMINATED AT LEAST 10 FEET ABOVE THE GROUND SURFACE. REFER TO DETAIL 8: RISER PROFILE.
4. 4 INCH SCHEDULE 40 PVC TO 4 INCH HDPE PERFORATED PIPE CONNECTION. REFER TO DETAIL 4: DETAIL AT HEADER.
5. 4 INCH HDPE PIPE WRAPPED IN FABRIC AND PLACED IN PEA STONE TRENCH. REFER TO DETAIL 7 & 10: MATERIAL PROFILE
6. 4 INCH SOLID PVC EXTENDING MINIMUM 2 FEET ON INTERIOR OF FOUNDATION WALL, GROUTED IN PLACE TO FORM WATER TIGHT CONNECTION. REFER TO DETAIL 6: TYPICAL HORIZONTAL PIPE PENETRATION.
7. PIPING MOVED AS NEEDED IN FIELD TO AVOID PLUMBING. CONTACT ENGINEER TO CONFIRM PIPING MODIFICATIONS ARE ACCEPTABLE.
8. INSTALLED 4" CAP AT EACH VAPOR COLLECTION PIPE TERMINATION.
9. ALL SUB-SLAB VAPOR COLLECTION PIPING IS GEOTEXTILE-WRAPPED 4 INCH PERFORATED CORRUGATED HDPE.
10. HEADER PIPING SHOWN IS 4 INCH SCHEDULE 40 PVC.
11. PEA STONE SHALL CONSIST OF WASHED MATERIAL THAT WILL PASS THROUGH A 2 INCH SIEVE AND BE RETAINED BY A 1/4 INCH SIEVE.
12. SEALED ALL PENETRATIONS AND GAPS WITH AN ELASTOMERIC JOINT SEALANT.
13. THIS DRAWING IS NOT TO INTENDED TO PROVIDE STRUCTURAL INFORMATION. REFER TO STRUCTURAL DRAWINGS.
14. SYSTEM INSTALLED AS PASSIVE. FANS WILL BE INSTALLED AND THE SYSTEM MADE ACTIVE IF PASSIVE SYSTEM IS NOT EFFECTIVE IN MITIGATING VAPOR INTRUSION INTO THE BUILDING.

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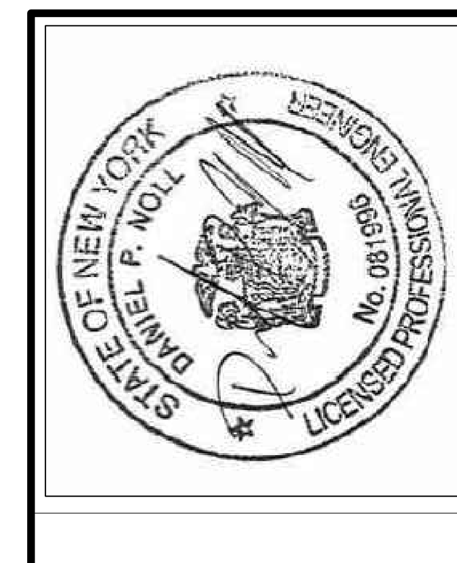

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PROJECT/CLIENT

FORMER EDGEWOOD WAREHOUSE SITE
NYSDEC BCP #C907032

320 SOUTH ROBERTS ROAD
CHAUTAUQUA COUNTY
DUNKIRK, NY

DRAWING TITLE

SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT AS BUILT

ISSUED FOR

DESIGNED BY: AB
DRAWN BY: AB
REVIEWED BY: DN

DATE: SEPTEMBER, 2019

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PROJECT/DRAWING NUMBER

2171946

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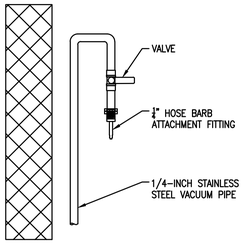
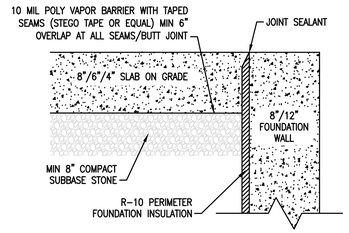
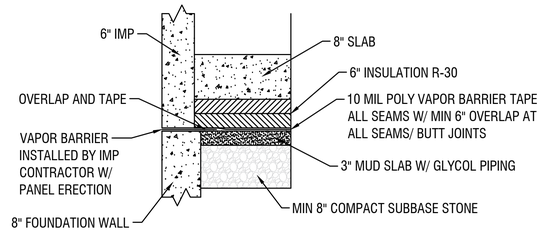


1 PROFILE AT MONITORING POINT
SCALE: NONE



VAPOR BARRIER END DETAIL: NON–FREEZER AREA
2 SCALE: NONE



3 VAPOR BARRIER EDGE DETAIL AT FREEZER
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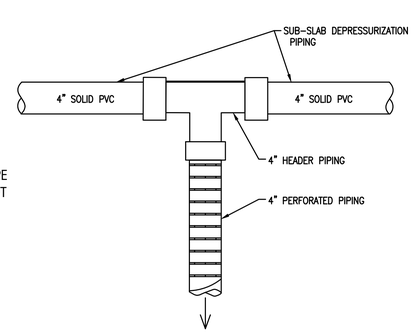

4 DETAIL AT HEADER
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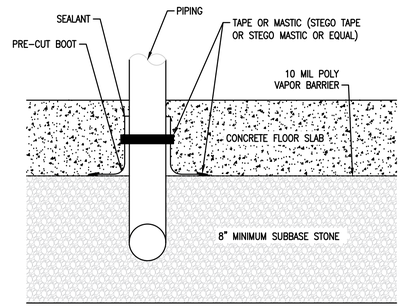

NOTES:
1. SEAL ALL PENETRATIONS AND GAPS WITH AN ELASTOMERIC JOINT SEALANT.

5 TYPICAL VERTICAL PIPE PENETRATION
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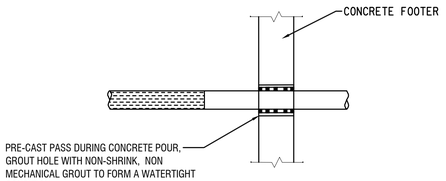

6 TYPICAL HORIZONTAL PIPE PENETRATION
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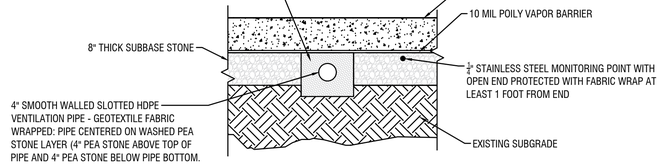

NOTES:
1. PERFORATED CAP AT EACH VAPOR COLLECTION PIPE TERMINATION.
2. ALL SOLID PIPING SLOPED FROM RISER PIPE BACK TOWARDS PERFORATED PIPING 1/4-INCH PER FOOT TO ALLOW FOR DRAINAGE.
3. PEA STONE CONSISTS OF WASHED MATERIAL THAT WILL PASS THROUGH A 2-INCH SIEVE AND BE RETAINED BY A 1/4-INCH SIEVE.

7 MATERIAL PROFILE: NON–FREEZER FLOOR AREA
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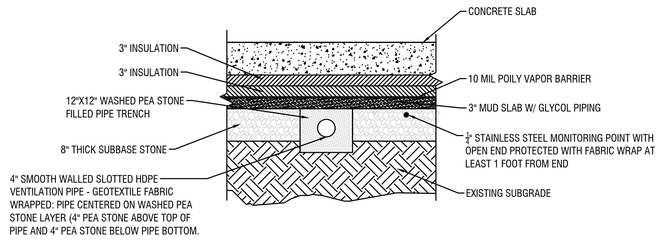
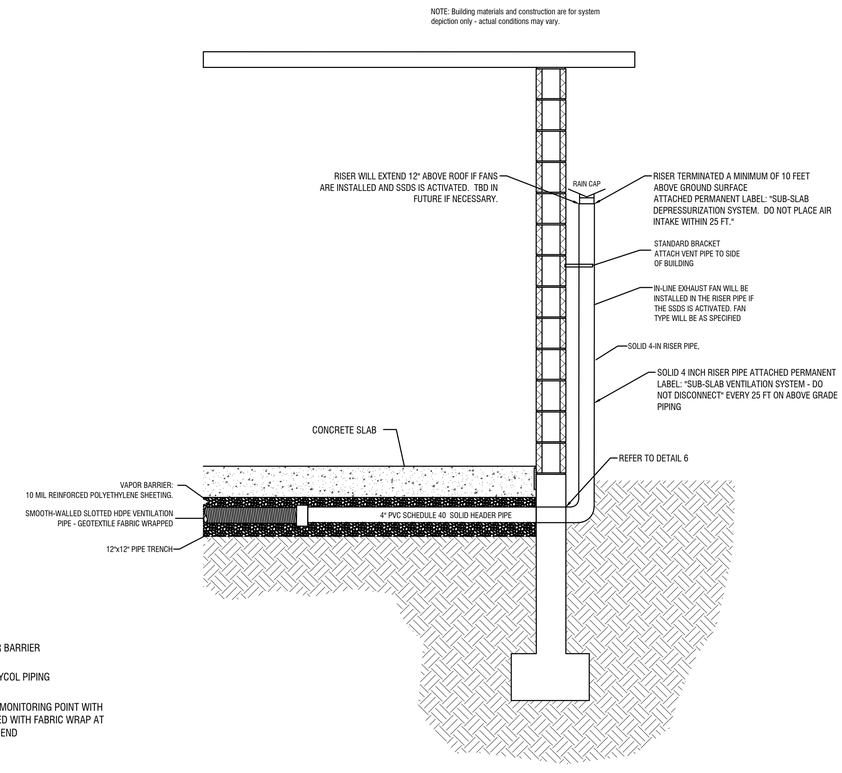


NOTES:
1. PERFORATED CAP AT EACH VAPOR COLLECTION PIPE TERMINATION.
2. ALL SOLID PIPING SLOPED FROM RISER PIPE BACK TOWARDS PERFORATED PIPING 1/4-INCH PER FOOT TO ALLOW FOR DRAINAGE.
3. PEA STONE CONSISTS OF WASHED MATERIAL THAT WILL PASS THROUGH A 2-INCH SIEVE AND BE RETAINED BY A 1/4-INCH SIEVE.

10 MATERIAL PROFILE: FREEZER FLOOR AREA
SCALE: NONE

NOTE: Building materials and construction are for system depiction only - actual conditions may vary.



NOTE:
1. REFER TO OTHER DRAWINGS FOR SLAB, FOOTER, WALL AND ROOF DETAILS.

8 RISER PROFILE
SCALE: NONE

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STATE OF NEW YORK — DANIEL P. NOLL — No. 093180 — LICENSED PROFESSIONAL ENGINEER

LaBella Powered by partnership.
Contractors Engineers Developers

The Krog Group
4 Centre Drive, Orchard Park, New York 14127
716-667-1324 Fax: 667-1326

PROJECT/CLIENT
FORMER EDGEWOOD WAREHOUSE SITE
NYSDEC BCP #C907032
320 SOUTH ROBERTS ROAD
CHAUTAUQUA COUNTY
DUNKIRK, NY

DRAWING TITLE
SUB-SLAB DEPRESSURIZATION SYSTEM AS BUILT DETAILS

ISSUED FOR:
DESIGNED BY: AB
DRAWN BY: AB
REVIEWED BY: DN
DATE: SEPTEMBER 2019

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PROJECT/DRAWING NUMBER
2171946

ENV-101

APPENDIX 8

Quality Assurance Project Plan

Quality Assurance Project Plan (QAPP)

Location:

Former Edgewood Warehouse Site
320 South Roberts Road
Dunkirk, New York
NYSDEC Site #E907032

Prepared For:

320 Roberts Road Freezer, LLC
4 Centre Drive
Orchard Park, New York 14127

LaBella Project No. 2171946

July 2019

Olympic Towers, 300 Pearl Street, Suite 130 | Buffalo, NY 14202 | p 716-551-6281 | f 716-551-6282
www.labellapc.com

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1.0 Introduction

LaBella's Quality Assurance Project Plan (QAPP) is an integral part of its approach to environmental investigations. By maintaining a rigorous Quality Control (QC) program, our firm is able to provide accurate and reliable data. QC also provides safe working conditions for all on-Site workers.

The QAPP contains procedures which allow for the proper collection and evaluation of data and documents that QAPP procedures have been followed during field investigations. The QAPP presents the methodology and measurement procedures used in collecting quality field data. This methodology includes the proper use of equipment, documentation of sample collection, and sample handling procedures.

Procedures used in the firm's QC program are compatible with federal, state, and local regulations, as well as, appropriate professional and technical standards.

This QAPP has been organized into the following areas:

- QC Objectives and Checks
- Field Equipment, Handling, and Calibration
- Sampling Techniques
- Sample Handling and Packaging

It should be noted that project-specific work plans (e.g., Site Management Plan, Remedial Investigation Work Plans) may have project specific details that will differ from the procedures in this QAPP. In such cases, the project-specific work plan should be followed (subsequent to regulatory approval).

2.0 Quality Control Objectives

The United States Environmental Protection Agency (EPA) has identified five general levels of analytical data quality as being potentially applicable to site investigations conducted under CERCLA. These levels are summarized below:

- **Level I** - Field screening. This level is characterized by the use of portable instruments, which can provide real-time data to assist in the optimization of sampling point locations and for health and safety support. Data can be generated regarding the presence or absence of certain contaminants (especially volatiles) at sampling locations.
- **Level II** - Field analysis. This level is characterized by the use of portable analytical instruments, which can be used on site or in mobile laboratories stationed near a site (close-support labs). Depending upon the types of contaminants, sample matrix, and personnel skills, qualitative and quantitative data can be obtained.

- **Level III** - Laboratory analysis using methods other than the Contract Laboratory Program (CLP) Routine Analytical Services (RAS). This level is used primarily in support of engineering studies using standard EPA-approved procedures. Some procedures may be equivalent to CLP RAS, without the CLP requirements for documentation.
- **Level IV** - CLP Routine Analytical Services. This level is characterized by rigorous QC protocols and documentation and provides qualitative and quantitative analytical data. Some regions have obtained similar support via their own regional laboratories, university laboratories, or other commercial laboratories.
- **Level V** - Non-standard methods. Analyses, which may require method modification and/or development. CLP Special Analytical Services (SAS) are considered Level V.

Unless stated otherwise, all data will be generated in accordance with Level IV. When CLP methodology is not available, federal and state approved methods will be utilized. Level III will be utilized, as necessary, for non-CLP RAS work which may include ignitability, corrosivity, reactivity, EP toxicity, and other state approved parameters for characterization. Level I will be used throughout the RI for health and safety monitoring activities.

All measurements will be made to provide that analytical results are representative of the media and conditions measured. Unless otherwise specified, all data will be calculated and reported in units consistent with other organizations reporting similar data to allow comparability of data bases among organizations. Data will be reported in micrograms per liter (µg/L) and milligrams (mg)/L for aqueous samples, and µg/ kilogram (kg) and mg/kg (dry weight) for soils, or otherwise as applicable.

The characteristics of major importance for the assessment of generated data are accuracy, precision, completeness, representativeness, and comparability. Application of these characteristics to specific projects is addressed later in this document. The characteristics are defined below.

2.1 Accuracy

Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value and is a measure of bias in the system.

2.2 Precision

Precision is the degree of mutual agreement among individual measurements of a given parameter.

2.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

2.4 Representativeness

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition

Careful choice and use of appropriate methods in the field will ensure that samples are representative. This is relatively easy with water or air samples since these components are homogeneously dispersed. In soil and sediment, contaminants are unlikely to be evenly distributed, and thus it is important for the sampler and analyst to exercise good judgment when removing a sample.

2.5 Comparability

Comparability expresses the confidence with which one data set can be compared to another. The data sets may be inter- or intra- laboratory.

3.0 Measurement of Data Quality

3.1 Accuracy

Accuracy of a particular analysis is measured by assessing its performance with "known" samples. These "knowns" take the form of EPA standard reference materials, or laboratory prepared solutions of target analytes spiked into a pure water or sample matrix. In the case of gas chromatography (GC) or GC/MS (mass spectrometry) analyses, solutions of surrogate compounds are used. These solutions can be spiked into every sample and are designed to mimic the behavior of target analytes without interfering with their determination.

In each case the recovery of the analyte is measured as a percentage, correcting for analytes known to be present in the original sample if necessary, as in the case of a matrix spike analysis. For EPA supplied known solutions, this recovery is compared to the published data that accompany the solution.

For the firm's prepared solutions, the recovery is compared to EPA-developed data or the firm's historical data as available. For surrogate compounds, recoveries are compared to EPA CLP acceptable recovery tables.

If recoveries do not meet required criteria, then the analytical data for the batch (or, in the case of surrogate compounds, for the individual sample) are considered potentially inaccurate. The analyst or his supervisor must initiate an investigation of the cause of the problem and take corrective action. This can include recalibration of the instrument, reanalysis of the QC sample, reanalysis of the samples in the batch, or flagging the data as suspect if the problems cannot be resolved. For highly contaminated samples, recovery of the matrix spike may depend on sample homogeneity. As

a rule, analyses are not corrected for recovery of matrix spike or surrogate compounds.

3.2 Precision

Precision of a particular analysis is measured by assessing its performance with duplicate or replicate samples. Duplicate samples are pairs of samples taken in the field and transported to the laboratory as distinct samples. Their identity as duplicates is typically not known to the laboratory. For most purposes, precision is determined by the analysis of replicate pairs (i.e., two samples prepared at the laboratory from one original sample). Often in replicate analysis the sample chosen for replication does not contain target analytes so that quantitation of precision is impossible. For EPA CLP analyses, replicate pairs of spiked samples, known as matrix spike/matrix spike duplicate samples, are used for precision studies. This has the advantage that two real positive values for a target analyte can be compared.

Precision is calculated in terms of Relative Percent Difference (RPD).

- Where X_1 and X_2 represent the individual values found for the target analyte in the two replicate analyses or in the matrix spike/matrix spike duplicate analyses.
- RPDs must be compared to the method RPD for the analysis. The analyst or his supervisor must investigate the cause of RPDs outside stated acceptance limits. This may include a visual inspection of the sample for non-homogeneity, analysis of check samples, etc. Follow-up action may include sample reanalysis or flagging of the data as suspect if problems cannot be resolved.
- During the data review and validation process, field duplicate RPDs are assessed as a measure of the total variability of both field sampling and laboratory analysis.

3.3 Completeness

Completeness for each parameter is calculated as follows:

- The firm's target value for completeness for all parameters is 100%. A completeness value of 95% will be considered acceptable. Incomplete results will be reported to the site managers. In planning the field sample collection, the site manager will plan to collect field duplicates from identified critical areas. This procedure should assure 100% completeness for these areas.

3.4 Representativeness

The characteristic of representativeness is not quantifiable. Subjective factors to be taken into account are as follows:

- The degree of homogeneity of a site;
- The degree of homogeneity of a sample taken from one point in a site; and
- The available information on which a sampling plan is based.

To maximize representativeness of results, sampling techniques and sample locations will be carefully chosen so that they provide laboratory samples representative of the site and the specific area. Within the laboratory, precautions are taken to extract from the sample bottle an aliquot representative of the whole sample. This includes premixing the sample and discarding pebbles from soil samples.

4.0 Quality Control Targets

Target values for detection limit, percent spike recovery and percent "true" value of known check standards, and RPD of duplicates/replicates are included in the QAPP, Analytical Procedures. Note that tabulated values are not always attainable. Instances may arise where high sample concentrations, non-homogeneity of samples, or matrix interferences preclude achievement of target detection limits or other quality control criteria. In such instances, the firm will report reasons for deviations from these detection limits or noncompliance with quality control criteria.

5.0 Sampling Procedures

This section describes the sampling procedures to be utilized for each environmental medium that will be collected and analyzed in accordance with appropriate state and federal requirements. All procedures described are consistent with EPA sampling procedures as described in SW-846, third edition, September 1986, and subsequent updates. All samples will be delivered to the laboratory and analyzed within the holding times specified by the analytical method.

6.0 Soil & Groundwater Investigation

The groundwater sampling plan outlined in this subsection has been prepared in general accordance with RCRA Groundwater Monitoring Technical Enforcement Guidance Document 9950.1 (September 1986), Office of Solid Waste and Emergency Response.

Prior to drilling, all drill sites will be cleared with appropriate utility companies to avoid potential accidents relating to underground utilities.

6.1 Test Borings and Well Installation

6.1.1 Drilling Equipment

Direct Push Geoprobe Soil Borings:

Soil borings and monitoring wells will be advanced with a Geoprobe direct push sampling system. The use of direct push technology allows for rapid sampling, observation, and characterization of relatively shallow overburden soils. The Geoprobe utilizes a four-foot macrocore sampler, with disposable polyethylene sleeves. Soil cores will be retrieved in four-foot sections, and can be easily cut from the polyethylene sleeves for observation and sampling. The macrocore sampler will be

decontaminated between samples and borings using an alconox and water solution. Any investigative derived waste generated during the advancement of direct-push soil borings and monitoring well installations will be containerized and characterized for proper disposal.

Hollow-Stem Auger Advanced Soil Borings:

The drilling and installation of soil borings and monitoring wells will be performed using a rotary drill rig which will have sufficient capacity to perform 4 1/2-inch inside diameter (ID) hollow-stem auger drilling in the overburden, retrieve Macrocore or split-spoon samples, and perform necessary rock coring to provide a minimum 3-inch diameter core, known in the industry as "NX." The borehole may be reamed to 5 1/2-inch diameter prior to monitoring well installation as cased hole in the bedrock, or may be left as open hole, with regulatory concurrence. Equipment sizes and diameters may vary based on project-specific criteria. Any investigative derived waste generated during the advancement of soil borings and monitoring well installations will be containerized and characterized for proper disposal.

6.1.2 Drilling Techniques

Direct Push Geoprobe Advanced Borings:

Prior to initiating drilling activities, the Geoprobe, Macrocores, drive rods, and pertinent equipment, will be steam cleaned or washed with an alconox and water solution. This cleaning procedure will also be used between each boring. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. All sampling equipment will be steam cleaned or washed with an alconox and water solution upon completion of the investigation and prior to leaving the Site.

Test borings will be advanced with 2-inch (or larger) inside diameter (ID) direct push macrocore through overburden soils. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

It will be the responsibility of the consultant to arrange for the appropriate drilling equipment to be present at the Site. Standby time to arrange for additional equipment or a water supply will not be allowed unless caused by unexpected Site conditions.

During the drilling, a properly calibrated photoionization detector (PID) will be used to screen soil cores retrieved from the Macrocores.

Direct Push Geoprobe advanced groundwater-monitoring wells typically utilize 1.25-inch threaded flush joint PVC pipe with 0.010-in. slotted screen. However, well construction will vary by project and will be specified in the project-specific work plan. PVC piping used for risers and screens will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the

material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well. All risers and screens shall be set round, plumb, and true to line.

Hollow-Stem Auger Advanced Borings:

Prior to initiating drilling activities, the drill rig, augers, rods, Macrocore, split spoons, and/or other pertinent equipment will be steam cleaned or washed with an alconox and water solution. This cleaning procedure will also be used between each boring. These activities will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used. The drilling rig and all equipment will be steam cleaned or washed with an alconox and water solution upon completion of the investigation and prior to leaving the site.

Test borings will be advanced with 4 1/2-inch (ID) hollow stem augers through overburden, and NX-sized diamond core barrels in competent rock, driven by truck-, track-, or trailer-mounted drilling equipment. Alternative methods of drilling or equipment may be allowed or requested for project-specific criteria, but must be approved by the NYSDEC. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

It will be the responsibility of the consultant to arrange for the appropriate drilling equipment to be present at the site. Standby time to arrange for additional equipment or a water supply will not be allowed unless caused by unexpected site conditions.

During the drilling, a (PID) will be used to screen soils retrieved from the split spoons or Macrocores.

Where bedrock wells are required, test borings shall be advanced into rock with NX (or similar) coring tools. Only water from an approved source shall be used in rock coring. The consultant shall monitor and record the petrology, core recovery, fractures, rate of advance, water levels, and water lost or produced in each test boring. The Rock Quality Determination (RQD) value shall be calculated for each 5-foot core. Each core shall be screened with a PID upon extraction to determine proper handling procedure. All core samples shall be retained and stored by the consultant in an approved wooden core box for a period of not less than one year.

The method selected may be percussion or rotary drilling at the option of the subcontractor. The method and equipment selected must be capable of penetrating the bedrock at each well location to a depth required by the work plan and will be selected based on the results of the rock coring performed.

Bedrock well installation will involve construction of a rock socket in the weathered bedrock. The socket will be drilled into the top of rock (typically 1-ft. to 5-ft. into the top of rock) at each bedrock well location to allow a permanent steel casing to be grouted securely in place prior to completion of the well. The purpose for this is to provide a seal at the overburden/bedrock interface and into the upper bedrock surface, to prevent the entrance of overburden water into the bedrock. After the grout and casing have set up for a minimum of 12 hours, the remaining bedrock can be NX (or similar) cored through the steel casing to a depth determined by the project-specific work plan.

Bedrock wells will either be open coreholes in the rock or consist of threaded, flush-joint PVC piping. Construction will vary depending on the project and as such, specific construction of the wells will be detailed in the project-specific work plan. Bedrock wells which do utilized PVC piping for risers and screens will conform to the requirements of ASTM-D 1785 Schedule 40 pipe, and shall bear markings that will identify the material as that which is specified. All materials used to construct the wells will be NSF/ASTM approved.

The well screen slot size will be selected based on the filter pack grain size and the ability to hold back 85 percent or more of the filter pack materials. Screen and riser sections shall be joined by flush-threaded coupling to form watertight unions that retain 100% of the strength of the casing. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated cap or plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well. All risers and screens shall be set round, plumb, and true to line.

6.1.3 Artificial Sand Pack

When utilized, granular backfill will be chemically and texturally clean, inert, siliceous, and of appropriate grain size for the screen slot size and the host environment The sand pack will be installed using a tremie pipe, when possible (i.e., a tremie pipe may not fit into smaller, 2-in. diameter boreholes). When utilized, the well screen and casing will be installed, and the sand pack placed around the screen and casing to a depth extending 2-ft. or at least 25 percent of the screen length above the top of the screen.

An artificial sand pack will not be utilized in bedrock wells without screens (i.e., open borehole wells).

6.1.4 Bentonite Seal

A minimum 2-ft. thick seal of tamped bentonite pellets will be placed directly on top of the sand pack, and care will be taken to avoid bridging. In the event that Site geology does not allow for a 2-ft. seal (e.g., only 1-ft. of space remains between the top of the sand pack and ground surface), the remaining space in the annulus will be filled with bentonite. The seal will be measured immediately after placement, without allowance for swelling.

6.1.5 Grout Mixture

Upon completion of the bentonite seal, the well may be grouted with a non-shrinking cement grout

(e.g., Volclay^{R}) mix to be placed from the top of the bentonite seal to the ground surface. The cement grout shall consist of a mixture of Portland cement (ASTM C 150) and water, in the proportion of not more than 7 gallons of clean water per bag of cement (1 cubic foot or 94 pounds). Additionally, 3% by weight of bentonite powder shall be added, if permitted.

6.1.6 Surface Protection

At all times during the progress of the work, precautions shall be used to prevent tampering with or the entrance of foreign material into the well. Upon completion of the well, a suitable lockable cap shall be installed to prevent material from entering the well. Where permanent wells are to be installed, the well riser shall be protected by a flush mounted road box set into a concrete pad. A concrete pad, sloped away from the well, shall be constructed around the flush mount road box at ground level.

Any well that is to be temporarily removed from service or left incomplete due to delay in construction shall be capped with a watertight cap and equipped with a "vandal-proof" cover, satisfying applicable NYSDEC regulations or recommendations.

6.1.7 Surveying

Coordinates and elevations will be established for each monitoring well and sampling location. Elevations to the closest 0.01 foot shall be used for the survey. These elevations shall be referenced to a regional, local, or project-specific datum. USGS benchmarks will be used whenever available. The location, identification, coordinates, and elevations of the wells will be plotted on maps with a scale large enough to show their location with reference to other structures at each site.

6.1.8 Well Development

After completion of the well, but not sooner than 24 hours after grouting is completed, development will be accomplished using pumping, bailing, or surge blocking. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Development water will be either properly contained and treated as waste until the results of chemical analysis of samples are obtained or discharged on Site as determined by the Site-specific work plans and/or consultation with the NYSDEC representatives on Site.

The development process will continue until a stabilization of pH, specific conductance, temperature, and turbidity (goal of <50 NTUs) of the discharge is achieved for three consecutive intervals following the removal of a minimum of 110% of the water lost during drilling, or three well volumes; whichever is greater. In the event that limited recharge does not allow for the recovery of all drilling water lost in the well or three (3) well volumes, the well will be allowed to stabilize to conditions deemed representative of groundwater conditions. Stabilization periods will vary by project but will be confirmed with the NYSDEC prior to sampling.

7.0 Geologic Logging and Sampling

At each investigative location, borings will be advanced through overburden using either a drill rig and hollow-stem auger or direct push technology. Soils will be evaluated for visual and olfactory evidence of impairment (i.e., staining, odors, and elevated PID readings) by a geologist, engineer or qualified Environmental Professional. Sampling devices will be decontaminated according to procedures outlined in the Decontamination section of this document. When utilized, split-spoon samplers will be driven into the soil using a minimum 140-pound safety hammer and allowed to free-fall 30-inches, in accordance with ASTM-D 1586-84 specifications. The number of blows required to drive the sampler each 6-inches of penetration will be recorded. When required, samples will be stored in glass jars until they are needed for testing or the project is complete.

If hard boulders or bedrock result in auger refusal, rock coring will be used to advance the hole to design depth. If hydrogeologic conditions are favorable for well installation at a depth less than design, the well may be installed at the boring or coring termination depth. In the event that maximum design depth is reached and hydrogeologic conditions are not suitable for well installation, the maximum drilling depth may be revised. Hydrogeologic suitability for well placement will be determined by the supervising geologist, engineer or qualified Environmental Professional in consultation with NYSDEC, based on thickness and estimated hydraulic conductivity of the saturated zone encountered. If necessary, the borehole will be advanced to water or abandoned.

Boulders and bedrock encountered during well installation may be cored by standard diamond-core drilling methods using an "NX" size core barrel. All rock cores recovered will be logged by a geologist, labeled and stored in wooden core boxes. The cores will be stored by the firm until the project is completed or for at least one year. Drilling logs will be prepared by an experienced geologist or engineer, who will be present during all drilling operations. One copy of each field boring and well construction log and groundwater data, will typically be submitted as part of the investigation summary report (e.g., Remedial Investigation Report). The RQD value shall be calculated for each 5-foot section. Information provided in the logs shall include, but not be limited to, the following:

- Date, test hole identification, and project identification;
- Name of individual developing the log;
- Name of driller and assistant(s);
- Drill, make and model, auger size;
- Identification of alternative drilling methods used and justification thereof (e.g., rotary drilling with a specific bit type to remove material from within the hollow stem augers);
- Standard penetration test (ASTM D-1586) blow counts;
- Field diagram of each monitoring well installed with the depth to bottom of screen, top of screen, and pack, bentonite seal, etc.;
- Reference elevation for all depth measurements;
- Depth of each change of stratum;
- Thickness of each stratum;
- Identification of the material of which each stratum is composed, according to the USCS system or standard rock nomenclature, as appropriate;

- Depth interval from which each sample was taken;
- Depth at which hole diameters (bit sizes) change;
- Depth at which groundwater is encountered;
- Depth to static water level and changes in static water level with well depth;
- Total depth of completed well;
- Depth or location of any loss of tools or equipment;
- Location of any fractures, joints, faults, cavities, or weathered zones;
- Depth of any grouting or sealing;
- Nominal hole diameters;
- Amount of cement used for grouting or sealing;
- Depth and type of well casing;
- Description of well screen (to include depth, length, location, diameter, slot sizes, material, and manufacturer);
- Any sealing-off of water-bearing strata;
- Static water level upon completion of the well and after development;
- Drilling date or dates;
- Construction details of well; and
- An explanation of any variations from the work plan.

8.0 Groundwater Sampling Procedures

The groundwater in all new monitoring wells will be allowed to stabilize for at least 24-hours following development. Water levels will be measured to within 0.01 feet prior to purging and sampling. Sampling of each well will typically be accomplished in one of two ways; active or passive.

Active Sampling:

Purging will be completed prior to active sampling. During purging, the following will be recorded in field books or groundwater sampling logs:

- date
- purge start time
- weather conditions
- PID reading immediately after the well cap is removed
- presence of NAPL, if any, and approximate thickness
- pH
- dissolved oxygen
- temperature
- specific conductance
- depth of well
- depth to water
- estimated water volume
- purge end time
- volume of water purged

In general, wells will be purged until the pH, conductivity, temperature, and turbidity of the water being pumped from the well have stabilized with a turbidity goal of 50 NTU. All wells will be purged of at least three well volumes or to dryness.

Passive Sampling:

Groundwater samples will be collected via passive methods (i.e., no-purge) according to the following procedures and in the volumes specified in Table 11-1:

- Samples will be collected via passive diffusion bag (PDB) samplers. PDB samplers are made of low-density polyethylene plastic tubing (typically 4 mil), filled with laboratory grade (ASTM Type II) deionized water and sealed at both ends.
- PDB samplers will only be used to collect groundwater samples which will be analyzed for VOCs.
- PDB samplers will be deployed by hanging in the well at the middle of the well screen unless a low water table, need to deploy multiple samplers or the targeting of a specific depth interval is identified. The PDB samplers will be deployed at least 14 days prior to sampling.
- The PDB samplers will be deployed using a Teflon® coated string or synthetic rope.
- When transferring water from the PDB to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

All groundwater samples and their accompanying QC samples will be run for volatile organic compounds (VOCs) using NYSDEC Analytical Services Protocol (ASP; revised July 2005 and subsequent amendments or revisions).

9.0 Management of Investigative-Derived Waste

Purpose:

The purposes of these guidelines are to ensure the proper holding, storage, transportation, and disposal of materials that may contain hazardous wastes. Investigation-derived waste (IDW) included the following:

- Drill cuttings, discarded soil samples, drilling mud solids, and used sample containers;
- Well development and purge waters and discarded groundwater samples;
- Decontamination waters and associated solids;
- Soiled disposable personal protective equipment (PPE);
- Used disposable sampling equipment;
- Used plastic sheeting and aluminum foil;
- Other equipment or materials that either contain or have been in contact with potentially-impacted environmental media.
- Because these materials may contain regulated chemical constituents, they must be managed as a solid waste. This management may be terminated if characterization analytical results indicate the absence of these constituents.

Procedure:

1. Contain all investigation-derived wastes in Department of Transportation (DOT)-approved 55-gallon drums, roll-off boxes, or other containers suitable for the wastes.
2. Containerize wastes from separate borings or wells in separate containers (i.e. do not combine wastes from several borings/wells in a single container, unless it is a container used specifically for transfer purposes, or unless specific permission to do so has been provided by the LaBella Project Manager. Unused samples from surface sample locations within a given area may be combined.
3. To the extent practicable, separate solids from drilling muds, decontamination waters, and similar liquids. Place solids within separate containers.
4. Transfer all waste containers to a staging area. Access to this area will be controlled. Waste containers must be transferred to the staging area as soon as practicable after the generating activity is complete.
5. Pending transfer, all containers will be covered and secured when not immediately attended,
6. Label all containers with regard to contents, origin, and date of generation. Use indelible ink for all labeling.

7. Collect samples for waste characterization purposes, use boring/well sample analytical data for characterization.

8. For wastes determined to be hazardous in character, be aware on accumulation time limitations. Coordinate the disposal of these wastes with the Owner and NYSDEC.

9. Dispose of investigation-derived wastes as follows;

    - Soil, water, and other environmental media for which analysis does not detect organic constituents, and for which inorganic constituents are at levels consistent with background, may be spread on-site (pending NYSDEC approval) or otherwise treated as a non-waste material.
    - Soils, water, and other environmental media in which organic compounds are detected or metals are present above background will be disposed as industrial waste or hazardous waste, as appropriate. Alternate disposition must be consistent with applicable State and Federal laws.
    - Personal protective equipment, disposable bailers, and similar equipment may be disposed as municipal waste, unless waste characterization results mandate disposal as industrial wastes

10. If waste is determined to be listed hazardous waste, it must be handled as hazardous waste as described above, unless a contained-in determination is accepted by the NYSDEC.

10.0 Decontamination

Sampling methods and equipment have been chosen to minimize decontamination requirements and to prevent the possibility of cross-contamination. Decontamination of equipment will be performed between discrete sampling locations. Equipment used to collect samples between composite sample locations will not require decontamination between collection of samples. All drilling equipment will be decontaminated after the completion of each drilling location. Special attention will be given to the drilling assembly and augers.

Split spoons and other non-disposable equipment will be decontaminated between each sampling event. The sampler will be cleaned prior to each use, by one of the following procedures:

- Initially cleaned of all foreign matter;
- Sanitized with a steam cleaner;

OR

- Initially cleaned of all foreign matter;
- Scrubbed with brushes in alconox solution;
- Triple rinsed; and
- Allowed to air dry.

11.0 Sample Containers

The containers required for sampling activities are pre-washed and ordered directly from a laboratory, which has the containers prepared in accordance with USEPA bottle washing procedures. The following tables detail sample volumes, containers, preservation and holding time for typical analytes.

Table 11-1
Water Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
VOCs	40-ml glass vial with Teflon-backed septum	Two (2); fill completely, no air space	Cool to 4° C (ice in cooler), Hydrochloric acid to pH <2	7 days
Semivolatile Organic Compounds (SVOCs)	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Pesticides	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Polychlorinated biphenyls (PCBs)	1,000-ml amber glass jar	One (1); fill completely	Cool to 4° C (ice in cooler)	7/40 days
Metals	500-ml polyethylene	One (1); fill completely	Cool to 4° C (Nitric acid to pH <2	6 months

*Holding time is based on verified time of sample collection.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

TABLE 11-2
Soil Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Maximum Holding Time
VOCs, SVOCs, PCBs, and Pesticides	8-oz, glass jar with Teflon-lined cap	One (1), fill as completely as possible	Cool to 4° C (ice in cooler)	7 days
VOCs by USEPA Method 5035 (if specified in work plan) Closed-system Purge and Trap Method	40-ml glass vial with Teflon-backed septum	Three (3), fill with 5 grams of soil using soil syringe	Cool to 4° C (ice in cooler). Two (2) with 10 mL DI water or 5 mL sodium bisulfate, one (1) with 5 mL methanol.	14 days
RCRA/TAL Metals, and cyanide	8-oz. glass jar with Teflon-lined cap	One (1); fill completely	Cool to 4° C (ice in cooler)	Must be extracted within 10 days; analyzed with 30 days

* Holding time is based on the times from verified time of sample collection.

Note: All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

TABLE 11-3
List of Major Instruments
for Sampling and Analysis

- MSA 360 0_2 /Explosimeter
- Hollige Series 963 Nephlometer (turbidity meter)
- EM-31 Geomics Electromagnetic Induction Device
- pH/Temperature/Conductivity Meter - Portable
- Hewlett Packard (HP) 1000 computer with RTE-6 operating system; and HP 9144 computer with RTE-4 operating system equipped with Aquarius software for control and data acquisition from gas chromatograph/mass spectrometer (GC/MS) systems; combined wiley and National Bureau of Standards (NBS) mass spectral library; and data archiving on magnetic tape
- Viriam 6000 and 37000 gas chromatrographs equipped with flame ionization, electron capture, photoionization and wall detectors as appropriate for various analyses,, and interfaced to Variam DS604 or D5634 data systems for processing data.
- Spectra-Physics Model SP 4100 and SP 4270 and Variam 4270 cam puting integrators
- Perkin Eimer (PE) 3000% and 3030% fully Automated Atomic Absorption Spectrophotometers (AAS) with Furnace Atomizer and background correction system
- PE Plasma II Inductively Coupled Argon Plasma (ICAP) Spectre meter with PE7500 laboratory computer
- Dionex 20001 ion chromatograph with conductivity detector for anion analysis, with integrating recorder

12.0 Sample Custody

This section describes standard operating procedures for sample identification and chain-of-custody to be utilized for all field activities. The purpose of these procedures is to ensure that the quality of the samples is maintained during their collection, transportation, and storage through analysis. All chain-of-custody requirements comply with standard operating procedures indicated in USEPA sample handling protocol.

Sample identification documents must be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include:

- Field notebooks,
- Sample label,
- Custody seals, and
- Chain-of-custody records.

12.1 Chain-of-Custody

The primary objective of the chain-of-custody procedures is to provide an accurate written or computerized record that can be used to trace the possession and handling of a sample from collection to completion of all required analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

12.2 Field Custody Procedures

- As few persons as possible should handle samples.
- Sample bottles will be obtained pre-cleaned from a source such as I-Chem. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- The sample collector is personally responsible for the care and custody of samples collected until they are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the notebook.
- The site manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

12.3 Sample Tags

Sample tags attached to or affixed around the sample container must be used to properly identify all

samples collected in the field. The sample tags are to be placed on the bottles so as not to obscure any QC lot numbers on the bottles; sample information must be printed in a legible manner using waterproof ink. Field identification must be sufficient to enable cross-reference with the logbook. For chain-of-custody purposes, all QC samples are subject to exactly the same custodial procedures and documentation as "real" samples.

12.4 Transfer of Custody and Shipment

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the chain-of-custody record. This record documents sample custody transfer
- Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the "Remarks" section of the chain-of-custody record and traffic reports.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment. The other copies are distributed appropriately to the site manager.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bill of lading are retained as part of the permanent documentation.

12.5 Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the record.

12.6 Laboratory Custody Procedures

A designated sample custodian accepts custody of the shipped samples and verifies that the sample identification number matches that on the chain-of-custody record and traffic reports, if required. Pertinent information as to shipment, pickup, and courier is entered in the "Remarks" section.

12.7 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. Sample shipping containers (coolers, cardboard boxes, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. On receipt at the laboratory, the custodian must check (and certify, by completing the package receipt log and LABMIS entries) that seals on boxes and bottles are intact. Strapping tape should be

placed over the seals to ensure that seals are not accidentally broken during shipment.

13.0 Laboratory Requirements and Deliverables

This section will describe laboratory requirement and procedures to be followed for laboratory analysis. Samples collected in New York State will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory. When required, analyses will be conducted in accordance with the most current NYSDEC Analytical Services Protocol (ASP). For example, ASP Category B reports will be completed by the laboratory for samples representing the final delineation of the Remedial Investigation, confirmation samples, samples to determine closure of a system, and correlation samples taken using field testing technologies analyzed by an ELAP-certified laboratory to determine correlation to field results. Data Usability Summary Reports will be completed by a third party for samples requiring ASP Category B format reports. Electronic data deliverables (EDDs) will also be generated by the laboratory in EQUIS format for samples requiring ASP Category B format reports.

14.0 Documentation

14.1 Sample Identification

All containers of samples collected from the project will be identified using the following format on a label or tag fixed to the sample container:

XX-ZZ-O/D-DDMMYYYY

XX:	This set of initials indicates the Site from which the sample was collected.
ZZ:	These initials identify the sample location. Actual sample locations will be recorded in the task log.
O/D:	An "O" designates an original sample; "D" identifies it as a duplicate.
DDMMYYYY:	This set of initials indicates the date the sample was collected

Each sample will be labeled, chemically preserved (if required) and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection when possible. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers. The sample label will give the following information:

- Date and time of collection
- Sample identification
- Analysis required
- Project name/number
- Preservation

14.2 Daily Logs

Daily logs and data forms are necessary to provide sufficient data and observations to enable

participants to reconstruct events that occurred during the project and to refresh the memory of the field personnel if called upon to give testimony during legal proceedings.

The site log is the responsibility of the site manager and will include a complete summary of the day's activity at the site.

The Task Log will include:

- Name of person making entry (signature).
- Names of team members on-site.
- Levels of personnel protection:
  - Level of protection originally used;
  - Changes in protection, if required; and
  - Reasons for changes.
-
- Documentation on samples taken, including:
  - Sampling location and depth station numbers;
  - Sampling date and time, sampling personnel;
  - Type of sample (grab, composite, etc.); and
  - Sample matrix.
- On-site measurement data.
- Field observations and remarks.
- Weather conditions, wind direction, etc.
- Unusual circumstances or difficulties.
- Initials of person recording the information.

15.0 Corrections to Documentation

15.1 Notebook

As with any data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside. The correction must be initialed and dated. Most corrected errors will require a footnote explaining the correction.

15.2 Sampling Forms

As previously stated, all sample identification tags, chain-of-custody records, and other forms must be written in waterproof ink. None of these documents are to be destroyed or thrown away, even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made on a document assigned to one individual, that individual may make corrections simply by crossing a line through the error and entering the corrected information. The incorrect information should not be obliterated. Any subsequent error discovered on a document should be

corrected by the person who made the entry. All corrections must be initialed and dated.

15.3 Photographs

Photographs will be taken as directed by the site manager. Documentation of a photograph is crucial to its validity as a representation of an existing situation. The following information will be noted in the task log concerning photographs:

- Date, time, location photograph was taken;
- Photographer
- Description of photograph taken;

16.0 Sample Handling, Packaging, and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample, but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States DOT in the Code of Federal Regulation, 49 CFR 171 through 177. All samples will be delivered to the laboratory and analyzed within the holding times specified by the analytical method for that particular analyte.

All chain-of-custody requirements must comply with standard operating procedures in the USEPA sample handling protocol.

16.1 Sample Packaging

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample volume level can be marked by placing the top of the label at the appropriate sample height, or with a grease pencil. This procedure will help the laboratory to determine if any leakage occurred during shipment. The label should not cover any bottle preparation QC lot numbers.
- All sample bottles are placed in a plastic bag to minimize the potential for cross-contamination.
- Shipping coolers must be partially filled with packing materials and ice when required, to prevent the bottles from moving during shipment.
- The sample bottles must be placed in the cooler in such a way as to ensure that they do not touch one another. Ice will be added to the cooler to ensure that the samples reach the laboratory at temperatures no greater than 4°C.

- The environmental samples are to be placed in plastic bags. Ice is not to be used as a substitute for packing materials.
- Any remaining space in the cooler should be filled with inert packing material. Under no circumstances should material such as sawdust, sand, etc., be used.
- A duplicate custody record and traffic reports, if required must be placed in a plastic bag and taped to the bottom of the cooler lid. Custody seals are affixed to the sample cooler.

16.2 Shipping Containers

Shipping containers are to be custody-sealed for shipment as appropriate. The container custody seal will consist of filament tape wrapped around the package and custody seals affixed in such a way that access to the container can be gained only by cutting the filament tape and breaking a seal.

Field personnel will make arrangements for transportation of samples to the lab. The lab must be notified as early in the week as possible regarding samples intended for Saturday delivery.

16.3 Marking and Labeling

- Chain of custody seals shall be placed on the container, signed, and dated prior to taping the container to ensure the chain of custody seals will not be destroyed during shipment.
- If samples are designated as medium or high hazard, they must be sealed in metal paint cans, placed in the cooler with vermiculite and labeled and placarded in accordance with DOT regulations.
- In addition, the coolers must also be labeled and placarded in accordance with DOT regulations if shipping medium and high hazard samples.

17.0 Calibration Procedures and Frequency

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations as well as criteria set forth in the applicable analytical methodology references. Operation, calibration, and maintenance will be performed by personnel properly trained in these procedures. Section 11 lists the major instruments to be used for sampling and analysis. In addition, brief descriptions of calibration procedures for major field and laboratory instruments follow.

18.0 Field Instrumentation

18.1 Photovac/MiniRae Photoionization Detector (PID)

Standard operating procedures for the PID require that routine maintenance and calibration be performed every six months. The packages used for calibration are non-toxic analyzed gas mixtures available in pressurized containers.

18.2 Organic Vapor Analyzer

Organic vapor analyzers (OVAs) are calibrated and routine maintenance performed every six months when the units are not in use. Calibration is performed and the major system checks are performed prior to the instrument being released for field use.

Calibration of the OVA 128 GC must be performed by a factory-authorized service representative. The instrument is removed from its protective case and the probe is connected to the base unit. After checking for an airtight seal in the sample line (plugging the sample inlet to stop the pump), the hydrogen supply is turned on and the pressure is set to 10 psi. The electronics are turned on and the instrument is allowed to warm up for at least 5 minutes. After warm up, the instrument is zeroed on the "X10" scale using the adjust knob. The flame is then lit and a gas-tight sample bag is filled with a mixture of 100 ppm methane in air. The sample bag is then attached to the probe inlet and the internal pump is allowed to draw in as much sample as is needed. R32 on the control board is adjusted to read 100 ppm on the "X10" scale and then the hydrogen supply is shut down. The pump can now be turned off and the sample bag removed. Using the adjust knob, the meter is set to read 4 ppm on the "X1" scale. Switching back to the "X10" scale the adjust knob is again used to set the meter to 40 ppm. The scale is then set to "X100" and R33 is adjusted until the meter reads 40 ppm on the "X100" scale.

The OVA has a detection limit of 0.1 ppm in methane equivalents and a working range of 0 to 1,000 ppm. During daily field use, system checks are performed which involve calibration and maintenance of the pump systems, gases, and filters. Care is taken to check for and prevent clogging or leaks. Quad rings and the burner chamber are examined on a weekly basis. Routine biannual maintenance includes a thorough cleaning as well as a re-examination of the pump system for leaks and wear. Parts are replaced as necessary. Instrument operation is verified by calibrating and running the OVA for 4 to 6 hours. An instrument specific logbook is maintained with the OVA to document its use and maintenance.

18.3 Conductance, Temperature, and pH Tester

Temperature and conductance instruments are factory calibrated. Temperature accuracy can be checked against an NBS certified thermometer prior to field use if necessary. Conductance accuracy may be checked with a solution of known conductance and recalibration can be instituted, if necessary.

18.4 Turbidity Meter

LaMotte 2020WE Turbidity Meter is calibrated before each use. The default units are set to NTU and the default calibration curve is formazin. A 0 NTU Standard (Code 1480) is included with the meter. To calibrate, rinse a clean tube three times with the blank. Fill the tube to the fill line with the blank. Insert the tube into the chamber, close the lid, and select “scan blank”.

19.0 Internal Quality Control Checks

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of field equipment. Field-based QC will comprise at least 10% of each data set generated and will consist of standards, replicates, spikes, and blanks. Field duplicates and field blanks will be analyzed by the laboratory as samples and will not necessarily be identified to the laboratory as duplicates or blanks. For each matrix, field duplicates will be provided at a rate of one per 10 samples collected or one per shipment, whichever is greater. Field blanks which consist of trip, routine field, and rinsate blanks will be provided at a rate of one per 20 samples collected for each parameter group, or one per shipment, whichever is greater.

Calculations will be performed for recoveries and standard deviations along with review of retention times, response factors, chromatograms, calibration, tuning, and all other QC information generated. All QC data, including split samples, will be documented in the site logbook. QC records will be retained and results reported with sample data.

19.1 Blank Samples

Blank samples are analyzed in order to assess possible contamination from the field and/or laboratory so that corrective measures may be taken, if necessary. Field samples are discussed in the following subsection:

19.2 Field Blanks

Various types of blanks are used to check the cleanliness of field handling methods. The following types of blanks may be used: the trip blank, the routine field blank, and the field equipment blank. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination. Field staff may add blanks if field circumstances are such that they consider normal procedures are not sufficient to prevent or control sample contamination, or at the direction of the project manager. Rigorous documentation of all blanks in the site logbooks is mandatory.

- Routine Field Blanks or bottle blanks are blank samples prepared in the field to access ambient field conditions. They will be prepared by filling empty sample containers with deionized water and any necessary preservatives. They will be handled like a sample and shipped to the laboratory for analysis.
- Trip Blanks are similar to routine field blanks with the exception that they are not exposed to field conditions. Their analytical results give the overall level of contamination from everything except ambient field conditions. For the RI/FS, one trip blank will be collected with every batch of water samples for VOC analysis. Each trip blank will be prepared by filling a 40-ml vial with deionized water prior to the sampling trip, transported to the site, handled like a sample, and returned to the laboratory for analysis without being opened in the field.
- Field Equipment Blanks are blank samples (sometimes called transfer blanks or rinsate

blanks) designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use, and that cleaning procedures between samples are sufficient to minimize cross contamination. If a sampling team is familiar with a particular site, they may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment.

19.3 Field Duplicates

Field duplicate samples consist of a set of two samples collected independently at a sampling location during a single sampling event. In some instances the field duplicate can be a blind duplicate, i.e., indistinguishable from other analytical samples so that personnel performing the analyses are not able to determine which samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.

19.4 Quality Control Check Samples

Inorganic and organic control check samples are available from EPA free of charge and are used as a means of evaluating analytical techniques of the analyst. Control check samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized.

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APPENDIX 9

Site Management Forms

COVER INSPECTION FORM

Former Edgewood Warehouse Site

Property Name: Former Edgewood Warehouse Site Inspection Date:

Property Address: 320 South Roberts Road

City: Dunkirk State: New York Zip Code: 14048

Total Acreage: 8.6 acres

Weather (during inspection): Temperature_____˚F

Conditions:

SIGNATURE:

The findings of this inspection were discussed with appropriate personnel, corrective actions were identified and implementation was mutually agreed upon:

Inspector_____ Date:_____

Next Scheduled Inspection Date: _____

COVER & VEGETATION

	Yes	No
1. Final Cover in acceptable condition?	_____	_____
2. Is there evidence of sloughing, erosion, ponding, or settlement?	_____	_____
3. Is there evidence of unintended traffic; rutting?	_____	_____
4. Is there evidence of distressed vegetation/turf	_____	_____
5. Final Cover sufficiently covers soil/fill material?	_____	_____
6. Are any cracks visible in the soil or pavement?	_____	_____
7. Any activity on-Site that mechanically disturbed soil cover?	_____	_____

SSDS SYSTEM

	Yes	No
8. Are the vent pipes in good condition (do not appear damaged)?	_____	_____

INSTITUTIONAL CONTROLS/ENGINEERING CONTROLS & ENVIRONMENTAL EASEMENT

9. Are the IC/ECs established for the Site being implemented appropriately?	_____	_____
10. Is the Site in compliance with the Environmental Easement?	_____	_____

ADDITIONAL FACILITY CONDITIONS

Is there development on or near the Site? (specify size and type of development)

COMMENTS

_____

_____

_____

_____

_____

_____

ATTATCHMENTS

1. Site Sketch
2. Photographs
3. Laboratory Analytical Report (s)

APPENDIX 10

Remedial System Optimization Table of Contents

REMEDIAL SYSTEM OPTIMIZATION FOR [Former Edgewood Warehouse Site]

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