ARCADIS Design & Consultancy for natural and built assets

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

New York State Department of Environmental Conservation

Site Management Plan

Former Paulsen-Holbrook Site, Town of Guilderland,
Albany County, New York

Site No. 401046

December 2014 (Updated December 2017)

Site Management Plan

Former Paulsen-Holbrook Site

Prepared for:
New York State Department of Environmental Conservation

Prepared by:
Arcadis CE, Inc.
855 Route 146
Suite 210
Clifton Park
New York 12065
Tel 518 250 7300
Fax 518 250 7301

Our Ref.:
00266398.0000

Date:
December 2014
(Updated December 2017)

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

Tables

Figures

Appendices

Acronyms and Abbreviations

AMSL - Above Mean Sea Level

BGS – Below Ground Surface

CCA - Chromated Copper Arsenate

PID – Photo-Ionization Detector

ROD - Record of Decision

SSAL – Site Specific Action Levels

SMP – Site Management Plan

Site Management Plan
Former Paulsen Holbrook Site
Site Number 401046
Albany County, Town of Guilderland, New York
December 2017

I, Daniel J. Loewenstein, certify that I am currently a registered professional engineer in the State of New York and that this Site Management Plan was prepared in accordance with applicable statutes and regulations, and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

12/20/17 DATE

1. Introduction

The Former Paulsen-Holbrook Site (site), Site No. 401046, was initially listed by the New York State Department of Environmental Conservation (NYSDEC) in March 2010 as a Class 2 Inactive Hazardous Waste Disposal Site.

1.1 Purpose of the Site Management Plan

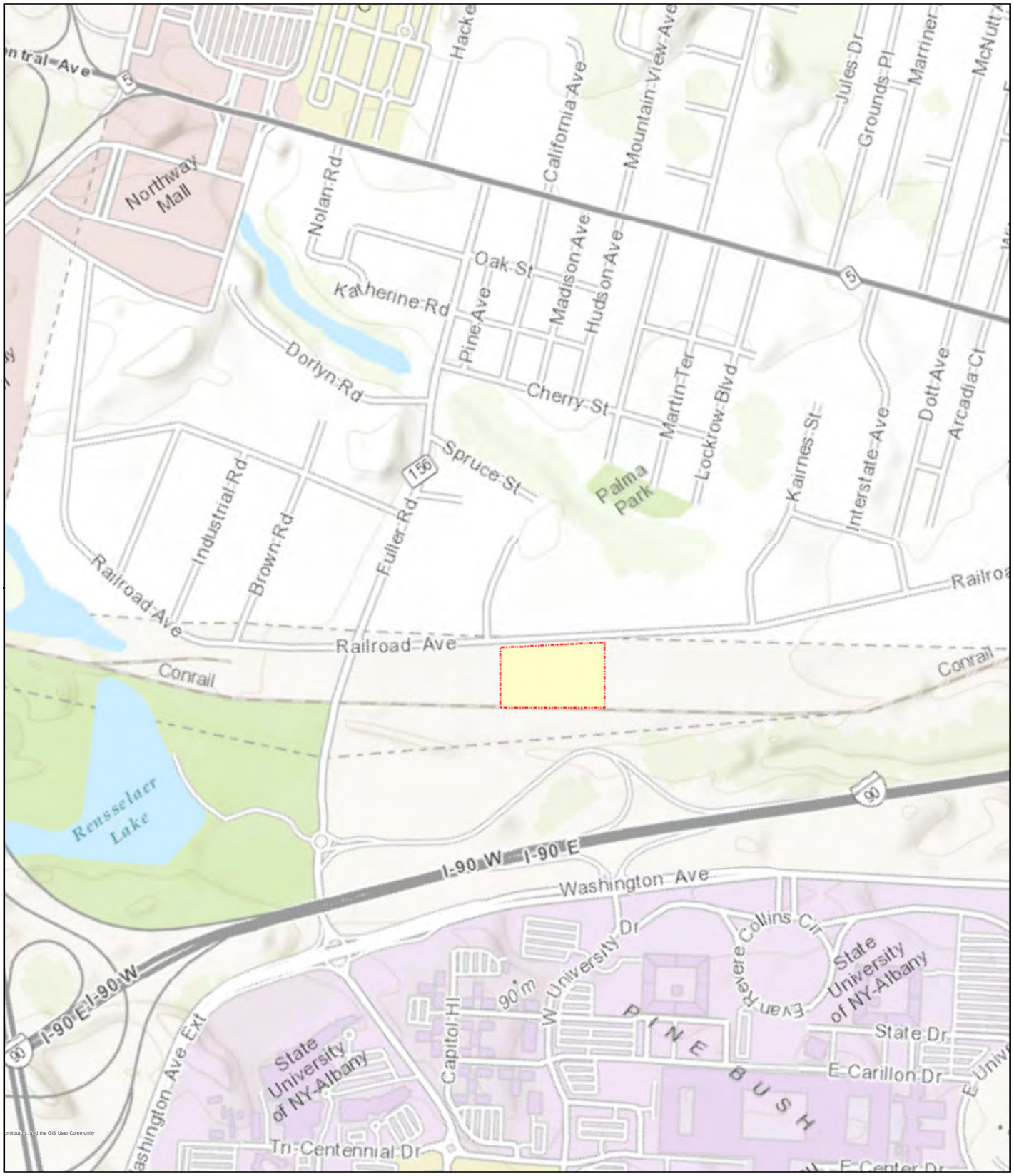
The general purpose of this Site Management Plan (SMP) is to establish the protocols for managing the site following the completion of the remedy to address Chromated Copper Arsenate (CCA) contamination, in general accordance with the Record of Decision (ROD) as issued by the NYSDEC in March 2010. More specifically, the objective of the SMP is to set guidelines for management of soil and groundwater during future activities at the site. The SMP is a portion of the overall remedy which addresses potential future disturbances or use of residually contaminated media remaining on the site, after other elements of the remedy have been implemented. This SMP addresses potential environmental concerns related to the management of site soil and groundwater, and has been reviewed and approved by the NYSDEC. This SMP has been prepared by Arcadis CE, Inc. (Arcadis – formerly Malcolm Pirnie, Inc.), who provided design and construction phase engineering services for the remedial activities.

For the convenience of the site owners, summaries of previous environmental investigations have been restated in this SMP, where appropriate. The owners should refer to the original approved investigation reports for more detail, as needed. This plan is not intended to serve as a design document for potential construction activities related to site redevelopment or reuse. It remains the responsibility of future site owners and potential site developers to prepare and obtain appropriate approvals for all future engineering designs associated with the site. Similarly, it is also their responsibility to conduct all future construction activities in a manner that incorporates, and is compatible with the requirements for soil and groundwater management as set forth in this SMP.

1.2 Site Description

The Former Paulsen-Holbrook Site is located in the Town of Guilderland, Albany County, New York. It is located at 54 Railroad Avenue. The location of the site is indicated on Figures 1 and 2.

Figure 1 Site Location



0 500 1,000 2,000 3,000 4,000 Feet

Legend

Site Boundary

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROK SITE (#401046)
SITE MANAGEMENT PLAN

SITE LOCATION

ARCADIS

FIGURE
1

G:\GIS\MOD\0266376\SMP\Site Location.mxd

Figure 2 Site Map

0 250 500 1,000 1,500 2,000
Feet

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (#401046)
SITE MANAGEMENT PLAN

SITE MAP

Legend

Site Boundary

ARCADIS

FIGURE
2

G:\GISMOD\0266376\SMP\Site Map.mxd

The site, as defined by the NYSDEC, consists of approximately a 0.5 acre area generally located on a portion of an 8.8 acre parcel and smaller portions of adjacent parcels.

The site is located among light industrial/commercial properties.

The topography of the area is relatively flat and generally sloping from the north to the south. The site is bounded by Railroad Avenue to the north, to the west by another commercial parcel, to the east by a commercial parcel and to the south by a CSX rail line and right-of-way.

1.3 Geology and Hydrogeology

The site geology is lacustrine sand deposits. These deposits are well-sorted, stratified, and generally consist of quartz sand with a variable thickness ranging from 6.5 to 65 feet. Soils encountered during the site investigation phase were generally fine to medium sand with some silt. Brown dense clay was encountered in two borings PH-SB-01 (at a depth 11 to 15 feet below ground surface) and PH-SB-54 (at a depth 12.8 to 13.4 feet below ground surface). Bedrock beneath the overburden is Normanskill shale of the Lorraine, Trenton, and Black River groups. Bedrock was not encountered during the remedial investigation activities.

Groundwater elevation at the site range from 238.79 feet (AMSL) to 234.43 feet (AMSL). This translates to a depth of groundwater of approximately 11 to 14 feet below ground surface. Groundwater generally flows to the south-southeast towards the Patroon Creek.

1.4 Site History

Various lumber companies that occupied the property ran wood treatment operations at the site from the early 1950s until sometime before 1978. Wood was preserved by treating it with CCA – as solution of chromic acid, cupric oxide and arsenic, and pentoxide in a large pressure vessel housed in a containment building. After treatment, the batches of lumber were removed from the pressure vessel and allowed to air dry on site. An estimated 2,000 to 3,000 gallon spill of CCA occurred at the site in 1965 when the pressure vessel was opened before being pumped out. Soil contamination occurred as a result of the spill and residual CCA that dripped or washed off treated wood. Groundwater was impacted under the site. The containment building was removed sometime between 1982 and 1985.

1.5 Summary of Remedial Activities

The property owner initially entered into a voluntary cleanup program in December of 1998. The NYSDEC conducted site investigations and lawsuits with former property owners that ultimately resulted in a dispute resolution with the NYSDEC. A settlement was reached in March 2007 and the site was removed from the voluntary cleanup program to the State Superfund.

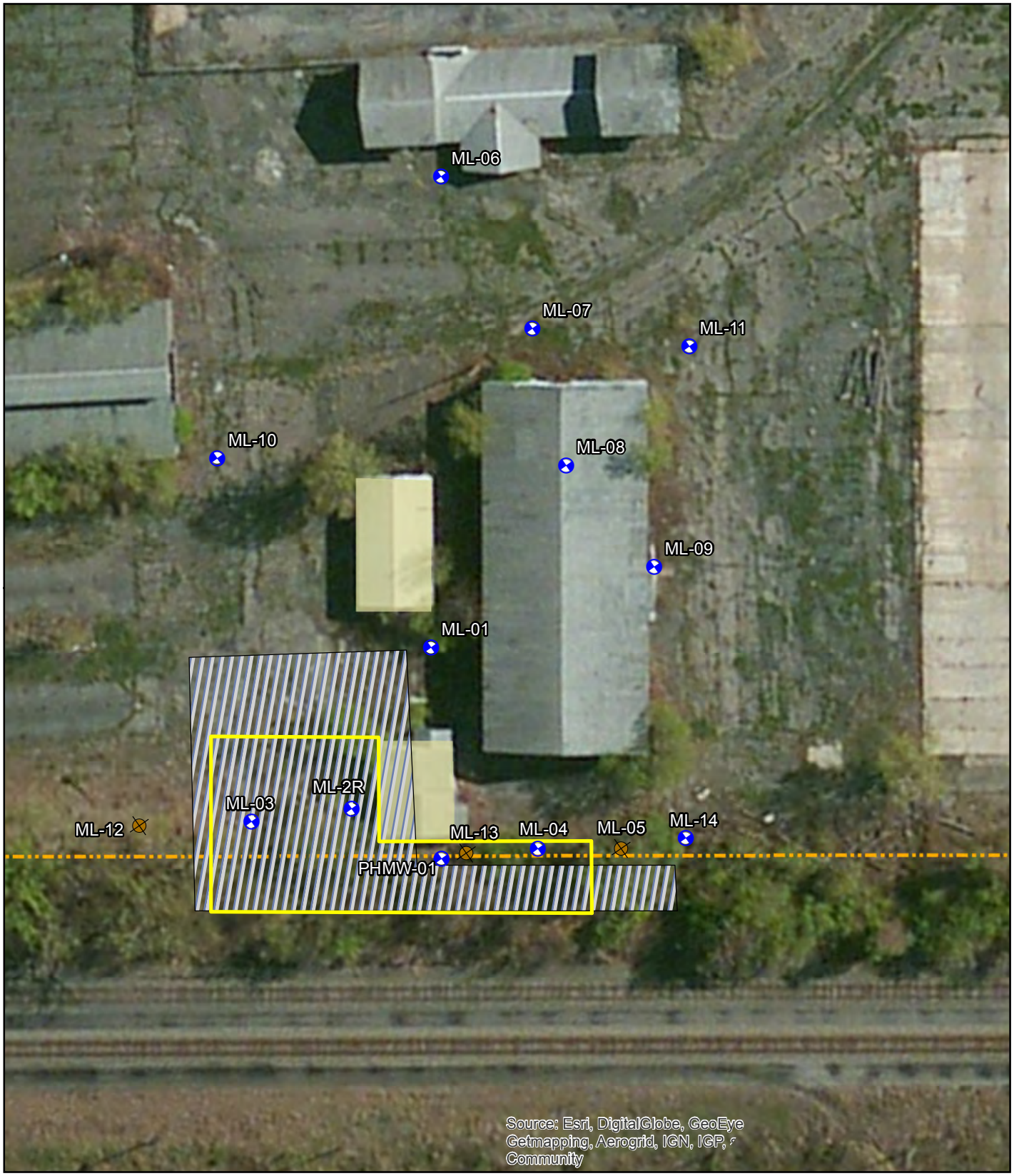
Prior to this remedial action, several underground storage tanks containing petroleum products were removed and resulting spilled products were cleaned up.

Multiple investigations were conducted on the site as part of the voluntary cleanup program. These investigations included:

- Soil investigation completed in 1999.
- Baseline investigation completed in 2001.
- Site Investigation Report and Proposed Soils Remediation Plan completed in 2003.
- Phase I Groundwater Investigation completed in 2003.
- Supplemental Site Investigation Report and Focused Feasibility Study completed in 2005.
- Remedial Investigation Report completed in 2009.

Figure 3 shows the location of in situ soil and groundwater treatment that was performed at the site. The soil treatment consisted of soil stabilization to immobilize the contamination in soils above the ground water table. The groundwater treatment consisted of chemical injection to treat the groundwater contamination in-situ. Figure 4 shows the limits of the soil cover that was installed at the surface to limit access to contamination.

Figure 3 In-Situ Soil and Groundwater Treatment Areas



0 25 50 100 150 200 Feet

Legend

- Existing
- Abandoned/Destroyed
- In-Situ Soil Stabilization Area
- Groundwater Injection Area
- Demolished Bldg
- Approximate Site Boundary

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (#401046)
SITE MANAGEMENT PLAN

IN-SITU SOIL AND GROUNDWATER TREATMENT AREAS

ARCADIS

FIGURE
3

G:\GISMOD\0266376\SMP\Remediation.mxd

Figure 4 Soil Cover

Legend

- Site Boundary
- Monitoring Well
  - Existing
  - Abandoned/Destroyed
- Gravel
- Topsoil

0 25 50 100 150 200 Feet

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (#401046)
SITE MANAGEMENT PLAN

SOIL COVER

ARCADIS

FIGURE
4

G:\GISMOD\0266376\SMP\SoilCover.mxd

1.6 Contemplated Use

In potential future development scenarios commercial or industrial uses are contemplated.

The ROD for the site requires that an institutional control be imposed in the form of an environmental easement that:

- Requires compliance with the approved Site Management Plan;
- Limits the use and development of the property to commercial or industrial activities;
- Restricts the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH;
- Requires the completion of a monitoring program (annually for at least the first five years following the completion of remedial construction); and
- Requires the erection of a chain link fence on CSX property where contaminated soils are still present. (In lieu of the fence, signs have been installed that identify the area within the fence as containing F035 listed hazardous waste and provides a contact number for the CSX Public Safety Coordination Center).

2. Site Management

2.1 Surface Cover

The purpose of the surface cover system is to eliminate the potential for human contact with fill material and eliminate the potential for contaminated runoff from the property. The cover system consists of one of the following types of clean material:

Soil: 6 inches of vegetated soil cover underlain by general fill and a demarcation layer, in outdoor vegetated areas.

Gravel: 12 inches of gravel cover underlain by general fill and a demarcation layer, in previous asphalt and concrete areas.

2.2 Management of Soils/Fill and Long Term Maintenance of Cover System

The purpose of this section is to provide environmental guidelines for management of subsurface soils/fill and the repair/replacement of the cover system during any future intrusive work which breaches the cover system.

2.2.1 Site Preparation

As part of redevelopment or future intrusive on-site activities, the site may require grading prior to cover system replacement. The fill material and any debris piles generated during intrusive activities will be graded to the surface required for redevelopment. Trees, shrubs, roots, brush, masonry, rubbish, scrap, debris, pavement, curbs, fences, etc. will be removed and properly disposed off-site in accordance with applicable solid waste regulations. Only exempt materials as defined in 6 NYCRR Part 360-7.1(b)(1) are allowed for stockpiling. Prior to cover system replacement, protruding material will be removed from the ground surface. Burning will not be allowed on site.

2.2.2 Excavation and Grading Below the Cover System

During construction activities at the site, the excavation of soil/fill material may be necessary for the construction of utility corridors. Excavation may also be necessary during the construction of footings for structures and for other activities. For excavation work below the cover system, a Professional Engineer's representative with construction/remediation experience, representing the subject property owner or developer will monitor soil/fill excavations or disturbances. This Professional Engineer (P.E.) must also provide a stamped/signed certification that excavation work below the cover system and subsequent repair/replacement of the cover system was conducted in a manner consistent with this SMP.

During excavation performed to support development activities, the soil/fill will be inspected for staining, sampled to detect and quantify the presence of metals and field screened for the presence of VOCs with a photoionization detector (PID).

Excavated soil/fill may be used on-site as fill below the cover system. Soil/fill that is excavated as part of development which cannot be used as fill below the cover system

will be further characterized prior to transportation off-site for disposal at an appropriate permitted facility.

2.2.2.1 Visibly Impacted Soils

Stained soil is soil that is observed to be discolored, tinted, dyed, unnaturally mottled, or has a sheen. Excavated soil/fill that is visibly stained or produces elevated PID readings (i.e., sustained 10 ppm or greater) will be considered potentially contaminated and stockpiled on the property for further assessment. The potentially contaminated soil/fill will be stockpiled (maximum 50 cubic yard piles) on polyethylene sheeting and then sampled for reuse, treatment, or disposal. The stockpiled, potentially contaminated soil/fill will also be completely covered using polyethylene sheeting to reduce the infiltration of precipitation and the migration of dust. Sampling and analysis will be completed in accordance with the protocols delineated in 6 NYCRR Part 375 and DER-10. Visibly impacted soil/fill containing one or more constituents in excess of the Site Specific Action Levels (SSALs) shown in 6 NYCRR Part 375 Table 375-6.8(b) for commercial or industrial use will be transported off-site to a permitted waste management facility.

2.2.2.2 Buried Debris, Drums or Tanks

If buried drums or underground storage tanks are encountered during soil excavation activities, excavation will cease and the NYSDEC will be immediately notified. All drums and/or underground storage tanks encountered will be evaluated and the contractor will submit a removal plan for NYSDEC approval. Appropriately trained personnel will excavate all of the drums and/or underground storage tanks while following all applicable federal, state, and local regulations. Removed drums and underground storage tanks will be properly characterized and disposed off-site. The soil/fill surrounding the buried drums or underground storage tanks will be considered as potentially contaminated and will be stockpiled and characterized.

2.2.3 Soil/Fill Characterization

2.2.3.1 Excavated and Stockpiled Soil/Fill

Excavated soil/fill may be used on-site as fill below the cover system. Soil/fill that is excavated as part of development which cannot be used as fill below the cover system will be further characterized prior to transportation off-site for disposal at a permitted facility. For excavated soil/fill with visual evidence of contamination (i.e., staining or

elevated PID measurements), one composite sample and a duplicate sample will be collected for each 100 cubic yards of stockpiled soil/fill. For excavated soil/fill that does not exhibit visual evidence of contamination but must be sent for off-site disposal, one composite sample and a duplicate sample will be collected for 2,000 cubic yards of stockpiled soil, and a minimum of 1 sample will be collected for volumes less than 2,000 cubic yards.

The composite sample will be collected from five locations within each stockpile. A duplicate composite sample will also be collected. PID measurements will be recorded for each of the five individual locations. One grab sample will be collected from the individual location with the highest PID measurement. If none of the five individual sample locations exhibit PID readings, one location will be selected at random. The composite sample will be analyzed by a NYSDOH ELAP-certified laboratory for pH (EPA Method 9045C), Target Compound List (TCL) SVOCs, pesticides, and PCBs, and TAL metals, and cyanide. The grab sample will be analyzed for TCL VOCs.

Soil samples will be composited by placing equal portions of fill/soil from each of the five composite sample locations into a pre-cleaned, stainless steel (or Pyrex glass) mixing bowl. The soil/fill will be thoroughly homogenized using a stainless steel scoop or trowel and transferred to pre-cleaned jars provided by the laboratory. Sample jars will then be labeled and a chain-of-custody form will be prepared.

2.2.3.2 Soil/Fill Disposal or Reuse

Visually contaminated soil/fill that has been characterized and found to meet the SSALs, may be reused as subgrade or excavation subgrade backfill, if appropriate. On-site soil/fill may not be reused as backfill in landscaping berms to be used for the planting of trees and shrubs. If the analysis of the soil/fill samples reveals unacceptably high levels of any analytes, the soil may not be used as backfill on-site and additional analyses will be necessary to further classify the material for disposal purposes. The developer will be responsible for characterizing any material that is found to contain one or more constituents in excess of the SSALs. At a minimum, a duplicate sample may need to be analyzed for the toxicity characteristic using the Toxicity Characteristic Leaching Procedure (TCLP) for the particular analytes that were detected at concentrations exceeding the SSALs. The duplicate sample may also be analyzed for the other RCRA Characteristics including reactivity, corrosivity, and ignitability. If the analytical results indicate that concentrations exceed the standards for RCRA characteristics, the material will be considered a hazardous waste and must

be properly disposed off-site at a permitted disposal facility within 90 days of excavation.

Additional characterization sampling for off-site disposal may be required by the disposal facility. To potentially reduce off-site disposal requirements/costs, the owner or site developer may also choose to characterize each stockpile individually. If the analytical results indicate that the soil is not a hazardous waste, the material will be properly disposed off-site at a non-hazardous waste facility. Stockpiled soil cannot be transported on or off-site until the analytical results are received.

2.2.4 Subgrade Material

Subgrade material used to backfill excavations or placed to increase site grades or elevation shall meet the following criteria:

- Excavated on-site soil/fill which appears to be visually impacted shall be sampled and analyzed. Analytical results shall indicate that the contaminants, if any, are present at concentrations below the SSALs.

- Off-site borrow soils will be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes or petroleum products.

- Off-site soils intended for use as site backfill cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-1.2(a).

- If the contractor designates a source as "virgin" soil, it shall be further documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development or agricultural use.

- Virgin soils should be subject to collection of one representative composite sample per source. The sample should be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide. The soil will be acceptable for use as backfill provided that all parameters meet the SSALs.

- Non-virgin soils will be tested via collection of one composite sample per 500 cubic yards of material from each source area. If more than 1,000 cubic yards of soil are

borrowed from a given off-site non-virgin soil source area and both samples of the first 1,000 cubic yards meet SSALs, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to one sample per 5,000 cubic yards, provided all earlier samples met the SSALs.

2.2.5 Surface Soil Cover System

The cover soil material shall meet the following criteria:

- Excavated on-site soil/fill shall not be used as cover material.
- Off-site borrow soils will be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes or petroleum products.
- Off-site soils intended for use as site cover cannot otherwise be defined as a solid waste in accordance with 6NYCRR Part 360-1.2(a).
- If the contractor designates a source as "virgin" soil, it shall be further documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development or agricultural use.
- Virgin soils should be subject to collection of one representative composite sample per source. The sample should be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals plus cyanide. The soil will be acceptable for use as cover material provided that all parameters meet the recommended soil cleanup objectives included in the NYSDEC's Division of Environmental Remediation (DER) TAGM 4046.
- Non-virgin soils will be tested via collection of one composite sample per 500 cubic yards of material from each source area. If more than 1,000 cubic yards of soil are borrowed from a given off-site non-virgin soil source area and both samples of the first 1,000 cubic yards meet the TAGM 4046 criteria, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to

one sample per 5,000 cubic yards, provided all earlier samples met the TAGM 4046 criteria.

- The topsoil used for the final cover shall be fertile, friable, natural loam surface soil, capable of sustaining plant growth, and free of clods or hard earth, plants or roots, sticks or other extraneous material harmful to plant growth.

- Grassed areas will be seeded with a sustainable perennial mixture with appropriate erosion control measures taken until the perennial grasses are established.

- To reduce the disturbance of the surface cover material, clean soil berms will be constructed in areas where shallow-rooted trees and shrubs will be planted. The berms will be of sufficient thickness to allow the excavation of only clean fill deep enough to plant the tree or shrub root ball. The berm material will contain sufficient organic material to allow tree and/or shrub growth, and will be of sufficient strength to support trees and/or shrubs at their maximum height.

2.2.5.1 Asphalt

Asphalt may be used for construction or development in areas that will become roads, sidewalks, or parking lots. Where asphalt will represent a cover in terms of remedial action, a minimum cross-sectional thickness of 6 inches of material (asphalt and clean subbase material) is required for protection from exposure to the underlying soil/fill material. The actual cross section of the asphalt cover (i.e., thickness of the asphalt and subbase material) will be determined based on the intended use of the area.

2.2.5.2 Concrete

Concrete may be used in areas that will become slab-on-grade structures, utilities, footings, foundations, or signs. Concrete may also be used instead of asphalt for roads, sidewalks, or parking lots. Where concrete will represent a cover in terms of remedial action, a minimum cross-sectional thickness of 6 inches of material (concrete and clean subbase material) is required for protection from exposure to the underlying soil/fill material. A vapor barrier consisting of polyethylene sheeting with a minimum thickness of 8-mils will be installed under all structures. Type and thickness of concrete and subbase material will be determined based on intended use of the area.

2.2.6 Erosion Control

When the development or remedial actions at the Site require the disturbance of more than 5 acres of land, federal and state laws require that the project obtain coverage under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities that are classified as "Associated with Industrial Activity", Permit #GP-93-10 (Construction Storm Water General Permit). It should be noted that after December 9, 2002, federal and state laws required that the project obtain coverage under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities for certain activities disturbing between 1 and 5 acres of land. Requirements for coverage under the Construction Storm Water General Permit include the submittal of a Notice of Intent form and the development of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must fulfill all permit requirements and must be prepared in accordance with "Chapter Four: the Storm Water Management and Erosion Control Plan" in Reducing Impacts of Storm Water Runoff from New Development, NYSDEC, 1992. This Storm Water Management and Erosion Control Plan, in accordance with permit requirements, will provide the following information:

- A background discussion of the scope of the construction project.
- A statement of the storm water management objectives.
- An evaluation of post-development runoff conditions.
- A description of proposed storm water control measures.
- A description of the type and frequency of maintenance activities required to support the control measure.

The SWPPP will address issues such as erosion prevention, sedimentation control, hydraulic loading, pollutant loading, ecological protection, physical site characteristics that impact design, and site management planning. All descriptions of proposed features and structures at the site will include a description of structure placement, supporting engineering data and calculations, construction scheduling, and references to established detailed design criteria. The SWPPP will conform to all requirements as established by applicable regulatory agencies.

Proven soil conservation practices will be incorporated in the construction and development plans to mitigate soil erosion, off-site sediment migration, and water pollution from erosion. The use of appropriate temporary erosion control measures such as silt fencing and/or hay bales will be required around all soil/fill stockpiles and unvegetated soil surfaces during redevelopment activities. These methods are described below. Stockpiles shall be graded and compacted as necessary for positive surface water runoff and dust control. Stockpiles of soil/fill will be placed a minimum of 50 feet from the property boundaries.

Temporary Erosion Control Measures

Temporary erosion and sedimentation control measures and facilities will be employed during active construction stages. Prior to any construction activity, temporary erosion and sediment control measures shall be installed and maintained until such time that permanent erosion control measures are installed and effective. The following temporary measures will be incorporated into construction activities:

- Silt Fence
- Check Dams
- Hay Bales

As sediment collects along the erosion controls *(silt fence, hay bales, etc.)*, they will be cleaned to maintain desired removal performance and prevent structural failure of the fence. Accumulated sediment will be removed when 10% of the storage capacity of the silt fence is full. Removed sediment will be stockpiled and characterized in accordance with Section 2. The perimeter silt fences will remain in place until construction activities in the area are completed and vegetative cover or other erosion control measures are adequately established. Silt fences will be provided and installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control.

Permanent Erosion Control Measures

Permanent erosion control measures and facilities will be incorporated during cover construction and during site redevelopment for long-term erosion protection. Permanent measures and facilities will be installed as early as possible during construction phases. Parking and building systems associated with redevelopment shall not include dry wells or other subsurface injections/disposal piping or facilities.

The remedial construction activities will involve the installation of a cover system including asphalt, concrete, or topsoil over the site. Permanent erosion control measures incorporate a combination of design features to limit overall erosion and sediment problems to practical design limits, and the placement of permanent facilities during site restoration for long term erosion protection.

Design features incorporated into the construction plans to control erosion will include limiting steep slopes, routing runoff to surface water collection channels, limiting flow velocities in the collection channels to the extent practical, and lining collection channels, where appropriate. In areas where flow will be concentrated (i.e.; collection channels) the channel slopes and configuration will be designed to maintain channel stability.

Any final slopes greater than 33 percent will be reinforced, and will have a demarcation layer under the clean cover to indicate if erosion has extended to the subgrade. Following the placement of final cover soils over regraded areas, a revegetation program will be implemented to establish permanent vegetation. Vegetation serves to reduce erosion, enhance evapotranspiration, and improve runoff water quality. The areas to be grassed will be seeded in stages as construction is completed with a seed mix and application rate that is consistent with the type of seed mix and soil conditions.

2.2.7 Dust Control

The surface of unvegetated or disturbed soil/fill areas will be wetted with water or other dust suppressive agents to control dust during construction. Any subgrade material left exposed during extended interim periods (greater than 90 days) prior to placement of final cover shall be covered with a temporary cover system (i.e., tarps, spray type cover system, etc.) or planted with vegetation to control fugitive dust to the extent practicable. Particulate monitoring will be performed along the downwind occupied perimeter of the subparcel during subgrade excavation, grading, and handling activities in accordance with the Community Air Monitoring Plan further detailed in Section 2.3 and in accordance with NYSDEC's Fugitive Dust and Particulate Monitoring Program at Inactive Hazardous Waste Sites, which is included in Appendix A.

Dust suppression techniques will be employed at the site in accordance with NYSDEC's Fugitive Dust and Particulate Monitoring Program. This document describes guidance for dust monitoring, and includes a list of effective dust suppression techniques. Dust suppression techniques that may be used at the site include applying water on roadways, wetting equipment, spraying water on buckets

during excavation and dumping, hauling materials in properly covered or watertight containers, covering excavated areas and material after excavation activity ceases, establishing vegetative cover immediately after placement of cover soil, and reducing the excavation size and/or number of excavations. The use of atomizing sprays is recommended so that excessively wet areas will not be created but fugitive dust will be suppressed.

2.2.8 Construction Water Management

Pumping of water (i.e., ground water and/or storm water that has accumulated in an excavation) from excavations, if necessary, will be done in such a manner as to prevent the migration of particulates, soil/fill, or unsolidified concrete materials, and to prevent damage to the existing subgrade. Water pumped from excavations will be managed properly in accordance with all applicable regulations so as to prevent endangerment of public health, property, or any portion of the construction.

In areas where ground water may be contaminated, the ground water in excavations will be field screened for VOCs and observed for any noticeable sheens. Water in the excavations will not be discharged to the ground surface or a surface water course. The water pumped from the excavations will be containerized and analyzed in accordance with the Surface Water and Ground Water Quality Standards set forth in 6 NYCRR Part 703.5 and the local sewer authority discharge permit. If the water meets the surface water and ground water quality standards, it may be discharged to the ground surface. If the water does not meet the surface water and ground water quality standards, it may be discharged to the local sewer authority under a discharge permit. If the water quality is such that the local sewer authority discharge permit requirements will be exceeded, or the local sewer authority will not approve the discharge to a sewer, it will be transported off-site for proper disposal or treated on site via a treatment system that has been approved by NYSDEC.

Runoff from surface discharges shall be controlled. No discharges shall enter a surface water body without proper permits.

2.2.9 Access Controls

Access to soil/fill on the property must be controlled until final cover is placed to prevent direct contact with subgrade materials. Excavated subgrade material that is stockpiled on-site must be temporarily covered to limit access to that material.

2.2.10 Institutional Controls

The use of the property has been restricted through a deed restriction that prevents the use of ground water and disturbance of the final cover system. Deed restrictions are described in detail in the March 2010 ROD. These controls include:

- Completion of a periodic certificate of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).
- Land use is subject to local zoning laws, the remedy allows the use and development of the controlled property for commercial and industrial use.
- The use of groundwater as a source of potable or process water is restricted without the use of necessary water quality treatment as determined by the Department, NYSDOH or County DOH.
- Prohibiting agricultural or vegetable gardens on the controlled property.
- Requires compliance with this Department-approved Site Management Plan.

2.2.11 Maintenance

Overall maintenance of the site will be the responsibility of the property owner. Impacts or damage to remedial elements remaining at the site following remedial construction will be reported to the Department, who will determine whether corrective actions are necessary to protect the environment or preserve the integrity of the remedy. Erosion of the soil cover system will be reduced by maintaining a vegetative cover. In order to reduce the disturbance of the soil cover material, berms or mounds composed of clean soil will be constructed in areas in which trees and shrubs will be planted. Cover materials, fencing, signs, and gates will be inspected annually by the Department, and repaired as needed.

The main features of the inspection plan are:

- Inspection procedures
- Evaluation of the final cover system (i.e., vegetative cover, roads, buildings, parking lots, etc.) for sloughing, cracks, settlement, erosion, distressed vegetation, damaged fencing, gates or signs

- Repair of any deficiencies found

- Inspection reporting

2.3 Health and Safety

Invasive work performed at the property will be performed in accordance with all applicable local, state, and federal regulations to protect worker health and safety.

If intrusive work is expected to breach the cover system at the site, all contractors performing redevelopment or maintenance activities will be required to prepare a site-specific, activity-specific Health and Safety Plan (HASP). The HASP must also include provisions for protection of the community as described further in this section.

2.3.1 Construction Personnel Protection

Contractors engaged in subsurface construction or maintenance activities (e.g., foundation and utility workers) will be required to implement appropriate health and safety procedures. These procedures will involve, at a minimum, donning adequate personal protective equipment, performing appropriate air monitoring, and implementing other engineering controls as necessary to mitigate potential ingestion, inhalation and contact with residual constituents in the soils. Recommended health and safety procedures include, but may not be limited to, the following:

- While conducting invasive work at the site, the Contractor shall provide safe and healthful working conditions. The Contractor shall comply with all New York State Department of Labor regulations and published recommendations and regulations promulgated under the Federal Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, as amended, and with laws, rules, and regulations of other authorities having jurisdiction. Compliance with governmental requirements is mandated by law and considered only a minimum level of safety performance. The Contractor shall insure that all work is performed in accordance with recognized safe work practices.

- The Contractor shall be responsible for the safety of the Contractor's employees and the public. The Contractor shall be solely responsible for the adequacy and safety of all construction methods, materials, equipment and the safe prosecution of the work.

- The Contractor is responsible to ensure that all project personnel have been trained in accordance with 29 CFR 1910.120.

- The Contractor shall have a HASP, written in accordance with 29 CFR 1926.65, prepared, signed and sealed by a safety professional; a safety professional and/or a trained safety representative(s) active on the job whenever the work is in progress; an effective and documented safety training program; and a safety work method check list system.

- Recognition as a safety professional shall be based on a minimum of certification by the Board of Certified Safety Professionals as a Certified Safety Professional and 5 years of professional safety management experience in the types of construction and conditions expected to be encountered on the site.

- All personnel employed by the Contractor or his subcontractors or any visitors whenever entering the job site, shall be required to wear appropriate personal protection equipment required for that area.

2.3.2 Community Air Monitoring Program

Air monitoring will be performed during redevelopment activities in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan, which is included in Appendix B. All air monitoring readings will be recorded in a logbook and will be available for review by the NYSDEC and NYSDOH.

2.4 Notification and Reporting

There shall be no construction, use or occupancy of the property that results in the disturbance or excavation of soil which threatens the integrity of the cover system or which would result in human exposure to contaminated soils, unless prior written approval by the NYSDEC is obtained. Therefore, notification of NYSDEC at the address below should precede any such work by at least 60 days, to allow time for review and any necessary revisions of a work plan.

The following minimum notification and reporting requirements shall be followed by the property owner prior to and following site development, as appropriate:

- If buried drums or underground storage tanks are encountered during soil excavation activities, excavation will cease and the NYSDEC will be immediately notified.

- The Department shall complete an Annual Report containing documentation that the institutional controls put in place, pursuant to the ROD, are still in place, have not been altered and are still effective; that the remedy and protective cover have been maintained; and that the conditions at the site are fully protective of public health and the environment.

If the cover system has been breached during the year, the owner of the property shall provide the following to the Department for subsequent inclusion in the corresponding annual report:

- A certification that all work was performed in conformance with this SMP.

- Plans showing areas and depth of fill removal.

- Copies of daily inspection reports for soil-related construction.

- Description of erosion control measures.

- A text narrative describing the excavation activities performed, health and safety monitoring performed (both site specified and Community Air Monitoring), quantities and locations of soil/fill excavated, disposal locations for the soil/fill, soil sampling locations and results, a description of any problems encountered, location and acceptability test results for backfill sources, and other pertinent information necessary to document that the site activities were carried out properly.

If the disturbed area exceeds one acre, the following must also be reported to the Department:

- Plans showing before and after survey elevations on a 100-foot grid system to document the thickness of the clean soil cover system.

The notification contact is as follows:

NYSDEC
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7011

3. Site Monitoring Plan

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other Engineering Controls is described in Section 4, Operation and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of groundwater and stormwater;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards;
- Assessing achievement of the remedial performance criteria;
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.
    - To adequately address these issues, this Monitoring Plan provides information on: Sampling locations, protocol, and frequency;

- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and documentation of site conditions.

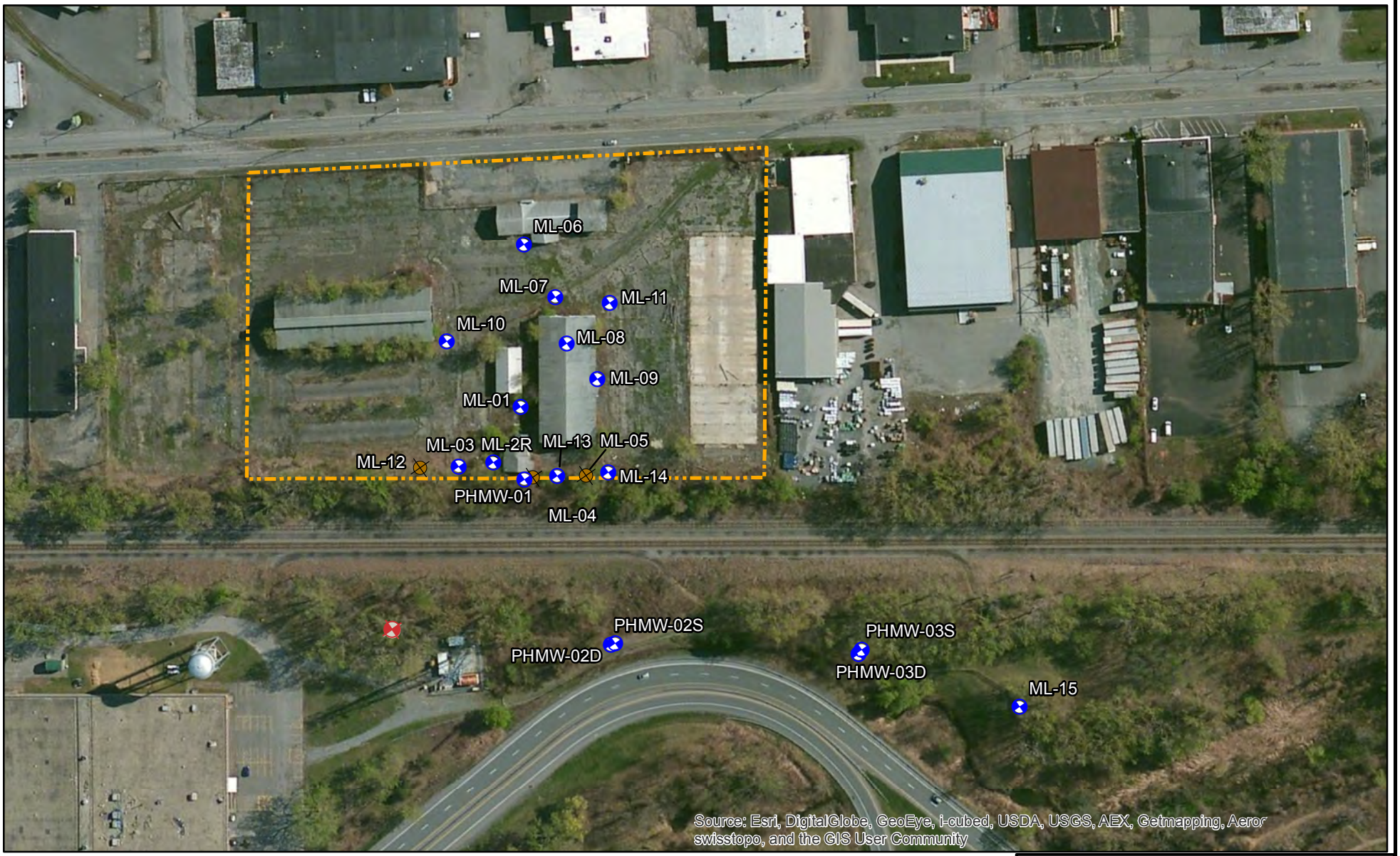
Annual monitoring of the performance of the remedy and overall reduction in contamination on-site and off-site will be conducted for the first five years following the completion of remedial construction. Based on a review by the Department of data generated during the five years of monitoring, the frequency of monitoring thereafter will be determined. Trends in contaminant levels in groundwater and stormwater in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 1 and outlined in detail in Sections 3.2 and 3.3 below.

Table 1 Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater	Annual monitoring for five years	Groundwater from monitoring wells shown on Figure 5	TAL Metals Field Parameters
Stormwater	Annual monitoring for five years	Stormwater collected from drainage discharge point shown on Figure 6	TAL Metals
Soil Cover	Inspection during each groundwater monitoring event specified above	Topsoil and Gravel Soil Cover	Visual Inspection

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

Figure 5 Monitoring Wells



Legend

Monitoring Wells

- Existing
- Abandoned/Destroyed
- Proposed
- Site Boundary

0 150 300 600 900 1,200 Feet

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (#401046)
SITE MANAGEMENT PLAN

MONITORING WELLS

ARCADIS

FIGURE 5

G:\GIS\MOD\926376\SMP\Wells.mxd

Figure 6 Stormwater Network

Legend

- OU1
- Stormwater Discharge Point
- Catch Basin
- Stormwater Pipe

Monitoring Wells

- Existing
- Abandoned/Destroyed

0 100 200 400 600 800 Feet

N

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (#401046)
SITE MANAGEMENT PLAN

STORMWATER NETWORK

ARCADIS

FIGURE 6

G:\GIS\MOD\02663761\SMP\Stormwater.mxd

3.2 Soil Cover Monitoring

A soil cover was placed in areas of excavation at the site. Prior to emplacement, a separation fabric was installed as a demarcation layer between unexcavated soil and fill material. On the site, the soil cover consists of common fill overlain by a layer of gravel. On CSX property adjacent to and southwest of the site, the soil cover consists of a layer of common fill overlain by a layer of topsoil. A visual inspection of the soil cover shall be conducted at the time of each groundwater monitoring event described in this SMP. The purpose of the visual inspection is to identify any changes, such as damage or erosion, to the surficial media which could compromise the functionality of the soil cover. Since such changes could potentially increase the likelihood of exposure to remaining contamination at the site, the specific nature of the change shall be documented in accordance with the reporting requirements contained in this SMP. A sample inspection report form for the site is included as Appendix E.

3.3 Media Monitoring Program

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy. The network of monitoring wells has been installed/maintained to monitor both up-gradient and down-gradient groundwater conditions at the site, in relation to in-situ soil stabilization/solidification (ISS) activities conducted at the site in 2013. A total of 20 overburden monitoring wells have been installed both on- and off-site over the course of multiple investigations dating back to 1996. Monitoring wells ML-1 through ML-5 were installed in August 1996 following a soil investigation. Monitoring wells ML-6 through ML-9 were installed in November and December 1996 in response to a gasoline contamination plume identified during the closure of two underground storage tanks in October 1996. Monitoring wells ML-10 through ML-16 were installed in May and November 2003 during Phase I and Phase II groundwater investigations. Monitoring well PH-MW-01 was installed in 2009 during the most-recent Phase II remedial investigation. During the 2013 remedy, monitoring wells ML-1, 2R, 3, 4, 5, 12, 13, 14, and PH-MW-01 were abandoned or destroyed during excavation activities. Monitoring wells ML-1, 2R, 3, 4, 14, and PH-MW-01 were replaced in January and April 2013. Monitoring wells ML-5, 12, and 13 were not replaced. New off-site monitoring wells PH-MW-2S, 2D, and 3D were also installed in January 2013 to the south, between the CSX railroad and the exit ramp to Interstate 90. Monitoring well ML-16 was renamed PH-MW-3S. The existing well network is shown on Figure 3 and construction details are listed in Table 2. Monitoring well

construction logs are included in Appendix C. Logs were not obtained for monitoring wells ML-6 through ML-11.

Table 2 Monitoring Well Construction Details

WELL ID	NORTHING	EASTING	DATE INSTALLED	STATUS	TOTAL DEPTH (ft. bgs)	TOP OF CASING ELEVATION (ft. amsl)	MEASURING POINT ELEVATION (PVC, ft. amsl)
ML-01	1407459.9176	674271.5521	1/7/2013	Replaced	16	249.38	250.97
ML-2R	1407419.4747	674198.9544	4/17/2013	Replaced	20	249.59	249.08
ML-03	1407440.7488	674157.3019	4/17/2013	Replaced	17	249.79	249.34
ML-04	1407355.5145	674259.3045	1/18/2013	Replaced	15	247.94	249.91
ML-05	1407333.7239	674291.1166	pre-2009 RI	Abandoned	16	247.29	246.8284
ML-06	1407636.4140	674399.0165	pre-2009 RI	Existing	15.93	249.86	249.76
ML-07	1407554.5636	674393.9344	pre-2009 RI	Existing	Unknown	249.34	249.16
ML-08	1407493.9200	674370.8600	pre-2009 RI	Existing	15.06	249.32	249.27
ML-09	1407432.2643	674377.9266	pre-2009 RI	Existing	14.57	247.95	247.8
ML-10	1407587.7103	674239.7905	pre-2009 RI	Existing	17.82	251.52	251.1339
ML-11	1407506.9245	674449.1413	pre-2009 RI	Existing	Unknown	248.39	248.0333
ML-12	1407468.4542	674113.3429	pre-2009 RI	Abandoned	21	250.38	249.969
ML-13	1407372.4153	674230.8058	pre-2009 RI	Abandoned	18	249.30	248.883
ML-14	1407320.8248	674318.6869	1/18/2013	Replaced	17	246.80	249.03
ML-15	1406749.4281	674595.4719	pre-2009 RI	Existing	28.23	242.14	241.94
PHMW -01	1407377.0440	674220.2460	1/8/2013	Replaced	40	250.16	249.97
PHMW -02D	1407128.1250	674190.3550	1/11/2013	New	40	250.80	250.58
PHMW -02S	1407126.9310	674195.6060	1/11/2013	New	20	250.92	250.61
PHMW -03D	1406929.677	674457.527	1/14/2013	New	40	241.75	241.08
PHMW -03S*	1406932.383	674464.28	11/21/2008	Renamed	20	Casing Damaged	238.55
PHMW -04S	1407286.6284	673961.3741	7/29/2015	New	25	247.03	Unknown

Notes:

NM - Not Measured

* ML-16 was renamed as PHMW-03S

Four rounds of post-ISS groundwater sampling were conducted in April, June, September and November 2013 and serve as a baseline for water quality at the site subsequent to completion of the remedial construction for operable unit 1. Water levels were collected immediately preceding each groundwater sampling event. Groundwater elevations are listed in Table 3 and potentiometric contours are shown on Figures 7, 8, and 9. The November 2013 event was the most extensive, including water levels from all existing wells, with the exception of monitoring wells ML-8 (located inside the abandoned millshop) and ML-15 (not able to be located). In November 2013, groundwater elevations at the site ranged from 231.77 feet above mean sea level (AMSL) to 237.72 feet AMSL. Groundwater at the site flows generally to the south. According to the 2013 contours, there is potential for localized flow to the west in the vicinity of monitoring wells ML-2R, ML-3, and PH-MW-01.

Table 3 Groundwater Elevations

WELL ID	MEASURING POINT ELEVATION (PVC, ft. amsl)	DEPTH TO WATER (ft. bgs) 6/17/2013	GROUND WATER ELEVATION (ft. amsl) 6/17/2013	DEPTH TO WATER (ft. bgs) 9/5/2013	GROUNDWATER ELEVATION (ft. amsl) 9/5/2013	DEPTH TO WATER (ft. bgs) 11/24/2013	GROUNDWATER ELEVATION (ft. amsl) 11/24/2013
ML-01	250.97	15.04	235.93	15.82	235.15	16.02	234.95
ML-2R	249.08	16.3	232.78	16.62	232.46	17.31	231.77
ML-03	249.34	16.11	233.23	16.45	232.89	17.04	232.3
ML-04	249.91	14.94	234.97	15.3	234.61	16.04	233.87
ML-05	246.8284	NM	--	NM	--	NM	--
ML-06	249.76	NM	--	NM	--	12.04	237.72
ML-07	249.16	NM	--	NM	--	13.45	235.71
ML-08	249.27	NM	--	NM	--	NM	--
ML-09	247.8	NM	--	NM	--	13.6	234.2
ML-10	251.1339	NM	--	NM	--	14.24	236.8939
ML-11	248.0333	NM	--	NM	--	12.73	235.3033
ML-12	249.969	NM	--	NM	--	NM	--
ML-13	248.883	NM	--	NM	--	NM	--
ML-14	249.03	14.53	234.5	15.12	233.91	15.87	233.16
ML-15	241.94	NM	--	NM	--	NM	--
PHMW-01	249.97	16.58	233.39	16.99	232.98	17.6	232.37
PHMW-	250.58	17.02	233.56	17.41	233.17	17.89	232.69

WELL ID	MEASURING POINT ELEVATION (PVC, ft. amsl)	DEPTH TO WATER (ft. bgs) 6/17/2013	GROUND WATER ELEVATION (ft. amsl) 6/17/2013	DEPTH TO WATER (ft. bgs) 9/5/2013	GROUNDWATER ELEVATION (ft. amsl) 9/5/2013	DEPTH TO WATER (ft. bgs) 11/24/2013	GROUNDWATER ELEVATION (ft. amsl) 11/24/2013
02D							
PHMW-02S	250.61	17.1	233.51	17.48	233.13	17.76	232.85
PHMW-03D	241.08	13.95	227.13	14.51	226.57	14.89	226.19
PHMW-03S*	238.55	5.9	232.65	7.4	231.15	7.28	231.27
PHMW-04S**	247.03	--	--	--	--	14.9	232.13

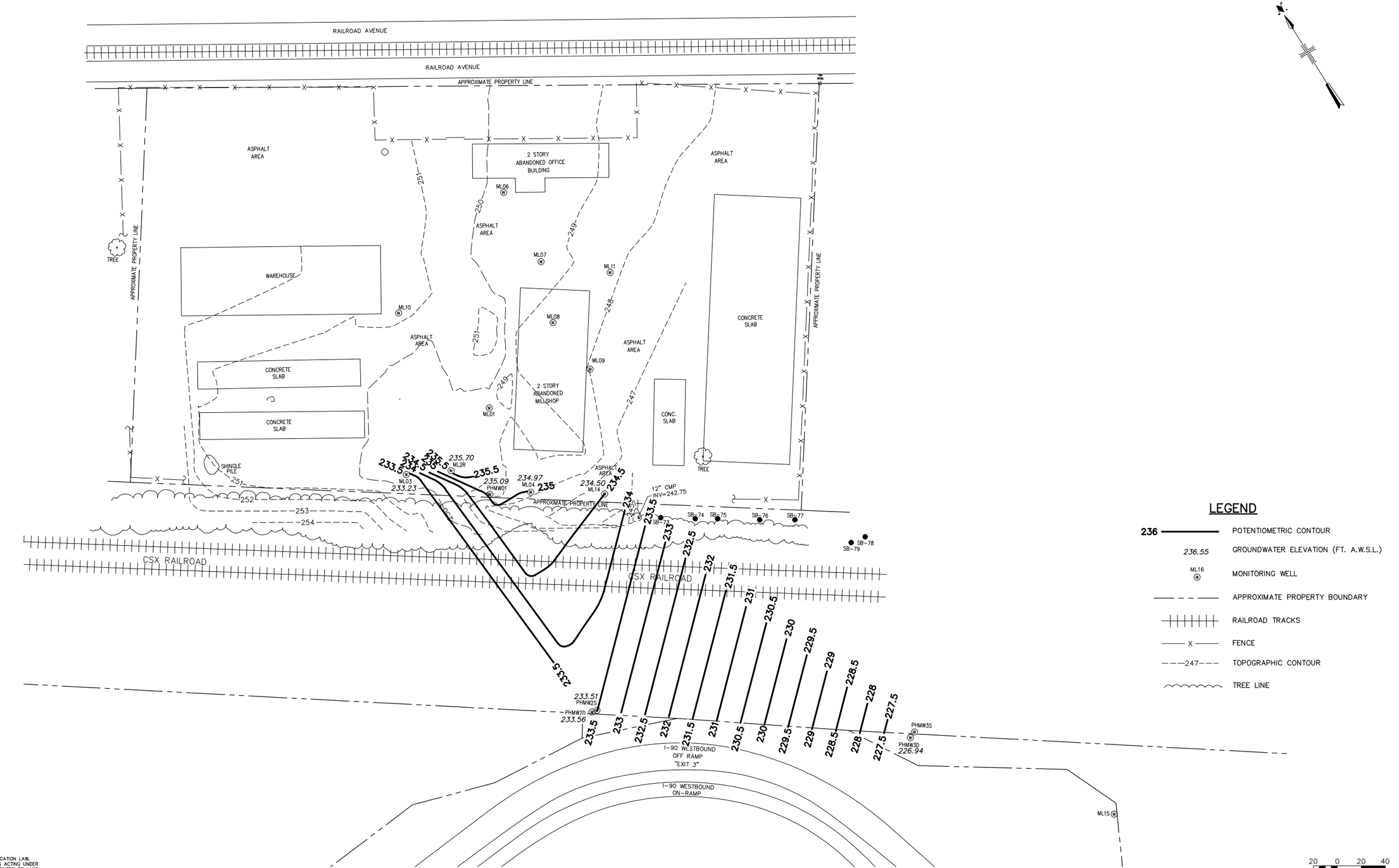
Notes:

NM - Not Measured

* ML-16 was renamed as PHMW-03S

** Elevation reading taken 7/29/15

Figure 7 June, 2013 Potentiometric Contours



WARNING – IT IS A VIOLATION OF NEW YORK EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK LAW, SECTION 7209.2.

MALCOLM PIRNIE

REVISIONS			
NO.	BY	DATE	REMARKS

DES TAM
DWN SMH
CKD DJL

NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

FORMER PAULSEN–HOLBROOK SITE REMEDIAL CONSTRUCTION PROJECT

POTENTIOMETRIC MAP (6–17–13)

SCALE: AS SHOWN

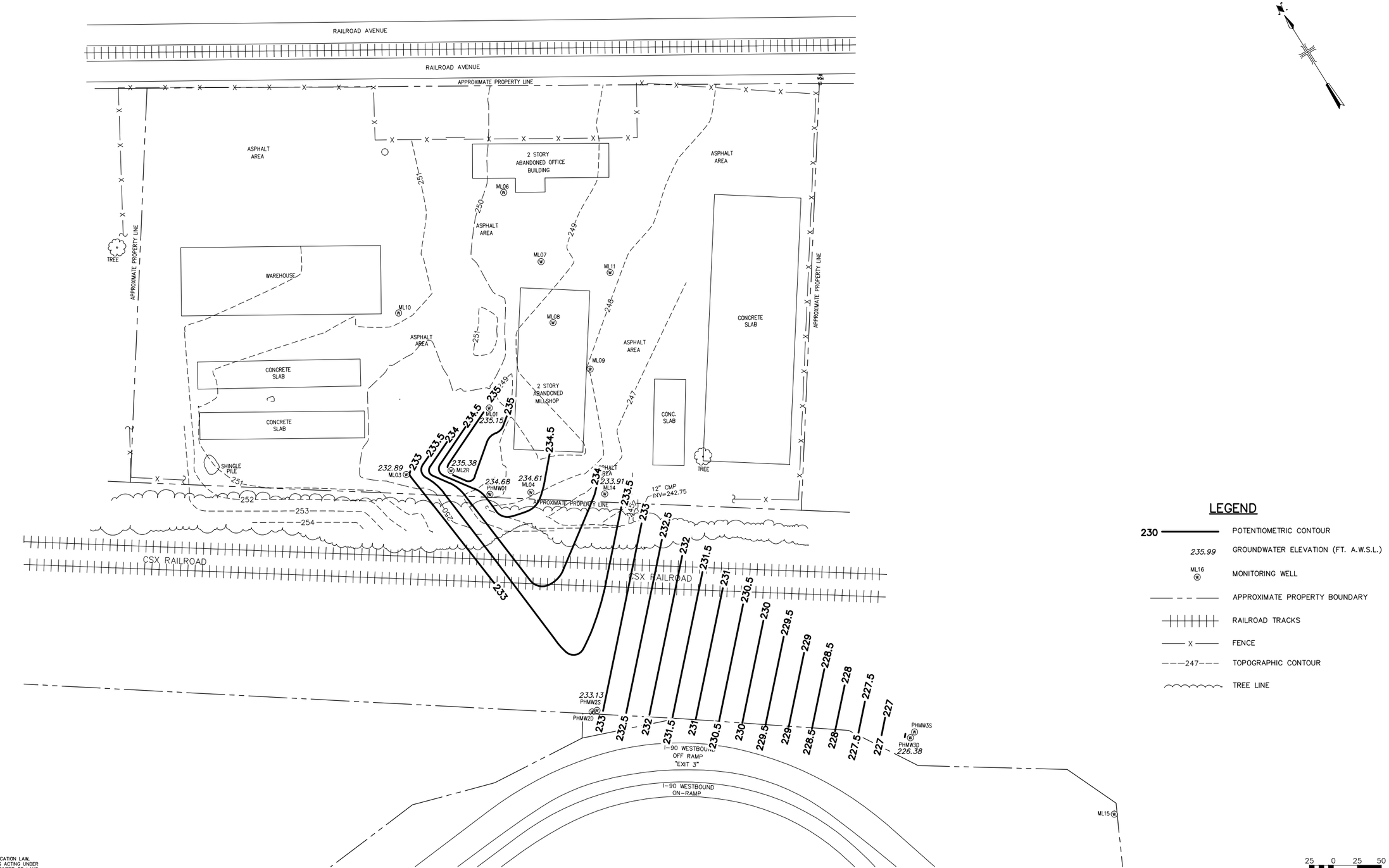
COPYRIGHT © 2013
MALCOLM PIRNIE, INC.

DATE DECEMBER 2013

FIGURE 7

User:housmann Spec:PIRNIE STANDARD File:G:\ACAD\PROJ\00266398.0000\FIGURES\POT MAP-06-17-13.DWG Scale:1:1 Date:10/02/2014 Time:10:48 Layout:Blank

Figure 8 September 2013 Potentiometric Contours



WARNING – IT IS A VIOLATION OF NEW YORK EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK LAW, SECTION 7209.2.

MALCOLM PIRNIE

REVISIONS			
NO.	BY	DATE	REMARKS

DES TAM
DWN SMH
CKD DJL

NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

FORMER PAULSEN–HOLBROOK SITE REMEDIAL CONSTRUCTION PROJECT

POTENTIOMETRIC MAP (9/5/13)

SCALE: AS SHOWN

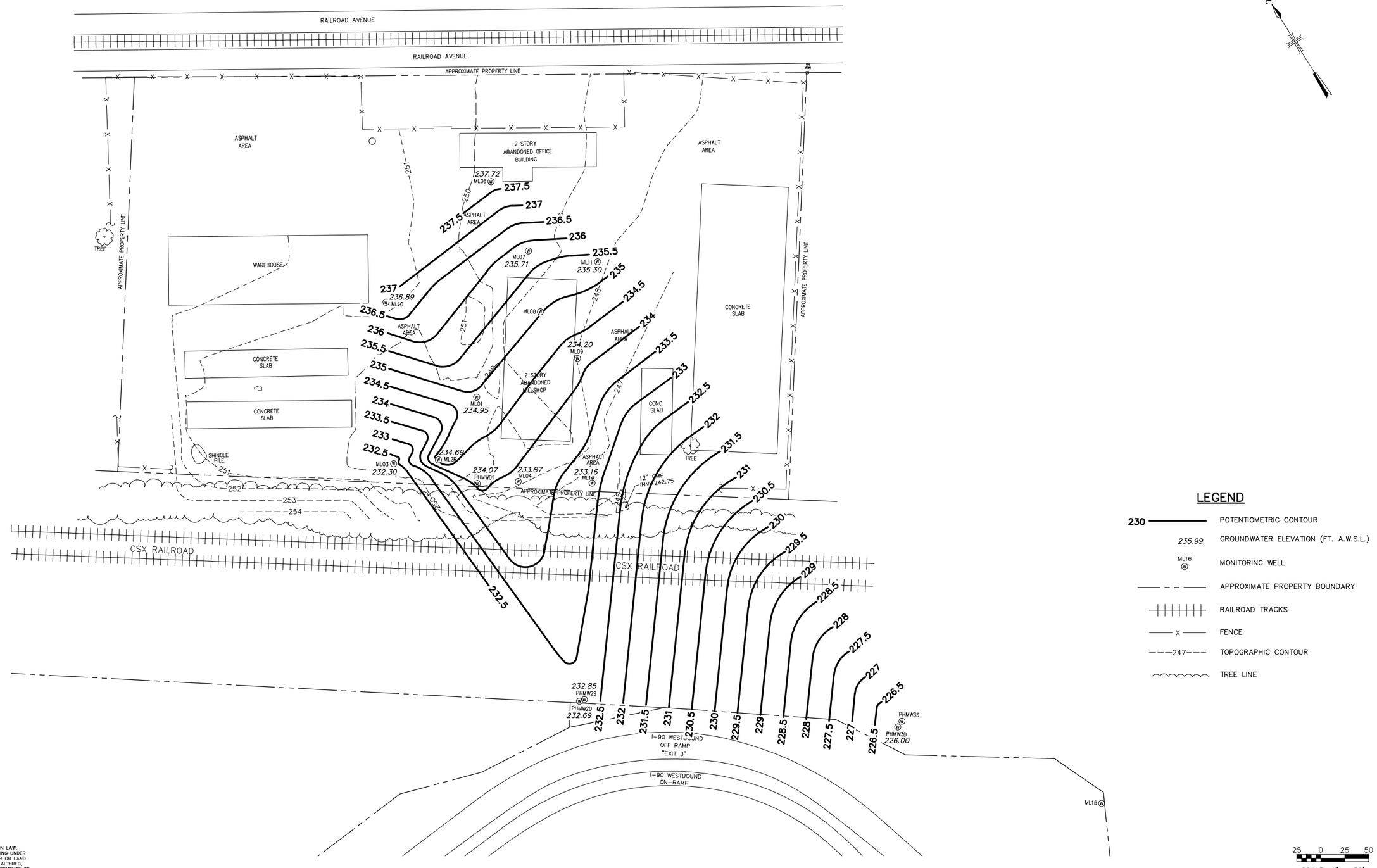
COPYRIGHT © 2013
MALCOLM PIRNIE, INC.

DATE DECEMBER 2013

FIGURE 8

User:hausmann Spec:PIRNIE STANDARD File:G:\ACAD\PROJ\00266398.0000\FIGURES\POT MAP-09-05-13.DWG Scale:1:1 Date:10/02/2014 Time:10:49 Layout:Blank

Figure 9 November, 2013 Potentiometric Contours



LEGEND

- 230 — POTENTIOMETRIC CONTOUR
- 235.99 — GROUNDWATER ELEVATION (FT. A.W.S.L.)
- ML16 ◉ — MONITORING WELL
- APPROXIMATE PROPERTY BOUNDARY
- RAILROAD TRACKS
- X — FENCE
- 247 — TOPOGRAPHIC CONTOUR
- TREE LINE

25 0 25 50
SCALE: 1" = 50'

WARNING – IT IS A VIOLATION OF NEW YORK EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK LAW, SECTION 7209.2.

MALCOLM PIRNIE

REVISIONS			
NO.	BY	DATE	REMARKS

DES TAM
DWN SMH
CKD DJL

NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

FORMER PAULSEN–HOLBROOK SITE REMEDIAL CONSTRUCTION PROJECT

POTENTIOMETRIC MAP (11/24/13)

SCALE: AS SHOWN

COPYRIGHT © 2013
MALCOLM PIRNIE, INC.

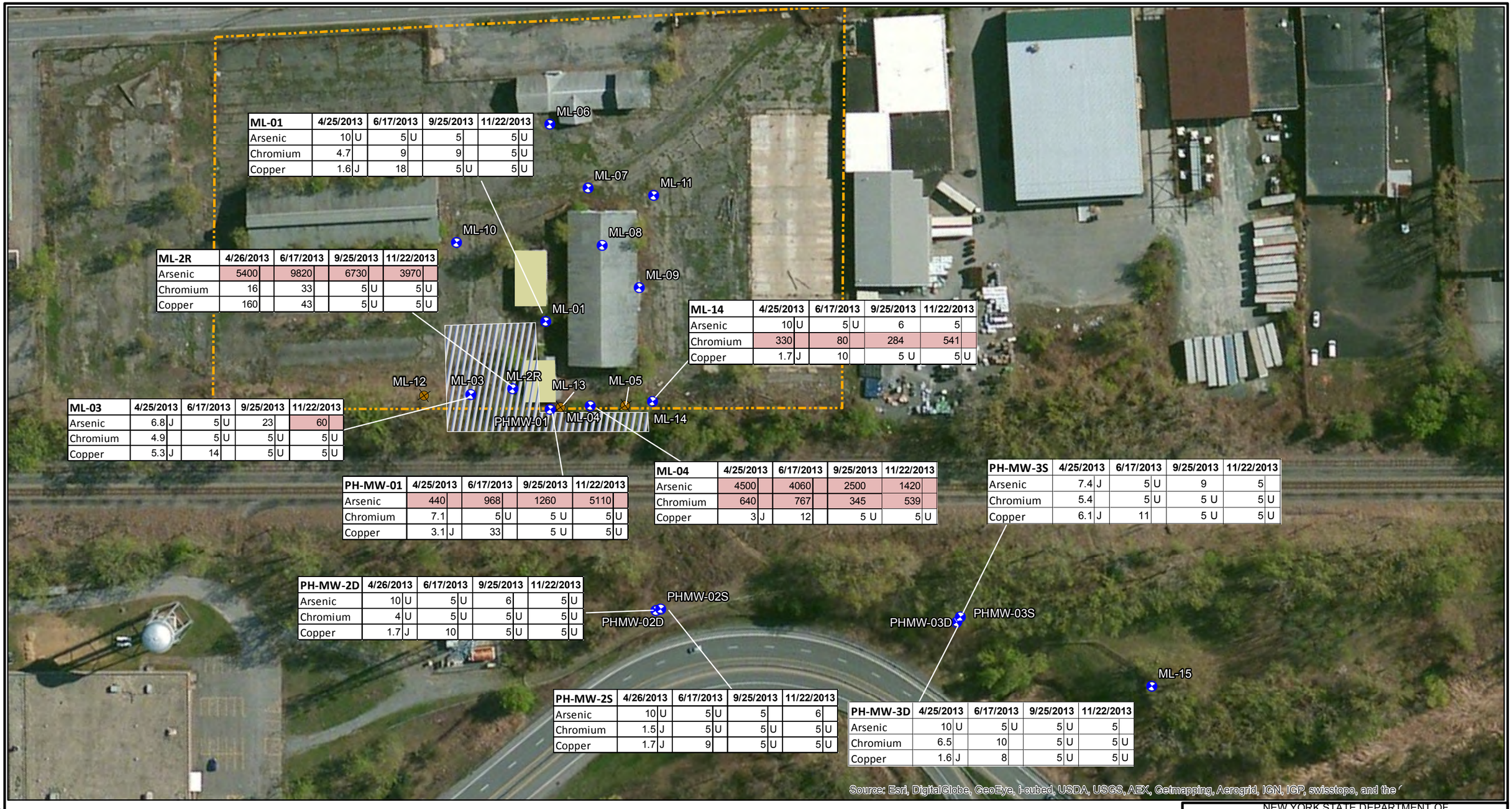
DATE DECEMBER 2013

FIGURE 9

User:hausmann Spec:PIRNIE STANDARD File:G:\ACAD\PROJ\00266398.0000\FIGURES\POT MAP-11-24-13.DWG Scale:1:1 Date:10/02/2014 Time:10:56 Layout:Blank

The April 2013 groundwater samples were analyzed for arsenic, chromium and copper by USEPA method 6010B. Groundwater samples collected during the subsequent three 2013 sampling events were analyzed for ICP Metals by USEPA Method E200.7. Analytical results are listed in Appendix D and results for arsenic, chromium, and copper are shown on Figure 10. Arsenic exceeded the Class GA Standard of 0.025 mg/L for arsenic at monitoring wells ML-2R, ML-4, and PH-MW-01 during all four sampling events. Arsenic also exceeded the Standard at ML-03 during the November 2013 sampling event. Chromium exceeded the GA Standard of 0.05 mg/L at monitoring wells ML-04 and ML-14 during all four events. Copper did not exceed the GA Standard of 0.2 mg/L at any of the monitoring well locations.

Figure 10 Baseline Sampling Results – Groundwater



ML-01	4/25/2013		6/17/2013		9/25/2013		11/22/2013	
Arsenic	10	U	5	U	5		5	U
Chromium	4.7		9		9		5	U
Copper	1.6	J	18		5	U	5	U

ML-2R	4/26/2013		6/17/2013		9/25/2013		11/22/2013	
Arsenic	5400		9820		6730		3970	
Chromium	16		33		5	U	5	U
Copper	160		43		5	U	5	U

ML-14	4/25/2013		6/17/2013		9/25/2013	11/22/2013	
Arsenic	10	U	5	U	6	5	
Chromium	330		80		284	541	
Copper	1.7	J	10		5 U	5	U

ML-03	4/25/2013		6/17/2013		9/25/2013		11/22/2013	
Arsenic	6.8	J	5	U	23		60	
Chromium	4.9		5	U	5	U	5	U
Copper	5.3	J	14		5	U	5	U

PH-MW-01	4/25/2013		6/17/2013		9/25/2013	11/22/2013	
Arsenic	440		968		1260	5110	
Chromium	7.1		5	U	5 U	5	U
Copper	3.1	J	33		5 U	5	U

ML-04	4/25/2013		6/17/2013		9/25/2013	11/22/2013	
Arsenic	4500		4060		2500	1420	
Chromium	640		767		345	539	
Copper	3	J	12		5 U	5	U

PH-MW-3S	4/25/2013		6/17/2013		9/25/2013	11/22/2013	
Arsenic	7.4	J	5	U	9	5	
Chromium	5.4		5	U	5 U	5	U
Copper	6.1	J	11		5 U	5	U

PH-MW-2D	4/26/2013		6/17/2013		9/25/2013		11/22/2013	
Arsenic	10	U	5	U	6		5	U
Chromium	4	U	5	U	5	U	5	U
Copper	1.7	J	10		5	U	5	U

PH-MW-2S	4/26/2013		6/17/2013		9/25/2013		11/22/2013	
Arsenic	10	U	5	U	5		6	
Chromium	1.5	J	5	U	5	U	5	U
Copper	1.7	J	9		5	U	5	U

PH-MW-3D	4/25/2013		6/17/2013		9/25/2013		11/22/2013	
Arsenic	10	U	5	U	5	U	5	
Chromium	6.5		10		5	U	5	U
Copper	1.6	J	8		5	U	5	U

Legend

Monitoring Wells
- Existing
- Abandoned/Destroyed
- Groundwater Injection Area
- Demolished Bldg
- Site Boundary

Notes:
Results shown in ug/L.
Highlighted results exceed Class GA Standard.
U - Not detected
J - Estimated

0 100 200 400 600 800 Feet

N

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (#401046)
SITE MANAGEMENT PLAN

BASELINE SAMPLING RESULTS GROUNDWATER

ARCADIS

FIGURE 10

G:\GISMOD\0266376\SMP\BaselineSampling.mxd

The entire monitoring well network will be sampled once during each of the first five years of monitoring. A list of wells to be sampled is included in Table 4. The sampling frequency may be modified thereafter based upon review of the collected data. The SMP may also be modified at that time to reflect changes in the sampling plan which are approved by NYSDEC.

Table 4 Wells to be Sampled

WELL ID		
ML-01	ML-08	PHMW-01
ML-2R	ML-09	PHMW-02D
ML-03	ML-10	PHMW-02S
ML-04	ML-11	PHMW-03D
ML-06	ML-14	PHMW-03S*
ML-07	ML-15	PHMW-04S

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and on a groundwater-sampling log presented in Appendix F. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Groundwater Level Measurements

Prior to groundwater sampling, the depth to groundwater will be measured in each well and the groundwater elevation above mean sea level will be evaluated for each monitoring point. Water level measurements will be used in conjunction with horizontal and vertical ground survey data to evaluate horizontal and vertical components of groundwater flow. Water level measurements will also be used to determine the volume of standing water in wells for purging activities.

The following equipment will be used for the measurement of water levels:

- Electronic water level indicator;
- Field log book and pen; and
- Photoionization Detector (PID).

At each monitoring well, the cap and internal riser cover will be removed. The headspace and breathing zone air quality will be monitored with a PID. This step may be omitted in subsequent rounds of water level measurements in those wells that yielded no detectable amounts of vapors or gases from prior sampling rounds.

The battery of the electric water level indicator will be checked by pushing the battery check button, and waiting for the audible signal to sound or the instrument light to come on. The water level indicator will be decontaminated before use in each well by using an Alconox wash and deionized water rinse. The instrument will then be turned on and the probe will be slowly lowered into the well, until the audible signal is heard or the instrument light goes on, indicating that the sensor in the probe has made contact with the water surface in the well.

The depth to water will be recorded to the nearest one-hundredth of a foot, from the top of the measuring mark on the well riser. The date, time, well number, and depth to water will be recorded in the field logbook in indelible ink.

Monitoring Well Inspection

Prior to collecting groundwater samples, each monitoring well will be inspected for the following:

- Damage to the cover or protective casing, if visible above the ground surface;
- Erosion of soil in the area immediately surrounding the casing;
- Operable lock, if appropriate; and
- Damage to the monitoring well surface seal.

Monitoring Well Sampling Procedures

The following equipment will be needed to collect groundwater samples for analysis:

- Electric water level indicator
- Peristaltic pump
- Polyethylene tubing
- Temperature, pH, dissolved oxygen, specific conductivity and turbidity meters
- Photoionization Detector
- Field logbook and field logs
- Laboratory prepared sample containers
- Roll of polyethylene sheeting
- Decontamination equipment

Groundwater sampling will be conducted in accordance with the USEPA Low-Flow Sampling Protocol (USEPA 1998). A piece of polyethylene sheeting will be fitted over the monitoring well and laid on the ground. The sampling equipment will be placed on the polyethylene sheeting. The expansion cap will be removed and the headspace at the top of the monitoring well will be measured with a PID. This step may be omitted in those monitoring wells which have already demonstrated in the previous rounds of water level measurement that they contain no or insignificant amounts of vapors or gases. The PID will be calibrated before the start of each sampling event.

Clean, new polyethylene tubing will be attached to the peristaltic pump. The tubing will be lowered into the water column to a maximum depth of two feet above the bottom of the well. The well will be purged at a rate suitable to minimize drawdown. Field parameters, consisting of pH, specific conductance, temperature, dissolved oxygen, reduction potential, turbidity, and water level will be measured in each monitoring well prior to, during, and after purging (just before sampling) through the use of a flow-

through cell. Both the pH and the specific conductivity meters will be calibrated for water temperature before each sampling event.

The volume of water removed from each monitoring well will be dependent upon the amount of time required for stabilization of the field parameters. In general, the well will be considered stabilized for sample collection when field parameters have stabilized for three consecutive readings as follows:

- pH: +/- 0.1 standard units
- Specific Conductance: +/- 3%
- Reduction Potential: +/- 10 millivolts
- Dissolved Oxygen: +/- 10%
- Turbidity: +/- 10%

When the field parameters have stabilized, the volume of water purged will be recorded, and groundwater in the monitoring well will be sampled through the pump at the same flow rate used to purge the well. Groundwater that is purged from monitoring wells or discharged during drilling activities may be disposed of at the Site and allowed to infiltrate into the ground based on the following conditions:

1. There is a defined site which is the source of the groundwater contamination;
2. There is no free product observed such as LNAPLs and DNAPLs;
3. Recharge pits are used to preclude run-off from the site and the pits are covered with clean soil when no longer needed; and
4. The infiltrating groundwater is being returned to the same water-bearing zone from which it is being purged.

If the above criteria are not met, the materials will be containerized in U.N.-approved, 55-gallon steel drums. The contents will be identified on weather-resistant labels attached to drum exteriors.

Upon completion of sampling, the sample bottles will be immediately placed in a cooler held at 4°C. Disposable gloves will be worn by the sampling personnel and changed between sampling points.

Groundwater samples will be sent to a NYSDOH ELAP and NYSDEC ASP-approved analytical laboratory under chain-of-custody procedures for analysis of Target Analyte List (TAL) metals by USEPA Method 6010B, including:

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Molybdenum
- Nickel
- Potassium
- Selenium
- Silver
- Sodium
- Thallium
- Tin
- Titanium
- Vanadium
- Zinc

If the turbidity of the groundwater samples is greater than 50 Nephelometric Turbidity Units (NTUs) at the conclusion of well purging, total (unfiltered) and dissolved (filtered) fraction groundwater samples will be collected. The dissolved fraction groundwater samples will be filtered using a .45 micron in-line disposable filter.

Field Quality Control Samples

Quality control procedures will be employed to ensure that sampling, transportation and laboratory activities do not bias sample analytical quality. Duplicate samples, matrix spike samples and matrix spike duplicates will provide a quantitative basis for validating the analytical data. A summary of the anticipated QA/QC samples for each media is included in Tables 5 and 6.

Table 5 QA/QC Samples - Groundwater

QA/QC Sample Type	Number of QA/QC Samples
Duplicate	1 duplicate for every 20 samples collected or 1 duplicate for every 7 calendar days of sampling
MS/MSD	1 MS/MSD for every 20 samples collected or 1 MS/MSD for every 7 calendar days of sampling

Table 6 QA/QC Samples - Stormwater

QA/QC Sample Type	Number of QA/QC Samples
Duplicate	1 duplicate for every 20 samples collected or 1 duplicate for every 7 calendar days of sampling
MS/MSD	1 MS/MSD for every 20 samples collected or 1 MS/MSD for every 7 calendar days of sampling

Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample pairs are analyzed by the laboratory to provide a quantitative measure of the laboratory's precision and accuracy.

Field personnel will specify samples for MS/MSD analysis. Extra volume is not required for aqueous samples for inorganic analysis.

Field Duplicates

For each sample matrix, a field duplicate sample will be collected at a rate of one sample per 20 environmental samples per media. The duplicate sample is collected at the same location as the environmental sample. The field duplicate sample is identified using the sample designation system described below in this Section. The identity of the field duplicate is not revealed to the laboratory. The analytical results of the environmental sample will be compared to the field duplicate sample, to evaluate field sampling precision.

Sample Designation

A sample numbering system will be used to identify each sample. This system will provide a tracking procedure to allow retrieval of information about a particular sample, and will assure that each sample is uniquely numbered. The sample identification will consist of at least four components as described below. Identification numbers for soil boring samples will also have a fifth component.

- **Project Identification**: The first component consists of a one-letter designation, which identifies the project site. For this project, the two-letter designation will be PH for Paulsen Holbrook.

- **Sample type**: The second component, which identifies the sample type, will consist of a two-letter code as follows:

    - ML or MW - Monitoring well (Groundwater Sample, determined by existing well ID)

    - SW - Stormwater (Stormwater Sample from drainage discharge point)

- **Sample Identification**: The third component will be used to uniquely identify each sample for NYSDEC Equis EDD purposes. The sampling date will be used and will be provided in the following format:

    - MMDDYYYY (i.e., May 16, 2014 would be 05162014)

- **Quality Assurance/Quality Control Samples**: The samples will be labeled with the following suffixes:

    - MS - Matrix Spike

    - MSD - Matrix Spike Duplicate

Duplicate samples will be numbered uniquely as if they were samples.

A record of identification for duplicate samples will be maintained.

Examples of identification numbers are given below:

PH-ML-01-05162014: Monitoring well groundwater sample, monitoring well ID ML, location one, collected on May 16, 2014.

PH-ML-01-05162014-MS: Monitoring well groundwater sample, monitoring well ID ML, location one, collected on May 16, 2014, matrix spike.

Field Documentation - General

Documentation of an investigative team's field activities often provides the basis for technical site evaluations and other such related written reports. All records and notes generated in the field will be considered controlled evidentiary documents and may be subject to scrutiny in litigation.

Personnel designated as being responsible for documenting field activities must be aware that all notes may provide the basis for preparing responses for legal interrogatories. Field documentation must provide sufficient information and data to enable reconstruction of field activities. Numerically serialized field logbooks provide the basic means for documenting field activities. The following information must be provided on the inside front cover of each field logbook:

- Project Name (Site Name)
- Site Location
- Site Manager
- Date of Issue

Control and maintenance of field logbooks is the responsibility of the Field Team Leader.

Documentation of Field Activities

Field logbook entries must be legibly written and provide an unbiased, concise, detailed picture of all field activities. Use of preformatted data reporting forms must be identifiable and referenced to field notebook entries.

Step-by-step instructions and procedures for documenting field activities are provided below and in following sub-sections. Instruction and procedures relating to the format and technique in which field logbook entries are made are as follows:

- Leave the first two pages blank. They will provide space for a table of contents to be added when the field logbook is complete.
- The first written page for each day identifies the date, time, site name, location, personnel and their responsibilities, other non-personnel and observed weather conditions. Additionally, during the course of site activities, deviations from the work plan must also be documented.
- All photos taken must be traceable to field logbook entries. It is recommended to reference photo locations on the site sketch or map.
- All entries must be made in ink. Waterproof ink is recommended.
- All entries must be accompanied by the appropriate military time (such as 1530 instead of 3:30).

- Errors must be lined through and initialed. No erroneous notes are to be made illegible.
- The person documenting must sign and date each page as it is completed.
- Isolated logbook entries made by a team member other than the team member designated responsible for field documentation, must be signed and dated by the person making the entry.
- Additions, clarifications, or corrections made after completion of field activities must be dated and signed.

General Site Information

General site characteristics must be recorded. Information may include:

- Type of access into facility (locked gates, etc.).
- Anything that is unexpected on-site (e.g., appearance of drums that have not been previously recorded).
- Information obtained from interview with site personnel (if applicable), or other interested party contact on-site.
- Names of any community contacts on-site.
- A site map or sketch. It can be sketched into the logbook or attached to the book.

Sample Activities

A chronological record of each sampling activity must be kept.

- Explanation of sampling at the location identified in the sampling plan (e.g., discolored soil, stressed vegetation).
- Exact sample location, using permanent recognizable landmarks and reproducible measurements.

- Sample matrix.

- Sample descriptions, i.e., color, texture, odor (e.g., soil type, murky water) and any other important distinguishing features.

- Decontamination procedures, if used.

As part of chain-of-custody procedures, recorded on-site sampling information must include sample number, date, time, sampling personnel, sample type, designation of sample as a grab or composite, and any preservative used. Sample locations should be referenced by sample number on the site sketch or map. The offer and/or act of providing sample splits to a thirty party (e.g., the responsible party representative; state, county, or municipal, environmental and/or health agency, etc.) must be documented. Sample tracking and custody will be documented between sample collection and laboratories.

Sample Dispatch Information

When sampling is complete, all sample documentation such as chain-of-custody forms shall be copied and copies placed in the project files. A notation of numbers of coolers shipped, carrier and time delivered to pick-up point should be made in a field notebook.

3.3.1.2 Monitoring Well Repairs, Replacement and Decommissioning

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

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

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been

rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3.2 Stormwater Monitoring

Thirteen stormwater catch basins were observed on site during field activities related to the 2009 OU1 Remedial Investigation. During the Remedial Investigation/Feasibility Study (RIFS) of Operable Unit 2 (OU2, off-site drainage swale) conducted by Arcadis between 2012 and 2014, soil contamination was found extending to the east off-site in the drainage swale located between the site and the railroad tracks. It was determined that the storm water discharge pipe located at the southeastern corner of the property is connected to the on-site catch basins and is the pathway through which OU1 contaminants were transported to OU2. During the 2009 OU1 RI, it was noted that water had ponded at this discharge pipe. During the OU2 RI; however, no water was observed. Figure 6 shows the storm water drainage system at the site. During the OU1 remedy, 11 of the 13 catch basins were inspected and cleaned, and the associated network of drainage pipes were video inspected and flushed. During the video inspection, a break in one of the drainage pipes was noted at the location shown on Figure 6.

In order to monitor all potential receptor exposure pathways, stormwater sampling will be performed at the drainage discharge point during the first five years of groundwater monitoring, if water is present at the time of monitoring.

Catch Basin Inspection

In order to maintain proper drainage at the site, each of the 13 on-site catch basins will be visually inspected for silt and debris build-up, and the inspection documented in the field book.

Stormwater Sampling Procedures

The following equipment will be needed to collect a stormwater sample for analysis:

- Peristaltic pump.
- Polyethylene tubing.
- Temperature, pH, dissolved oxygen, specific conductivity and turbidity meters.

- Field logbook and field logs.

- Laboratory prepared sample containers.

If water is present at the stormwater drainage pipe, a grab sample will be collected. A single set of field parameters, consisting of pH, specific conductance, temperature, dissolved oxygen, reduction potential, turbidity, and water level will be measured once prior to sampling. Both the pH and the specific conductivity meters will be calibrated for water temperature before each sampling event. If the turbidity of the stormwater samples is greater than 50 NTUs at the conclusion of well purging, total (unfiltered) and dissolved (filtered) fraction groundwater samples will be collected. The dissolved fraction stormwater samples will be filtered using a .45 micron in-line disposable filter. In order to obtain a filtered sample, the stormwater will need to be collected with a peristaltic pump, in order for the water to be pumped through the filter.

The stormwater sampling frequency may be modified based on review of collected data by the NYSDEC. The SMP will be modified to reflect future changes in sampling plans approved by NYSDEC.

Upon completion of sampling, the sample bottles will be immediately placed in a cooler held at 4°C. Disposable gloves will be worn by the sampling personnel and changed between sampling points.

Stormwater samples will be sent to a NYSDOH ELAP and NYSDEC ASP-approved analytical laboratory under chain-of-custody procedures for analysis of select metals by USEPA Method 6010B, including:

- Arsenic

- Chromium

- Copper

Sample designation and field documentation are identical to groundwater monitoring methods as previously described.

3.4 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection report form will be completed (Appendix E). 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;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records, if any, are up to date.

3.5 Monitoring Quality Assurance/Quality Control

Not applicable to the monitoring phase at the former Paulsen Holbrook Site. Site-specific QA/QC can be found in Section 3.3.1.1 of this SMP.

3.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file by the NYSDEC. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be prepared in accordance with the NYSDEC's standards and as specified in this SMP.

Monitoring results will be collected by the NYSDEC on an annual basis for the first five years following completion of the remedial construction.

The results will include the following information:

- Date of monitoring event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., groundwater, stormwater, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- A figure illustrating potentiometric contours;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 7 below.

Table 7 Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater and Stormwater Monitoring and Site Inspection Report	Annually for first five years

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

4. Operation and Maintenance Plan

4.1 Introduction

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

The only other Engineering Control is the chain link fence placed at the CSX ROW. The fence condition will be inspected as part of the Site Inspection and any damage will be documented and promptly repaired.

5. Inspections, Reporting and Certifications

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. Inspections of remedial components will be conducted annually for the first five years following completion of remedial construction, or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate section of the inspection report form for their respective system. The inspection report form is contained in Appendix E. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix E). These forms are subject to NYSDEC revision.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items; and
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.2 Certification of Institutional Controls

For each institutional control identified for the site, it shall be determined that all of the following statements are true:

- The institutional 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 information presented in this report is accurate and complete;
- No new information, including groundwater monitoring data from wells located at the site boundary, if any, indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid;
- Every five years the following certification will be added "The assumptions made in the qualitative exposure assessment remain valid"; and
- The Department representative shall certify that all information and statements in the certification form are true. A false statement made is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

5.3 Periodic Review Report

A Periodic Review Report will be prepared by the Department every year, beginning twelve after the Certificate of Completion is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site depicted and described in Appendix G, including the metes and bounds of the environmental easements. The report will be prepared in accordance with NYSDEC DER-10 and will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will

include a presentation of past data as part of an evaluation of contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period; and

- A site evaluation, which includes the following:

    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;

    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;

    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;

    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and

    - The overall performance and effectiveness of the remedy.

5.4 Corrective Measures 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 plan will be prepared by the NYSDEC. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure.

Appendix A

Fugitive Dust and Particulate Monitoring

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.

Appendix B

Community Air Monitoring Program

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.

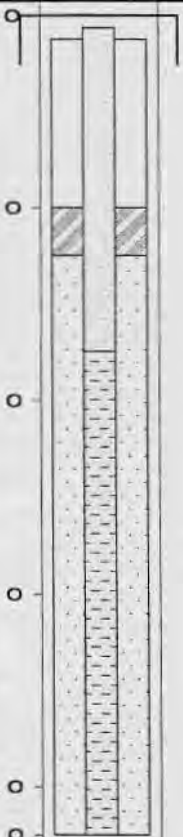
December 2009

Appendix C

Well Logs

Boring Log
(MW-1)

Site name: Paulsen - Holbrook	Project number: 39645.01
Client name: Miron Lumber	Depth to water at drilling time: 12.75
Location: N.E. of Green Soil	Screen size/unit: two inches
Date drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
Surface elevation:	Notes: Elevation T.O.C. = 100.03
Logged by: Lorraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
Total depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples: Number	Condition	Recovery	Blows	Graphic Log	USCS symbol	Description
0.0			SS-1			6 8 8 11		SP	Gray - Brown fine SAND
			SS-2			2 2 4 3		SP	Yellow - Brown fine SAND
4.0			SS-3			2 5 5 6		SP	Yellow - Brown fine SAND
			SS-4			10 9 9 8		SM	Brown fine - very fine SAND
8.0			SS-5			5 7 7 6		SM	Brown fine - very fine SAND
			SS-6			4 5 4 5		SM	Brown fine - very fine SAND
12.0			SS-7			3 3 5 6		SM	Brown fine - very fine SAND
			SS-8			0 2 3 4		SM	Brown fine - very fine SAND
16.0								SM	Brown fine - very fine SAND
17.0									

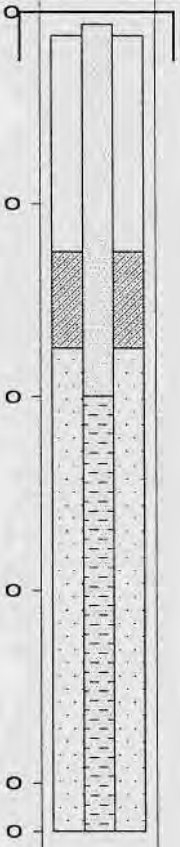
The Chazen Companies
1407 Route 9, Building 1, Clifton Park, Saratoga, NY

The Chazen Companies

Dec. 29, 1998 | Drawn By: | Page: 1 of 1

Boring Log
(MW-2)

Site name: Paulsen - Holbrook	Project number: 39645.01
Client name: Miron Lumber	Depth to water at drilling time: 13.09
Location: Green Soil Area	Screen size/unit: two inches
Date drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
Surface elevation:	Notes: Elevation T.O.C. = 99.98
Logged by: Lorraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
Total depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples: Number	Condition	Recovery	Blows	Graphic Log	USCS symbol	Description
0.0			SS-1			6 8 8 11		SP	Gray/Brown fine SAND
4.0			SS-2			5 5 7 9		SP	Yellow/Brown fine SAND, trace gravel
			SS-3			5 7 9 10		SP	Yellow/Brown fine SAND
8.0			SS-4			10 10 8 10		SP	Yellow/Brown fine SAND
			SS-5			12 10 8 9		SP	Yellow/Brown fine SAND
12.0			SS-6			4 4 6 6		SM	Brown fine - very fine SAND
			SS-7			3 4 6 4		SM	Brown fine - very fine SAND
16.0									
17.0									

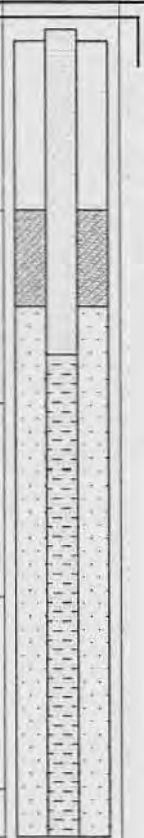
Boring Log
(MW-3)

Site name: Paulsen - Holbrook	Project number: 39645.01
Client name: Miron Lumber	Depth to water at drilling time: 13.09
ocation: West of Green Soil	Screen size/unit: two inches
ate drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
Surface elevation:	Notes: Elevation T.O.C. = 100.47
ogged by: Lorraine Zeller	
rilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
Total depth of hole: 17 ft	

Depth (ft)	Well	(PID) PPM	Samples: Number	Samples: Condition	Samples: Recovery	Samples: Blows	Graphic Log	USCS symbol	Description
0.0			SS-1			5 4 5 4		SP	Brown fine SAND
			SS-2			2 2 5 4		SP	Brown fine SAND
4.0			SS-3			3 3 5 6		SP	Yellow/Brown fine SAND
			SS-4			7 8 10 4		SP	Yellow/Brown fine SAND
8.0									
			SS-5			3 3 4 4		SP	Brown fine SAND
12.0									
			SS-6			1 1 3 4		SM	Brown fine - very fine SAND
16.0									
17.0									

Boring Log
(MW-4)

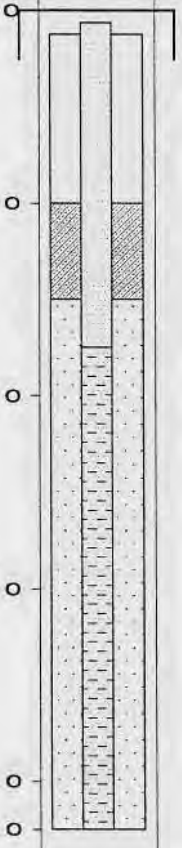
Site name: Paulsen - Holbrook	Project number: 39645.01
Client name: Miron Lumber	Depth to water at drilling time: 12.57
Location: East of Green Soil	Screen size/unit: two inches
Date drilled: 8/7/96	Screen Type: PVC Slotted
Date finished: 8/7/96	Drill method: Hollow Stem Auger
Surface elevation:	Notes: Elevation T.O.C. = 98.67
Logged by: Loraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
Total depth of hole: 17 ft	



Depth (ft)	Well	(PID) PPM	Samples: Number	Condition	Recovery	Blows	Graphic Log	USCS symbol	Description
0.0			SS-1			10 8 6 6		SP	Brown fine SAND
4.0			SS-2			2 2 5 6		SP	Yellow/Brown fine SAND
8.0			SS-3			2 3 6 4		SP	Brown fine SAND
12.0			SS-4			1 1 2 3		SM	Brown fine - very fine SAND
16.0									
17.0									

Boring Log
(MW-5)

Site name: Paulsen - Holbrook	Project number: 39645.01
Client name: Miron Lumber	Depth to water at drilling time: 12.17
Location: East of ML-4	Screen size/unit: two inches
Date drilled: 8/8/96	Screen Type: PVC Slotted
Date finished: 8/8/96	Drill method: Hollow Stem Auger
Surface elevation:	Notes: Elevation T.O.C. = 97.96
Logged by: Lorraine Zeller	
Drilling Co.: T&K Drilling	
Driller: Kevin Kennedy	
Total depth of hole: 17 ft	



Depth (ft)	Samples: Number	Condition	Recovery	Blows	Graphic Log	USCS Symbol	Description
0.0	SS-1			3 3 4 5		SP	Brown fine SAND
4.0	SS-2			2 4 5 5		SP	Yellow/Brown fine SAND
8.0	SS-3			3 2 2 3		SP	Brown fine SAND
12.0	SS-4			1 1 1 2		SM	Brown fine - very fine SAND
16.0							
17.0							

The Chazen Companies
1407 Route 9, Building 1, Clifton Park, Saratoga, NY

Dec. 29, 1998 | Drawn By: | Page:1 of 1

The Chazen Companies

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. PH-MW-01

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	1/7/2013 (core samples)	**End Date:**	1/8/2013 (well install)
Top of Steel Casing:	251.88	**Top of PVC Casing:**	251.67
Ground Elevation:	249.46	**Measuring Point:**	251.67
Total Depth (Casing):	40.7	**Depth to Water:**	16.34
WaterLevel Elevation:	235.33	**Drilling Method:**	4" Auger (ISS) and 3.75" Probe
Top of Screen:	220.97	**Length of Screen:**	10
Well Type:	2" ID Pre-Packed Screens w/riser	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	249.46	Cement Apron			Brown Medium Sand Compact - ISS
		2" PVC Threaded			
5	244.46				
10	239.46				
15	234.46			↓ 235.33	Brown Fine Medium Sand Wet
20	229.46		PHMW01A D422 Particle Size		
25	224.46	Bentonite Collar			
		Top of Screen			
30	219.46	Pre-Packed Screen			
35	214.46		PHMW01B D422 Particle Size		
40	209.46				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. ML-01

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	01/07/13 (core sampling)	**End Date:**	01/07/13 (well installation)
Top of Steel Casing:	251.19	**Top of PVC Casing:**	250.97
Ground Elevation:	249.7	**Measuring Point:**	250.97
Total Depth (Casing):	18.70	**Depth to Water:**	16.70
WaterLevel Elevation:	234.27	**Drilling Method:**	3.75" Probe
Top of Screen:	242.27	**Length of Screen:**	10
Well Type:		**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	249.7	Cement Apron			Fine Med Sand Some Silt w/Gravel Loose Moist
		2" PVC Threaded			
5	244.7	Bentonite Collar	ML01A D422 Particle Size 6' to 16'		Brown Fine Sand Loose
		Top of Screen			
10	239.7	Pre-Packed Screen			Brown Fine Sand Loose
15	234.7			↓ 234.27	Brown Fine Sand Compact Wet
20	229.7				
25	224.7				
30	219.7				
35	214.7				
40	209.7				

SEALAND ENVIRO
AN O'CONNELL COMPANY

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well No.
ML-2R

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	4/17/2013	**End Date:**	4/17/2013
Top of Steel Casing:	252.16	**Top of PVC Casing:**	252
Ground Elevation:	249.86	**Measuring Point:**	252
Total Depth (Casing):	27.41	**Depth to Water:**	16.3
WaterLevel Elevation:	235.7	**Drilling Method:**	4" Auger (ISS)/3.75" Probe (well)
Top of Screen:	234.59	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	249.86	Concrete Apron	No Lab Samples		
5	244.86	2" PVC Threaded			
10	239.86				
15	234.86	Bentonite Collar		↓ 235.7	
20	229.86	Pre-Packed Screen			
25	224.86				
30	219.86				
35	214.86				
40	209.86				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. ML-03

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	4/17/2013	**End Date:**	4/17/2013
Top of Steel Casing:	249.79	**Top of PVC Casing:**	249.34
Ground Elevation:	249.77	**Measuring Point:**	249.34
Total Depth (Casing):	27.65	**Depth to Water:**	16.11
WaterLevel Elevation:	233.23	**Drilling Method:**	4" Auger (ISS)/3.75" Probe (well)
Top of Screen:	231.69	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	249.77	Concrete Apron	No Lab Sample		Medium Brown Sand Compact ISS to el 234
		2" PVC Threaded			
5	244.77				
10	239.77				
15	234.77	Bentonite Collar		↓ 233.23	Core 14-19' Medium Brown Sand Loose Wet
		Top of Screen			
20	229.77	Pre-Packed Screen			Core 19-24' Gray Clay Ductile Soft Wet
25	224.77				
30	219.77				
35	214.77				
40	209.77				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. ML-04

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	01/07/13 (Core Sampling)	**End Date:**	01/18/13 (Well Installation)
Top of Steel Casing:	250.09	**Top of PVC Casing:**	249.09
Ground Elevation:	248.37	**Measuring Point:**	249.09
Total Depth (Casing):	22.85	**Depth to Water:**	14.94
WaterLevel Elevation:	234.15	**Drilling Method:**	4" Auger (ISS)/3.75" Probe (well)
Top of Screen:	236.24	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	248.37	Concrete Collar			Crushed Concrete Layer 0.2' Brown Fine Medium Sand Compact Moist
5	243.37	2" PVC Threaded			
10	238.37	Bentonite Collar	Sample ML04A D422 Particle Size	↓ 234.15	Brown Fine Medium Sand Compact Wet
15	233.37	Pre-Packed Screen			
20	228.37				
25	223.37				
30	218.37				
35	213.37				
40	208.37				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. ML-14

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	01/07/13 (Core Sampling)	**End Date:**	01/18/13 (Well Installation)
Top of Steel Casing:	249.32	**Top of PVC Casing:**	249.03
Ground Elevation:	246.74	**Measuring Point:**	249.03
Total Depth (Casing):	19.35	**Depth to Water:**	14.53
WaterLevel Elevation:	234.5	**Drilling Method:**	4" Auger (ISS)/3.75" Probe (well)
Top of Screen:	239.68	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	246.74	Concrete Apron			Black Sand some Gravel Some Red Brick at 2-2.5
		2" PVC Threaded			
5	241.74				Brown Firm Sand Loose Moist
		Bentonite Collar			
		Top of Screen			
10	236.74	Pre-Packed Screen	ML14A D422 Particle Size	↓ 234.5	
15	231.74				Brown Firm Sand Wet
20	226.74				
25	221.74				
30	216.74				
35	211.74				
40	206.74				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. PH-MW-02S

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	1/11/2013	**End Date:**	1/11/2013
Top of Steel Casing:	250.92	**Top of PVC Casing:**	250.61
Ground Elevation:	247.62	**Measuring Point:**	250.61
Total Depth (Casing):	22.54	**Depth to Water:**	17.1
WaterLevel Elevation:	233.51	**Drilling Method:**	3.75" Probe (well)
Top of Screen:	238.07	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	247.62	Concrete Apron	No Samples See PHMW-02D		See PHMW-02D for Cores
		2" PVC Threaded			
5	242.62				
		Bentonite Collar			
10	237.62	Top of Screen		↓	
				233.51	
15	232.62	Pre-Packed Screen			
20	227.62				
25	222.62				
30	217.62				
35	212.62				
40	207.62				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. PH-MW-02D

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	1/11/2013	**End Date:**	1/11/2013
Top of Steel Casing:	250.80	**Top of PVC Casing:**	250.58
Ground Elevation:	247.79	**Measuring Point:**	250.58
Total Depth (Casing):	42.5	**Depth to Water:**	17.02
WaterLevel Elevation:	233.56	**Drilling Method:**	3.75" Probe (well)
Top of Screen:	218.08	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	247.79	Concrete Apron			Dark Brown Fine Sand/Silt/Gravel Brown Silt/Clay Moist Compact Brown Firm Sand Compact Moist
		2" PVC Threaded			
5	242.79				Black Brown Red Firm Sand Loose
10	237.79				Brown Firm Sand Loose Moist
				↓	
15	232.79			233.56	Brown Firm Sand Loose Wet
20	227.79		PHMW02DA D422 Particle Size 20-25'		
25	222.79				
		Bentonite Collar			
30	217.79	Top of Screen			
		Pre-Packed Screen			
35	212.79		PHMW02DB D422 Particle Size 35-40'		
40	207.79				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No.
		PH-MW-03S (ML-16)

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	11/21/2008	**End Date:**	11/21/2008
Top of Steel Casing:	238.68	**Top of PVC Casing:**	238.35
Ground Elevation:	238.67	**Measuring Point:**	238.35
Total Depth (Casing):	13.64	**Depth to Water:**	5.9
WaterLevel Elevation:	232.45	**Drilling Method:**	4" Auger (ISS)/3.75" Probe (well)
Top of Screen:	234.71	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	238.67	Road Box	No Lab Samples		See MWPH-3D
		2" PVC			
5	233.67			↓ 232.45	
10	228.67	PCV Screen			
15	223.67	See ML-16 Well Log			
20	218.67				
25	213.67				
30	208.67				
35	203.67				
40	198.67				

SEALAND ENVIRO AN O'CONNELL COMPANY	SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM	Boring/Well No. PH-MW-03D

Project Name:	Former Paulsen-Holbrook Site	**Project Location:**	Guilderland, NY
Project Owner:	NYS DEC Div Env Remediation	**Drilling Company:**	Zebra Environmental Corp
Start Date:	1/14/2013	**End Date:**	1/14/2013
Top of Steel Casing:	241.63	**Top of PVC Casing:**	240.89
Ground Elevation:	238.52	**Measuring Point:**	240.89
Total Depth (Casing):	42.64	**Depth to Water:**	13.95
WaterLevel Elevation:	226.94	**Drilling Method:**	4" Auger (ISS)/3.75" Probe (well)
Top of Screen:	208.25	**Length of Screen:**	10
Well Type:	2" Pre-Packed PVC	**Logged By:**	TJ/LK

Depth (feet)	Elevation (feet)	Well Construction	Sample (No./Type)	Water Level	Soil Description
0	238.52	Concrete Collar			Brown Firm Sand Some Silt Trace Gravel (Ceramic and Brick)
5	233.52	2" PVC Threaded			Brown Firm Sand Compact Wet
					Gray and Rust Mottling
10	228.52		Sample PHMW03A D422 Particle Size	↓ 226.94	Brown Firm Sand Wet Compact
					Brown Ductile Clay Some Silt
15	223.52				Gray Clay Ductile Soft Wet
20	218.52				Brown Firm Sand Wet Compact
					Gray Clay Ductile Soft Wet
25	213.52				
30	208.52	Bentonite Collar			
		Top of Screen			
35	203.52	Pre-Packed Screen	Sample PHMW03B D422 Particle Size		
40	198.52				

Appendix D

Analytical Data

POST-INJECTION GROUNDWATER SAMPLING RESULTS
SITE MANAGEMENT PLAN
FORMER PAULSEN HOLBROOK SITE
ALBANY, NEW YORK

Sample ID	NYSDEC Class GA Guidance Value Objectives	ML-01				ML-2R				ML-03			
Sampling Date		4/25/2013	6/17/2013	9/5/2013	11/22/2013	4/26/2013	6/17/2013	9/5/2013	11/22/2013	4/25/2013	6/17/2013	9/5/2013	11/22/2013
Matrix		GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
METALS													
Aluminum		--	156	256	235	--	602	188	181	--	249	486	1200
Antimony	3	--	297	60 U	60 U	--	211	60 U	60 U	--	179	60 U	60 U
Arsenic	25	10 U	5 U	5	5 U	5400	9820	6730	3970	6.8 J	5 U	23	60
Barium	1000	--	21	25	25	--	98	99	84	--	16	10 U	11
Beryllium	3	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--	5 U	5 U	5 U
Cadmium	5	--	5 U	5 U	5 U	--	5 U	47	19	--	5 U	5 U	5 U
Calcium		--	76200	100000	85300	--	150000	144000	260000 R	--	59000	89800	88600
Chromium	50	4.7	9	9	5 U	16	33	5 U	5 U	4.9	5 U	5 U	5 U
Cobalt		--	50 U	50 U	50 U	--	50 U	50 U	50 U	--	50 U	50 U	50 U
Copper	200	1.6 J	18	5 U	5 U	160	43	5 U	5 U	5.3 J	14	5 U	5 U
Iron	300**	--	250	666	196	--	8290	3860	6880	--	805	863	1150
Lead	25	--	38	5 U	5 U	--	32	5 U	5 U	--	29	5 U	5 U
Magnesium	35,000*	--	7640	8830	7720	--	96900	48200	73400	--	8770	9250	9090
Manganese	300*	--	20 U	28	30	--	17100	9870	10100	--	3770	1350	1050
Mercury	0.7	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U
Nickel	100	--	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U	20 U	20 U
Potassium		--	3950	6060	4650	--	135000	102000	81500	--	3630	4710	11800
Selenium	10	--	10	5 U	5 U	--	5 U	5 U	5 U	--	5	5 U	5 U
Silver	50	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U	10 U	10 U
Sodium	20000	--	24800	38700	108000	--	73200	125000	109000 R	--	34700	11300	8760
Thallium	0.5*	--	10 U	10 U	10 U	--	10 U	16	14	--	10 U	10 U	10 U
Vanadium		--	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U	20 U	20 U
Zinc	2,000*	--	110	10 U	13	--	109	10 U	10 U	--	97	10 U	10 U

Notes

Highlighted cells exceed corresponding Soil Cleanup Objective (SCO)

* Guidance Value

** Sum of these two values cannot exceed 500 ug/L

U - The compound was not detected at the indicated concentration.

J - The concentration given is an estimated value.

N - Spike sample recovery is not within control limits.

R - Lab duplication outside acceptable range.

POST-INJECTION GROUNDWATER SAMPLING RESULTS
SITE MANAGEMENT PLAN
FORMER PAULSEN HOLBROOK SITE
ALBANY, NEW YORK

Sample ID	ML-04				ML-14				PH-MW-01			
Sampling Date	4/25/2013	6/17/2013	9/5/2013	11/22/2013	4/25/2013	6/17/2013	9/5/2013	11/22/2013	4/25/2013	6/17/2013	9/5/2013	11/22/2013
Matrix	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
METALS												
Aluminum	--	980	702	870	--	100 U	100 U	261	--	100 U	100 U	167
Antimony	--	178	60 U	60 U	--	127	60 U	60 U	--	113	60 U	60 U
Arsenic	4500	4060	2500	1420	10 U	5 U	6	5	440	968	1260	5110
Barium	--	20	32	34	--	21	12	11	--	22	24	72
Beryllium	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--	5 U	5 U	5 U
Cadmium	--	5 U	18	7	--	5 U	5 U	5 U	--	5 U	9	25
Calcium	--	65700	104000	87100	--	82000	56500	57400	--	270000	167000	314000
Chromium	640	767	345	539	330	80	284	541	7.1	5 U	5 U	5 U
Cobalt	--	50 U	50 U	50 U	--	50 U	50 U	50 U	--	50 U	50 U	50 U
Copper	3 J	12	5 U	5 U	1.7 J	10	5 U	5 U	3.1 J	33	5 U	5 U
Iron	--	214	50 U	203	--	104	176	81	--	855	1430	8220
Lead	--	25	5 U	5 U	--	25	5 U	5 U	--	22	5 U	5 U
Magnesium	--	3740	6940	5790	--	10200	6210	6770	--	30400	42900	46200
Manganese	--	20 U	20 U	24	--	20	20 U	20 U	--	2210	21400	14500
Mercury	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	--	0.7	0.2 U	0.2 U
Nickel	--	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U	20 U	20 U
Potassium	--	22000	36200	29900	--	3030	2840	2610	--	1880	1930	13500
Selenium	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--	5 U	12	5 U
Silver	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U	10 U	10 U
Sodium	--	63200	24200	60200	--	21400	24100	12500	--	42900	34000	78900
Thallium	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U	29	21
Vanadium	--	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U	20 U	20 U
Zinc	--	80	10 U	10	--	83	10 U	10 U	--	74	10 U	10 U

Notes
Highlighted cells exceed corres
* Guidance Value
** Sum of these two values can
U - The compound was not dete
J - The concentration given is a
N - Spike sample recovery is nc
R - Lab duplication outside acce

POST-INJECTION GROUNDWATER SAMPLING RESULTS
SITE MANAGEMENT PLAN
FORMER PAULSEN HOLBROOK SITE
ALBANY, NEW YORK

Sample ID	PH-MW-3S				PH-MW-3D				PH-MW-2S			
Sampling Date	4/25/2013	6/17/2013	9/5/2013	11/22/2013	4/25/2013	6/17/2013	9/5/2013	11/22/2013	4/26/2013	6/17/2013	9/5/2013	11/22/2013
Matrix	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
METALS												
Aluminum	--	157	100 U	216	--	100 U	100 U	180	--	100 U	100 U	239
Antimony	--	77	60 U	60 U	--	67	60 U	60 U	--	95	60 U	60 U
Arsenic	7.4 J	5 U	9	5	10 U	5 U	5 U	5	10 U	5 U	5	6
Barium	--	43	49	40	--	50	48	54	--	12	10 U	10 U
Beryllium	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--	5 U	5 U	5 U
Cadmium	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--	5 U	5 U	5 U
Calcium	--	149000	127000	123000	--	116000	95600	114000	--	97800	105000	105000
Chromium	5.4	5 U	5 U	5 U	6.5	10	5 U	5 U	1.5 J	5 U	5 U	5 U
Cobalt	--	50 U	50 U	50 U	--	50 U	50 U	50 U	--	50 U	50 U	50 U
Copper	6.1 J	11	5 U	5 U	1.6 J	8	5 U	5 U	1.7 J	9	5 U	5 U
Iron	--	514	340	167	--	50 U	264	59	--	58	50 U	127
Lead	--	19	5 U	5 U	--	18	5 U	5 U	--	26	5 U	5 U
Magnesium	--	44600	31300	31000	--	16300	16600	19100	--	14000	14400	14900
Manganese	--	595	339	291	--	21	23	24	--	27	20 U	46
Mercury	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U
Nickel	--	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U	1600	20 U
Potassium	--	695	1060	972	--	1780	1880	1820	--	1480	5 U	1600
Selenium	--	5 U	5 U	5 U	--	5 U	5 U	5 U	--	5 U	10 U	5 U
Silver	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U	3320	10 U
Sodium	--	29400	14500	14200	--	89600	89500	64300	--	4030	10 U	3880
Thallium	--	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U	20 U	10 U
Vanadium	--	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U	10 U	20 U
Zinc	--	65	10 U	10 U	--	59	10 U	10 U	--	73	10 U	10 U

Notes
Highlighted cells exceed corres
* Guidance Value
** Sum of these two values can
U - The compound was not dete
J - The concentration given is a
N - Spike sample recovery is nc
R - Lab duplication outside acce

POST-INJECTION GROUNDWATER SAMPLING RESULTS
SITE MANAGEMENT PLAN
FORMER PAULSEN HOLBROOK SITE
ALBANY, NEW YORK

Sample ID	PH-MW-2D							
Sampling Date	4/26/2013		6/17/2013		9/5/2013		11/22/2013	
Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Units	ug/L		ug/L		ug/L		ug/L	
METALS								
Aluminum	--		100	U	100	U	198	
Antimony	--		85		60	U	60	U
Arsenic	10	U	5	U	6		5	U
Barium	--		27		22		21	
Beryllium	--		5	U	5	U	5	U
Cadmium	--		5	U	5	U	5	U
Calcium	--		116000		110000		105000	
Chromium	4	U	5	U	5	U	5	U
Cobalt	--		50	U	50	U	50	U
Copper	1.7	J	10		5	U	5	U
Iron	--		131		144		136	
Lead	--		22		5	U	5	U
Magnesium	--		19800		16900		16100	
Manganese	--		42		54		41	
Mercury	--		0.2	U	0.2	U	0.2	U
Nickel	--		20	U	20	U	20	U
Potassium	--		2490		2570		2250	
Selenium	--		7		5	U	5	U
Silver	--		10	U	10	U	10	U
Sodium	--		153000		174000		127000	
Thallium	--		10	U	10	U	10	U
Vanadium	--		20	U	20	U	20	U
Zinc	--		61		10	U	10	U

Notes
Highlighted cells exceed corres
* Guidance Value
** Sum of these two values can
U - The compound was not dete
J - The concentration given is a
N - Spike sample recovery is nc
R - Lab duplication outside acce

Appendix E

Inspection Report

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: _____ PROJECT NUMBER: _____

DATE OF INSPECTION: _____ INSPECTOR: _____

WELL DESIGNATION: _____

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	_____ inches	N/A [ ]	
Approximate Stickup Height	_____ feet	N/A [ ]	
Integrity of Protective Casing	Describe: _____		
Protective Casing Material	Steel [ ]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	_____ inches		
Weep Hole in Protective Casing	Yes [ ]	No [ ]	
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [ ]	Describe: _____
Well ID. Visible?	Yes [ ]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [ ]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [ ]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: _____			
Integrity of Cap Seal	Describe: _____			
Surface Water in Casing?	Yes [ ]	No [ ]	Describe: _____	
Well Casing Diameter	_____ inches			
Well Casing Material	PVC [ ]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [ ]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [ ]	
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____	

Downhole

Odor	Yes [ ]	No [ ]	Describe: _____	
PID Reading	_____ ppm			
Depth to Water (to top of casing)	_____ feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [ ]
Total Well Depth (to top of casing)	_____ feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: _____			

Additional Comments:

_____

_____

_____

_____

_____

_____

ARCADIS Design & Consultancy for natural and built assets

Appendix F

Groundwater Sampling Log

ARCADIS

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: _____ DATE: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

SAMPLERS: _____

A: Total Casing and Screen Length: _____

B: Casing Internal Diameter: _____

C: Water Level Below Top of Casing: _____

D: Volume of Water in Casing: _____

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$v = 0.0408 (B)^2 \times (A-C) = D$

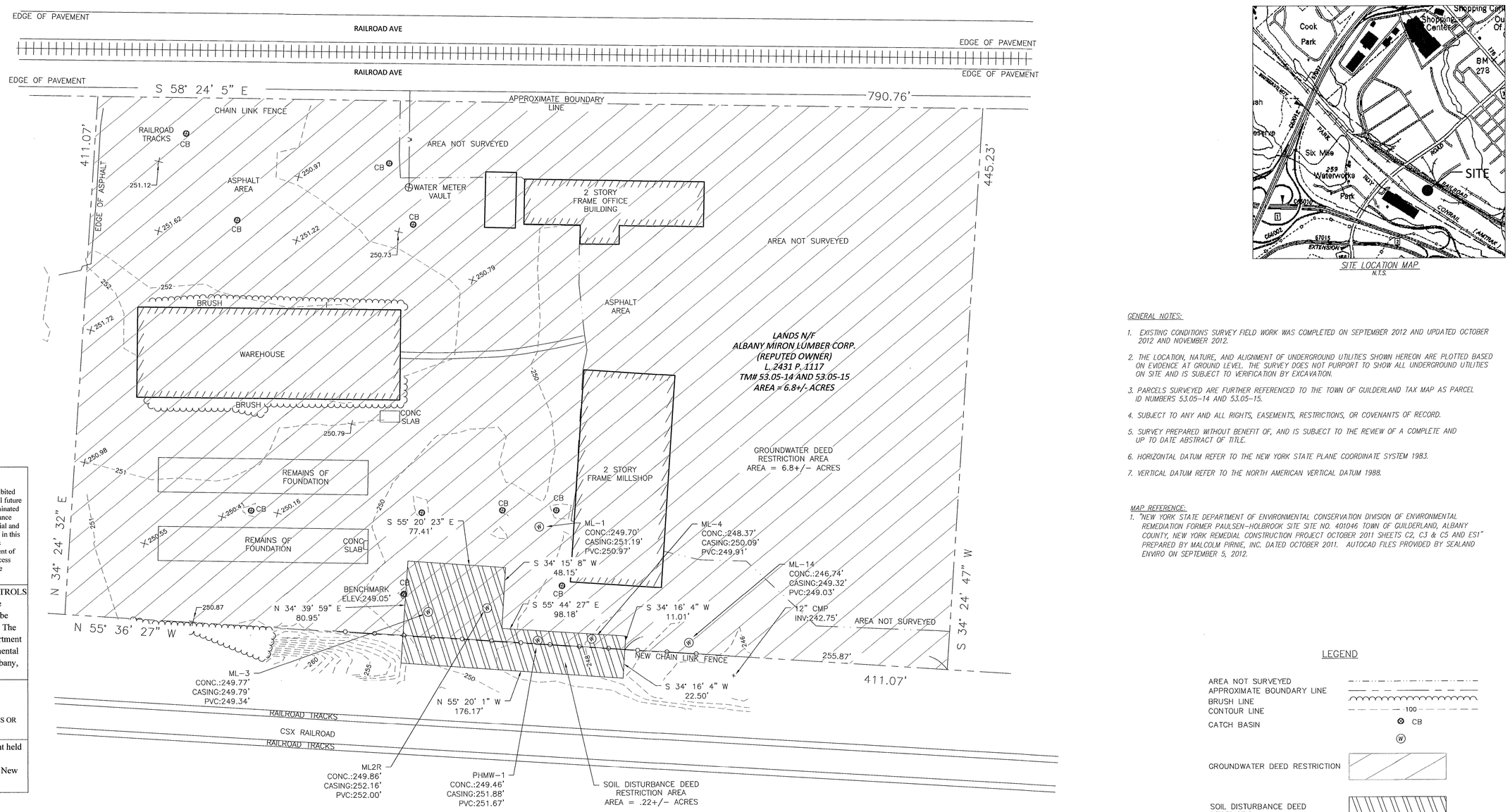
$v = 0.0408 (\quad)^2 \times (\quad - \quad) =$ _____ gal.

PARAMETER	ACCUMULATED VOLUME PURGED												
Time													
Gallons													
Depth to Water													
Temperature (^oC)													
pH													
Redox (mV)													
Conductivity (mohm/cm													
Turbidity (ntu)													
Dissolved Oxygen (mg/l)													
TDS													
Salinity													

Notes: _____

Appendix G

Property Survey



SITE LOCATION MAP
N.T.S.

ENGINEERING / INSTITUTIONAL CONTROLS

- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended purpose; All future activities on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP; the property may only be used for commercial and industrial use provided that the long-term ICs/ECs included in this SMP are employed. The property may not be used for a less restrictive use without additional remediation and amendment of the SMP by the NYSDEC. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls.

THE ENGINEERING AND INSTITUTIONAL CONTROLS for the Easement are set forth in more detail in the Site Management Plan ("SMP"). a copy of the SMP must be obtained by any party with an interest in the property. The SMP may be obtained from the New York State Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@gw.dec.state.ny.us.

ENVIRONMENTAL EASEMENT AREA ACCESS

THE DEC OR THEIR AGENT MAY ACCESS THE ENVIRONMENTAL EASEMENT AREA AS SHOWN HEREON THROUGH ANY EXISTING STREET ACCESS OR BUILDING INGRESS/EGRESS ACCESS POINT

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 New York Environmental Conservation Law.

GENERAL NOTES:

1. EXISTING CONDITIONS SURVEY FIELD WORK WAS COMPLETED ON SEPTEMBER 2012 AND UPDATED OCTOBER 2012 AND NOVEMBER 2012.
2. THE LOCATION, NATURE, AND ALIGNMENT OF UNDERGROUND UTILITIES SHOWN HEREON ARE PLOTTED BASED ON EVIDENCE AT GROUND LEVEL. THE SURVEY DOES NOT PURPORT TO SHOW ALL UNDERGROUND UTILITIES ON SITE AND IS SUBJECT TO VERIFICATION BY EXCAVATION.
3. PARCELS SURVEYED ARE FURTHER REFERENCED TO THE TOWN OF GUILDERLAND TAX MAP AS PARCEL ID NUMBERS 53.05-14 AND 53.05-15.
4. SUBJECT TO ANY AND ALL RIGHTS, EASEMENTS, RESTRICTIONS, OR COVENANTS OF RECORD.
5. SURVEY PREPARED WITHOUT BENEFIT OF, AND IS SUBJECT TO THE REVIEW OF A COMPLETE AND UP TO DATE ABSTRACT OF TITLE.
6. HORIZONTAL DATUM REFER TO THE NEW YORK STATE PLANE COORDINATE SYSTEM 1983.
7. VERTICAL DATUM REFER TO THE NORTH AMERICAN VERTICAL DATUM 1988.

MAP REFERENCE:

1. "NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF ENVIRONMENTAL REMEDIATION FORMER PAULSEN-HOLBROOK SITE SITE NO. 401046 TOWN OF GUILDERLAND, ALBANY COUNTY, NEW YORK REMEDIAL CONSTRUCTION PROJECT OCTOBER 2011 SHEETS C2, C3 & C5 AND ES1" PREPARED BY MALCOLM PIRNIE, INC. DATED OCTOBER 2011. AUTOCAD FILES PROVIDED BY SEALAND ENVIRO ON SEPTEMBER 5, 2012.

LEGEND

- AREA NOT SURVEYED
- APPROXIMATE BOUNDARY LINE
- BRUSH LINE
- CONTOUR LINE 100
- CATCH BASIN CB
- GROUNDWATER DEED RESTRICTION
- SOIL DISTURBANCE DEED RESTRICTION

DESCRIPTION OF THE GROUNDWATER DEED RESTRICTION AREA:

ALL THOSE CERTAIN PIECES OR PARCELS OF LAND SITUATE, LYING AND BEING PARTLY IN THE TOWN OF GUILDERLAND AND PARTLY IN THE TOWN OF COLONIE, COUNTY OF ALBANY AND STATE OF NEW YORK, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE SOUTHWESTERLY LINE OF RAILROAD AVENUE, AS SAID AVENUE IS LAID DOWN ON A MAP ENTITLED "N.Y.C.R.R., BUFFALO & EAST, MAIN LINE, LAND PROPOSED TO BE DEEDED TO THE TOWNS OF COLONIE AND GUILDERLAND FOR HIGHWAY PURPOSES, WEST ALBANY", DATED OCTOBER 9, 1939, FILED IN THE OFFICE OF THE CLERK OF SAID COUNTY OF ALBANY ON OCTOBER 11, 1939, AS MAP 789, DRAWER NO. 102, WHERE THE SAME IS INTERSECTED BY THE SOUTHEASTERLY LINE OF THE PREMISES CONVEYED TO JACOB HENDE, BY DEED DATED JANUARY 29, 1946, RECORDED IN THE OFFICE OF THE CLERK OF SAID COUNTY OF ALBANY IN BOOK 995 OF DEEDS, AT PAGE 105; AND THENCE RUNNING ALONG THE FOLLOWING THREE (3) COURSES AND DISTANCES:

1) S 58°24'5" E, A DISTANCE OF 790.76' TO A POINT;
2) S 34°24'47" W, A DISTANCE OF 445.23' TO A POINT;
3) N 55°36'27" W, A DISTANCE OF 773.78' TO A POINT;

THENCE NORTHEASTERLY ALONG THE WESTERLY LINE OF THE HEREIN DESCRIBED PARCEL, N 34°24'32" E, 411.07' TO THE POINT AND PLACE OF BEGINNING CONTAINING 6.8 ACRES OF LAND, MORE OR LESS.

BEING AND INTENDING TO DESCRIBE THE SAME PARCEL CONVEYED TO ALBANY MIRON LUMBER CORP., FROM WILLIAM F. PAULSEN BY DEED DATED FEBRUARY 5, 1991 AND RECORDED IN LIBER 2431 AT PAGE 1117 AT THE ALBANY COUNTY CLERK'S OFFICE.

DESCRIPTION OF THE SOIL DISTURBANCE DEED RESTRICTION AREA:

ALL THOSE CERTAIN PIECES OR PARCELS OF LAND SITUATE, LYING AND BEING PARTLY IN THE TOWN OF GUILDERLAND AND PARTLY IN THE TOWN OF COLONIE, COUNTY OF ALBANY AND STATE OF NEW YORK, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT IN THE SOUTHEASTERLY CORNER OF LANDS NOW AND FORMERLY OF ALBANY MIRON LUMBER CORP., THENCE N 55° 36' 27" W, 255.87' TO THE POINT OF BEGINNING. THENCE RUNNING ALONG THE FOLLOWING SIX (6) COURSES:

1) S 34° 16' 4" W, A DISTANCE OF 22.50' TO A POINT;
2) N 55° 20' 1" W, A DISTANCE OF 176.17' TO A POINT;
3) N 34° 39' 59" E, A DISTANCE OF 80.95' TO A POINT;
4) S 55° 20' 23" E, A DISTANCE OF 77.41' TO A POINT;
5) S 34° 15' 8" W, A DISTANCE OF 48.15' TO A POINT;
6) S 55° 44' 27" E, A DISTANCE OF 98.18' TO A POINT;

THENCE S 34° 16' 4" W, 11.01' TO THE SAID POINT OR PLACE OF BEGINNING, CONTAINING .22 ACRES OF LAND, MORE OR LESS.

BEING AND INTENDING TO DESCRIBE THE IN-SITU SOIL STABILIZATION TREATMENT AREA DEPICTED ON MAP REFERENCE ONE AS SHEET C3.

DATE	REVISIONS

JOSEPH G. MALINOWSKI #050314

NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
FORMER PAULSEN-HOLBROOK SITE
REMEDIAL CONSTRUCTION PROJECT
FINAL OU-1 DEED RESTRICTIONS

PREPARED FOR SEALAND ENVIRO

SCALE : 1" = 40'-0" | OCTOBER 25, 2013

Engineering and Land Surveying, P.C.
1533 Crescent Road - Clifton Park, NY 12065

Basemap Easement.dwg | JOB NO. 755.1 | SHEET 6 OF 6