Site Management Plan

Silos at Elk Street Site
BCP Site No. C915309
Buffalo, New York

December 2017 0381-017-006

Prepared For:

Silos at Elk Street, LLC

Prepared By:

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

2558 Hamburg Turnpike, Suite 300, Buffalo, New York 14218 | phone: (716) 856-0599 | fax: (716) 856-0583

BROWNFIELD CLEANUP PROGRAM

SITE MANAGEMENT PLAN

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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

SITE MANAGEMENT PLAN
SILOS AT ELK STREET SITE

Certification Statement

I, Thomas H. Forbes, certify that I am currently a NYS registered professional engineer and that this December 2017 Site Management Plan for the Silos at Elk Street Site (C915309) 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).

Date: 12-19-17

SEAL:

SITE MANAGEMENT PLAN
SILOS AT ELK STREET SITE

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APPENDICES

List of Acronyms

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
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
EWP	Excavation Work Plan
FOP	Field Operating Procedure
GHG	Green House Gas
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	Operations and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria, and Guidelines

List of Acronyms

SCO	Soil Cleanup Objective
SMP	Soil Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

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: Silos at Elk Street Site - C915309

Institutional Controls:	1. A portion of the property may be used for restricted-residential use while the remainder may be used for commercial and industrial use as described in 6NYCRR Part 375-1.8(g), although land is subject to local zoning laws;
	2. All ECs must be inspected at a frequency and in a manner defined in the SMP.
	3. The use of the groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health to render if 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.
	4. Compliance with the Department approved Site Management Plan and Periodic Review Reporting is required.
	5. The remedial party or site owner is required to complete and submit a periodic certification of institutional and engineering controls to the Department in accordance with 6NYCRR Part 375-1.8(h)(3.)
Engineering Controls:	1. A site cover has been placed over the site in all areas exceeding applicable SCOs. The cover consist of hardscape (asphalt and concrete, building) and 12 inches (commercial use) or 24 inches (restricted-residential use) of material meeting the requirements as set forth in 6NYCRR Part 375-6.7(d).

Inspections:	Frequency
1. Cover inspection	Annually
Reporting:	
1. Annual Site Inspection	Annually
2. Periodic Review Report	Triennially, after submittal of initial report

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

1.0 INTRODUCTION

This Site Management Plan (SMP) is a required element of the remedial program for the Silos at Elk Street Site located in Buffalo, New York (hereinafter referred to as the "Site"). The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index #C915309-01-17, which was executed on February 14, 2017.

1.1 General

Silos at Elk Street, LLC entered into a BCA with the NYSDEC to investigate and remediate the Silos at Elk Street Site in Buffalo, New York. Site location and boundaries are shown on Figures 1 and 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 A.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination." Institutional and Engineering Controls (IC/ECs) have been incorporated into the site remedy to control exposure to other remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, requires compliance with this SMP and all IC/ECs placed on the Site.

This SMP was prepared by Benchmark Environmental Engineering and Science, PLLC, on behalf of Silos at Elk Street, LLC, 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, Index #C915309-01-17; Site No. C915309 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.

This SMP was prepared in accordance with the requirements of the NYSDEC's May 2010 DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 1), and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the IC/ECs that are required by the Environmental Easement for the Site.

1.2 Revisions

Revisions to this SMP 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.
- 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.

The owner of the Site at the time of issuance of this SMP is:

Silos at Elk Street, LLC
740 Seneca Street
Buffalo, New York 14210

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.

Table 1: Notifications*

Name	Contact Information
NYSDEC Project Manager Mr. Maurice Moore, P.E.	716-851-7220 Maurice.moore@dec.ny.gov
NYSDEC Regional HW Engineer Mr. Chad Staniszewski, P.E.	716-851-7220 Chad.staniszewski@dec.ny.gov
NYSDEC Site Control Ms. Kelly Lewandowski, P.E.	518-402-9543 Kelly.lewandowski@dec.ny.gov

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

2.0 SUMMARY OF PREVIOUS INVESTIGATION & REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located at 50 Elk Street in the County of Erie, New York and is identified as S.B.L No. 122.42-2-63.11 on the Erie County Tax Map. The 1.9-acre BCP property is bounded by Elk and Van Rensselaer Streets to the west; Fulton Street to the north; Elk Street to the south; and a former railroad corridor to the west (see Figure 2). The boundaries of the Site are more fully described in Appendix A – Environmental Easement.

2.2 Physical Setting

2.2.1 Land Use

The Site has been vacant since the 1980s, and was historically used as a malting operation with coal areas, a kiln, and grain elevators/silos since about 1899 (Ref. 2). The Site is improved with a vacant multi-story former industrial building and adjacent asphalt parking lot. Along with the abandoned structure and silos, some inactive production-related equipment and piping, including apparent natural-gas vent pipes and other presumed utility lines, remains on-site. The abandoned building is constructed of brick, metal, and concrete. The remainder of the Site is mowed vegetative cover (e.g., grass) with two twin 30-inch cottonwood trees west of the building and scrub brush along the eastern property boundary.

The Site is located within a mixed former industrial, commercial, vacant, and residential area of the City of Buffalo. Residential areas are located directly across Fulton Street to the north, across the former railroad tracks to the east, and across Elk Street (and South Park Avenue) to the southeast. The Site is currently zoned industrial and will be re-zoned for restricted-residential and commercial uses.

The redevelopment plan for the Site includes using the existing building for commercial purposes as well as driveways, parking lots, maintained ornamental landscaping, and potential construction of a residential building on the northern portion of the property.

2.2.2 Geology

2.2.2.1 Unconsolidated Overburden

The Site is located within the Erie-Ontario lake plain physiographic province, which is typified by little topographic relief and gentle slope toward Lake Erie, except in the immediate vicinity of major drainage ways (Ref. 3). The surficial geology of the Lake Erie Plain consists of a thin glacial till (if present), glaciolacustrine deposits, recent alluvium, and the soils derived from these deposits. Based on the New York State Surficial Geologic Map of New York (Ref. 4), surficial soil at the Site is described as a lacustrine silt and clay. However, due to a heavy urbanization and industrial past, surface soils within the City of Buffalo are characterized as urban land (Ud) with level to gently sloping land in which 80 percent or more of the soil surface is covered by asphalt, concrete, buildings, or other impervious structures (Ref. 3), typical of an urban environment. The presence of overburden fill material is widespread and common throughout the City of Buffalo.

The upper layer across the Site consists of a cindery ash/fill unit intermingled with sandy lean clay, sandy silt, or organic soil mixed with various fill materials including ash, cinders, glass, concrete, brick fragments, coal pieces, wood fragments, and asphalt. The Site has visually exposed black cindery fill along the north side of the existing building and just to the east of the small parking lot on the south side of the property (see Figure 2). Native soil underlying the cindery/fill and was identified from 2 to 5.5 fbgs, and was generally described as an olive grey to reddish brown, moist, medium plasticity Lean Clay. The Lean Clay consistency changed from very stiff/hard to very soft/soft at approximately 12 fbgs. Using the physical consistency of the soil and the standard penetration test values (SPT/or N-values) generated from the drillers blow counts as a guide, shallow groundwater was expected to be approximately 11 to 13 fbgs across the Site. Water levels measured from completed monitoring wells confirmed this assumption.

2.2.2.2 Bedrock

Limestone Rock fragments found in the 20 to 22 fbgs split spoon sample at MW-4 show that the bedrock geology is consistent with the described bedrock of the geologic map of Erie County (Ref. 5). The Site is situated over the Onondaga Formation of the Middle Devonian Series. The Onondaga Formation is comprised of varying texture bedrock from coarse to very finely crystalline with a dark gray to tan color and chert and fossils within. The

Onondaga has an approximated thickness of 110 to 160 feet. Structurally, the bedrock formations strike in an east-west direction and exhibit a regional dip that approximates 40 feet per mile (3 to 5 degrees) toward the south and southwest. As a result of this dip, the older Onondaga limestone outcrops or subcrops north of the Hamilton Group (Ref. 6). An intersecting, orthogonal pattern of fractures and joint sets are common throughout the bedrock strata. The surficial geomorphology of the bedrock strata was modified by period subaerial erosion and continental glaciation.

At monitoring well MW-4, split spoon and auger refusal at 20.8 fbgs was suspected as being top of bedrock. Rock fragments in the shoe of the split spoon were observed; however, confirmation via rock core drilling was not performed.

2.2.3 Hydrogeology

The Site is located in the Erie-Niagara River Basin. In the Erie-Niagara Basin, the major areas of groundwater are within coarser overburden deposits and limestone and shale bedrock. Regional groundwater appears to flow southwest towards the Buffalo River and Lake Erie. Local groundwater flow, however, appears to be influenced by subsurface features, such as excavations, utilities, and localized fill-conditions. During advancement of the monitoring wells and deeper subsurface borings, shallow groundwater was generally encountered between 11 and 13 fbgs. As determined during the RI, on-site groundwater flows north-northwest away from the Buffalo River with a horizontal gradient of 0.0077 feet/foot. Figure 3 is a groundwater isopotential map using groundwater elevation data from the RI.

2.3 Investigation 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.

2.3.1 May 2016 – Phase I Environmental Site Assessment

Benchmark completed a Phase I Environmental Site Assessment (ESA) at the Site in May 2016. The Phase I ESA Report (Ref. 2) identified the following Recognized Environmental Conditions (RECs):

- The long history of on-site malting operations with various associated equipment, water-filled pits, and railroad tracks, along with the reasonably anticipated historic use of hazardous/regulated materials, is considered an REC due to the potential for impacts to the environment.
- Fill material comprised of black fines/ash with limited vegetation observed in exterior areas west and north of the building is considered an REC as the exact nature of the material is unknown.
- The Site is located in a mixed-use area with proximate current/historic industrial operations, including railroad tracks/yards.

Based on the ages of the existing buildings, the potential for suspect ACM and lead was also identified in the ESA Report.

The Report recommended a Phase II Investigation to characterize the blackish materials and water-filled pits observed during the Phase I site visit. Benchmark also recommended that asbestos, lead, and/or polychlorinated biphenyls (PCBs), if present, be properly handled as part of future site renovation/demolition activities.

2.3.2 June 2016 – Limited Phase II Investigation

Based on the findings of the Phase I ESA, Benchmark TurnKey performed a Limited Phase II Site Investigation (Ref. 7) on June 9, 2016 to assess RECs identified by the Phase I. The specific RECs assessed water-filled pits (suspected to be in contact with groundwater) in the lower areas of the building likely associated with former milling operations, and exterior areas where the presence of surficial blackish fines with limited vegetation were observed in distinct locations west and north of the building (see Figure 2). One pit water sample (PIT-1) was collected and analyzed for USEPA Target Compound List (TCL) plus NYSDEC CP-51 volatile organic compounds (VOCs) (Method 8260). Two surface soil grab samples (SS-1 and SS-2) were collected from the blackish fines area, composited (COMP-1), and analyzed for PAHs (Method 8270), RCRA metals (Method 6010/7471), and total organic carbon (TOC) (Lloyd Kahn).

No VOCs were detected in the samples collected from the water-filled pits. The black fines composite sample (COMP-1) showed elevated PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(ghi)perylene, and indeno(1,2,3-cd)pyrene) and heavy metals at concentrations above Part 375 restricted residential soil cleanup objectives (RRSCOs). Only benzo(a)pyrene was detected at a concentration slightly above the Part 375 commercial soil

cleanup objective (CSCO). The concentration of barium was 2,370 mg/kg (versus 400 mg/kg RRSCO/CSCO), cadmium was 8.5 mg/kg (versus 4.3 mg/kg RRSCO and 9.3 mg/kg CSCO), and lead was 4,970 mg/kg (versus 400 mg/kg RRSCO and 1,000 mg/kg CSCO). The total organic carbon of the sample was 70,400 parts per million (ppm). Toxicity characteristic leaching procedure (TCLP) lead was reported at a concentration of 26.5 mg/L, which exceeds the TCLP regulatory level of 5 mg/L. Figure 2 shows these sample locations.

2.3.3 July 2016 - Supplemental Phase II Test Pit Investigation

Based on the results of the June 2016 Limited Phase II Investigation (Ref. 7), Benchmark TurnKey performed a site-wide supplemental test pit investigation on July 21, 2016. NYSDEC was not present during test pitting activities. Nineteen shallow test pits (TP-1 through TP-19) were excavated equidistantly across the Site to further characterize overburden soils (see Figure 2). Each test pit was advanced through unconsolidated soil/fill to native soils approximately 2.5 to 5 feet below ground surface (fbgs). Non-native soils were targeted and 15 soil/fill samples were submitted for total lead (Method 6010), six of which were submitted for TCLP lead analysis.

In general, the shallow overburden was characterized from grade as a vegetated lean clay with sand (suspected topsoil) above a greyish white to black anthropogenic ashy-fill unit (mostly non-plastic fines, coal fragments, orange brick, glass, ceramic fragments, etc.) underlain by a stiff lacustrine clay unit (suspected native soil). Surficial blackish fines were observed in areas west and north of the building (see Figure 2). The topsoil unit was absent in these two areas of the Site.

None of the excavated test pit spoils exhibited photoionization detector (PID) scans above background concentrations (i.e., 0.0 ppm). Olfactory evidence of impact was not identified at any test pit location; however, anthropogenic fill material was visually observed in the upper 1 to 4 feet at each location. Analytical results of test pit soil/fill samples from that general interval showed elevated lead at concentrations above the Part 375 RRSCOs at 12 of the 15 sample submitted. Total lead concentrations ranged from 45.2 mg/kg (TP-15) to 3,070 mg/kg (TP-13), with 12 samples exceeding the RRSCO (400 mg/kg) and four samples exceeding the CSCO (1,000 mg/kg). TCLP lead was analyzed at six test pit locations with concentrations ranging from 0.047 mg/L (TP-14) to 1.7 mg/L (TP-13), which are below the TCLP regulatory level of 5 mg/L. Figure 2 shows these test pit locations.

2.3.4 April 2017 – Remedial Investigation

A Remedial Investigation was completed to further characterize the Site in accordance with the BCP requirements. The RI included the advancement of soil borings; excavation of test pits; installation of five monitoring wells to assess soil and groundwater at greater depths than previous investigations; and collection of soil/fill and groundwater samples. Results of the RI were compared to RRSCOs and CSCOs, which are reflective of the planned end uses of the property.

Consistent with the initial findings of the Phase II Investigation, RI soil/fill sample results exceeded RRSCOs for certain PAHs, which are products of incomplete combustion typically found in ash, cinders and asphalt materials such as pavement; however, total PAHs (plus TICs) for these locations do not exceed the CP-51 soil guidance level of 500 mg/kg (Ref. 8). Select metals detected in soil/fill at concentrations above RRSCOs at one or more location include arsenic, cadmium, copper, chromium, lead, manganese and mercury; whereas arsenic, copper, lead, and mercury exceeded CSCOs. Lead exceeded the TCLP regulatory limit at two locations.

Very minor exceedances of SVOCs (two PAHs) and inorganic compounds (all naturally occurring) were detected in groundwater at concentrations above Class GA GWQS/ GVs. All other sampling parameters were below GWQS/GV or not detected. Since VOCs were not detected in subsurface soil and groundwater above cleanup criteria, a soil vapor assessment was not warranted. A cursory interior assessment of the existing building did not reveal any potential environmental issues.

Based on the results of the previous investigations and the RI, it was determined that remediation of the Site was necessary. An RI/AA Report (Ref. 9) was prepared to provide a summary of the investigations, and complete an assessment of remedial alternatives capable of achieving the Remedial Action Objectives (RAOs) for the Site.

2.4 Remedial History

Based on the findings of the RI/AA Report, remedial activities were completed in accordance with the Department-approved Interim Remedial Measures (IRM) Work Plan (July 2017). The goals of the IRM activities were to:

- Stabilize and remove all AOCs exhibiting hazardous waste characteristics for lead.

- Remove all AOCs inside the limits of the restricted commercial portion of the Site to meet proposed SSALs, specifically: lead to below the ISCO of 3,900 mg/kg, arsenic to below 28 mg/kg.
- Remove all AOCs inside the limits of the restricted-residential portion of the Site to meet proposed SSALs. Specifically, removing lead concentrations below the CSCO of 1,000 mg/kg and arsenic concentrations below 28 mg/kg.

Details of the completed remedial activities presented below are more fully documented in the Final Engineering Report (FER) (Ref. 10).

2.4.1 In-Situ Soil/Fill Stabilization

Benchmark performed bench-scale treatability tests using soil/fill from two areas of concern (AOC-1 and AOC-2), which indicated that blending 10% Portland cement by weight stabilized lead to below leachable (hazardous) levels. On August 8, 2017, 10% by weight of Portland cement was mixed into the AOC-1 and AOC-2 soil/fill using the excavator bucket adding water as necessary. After 24 hours, one representative soil/fill sample was collected from each AOC for TCLP lead analyses. Analytical results were below 5 mg/L (TCLP regulatory limit for lead) and the AOCs were excavated as described in Section 2.4.2.

2.4.2 Non-Hazardous Soil/Fill Excavation

In August 2017, 330 tons of lead-impacted soil/fill and 22.5 cubic yards of arsenic-impacted soil fill were excavated and transported off-site for disposal at WM's Chaffee Landfill. Post-excavation samples were collected from the sidewalls and floor (see Table 2 and Figure 4). Post-excavation confirmatory sampling results were below RRSCOs (AOC-6 and TP-20 Area) and CSCOs (AOCs 1-5).

2.4.3 Excess Excavated Soil/Fill

Though not a component of the remedial activities, excess non-hazardous soil/fill generated during redevelopment activities, including excavation for subgrade utilities, site grading and paving, was temporarily stockpiled on-site.

In August and September 2017, a total of 10 tons of non-hazardous soil/fill, not suitable for use in the cover system, was loaded and transported off-site for disposal at WM's Chaffee Landfill.

2.4.4 Backfill

Backfilling was not required as the IRM excavations were generally shallow (i.e., less than two feet deep) and redevelopment activities (e.g., storm water controls, utility trenches, parking area construction) that generated excess cut materials were beneficially reused to backfill IRM excavations and regrade the Site.

2.5 Remedial Action Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the Site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the Site through the proper application of scientific and engineering principles. The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated October 2017 are as follows:

2.5.1 Soil

<u>RAOs for Public Health Protection</u>

- Prevent ingestion/direct contact with contaminated soil.

<u>RAOs for Environmental Protection</u>

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

2.5.2 Groundwater:

<u>RAOs for Public Health Protection</u>

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

RAOs for Environmental Protection

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

2.6 Remaining Contamination

The Silos at Elk Street Site was remediated to achieve a Track 4 restricted-residential and commercial cleanup, which is consistent with the intended use of the Site. Residual contamination above USCOs and GWQS/GVs remains at the Site; however, potential exposure is mitigated due to the depth of contamination, completion of the remedial activities, and placement of the cover systems (building, concrete, asphalt covered areas, and vegetated soil cover areas).

2.6.1 Soil/Fill

Residual contamination remaining in on-site soil/fill (beneath the cover system) above USCOs on the restricted-residential use portion includes PAHs and metals, and on the commercial use portion includes PAHs, metals and, to a lesser extent, pesticides. The cover system includes hardscape (buildings, asphalt and concrete) areas and vegetated soil cover (12 to 24 inches thick) above the demarcation layer. Tables 3a and 3b and Figure 5 summarize the remaining on-site soil/fill with constituents above USCOs.

Exposure to any remaining on-site soil/fill constituents above regulatory guidelines is mitigated by depth of the remaining contamination, depth to on-site groundwater, and placement of the cover systems.

2.6.2 Groundwater

Remedial investigation results identified two SVOCs [benzo(a)anthracene and benzo(b)fluoranthene] and three metals (iron, magnesium, and sodium) at concentrations above GWQS/GVs (see Table 4). Shallow groundwater was generally encountered between 11 and 13 fbgs during the RI. Due to the depth of contamination, completion of IRM activities, and placement of a cover system, potential exposure to the remaining residual contamination is unlikely.

3.0 INSTITUTIONAL & ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC. This Plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the 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 Excavation Work Plan (EWP) (as provided in Appendix B) 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 Decision Document to (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the Site to restricted-residential and 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 ICs for the Site are as follows:

- The property may be used for restricted-residential use (northern portion) and commercial use (southern portion) as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- 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 Erie County DOH 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; and
- 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.

3.3 Engineering Controls

3.3.1 Cover System

Exposure to remaining contamination is prevented by a cover system placed over the Site. This cover system is comprised of a minimum of 12 inches (commercial use area) and 24 inches (restricted-residential use area) of DER-10 compliant soil/stone material over demarcation layer, and hardscape elements of the redevelopment, including asphalt, concrete-covered sidewalks, and concrete building slabs. Figure 6 presents the location of the different cover system elements and details. Appendix C includes redevelopment details prepared by others.

The Excavation Work Plan (EWP) in Appendix B 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 (see Section 4.0). 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 (see Appendix D).

3.3.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the RAOs identified by the Decision Document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

The 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.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring 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. This Monitoring Plan describes the methods to be used for:

- Monitoring the performance and effectiveness of the Site cover.
- A schedule for frequency of submittals to the Department.
- 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 Plan provides information on:

- Annual inspection and periodic certification.

Section 7.0 describes the reporting requirements.

4.2 Site-Wide Inspection

Site-wide inspections will be performed at a minimum of once per year (annually), and/or at a lesser frequency as approved by the Department. 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 E – 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.

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 a qualified environmental professional within 5 days of the event to verify the effectiveness of the IC/ECs implemented. 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.

5.0 OPERATION & MAINTENANCE PLAN

5.1 General

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

6.0 PERIODIC ASSESSMENTS/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.

The Site is considered to have low vulnerability related to climatic conditions. There are no wetlands or floodplains located on or adjacent to the Site. The Site will not employ any remedial systems reliant upon electrical power; is serviced by a municipal sanitary sewer system; and will not incorporate any petroleum or bulk storage in the redevelopment. The Site consists of a new Site drainage and storm water management system; renovated buildings; and new hardscape/green-space cover systems. As such, acute cover system erosion resultant in potential exposure to remaining contamination 12 to 24 inches below the surface is highly unlikely.

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).

No mechanical engineering systems are included in the SMP. The only engineering control establishes for the Site is the cover system. The maintenance of cover system is not anticipated to generate additional waste, use energy, produce emissions, and require substantial water to promote vegetative cover growth, and/or affect any ecosystem.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will not be required as there are no active remedial systems. The only engineering control at the Site is the cover system.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspections will be recorded on the appropriate site management forms provided in Appendix E. These forms are subject to NYSDEC revision.

All applicable inspection forms will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 5 and summarized in the Periodic Review Report.

Table 5: Schedule of Inspections and Reporting

Task/Report	Reporting Frequency*
Site Inspection Report	Annually
Periodic Review Report	Triennially, after submittal of the initial PRR

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

All interim 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).
- Any observations, conclusions, or recommendations.
- A determination as to whether conditions have changed since the last reporting event.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning 16 months after the Certificate of Completion is issued. After submittal of the initial PRR, the next PRR shall be submitted triennially (every third year) 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 PRR will be prepared that addresses the Site described in Appendix A-Environmental Easement. The PRR will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. The PRR will include:

- Identification, assessment, and certification of all IC/ECs 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 data and/or information generated during the reporting period, with comments and conclusions.
- A Site evaluation that includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the Site inspection of the reporting period, a qualified environmental professional 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;*
- *The information presented in this report is accurate and complete; and*
- *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.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] for the site."

In addition, every five years the following certification will be added:

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

The PRR will include the signed certification and be submitted, in electronic format, to the NYSDEC Central Office, NYSDEC Region 9 Office, and the NYSDOH Bureau of Environmental Exposure Investigation. The PRR may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This Plan will explain

the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

8.0 REFERENCES

1. New York State Department of Environmental Conservation. *DER-10; Technical Guidance for Site Investigation and Remediation.* May 2010.
2. Benchmark Environmental Engineering and Science, PLLC. *Phase I Environmental Site Assessment ASTM E1527-13 for 50 Elk Street, Buffalo, New York.* August 2016.
3. United States Department of Agriculture (USDA), Soil Conservation Service. *Soil Survey of Erie County, New York*. December 1986.
4. *Surficial Geologic Map of New York, Niagara Sheet*, Compiled and edited by Donald H. Cadwell, University of the State of New York, The State Education Department, 1988.
5. *Geologic Map of New York, Niagara Sheet*, Compiled and Edited by Lawrence V. Rickard and Donald W. Fisher, University of the State of New York, The State Education Department, March 1970.
6. Buehler, E.J., & Tesmer, I.H. *Geology of Erie County, New York: Buffalo Society of Natural Sciences Bulletin v. 21, no. 3*. 1963.
7. Benchmark Environmental Engineering and Science, PLLC. *Limited Phase II Environmental Site Investigation & Supplemental Test Pit Investigation, 50 Elk Street, Buffalo, New York.* August 5, 2012.
8. New York State Department of Environmental Conservation. Policy CP-51; Soil Cleanup Guidance. October 21, 2010.
9. Benchmark Environmental Engineering and Science, PLLC. *Remedial Investigation/ Alternatives Analysis (RI/AA) Report, 50 Elk Street, Buffalo, New York*. June 2017.
10. Benchmark Environmental Engineering and Science, PLLC in association with TurnKey Environmental Restoration, LLC. *Final Engineering Report, Silos at Elk Street Site, BCP Site No. C915309, Buffalo, New York*. December 2017.

TABLES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 2

SUMMARY OF POST-EXCAVATION CONFIRMATORY ANALYTICAL RESULTS - RESTRICTED RESIDENTIAL USE

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter	USCOs	SSAL & CSCO	POST-EX SAMPLE LOCATION												
			AOC-6 NW-1	IRM BLIND DUP-2	AOC-6 SW-1	AOC-6 EW-1	AOC-6 WW-1	AOC-6 BOTTOM-1	TP-20 NW-1	TP-20 SW-1	TP-20 SW-2 [1]	IRM BLIND DUP-1	TP-20 EW-1	TP-20 WW-1	TP-20 BOTTOM-1
RCRA Metals (mg/kg)			*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/17/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*
Arsenic	**13**	**28**	--	--	--	--	--	--	**24.1**	**50.5**	6.42	**13.5**	**22.6**	**21.9**	7.03
Lead	**63**	**1,000**	**587**	**620**	**250**	**413**	**263**	**294**	--	--	--	--	--	--	--

Notes:

1. Resample following additional 5 feet of excavation in compass direction.

"--" = Sample not analyzed for specific parameter.

J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

BOLD	= Value exceeds Unrestricted Soil Cleanup Objectives (USCOs) for restricted-residential use portion of Site.
BOLD	= Value exceeds Site-Specific Action Limit (SSAL) for arsenic and Commercial SCO for lead on restricted-residential use portion of Site.
TP-20	= Additional soil/fill removed and bottom/sidewall re-sampled; therefore, result does not require 3rd party validation.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 2

SUMMARY OF POST-EXCAVATION CONFIRMATORY ANALYTICAL RESULTS - COMMERCIAL USE

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter	USCOs	SSAL & ISCO	POST-EXCAVATION SAMPLE LOCATION AND DATE																																
			AOC-1 NW-1	AOC-1 NW-2	AOC-1 SW-1	AOC-1 SW-2	AOC-1 EW-1	AOC-1 EW-2 [1]	AOC-1 WW-1	AOC-1 BOTTOM-1	AOC-2 SW-1	AOC-2 EW-1	AOC-2 WW-1	AOC-2 WW-2 [1]	AOC-2 BOTTOM-1	AOC-3 NW-1	AOC-3 SW-1	AOC-3 EW-1	AOC-3 WW-1	AOC-3 BOTTOM-1	AOC-4 NW-1	AOC-4 SW-1	AOC-4 EW-1	AOC-4 WW-1	IRM BLIND DUP-3 [2]	AOC-4 BOTTOM-1	AOC-5 NW-1	AOC-5 NW-2 [1]	AOC-5 SW-1	AOC-5 SW-2 [1]	AOC-5 EW-1	AOC-5 WW-1	AOC-5 WW-2 [1]	AOC-5 BOTTOM-1	AOC-5 BOTTOM-2 [1]
RCRA Metals (mg/kg)			*8/17/2017*	*8/17/2017*	*8/17/2017*	*8/17/2017*	*8/17/2017*	*8/29/2017*	*8/17/2017*	*8/17/2017*	*8/17/2017*	*8/17/2017*	*8/17/2017*	*8/29/2017*	*8/17/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/8/2017*	*8/9/2017*	*8/9/2017*	*8/9/2017*	*8/9/2017*	*8/9/2017*	*8/9/2017*	*8/8/2017*	*8/17/2017*	*8/8/2017*	*8/17/2017*	*8/8/2017*	*8/8/2017*	*8/17/2017*	*8/8/2017*	*8/17/2017*
Arsenic	**13**	**28**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**80.4**	**13.6**	**77.9**	**13.5**	**27.9**	**101**	**18.8**	**36.8**	**13.1**
Lead	**63**	**3,800**	**875**	**2,280**	**75.2**	**1,100**	**4,630**	**652**	**191**	**115**	**2,930**	**1,030**	**2,350**	**840**	**250**	**273**	**439**	**439**	**223**	14	**324**	**99.4**	**65.9**	**128**	**129**	58.2	--	--	--	--	--	--	--	--	--
TCLP (mg/L)																																			
Lead	**5**	**5**	0.103 J	ND<0.027	ND<0.027	0.205 J	0.304 J	ND<0.027	0.095 J	ND<0.027	1.44	0.204 J	**8.32**	0.644	0.271 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. Resample following additional 5 feet of excavation in compass direction.
2. Blind Duplicate sample from AOC-4 WW-1.

Acronyms:

"--" = Sample not analyzed for specific parameter.
J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

Color Code:

BOLD	= Value exceeds Unrestricted Soil Cleanup Objectives (USCOs) for commercial use portion of site
BOLD	= Value exceeds Site-Specific Action Limit (SSAL) for arsenic, Industrial SCO or TCLP regulatory limit for lead on commercial use portion of Site.
AOC-2	= Additional soil/fill removed and bottom/sidewall re-sampled; therefore, result does not require 3rd party validation.

TABLE 3a

REMEDIAL INVESTIGATION SOIL/FILL ANALYTICAL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter (Part 375 parameters identified with "●")	CasNum	USCO	Units	Sample Location (Depth, fbgs), Date, and Lab ID																							
				SB-1 (0-1) 2/14/2017 L1704647-01		BLIND DUP #1 2/14/2017 L1704647-02		SB-1 (1-2) 2/14/2017 L1704647-03		SB-2 (0-1) 2/14/2017 L1704647-04		SB-2 (1-2) 2/14/2017 L1704647-05		SB-2 (3-4) 2/14/2017 L1704647-06		SB-3 (0-1) 2/14/2017 L1704647-07		SB-3 (1-2) 2/14/2017 L1704647-08		SB-3 (3-4) 2/14/2017 L1704647-09		SB-4 (0-1) 2/15/2017 L1704647-10		SB-4 (1-2) 2/15/2017 L1704647-11		SB-5 (0-1) 2/15/2017 L1704647-12	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																											
Solids, Total	NONE	--	%	75.3		74.6		79.8		82.2		47.5		80.4		84.7		78		86.2		66.8		78.2		81.9	
Volatile Organics by 8260/5035																											
● 2-Butanone (Methyl ethyl ketone)	78-93-3	0.12	mg/kg	0.028	U	0.026	U	0.031	U	0.014	U	0.038	U	0.00042	J	0.02	U	0.012	U	0.0089	U	0.037	U	0.018	U	0.016	U
● Acetone	67-64-1	0.05	mg/kg	0.028	U	0.028	U	0.031	U	0.014	U	0.038	U	0.012	U	0.02	U	0.012	U	0.0089	U	0.037	U	0.018	U	0.016	U
Semivolatile Organics by 8270D																											
2,4-Dimethylphenol	105-67-9	--	mg/kg	0.22	U	0.22	U	0.21	U	0.096	J	0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.24	U	0.21	U	0.2	U
2-Methylnaphthalene	91-57-6	--	mg/kg	0.098	J	0.14	J	0.039	J	1.3		0.41	U	0.24	U	0.23	U	0.25	U	0.23	U	0.036	J	0.26		0.077	J
● 2-Methylphenol (o-Cresol)	95-48-7	0.33	mg/kg	0.22	U	0.22	U	0.21	U	0.055	J	0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.24	U	0.21	U	0.2	U
● 3-Methylphenol (m-Cresol) / 4-Methylphenol (p-Cresol)	108-39-4 106-44-5	0.33	mg/kg	0.31	U	0.32	U	0.3	U	0.18	J	0.5	U	0.16	J	0.28	U	0.3	U	0.28	U	0.35	U	0.3	U	0.29	U
4-Nitroaniline	100-01-6	--	mg/kg	0.22	U	0.22	U	0.21	U	0.2	U	0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.24	U	0.21	U	0.2	U
● Acenaphthene	83-32-9	20	mg/kg	0.16	J	0.18		0.16	U	2.6		0.042	J	0.029	J	0.15	U	0.17	U	0.15	U	0.074	J	0.18		0.098	J
● Acenaphthylene	208-96-8	100	mg/kg	0.097	J	0.12	J	0.16	U	1.8		0.28	U	0.16	U	0.15	U	0.17	U	0.15	U	0.096	J	0.12	J	0.091	J
Acetophenone	98-86-2	--	mg/kg	0.22	U	0.22	U	0.21	U	0.2	U	0.34	U	0.2	U	0.19	U	0.026	J	0.19	U	0.24	U	0.049	J	0.2	U
● Anthracene	120-12-7	100	mg/kg	0.38		0.51		0.12	U	7.3		0.083	J	0.12	U	0.12	U	0.12	U	0.12	U	0.26		0.49		0.31	
Atrazine	1912-24-9	--	mg/kg	0.17	U	0.18	U	0.16	U	0.16	U	0.28	U	0.16	U	0.15	U	0.17	U	0.15	U	0.19	U	0.17	U	0.16	U
Benzaldehyde	100-52-7	--	mg/kg	0.28	U	0.29	U	0.27	U	0.26	U	0.46	U	0.27	U	0.25	U	0.28	U	0.25	U	0.074	J	0.16	J	0.26	U
● Benzo(a)anthracene	56-55-3	1	mg/kg	0.75	J	**1.4**	J	0.11	J	26	D	0.44		0.029	J	0.047	J	0.078	J	0.12	U	**1.3**		**1.2**		1	
● Benzo(a)pyrene	50-32-8	1	mg/kg	0.65	J	**1.2**	J	0.11	J	23	D	0.41		0.16	U	0.15	U	0.073	J	0.15	U	**1.3**		0.98		1	
● Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.84	J	**1.6**	J	0.14		35	D	0.5		0.035	J	0.057	J	0.091	J	0.12	U	**1.6**		**1.3**		**1.3**	
● Benzo(ghi)perylene	191-24-2	100	mg/kg	0.37		0.62		0.065	J	14	D	0.18	J	0.16	U	0.028	J	0.038	J	0.15	U	0.72		0.5		0.54	
● Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	0.33		0.57		0.039	J	6.3		0.16	J	0.12	U	0.12	U	0.12	U	0.12	U	0.55		0.43		0.46	
Biphenyl	92-52-4	--	mg/kg	0.49	U	0.5	U	0.47	U	0.37	J	0.79	U	0.47	U	0.44	U	0.48	U	0.44	U	0.55	U	0.051	J	0.46	U
Bis(2-ethylhexyl)phthalate	117-81-7	--	mg/kg	0.22	U	0.23		0.21	U	0.27		0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.16	J	0.1	J	0.16	J
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.22	U	0.22	U	0.21	U	0.2	U	0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.24	U	0.21	U	0.2	U
Caprolactam	105-60-2	--	mg/kg	0.22	U	0.22	U	0.21	U	0.2	U	0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.24	U	0.21	U	0.2	U
Carbazole	86-74-8	--	mg/kg	0.2	J	0.28	J	0.21	UJ	4.2	J	0.34	UJ	0.2	UJ	0.19	UJ	0.21	UJ	0.19	UJ	0.18	J	0.28	J	0.17	J
● Chrysene	218-01-9	1	mg/kg	0.78	J	**1.4**	J	0.11	J	29	D	0.39		0.12	U	0.044	J	0.074	J	0.12	U	**1.3**		**1.2**		0.97	
● Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.11	J	0.19		0.12	U	3.5		0.066	J	0.12	U	0.12	U	0.12	U	0.12	U	0.19		0.15		0.16	
● Dibenzofuran	132-64-9	7	mg/kg	0.13	J	0.17	J	0.21	U	2.6		0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.061	J	0.21		0.09	J
● Fluoranthene	206-44-0	100	mg/kg	1.8	J	3.1	J	0.2		60	D	0.66		0.12	U	0.094	J	0.076	J	0.12	U	2.7		2.9		1.9	
● Fluorene	86-73-7	30	mg/kg	0.18	J	0.23		0.21	U	4.8		0.036	J	0.2	U	0.19	U	0.21	U	0.19	U	0.1	J	0.22		0.13	J
● Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	0.4		**0.73**		0.07	J	16	D	0.22	J	0.16	U	0.031	J	0.042	J	0.15	U	**0.81**		**0.58**		**0.62**	
● Naphthalene	91-20-3	12	mg/kg	0.17	J	0.19	J	0.033	J	1.6		0.062	J	0.2	U	0.19	U	0.21	U	0.19	U	0.066	J	0.26		0.1	J
● Phenanthrene	85-01-8	100	mg/kg	1.5		2.3		0.15		45	D	0.28		0.12	U	0.052	J	0.045	J	0.12	U	1.4		2.2		1.4	
● Phenol	108-95-2	0.33	mg/kg	0.22	U	0.22	U	0.21	U	0.1	J	0.34	U	0.2	U	0.19	U	0.21	U	0.19	U	0.24	U	0.21	U	0.2	U
● Pyrene	129-00-0	100	mg/kg	1.4	J	2.5	J	0.17		42	D	0.57		0.12	U	0.079	J	0.069	J	0.12	U	2.6		2.5		1.5	
Total PAHs (CP-51)	***NA***	***500***	***mg/kg***	***13.4***		***20.5***		***5.31***		***328***		***10.2***		***5.27***		***4.87***		***5.10***		***5.46***		***18.3***		***18.1***		***14.6***	
Polychlorinated Biphenyls by 8082A																											
● Aroclor 1254	11097-69-1	0.1	mg/kg	0.00965	J	0.0125	J	-	-	-	-	-	-	-	-	-	-	0.0415	U	0.0372	U	-	-	-	-	-	-
● Aroclor 1260	11096-82-5	0.1	mg/kg	0.0312	J	0.024	J	-	-	-	-	-	-	-	-	-	-	0.0415	U	0.0372	U	-	-	-	-	-	-
● Aroclor 1268	11100-14-4	0.1	mg/kg	0.039	J	0.0247	J	-	-	-	-	-	-	-	-	-	-	0.0415	U	0.0372	U	-	-	-	-	-	-
PCBs, Total	***1336-36-3***	***0.1***	***mg/kg***	***0.0799***		***0.0612***		***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
Organochlorine Pesticides by 8081A																											
● 4,4'-DDE	72-55-9	0.0033	mg/kg	**0.00861**	J	**0.0151**	J	-	-	-	-	-	-	-	-	-	-	0.000552	J	0.00182	U	-	-	-	-	-	-
● 4,4'-DDT	50-29-3	0.0033	mg/kg	**0.0258**		**0.0332**		-	-	-	-	-	-	-	-	-	-	**0.00378**	**U**	**0.0034**	**U**	-	-	-	-	-	-

TABLE 3a

REMEDIAL INVESTIGATION SOIL/FILL ANALYTICAL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter (Part 375 parameters identified with "●")	CasNum	USCO	Units	Sample Location (Depth, fbgs), Date, and Lab ID																					
				SB-1 (0-1) 2/14/2017 L1704647-01		BLIND DUP #1 2/14/2017 L1704647-02		SB-1 (1-2) 2/14/2017 L1704647-03		SB-2 (0-1) 2/14/2017 L1704647-04		SB-2 (1-2) 2/14/2017 L1704647-05		SB-2 (3-4) 2/14/2017 L1704647-06		SB-3 (0-1) 2/14/2017 L1704647-07		SB-3 (1-2) 2/14/2017 L1704647-08		SB-3 (3-4) 2/14/2017 L1704647-09		SB-4 (0-1) 2/15/2017 L1704647-10		SB-4 (1-2) 2/15/2017 L1704647-11		SB-5 (0-1) 2/15/2017 L1704647-12	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Total Metals by 6010C/7471B (Mercury)																									
Aluminum, Total	7429-90-5	--	mg/kg	6500		9200		5200		4400		6300		11000		1300		5200		10000		540		3600		5100	
Antimony, Total	7440-36-0	--	mg/kg	5.2	U	5.2	U	4.9	U	4.8	U	8.3	U	4.9	U	4.6	U	5.1	U	4.6	U	0.97	J	5	U	4.7	U
● Arsenic, Total	7440-38-2	13	mg/kg	**16**		12		10		38		8.4		4		**18**		**21**		7		13		**24**		12	
● Barium, Total	7440-39-3	350	mg/kg	340	J	190	J	100		150		180		95		26		210	J	88		22		220		210	
● Beryllium, Total	7440-41-7	7.2	mg/kg	0.5	J	0.52		0.42	J	0.54		**14**		0.47	J	0.08	J	0.95	J	0.5		0.06	J	0.25	J	0.36	J
● Cadmium, Total	7440-43-9	2.5	mg/kg	2.2		0.81	J	**2.7**		0.83	J	**9.2**		0.98	U	0.16	J	1.4		0.11	J	0.27	J	0.69	J	1.1	
Calcium, Total	7440-70-2	--	mg/kg	9900		14000		7300		1700		24000		2400		1300		12000		2100		650		3400		7400	
● Chromium, Total	7440-47-3	30	mg/kg	19		15		11		11		4.8		16		3.6		14		16		3.4		12		13	
Cobalt, Total	7440-48-4	--	mg/kg	6.9		8.8		6.1		11		4		7		1.5	J	8.6		8.5		1.6	J	5.2		6.7	
● Copper, Total	7440-50-8	50	mg/kg	**70**		**56**		**60**		150		**1200**		16		16		**230**		23		10		**76**		**74**	
● Cyanide, Total	57-12-5	27	mg/kg	0.71	J	0.52	J	0.22	J	1.1	U	2	U	1.2	U	1.1	U	0.55	J	1.1	U	1.5	U	0.45	J	1.2	U
Iron, Total	7439-89-6	--	mg/kg	24000		23000		15000		33000		11000		18000		2500		19000	J-	20000		2300		34000		18000	
● Lead, Total	7439-92-1	63	mg/kg	**690**	J	**330**	J	**220**		410		**1100**		12		33		**550**	**J-**	12		**73**		**900**		**560**	
Magnesium, Total	7439-95-4	--	mg/kg	2300		3400		2400		940		300		3600		500		5200	J-	3500		100		1000		2300	
● Manganese, Total	7439-96-5	1600	mg/kg	380		260		230		180		100		190		25		210	J-	240		20		230		530	
● Mercury, Total	7439-97-6	0.18	mg/kg	**1.3**		**0.89**		**0.31**		0.66		**1.2**		0.03	J	0.05	J	**1.1**	**J**	0.02	J	0.04	J	**1.6**		**0.93**	
● Nickel, Total	7440-02-0	30	mg/kg	20		22		14		19		8.9		21		4.5		23	J	25		4.3		11		13	
Potassium, Total	7440-09-7	--	mg/kg	770		800		550		680		230	J	920		150	J	480		810		180	J	1800		490	
● Selenium, Total	7782-49-2	3.9	mg/kg	0.77	J	0.4	J	2	U	3.9		1.8	J	2	U	1.8	U	0.92	J	1.8	U	3.1		1.6	J	0.64	J
● Silver, Total	7440-22-4	2	mg/kg	0.34	J	1	U	0.98	U	0.96	U	1.7	U	0.98	U	0.91	U	1	U	0.92	U	1.2	U	0.34	J	0.94	U
Sodium, Total	7440-23-5	--	mg/kg	95	J	70	J	88	J	98	J	470		43	J	30	J	120	J	35	J	16	J	230		59	J
Thallium, Total	7440-28-0	--	mg/kg	2.1	U	2.1	U	2	U	1.9	U	3.3	U	2	U	1.8	U	0.43	J	1.8	U	0.58	J	1.1	J	1.9	U
Vanadium, Total	7440-62-2	--	mg/kg	20		21		17		13		13		19		6.4		17		20		5.8		14		16	
● Zinc, Total	7440-66-6	109	mg/kg	**760**	J	**310**	J	**1000**		250		**330**		51		47		**410**	**J-**	55		39		**400**		**390**	

Notes:

1. "--" = SCO was not specified
2. Only those compounds detected at a minimum of one location are presented.
3. Data presented has been validated by a third party data validator; data and qualifiers modified by the validator are in RED.

BOLD	= Values exceeds Part 375 Unrestricted Soil Cleanup Objectives (USCOs)
	= Area excavated during IRM activities

Qualifiers:

D = Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J- = The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
N = Indicates presumptive evidence of a compound.
P - The RPD between the results for the two columns exceeds the method-specified criteria.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ = The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.

TABLE 3a

REMEDIAL INVESTIGATION SOIL/FILL ANALYTICAL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter (Part 375 parameters identified with "●")	CasNum	USCO	Units	Sample Location (Depth, fbgs), Date, and Lab ID																							
				SB-5 (1-2) 2/15/2017 L1704647-13		SB-5 (4-6) 2/15/2017 L1704647-14		SB-6 (0-1) 2/15/2017 L1704647-15		SB-6 (1-2) 2/15/2017 L1704647-16		SB-7 (0-1) 2/16/2017 L1704647-17		SB-7 (1-2) 2/16/2017 L1704647-18		SB-7 (3-5) 2/16/2017 L1704647-19		SB-8 (0.5-1) 2/16/2017 L1704647-20		SB-8 (1-2) 2/16/2017 L1704647-21		SB-8 (4-6) 2/16/2017 L1704647-22		SB-9 (0.5-1.0) 2/16/2017 L1704647-23		SB-9 (1.0-2.0) 2/16/2017 L1704647-24	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																											
Solids, Total	NONE	--	%	79.7		79.1		81.7		80.3		79.4		84.5		81.9		87.4		81		78.5		74		81.3	
Volatile Organics by 8260/5035																											
● 2-Butanone (Methyl ethyl ketone)	78-93-3	0.12	mg/kg	0.016	U	0.011	U	0.017	U	0.0016	J	0.024	U	0.019	U	0.01	U	0.02	U	0.028	U	0.012	U	0.016	U	0.0027	J
● Acetone	67-64-1	0.05	mg/kg	0.016	U	0.011	U	0.017	U	0.016	U	0.024	U	0.019	U	0.01	U	0.02	U	0.028	U	0.012	U	0.016	U	0.013	U
Semivolatile Organics by 8270D																											
2,4-Dimethylphenol	105-67-9	--	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
2-Methylnaphthalene	91-57-6	--	mg/kg	0.44		0.25	U	0.24	U	0.047	J	0.13	J	0.24	U	0.24	U	0.063	J	0.058	J	0.25	U	0.035	J	0.24	U
● 2-Methylphenol (o-Cresol)	95-48-7	0.33	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
● 3-Methylphenol (m-Cresol) / 4-Methylphenol (p-Cresol)	108-39-4 106-44-5	0.33	mg/kg	0.04	J	0.3	U	0.29	U	0.3	U	0.3	U	0.28	U	0.29	U	0.27	U	0.29	U	0.3	U	0.32	U	0.29	U
4-Nitroaniline	100-01-6	--	mg/kg	0.14	J	0.2	U	0.2	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
● Acenaphthene	83-32-9	20	mg/kg	1.2		0.16	U	0.022	J	0.071	J	0.13	J	0.16	U	0.16	U	0.13	J	0.025	J	0.16	U	0.032	J	0.16	U
● Acenaphthylene	208-96-8	100	mg/kg	0.17		0.16	U	0.16	U	0.034	J	0.12	J	0.051	J	0.16	U	0.057	J	0.16	U	0.16	U	0.18	U	0.16	U
Acetophenone	98-86-2	--	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
● Anthracene	120-12-7	100	mg/kg	2.4		0.12	U	0.11	J	0.18		0.42		0.1	J	0.12	U	0.3		0.055	J	0.12	U	0.11	J	0.12	U
Atrazine	1912-24-9	--	mg/kg	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.15	U	0.16	U	0.16	U	0.18	U	0.16	U
Benzaldehyde	100-52-7	--	mg/kg	0.27	U	0.27	U	0.26	U	0.087	J	0.11	J	0.26	U	0.26	U	0.25	U	0.27	U	0.27	U	0.29	U	0.26	U
● Benzo(a)anthracene	56-55-3	1	mg/kg	**5**		0.12	U	0.47		0.49		**1.2**		0.35		0.12	U	0.72		0.2		0.12	U	0.5		0.12	U
● Benzo(a)pyrene	50-32-8	1	mg/kg	**4.5**		0.16	U	0.58		0.41		1		0.3		0.16	U	0.68		0.19		0.16	U	0.44		0.16	U
● Benzo(b)fluoranthene	205-99-2	1	mg/kg	**5.7**		0.12	U	0.75		0.53		**1.3**		0.35		0.12	U	0.85		0.24		0.12	U	0.58		0.12	U
● Benzo(ghi)perylene	191-24-2	100	mg/kg	1.9		0.16	U	0.32		0.18		0.47		0.12	J	0.16	U	0.4		0.12	J	0.16	U	0.26		0.16	U
● Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	**2.1**		0.12	U	0.26		0.19		0.48		0.12		0.12	U	0.31		0.084	J	0.12	U	0.21		0.12	U
Biphenyl	92-52-4	--	mg/kg	0.11	J	0.47	U	0.46	U	0.47	U	0.47	U	0.45	U	0.46	U	0.43	U	0.46	U	0.47	U	0.51	U	0.46	U
Bis(2-ethylhexyl)phthalate	117-81-7	--	mg/kg	0.17	J	0.2	U	0.16	J	0.12	J	0.22		0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.2	U	0.2	U	0.18	J	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
Caprolactam	105-60-2	--	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
Carbazole	86-74-8	--	mg/kg	1.2	J	0.2	UJ	0.062	J	0.08	J	0.2	J	0.2	UJ	0.2	UJ	0.16	J	0.028	J	0.21	U	0.098	J	0.2	U
● Chrysene	218-01-9	1	mg/kg	**4.2**		0.12	U	0.46		0.45		**1.1**		0.29		0.12	U	0.69		0.2		0.12	U	0.53		0.12	U
● Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	**0.65**		0.12	U	0.083	J	0.062	J	0.16		0.042	J	0.12	U	0.099	J	0.029	J	0.12	U	0.065	J	0.12	U
● Dibenzofuran	132-64-9	7	mg/kg	0.78		0.2	U	0.023	J	0.065	J	0.13	J	0.2	U	0.2	U	0.078	J	0.03	J	0.21	U	0.22	U	0.2	U
● Fluoranthene	206-44-0	100	mg/kg	9.2	D	0.12	U	0.94		0.85		2.4		0.58		0.12	U	1.5		0.35		0.12	U	0.99		0.12	U
● Fluorene	86-73-7	30	mg/kg	1.2		0.2	U	0.033	J	0.084	J	0.16	J	0.026	J	0.2	U	0.13	J	0.024	J	0.21	U	0.03	J	0.2	U
● Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	**2.4**		0.16	U	0.36		0.22		**0.56**		0.16		0.16	U	0.46		0.13	J	0.16	U	0.3		0.16	U
● Naphthalene	91-20-3	12	mg/kg	1.1		0.2	U	0.2	U	0.073	J	0.16	J	0.047	J	0.2	U	0.091	J	0.062	J	0.21	U	0.037	J	0.2	U
● Phenanthrene	85-01-8	100	mg/kg	7.6		0.12	U	0.6		0.78		1.7		0.28		0.12	U	1.2		0.28		0.12	U	0.47		0.12	U
● Phenol	108-95-2	0.33	mg/kg	0.2	U	0.2	U	0.2	U	0.2	U	0.21	U	0.2	U	0.2	U	0.19	U	0.2	U	0.21	U	0.22	U	0.2	U
● Pyrene	129-00-0	100	mg/kg	7.3		0.12	U	0.79		0.68		1.9		0.48		0.12	U	1.2		0.29		0.12	U	0.8		0.12	U
Total PAHs (CP-51)	***NA***	***500***	***mg/kg***	***61.1***		***5.73***		***9.17***		***8.01***		***16.5***		***6.85***		***5.69***		***11.7***		***5.34***		***5.85***		***8.95***		***5.69***	
Polychlorinated Biphenyls by 8082A																											
● Aroclor 1254	11097-69-1	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.0398	U	-	-	0.04	U	-	-	-	-	-	-
● Aroclor 1260	11096-82-5	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.0398	U	-	-	0.04	U	-	-	-	-	-	-
● Aroclor 1268	11100-14-4	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.0398	U	-	-	0.04	U	-	-	-	-	-	-
PCBs, Total	***1336-36-3***	***0.1***	***mg/kg***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides by 8081A																											
● 4,4'-DDE	72-55-9	0.0033	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.00192	U	-	-	0.000686	J	-	-	-	-	-	-
● 4,4'-DDT	50-29-3	0.0033	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	**0.0036**	**U**	-	-	**0.00352**	**U**	-	-	-	-	-	-

TABLE 3a

REMEDIAL INVESTIGATION SOIL/FILL ANALYTICAL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter (Part 375 parameters identified with "●")	CasNum	USCO	Units	Sample Location (Depth, fbgs), Date, and Lab ID																					
				SB-5 (1-2) 2/15/2017 L1704647-13		SB-5 (4-6) 2/15/2017 L1704647-14		SB-6 (0-1) 2/15/2017 L1704647-15		SB-6 (1-2) 2/15/2017 L1704647-16		SB-7 (0-1) 2/16/2017 L1704647-17		SB-7 (1-2) 2/16/2017 L1704647-18		SB-7 (3-5) 2/16/2017 L1704647-19		SB-8 (0.5-1) 2/16/2017 L1704647-20		SB-8 (1-2) 2/16/2017 L1704647-21		SB-8 (4-6) 2/16/2017 L1704647-22		SB-9 (0.5-1.0) 2/16/2017 L1704647-23		SB-9 (1.0-2.0) 2/16/2017 L1704647-24	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Total Metals by 6010C/7471B (Mercury)																									
Aluminum, Total	7429-90-5	--	mg/kg	6300		12000		7900		7500		6600		10000		12000		17000		8900		14000		5000		7300	
Antimony, Total	7440-36-0	--	mg/kg	4.8	U	5	U	48	U	4.8	U	5	U	4.6	U	4.8	U	4.3	U	4.9	U	4.9	U	1.5	J	4.9	U
● Arsenic, Total	7440-38-2	13	mg/kg	**15**		6.9		4.4		10		12		6.6		8.8		3		8.6		8		11		3.7	
● Barium, Total	7440-39-3	350	mg/kg	250		80		54		110		150		96		99		130		130		120		130		52	
● Beryllium, Total	7440-41-7	7.2	mg/kg	0.42	J	0.45	J	0.31	J	0.35	J	0.46	J	0.46		0.5		2.7		1.7		0.66		0.49	J	0.35	J
● Cadmium, Total	7440-43-9	2.5	mg/kg	1.9		1	U	0.99		0.37	J	0.56	J	0.3	J	0.14	J	0.42	J	0.94	J	0.54	J	1.1		0.28	J
Calcium, Total	7440-70-2	--	mg/kg	20000		29000		220000		12000		8700		18000		25000		160000		46000		26000		22000		10000	
● Chromium, Total	7440-47-3	30	mg/kg	17		18		500		12		14		14		18		27		14		20		11		9.7	
Cobalt, Total	7440-48-4	--	mg/kg	5.8		8.6		4.1		6.6		5.8		8.4		10		1.7		3.8		11		4.7		5.5	
● Copper, Total	7440-50-8	50	mg/kg	**85**		23		48		**58**		**76**		31		23		19		**54**		26		**61**		16	
● Cyanide, Total	57-12-5	27	mg/kg	0.74	J	1.2	U	0.66	J	0.36	J	0.7	J	1.1	U	1.2	U	4.3		0.48	J	0.52	J	0.49	J	0.21	J
Iron, Total	7439-89-6	--	mg/kg	20000		22000		110000		21000		18000		20000		24000		33000		19000		26000		20000		13000	
● Lead, Total	7439-92-1	63	mg/kg	**750**		13		140		**240**		**480**		**83**		11		**94**		**640**		11		**650**		18	
Magnesium, Total	7439-95-4	--	mg/kg	3800		11000		8500		4200		2600		6400		10000		16000		8900		8700		3200		3500	
● Manganese, Total	7439-96-5	1600	mg/kg	340		250		12000		230		310		460		570		**1800**		830		390		270		190	
● Mercury, Total	7439-97-6	0.18	mg/kg	**1.6**		0.02	J	0.08		**0.87**		**4.2**		**0.27**		0.02	J	0.03	J	0.1		0.03	J	**1.5**		0.09	
● Nickel, Total	7440-02-0	30	mg/kg	16		23		11		16		13		17		28		6.6		10		**31**		12		14	
Potassium, Total	7440-09-7	--	mg/kg	500		1100		980		670		870		1100		1000		1400		810		1600		540		740	
● Selenium, Total	7782-49-2	3.9	mg/kg	0.3	J	2	U	1.9	U	0.57	J	2	U	1.8	U	1.9	U	1.4	J	0.4	J	1.9	U	0.55	J	2	U
● Silver, Total	7440-22-4	2	mg/kg	0.27	J	1	U	0.93	J	0.95	U	0.99	U	0.92	U	0.96	U	0.87	U	0.98	U	0.97	U	1	U	0.98	U
Sodium, Total	7440-23-5	--	mg/kg	140	J	93	J	170	J	62	J	86	J	62	J	160	J	660		320		170	J	170	J	84	J
Thallium, Total	7440-28-0	--	mg/kg	1.9	U	2	U	2.2		1.9	U	0.33	J	1.8	U	1.9	U	1.7	U	2	U	1.9	U	2	U	2	U
Vanadium, Total	7440-62-2	--	mg/kg	18		22		240		17		19		22		23		13		16		25		13		14	
● Zinc, Total	7440-66-6	109	mg/kg	**590**		58		41		**140**		**220**		100		58		**340**		**280**		65		**330**		40	

Notes:

1. "--" = SCO was not specified
2. Only those compounds detected at a minimum of one location are presented.
3. Data presented has been validated by a third party data validator; data and qualifiers modified by the validator are in RED.

BOLD	= Values exceeds Part 375 Unrestricted Soil Cleanup Objectives (USCOs)
	= Area excavated during IRM activities

Qualifiers:

D = Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J- = The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
N = Indicates presumptive evidence of a compound.
P - The RPD between the results for the two columns exceeds the method-specified criteria.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ = The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.

TABLE 3a

REMEDIAL INVESTIGATION SOIL/FILL ANALYTICAL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter (Part 375 parameters identified with "●")	CasNum	USCO	Units	Sample Location (Depth, fbgs), Date, and Lab ID																	
				TP-20 (0-1) 2/27/2017 L1706060-01		TP-20 (1-2) 2/27/2017 L1706060-02		TP-21 (0-1) 2/27/2017 L1706060-03		TP-21 (1-2) 2/27/2017 L1706060-04		TP-22 (0-1) 2/27/2017 L1706060-05		TP-22 (1-2) 2/27/2017 L1706060-06		TP-23 (0-1) 2/27/2017 L1706060-07		BLIND DUP #2 2/27/2017 L1706060-08		TP-23 (1-2) 2/27/2017 L1706060-09	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																					
Solids, Total	NONE	--	%	80.6		77.3		79.4		80.2		89.9		79.4		68.5		75.5		83.2	
Volatile Organics by 8260/5035																					
● 2-Butanone (Methyl ethyl ketone)	78-93-3	0.12	mg/kg	0.026	U	0.022	U	0.012	U	0.013	U	0.012	U	0.015	U	0.017	U	0.017	U	0.014	UJ
● Acetone	67-64-1	0.05	mg/kg	0.0052	J	0.0058	J	0.0023	J	0.013	U	0.012	U	0.015	U	0.017	U	0.004	J	0.003	J
Semivolatile Organics by 8270D																					
2,4-Dimethylphenol	105-67-9	--	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.18	U	0.21	U	0.24	U	0.22	U	0.2	U
2-Methylnaphthalene	91-57-6	--	mg/kg	0.24	U	0.26	U	0.17	J	0.24	U	2.3		0.14	J	0.072	J	0.13	J	0.23	U
● 2-Methylphenol (o-Cresol)	95-48-7	0.33	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.041	J	0.21	U	0.24	U	0.22	U	0.2	U
● 3-Methylphenol (m-Cresol) / 4-Methylphenol (p-Cresol)	108-39-4 106-44-5	0.33	mg/kg	0.29	U	0.31	U	0.3	U	0.29	U	0.14	J	0.034	J	0.35	U	0.31	U	0.28	U
4-Nitroaniline	100-01-6	--	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.18	U	0.21	U	0.24	U	0.22	U	0.2	U
● Acenaphthene	83-32-9	20	mg/kg	0.16	U	0.17	U	0.071	J	0.06	J	6.9		0.14	J	0.13	J	0.21		0.16	U
● Acenaphthylene	208-96-8	100	mg/kg	0.16	U	0.17	U	0.16		0.16	U	0.23		0.17		0.15	J	0.18		0.16	U
Acetophenone	98-86-2	--	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.18	U	0.21	U	0.24	U	0.22	U	0.2	U
● Anthracene	120-12-7	100	mg/kg	0.12	U	0.13	U	0.22		0.1	J	15	D	0.41		0.41	J	0.8	J	0.12	U
Atrazine	1912-24-9	--	mg/kg	0.16	U	0.17	U	0.16	U	0.16	U	0.14	U	0.16	U	0.19	U	0.17	U	0.16	U
Benzaldehyde	100-52-7	--	mg/kg	0.27	U	0.28	U	0.084	J	0.27	U	0.24	U	0.063	J	0.32	U	0.28	U	0.26	U
● Benzo(a)anthracene	56-55-3	1	mg/kg	0.041	J	0.13	U	0.84		0.15		27	D	1		1.3	J	2.2	J	0.12	U
● Benzo(a)pyrene	50-32-8	1	mg/kg	0.16	U	0.17	U	0.71		0.12	J	23	D	1.4		1.1		1.6		0.16	U
● Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.06	J	0.13	U	0.97		0.15		33	D	1.4		1.4		2.2		0.12	U
● Benzo(ghi)perylene	191-24-2	100	mg/kg	0.034	J	0.17	U	0.43		0.046	J	14	D	0.56		0.59		0.84		0.16	U
● Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	0.12	U	0.13	U	0.34		0.053	J	6.1		0.42		0.52		0.7		0.12	U
Biphenyl	92-52-4	--	mg/kg	0.46	U	0.49	U	0.47	U	0.46	U	0.74		0.47	U	0.55	U	0.49	U	0.45	U
Bis(2-ethylhexyl)phthalate	117-81-7	--	mg/kg	0.2	U	0.21	U	0.32		0.2	U	0.18	U	0.11	J	0.24	U	0.074	J	0.2	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.18	U	0.21	U	0.24	U	0.22	U	0.2	U
Caprolactam	105-60-2	--	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.18	U	0.21	U	0.24	U	0.22	U	0.2	U
Carbazole	86-74-8	--	mg/kg	0.2	U	0.21	U	0.11	J	0.034	J	9	D	0.18	J	0.24		0.46		0.2	U
● Chrysene	218-01-9	1	mg/kg	0.04	J	0.13	U	0.79		0.14		26	D	1		1.2		2		0.12	U
● Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.12	U	0.13	U	0.11	J	0.12	U	3.6		0.18		0.16		0.24		0.12	U
● Dibenzofuran	132-64-9	7	mg/kg	0.2	U	0.21	U	0.083	J	0.03	J	4.9		0.13	J	0.098	J	0.23		0.2	U
● Fluoranthene	206-44-0	100	mg/kg	0.073	J	0.13	U	1.6		0.36		65	D	2.4		2.7	J	4.8	J	0.12	U
● Fluorene	86-73-7	30	mg/kg	0.2	U	0.21	U	0.079	J	0.06	J	9	D	0.17	J	0.16	J	0.27		0.2	U
● Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	0.03	J	0.17	U	0.46		0.052	J	16	D	0.66		0.67		0.99		0.16	U
● Naphthalene	91-20-3	12	mg/kg	0.2	U	0.21	U	0.16	J	0.2	U	11	D	0.15	J	0.1	J	0.25		0.2	U
● Phenanthrene	85-01-8	100	mg/kg	0.033	J	0.13	U	0.93		0.34		57	D	1.7		1.8	J	3.6	J	0.12	U
● Phenol	108-95-2	0.33	mg/kg	0.2	U	0.21	U	0.2	U	0.2	U	0.1	J	0.21	U	0.24	U	0.22	U	0.2	U
● Pyrene	129-00-0	100	mg/kg	0.059	J	0.13	U	1.3		0.27		45	D	2		2.2	J	3.7	J	0.12	U
Total PAHs (CP-51)	***NA***	***500***	***mg/kg***	***5.03***		***6.05***		***12.3***		***5.47***		***377***		***16.5***		***18.3***		***28.3***		***5.66***	
Polychlorinated Biphenyls by 8082A																					
● Aroclor 1254	11097-69-1	0.1	mg/kg	-	-	0.0414	U	-	-	-	-	0.035	U	-	-	0.0118	J	-	-	-	-
● Aroclor 1260	11096-82-5	0.1	mg/kg	-	-	0.0414	U	-	-	-	-	0.00759	J	-	-	0.0186	J	-	-	-	-
● Aroclor 1268	11100-14-4	0.1	mg/kg	-	-	0.0414	U	-	-	-	-	0.0058	J	-	-	0.0178	J	-	-	-	-
PCBs, Total	***1336-36-3***	***0.1***	***mg/kg***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***0.0134***		***-***	***-***	***0.0482***		***-***	***-***	***-***	***-***
Organochlorine Pesticides by 8081A																					
● 4,4'-DDE	72-55-9	0.0033	mg/kg	-	-	0.00206	U	-	-	-	-	0.00326		-	-	**0.00825**		-	-	-	-
● 4,4'-DDT	50-29-3	0.0033	mg/kg	-	-	0.00387	U	-	-	-	-	**0.0117**		-	-	**0.0336**	J	-	-	-	-

TABLE 3a

REMEDIAL INVESTIGATION SOIL/FILL ANALYTICAL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter (Part 375 parameters identified with "●")	CasNum	USCO	Units	Sample Location (Depth, fbgs), Date, and Lab ID																	
				TP-20 (0-1) 2/27/2017 L1706060-01		TP-20 (1-2) 2/27/2017 L1706060-02		TP-21 (0-1) 2/27/2017 L1706060-03		TP-21 (1-2) 2/27/2017 L1706060-04		TP-22 (0-1) 2/27/2017 L1706060-05		TP-22 (1-2) 2/27/2017 L1706060-06		TP-23 (0-1) 2/27/2017 L1706060-07		BLIND DUP #2 2/27/2017 L1706060-08		TP-23 (1-2) 2/27/2017 L1706060-09	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Total Metals by 6010C/7471B (Mercury)																					
Aluminum, Total	7429-90-5	--	mg/kg	2400		6000		7000		13000		9800		7500		10000		9300		7900	
Antimony, Total	7440-36-0	--	mg/kg	4.9	U	5	U	1.4	J	4.7	U	0.7	J	0.82	J	5.6	U	5.1	U	4.6	U
● Arsenic, Total	7440-38-2	13	mg/kg	5.4		28		17		5.4		5.3		**16**		9.7		6.9		4.4	
● Barium, Total	7440-39-3	350	mg/kg	45		99		250		130		100		250		140		130		58	J-
● Beryllium, Total	7440-41-7	7.2	mg/kg	0.3	J	0.35	J	0.47	J	0.59		1.4		0.5		0.65		1.1		0.35	J
● Cadmium, Total	7440-43-9	2.5	mg/kg	0.98	U	1	U	0.84	J	0.94	U	0.2	J	1		0.14	J	0.22	J	0.93	U
Calcium, Total	7440-70-2	--	mg/kg	13000		1600		9300		4200		78000		25000		29000	J	52000	J	10000	J-
● Chromium, Total	7440-47-3	30	mg/kg	5.2		9.9		19		18		8.1		22		16	J	9.5	J	12	
Cobalt, Total	7440-48-4	--	mg/kg	1.9	J	3.6		6.8		9.8		2.9		6.7		8		4.5		8.2	
● Copper, Total	7440-50-8	50	mg/kg	21		83		72		22		35		**120**		**60**	J	**54**	J	30	
● Cyanide, Total	57-12-5	27	mg/kg	1.2	U	1.3	U	0.46	J	1.2	U	0.58	J	0.45	J	0.46	J	0.38	J	1.1	U
Iron, Total	7439-89-6	--	mg/kg	7200		17000		26000		22000		12000		29000		21000		13000		16000	J-
● Lead, Total	7439-92-1	63	mg/kg	27		190		1500		35		**200**		**740**		**260**		**250**		34	J
Magnesium, Total	7439-95-4	--	mg/kg	2200		990		3500		3900		10000		5800		6000		10000		3900	J-
● Manganese, Total	7439-96-5	1600	mg/kg	110		83		390		490		570		460		390		480		240	J-
● Mercury, Total	7439-97-6	0.18	mg/kg	0.03	J	0.12		2.1		0.1		**0.77**		**4.1**		**1.1**		**1.1**		0.1	J
● Nickel, Total	7440-02-0	30	mg/kg	7.3		9.6		16		25		8		19		21	J	11	J	20	
Potassium, Total	7440-09-7	--	mg/kg	190	J	640		600		900		850		820		1100		1000		480	
● Selenium, Total	7782-49-2	3.9	mg/kg	2	U	0.95	J	1.9	U	1.9	U	0.61	J	1.9	U	2.2	U	0.74	J	0.4	J
● Silver, Total	7440-22-4	2	mg/kg	0.98	U	1	U	0.96	U	0.94	U	0.86	U	0.3	J	1.1	U	1	U	0.93	U
Sodium, Total	7440-23-5	--	mg/kg	73	J	78	J	74	J	42	J	300		210		110	J	300		44	J
Thallium, Total	7440-28-0	--	mg/kg	2	U	2	U	1.9	U	1.9	U	1.7	U	1.9	U	2.2	U	2	U	1.9	U
Vanadium, Total	7440-62-2	--	mg/kg	7.4		20		20		22		7.7		22		21	J	12	J	15	
● Zinc, Total	7440-66-6	109	mg/kg	32		67		510		62		**120**		**620**		**170**		**160**		68	J

Notes:

1. "--" = SCO was not specified
2. Only those compounds detected at a minimum of one location are presented.
3. Data presented has been validated by a third party data validator; data and qualifiers modified by the validator are in RED.

BOLD	= Values exceeds Part 375 Unrestricted Soil Cleanup Objectives (USCOs)
	= Area excavated during IRM activities

Qualifiers:

D = Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J- = The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
N = Indicates presumptive evidence of a compound.
P - The RPD between the results for the two columns exceeds the method-specified criteria.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ = The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.

TABLE 3b

TEST PIT INVESTIGATION SOIL/FILL RESULTS vs. USCOs

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Test Pit Location	Sample Depth (fbgs)	Part 375 USCO	
		Total Lead (mg/kg)	TCLP Lead (mg/L)
TP-1	0.0 - 1.0	**838**	--
TP-2	0.0 - 1.0	**556**	0.13
TP-3	0.0 - 1.5	**1620**	--
TP-5	0.0 - 0.5	**184**	--
TP-5	0.5 - 1.5	**994**	0.59
TP-6	4.0 - 4.5	**1370**	--
TP-7	0.0 - 0.5	**574**	--
TP-8	0.0 - 1.5	**512**	--
TP-10	0.0 - 3.0	**1090**	0.38
TP-11	0.0 - 0.5	**930**	0.31
TP-13	0.5 - 2.5	**3070**	1.7
TP-14	0.0 - 1.5	**728**	0.047
TP-15	0.0 - 2.5	**620**	--
TP-15	2.5 - 4.0	45.2	--
TP-17	0.0 - 1.0	**334**	--
TP-20	0.0 - 1.0	27	--
TP-20	1.0 - 2.0	**190**	--
TP-21	0.0 - 1.0	**1500**	--
TP-21	1.0 - 2.0	35	--
TP-22	0.0 - 1.0	**200**	--
TP-22	1.0 - 2.0	**740**	--
TP-23	0.0 - 1.0	**260**	--
BLIND DUP #2 (TP-23 [0-1])	0.0 - 1.0	**250**	--
TP-23	1.0 - 2.0	34	--
TP-24A	0.0 - 3.0	**5900**	2.4
TP-24B	0.0 - 3.0	**1500**	--
BLIND DUP #3 (TP-24A [0-3])	0.0 - 3.0	**3500**	--
TP-25A	0.0 - 3.0	**760**	0.27 J
TP-25B	0.0 - 3.0	**1100**	--
TP-26A	0.0 - 2.0	**830**	2.1
TP-26B	0.0 - 2.0	**630**	--
TP-27A	0.0 - 3.0	**770**	0.13 J
TP-27B	0.0 - 3.0	**740**	--
TP-28A	0.0 - 1.0	**1100**	0.22 J
TP-28B	0.0 - 1.0	**980**	--
TP-29A	0.0 - 1.0	**35000**	0.31 J
TP-29B	0.0 - 1.0	**750**	--
TP-30A	0.0 - 1.5	**2500**	**28**
TP-30B	0.0 - 1.5	**1000**	--
TP-31A	0.0 - 2.0	**3100**	**54**
TP-31B	0.0 - 2.0	**1700**	--
TP-32A	0.0 - 3.0	**2300**	0.37 J
TP-32B	0.0 - 3.0	**1700**	--
TP-33A	0.0 - 1.0	**130**	--
TP-34A	0.0 - 1.0	**460**	--
Black Sand	0.0 - 0.5	**9000**	**160**

Notes:

1. Only those SVOCs detected at a minimum of one location are presented.
2. Values exceeding Part 375 Unrestricted Soil Cleanup Objectives (USCOs) and USEPA Maximum Concentration for Toxicity Characteristic are highlighted in orange.

Qualifiers:

J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

BOLD	= Exceeds Part 375 USCO = 63 mg/kg
BOLD	= Exceeds USEPA Toxicity Concentration
	= Area excavated during IRM activities

TABLE 4

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Site Management Plan
Silos at Elk Street Site (C915309)
Buffalo, New York

Parameter	CasNum	GWQS / GV	Units	Sample Location, Date, and Lab ID													
				MW-1 3/7/2017 L1707093-01		BLIND DUP 3/7/2017 L1707093-02		MW-2 3/7/2017 L1707093-03		MW-3 3/7/2017 L1707093-04		MW-4 3/7/2017 L1707093-05		MW-5 3/7/2017 L1707093-06		TRIP BLANK 3/7/2017 L1707093-07	
				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organics by 8260/5035																	
Acetone	67-64-1	50	ug/L	5	U	5	U	5	U	5	U	5	U	3.3	J	5	U
Benzene	71-43-2	1	ug/L	0.5	U	0.5	U	0.5	U	0.5	U	0.19	J	0.5	U	0.5	U
Carbon disulfide	75-15-0	60	ug/L	5	U	5	U	5	U	5	U	5	U	1.9	J	5	U
Cyclohexane	110-82-7	--	ug/L	10	U	10	U	10	U	10	U	1.2	J	10	U	10	U
Methyl cyclohexane	108-87-2	--	ug/L	10	U	10	U	10	U	10	U	1.4	J	10	U	10	U
Total TICs	*--*	*--*	*ug/L*	***none***		***none***		***none***		***none***		***none***		***none***		***none***	
Semivolatile Organics by 8270D																	
Acenaphthene	83-32-9	20	ug/L	0.04	J	0.1	U	0.1	U	0.1	U	0.1	U	0.04	J	-	-
Anthracene	120-12-7	50	ug/L	0.05	J	0.2	U	0.2	U	0.2	U	0.2	U	0.04	J	-	-
Benzo(a)anthracene	56-55-3	0.002	ug/L	**0.04**	**J**	0.2	U	**0.02**	**J**	0.2	U	0.2	U	**0.03**	**J**	-	-
Benzo(b)fluoranthene	205-99-2	0.002	ug/L	**0.05**	**J**	0.2	U	**0.02**	**J**	0.2	U	0.2	U	**0.02**	**J**	-	-
Fluoranthene	206-44-0	50	ug/L	0.07	J	0.2	U	0.2	U	0.2	U	0.2	U	0.05	J	-	-
Fluorene	86-73-7	50	ug/L	0.05	J	0.2	U	0.2	U	0.2	U	0.2	U	0.05	J	-	-
Phenanthrene	85-01-8	50	ug/L	0.07	J	0.2	U	0.02	J	0.2	U	0.2	U	0.05	J	-	-
Pyrene	129-00-0	50	ug/L	0.05	J	0.2	U	0.2	U	0.2	U	0.2	U	0.04	J	-	-
Total TICs	*--*	*--*	*ug/L*	***none***		***none***		***none***		***none***		***none***		***none***		***none***	
Total Metals by 6010C/7471B (Mercury)																	
Aluminum, Total	7429-90-5	--	ug/L	867	J	494	J	304		210		144		296		-	-
Antimony, Total	7440-36-0	3	ug/L	4	U	4	U	4	U	4	U	4	U	4	U	-	-
Arsenic, Total	7440-38-2	25	ug/L	2.76		2.52		1.29		1.37		2.38		2.29		-	-
Barium, Total	7440-39-3	1000	ug/L	279.8		278.3		59.18		82.12		57.45		65.53		-	-
Cadmium, Total	7440-43-9	5	ug/L	0.11	J	0.06	J	0.2	U	0.2	U	0.2	U	0.06	J	-	-
Calcium, Total	7440-70-2	--	ug/L	144000		140000		97000		59400		107000		75200		-	-
Chromium, Total	7440-47-3	50	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	-	-
Cobalt, Total	7440-48-4	--	ug/L	3.18		3.01		0.84		1.19		1.26		2.15		-	-
Copper, Total	7440-50-8	200	ug/L	4.39	J	2.94	J	4		3.36		1.45		2.56		-	-
Iron, Total	7439-89-6	300	ug/L	**1760**	**J**	**1020**	**J**	**519**		**372**		**594**		**459**		-	-
Lead, Total	7439-92-1	25	ug/L	2.07		1.27		5.66		3.24		1.13		9.49		-	-
Magnesium, Total	7439-95-4	35000	ug/L	**114000**		**108000**		**84800**		**81200**		**96800**		**102000**		-	-
Manganese, Total	7439-96-5	300	ug/L	260.6		235		80.71		112.9		84.23		155.1		-	-
Mercury, Total	7439-97-6	0.7	ug/L	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.07	J	-	-
Nickel, Total	7440-02-0	100	ug/L	6.25		5.95		4.76		2.76		2.14		2.92		-	-
Potassium, Total	7440-09-7	--	ug/L	3890		4000		3360		3010		3170		3290		-	-
Selenium, Total	7782-49-2	10	ug/L	2.51	J	2.43	J	5	U	5	U	2.27	J	5	U	-	-
Sodium, Total	7440-23-5	20000	ug/L	**95700**		**93800**		**65600**		**47200**		**34700**		**44300**		-	-
Vanadium, Total	7440-62-2	--	ug/L	2.4	J	5	U	5	U	5	U	5	U	5	U	-	-
Zinc, Total	7440-66-6	2000	ug/L	16.59		10.99		17.49		7.19	J	5.57	J	11.36		-	-

Notes:

1. Only those compounds detected at a minimum of one location are presented.
2. Values exceeding NYS Ambient Water Quality Class GA Groundwater Quality Standards/Guidance Values; NYSDEC June 1998 Div. of Water Technical and Operational Guidance Series (TOGS) 1.1.1 highlighted in yellow.
3. Data presented has been validated by a third party data validator; data and qualifiers modified by the validator are in RED.

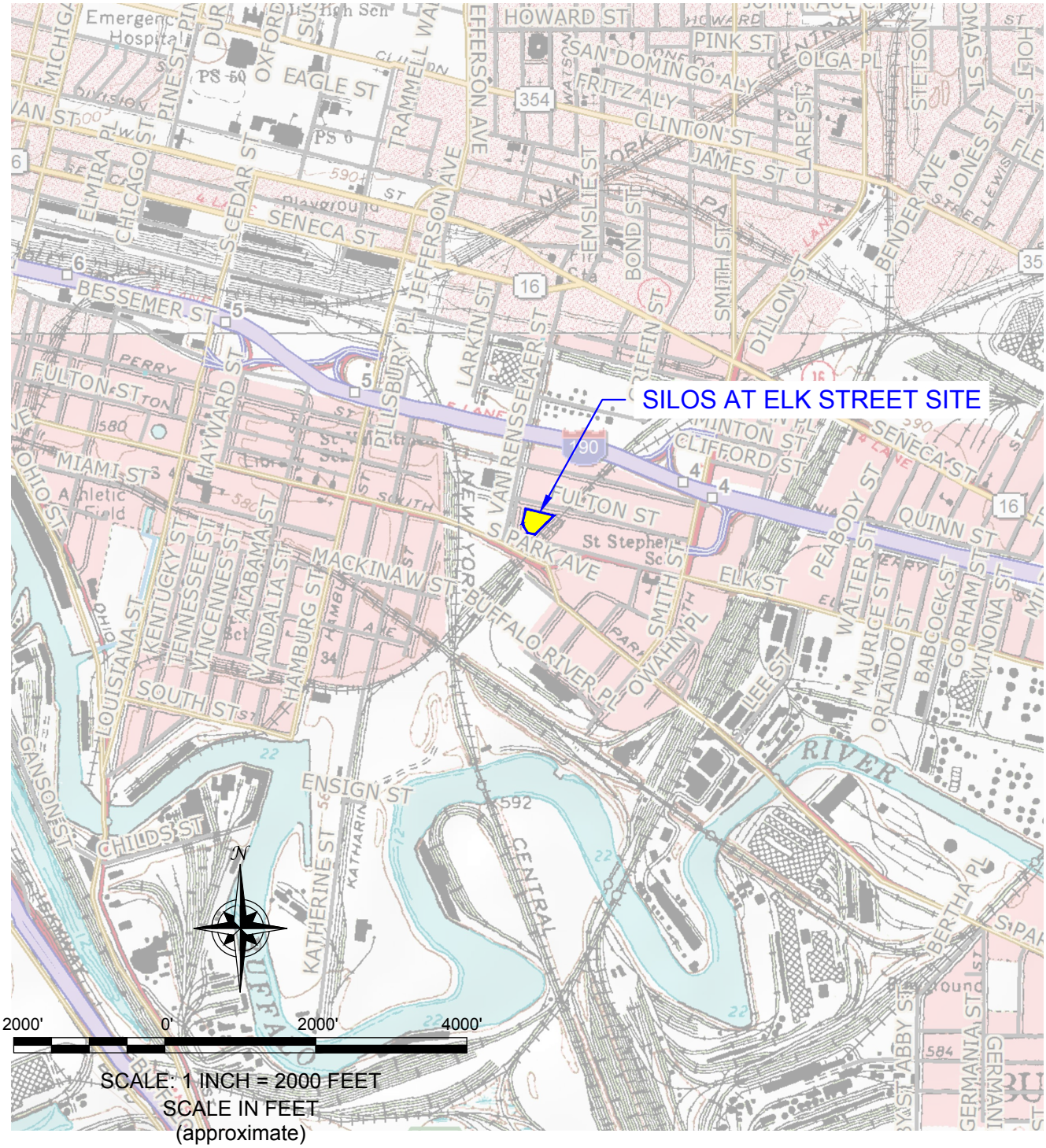
Qualifiers:

J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
TICs = Tentatively identified compounds

FIGURES

F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\Figure 1; Site Location & Vicinity Map.dwg

FIGURE 1



BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0381-017-006

DATE: JULY 2017

DRAFTED BY: RFL

SITE LOCATION & VICINITY MAP

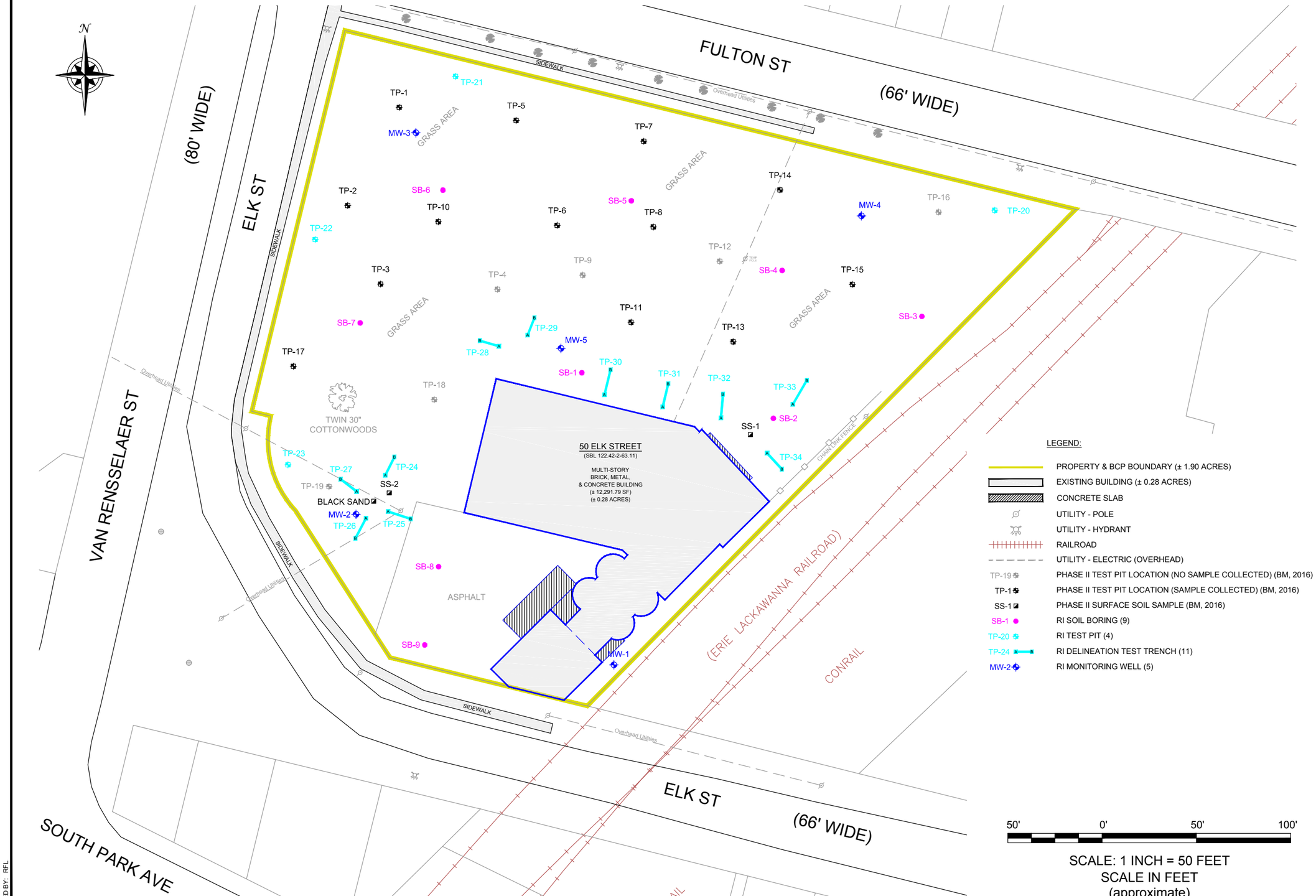
SITE MANAGEMENT PLAN

SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR

SILOS AT ELK STREET, LLC

F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\Figure 2; Site Plan and Investigation Sample Locations.dwg



DATE: JULY 2017
DRAFTED BY: RFL

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0381-017-006

SITE PLAN AND INVESTIGATION SAMPLE LOCATIONS

SITE MANAGEMENT PLAN

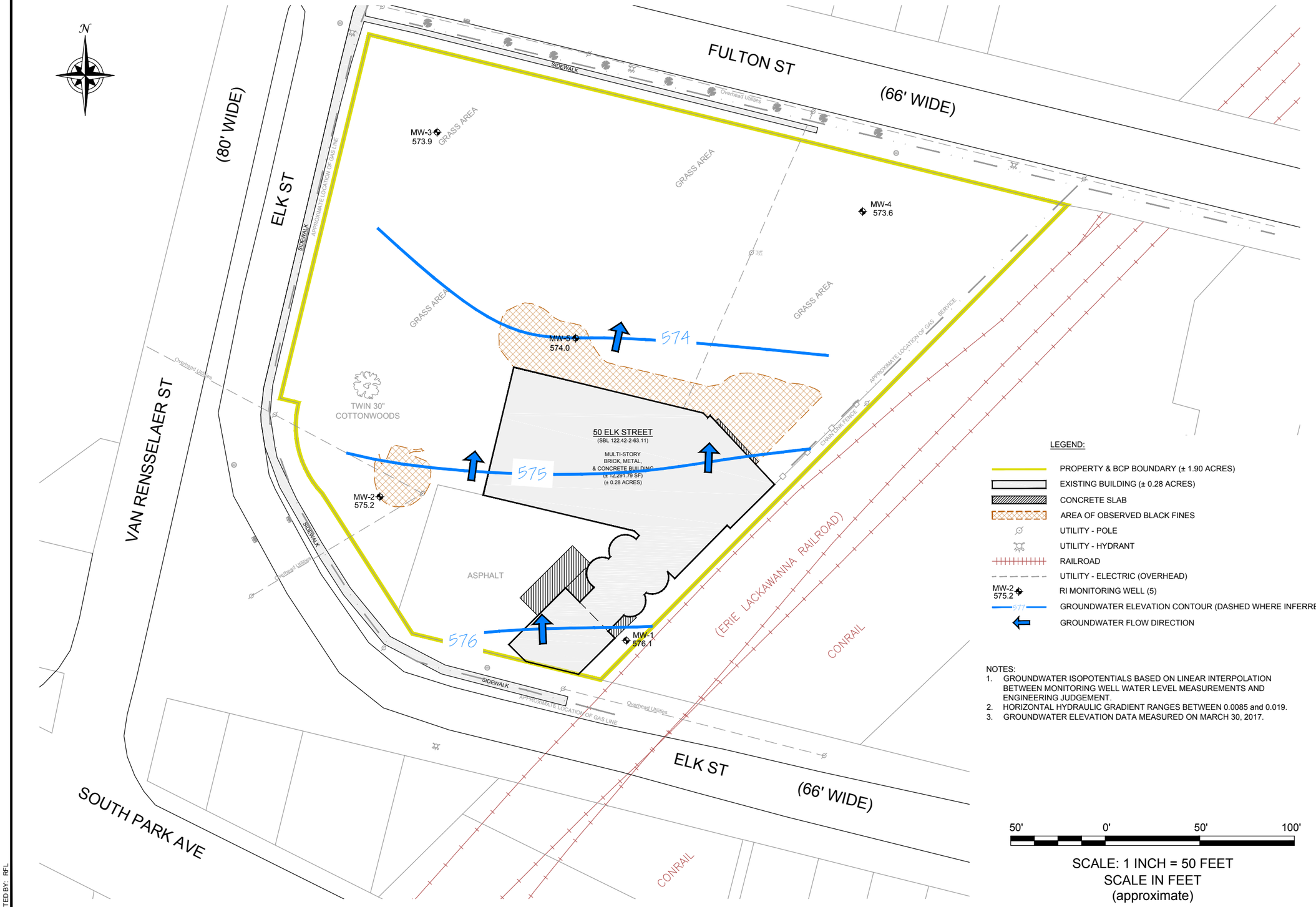
SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR

SILOS AT ELK STREET, LLC

FIGURE 2

F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\Figure 3; Shallow GW Isopotential Map (March 2017).dwg



NOTES:
1. GROUNDWATER ISOPOTENTIALS BASED ON LINEAR INTERPOLATION BETWEEN MONITORING WELL WATER LEVEL MEASUREMENTS AND ENGINEERING JUDGEMENT.
2. HORIZONTAL HYDRAULIC GRADIENT RANGES BETWEEN 0.0085 and 0.019.
3. GROUNDWATER ELEVATION DATA MEASURED ON MARCH 30, 2017.

DATE: JULY 2017
DRAFTED BY: RFL

SHALLOW GROUNDWATER ISOPOTENTIAL MAP MARCH 30, 2017

SITE MANAGEMENT PLAN

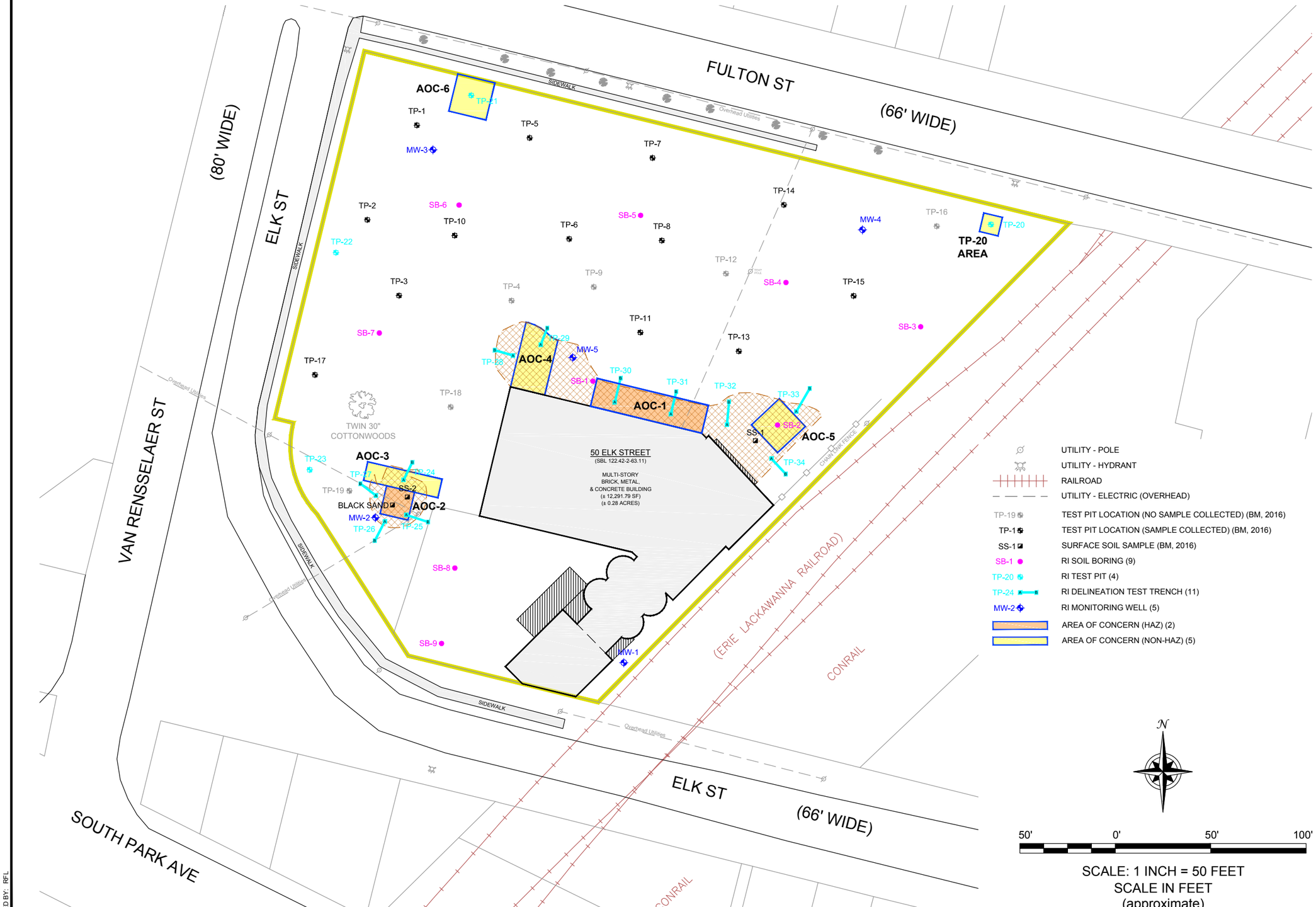
SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR
SILOS AT ELK STREET, LLC

FIGURE 3

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0381-017-006



F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\Figure 4; Remedial Excavations and Confirmatory Sample Locations.dwg

DATE: JULY 2017
DRAFTED BY: RFL

REMEDIAL EXCAVATIONS AND CONFIRMATORY SAMPLE LOCATIONS

REMEDIAL INVESTIGATION WORK PLAN

SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR

SILOS AT ELK STREET, LLC

FIGURE 4

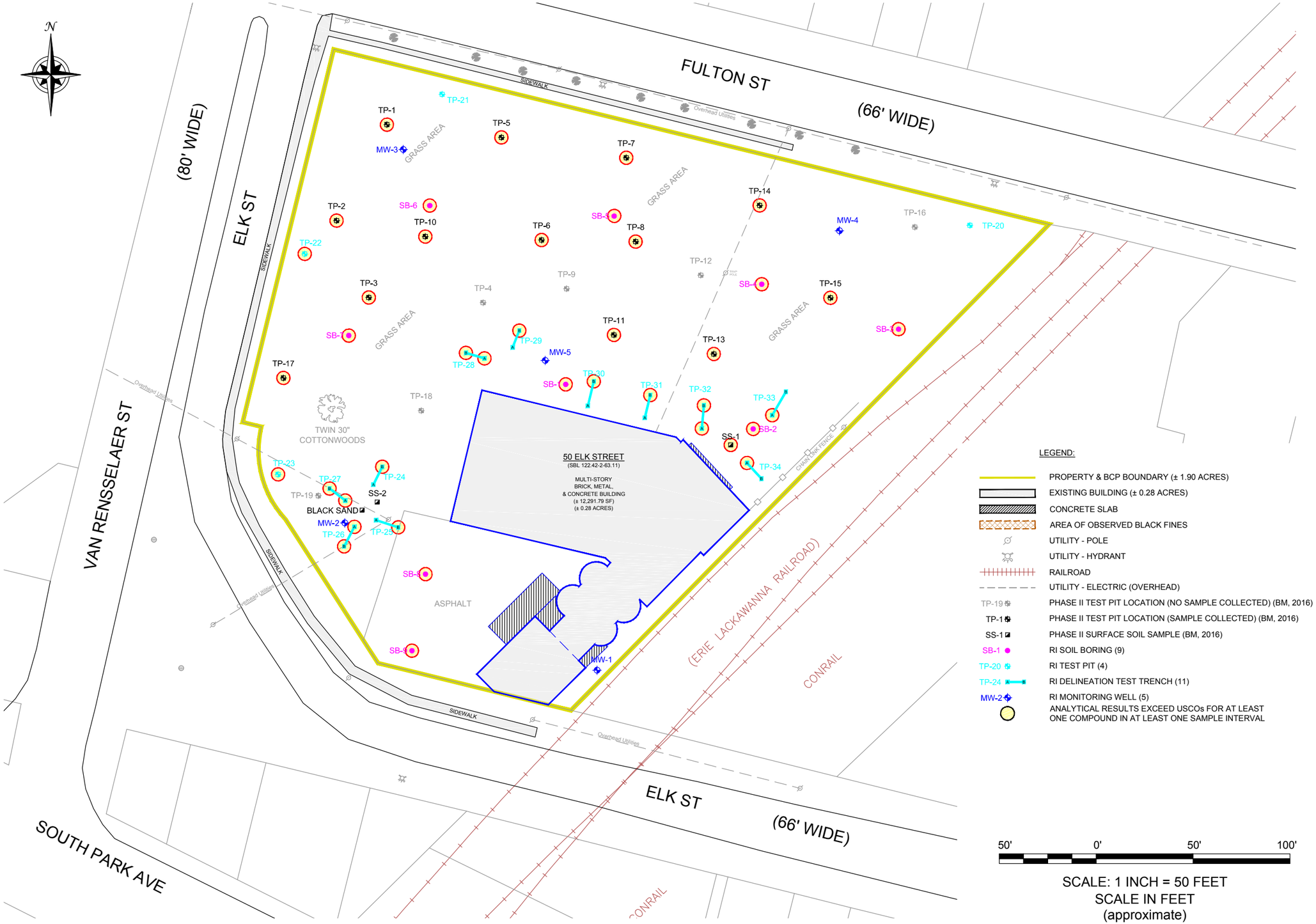
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0381-017-006

F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\Figure 5, Remaining Soil Above USCOs.dwg



DATE: JULY 2017
DRAFTED BY: RFL

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0381-017-006

REMAINING SOIL/FILL ABOVE USCOs

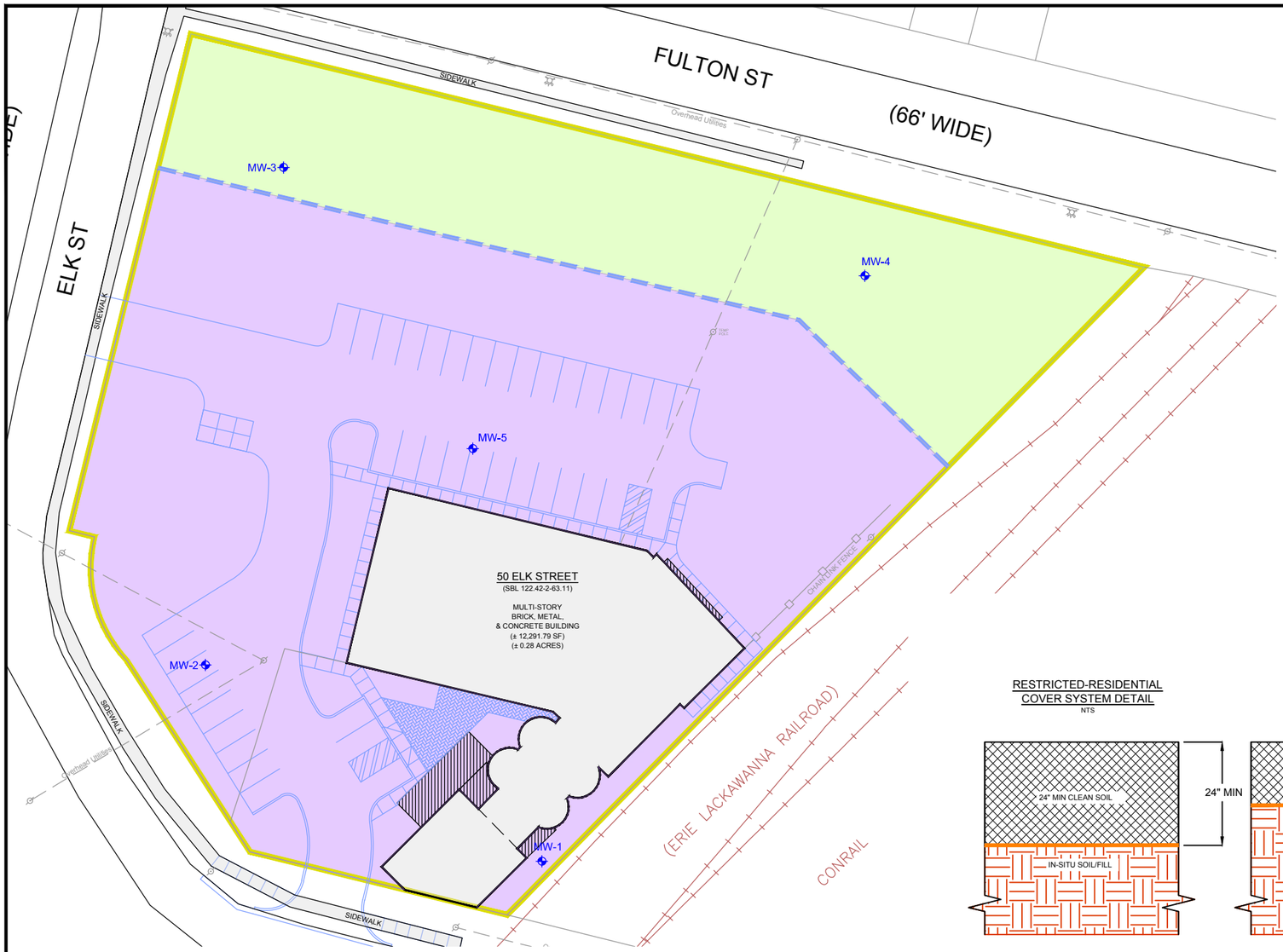
SITE MANAGEMENT PLAN

SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR

SILOS AT ELK STREET, LLC

FIGURE 5



N

50' 0' 50' 100'

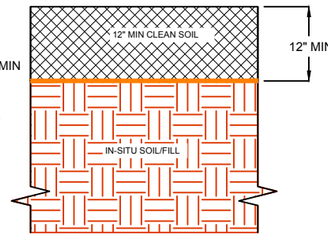
SCALE: 1 INCH = 50 FEET
SCALE IN FEET
(approximate)

LEGEND:

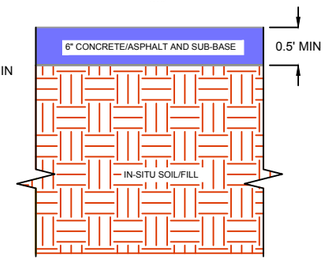
- PROPERTY & BCP BOUNDARY (± 1.90 ACRES)
- EXISTING BUILDING (± 0.28 ACRES)
- CONCRETE SLAB
- UTILITY - POLE
- UTILITY - HYDRANT
- RAILROAD
- UTILITY - ELECTRIC (OVERHEAD)
- HARDSCAPE (ASPHALT OR CONCRETE)
- MW-2 RI MONITORING WELL (5)
- TRACK 4 RESTRICTED RESIDENTIAL (± 0.51 ACRES)
- TRACK 4 COMMERCIAL (± 1.11 ACRES)

RESTRICTED-RESIDENTIAL
COVER SYSTEM DETAIL
NTS

COMMERCIAL AREA
COVER SYSTEM DETAIL
NTS

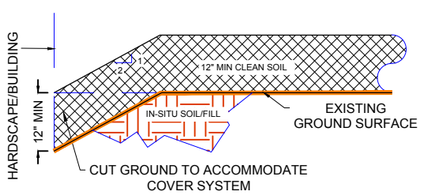


CONCRETE/ASPHALT
COVER SYSTEM DETAIL
NTS

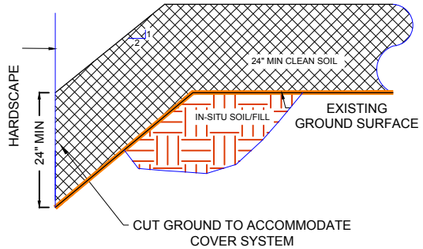


DEMARCATION LAYER

COMMERCIAL TIE-IN DETAIL
NTS



RESTRICTED-RESIDENTIAL TIE-IN
DETAIL
NTS



DATE: DECEMBER 2017
DRAFTED BY: RFL

F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\Figure 6.Cover System Layout and Details.dwg, DWG To PDF.pc3

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0381-017-006

COVER SYSTEM LAYOUT AND DETAILS

SITE MANAGEMENT PLAN

SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR

SILOS AT ELK STREET, LLC

FIGURE 6

APPENDIX A

ENVIRONMENTAL EASEMENT

MICHAEL P. KEARNS, ERIE COUNTY CLERK
REF:

DATE:2/7/2018
TIME:11:51:35 AM
RECEIPT: 18024247 - DUPLICATE -

PARALEGAL SERVICES OF BUFFALO
ACCOUNT #: 9273

DUPLICATE RECEIPT

ITEM - 01 785
RECD: 2/7/2018 11:53:40 AM
FILE: 2018026749 BK/PG D 11325/3114
Deed Sequence: TT2017014416
SILOS AT ELK STREET LLC
PEOPLE OF THE STATE OF NEW YORK (THE)

Recording Fees	95.00
TP584	10.00

Subtotal 105.00

TOTAL DUE	$105.00
PAID TOTAL	$105.00
PAID ESCROW	$105.00

REC BY: David RB
COUNTY RECORDER

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

THIS INDENTURE made this 22nd day of January, 2018 between Owner(s) Silos at Elk Street, LLC, having an office at 740 Seneca Street, Buffalo, New York 14210, 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 50 Elk Street in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 122.42 Block 2 Lot 63.11, being the same as that property conveyed to Grantor by deed dated September 20, 2016 and recorded in the Erie County Clerk's Office in Liber and Page 11303/986. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.41 +/- acres, and is hereinafter more fully described in the Land Title Survey dated April 1, 2016 and last revised December 8, 2017 prepared by David Scott Freeman, L.L.S. of Freeman and Freeman Land Surveyors, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A (Track 4 Commercial Area); and

WHEREAS, Grantor, is the owner of real property located at the address of 50 Elk Street in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 122.42 Block 2 Lot 63.11,

being the same as that property conveyed to Grantor by deed dated September 20, 2016 and recorded in the Erie County Clerk's Office in Liber and Page 11303/986. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.49 +/- acres, and is hereinafter more fully described in the Land Title Survey dated April 1, 2016 and last revised December 8, 2017 prepared by David Scott Freeman, L.L.S. of Freeman and Freeman Land Surveyors, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A (Track 4 Restricted-Residential Area); 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: C915309-01-17, 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 portion of the Controlled Property identified in Schedule A as "Track 4 Commercial Area" 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), and the portion of the Controlled Property described in Schedule A as "Track 4 Restricted-Residential Area" may be used for Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), 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 Erie 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 portion of the Controlled Property identified in Schedule A as "Track 4 Commercial Area" shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), the portion of the Controlled Property identified in Schedule A herein as "Track 4 Restricted-Residential Area" shall not be used for Residential purposes as defined in 6 NYCRR 375-1.8(g)(2)(i), 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: C915309 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.

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

Silos at Elk Street, LLC:

By: _____

Print Name: SHAUN WRIGHT

Title: MEMBER Date: 12/27/17

Grantor's Acknowledgment

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

On the 27th day of December in the year 2017, before me, the undersigned, personally appeared Shaun Wright, 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

CRAIG A. SLATER
Notary Public, State of New York
Qualified in Erie County
Commission Expires October 31, 2018

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, Assistant Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 22nd day of January, in the year 2018, 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, 2018

SCHEDULE "A" EASEMENT DESCRIPTION

Track 4 Commercial Area – 1.41 Acres

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie and State of New York, being part of Lot 14, Township 11, Range 8 of the Holland Land Company's survey, bounded and described as follows:

Commencing at a point at the intersection of the West Bounds of Elk Street and the South Bounds of Fulton Street, thence Southerly along the West Bounds of Elk Street, a distance of 53.40 feet to the POINT OF BEGINNING;

Thence turning an interior angle of 90-00'00", a distance of 255.00 feet; thence turning an interior angle of 150-15'18", a distance of 80.04 feet to the Southeasterly Line of Lot 14 said point also being the West Line of R.R. Perry Corporation; thence turning an interior angle of 88-56'39" and along the Southeasterly Line of Lot 14 said point also being the West Line of R.R. Perry Corporation, a distance of 243.37 feet to the North Bounds of Elk Street;

thence turning an interior angle of 120-46'37", a distance of 102.50 feet;

thence turning an interior angle of 136-29'44", a distance of 87.83 feet to the point of curve of a non tangent curve to the right, of which the radius point lies N 32°56'28" E, a radial distance of 52.00 feet;

thence Northwesterly along the arc, through a central angle of 57°01'21", a distance of 51.75 feet;

thence Westerly, a distance of 10.00 feet;

thence turning an interior angle of, a distance of 144.60 feet to the POINT OF BEGINNING.

Containing 1.41 acres, more or less.

Track 4 Restricted-Residential Area – 0.49 Acres

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie and State of New York, being part of Lot 14, Township 11, Range 8 of the Holland Land Company's survey, bounded and described as follows:

Beginning at a point at the intersection of the West Bounds of Elk Street and the South Bounds of Fulton Street, said point being the POINT OF BEGINNING;

thence along the South Bounds of Fulton Street, a distance of 380.00 feet to the Southeasterly Line of Lot 14 said point also being the West Line of R.R. Perry Corporation;

thence turning an interior angle of 59-11'58" and along the Southeasterly Line of Lot 14 said point also being the West Line of R.R. Perry Corporation, a distance of 108.40 feet;

thence turning an interior angle of 91-03'21", a distance of 80.04 feet;

thence turning an exterior angle of 150-15'18", a distance of 255.00 feet;

thence turning an interior angle of 90-00'00", a distance of 53.40 feet to the POINT OF BEGINNING.

Containing 0.49 acres, more or less.

APPENDIX B

EXCAVATION WORK PLAN

BROWNFIELD CLEANUP PROGRAM
SITE MANAGEMENT PLAN

APPENDIX B
EXCAVATION WORK PLAN

SILOS AT ELK STREET SITE
NYSDEC SITE NUMBER: C915309
BUFFALO, NEW YORK

July 2017 0381-017-006

Prepared for:

Silos at Elk Street, LLC

Prepared By:

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

SITE MANAGEMENT PLAN
APPENDIX B: EXCAVATION PLAN
SILOS AT ELK STREET SITE

Table of Contents

B-1: NOTIFICATION

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

Table 1: Notifications*

NYSDEC Project Manager Mr. Maurice Moore, P.E.	716-851-7220 Maurice.moore@dec.ny.gov
NYSDEC Regional HW Engineer Mr. Chad Staniszewski, P.E.	716-851-7220 Chad. staniszewski@dec.ny.gov
NYSDEC Site Control Ms. Kelly Lewandowski, P.E.	518-402-9543 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 with 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.

B-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 below.

B-3: SOIL STAGING METHODS

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.

B-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.

B-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 shall be selected to involve the shortest commute through residential neighborhoods as feasible. All trucks loaded with site materials will exit the vicinity of the site using 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 limiting 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.

B-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).

B-7: MATERIALS REUSE ON-SITE

'Reuse on-site' means reuse on-site of material that originates at the site and which does not leave the Site during the excavation. The criteria under which soil/fill originating on-site may be used on-site are presented below.

- **Excavated, Non-Impacted On-Site Soil/Fill:** Non-impacted soil/fill (i.e., soil/fill that does not exhibit visible or olfactory evidence of contamination; is not grossly contaminated, as defined in Part 375; and does not exhibit PID readings that exceed 10 ppm that is excavated from the Site may be used on-site as backfill beneath the cover system without special handling. 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.

- **Excavated, Potentially Impacted On-Site Soil/Fill:** Potentially impacted soil/fill (i.e., soils that exhibit field visual and/or olfactory indications of contamination), or with elevated PID readings (above 10 ppm) may not be used on-site unless tested and determined to meet the chemical criteria for restricted-residential SCOs (RRSCOs) or commercial SCOs (CSCOs) per 6NYCRR Part 375. Potentially impacted material will be segregated, as described above, and sampled to determine acceptance for reuse. The material reuse analysis will be discussed with the Department, and may include those constituents identified in 6NYCRR Part 375 for VOCs, SVOCs, metals, PCBs, pesticides and herbicides, in accordance with applicable USEPA SW846 analytical methodology.

The analytical results will be compared to NYSDEC's current RRSCOs or CSCOs. If concentrations are below the SCOs, the soil/fill can be reused on-site. If the concentrations are above the SCOs, the results shall be shared with the NYSDEC and approval obtained prior to their specified reuse on-site. Staging and stockpiling of materials should be conducted as described previously.

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. No grossly impacted material shall be reused on-site; such materials must be disposed off-site in accordance with applicable local, state, and federal regulations.

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.

B-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 fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

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.

B-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 decision document. The existing cover system is comprised of 12 inches (commercial use area) or 24 inches (restricted-residential use area) of clean soil or stone over demarcation layer, asphalt pavement, concrete covered sidewalks and curbs, and concrete building slab. The demarcation layer 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 (e.g., 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 any updates to the SMP.

B-10: BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional and 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). The criteria under which off-site material may be used as backfill are presented below.

- **Off-Site Soil/Fill:** Off-site soil/fill may be used as backfill provided that it originates from known sources having no evidence of disposal or releases of hazardous substances; hazardous, toxic or radioactive wastes; or petroleum, and is tested and meet all of the criteria in accordance with Appendix 5 of DER-10. In addition, no off-site materials meeting the definition of a solid waste as defined in 6NYCRR, Part 360-1.2(a) shall be used as backfill.
- **Other Off-Site Material:** Material other than soil may be imported as backfill, without chemical testing, provided it contains less than 10% (by weight) material that would pass through a size 80 sieve: 1) Rock or stone, consisting of virgin material from a permitted mine or quarry; 2) Recycled concrete, brick, or asphalt from a NYSDEC-registered or permitted C&D debris processing facility (as specified in Section 360-16.1 of 6NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002). As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), "uncontaminated" means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

Off-site borrow soils shall be tested to assure conformance with the criteria identified above. If an off-site soil/fill borrow source is of unknown origin or originates from a commercial or urban site, then a tiered approach based on the volume of impacted soil/fill being excavated will be used to determine the frequency of characterization sampling in accordance with DER-10, Section 5.4 and Table 5.4(3)10.

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.

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.

B-11: STORMWATER POLLUTION PREVENTION

If future site activities include large excavation, details of storm water pollution prevention will be included in the applicable notification provided to the Department. If required by the Department as part of the planned future excavation activities, barriers and hay bale check 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.

B-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, as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed in accordance with 6NYCRR Part 375 and consultation with the Department.

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.

B-13: COMMUNITY AIR MONITORING PLAN

The Community Air Monitoring Plan (CAMP) will follow the guidance provided in the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan found in Appendix 1A of NYSDEC's DER-10 *Technical Guidance for Site Investigation and Remediation*. The CAMP for this Site is included as Appendix D. The CAMP will be implemented for all intrusive activities performed at the Site. The upwind and downwind monitoring locations required in the generic CAMP will be determined based on the prevailing wind direction at the start of work. Air sampling locations will be adjusted on a daily or more frequent basis based on actual wind directions and work locations. VOC monitoring will be performed using a PID or other equipment that is capable of calculating 15-minute running average concentrations. All air monitoring equipment will be calibrated at least daily. The 15-minute average concentration will be compared to the levels specified below. Alternatively, the upwind monitoring location may be removed as long as the background contribution is considered to be 0.0 ppm.

B-14: ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. Specific odor control methods may include limiting exposed face of the excavation area; reduction in work hours and/or specific work activities (e.g., load out of material); proof rolling excavation; and application of odor control agents (e.g., spray-foam).

If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted until the source of odors has been abated. NYSDEC and NYSDOH will be notified of all odor events and any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on-site 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 handing area in a temporary containment structure equipped with appropriate air venting/ filtering systems.

B-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 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, non-vegetated 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.
- Covering or proof-rolling excavated area and materials after excavation activities ceases.
- Reducing the excavation size and/or number of excavations.

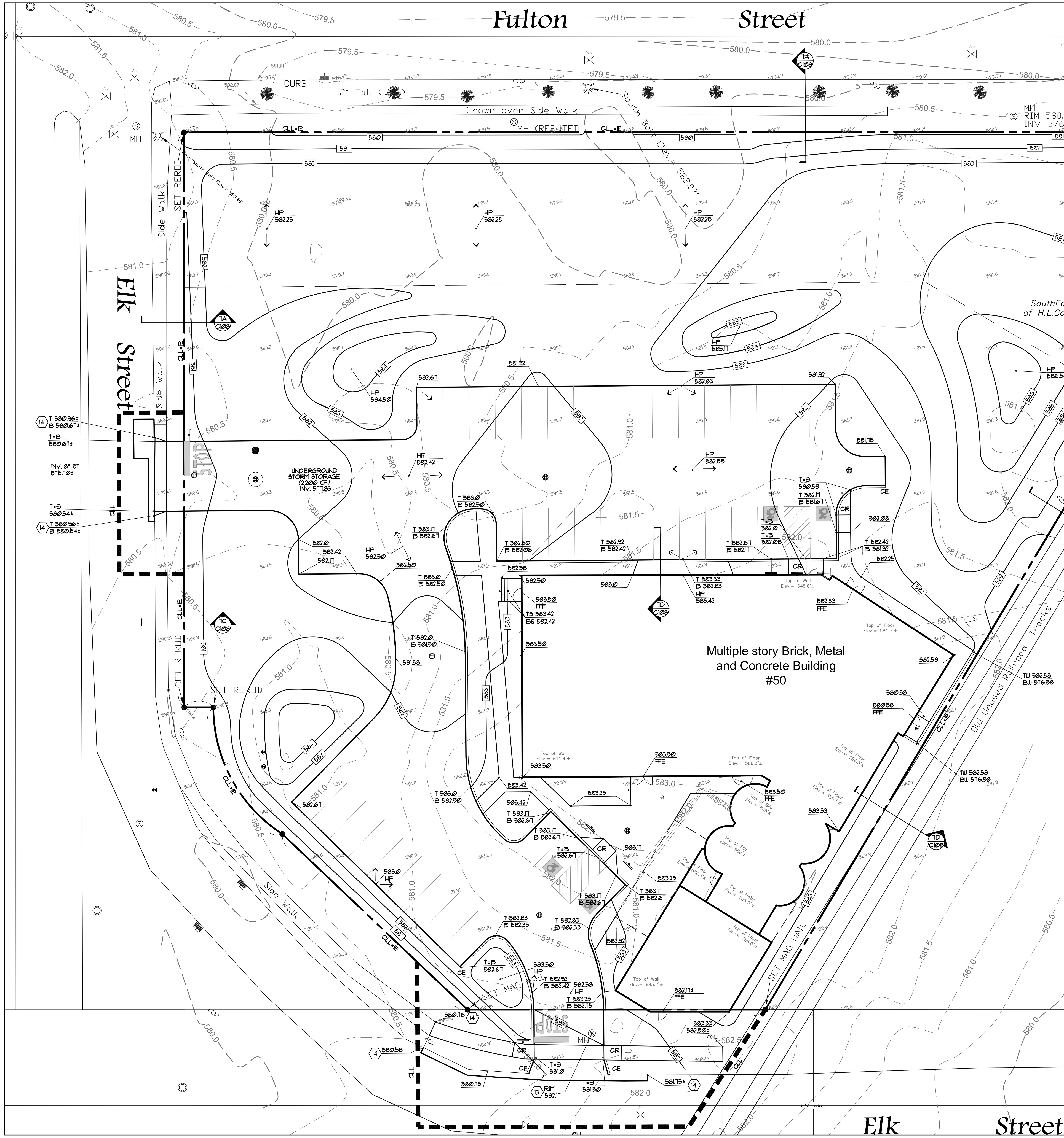
B-16: OTHER NUISANCES

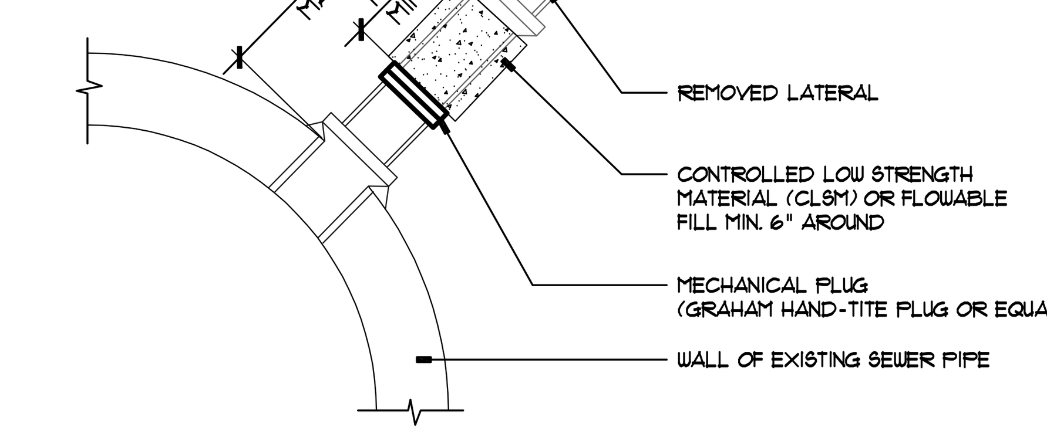
A plan for rodent control will be developed and used by the contractor prior to and during Site clearing and grubbing, and during all remedial work.

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

APPENDIX C

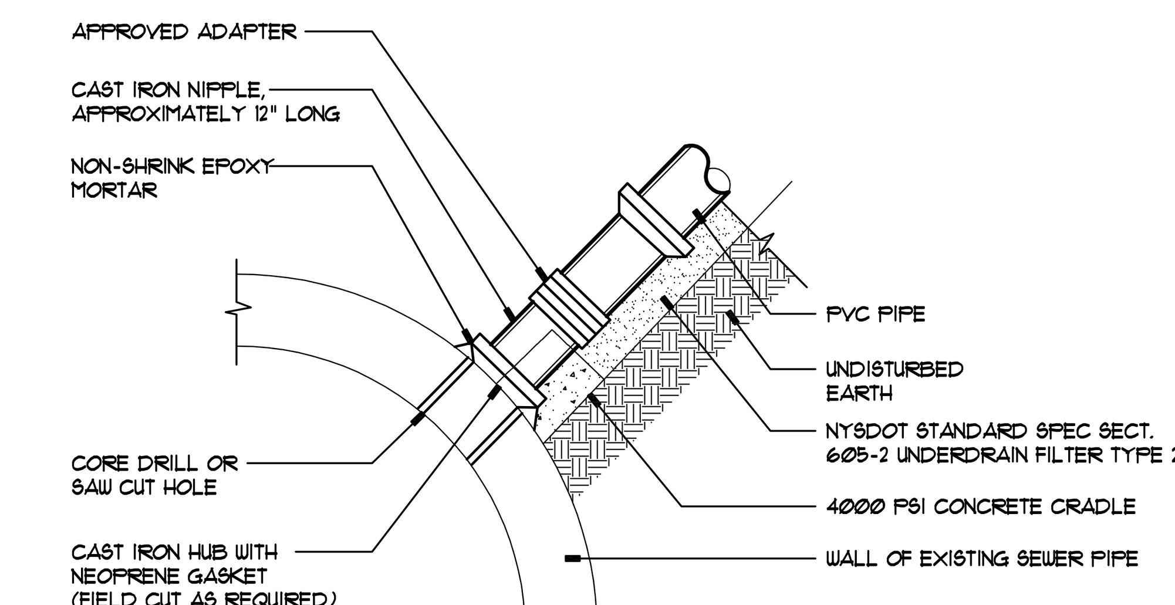
REDEVELOPMENT DETAILS





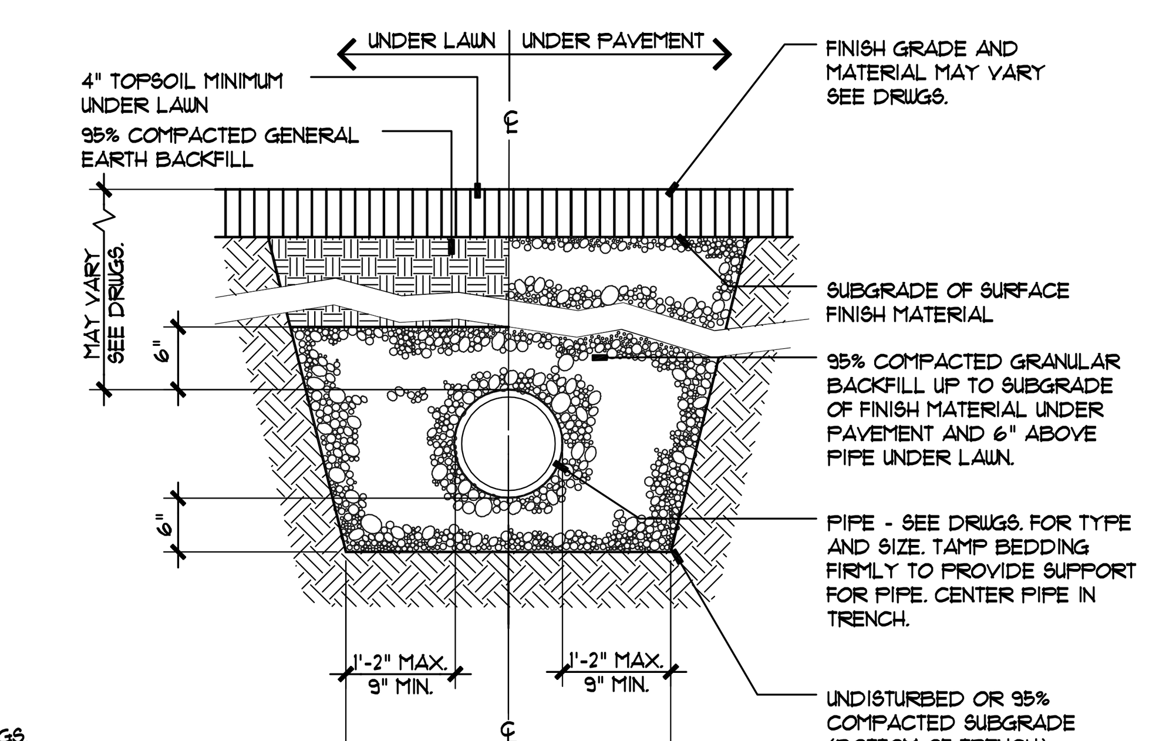
NOTE(S):
WHEN ABANDONING SEWER LATERAL CONNECTION(S) TO THE PUBLIC SEWER, CONTRACTOR SHALL CUT AND REMOVE THE DRAINAGE PIPE TO WITHIN TWO FEET OF THE MAIN SEWER, WHERE PRACTICABLE. THE PIPE FROM THE CUT TO THE MAIN SEWER SHALL NOT BE DAMAGED IN ANY MANNER BY THE CONTRACTOR. IF THE EXISTING LATERAL IS DAMAGED BY THE CONTRACTOR, THE LATERAL MAIN SHALL BE FIXED IN A MANNER ACCEPTABLE TO THE BUFFALO SEWER AUTHORITY (BSA) AND THE ENGINEER AT NO COST TO THE BSA. ONCE THE LATERAL HAS BEEN CUT, THE LATERAL SHALL BE PLUGGED WITH A MECHANICAL PLUG (GRAHAM HAND-TITE PLUG OR EQUAL) THAT IS ACCEPTABLE TO THE BSA AND THE ENGINEER. THE PLUG IS TO BE INSTALLED A MINIMUM OF ONE (1) FOOT DEEP INTO THE LATERAL AND CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE PLACED WITHIN THE ENTIRE DIAMTERE OF THE PIPE FOR ONE (1) LINEAR FOOT. THE REMAINING PIPE SHALL BE REMOVED AND PROPERLY DISPOSED OF OR ABANDONED IN PLACE AND FILLED WITH CLSM (OR FLOWABLE FILL).

LATERAL ABANDONMENT

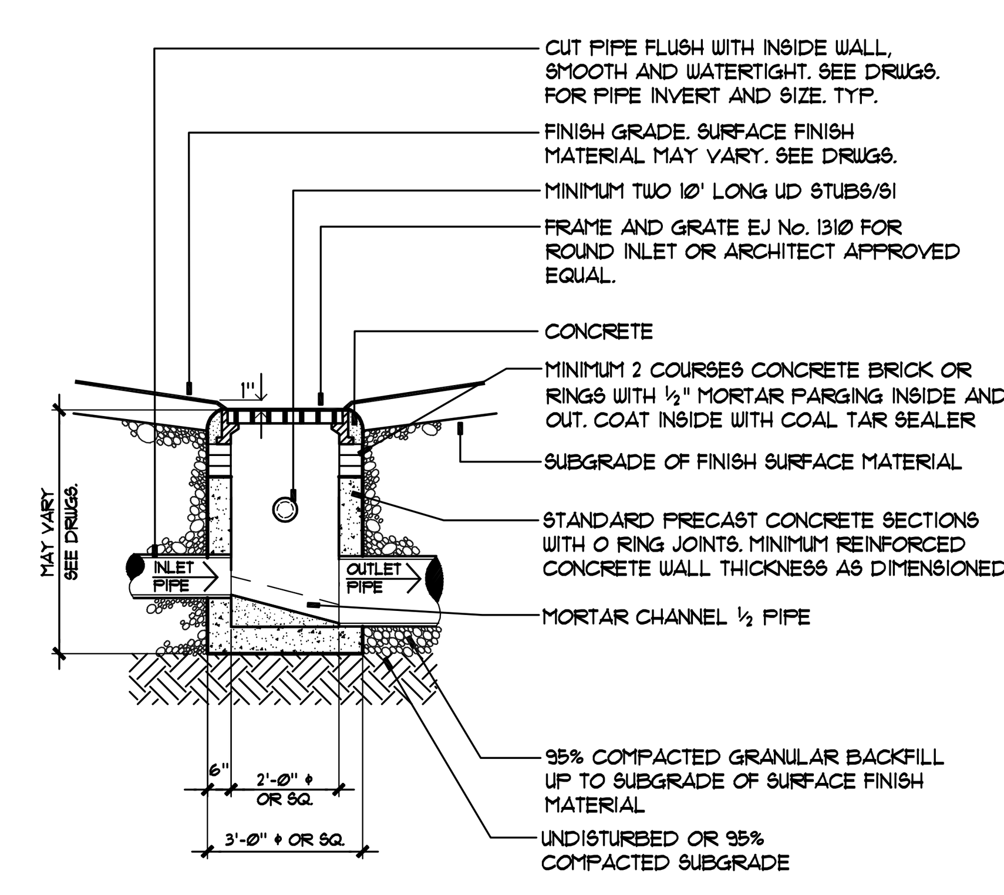


PROPOSED LATERAL TAP

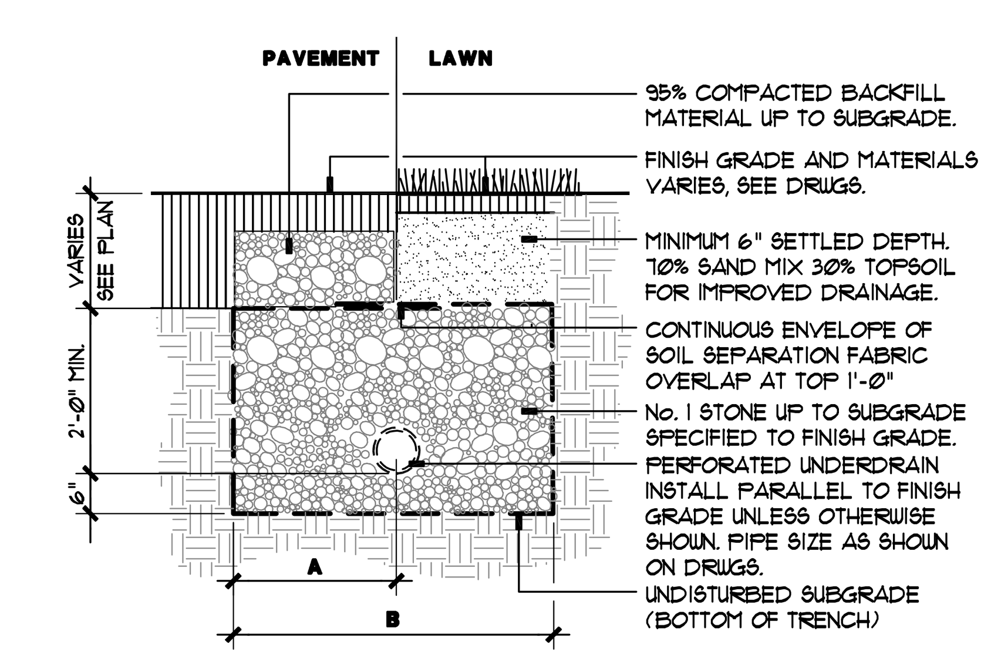
3 / C103 TYPICAL CONNECTION TO EXISTING SEWER
SECTION • NOT TO SCALE 252-014
BASED ON BUFFALO SEWER AUTHORITY DETAIL



2 / C103 PIPE BEDDING WITH GRANULAR BACKFILL
SECTION • NOT TO SCALE 3340-105A
© APPEL OSBORNE LANDSCAPE ARCHITECTURE



4 / C103 STORM INLET = SI
SECTION • NOT TO SCALE 3340-202A
© APPEL OSBORNE LANDSCAPE ARCHITECTURE



PIPE SIZE	A	B	NOTES
4"	1'-0"	2'-0"	FLEXIBLE
6"	1'-6"	3'-0"	FLEXIBLE
8"	1'-6"	3'-0"	FLEXIBLE

PIPE SIZE	A	B	NOTES
10"	2'-0"	4'-0"	FLEXIBLE
12"	2'-0"	4'-0"	FLEXIBLE

1 / C103 STORMWATER MGMT TRENCH = SMT
SECTION • NOT TO SCALE 3340-102
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NORTH
0 10 20 40 60
SCALE IN FEET

SILOS AT ELK STREET - GRADING and DRAINAGE PLAN

YOUNG + WRIGHT ARCHITECTURAL
740 Seneca St.
Buffalo, NY 14210
Ph. 716.842.1800
Fax. 716.842.1807
1344 University Ave.
Suite 140
Rochester, NY 14607
Ph. 585.461.4771
www.youngarch.com

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Tri-Main Center
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Buffalo, NY 14214
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F: 716.836.2319
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Jensen BRV ENGINEERING, PLLC
Structural Engineering Consultants
1653 EAST MAIN STREET
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www.jensenbrv.com

Project Information

SILOS at ELK STREET

50 ELK STREET
BUFFALO, NY 14210

Revisions

Mark	Date	Description
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-	08.04.17	BID REVIEW
-	01.19.17	CD REVIEW

Project No. 151027
Drawn By CL/JK/BM/TL

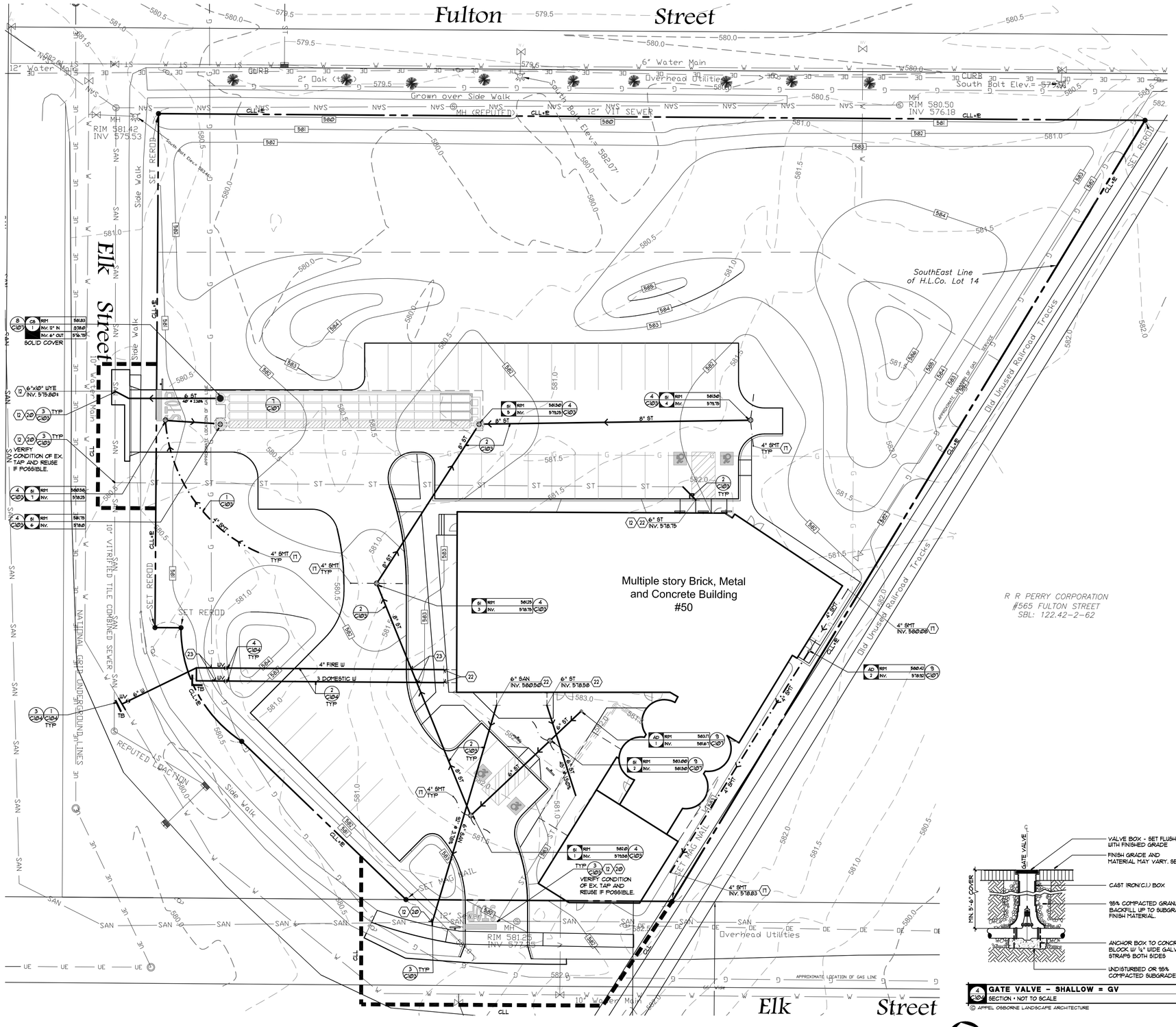
Sheet Title

GRADING and DRAINAGE PLAN

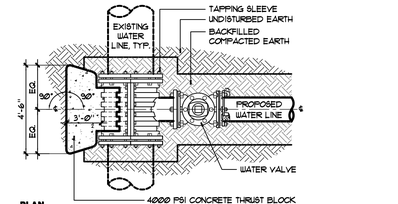
This is a single sheet of a cohesive set of construction documents, including drawings and specifications. Interpretation of the information presented is to be based on the entire set of documents.

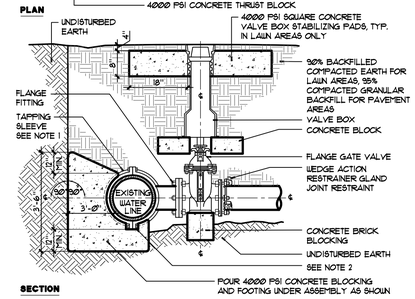
Sheet No.

C103



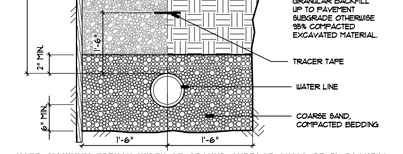
SILOS AT ELK STREET - UTILITY PLAN





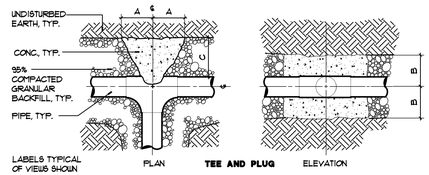
NOTES:
1. CONCRETE BACKING IS TO BE FORMED TO ENSURE ACCESSIBILITY TO FITTINGS AND POURED AGAINST UNDISTURBED EARTH.
2. FITTINGS ARE TO BE COMPLETELY UNWRAPPED IN PLASTIC, PRIOR TO POURING CONCRETE.
3. CONCRETE TO BE MINIMUM 4000 PSI @ 28 DAYS.
4. PROVIDE 1" EARTH CUSHION BETWEEN BOTTOM OF CONCRETE BRICK AND VALVE. DO NOT LET VALVE BOX OR BRICK REST ON VALVE ASSEMBLY.

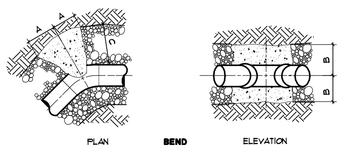
3/C104 STANDARD TAPPING SLEEVE & VALVE ASSEMBLY
SECTION • NOT TO SCALE — TAPPING-SLEEVE



NOTE: MAXIMUM TRENCH WIDTH AT GROUND SURFACE SHALL BE 5'. BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH SPECIFICATIONS.

2/C104 WATERLINE TRENCH
SECTION • NOT TO SCALE — 255-Ø04

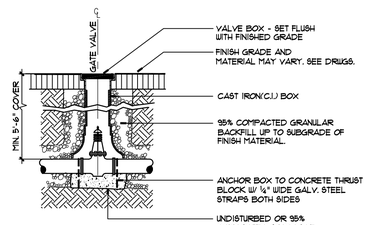




CONCRETE ANCHOR & THRUST BLOCK DIMENSIONS

PIPE SIZE	12" ø			10" ø			8" ø			6" ø			4" ø OR LESS		
DIMENSIONS	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
BEND 90°	3'-Ø"	3'-Ø"	3'-Ø"	2'-6"	2'-6"	2'-6"	2'-Ø"	2'-Ø"	2'-Ø"	1'-6"	1'-6"	1'-6"	1'-Ø"	1'-Ø"	1'-Ø"
45°	2'-2"	2'-2"	2'-2"	1'-10"	1'-10"	1'-10"	1'-6"	1'-6"	1'-6"	1'-2"	1'-2"	1'-2"	Ø'-9"	Ø'-9"	Ø'-9"
22 1/2°	1'-6"	1'-6"	1'-6"	1'-4"	1'-4"	1'-4"	1'-Ø"	1'-Ø"	1'-Ø"	Ø'-9"	Ø'-9"	Ø'-9"	Ø'-6"	Ø'-6"	Ø'-6"
11 1/4°	1'-Ø"	1'-Ø"	1'-Ø"	1'-Ø"	1'-Ø"	1'-Ø"	Ø'-9"	Ø'-9"	Ø'-9"	Ø'-6"	Ø'-6"	Ø'-6"	Ø'-6"	Ø'-6"	Ø'-6"
PLUG	2'-6"	2'-6"	2'-6"	2'-Ø"	2'-Ø"	2'-Ø"	1'-8"	1'-8"	1'-8"	1'-3"	1'-3"	1'-3"	1'-Ø"	1'-Ø"	1'-Ø"
TEE BRANCH SIZE	2'-6"	2'-6"	2'-6"	2'-Ø"	2'-Ø"	2'-Ø"	1'-8"	1'-8"	1'-8"	1'-3"	1'-3"	1'-3"	1'-Ø"	1'-Ø"	1'-Ø"

1/C104 THRUST BLOCK = TB
PLAN AND ELEVATION • NOT TO SCALE — 255-Ø03



4/C104 GATE VALVE - SHALLOW = GV
SECTION • NOT TO SCALE — 255-Ø05

YOUNG + WRIGHT ARCHITECTURAL

740 Seneca St.
Buffalo, NY 14210
Ph. 716.842.1800
Fax. 716.842.1807

1344 University Ave.
Suite 140
Rochester, NY 14607
Ph. 585.461.4771

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Buffalo, NY 14214
P: 716.836.2315
F: 716.836.2319
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1653 EAST MAIN STREET
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www.jensenbrv.com

Project Information

SILOS at ELK STREET

50 ELK STREET
BUFFALO, NY 14210

Revisions

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Project No. 151027
Drawn By CL/JK/BM/TL

Sheet Title

UTILITY PLAN

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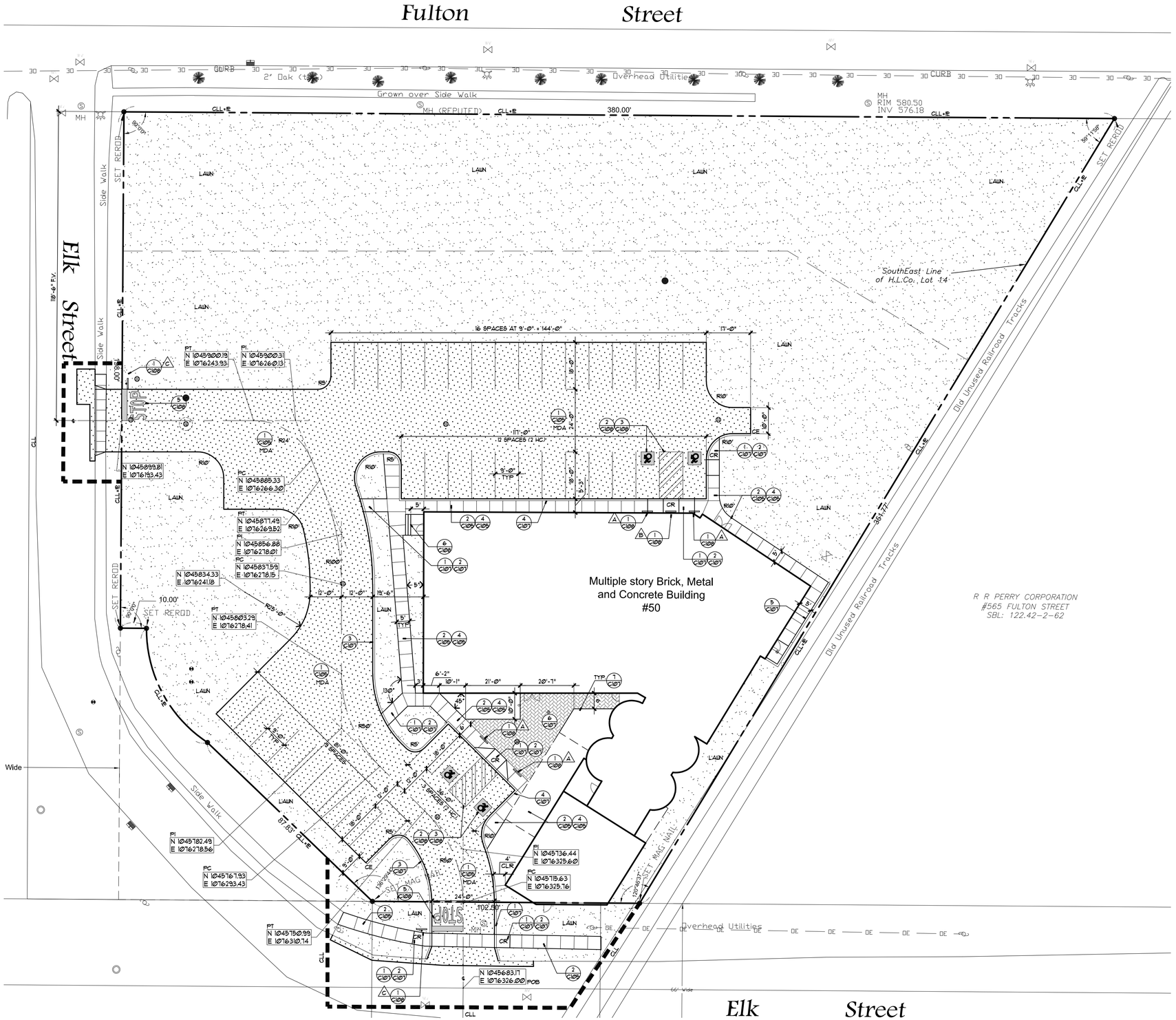
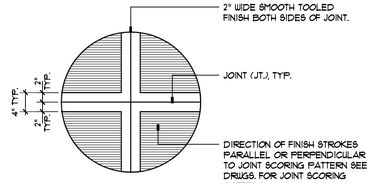
Sheet No.

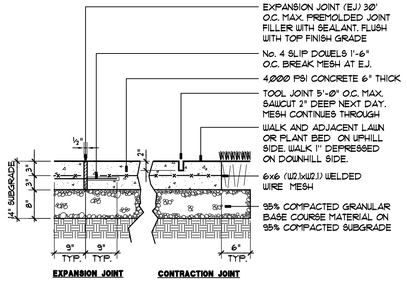
C104



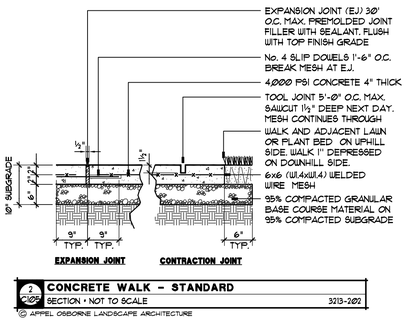
SILOS AT ELK STREET - LAYOUT PLAN



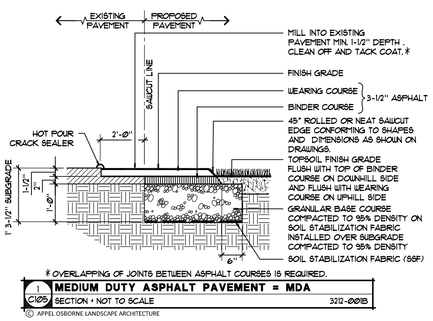
4 C105 **CONCRETE WALK AND FINISHED PAD**
SECTION • NOT TO SCALE 3213-201



3 C105 **CONCRETE WALK - HEAVY DUTY = HDC**
SECTION • NOT TO SCALE 3213-203



2 C105 **CONCRETE WALK - STANDARD**
SECTION • NOT TO SCALE 3213-202



* OVERLAPPING OF JOINTS BETWEEN ASPHALT COURSES IS REQUIRED.

1 C105 **MEDIUM DUTY ASPHALT PAVEMENT = MDA**
SECTION • NOT TO SCALE 3212-0010

YOUNG + WRIGHT ARCHITECTURAL
740 Seneca St.
Buffalo, NY 14210
Ph. 716.842.1600
Fax. 716.842.1807
1344 University Ave.
Suite 140
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LAYOUT PLAN

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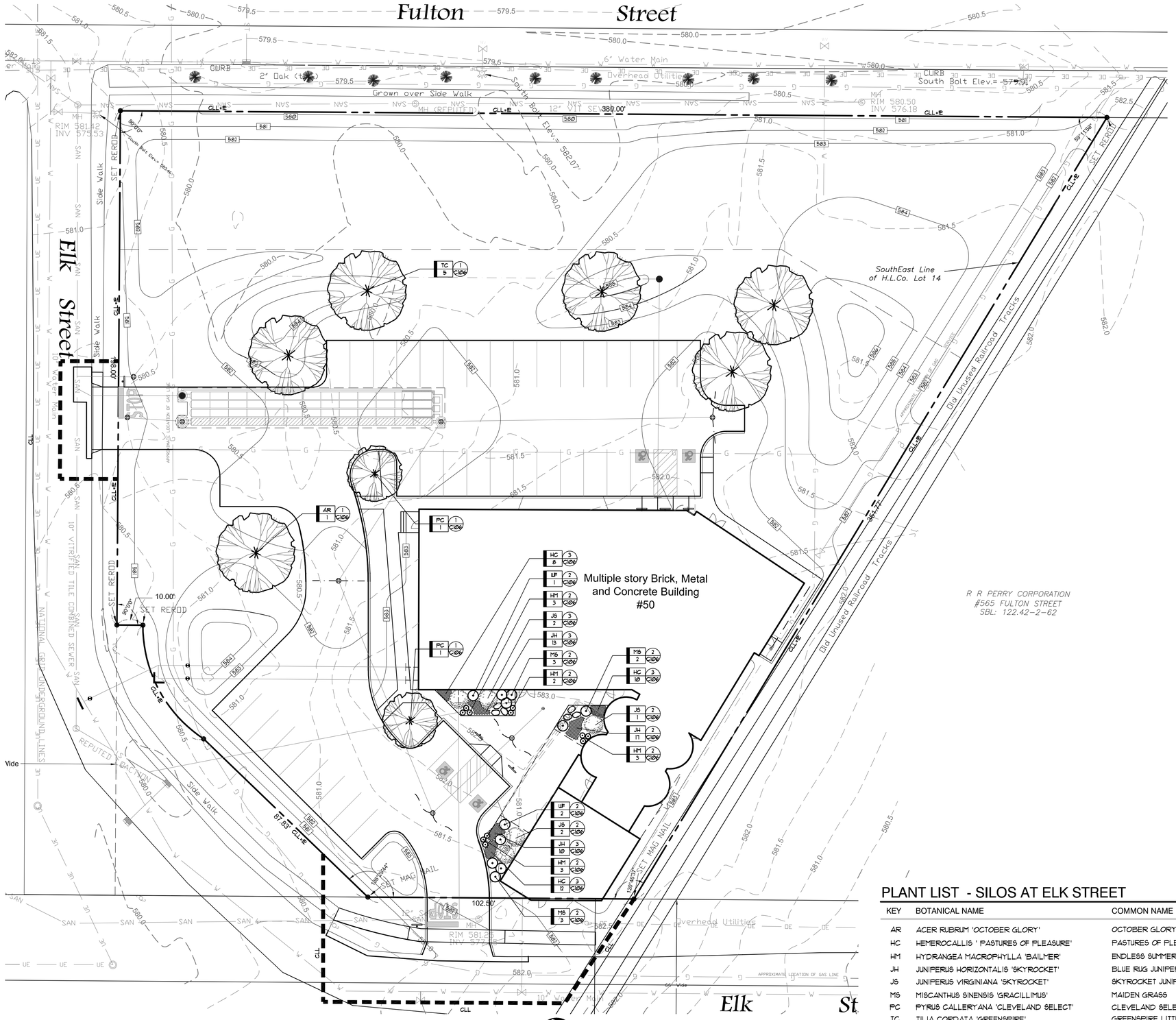
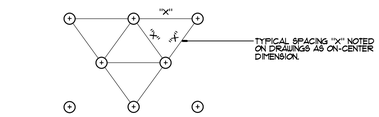
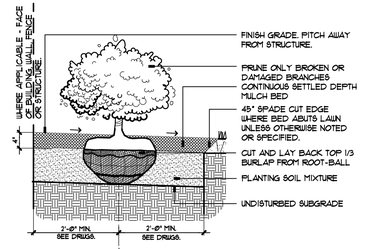
C105



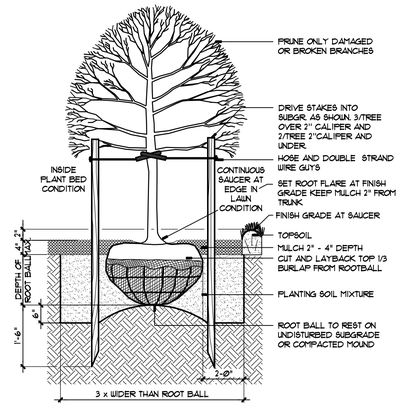
SILOS AT ELK STREET - PLANTING PLAN



2 C106 GROUNDCOVER / PERENNIAL PLANT SPACING
SECTION • NOT TO SCALE 290-010



2 C106 SHRUB PLANTING
SECTION • NOT TO SCALE 290-001



3 C106 DECIDUOUS TREE PLANTING - SINGLE STEM
SECTION • NOT TO SCALE 290-001

PLANT LIST - SILOS AT ELK STREET

KEY	BOTANICAL NAME	COMMON NAME	QTY.	ROOT & SIZE **	SPACING
AR	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	1	2-2½" CAL.	AS SHOWN
HC	HEMEROCALLIS ' PASTURES OF PLEASURE'	PASTURES OF PLEASURE DAYLILLY	30	NO. 2 CONT.	18" O.C.
HM	HYDRANGEA MACROPHYLLA 'BAILMER'	ENDLESS SUMMER HYDRANGEA	11	NO. 5 CONT.	AS SHOWN
JH	JUNIPERUS HORIZONTALIS 'SKYROCKET'	BLUE RUG JUNIPER	40	NO. 2 CONT.	18" O.C.
JS	JUNIPERUS VIRGINIANA 'SKYROCKET'	SKYROCKET JUNIPER	5	5'-6' HT.	AS SHOWN
MS	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	8	NO. 5 CONT.	AS SHOWN
PC	PYRUS CALLERYANA 'CLEVELAND SELECT'	CLEVELAND SELECT CALLERY PEAR	2	2-2½" CAL.	AS SHOWN
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLE LEAF LINDEN	5	2-2½" CAL.	30' O.C. OR AS SHOWN
WF	WEIGELA FLORIDA 'WINE AND ROSES'	WINE AND ROSES WEIGELA	3	NO. 5 CONT.	AS SHOWN

* PROVIDE VARIETY NOTED, DO NOT SUBSTITUTE WITH SPECIES
** PLANTS TO BE BALLED AND BURLAPPED UNLESS NOTED OTHERWISE
NOTE: FINAL PLACEMENT OF PLANTS TO BE FIELD DIRECTED BY ARCHITECT

YOUNG + WRIGHT ARCHITECTURAL
740 Seneca St.
Buffalo, NY 14210
Ph. 716.842.1800
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Sheet Title

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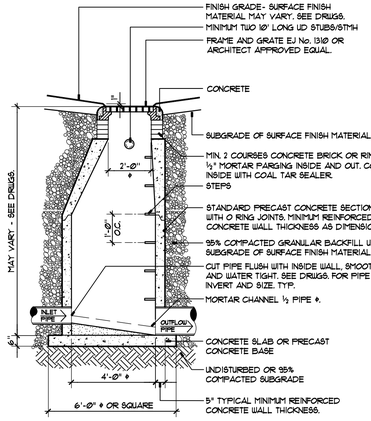
C106



10 C107 **STORM MANHOLE = MH**
SECTION • NOT TO SCALE 3340-2003A
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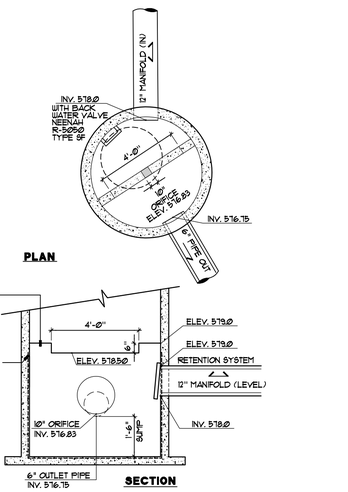
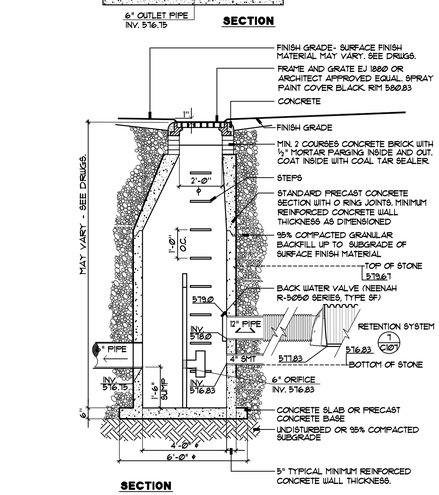
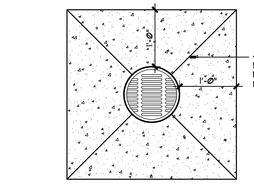
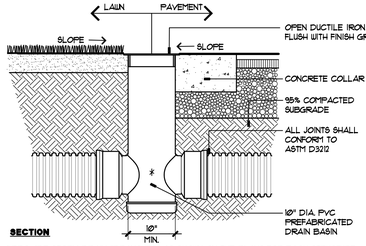


9 C107 **CONTROL STRUCTURE W/ INTERNAL WEIR**
SECTION • NOT TO SCALE CONTROL STRUCTURE
© APPEL OSBORNE LANDSCAPE ARCHITECTURE





PLAN - CONCRETE COLLAR



* PROVIDE STORM DRAIN "BRANCHES" AS SHOWN ON THE PLANS FOR EACH STRUCTURE

9 C107 **10" PVC DRAIN BASIN - FLUSH TOP**
SECTION and PLAN • NOT TO SCALE 3340-2014C
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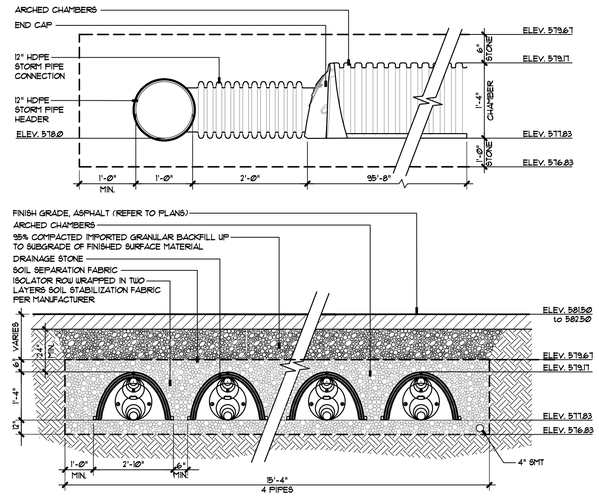

1 C107 **SUBSURFACE INFILTRATION SYSTEM**
SECTION • NOT TO SCALE 3340-211C
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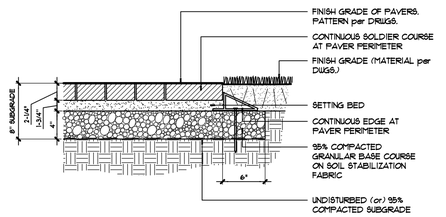

VARIES WITH PAVER SELECTION

6 C107 **PAVERS ON STONE DUST**
SECTION • NOT TO SCALE 3230-1002
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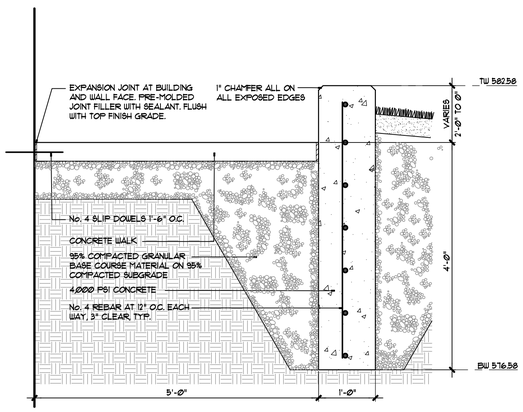
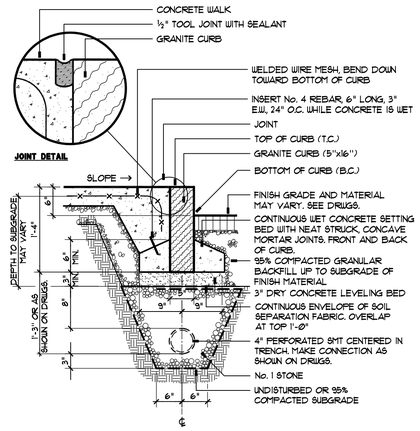
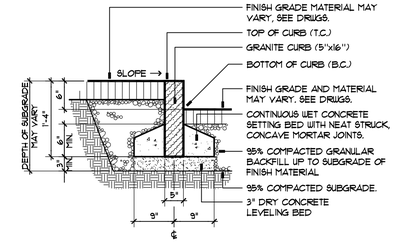


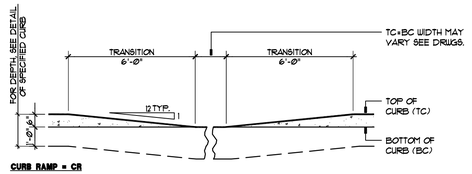
5 C107 **CURB WALL**
SECTION • ¾" = 1'-0" CURB WALL
© APPEL OSBORNE LANDSCAPE ARCHITECTURE



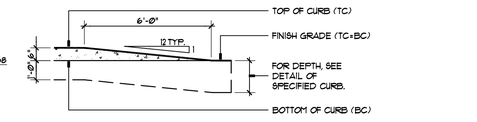
4 C107 **INTEGRAL GRANITE CURB - 5" x 16" WITH SMT**
SECTION • NOT TO SCALE 3316-0004B
© APPEL OSBORNE LANDSCAPE ARCHITECTURE



2 C107 **GRANITE CURB - 5" x 16"**
SECTION • NOT TO SCALE 3216-0002A
© APPEL OSBORNE LANDSCAPE ARCHITECTURE

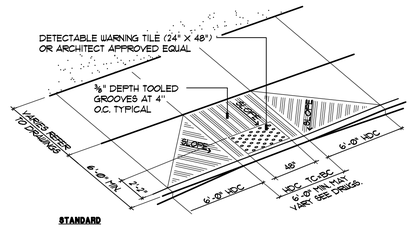


CURB RAMP = CR

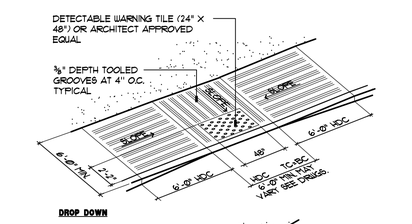


CURB END = CE

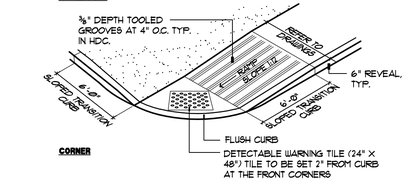
2 C107 **CONCRETE CURB RAMP AND CURB ENDING = CR/CE**
SECTION • NOT TO SCALE 3213-0002
© APPEL OSBORNE LANDSCAPE ARCHITECTURE



STANDARD



DROP DOWN



CORNER

1 C107 **CURB RAMP WITH DETECTABLE WARNING SYSTEM**
AXONOMETRIC • NOT TO SCALE 3213-0001
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YOUNG + WRIGHT ARCHITECTURAL

740 Seneca St.
Buffalo, NY 14210
Ph. 716.842.1800
Fax. 716.842.1807

1344 University Ave.
Suite 140
Rochester, NY 14607
Ph. 585.461.4771

w w w . y o u n g a r c h . c o m

A red seal and a blue signature indicates an original document.

Consultants

60 Hedley Place - Buffalo, New York 14208 - 716.725.6410

appel osborne landscape architecture

IBC Engineering, P.C.
Buffalo • Rochester
Mechanical • Electrical
Communications
Tri-Main Center
2495 Main St, Suite 318
Buffalo, NY 14214
P: 716.836.2315
F: 716.836.2319
www.ibceng.com

Jensen BRV ENGINEERING, PLLC
Structural Engineering Consultants
1653 EAST MAIN STREET
phone: (585) 482-8130
fax: (585) 482-0440
www.jensenbrv.com

Project Information

SILOS at ELK STREET

50 ELK STREET
BUFFALO, NY 14210

Revisions

Mark	Date	Description
-	09.17.17	PERMIT SET
-	08.04.17	BID REVIEW
-	01.19.17	CD REVIEW

Project No. 151027
Drawn By CL/JK/BM/TL

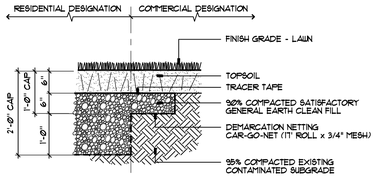
Sheet Title

DETAILS

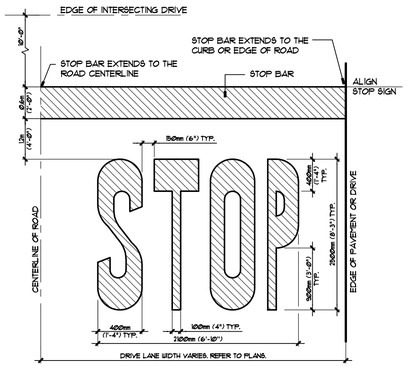
This is a single sheet of a cohesive set of construction documents, including drawings and specifications. Interpretation of the information presented is to be based on the entire set of documents.

Sheet No.

C107

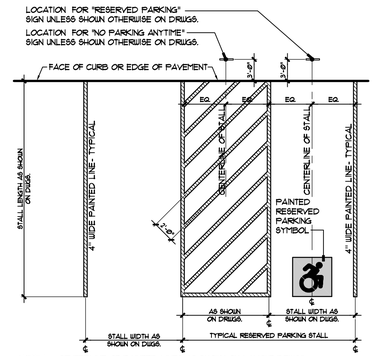


2 C108 **CONTAMINATED SOIL CAP**
SECTION • NOT TO SCALE M280-001



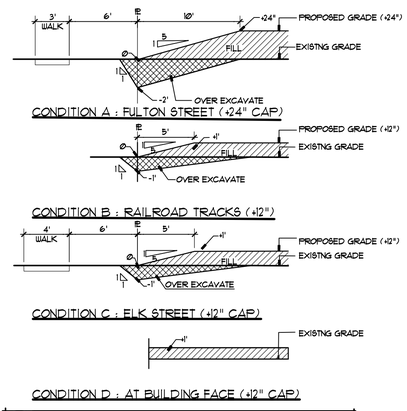
NOTES: 1. ALL PAINTED LINES ARE TO BE SOLID PAINTED IN APPEARANCE AND CONFORM TO NYSDOT STANDARDS.
2. COLOR SHALL BE WHITE. TWO COATS AS SPECIFIED.
3. CENTER ENTIRE SYMBOL IN DRIVE LANE
4. LAYOUT ALL MARKINGS IN FIELD AND OBTAIN APPROVAL FROM OWNER AND ARCHITECT PRIOR TO PAINTING.
5. TEXT MARKING "STOP" SHALL BE CENTERED ON STOP BAR.
6. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NYS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)

5 C108 **PAVEMENT MARKING - STOP BAR AND TEXT**
PLAN • NOT TO SCALE 3230-012

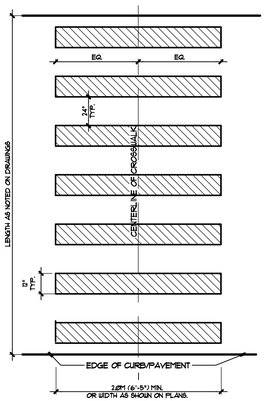


NOTE: ℄ = CENTERLINE OF PAINTED LINES AS SHOWN ON LAYOUT DRUGS.

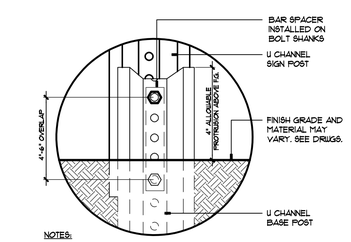
3 C108 **PARKING STALL MARKING-TYPICAL**
SECTION • NOT TO SCALE 3230-009A



7 C108 **CUT AND FILL CONDITIONS**
SECTION • NOT TO SCALE

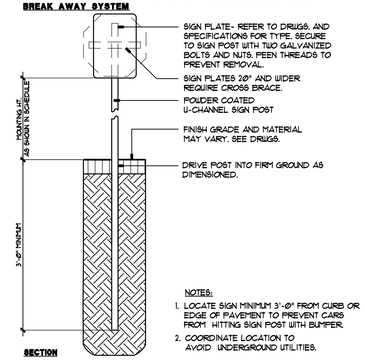


4 C108 **CROSS WALK STRIPING**
PLAN • NOT TO SCALE 3230-011



NOTES:
1. LOCATE SIGN MINIMUM 3'-0" FROM CURB OR EDGE OF PAVEMENT TO PREVENT CARS FROM HITTING SIGN POST WITH BUMPER.
2. COORDINATE LOCATION TO AVOID UNDERGROUND UTILITIES.
3. BREAK-AWAY SYSTEM SHALL BE FHWA APPROVED.
4. FOR USE WITHIN NYSDOT RIGHT-OF-WAY ALONG LAWRENCE AVENUE.

BREAK AWAY SYSTEM



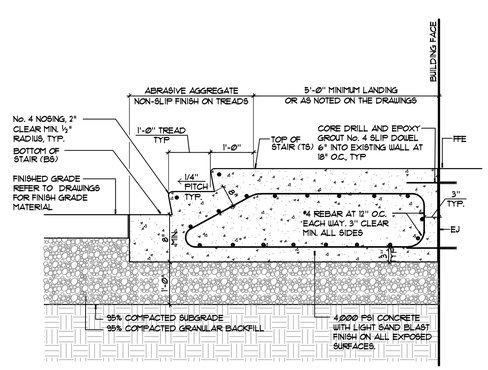
NOTES:
1. LOCATE SIGN MINIMUM 3'-0" FROM CURB OR EDGE OF PAVEMENT TO PREVENT CARS FROM HITTING SIGN POST WITH BUMPER.
2. COORDINATE LOCATION TO AVOID UNDERGROUND UTILITIES.

SECTION

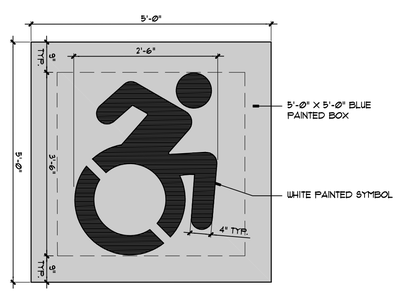
SIGN SCHEDULE		MOUNTING HEIGHT**
R7-8	RESERVED HANDICAPPED PARKING	4'-0"
R7-1	NO PARKING ANYTIME	4'-0"
R1-1	STOP	7'-0"

**ALL DIMENSIONS ARE TO BOTTOM OF SIGN PLATE.

1 C108 **TRAFFIC SIGN**
SECTION • NOT TO SCALE 3230-003A



6 C108 **CONCRETE STAIR**
SECTION • NOT TO SCALE STAIR



3 C108 **PAINTED RESERVE PARKING SYMBOL**
PLAN • NOT TO SCALE 3230-008A

YOUNG + WRIGHT ARCHITECTURAL

740 Seneca St.
Buffalo, NY 14210
Ph. 716.842.1800
Fax. 716.842.1807

1344 University Ave.
Suite 140
Rochester, NY 14607
Ph. 585.461.4771

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Consultants

60 Hedley Place - Buffalo, New York 14208 - 716.725.6410

appel osborne landscape architecture

IBC Engineering, P.C.
Buffalo • Rochester
Mechanical • Electrical
Communications
Tri-Main Center
2495 Main St, Suite 318
Buffalo, NY 14214
P: 716.836.2315
F: 716.836.2319
www.ibceng.com

Jensen BRV ENGINEERING, PLLC
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1653 EAST MAIN STREET
phone: (585) 482-8130
fax: (585) 482-0440
www.jensenbrv.com

Project Information

SILOS at ELK STREET

50 ELK STREET
BUFFALO, NY 14210

Revisions

Mark	Date	Description
-	09.17.17	PERMIT SET
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Project No. 151027
Drawn By CL/JK/BM/TL

Sheet Title

DETAILS

This is a single sheet of a cohesive set of construction documents, including drawings and specifications. Interpretation of the information presented is to be based on the entire set of documents.

Sheet No.

C108

APPENDIX D

HEALTH & SAFETY PLAN AND CAMP

Health and Safety Plan for Remedial Activities

Silos Elk Street Site
Buffalo, New York

July 2017 0381-017-008

Prepared for:

Silos at Elk Street, LLC

Prepared By:

TurnKey Environmental Restoration, LLC

Benchmark Environmental Engineering & Science, PLLC

2558 Hamburg Turnpike, Suite 300, Buffalo, New York 14218 | phone: (716) 856-0599 | fax: (716) 856-0583

SITE HEALTH AND SAFETY PLAN
for
BROWNFIELD CLEANUP PROGRAM
REMEDIAL ACTIVITIES

SILOS AT ELK STREET SITE
BCP SITE NO. C915309
BUFFALO, NEW YORK

July 2017 0381-017-008

Prepared for:

SILOS AT ELK STREET, LLC

Prepared By:

Benchmark Environmental Engineering & Science, PLLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0599

In Association With:

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

HEALTH & SAFETY PLAN FOR REMEDIAL ACTIVITIES

Silos at Elk Street Site
BCP Site No. C915309
Buffalo, New York

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ACKNOWLEDGEMENT

Plan Reviewed by (initial):

Corporate Health and Safety Director: Thomas H. Forbes

Project Manager: Lori E. Riker

Designated Site Safety and Health Officer: Richard L. Dubisz

Acknowledgement:
I acknowledge that I have reviewed the information contained in this site-specific Health and Safety Plan, and understand the hazards associated with performance of the field activities described herein. I agree to comply with the requirements of this plan.

NAME (PRINT)	SIGNATURE	DATE

HEALTH & SAFETY PLAN FOR REMEDIAL ACTIVITIES

Silos at Elk Street Site
BCP Site No. C915309
Buffalo, New York

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Table of Contents

HEALTH & SAFETY PLAN FOR REMEDIAL ACTIVITIES

Silos at Elk Street Site
BCP Site No. C915309
Buffalo, New York

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LIST OF TABLES

LIST OF FIGURES

ATTACHMENTS

1.0 INTRODUCTION

1.1 General

In accordance with OSHA requirements contained in 29 CFR 1910.120, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by Benchmark Environmental Engineering & Science, PLLC and TurnKey Environmental Restoration, LLC employees (referred to jointly hereafter as "Benchmark-TurnKey") during remedial activities at the Silos at Elk Street Site located in the City of Buffalo, New York. This HASP presents procedures for Benchmark-TurnKey employees who will be involved with field activities; it does not cover the activities of other contractors, subcontractors or other individuals on the Site. These firms will be required to develop and enforce their own HASPs as discussed in Section 2.0. Benchmark-TurnKey accepts no responsibility for the health and safety of contractor, subcontractor, or other personnel.

This HASP presents information on known Site health and safety hazards using available historical information, and identifies the equipment, materials, and procedures that will be used to eliminate or control these hazards. Environmental monitoring will be performed during the course of field activities to provide real-time data for on-going assessment of potential hazards.

1.2 Background

The Site is comprised of an approximate 1.9-acre parcel located on 50 Elk Street in the City of Buffalo, New York (see Figures 1 and 2). The Site was historically used industrially as a malting operation with some inactive process-related equipment and piping, including apparent natural-gas vent pipes and other presumed utility lines, remaining on-site. The exact nature of all equipment and piping is unknown. The Site is currently vacant with one abandoned structure. The Site is located in a highly developed residential, commercial, and industrial area of the City of Buffalo (see Figures 1 and 2). Currently, the Site is bound by Fulton Street to the north, Elk Street to the west and south, and a former rail spur and vacant land to the east (see Figure 2). Beyond the streets, the Site is bounded by mixed-use to the north and south (residential, commercial, and industrial), residential to the east, and vacant industrial to the west.

1.3 Known and Suspected Environmental Conditions

Benchmark completed a Phase I Environmental Site Assessment (ESA) on the subject property in May 2016 (Ref. 1). The Phase I ESA report identified the following Recognized Environmental Conditions (RECs):

- The long history of on-site malting operations with various associated equipment, water-filled pits, and railroad tracks, along with the reasonably anticipated historic use of hazardous/regulated materials, is considered a REC due to the potential for impacts to the environment.
- The black fine ash/coal-like material with limited vegetation observed in exterior areas west and north of the building is considered a REC as the exact nature of the material is unknown.
- The Site is located in a mixed-use area with proximate current/historic industrial operations, including railroad tracks/yards.

Per ASTM E1527-13, non-scope considerations are described as ancillary observations during performance of the on-site investigation. Non-scope considerations are not considered RECs under ASTM E1527, but may represent health or environmental issues impacting the Site and/or property value. Based on the ages of the existing buildings, Benchmark identified the potential for suspect ACMs and lead exists.

Benchmark completed a Limited Phase II Investigation on the subject property in June 2016, and the findings are presented below:

- Water-filled pits were non-detect for volatile organic compounds (VOCs)
- Elevated PAHs and heavy metals exceeding Part 375 Industrial Soil Cleanup Objectives (ISCOs)
- Surficial blackish fines (potentially coal) with limited vegetation were observed and sampled in distinct locations west and north of the building
- The blackish fines composite sample contained a lead concentration of 4,970 ppm and also total organic carbon was 70,400 ppm
- Toxicity Characteristic Leaching Procedure (TCLP) lead analysis of the blackish fines composite sample reported a concentration of 26.5 mg/L exceeding the TCLP regulatory level of 5 mg/L

Benchmark conducted a supplemental Test Pit Investigation on the subject property in July 2016, and the findings are summarized below:

- Shallow overburden material across the Site was characterized from grade as a vegetated lean clay with sand (suspected topsoil) above a greyish white to black anthropogenic ashy-fill unit (mostly non-plastic fines, coal fragments, orange brick, glass, ceramic fragments, etc.) underlain by a stiff lacustrine clay unit (suspected native soil)
- Total lead concentrations ranged from 45.2 mg/kg (TP-15) to 3,070 mg/kg (TP-13) compared to the Part 375 Commercial Soil Cleanup Objective (CSCO) of 63 mg/kg
- TCLP lead was analyzed at six test pit locations with concentrations ranging from 0.047 mg/L (TP-14) to 1.7 mg/L (TP-13), which are below the TCLP regulatory level of 5 mg/L

Benchmark performed an RI in April 2017 in support of the BCP to determine the nature and extent of impacts from known and suspected environmental conditions on this Site. Consistent with the initial findings of the Phase II Investigation, RI soil/fill sample results exceeded the SCOs for SVOCs (specifically PAHs) and select metals (primarily arsenic and lead). Lead exceeded the TCLP regulatory limit at two locations.

1.4 Parameters of Interest

Based on the previous investigations, primary constituents of concern (COCs) in soil at the Site include:

- **Inorganic Compound –** The inorganic COCs present at elevated concentrations are metals, primarily arsenic and lead.
- **Semi-Volatile Organic Compounds (SVOCs) –** SVOCs present at elevated concentrations include primarily Polycyclic Aromatic Hydrocarbons (PAHs). Although PAHs are commonly found in urban soil environments, they are present at the Site at concentrations that are elevated compared to typical "background" levels.

1.5 Overview of Remedial Activities

Benchmark-TurnKey personnel will be on-site to observe remedial activities. The planned field activities are summarized below and more fully described in the IRM Work Plan.

1. **Soil/Fill Sampling:** Benchmark-TurnKey personnel will collect soil/fill samples for waste characterization and post-excavation confirmatory purposes.

2. **In-Situ Soil Stabilizing**: Benchmark-TurnKey will observe the in-situ stabilization of lead hazardous soil/fill.
3. **Soil/Fill Excavation**: Benchmark-TurnKey will observe the excavation and loading of lead- and arsenic-impacted soil/fill.

2.0 ORGANIZATIONAL STRUCTURE

This section of the HASP describes the lines of authority, responsibility, and communication as they pertain to health and safety functions at the Site. The purpose of this Section is to identify the personnel who impact the development and implementation of the HASP and to describe their roles and responsibilities. This section also identifies other contractors and subcontractors involved in work operations and establishes the lines of communications among them for health and safety matters. The organizational structure described in this section is consistent with the requirements of 29 CFR 1910.120(b)(2). This section will be reviewed by the Project Manager and updated as necessary to reflect the current organizational structure at this Site.

All Benchmark-TurnKey personnel on the Site must comply with the minimum requirements of this HASP. The specific responsibilities and authority of management, safety, and health, and other personnel on this Site are detailed in the following paragraphs.

2.1 Corporate Health and Safety Director

The Benchmark-TurnKey Corporate Health and Safety Director is ***Mr. Thomas H. Forbes, P.E.*** The Corporate Health and Safety Director is responsible for developing and implementing the Health and Safety program and policies for Benchmark Environmental Engineering & Science, PLLC and TurnKey Environmental Restoration, LLC, and consulting with corporate management to ensure adequate resources are available to properly implement these programs and policies. The Corporate Health and Safety Director coordinates Benchmark-TurnKey's Health and Safety training and medical monitoring programs and assists project management and field staff in developing site-specific health and safety plans.

2.2 Project Manager

The Project Manager for this Site is ***Ms. Lori E. Riker, P.E.*** The Project Manager has the responsibility and authority to direct all Benchmark-TurnKey work operations at the Site. The Project Manager coordinates safety and health functions with the Site Safety and Health Officer, and bears ultimate responsibility for proper implementation of this HASP. He may delegate authority to expedite and facilitate any application of the program, including modifications to the overall project approach as necessary to circumvent unsafe work conditions. Specific duties of the Project Manager include:

- Preparing and coordinating the Site work plan.
- Providing Benchmark-TurnKey workers with work assignments and overseeing their performance.
- Coordinating health and safety efforts with the Site Safety and Health Officer (SSHO).
- Reviewing the emergency response coordination plan to assure its effectiveness.
- Serving as the primary liaison with Site contractors and the property owner.

2.3 Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) for this Site is ***Mr. Richard L. Dubisz***. The qualified alternate SSHO is ***Mr. Thomas A. Behrendt.*** The SSHO reports to the Project Manager. The SSHO is on-site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

- Managing the safety and health functions for Benchmark-TurnKey personnel on the Site.
- Serving as the point of contact for safety and health matters.
- Ensuring that Benchmark-TurnKey field personnel working on the Site have received proper training (per 29 CFR Part 1910.120(e)), that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.
- Performing or overseeing Site monitoring as required by the HASP.
- Assisting in the preparation and review of the HASP.
- Maintaining site-specific safety and health records as described in this HASP.
- Coordinating with the Project Manager, Site Workers, and Contractor's SSHO as necessary for safety and health efforts.

2.4 Site Workers

Site workers are responsible for: complying with this HASP or a more stringent HASP, if appropriate (i.e., Contractor and Subcontractor's HASP); using proper personal protective equipment (PPE); reporting unsafe acts and conditions to the SSHO; and following the safety

and health instructions of the Project Manager and SSHO.

2.5 Other Site Personnel

Other Site personnel who will have health and safety responsibilities will include the Drilling Contractor, who will be responsible for developing, implementing and enforcing a Health and Safety Plan equally stringent or more stringent than Benchmark-TurnKey's HASP. Benchmark-TurnKey assumes no responsibility for the health and safety of anyone outside its direct employ. Each Contractor's HASP shall cover all non-Benchmark-TurnKey Site personnel. Each Contractor shall assign a SSHO who will coordinate with Benchmark-TurnKey's SSHO as necessary to ensure effective lines of communication and consistency between contingency plans.

In addition to Benchmark-TurnKey and Contractor personnel, other individuals who may have responsibilities in the work zone include subcontractors and governmental agencies performing Site inspection work (i.e., the New York State Department of Environmental Conservation or NYSDEC). The Contractor shall be responsible for ensuring that these individuals have received OSHA-required training (29 CFR 1910.120(e)), including initial, refresher and site-specific training, and shall be responsible for the safety and health of these individuals while they are on-site.

3.0 HAZARD EVALUATION

Due to the presence of certain contaminants at the Site, the possibility exists that workers will be exposed to hazardous substances during field activities. The principal points of exposure would be through direct contact with and incidental ingestion of soil, and through the inhalation of contaminated particles or vapors. Other points of exposure may include direct contact with groundwater. In addition, the use of drilling and/or medium to large-sized construction equipment (e.g., excavator) will also present conditions for potential physical injury to workers. Further, since work will be performed outdoors, the potential exists for heat/cold stress to impact workers, especially those wearing protective equipment and clothing. Adherence to the medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, establishment work zones and Site control, appropriate decontamination procedures and contingency planning outlined herein will reduce the potential for chemical exposures and physical injuries.

3.1 Chemical Hazards

As discussed in Section 1.3, historic activities have potentially resulted in impacts to Site soils and groundwater. Soil and groundwater may be impacted by SVOCs (PAHs) and/or inorganic compounds. Table 1 lists exposure limits for airborne concentrations of the COCs identified in Section 1.4 of this HASP. Brief descriptions of the toxicology of the prevalent COCs and related health and safety guidance and criteria are provided below.

- **Polycyclic Aromatic Hydrocarbons (PAHs)** are formed as a result of the pyrolysis and incomplete combustion of organic matter such as fossil fuel. PAH aerosols formed during the combustion process disperse throughout the atmosphere, resulting in the deposition of PAH condensate in soil, water and on vegetation. In addition, several products formed from petroleum processing operations (e.g., roofing materials and asphalt) also contain elevated levels of PAHs. Hence, these compounds are widely dispersed in the environment. PAHs are characterized by a molecular structure containing three or more fused, unsaturated carbon rings. Seven of the PAHs are classified by USEPA as probable human carcinogens (USEPA Class B2). These are: benzo(a)pyrene; benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene. The primary route of exposure to PAHs is through incidental ingestion and inhalation of contaminated particulates. PAHs are characterized by an organic odor, and exist as oily liquids in pure form. Acute exposure symptoms may include acne-type blemishes in areas of the skin exposed

to sunlight.

- **Arsenic (CAS #7440-38-2)** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea and pain in the stomach. Prolonged contact is corrosive to the skin and mucus membranes. Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.
- **Lead (CAS #7439-92-1**) can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. Lead may cause anemia.

With respect to the anticipated remedial activities discussed in Section 1.5, possible routes of exposure to the above-mentioned contaminants are presented in Table 2. The use of proper respiratory equipment, as outlined in Section 7.0 of this HASP, will minimize the potential for exposure to airborne contamination. Exposure to contaminants through dermal and other routes will also be minimized through the use of safe work practices (Section 6.0), protective clothing (Section 7.0), and proper decontamination procedures (Section 12.0).

3.2 Physical Hazards

Remedial field activities at the Silos at Elk Street Site may present the following physical hazards:

- The potential for physical injury during heavy construction equipment use, such as backhoes, excavators, and drilling equipment.
- The potential for heat/cold stress to employees during the summer/winter months (see Section 10.0).
- The potential for slip, trip, and fall injuries due to rough, uneven terrain and/or open excavations.

These hazards represent only some of the possible means of injury that may be present during remedial operations and sampling activities at the Site. Since it is impossible to list all potential sources of injury, it shall be the responsibility of each individual to exercise proper care and caution during all phases of the work.

4.0 TRAINING

4.1 Site Workers

All personnel performing remedial activities at the Site (such as, but not limited to, equipment operators, general laborers, and drillers) and who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors/managers responsible for the Site shall receive training in accordance with 29 CFR 1910.120(e) before they are permitted to engage in operations in the exclusion zone or contaminant reduction zone. This training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor. Additional site-specific training shall also be provided by the SSHO prior to the start of field activities. A description of topics to be covered by this training is provided below.

4.1.1 Initial and Refresher Training

Initial and refresher training is conducted by a qualified instructor as specified under OSHA 29 CFR 1910.120(e)(5), and is specifically designed to meet the requirements of OSHA 29 CFR 1910.120(e)(3) and 1910.120(e)(8). The training covers, as a minimum, the following topics:

- OSHA HAZWOPER regulations.
- Site safety and hazard recognition, including chemical and physical hazards.
- Medical monitoring requirements.
- Air monitoring, permissible exposure limits, and respiratory protection level classifications.
- Appropriate use of personal protective equipment (PPE), including chemical compatibility and respiratory equipment selection and use.
- Work practices to minimize risk.
- Work zones and Site control.
- Safe use of engineering controls and equipment.
- Decontamination procedures.
- Emergency response and escape.

- Confined space entry procedures.
- Heat and cold stress monitoring.
- Elements of a Health and Safety Plan.
- Spill containment.

Initial training also incorporates workshops for PPE and respiratory equipment use (Levels A, B and C), and respirator fit testing. Records and certification received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file at Benchmark-TurnKey's Buffalo, NY office. Contractors and Subcontractors are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities.

Any employee who has not been certified as having received health and safety training in conformance with 29 CFR 1910.120(e) is prohibited from working in the exclusion and contamination reduction zones, or to engage in any on-site work activities that may involve exposure to hazardous substances or wastes.

4.1.2 Site Training

Site workers are given a copy of the HASP and provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with the HASP and the information and requirements it contains. The Site briefing shall be provided by the SSHO prior to initiating field activities and shall include (at a minimum):

- Names of personnel and alternates responsible for Site safety and health (Section 2.0).
- Physical, chemical, and other potential hazards present on the Site (Section 3.0).
- Documentation of appropriate training (Section 4.0)
- Medical surveillance (Section 5.0).
- Work practices by which the employee can minimize risks from hazards including the safe use of engineering controls and equipment on the site (Section 6.0).
- Use of PPE (Section 7.0).
- On-site exposure monitoring in the work zone and off-site community air monitoring (Section 8.0).
- The spill containment program as detailed in Section 9.0 of this HASP.

- Monitoring and recognition of symptoms and signs of over-exposure (heat or cold) (Section 10.0).
- Site control as detailed in Section 11.0 of this HASP.
- Decontamination procedures as detailed in Section 12.0 of this HASP.
- Confined space entry procedures, if required, as detailed in Section 13.0 of this HASP.
- Fire prevention and protection (Section 14.0).
- The site layout including work zones and places of refuge, the emergency communications system, and emergency evacuation procedures of the Emergency Response Plan (Section 15.0).

Supplemental health and safety briefings will also be conducted by the SSHO on an as-needed basis during the course of the work. Supplemental briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing Site characterization and analysis. Conditions for which the SSHO may schedule additional briefings include, but are not limited to: a change in Site conditions (e.g., based on monitoring results); changes in the work schedule/plan; newly discovered hazards; and safety incidents occurring during Site work.

4.2 Supervisor Training

On-site safety and health personnel who are directly responsible for or who supervise the safety and health of workers engaged in hazardous waste operations (i.e., SSHO) shall receive, in addition to the appropriate level of worker training described in Section 4.1, above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

4.3 Emergency Response Training

Emergency response training is addressed in Attachment A of this HASP, Emergency Response Plan.

4.4 Site Visitors

Each Contractor's SSHO will provide a site-specific briefing to all Site visitors and other non-Benchmark-TurnKey personnel who enter the Site beyond the Site entry point. The

site-specific briefing will provide information about Site hazards, the Site layout including work zones and places of refuge, the emergency communications system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

Site visitors will not be permitted to enter the exclusion zone or contaminant reduction zones unless they have received the level of training required for Site workers as described in Section 4.1.

5.0 MEDICAL MONITORING

Medical monitoring examinations are provided to Benchmark-TurnKey employees as stipulated under 29 CFR Part 1910.120(f). These exams include initial employment, annual and employment termination physicals for all Benchmark-TurnKey employees involved in hazardous waste site field operations. Post-exposure examinations are also provided for employees who may have been injured, received a health impairment, or developed signs or symptoms of over-exposure to hazardous substances, or were accidentally exposed to substances at concentrations above the permissible exposure limits without necessary personal protective equipment. Such exams are performed as soon as possible following development of symptoms or the known exposure event.

Medical evaluations are performed by Health Works WNY, an occupational health care provider under contract with Benchmark-TurnKey. Health Works WNY's local facility is located at 1900 Ridge Road, West Seneca, New York 14224. The facility can be reached at (716) 712-0670 to schedule routine appointments or post-exposure examinations.

Medical evaluations are conducted according to the Benchmark-TurnKey Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The examinations include:

- Occupational/medical history review.
- Physical exam, including vital sign measurement.
- Spirometry testing.
- Eyesight testing.
- Audio testing (minimum baseline and exit, annual for employees routinely exposed to greater than 85db).
- EKG (for employees >40 years of age or as medical conditions dictate).
- Chest X-ray (baseline and exit, and every 5 years).
- Blood biochemistry (including blood count, white cell differential count, serum multiplastic screening).
- Medical certification of physical requirements (i.e., sight, musculoskeletal, cardiovascular) for safe job performance and to wear respiratory protection equipment.

The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data.

In conformance with OSHA regulations, Benchmark-TurnKey will maintain and preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician's post-exam report, and have access to their medical records and analyses.

6.0 SAFE WORK PRACTICES

All Benchmark-TurnKey employees shall conform to the following safe work practices during all on-site work activities conducted within the exclusion and contamination reduction zones:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth contact is strictly prohibited.
- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.
- Respiratory protective equipment and clothing must be worn by all personnel entering the Site as required by the HASP or as modified by the Site safety officer. Excessive facial hair (i.e., beards, long mustaches, or sideburns) that interferes with the satisfactory respirator-to-face seal is prohibited.
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross contamination and need for decontamination.
- Medicine and alcohol can synergize the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the Benchmark-TurnKey occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during the workday.
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this HASP.
- On-site personnel shall use the "buddy" system. No one may work alone (i.e., out of earshot or visual contact with other workers) in the exclusion zone.
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective Site operations.
- All employees have the obligation to immediately report and if possible, correct unsafe work conditions.
- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for Benchmark-TurnKey employees, as requested and required.

The recommended specific safety practices for working around the contractor's equipment (e.g., backhoes, bulldozers, excavators, drill rigs etc.) are as follows:

- Although the Contractor and subcontractors are responsible for their equipment and safe operation of the Site, Benchmark-TurnKey personnel are also responsible for their own safety.
- Subsurface work will not be initiated without first clearing underground utility services.
- Heavy equipment should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated or if lines carry high voltage. The Site should also be sufficiently clear to ensure the project staff can move around the heavy machinery safely.
- Care should be taken to avoid overhead electric lines when moving heavy-equipment from location to location.
- Hard hats, safety boots, and safety glasses should be worn at all times in the vicinity of heavy equipment. Hearing protection is also recommended.
- The work Site should be kept neat. This will prevent personnel from tripping and will allow for fast emergency exit from the Site.
- Proper lighting must be provided when working at night.
- Construction activities should be discontinued during an electrical storm or severe weather conditions.
- The presence of combustible gases should be checked before igniting any open flame.
- Personnel shall stand upwind of any construction operation when not immediately involved in sampling/logging/observing activities.
- Personnel will not approach the edge of an unsecured trench/excavation closer than 2 feet.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 Equipment Selection

Personal protective equipment (PPE) will be donned when work activities may result in exposure to physical or chemical hazards beyond acceptable limits, and when such exposure can be mitigated through appropriate PPE. The selection of PPE will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the Site, the task-specific conditions and duration, and the hazards and potential hazards identified at the Site.

Equipment designed to protect the body against contact with known or suspect chemical hazards are grouped into four categories according to the degree of protection afforded. These categories, designated A through D consistent with United States Environmental Protection Agency (USEPA) Level of Protection designation, are:

- **Level A:** Should be selected when the highest level of respiratory, skin and eye protection is needed.
- **Level B:** Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B protection is the minimum level recommended on initial Site entries until the hazards have been further defined by on-site studies. Level B (or Level A) is also necessary for oxygen-deficient atmospheres.
- **Level C:** Should be selected when the types of airborne substances are known, the concentrations have been measured, and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.
- **Level D:** Should not be worn on any Site with elevated respiratory or skin hazards. This is generally a work uniform providing minimal protection.

OSHA requires the use of certain PPE under conditions where an immediate danger to life and health (IDLH) may be present. Specifically, OSHA 29 CFR 1910.120(g)(3)(iii) requires use of a positive pressure self-contained breathing apparatus, or positive pressure air-line respirator equipped with an escape air supply when chemical exposure levels present a substantial possibility of immediate serious injury, illness or death, or impair the ability to escape. Similarly, OSHA 29 CFR 1910.120(g)(3)(iv) requires donning totally-encapsulating chemical protective suits (with a protection level equivalent to Level A protection) in

conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate serious illness, injury or death, or impair the ability to escape.

In situations where the types of chemicals, concentrations, and possibilities of contact are unknown, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components are detailed below for levels A/B, C, and D protection.

7.2 Protection Ensembles

7.2.1 Level A/B Protection Ensemble

Level A/B ensembles include similar respiratory protection, however Level A provides a higher degree of dermal protection than Level B. Use of Level A over Level B is determined by: comparing the concentrations of identified substances in the air with skin toxicity data, and assessing the effect of the substance (by its measured air concentrations or splash potential) on the small area of the head and neck unprotected by Level B clothing.

The recommended PPE for level A/B is:

- Pressure-demand, full-face piece self-contained breathing apparatus (MSHA/-NIOSH approved) or pressure-demand supplied-air respirator with escape self-contained breathing apparatus (SCBA).
- Chemical-resistant clothing. For Level A, clothing consists of totally-encapsulating chemical resistant suit. Level B incorporates hooded one-or two-piece chemical splash suit.
- Inner and outer chemical resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

7.2.2 Level C Protection Ensemble

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device. The

device (when required) must be an air-purifying respirator (MSHA/NIOSH approved) equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training, and the approval of a qualified individual. In addition, an air-purifying respirator can be used only if: oxygen content of the atmosphere is at least 19.5% in volume; substances are identified and concentrations measured; substances have adequate warning properties; the individual passes a qualitative fit-test for the mask; and an appropriate cartridge/canister is used, and its service limit concentration is not exceeded.

Recommended PPE for Level C conditions includes:

- Full-face piece, air-purifying respirator equipped with Mine Safety and Health Administration (MSHA) and National Institute for Occupational Safety and Health (NIOSH) approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the SSHO.
- Chemical-resistant clothing (hooded, one or two-piece chemical splash suit or disposable chemical-resistant one-piece suit).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

An air-monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

7.2.3 Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no inhalable toxic substances and where the atmospheric contains at least 19.5% oxygen.

Recommended PPE for Level D includes:

- Coveralls.
- Safety boots/shoes.
- Safety glasses or chemical splash goggles.

- Hardhat.
- Optional gloves; escape mask; face shield.

7.2.4 Recommended Level of Protection for Site Tasks

Based on current information regarding both the contaminants suspected to be present at the Site and the various tasks that are included in the remedial activities, the minimum required levels of protection for these tasks shall be as identified in Table 3.

8.0 EXPOSURE MONITORING

8.1 General

Based on the results of historic sample analysis and the nature of the proposed work activities at the Site, the possibility exists that organic vapors and/or particulates may be released to the air during intrusive construction activities. Ambient breathing zone concentrations may at times, exceed the permissible exposure limits (PELs) established by OSHA for the individual compounds (see Table 1), in which case respiratory protection will be required. Respiratory and dermal protection may be modified (upgraded or downgraded) by the SSHO based upon real-time field monitoring data.

8.1.1 On-Site Work Zone Monitoring

Benchmark-TurnKey personnel will conduct routine, real-time air monitoring during all intrusive construction phases such as excavation, backfilling, drilling, etc. The work area will be monitored at regular intervals using a PID, combustible gas meter, and/or a particulate meter. Observed values will be recorded and maintained as part of the permanent field record.

Additional air monitoring measurements may be made by Benchmark-TurnKey personnel to verify field conditions during subcontractor oversight activities. Monitoring instruments will be protected from surface contamination during use. Additional monitoring instruments may be added if the situations or conditions change. Monitoring instruments will be calibrated in accordance with manufacturer's instructions before use.

8.1.2 Off-Site Community Air Monitoring

In addition to on-site monitoring within the work zone(s), monitoring at the downwind portion of the Site perimeter will be conducted. This will provide a real-time method for determination of vapor and/or particulate releases to the surrounding community as a result of ground intrusive investigation work.

Ground intrusive activities are defined by NYSDOH Appendix 1A Generic Community Air Monitoring Plan (Ref. 2) and attached as Attachment B. Ground intrusive activities include soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Non-intrusive activities include the collection of soil and sediment samples or the collection of groundwater samples from existing wells. Continuous monitoring is required for ground intrusive activities and periodic monitoring is

required for non-intrusive activities. Periodic monitoring consists of taking a reading upon arrival at a sample location, monitoring while opening a well J-plug or overturning soil, monitoring while bailing a well, and taking a reading prior to leaving a sampling location. This may be upgraded to continuous if the sampling location is in close proximity to individuals not involved in the Site activity (i.e., on a curb of a busy street). The action levels below will be used during periodic monitoring.

8.2 Monitoring Action Levels

8.2.1 On-Site Work Zone Action Levels

A PID, or other appropriate instrument(s), will be used by Benchmark-TurnKey personnel to monitor organic vapor concentrations as specified in this HASP. If necessary, combustible gas will be monitored with a combustible gas meter or other appropriate instrument(s). In addition, fugitive dust/particulate concentrations will be monitored during major soil intrusion (viz., well/boring installation) using a real-time particulate monitor as specified in this plan. In the absence of such monitoring, appropriate respiratory protection for particulates shall be donned. Sustained readings obtained in the breathing zone may be interpreted (with regard to other Site conditions) as follows for Benchmark-TurnKey personnel:

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to 1 ppm above background on the PID) - Continue operations under Level D (see Section 7.2).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings from >1 ppm to 5 ppm above background on the PID (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue operations under Level C (see Section 7.2).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of >5 ppm to 50 ppm above background on the PID - Continue operations under Level B (see Section 7.2), re-evaluate and alter (if possible) construction methods to achieve lower vapor concentrations.
- Total atmospheric concentrations of unidentified vapors or gases above 50 ppm on the PID - Discontinue operations and exit the work zone immediately.

If deemed necessary by the SSHO, an explosimeter will be used to monitor levels of both combustible gases and oxygen during remedial activities. Action levels based on the instrument readings shall be as follows:

- Lower Explosive Limit (LEL):
    - **Less than 10% LEL** - Continue engineering operations with caution.
    - **10-25% LEL** - Continuous monitoring with extreme caution, determine source/cause of elevated reading.
    - **Greater than 25% LEL** - Explosion hazard, evaluate source and leave the Work Zone.
- Percent Oxygen:
    - **19.5% - 21% oxygen** - proceed with extreme caution; attempt to determine potential source of oxygen displacement.
    - **Less than 19.5% oxygen** - leave work zone immediately.
    - **21-25% oxygen** - Continue engineering operations with caution.
    - **Greater than 25% oxygen** - Fire hazard potential, leave Work Zone immediately.

A particulate monitor will be used to monitor respirable dust concentrations during all intrusive activities and during handling of Site soil/fill. Action levels based on the instrument readings shall be as follows:

- **Less than 50 mg/m^3** – Continue field operations.
- **50-150 mg/m^3** – Don dust/particulate mask or equivalent
- **Greater than 150 mg/m^3** – Don dust/particulate mask or equivalent. Initiate engineering controls to reduce respirable dust concentration (viz., wetting of excavated soils or tools at discretion of Site Health and Safety Officer).

Field readings with the PID, combustible gas meter, and particulate monitor will be recorded and documented on the appropriate Project Field Forms or collected using the logging feature included with each instrument. All instruments will be calibrated before use in accordance with the manufacturers recommendations on a daily basis (at a minimum) and the calibration results will be documented on the appropriate Project Field Forms.

8.2.2 Community Air Monitoring Action Levels

In addition to the action levels prescribed in Section 8.2.1 for on-site Benchmark-TurnKey personnel, the following criteria shall also be adhered to for the protection of downwind receptors consistent with NYSDOH requirements (Attachment B):

- **ORGANIC VAPOR PERIMETER MONITORING**:
  - 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.
  - 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.
  - If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
  - All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

- **SPECIAL REQUIREMENTS FOR WORK WITHIN 20 FEET OF POTENTIALLY EXPOSED INDIVIDUALS OR STRUCTURES**
  - When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities

when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure (s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored Response levels and actions should be pre-determined, as necessary, for each site.

If following the cessation of work and efforts to abate the emission source are unsuccessful, and if sustained organic vapor levels exceed 25 ppm above background within the 20-foot zone for more than 30 minutes, then the Major Vapor Emission Response Plan (see Section 8.2.3) will automatically be placed into effect.

- **EXPLOSIVE VAPORS:**
  - Sustained atmospheric concentrations of greater than 10% LEL in the work area - Initiate combustible gas monitoring at the downwind portion of the Site perimeter.
  - Sustained atmospheric concentrations of greater than 10% LEL at the downwind Site perimeter – Halt work and contact local Fire Department.
- **AIRBORNE PARTICULATE COMMUNITY AIR MONITORING**
  - Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed

during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading 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 provided that the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and that visible dust is not migrating from the work area.
- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than 150 ug/m^3 above the upwind level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

Pertinent emergency response information including the telephone number of the Fire Department is included in the Emergency Response Plan (Attachment A).

8.2.3 Major Vapor Emission Response Plan

As previously stated, if following the cessation of work and efforts to abate the emission source are unsuccessful, and if sustained organic vapor levels exceed 25 ppm above background within the 20-foot zone for more than 30 minutes, then the Major Vapor Emission Response (MVER) Plan will automatically be placed into effect.

Upon activation of the MVER Plan, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in this Health and Safety Plan and the Emergency Response Plan will be advised (see Attachment A).
2. The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
3. The SSHO will determine if site workers can safely undertake source abatement measures. Abatement measures may include covering the source area with clean fill or plastic sheeting, or consolidating contaminated materials to minimize surface area. The SSHO will adjust worker personal protective equipment as necessary to protect workers from over-exposure to organic vapors.

The following personnel are to be notified in the listed sequence in the event that a Major Vapor Emission Plan is activated:

Responsible Person	Contact	Phone Number
SSHO	Police	911
SSHO	NYSDEC Emergency Response Hotline	(800) 457-7362

Additional emergency numbers are listed in the Emergency Response Plan included as Attachment A.

9.0 SPILL RELEASE/RESPONSE

This Section of the HASP describes the potential for and procedures related to spills or releases of known or suspected petroleum and/or hazardous substances on the Site. The purpose of this Section is to plan appropriate response, control, counter-measures, and reporting consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii). The spill containment program addresses the following elements:

- Potential hazardous material spills and available controls.
- Initial notification and evaluation.
- Spill response.
- Post-spill evaluation.

9.1 Potential Spills and Available Controls

An evaluation was conducted to determine the potential for hazardous material and oil/petroleum spills at this Site. For the purpose of this evaluation, hazardous materials posing a significant spill potential are considered to be:

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Extremely Hazardous Substances as identified in 40 CFR Part 355, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 pounds.
- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 pounds.
- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).

Oil/petroleum products are considered to pose a significant spill potential whenever the following situations occur:

- The potential for a "harmful quantity" of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes that could form a visible sheen on the water or violate applicable water quality standards.
- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR Part 612, is a petroleum-based heat source, energy source, or engine lubricant/maintenance fluid.
- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

The evaluation indicates that, based on Site history and decommissioning records, a hazardous material spill and/or a petroleum product spill is not likely to occur during remedial efforts.

9.2 Initial Spill Notification and Evaluation

Any worker who discovers a hazardous substance or oil/petroleum spill will immediately notify the Project Manager and SSHO. The worker will, to the best of his/her ability, report the material involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, if any, and any associated injuries. The Emergency Response Plan presented in Attachment A of this HASP will immediately be implemented if an emergency release has occurred.

Following initial report of a spill, the Project Manager will make an evaluation as to whether the release exceeds RQ levels. **If an RQ level is exceeded, the Project Manager will notify the Site owner and NYSDEC at 1-800-457-7362 within 2 hours of spill discovery**. The Project Manager will also determine what additional agencies (e.g., USEPA) are to be contacted regarding the release, and will follow-up with written reports as required by the applicable regulations.

9.3 Spill Response

For all spill situations, the following general response guidelines will apply:

- Only those personnel involved in overseeing or performing containment operations will be allowed within the spill area. If necessary, the area will be roped, ribboned, or otherwise cordoned off to prevent unauthorized access.
- Appropriate PPE, as specified by the SSHO, will be donned before entering the spill area.
- Ignition points will be extinguished/removed if fire or explosion hazards exist.
- Surrounding reactive materials will be removed.
- Drains or drainage in the spill area will be blocked to prevent inflow of spilled materials or applied materials.

For minor spills, the Contractor will maintain a Spill Control and Containment Kit in the Field Office or other readily accessible storage location. The kit will consist of, at a minimum, a 50 lb. bag of "speedy dry" granular absorbent material, absorbent pads, shovels, empty 5-gallon pails and an empty open-top 55-gallon drum. Spilled materials will be absorbed, and shoveled into a 55-gallon drum for proper disposal (NYSDEC approval will be secured for on-site treatment of the impacted soils/absorbent materials, if applicable). Impacted soils will be hand-excavated to the point that no visible signs of contamination remains, and will be drummed with the absorbent.

In the event of a major release or a release that threatens surface water, a spill response contractor will be called to the Site. The response contractor may use heavy equipment (e.g., excavator, backhoe, etc.) to berm the soils surrounding the spill Site or create diversion trenching to mitigate overland migration or release to navigable waters. Where feasible, pumps will be used to transfer free liquid to storage containers. Spill control/cleanup contractors in the Western New York area that may be contacted for assistance include:

- **The Environmental Service Group of NY, Inc.**
  Nick Halliday
  177 Wales Avenue, Tonawanda, NY 14150
  (716) 695-6720
- **Environmental Products and Services of Vermont, Inc.**
  Brian Ripley
  4429 Walden Avenue, Lancaster, NY 14086
  (716) 597-0001

- **Op-Tech Environmental Services, Inc.**
  401 Creekside Drive, Suite 3, Amherst, NY 14228
  (716) 525-1962
  24-Hour Emergency (800) 899-4672

9.4 Post-Spill Evaluation

If a reportable quantity of hazardous material or oil/petroleum is spilled as determined by the Project Manager, a written report will be prepared as indicated in Section 9.2. The report will identify the root cause of the spill, type and amount of material released, date/time of release, response actions, agencies notified and/or involved in cleanup, and procedures to be implemented to avoid repeat incidents. In addition, all re-useable spill cleanup and containment materials will be decontaminated, and spill kit supplies/disposable items will be replenished.

10.0 HEAT/COLD STRESS MONITORING

Since some of the work activities at the Site may be scheduled for both the summer and winter months, measures will be taken to minimize heat/cold stress to Benchmark-TurnKey employees. The SSHO and/or his or her designee will be responsible for monitoring Benchmark-TurnKey field personnel for symptoms of heat/cold stress.

10.1 Heat Stress Monitoring

PPE may place an employee at risk of developing heat stress, a common and potentially serious illnesses often encountered at construction, landfill, waste disposal, industrial or other unsheltered sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning, and age. PPE may severely reduce the body's normal ability to maintain temperature equilibrium (via evaporation and convection), and require increased energy expenditure due to its bulk and weight.

Proper training and preventive measures will mitigate the potential for serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.
- Train workers to recognize the symptoms of heat related illness.

Heat-related illness will typically produce the following symptoms:

- **Heat rash** may result from continuous exposure to heat or humid air.
- **Heat cramps** are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet, and abdomen.
- **Heat exhaustion** occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.
- **Heat stroke** is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same. If the pulse rate is 100 beats per minute at the beginning of the nest rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No Benchmark-TurnKey employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds 100.6 degrees Fahrenheit.

10.2 Cold Stress Monitoring

Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:

  1) **Frost nip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions, removal of boots and gloves, soaking the injured part in warm water (102 to 108 degrees Fahrenheit), and drinking a warm beverage. Do not rub skin to generate friction/ heat.
  2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue, which will be firm to the touch but will yield little pain. The treatment is identical for Frost nip.
  3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frost nip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:

  1) Shivering
  2) Apathy (i.e., a change to an indifferent or uncaring mood)
  3) Unconsciousness
  4) Bodily freezing

Employees exhibiting signs of hypothermia should be treated by medical professionals. Steps that can be taken while awaiting help include:

1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)
2) Perform active re-warming with hot liquids for drinking (Note: do not give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).
3) Perform passive re-warming with a blanket or jacket wrapped around the

victim.

In any potential cold stress situation, it is the responsibility of the SSHO to encourage the following:

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in heated areas, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
    - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
    - At a workers request.
    - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill less than 30 degrees Fahrenheit with precipitation).
    - As a screening measure, whenever anyone worker on-site develops hypothermia.

Any person developing moderate hypothermia (a core body temperature of 92 degrees Fahrenheit) will not be allowed to return to work for 48 hours without the recommendation of a qualified medical doctor.

11.0 WORK ZONES & SITE CONTROL

Work zones around the areas designated for construction activities will be established on a daily basis and communicated to all employees and other Site users by the SSHO. It shall be each Contractor's SSHO's responsibility to ensure that all Site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- **Exclusion Zone ("Hot Zone")** – The area where contaminated materials may be exposed, excavated, or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by flagging tape. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.
- **Contamination Reduction Zone** – The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment, and samples must remain in the Contamination Reduction Zone until decontaminated.
- **Support Zone** – The part of the site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

In the absence of other task-specific work zone boundaries established by the SSHO, the following boundaries will apply to all investigation and construction activities involving disruption or handling of Site soils or groundwater:

- Exclusion Zone: 50 foot radius from the outer limit of the sampling/construction activity.
- Contaminant Reduction Zone: 100 foot radius from the outer limit of the sampling/construction activity.
- Support Zone: Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the SSHO. Only personnel who are essential to the completion of the task will be allowed access to these areas and only if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO.

The SSHO will maintain a Health and Safety Logbook containing the names of Benchmark-TurnKey workers and their level of protection. The zone boundaries may be

changed by the SSHO as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

12.0 DECONTAMINATION

12.1 Decontamination for Benchmark-TurnKey Employees

The degree of decontamination required is a function of a particular task and the environment within which it occurs. The following decontamination procedure will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental conditions that may arise at the Site. All Benchmark-TurnKey personnel on-site shall follow the procedure below, or the Contractor's procedure (if applicable), whichever is more stringent.

Station 1 – Equipment Drop: Deposit visibly contaminated (if any) re-useable equipment used in the contamination reduction and exclusion zones (tools, containers, monitoring instruments, radios, clipboards, etc.) on plastic sheeting.

Station 2 – Boots and Gloves Wash and Rinse: Scrub outer boots and outer gloves. Deposit tape and gloves in waste disposal container.

Station 3 – Tape, Outer Boot, and Glove Removal: Remove tape, outer boots, and gloves. Deposit tape and gloves in waste disposal container.

Station 4 – Canister or Mask Change: If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot cover donned, and worker returns to duty.

Station 5 – Outer Garment/Face Piece Removal: Protective suit removed and deposited in separate container provided by Contractor. Face piece or goggles are removed if used. Avoid touching face with fingers. Face piece and/or goggles deposited on plastic sheet. Hard hat removed and placed on plastic sheet.

Station 6 – Inner Glove Removal: Inner gloves are the last personal protective equipment to be removed. Avoid touching the outside of the gloves with bare fingers. Dispose of these gloves in waste disposal container.

Following PPE removal, personnel shall wash hands, face, and forearms with absorbent wipes. If field activities proceed for a duration of 6 consecutive months or longer, shower facilities will be provided for worker use in accordance with OSHA 29 CFR 1910.120(n).

12.2 Decontamination for Medical Emergencies

In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (e.g., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a Site contaminant would be considered "Immediately Dangerous to Life or Health."

12.3 Decontamination of Field Equipment

Decontamination of heavy equipment will be conducted by the Contractor in accordance with their approved HASP in the Contamination Reduction Zone. As a minimum, this will include manually removing heavy soil contamination, followed by high-pressure steam cleaning on an impermeable pad.

Decontamination of all non-dedicated tools used for sample collection purposes will be conducted by Benchmark-TurnKey personnel. It is expected that all non-dedicated tools will be constructed of nonporous, nonabsorbent materials (i.e., metal), which will aid in the decontamination effort. Any tool or part of a tool made of porous, absorbent material (i.e., wood) will be placed into suitable containers and prepared for disposal.

Decontamination of non-disposable PVC bailers, split-spoons, spatula knives, and other tools used for environmental sampling and examination shall be as follows:

- Disassemble the equipment
- Water wash to remove all visible foreign matter.
- Wash with a non-phosphate detergent (i.e., Alconox®).
- Rinse all parts with distilled-deionized water.
- Allow to air dry.
- Wrap all parts in aluminum foil or polyethylene.

13.0 CONFINED SPACE ENTRY

OSHA 29 CFR 1910.146 identifies a confined space as a space that is large enough and so configured that an employee can physically enter and do assigned work, has limited or restricted means for entry and exit, and is not intended for continuous employee occupancy. Confined spaces include, but are not limited to, trenches, test pits, storage tanks, process vessels, pits, sewers, tunnels, underground utility vaults, pipelines, sumps, wells, and excavations.

Confined space entry by Benchmark-TurnKey employees is not anticipated to be necessary to complete the remedial activities identified in the IRM Work Plan. In the event that the scope of work changes or confined space entry appears necessary, the Project Manager will be consulted to determine if feasible engineering alternatives to confined space entry can be implemented. If confined space entry by Benchmark-TurnKey employees cannot be avoided through reasonable engineering measures, task-specific confined space entry procedures will be developed and a confined-space entry permit will be issued through Benchmark-TurnKey's corporate Health and Safety Director. **Benchmark-TurnKey employees shall never enter a confined space without these procedures and permits in place.**

14.0 FIRE PREVENTION & PROTECTION

14.1 General Approach

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by regulatory authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper Site preparation and safe storage of combustible and flammable materials.
- Availability of coordination with private and public fire authorities.
- Adequate job-site fire protection and inspections for fire prevention.
- Adequate indoctrination and training of employees.

14.2 Equipment and Requirements

Fire extinguishers will be provided by each Contractor and are required on all heavy equipment and in each field trailer. Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. At a minimum, all fire extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary. Recharge or replacement shall be mandatory immediately after each use.

14.3 Flammable and Combustible Substances

All storage, handling, or use of flammable and combustible substances will be under the supervision of qualified persons. All tanks, containers and pumping equipment, whether portable or stationary, used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the NFPA.

14.4 Hot Work

If the scope of work necessitates welding or blowtorch operation, the hot work permit presented in Attachment C will be completed by the SSHO and reviewed/issued by the Project Manager.

15.0 EMERGENCY INFORMATION

In accordance with OSHA 29 CFR Part 1910, an Emergency Response Plan (ERP) is attached to this HASP as Attachment A. The ERP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. The ERP also describes the provisions the Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

The hospital route map is presented within Attachment A as Figure 1.

16.0 REFERENCES

1. Benchmark Environmental Engineering and Science, PLLC. *Phase I Environmental Site Assessment ASTM E1527-13 for 50 Elk Street, Buffalo, New York.* August 2016.

2. New York State Department of Health. *Generic Community Air Monitoring Plan, Appendix 1A, NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation.* May 2010.

TABLES

TurnKey Environmental Restoration, LLC

Benchmark Environmental Engineering & Science, PLLC

TABLE 1

TOXICITY DATA FOR COCs

Health and Safety Plan
Silos at Elk Street Site
Buffalo, New York

Parameter	Synonyms	CAS No.	Code	Concentration Limits [1]		
				PEL	TLV	IDLH
Semi-Volatile Organic Compounds (SVOCs): ppm						
Acenaphthene	*none*	83-32-9	*none*	--	--	--
Anthracene	*none*	120-12-7	*none*	--	--	--
Benzo(a)anthracene	*none*	56-55-3	*none*	--	--	--
Benzo(a)pyrene	*none*	50-32-8	*none*	--	--	--
Benzo(b)fluoranthene	*none*	205-99-2	*none*	--	--	--
Benzo(ghi)perylene						
Benzo(k)fluoranthene	*none*	207-08-9	*none*	--	--	--
Chrysene	*none*	218-01-9	*none*	--	--	--
Fluoranthene	*none*	206-44-0	*none*	--	--	--
Fluorene	*none*	86-73-7	*none*	--	--	--
Indeno(1,2,3-cd)pyrene	*none*	193-39-5	*none*	--	--	--
Naphthalene	Naphthalin, Tar camphor, White tar	91-20-3	C	10	10	250
Phenanthrene	*none*	85-01-8	*none*	--	--	--
Pyrene	*none*	129-00-0	*none*	--	--	--
Inorganic Compounds: mg/m ^{3}						
Arsenic	*none*	7440-38-2	Ca	0.01	0.01	5
Lead	*none*	7439-92-1	*none*	0.05	0.15	100

Notes:

1. Concentration limits as reported by NIOSH Pocket Guide to Chemical Hazards, February 2004 (NIOSH Publication No. 97-140, fourth printing with changes and updates).
2. " -- " = concentration limit not available; exposure should be minimized to the extent feasible through appropriate engineering controls & PPE.

Explanation:

Ca = NIOSH considers constituent to be a potential occupational carcinogen.
C-## = Ceiling Level equals the maximum exposure concentration allowable during the work day.
IDLH = Immediately Dangerous to Life or Health.
ND indicates that an IDLH has not as yet been determined.
TLV = Threshold Limit Value, established by American Conference of Industrial Hygienists (ACGIH), equals the maximum exposure concentration allowable for 8 hours/day @ 40 hours/week.
- TLVs are the amounts of chemicals in the air that almost all healthy adult workers are predicted to be able to tolerate without adverse effects. There are three types.
- TLV-TWA (TLV-Time-Weighted Average) which is averaged over the normal eight-hour day/forty-hour work week. (Most TLVs.)
- TLV-STEL or Short Term Exposure Limits are 15 minute exposures that should not be exceeded for even an instant. It is not a stand alone value but is accompanied by the TLV-TWA. It indicates a higher exposure that can be tolerated for a short time without adverse effect as long as the total time weighted average is not exceded.
- TLV-C or Ceiling limits are the concentration that should not be exceeded during any part of the working exposure.
- Unless the initials "STEL" or "C" appear in the Code column, the TLV value should be considered to be the eight-hour TLV-TWA.

PEL = Permissible Exposure Limit, established by OSHA, equals the maximium exposure conconcentration allowable for 8 hours per day @ 40 hours per week

TABLE 2

POTENTIAL ROUTES OF EXPOSURE FOR THE COCs

Health and Safety Plan
Silos at Elk Street Site
Buffalo, New York

Activity [1]	Direct Contact with Soil/Fill	Inhalation of Vapors or Dust	Direct Contact with Groundwater
Soil/Fill Sampling	x	x	
In-Situ Soil Stabilizing	x	x	
Soil/Fill Excavation	x	x	x

Notes:

1. Activity as described in Section 1.5 of the Health and Safety Plan.

TABLE 3

REQUIRED LEVELS OF PROTECTION FOR REMEDIAL ACTIVITIES

Health and Safety Plan
Silos at Elk Street Site
Buffalo, New York

Activity	Respiratory Protection [1]	Clothing	Gloves [2]	Boots [2, 3]	Other Required PPE/Modifications [2, 4]
Soil/Fill Sampling	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	N	outer: none inner: STSS	HH SGSS
In-Situ Soil Stabilizing	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	N	outer: none inner: STSS	HH SGSS
Soil/Fill Excavation	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	N	outer: none inner: STSS	HH SGSS

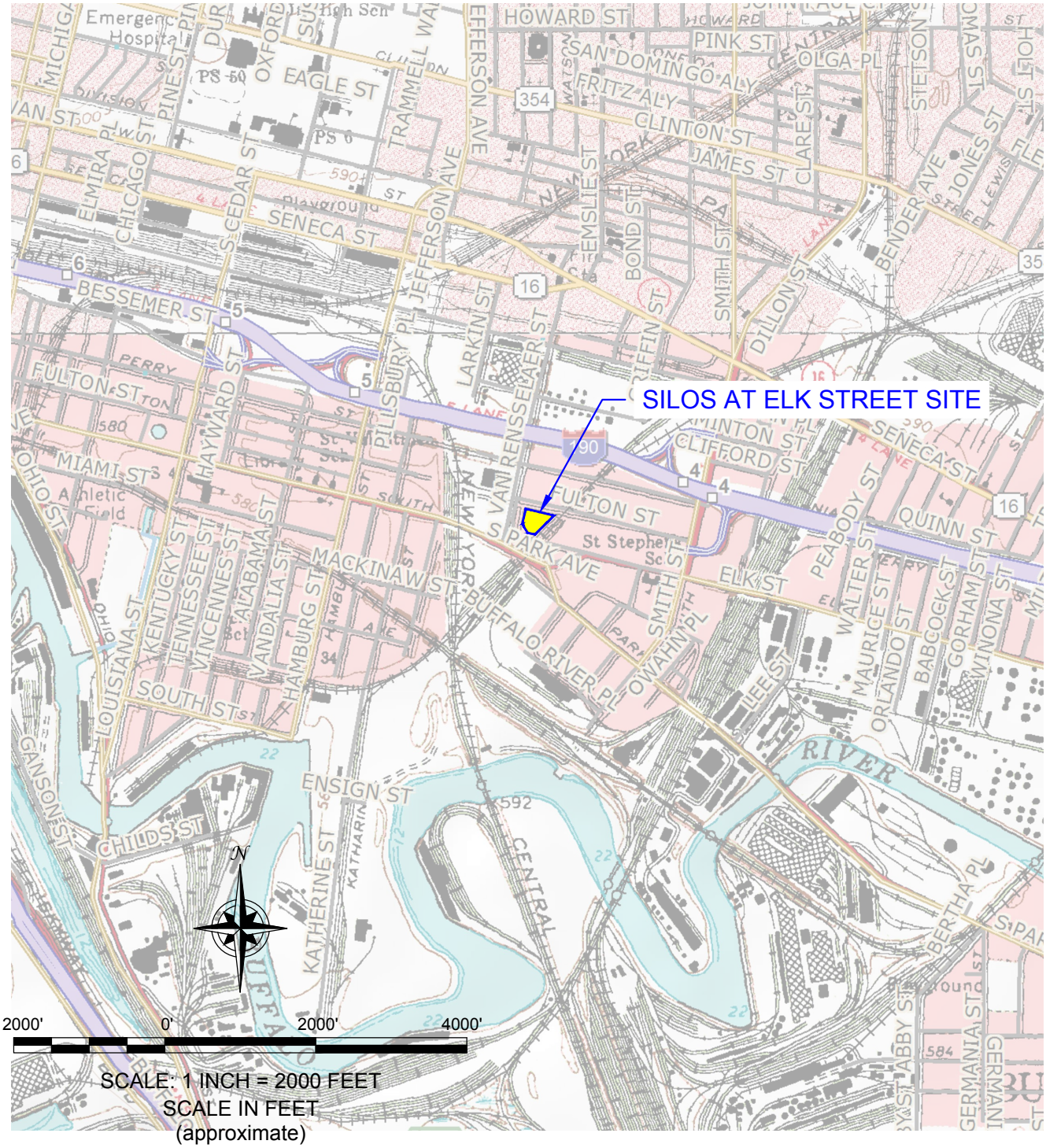
Notes:

1. Respiratory equipment shall conform to guidelines presented in Section 7.0 of this HASP. The Level C requirement is an air-purifying respirator equiped with organic compound/acid gas/dust cartridge.
2. HH = hardhat; N/N = nitrile inner glove, nitrile outer glove; N = Nitrile glove only; SGSS = safety glasses with sideshields; STSS = steel toe safety shoes.
3. Latex outer boot (or approved overboot) required whenever contact with contaminated materials may occur. SSHO may downgrade to STSS (steel-toed safety shoes) if contact will be limited to cover/replacement soils.
4. Dust masks shall be donned as directed by the SSHO (site safety and health officer) or site safety technician whenever potentially contaminated airborne particulates (i.e., dust) are present in significant amounts in the breathing zone. Goggles may be substituted with safety glasses w/side-shields whenever contact with contaminated liquids is not anticipated.

FIGURES

F:\CAD\Benchmark\Young and Wright Architectural\50 Elk Street\03 - RI Work Plan\Appendix F; HASP\Figure 1; Site Location & Vicinity Map.dwg

FIGURE 1



BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0381-016-002

DATE: AUGUST 2016

DRAFTED BY: BCH

SITE LOCATION & VICINITY MAP

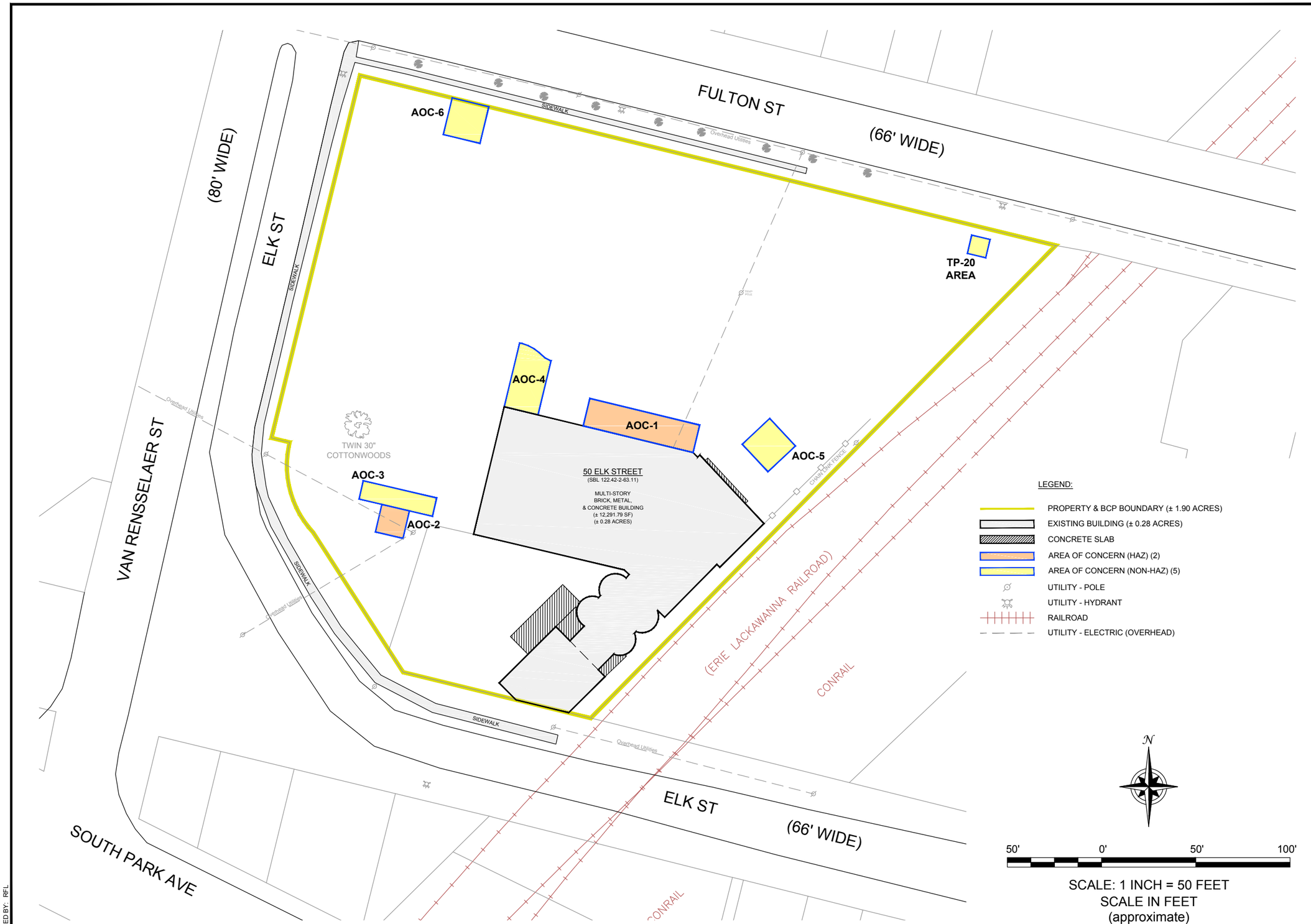
HEALTH AND SAFETY PLAN

SILOS AT ELK STREET
BUFFALO, NEW YORK

PREPARED FOR

SILOS AT ELK STREET, LLC

F:\CAD\Benchmark\Young and Wright Architectural\Silos at Elk Street\06 - SMP\HASP\Figure2; Site Plan and Areas of Concern.dwg



DATE: JULY 2017
DRAFTED BY: RFL

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0381-017-006

SITE PLAN AND AREAS OF CONCERN

HEALTH AND SAFETY PLAN

SILOS AT ELK STREET SITE
BUFFALO, NEW YORK
PREPARED FOR
SILOS AT ELK STREET, LLC

FIGURE 2

ATTACHMENT A

EMERGENCY RESPONSE PLAN

EMERGENCY RESPONSE PLAN
for
BROWNFIELD CLEANUP PROGRAM
REMEDIAL ACTIVITIES

SILOS AT ELK STREET SITE
BCP SITE NO. C915309
BUFFALO, NEW YORK

July 2017 0381-017-008

Prepared for:

SILOS AT ELK STREET, LLC

Prepared By:

Benchmark Environmental Engineering & Science, PLLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0599

In Association With:

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

ATTACHMENT A: EMERGENCY RESPONSE PLAN

Silos at Elk Street Site

BCP Site No. C915309

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LIST OF FIGURES

1.0 GENERAL

This report presents the site-specific Emergency Response Plan (ERP) referenced in the Site Health and Safety Plan (HASP) prepared for remedial activities at the Silos at Elk Street Site in Buffalo, New York. This attachment to the HASP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This ERP also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

This ERP is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- Pre-emergency planning.
- Personnel roles, lines of authority, and communication.
- Emergency recognition and prevention.
- Safe distances and places of refuge.
- Evacuation routes and procedures.
- Decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency alerting and response procedures.
- Critique of response and follow-up.
- Emergency personal protective equipment (PPE) and equipment.

2.0 PRE-EMERGENCY PLANNING

This Site has been evaluated for potential emergency occurrences, based on site hazards, the required work tasks, the site topography, and prevailing weather conditions. The results of that evaluation indicate the potential for the following site emergencies to occur at the locations indicated.

Type of Emergency:

1. Medical, due to physical injury
2. Fire

Source of Emergency:

1. Slip/trip/fall
2. Fire

Location of Source:

1. Non-specific

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean up. Emergency response equipment available on the Site is listed below. The equipment inventory and storage locations are based on the potential emergencies described above. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this Site but not ordinarily stocked.

Any additional personal protective equipment (PPE) required and stocked for emergency response is also listed below. During an emergency, the Emergency Response Coordinator (ERC) is responsible for specifying the level of PPE required for emergency response. At a minimum, PPE used by emergency responders will comply with Section 7.0: *Personal Protective Equipment* of this HASP. Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Emergency Equipment	Quantity	Location
First Aid Kit	1	Site Vehicle
Chemical Fire Extinguisher	2 (minimum)	All heavy equipment and Site Vehicle

Emergency PPE	Quantity	Location
Full-face respirator	1 for each worker	Site Vehicle
Chemical-resistant suits	4 (minimum)	Site Vehicle

4.0 EMERGENCY PLANNING MAPS

An area-specific map of the Site will be developed on a daily basis during performance of field activities. The map will be marked to identify critical on-site emergency planning information, including: emergency evacuation routes, a place of refuge, an assembly point, and the locations of key site emergency equipment. Site zone boundaries will be shown to alert responders to known areas of contamination. There are no major topographical features, however the direction of prevailing winds/weather conditions that could affect emergency response planning are also marked on the map. The map will be posted at site-designated place of refuge and/or inside the Benchmark-TurnKey personnel field vehicle.

5.0 EMERGENCY CONTACTS

The following identifies the emergency contacts for this ERP.

Emergency Telephone Numbers:

Project Manager: *Lori E. Riker*
Work: (716) 856-0599
Mobile: (716) 474-7510

Corporate Health and Safety Director: *Thomas H. Forbes*
Work: (716) 856-0599
Mobile: (716) 864-1730

Site Safety and Health Officer (SSHO): *Richard L. Dubisz*
Work: (716) 856-0599
Mobile: (716) 998-4334

Alternate SSHO: *Thomas A. Behrendt*
Work: (716) 856-0635
Mobile: (716) 818-8358

MERCY HOSPITAL of BUFFALO (ER):	(716) 826-7000
FIRE:	911
AMBULANCE:	911
BUFFALO POLICE:	911
STATE EMERGENCY RESPONSE HOTLINE:	(800) 457-7362
NATIONAL RESPONSE HOTLINE:	(800) 424-8802
NYSDOH:	(518) 402-7860
NYSDEC:	(716) 851-7220
NYSDEC 24-HOUR SPILL HOTLINE:	(800) 457-7252

The Site location is:
Silos at Elk Street Site
50 Elk Street
Buffalo, New York 14210
Site Phone Number: (Insert Cell or Field Trailer Phone): _____

6.0 EMERGENCY ALERTING & EVACUATION

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of each contractor's SSHO to ensure an adequate method of internal communication is understood by all personnel entering the site. Unless all personnel are otherwise informed, the following signals shall be used.

1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site excavation.
2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/ everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

If evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Section 12.0 of the HASP are followed to the extent practical without compromising the safety and health of site personnel. The evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and inputs from emergency response organizations. Wind direction indicators are located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the emergency response coordinator at the time the evacuation alarm sounds. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the construction SSHO to review evacuation routes and procedures as necessary and to inform all Benchmark TurnKey workers of any changes.

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the SSHO (***Richard Dubisz*** or ***Thomas Behrendt***) so that appropriate action can be initiated. Contractors and subcontractors on this site have coordinated their emergency response plans to ensure that these plans are compatible and that source(s) of potential emergencies are recognized, alarm

systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

7.0 EXTREME WEATHER CONDITIONS

In the event of adverse weather conditions, the SSHO in conjunction with the Contractor's SSHO will determine if engineering operations can continue without sacrificing the health and safety of site personnel. Items to be considered prior to determining if work should continue include but are not limited to:

- Potential for heat/cold stress.
- Weather-related construction hazards (e.g., flooding or wet conditions producing undermining of structures or sheeting, high wind threats, etc.).
- Limited visibility.
- Potential for electrical storms.
- Limited site access/egress (e.g., due to heavy snow)

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID

Personnel Exposure:

The following general guidelines will be employed in instances where health impacts threaten to occur or acute exposure is realized:

- Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on site. If necessary, transport to Mercy Hospital.
- Inhalation: Move to fresh air and, if necessary, transport to Mercy Hospital.
- Ingestion: Decontaminate and transport to Mercy Hospital.

Personal Injury:

Minor first-aid will be applied on-site as deemed necessary. In the event of a life threatening injury, the individual should be transported to Mercy Hospital via ambulance. The Site Health and Safety Officer will supply available chemical specific information to appropriate medical personnel as requested.

First aid kits will conform to Red Cross and other applicable good health standards, and shall consist of a weatherproof container with individually sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the SSHO to ensure that the expended items are replaced.

Directions to Mercy Hospital (see Figure 1):

The following directions describe the best route from the Site to Mercy Hospital (approximately 2.8 miles or 9 minutes):

- Travel north along Elk Street,
- Turn left onto Van Rensselaer Street
- Turn left onto South Park Avenue
- Follow South Park to Abbott Road
- **Mercy Hospital ER** is at corner of Lorraine Avenue, Abbott Road, and Cazenovia Street – 565 Abbott Road

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING

Following an emergency, the SSHO and Project Manager shall review the effectiveness of this Emergency Response Plan (ERP) in addressing notification, control, and evacuation requirements. Updates and modifications to this ERP shall be made accordingly. It shall be the responsibility of each contractor to establish and assure adequate records of the following:

- Occupational injuries and illnesses.
- Accident investigations.
- Reports to insurance carrier or State compensation agencies.
- Reports required by the client.
- Records and reports required by local, state, federal, and/or international agencies.
- Property or equipment damage.
- Third party injury or damage claims.
- Environmental testing logs.
- Explosive and hazardous substances inventories and records.
- Records of inspections and citations.
- Safety training.

10.0 EMERGENCY RESPONSE TRAINING

All persons who enter the worksite, including visitors, shall receive a site-specific briefing about anticipated emergency situations and the emergency procedures by the SSHO. Where this site relies on off-site organizations for emergency response, the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

FIGURES

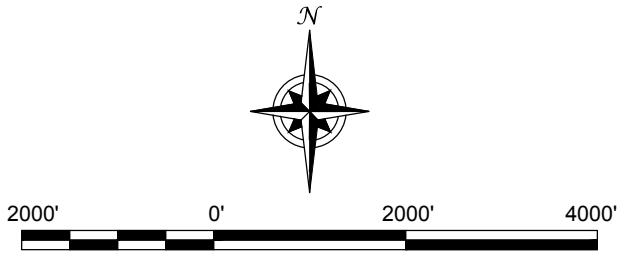
F:\CAD\Benchmark\Young and Wright Architectural\50 Elk Street\03 - RI Work Plan\Appendix F; HASP\Figure 1; Hospital Route Map.dwg

50 Elk Street
Buffalo, NY 14210

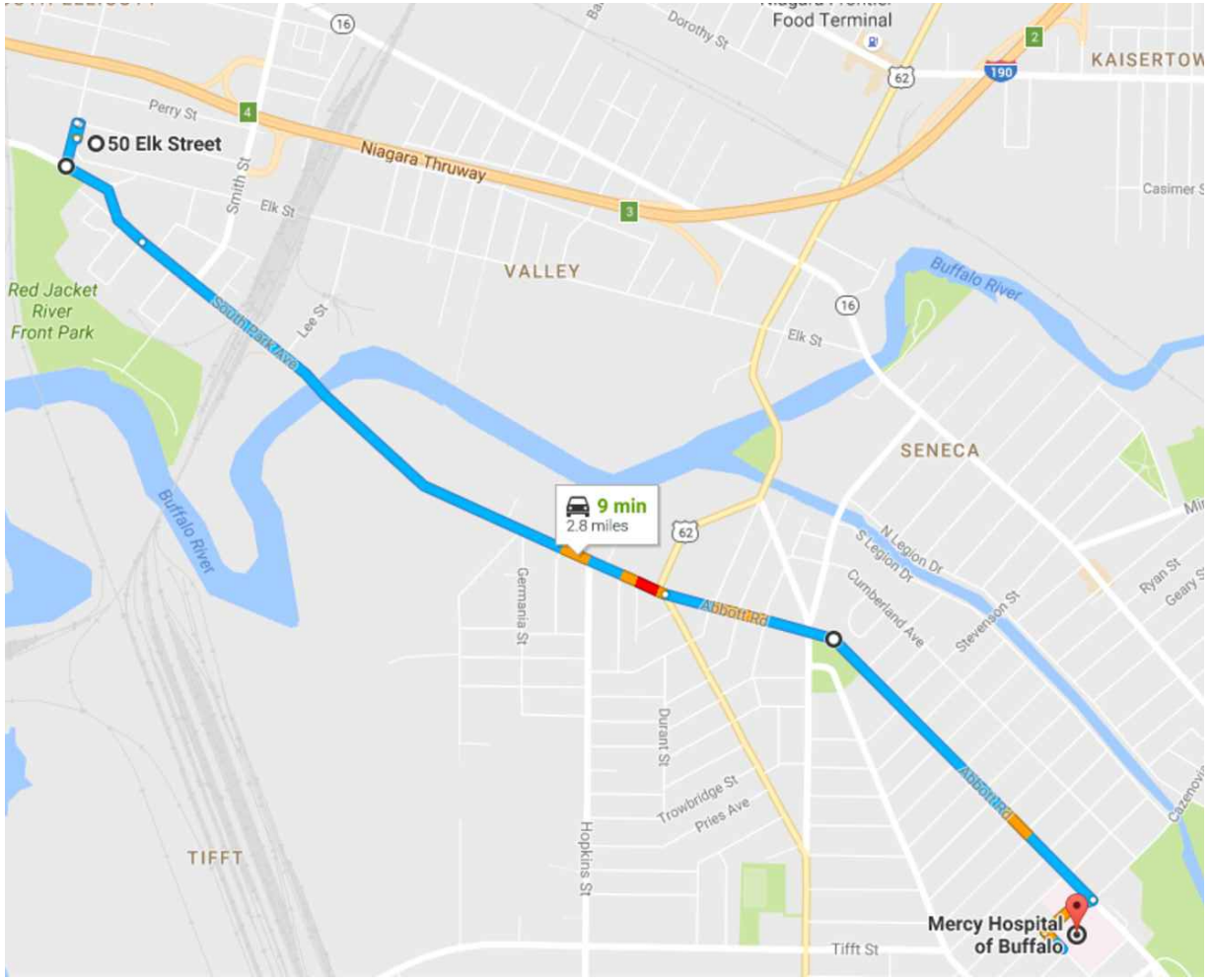
- Take Van Rensselaer St to South Park Ave
  40 s (0.1 mi)
- Follow South Park Ave and Abbott Rd to Lorraine Ave
  8 min (2.6 mi)
- Continue on Lorraine Ave. Drive to Mercy St
  1 min (0.2 mi)

Mercy Hospital of Buffalo
565 Abbott Road, Buffalo, NY 14220

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



SCALE: 1 INCH = 2000 FEET
SCALE IN FEET
(approximate)



BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0381-016-002
DATE: AUGUST 2016
DRAFTED BY: BCH

HOSPITAL ROUTE MAP

HASP - EMERGENCY RESPONSE PLAN

SILOS AT ELK STREET SITE
BUFFALO, NEW YORK

PREPARED FOR
SILOS AT ELK STREET, LLC

FIGURE 1

ATTACHMENT B

NYSDOH
GENERIC COMMUNITY AIR MONITORING PLAN

Appendix 1A
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

Appendix 1B
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.

ATTACHMENT C

HOT WORK PERMIT FORM

HOT WORK PERMIT

PART 1 - INFORMATION

Issue Date:	
Date Work to be Performed: Start:	Finish (permit terminated):
Performed By:	
Work Area:	
Object to be Worked On:	

PART 2 - APPROVAL

(for 1, 2 or 3: mark Yes, No or NA)*

Will working be on or in:	Finish (permit terminated):	
1. Metal partition, wall, ceiling covered by combustible material?	yes	no
2. Pipes, in contact with combustible material?	yes	no
3. Explosive area?	yes	no

* = If any of these conditions exist (marked "yes"), a permit will not be issued without being reviewed and approved by Thomas H. Forbes (Corporate Health and Safety Director). Required Signature below.

PART 3 - REQUIRED CONDITIONS**

(Check all conditions that must be met)

	PROTECTIVE ACTION		PROTECTIVE EQUIPMENT
	Specific Risk Assessment Required		Goggles/visor/welding screen
	Fire or spark barrier		Apron/fireproof clothing
	Cover hot surfaces		Welding gloves/gauntlets/other:
	Move movable fire hazards, specifically		Wellintons/Knee pads
	Erect screen on barrier		Ear protection: Ear muffs/Ear plugs
	Restrict Access		B.A.: SCBA/Long Breather
	Wet the ground		Respirator: Type:
	Ensure adequate ventilation		Cartridge:
	Provide adequate supports		Local Exhaust Ventilation
	Cover exposed drain/floor or wall cracks		Extinguisher/Fire blanket
	Fire watch (must remain on duty during duration of permit)		Personal flammable gas monitor
	Issue additional permit(s):		

Other precautions:

** Permit will not be issued until these conditions are met.

SIGNATURES

Orginating Employee:	Date:
Project Manager:	Date:
Part 2 Approval:	Date:

Prepared By: _____

APPENDIX E

SITE MANAGEMENT FORMS

Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

SITE NO.: **C915309**

Site Name: **Silos at Elk Street Site**

Site Address: 50 Elk Street Zip Code: 14203

City/Town: Buffalo

County: Erie County

Current Use:

Intended Use:

Box 2

Verification of Site Details

		YES	NO
1.	Are the Site Details above, correct?	□	□
	If NO, are changes handwritten above or included on a separate sheet?	□	
2.	Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification?	□	□
	If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	□	□
3.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification?	□	□
	If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	□	□
4.	Has a change-of-use occurred since the initial/last certification?□	□	
	If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	□	
5.	For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid?	□	□
	If YES, is the new information or evidence that new information has been previously submitted included with this Certification?	□	
6.	For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ?	□	□
	If NO, are changes in the assessment included with this certification?	□	

Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

SITE NO.: C915309 **Box 3**

Description of Institutional Controls

1.
2.
3.
4.
5.

Box 4

Description of Engineering Controls

1.
2.
3.
4.
5.

Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

SITE NO.: C915309 **Box 5**

Description of Institutional Controls

1. I certify by checking "YES" below that:

   a. the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b. 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; and the information presented is accurate and complete.

YES	NO
□	□

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   a. the Institutional Control(s) and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   b. nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   c. 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;

   d. nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   e. if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
□	□

3. If this site has an Operation and Maintenance (O&M) Plan (or equivalent as required in the Decision Document);

   I certify by checking "YES" below that the O&M Plan Requirements (or equivalent as required in the Decision Document) are being met.

YES	NO
□	□

4. If this site has a Monitoring Plan (or equivalent as required in the remedy selection document);

   I certify by checking "YES" below that the requirements of the Monitoring Plan (or equivalent as required in the remedy selection document) is being met.

YES	NO
□	□

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____
Address: _____ City: _____
State: _____ Zip Code: _____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: _____

Current Reporting Period
Reporting Period From: _____ To: _____

Contact Information
Preparer's Name: _____ Phone No.: _____
Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. Water Usage: Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR

I, _____ (**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application.

_____

Date **Contractor**

APPENDIX F

RESPONSIBILITIES OF OWNER & REMEDIAL PARTY

F-1: RESPONSIBILITIES

The owner and remedial party, and the associated responsibilities for implementing the Site Management Plan (SMP) for the Silos at Elk Street Site (the "Site") is:

Silos at Elk Street, LLC (BCP Site No. C915309)
740 Seneca Street
Buffalo, New York 14210

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Future Site owners and responsible parties (RPs) and their successors and assigns are required to carry out the activities set forth above.