TRIMMER ROAD LANDFILL

MONROE COUNTY

PARMA, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: 8-28-102

Prepared for:

New York State Department of
Environmental Conservation
152 & 158 Trimmer Road, Parma,
New York, 14468, Monroe County

Prepared by:

Ramboll Americas Engineering Solutions, Inc.
333 W Washington St, Syracuse, NY 13202
315-956-6100

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

JUNE 2023

CERTIFICATION STATEMENT

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

Bradley A. Kubiak P.E.

June 20, 2023 DATE

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List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Greenhouse Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration

OU	Operable Unit
P.E. or PE	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

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

Site Identification: 8-28-012 Trimmer Road Landfill, 152/158 Trimmer Road, Parma, NY 14468

<table>
<tr><td rowspan="2">Institutional Controls:</td><td>1. The property may be used for; commercial or industrial use as per the Deed Restriction, the property is residentially zoned.</td></tr>
<tr><td>2. RAO’s from Deed Restriction dated December 2015
• First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.
• Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated soils.
• Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.
• Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.</td></tr>
</table>

	• Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment to render it safe for drinking water or for industrial purposes, as appropriate, and the user must first notify and obtain written approval to do so from the Department or Relevant Agency. • Sixth, the owner of the Property, upon request, shall provide a periodic certification, to the Department or Relevant Agency, which will certify that: the institutional controls put in place are unchanged from the previous certification, that the owner has complied with the provisions of this restrictive covenant, including compliance with the SMP, that there has been no change in use of the property, unless the Department has been properly notified, and that the engineering controls have not been impaired. • Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency. • Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Department or Relevant Agency requires to be recorded, and the owner and its successors and assigns hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement. • Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

	• Tenth, owner, its successors and assigns, shall take no action which would extinguish the right-of-way referenced in Appendix "A" herein and filed with the Clerk of the County of Monroe in Liber 250 of Deeds, at Page 342.
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP.
Engineering Controls:	1. Vegetative buffer zones 2. Landfill Soil Cover

Inspections:	Frequency
1. General Site Condition 2. Access Roads 3. Tree Census / Vegetative Buffer Zones 4. Monitoring Wells	Annually
Monitoring:	
1. Groundwater Collection and Analysis	Annually
Maintenance:	
1. Routine System Operation and Maintenance See section 5.3.1	As needed
2. Non-Routine System Operation and Maintenance See section 5.3.2	As needed
Reporting:	
1. Groundwater Analysis Results and Site Inspection	Annually
2. Periodic Review Report	Every Third Year

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

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Trimmer Road Landfill Site located in the Town of Parma, New York (hereinafter referred to as the “Site”). See Site Location Map, Figure 1. The Site is currently in the New York State (NYS) Class 2 Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 8-28-012, which is administered by New York State Department of Environmental Conservation (NYSDEC or Department).

Dvirka and Bartillucci Consulting Engineers (D&B) were contracted by the NYSDEC to assist with Site remediation. A figure showing the Site location and boundaries of this Site is provided in the Site Location Map, Figure 1. Site boundaries are more fully described in the metes and bounds Site description that is part of the Deed Restriction dated December 2015 provided in Appendix 1. Site Features are shown in Figure 2.

After completion of the remedial work, some contamination was left at this Site, which is hereafter referred to as “remaining contamination”. Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. A Deed Restriction granted to the NYSDEC, and recorded with the Monroe County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site.

This SMP was prepared to manage remaining contamination at the Site until the Deed Restriction is extinguished in accordance with ECL Article 71, Title 36. This SMP has been approved by the NYSDEC, and compliance with this SMP is required by the grantor of the Deed Restriction and the grantor’s successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

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

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 , and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the Site is provided in Appendix 2 of this SMP.

This SMP was prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll), on behalf of the New York State Department of Environmental Conservation (NYSDEC), in accordance with the requirements of the NYSDEC's DER10 ("Technical Guidance for Site Investigation and Remediation"), dated May, 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Deed Restriction for the Site.

1.2 Revisions

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

1.3 Notifications

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

1. 60-day advance notice of any proposed changes in Site use that are required under 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
5. Notice within 48 hours of any non-routine maintenance activities.

6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

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

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

Table 1 includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix 2.

Table 1: Notifications*

Name	**Contact Information**	**Required Notification****
Charles Gregory – NYSDEC Project Manger	518-402-8246 Charles.Gregory@dec.ny.gov	All Notifications
Jeffrey Dyber – NYSDEC Project Manager's Supervisor	518-402-9698 Jeffrey.Dyber@dec.ny.gov	All Notifications
Kelly Lewandowski – NYSDEC Site Control	518-402-9569 Kelly.Lewandowski@dec.ny.gov	Notifications 1 and 8
Julia Kenney – NYSDOH Project Manager	581-402-7873 Julia.Kenney@health.ny.gov	Notifications 4, 6, and 7
Thomas Burns – Property Owner	585-259-2655	Notifications 2 and 3

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

*** Note: Numbers in this column reference the numbered bullets in the notification list in this section.*

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located at 152 and 158 Trimmer Road in the Town of Parma, Monroe County, New York and is identified as Parcel Nos. 056.04-1-4.1 and 056.04-1-4.2. The Site is an approximately 50-acre area, 1 mile to the north of New York State Route 104 and is bounded by Trimmer Rd to the west (see Figure 1– Site Location Map). The boundaries of the Site are more fully described in Appendix 1 – Deed Restriction. The owner of the Site parcel(s) at the time of issuance of this SMP is Thomas Burns.

Each of the three vegetative buffer zones were installed at an off-Site location and, as a result, temporary easements with the affected property owners were required. Listed below are the properties affected:

- Parcel No. 56.02-1-3.2 (899 Peck Road);
- Parcel No. 56.02-1-27 (949 Peck Road); and
- Parcel No. 56.02-1-1 (140 Trimmer Road).

Access to the Site is via a crushed stone road on the southern portion of the Site. The road has a locked gate adjacent to Trimmer Road.

The operator(s) of the Site parcel(s) at the time of issuance of this SMP is:

NYSDEC Standby Contractor

2.2 Physical Setting

2.2.1 Land Use

The Site consists of a landfill occupying approximately 40 acres and a pond. The on-Site pond discharges to a tributary of Buttonwood Creek, a New York State Class C stream that drains into Lake Ontario. Drainage ditches are located around the perimeter of the Site on portions of three sides. The ditches collect seeps and surface runoff, and ultimately drain to the pond. The Site is zoned as residential, but the site use is restricted to commercial or industrial per the Deed Restriction dated December 2015. The Site is currently undeveloped.

The properties adjoining the Site and, within a half mile radius surrounding the Site to the north, east and south primarily include undeveloped land and agricultural land. Several residences are located along Trimmer Road to the west of the landfill.

2.2.2 Geology

According to the Niagara Sheet of the Surficial Geologic Map of New York (Cadwell, D.H., Connally, G.G., Fleisher, P.J., and Muller, E.H., 1991) the surficial geology in the vicinity of the Site generally consists of laminated silt and clay, deposited in proglacial lakes. In the landfill area of the Site, overburden consists of up to two feet of red silt cover material placed over as much as 25 feet of waste. Generally, the waste material is situated on top of bedrock. Surface elevations range from approximately 370 to 395 feet above mean sea level (msl) across the Site (GES, 2015).

The off-Site overburden consists of surficial deposits of reddish brown, poorly sorted silt and fine sand, ranging in thickness from two to seven feet. The ground surface is littered with glacially derived cobble and boulder-sized rock fragments (technically classed as glacial float) (GES, 2015).

In some off-Site locations, the separation between overburden and bedrock is marked by a coarser lag deposit of well sorted sand or gravel overlying the bedrock. Field observation indicates the soft weathered bedrock appears as a massive red silt layer. The overlying red lacustrine silt is differentiated from weathered bedrock by the presence of rounded to subrounded gravel (GES, 2015).

Bedrock beneath the landfill Site is mapped as the Queenston shale (Rickard, 1970). Bedrock is generally shallow (less than seven ft bgs). Shallow bedrock is evident by the frequency of tabular cobbles and boulders found at or near ground surface. These tabular cobbles and boulders are fragments of sandstone and siltstone bedrock that are relatively resistant and have weathered from the underlying sequences of shale, siltstone and sandstone (GES, 2015).

Site specific boring logs are provided in Appendix 3.

2.2.3 Hydrogeology

Groundwater flow characteristics at the Trimmer Road Landfill Site were assessed during previous investigation activities using several techniques. These techniques included observations of soil and rock characteristics during drilling, installation of groundwater monitoring wells, in-situ hydraulic conductivity tests, groundwater sampling, and measurement of water level depths for the calculation of groundwater elevations.

In general, the Site is located in a relatively flat lying portion of the regional groundwater flow system, which is dominated by horizontal groundwater flow. Lake

Ontario, located approximately seven miles north of the Site and with an average surface elevation of 245 feet above msl, is the regional groundwater discharge zone. (GES, 2015)

Groundwater around the landfill is found at an approximate depth of 3.5 ft bgs in wells screened at the base of the overburden. Groundwater is found at an approximate depth of 5 ft bgs in wells screened in the bedrock. Groundwater flow at the Site is toward the northwest in both the shallow and deep zones. (GES, 2015)

A summary of historic groundwater elevation and quality data collected by GES (GES, 2015) is provided as Table 2. Groundwater monitoring well construction logs are provided in Appendix 3, and l construction information for wells identified as the monitoring network is summarized in Table 3.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

As per the ROD (NYSDEC, 2001) a Phase I investigation conducted in 1983 identified sparse vegetation along the landfilled area, with debris exposed at the surface. A Phase II investigation conducted in 1986 found organic compounds and metals dissolved in the groundwater and established a preliminary groundwater flow direction in the overburden to the northwest.

In 1992 the Site was delisted due to the relatively low levels of contamination found during the Phase II study. Additional investigations in 1996 revealed the presence of Site contamination in groundwater at levels that raised public health concerns due to the existence of downgradient private water supplies. Therefore, the Site was re-listed as a Class 2 Site in 1997 (NYSDEC, 2001).

A remedial investigation (RI) (Dvirka and Bartilucci Consulting Engineers (D&B), 2001) was conducted between October 1999 and January 2001. The purpose of the RI was to define the nature and extent of contamination resulting from previous landfilling activities. A summary of the findings of the RI are provided below.

2.3.1 Soil Gas Survey

A soil gas survey was conducted during the RI (D&B), 2001) in order to evaluate the presence of methane and volatile organic gases in the landfill. The PID and FID readings were obtained from 48 locations within a grid network at 200-foot intervals. Four additional sampling points were added to the program, spaced at 100 foot intervals to the north, east, south and west of the elevated reading (GES, 2015).

Landfill gas survey results indicated that there was limited evidence of methane at the sampling points (GES, 2015).

2.3.2 Groundwater Evaluation

A groundwater monitoring well network is present that consists of 25 wells throughout the Trimmer Road property, extending outside the Site boundary in certain areas. Wells are concentrated to the northwest of the Site in the area of the three vegetative buffer zones with the depths of most wells ranging from 12 to 17 feet. Boring logs and well construction details can be found in Appendix 3.

Based on the findings of the RI (D&B, 2001), the area with the highest VOC concentrations in groundwater was located at the northwest corner of the landfill proximal to MW-4. Groundwater samples from shallow wells contained vinyl chloride at a concentration of 140 microgram per liter (µg/L) and 1,2-dichloroethene (1,2-DCE) at 300 ug/L along with other VOCs above the applicable SCGs. Wells directly north of the landfill near MW-5 and MW-9 also exhibited VOCs above SCGs. The remaining shallow wells and all of the deeper wells did not exhibit any VOC contamination.

As described in the RI (D&B, 2001) and the Record of Decision (ROD) (NYSDEC, 2001) the contaminants of concern (COCs) for the Site included aluminum, arsenic, cadmium, iron, manganese, nickel, sodium, silver, and thallium; along with the VOCs vinyl chloride, 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene, 1,1,1-trichloroethane, benzene, chlorobenzene, chloroethane, and 1,4dichlorobenzene. While there were exceedances for semi-volatile organic compounds (SVOCs), the exceedances were small with respect to the SCGs and they were not considered to be COCs.

2.3.3 Remedial Alternatives

Based on the results of the RI (D&B), 2001) for the Site and the criteria identified for evaluation of remedial alternatives, the overall goal of the remedial program for the Site was to eliminate or mitigate the threats to public health and/or the environment that were posed by fill materials and constituents in groundwater at the Site.

A pre-design investigation (D&B, 2005) was conducted in 2004 and 2005 to provide Site-specific information to evaluate the extent of groundwater contamination and to collect information required for the design of the selected remedial alternative. Eight test pits were excavated on and adjacent to the landfill to determine the thickness of soil cover and to identify the shallow soil stratigraphy in the area of the proposed alternative cover test plots. Four new monitoring wells were installed to complement the 20 existing monitoring wells constructed during previous investigations at the Site. A summary of the findings of the pre-design investigation are provided below.

The initial selected remedy for the Site, as described in the March 2001 ROD, was an evapotranspiration cap consisting of an enhanced soil cover, planted with selected vegetation designed to intercept infiltrating water and to promote enhanced evapotranspiration to the atmosphere. In addition, the initial remedy included phytoremediation of contaminated groundwater northwest of the landfill, as well as operation, monitoring and maintenance of the remedy, and implementation of Site use restrictions. NYSDEC contracted D&B to provide design services for evapotranspiration cover test plots and vegetative buffer zones.

A final remedial design package was submitted to NYSDEC in April of 2006. The remedial design included the implementation of an evapotranspiration pilot study on the landfill and three vegetative buffer zones north and west of the landfill to address groundwater contamination downgradient of the Site.

The remedy was implemented in phases. The first phase (Phase 1) included planting of hybrid poplar trees within vegetative buffer zones in the north-west and north of the landfill. The second phase (Phase 2) was to evaluate the existing landfill cover effectiveness. Phase 1 construction was completed in 2008, documented and certified in an Final Remediation Report (FRR) completed in 2009 (D&B, 2009a).

In November 2013 Groundwater Environmental Services (GES) performed a site inspection upon the request of the NYSDEC to identify areas of insufficient soil cover thickness. Based on this inspection more than 50% of the soil cover needed additional backfill to bring the cover thickness to 1 foot as per the March 2001 ROD (NYSDEC), 2001) guidelines. GES, in conjunction with the NYSDEC created a regrading plan to restore the Site cover to 1-foot thickness. GES calculated an estimated total of approximately 5,270 cubic yards (9,900 tons with 25% contingency) of soil was needed to cover the designated areas. GES was responsible for conducting environmental monitoring during the soil placement activities and providing environmental compliance documentation during these Site activities which were completed during the 2014 construction season. TREC Environmental Inc. of Spencerport, New York (TREC) was the subcontractor responsible for various aspects of the field program, including:

- clearing/chipping of trees and brush, as needed
- spreading of approximately 9,900 tons of soil across designated areas of the Site in order to establish a minimum of 1 ft thickness of soil cover; and,
- Completing Site restoration including planting of grass seed and 100 poplar trees.

Further detail is provided in the 2015 *Site Update & Historical Summary Report*, included in Exhibit 2 (GES, 2015).

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in ROD dated March 2001 are as follows:

- Prevent the contamination of area groundwater that is used as a source of potable water;
- Prevent the generation of contaminated groundwater that is produced by precipitation migrating downward through the landfill waste to the water table;
- Prevent exposure of the human and wildlife populations to wastes in the landfill;
- Reduce or eliminate the leachate seeps that are emerging from the side slopes of the landfill;
- Mitigate potential for exposures to future Site users by taking the above actions, and
- Limit land use at the Site through a Deed Restriction.

2.5 Remaining Contamination

2.5.1 Groundwater

A post closure groundwater monitoring program was initiated in 2010 and was as required by the initial Site Management Plan (SMP) prepared by Divertka & Bartilucci dated August 2009. (D&B, 2009) that included collection and analysis of ground water samples from 12 select monitoring wells on an annual basis for a minimum of two years. Groundwater samples were analyzed for volatile organic compounds (VOCs). VOCs detected in one or more wells included vinyl chloride, cis-1,2 DCE, benzene, chlorobenzene, chloroethane, TCE, and 1,1 DCA. Figure 3 of this document presents the groundwater quality summary from the Site Update and Historical Summary Report by GES dated January 6, 2015 (GES, 2015).

Review of the data summaries on this figure shows that concentrations of VOCs detected in the groundwater generally decreased between 2009 and 2014.

Groundwater analytical results for the on-Site groundwater monitoring wells were compared to the groundwater quality standards contained in NYSDEC Technical & Operational Guidance Series (TOGS) 1.1.1 *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (GWQS). Table 2 summarize the results of groundwater samples including those that exceed the SCGs after remedial action completion. Compounds that marginally exceed the TOGS 1.1.1 GWQS at some locations in July 2014 include benzene, chlorobenzene, chloroethane, and acetone.

The following sections provide an evaluation of historical groundwater data as per the 2015 *Site Update & Historical Summary Report* (GES, 2015) associated with each of the three vegetative buffer zones.

2.5.1.1 Vegetative Buffer Zone No. 1

Monitoring wells MW-5s, MW-9s, MW-14, MW-15, MW-16, MW-17, MW-18, and MW-19 were used to evaluate the vegetative buffer zone No. 1 effectiveness.

Groundwater analytical data for the COCs from the monitoring wells listed above for vegetative buffer zone No. 1 have indicated a decreasing trend in concentrations from 2000 to 2014. Monitoring wells MW-5 and MW-9 exhibited VOC concentrations above SCGs during the RI (D&B, 2001). The data provided in Figure 3, Groundwater Results Map, displays the decreasing trends in vinyl chloride concentrations, Cis-1,2 DCE concentrations, chlorobenzene concentrations, chloroethane concentrations, TCE concentrations, and 1,1 DCA concentrations. Between 2000 and 2014, MWs 5 and 9 have both gone from exceedances of vinyl chloride, cis-1,2 DCE, benzene, chlorobenzene, and chloroethane to normal limits for these contaminants.

2.5.1.3 Vegetative Buffer Zones No. 2 and 3

Monitoring wells MW-4s, MW-8s, and MW-15 were used to evaluate the vegetative buffer zones No. 2 and No. 3 effectiveness. As shown on Figure 3, Groundwater Results Map, VOC concentrations in wells associated with these vegetative buffer zones decreased from 2000 to 2014.

Specifically, monitoring well MW-4S exhibited VOC concentrations above SCGs during the RI (D&B, 2001). The data provided in Figure 3 displays the following:

The following COCs decreased in monitoring well MW-4s:

- Vinyl Chloride concentrations decreased from 78 ug/L in 2000 to non-detect in 2014;
- Cis-1,2 DCE concentrations decreased from 210 ug/L in 2000 to non-detect in 2014; and
- Chlorobenzene concentrations decreased from 13 ug/L in 2000 to 2 ug/L in 2014.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

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

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Deed Restriction dated December 2015;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix 4) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the Site remedy, as determined by the NYSDEC project manager.

3.2 Institutional Controls

A series of ICs is required by the ROD (NYSDEC), 2001) to: (1) implement, maintain, and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the Site to commercial or industrial uses only. Adherence to these ICs on the Site is required by the Deed Restriction and will be implemented under this SMP. ICs identified in the Deed Restriction may not be discontinued without an amendment to or extinguishment of the Deed Restriction. The IC boundaries are consistent with the Site boundary shown on Figure 2, Site Features. As specified in the Deed Restriction (Appendix 1), these ICs are:

- First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.
- Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated soils.
- Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.
- Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.
- Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment to render it safe for drinking water or for industrial purposes, as appropriate, and the user must first notify and obtain written approval to do so from the Department or Relevant Agency.
- Sixth, the owner of the Property, upon request, shall provide a periodic certification, to the Department or Relevant Agency, which will certify that: the institutional controls put in place are unchanged from the previous certification, that the owner has complied with the provisions of this restrictive covenant, including compliance with the SMP, that there has been no change in use of the property, unless the Department has been properly notified, and that the engineering controls have not been impaired.
- Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the

approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

- Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Department or Relevant Agency requires to be recorded, and the owner and its successors and assigns hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.
- Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.
- Tenth, owner, its successors and assigns, shall take no action which would extinguish the right-of-way referenced in Appendix "A" herein and filed with the Clerk of the County of Monroe in Liber 250 of Deeds, at Page 342.

3.3 Engineering Controls

3.3.1 Cover

A 1-foot -thick soil cover was placed on the landfill to minimize potential exposure to waste materials. In 2015, GES conducted an investigation to assess the soil cover thickness on top of the fill area. Figure 4, Landfill Boundary, presents the location of the 1-foot-thick soil cover based on the GES document (GES, 2015). The EWP provided in Appendix 4 outlines the procedures required to be implemented in the event the soil cover is breached, penetrated, or temporarily removed. Procedures for the inspection of this soil cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP), Appendix 5, and associated Air Monitoring Plan prepared for the Site which provided in section 7.0 of the HASP, Appendix 5. Any disturbance of the Site’s soil cover must be overseen by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

3.3.2 Vegetative Buffer Zones

Three vegetative buffer zone areas were constructed at the Trimmer Road Landfill Site. These vegetative buffer zones serve as the engineering controls for the Site and are located on the northwest corner of the landfill as shown in Figure 2, Site Features. As-built drawings for these areas as provided in the *Final Remediation Report Trimmer Road Landfill Site Operable Unit 1* prepared by Dvirka & Bartilucci dated May 2009 (D&B, 2009) are included in Appendix 6.

The purpose of the vegetative buffer zones was to mitigate a portion of the shallow off-Site groundwater contaminant plume. The planting of the hybrid poplar and willow trees in these areas was intended to mitigate VOCs in groundwater by a combination of plant uptake and enhanced biodegradation by root-associated microorganisms. The willow and poplar trees were selected because they have a high water uptake, are fast growing, and are deep-rooted. Vegetative buffer zone area and associated monitoring wells can be found in Table 4 below.

Table 4, Vegetative Buffer Zones

Vegetative Buffer Zone	Area (Sq Ft)	Associated Monitoring Wells
1	22106	MW-5S, MW-6S, MW-9S, MW-14, MW-16, MW-17, MW-19
2	5576	MW-4S, MW-15
3	7926	MW-8S, MW-13S, MW-18

Willow and poplar trees were planted within each vegetative buffer zone in accordance with Contract Documents as documented in the FRR (D&B, 2009). Additional details from the FRR follow:

The vegetative buffer zones were planted with the following approved list of hybrid poplars as follows in Table 5:

Table 5, Approved Hybrid Poplars

Quantity	Hybrid Percentage	Common Name	Botanical Name
79	35	DN34	P. Deltoides Hybrid
79	35	DN21	XP. Nigra Hybrid
34	15	NE353	Deltoides x Caudina
32	10	NE41	Maximowiczii x Tricocarpa

As specified in the Contract Documents and Drawings, the vegetative buffer zones were also planted with the following approved list of willow trees as follows in Table 6:

Table 6, Approved Willow Trees

Quantity	Hybrid Percentage	Common Name	Botanical Name
76	33	SX67	P.Deltoides Hybrid
75	33	SX61	XP.Nigra Hybrid
75	33	FC	Deltoides Caudina

Tree installation was completed in four phases including trenching, planting, backfilling, and topsoil placement.

Procedures for operating and maintaining the vegetative buffer zones are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). As-built drawings are included in Appendix 6. Figure 2, Site Features, shows the Site's EC locations.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

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

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

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

3.3.3.1 - Cover

The vegetated soil cover is a permanent control, and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

3.3.3.2 – Vegetative Buffer Zones

The three vegetative buffer zones are to remain in place and in good condition until such a time as approved by the NYSDEC. Good condition is defined as the presence of live trees equal to more than 75% of the original number of trees that were planted.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall remedy performance and effectiveness. This Monitoring and Sampling Plan may only be revised with NYSDEC project manager approval. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of Site management for the Site are included in the Quality Assurance Project Plan provided in Appendix 7.

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

- Sampling and analysis of groundwater;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;
- To adequately address these issues, this Monitoring and Sampling Plan provides information on:
- Sampling locations, protocol and frequency;
- Information on designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

The post remedial construction monitoring program includes the annual collection and analysis of groundwater samples and an annual Site-wide inspection. In addition, the monitoring program will include annual inspections of the vegetative buffer zones to observe the health and general condition of the trees and associated fencing. Maintenance will also include mowing around access points and monitoring wells. Additional site activities may include repairs to monitoring wells, fencing or soil cover damage as well as replanting of trees, if needed.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – wide Inspection

Site-wide inspections will be performed annually. These periodic inspections must be conducted when the ground surface is visible (i.e. no snow cover). Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix 8 – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- Inspections of all remedial components installed at the Site will be conducted. A comprehensive Site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will evaluate and document the following:
- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restriction (Appendix 1);
- Achievement of remedial performance criteria; and
- If Site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

During the annual Site inspection, the Contractor will observe and document general Site conditions such as new construction, animal activity (i.e. burrowing, vegetation damage), vandalism, erosion, settling, ponding of water and other characteristics that might result in exposure of underlying waste or concern of soil cover integrity. The Contractor will monitor the general condition of the trees and grass and soil. For the vegetative buffer zones, the Contractor will note the fencing condition, number of live/dead trees within vegetative buffer zones, leaf status (i.e., new leaf growth, trees losing leaves) and grass height. The Contractor will also assess indications of insect or animal damage, plant disease, and abiotic stress.

The Site inspections will also include the observations of the condition of the access roads, and monitoring wells as detailed in this section.

These inspections will be performed in conjunction with groundwater sampling or scheduled maintenance events, if possible. Observations will be recorded digitally or on paper using specified forms or in a field notebook dedicated to the project. Photographs will also be taken to document pertinent observations, as appropriate. If conditions are observed that require immediate action, the NYSDEC will be notified.

4.2.1 Access Roads and Drainage Structures Monitoring

The condition of the access roads will be noted as part of the Site inspections. Visual evidence of any erosion, deposition, differential subsidence, pothole development, or other adverse conditions that would impede vehicular traffic on the access roads will be photographed and noted in the site inspection forms.

During Site inspections, culverts will be inspected for accumulations of sediment or debris buildup of vegetation, which could adversely affect the flow of water in the swales. If adverse conditions are observed, they will be photographed, noted in the field notebook, and plotted on a Site map.

Since depositional and erosion events can be highly variable in extent and location, each adverse condition will be evaluated on a case-by-case basis. Repairs will be made at the discretion of the NYSDEC.

4.2.2 Soil Cover and associated monitoring well network

During the site inspection the following conditions will be noted:

- Surface disturbances, such as rutting, erosion, tire tracks, and settlement;

- Surface changes such as new gravel or other non-vegetative material
- Indications of vandalism or trespassing;
- Areas of ponded water;
- Presence of bare soil areas
- Presence of seeps along slopes
- Grass height and condition;
- Damage to wellheads or pads, missing locks or caps

If adverse conditions are observed, they will be photographed, noted in the field

notebook, and plotted on a Site map. The conditions will be reported to NYSDEC as soon as possible. Adverse conditions will be evaluated on a case-by-case basis. Repairs will be made at the discretion of the NYSDEC. If repairs are required, they will be performed in accordance with the Contract Documents.

4.2.3 Vegetative Buffer Zones

During the Site inspections, the following conditions will be noted:

- Surface disturbances, such as rutting, erosion, tire tracks, and settlement;
- Indications of vandalism or trespassing;
- Areas of ponded water;
- Number of live/dead trees;
- Leaf condition, such as eaten leaves, discolored leaves, wilted or curled leaves;
- Bark condition, such as outer bark damaged by animals, equipment or insects, including holes in the bark, oozing sap, and wood shavings;
- Branch condition;
- Insects on the trees, including the bark and leaves;
- Grass height and condition;
- Leaf status, such as new leaf growth and trees losing their leaves; and
- Fence condition.

An annual tree population census will also be performed to serve as an indicator of overall Site health. The census will be performed near the end of the year's growing season. To complete the census, the information described below will be collected.

Site inspections will note the average tree height and caliper in each vegetative buffer zone, the total number of trees per row, the number of dead or dying trees, and the location(s) of stressed trees. Information about the cause of the tree stress (insect, mower, deer, and drought damage) will be included in the census data, if known. The location and distribution of stressed trees will also be noted.

If adverse conditions are observed, they will be photographed, noted in the field

notebook, and plotted on a Site map. The conditions will be reported to NYSDEC as soon as possible. Adverse conditions will be evaluated on a case-by-case basis. Repairs will be made at the discretion of the NYSDEC. If repairs are required, they will be performed in accordance with the Contract Documents.

4.3 Post-Remediation Media Monitoring and Sampling

Groundwater samples shall be collected from the monitoring wells on a routine basis. Sampling locations, required analytical parameters, and schedule are provided in Table 7– Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

Table 7 – Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	**Schedule**
	TCL VOCs (EPA Method 624)	
Monitoring Wells MW-4S, MW-5S, MW-6S, MW-8S, MW-9S, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, and MW-19	X	Annually

Detailed sample collection and analytical procedures and protocols are provided in the Appendix 7 – Quality Assurance Project Plan.

4.3.1 Groundwater Sampling

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

A network of 29 shallow and deep monitoring wells are located around the landfill as shown in Figure 2, Site Features. A summary of monitoring well construction details is presented in Table 3, Details pertaining to the monitoring wells, including geologic descriptions and construction, are provided in the boring logs in Appendix 3.

4.3.1.1 Water Level Monitoring

Groundwater levels will be measured at the 29 existing monitoring wells prior to groundwater sampling on an annual basis.

Water levels will be obtained from monitoring wells using a handheld electronic water level indicator. The indicator probe will be gradually lowered into the well until the point at which the indicator light or audible alarm indicates that the probe has reached water. The water level will then be obtained by measuring the depth from this point to the top of the well's inner casing or surveyed reference mark. The water level measurement will be recorded to the nearest 0.01 foot. The total depth of the well will then be measured from the top of the well's inner casing or surveyed reference mark to the bottom of the well. The total well depth measurements will be to the nearest 0.1 foot.

4.3.1.2 Existing Monitoring Well Network

The network of monitoring wells has been installed to monitor upgradient, on-Site and downgradient groundwater conditions at the Site. Site Groundwater samples will be collected from 12 of the existing monitoring wells: MW-4S, MW-5S, MW-6S, MW-8S, MW-9S, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, and MW-19. Table 3, Monitoring Well Specifications, summarizes the wells identification number, as well as the purpose, location, depths, diameter, and screened intervals of the wells. The remedial party will measure depth to the water table for each monitoring well in the network before sampling.

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

4.3.1.3 Monitoring Well Inspection

Inspection of monitoring wells during the Site inspections and/or sampling events will focus on the following areas:

- Concrete surface seal;
- Protective outer casing and lid;
- Locks and locking well caps; and
- Excessive silt in the well.

The integrity of the concrete surface seal will be visually assessed at each well location, and any loss of integrity, such as cracks or heaving, will be noted in the field notebook. Monitoring wells at the Site are stick-up type wells with a protective outer casing and lid. At each well, the protective outer casing and lid will be checked for damage. Any pooling of water or evidence of pooling of water adjacent to the protective outer casing will be recorded in the field notebook. The wells will be checked to verify that they are locked, and the integrity of the locking cap will be assessed. Any cracks in the locking caps or broken or missing locking caps will also be noted.

Excessive silt collected in the bottom of a well may affect the ability to collect a representative groundwater sample. Each sampling event will include an evaluation of the amount of silt collected in the bottom of the wells from which groundwater samples are collected. Measurements of the depth to silt will be taken prior to sampling, at the same time that groundwater level and total well depth measurements are made.

Monitoring wells will be considered excessively silted if the depth of the silt in the well equals or exceeds 10 percent of the screened length. For example, a well that contains 1 foot of silt with a well screen 10 feet in length would be calculated to have exactly 10 percent silt in the well and would require redevelopment.

Any problems noted during the inspection of the monitoring wells will be noted in the site inspection forms and photo documented. The condition will be reported to the NYSDEC as soon as possible. If required, repairs will be made in coordination with NYSDEC.

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

4.3.1.4 Monitoring Well Sampling

Groundwater samples will be collected from the monitoring wells using one of two methods: low flow sampling or passive diffusion bags (PDBs).

Low flow sampling techniques can be completed using a peristaltic or bladder pump. If a peristaltic pump is used, new or dedicated tubing shall be used for each well. For bladder pumps a new bladder shall be used for each well.

Consistent with the USEPA low-flow sampling guidance, the wells will be purged at a flow rate not to exceed 500 milliliters per minute (ml/min) and water quality parameters will be monitored. Purge water will be discharged to grade in the vicinity of the well. The samples will be collected into laboratory supplied vials once the water quality measurements have stabilized as outlined below:

- Temperature ± 3% of measurement
- pH ± 0.1 pH units
- Specific conductance ± 3% of measurement
- Redox ±10 mV
- DO ±10% of measurement
- Turbidity ± 10% of measurement

If passive diffusive bags (PDBs) are used, a new laboratory supplied PDB shall be placed into a well at least 2 weeks prior to collecting the sample for analysis. The PDB shall be centered within the water column if the well screen is partially saturated and centered within the screened interval if the screen is fully saturated. Provisions for QA/QC samples (field duplicate, MS and MSD) will require that more than one bag be placed into one or more wells to provide sufficient volume for analysis.

During sampling, each PDB bag is retrieved, pierced with a decontaminated sharp object and the water inside is transferred to laboratory-provided VOC vials. Excess water from the PDBs can be discharged to grade in the vicinity of the well. Following sample collection, a new PDB can be placed into the well for the next sampling event.

Groundwater samples will be collected in pre-preserved laboratory supplied sampling containers. Field quality assurance/quality control (QA/QC) samples consist of one blind field duplicate, one matrix spike (MS), one matrix spike duplicate (MSD) for each set of 20 samples, and trip blanks for each cooler. Samples will immediately be placed on ice in a cooler and transported under chain of custody to the analytical laboratory for analysis.

Samples shall be analyzed for TCL VOCs in accordance with USEPA Method 624 by a NYS ELAP-certified laboratory. The laboratory shall provide a data package consistent with NYS ASP Category B in electronic format (PDF). An electronic data deliverable (EDD) compatible with the NYS EQuIS® system and applicable valid values shall also be provided by the laboratory.

The analytical data package shall be reviewed by a data validator and a Data Useability Summary Report (DUSR) shall be prepared and submitted with the report.

Following receipt of the DUSR the data shall be uploaded into the NYSDEC EQuIS database.

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

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

4.3.2 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and/or associated sampling log as provided in Appendix 8 - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity) will be noted on the sampling log. The sampling log will serve as the inspection for the monitoring network. Additional details regarding monitoring and sampling protocols are provided in the QAPP provided as Appendix 7 of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This Operation and Maintenance Plan provides a brief description of the measures necessary to operate, monitor and maintain the components of the remedy selected for the Site. This Operation and Maintenance Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the Site to operate and maintain the vegetative buffer zones;
- Will be updated periodically to reflect changes in Site conditions or the manner in which the vegetative buffer zones are operated and maintained.

This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of this SMP. A copy of this complete SMP is to be maintained at the Site or brought to the Site during inspection or sampling events.

5.2 Landfill Soil Cover and Vegetative Buffer Zone Performance Criteria

The ECs at the Site have been installed as passive controls and as such there are no minimum operational requirements or numerical benchmark criteria associated with them. The vegetative buffer zones were installed to mitigate seeps and associated VOC migration from the landfill via groundwater and the soil cover was placed to minimize exposed waste.

5.3 Operation and Maintenance Requirements for Vegetative Buffer Zones

The following sections provide a description of the operations and maintenance of the vegetative buffer zones. Cut-sheets and as-built drawings for vegetative buffer zones are provided in Appendix 6.

5.3.1 Routine System Operation and Maintenance

5.3.1.1 Mowing and Weeding

Mowing/weeding will be conducted twice per year within the growing season. Mowing/weeding will be performed around the perimeter of the vegetative buffer zones, within the buffer zones only if necessary, around monitoring wells, and along the access roads leading to the vegetative buffer zones. Work activities will be performed in a manner that will not damage the vegetative soil cover and/or trees planted within the vegetative buffer zones. Appropriately sized equipment will be used to minimize excessive rutting or scouring of Site grounds during the work. Any trash or miscellaneous debris encountered on the ground surface during these activities will be collected and properly disposed off- Site.

Uncontrolled weed growth can inhibit tree growth within the buffer zones, promote insect infestation, and increase opportunities for fungal diseases. Weed control can be accomplished through mowing, hand pulling or herbicide use. NYSDEC approval will be obtained prior to the use of herbicides on the Site and applied per all federal, state, and local regulations

5.3.1.2 Insect and Animal Control

If defoliating and/or wood boring insects are positively identified, an insect control plan will be submitted to the NYSDEC for review and approval. If more than five percent of the trees have significant damage, insect damage will be addressed. Each problem will be evaluated on a case-by-case basis. In some instances, control of insects will be implemented through removal of diseased branches or trees. In rare cases, application of insecticides or other chemical amendments by licensed professionals may be necessary.

If, during routine inspections, excessive indications of infectious diseases (typically greater than 10 percent of the leaves) are noted, samples of diseased tissue will be collected for identification by a NYSDEC-approved laboratory. Root diseases will be determined by digging up an affected tree and looking for signs of rot and/or root system deformities. Once identified, a plant disease control plan will be submitted to the NYSDEC for review and approval within two weeks of sample collection. Each problem will be evaluated on a case-by-case basis. In some instances, control of infectious disease will be implemented through removal of diseased branches or trees. In rare cases, application of fungicides or other chemical amendments by licensed professionals may be necessary.

5.3.1.3 Pruning

Pruning of trees making up the vegetative buffer zones will be performed when branches are small in diameter. Pruning of the trees will be performed in accordance with American National Standards Institute (ANSI) A300 Part 1-2008 and ANSI Zl33.l-2006 regarding nationally accepted pruning techniques, which will be limited to the following:

- Removal of double leaders during the growing season;
- Removal of broken or damaged limbs to encourage wound closure;
- Thinning of the crown to increase airflow and reduce some pest problems;
- Removal of crossing and rubbing branches;
- Removal of any dead, diseased, or insect-infested portions of a tree; and

- Removal of branches close to the ground that may interfere with equipment access.

Light pruning will take place at any time of year, and pruning of dead, diseased, or insect-infested branches will be performed as soon as these conditions are observed. Heavier pruning, if needed, will be performed in late winter while the trees are dormant. To minimize the potential for disease transfer, the pruners will be sanitized between every five to ten trees.

5.3.1.4 Access Roads and Drainage Structures

The access roads are constructed of crusher run stone and may require on-going maintenance to limit erosion, deposition, differential subsidence, pothole development, and other adverse conditions that would impede vehicular traffic. If damage is observed, the NYSDEC will be notified, and a plan will be submitted for mitigation.

Since problems with drainage structures can vary in extent and location (i.e., ponding, overflowing, or clogging of culvert pipes), each drainage problem will be evaluated on a case-by-case basis. An action plan detailing the corrective measures to be taken to rectify drainage problems associated with access road culverts and drainage swales will be developed and submitted to NYSDEC for approval, prior to implementation of the remedy.

5.3.2 Non-Routine System Operation and Maintenance

5.3.2.1 Erosion and Deposition

Erosion-damaged areas will be repaired by placing NYSDEC approved clean fill material to within 0.5 feet bgs and then placing topsoil to a level matching surrounding grade. The topsoil should then be seeded to re-establish vegetative cover over the repaired area. Soil brought to the site for this purpose will need to meet the requirements for imported fill outlined in DER-10 as well as NYSDEC PFAS guidelines.

If erosion persists after repairs have been made, then alternate repair methods will be required. Placement of coarse rip-rap stone or other similar erosion controls measures may be required in persistent areas. A plan detailing the corrective measures to repair the damaged areas problem will be developed and submitted to NYSDEC for approval, prior to implementation of the remedy.

Corrective measures to areas with significant sediment accumulation will depend on the areal extent and thickness of the deposit. Since depositional events can vary in extent and location, each depositional problem will be evaluated on a case-by-case basis.

An action plan detailing the corrective measures to be taken to rectify the deposition problem will be developed and submitted to NYSDEC for approval, prior to implementation of the remedy.

5.3.2.2 Replanting

Upon observation of dead trees during the operation and maintenance period, the NYSDEC will be consulted on whether to replace the dead trees during the next growing season. Each issue will be evaluated on a case-by-case basis. If a dead tree is bordered by healthy trees which have created too much shade for a replant tree to grow, then this location may be left unplanted or relocated at the discretion of the NYSDEC. Tree transplanting guidelines set forth in ANSI A300 Part 6 (2005 Standards Practices for Tree Transplanting) will be followed.

5.3.2.3 Abiotic Stress

During Site inspections or maintenance activities, trees planted within the vegetative buffer zones will be inspected for physical signs of stress due to environmental factors (i.e., high winds, extreme temperatures, drought, floods, etc.). If abiotic stress conditions are observed, the NYSDEC will be notified and provided with possible recommendations for mitigation.

5.3.2.4 Monitoring Wells

If a monitoring well is determined to be excessively silted, it will be redeveloped to remove as much silt as possible. Monitoring well redevelopment will be conducted after required samples have been collected for the monitoring period. The monitoring wells will be developed by surging and pumping or other sufficient means. The monitoring wells will be developed until a turbidity of 50 nephelometric turbidity units (NTUs) or less is achieved or until field parameters, such as pH, specific conductance, turbidity and temperature, have stabilized. Water removed from the wells during well development will be discharged to the ground surface in the vicinity of the wells.

If a monitoring well has been damaged, but deemed repairable, an action plan detailing the corrective measures to rectify the problem will be developed and submitted to NYSDEC for approval, prior to implementation of the remedy. Typically, surface freeze and thaw cycles tend to damage wellheads (i.e., steel standpipes/roadboxes and associated concrete pads) and eventually require repair or replacement. Less often, wellheads are damaged due to impacts by vehicular traffic or construction equipment. Repairs/replacements will be limited to surficial features of the well, since subsurface damage to monitoring wells (i.e., cracking of casing or screen due to rupture from bridging and differential stress of subsurface materials) requires well replacement.

Damaged wellheads will be replaced with in-kind materials consisting of an appropriately sized standpipe or flush-mount steel curb box set in a concrete seal formed 2 feet in diameter extending to a depth of approximately 1-foot bgs. The top outer edge of the concrete pad will be flush with the ground. An internal grout collar will be placed in the annular space between the inner casing and the outer protective casing. Keyed alike locks will be used to secure the outer lids of the protective casings of the wells.

Damaged monitoring wells will be replaced in-kind. Monitoring wells will be installed using 4 1/4-inch ID hollow stem augers. Split spoon samples will be collected and evaluated from overburden material above competent bedrock for each well. Wells will be constructed using 2-inch ID Schedule 40 PVC 0.010-inch slot screens and 2-inch ID Schedule 40 PVC riser pipe. During construction of the wells, the augers will be removed during the installation of the sand. Due to the shallow water table and depth to bedrock on-Site, wells may be constructed with the tops of screens as shallow as 3 feet below the ground surface. Sand pack will be placed in the annulus between the borehole wall and the well screen extending from the well bottom to at least one-foot above the top of the screen and at least one-foot of bentonite seal will be placed above the sand pack. Expansion caps will be installed on the well riser pipes and a lockable protective steel casing will be installed in the concrete surface pad.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

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

This section provides a summary of vulnerability assessments that will be conducted for the Site during periodic assessments, and briefly summarizes the vulnerability of the Site and/or engineering controls to severe storms/weather events and associated flooding.

The Site is not located in a FEMA flood zone, see Appendix 9, FIRMette Site Map. The Site is located within a forested area and includes no mapped streams. The Site is not within a wetland and it is considered to be a 'dry' area. There is a 10-acre pond on Site which would be the area most likely to flood during a severe storm event. Fencing around vegetative buffer zones may be susceptible to damage during high wind events. Tree cover is dense within the buffer zones, and trees falling on fencing may be a concern if a high wind event were to occur. Site Inspection Forms are included as Appendix 8 and provide guidance to monitor for these potential issues.

6.2 Green Remediation Evaluation

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

In relation to the implementation/operation and maintenance of the selected remedy, there are minimal concerns surrounding green remediation. The selected remedy does not generate any waste. Limited amounts of energy are used to operate and maintain the remedy, with the highest energy contributor as fuel for trucks and equipment to move around the Site. Related emissions would come also come from equipment used during transportation to and from the Site, and no water usage is predicted for operation and maintenance.

6.2.1 Timing of Green Remediation Evaluations

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

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

6.2.2 Frequency of System Checks, Sampling and Other Periodic Activities

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

6.2.3 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix 8 – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during Site management and to identify corresponding benefits.

6.3 Remedial System Optimization

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

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;

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

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

The RSO study will focus on overall Site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to Site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO. An outline of an RSO is included in Appendix 10.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspection, maintenance and monitoring events will be recorded on the appropriate Site management forms provided in Appendix 8. These forms are subject to NYSDEC revision. All Site management inspection, maintenance, and monitoring events will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 8 and summarized in the Periodic Review Report.

Table 8: Schedule of Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection Report	Annually
Periodic Review Report	Every third year or as otherwise determined by the NYSDEC

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

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

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;

- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.
- Routine maintenance event reporting forms will include, at a minimum:
- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).
- Non-routine maintenance event reporting forms will include, at a minimum:
- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuISTM database in accordance with the requirements found at this link:

http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the NYSDEC project manager beginning sixteen (16) months after the SMP is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted every third year to the

NYSDEC project manager or at another frequency as may be required by the NYSDEC project manager. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.
- Results of the required annual Site inspections, fire inspections and severe condition inspections, if applicable.
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted. Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends, including but not limited to:
  - Trend monitoring graphs that present groundwater contaminant levels from before the start of the remedy implementation to the most current sampling data;
  - Trend monitoring graphs depicting system influent analytical data on a per event and cumulative basis;
  - O&M data summary tables;
  - A current plume map for Sites with remaining groundwater contamination; and
  - A groundwater elevation contour map for each gauging event.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC.

Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link:

- http://www.dec.ny.gov/chemical/62440.html.
- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the Site-specific ROD (NYSDEC), 2001;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan;
  - An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the ROD (NYSDEC), 2001); and − The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice and registered in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;*

- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the Site is compliant with the Deed Restriction;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] (and if the Site consists of multiple properties): [I have been authorized and designated by all Site owners/remedial parties to sign this certification] for the Site."

If NYSDEC DER-10 requires a Professional Engineering certification, add the following certification:

"I certify that the New York State Education Department has granted a Certificate of

Authorization to provide Professional Engineering services to the firm that prepared this Periodic Review Report."

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

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager. The Periodic Review Report may also need to be submitted in hard-copy format if requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

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

7.4 Remedial Site Optimization Report

If an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the NYSDEC project manager for approval. A general outline for the RSO report is provided in Appendix 11. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual Site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager.

8.0 REFERENCES

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

Deed Restriction, (New York State Department of Environmental Conservation (NYSDEC), 2015)

Final Remediation Report (FRR) Trimmer Road Landfill Site Operable Unit 1, Dvirka and Bartilucci Consulting Engineers (D&B), 2009 (D&B,2009a)

Geologic Map of New York State, consisting of 5 sheets: Niagara, Finger Lakes, Hudson-Mohawk, Adirondack, and Lower Hudson, New York State Museum and Science Service, Map and Chart Series No. 15, Scale 1:250,000, Fisher, D.W., Isachsen, Y.W., and Rickard, L.V., 1970

National Flood Hazard Layer FIRMette (FIRMette) (fema.gov, October 2022).

Niagara Sheet of the Surficial Geologic Map of New York, Cadwell, D.H., Connally, G.G., Fleisher, P.J., and Muller, E.H., 1991

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

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

Pre-Design Investigation Report, Trimmer Road Landfill Site Operable Unit 01, Town of Parma, Monroe County New York; Dvirka and Bartilucci Consulting Engineers (D&B), April 2005. (D&B, 2005)

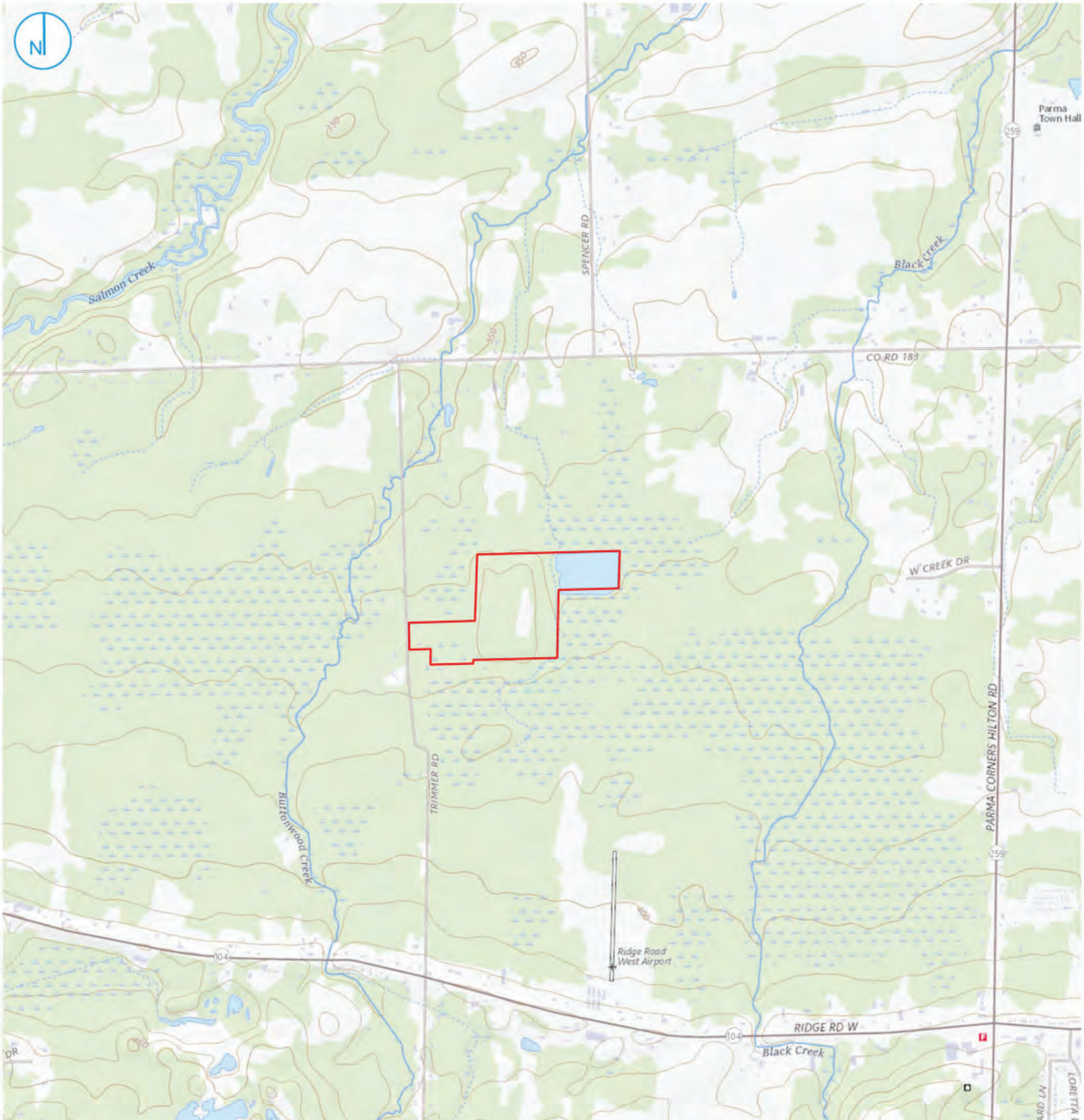
Record of Decision (ROD) Trimmer Road Landfill Site, Parma (T), Monroe County, New York Site Number 8-28-012; New York State Department of Environmental Conservation (NYSDEC), 2001

Remedial Investigation (RI) Report Trimmer Road Landfill Site; Dvirka and Bartilucci Consulting Engineers (D&B), February 2001. (D&B, 2001)

Site Management Plan (SMP), Trimmer Road Landfill Site Operable Unit 1, Dvirka and Bartilucci Consulting Engineers (D&B), August 2009. (D&B, 2009b)

Site Update & Historical Summary Report, Trimmer Road Landfill Site # 8-28-012, Groundwater Environmental Services (GES), January 6, 2015. (GES, 2015)

FIGURES



Service Layer Credits: USGSTopo: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022.

K:\NYS-DEC.1087815\1940100156.NYSDEC-Trimmer-Road-\Docs\DWG\PRO\Trimmer_Road\Trimmer_Road.aprx\Site_Location

PROJECT: 1690001940100156 | DATED: 10/5/2022 | DESIGNER: SSOULE

Map Scale: 1:24,000 | Map Center: 77°48'57"W 43°14'1"N

SITE LOCATION

FIGURE 01

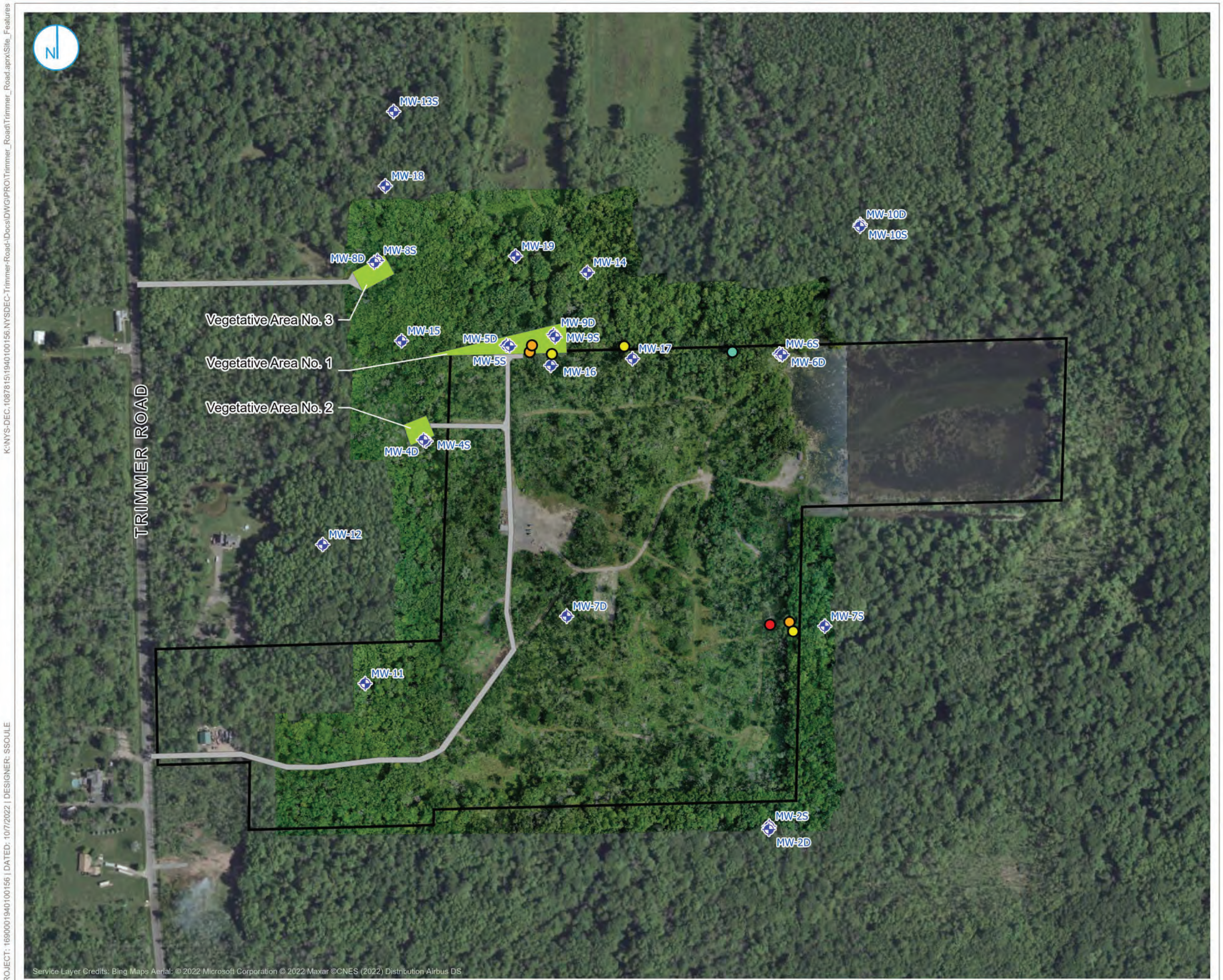
KEY MAP (not to scale)

0 1,000 2,000 Feet

Trimmer Road Landfill
Town of Parma, New York

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL



CAP PENETRATION
IRON STAINING
ROCK WALL
SWALE
MONITORING WELL
VEGETATIVE BUFFER AREA
GRAVEL ACCESS DRIVE
APROXIMATE PROPERTY BOUNDARY

Notes:
1. Gravel access roads and vegetative buffer areas georeferenced from As Built Plan.

0 150 300 Feet

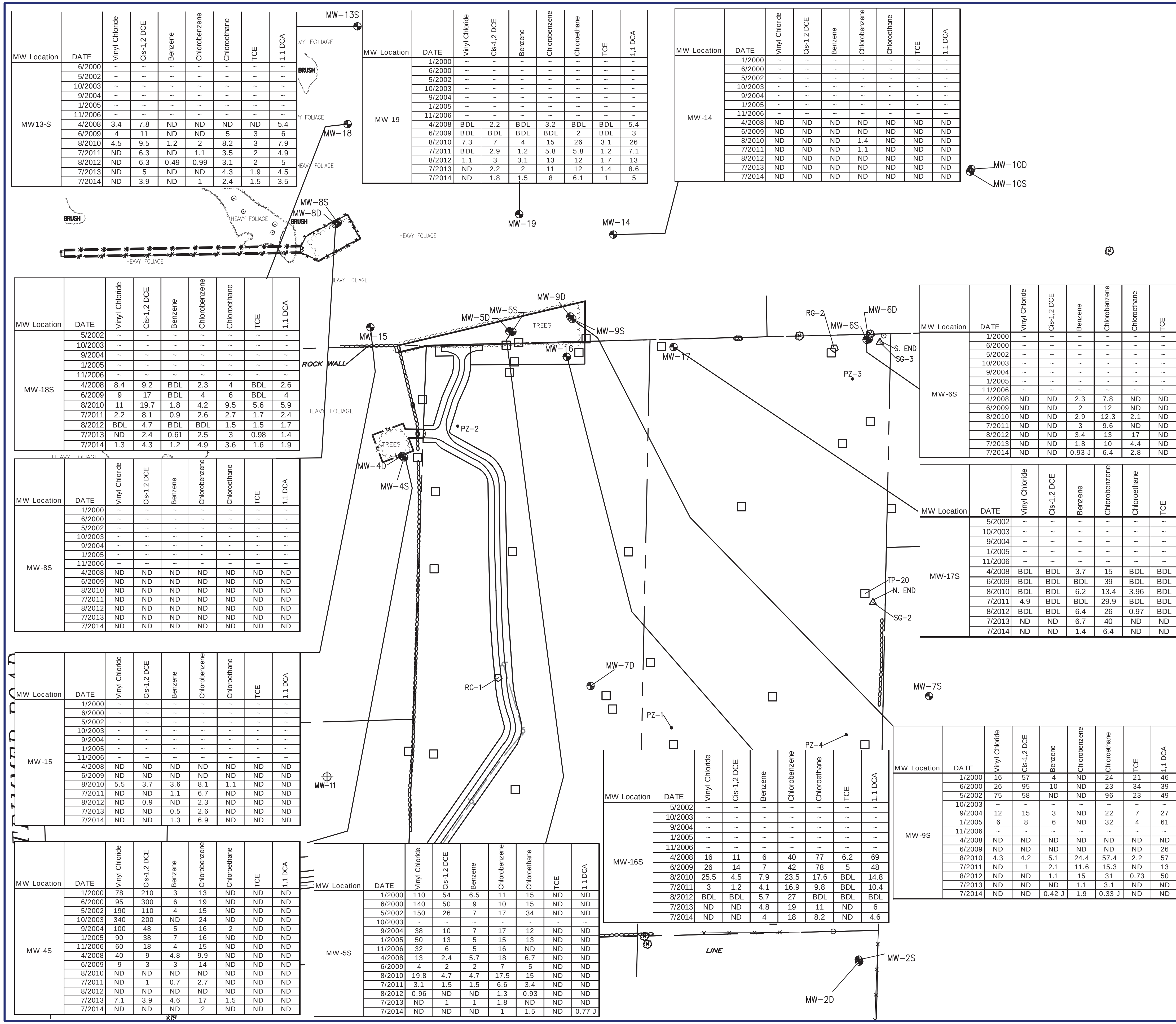
SITE FEATURES

Trimmer Road Landfill
Town of Parma, New York

FIGURE 02

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

FIGURE 3 - GROUNDWATER RESULTS MAP
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: FIGURE 3, SITE UPDATE AND HISTORICAL SUMMARY REPORT, GES 2015



MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW13-S	6/2000	~	~	~	~	~	~	~
	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	3.4	7.8	ND	ND	ND	ND	5.4
	6/2009	4	11	ND	ND	5	3	6
	8/2010	4.5	9.5	1.2	2	8.2	3	7.9
	7/2011	ND	6.3	ND	1.1	3.5	2	4.9
	8/2012	ND	6.3	0.49	0.99	3.1	2	5
	7/2013	ND	5	ND	ND	4.3	1.9	4.5
	7/2014	ND	3.9	ND	1	2.4	1.5	3.5

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-19	1/2000	~	~	~	~	~	~	~
	6/2000	~	~	~	~	~	~	~
	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	BDL	2.2	BDL	3.2	BDL	BDL	5.4
	6/2009	BDL	BDL	BDL	BDL	2	BDL	3
	8/2010	7.3	7	4	15	26	3.1	26
	7/2011	BDL	2.9	1.2	5.8	5.8	1.2	7.1
	8/2012	1.1	3	3.1	13	12	1.7	13
	7/2013	ND	2.2	2	11	12	1.4	8.6
	7/2014	ND	1.8	1.5	8	6.1	1	5

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-14	1/2000	~	~	~	~	~	~	~
	6/2000	~	~	~	~	~	~	~
	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	ND	ND	ND	ND	ND	ND	ND
	6/2009	ND	ND	ND	ND	ND	ND	ND
	8/2010	ND	ND	ND	1.4	ND	ND	ND
	7/2011	ND	ND	ND	1.1	ND	ND	ND
	8/2012	ND	ND	ND	ND	ND	ND	ND
	7/2013	ND	ND	ND	ND	ND	ND	ND
	7/2014	ND	ND	ND	ND	ND	ND	ND

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-18S	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	8.4	9.2	BDL	2.3	4	BDL	2.6
	6/2009	9	17	BDL	4	6	BDL	4
	8/2010	11	19.7	1.8	4.2	9.5	5.6	5.9
	7/2011	2.2	8.1	0.9	2.6	2.7	1.7	2.4
	8/2012	BDL	4.7	BDL	BDL	1.5	1.5	1.7
	7/2013	ND	2.4	0.61	2.5	3	0.98	1.4
	7/2014	1.3	4.3	1.2	4.9	3.6	1.6	1.9

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-8S	1/2000	~	~	~	~	~	~	~
	6/2000	~	~	~	~	~	~	~
	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	ND	ND	ND	ND	ND	ND	ND
	6/2009	ND	ND	ND	ND	ND	ND	ND
	8/2010	ND	ND	ND	ND	ND	ND	ND
	7/2011	ND	ND	ND	ND	ND	ND	ND
	8/2012	ND	ND	ND	ND	ND	ND	ND
	7/2013	ND	ND	ND	ND	ND	ND	ND
	7/2014	ND	ND	ND	ND	ND	ND	ND

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-15	1/2000	~	~	~	~	~	~	~
	6/2000	~	~	~	~	~	~	~
	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	ND	ND	ND	ND	ND	ND	ND
	6/2009	ND	ND	ND	ND	ND	ND	ND
	8/2010	5.5	3.7	3.6	8.1	1.1	ND	ND
	7/2011	ND	ND	1.1	6.7	ND	ND	ND
	8/2012	ND	0.9	ND	2.3	ND	ND	ND
	7/2013	ND	ND	0.5	2.6	ND	ND	ND
	7/2014	ND	ND	1.3	6.9	ND	ND	ND

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-4S	1/2000	78	210	3	13	ND	ND	ND
	6/2000	95	300	6	19	ND	ND	ND
	5/2002	190	110	4	15	ND	ND	ND
	10/2003	340	200	ND	24	ND	ND	ND
	9/2004	100	48	5	16	2	ND	ND
	1/2005	90	38	7	16	ND	ND	ND
	11/2006	60	18	4	15	ND	ND	ND
	4/2008	40	9	4.8	9.9	ND	ND	ND
	6/2009	9	3	3	14	ND	ND	ND
	8/2010	ND	ND	ND	ND	ND	ND	ND
	7/2011	ND	1	0.7	2.7	ND	ND	ND
	8/2012	ND	ND	ND	ND	ND	ND	ND
	7/2013	7.1	3.9	4.6	17	1.5	ND	ND
	7/2014	ND	ND	ND	2	ND	ND	ND

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-5S	1/2000	110	54	6.5	11	15	ND	ND
	6/2000	140	50	9	10	15	ND	ND
	5/2002	150	26	7	17	34	ND	ND
	10/2003	~	~	~	~	~	~	~
	9/2004	38	10	7	17	12	ND	ND
	1/2005	50	13	5	15	13	ND	ND
	11/2006	32	6	5	16	ND	ND	ND
	4/2008	13	2.4	5.7	18	6.7	ND	ND
	6/2009	4	2	2	7	5	ND	ND
	8/2010	19.8	4.7	4.7	17.5	15	ND	ND
	7/2011	3.1	1.5	1.5	6.6	3.4	ND	ND
	8/2012	0.96	ND	ND	1.3	0.93	ND	ND
	7/2013	ND	1	1	1.8	ND	ND	ND
	7/2014	ND	ND	ND	1	1.5	ND	0.77 J

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-16S	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	16	11	6	40	77	6.2	69
	6/2009	26	14	7	42	78	5	48
	8/2010	25.5	4.5	7.9	23.5	17.6	BDL	14.8
	7/2011	3	1.2	4.1	16.9	9.8	BDL	10.4
	8/2012	BDL	BDL	5.7	27	BDL	BDL	BDL
	7/2013	ND	ND	4.8	19	11	ND	6
	7/2014	ND	ND	4	18	8.2	ND	4.6

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-9S	1/2000	16	57	4	ND	24	21	46
	6/2000	26	95	10	ND	23	34	39
	5/2002	75	58	ND	ND	96	23	49
	10/2003	~	~	~	~	~	~	~
	9/2004	12	15	3	ND	22	7	27
	1/2005	6	8	6	ND	32	4	61
	11/2006	~	~	~	~	~	~	~
	4/2008	ND	ND	ND	ND	ND	ND	ND
	6/2009	ND	ND	ND	ND	ND	ND	26
	8/2010	4.3	4.2	5.1	24.4	57.4	2.2	57
	7/2011	ND	1	2.1	11.6	15.3	ND	13
	8/2012	ND	ND	1.1	15	31	0.73	50
	7/2013	ND	ND	ND	1.1	3.1	ND	ND
	7/2014	ND	ND	0.42 J	1.9	0.33 J	ND	ND

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-6S	1/2000	~	~	~	~	~	~	~
	6/2000	~	~	~	~	~	~	~
	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	ND	ND	2.3	7.8	ND	ND	ND
	6/2009	ND	ND	2	12	ND	ND	ND
	8/2010	ND	ND	2.9	12.3	2.1	ND	ND
	7/2011	ND	ND	3	9.6	ND	ND	ND
	8/2012	ND	ND	3.4	13	17	ND	ND
	7/2013	ND	ND	1.8	10	4.4	ND	ND
	7/2014	ND	ND	0.93 J	6.4	2.8	ND	ND

MW Location	DATE	Vinyl Chloride	Cis-1,2 DCE	Benzene	Chlorobenzene	Chloroethane	TCE	1,1 DCA
MW-17S	5/2002	~	~	~	~	~	~	~
	10/2003	~	~	~	~	~	~	~
	9/2004	~	~	~	~	~	~	~
	1/2005	~	~	~	~	~	~	~
	11/2006	~	~	~	~	~	~	~
	4/2008	BDL	BDL	3.7	15	BDL	BDL	BDL
	6/2009	BDL	BDL	BDL	39	BDL	BDL	BDL
	8/2010	BDL	BDL	6.2	13.4	3.96	BDL	4.3
	7/2011	4.9	BDL	BDL	29.9	BDL	BDL	BDL
	8/2012	BDL	BDL	6.4	26	0.97	BDL	1
	7/2013	ND	ND	6.7	40	ND	ND	ND
	7/2014	ND	ND	1.4	6.4	ND	ND	ND

LEGEND

- PROPERTY BOUNDARY
- FENCE
- ROCK WALL
- RG– RAIN GUAGE
- SG– STAFF GUAGE
- UTILITY POLE
- MONITORING WELL
- PZ– PIEZOMETER
- CP–CORNER OF TEST PLOT

cis1,2–DCE CIS1,2–DICHLOROETHENE
TCE TRICHLOROETHENE
1,1–DCA 1,1–DICHLOROETHANE
ND NOT DETECTED
BDL BELOW DETECTION LIMIT
~ NOT AVAILABLE

NOTE:
-Analytical data prior to 8/2010 was provided to GES by the NYSDEC.
-Analytical data from 8/2010 to 7/2014 was collected by GES.

DRAFTED BY: E.M.E. (N.J.)
CHECKED BY: KS
REVIEWED BY: DS
NORTH

GROUNDWATER MONITORING MAP (HISTORICAL)

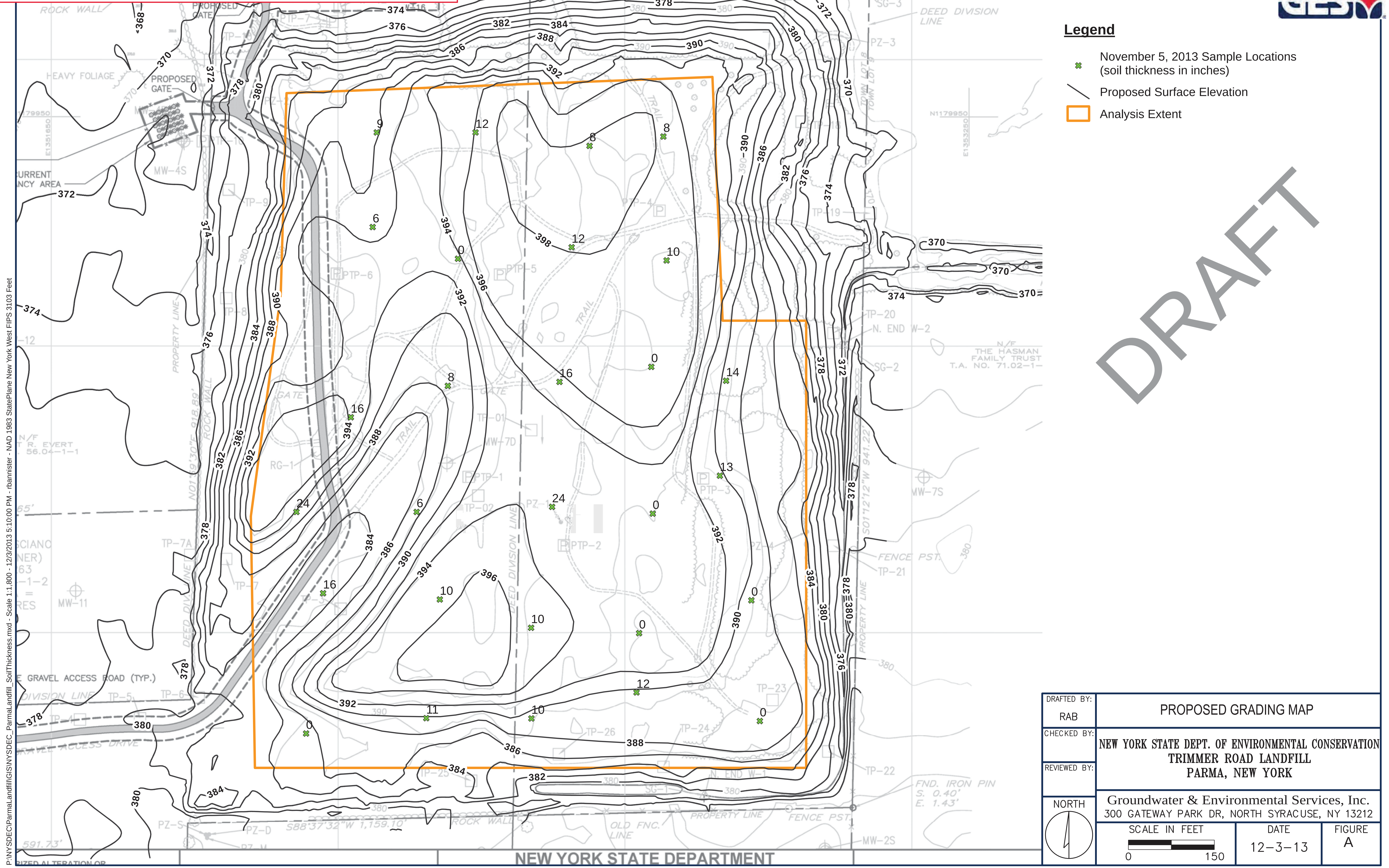
NYSDEC
TRIMMER ROAD LANDFILL
SITE # 82-8012
PARMA, NEW YORK

Groundwater & Environmental Services, Inc.
300 GATEWAY PARK DRIVE, NORTH SYRACUSE, NY 13212

SCALE IN FEET 0 APPROXIMATE 250
DATE 9-5-14
FIGURE 3

M:\Graphics\0600-Syracuse\Misc\NYSDEC\Parma (Trimmer Landfill)\Parma (Trimmer Landfill) SM.dwg, B-250, 9/5/2014 11:51:25 AM, EEdwards

FIGURE 4 - LANDFILL BOUNDARY
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: FIGURE A, SITE UPDATE AND HISTORICAL SUMMARY REPORT, GES 2015



TABLES

Table 2

Groundwater Elevations and Groundwater Quality Data
Trimmer Road Landfill
Parma, NY

Monitoring Well	Date	Casing Elev. (ft.)	Depth to Water (ft.)	GW Elevation (ft)	1,2-dichloropropane	acetone	benzene	bromochloromethane	bromodichloromethane	bromoform	bromomethane	2-butanone	carbon disulfide	carbon tetrachloride	chlorobenzene	chloroethane	chloroform	chloromethane	2-chlorotoluene	4-chlorotoluene	dibromochloromethane	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	dichlorodifluoromethane	1,1-dichloroethane	1,2-dichloroethane	1,1-dichloroethene	cis- 1,2 - dichloroethene	trans- 1,2- dichloroethene	cis- 1,3- dichloropropene
CAS Number					78-87-5	67-64-1	71-43-2	74-97-5	75-27-4	75-25-2	74-83-9	78-93-3	75-15-0	56-23-5	108-90-7	75-00-3	67-66-3	74-87-3	95-49-8	106-43-4	124-48-1	95-50-1	541-73-1	106-46-7	75-71-8	75-34-3	107-06-2	75-35-4	156-59-2	156-60-5	10061-01-5
NYSDEC TOGS 1.1.1 GWQS					**NA**	**50**	**1**	**5**	**50**	**50**	**5**	**NA**	**NA**	**0.4**	**5**	**5**	**7**	**NA**	**NA**	**NA**	**50**	**NA**	**NA**	**NA**	**5**	**5**	**NA**	**0.7**	**5**	**5**	**0.4**
MW-4S	7/29/2010	14.66	2.90	11.76	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	14.66	4.43	10.23	ND<1	ND<5	ND<0.7	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
	6/2/2011	14.66	2.01	12.65	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	14.66	3.87	10.79	~	ND<6.5	0.7	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	2.7	ND<1.3	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	0.7	ND<1.7	ND<0.6	ND<0.6	ND<1.0	1.0	ND<0.8	ND<0.4
	7/11/2012	14.66	6.28	8.38	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	14.66	7.31	7.35	ND<1	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	14.66	1.89	12.77	ND<1.0	ND<10	4.6	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**17**	1.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2.9	ND<1.0	ND<1.0	ND<1.0	ND<1.0	3.9	ND<1.0	ND<1.0
	5/30/2014	14.66	2.19	12.47	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	14.66	2.34	12.32	ND<1.0	**56**	ND<1.0	~	ND<1.0	ND<1.0	ND<1.0	3.3 J	ND<1.0	ND<1.0	2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-5S	7/29/2010	26.83	5.16	21.67	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	26.83	7.76	19.07	ND<1	ND<5	**7.57**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**17.5**	**15**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	2.57	1.25	ND<1	ND<1	ND<1	4.75	ND<1	ND<1
	6/2/2011	26.83	3.18	23.65	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	26.83	5.38	21.45	~	ND<6.5	**2.0**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**6.6**	3.4	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	1.1	ND<1.7	ND<0.6	ND<0.6	ND<1.0	1.5	ND<0.8	ND<0.4
	7/11/2012	26.83	8.85	17.98	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	26.83	8.70	18.13	ND<1	ND<10	0.53 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	1.3	0.93 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	26.83	3.03	23.80	ND<1.0	ND<10	0.65 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	1.8	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1	ND<1.0	ND<1.0
	5/30/2014	26.83	3.72	23.11	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	26.83	4.49	22.34	ND<1.0	**54**	ND<1.0	~	ND<1.0	ND<1.0	ND<1.0	4.1 J	ND<1.0	ND<1.0	1.0	1.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.77 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-6S	7/29/2010	27.24	5.26	21.98	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	27.24	4.73	22.51	ND<1	ND<5	**2.87**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**12.3**	2.12	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.88	1.71	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
	6/2/2011	27.24	3.06	24.18	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	27.24	5.26	21.98	~	ND<6.5	**3.0**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**9.6**	ND<1.3	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	1.6	ND<1.7	ND<0.6	ND<0.6	ND<1.0	ND<0.6	ND<0.8	ND<0.4
	7/11/2012	27.24	7.88	19.36	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	27.24	7.35	19.89	ND<1	ND<10	**3.4**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**13**	**17**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.7	ND<1.0	0.56 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	27.24	3.08	24.16	ND<1.0	ND<10	**1.8**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**10**	**4.4**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	27.24	5.94	21.30	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	27.24	3.92	23.32	ND<1.0	**58**	0.93 J	~	ND<1.0	ND<1.0	ND<1.0	5.6 J	ND<1.0	ND<1.0	**6.4**	2.8	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-8S	7/29/2010	16.86	3.35	13.51	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	16.86	3.49	13.37	ND<1	ND<5	ND<0.7	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
	6/2/2011	16.86	2.91	13.95	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	16.86	3.94	12.92	~	ND<6.5	ND<0.7	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	ND<0.6	ND<1.3	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	ND<0.6	ND<1.7	ND<0.6	ND<0.6	ND<1.0	ND<0.6	ND<0.8	ND<0.4
	7/11/2012	16.86	6.48	10.38	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	16.86	9.05	7.81	ND<1	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	16.86	2.48	14.38	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	16.86	5.80	11.06	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	16.86	3.55	13.31	ND<1.0	**65**	ND<1.0	~	ND<1.0	ND<1.0	ND<1.0	5.5 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-9S	7/29/2010	16.80	6.07	10.73	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	16.80	7.57	9.23	ND<1	ND<5	**5.13**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**24.4**	**57.4**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	2.89	ND<1	**57**	ND<1	ND<1	4.2	ND<1	ND<1
	6/2/2011	16.80	4.13	12.67	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	16.80	7.30	9.50	~	ND<6.5	**2.1**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**11.6**	**15.3**	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	1.7	ND<1.7	**13.0**	ND<0.6	ND<1.0	1.0	ND<0.8	ND<0.4
	7/11/2012	16.80	9.36	7.44	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	16.80	9.99	6.81	ND<1	ND<10	**1.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**15**	**31**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2.6	ND<1.0	**50.0**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	16.80	3.18	13.62	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**1.1**	**3.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	16.80	4.06	12.74	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	16.80	5.69	11.11	ND<1.0	49	0.42 J	~	ND<1.0	ND<1.0	ND<1.0	6.1 J	ND<1.0	ND<1.0	1.9	0.33 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-13	7/29/2010	19.99	4.60	15.39	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	19.99	5.72	14.27	ND<1	ND<5	**1.18**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	1.97	**8.24**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	**7.91**	ND<1	ND<1	**9.48**	ND<1	ND<1
	6/2/2011	19.99	3.36	16.63	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	19.99	5.47	14.52	~	ND<6.5	ND<0.7	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	1.1	3.5	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	ND<0.6	ND<1.7	4.9	ND<0.6	ND<1.0	**6.3**	ND<0.8	ND<0.4
	7/11/2012	19.99	8.62	11.37	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	19.99	10.81	9.18	ND<1	ND<10	0.49 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	0.99 J	3.1	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	**5**	ND<1.0	ND<1.0	**6.3**	ND<1.0	ND<1.0
	7/5/2013	19.99	2.78	17.21	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	4.3	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	4.5	ND<1.0	ND<1.0	**5**	ND<1.0	ND<1.0
	5/30/2014	19.99	4.12	15.87	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	19.99	4.65	15.34	ND<1.0	47	ND<1.0	~	ND<1.0	ND<1.0	ND<1.0	4.4 J	ND<1.0	ND<1.0	1.0	2.4	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	3.5	ND<1.0	ND<1.0	3.9	ND<1.0	ND<1.0
MW-14	7/29/2010	19.08	6.45	12.63	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	19.08	8.07	11.01	ND<1	ND<5	ND<0.7	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	1.38	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
	6/2/2011	19.08	4.80	14.28	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	19.08	7.72	11.36	~	ND<6.5	ND<0.7	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	1.1	ND<1.3	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	ND<0.6	ND<1.7	ND<0.6	ND<0.6	ND<1.0	ND<0.6	ND<0.8	ND<0.4
	7/11/2012	19.08	11.45	7.63	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	19.08	12.30	6.78	ND<1	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	19.08	4.45	14.63	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	19.08	5.93	13.15	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	19.08	6.88	12.20	ND<1.0	**58**	ND<1.0	~	ND<1.0	ND<1.0	ND<1.0	4.8 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-15	7/29/2010	15.50	7.02	8.48	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	15.50	8.24	7.26	ND<1	5.43	**3.58**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**8.11**	1.14	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	3.7	ND<1	ND<1
	6/2/2011	15.50	4.57	10.93	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	15.50	7.60	7.90	~	ND<6.5	**1.1**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**6.7**	ND<1.3	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	0.7	0.7	ND<1.7	ND<0.6	ND<0.6	ND<1.0	ND<0.6	ND<0.8	ND<0.4
	7/11/2012	15.50	9.61	5.89	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	15.50	10.40	5.10	ND<1	ND<10	0.89 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	2.3	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	15.50	4.08	11.42	ND<1.0	ND<10	0.5 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	2.6	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	15.50	5.51	9.99	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	15.50	7.03	8.47	ND<1.0	**67**	**1.3**	~	ND<1.0	ND<1.0	ND<1.0	4.5 J	ND<1.0	ND<1.0	**6.9**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-16	7/29/2010	18.50	5.93	12.57	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	18.50	6.66	11.84	ND<1	6.24	**7.9**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**23.5**	**17.6**	ND<1	1.04	ND<1	ND<1	ND<1	ND<1	ND<1	2.87	1.01	**14.8**	ND<1	ND<1	4.49	ND<1	ND<1
	6/2/2011	18.50	4.48	14.02	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	18.50	6.09	12.41	~	ND<6.5	**4.1**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**16.9**	**9.8**	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	0.7	ND<0.5	2.6	ND<1.7	**10.4**	ND<0.6	ND<1.0	1.2	ND<0.8	ND<0.4
	7/11/2012	18.50	7.90	10.60	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	18.50	8.46	10.04	ND<1	ND<10	**5.7**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**27**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2.2	ND<1.0	7.1	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	18.50	4.68	13.82	ND<1.0	ND<10	**4.8**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**19**	**11**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2.6	ND<1.0	**6**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	18.50	4.90	13.60	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	18.50	5.69	12.81	ND<1.0	**64**	**4.0**	~	ND<1.0	ND<1.0	ND<1.0	4.9 J	ND<1.0	ND<1.0	**18**	**8.2**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.81 J	ND<1.0	2.7	ND<1.0	4.6	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-17	7/29/2010	18.50	7.56	10.94	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	18.50	8.67	9.83	ND<1	ND<5	**6.24**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**13.4**	3.96	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.72	3.8	**4.31**	ND<1	ND<1	ND<1	ND<1	ND<1
	6/2/2011	18.50	5.72	12.78	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	18.50	7.75	10.75	~	ND<6.5	**4.9**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**29.9**	ND<1.3	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	0.5	ND<0.5	4.0	ND<1.7	ND<0.6	ND<0.6	ND<1.0	ND<0.6	ND<0.8	ND<0.4
	7/11/2012	18.50	10.20	8.30	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	18.50	10.83	7.67	ND<1	ND<10	**6.4**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**26**	0.97 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.97 J	ND<1.0	4.6	ND<1.0	1	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	7/5/2013	18.50	5.87	12.63	ND<1.0	ND<10	**6.7**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**40**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	4.2	4.1	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	5/30/2014	18.50	7.78	10.72	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	18.50	7.11	11.39	ND<1.0	**60**	**1.4**	~	ND<1.0	ND<1.0	ND<1.0	5.2 J	ND<1.0	ND<1.0	**6.4**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
MW-18	7/29/2010	15.50	5.29	10.21	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	15.50	6.68	8.82	ND<1	ND<5	**1.8**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	4.19	**9.48**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	**5.92**	ND<1	ND<1	**19.7**	ND<1	ND<1
	6/2/2011	15.50	3.96	11.54	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	15.50	6.38	9.12	~	ND<6.5	0.9	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	2.6	2.7	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	ND<0.6	ND<1.7	2.4	ND<0.6	ND<1.0	**8.1**	ND<0.8	ND<0.4
	7/11/2012	15.50	9.68	5.82	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	15.50	10.77	4.73	ND<1	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	ND<1.0	1.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.7	ND<1.0	ND<1.0	4.7	ND<1.0	ND<1.0
	7/5/2013	15.50	3.48	12.02	ND<1.0	ND<10	0.61 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	2.5	3	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.4	ND<1.0	ND<1.0	2.4	ND<1.0	ND<1.0
	5/30/2014	15.50	4.37	11.13	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	15.50	5.52	9.98	ND<1.0	**57**	**1.2**	~	ND<1.0	ND<1.0	ND<1.0	2.2 J	0.81 JB	ND<1.0	4.9	3.6	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.9	ND<1.0	ND<1.0	4.3	ND<1.0	ND<1.0
MW-19	7/29/2010	15.50	6.02	9.48	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	15.50	7.58	7.92	ND<1	ND<5	**3.99**	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	**15.3**	**25.8**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	1.86	ND<1	**26.3**	ND<1	ND<1	**6.96**	ND<1	ND<1
	6/2/2011	15.50	4.37	11.13	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	15.50	7.31	8.19	~	ND<6.5	**1.2**	ND<0.6	ND<0.4	ND<0.6	ND<1.5	ND<3.0	ND<1.1	ND<0.9	**5.8**	**5.8**	ND<0.9	ND<1.1	ND<0.5	ND<0.5	ND<0.5	ND<0.4	ND<0.5	0.9	ND<1.7	1.7	ND<0.6	ND<1.0	2.9	ND<0.8	ND<0.4
	7/11/2012	15.50	10.88	4.62	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	15.50	11.78	3.72	ND<1	ND<10	**3.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**13**	**12**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.5	ND<1.0	**13**	ND<1.0	ND<1.0	3	ND<1.0	ND<1.0
	7/5/2013	15.50	4.06	11.44	ND<1.0	ND<10	**2**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<10	ND<1.0	ND<1.0	**11**	**12**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.6	ND<1.0	**8.6**	ND<1.0	ND<1.0	2.2	ND<1.0	ND<1.0
	5/30/2014	15.50	5.45	10.05	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	15.50	6.31	9.19	ND<1.0	**72**	**1.5**	~	ND<1.0	ND<1.0	ND<1.0	5.2 J	ND<1.0	ND<1.0	**8.0**	**6.1**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.4	ND<1.0	5.0	ND<1.0	ND<1.0	1.8	ND<1.0	ND<1.0

Notes:
All Concentrations Reported in Micrograms Per Liter (µg/L)
ND< = Not detected at or above the MDL.
MDL = method detection limit
~ = Not Sampled
NA= Not Available or not analyzed for that specific compound
BTEX= Benzene, toluene, ethylbenzene, xylenes

MTBE= Methyl tertiary butyl ether
TOGS= Technical and Operational Guidance Series 1.1.1
Bold type indicates that compound exceedes TOGS 1.1.1 limit.
GWQS= Groundwater Quality Standards
J = Results is less than the RL but greater than or equal to the MDL and the concentration is an approximate value

Source: APPENDIX E, TABLE E-1, FINAL REMEDIATION REPORT, D&B 2009a Originally generated in *Site Update & Historical Summary Report, Trimmer Road Landfill Site #8-28-012, Parma, New York*; GES, January 6, 2015.

Table 1

GROUNDWATER MONITORING DATA SUMMARY

NYSDEC Site #82-8012
Trimmer Road
Parma, New York

Monitoring Well	Date	trans- 1,3- dichloropropene	ethylbenzene	2-hexanone	Isopropylbenzene	MtBE	4-methyl-2-pentanone	methylene chloride	styrene	1,1,1,2-tetrachloroethane	1,1,2,2-tetrachloroethane	tetrachloroethene	tolune	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,1,1-trichloroethane	1,1,2-trichloroethane	trichloroethene	trichlorofluoromethane	vinyl acetate	vinyl chloride	m+p-xylene	o-xylenes	xylenes, total	methylcyclohexane	methyl acetate	cyclohexane	1,2-dibromoethane	1,1,2-trichlolo- 1,2,2-trifluoroethane	1,2-dibromo-3-chloropropane	Total VOCs
	CAS	10061-02-6	100-41-4	591-78-6	98-82-8	1634-04-4	108-10-1	75-09-2	100-42-5	630-20-6	79-34-5	127-18-4	108-88-3	87-61-6	120-82-1	71-55-6	79-00-5	79-01-6	75-69-4	108-05-4	75-01-4	179601-23-1	95-47-6	1330-20-7	108-87-2	79-20-9	110-82-7	106-93-4	76-13-1	96-12-8	NA
	NYSDEC TC	5	5	NA	5	NA	NA	5	5	5	5	0.7	5	NA	NA	5	1	5	5	NA	0.3	NA	NA	5	NA	NA	NA	0.0006	5	0.04	NA
MW-4S	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	1.05	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	~	~	~	~	~	~	~	1.05
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	1.5	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	6.6
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	~
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.3	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	**7.1**	0.73 J	ND<1.0	~	~	~	~	~	~	~	39.03
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	61.3
MW-5S	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	**19.8**	ND<1	ND<1	~	~	~	~	~	~	~	68.44
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	**3.1**	ND<1.1	ND<0.5	~	~	~	~	~	~	~	17.7
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	**0.96** J	ND<2.0	ND<1.0	~	~	~	~	~	~	~	3.72
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.5	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	4.95
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	61.37
MW-6S	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	~	~	~	~	~	~	~	20.88
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	14.2
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	35.66
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.1	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	17.3
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	73.73
MW-8S	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	~	~	~	~	~	~	~	ND
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	ND
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	~
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.7	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	1.7
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	70.5
MW-9S	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	2.24	ND<1	ND<5	**4.32**	ND<1	ND<1	~	~	~	~	~	~	~	157.58
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	44.7
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.73 J	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	100.43
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	4.2
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	57.75
MW-13	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	2.98	ND<1	ND<5	**4.45**	ND<1	ND<1	~	~	~	~	~	~	~	36.21
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	2.0	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	17.8
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	2.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	17.88
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.9	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	15.7
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.5	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	63.7
MW-14	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	~	~	~	~	~	~	~	1.38
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	1.1
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	ND
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	ND
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	62.8
MW-15	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	**5.49**	ND<1	ND<1	~	~	~	~	~	~	~	27.45
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	9.2
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	3.19
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	3.1
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	79.7
MW-16	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	**25.5**	ND<1	ND<1	~	~	~	~	~	~	~	104.95
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	**3.0**	ND<1.1	ND<0.5	~	~	~	~	~	~	~	48.7
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	1.4	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	0.86 J	ND<1.0	~	~	~	~	~	~	~	44.26
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	43.4
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	107.21
MW-17	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<5	ND<1	ND<1	ND<1	~	~	~	~	~	~	~	33.43
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	0.5	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	ND<0.9	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	39.8
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	1.4	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	0.69 J	ND<1.0	~	~	~	~	~	~	~	42.03
	7/5/2013	ND<1.0	0.88 J	ND<5.0	1.6	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.96 J	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	0.77 J	ND<1.0	~	~	~	~	~	~	~	59.21
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	73
MW-18	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	**5.6**	ND<1	ND<5	**11**	ND<1	ND<1	~	~	~	~	~	~	~	57.69
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	1.7	ND<0.6	~	**2.2**	ND<1.1	ND<0.5	~	~	~	~	~	~	~	20.6
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.5	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	9.4
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.98 J	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	10.89
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.6	ND<1.0	ND<5.0	**1.3**	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	78.81
MW-19	7/29/2010	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/25/2010	ND<1	ND<1	ND<5	~	ND<1	ND<5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	3.14	ND<1	ND<5	**7.31**	ND<1	ND<1	~	~	~	~	~	~	~	90.66
	6/2/2011	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/8/2011	ND<0.5	ND<0.4	ND<1.1	~	ND<0.7	ND<2.7	ND<1.1	ND<0.4	ND<0.7	ND<0.5	ND<0.6	ND<1.0	ND<1.0	ND<0.4	ND<0.8	ND<0.9	1.2	ND<0.6	~	ND<0.9	ND<1.1	ND<0.5	~	~	~	~	~	~	~	19.5
	7/11/2012	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	8/21/2012	ND<1.0	ND<1.0	ND<5	~	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.7	ND<1.0	ND<5.0	**1.1**	ND<2.0	ND<1.0	~	~	~	~	~	~	~	48.4
	7/5/2013	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.4	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	~	~	~	~	~	~	~	38.8
	5/30/2014	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	7/17/2014	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1.0	ND<1.0	ND<5.0	ND<1.0	ND<2.0	ND<1.0	ND<2.0	ND<1.0	ND<2.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	102

Notes:
All Concentrations Reported in Micrograms Per Liter (µg/L)
ND< = Not detected at or above the MDL.
MDL = method detection limit
~ = Not Sampled
NA= Not Available or not analyzed for that specific compound
BTEX= Benzene, toluene, ethylbenzene, xylenes

MTBE= Methyl tertiary butyl ether
TOGS= Technical and Operational Guidance Series 1.1.1
Bold type indicates that compound exceedes TOGS 1.1.1 limit.
GWQS= Groundwater Quality Standards
J = Results is less than the RL but greater than or equal to the MDL and the concentration is an approximate value

Table 3

Monitoring Network Well Construction Information
Trimmer Road Landfill
Parma, NY

Well ID	Top of Riser[1]	Total Depth (feet below grade)	Screen (feet below grade)		
			Top	Bottom	Length
MW-4S	14.66	12.5	2	12	10
MW-5S[2]	26.83	25	11	21	10
MW-6S[2]	27.24	25.6	13	23	10
MW-8S	16.86	14.5	4	14	10
MW-9S	16.8	14.5	4	14	10
MW-13	19.99	17.5	4.8	14.8	10
MW-14	19.08	16.9	4.4	14.4	10
MW-15	15.5	12.5	2	12	10
MW-16	18.5	15.5	5	15	10
MW-17	18.5	15.5	5	15	10
MW-18	15.5	12.5	2	12	10
MW-19	15.5	12.5	2	12	10

Notes:

[1] - Top of riser resurveyed to assumed on-site datum by GES (date unknown).

[2] - Screened intervals for these wells were interpreted from the construction diagrams included in *Phase II Investigation Report Trimmer Road Landfill* , Engineering-Science, September, 1986

APPENDICES

APPENDIX 1 - DEED RESTRICTION
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: NYSDEC, 2015

MONROE COUNTY CLERK'S OFFICE

ROCHESTER, NY

THIS IS NOT A BILL. THIS IS YOUR RECEIPT

Receipt # 1356438

Index DEEDS

Book 11646 Page 507

No. Pages : 7

Instrument DECLARATION

Date : 01/19/2016

Time : 04:22:07PM

Control # 201601190773

Ref 1 #

Employee : RoseM

Return To:
AECOM
TAMARA RABY
257 NWEST GENESEE STREET SUITE 400
BUFFALO, NY 14202-2657

BURNS, THOMAS W

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

COUNTY FEE NUMBER PAGES	$	30.00
RECORDING FEE	$	45.00
Total	$	75.00

State of New York

MONROE COUNTY CLERK'S OFFICE

WARNING - THIS SHEET CONSTITUTES THE CLERKS ENDORSEMENT, REQUIRED BY SECTION 317-a(5) & SECTION 319 OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH OR REMOVE.

RICHARD T TURNER

MONROE COUNTY ACTING COUNTY CLERK

PI182-201601190773-7

RECORDED

2016 JAN 19 PM 4:22

MONROE COUNTY CLERK

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 30 day of December 2015, by Thomas W. Burns, a natural person residing at 2255 South Union Street, Spencerport, New York and having an office for the transaction of business at same.

WHEREAS, the Trimmer Road Landfill Site is the subject of a remedial program performed by the New York State Department of Environmental Conservation (the "Department") , namely that parcel of real property located on Trimmer Road in the Town of Parma, County of Monroe, State of New York, which is part of lands conveyed by Patrick T. Fasciano to Thomas W. Burns by deed dated December 18, 2012 and recorded in the Monroe County Clerk's Office in Liber and Page 11203/392, and being more particularly described in Appendix "A," attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, Thomas W. Burns, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment to render it safe for drinking water or for industrial purposes, as appropriate, and the user must first notify and obtain written approval to do so from the Department or Relevant Agency.

Sixth, the owner of the Property, upon request, shall provide a periodic certification, to the Department or Relevant Agency, which will certify that: the institutional controls put in place are unchanged from the previous certification, that the owner has complied with the provisions of this restrictive covenant, including compliance with the SMP, that there has been no change in use of the property, unless the Department has been properly notified, and that the engineering controls have not been impaired.

Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Department or Relevant Agency requires to be recorded, and the owner and its successors and assigns hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

Tenth, owner, its successors and assigns, shall take no action which would extinguish the right-of-way referenced in Appendix "A" herein and filed with the Clerk of the County of Monroe in Liber 250 of Deeds, at Page 342.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

By: Thomas W. Burns

Print Name: THOMAS W. BURNS

Title: OWNER Date: 12-30-15

STATE OF NEW YORK)

) s.s.:

COUNTY OF MONROE)

On the 30th day of DECEMBER, in the year 2015, before me, the undersigned, personally appeared THOMAS WILLIAM BURNS, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

William P. Fletcher

Notary Public State of New York

WILLIAM P. FLETCHER
Notary Public, State of New York
No. 4830429
Qualified in Monroe County
Commission Expires March 30, 2019

Trimmer Road Landfill Site
Site #073413
Town of Parma
County of Monroe
Tax Parcels 056.04-1-4.1 and 056.04-1-4.2

Appendix A
Legal Description

152 Trimmer Road
054.04-1-4.1

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Parma, being part of Lot No. 8 on the Gore, so-called, in said Town, and bounded and described as follows:

North by North line of the Gore; east by land deeded to Samuel Bushnell on March 3, 1826, being the north part of land deeded by David Darling to Benjamin Veasie on August 30, 1827; running across said lot at the distance of 88 rods south of the north line, parallel with the north line thereof, supposed to contain about 19 ½ acres more or less.

ALSO, that other certain piece or parcel of land, situate and lying in the Town of Parma, being part of Lot No. 8, on the Gore, so-called, bounded and described as follows: Commencing on the south line of lands now or formerly owned by Andrew McLaughlin; thence easterly on Z. Timmer's south line to land now or formerly by Martin Goodberlet and Thomas Connally; thence south along Goodberlet's and Connally's west line to land formerly owned by Mary McLaughlin and the northwest corner of land now or formerly owned by Andrew McLaughlin; thence along the east line of said McLaughlin's land to the place of beginning, containing 3 ½ acres of land more or less.

ALSO, the right of way through and across the land sold to William E. Trimmer, by Deed October 7, 1969, recorded February 9, 1872 in Liber 250 of Deeds, at page 342, with all the rights and privileges therein contained, as reserved by Aaron Trimmer in the said conveyance to said William E. Trimmer; said land which said right of way crosses was formerly owned by A.J. McLaughlin.

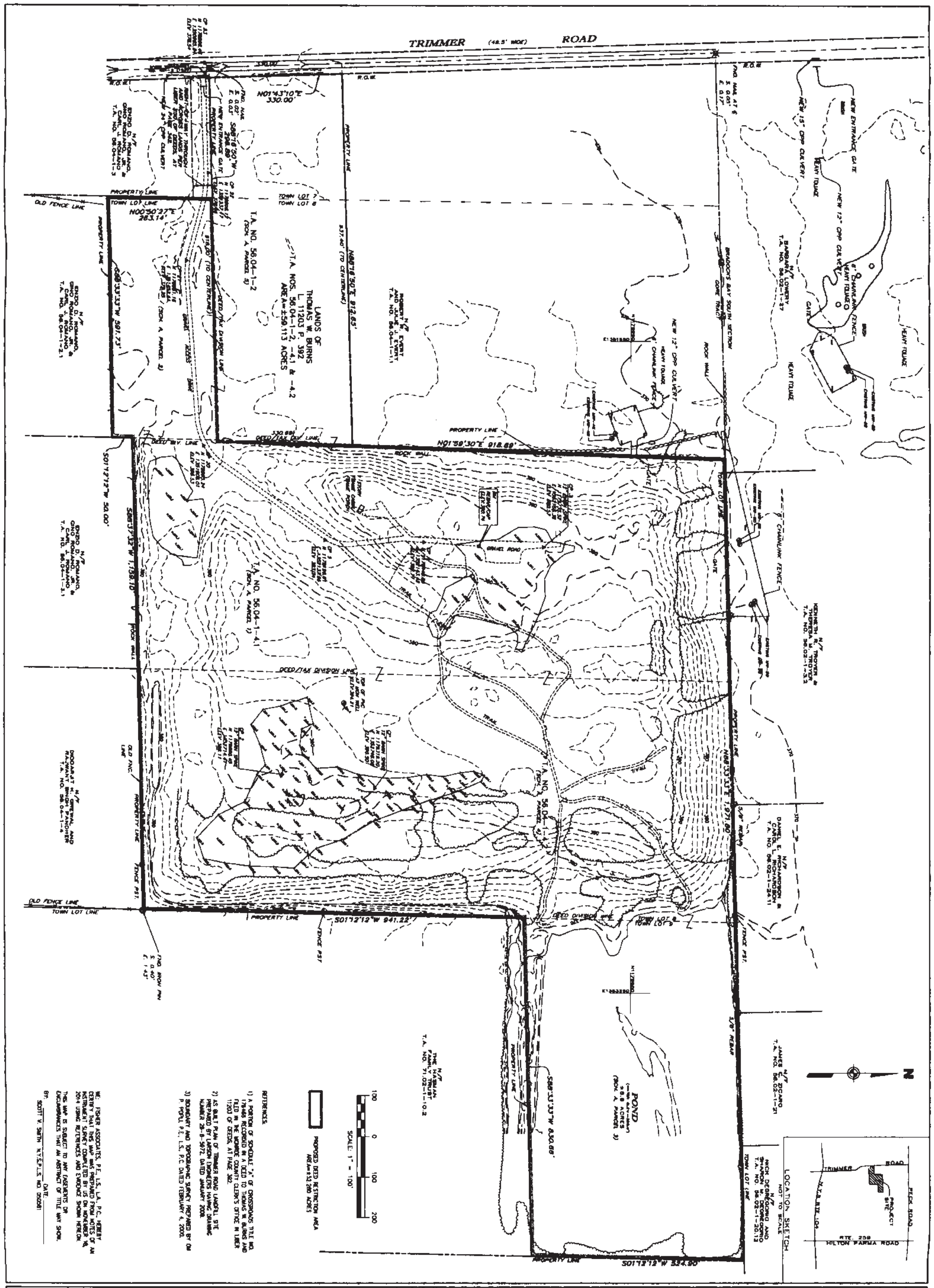
158 Trimmer Road
056.04-1-4.2

ALSO, all that tract or parcel of land situate in the Town of Parma, County of Monroe, New York, on the Gore, so-called, and being the north end of the west one-half of Lot No. 9 of the Gore Tract, according to John Smith's seconds survey and bounded on the north and west by the lines of said lot, on the south by lands formerly owned by John Darling and on the east by lands formerly owned by Ruffus Warner containing 10 acres of land and no more.

ALSO, all that tract or parcel of land situate in the Town of Parma, County of Monroe, New York, on the Gore (so-called) to wit, 19.06 acres of land of the East part of Lot No. 8 of Smith's second Allotment of said Gore and bounded as follows: Commencing at the Northeast corner of said Lot No. 8; thence running westerly along the north line of said lot, 8 chains and 60 links (8.60) to land now or formerly owned by Charles Coe; thence running southerly along said Chas. Coe's east line 22 chains and 13 links (22.13) to said Chas. Coe's southeast corner; thence easterly to the east line of said Lot No. 8; thence northerly along said lot line 22 chains and 20 links (22.20) to the place of beginning, containing 19.06 acres of land and no more and being the same premises conveyed to

Trimmer Road Landfill Site
Site #073413
Town of Parma
County of Monroe
Tax Parcels 056.04-1-4.1 and 056.04-1-4.2

Mial H. Peck by John Wellman and wife by deed dated April 10, 1882, and recorded in Monroe County Clerk's Office on the 29th day of April, 1882 in Liber 353 of Deeds at page 178, the said Mial H. Peck being name in said deed as Milo Peck.



DRAWING NO.	PROJECT	FA PROJECT NO.
FA - 1	TRIMMER ROAD LANDFILL SITE	142032
SHEET 1 OF 1	TOWN OF PARMA	PROJECT MANAGER: S. SMITH
	COUNTY OF MONROE	DRAWN BY: M. MILLER
	NYSDEC SITE NO. 8-28-012	SCALE: 1" = 100'
	TITLE OF DRAWING: AS-BUILT TOPOGRAPHIC SURVEY	ISSUE DATE: 12/5/2014

FISHER ASSOCIATES
www.fisherassoc.com

REV	DESCRIPTION	DATE	BY
7			
6			
5			
4	REVISED DEED RESTRICTION AREA	6/30/15	SVS
3	REVISED ACCESS RIGHT-OF-WAY PER COMMENTS	6/24/15	SVS
2	ADDED DEED RESTRICTION AREA	2/26/15	SBO
1	ADDED DEED REFERENCES AND CLARIFICATIONS	2/23/15	SVS

APPENDIX 2 - SITE CONTACTS LIST

APPENDIX 2 – LIST OF SITE CONTACTS

Name	Affiliation	Phone	Email Address
Thomas Burns	Site Owner	(585) 259-2655	
	Remedial Party		
	Qualified Environmental Professional		
	NYSDEC DER Project Manager		
Charles Gregory	NYSDEC DER Project Manager's Supervisor	(518) 402-8246	Charles.Gregory@dec.ny.gov
	NYSDEC Site Control		
	NYSDOH Project Manager		
	On and Off Site property access contacts such as tenants, adjacent property owners, etc.		
	Remedial Party Attorney		

APPENDIX 3 - BORING LOGS AND CONSTRUCTION DETAILS
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: APPENDIX D, SITE MANAGEMENT PLAN, D&B 2009B

Driller: P. W/J. Percy, J. Hammond	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: Trimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4 1/4" id HSA's	Boring Depth: 15.5'

Boring ID: MW-1S
Sheet 1 of 1
Location: S of Send of landfill

Groundwater Observations			
Date	12-21-99	12-22-99	12-23-99
Time	15:45	07:45	09:00
DTW	dry	dry	13.3'
Casing/Total Depth	12.5'	12.5'	15.5'

Start (Date & Time): 12-21-99, 15:00
Finish (Date & Time): 12-23-99, 12:30
Weather: 12-21, W/4-8, 20°F
12-23, SW/2-8, 25°F
Elevation of Ground Surface:

Location Sketch:
N
LF
POND

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
				Auger to 15.5' w/out sampling See log for adjacent MW-1D.	gravel/mix; 2" sched. 40 PVC riser; cement	stickup of ~3' w/ locking 4" steel protective casing.
5					bentonite chips	5.0'
					0.0 Sand	8.0' 8.5'
10					#0 sand pack; 2" i.d. Schedule 40 PVC Screen, 0.01" slot; 10.0'	
15					15.0'	15.5'
				B.O.B. = 15.5'		

Soil Stratigraphy Summary

file d&blog xls revised 8/25/98 by GG

Driller: P-W / J. Percy, J. Hammond, A. Ellingworth
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs, HX Core

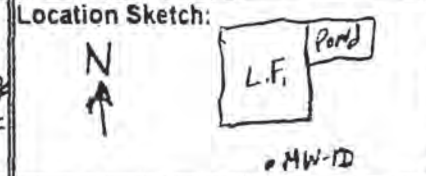
Dvirka and Bartilucci Boring Log
Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 32.0'

Boring ID: MW-1D
Sheet 1 of 2
Location: S of S side of refuse

	Groundwater Observations		
Date	12-21-99	1-24-00	
Time	13:30	—	
DTW	~10'	~4.7'	
Casing/Total Depth	11.5'	32.0'	

Start (Date & Time): 12-21-99, 12:45
Finish (Date & Time): 12-22-99, 14:30
Weather: 12-21, overcast, W/5-15, 25°F
12-22, M. Sun, WSW/5-12, 25°F
Elevation of Ground Surface:

Location Sketch:



	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	0-2.0'	SS-1	WOH	0.0	Moist, dark Br silt, trace f sand, organic rich (0.3') over Moist, light Br silt, little f sand, Og mottling (0.1') over Moist, Rd silt, trace f sub ∡ to o gravel, trace c-f sand (0.1').		Stick-up of ~3' w/ locking cover
	Rec=	0.5'	1				
			5				
			5				SS-1, reacts to HCl strongly
	2-3.8'	SS-2	9	0.0	Moist, Rd silt, trace c-f sand, trace f ∡ to o gravel (1.2') over Dry, Rd m-f ∡ siltstone gravel, trace Gn portions (0.6').		SS-2, bedrock 3.5'
	Rec=	1.8'	33				
			41				
			50/.3'				
	4-4.2'	SS-3	50/.2'	0.0	Dry, Rd f ∡ siltstone gravel, trace silt, trace Gn portions.		
5	Rec=	0.2'					
	6-6.2'	SS-4	50/.2'	0.0	Dry, Rd f ∡ siltstone gravel, trace silt, trace Gn portions.	cement-bentonite grout; 4" i.d. steel pipe	
	Rec=	0.2'					
	8-8.2'	SS-5	50/.2'	0.0	Dry, Rd f ∡ siltsone gravel (0.15') over Dry, Gn f ∡ siltstone gravel in tip (0.05').		
	Rec=	0.2'					
10	10-10.1'	SS-6	50/.1'	0.0	No recovery.		Very hard drilling 10.0 to 11.0'.
	Rec:	0.0'					
							post SS-6, auger to 17' and grout 4" pipe. Stop for day.
15							11:50 on 12-22-99 Start C-1
	17.0-19.5'	C-1	HX	0.0	Rd siltstone, trace Gn portions	17.0; 3.75" Open Rock Hole	Coring rate = 3-3.5 min/ft.
	Rec=	2.5'					
	RQD=	2.2'	46%				
	19.5-24.5'	C-2	HX	0.0	Rd siltstone, trace Gn portions		

Soil Stratigraphy Summary

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-D
Inspector:	Project Name: Tammes Road L.F.	Sheet 2 of 2
Rig Type:	Project #: #1701	Location:
Drilling Method:	Boring Depth: 32.0'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	Rec=	4.8'			Rd siltstone, trace Gn portion, Some fractures.	3.75" Open Rock Hole - HX Core	
	RQD=	3.8'	79%				
25	24.5-29.5	C-3	HX	0.0	Rd siltstone, little Gn portions		
	Rec=	5.0'					
	RQD=	3.9'	78%				
30	29.5-32.0	C-4	HX	0.0	Rd siltstone, trace Gn portions		
	Rec=	2.5					
	RQD=	1.7	68%				32.0'
					B.O.B. = 32.0'		
35							

Soil Stratigraphy Summary

Driller: P-W/J. Percy, J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4¼" id HSAs, HX Core

Dvirka and Bartilucci Boring Log
Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 41.0'

Boring ID: MW-2D
Sheet 1 of 3
Location: S of SE corner of refuse

Groundwater Observations			
Date	12-15-99	1-24-00	
Time	07:45	-	
DTW	~21.5'	~14.7'	
Casing/Total Depth	22'	41.0'	

Start (Date & Time): 12-14-99, 13:25
Finish (Date & Time): 12-20-99, 16:50
Weather: 12-14, overcast, E/5-15, 40°F
12-20, overcast, SW/5-25, 25°F
Elevation of Ground Surface: ______

Location Sketch:

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	0-2.0' Rec= 0.5'	SS-1	WOH WOH WOH 1	0.3	Moist, dark Br silt, little f sand, organic rich, roots, sticks, leaves (0.3') over Moist, light Br F sand, some silt (0.2').		Stick-up of ~3' w/ locking cover. SS-1 + SS-2, no HCl reaction. Auger past cobbles 3-3.5', refusal at 4' on boulder. Move rig 2' south. 4.5', bedrock.
	2-2.9' Rec= 0.7'	SS-2	2 50/4	0.8	Moist, light Br f sand, some silt, trace thin (<1mm) Moist, light Br f sand seams.		
5	4-6.0' Rec= 0.8'	SS-3	11 21 36 44	1.4	Dry, Rd silt, trace c-f sand (& too) trace thin (<1mm) brown silt seams, trace Gn coloring in tip.		SS-3, strong reaction w/ HCl
	6-7.5' Rec= 1.5'	SS-4	41 47 56	1.6	Moist, Rd silt, trace c-f sand, trace brown silt seams (<1 to 4mm), trace Gn + Rd f & to 0 siltstone gravel.	cement-bentonite grout; 4" i.d. steel pipe	SS-4, strong reaction w/ HCl
	8-8.8' Rec= 0.8'	SS-5	28 50/.3'	0.5	Moist, Rd silt, little m-f & Gn + Rd siltstone gravel, trace f sand.		
10	10-10.4' Rec= 0.2'	SS-6	50/.4'	0.2	Moist, Rd silt, trace Gn + Rd f & siltstone gravel.		
	12-12.2' Rec: 0.2'	SS-7	50/.2'	0.1	Dry, Rd silt and Gy & m-f siltstone gravel.		
15	14-14.3' Rec= 0.3'	SS-8	50/.3'	0.4	Dry, Rd + Gy & m-f siltstone gravel, little silt.		SS-8, strong reaction w/ HCl
	16-16.2' Rec= 0.2'	SS-9	50/.2'	0.0	Dry, Rd siltstone (0.1') over Dry, Gn siltstone.		
	18-18.1' Rec= 0.1'	SS-10	50/.1'	0.0	Dry, Rd siltstone		

Soil Stratigraphy Summary ______

Driller:
Inspector:
Rig Type:
Drilling Method:

Dvirka and Bartilucci Boring Log
Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 41.0'

Boring ID : MW-2D
Sheet 2 of 3
Location:

Groundwater Observations			
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time):
Finish (Date & Time):
Weather:
Elevation of Ground Surface:

Location Sketch:

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	20-20.1'	SS-11	50/.1'	0.0	Dry, Gy-Rd m-f & siltstone gravel.	cement-bentonite grout; 4" i.d. steel pipe	post SS-11, auger to 22' and stop for day
	Rec:	0.1'					start on 12-15 at 08:50
	22-22.2'	SS-12	50/.2'	0.0	Dry, Gy-Rd m-f & siltstone gravel.		
	Rec=	0.2'					
	24-24.1'	SS-13	50/.1'	0.0	Moist, Rd+Gn siltstone		post SS-13, auger to 26' and grout 4" pipe to 26'- Stop for day
25	Rec=	0.1'					
	26-29.0'	C-1	HX	0.0	Rd siltstone, some Gn portions Highly weathered at top and bottom of recovery.	26.0'; 3.75" Open Rock Hole - HX Core	start C-1 at 13:45 on 12-20-99.
	Rec:	3.7'					
	RQD=	0.75'	28%				
	29-34.0'	C-2	HX	0.0	Rd siltstone, trace green portions, trace faint X-bedding, trace wt calcareous portions 32-34' (<1 to 2mm thick) rare but present in upper recovery.		C-2, white portions very HCl reactive
	Rec=	5.2'					
30	RQD=	4.45'	86%				
	34-39.0'	C-3	HX	0.0	Rd siltstone, little Gn portions		Coring rate, C-3 = 3 min/ft.
35	Rec=	5.0'					
	RQD=	4.8'	96%				
	39-41.0'	C-4	HX	0.0	Rd siltstone, trace Gn portions		
	Rec=	1.9'					

Soil Stratigraphy Summary

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-2D
Inspector:	Project Name: Trimmer Road L.F.	Sheet 3 of 3
Rig Type:	Project #: 1701	Location:
Drilling Method:	Boring Depth: 41.0'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
RQD=	1.9'	100%		Rd siltstone, trace Gr portions	Open Rock Hole	
				B.O.B. = 41.0'		41.0'

45

50

55

Soil Stratigraphy Summary

Driller: P-W/J. Percy, J. Hammond	Dvirka and Bartilucci Boring Log	Boring ID: MW-3S
Inspector: D. Stahl	Project Name: Trimmer Road L.F.	Sheet 1 of 1
Rig Type: CME 850 ATV	Project #: 1701	Location: S of SW
Drilling Method: 4 1/4" id HSAs	Boring Depth: 14.5'	corner of refuse

Groundwater Observations			
Date	1-5-00	1-24-00	
Time	08:05	-	
DTW	dry	~8.7'	
Casing/Total Depth	12.0'	14.0'	

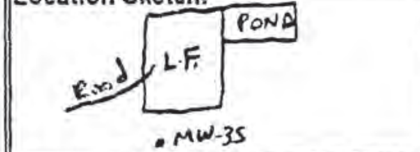
Start (Date & Time): 1-5-00, 07:50

Finish (Date & Time): 1-5-00, 08:45

Weather: M. Sun, 25°F, NW/0-4

Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
				Auger to 14.5' w/out sampling. See log for adjacent MW-3D.		stick-up of ~3' w/ locking 4" steel protective casing.
15				B.O.B. = 14.5'		

Soil Stratigraphy Summary

file d&blog.xls revised 8/26/96 by GS

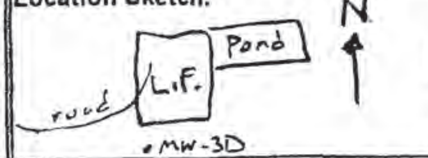
Driller: P-W/J. Perry, J. Hammond, P. Palmer	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: Trimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4 1/4" i.d HSA's HX Core	Boring Depth: 32.5'

Boring ID : MW-3D
Sheet 1 of 2
Location: S of SW Corner of refuse

Groundwater Observations		
Date	1-4-00	1-24-00
Time	15:20	—
DTW	dry	~4.0'
Casing/Total Depth	12.3'	32.5'

Start (Date & Time): 1-4-00, 14:20
Finish (Date & Time): 1-5-00, 10:40
Weather: 1-4-00, O-cast, 45°F, SW/15-50
1-5-00, M.C., 25°F, NW/5-15
Elevation of Ground Surface:

Location Sketch:



Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	0-2.0'	SS-1	2	0.0	Moist, dark Br silt, organic rich (0.3') over Moist, light Br silt w/organics (sticks/roots), trace f sand, mottled Br, Rd.		stickup of ~3' w/ locking cover.
	Rec =	0.6	1				
			2				
			3				
	2-3.8'	SS-2	5	0.0	Moist, Lt Br silt, little f sand, trace c-m sa to subo sand, trace f sub sa to subo dark Gy gravel (0.5') over Moist Red silt, trace f & Rd + Gn gravel (1.1')		3.0', bedrock
	Rec =	1.6'	12				
			44				
			50/.3'				
	4-4.8'	SS-3	33	0.0	Dry, Rd. siltstone		SS-3, reacts strongly w/ HCl
5	Rec =	0.9'	50/.3'				
	6-6.3'	SS-4	50/.3'	0.0	Dry, Rd siltstone, trace Gn portions	cement-bentonite grout; 4" i.d. steel pipe	
	Rec =	0.3'					
	8-8.4'	SS-5	50/4'	0.0	Dry, Rd siltstone		
	Rec =	0.4'					
10	10-10.2'	SS-6	50/.2'	0.0	Dry, Gn siltstone		SS-6, reacts weakly w/ Hcl.
	Rec =	0.1'					
	12-12.3'	SS-7	50/.3'	0.0	Dry, Rd + Gn siltstone		post SS-7, auger to 17.5' and grout 4" pipe, Stop for day
	Rec =	0.2'					
15							
	17.5-19.5'	C-1	HX	0.0	Rd siltstone, trace Gn portions	17.5'; Open Rock Hole - HX	Start coring C-1 at 09:00 on 1-5-00.
	Rec =	2.0'					
	RQD =	1.5'					
	19.5-24.5'	C-2	HX	0.0			

Soil Stratigraphy Summary

Driller:		Dvirka and Bartilucci Boring Log	Boring ID : MW-3D
Inspector:		Project Name: Trimmer Road L.F.	Sheet 2 of 2
Rig Type:		Project #: 1701	Location:
Drilling Method:		Boring Depth: 32.5'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	Rec =	4.9'			Rd siltstone, little green portions, very fractured 2nd foot of recovery. A wet, muddy Red layer (½") at ~23.5'.	3.75" Open Rock Hole – HX Core	Coring rate, C-2 = 3min/ft.
	RQD =	3.7'	76%				
25	24.5-29.5'	C-3	HX	0.0	Rd siltstone, trace Gn portions. A weathered ½" seam at ~26.5' and slightly fractured 28.0-29.0'.		
	Rec:	5.0'					
	RQD =	4.3'	86%				
30	29.5-32.5'	C-4	HX	0.0	Rd siltstone, little Gn portions.		
	Rec =	2.9'					
	RQD =	2.65'	92%				
					B.o.B. = 32.5'		32.5'
35							

Soil Stratigraphy Summary

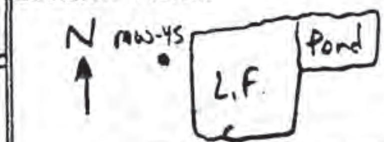
file d&bloc xls revised 8/26/98 by GG

Driller: P-W/J. Percy, J. Hammond	Dvirka and Bartilucci Boring Log	Boring ID : MW-4S
Inspector: D. Stahl	Project Name: Trimmer Road L.F.	Sheet 1 of 1
Rig Type: CME 850 ATV	Project #: 1701	Location: W of NW
Drilling Method: 4¼" i.d. HSAs	Boring Depth: 12.5'	end of refuse

Groundwater Observations			
Date	1-3-00	1-24-00	
Time	14:15	—	
DTW	dry	~1.3'	
Casing/Total Depth	12.5'	12.0'	

Start (Date & Time): 1-3-00, 13:30
Finish (Date & Time): 1-3-00, 14:45
Weather: 1-3, overcast, NE/6-15, 40°F
Elevation of Ground Surface:

Location Sketch:



Depth	Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
					Auger to 12.5' w/out sampling. See log for adjacent MW-4D.	Gravel Mix / Cement; Bentonite Chips 1.0'–1.5'; 2" i.d. PVC Riser to 2.0'; 2" i.d. sched. 40 PVC Screen, 0.01" slot 2.0'–12.0'; #0 sand pack, 12.5'-1.6'; #00 sand pack, 1.6'-1.5'	stick-up of ~3' w/ locking 4" steel protective casing.
5							
10							
12.5'					B.O.B. = 12.5'		
15							

Soil Stratigraphy Summary

Driller: P-W/T. Percy, J. Hammond, B. Palmer	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: Trimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4 1/4" i.d. HSAs, HX Core	Boring Depth: 33.0'

Boring ID: MW-4D
Sheet 1 of 2
Location: W of NW end of refuse

Groundwater Observations			
Date	1-3-00	1-24-00	
Time	12:30	-	
DTW	dry	~6.6'	
Casing/Total Depth	12.3'	33.0'	

Start (Date & Time): 1-3-00, 11:45
Finish (Date & Time): 1-4-00, 08:50
Weather: 1-3, overcast, NE/6-15, 40°F
1-4, overcast, SW/5-25, 60°F
Elevation of Ground Surface:

Location Sketch:
N
MW-4D
L.F.
Pond

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
0-2.0'	SS-1	WOH	0.4	Wet, dark Br silt, organic rich w/roots (0.3') over wet, light Br silt, trace clay, organic rich w/ yl, Rd+Br mottling (0.5') over Moist, Rd-Br silt (0.5').	cement-bentonite grout; 4" i.d. steel pipe	Ponded water to 0.2' above grade stick-up of ~2' w/ w/ locking cover.
Rec=	1.3'	WOH				
		3				
		4				
2-4.0'	SS-2	6	0.2	Moist, Rd silt, trace f ⁎ to subo Rd+Gn siltstone gravel (0.2') over		SS-2, 2.5', bedrock
Rec=	0.7'	7				
		15				
		25				
4-5.0'	SS-3	33	0.3	Moist, Rd siltstone, trace Gn portions.		SS-3, spoon bounces at end of drive.
Rec=	0.6'	52				
6-6.1'	SS-4	50/.1'	0.1	Dry, Rd siltstone, trace Gn portions		
Rec=	0.1'					
8-8.4'	SS-5	50/.4'	0.0	Dry, Rd siltstone (0.2') over Dry Gn siltstone in tip.		
Rec=	0.3'					
10-10.2'	SS-6	50/.2'	0.0	Moist, Rd siltstone		
Rec=	0.2'					
12-12.3'	SS-7	50/.3'	0.0	Moist, Rd siltstone dust - no recovery.		Post SS-7, auger to 18.0' w/out sampling and grout 4" pipe to 18.0'. End of day. start C-1 on 1-4-00 at 07:25
Rec=	0.0'					
18-20.5'	C-1	HX	0.0	Rd siltstone, trace Gn portions, Gn at end of recovery.	18.0' Open Rock Hole	
Rec=	2.3'					
RQD=	1.6'	70%				

Soil Stratigraphy Summary

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-4D
Inspector:	Project Name: Trimmer Road LF.	Sheet 2 of 2
Rig Type:	Project #: 1701	Location:
Drilling Method:	Boring Depth: 33.0'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	20.5-25.5	C-2	HX	0.0	Rd siltstone, some Gn portion w/ fractures near 22-22.5' and at 25'.	3.75" Open Rock Hole - HX Core	Coring rate, C-2 = 3.5 min/ft.
	Rec:	4.9'					
	RQD:	4.3'	88%				
25	25.5-30.5'	C-3	HX	0.0	Rd siltstone, some Gn portions, inclined (30°) fractures near 27-28'. fractures also near 28.5', 29.5' + 30'.		
	Rec:	5.0'					
	RQD:	4.45'	89%				
30	30.5-33.0'	C-4	HX	0.0	Rd siltstone, some Gn portions, fractures at 31 and 32'.		
	Rec:	2.35'					
	RQD:	1.7'	72%				-33.0'
					B.O.B. = 33.0'		
35							

Soil Stratigraphy Summary

file d&blog xls revised 8/25/95 by GG

Driller: P-W/J. Percy, J. Hammond	Dvirka and Bartilucci Boring Log	Boring ID : MW-5D
Inspector: D. Stahl	Project Name: Trimmer Road L.F.	Sheet 1 of 3
Rig Type: CME 850 ATV	Project #: 1701	Location: N of NW
Drilling Method: 4 1/4" i.d. HSAs, HX Core	Boring Depth: 42.0'	corner of refuse

	Groundwater Observations		
Date	12-15-99	1-24-00	
Time	13:15	–	
DTW	dry	~6.0'	
Casing/Total Depth	14.5	42.0'	

Start (Date & Time): 12-15-99, 12:15
Finish (Date & Time): 12-17-99, 14:55
Weather: 12-15, M, Sun, SW/2-5, 45°F
12-17, M, Sun, NW/4-8, 30°F
Elevation of Ground Surface:

Location Sketch: MW-5D
N
Pond
L.F.

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
0-2.0'	SS-1	WOH	0.4	Moist, dark Br silt, trace c-f sand, organic rich (0.3') over Moist, Rd-Br silt, trace c-f sand, trace f sub ∡ to o gravel.	Cement-bentonite grout; 4" i.d. steel pipe	stick-up of ~3' w/ locking cover.
Rec= 0.5'		WOH				
		1				
		3				
2-4.0'	SS-2	5	0.3	Moist, light Br silt, trace f sand, trace f subo to o gravel. Inclined layering.		SS-2, reacts strongly to HCl.
Rec= 1.8'		7				
		9				
		11				
4-6.0'	SS-3	6	0.2	Moist, Rd silt, little f ∡ to sub∡ gravel, trace c-f sand		SS-3, bedrock 4.0'.
Rec= 2.0'		12				
		21				
		30				
6-7.0'	SS-4	15	1.2	Moist, Rd silt, trace c-f sand, trace f ∡ gravel. A thin (<1mm) light Br silt seam near tip.		SS-4, no Gn traces reacts strongly w/ HCl.
Rec= 0.3'		52				
8-10.0'	SS-5	30	1.1	Moist, Rd silt, trace c-f sand, trace f ∡ Rd + Gn siltstone gravel, trace light Br silt & f sand seams (<1mm thick).		
Rec: 1.9'		48				
		44				
		54				
10-11.7'	SS-6	12	1.2	Moist, Rd silt, little sub∡ to ∡ f siltstone gravel, trace c-f sand, a piece of m ∡ Rd siltstone gravel in tip.		harder drilling starting at 11.0'.
Rec= 1.2'		21				
		40				
		50/.2'				
12-12.2'	SS-7	50/.2'	0.0	Dry, Rd m-f ∡ siltstone gravel, trace silt.		
Rec: 0.1'						
14-14.5'	SS-8	56	0.2	Dry, Rd m-f ∡ siltstone gravel, little silt.		SS-8, strong reaction to HCl.
Rec: 0.1'						
16-16.2'	SS-9	50/.2'	0.4	Dry, Rd f ∡ siltstone gravel, trace silt, trace Gn portions.		
Rec= 0.2'						
18-18.2'	SS-10	50/.2'	0.3	Dry, Rd m-f ∡ siltstone gravel and silt		SS-10, weak reaction to HCl
Rec: 0.1'						

Soil Stratigraphy Summary

file: d5blog.xls revised 8/26/98 by GG

Driller:	**Dvirka and Bartilucci Boring Log**
Inspector:	Project Name: Trimmer Road L.F.
Rig Type:	Project #: 1701
Drilling Method:	Boring Depth: 42.0'

Boring ID : MW-5D
Sheet 2 of 3
Location:

Groundwater Observations			
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time):
Finish (Date & Time):
Weather:
Elevation of Ground Surface:

Location Sketch:

	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	20-20.2'	SS-11	50/.2'	0.1	Dry, Rd. m-f & siltstone gravel, some Silt, trace Gn portions in tip.	cement-bentonite grout; 4" i.d. steel pipe	
	Rec =	0.2'					
	22-22.2'	SS-12	50/.2'	0.0	Moist, Rd. m-f & siltstone gravel, little silt, trace thin (1-2mm) Gn layers.		SS-12, bottom half of spoon outside is wet.
	Rec =	0.2'					
	24-24.2'	SS-13	50/.2'	0.2	Dry, Rd. m-f & siltstone gravel, trace silt.		
25	Rec =	0.2'				26.0'	post SS-14, auger to 26' and grout 4" steel pipe, End of day
	26-26.1'	SS-14	50/.1'	0.3	Dry, Gn f & siltstone gravel, trace Rd? portions.	3.75" Open Rock Hole - HX Core	
	Rec =	0.1'					
	26-29.5'	C-1	HX	0.0	Rd siltstone, little Gn portions		Start C-1 at 12:55 on 12-17-00.
	Rec =	2.3'					
	RQD =	1.4'	61%				
30	29.5-34.5'	C-2	HX	0.0	Rd siltstone, trace Gn portions near bottom of recovery.		
	Rec =	5.0'					
	RQD =	3.25'	65%				Coring rate C-2, =4 min/ft.
35	34.5-39.5'	C-3	HX	0.0	Rd siltstone, a 1" Gn layer near 37.5'.		
	Rec =	5.0'					
	RQD =	4.6'	92%				
	39.5-42.0	C-4	HX	0.0	Rd siltstone, little Gn portions		

Soil Stratigraphy Summary

Driller:	
Inspector:	
Rig Type:	
Drilling Method:	

Dvirka and Bartilucci Boring Log

Project Name: Trimmer Road L.F.

Project #: 1701

Boring Depth: 42.0'

Boring ID : MW-5D

Sheet 3 of 3

Location:

Groundwater Observations			
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time):

Finish (Date & Time):

Weather:

Elevation of Ground Surface:

Location Sketch:

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
Rec:	2.5'			Rd siltstone, little Gn portions.	Open Rock Hole 3.75"	
RQD=	1.85'	74%				
						42.0'
				B.O.B. = 42.0'		

45

50

55

Soil Stratigraphy Summary

file: d&blog xls revised 8/26/96 by GG

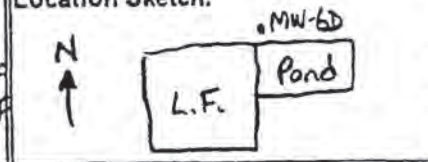
Driller: P-W/J. Percy, J. Hammond	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: Trimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4 1/4" i.d. HSA, HX Core	Boring Depth: 42.5'

Boring ID : MW-6D
Sheet 1 of 3
Location: N of NE corner of refuse

	Groundwater Observations		
Date	12-14-99	1-24-00	
Time	07:44	—	
DTW	~4.8'	~3.1'	
Casing/Total Depth	14.0'	42.5'	

Start (Date & Time): 12-13-99, 15:10
Finish (Date & Time): 12-17-99, 10:30
Weather: 12-13, overcast, W/2-5, 40°F
12-17, M. Sun, NW/4-8, 38°F
Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
0-2.0'	SS-1	WOH	0.0	Moist, Br silt, some m-f subo to O gravel, trace c-f sand (0.7') over		stick-up of ~3' w/ locking cover.
Rec:	1.1'	3		Moist, Rd-Br silt, trace c-f sand (0.4')		
		11				
		7				
2-4.0'	SS-2	6	0.1	Moist, Rd silt, trace f sand, trace Gn + Br f & siltstone gravel		SS-2, strong reaction to HCl
Rec:	1.9'	7				Bedrock, 2.0'.
		12				
		21				SS-3 thru SS-7, strong reaction to HCl
4-6.0'	SS-3	12	0.0	Moist, Rd silt, Rd + Og + Yl mottling.		
Rec:	2.0'	14				
		21				
		36				
6-7.4'	SS-4	37	0.0	Moist, Rd silt, some f & siltstone gravel, trace Gn portions	cement-bentonite grout	
Rec:	0.6'	49			4" i.d. steel pipe	
		50/.4'				
8-9.1'	SS-5	10	0.2	Moist, Rd silt, little f & Rd + Gn siltstone gravel (0.6') over Wet, Rd silt, trace f & to o siltstone gravel (0.2') over Moist, Gn siltstone (0.4').		
Rec:	1.2'	35				
		50/.1'				
10-10.9'	SS-6	36	0.0	Wet, Rd silt, some m-f & to subo gravel, trace c-f sand. A piece of subo m gravel in tip.		
Rec:	0.6'	50/.4'				
12-12.4'	SS-7	50/.4'	0.6	Moist, Rd m-f & siltstone gravel, trace silt.		post SS-7, stop for day, 16:45.
Rec:	0.4'					start on 12-14 at 07:45.
14-14.3'	SS-8	50/.3'	0.1	Moist, Rd m-f & siltstone gravel, trace silt, trace Gn portions.		
Rec:	0.2'					
16-16.3'	SS-9	50/.3'	0.2	Moist, Rd f & siltstone gravel, trace silt, trace Gn portions.		SS-9 & SS-10, react strongly to HCl.
Rec:	0.3'					
18-18.2'	SS-10	50/.2'	0.0	Moist, Rd f & siltstone gravel, trace silt, trace Gn portions.		
Rec:	0.1'					

Soil Stratigraphy Summary

Driller:	
Inspector:	
Rig Type:	
Drilling Method:	

Dvirka and Bartilucci Boring Log

Project Name: TRimmer Road L.F.

Project #: 1701

Boring Depth: 42.5'

Boring ID: MW-6D

Sheet 2 of 3

Location:

Groundwater Observations			
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time):

Finish (Date & Time):

Weather:

Elevation of Ground Surface:

Location Sketch:

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
20-20.2'	SS-11	50/.2'	0.1	Wet, Rd m-f & siltstone gravel, trace silt.	cement-bentonite grout; 4" i.d. steel pipe	
Rec=	0.2'					
22-22.2'	SS-12	50/.2'	0.0	Moist, Rd m-f & siltstone gravel, trace silt.		Softer drilling, 23.5 to 24.0'.
Rec=	0.2'					
24-24.2'	SS-13	50/.2'	0.0	Moist, Gn f & siltstone gravel, little silt.		SS-13, moderate reaction to HCl
25 Rec=	0.1'					
26-26.1'	SS-14	50/.1'	0.0	Moist, Gn f & siltstone gravel, little silt.		Softer drilling, 26.5 to 27.0'. Post SS-14, auger to 27.5' and grout 4" pipe. Stop for day.
Rec:	0.1'				27.5	
27.5-29.5'	C-1	HX	0.0	Rd siltstone, some Gn portions.	3.75" Open Rock Hole - HX Core	12-17-99, start C-1 at 08:45.
Rec=	2.0'					
RQD=	1.3'	65%				
30 29.5-34.5'	C-2	HX	0.0	Rd siltstone, little Gn portions		
Rec=	4.7'					
RQD=	4.2'	89%				Coring rate = 3-3.5 min/ft.
35 34.5-39.5'	C-3	HX	0.0	Rd siltstone, trace Gn portions		
Rec=	5.0'					
RQD=	4.6'	92%				
39.5-42.5'	C-4	HX	0.0	Rd siltstone, trace calcareous wt		

Soil Stratigraphy Summary

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-6D
Inspector:	Project Name: Trimmer Road L.F.	Sheet 3 of 3
Rig Type:	Project #: 1701	Location:
Drilling Method:	Boring Depth: 42.5'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
Rec =	3.0'			portions (1-2 mm thick, 2-10 mm long)	Open Rock Hole - 3.75"	C-4, wt portions very strongly HCl reactive.
RQD =	2.8'	93%				
						42.5'
				B.O.B. = 42.5'		
45						
50						
55						

Soil Stratigraphy Summary

Driller: P-W/J. Percy, J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs

Dvirka and Bartilucci Boring Log

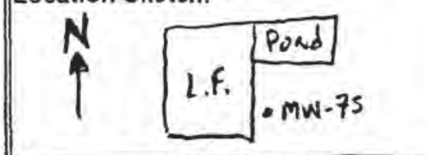
Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 14.5'

Boring ID: MW-7S
Sheet 1 of 1
Location: E of SE side of refuse

Groundwater Observations		
Date	12-23-99	1-24-00
Time	08:55	—
DTW	dry	~7.0'
Casing/Total Depth	14.5'	14.0'

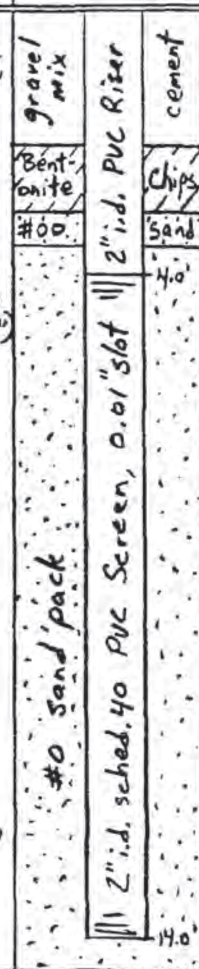
Start (Date & Time): 12-23-99, 07:25
Finish (Date & Time): 12-23-99, 09:50
Weather: 12-23, overcast, SW/1-4, 20°F
Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Comments
0-2.0' Rec = 1.4'	SS-1	2, 3, 4, 5	0.1	Moist, dark Br silt, organic rich, roots, leaves (0.3') over Moist, Rd silt, trace f $ gravel, Og + Rd + Br + Yl mottling (1.1').	stick-up of ~3' w/ locking 4" steel protective casing.
2-4.0' Rec = 0.5'	SS-2	7, 13, 18, 21	0.0	Moist, Rd silt, trace Gn portions	
4-6.0' Rec = 2.0'	SS-3	23, 33, 39, 44	0.1	Moist, Rd silt, little f $ siltstone gravel. A light Br f sand layer (3/4") near 4.5'. Grades to Dry.	SS-2, bedrock 2.0'.
6-6.4' Rec = 0.2'	SS-4	50/.4'	0.0	Dry, Rd m-f $ siltstone gravel, some Gn portions.	
8-8.8' Rec = 0.8'	SS-5	25, 50/.3'	0.0	Dry, Rd m-f $ siltstone gravel, trace Gn portions.	
10-10.7' Rec = 0.6'	SS-6	21, 50/.2'	0.0	Moist Rd + Gn m-f $ siltstone gravel.	
12-12.2' Rec = 0.2'	SS-7	50/.2'	0.0	Wet, Rd siltstone (0.1') over Moist, Gn siltstone (0.1').	SS-7, spoon exterior wet upon retrieval.
14-14.2' Rec = 0.0'	SS-8	50/.2'	0.0	No recovery B.O.B. = 14.5'	

Well Schematic



Soil Stratigraphy Summary

File: b&blog.xls revised 8/25/95 by GG

Driller: P-W/J. Percy, J. Hammond, M. Ellingworth	Dvirka and Bartilucci Boring Log	Boring ID : MW-7D
Inspector: D. Stahl	Project Name: Trimmer Road L.F.	Sheet 1 of 3
Rig Type: CME 850 ATV	Project #: 1701	Location: central-west
Drilling Method: 4¼" i.d. HSAs, HX Core	Boring Depth: 41.0'	side of refuse.

Groundwater Observations				Start (Date & Time): 12-21-99, 08:10	Location Sketch:
Date	1-24-00			Finish (Date & Time): 1-4-00, 13:05	N
Time	—			Weather: 12-21, overcast, NW/6-12, 20°F	MW-7D • L.F. Pond
DTW	~12.1			1-4, overcast, SW/15-40, 40°F	
Casing/Total Depth	41.0'			Elevation of Ground Surface:	

Depth	Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
					No sampling 0 to 20'.		stick-up of ~3' w/ locking cover
5							
10						cement-bentonite grout; 4" i.d. steel pipe	
15							
							17', harder drilling begins and continues to 20'.

Soil Stratigraphy Summary

file d&blog.xls revised 8/25/96 by GG

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-7D
Inspector:	Project Name: Trimmer Road L.F.	Sheet 2 of 3
Rig Type:	Project #: 1701	Location:
Drilling Method:	Boring Depth: 41.0'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	20-21.5'	SS-1	42	0.1	Moist, Rd silt, some m-f & to subo gravel, trace c-f sand	cement-bentonite grout; 4" i.d. steel pipe	
	REC=	0.7'	32				
			46				
	22-22.2'	SS-2	50/.2'	0.0	No recovery.		
	Rec=	0.0'					
	24-24.3'	SS-3	50/.3'	0.0	Dry, Rd silt and f & siltstone gravel.		post SS-3, auger to 26' and grout 4" pipe. Stop for day
25	REC=	0.3'					start C-1 at 10:55 on 1-4-00.
	26.0-30.0'	C-1	HX	0.0	Rd siltstone, trace Gn portions, 2" Gn layer 1' from bottom of recovery, highly fractured lower 1'.	26.0'	
	REC=	3.55'				3.75" Open Rock Hole - HX Core	
	RQD=	2.8'	79%				
30	30.0-35.0'	C-2	HX	0.0	Rd siltstone, little Gn portions highly fractured near 33-34'.		C-2, coring rate: 3 min/ft.
	Rec=	4.9'					
	RQD=	3.1'	63%				
35	35.0-40.0'	C-3	HX	0.0	Rd siltstone, trace Gn portions highly fractured near 37'.		
	Rec=	5.1'					
	RQD=	4.7'	92%				

Soil Stratigraphy Summary

Driller:
Inspector:
Rig Type:
Drilling Method:

Dvirka and Bartilucci Boring Log

Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 41.0'

Boring ID: MW-7D
Sheet 3 of 3
Location:

Groundwater Observations			
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time):
Finish (Date & Time):
Weather:
Elevation of Ground Surface:

Location Sketch:

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
40.0-41.0'	C-4	HX	0.0	Rd + Gn siltstone, Wt calcareous fossils in tip.	Open Rock Hole	41.0'
Rec:	1.0'					
RQD=	0.85'	85%		B.O.B. = 41.0'		

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Soil Stratigraphy Summary

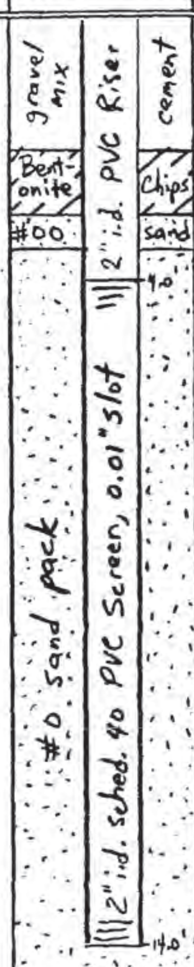
Driller: P-W/J. Percy, J. Hammond	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: Trimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4 1/4" i.d. HSAs	Boring Depth: 14.5'

Boring ID : MW-8S
Sheet 1 of 1
Location: NW of NW corner of refuse

Groundwater Observations			
Date	12-30-99	1-24-00	
Time	11:30	—	
DTW	dry	~0.8'	
Casing/Total Depth	14.5'	14.0'	

Start (Date & Time): 12-30-99, 10:20
Finish (Date & Time): 12-30-99, 12:15
Weather: 12-30, M. Cloudy, NW/5-35, 35°
Elevation of Ground Surface:

Location Sketch:

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
				Auger to 14.5' w/out sampling. See log for adjacent MW-8D.		stick-up of ~3' w/ locking 4" steel protective casing.

Soil Stratigraphy Summary

The boring log was revised 8/26/96 by GG

Driller: P-W/J. Percy, J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs, HX Core

Dvirka and Bartilucci Boring Log

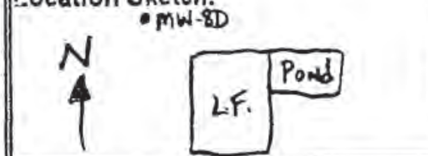
Project Name: TRimmer Road L.F.
Project #: 1701
Boring Depth: 35.0'

Boring ID: MW-8D
Sheet 1 of 2
Location: NW of NW corner of refuse

Groundwater Observations			
Date	12-29-99	1-24-00	
Time	14:50	—	
DTW	dry	~2.7'	
Casing/Total Depth	10.3'	35.0'	

Start (Date & Time): 12-29-99, 14:25
Finish (Date & Time): 12-30-99, 10:10
Weather: 12-29, overcast, SW/0-2, 25°F
12-30, M. Sun, NW/5-15, 40°F
Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
0-2.0'	SS-1	WOH	0.0	Wet, dark Br silt, organic rich, roots (0.7') over Moist, Rd-Br silt, trace f sand, yl+Bk+Rd+Wt mottling.		
Rec:	1.0'	2				
		4				
		5				
2-4.0'	SS-2	3	0.0	Moist, Rd silt trace f sub∡ to subo gravel, A dark Gy piece of round c sand in tip, trace Gn portions.		
Rec:	0.7'	6				
		12				
		18				
4-5.5'	SS-3	15	0.0	Moist, Rd silt, trace f sand as thin (<1mm) seams, trace dark Gy round to sub∡ c sand. Gn+Rd m-f ∡ siltstone gravel in tip.		SS-3, bedrock 4.5'
Rec:	0.5'	34				
		50				
6-7.7'	SS-4	22	0.1	Moist, Rd silt, some m-f ∡ siltstone gravel, trace Gn portions.		SS-4, spoon bounces at end, exterior wet upon retrieval
Rec:	0.6'	34				
		29				
		50/.2'				
8-8.3'	SS-5	50/.3'	0.0	Dry, Rd silt and f ∡ siltstone gravel.	Cement-bentonite Grout; 4" i.d. steel pipe	Post SS-6, auger to 20' and grout 4" pipe. Stop for day
Rec:	0.3'					
10-10.3'	SS-6	50/.3'	0.0	Dry, Gn f ∡ siltstone gravel, little silt, trace Rd portions.		start C-1 at 08:50 on 12-30-99.
Rec:	0.2'					

Soil Stratigraphy Summary

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-8D
Inspector:	Project Name: Teinmor Road L.F.	Sheet 2 of 2
Rig Type:	Project #: 1701	Location:
Drilling Method:	Boring Depth: 35.0'	

Groundwater Observations				Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	20.0-24.5'	C-1	HX	0.0	Rd siltstone, trace Gn portions, highly fractured in places	20.0'	C-1, coring rate = 3 min/ft
	Rec=	4.4'					
	RQD	2.95'	67%				
25	24.5-29.5'	C-2	HX	0.0	Rd siltstone, trace Gn portions.	3.75" Open Rock Hole - HX Core	
	Rec=	4.9'					
	RQD=	3.15'	64%				
30	29.5-34.5'	C-3	HX	0.0	Rd siltstone, trace Gn portions.		C3, coring rate = 3.5 min/ft.
	Rec=	4.8'					
	RQD=	4.8'	100%				
35	34.5-35.0'	C-4	HX	0.0	Rd siltstone	35.0'	
	Rec=	0.6'			B.O.B. = 35.0'		
	RQD=	0.6'	100%				

Soil Stratigraphy Summary

Driller: P-W/J. Percy, J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs

Dvirka and Bartilucci Boring Log

Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 14.5'

Boring ID: MW-9S
Sheet 1 of 1
Location: N of N side of refuse

Groundwater Observations			
Date	12-28-99	1-24-00	
Time	15:00	—	
DTW	dry	~5.1	
Casing/Total Depth	14.5'	14.0'	

Start (Date & Time): 12-28-99, 14:30
Finish (Date & Time): 12-28-99, 15:50
Weather: 12-28, overcast, SW/8-15, 20°F
Elevation of Ground Surface:

Location Sketch: MW-9S
N
L.F.
Pond

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
				Auger to 14.5 w/out sampling. See log for adjacent MW-9D.	gravel mix; cement; 2" i.d. PVC Riser	Stick-up of ~3' w/ locking 4" steel protective casing.
					Bentonite Chips	2.0'
					#0.0 sand	3.0'
						3.5'
					#0 sand pack	4.0'
					2" i.d. sched. 40 PVC Screen, 0.01" slot	
						14.0'
						14.5'
				B.O.B. = 14.5'		

Soil Stratigraphy Summary

Driller: P-W/J. Percy, J. Hammond, D. Thoma Inspector: D. Stahl Rig Type: CME 850 ATV Drilling Method: 4¼" id HSAs, 4" joint, HXCore	**Dvirka and Bartilucci Boring Log** Project Name: Trimmer Road L.F. Project #: 1701 Boring Depth: 39.5'	**Boring ID : MW-9D** Sheet 1 of 2 Location: N of N side of refuse

Groundwater Observations			
Date	12-16-99	12-16-99	1-24-00
Time	10:50	15:20	—
DTW	~1.3'	~0.5'	~5.5'
Casing/Total Depth	6.3'	20.0'	39.5'

Start (Date & Time): 12-16-99, 10:25
Finish (Date & Time): 12-29-99, 11:40
Weather: 12-16, M. Cloudy, S/4-8, 35°F
12-29, M. Cloudy, WSW/2-6, 20°F
Elevation of Ground Surface:

Location Sketch: MW-9D; N; L.F.; Pond

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
0-2.0'	SS-1	6	0.6	Moist, Br wood fragments	cement-bentonite grout; 4" i.d. steel pipe	stick-up of ~3' w/ locking cover.
Rec=	0.2'	1				
		1				SS-1, no reaction to HCl
		1				
2-4.0'	SS-2	3	3.6	Moist, Rd silt, little f & to sub& gravel (Rd, Gn, Ol), trace c-f sand, Gn+Br mottling.		SS-2, bedrock 2.0'.
Rec=	1.5'	5				
		6				
		11				SS-2 thru SS-6, strong reaction to HCl.
4-6.0'	SS-3	8	1.9	Moist, Rd silt, little f & to sub& gravel (Rd+Gn), trace c-f sand.		
Rec=	1.2'	20				
		32				
		41				
6-6.3'	SS-4	50/3'	1.2	Moist, Rd silt, f & siltstone gravel, trace c-f sand.		drilling 0 to 15' is by means of 4" flush joint casing.
Rec=	0.2'					
8-8.7'	SS-5	26	0.0	Moist, Rd silt and f & siltstone gravel.		
Rec=	0.5'	50/.2'				
10-10.2'	SS-6	50/.2'	0.0	Moist, Rd m-f & siltstone gravel, trace silt, trace Gn portions		
Rec=	0.2'					
12-12.2'	SS-7	50/.2'	0.2	Moist, Rd m-f & siltstone gravel, trace silt, trace Gn portions.		
Rec=	0.2'					
14-14.2'	SS-8	50/.2'	0.1	Moist, Rd f & siltstone gravel, trace silt, trace Gn portions.		
Rec=	0.2'					
15-20.0'	C-1	HX	0.0	Rd siltstone, trace Gn portions		post C-1, pull 5' of casing to 10'. Stop for day.
Rec=	5.0'					12-28-99, auger 0 to 24.5' after pulling 4" casing and grout 4" pipe at 24.5'; stop for day.
RQD=	3.4'	68%				10:00 on 12-29-99, start C-2.

Soil Stratigraphy Summary:

Driller:	**Dvirka and Bartilucci Boring Log**
Inspector:	Project Name: Trimmer Road L.F.
Rig Type:	Project #: 1701
Drilling Method:	Boring Depth: 39.5'

Boring ID : MW-9D
Sheet 2 of 2
Location:

	Groundwater Observations			Start (Date & Time):
Date				Finish (Date & Time):
Time				Weather:
DTW				
Casing/Total Depth				Elevation of Ground Surface:

Location Sketch:

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
					cement-bentonite grout; 4" i.d. steel pipe	24.5'
24.5-25.0'	C-2	HX	0.0	Rd siltstone	3.75" Open Rock Hole - HX Core	C-2, Rec = 0.4', RQD = 0.4' or 100%.
25.0-30.0'	C-3	HX	0.0	Rd siltstone, w/ 4 green layers each ~1" thick, some fractures.		
Rec =	4.9'					
RQD =	4.1'	84%				
30.0-35.0'	C-4	HX	0.0	Rd siltstone, trace Gn portions. A 0.55' vertical fracture at top of recovery. Other fractured portions		C-4, coring rate = 3 min/ft.
Rec =	4.9'					
RQD =	3.65'	75%				
35.0-39.5'	C-5	HX	0.0	Rd siltstone, trace Gn portions.		
Rec =	4.4'					
RQD =	4.1'	93%				39.5'
				B.O.B. = 39.5'		

Soil Stratigraphy Summary:

Driller: P-W/J. Percy, J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs

Dvirka and Bartilucci Boring Log
Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 15.5'

Boring ID: MW-10S
Sheet 1 of 1
Location: N of pond

Groundwater Observations			
Date	12-28-99	1-24-00	
Time	07:20	—	
DTW	~5.7'	~1.1'	
Casing/Total Depth	15.5'	14.0'	

Start (Date & Time): 12-27-99, 15:20
Finish (Date & Time): 12-28-99, 08:45
Weather: 12-27, M. Cloudy, SW/2-4, 20°F
12-28, overcast, SSW/1-4, 5°F
Elevation of Ground Surface:

Location Sketch: N (arrow); L.F; Pond; • MW-10S

Depth	Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
0					Auger to 15.5' w/out sampling - See log for adjacent MW-10D.	gravel mix; cement; 2" i.d. PVC Riser	stick-up of ~3' w/ locking 4" steel protective casing
						Bentonite; Chips	2.0'
						#00 Sand	3.0'
							3.5'
							4.0'
5						#0 Sand pack; 2" i.d. sched. 40 PVC Screen, 0.01"slot	
10							
							14.0'
15							15.5'
					B.O.B. = 15.5'		

Soil Stratigraphy Summary

Driller: P-W/J. Percy, J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs, HX Core

Dvirka and Bartilucci Boring Log

Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 32.5'

Boring ID: MW-10D
Sheet 1 of 2
Location: N of pond

Groundwater Observations			
Date	12-23-99	1-24-00	
Time	11:30	—	
DTW	dry	~1.5'	
Casing/Total Depth	7.9'	32.5'	

Start (Date & Time): 12-23-99, 11:05
Finish (Date & Time): 12-27-99, 15:10
Weather: 12-23, overcast, SW/2-8, 25°F
12-27, P. Sun, NW/1-5, 25°F
Elevation of Ground Surface:

Location Sketch: • MW-10D
N
L.F.
Pond

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
0-2.0'	SS-1	WOH	0.0	Moist, dark Br silt, organic rich, roots, leaves (0.4') over Yl-Br m & sandstone gravel (0.1') over, moist, Rd silt, little c-f round sand including dark Gy clasts.		stick-up of ~3' w/ locking cover
Rec=	0.6'	3				
		5				cobbly drilling 0-4'.
		10				
2-4.0'	SS-2	15	0.0	Moist, Br-Rd silt, little f sand, little f & to subo gravel.		
Rec=	2.0'	19				
		23				
		34				SS-2, reacts w/ HCl strongly
4-5.5'	SS-3	15	0.0	Moist, light Rd-Br silt, little f sand, little m-f & to subo gravel, trace c-m subo sand, including dark Gy clasts.		
Rec=	0.8'	39				
		55				
6-7.9'	SS-4	13	0.1	Moist, light Rd-Br silt, little f sand little m-f & to subo gravel, trace c-m subo sand, including dark Gy clasts (0.6') over Moist, Rd siltstone, trace Gn portions (0.9').	cement-bentonite grout; 4" i.d. steel pipe	SS-4, bedrock 7'. spoon bounces at end of drive.
Rec=	1.5'	17				
		21				
		50/.4'				
8-8.4'	SS-5	50/.4'	0.0	Dry, Rd silt and f & siltstone gravel, trace Gn portions.		SS-5, reacts w/ HCl strongly
Rec=	0.1'					
10-10.4'	SS-6	50/.4'	0.0	No recovery		
Rec=	0.0'					
						post SS-7, auger to 17.5' and grout 4" pipe. Stop for day
12-12.2'	SS-7	50/.2'	0.0	Dry, Rd + Gn f & siltstone gravel little silt.		
Rec=	0.2'					
						13:18, start C-1 on 12-27-99
					17.5'	C-1, coring rate = 3 min/ft.
17.5-19.5'	C-1	HX	0.0	Rd siltstone, little Gn portions, fractured near 18.0'.	Open Rock Hole 3.75"	
Rec=	1.9'					
RQD=	1.9'	100%				
19.5-24.5'	C-2	HX	0.0	Rd siltstone, little Gn portions		

Soil Stratigraphy Summary

Driller:	Dvirka and Bartilucci Boring Log	Boring ID : MW-10D
Inspector:	Project Name: TRimmer Road L.F.	Sheet 2 of 2
Rig Type:	Project #: 1701	Location:
Drilling Method:	Boring Depth: 32.5'	

	Groundwater Observations			Start (Date & Time):	Location Sketch:
Date				Finish (Date & Time):	
Time				Weather:	
DTW					
Casing/Total Depth				Elevation of Ground Surface:	

Depth	Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
	Rec =	4.9'				3.75" Open Rock Hole – HX Core	
	RQD =	4.6'	94%				
25	24.5-29.5'	C-3	HX	0.0	Rd siltstone, trace Gn portions, highly fractured in places.		
	Rec =	5.0'					
	RQD =	4.4'	88%				
30	29.5-32.5'	C-4	HX	0.0	Rd siltstone, trace Gn portions		
	Rec =	3.1'					
	RQD =	3.1'	100%				32.5'
					B.O.B. = 32.5'		
35							

Soil Stratigraphy Summary

Dvirka and Bartilucci Boring Log

Driller: P-W/J. Percy J. Hammond
Inspector: D. Stahl
Rig Type: CME 850 ATV
Drilling Method: 4 1/4" i.d. HSAs

Project Name: Trimmer Road L.F.
Project #: 1701
Boring Depth: 23.2'

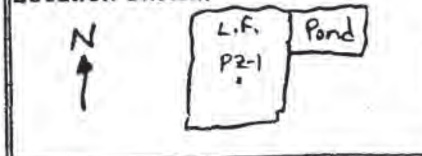
Boring ID: PZ-1
Sheet 1 of 2
Location: center of refuse

Groundwater Observations			
Date	1-24-00		
Time	—		
DTW	~10.5'		
Casing/Total Depth	23'		

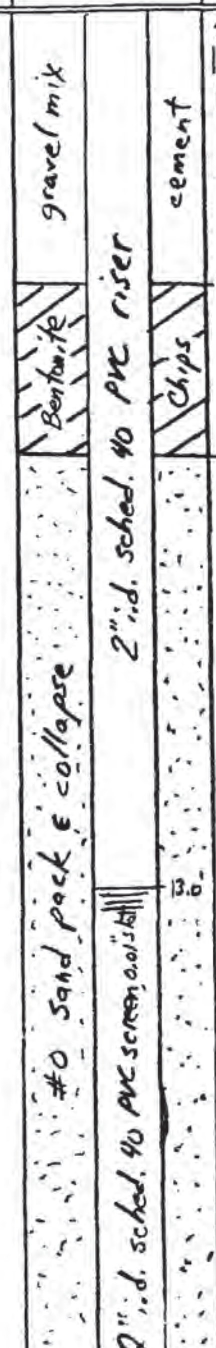
Start (Date & Time): 1-5-00, 11:10
Finish (Date & Time): 1-5-00, 12:20
Weather: M.Cloudy, NW/5-15, 25°F

Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
				No sampling before 23'.		stick-up of ~3' w/ locking 4" steel protective casing



Soil Stratigraphy Summary

Driller:	**Dvirka and Bartilucci Boring Log**
Inspector:	Project Name: Trimmer Road L.F.
Rig Type:	Project #: 1701
Drilling Method:	Boring Depth: 23.2'

Boring ID : PZ-1
Sheet 2 of 2
Location:

Groundwater Observations			
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time):
Finish (Date & Time):
Weather:
Elevation of Ground Surface:

Location Sketch:

Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
					#0 sand pack; 2" i.d. screen; collapse; -w-; 23.0'	harder drilling starting at 22.5'
23-23.2'	SS-1	50/.2'	0.0	Rd silt and f & siltstone gravel		23.2'
Rec=	0.1'			B.O.B. = 23.2'		

25

30

35

Soil Stratigraphy Summary

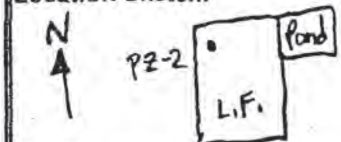
Driller: P-W/J. Percy, J. Hammond	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: Trimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4¼" i.d. HSAs	Boring Depth: 15.0'

Boring ID: PZ-2
Sheet 1 of 1
Location: NW corner of refuse

Groundwater Observations			
Date	1-24-00		
Time	—		
DTW	~7.2		
Casing/Total Depth			

Start (Date & Time): 1-5-00, 14:40
Finish (Date & Time): 1-5-00, 15:25
Weather: M. Cloudy, NW/5-15, 25°F
Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments
				No sampling before 14'.	2" i.d. sched. 40 PVC Riser; gravel mix; cement	stick-up of ~3' w/ locking 4" steel protective casing
					bentonite chips/powder	5.0'
					#0 sand pack + collapse; 2" i.d. PVC Screen, 0.01 slot	8.0'
						9.0'
						harder drilling starting at 13.5'
14-15.0'	SS-1	21	0.0	Moist, Rd silt and f ẋ siltstone gravel, trace Gn portions.		14.0'
Rec=	0.9'	29				15.0'
				B.O.B = 15.0'		

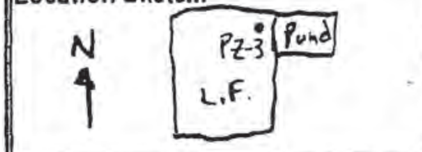
Soil Stratigraphy Summary ______

Driller: P-W/J. Percy, J. Hammond	Dvirka and Bartilucci Boring Log	Boring ID: PZ-3
Inspector: D. Stahl	Project Name: Trimmer Road L.F.	Sheet 1 of 1
Rig Type: CME 850 ATV	Project #: 1701	Location: NE
Drilling Method: 4¼" i.d. HSAs	Boring Depth: 9.0'	corner of refuse

Groundwater Observations			
Date	1-24-00		
Time	—		
DTW	~6.0'		
Casing/Total Depth	8.0'		

Start (Date & Time): 1-5-00, 13:50
Finish (Date & Time): 1-5-00, 14:25
Weather: M. Cloudy, NW/5-15, 25°F
Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
				No sampling before 8'.	gravel mix; cement; 1.0'; Bentonite; Chips; 2" PVC Riser; 2.0'; 3.0'; #0 sand pack + collapse; 2" i.d. PVC Screen, 0.10" slot; 8.0'; 9.0'	Stick-up of ~3' w/ locking 4" steel protective casing.
						harder drilling starting at 7.5'.
8-9.0'	SS-1	21	0.0	Moist, Rd silt, trace c-f sand, trace m-f sub to subo gravel including quartz		
Rec=	0.7'	26				
				B.O.B. = 9.0'		

Soil Stratigraphy Summary

file: cbslog.xls revised 8/25/96 by GS

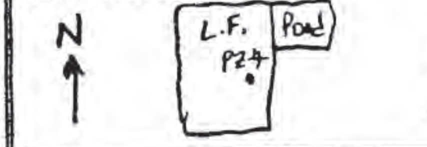
Driller: P-W/J. Percy, J. Hammond	**Dvirka and Bartilucci Boring Log**
Inspector: D. Stahl	Project Name: TRimmer Road L.F.
Rig Type: CME 850 ATV	Project #: 1701
Drilling Method: 4¼" i.d. HSAs	Boring Depth: 12.0'

Boring ID: PZ-4
Sheet 1 of 1
Location: E side of refuse

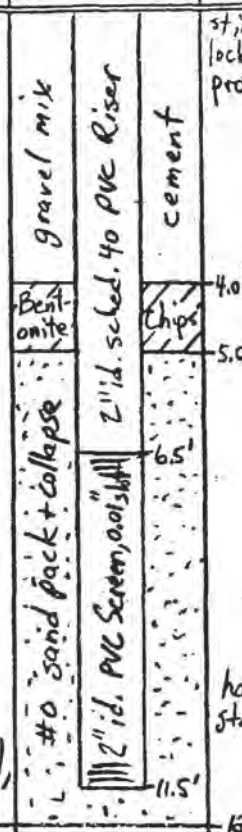
	Groundwater Observations		
Date	1-24-00		
Time	—		
DTW	~5.5'		
Casing/Total Depth	11.5'		

Start (Date & Time): 1-5-00, 12:55
Finish (Date & Time): 1-5-00, 13:35
Weather: M. Cloudy, NW/5-15, 25°F
Elevation of Ground Surface:

Location Sketch:



Sample Interval	Sample No.	Blows	(ppm) PID	Field Description	Well Schematic	Comments
				No sampling before 11'		stick-up of ~3' w/ locking 4" steel protective casing.
						harder drilling starting at 10.5'
11–12.0' Rec= 0.8'	SS-1	7 17	0.0	Rd silt, little f & siltstone gravel, trace Gn portions B.O.B. = 12.0'		



Soil Stratigraphy Summary

Driller: PArrATT WOlFF	Dvirka and Bartilucci Boring Log	Boring ID: MW-11
Inspector: J Magda	Project Name: Trimmer Road LF	Sheet 1 of 1
Rig Type: 4 1/4" HSA 2'2" SplitSpoon w 140lb Hammer And Cathead	Project #: 2273	Location:
Drilling Method: - CME-850	Boring Depth: 13.20	N/A

	Groundwater Observations			Start (Date & Time): 12/22/04 1127	Location Sketch:
Date	12/22/04			Finish (Date & Time): 12/22/04 1329	N/A
Time	1601			Weather: Cloudy, Temp 34°F Light Rain	
DTW	0.86	BGS			
Casing/Total Depth	12.25	BGS		Elevation of Ground Surface: N/A	

Depth	Sample Interval	Sample No.	Blows	PID (PPm)	Field Description	Well Schematic	Comments
	0-2	1127	WOH	0	Br clay w/ High organic content	cement 0.75-0.0	Ponded water in Area of well (<0.5)
1		1.8'	WOH	0	(leaves, wood, Roots) Saturated		
			3	0			
			4	0			well completed with 4" ID steel Stick up + locking CAP. Stick up 3.5' above grade
2	2-4	1130	8	0	Red SilT w/ Trace clay damp	PVC Riser 2.25-0.0	Bedrock AT 3.20' BGS
3		1.6'	13	0			
			15	0	Red SilT Over Red SilT w/ F-C SilTSTone Fragments	Bentonite 1.25-0.75	
4			28	0			
	4-6	1137	8	0	Red SilT Damp WiTH F-C Angular SilTSTone Fragments		
5		1.6'	14	0			
			20	0			
6			23	0	Auger TO 8' without sampling		
7							
8	8-10	1202	7	0	Red SilT (0.5) Fluff over		
		0.9'	50/.4	0	Red SilTSTone Dry		
9					GreenSilTSTone in Tip	#0 Sand 12.25-1.25	Difficult Drilling 8.9' To 13.2'
10						10-Slot Screen 12.25-2.25	
					Auger To 13.2 without Sampling		
11							
12							
13		1244		0	Red SilTSTone	B.O.W 12.25	
		50/.2		0			
14							
15							
16							
17							
18							
19							
20							

Soil Stratigraphy Summary

d&b boring log -GG version

15

Driller: Parratt Wolff
Inspector: J Magda
Rig Type: CME-850
Drilling Method: 4 1/4 HSA 2' 2" Split Spoons w 140lb Hammer + Cathead

Dvirka and Bartilucci Boring Log
Project Name: Trimmer Road LF
Project #: 2273
Boring Depth: 14.4'

Boring ID: MW-12
Sheet 1 of 1
Location: N/A

Groundwater Observations			
Date	12/22/04		
Time	1304		
DTW	11.6	BGS	
Casing/Total Depth	13.35	BGS	

Start (Date & Time): 12/22/04 0919
Finish (Date & Time): 12/22/04 1120
Weather: Cloudy, Temp 34°F wind calm
Elevation of Ground Surface: N/A

Location Sketch: N/A

Depth	Sample Interval	Sample No.	Blows	PID (PPM)	Field Description	Well Schematic	Comments
	0-2	0919	2	0	Br clay with high organic content (leaves, roots, wood) wet	Bentonite 1.0-0.5; Cement 0.5-0.0	Completed with 4" ID steel stick + locking cap, stick up 2.3' above grade
1		1.6'	2	0	Red/Rusty Silt trace clay damp		
			4	0			
2			4	0			
	2-4	0921	5	0	Red/Rusty Silt damp		
3		1.3'	13	0	(0.8) over Green/Tan Silt dry (0.2)		
			14	0			
4			15	0	(3-4) Red/Brown Silt w/ angular fragments of siltstone		Bedrock at 3.0 bgs
	4-6	0940	1	0		PVC Riser 0.0 to 3.35	
5		0.3'	1	0	Brown/Tan Silt dry (fluff)		
			3	0			
6			1	0			
	6-8	18	0946	0	Red/Rusty Silt damp w/ angular fragments red siltstone	#0 Sand 1.35-1.0	
7		40	1.3'	0.2			No odor or staining noted
		42		0.2	Red silt w/ angular fragments of red siltstone		
8		28		0.4			
					Auger to 10' without sampling		
9							
10							
	10-12	15	1007	0.0	Red siltstone dry	#0 Sand Pack 13.35-1.35	
11		50/.2'				10-slot Screen 13.35-3.35	
12					Auger to 14' without sampling		
13							
14	14-16	50/.4'	1043	0.0	Red siltstone dry	13.35 B.O.W	
15							
16							
17							
18							
19							
20							

Soil Stratigraphy Summary

d&b boring log -GG version

Driller: Parratt Wolff

Inspector: J Magda

Rig Type: Diedrich D-90 ATC

Drilling Method: 4 1/4 HSA 2' 2" Split spoon 140lb Hammer w/ cathead

Dvirka and Bartilucci Boring Log

Project Name: Trimmer Road LF

Project #: 2273

Boring Depth: 14.75

Boring ID: MW-13

Sheet 1 of 1

Location: N/A

Groundwater Observations			
Date	12/21/04		
Time	1436		
DTW	5.10	bgs	
Casing/Total Depth	14.75	bgs	

Start (Date & Time): 12/21/04 0958

Finish (Date & Time): 12/21/04 1220

Weather: Cloudy, Temp 34°F wind calm

Elevation of Ground Surface: N/A

Location Sketch: N/A

Depth	Sample Interval	Time/Rec	Blows	PID	Field Description	Well Schematic	Comments
	0-2	1001 / 1.4'	2, 2, 5, 5		Br FAT clay w/ organic material (Roots, leaves, wood) wet Rusty silt w/ trace clay damp	1.0-0.0 cement; PVC Riser 4.75-0.0; Bentonite 1.5-1.0	Completed w/ 4" I.D. Steel stick up + locking cap stick up 4' L above Grade
1							
2	2-4	1005 / 2.0'	7, 13, 20, 21		Rusty Red silt trace clay Dry Tan/Green silt Dry		
3							
4	4-6	1015 / 1.5'	5, 10, 26, 30		Rusty Red silt Dry + silt F-C fragments Rusty Red silt + angular F-C fragments weathered siltstone	3.0-1.5 00 sand	Bedrock at 4.5' bgs Formation tight at 5.5'
5							
6					Auger to 8' w/out sampling		
7							
8	8-10	1051 / 1.6'	5, 30, 50/.2		Rusty Red silt + angular F-c fragments of siltstone (saturated) fluff Dry Red siltstone	0 sand pack 14.75 - 3.0; 10-slot screen 14.75 - 4.75	
9							
10					Auger to 14' without sampling		
11							
12							
13							
14		1123 / 0.3	50/.4		Red siltstone Damp		
15						B.O.W 14.75 bgs	
16							
17							
18							
19							
20							

Soil Stratigraphy Summary

Driller: Parratt Wolff

Inspector: J Magda

Rig Type: CME - 850

Drilling Method: 4 1/4 HSA 2' 2" Split Spoon 140lb Hammer w/ Cathead

Dvirka and Bartilucci Boring Log

Project Name: Trimmer Road LF

Project #: 2273

Boring Depth: 15.3

Boring ID : MW-14

Sheet 1 of 1

Location: N/A

Groundwater Observations			
Date	12/22/04		
Time	1536		
DTW	1.61	BgS	
Casing/Total Depth	14.42	BgS	

Start (Date & Time): 12/22/04 1355

Finish (Date & Time): 12/22/04 1538

Weather: Cloudy, Rain/Snow Temp 34°F wind calm

Elevation of Ground Surface: N/A

Location Sketch: N/A

Depth	Sample Interval	Sample No.	Blows	PID	Field Description	Well Schematic	Comments
	0-2	1355	WOH	0	(0.4) Brown Clay w High organic content (leaves wood roots) over 1.2 Red SILT + Trace clay Saturated	Cement 1.5-0.0	Ponded water in area of well (<2.0')
1		1.6'	2	0		Bentonite 2.0-1.5	
			3	0			
2			4	0			
	2-4	1359	6	0	Red SILT Trace clay Saturated (1.0) over Red SILT Stone Damp (.3)		
3		1.3'	21	0			Bedrock at 3.3 BgS
			28	0			
4			25	0			
5					Auger to 8' without sampling	Sand 2.42-2.0	Well completed with 4" ID Steel Stick up + locking cap, stick up 2.8' Above grade
6						PVC Riser 4.42-0	
7							
8	8-10	1420	50/.4	0	(0.2) Green SILTstone over (0.2) Red SILTSTONE Dry	Ø Sand Pack 14.42-2.42	
		0.4'					
9						10-Slot Screen 14.42-4.42	
10					Auger to 15' without sampling		
11							
12							
13							
14							
15		1445'	50/.3	0	Red Siltstone	B.O.W. 14.42 BgS	
16							
17							
18							
19							
20							

Soil Stratigraphy Summary

Dvirka and Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Well Construction Log

Site Trimmer Road LF Job No. 2273 Well No. MW-11

Total Depth 15.16' Surface Elevation 376.63 Top Riser Elevation 379.54

Water Levels (Depth, Date, Time) 0.86', 12/22/04, 1601 Date Installed 12/22/04

	Dia.	Material	Length	
Riser	2" ID	PVC	5.16'	
Screen	2" ID	PVC	10'	Slot Size 10
Protective Casing	4" ID	Steel	4'	

SCHEMATIC

3.21' Protective Casing Stickup

2.91' Riser Stickup

Ground Surface

Surface Seal Type Quick-Crete Concrete

0.75' Bottom Surface Seal

Grout Type Enviro-Plug Bentonite Chips

0.75 Top Seal

Seal Type Enviro-Plug Bentonite Chips

1.25' Top Sand Pack

2.25' Top Screen

Sand Pack Type US Silica
Size Ø

12.25' Bottom Screen

13.2' Total Depth of Boring

Dvirka and Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Well Construction Log

Site Trimmer Road LF Job No. 2273 Well No. MW-12

Total Depth 15.29' Surface Elevation 374.51 Top Riser Elevation 376.45

Water Levels (Depth, Date, Time) 12.6', 12/22/04, 1304 Date Installed 12/22/04

Riser	Dia. 2" ID	Material PVC	Length 5.29'	
Screen	Dia. 2" ID	Material PVC	Length 10'	Slot Size 10
Protective Casing	Dia. 4" ID	Material Steel	Length 4'	

SCHEMATIC

2.31' Protective Casing Stickup

1.94' Riser Stickup

Ground Surface

Surface Seal Type Quick-Crete Concrete

0.5' Bottom Surface Seal

Grout Type Enviro-Plug Bentonite Chips

Seal Type Enviro-plug Bentonite chips

0.5' Top Seal

1.0' Top Fine Sand Pack

1.35' Top Sand Pack

3.35' Top Screen

Sand Pack Type US Silica
Size Ø

13.35' Bottom Screen

14.4' Total Depth of Boring

Dvirka and Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Well Construction Log

Site Trimmer Road Landfill Job No. 2273 Well No. MW-13

Total Depth 17.24 Surface Elevation 363.64 Top Riser Elevation 366.13

Water Levels (Depth, Date, Time) 5.10' 12/21/04 1436 Date Installed 12/21/04

Riser	Dia. 2" ID	Material PVC	Length 7.24'	
Screen	Dia. 2" ID	Material PVC	Length 10'	Slot Size 10
Protective Casing	Dia. 4" ID	Material Steel	Length 4'	

SCHEMATIC

2.72' Protective Casing Stickup

2.49' Riser Stickup

Ground Surface

Surface Seal Type Quick-Crete Concrete

1.0' Bottom Surface Seal

Grout Type Enviro-Plug Bentonite Chips

1.0' Top Seal

Seal Type Enviro-Plug Bentonite Chips

1.5' Top Fine Sand Seal

2.0' Top Sand Pack

4.75 Top Screen

Sand Pack Type US Silica
Size Ø

14.75 Bottom Screen

14.75' Total Depth of Boring

Dvirka and Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Well Construction Log

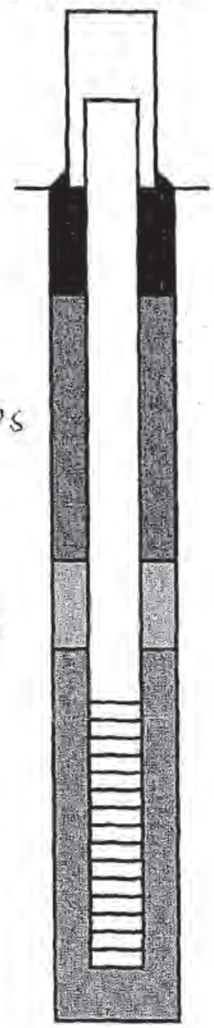
Site: Trimmer Road Landfill Job No. 2273 Well No. MW-14

Total Depth: 16.6' Surface Elevation: 367.38 Top Riser Elevation: 369.56

Water Levels (Depth, Date, Time): 1.61, 12/22/04, 1536 Date Installed: 12/22/04

	Dia.	Material	Length	Slot Size
Riser	2" ID	PVC	6.6'	
Screen	2" ID	PVC	10'	10
Protective Casing	4" ID	Steel	4'	

SCHEMATIC



2.47 Protective Casing Stickup

2.18 Riser Stickup

Ground Surface

Surface Seal Type: Quick-crete Concrete

1.5 Bottom Surface Seal

Grout Type: Enviro-plug Bentonite chips

1.5 Top Seal

Seal Type: Enviro-Plug Bentonite Chips

2.0 Top Fine Sand Seal

2.42 Top Sand Pack

4.42 Top Screen

Sand Pack Type: US Silica
Size: Ø

14.42 Bottom Screen

15.3 Total Depth of Boring

OP-TECH Environmental Services, Inc.

14 Old River Rd., PO Box 5182 Massena, NY 13662 (Tel 315-764-1917/Fax 315-764-9453)

2-Inch Diameter Monitoring Well Detail

Client: NYS DEC Project No. SDCR-0004

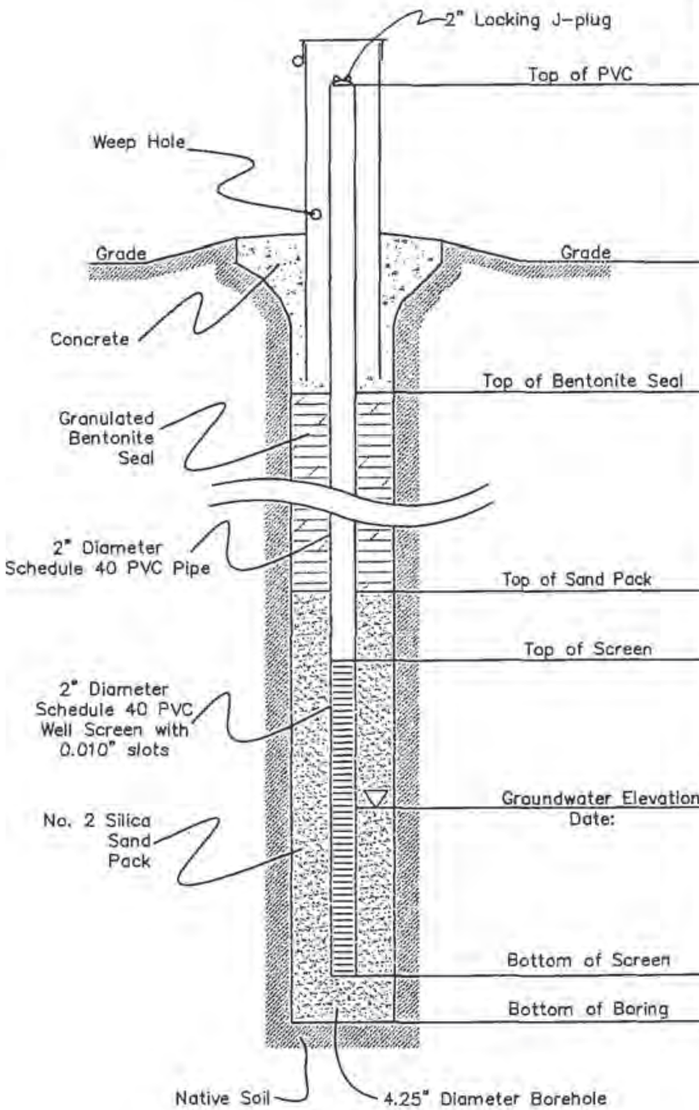
NYSDEC Contract No.: D006373

Project: Trimmer Road Landfill

Spencerport, N.Y.

Install Date: November 7, 2007

Monitoring Well No.: MW-15



	Depth Below Grade	Elevation
Top of PVC		370'
Grade	0.0	367'
Top of Bentonite Seal	0.5	366.5'
Top of Sand Pack	1.0	366'
Top of Screen	2.0	365'
Groundwater Elevation Date:	N/A	N/A
Bottom of Screen	12.0	355'
Bottom of Boring	12.5	354.5'

Drawing Not to Scale

Note: Elevations are based on pre-determined ground elevations provided by Dvirka and Bartilucci Engineers.

OP-TECH Environmental Services, Inc.

14 Old River Rd., PO Box 5182 Massena, NY 13662 (Tel 315-764-1917/Fax 315-764-9453)

2-Inch Diameter Monitoring Well Detail

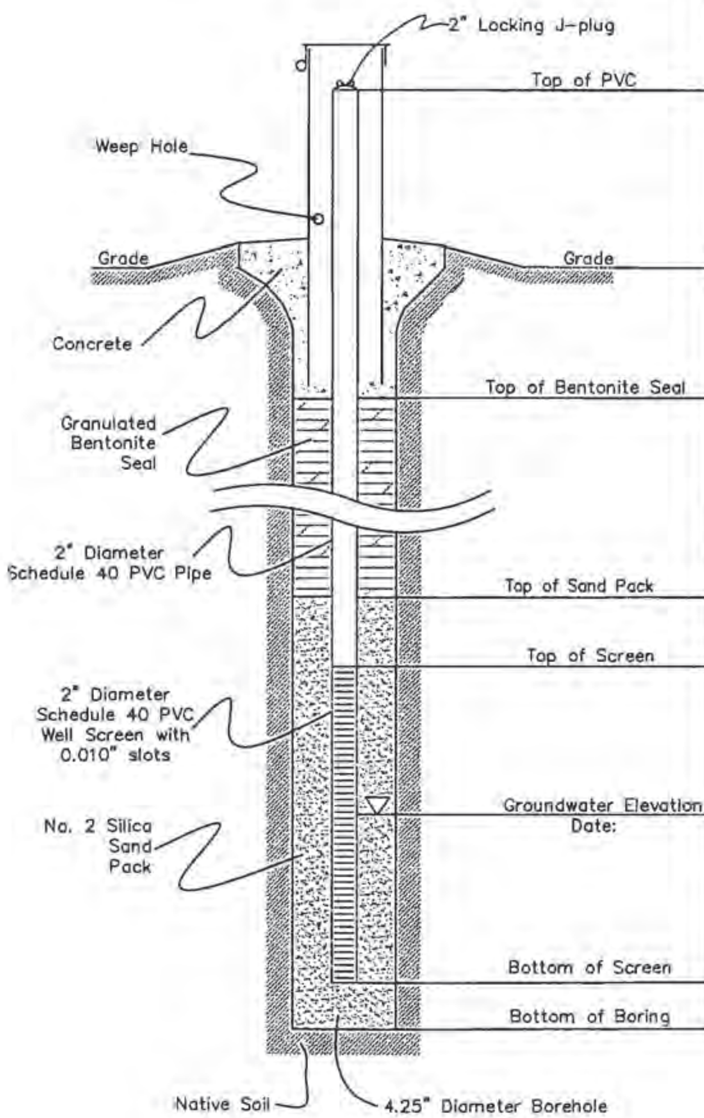
Client: NYS DEC　Project No. SDCR-0004

NYSDEC Contract No.: D006373

Project: Trimmer Road Landfill
Spencerport, N.Y.

Install Date: November 6, 2007

Monitoring Well No.: MW-16



	Depth Below Grade	Elevation
Top of PVC		376'
Grade	0.0	373'
Top of Bentonite Seal	1.0	372'
Top of Sand Pack	3.0	370'
Top of Screen	5.0	368'
Groundwater Elevation Date:	N/A	N/A
Bottom of Screen	15.0	358'
Bottom of Boring	15.5	357.5'

Drawing Not to Scale

Note: Elevations are based on pre-determined ground elevations provided by Dvirka and Bartilucci Engineers.

OP-TECH Environmental Services, Inc.

14 Old River Rd., PO Box 5182 Massena, NY 13662 (Tel 315-764-1917/Fax 315-764-9453)

2-Inch Diameter Monitoring Well Detail

Client: NYS DEC Project No. SDCR-0004

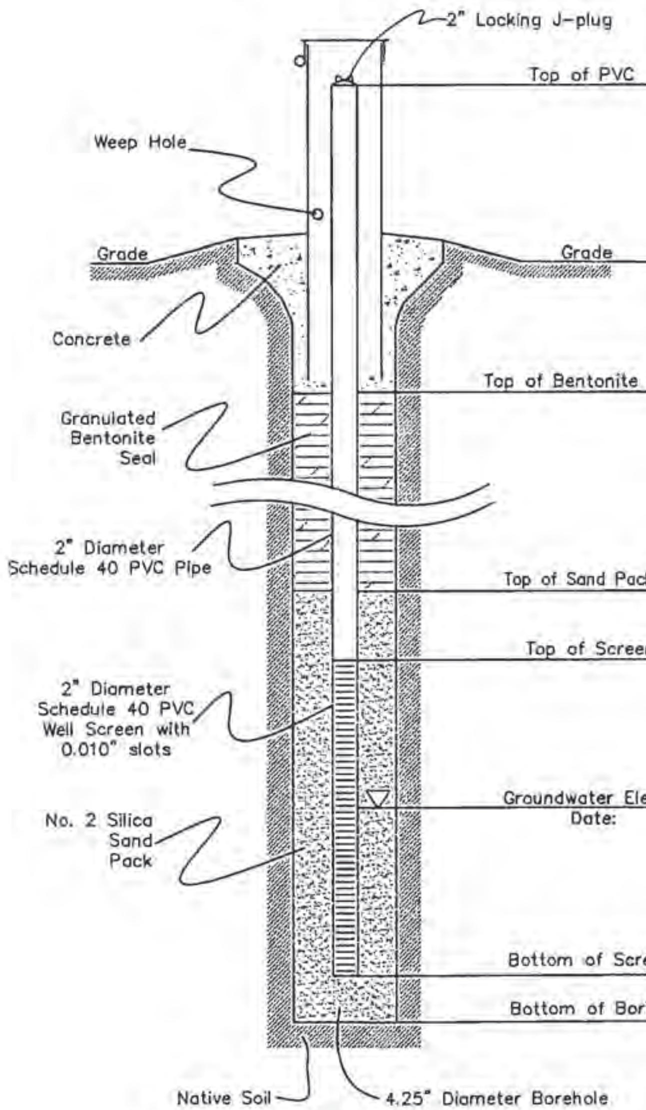
NYSDEC Contract No.: D006373

Project: Trimmer Road Landfill

Spencerport, N.Y.

Install Date: November 6, 2007

Monitoring Well No.: MW-17



	Depth Below Grade	Elevation
Top of PVC		376'
Grade	0.0	373'
Top of Bentonite Seal	1.0	372'
Top of Sand Pack	3.0	370'
Top of Screen	5.0	368'
Groundwater Elevation Date:	N/A	N/A
Bottom of Screen	15.0	358'
Bottom of Boring	15.5	357.5'

Drawing Not to Scale

Note: Elevations are based on pre-determined ground elevations provided by Dvirka and Bartilucci Engineers.

OP-TECH Environmental Services, Inc.

14 Old River Rd., PO Box 5182 Massena, NY 13662 (Tel 315-764-1917/Fax 315-764-9453)

2-Inch Diameter Monitoring Well Detail

Client: NYS DEC Project No. SDCR-0004

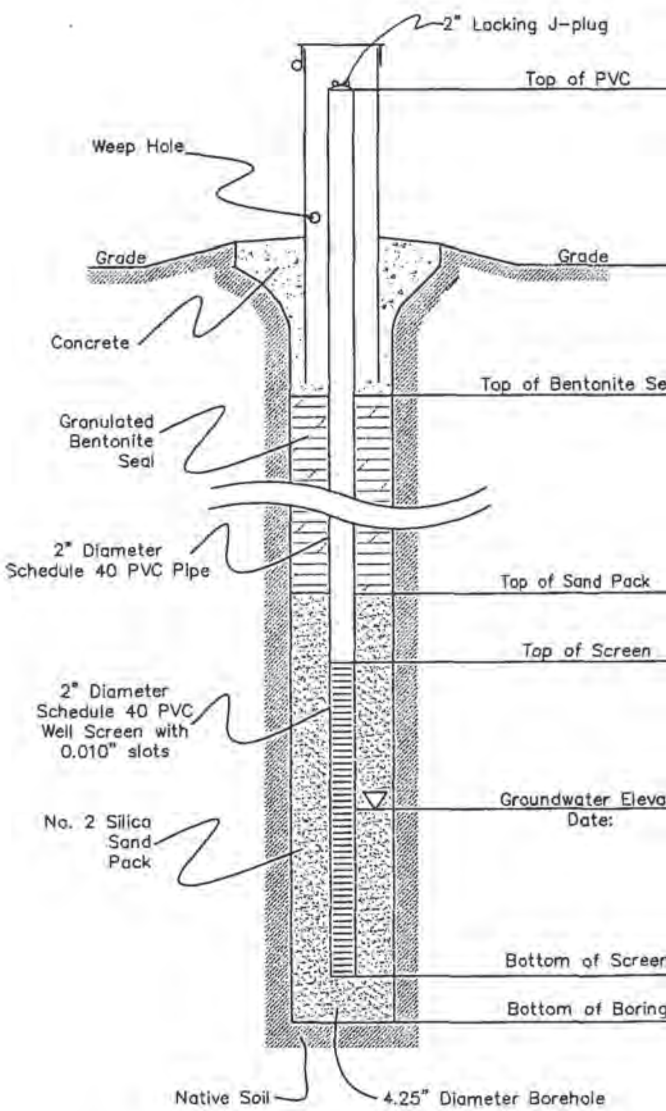
NYSDEC Contract No.: D006373

Project: Trimmer Road Landfill

Spencerport, N.Y.

Install Date: November 7, 2007

Monitoring Well No.: MW-18



	Depth Below Grade	Elevation
Top of PVC		368'
Grade	0.0	365'
Top of Bentonite Seal	0.5	364.5'
Top of Sand Pack	1.0	364'
Top of Screen	2.0	363'
Groundwater Elevation Date:	N/A	N/A
Bottom of Screen	12.0	353'
Bottom of Boring	12.5	352.5'

Drawing Not to Scale

Note: Elevations are based on pre-determined ground elevations provided by Dvirka and Bartilucci Engineers.

OP-TECH Environmental Services, Inc.

14 Old River Rd., PO Box 5182 Massena, NY 13662 (Tel 315-764-1917/Fax 315-764-9453)

2-Inch Diameter Monitoring Well Detail

Client: NYS DEC Project No. SDCR-0004

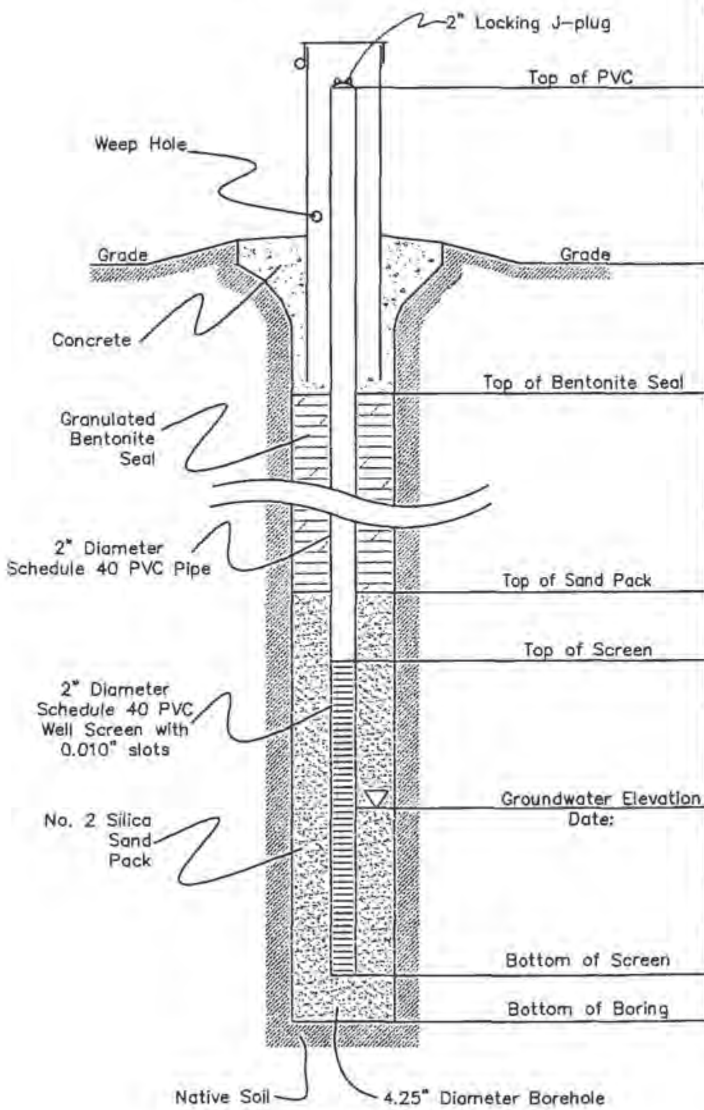
NYSDEC Contract No.: D006373

Project: Trimmer Road Landfill

Spencerport, N.Y.

Install Date: November 7, 2007

Monitoring Well No.: MW-19



	Depth Below Grade	Elevation
Top of PVC		368'
Grade	0.0	365'
Top of Bentonite Seal	0.5	364.5'
Top of Sand Pack	1.0	364'
Top of Screen	2.0	363'
Groundwater Elevation Date:	N/A	N/A
Bottom of Screen	12.0	353'
Bottom of Boring	12.5	352.5'

Drawing Not to Scale

Note: Elevations are based on pre-determined ground elevations provided by Dvirka and Bartilucci Engineers.

APPENDIX 4 - EXCAVATION WORK PLAN

RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022

SOURCE: NYSDEC SMP TEMPLATE

APPENDIX 4 – EXCAVATION WORK PLAN (EWP)

1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination or breach or alter the Site's cover system, the Site owner or their representative will notify the NYSDEC contacts listed in the table below. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix 2 of this SMP.

Table 1: Notifications*

[NYSDEC Project Manager]	[phone] [email address]
Charles Gregory	(518) 402-8246 Charles.Gregory@dec.ny.gov
[NYSDEC Project Manager's Supervisor]	[phone] [email address]
[NYSDEC Site Control]	[phone] [email address]
Thomas Burns	(585) 259-2655 152/154/158 Trimmer Rd, Parma, NY

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

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated, any modifications of truck routes, and any work that may impact an engineering control;

- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;

- A schedule for the work, detailing the start and completion of all intrusive work;

- A summary of the applicable components of this EWP;

- A statement that the work will be performed in compliance with this EWP, 29 CFR 1910.120 and 29 CFR 1926 Subpart P;

- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix 5 of this SMP;

- Identification of disposal facilities for potential waste streams; and

- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP.

2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed during all excavations into known or potentially contaminated material (remaining contamination) or a breach of the cover system. A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will perform the screening. Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-Site disposal and material that requires testing to determine if the material can be reused on-Site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-Site disposal of materials and on-Site reuse is provided in Section [4-6] of this Appendix.

3 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

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

4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan. The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site. A Site utility stakeout will be completed for all utilities prior to any ground intrusive activities at the Site.

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

A truck wash will be operated on-Site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

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

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-Site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations.

5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

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

Truck transport routes consist of a network of gravel access drives on Site, which are used to enter the property and move trucks / any equipment to each of the three vegetative buffer areas.

Gravel access drives can be seen in Figure 2 of this SMP, Site Features. Gravel access drives can be seen in Figure 2 of this SMP, Site Features. All trucks will enter and exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive Sites; (b) prohibiting off-Site queuing of trucks entering the facility; and (c) overall safety in transport.

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

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

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

6 MATERIALS DISPOSAL OFF-SITE

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

Off-Site disposal locations for excavated soils will be identified in the preexcavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility) Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include, but will not be limited to: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

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

7 MATERIALS REUSE ON-SITE

The qualified environmental professional as defined in 6 NYCRR part 375 will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (i.e. contaminated) does not remain on-Site. Contaminated on-Site material, including historic fill and contaminated soil, that is acceptable for reuse on-Site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Proposed materials for reuse on-Site must be sampled for full suite analytical parameters including per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the Site use criteria presented in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances [November 2022 or date of current version whichever is later] guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-Site will be segregated and staged as described in Sections 4-2 and 4-3 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of Site excavation activities and proximity to nearby Site features. Material reuse on-Site will comply with requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

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

8 FLUIDS MANAGEMENT

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

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

9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Record of Decision. The existing cover system is comprised of a minimum of 12 inches of clean soil with no demarcation layer. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. A copy of the form is presented in Appendix 4-1.

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

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for Residential Use.

Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 4-1 (attached at the end of this EWP). Soils that meet 'general' fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

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

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

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

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

12 EXCAVATION CONTINGENCY PLAN

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

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semivolatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the Site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

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

13 COMMUNITY AIR MONITORING PLAN

Air monitoring stations shall be set at upwind and downwind locations with respect to the work area. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

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

13A: Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 part-per-million, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 micrograms per cubic meter, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 micrograms per cubic meter or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each Site.

13B: Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under “Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures” except that in this instance “nearby/occupied structures” would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors offsite Specific odor control methods to be used on a routine basis will include procedures such as mist fences, foaming or limited open excavations, as appropriate. . If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party’s Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

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

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

15 DUST CONTROL PLAN

Particulate monitoring must be conducted according to the Community Air Monitoring Plan (CAMP) provided in Section 13. If particulate levels at the Site exceed the thresholds listed in the CAMP or if airborne dust is observed on the Site or leaving the Site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the Site.

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

- Dust suppression will be achieved using a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger Sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.

- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.

16 OTHER NUISANCES

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

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

Table 4-1

Soil Cleanup Objectives for Imported Fill
Trimmer Road Landfill Site
Parma, New York

Contaminant	CAS Number	Residential Use
Metals		
Arsenic	7440-38-2	16
Barium	7440-39-3	350
Beryllium	7440-41-7	14
Cadmium	7440-43-9	2.5
Chromium, hexavalent	18540-29-9	22
Chromium, trivalent	16065-83-1	36
Copper	7440-50-8	270
Total Cyanide		27
Lead	7439-92-1	400
Manganese	7439-96-5	2,000
Total Mercury		0.81
Nickel	7440-02-0	140
Selenium	7782-49-2	36
Silver	7440-22-4	36
Zinc	7440-66-6	2200
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	93-72-1	58
4,4'-DDE	72-55-9	1.8
4,4'-DDT	50-29-3	1.7
4,4'- DDD	72-54-8	2.6
Aldrin	309-00-2	0.019
alpha-BHC	319-84-6	0.097

Soil Cleanup Objectives for Imported Fill
Trimmer Road Landfill Site
Parma, New York

Contaminant	CAS Number	Residential Use
beta-BHC	319-85-7	0.072
Chlordane (alpha)	5103-71-9	0.91
delta-BHC	319-86-8	100
Dibenzofuran	132-64-9	14
Dieldrin	60-57-1	0.039
Endosulfan I	959-98-8	4.8
Endosulfan II	33213-65-9	4.8
Endosulfan sulfate	1031-07-8	4.8
Endrin	72-20-8	2.2
Heptachlor	76-44-8	0.42
Lindane	58-89-9	0.28
Polychlorinated biphenyls	1336-36-3	1
Semivolatiles		
Acenaphthene	83-32-9	100
Acenapthylene	208-96-8	100
Anthracene	120-12-7	100
Benz(a)anthracene	56-55-3	1
Benzo(a)pyrene	50-32-8	1
Benzo(b)fluoranthene	205-99-2	1
Benzo(g,h,i)perylene	191-24-2	100
Benzo(k)fluoranthene	207-08-9	1
Chrysene	218-01-9	1
Dibenz(a,h)anthracene	53-70-3	0.33
Fluoranthene	206-44-0	100
Fluorene	86-73-7	100

Soil Cleanup Objectives for Imported Fill
Trimmer Road Landfill Site
Parma, New York

Contaminant	CAS Number	Residential Use
Indeno(1,2,3-cd)pyrene	193-39-5	0.5
m-Cresol	108-39-4	100
Naphthalene	91-20-3	100
o-Cresol	95-48-7	100
p-Cresol	106-44-5	34
Pentachlorophenol	87-86-5	2.4
Phenanthrene	85-01-8	100
Phenol	108-95-2	100
Pyrene	129-00-0	100
Volatiles		
1,1,1-Trichloroethane	71-55-6	100
1,1-Dichloroethane	75-34-3	19
1,1-Dichloroethene	75-35-4	100
1,2-Dichlorobenzene	95-50-1	100
1,2-Dichloroethane	107-06-2	2.3
cis-1,2-Dichloroethene	156-59-2	59
trans-1,2-Dichloroethene	156-60-5	100
1,3-Dichlorobenzene	541-73-1	17
1,4-Dichlorobenzene	106-46-7	9.8
1,4-Dioxane	123-91-1	9.8
Acetone	67-64-1	100
Benzene	71-43-2	2.9
Butylbenzene	104-51-8	100
Carbon tetrachloride	56-23-5	1.4
Chlorobenzene	108-90-7	100

Soil Cleanup Objectives for Imported Fill
Trimmer Road Landfill Site
Parma, New York

Contaminant	CAS Number	Residential Use
Chloroform	67-66-3	10
Ethylbenzene	100-41-4	30
Hexachlorobenzene	118-74-1	0.33
Methyl ethyl ketone	78-93-3	100
Methyl tert-butyl ether	1634-04-4	62
Methylene chloride	75-09-2	51
n-Propylbenzene	103-65-1	100
sec-Butylbenzene	135-98-8	100
tert-Butylbenzene	98-06-6	100
Tetrachloroethene	127-18-4	5.5
Toluene	108-88-3	100
Trichloroethene	79-01-6	10
1,2,4-Trimethylbenzene	95-63-6	47
1,3,5- Trimethylbenzene	108-67-8	47
Vinyl chloride	75-01-4	0.21
Xylene (mixed)	1330-20-7	100
Per and Poly Alkyl Fluorinated Substances (PFAS) in PPB		
PFOA	335-67-1	6.6
PFOS	1863-23-1	8.8

Notes:
Soil cleanup objective values in mg/kg or parts per million (PPM) unless otherwise indicated.

Values listed are for Residential Use as stated in 6 CRR NY Part 365 in November 2022. Values in the most current version of the regulation should be used if applicable.

APPENDIX A-1

Request to Import Soil or Fill

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e). Use of this form is not a substitute for reading the applicable Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 10 sieve? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

____ ____________________

Signature Date

____

Print Name

____

Firm

APPENDIX 5 - HASP
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: APPENDIX C, SITE MANAGEMENT PLAN, D&B 2009B

The following Health and Safety Plan, prepared by Dvirka and Bartilucci, describes the minimum anticipated protective measures necessary for worker health and safety during the activities associated with this project. Contractors and subcontractors should read and understand the contents of this document. The contents of this document may not cover all situations that may arise nor to waive any provisions specified in Federal, State, and local regulations or site owner contractor health and safety requirements. During this program, if any task occurs that is not covered in this Project Safety Plan, the individual responsible for that task will be responsible for assessing personnel affected by the new activity and its associated hazards and prepare an addendum of job specific safety analysis document to ensure that they follow necessary safety procedures and use appropriate protective equipment for the task.

Contractors and subcontractors are accountable for the health and safety of employees. No requirements or provisions within this plan shall be construed by subcontractors as an assumption by Ramboll or the New York State Department of Environmental Conservation of their legal responsibilities as an employee

HEALTH AND SAFETY PLAN

Prepared for

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATOIN

Prepared by

DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK

OCTOBER 2007

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CERTIFICATION

This Health and Safety Plan (HASP) has been prepared under the supervision of, and has been reviewed by, a Certified Industrial Hygienist (CIH) certified by the American Board of Industrial Hygiene.

Bruce D. Groves.

(Bruce Groves, CIH)
ABIH No. Cert # 2224

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HEALTH AND SAFETY PLAN

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1.0 INTRODUCTION

1.1 General

This Health and Safety Plan (HASP) is prepared to meet the requirements contained in 29 CFR §1910.120 and §1926, NIOSH/OSHA/USCG/USEPA Guidance Manual for Hazardous Waste Site Activities (NIOSH No. 85-115), USEPA "Standard Operating Safety Guides," and Superfund Amendments and Reauthorization Act (SARA), Title I, Section 126. The HASP addresses activities associated with field investigations conducted at New York State Department of Environmental Conservation (NYSDEC) Superfund sites. Compliance with the HASP is required of all on-site personnel entering and/or conducting investigation activities at the site. Personnel conducting activities at the sites will be subject to the requirements of this HASP and accountable to the authorities having jurisdiction at the site. Site-specific information regarding health and safety will be included in a site-specific work plan, if required.

1.2 Purpose and Scope of the HASP

This HASP sets forth the requirements for on-site health and safety supervision, air monitoring, medical monitoring, personal protective equipment, controls, safe work practices and proper decontamination in order to ensure health and safety during activities associated with field investigation in the restricted zones of a site.

1.3 Site Description

The sites covered under this plan include a wide variety of active and inactive commercial and industrial facilities. Specific information pertaining to each site will be provided in a site-specific work plan, if required.

2.0 PERSONNEL ORGANIZATION AND RESPONSIBILITIES

Investigation of sites will require the interaction of contractors, site facility operators and technical specialists, both on-site and off-site. The project team will comprise representatives of the New York State Department of Environmental Conservation (NYSDEC), Dvirka and Bartilucci Consulting Engineers (D&B), the environmental consultant and various contractors.

2.1 Project Director

The Project Director will have overall responsibility for implementation of the corporate and site-specific Health and Safety Plan, if required, and the supervision and monitoring of employees and contractors.

2.2 Project Manager

The Project Manager will assure that all elements of this HASP are implemented where applicable and that all project staff are protected and working in a safe manner.

2.3 Health and Safety Officer (HSO)

The HSO will be responsible for preparation of the site-specific HASP, if required, and has the final authority to resolve health and safety issues at the site. The HSO has overall responsibility for ensuring that the policies and procedures of this HASP are implemented.

The HSO will provide regular support for all health and safety activities, including recommendations for upgrading or downgrading the level of personal protection, as needed.

The HSO will be on-site as needed during the field investigation. The HSO has the authority to stop work at any time unsafe work conditions are present. Any potentially hazardous condition posing a risk beyond the defined role or mission is anticipated to require the HSO to consult with the Field Operations Manager (FOM) and Project Director.

The HSO will be a Certified Hazardous Materials Manager (CHMM), Certified Safety Professional (CSP), Certified Industrial Hygienist (CIH) or designee, and will be available off-site on an as-needed basis to provide technical support to the FOM. Any decisions requiring use or selection of personal protection equipment (PPE), or monitoring devices other than those in the HASP, will be approved by the HSO or designee.

2.4 Field Operations Manager and Alternate HSO

The FOM, or designee, will serve as the Alternative HSO and will be responsible for conducting the work and for assuring that the work is conducted in accordance with the requirements of the HASP. The FOM will be on-site as needed during the field investigation and will manage all day-to-day activities of all parties on the site.

The FOM will be responsible for implementing safety precautions and procedures during all investigation phases, and has final authority to resolve health and safety issues at the site when the HSO is not on-site.

2.5 Physician

A physician will be responsible for all medical review, diagnosis and certification of all site personnel. An on-call physician will be available for each investigation designated in the site-specific work plan, if required.

2.6 General Health and Safety Requirements for all Employees

The following general health and safety requirements will apply to all persons working at the site:

- All persons working on the investigation team will read, sign and become familiar with the HASP (a copy of the Health and Safety Plan Review Acknowledgment Form is provided in Exhibit 1). If any information is unclear, the reader will contact the

HSO for clarification prior to any field work. A copy of the plan will be available for review through the Project Manager, FOM or designee.

- No one will be allowed in active investigation areas without the prior knowledge and approval of the HSO, Project Manager or FOM. All active areas that could pose a potential threat to health and safety will be designated with warning tape or other measures to prevent access by other site personnel or the public.

- Sufficient backup personnel will be available for all site activities. At a minimum, two persons will be present at any location during investigation activities.

- All personnel involved in the investigation at the site will notify the HSO, Project Manager or FOM of any unsafe conditions or activities.

- Standard hygiene practices will be implemented, such as no smoking, eating or drinking during site investigation work activities. A thorough washing of hands and face prior to smoking, eating or drinking will be conducted.

- Workers will avoid unnecessary contamination, such as walking through, sitting on, leaning on or kneeling in areas that are known or suspected to be contaminated.

- All site personnel will observe their partners for any signs of adverse effects associated with the work activity, and will inform their partner or supervisor of any unusual signs or symptoms that they are experiencing themselves.

3.0 HAZARD ASSESSMENT AND RISK ANALYSIS

3.1 Potential Health Hazards

The general hazard potential at hazardous waste sites is characterized in Table 3-1. The primary concern at these sites is to protect workers from potential exposure to contaminated soil, vapors, dust, groundwater and other contaminated materials when conducting the field investigation. In addition to the chemical hazards, physical, biological, radiological and underground hazards may also exist. These hazards are identified on Table 3-2 and are discussed below.

3.1.1 Health Hazard Identification

A list of the chemical contaminants that are commonly found at hazardous waste sites is found in Table 3-2. These chemical contaminants may be present, along with other compounds, at levels which, upon release and contact, may result in concentrations approaching the OSHA Permissible Exposure Limits (PELs). There may also be chemicals or mixtures of chemicals for which no information at the time of preparation of this HASP have been identified. Workers should be observant of any unplanned occurrences (unusual odor, soil colorations, etc.).

3.1.2 Health Hazard Evaluation

The primary potential health hazards of concern to workers from contaminants are from the inhalation of vapors and dusts, and skin exposure to corrosive substances or skin absorptive poisons. Potential for these exposures exist when conducting field programs using various investigation techniques.

Table 3-1

SUMMARY OF CHARACTERISTICS AND HEALTH HAZARDS

Type of site	Active and inactive commercial and industrial facilities
Apparent hazard	Low-moderate (in general)
Potential source	Contaminated surface and subsurface soil, groundwater, wastewater, drainage water, surface water, sediment and sanitary waste/sludge
Contamination characteristics	Toxic, corrosive, flammable
Form of hazards	Dust, liquids, vapors
Routes of exposure	Inhalation, ingestion, dermal contact

Table 3-2

SUMMARY OF POTENTIAL HAZARDS

CHEMICAL HAZARDS	Volatile organic compounds
	Semivolatile organic compounds
	Pesticides
	PCBs
	Metals
	Cyanide
PHYSICAL HAZARDS	Noise
	Slips, trips, falls
	Deteriorated overhead surfaces
	Heavy equipment traffic
	Heat or cold stress
	Striking and struck by (heavy equipment)
BIOLOGICAL HAZARDS	Pigeon droppings
	Rabies carrying animals (rats, raccoons, etc.)
	Poisonous snakes (weather dependent)
	Stinging insects (weather dependent)
	Poisonous plants (weather dependent)
ELECTRICAL HAZARDS	Overhead or underground power lines
	Lightning
	Electrical equipment
FIRE/EXPLOSION HAZARDS	Combustible gas
OXYGEN DEFICIENCY	Working in confined spaces
RADIATION HAZARDS	Wastes
UNDERGROUND HAZARDS	Contaminated media
	Gas lines
	Water lines
	Sewer/storm lines
	Electrical lines
	Telecommunication lines

During work on-site, air monitoring will be performed in accordance with Section 7.2 – Air Monitoring. OSHA PELs and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) may be exceeded during investigation activities. A list of PELs and Health Hazards of Typical Contaminants of Concern are listed on Table 3-3. This list must be updated based on site specific contaminants of concern in the site specific Health and Safety Plan. The activities to be performed during typical site investigations are summarized in Table 3-4. Air monitoring will be performed during the implementation of these activities. Further discussion of air monitoring is provided in Section 7.2 and in the event of the potential exposure, personal protective equipment requirements are provided in Section 5.

3.1.3 Potential Exposures

Potentially contaminated samples include soil, groundwater, wastewater, sludge, storm water, surface water and sediment. The expected risk of exposure to these chemicals would be from inhalation, ingestion, skin or eye contact with volatile compounds, contaminated dusts, etc. Potential exposures can be mitigated through appropriate investigation procedures, work practices, air monitoring and personal protective equipment. Duration and frequency of exposure will be short and intermittent over a period of several weeks. All personnel related to the investigation will keep upwind of all soil disturbances and sampling activities, when possible. In addition, splashing of liquids and generation of dust should be minimized by employing careful handling practices.

3.1.4 Physical and Biological Hazards

Anticipated potential physical hazards from routine investigative work are low to moderate, but still require consideration due to their ability to cause injury. Workers may encounter sharp objects, pinch points or unsecured footing. Improper or careless use of sampling, drilling and excavation equipment increases the risks of accidents from underground and overhead utilities, and operation of the equipment. When working around machinery, there

Table 3-3

PERMISSIBLE EXPOSURE LIMITS AND HEALTH HAZARDS OF CONTAMINANTS OF CONCERN

Chemical	OSHA Permissible Exposure Limits	Primary Health Hazard (Target Organs)
Acetone	1,000 ppm, IDLH 2,500 ppm	Eyes, skin, respiratory system (RS), central nervous system (CNS)
Benzene	1 ppm, IDLH 500 ppm	Eyes, skin, RS, blood, CNS, bone marrow
Chlorobenzene	100 ppm, IDLH 1000 ppm	Eyes, skin, liver, RS, CNS
1,1-Dichloroethene	100 ppm, IDLH 3000 ppm	Skin, liver, lungs, kidneys, CNS
1,2-Dichloroethene	200 ppm, IDLH 1000 ppm	Eyes, RS, CNS
Chloroform	TLV 10 ppm, C 50 ppm	Eyes, skin, liver, Reproductive System
1,1,2-Trichloroethane	10 ppm, IDLH 100 ppm	Eyes, RS, liver, kidneys, CNS
1,1-Dichloroethylene	None (carcinogen)	Eyes, skin, blood, liver, kidneys, CNS
Trichloroethene	100 ppm, IDLH 1000 ppm	Eyes, skin, RS, heart, liver, CNS
Tetrachloroethene (Perchloroethene)	100 ppm, C 200 ppm	Eyes, RS, skin, liver, kidneys, CNS
1,1,1-Trichloroethane	350 ppm, IDLH 700 ppm	Eyes, skin, CNS, cardiovascular system (CVS), liver
Ethylbenzene	100 ppm, IDLH 800 ppm	Eyes, skin, RS, CNS
1,4-Dichlorobenzene	75 ppm, IDLH 150 ppm	Eyes, RS, liver, kidneys, skin
1,3-Dichlorobenzene	Not listed	Not listed
Ethene	Not listed	Not listed
Methane	Not listed	Not listed
Methylene Chloride	25 ppm, IDLH 2300 ppm	Eyes, skin, CVS, CNS
Toluene	200 ppm, IDLH 500 ppm	Eyes, skin, RS, CNS, liver, kidneys
Vinyl Chloride	1 ppm, C 5 ppm	Liver, CNS, blood, RS, lymphatic system

C - Ceiling Limit
IDLH - Immediately Dangerous to Life and Health
ST - Short Term Exposure Limit

Table 3-3 (continued)

PERMISSIBLE EXPOSURE LIMITS AND HEALTH HAZARDS OF CONTAMINANTS OF CONCERN

Chemical	OSHA Permissible Exposure Limits	Primary Health Hazard (Target Organs)
Benzene	1 ppm, ST* 5 ppm	Eyes, skin, respiratory system (RS), blood, central nervous system (CNS), bone marrow
Toluene	200 ppm C**300 ppm	Eyes, skin, RS, CNS, liver, kidneys
Ethylbenzene	100 ppm	Eyes, skin, RS, CNS
Xylene	100 ppm	Eyes, skin, RS, CNS, gastrointestinal (GI) tract, blood, liver, kidneys
Naphthalene	10 ppm	Eyes, skin, blood, liver, kidneys, CNS
Fluoranthene	0.2 mg/m^3	No specific hazard listed
Coal Tar Pitch (phenanthrene, anthracene, pyrene, chrysene and benzo(a)pyrene)	0.2 mg/m^3	RS, skin, bladder, kidneys
Arsenic	0.010 mg/m^3	Liver, kidneys, skin, lungs, lymphatic system
Barium	0.5 mg/m^3	Eyes, nose, throat, lungs, heart and GI tract
Cadmium	0.005 mg/m^3	RS, kidneys, prostate, blood
Chromium	0.5 mg/m^3	Eyes, skin, RS
Lead	0.050 mg/m^3	Eyes, GI tract, CNS, kidneys, blood, gingival tissue
Mercury	C**0.1 mg/m^3	Eyes, skin, RS, CNS, kidney
Selenium	0.2 mg/m^3	Eyes, skin, RS, liver, kidneys, blood, spleen
Silver	0.01 mg/m^3	Nasal septum, skin, eyes
PCBs	0.5 mg/m^3 (skin)	Skin, eyes, liver, reproductive system
Hydrogen Cyanide	10 ppm (11 mg/m^3)	CNS, CVS, thyroid, blood
Cyanide (potassium or sodium cyanide, as CN)	5.0 mg/m^3	Heart, eyes, nose, throat, skin

ST - Short Term Exposure Limit
C - Ceiling Limit

Table 3-4

ACTIVITIES TO BE PERFORMED DURING INVESTIGATIONS

Soil vapor sampling
Dry well, storm water drainage system and on-site sanitary system sampling
Test pit excavation
Surface soil sampling
Borehole construction and subsurface soil sampling
Monitoring well construction
Groundwater sampling
Surface water and surface water sediment sampling
Ambient air sampling

are also potential electrical hazards. In addition, workers may be exposed to poison ivy, stinging and biting insects, ticks and vermin. Personnel working at sites should take precautions against possible deer tick bites. Deer ticks are carrier of spirochete (borrelia bergdorfii) which causes Lyme Disease that can be transmitted to humans when bitten. To prevent tick bites, personnel should wear long pants made of light-colored, tightly woven cloth; tuck pant legs inside of socks; use an insect repellant; check themselves frequently and wash themselves thoroughly at the end of each day. Heat/cold stress, sunlight and UV radiation, and biological hazards are also potential hazards. Refer to Exhibit 6 for heat/cold stress guidelines.

Open excavations, pits, trenches, drill pit, sanitary system and other confined spaces as defined in 29 CFR 1910.14b(c)(1) and 29 CFR 1910.14b(d)(2) also represent hazards and under no circumstances will they be entered unless written procedures are in place for confined space entry. D&B's corporate confined space entry procedure is provided as Exhibit 2. Anyone performing confined space operations has received the necessary training. Oxygen content, flammable gasses or vapors and toxic air contaminants monitoring must be performed in accordance with Exhibit 2.

3.1.5 Radiological Hazards

Humans receive a continuous exposure to ionizing radiation that results from natural sources such as cosmic radiation from outer space and from radioactive materials in the earth and materials both around and within the body. This is referred to as "background radiation" and is part of the normal environment. The degree of injury inflicted on an individual by radiation exposure depends on such factors as the total dose, the rate at which the dose is received, the kind of radiation as well as the body parts receiving it.

Extensive work has been performed in an attempt to relate radiation dose to resulting damage. Based upon all the studies performed "maximum permissible levels" of exposure have been established which denote the radiation dose that can be tolerated with little chance of later development of adverse effects. A Geiger counter will be utilized as a screening tool to ensure that no source other than natural radioactive materials or background levels are present on-site.

Readings indicative of elevated radioactive activity will be cause to assess the current levels of personnel protective equipment and determine their adequacy. The HSO will be consulted immediately if investigative activities result in elevated Geiger counter readings.

3.2 Activity Safety and Health Hazard Analysis

Field activities for hazardous waste sites will include collecting samples from various locations and environmental media using techniques including:

- Soil vapor sampling;
- Dry well, storm water drainage system and on-site sanitary system sampling;
- Test pit excavation;
- Direct push sampling;
- Surface soil sampling;
- Borehole construction and subsurface soil sampling;
- Monitoring well construction;
- Groundwater sampling;
- Surface water and surface water sediment sampling; and
- Ambient air sampling.

Potential safety risks will vary with the specific activity and equipment used, and with the sampling sites themselves. When any new data is collected, potential health and safety hazards will be evaluated with respect to the current and planned activities at the site. All sampling work in which the potential hazards have not been identified may require additional precautions to assure protection against potential hazards. Any modifications of the investigation work plan will require evaluation to determine if the existing Health and Safety Plan is adequate in protecting on-site investigators.

With the installation of groundwater monitoring wells and soil borings, soil and groundwater sampling, test pit excavations, and dry well, storm water drainage system and sanitary system sampling during the investigation, some safety risks inherent with these activities may be expected. There is the potential for mechanical and physical "struck-by" hazards associated with the equipment and sampling activities. There are also potential electrical hazards from underground lines, overhead lines and use of electrical equipment and tools. The location of all underground utilities must be determined in areas where subsurface investigation is to be performed. Utility companies will be contacted to provide "mark-outs" on and off site at all investigation locations prior to initiation of subsurface activities. The property owner will also be contacted to determine utility locations on site. When conducting work inside structures, machinery lockout/tagout must be performed. A Lockout/Tagout Program has been established to protect employees from injuries that could result from the unexpected or unplanned start-up or movement of machinery or equipment during maintenance, installation, adjustment or servicing operations. This policy sets forth procedures which will be used to ensure that employees are provided with the information and equipment they need to perform these tasks safely. Exhibit 4 provides lockout/tagout procedures.

With regard to projects where excavating and trenching operations are being undertaken, personnel shall not enter the excavation for collection of a sample. D&B's corporate excavation trenching operations guidelines are provided as Exhibit 3.

The direct handling of contaminated drums, containers or concentrated/pure chemicals is not expected during the investigation. In the event that such materials are encountered during the field program, the operation will cease and uncovered drums which have been damaged will be immediately covered with soil to minimize release of volatile compounds. This condition will be recorded and reported to NYSDEC, and the field team will be instructed to secure the area until health and safety risks are properly assessed and the course of further action is determined.

The activities to be conducted at hazardous waste sites typically represent low to moderate health risk relative to the potential to encounter contaminated material. The risk associated with safety hazards is also low to moderate. Potential levels of airborne contaminants may dictate use of appropriate personal protective equipment as deemed necessary by the HSO.

Initial work will be conducted in Level D personal protection. Monitoring equipment to be used includes: portable PID/FID, and combustible gas, oxygen, hydrogen sulfide indicator and Geiger counter. Additional instrumentation and sampling systems may be utilized if deemed necessary by the HSO or designee. The HSO or designee may modify these requirements as deemed necessary.

Proper wearing of protective equipment and employment of stringent personal hygiene practices should reduce potential health hazards.

Restricting access of on-site personnel to all equipment operations, maintaining safe distances from equipment and wearing proper safety equipment will reduce risk of injuries.

4.0 TRAINING REQUIREMENTS

4.1 General Health and Safety Training

All on-site personnel assigned to or regularly entering areas of the site other than the Support Zone (once established) will be trained in accordance with 29 CFR 1910.120. This training will be required for personnel performing or supervising work; for health, safety, security, or administrative purposes; for maintenance; or for any other site related function.

The training will include a minimum of 40 hours of general health and safety training meeting the requirements of 29 CFR 1910.120(e)(3)(i), and 8-hour annual refresher training. All management and supervisory personnel on-site must have received an additional 8 hours of training in accordance with 29 CFR 1910.120(e)(4). Instructors providing the training must meet the criteria outlined in 29 CFR 1910.120(e)(5). Documentation of all such training will be made available to the HSO, HSO designee or FOM before any person will be allowed to enter any potentially contaminated area (namely, the Exclusion Zone or the Contaminant Reduction Zone - see Section 8.0 for further discussion of Work Zones). Visitors who will enter the exclusion and contamination reduction zones must meet the training requirements listed above.

4.2 Site-Specific Training

All site personnel will attend a site-specific training meeting and will become familiar with the HASP and site-specific information, and certify their understanding of this plan (see Exhibit 1). This meeting will include, at a minimum, discussion in the following areas:

- Site specific hazard analysis (chemical/physical hazards);
- Standard safety operating procedures;
- Personal hygiene;
- Safety equipment to be used;
- Personal protective equipment to be worn, including care, use and proper fitting;

- Decontamination procedures;
- Areas of restricted access and prohibitions in work areas;
- Emergency procedures and plans;
- On-site and off-site communications;
- Hazardous materials handling procedures;
- Air monitoring instrumentation use and calibration;
- Hazardous materials recognition; and
- The "Buddy System" to be used at the site.

Visitors entering the Exclusion and Contaminant Reduction Zones will also be briefed on similar information. This briefing will be conducted by the HSO or the FOM/Alternate HSO. Abbreviated awareness briefings for visitors who remain in the Support Zone will also be provided by the HSO, HSO designee or FOM.

Documentation of training for all on-site personnel will be included in the site-specific HASP or provided to the HSO prior to commitment of field activities. Personnel who have not successfully completed the required training will not be permitted to enter the Exclusion Zone or the Contaminant Reduction Zone.

New employees involved in hazardous activities will be indoctrinated by the HSO prior to entering the site to work. All training requirements will be completed by a new employee prior to indoctrination. Indoctrination will be comprised of the site-specific refresher briefing, the task/operation safety and health risk analysis and accident prevention plan.

5.0 PERSONAL PROTECTIVE EQUIPMENT

5.1 General

All on-site personnel will be issued appropriate personal protective equipment (PPE). All PPE is to be used properly and protective clothing is to be kept clean and well maintained. The HSO or designee will maintain constant communication with the Project Director when conducting air monitoring as discussed in Section 7.2 and consult the Project Director with regard to "action levels" at which the specified minimum levels of protection are either upgraded or downgraded based upon air monitoring results and direct contact potential. Action levels are described in Section 7.2 The HSO or designee has the authority to require the use of additional equipment, if necessary, for specific operations, or may tailor PPE specifications to best fit the hazard control requirements as appropriate.

5.2 General Site Safety Equipment Requirements

The following is the basic work uniform and will be worn primarily outside the Exclusion Zone and the Contaminant Reduction Zone at the site. Equipment includes:

- Coveralls - (optional, may be disposable type);
- Boots/shoes - (OSHA compliant construction footwear);
- Hard hat with splash shield, if needed - ANSI approved; and
- Gloves (optional).

5.3 Level D Protection

Level D protection will be initially worn in the Exclusion Zone and Contaminant Reduction Zone during intrusive sampling and investigative activities. Equipment includes:

- Coveralls - One or two piece disposable suit, tyvek or equivalent;

- Gloves - Outer (neoprene, nitrile, or equivalent); Inner (nitrile);
- Boots - Outer (vulcanized rubber or equivalent); Inner (steel toe and shank) or equivalent combination (ANSI approved);
- Safety glasses or goggles (ANSI approved);
- Hard hat with splash shield, if needed (ANSI approved); and
- Hearing protection (if work is near heavy or noisy equipment).

5.4 Level C Protection

Level C protection will be selected when a modified level of respiratory protection is needed. Selection will be made when air monitoring results for the site or individual work areas exceed the action level criteria as described in Section 7.2 of this HASP. Equipment includes:

- Respirators - Full facepiece, air purifying respirator with combination organic vapor and particulate (P100) air cartridges (OSHA/NIOSH approved);
- Coveralls- Hooded one or two piece chemical resistant suit, PE - Tyvek or equivalent (modification of protective suits may be made upon the approval of the HSO);
- Gloves - Outer (nitrile or equivalent); Inner (nitrile);
- Boots - Outer (neoprene or equivalent), Inner (steel toe and shank) or equivalent combination (ANSI approved);
- Two-way radio communications (for remote operations);
- Hard hat with splash shield (ANSI approved); and
- Hearing protection (if work is near heavy or noisy equipment).

5.5 Level B Protection

Level B protection requires full chemical resistant clothing with a full facepiece SCBA or supplied air respirator. Generally, this level of protection is generally not expected for investigations at hazardous waste sites. However, provision will be made to have this equipment available should its use be determined to be required based on all monitoring as performed in accordance with Section 7.2 of this HASP. Investigation activities which may result in this level of protection being required will not be implemented until the equipment has been transported to the site. The HSO will be notified should air monitoring indicate this level of protection is required. The use of Level B protection will only be implemented when sufficiently trained personnel (minimum of two) are available on-site.

5.6 Confined Spaces

Under no circumstances will confined spaces be entered unless discussed with the Project Director and HSO, and the site-specific HASP is prepared to incorporate additional safety requirements, and all personnel are trained appropriately to deal with confined space hazards. D&B's corporate confined space entry procedure is provided as Exhibit 2.

5.7 Standing Orders

5.7.1 <u>Eye Protection</u>

Prescription lens inserts will be provided or personal contact lenses may be used for full-face respirators. All eye and face protection will conform to OSHA 1910.133.

5.7.2 <u>Respiratory Protection</u>

Programs for respiratory protection will conform to OSHA 1910.134 and ANSI Z88.2-1980. A respiratory program addressing respirator care and cleaning is described in Exhibit 5.

5.7.3 <u>Respirator Fit-testing</u>

Personnel unable to pass a fit-test will not engage in any investigation activities that will require level C or higher protection.

5.7.4 Respirator Maintenance and Repair

Each respirator will be individually assigned and not interchanged between workers without cleaning and sanitizing. Cartridges/canisters and filters will be changed daily or upon breakthrough, whichever occurs first. If breakthrough occurs, a reevaluation by the HSO of the protection level will be made. A procedure for assuring periodic cleaning, maintenance, and change of filters will be followed by each respirator wearer. This procedure is described in Exhibit 5.

5.7.5 Head Protection

A hard hat will be worn by all personnel. All head protection will conform to the requirements in OSHA 1910.135.

5.7.6 Reuse and Retirement of PPE

All non-disposable Level D or C personal protective equipment worn on-site will be decontaminated before being reissued. The FOM, HSO or designee is responsible for ensuring all non-disposable personal protective equipment is decontaminated before being reissued. Disposable PPE will be properly disposed of according to NYSDEC requirements and regulations.

5.7.7 Foot Protection

All safety boots will conform to OSHA 1910.136.

5.7.8 Noise Protection

Power equipment may generate excessive noise levels (in excess of 85 decibels). Proper ear protection will be provided and used in accordance with OSHA 1926.52.

6.0 MEDICAL SURVEILLANCE

All on-site personnel involved in hazardous waste operations will have satisfactorily completed a comprehensive medical examination prior to the initiation of investigation activities at the site. Medical examinations are required for any and all personnel entering Exclusion or Contamination Reduction Zones.

Medical examinations are not required for people making periodic deliveries provided they do not enter Exclusion or Contamination Reduction Zones.

The date of physical examination of each site worker will be documented. A specific Medical Data Sheet for each individual will be filed with the HSO or designee prior to commencing operations and with the Project Manager.

All personnel who will enter the Exclusion Zone or the Contaminant Reduction Zone will be provided with medical surveillance at the start of their employment (entrance examination) and at the end of the on-site personnel's employment (exit examination). Medical surveillance protocol is the physician's responsibility, but will meet the requirements of OSHA Standard 29 CFR 1910.120 for all personnel. The protocol will be selected by the physician. Additional clinical tests may be included at the discretion of the attending physician performing the medical examination. Non-scheduled medical exams may be conducted as determined necessary by the physician, but will be conducted:

- After acute exposure to any toxic or hazardous material.
- At the discretion of the Project Director and/or the physician, when an employee has been exposed to potentially dangerous levels of toxic or hazardous materials.
- At the discretion of the Project Director and/or the physician, and at the request of an employee with demonstrated symptoms of exposure to toxic or hazardous materials.

In addition to non-scheduled exams, any medical, biological or radiological monitoring required by an OSHA standard when OSHA Action Levels are exceeded will be performed.

Companies contracted to perform work on-site in the Exclusion Zone or Contaminant Reduction Zone will provide equivalent medical surveillance to their on-site personnel and supply documentation to that effect.

6.1 Documentation and Record Keeping

The examining physician will notify the Project Director in writing that the individual has received a medical examination and advise as to any specific limitations upon such individual's ability to work at the project site, which were identified as a result of the examination. Appropriate action will be taken in light of the advice given pursuant to this paragraph.

The ability of on-site personnel to wear respiratory protection during hazardous waste activities will be certified by the physician. Cardiopulmonary system examination and pulmonary function testing are minimum requirements.

The physician will maintain and provide access for employees to his medical surveillance records according to OSHA requirement 29 CFR 1910.120.

7.0 ENVIRONMENTAL AND PERSONAL MONITORING PROGRAM

7.1 General

In order to protect site workers from harmful levels of airborne toxic materials, potentially explosive gases, or excessively cold conditions, regular environmental and personnel monitoring will be accomplished to document exposures and to decide when to increase protective measures.

7.2 Air Monitoring

Particular phases of work will require the utilization of specific air monitoring equipment to detect relative levels of contaminants or identify unknown environments.

Air monitoring will be conducted by the HSO, FOM or designee for the express purpose of safeguarding the health and welfare of site workers and the general public residing in the vicinity of the site.

7.2.1 Air Monitoring Instrumentation

On-site air monitoring will be performed using the following direct reading instruments:

- Portable photo ionization device (PID) for the detection of organic vapors
- Portable combustible gas/oxygen/hydrogen sulfide detector will be available for determining lower explosive limits, oxygen and hydrogen sulfide levels in any identified confined spaces. Under no circumstances will confined spaces be entered unless discussed with the Project Director, the HASP is revised to incorporate additional safety requirements and all personnel are trained appropriately to deal with confined space hazards.
- Geiger counter for detecting radiological contamination (if appropriate)
- Colorometric detector tubes for detecting specific contaminants.
- Respirable dust monitor(s) will be used to monitor particulate emissions.

All monitoring and surveillance equipment will be operated, maintained and calibrated each working day in accordance with the manufacturer's instructions and quality assurance procedures. Organic vapor monitoring will be conducted by trained field staff prior to, during and following sampling, and disturbance of soils or sediments at a sampling site. Should contamination levels indicate high hazard potential, the HSO will review monitoring procedures and results.

A daily air monitoring form or entries in a daily log book will be used to record monitoring data. (See Exhibit 6.)

Instruction and calibration manuals for the proper use of these, as well as other field instrumentation, will be provided as a separate document available for use at the site.

Monitoring and surveillance equipment can be impacted by cold weather, communication transmissions and possibly high voltage electrical transmission wires and other interferences. Any unusual meter responses will be noted on the air monitoring form and a diagnosis of potential influencing factors made to determine and eliminate the cause.

7.2.2 Air Monitoring Locations and Action Level Criteria

The primary areas to be monitored during the site investigation are the work zones established around sampling, drilling or excavation locations. Air monitoring protocols for each area will differ, since target populations, contaminant concentrations and atmospheric conditions will vary. Monitoring will be conducted within these work zones and at the site perimeter.

Air monitoring conducted at the sampling locales will focus on workers' breathing zones and may include personal breathing zone samples. Air monitoring just outside of these locations will consist of instruments attempting to quantify the types and degrees of emissions originating from sampling sites.

7.2.2.1 - Duration, Frequency and Protocol

Monitoring will be conducted daily or as deemed necessary by the HSO or designee during all activities in the Exclusion Zone, particularly during intrusive activities. The HSO or designee may modify the work zone sampling frequency upon review of previously analyzed work zone samples.

7.2.2.2 - Background Air Monitoring

Background monitoring for contaminants will be conducted at the upwind perimeter of the Exclusion Zone prior to allowing workers to enter the Exclusion Zone. Monitoring will occur continuously, or at the discretion of the HSO or designee, downwind and crosswind while work is occurring in the Exclusion Zone. Data will be annotated in the Air Monitoring Form for that day. Indoor air quality monitoring will also be conducted when working inside.

Changes in wind direction will require reassessment of air monitoring locations. Wind directions may be determined with the aid of a wind sock (if appropriate). Levels of contaminants that warrant use of respiratory protection by site workers may require initiation of site perimeter and personal sampling as deemed necessary by the HSO or designee.

7.2.2.3 - Exclusion Zone Air Monitoring

Air monitoring conducted in the Exclusion Zone will focus on real time measurement of toxic compounds that pose inhalation hazards, levels of flammable compounds for explosive hazards, and oxygen deficient atmospheres. A summary of the action levels are provided in Table 7-1.

Table 7-1

ACTION LEVELS FOR INVESTIGATIONS

Action Level	Action To Be Taken
PID	
Background	**Level D** (See Section 5.3)
Background to 5 units* above background in breathing zone, and no vinyl chloride or benzene present.	Halt work, evacuate area and allow area to ventilate prior to resuming work. Should levels persist, upgrade to **Level C** protection (See Section 5.4) if required upon approval by HSO and FOM.
Greater than 5 units* above background in breathing zone, and no vinyl chloride or benzene present.	Halt work, evacuate work area and allow area to ventilate prior to resuming work. Should levels persist, contact FOM and upgrade to **Level B** (See Section 5.5) protection if required upon approval by HSO and FOM.
DRAEGER COLORIMETRIC TUBE	
Positive color change for vinyl chloride or benzene $\leq$ 0.5 ppm	Halt work, evacuate area and allow area to ventilate prior to resuming work. Contact FOM. If levels persist, upgrade to **Level C** protection if required upon approval by HSO and FOM.
Vinyl chloride or benzene 0.5 - 1.0 ppm	Halt work, evacuate area and allow area to ventilate prior to resuming work. Contact FOM. If levels persist, upgrade to **Level B** protection if required upon approval by HSO and FOM.
Vinyl chloride or benzene > 1 ppm	Shut down work activities. Monitor site to check for off-site migration.
COMBUSTIBLE GAS METER	
Greater than 10% Lower Explosive Limit (LEL)	Halt work, evacuate area and allow area to ventilate to below 10% LEL prior to resuming work. Notify FOM.
OXYGEN	
Less than 20.5%	Continuous monitoring. Consider engineering controls.
Less than 19.5%	Evacuate work area. Institute ventilation and engineering controls. Maintain site conditions for at least 15 minutes before proceeding. Notify FOM.

* Units equal total ionizable organic/inorganic vapors and gases.
** Reading sustained for 1 minute (60 seconds) or longer.

Table 7-1 (continued)

ACTION LEVELS FOR INVESTIGATIONS

Action Level	**Action To Be Taken**
OXYGEN (continued)	
Greater than 22%	Continuous monitoring and identify combustion sources.
Greater than 23.5%	Evacuate and institute engineering controls as necessary before proceeding. Explosive condition may be present. Notify FOM.
HYDROGEN SULFIDE	
Less than 10 ppm at breathing zone	**Level D** and continuous monitoring.
Above 10 ppm at breathing zone	Halt work, evacuate area and allow area to ventilate to below 10 ppm. If levels persist, upgrade to **Level B** protection if required upon approval by HSO and FOM.
GEIGER COUNTER	
Above background	Halt work, evacuate work area and confer with HSO
DUST MONITOR	
Respirable dust >100 ug/m^3 above BKGD	Implement dust suppression techniques to reduce dust levels
Respirable dust >150 ug/m^3	Monitoring upwind background levels and implement dust suppression techniques. If levels persist, halt work, contact HSO and FOM. Work can only resumed if control measures can be implemented to remedy the situation.

* Units equal total ionizable organic/inorganic vapors and gases.
** Reading sustained for 1 minute (60 seconds) or longer.

Vapor Emission

If the ambient air concentration of total organic vapors exceeds 5 ppm (or 5 units) above background at the perimeter of the Exclusion Zone, work at that location will be stopped, and the area evacuated until a review of work procedures, air monitoring needs, and use of appropriate respiratory protection and equipment is performed by the HSO or FOM. In addition, downwind monitoring at the site perimeter will be performed to determine whether off-site contaminant migration is occurring. Work will proceed only after review and approval by the HSO or FOM, and the appropriate corrective action is taken or level of protection established. More frequent intervals of monitoring will be conducted as directed by the HSO, including Draeger tube screening for specific contaminants.

If the organic vapor level decreases to below 5 ppm (5 units), and vinyl chloride and benzene are not present, activities can resume, but more frequent intervals of monitoring, as directed by the HSO, must be conducted and must include monitoring for vinyl chloride and benzene. If the organic vapor levels are greater then 5 ppm but less than 25 ppm over background at the perimeter of the Exclusion Zone, activities can resume provided Level B protection is worn and the area is monitored for vinyl chloride until levels fall below background.

If the organic vapor level is above 25 ppm at the perimeter of the Exclusion Zone, work activities must be shut down. When work shutdown occurs, downwind air monitoring as directed by the HSO will be implemented to ensure that vapor emissions do not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

7.2.2.4 - Community Air Monitoring Plan

Air monitoring for volatile organic compounds will be accomplished at the upwind and downwind perimeter of the Exclusion Zone to document real time levels of contaminants which might be moving off-site. The plan must include the following:

- VOCs will be monitored at the downwind perimeter of the Exclusion Zone daily at 2-hour intervals. If total organic vapor levels exceed 5 ppm above background, activities must be halted and monitoring continued under the provisions of Major Vapor Emission Response Plan (see below). All readings must be recorded and be available for NYSDEC and New York State Department of Health (NYSDOH) personnel to review.

Major Vapor Emission

If organic levels greater than 5 ppm (or 5 units) above background are identified 200 feet downwind from the Exclusion Zone or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted.

If, following cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind, or half the distance to the nearest residential or commercial property from the Exclusion Zone, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (10-foot zone).

If either of the following criteria are exceeded in the 20-foot zone, then the Major Vapor Emission Response Plan will be implemented:

- Organic vapor levels approaching 5 ppm above background for a period of more than 30 minutes; or
- Organic vapor levels greater than 10 ppm above background for any time period.

Major Vapor Emission Response Plan

Upon activation, the following actions will be undertaken:

1. The local emergency response will be immediately contacted by the HSO and advised of the situation.

2. Frequent air monitoring will be conducted at 30 minute intervals within the 20 foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the HSO.

3. All emergency contacts will go into effect as appropriate.

Off-Site Migration Procedures

The same procedures and protocols practiced by on-site workers will aid in preventing any potential adverse conditions with respect to areas adjacent to the site. That is, these procedures are designed to assist in eliminating or minimizing the potential for extensive off-site migration. In the unlikely event that such migration occurs, the following notification procedures and work procedures are listed below:

1. Notification of local police, fire and rescue personnel advising them of the remedial investigation activities and the schedule of events on-site.

2. Immediate notification of NYSDEC, NYSDOH and local officials in the event of a threatening hazardous condition that may effect the health and safety of on-site workers and the surrounding community.

3. Decontamination procedures for equipment to prevent off-site migration of contaminants.

4. Use of a flame or photo ionization detector to monitor volatile organic vapors and potential off-site migration of contaminants.

5. Wetting down the ground surface or using clean cover material or calcium chloride to suppress particulate dust in the event that dust levels in the air of the work area are exceeded.

General visual observation will also be used during all intrusive activities to identify airborne releases (vapors, smoke, etc.), changes in the coloration of excavated materials, changes to the structural integrity of the surface or mechanical integrity of the equipment. Should such conditions be noticed or encountered, work will be halted, and the area evacuated until such time the FOM can be contacted and specific procedures for characterizing and handling the hazard can be developed.

The HSO or designee will observe site conditions daily with special attention to the aforementioned conditions. Depending on site conditions, additional personal protection measures will be implemented during the course of site work.

7.2.3 Heat/Cold Stress Monitoring

Heat/cold stress guidelines are described in detail in Exhibit 7.

7.3 Quality Assurance and Control

All monitoring instruments will be protected from surface contamination during use to allow easy decontamination. All instrumentation will be calibrated before and after use, and operational checks conducted periodically in the field over the duration of the day's field activities.

The following data will be recorded by the HSO or designee on the Air Monitoring Data form (Exhibit 3):

- Date and time of monitoring;
- Air monitoring location;
- Instrument, model number, serial number;
- Calibration/background levels; and
- Results of monitoring.

Interpretation of the data and any further recommendations will be made by the HSO or designee.

Air monitoring results will be provided verbally to the FOM following each site scan that indicates volatile organic vapor concentrations in excess of the action levels. Results will then be documented in writing and provided to the FOM by the end of that work day.

8.0 SITE CONTROL MEASURES

8.1 Work Zones

Site investigations will be subject to the designation of work zones. The Restricted Zone (RZ) will be identified as the area within which all project operations take place. At each sampling site, three work areas will be established: the Exclusion Zone (EZ), Contaminant Reduction Zone (CRZ) and Support Zone (SZ). Only authorized personnel will be allowed in the RZ. Typically, a 5-foot wide (or distance determined by the HSO or FOM) strip of land bordering the EZ is considered the CRZ. In addition to this strip of land, a specially demarcated area that connects the decontamination area to the CRZ is treated as an extension of the CRZ. All other areas inside the restricted area that are not an active Exclusion or Contaminant Reduction Zone are treated as a Support Zone.

8.1.1 Exclusion Zone

The Exclusion Zone includes the intrusive activities and isolates the area of contaminant generation, and restricts (to the extent possible) the spread of contamination from active areas of the site to support areas and off-site locations. This area will encompass all intrusive work. The Exclusion Zone is demarcated by the Hot Line (i.e., a tape or rope line or physical barrier). Personnel entering the Exclusion Zone must:

- Enter through a controlled access point (the Contaminant Reduction Zone);
- Wear the prescribed level of protection; and
- Be authorized to enter the Exclusion Zone.

Personnel, equipment and materials exiting the Exclusion Zone will be subject to decontamination in the containment reduction zone. Equipment and materials (e.g., drill rods) will be decontaminated at decontamination facilities.

Specific access for emergency services to areas of specific site operations will be established by the HSO prior to commencing any operation. The delineated area of the Exclusion Zone may vary with task.

8.1.2 Contaminant Reduction Zone

The extent and configuration of the CRZ will be at the discretion of the HSO or FOM. Certain safety equipment (e.g., emergency eye wash, fire extinguisher and first aid kit) will be located near the sampling location.

The level of protection to be used for decontamination will typically be Level D. However, the HSO will determine appropriate levels of protection based upon air monitoring readings, and visual inspection of personnel and equipment operations in the Exclusion Zone. Equipment operators (e.g., truck drivers) physically performing tasks outside the EZ may be exempt from this requirement as approved by the HSO or FOM. Personnel shall remove all personal protective equipment in the CRZ.

8.1.3 Support Zone

Equipment and materials, paperwork, MSDS, emergency equipment and communications equipment will be stored in the Support Zone. A log of all persons entering the site will be maintained by the FOM.

8.2 Operations Start-Up

No personnel will be positioned downwind of Exclusion Zone during intrusive activities and sampling, if possible.

8.3 Buddy System

All on-site personnel will utilize a buddy system when any task performed at the site requires:

- Personnel to assist in performing an activity;
- Intrusive work performed in the Exclusion Zone;
- Use of protective clothing; and
- Communication between the Exclusion Zone and outside the Exclusion Zone.

The FOM, HSO or designee will enforce the buddy system and has the authority to modify the criteria stated above to deal with changing site-specific and environmental conditions.

In order to ensure that help will be provided in an emergency, all on-site personnel will be in line-of-sight contact or in communication with the HSO or FOM when working in the Exclusion Zone.

8.4 Site Communications Plan

- Internal communications on-site should be instituted prior to initiating any task in the Exclusion Zone.
- Internal communications will be used by on-site supervisory personnel.
- The FOM, HSO or designee will ensure that all site personnel are trained to use internal communications to:
  - alert personnel on-site of emergencies;
  - pass along safety information (such as for heat stress, cold stress control, or rest period time, etc.);
  - changes in work scope, scheduling or sequencing of operations; and
  - maintain site control (such as notification of vandalism, intruders or violations of HASP protocol).

- Verbal communications and hand signals will be used for all tasks associated with the project. However, for those tasks performed in Level D or Level C, radio communications may be used.

- Any Exclusion Zone work activity being performed out of the line of sight may require use of radio communications.

- Air horns will be positioned at any Exclusion Zone work area to be used for emergency response only. The HSO or designee will designate air horn blast sequences for identification of work location, type of emergency and need for evacuation of all personnel.

- Wind direction indicators will be installed such that a line-of-sight is maintained with all personnel in all work zones. The HSO or designee will designate specific locations for wind direction indicators.

- All moving machinery, bulldozers, cranes, dump trucks, etc. will have working backup alarms.

- External communications (outside the site) will be maintained and used to coordinate emergency response, report to management and maintain contact with essential off-site personnel.

- All on-site personnel will be informed of external communications hardware (such as telephone, etc.) and the necessary telephone numbers to contact in the event of an emergency situation (fire, police, ambulance, etc.).

- All emergency numbers will be available at the site (see the site specific work plan for listing of important telephone numbers).

- Appropriate action will be taken should any hazardous environmental condition be observed on site. These conditions and the appropriate action to be taken will be as follows:

Observation	Potential Hazard	Action
Muddy condition	Personnel slip, equipment instability	Monitor work until condition improves
Lightning	Electrocution	Stop work until condition subsides
Horn blasts or other notification by site personnel	Site emergency	Stop work - evacuate to van or trailer - follow emergency notification procedures
Personal injury	Other personnel may be affected	Follow emergency notification procedures
Personal fatigue	Cold stress	Follow cold stress guidelines

Observation	Potential Hazard	Action
Windy condition	Overhead hazards, visual impairment	Stop work until condition subsides

8.5 Medical Assistance and General Emergency Procedures

Site-specific information regarding medical assistance and emergency numbers will be listed in the site-specific HASP. Emergency medical information for substances potentially present on-site will be addressed, if known.

8.5.1 General Emergency Procedures

The following standard emergency procedures will be used by on-site personnel. The HSO or designee will be notified of any on-site emergencies and will be responsible for ensuring that the appropriate procedures are followed.

- Personnel Injury: Personnel holding a current first aid/CPR certification shall administer first aid and/or CPR, if appropriate. Arrange for medical attention.
- Fire/Explosion: Alert the fire department. Personnel will move a safe distance from the involved area.

8.6 Safe Work Practices

Workers will adhere to established safe work practices for their respective specialties. The need to exercise caution in the performance of specific work tasks is made more acute due to:

- Physical, chemical and toxicological properties of contaminated material present;
- Other types of hazards present, such as heavy equipment, falling objects, loss of balance or tripping;
- Weather restrictions;

- Restricted mobility and reduced peripheral vision caused by the protective gear itself;
- Need to maintain the integrity of the protective gear; and/or
- Increased difficulty in communicating caused by respirators.

Work at the site will be conducted according to established protocols and guidelines for the safety and health of all involved. Among the most important of these principles are the following:

8.6.1 General

- In any unknown situation, always assume the worst conditions and plan responses accordingly.
- Because no personal protective equipment is 100 percent effective, all personnel must minimize contact with contaminated materials. Plan work areas, decontamination areas and procedures accordingly.
- Smoking, eating, chewing gum or tobacco, or drinking in the Contaminant Reduction Zone and the Exclusion Zone will not be allowed. Oral ingestion of contaminants is the second most likely means of introducing toxic substances into the body (inhalation is the first).
- Work breaks should be planned to prevent stress related accidents or fatigue related to wearing protective gear.
- Medicine and alcohol can increase the effects from exposure to toxic chemicals and cold stress. Prescribed drugs should not be taken if working in the Contaminant Reduction Zone or Exclusion Zone, unless approval has been given by the physician. Alcoholic beverage consumption will be prohibited on the site.
- Personnel must be observant of not only one's own immediate surrounding, but also those of others. Everyone will be working under constraints; therefore, a team effort is needed to notice and warn of impending dangerous situations. Extra precautions are necessary when working near heavy equipment and while utilizing personal protective gear because vision, hearing and communication will be restricted.
- All facial hair that interferes with the respirator facepiece fit, must be removed prior to donning a respirator for all tasks requiring Level C or Level B protection.

- Personnel must be aware that chemical contaminants may mimic or enhance symptoms of other illnesses or intoxication. Avoid use of alcohol or working while ill during the duration of task assignment.

8.6.2 Site Personnel

- All personnel at the site will be identified to the HSO and FOM.
- All personnel operating in respective work zones will dress according to the protection levels set forth in this HASP.
- No red head wooden matches or lighters of any kind will be allowed in the Contaminant Reduction Zone or Exclusion Zone.
- All personnel will notify the HSO or FOM of any unusual occurrences that might effect the overall safe operation of the site.
- Any time a fire extinguisher is used, personnel will notify the HSO or FOM of what took place.
- All injuries and accidents will be immediately reported to the HSO or FOM and the appropriate reports filed.

8.6.3 Traffic Safety Rules

- Any vehicles that will not be involved in the site operations will be secured and the motor shut down.
- Only personnel assigned to this remedial investigation will be allowed to enter the site. Any other people, whether from OSHA, USEPA or vendors supplying equipment, etc., will have to be met prior to entering the site.
- At no time will any equipment be allowed to block any access road. If in the moving of equipment, a temporary blockage will exist, that equipment will have an operator available to move that equipment.
- The locations of all fire fighting equipment, valves, hydrants, hose storage places and fire extinguishers will be indicated to all personnel so that they will not be inadvertently blocked at any time.
- Project personnel may be required to wear safety vests when working on or adjacent to roadways and must comply with all applicable rules and regulations for traffic safety.

8.6.4 Equipment Safety Rules

- Proper loading and operation of trucks on-site will be maintained in accordance with DOT requirements covering such items as grounding, placarding, driver qualifications and the use of wheel locks.
- Operation of heavy construction equipment will be in accordance with OSHA regulations 29 CFR 1910 and 1926.
- All equipment that is brought on-site will be available for inspection by the HSO.
- The HSO, or designee, will assign protective equipment to all site personnel and this equipment will be made available for inspection at anytime.
- All equipment will be installed with appropriate equipment guards and engineering controls. These include rollover protective structures.
- Safe distances will be maintained when working around heavy equipment.
- All equipment and tools to be operated in potentially explosive environments will be intrinsically safe and not capable of sparking or be pneumatically or hydraulically driven. Portable electric tools and appliances can be used where there is no potential for flammable or explosive conditions use three-wire grounded extension cords to prevent electric shocks. Ground fault interrupters will be used as well.
- With hydraulic power tools, fire-resistant fluid that is capable of retaining its operating characteristics at the most extreme temperatures will be used.
- Cutting or welding operations will not be carried out without the approval of the HSO and FOM.
- At the start of each work day and on a weekly basis, inspection of brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, and splash protection will be made by the equipment operators.
- All non-essential personnel will be kept out of the work area.
- Loose-fitting clothing, loose long hair and wearing of jewelry around moving machinery will be prohibited.
- Cabs will be free of all non-essential items and all loose items will be secured.
- The rated load capacity of a vehicle will not be exceeded.

- Dust control measures will be employed to prevent the movement of dust from contaminated areas to clean areas. The method employed will be determined and reviewed by the HSO and the FOM.

- Equipment operators will report to their supervisor(s) any abnormalities such as equipment failure, oozing liquids, unusual odors, etc.

- When an equipment operator must negotiate in tight quarters, a second person will be used to ensure adequate clearance.

- A signalman will be used to direct backing as necessary.

- Refueling will be done in safe areas. Engines will not be fueled while vehicle is running. Ignition sources near a fuel area will be prohibited.

- All blades and buckets will be lowered to the ground and parking brakes set before shutting off the vehicles.

- An ongoing maintenance program for all tools and equipment will be implemented by the responsible subcontractor equipment supervisor. All tools and moving equipment will be regularly inspected to ensure that parts are secured and intact with no evidence of cracks or areas of weakness, that the equipment turns smoothly with no evidence of wobble, and that it is operating according to manufacturer's specifications.

- Tools will be stored in clean, secure areas so that they will not be damaged, lost or stolen.

- All heavy equipment that is used in the Exclusion Zone will be kept in that zone until the investigation is complete or the equipment is decontaminated. Equipment will be completely decontaminated before moving it into the Support Zone.

8.6.5 Drilling and Excavation and Equipment Safety Rules

Drill rig and excavator operation, maintenance and safety will be the responsibilities of the drill rig/excavator operator.

8.6.6 Electrical Safety

Electrical hazards can exist at sites because of downed power lines, contact with subsurface utilities or improper use of electrical equipment. The presence of underground electric lines will be checked before any digging or excavating is undertaken. When using cranes or material handlers, care will be taken that the machinery does not come in contact with any energized lines. Equipment must maintain the following distances from energized overhead power lines:

- 10 feet up to 50 kV
- 10 feet plus 4 inches for every 10 kV over 50 kV

The following should be used for protecting personnel from electrical shocks:

- Ground equipment
- Double-insulating tools
- Over-current devices such as fuses and circuit breakers
- Ground fault circuit interrupter
- Tools and flexible cords will be inspected for damage that could lead to shock

8.6.7 Daily Housekeeping

The site and all work zones will be kept in an orderly fashion and the site is to be left safe and secure upon completion of each day's work.

8.6.8 Site Personnel Conduct

- All site personnel will conduct themselves properly and in accordance with generally accepted good work practice.
- At all times, the HSO will monitor all safe operations at the site. Any operation not within the scope of the HASP will be discussed fully before that operation begins.

9.0 PERSONAL HYGIENE AND DECONTAMINATION

9.1 General

- All personnel performing or supervising remedial work within a hazardous work area, or exposed or subject to exposure to hazardous chemical vapors, liquids or contaminated solids, will observe and adhere to the personal hygiene-related provisions of this section.

- Any personnel found to be repeatedly disregarding the personal hygiene-related provisions of the HASP will be barred from the site by the HSO.

- All on-site personnel will wear personal protective equipment as required at all times whenever entering the Exclusion Zone or the Decontamination Area.

- Personal hygiene and decontamination facilities, in accordance with OSHA 29 CFR 1910.120 (N), will be provided on-site, when necessary, and include the following:

  - Storage and disposal containers for used disposable outerwear.

  - Hand washing facilities.

  - An uncontaminated lunch area.

  - An uncontaminated rest/break area.

  - Chemical toilet, if no other facilities are located on-site.

- All personnel must enter and leave the work site through the facilities. The portable chemical toilet (if required), if possible, will be located in the Support Zone.

- The personal hygiene and decontamination facilities will be provided so that any personnel leaving the Exclusion Zone may perform decontamination, safely remove all protective outer clothing, and wash face and hands.

- Decontamination will be performed prior to taking breaks, eating lunch or leaving the work site.

- All site personnel will be given orientation training to the use and operation of the personal hygiene and decontamination facilities.

9.2 Contamination Prevention

To minimize contact with contaminated substances and lessen the potential for contamination, the following will be adhered to:

- Personnel will make every effort not to walk through any areas of obvious contamination (i.e., liquids, discolored surfaces, smoke/vapor clouds, etc.).
- Personnel will not kneel or sit on the ground in the Exclusion Zone and/or the Decontamination Area.

9.3 Personal Hygiene Policy

- Smoking and chewing tobacco will be prohibited except in a designated break area.
- Eating and drinking will be prohibited except in the designated lunch or break area.
- All outer protective clothing (e.g., chemically protective suits, gloves, and boots) will be removed and personnel will thoroughly cleanse their hands and other exposed areas before entering the break or lunch area.
- Drinking of replacement fluids will be permitted in a designated area outside the Exclusion Zone. Personnel will, as a minimum, remove outer and inner gloves, respirator and coverall top, and wash hands prior to drinking replacement fluids.
- All personnel should change into fresh clothing after each working period or shift. Showering is mandatory upon return to each individual's rest place.

9.4 Personnel Decontamination Procedures

Decontamination procedures are followed by all personnel leaving the Exclusion Zone. Generalized procedures for decontamination follow. All procedures apply for Level C personal protection, however for Level D only steps 2, 3, and 8 apply. The HSO may modify these procedures based on site conditions.

Step 1 Drop tools, monitors, samples, and trash at designated drop stations (i.e., plastic containers or drop sheets).

Step 2 Scrub outer boots and outer gloves with decon solution or detergent and water. Rinse with water.

Step 3 Remove tape from outer boots (if applicable) and remove boots and discard tape in disposal container. Place boots on boot rack.

Step 4 Remove tape from outer gloves (if applicable) and remove only outer gloves and discard in disposal container.

Step 5 This is the last step in the decontamination procedure if the worker has left the Exclusion Zone to exchange the cartridges on his/her air purifying respirator. The cartridges should be exchanged, new outer gloves and boot covers donned, the joints taped, if necessary, and the worker returns to duty.

Step 6 Remove outer garments and discard in disposal container. New outer garments will be issued at the beginning of each work day or as deemed necessary by the HSO.

Step 7 Remove respirator and place or hang in the designated area.

Step 8 Remove inner gloves and discard in disposal container.

Note: Disposable items (i.e., coveralls, gloves, and boots) will be changed on a daily basis unless there is reason to change more frequently. Dual respirator cartridges will be changed daily, unless more frequent changes are deemed appropriate by site surveillance data or by assessments made by the HSO.

Pressurized sprayers or other designated equipment will be available in the decontamination area for wash down and cleaning of samples and equipment.

A waterless hand cleaner and paper towels may be used for hands, arms and any other skin surfaces potentially in contact with contaminated material.

Respirators (if used) will be decontaminated daily and taken from the drop area. The masks will be disassembled, the cartridges set aside and all other parts placed in a cleansing solution. After an appropriate time in the solution, the parts will be removed and rinsed with tap water. Old cartridges will be discarded in the contaminated trash container for disposal. In the morning, the masks will be reassembled and new cartridges installed, if appropriate. Personnel will inspect their own masks and readjust the straps for proper fit.

9.5 Emergency Decontamination

Decontamination will be delayed if immediate medical treatment is required to save a life. Decontamination will then be performed after the victim is stabilized. When decontamination can be performed without interfering with medical treatment, or a worker has been contaminated with an extremely toxic or corrosive material that could cause additional injury or loss of life, decontamination will be performed immediately.

When decontamination cannot be done, the victim will be wrapped in a chemical protective barrier (clothing or sheeting) to reduce contamination of other personnel. Emergency and off-site medical personnel will be informed of potential contamination and will be instructed about specific decontamination procedures. When the victim is transported off the site, personnel knowledgeable of the incident, the site and decontamination procedure will accompany the victim.

9.6 General Equipment Decontamination

- All vehicles and equipment used in the Exclusion Zone will be decontaminated prior to leaving the site.
- No vehicles will leave the decontamination area until they are properly inspected and approved by the HSO or FOM for general cleanliness of frame and tires.
- No vehicle will leave the site unless it is in a broom-clean condition and free of loose dirt or material on tailgates, axles, wheels, etc.
- The HSO or designee will monitor all vehicles to confirm proper decontamination prior to exiting. Approval will be based on visual inspection of all exposed surfaces.
- Equipment decontamination wash water residues will be collected for disposal.
- Personnel engaged in vehicle decontamination will wear Level C or Level D equipment with respiratory protection consistent with the air monitoring results collected by the HSO, and perform personal decontamination at the completion of equipment decontamination.
- Only clean water will be used for personnel, equipment and vehicle decontamination.

9.7 Small Equipment Decontamination Procedures

Small equipment will be protected from contamination as much as possible by draping, masking or otherwise covering the instruments with plastic (to the extent feasible) without hindering operation of the unit. For example, the photoionization detector can be placed in a clear plastic bag to allow reading the scale and operation of the controls.

Step 1 Remove coverings from equipment left in the drop area and place the coverings in appropriate waste containers.

Step 2 Brush or wipe any soil or moisture with a disposal paper wipe. Place soiled wipes in appropriate containers.

Step 3 Place bare units in a clean plastic tub and wiped off with a damp, clean, disposable wipe. Equipment will then be allowed to air dry.

Step 4 Following decontamination, check and recharge equipment, as necessary, for the next day's operations.

Step 5 Prior to entering the Exclusion Zone, recover all small equipment with new, protective coverings, if necessary.

9.8 Heavy Equipment Decontamination Procedures

A decontamination area for the drill rig and excavator will be set up. A wash/rinse will be performed on all surfaces that came in contact with contaminants (e.g., augers). Prior to removing any heavy equipment or vehicles from the Exclusion Zone, they must be thoroughly decontaminated. Specific procedures are as follows:

Step 1 Initially, inspect equipment/vehicles to determine if gross decontamination is required first. Particular attention must be paid to tires, under surfaces, points of contact with the ground, and horizontal surfaces where dust or aerosols might settle.

Step 2 If visible contamination is present, the equipment/vehicle must be moved to the decontamination pad where gross contamination will be scraped, brushed or swept off.

Step 3 Following gross decontamination, or if visible contamination is no longer present, wash the equipment/vehicle with high pressure washer as deemed necessary by the

HSO or designee. Efforts should be made to minimize water usage to reduce wastewater quantities.

Step 4 Prior to releasing any heavy equipment or vehicles from the Contaminant Reduction Zone, decontamination personnel will contact the HSO for final approval.

10.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

10.1 General

This plan has been prepared in accordance with 29 CFR 1910.120 (l) and will address the following potential emergencies:

- Emergencies outside the site.
- Emergencies within the site.
- Chemical exposures.
- Site evacuation.

10.2 Emergency Equipment

Specially marked and readily accessible emergency equipment will be provided on-site.

10.3 Special Requirements

- The Project Director or FOM will be on-call for any after hour emergencies resulting from adverse weather conditions. Incidents resulting from adverse weather will be reported to the HSO who will in turn contact the Project Director.
- First aid kit locations will be specially marked and have adequate water and other supplies necessary to cleanse and decontaminate burns wounds, or lesions. First aid stations will also stock buffer solutions for treating acid and caustic burns.

10.4 Emergency/Accident Reporting and Investigation

In the event of an emergency associated with the site work, the HSO or FOM will, without delay take: 1) diligent action to remove or otherwise minimize the cause of the emergency; 2) alert the Project Director; and 3) institute whatever measures are necessary to prevent any repetition of any conditions or actions leading to, or resulting in, the emergency.

Notification of the Project Director will occur immediately and initially be verbal with written notification occurring within 24 hours of the incident (i.e., accident, explosion, serious exposure, etc.). The Incident Notification Form, provided in Exhibit 8, will be used for written notifications and documentation.

10.5 Emergency Medical Care

- Site-specific emergency medical information will be provided in the site-specific investigation work plan.
- The hospital will be informed by the HSO or FOM of potential medical emergencies that could result from site operations and advised on the types of hazardous materials that are on site. In the event of an incident requiring their assistance, specific details of hazardous materials should be provided to the hospital medical staff, if available.
- A list of emergency information and a map to the nearest medical facility/hospital will be posted at every work site telephone. Copies of this map will also be available to be placed in vehicles used to transport injured personnel to the medical facility.

10.6 Emergencies Outside the Site

- All work in the site area will stop when advised by any authorized personnel and will remain so until otherwise instructed.
- The HSO and FOM will be fully advised of any work that may affect the safety of on-site employees or property.
- Actions to be taken by on-site personnel in the event of an outside emergency will include:
  - All operations will cease immediately and all equipment will be shut down and secured.
  - All personnel will leave vehicles in work zone in a safe manner making sure any remaining vehicles will not hamper any emergency traffic in the area or block any fire hydrants or foam supply systems.
  - All personnel will evacuate to a prearranged muster area.
  - All personnel will remain in the muster area to await further instructions.

10.7 Emergencies Within the Site

- The HSO will monitor all operations from the roadway and assist any emergency personnel responding to an emergency within this work zone.
- It will be the HSO's responsibility to maintain communications with public works personnel.
- In the event of an emergency within the work zone at the site, the emergency notification procedures will be followed.
- In all emergency situations, it will be the responsibility of the HSO to ensure that all site personnel are accounted for.

10.8 Personnel Exposures

The emergency procedures which will be used in the event of acute exposure (eyes, skin contact, inhalation) are described in Exhibit 9.

10.9 Site Evacuation

The site area will be evacuated, and fire and police departments will be notified in the event of fire, explosion or their potential. Depending on the cause and magnitude of the conditions requiring evacuation, three stages have been designated. See Exhibit 9 for details.

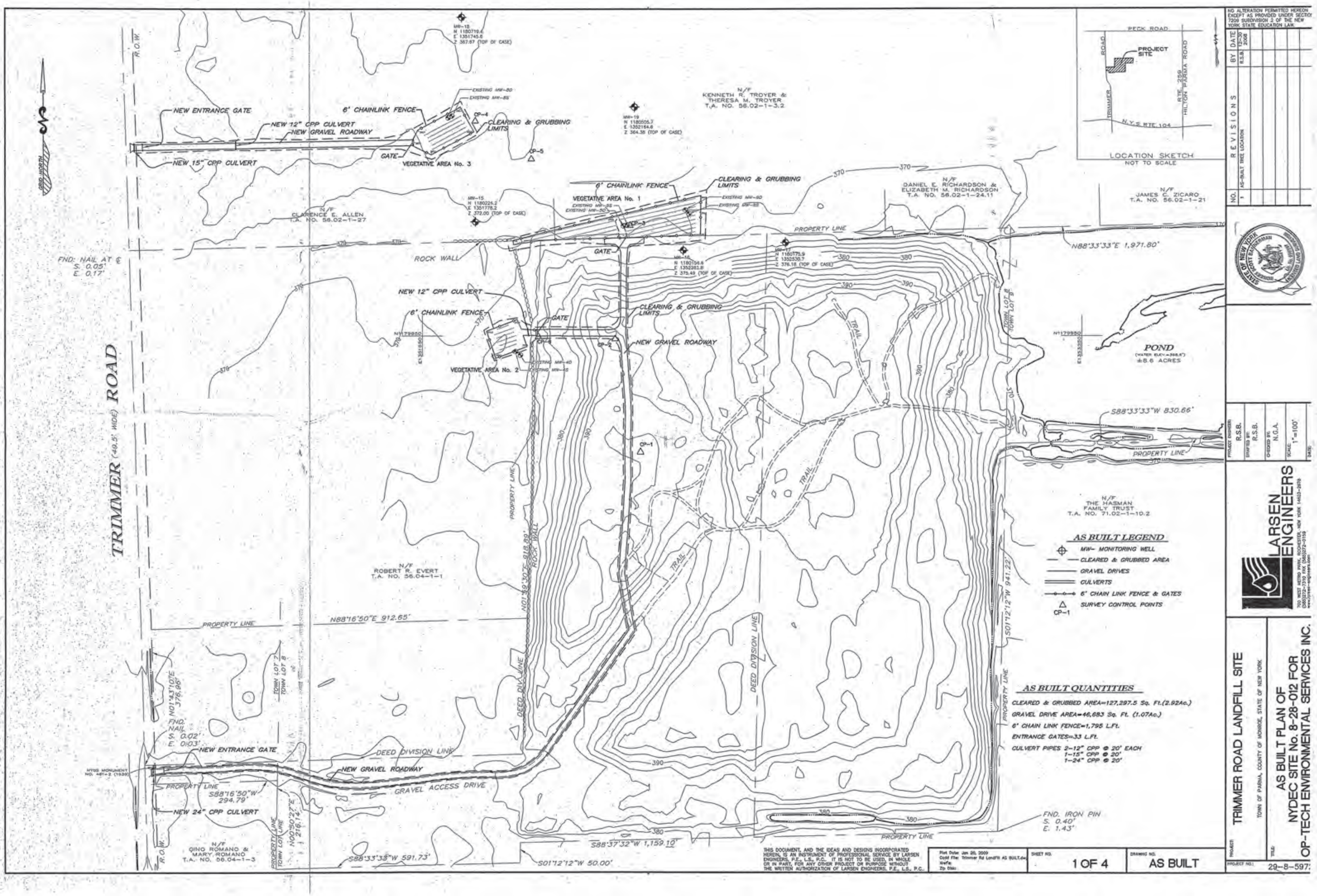
11.0 POSTINGS

Postings will be available on-site. These postings will cover four specific areas:

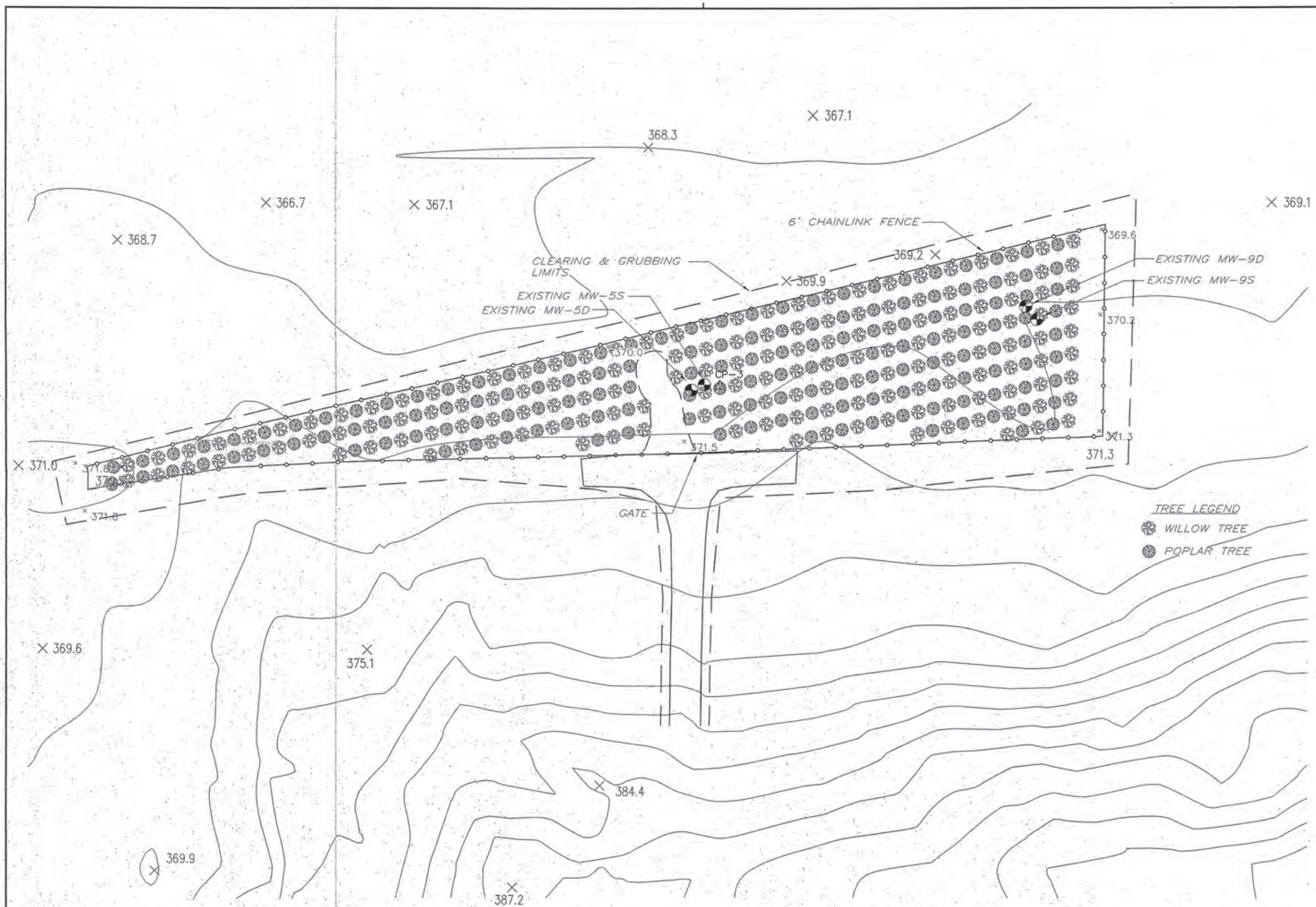
- Use of personal protective equipment;
- Personal hygiene;
- Provisions for smoking, eating, chewing and drinking; and
- Emergency information.

These postings may be added to, based on need to disseminate information or policy. All postings will be coordinated for approval prior to posting. The specified postings are provided in Exhibit 10. The site-specific emergency information for each site will be included on Exhibit 11 and will be posted at each site.

APPENDIX 6- SURVEY AND AS-BUILT DRAWINGS
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: APPENDIX A, SITE MANAGEMENT PLAN, D&B 2009B



TRIMMER ROAD (49.5' WIDE)
R.O.W.
NEW ENTRANCE GATE
NEW 12" CPP CULVERT
NEW GRAVEL ROADWAY
6' CHAINLINK FENCE
CLEARING & GRUBBING LIMITS
NEW 15" CPP CULVERT
GATE
VEGETATIVE AREA No. 3
CP-4
CP-5
EXISTING MW-8D
EXISTING MW-8S
MW-18 N 1180719.4 E 1351745.6 Z 367.67 (TOP OF CASE)
N/F KENNETH R. TROYER & THERESA M. TROYER T.A. NO. 56.02-1-3.2
MW-19 N 1180505.7 E 1352164.6 Z 364.38 (TOP OF CASE)
N/F CLARENCE E. ALLEN T.A. NO. 56.02-1-27
MW-15 N 1180225.2 E 1351778.2 Z 372.00 (TOP OF CASE)
VEGETATIVE AREA No. 1
EXISTING MW-5S
EXISTING MW-5D
CP-3
EXISTING MW-6D
EXISTING MW-6S
N/F DANIEL E. RICHARDSON & ELIZABETH M. RICHARDSON T.A. NO. 56.02-1-24.11
N/F JAMES C. ZICARO T.A. NO. 56.02-1-21
PROPERTY LINE
N88°33'33"E 1,971.80'
FND: NAIL AT ℄ S. 0.05' E. 0.17'
ROCK WALL
MW-16 N 1180156.6 E 1352282.8 Z 375.49 (TOP OF CASE)
MW-17 N 1180175.9 E 1352530.7 Z 376.18 (TOP OF CASE)
NEW 12" CPP CULVERT
6' CHAINLINK FENCE
GATE
CLEARING & GRUBBING LIMITS
NEW GRAVEL ROADWAY
CP-6
CP-2
VEGETATIVE AREA No. 2
EXISTING MW-4D
EXISTING MW-4S
TRAIL
POND (WATER ELEV.=366.6') ±8.6 ACRES
TOWN LOT 8
TOWN LOT 9
S88°33'33"W 830.66'
PROPERTY LINE
CP-1
N/F THE HASMAN FAMILY TRUST T.A. NO. 71.02-1-10.2
N/F ROBERT R. EVERT T.A. NO. 56.04-1-1
N01°39'30"E 918.89'
ROCK WALL
PROPERTY LINE
N88°16'50"E 912.65'
DEED DIVISION LINE
DEED DIV. LINE
S01°12'12"W 941.22'
TOWN LOT 7
TOWN LOT 8
N01°43'10"E 376.96'
FND. NAIL S. 0.02' E. 0.03'
NEW ENTRANCE GATE
NYSS MONUMENT
NEW GRAVEL ROADWAY
GRAVEL ACCESS DRIVE
S88°16'50"W 294.79'
NEW 24" CPP CULVERT
N00°50'27"E 216.14'
N/F GINO ROMANO & MARY ROMANO T.A. NO. 56.04-1-3
S88°33'33"W 591.73'
S01°12'12"W 50.00'
S88°37'32"W 1,159.10'
FND. IRON PIN S. 0.40' E. 1.43'
AS BUILT LEGEND
MW- MONITORING WELL
CLEARED & GRUBBED AREA
GRAVEL DRIVES
CULVERTS
6' CHAIN LINK FENCE & GATES
SURVEY CONTROL POINTS
CP-1
AS BUILT QUANTITIES
CLEARED & GRUBBED AREA=127,297.5 Sq. Ft.(2.92Ac.)
GRAVEL DRIVE AREA=46,683 Sq. Ft. (1.07Ac.)
6' CHAIN LINK FENCE=1,795 L.Ft.
ENTRANCE GATES=33 L.Ft.
CULVERT PIPES 2-12" CPP @ 20' EACH
1-15" CPP @ 20'
1-24" CPP @ 20'
PECK ROAD
PROJECT SITE
TRIMMER ROAD
RTE. 259 HILTON PARMA ROAD
N.Y.S. RTE 104
LOCATION SKETCH
NOT TO SCALE
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW
REVISIONS
NO. BY DATE
1 AS-BUILT TREE LOCATION R.S.B. 12-30-2008
STATE OF NEW YORK
R.S.B.
R.S.B.
N.G.A.
1"=100'
LARSEN ENGINEERS
TRIMMER ROAD LANDFILL SITE
TOWN OF PARMA, COUNTY OF MONROE, STATE OF NEW YORK
AS BUILT PLAN OF NYDEC SITE No. 8-28-012 FOR OP-TECH ENVIRONMENTAL SERVICES INC.
THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, IS AN INSTRUMENT OF PROFESSIONAL SERVICE BY LARSEN ENGINEERS, P.E., L.S., P.C. IT IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT OR PURPOSE WITHOUT THE WRITTEN AUTHORIZATION OF LARSEN ENGINEERS, P.E., L.S., P.C.
Plot Date: Jan 20, 2009
SHEET NO. 1 OF 4
DRAWING NO. AS BUILT
PROJECT NO. 29-8-597



Plot Date: Jan 20, 2009
Cadd File: DET AREA 1.dwg
Xref's:
Zip Disk:

SHEET NO. 2 OF 4

DRAWING NO. VEG. AREA-1

NO.	REVISIONS	BY	DATE

PROJECT ENGINEER: R.S.B.
DRAFTED BY: R.S.B.
CHECKED BY: N.G.A.
SCALE: 1" = 20'
DATE:

LARSEN ENGINEERS
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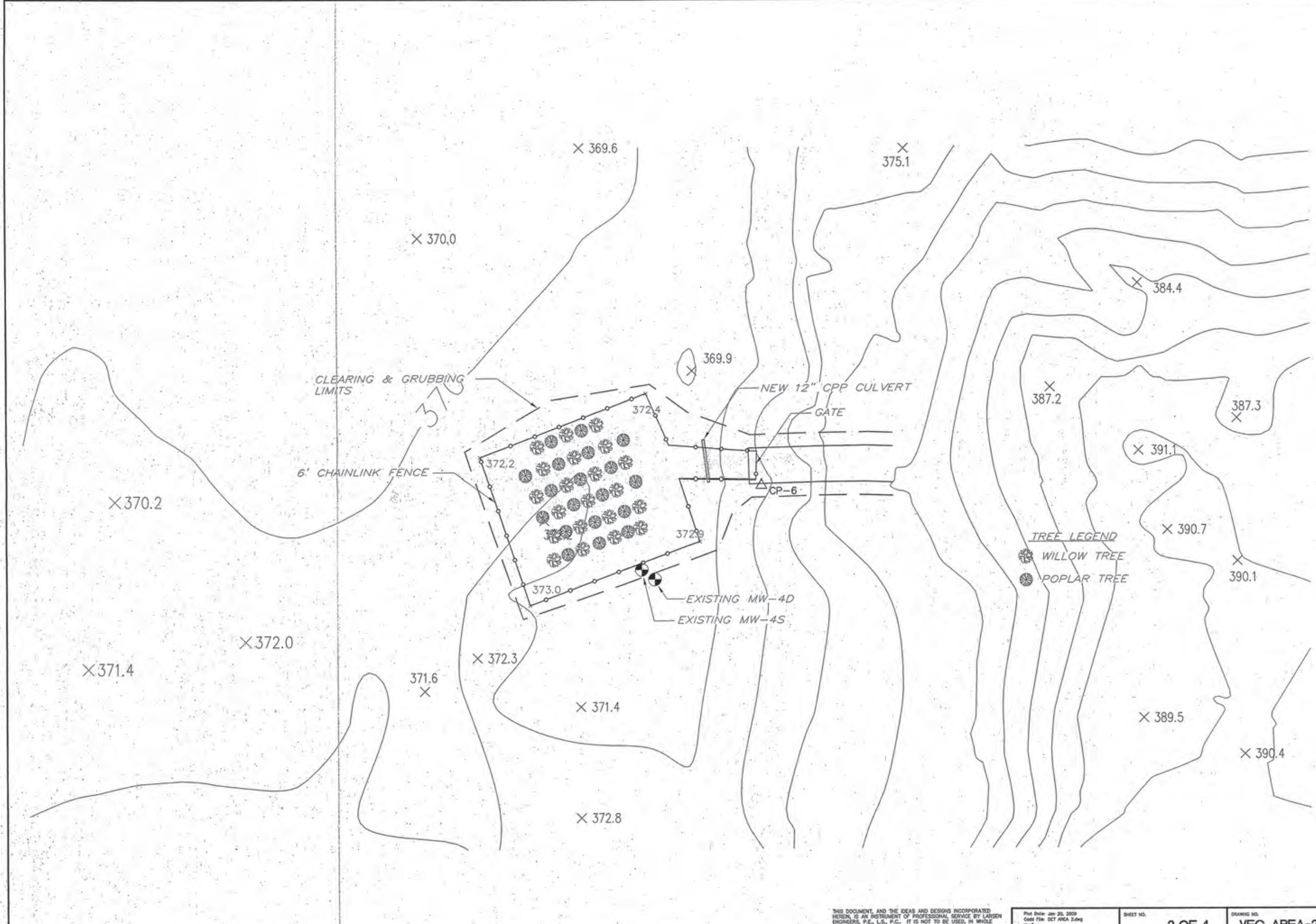
PROJECT: TRIMMER ROAD LANDFILL SITE
TOWN OF PARMA, COUNTY OF MONROE, STATE OF NEW YORK

TITLE: AS BUILT PLAN OF NYDEC SITE No. 8-28-012 FOR OP-TECH ENVIRONMENTAL SERVICES INC.

PROJECT NO.: 29-8-597



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NO.	REVISIONS	BY	DATE

PROJECT ENGINEER: R.S.B.
DRAFTED BY: R.S.B.
CHECKED BY: N.G.A.
SCALE: 1" = 20'

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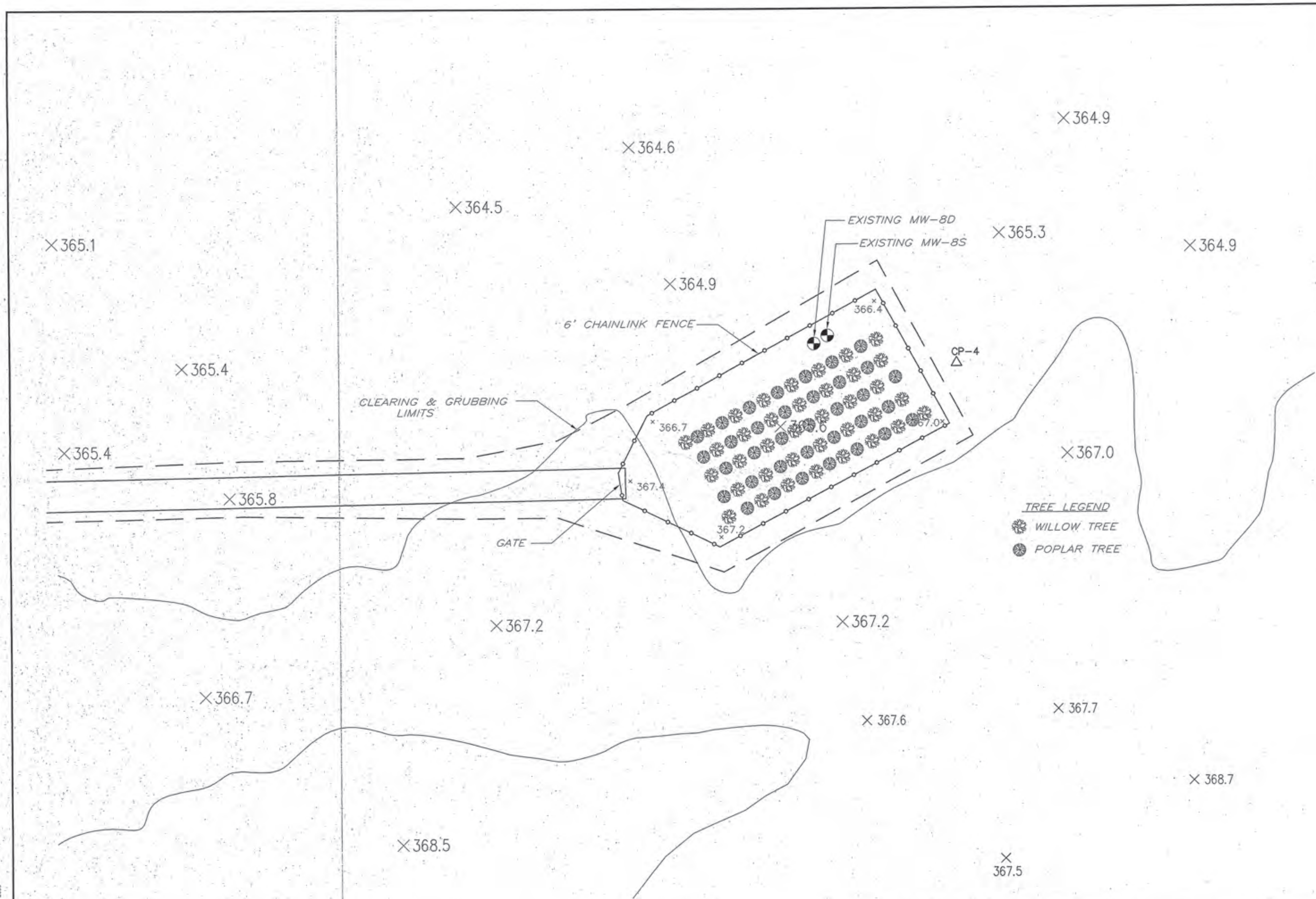
PROJECT NO.: 29-8-59

Plot Date: Jan 20, 2009
Cadd File: DET AREA 2.dwg
Xrefs:
Zip Disk:

SHEET NO. 3 OF 4

DRAWING NO. VEG. AREA-2



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SHEET NO. 4 OF 4

DRAWING NO. VEG. AREA-3

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APPENDIX 7- QAPP
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: SECTION 8, SITE MANAGEMENT PLAN, D&B 2009B

8.0 QUALITY ASSURANCE PROJECT PLAN

8.1 Project Identification

Project Name:	NYSDEC – Trimmer Road Landfill Site
Project Requested By:	New York State Department of Environmental Conservation (NYSDEC)
Project Manager:	To Be Determined
Quality Assurance Officer:	To Be Determined
Field Operations Manager:	To Be Determined

8.2 Objective and Scope

Site management is the final phase of remediation at the Trimmer Road Landfill Site and will continue until the remedial action objectives for the project are met and the site is closed out. The purpose of the SMP is to describe the measures for monitoring and documenting the effectiveness of the remedial action in achieving site RAOs, both short-term and long-term.

The purpose of this Quality Assurance Project Plan (QAPP) is to develop and describe the detailed sample collection and analytical procedures that will ensure high quality, valid data for use in the SMP.

8.3 Data Usage

Data generated from the monitoring program will be used to evaluate the performance and effectiveness of the remedial action to ensure that the remedy meets the RAOs for the site.

8.4 Analytical Methods

Environmental sample analysis conducted at the Trimmer Road Landfill Site as part of the monitoring program will be performed in accordance with the NYSDEC 2000 Analytical Services Protocol (ASP) or latest revision. The groundwater samples will be analyzed for VOCs by USEPA Method OLMO4.2.

Table 8-1 presents a summary of the analyses/sample fractions to be analyzed together with the sample location, type of sample, sample matrix, number of samples, type of sample container, method of sample preservation, holding time and analytical method.

8.5 Data Quality Requirements and Assessments

Data quality requirements and assessments are provided in the NYSDEC ASP, which includes the detection limit for each analyte and sample matrix. Note that the quantification limits, estimated accuracy, accuracy protocol, estimated precision and precision protocol are determined by the laboratory and will be in conformance with the requirements of the NYSDEC ASP (latest revision) and/or USEPA 5/99 SOW for organics and USEPA 1/00 SOW for inorganics where applicable. Table 8-2 presents a summary of the data quality requirements.

In addition to meeting the requirements provided in the NYSDEC ASP, the data must also be useful in evaluating the effectiveness of the remedial action. Data obtained during the monitoring program will be compared to SCGs identified in the remedial action objectives. The SCGs to be utilized include:

Matrix	SCG
Groundwater	NYSDEC Division of Water – Technical and Guidance Series (TOGS) (1.1.1) – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, dated June 1998.

Table 8-1

TRIMMER ROAD LANDFILL SITE
SUMMARY OF MONITORING PARAMETERS

Sample Location	Sample Type	Sample Matrix	Sample Fraction	Container Type/Size/No.	Sample Preservation	Maximum Holding Time*	Analytical Method
Monitoring Wells	Grab	Groundwater	Volatile Organics	Glass, clear/ 40 mL/3 ICHEM 300 series or equivalent	Cool to 4°C	7 days after VTSR for analysis	6/00 NYSDEC ASP, by Method OLM 04.2

VTSR - Verified Time of Sample Receipt at the laboratory
*Holding times based on Appendix I 6/00 NYSDEC ASP

Table 8-2

TRIMMER ROAD LANDFILL SITE
DATA QUALITY REQUIREMENTS

Parameter	Sample Matrix	CRDL* (ug/l)	Estimated Accuracy	Accuracy Protocol	Estimated Precision	Precision Protocol
Volatile Organics	Liquid	10	0.87 – 1.18 ug/l	Vol. IV, Part XIX, Method 8260B, Table 7	0.11 – 0.84 ug/l	Vol. IV, Part XIX, Method 8260B, Tabl

*Contract Required Detection Limits - units are ug/l for liquid samples, ug/kg for solid samples.
** Reference: NYSDEC 6/00 ASP.

Table 8-2 (Continued)

TRIMMER ROAD LANDFILL SITE
DATA QUALITY REQUIREMENTS
OBJECTIVES FOR PRECISION, ACCURACY, AND COMPLETENESS

Matrix/Parameter	Precision (%)	Accuracy (%)
Groundwater		
VOCs(a)	See Table 8-2a	See Table 8-2a

NOTES:

(a) Accuracy will be determined as percent recovery of surrogate spike compounds and matrix spike compounds. Surrogate and matrix spike compounds for VOCs are listed in Table 8-2a . Precision will be estimated as the relative standard deviation of the percent recoveries per matrix.

Source: NYSDEC ASP

Table 8-2a

TRIMMER ROAD LANDFILL SITE
DATA QUALITY REQUIREMENTS
ACCURACY REQUIREMENTS FOR VOCs

	Spike Recovery Limits (%) Water
Surrogate Compound	
Toluene-d8	88-110
4-Bromofluorobenzene	86-115
1,2,Dichlorethane-d4	76-114
Matrix Spike Compound	
1,1-Dichloroethene	61-145
Trichloroethane	71-120
Chlorobenzene	75-130
Toluene	76-125
Benzene	76-127

Source: NYSDEC ASP

The methods of analysis will be in accordance with the NYSDEC ASP. Specific analytical procedures and laboratory QA/QC descriptions are not included in this QAPP, but will be available upon request from the laboratory selected to perform the analysis. The laboratory will be a New York Department of Health (NYSDOH) Environmental Laboratory Approved Program (ELAP) certified for organic analyses and inorganic analysis, and able to provide Category B deliverable data packages.

8.5.1 Data Representativeness

Representative samples will be collected as follows:

- Groundwater (Monitoring Well) – Samples will be obtained after the monitoring wells have been purged of three to five well casing volumes or field measurements (pH, conductivity, temperature, dissolved oxygen and turbidity) have stabilized or until the well is purged dry (whichever occurs first) and allowed to recharge. Samples will be collected using a new dedicated polyethylene bailer and rope.
- Equipment Calibration – Field equipment will be calibrated daily before use according to the manufacturer's procedures.
- Equipment Decontamination – Non-sterile sampling equipment will be decontaminated prior to use at each location according to the NYSDEC approved procedures described in Section 8.7 of the QAPP.

8.5.2 Data Comparability

All data will be presented in the units designated by the methods specified by the NYSDOH ELAP certified laboratory and the NYSDEC ASP. In addition, sample locations, collection procedures and analytical methods from earlier studies will be evaluated for comparability with current procedures/methods.

8.5.3 Data Completeness

The acceptability of 100% of the data is desired as a goal for the project. The acceptability of less than 100% complete data, meeting all QA/QC protocols/standards, will be evaluated on a case-by-case basis.

8.6 Detailed Sampling Procedures

Groundwater will be the only type of environmental sample collected as part of the monitoring program for the Trimmer Road Landfill Site. Sample locations will be collected from 12 existing monitoring wells. Actual locations are described in Section 4.0. Sampling procedures and equipment are described in this Section 8.0. A summary of the sampling program, including sample media, locations, equipment, rationale and analytical parameters is provided in Table 8-3.

The materials involved in aqueous sample collection are critical to the collection of high-quality monitoring information, particularly where the analyses of volatile, pH-sensitive or reduced chemical constituents are of interest. Disposable polyethylene bailers will be utilized for this project.

There will be several steps taken after the transfer of the water sample into the sample container that are necessary to properly complete collection activities. Once the sample is transferred into the appropriate container, the container will be capped and, if necessary, the outside of the container will be wiped with a clean paper towel to remove excess sampling material. The container will not be submerged in water in an effort to clean it. Rather, if necessary, a clean paper towel moistened with distilled/deionized water will be used.

The sample container will then be properly labeled. Information such as sample number, location, collection time and sample description will be recorded in the field logbook. Associated forms (e.g., Chain of Custody forms) will then be completed and will stay with the sample. The samples will be packaged in a manner that will allow the appropriate storage temperature (4°C) to be maintained during shipment to the laboratory.

Table 8-3

TRIMMER ROAD LANDFILL SITE
MONITORING PROGRAM
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	Number of Samples	Equipment	Sample Analyses
Monitoring Well Sampling (1 Round)	Water	At surface of water in well after purging well of 3 to 5 casing volumes of water.	12	Disposable polyethylene bailer.	TCL VOCs
Trip Blanks	Water	Laboratory provided distilled water.	1*	Sample supplied by laboratory.	TCL VOCs.
Matrix Spike/ Matrix Spike Duplicates	Water	Groundwater and surface water (split of sample).	1**	Sample container or disposable polyethylene bailer.	TCL VOCs

*One trip blank will accompany each shipment of aqueous samples requiring volatile organic compound analysis.
**One MS/MSD for each media for every 20 samples collected or one every two weeks if fewer than 20 samples.
Note: No field blanks will be collected as per New York State Department of Environmental Conservation guidance.

8.6.1 Sample Identification

Each sample container will have a label of durable material affixed to it, which specifies the following sample information:

- Sample location;
- Sample type;
- Sample identification number (including well designation);
- Name(s) of sampler(s);
- Date and time of sample collection;
- Container number for that sample, if more than one container is used (e.g., #1 of 4); and
- Laboratory analyte.

All samples collected during the monitoring program at the Trimmer Road Landfill Site will be labeled with a sample identification code. The code will identify the sample type, sample location and QA/QC requirements. Samples will be labeled according to the following system

Sample Type

- Monitoring Well "MW"

Sample Location and Number:

More than one sample of the same type will be collected from the site, therefore, the number corresponding to the sample location on will be assigned to the appropriate sample location in the field.

Quality Assurance/Quality Control (QA/QC)

- Trip Blank "TB"
- Matrix Spike "MS"
- Matrix spike duplicate "MSD"

Based upon the above sample identification procedures, an example of a sample label may be:

Sample Type → MW-1-MS ← QA/QC

↑

Sample Number

8.6.2 Sample Preservation, Handling and Shipment

All analytical samples will be placed in the appropriate sample containers as specified in the NYSDEC ASP. The holding time criteria identified for the individual methods of the ASP will be followed, as specified in Table 8-1.

Prior to packaging any sample for shipment, the sample containers will be checked for proper identification and compared to the field logbook for accuracy. The samples will then be wrapped with a cushioning material. Sample containers will be placed in a cooler with ice immediately after sample collection and maintained at 4°C throughout the duration of the sampling event and subsequent shipment to and storage at the analytical laboratory until analysis.

All necessary documentation required to accompany the sample during shipment will be placed in a sealed plastic bag and taped to the underside of the cooler lid. The cooler will then be sealed with packaging tape and custody seals will be placed in such a manner that any opening of the cooler prior to arrival at the laboratory can be detected.

All samples will be shipped to ensure laboratory receipt within 48 hours of sample collection in accordance with NYSDEC requirements. The laboratory will be notified prior to the shipment of the samples.

8.6.3 Groundwater (Monitoring Well)

- Be certain that the sample location is noted in the field logbook.
- Measure the depth of water and total depth using a decontaminated water level indicator and compute the volume of standing water in the well.
- Remove three to five times the volume of standing water from the well. Collect field measurements including pH, conductivity, temperature, dissolved oxygen and turbidity from the well. Turbidity must be less than 50 NTUs prior to collection of a sample for metals analysis. Greater than 50 NTUs may require waiting a maximum of 24 hours for the turbidity to decrease.
- Remove the laboratory precleaned sample containers from sample cooler, label container with an indelible marker, fill out Sample Information Record and Chain of Custody Form.
- Obtain a sample by using the disposable polyethylene bailer.
- Gently pour the sample into the sample container taking care not to spill on outside of bottle or overfill container and replace cover on the sample container. Samples for volatile organic analyses, will have no air space in the sample vial prior to sealing. This is done by filling the vial such that there is a meniscus on top. Carefully, slide the septum, Teflon® side down, onto the top of the vial and cap the vial. Check for bubbles by turning the vial upside down and tapping it lightly. If bubbles appear, reopen the vial, remove the septum and add more sample (or resample). Replace the septum, recap and check for bubbles. Continue until vial is bubble-free.
- Return sample container to sample cooler.

8.7 Decontamination Procedure

All field sampling equipment should be sterile and dedicated to a particular sampling point. In instances where this is not possible, a field cleaning (decontamination) procedure will be used in order to reduce the chances of cross-contamination between sample locations. A decontamination station will be established for all field activities. This will be an area located away from the suspected source of contamination so as not to adversely impact the decontamination procedure, but close enough to the sampling area to keep equipment handling to a minimum.

8.7.1 Field Decontamination Procedures

All non-disposable equipment will be decontaminated at appropriate intervals (e.g., prior to initial use, prior to moving to a new sampling location and prior to leaving the Site). Different decontamination procedures are used for various types of equipment that perform the field activities as discussed below. When using field decontamination, it is advisable to start sampling in the area of the site with the lowest contaminant probability and proceed through to the areas of highest suspected contamination.

8.7.2 Decontamination Procedure for Drilling/Test Trench/Pit Equipment

All equipment such as drill rigs, backhoes and other mobile equipment should receive an initial cleaning prior to use at the site. The equipment will then be decontaminated prior to leaving the site and each time it returns on-site. Unless otherwise specified and approved, all wash/rinse solutions should be collected and contained on-site.

After the initial washing, cleaning may be reduced to those areas that are in close proximity to materials being sampled. Drill rig items such as auger flights, drill rods, and drill bits are to be cleaned in between sample locations.

Drilling equipment will be decontaminated in the following manner:

- Scrub all surfaces thoroughly with non-residual nonionic anionic detergent (such as Alconox) and tap water using a brush to remove particulate matter or surface film. This is necessary in order to remove any solids buildup on the back of the rig, auger flights, drill rods, drilling head, etc. Any loose paint chips, paint flakes and rust must also be removed.
- Steam clean (212°F).

Also, following the general cleaning procedures described above, all downhole/drilling items, such as split spoon samplers, or any other item of equipment which will come in direct contact with a sample during drilling will be decontaminated by steam cleaning.

8.7.3 Decontamination Procedure for Sampling Equipment

Teflon, PVC, polyethylene, polystyrene and stainless steel sampling equipment decontamination procedures will be the following:

- Wash thoroughly with non-residual nonionic anionic detergent (such as Alconox) and clean potable tap water using a brush to remove particulate matter or surface film.
- Rinse thoroughly with tap water.
- Rinse thoroughly with distilled water.
- Rinse in a well-ventilated area with methanol (pesticide grade) and air dry.
- Rinse thoroughly with distilled water and air dry.
- Wrap completely in clean aluminum foil with dull side against the equipment. For small sampling items, such as scoops, decontamination will take place over a drum specifically used for this purpose.

The first step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease. This is followed by a tap water rinse and a distilled/deionized water rinse to remove the detergent. Next, a high purity solvent rinse is designated for trace organics removal. Methanol has been chosen because it is not an analyte of concern in the TCL. The solvent must be allowed to evaporate and then a final distilled/deionized water rinse is performed. This rinse removes any residual traces of the solvent. The aluminum wrap protects the equipment and keeps it clean until it is used at another sampling location.

8.7.4 Decontamination Procedure for Well Casing/ Screen and Development/Purging Equipment

Field cleaning of well casings and screens should consist of a manual scrubbing to remove foreign material and steam cleaning, inside and out, until all traces of oil and grease are removed. If pre-cleaned certified well casings and screens can be obtained from the manufacturer this would also be acceptable. This material should then be stored in such a manner so as to preserve it in this condition. Special attention to threaded joints may be necessary to remove cutting oil or weld burn residues.

Materials and equipment that will be used within the monitoring well casings for the purposes of well development and purging shall also be decontaminated.

The submersible pump will be decontaminated by the following procedures:

- Place pump in a water solution of a nonionic anionic surfactant solution (Alconox) solution and wash the outside of the pump with a scrub brush.
- Pump approximately five gallons of the wash solution through the pump.
- Place pump in bucket of clean water and pump out five gallons of water.
- Wipe down the cable with deionized water and a paper towel.

8.8 Laboratory Sample Custody Procedures

A NYSDOH ELAP certified laboratory meeting the requirements for sample custody procedures including cleaning and handling sample containers and analytical equipment will be used. The laboratory's standard operating procedures will be available upon request.

8.9 Field Management Documentation

Proper management and documentation of field activities is essential to ensure that all necessary work is conducted in accordance with the monitoring plan and QAPP in an efficient and high-quality manner. Field management procedures include following proper chain of custody procedures to track a sample from collection through analysis, noting when and how samples are to be composited (if required), preparing a Location Sketch, completing Sample Information Record Forms, Chain of Custody Forms and Boring, Well and Test Pit Construction Logs, maintaining a daily Field Log Book, preparing Daily Field Activity Reports, and completing Field Change Forms. Copies of each of these forms are provided in Section 8.21. Proper completion of these forms and the field log book are necessary to support the consequent actions that may result from the sample analysis. This documentation will support that the evidence was gathered and handled properly.

8.9.1 Location Sketch

Each sampling point shall have its own location sketch (found in Section 8.21) with permanent references, to the maximum extent practicable.

8.9.2 Sample Information Record

At each sampling location, the Sample Information Record Form is filled out and maintained including, but not limited to, the following information:

- Site name
- Sample crew
- Sample location
- Field sample identification number
- Date
- Time of sample collection
- Weather conditions
- Temperature
- Sample matrix
- Method of sample collection and any factor that may affect its quality adversely

- Well information (groundwater only)
- Field test results
- Constituents sampled
- Remarks (Sample Information)

8.9.3 Chain of Custody

The Chain of Custody (COC) is initiated at the laboratory with bottle preparation and shipment to the site. The COC remains with the sample at all times and bears the name of the person assuming responsibility for the samples. This person is tasked with ensuring secure and appropriate handling of the bottles and samples. When the form is complete, it should indicate that there were no lapses in sample accountability.

A sample is considered to be in an individual's custody if any of the following conditions are met:

- It is in the individual's physical possession, or
- It is in the individual's view after being in his or her physical possession, or
- It is secured by the individual so that no one can tamper with it, or
- The individual puts it in a designated and identified secure area.

In general, Chain of Custody Forms are provided by the laboratory contracted to perform the analytical services. At a minimum, the following information shall be provided on these forms:

- Project name and address
- Project number
- Sample identification number
- Date

- Time
- Sample location
- Sample type
- Analysis requested
- Number of containers and volume taken
- Remarks
- Type of waste
- Sampler(s) name(s) and signature(s)
- Spaces for relinquished by/received by signature and date/time.

For this particular study, forms provided by the laboratory will be utilized. A copy of this form is contained in Section 8.21.

The Chain of Custody Form is filled out and signed by the person performing the sampling. The original of the form travels with the sample and is signed and dated each time the sample is relinquished to another party, until it reaches the laboratory or analysis is completed. The field sampler keeps one copy and a copy is retained for the project file. The sample container must also be labeled with an indelible marker with a minimum of the following information:

- Sample number
- Analysis to be performed
- Date of collection
- Compositing information

A copy of the completed form is returned by the laboratory with the analytical results.

8.9.4 Split Samples

Whenever samples are being split with another party, a Receipt for Samples Form must be completed and signed. A copy of this form can be found in Section 8.21. A copy of the COC Form will accompany this form. The present work plan does not provide for split samples.

8.9.5 Field Log Book

Field log books must be bound and should have consecutively numbered, water resistant pages. All pertinent information regarding the site and sampling procedures must be documented. Notations should be made in log book fashion, noting the time and date of all entries. Information recorded in this notebook should include, but not be limited to, the following:

The first page of the log contains the following information:

- Project name and address
- Name, address and phone number of field contact
- Waste generator and address, if different from above
- Type of process (if known), generating waste
- Type of waste
- Suspected waste composition, including concentrations

Daily entries are made for the following information:

- Purpose of sampling
- Location of sampling point
- Number(s) and volume(s) of sample(s) taken
- Description of sampling point and sampling methodology
- Date and time of collection, arrival and departure

- Collector's sample identification number(s)
- Sample distribution and method of storage and transportation
- References, such as sketches of the sampling site or photographs of sample collection
- Field observations, including results of field analyses (e.g., pH, temperature, specific conductance), water levels, drilling logs, and organic vapor and dust readings
- Signature of personnel responsible for completing log entries.

8.9.6 Daily Field Activity Report

At the end of each day of field work, the Field Operations Manager, or designee, completes this form noting personnel on-site and summarizing the work performed that day, equipment, materials and supplies used, results of field analyses, problems and resolutions. This form is then signed and is subject to review. A copy of the Daily Field Activity Report form is contained in Section 8.21.

8.9.7 Field Changes and Corrective Actions

Whenever there is a required or recommended investigation/sampling change or correction, a Field Change Form must be completed by the Field Operations Manager and NYSDEC on-site supervisor, and approved by the Engineers and NYSDEC Project Managers.

8.10 Calibration Procedures and Preventative Maintenance

The following information regarding equipment will be maintained for the project:

- Equipment calibration and operating procedures which will include provisions for documentation of frequency, conditions, standards and records reflecting the calibration procedures, methods of usage and repair history of the measurement system. Calibration of field equipment will be done daily at the sampling site so that any background contamination can be taken into consideration and the instrument calibrated accordingly.

- Critical spare parts, necessary tools and manuals will be on hand to facilitate equipment maintenance and repair.

Calibration procedures and preventive maintenance, in accordance with the NYSDEC ASP, for laboratory equipment are contained in the laboratory's standard operating procedures and are available upon request.

8.11 Performance of Field Audits

During field activities, the QA/QC officer may accompany sampling personnel into the field to verify that the site sampling program is being properly implemented and to detect and define problems so that corrective action can be taken. All findings will be documented and provided to the Field Operations Manager. A copy of D&B's Field Audit form is in Section 8.25.

8.12 Control and Disposal of Contaminated Material

During construction and sampling of the monitoring wells and borings installed during the site maintenance, possible contaminated waste, soil and water may be generated from drill cuttings, drilling fluids, decontamination water, development water and purge water. Drill cuttings will be handled in accordance with the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) - No. 4032 - Disposal of Drill Cuttings. Specifically, all soil and water associated with the wells or borings will be disposed of on-site. Decontamination water will also be disposed of on-site.

In general, soiled personal protective equipment (PPE) and disposable sampling equipment (i.e., bailers, tongue depressors, scoops) will be considered solid waste and contained and disposed off-site. If hazardous waste contamination of PPE or disposable equipment is suspected, due to elevated measurements of screening instruments, visual observations, odors or other means, PPE and equipment will be drummed and secured on-site until a hazardous waste determination can be made. Once a determination has been made, an approved disposal method will be employed.

8.13 Documentation, Data Reduction and Reporting

A NYSDOH ELAP certified laboratory meeting requirements for documentation, data reduction and reporting will be used. All data will be cataloged according to sampling locations and sample identification nomenclature which is described in Section 8.7.1 of the QA/QC plan.

NYSDEC "Sample Identification and Analytical Requirement Summary" and "Sample Preparation and Analysis Summary" forms (for VOA Analysis, B/N-A Analysis, Pesticides/PCB Analysis and Inorganic Analysis) will be completed and included with each data package. These forms are contained in Section 8.23. The sample tracking forms are required and supplied by the NYSDEC ASP.

8.14 Data Validation

Data validation will be performed in order to define and document analytical data quality in accordance with NYSDEC requirements that investigation data must be of known and acceptable quality. The analytical and validation processes will be conducted in conformance with the NYSDEC ASP and/or USEPA 5/99 and 1/00 SOWs.

Because the NYSDEC ASP is based on the USEPA CLP, the USEPA Functional Guidelines for Evaluating Organics Analyses for the Contract Laboratory Program (CLP) will assist in formulating standard operating procedures (SOPs) for the data validation process. The data validation process will ensure that all analytical requirements specific to the QA/QC plan are followed. Procedures will address validation of Routine Analytical Services (RAS) results based on the NYSDEC ASP Target Compound List and Target Analyte List for standard sample matrices.

The data validation process will provide an informed assessment of the laboratory's performance based upon contractual requirements and applicable analytical criteria. The report generated as a result of the data validation process will provide a base upon which the usefulness of the data can be evaluated by the end user of the analytical results. The overall level of effort and specific data validation procedure to be used will be equivalent to a "100% validation" of all data in any given data package.

"Qualified" analytical results for any one field sample will be established and presented based on the results of specific QC samples and procedures associated with its sample analysis group or batch. Precision Accuracy criteria (i.e., QC acceptance limits) will be used in determining the need for qualifying data. Where test data have been reduced by the laboratory, the method of reduction will be discussed in the report. Reduction of laboratory measurements and laboratory reporting of analytical parameters will be verified in accordance with the procedures specified in the NYSDEC and USEPA program documents for each analytical method (i.e., recreate laboratory calculations and data reporting in accordance with the method specific procedure).

The standard operating guideline manuals for any specific analytical methodology required will specify documentation needs and technical criteria and will be taken into consideration in the validation process. Copies of the complete data package and the data validation report, including laboratory result data report sheets, with any qualifiers deemed appropriate by the data reviewer, and supplementary field QC sample result summary statement, will be provided with the site investigation report.

The following is a description of the two-phased approach to data validation which will be used for this investigation. The first phase is called checklisting and the second phase is the analytical quality review, with the former being a subset of the latter.

- Checklisting - The data package will be checked for correct submission of the contract required deliverables, correct transcription from the raw data to the required deliverable summary forms and proper calculation of a number of parameters.
- Analytical Data Review – The data package will be closely examined to recreate the analytical process and verify that proper and acceptable analytical techniques have been performed. Additionally, overall data quality and laboratory performance will be evaluated by applying the appropriate data quality criteria to the data to reflect conformance with the specified, accepted QA/QC standards and contractual requirements.

At the completion of the data validation, a Data Usability Summary Report (DUSR) will be prepared as part of the site investigation report.

8.15 Performance and System Audits

A NYSDOH ELAP certified laboratory which has satisfactorily completed performance audits and performance evaluation samples shall be used.

8.16 Corrective Action

A NYSDOH ELAP certified laboratory shall meet the requirements for corrective action protocols, including sample "clean up" to attempt to eliminate/mitigate "matrix interference."

The NYSDEC ASP protocols include both mandatory and optional sample cleanup and extraction methods. GPC cleanup is required for soil samples by the NYSDEC ASP for semivolatile and pesticide/PCB analyses in order to meet contract required detection limits. Florisil column cleanup is required for the pesticide/PCB fraction of both soil and water samples. There are several optional cleanup and extraction methods noted in the NYSDEC ASP protocol. These include: Silica gel column cleanup, acid-base partition, steam distillation and sulfuric acid cleanup for PCB analysis.

It should be noted, that if these optional cleanup and extraction methods are requested by NYSDEC, holding time requirements should not be exceeded due to negligence of the laboratory. However, subsequent to selection of the analytical laboratory for this project, a meeting will be scheduled among representatives of the NYSDEC, the Engineer and the laboratory to discuss these issues and establish procedures to ensure good and timely communications among all parties.

8.17 Trip Blanks (Travel Blanks)

The primary purpose of this type of blank is to detect additional sources of contamination that might potentially influence contaminant values reported in actual samples both quantitatively and qualitatively. The following have been identified as potential sources of contamination:

- Laboratory reagent water
- Sample containers
- Cross contamination in shipment
- Ambient air or contact with analytical instrumentation during preparation and analysis at the laboratory
- Laboratory reagents used in analytical procedures

A trip blank consists of a set of 40 ml sample vials filled at the laboratory with laboratory demonstrated analyte free water. Trip blanks should be handled, transported and analyzed in the same manner as the samples acquired that day, except that the sample containers themselves are not opened in the field. Rather, they just travel with the sample cooler. Trip blanks must accompany samples at a rate of one per shipment. The temperature of the trip blanks must be maintained at 4°C while on-site and during shipment. Trip blanks must return to the laboratory with the same set of bottles they accompanied in the field.

The purpose of a trip blank is to control sample container preparation and blank water quality as well as sample handling. Thus, the trip blank travels to the site with the empty sample container, and back from the site with the collected samples, in an effort to simulate sample handling conditions. Contaminated trip blanks may indicate inadequate bottle cleaning or blank water of questionable quality. Trip blanks are implemented only when collecting water samples, and analyzed for VOCs only.

8.18 Field Blank (Field Rinsate Blank)/Equipment Blank

Field blanks are not required for this project, since disposable bailers and sterile scoops are being utilized for sample collection.

8.19 Matrix Spikes/Matrix Spike Duplicates and Spiked Blanks

Matrix spike samples and blanks are quality control procedures, consistent with 6/00 NYSDEC ASP specifications, used by the laboratory as part of its internal Quality Assurance/Quality Control program. The matrix and matrix spike duplicates are aliquots of a designated sample (water or soil) which are spiked with known quantities of specified compounds. They are used to evaluate the matrix effect of the sample upon the analytical methodology as well as to determine the precision of the analytical method used. A matrix spike blank is an aliquot of analyte-free water, prepared in the laboratory, and spiked with the same solution used to spike the MS and MSD. The MSB is subjected to the same analytical procedure as the MS/MSD and used to indicate the appropriateness of the spiking solution by calculating the spike compound recoveries. The procedure and frequency regarding the MS, MSD and MSB are defined in the NYSDEC ASP.

8.20 Method Blanks

A method blank is an aliquot of laboratory water or soil which is spiked with the same internal and surrogate compounds as the samples. Its purpose is to define and determine the level of laboratory background contamination. Frequency, procedure and maximum laboratory containment concentration limits are specified in the NYSDEC ASP as follows:

The laboratory shall prepare and analyze one laboratory reagent blank (method blank) for each group of samples of a similar matrix (for water or soil samples), extracted by a similar method (separatory funnel, continuous liquid extraction or sonication) and a similar concentration level (for volatile and semivolatile soil samples only) for the following, whichever is most frequent:

- Each case of field samples received; or

- Each 20 samples in a case, including matrix spikes and reanalyses; or
- Each 7 calendar day period during which field samples in a case were received (said period beginning with the receipt of the first sample in that sample delivery group); or
- Whenever samples are extracted.

Volatile analysis requires one method blank for each 12-hour time period when volatile target compounds are analyzed.

Semivolatile and pesticide method blanks shall be carried through the entire analytical process from extraction to final GC/MS or GC/EC analysis, including all protocol performance/ delivery requirements.

8.21 Field Management Forms

Contractor: ____	Dvirka and Bartilucci Test Pit Log	Pit No. TP-____
Operator: ____		Sheet 1 of ____
Inspector: ____	Project Name: ____	Pit Location:
Equip Type: ____	Project #: ____	

Groundwater Observations			Start: ____	Plot Plan
Water level			Finish: ____	
Time			Weather: ____	(see location map)
Date				
Depth of pit				

USCS Classification	Sample No.	Depth	Description	Comments
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9		
		10		
		11		
		12		
		13		
		14		
		15		
		16		
		17		
		18		
		19		
		20		

Stratigraphic Summary:

Dvirka and Bartilucci Boring Log

Driller: ____________________
Inspector: ____________________
Rig Type: ____________________
Drilling Method: ____________________

Project Name: ____________________
Project #: ____________________
Boring Depth: ______

Boring ID : ___
Sheet ____ **of** ____
Location: ________
____

	Groundwater Observations		
Date			
Time			
DTW			
Casing/Total Depth			

Start (Date & Time): ____________
Finish (Date & Time): ____________
Weather: ____________
____
Elevation of Ground Surface: ________

Location Sketch:

Sample Interval	Sample No.	Blows		Field Description	Well Schematic	Comments

Soil Stratigraphy Summary ____________________

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Well Construction Log

Site ____________________ Job No. ________ Well No. ________

Total Depth ________ Surface Elevation ________ Top Riser Elevation ________

Water Levels (Depth, Date, Time) ____________________ Date Installed ________

Riser	Dia. ______	Material ______	Length ______	
Screen	Dia. ______	Material ______	Length ______	Slot Size ______
Protective Casing	Dia. ______	Material ______	Length ______	

SCHEMATIC

______ Protective Casing Stickup

______ Riser Stickup

Ground Surface

Surface Seal Type ________
____

______ Bottom Surface Seal

Grout Type ________
____

______ Top Seal

Seal Type ________
____

______ Top Sand Pack

______ Top Screen

Sand Pack Type ________
Size ________

______ Bottom Screen

______ Total Depth of Boring

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A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Well Construction Log

Site ____________________ Job No. __________ Well No. __________

Total Depth __________ Surface Elevation __________ Top Riser Elevation __________

Water Levels (Depth, Date, Time) ____________________ Date Installed __________

Riser Dia. ________ Material ________ Length ________

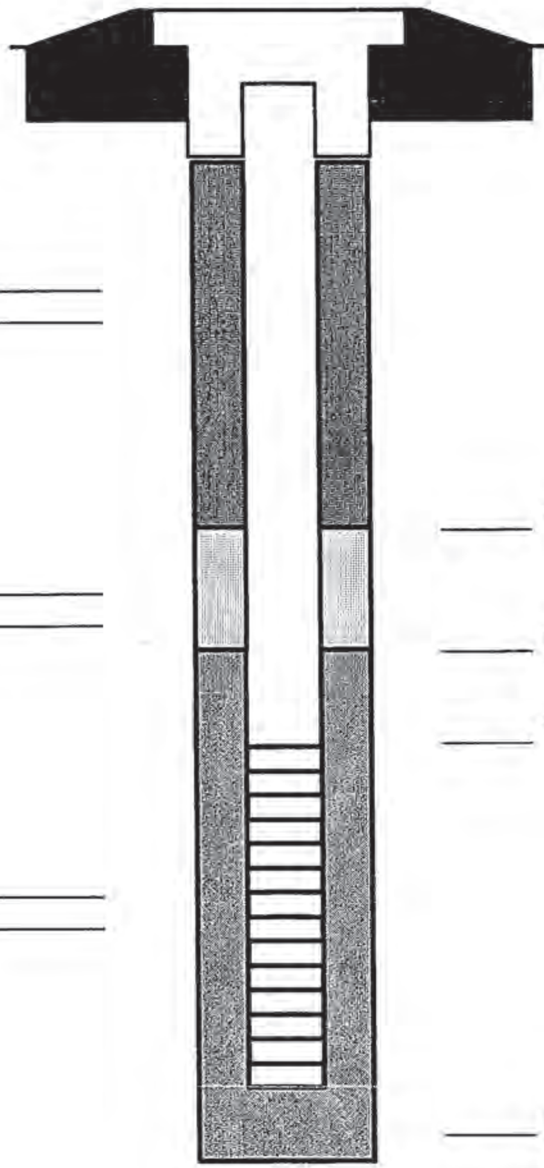
Screen Dia. ________ Material ________ Length ________ Slot Size ________

SCHEMATIC

Surface Seal Type

____

____



Ground Surface

______ Riser Elevation

______ Bottom Surface Seal

Grout Type __________

____

______ Top Seal

Seal Type __________

____

______ Top Sand Pack

______ Top Screen

Sand Pack Type __________

Size __________

______ Bottom Screen

______ Total Depth of Boring

D&B_WCLF.doc

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and
Bartilucci
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Date: ____________________

LOCATION SKETCH

Project ________________________________ Sample Crew ________________________

Sample(s) Locations(s) ____

Sample(s) and/or Well Number(s) ____

Location of sample points, wells, borings, etc., with reference to three permanent reference points. Measure all distances, clearly label roads, wells and permanent features.

N

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Date: ____________

SAMPLE INFORMATION RECORD

Site: ____________ **Sample Crew:** ____________

Sample Location/Well No. ____________

Field Sample I.D. Number ____________ **Time** ____________

Weather ____________ **Temperature** ____________

Sample Type:

Groundwater ____________ **Sediment** ____________

Surface Water/Stream ____________ **Air** ____________

Soil ____________ **Other (describe, i.e. water, septage, etc.)** ____________

Well Information (fill out for groundwater samples)

Depth to Water ____________ **Measurement Method** ____________

Depth of Well ____________ **Measurement Method** ____________

Volume Removed ____________ **Removal Method** ____________

Field Test Results

pH ________ Spec Cond (mS/cm) ________ Turbidity (NTUs) ________

Diss. Oxygen (mg/l) ________ Temperature °C ________ Salinity (%) ________

PID (ppm) ________ Color ________ Odor ________

Other: ____________

Laboratory Analyses Requested

________ ________ ________ ________

________ ________ ________ ________

Remarks:

____

____

____

Well Casing Volumes

GAL/FT	**1¼" = 0.077**	**2" = 0.16**	**3" = 0.37**	**4" = 0.65**
	1½ =0.10	**2½ " = 0.24**	**3½ = 0.50**	**6" = 1.46**

DVIRKA
AND
BARTILUCCI

Receipt for Samples

Project Name: ______________________ Field Log Book Reference Number: ______________

Project Address: ______________________ Sampled By: ______________

Project Number: ______________________ Split With: ______________

SAMPLE NUMBERS	DATE	TIME	COMP	GRAB	SPLIT SAMPLES	LOG BOOK PAGE NO.	TAG NUMBERS	SAMPLE LOCATION	NO. OF CONTAINERS	REMARKS

Transferred by (Signature)		Received by (Signature)		Telephone
Date	Time	Title	Date	Time

RFS

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CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Date: ______________

DAILY FIELD ACTIVITY REPORT

Report Number: ______________ Project Number: ______________

Field Log Book Page Number: ______________

Project: ______________

Address: ______________

Weather: (AM) ______________ Rainfall: (AM) ________ Inches

(PM) ______________ (PM) ________ Inches

Temperature: (AM) ______ °F Wind Speed: (AM) ______ MPH Wind Direction: (AM) ______

(PM) ______ °F (PM) ______ MPH (PM) ______

Site Condition: ______________

Personnel On Site:	Name	Affiliation	Arrival Time	Departure Time

Subcontractor Work Commencement: (AM) ______________ (PM) ______________

Subcontractor Work Completion: (AM) ______________ (PM) ______________

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Date: ___________________

DAILY FIELD ACTIVITY REPORT

Work Performed by subcontractor(s) (includes equipment and labor breakdown):

Dvirka
and
Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Date: ________________

DAILY FIELD ACTIVITY REPORT

General work performed today by D&B Engineers:

____

____

____

____

____

List specific inspection(s) performed and results (include problems and corrective actions):

____

____

____

____

____

List type and location of tests performed and results (include equipment used and monitoring results):

____

____

____

____

____

Verbal comments received from subcontractor (include construction and testing problems, and recommendations/resulting actions):

____

____

____

____

____

Prepared by: ____________________________ Reviewed by: ____________________________

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and
Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

FIELD CHANGE FORM

Project Name:____

Project Number:____________________ Field Change Number:______________

Location:______________________________ Date:______________

Field Activity Description:____

____

____

____

Reason for Change:____

____

____

____

Recommended Disposition:____

____

____

____

____ ______________

Field Operations Officer (D&B Consulting Engineers) (Signature) Date

Disposition:____

____

____

____

____ ______________

On-site Supervisor (NYSDEC) (Signature) Date

Distribution: Project Manager (D&B)
Project Manager (NYSDEC)
Field Operations Officer
On-site Supervisor (NYSDEC)

Others as Required:______________

____

____

____

Dvirka
and
Bartilucci
CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

Date: ____________________

DAILY EQUIPMENT CALIBRATION LOG

Project Name: ____________________

Project Number: ____________________ Calibrated by: ____________________

Instrument Name and Model Number	Calibration Method	Time	Readings and Observations

8.22 NYSDEC Sample Identification, Preparation and Analysis Summary Forms

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Laboratory Sample ID	Matrix	Metals Requested	Date Rec'd at Lab	Date Analyzed

8.23 DUSR Preparation Guidelines

APPENDIX 2B

Guidance for the Development of Data Usability Summary Reports

Background:

The Data Usability Summary Report (DUSR) provides a thorough evaluation of analytical data without the costly and time consuming process of third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use.

The DUSR and the data deliverables package will be reviewed by the DER Quality Assurance Unit. If data validation is found to be necessary (e.g. pending litigation) this can be carried out at a later date on the same data package used for the development of the DUSR.

Personnel Requirements:

The Environmental Scientist preparing the DUSR must hold a Bachelors Degree in a relevant natural or physical science or field of engineering and must submit a resume to the Division's Quality Assurance Unit documenting experience in environmental sampling, analysis and data review.

Preparation of a DUSR:

The DUSR is developed by reviewing and evaluating the analytical data package. During the course of this review the following questions must be asked and answered:

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

2. Have all holding times been met?

3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?

4. Have all of the data been generated using established and agreed upon analytical protocols?

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

6. Have the correct data qualifiers been used?

Evaluation of NYSDEC ASP Matrix Spike Blank (MSB) data - If the MSB recovery is less that the ASP criteria, the positive results should be qualified as J, estimated biased low. If the MSB recovery is less than the ASP criteria, but greater than 10%, the nondetects should be qualified J, biased low. If the MSB recovery is less than 10%, the nondetect data must be rejected.

Any Quality Control exceedances must be numerically specified in the DUSR and the corresponding QC summary sheet from the data package should be attached to the DUSR. All data that would be rejected by the EPA Region 2 Data Validation Guidelines must also be rejected in the DUSR.

Once the data package has been reviewed and the above questions asked and answered the DUSR proceeds to describe the samples and the analytical parameters. Data deficiencies, analytical protocol deviations and quality control problems are identified and their effect on the data is discussed. The DUSR shall also include recommendations on resampling/reanalysis. All data qualifications must be documented following the NYSDEC ASP '95 Rev. guidelines.

8.24 Data Quality Requirements and Assessment Summaries

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limits (CRQL)

	Volatiles	CAS Number	Quantitation Limits* Water µg/L	Low Soil µg/Kg	Med Soil µg/Kg	On Column (ng)
1.	Dichlorodifluoromethane	75-71-8	10	10	1200	(50)
2.	Chloromethane	74-87-3	10	10	1200	(50)
3.	Bromomethane	74-83-9	10	10	1200	(50)
4.	Vinyl chloride	75-01-4	10	10	1200	(50)
5.	Chloroethane	75-00-3	10	10	1200	(50)
6.	Trichlorofluoromethane	75-69-4	10	10	1200	(50)
7.	1,1-Dichloroethene	75-35-4	10	10	1200	(50)
8.	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	10	10	1200	(50)
9.	Acetone	67-64-1	10	10	1200	(50)
10.	Carbon Disulfide	75-15-0	10	10	1200	(50)
11.	Methyl Acetate	79-20-9	10	10	1200	(50)
12.	Methylene chloride	75-09-2	10	10	1200	(50)
13.	trans-1,2-Dichloroethene	156-60-5	10	10	1200	(50)
14.	Methyl tert-Butyl Ether	1634-04-4	10	10	1200	(50)
15.	1,1-Dichloroethane	75-35-3	10	10	1200	(50)
16.	cis-1,2-Dichloroethene	156-59-2	10	10	1200	(50)
17.	2-Butanone	78-93-3	10	10	1200	(50)
18.	Chloroform	67-66-3	10	10	1200	(50)
19.	1,1,1-Trichloroethane	71-55-6	10	10	1200	(50)
20.	Cyclohexane	110-82-7	10	10	1200	(50)
21.	Carbon tetrachloride	56-23-5	10	10	1200	(50)
22.	Benzene	71-43-2	10	10	1200	(50)
23.	1,2-Dichloroethane	107-06-2	10	10	1200	(50)
24.	Trichloroethene	79-01-6	10	10	1200	(50)
25.	Methylcyclohexane	108-87-2	10	10	1200	(50)
26.	1,2-Dichloropropane	78-87-5	10	10	1200	(50)
27.	Bromodichloromethane	75-27-4	10	10	1200	(50)
28.	cis-1,3-Dichloropropene	10061-01-5	10	10	1200	(50)
29.	4-Methyl-2-pentanone	108-10-1	10	10	1200	(50)
30.	Toluene	108-88-3	10	10	1200	(50)
31.	trans-1,3-Dichloropropene	10061-02-6	10	10	1200	(50)
32.	1,1,2-Trichloroethane	79-00-5	10	10	1200	(50)
33.	Tetrachloroethene	127-18-4	10	10	1200	(50)
34.	2-Hexanone	591-78-6	10	10	1200	(50)
35.	Dibromochloromethane	124-48-1	10	10	1200	(50)

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limits (CRQL)

	Volatiles (cont.)	CAS Number	Quantitation Limits* Water µg/L	Low Soil µg/Kg	Med Soil µg/Kg	On Column (ng)
36.	1,2-Dibromoethane	106-93-4	10	10	1200	(50)
37.	Chlorobenzene	108-90-7	10	10	1200	(50)
38.	Ethyl Benzene	100-41-4	10	10	1200	(50)
39.	Total Xylenes	1330-20-7	10	10	1200	(50)
40.	Styrene	100-42-5	10	10	1200	(50)
41.	Bromoform	75-25-2	10	10	1200	(50)
42.	Isopropylbenzene	98-82-8	10	10	1200	(50)
43.	1,1,2,2-Tetrachloroethane	79-34-5	10	10	1200	(50)
44.	1,3-Dichlorobenzene	541-73-1	10	10	1200	(50)
45.	1,4-Dichlorobenzene	106-46-7	10	10	1200	(50)
46.	1,2-Dichlorobenzene	95-50-1	10	10	1200	(50)
47.	1,2-Dibromo-3-chloropropane	96-12-8	10	10	1200	(50)
48.	1,2,4-Trichlorobenzene	120-82-1	10	10	1200	(50)

* Quantitation Limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis, as required by the protocol, will be higher.

Note that the CRQL values listed on the preceding page may not be those specified in previous Analytical Services Protocols. These values are set at concentrations in the sample equivalent to the concentration of the lowest calibration standard specified in Exhibit D, Part II. Lower quantitation limits may be achievable for water samples by employing the methods in Exhibit D, Part X for Low Concentration Water for Organic Analyses.

VOLATILES

Water Samples

A 5 mL volume of water is purged with an inert gas at ambient temperature. The volatiles are trapped on solid sorbents, and desorbed directly onto the GC/MS. For a sample with compound X at the CRQL of 10 μg/L:

(10 μg/L) (5 mL) (10^{-3} L/mL) = 50 x 10^{-3} ug = 50 ng on the GC column

Low Level Soil/Sediment Samples

A 5 g aliquot of the soil/sediment sample is added to a volume of water in a purge tube, heated, and purged with an inert gas. The volatiles are trapped, and later desorbed directly onto the GC/MS. For a sample with compound X at the CRQL of 10 μg/Kg:

(10 μg/Kg) (5 g) (10^{-3} Kg/g) = 50 x 10^{-3} μg = 50 ng on the GC column

Medium Level Soil/Sediment Samples

A 4 g aliquot of soil/sediment is extracted with 10 mL of methanol, and filtered through glass wool. Only 1 mL of the methanol extract is taken for screening and analysis. Based on the results of a GC/FID screen, an aliquot of the methanol extract is added to 5 mL of reagent water and purged at ambient temperature. The largest aliquot of extract considered in Exhibit D, Part III is 100 uL. For a sample with compound X at the CRQL of 1200 μg/Kg:

(1200 μg/Kg) (4 g) (10^{-3} Kg/g) = 4800 x 10^{-3} μg = 4800 ng

This material is contained in the 10 mL methanol extract:

(4800 ng) / 10 mL = 480 ng/mL

Of which, 100 μL are purged from the reagent water.

(480 ng/mL) (100 μL) (10^{-3} mL/μL) = 480 x 10^{-1} ng = 50 ng on the GC column

Note that for both low and medium soil/sediment samples, while it may affect the purging efficiency, the volume of reagent water used in the purging process does not affect the calculations.

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limits (CRQL)*

	Semivolatiles	CAS Number	Quantitation Limits* Water µg/L	Low Soil µg/Kg	Med Soil µg/Kg	On Column (ng)
34.	Phenol	108-95-2	10	330	10,000	(20)
35.	bis(2-Chloroethyl) ether	111-44-4	10	330	10,000	(20)
36.	2-Chlorophenol	95-57-8	10	330	10,000	(20)
37.	1,3-Dichlorobenzene	541-73-1	10	330	10,000	(20)
38.	1,4-Dichlorobenzene	106-46-7	10	330	10,000	(20)
39.	1,2-Dichlorobenzene	95-50-1	10	330	10,000	(20)
40.	2-Methylphenol	95-48-7	10	330	10,000	(20)
41.	2,2'-oxybis(1-Chloropropane) #	108-60-1	10	330	10,000	(20)
42.	4-Methylphenol	106-44-5	10	330	10,000	(20)
43.	N-Nitroso-di-n-propylamine	621-64-7	10	330	10,000	(20)
44.	Hexachloroethane	67-72-1	10	330	10,000	(20)
45.	Nitrobenzene	98-95-3	10	330	10,000	(20)
46.	Isophorone	78-59-1	10	330	10,000	(20)
47.	2-Nitrophenol	88-75-5	10	330	10,000	(20)
48.	2,4-Dimethylphenol	105-67-9	10	330	10,000	(20)
49.	bis(2-Chloroethoxy) methane	111-91-1	10	330	10,000	(20)
50.	2,4-Dichlorophenol	120-83-2	10	330	10,000	(20)
51.	1,2,4-Trichlorobenzene	120-82-1	10	330	10,000	(20)
52.	Naphthalene	91-20-3	10	330	10,000	(20)
53.	4-Chloroaniline	106-47-8	10	330	10,000	(20)
54.	Hexachlorobutadiene	87-68-3	10	330	10,000	(20)
55.	4-Chloro-3-methylphenol	59-50-7	10	330	10,000	(20)
56.	2-Methylnaphthalene	91-57-6	10	330	10,000	(20)
57.	Hexachlorocyclopentadiene	77-47-4	10	330	10,000	(20)
58.	2,4,6-Trichlorophenol	88-06-2	10	330	10,000	(20)
59.	2,4,5-Trichlorophenol	95-95-4	25	800	25,000	(50)
60.	2-Chloronaphthalene	91-58-7	10	330	10,000	(20)
61.	2-Nitroaniline	88-74-4	25	800	25,000	(50)
62.	Dimethyl phthalate	131-11-3	10	330	10,000	(20)
63.	Acenaphthylene	208-96-8	10	330	10,000	(20)
64.	2,6-Dinitrotoluene	606-20-2	10	330	10,000	(20)
65.	3-Nitroaniline	99-09-2	25	800	25,000	(50)
66.	Acenaphthene	83-32-9	10	330	10,000	(20)

Previously known by the name bis(2-Chloroisopropyl) ether

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limits (CRQL)

	Semivolatiles	CAS Number	Quantitation Limits* Water µg/L	Low Soil µg/Kg	Med Soil µg/Kg	On Column (ng)
67.	2,4-Dinitrophenol	51-28-5	25	800	25,000	(50)
68.	4-Nitrophenol	100-02-7	25	800	25,000	(50)
69.	Dibenzofuran	132-64-9	10	330	10,000	(20)
70.	2,4-Dinitrotoluene	121-14-2	10	330	10,000	(20)
71.	Diethylphthalate	84-66-2	10	330	10,000	(20)
72.	4-Chlorophenyl phenyl ether	7005-72-3	10	330	10,000	(20)
73.	Fluorene	86-73-7	10	330	10,000	(20)
74.	4-Nitroaniline	100-01-6	25	800	25,000	(50)
75.	4,6-Dinitro-2-methylphenol	534-52-1	25	800	25,000	(50)
76.	N-nitrosodiphenylamine	86-30-6	10	330	10,000	(20)
77.	4-Bromophenyl phenyl ether	101-55-3	10	330	10,000	(20)
78.	Hexachlorobenzene	118-74-1	10	330	10,000	(20)
79.	Pentachlorophenol	87-86-5	25	800	25,000	(50)
80.	Phenanthrene	85-01-8	10	330	10,000	(20)
81.	Anthracene	120-12-7	10	330	10,000	(20)
82	Carbazole	86-74-8	10	330	10,000	(20)
83.	Di-n-butyl phthalate	84-74-2	10	330	10,000	(20)
84.	Fluoranthene	206-44-0	10	330	10,000	(20)
85.	Pyrene	129-00-0	10	330	10,000	(20)
86.	Butyl benzyl phthalate	85-68-7	10	330	10,000	(20)
87.	3,3'-Dichlorobenzidine	91-94-1	10	330	10,000	(20)
88.	Benz[a]anthracene	56-55-3	10	330	10,000	(20)
89.	Chrysene	218-01-9	10	330	10,000	(20)
90.	bis(2-Ethylhexyl)phthalate	117-81-7	10	330	10,000	(20)
91.	Di-n-octyl phthalate	117-84-0	10	330	10,000	(20)
92.	Benzo[b]fluoranthene	205-99-2	10	330	10,000	(20)
93.	Benzo[k]fluoranthene	207-08-9	10	330	10,000	(20)
94.	Benzo[a]pyrene	50-32-8	10	330	10,000	(20)
95.	Indeno(1,2,3-cd)pyrene	193-39-5	10	330	10,000	(20)
96.	Dibenz[a,h]anthracene	53-70-3	10	330	10,000	(20)
97.	Benzo[g,h,i]perylene	191-24-2	10	330	10,000	(20)

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the Laboratory for soil/sediment, calculated on dry weight basis as required by the Protocol, will be higher.

SEMIVOLATILES

Water Samples

A 1 L volume of water is extracted in a continuous liquid-liquid extractor with methylene chloride at a pH of approximately 2. This extract is reduced in volume to 1.0 mL, and a 2 µL volume is injected onto the GC/MS for analysis. For a sample with compound X at the CRQL of 10 µg/L:

(10 µg/L) (1 L) = 10 µg in the original extract

When the extract is concentrated, this .material is contained in the 1 mL concentrated extract, of which 2 µL are injected into the instrument:

(10 µg/mL) (2 µL) (10^{-3} mL/µL) = 20 x 10^{-3} µg = 20 ng on the GC column

Low Soil Samples

A 30 g soil sample is extracted three times with methylene chloride/acetone at ambient pH, by sonication or Soxhlet. The extract is reduced in volume to 1.0 mL, and a 2 µL volume is injected onto the GC/MS for analysis. For a sample with compound X at the CRQL of 330 µg/Kg:

(330 µg/Kg) (30 g) (10^{-3} Kg/g) = 9900 x 10^{-3} µg = 9.9 µg

When the sample extract is to be subjected to Gel Permeation Chromatography (required) to remove high molecular weight interferences, the volume of the extract is initially reduced to 10 mL. This 10 mL is put through the GPC column, and only 5 mL are collected off the GPC. That 5 mL volume is reduced to 0.5 mL prior to analysis. Therefore:

(9.9 µg/10 mL) (5 mL) = 4.95 µg

This material is contained in the 0.5 mL extract, of which 2 µL are injected Into the instrument:

(4.95 µg/0.5 mL) (2 µL) (10^{-3} mL/µL) = (1.98 x 10^{-2} µg) 20 ng on the GC column

Medium Soil Samples

A 1 g soil sample is extracted once with 10 mL of methylene chloride/acetone, which is filtered through glass wool to remove particles of soil. The filtered extract is then subjected to GPC clean up, and only 5 mL of extract are collected after GPC. This extract is reduced in volume to 0.5 mL, of which 2 µL are injected onto the GC/MS. For a sample with compound X at the CRQL of 10,000 µg/Kg:

(10,000 µg/Kg) (1 g) (10^{-3} Kg/g) = 10 µg

(continued)

Semivolatiles, Medium Soil, continued -

This material is contained in the 10 mL extract, of which only 5 mL are collected after GPC:

$(10\ \mu g)\ (5\ mL/10\ mL) = 5\ ug$

The volume of this extract is reduced to 0.5 mL, of which 2 µL are injected into the instrument:

$(5\ \mu g/0.5\ mL)\ (2\ \mu L)\ (10^{-3}\ mL/\mu L) = 20 \times 10^{-3}\ ug = 20\ ng$ on the GC column

Eight semivolatile compounds are calibrated using only a four point initial calibration, with the lowest standard at 50 ng. Therefore, the CRQL values for these eight compounds are 2.5 times higher for all matrices and levels.

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limits (CRQL)*

	Pesticides/Aroclors	CAS Number	Quantitation Limits* Water µg/L	Soil µg/Kg	On Column (pg)
98.	alpha-BHC	319-84-6	0.05	1.7	5
99.	beta-BHC	319-85-7	0.05	1.7	5
100.	delta-BHC	319-86-8	0.05	1.7	5
101.	gamma-BHC (Lindane)	58-89-9	0.05	1.7	5
102.	Heptachlor	76-44-8	0.05	1.7	5
103.	Aldrin	309-00-2	0.05	1.7	5
104.	Heptachlor epoxide	1024-57-3	0.05	1.7	5
105.	Endosulfan I	959-98-8	0.05	1.7	5
106.	Dieldrin	60-57-1	0.10	3.3	10
107.	4,4'-DDE	72-55-9	0.10	3.3	10
108.	Endrin	72-20-8	0.10	3.3	10
109.	Endosulfan II	33213-65-9	0.10	3.3	10
110.	4,4'-DDD	72-54-8	0.10	3.3	10
111.	Endosulfan sulfate	1031-07-8	0.10	3.3	10
112.	4,4'-DDT	50-29-3	0.10	3.3	10
113.	Methoxychlor	72-43-5	0.50	17.0	50
114.	Endrin ketone	53494-70-5	0.10	3.3	10
115.	Endrin aldehyde	7421-36-3	0.10	3.3	10
116.	alpha-Chlordane	5103-71-9	0.05	1.7	5
117.	gamma-Chlordane	5103-74-2	0.05	1.7	5
118.	Toxaphene	8001-35-2	5.0	170.0	500
119.	AROCLOR-1016	12674-11-2	1.0	33.0	100
120.	AROCLOR-1221	11104-28-2	2.0	67.0	200
121.	AROCLOR-1232	11141-16-5	1.0	33.0	100
122.	AROCLOR-1242	53469-21-9	1.0	33.0	100
123.	AROCLOR-1248	12672-29-6	1.0	33.0	100
124.	AROCLOR-1254	11097-69-1	1.0	33.0	100
125.	AROCLOR-1260	11096-82-5	1.0	33.0	100

* Quantitation Limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the Laboratory for soil/sediment, calculate on dry weight basis, as required by the Protocol, will be higher.

PESTICIDES/AROCLORS

Water Samples

A 1 L volume of water is extracted three times with methylene chloride or by a continuous liquid-liquid extractor. This extract is reduced in volume to approximately 3 - 5 mL, and diluted up to 10.0 mL with clean solvent. When Gel Permeation Chromatography is performed, only 5 of the 10 mL of extract are collected after GPC.

Regardless of whether GPC is performed, either 1.0 or 2.0 mL of the 10.0 mL of the original extracts are taken through the remaining clean up steps (Florisil and sulfur removal). The volume taken through Florisil cleanup and the final volume of the extract after the clean up steps depends on the requirements of the autosampler. If the autosampler can handle 1.0 mL final extract volumes, this is the volume taken through Florisil and the final volume. If the autosampler cannot reliably handle 1.0 mL volumes, the volume is 2.0 mL. When using an autosampler, the injection volume may be 1.0 or 2.0 µL. Manual injections must use a 2.0 µL injection volume.

For a sample with compound X at the CRQL of 0.05 µg/L and an autosampler requiring a 1.0 mL volume:

(0.05 µg/L) (1 L) = 0.05 µg in the original extract

This material is contained in the 10.0 mL of extract:

(0.05 µg)/ (10.0 mL) = 0.005 µg/mL

Of which, only 1.0 mL is carried through the remaining clean up steps. For a final extract volume of 1.0 mL and a 1 µL injection volume:

(0.005 µg/L) (1 µL) (10^{-3} mL/µL) = 5 x 10^{-6} µg = 5 pg on the GC column

Soil Samples

There is no differentiation between the preparation of low and medium soil samples in this method for the analysis of pesticides/Aroclors. A 30 g soil sample is extracted three times with methylene chloride/acetone by sonication or Soxhlet extraction. The extract is reduced in volume to 10.0 mL and subjected to Gel Permeation Chromatography. After GPC, only 5.0 mL of extract are collected. However, as with the water sample described above, either 1.0 or 2.0 mL of that extract are subjected to the other clean up steps, so no loss of sensitivity results from the use of GPC. From this point on, the soil sample extract is handled in the same fashion as the extract of a water sample. For a sample with compound X at the CRQL of 1.7 µg/Kg:

(1.7 µg/Kg) (30 g) (10^{-3} Kg/g) = 51 x 10^{-3} µg = 51 ng in the original extract

This material is contained in the 10.0 mL of extract:

(51 ng)/10 mL = 5.1 ng/mL
(continued)

of which, only 1.0 or 2.0 mL are carried through the remaining cleanup steps For a final extract volume of 1.0 mL and a 1 μL injection volume:

$(5.1 \text{ ng/mL})(1 \ \mu\text{L})(10^{-3} \text{ mL}/\mu\text{L}) = 5.1 \times 10^{-3} \text{ ng} = 5 \text{ pg}$ on the GC column.

For either water or soil samples, if the autosampler used requires a 2.0 mL final volume, the concentration in the 10.0 mL of extract above remains the same.

Using a 2 μL injection volume, twice the total number of picograms are injected onto the GC column. However, because the injection volume must be the same for samples and standards, twice as much material is injected onto the column during calibration, and thus the amount of compound X injected from the sample extract is equivalent to the amount of compound X injected from the calibration standard, regardless of injection volume.

If a single injection is used for two GC columns attached to a single injection part, it may be necessary to use an injection volume greater than 2 μL.

Section II -- Superfund-CLP Inorganics

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limit

Parameter		Contract Required Quantitation Level (µg/L)
1.	Aluminum	200
2.	Antimony	60
3.	Arsenic	10
4.	Barium	200
5.	Beryllium	5
6.	Cadmium	5
7.	Calcium	5000
8.	Chromium	10
9.	Cobalt	50
10.	Copper	25
11.	Iron	100
12.	Lead	3
13.	Magnesium	5000
14.	Manganese	15
15.	Mercury	0.2
16.	Nickel	40
17.	Potassium	5000
18.	Selenium	5
19.	Silver	10
20.	Sodium	5000
21.	Thallium	10
22.	Vanadium	50
23.	Zinc	20
24.	Cyanide	10

1: Any analytical method specified in Exhibit D, CLP-Inorganics may be utilized as long as the documented instrument or method detection limits meet the Contract Required Quantitation Level (CRQL) requirements. Higher quantitation levels may only be used in the following circumstance:

If the sample concentration exceeds five times the quantitation limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the Contract Required Quantitation Limit. This is illustrated in the example below:

For lead:
Method in use = ICP
Instrument Detection Limit (IDL) = 40
Sample concentration = 220
Contract Required Quantitation Level (CRQL) = 3

The value of 220 may be reported even though instrument detection limit is greater than Contract Required Quantitation Limit. The instrument or method detection limit must be documented as described in Exhibit E.

2: These CRQLs are the instrument detection limits obtained in pure water that must be met using the procedure in Exhibit E. The quantitation limits for samples may be considerably higher depending on the sample matrix.

Section III -- Regulatory Promulgated Parameters

In addition to the preceding lists, the Laboratory may be asked to analyze for any or all of the conventional water quality parameters as listed in 40CFR Part 136 or for the hazardous waste parameters listed in 40CFR Part 260 through 270.

Quantitation limits to be achieved for these analyses are specified.

8.25 Field Audit Form

FIELD AUDIT FORM

Site: ______________________ Date: ______________________

Persons On-site: ______________________ QA/QC Officer Conducting Audit:

______________________ ______________________

______________________ Project:

______________________ ______________________

1. Is safety equipment in use (hardhats, respirators, gloves etc.): YES NO

2. Is a decontamination station, equipment and supplies on-site and in working order:

working order:	Methanol	YES	NO
	Alconox	YES	NO
	D.I. Water	YES	NO
	Scrub Brushes	YES	NO
	Steam Cleaner	YES	NO

Comments: ______________________

____

____

3. Is the decontamination pad set up so water is contained: YES NO

Comments: ______________________

____

____

4. Is the site/investigation areas secured (fence, markers, etc.) or otherwise in accordance with project requirements: YES NO

Comments: ______________________

____

____

FIELD AUDIT FORM
(continued)

5. Is contaminated material properly stored and in a secure area or otherwise in accordance with project requirements: YES NO
   Are the drums of waste (water, soil, ppe) labeled properly: YES NO

   Comments: ______________________________

   ____

   ____

6. Are field forms filled out properly, legibly and timely:

Field Log Book	YES	NO
Chain of Custody	YES	NO
Equipment Calibration Log	YES	NO
Daily Field Activity Report	YES	NO
Location Sketch	YES	NO
Sample Information Record	YES	NO
Equipment Usage Form	YES	NO
Boring Logs	YES	NO

   Comments: ______________________________

   ____

   ____

7. Is the proper sampling and field measurement equipment, including calibration supplies on-site: YES NO

   Comments: ______________________________

   ____

   ____

FIELD AUDIT FORM
(continued)

8. Are there adequate sample containers, including deionized water for QA/QC:

Field Blanks	YES	NO
Trip Blanks	YES	NO

Comments: ______________________________

____

____

9. Is the equipment decontaminated in accordance with project requirements:

Sampling equipment	YES	NO
Construction equipment	YES	NO

Comments: ______________________________

____

____

10. Is field measurement equipment calibrated:

Daily	YES	NO
Properly	YES	NO

Comments: ______________________________

____

____

11. Are samples collected and labeled properly: YES NO

Comments: ______________________________

____

____

FIELD AUDIT FORM
(continued)

12. Are samples stored at 4°C: YES NO

Comments: ______________________________

____

____

13. Are coolers properly sealed and packed for shipment including Chain of Custody taped to underside of lid: YES NO

Comments: ______________________________

____

____

14. Is a copy of the Field Investigation Work Plan available on-site: YES NO

Comments: ______________________________

____

____

15. Is a copy of each equipment manual on-site: YES NO

Comments: ______________________________

____

____

16. Is a copy of the QA/QC Plan available on-site: YES NO

Comments: ______________________________

____

____

FIELD AUDIT FORM
(continued)

17. Are investigation personnel familiar with the Work Plan and QA/QC Plan: YES NO

Comments: ______________________________

____

____

18. Are quality control samples taken:

Trip Blanks	YES	NO
Field Blanks	YES	NO

19. Are samples shipped in a timely and appropriate manner: YES NO

Comments: ______________________________

____

____

20. Has the laboratory been contacted regarding planned shipment of samples: YES NO

Comments: ______________________________

____

____

21. Certification - Based upon my audit at the above project, I hereby certify/do not certify compliance with QA/QC requirements for the project:

______________________ ______________________________

Dated Signed

FIELD AUDIT FORM
(continued)

General Comments: ______________________________

____

____

____

ADDENDUM TO QAPP
SUPPLIMENTAL GROUNDWATER SAMPLING PROCEDURES

Groundwater is the only medium that requires sampling as part of the site management activities outlined in the SMP for the Trimmer Road Landfill. Groundwater monitoring requirements include collection of groundwater samples from 12 monitoring wells and analyzed them for volatile organic compounds (VOCs). Information pertaining to sample collection, handling, and analysis as well as other site related activities and quality control and quality assurance procedures are provided in the QAPP prepared by Dvirka and Bartilucci in August of 2009 as part of the original SMP and contained for use as Appendix 7 of this SMP.

The following provides protocols for collection of groundwater samples using either low-flow purging or passive diffusion bags. These methods are additional options to the hand bailing method identified in the original SMP and QAPP (D&B, 2009).

LOW -FLOW PURGE GROUNDWATER SAMPLING

The purpose of the low stress purging and sampling procedure is to collect groundwater samples from monitoring wells that are representative of groundwater conditions in the geological formation. This is accomplished by setting the intake velocity of the sampling pump to a flow rate that limits drawdown inside the well casing.

Sampling at the prescribed (low) flow rate has three primary benefits. First, it minimizes disturbance of sediment in the bottom of the well, thereby producing a sample with low turbidity (i.e., low concentration of suspended particles). Typically, this saves time and analytical costs by eliminating the need for collecting and analyzing an additional filtered sample from the same well. Second, this procedure minimizes aeration of the groundwater during sample collection, which improves the sample quality for VOC analysis if these are collected. Third, in most cases the procedure significantly reduces the volume of groundwater purged from a well and the costs associated with its proper treatment and disposal.

ADDRESSING POTENTIAL PROBLEMS

Problems that may be encountered using this technique include: a) difficulty in sampling wells with insufficient yield; b) failure of one or more key indicator parameters to stabilize;

Insufficient Yield

Wells with insufficient yield (i. e., low recharge rate of the well) may dewater during purging. Care should be taken to avoid loss of pressure in the tubing line due to dewatering of the well below the level of the pump's intake. Purging should be interrupted before the water level in the well drops below the top of the pump, as this may induce cascading of water in the sand pack. Pumping the well dry should therefore be avoided to the extent possible in all cases. If the well is pumped dry, sampling should commence as soon as the volume in the well has recovered sufficiently to allow collection of samples.

Failure to Stabilize Key Indicator Parameters

If one or more key indicator parameters fails to stabilize after 2 hours, one of the following options should be considered: a) continue purging in an attempt to achieve stabilization; b) discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book; c) discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or d) secure the well, purge and collect samples the next day.

EQUIPMENT AND MATERIALS

The following provides a list of basic equipment and materials that should be used for low-flow purging. A list of general supplies that are required for field activities and groundwater sampling are identified in the QAPP.

1. Adjustable rate, positive displacement groundwater sampling pump (e.g., centrifugal or bladder pumps constructed of stainless steel or Teflon) or peristaltic pump (if approved by NYSDEC).
2. Polyethylene tubing to collect samples for organic analysis. PVC, Tygon or polyethylene tubing to collect samples for inorganic analysis. Sufficient tubing of the appropriate material must be available so that each well has dedicated tubing.

3. Water level measuring device, minimum 0.01 foot accuracy (electronic preferred for tracking water level drawdown during all pumping operations).
4. Flow measurement supplies (e.g., graduated cylinder and timing device or in-line flow meter).
5. Power source for pump (generator, nitrogen tank, etc.)
6. A flow through cell and associated monitoring instruments for indicator parameters to facilitate in-line measurements. Eh and dissolved oxygen must be monitored in-line using an instrument with a continuous readout display. Turbidity, specific conductance, pH, and temperature can also monitored in-line. A nephelometer can be used to separately measure turbidity.

SAMPLING PROCEDURES

7. Insert tubing or pump: Slowly lower the tubing/pump and any associated cables into the well to the desired depth in the well. Record the depth to which the pump or intake of the tubing is set.
8. Measure Water Level: Before starting the pump, measure the water level with the pump/tubing in the well. Leave the water level measuring device in the well.
9. Purge Well: Start pumping the well at 200-500 milliliters per minute (mL/min). The water level should be monitored approximately every five minutes. Ideally, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 ft or less). Pumping rates should, if needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. As noted above, care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.
10. A sample of the groundwater should be placed in a clear container and describe for appearance (color, sheen, odor) on the field sampling form.
11. Monitor indicator Parameters: During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and DO) approximately every five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows (Puls and Barcelona, 1996):
    - ± 0.1 for pH
    - ± 3% for specific conductance (conductivity) and temperature
    - ± 10 mV for redox potential (ORP)
    - ± 10 % for DO and turbidity
12. Dissolved oxygen and turbidity usually require the longest time to achieve stabilization. It is preferable for turbidity readings to be below 50 NTU. If they are above 50 NTU then consider additional purging. Should purging exceed two hours, consider one of the following options: a) continue purging in an attempt to achieve stabilization; b) discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book; c) discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or d) secure the well, purge and collect samples the next day.
13. Collect Samples: Collect samples at a flow rate equal or less than that used during stabilization such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 ft. VOC samples must be collected first and directly into sample containers. Sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.

14. Remove Pump and/or Tubing: After collection of the samples, the tubing, unless permanently installed, must be properly discarded or dedicated to the well for resampling by hanging the tubing inside the well or stored in a dedicated and labeled container.
15. Measure and record the final groundwater depth.
16. Close and lock the well.

REFERENCES

Cohen, R.M. and J.W. Mercer, 1993, DNAPL Site Evaluation, C.K. Smoley Press, Boca Raton, Florida.
Puls, R. W. and M. J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures, EPA/540/S-95/504.

U.S. EPA, 1993, RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93 001.

U.S. EPA Region II, 1989, CERCLA Quality Assurance Manual.

USEPA Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling March 1998

NJDEP, 2005. Field Sampling Procedures Manual.

RAMBOLL

Low Flow Groundwater Sampling Log

Well ID: ____
Northing: ____
Easting: ____

Site Name: ____ Sampling Method: ____ Field Personnel: ____
Site Location: ____ Equipment Used: ____ Date: ____
Project #: ____ Pump/Controller ID#: ____ Weather: ____

Well information:

Installed Depth of Well*: ____ ft. bmp.
Measured Depth of Well*: ____ ft. bmp.
Depth to Water*: ____ ft. bmp.
Length of Water Column (LWC): ____ ft.
Well Diameter: ____ in.

Well Volume Multipliers:

____ 1 in. = 0.041 gal/ft
____ 2 in. = 0.163 gal/ft
____ 4 in. = 0.653 gal/ft
____ 6 in. = 1.469 gal/ft
____ 8 in. = 2.611 gal/ft

Measurement Point*: ____
MP Notes: ____
Well Volume: ____ gal.
Pump Intake Depth*: ____ ft. bmp.

Start Purge Time: ____

Initial Observations: *Color* ____ *Odor* ____ *Sheen/Free Product* ____

Elapsed Time *Minutes*	Depth to Water *ft bmp*	Temperature *Celsius*	pH *SU*	Specific Conductivity *μS/cm*	ORP *mV*	Dissolved Oxygen *mg/L*	Turbidity *NTU*	Flow Rate *ml/min*	Other
Select Units from Dropdown Menus									
Stabilization	Δ ≤ 0.3'	± 3%	± 0.1	± 3%	± 10 mV	± 10%	± 10%	200 ≤ X ≤ 500	

End Purge Time: ____
Total volume of groundwater purged: ____ gal.

DO Titrataion: ____ mg/L Iron ____ mg/L
Ferrous iron: ____ mg/L Mg ____ mg/L

Final Observations: *Color* ____ *Odor* ____ *Sheen/Free Product* ____

Analytical Sample ID: ____ **Date:** ____ **Time:** ____

Container Size	Container Type	Qty Collected	Field Filtered?	Preservative	Laboratory

Notes: ____

PASSIVE DIFFUSION BAG GROUNDWATER SAMPLING

SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to provide the methods and procedures for the collection of representative ground water samples for select volatile organic compound (VOC) analysis using a passive diffusion bag (PDB).

TECHNICAL BASIS

PDB sampling using a semi-permeable membrane is a patented technology (U.S. Patent Number 5,804,743 held by Don A. Vroblesky of the United States Geological Survey [USGS] and William T. Hyde of the General Electric Company [GE]). The method is based on the principal that VOCs in an aqueous medium migrate via molecular diffusion through a semi-permeable membrane such as polyethylene until the concentrations on either side of the membrane reach equilibrium. Deionized water sealed within a PDB serves as the sample medium, which is emplaced within the open interval of a monitoring well or the sediment beneath a streambed and subsequently removed after an appropriate equilibration period.

PDBs have been successfully benchmarked for use with many common VOCs including aromatics and chlorinated ethenes and ethanes. However, certain types of VOCs (i.e., methyl ethyl ketone, acetone, 2-hexanone, and methyl isobutyl ketone) do not equilibrate rapidly enough for practical sampling using PDBs. Regenerated- cellulose dialysis membrane (dialysis) samplers were developed to sample groundwater in wells for inorganic and organic constituents using a diffusion-type sampler.
With the passive diffusion sampling method, it is assumed that the water inside the open interval of a monitoring well represents ambient ground water quality without any purging. This assumption is based on the fact that the wellbore hydraulic conductivity is higher than that of the surrounding formation in almost all geologic settings. Thus, the open interval of the well is assumed to be constantly flushed with ambient ground water.

MATERIALS

- Groundwater Sampling Form
- Well construction records
- Water level measurement probe
- PDBs (typically ~24-inch deionized water-filled polyethylene bag purchased from a licensed commercial supplier)
- Mesh bags to protect the PDBs (optional);
- Nylon-coated stainless-steel line;
- Stainless-steel snap hooks;
- Metal crimpers to secure snap hooks in place on the line
- Stainless-steel weights
- Downhole water quality (DO, ORP, specific conductance, pH) meters (if required for project)
- Chain-of-custody labels, tags, and seals;

As mentioned above, PDBs are provided by authorized vendors. The PDBs should be delivered from the vendor to the consultant under a chain-of-custody in zip-sealed plastic bags. Upon receipt, take inventory of the PDBs and assess the condition of the PDBs. PDBs should be stored in a clean environment at room temperature until placement into the monitoring wells.

INITIAL DEPLOYMENT SET-UP PROCEDURE

1. Construction of Passive Diffusion Bag Holders for Monitoring Wells
2. Obtain water level and total well depth measurements prior to the construction of PDB holders.
3. Construct a dedicated PDB holder for each well. Fabricate well-specific PDB holders using the nylon-coated stainless-steel line from the bottom up based on the monitoring well construction details, recent total depth and water level measurements, as follows:
    - Measure the line to the length of the well plus a few extra feet;
    - Attach the stainless-steel weight to the bottom end of the line;
    - Attach stainless-steel snap hooks to correspond with the top and bottom of each 2-foot interval being sampled; and
    - Attach the top end of the line to the hole on the bottom of an expandable J-plug well cap, measuring the total length so that the stainless-steel weight just rests on the bottom of the well and there is no slack in the line.
4. Generally, the deionized water-filled PDBs are placed at the midpoint of the saturated portion of the screened or open interval of the well. However, multiple PDBs may be installed on one holder to target multiple intervals within a monitoring well. For monitoring wells with partially saturated screens or open intervals, the deionized water-filled PDB will be placed at a location corresponding to the approximate midpoint of the water column, or deeper within the water column, if necessary, so that the PDB is 2 to 3 feet below the top of the water column.
5. Dedicated PDB holders may be stored in the monitoring wells between sampling events. The dedicated PDB holders should be inspected from top to bottom annually. Worn parts should be replaced as needed.
6. The top of the wire holder should be secured to the top of the well in a way that the placement of the PDB within the well does not change between sampling events. Suggested methods are 1) attaching it to the J-plug, 2) drilling a hole at the top of the well casing and using that to place an eye bolt to fasten the wire to.

FIELD INSTALLATION OF PDB INTO WELL

1. Prior to installing a PDB holder, a water level and depth of well measurements will be obtained from the monitoring well as described in SOP 023.
2. Remove a deionized water-filled PDB from the protective zip-sealed bag.
3. Attach the PDB(s) and mesh cover(s), if used, to the line of the well-specific holder using the stainless-steel snap hooks.
4. Slowly lower the PDB holder down the monitoring well until the stainless-steel weight reaches the bottom of the well indicating that the holder and PDB are properly positioned in the screened or open interval of the monitoring well. Use caution not to cut the PDB on sharp edges, in particular the top of steel casing or stainless steel riser pipes.
5. Secure the expandable J-plug well cap attached to the line of the PDB holder.
6. Close and lock the monitoring well.
7. Record the date and time of placement of the PDB holder in the monitoring well on the PDB sampling form or in the field notebook.

PROCEDURE FOR COLLECTING SAMPLE FROM PDB

1. Following a minimum 14-day equilibration period, the following procedures will be utilized when collecting the PDB samples from monitoring wells.

2. Slowly remove the PDB holder from the monitoring well using the line attached to the J-plug well cap. For deep wells, use a decontaminated line reel to minimize tangling of the line.
3. Remove the sample-filled PDB from the stainless-steel snap hooks and dry the outside of the PDB with a clean paper towel.
4. Cut the end of the sample-filled PDB with decontaminated scissors and slowly pour the groundwater sample directly into the appropriate VOC sample containers.
5. Immediately place the sample containers in a cooler containing wet ice for subsequent transportation to the laboratory.
6. Record the sampling information on the sample containers and on the PDB field form.
7. Return the dedicated PDB holder in the monitoring well after sampling activities are complete.
8. Close and lock the monitoring well.

CONSIDERATIOS FOR QUALITY CONTROL/QUALITY ASSURANCE SAMPLES

Quality assurance samples collected using the PDB sampling technique are obtained using extra PDBs as follows:

Duplicate Samples

A second PDB for the duplicate sample will be secured to the same snap hooks utilized for the “primary sample”. If the well diameter prevents hanging two PDBs on the same snap hooks, the duplicate PDB sampler should be hung immediately above or below the primary sampler. Duplicate samples are prepared by alternately filling the container for the "primary sample" for VOC analysis and then filling the container for the "duplicate sample" for VOC analysis. Duplicate samples need to be included on the chain-of-custody.

Matrix Spike/Matrix Spike Duplicates (MS/MSD)

A total of two PDBs will be secured to the same snap hooks (or immediately above and below the primary sampler) and utilized for the “primary sample” and the matrix spike/matrix spike duplicate (MS/MSD) sample pair. MS/MSDs are collected in the same manner as a duplicate sample. MS/MSDs need to be included on the chain-of-custody form.

REFERENCES

ITRC, 2007, Protocol for Use of Five Passive Samplers to Sample for a Variety of Contaminants in Groundwater Vroblesky, DA and WT Hyde, 1997, US Patent Number 5,804,743.

Vroblesky, DA, 2001, User’s guide for polyethylene-based passive diffusion bag samplers to obtain volatile organic compound concentrations in wells; USGS Water-Resources Investigations Report 01-4060 (available on the internet at: http://itrcweb.org)

RAMBOLL

PASSIVE DIFFUSION BAG LOG

PDBs installed by: ____________
PDBs retrieved by: ____________
Page: 1 of 1

Site Name: ____________
Site Location: ____________
Project Name: ____________
Project #: ____________

PDBs provided by ALS. ALS Lot # ____________
PDBs received on: ____________
Received condition: ____________
PDB volume: ____________

PDB = Passive Diffusion Bag
MP = Measurement Point
ft bmp = feet below measurement point
QA/QC = Quality Assurance / Quality Control

Well ID	MP Type	PDB Depth (ft bmp)	Depth to Water (ft bmp)	Water Above PDB (ft)	PDB Installed			PDB Collected		Sample ID	QA/QC Samples
		Top - Bottom			Date	Time	Qty	Date	Time		
		-									
		-									
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Notes:

APPENDIX 8 - SITE INSPECTION FORMS

Site Inspection Form

Site Name: Trimmer Road Landfill Site				NYSDEC Site Number: 82-8-012	NYSDEC PM:
Site Location: Parma, New York				Purpose of Inspection:	Primary Site Contact:
Site Location / Site Inspection Date:					Address:
Name of Inspector:	Inspector Phone Number:			Agency/Company:	

General Site Condition

	Present?			Notes
Vandalisim	Yes	No	N/A	
Erosion	Yes	No	N/A	
Settling	Yes	No	N/A	
Ponding of Water	Yes	No	N/A	
Insect Damage	Yes	No	N/A	
Animal Damage	Yes	No	N/A	
Plant Disease	Yes	No	N/A	
Abiotic Stress	Yes	No	N/A	

Other Inspection Observations:

Access Roads

	Present?			Notes
Erosion	Yes	No	N/A	
Deposition	Yes	No	N/A	
Differential Subsidence	Yes	No	N/A	
Pothole Development	Yes	No	N/A	
Culvert Sediment/ Debris Buildup	Yes	No	N/A	

Other Adverse Conditions:

Interim Site Inspection Form

Tree Census / Vegetative Buffers	
	Notes
Surface Disturbance (Rutting, Erosion, Tire Tracks, Settlement)	
Vandalisim or Tresspassing	
Areas of Ponded Water	
Number of Live / Dead Trees	
Leaf Condition and Status (Eaten, discolored, wilted, or curled leaves) (New leaf growth, trees losing leaves)	
Bark Condition (Animal, equipment, insect damage)	
Branch Condition	
Insects on Trees (Bark and leaves)	
Grass Height and Condition	
Fence Condition	
Additional Notes:	

Interim Site Inspection Form

Monitoring Well Inspection	
Well ID:	**Notes**
Concrete Surface Seal	
Protective Outer Casing and Lid	
Lock and Locking Well Caps	
Excessive Silt in Well	
Additional Notes:	

Monitoring Well Inspection	
Well ID:	**Notes**
Concrete Surface Seal	
Protective Outer Casing and Lid	
Lock and Locking Well Caps	
Excessive Silt in Well	
Additional Notes:	

Quick Calibration Stabilization Values (From home screen)

Unit Serial #	Date	Conductivity (µS/cm)	pH	ORP (mV)	Temp (°C)	Notes

Calibration Log for LaMotte 2020we

ID:

Date	Initial Reading	Cal. Value	Final Reading
		10.00	
		10.00	
		10.00	
		10.00	
		10.00	
		10.00	
		10.00	
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		10.00	
		10.00	
		10.00	
		10.00	
		10.00	

Calibration Log for LaMotte 2020we

ID:

Date	Initial Reading	Cal. Value	Final Reading
		10.00	
		10.00	
		10.00	
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		10.00	
		10.00	
		10.00	

Calibration Log for LaMotte 2020we

ID:

Date	Initial Reading	Cal. Value	Final Reading
		10.00	
		10.00	
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		10.00	
		10.00	
		10.00	
		10.00	

3-Point pH Calibration				
Unit Serial #	Date	4	7	10

Conventional Groundwater Sampling Log

Well ID: ____________
Northing: ____________
Easting: ____________

Site Name: ____________ Sampling Method: ____________ Field Personnel: ____________
Site Location: ____________ Equipment Used: ____________ Date: ____________
Project #: ____________ Pump/Controller ID#: ____________ Weather: ____________

Well information:
Installed Depth of Well*: ________ ft. bmp.
Measured Depth of Well*: ________ ft. bmp.
Depth to Water*: ________ ft. bmp.
Water Column Length: ________ ft.
Well Diameter: ________ in.

Well Volume Multipliers:
1 in. = 0.041 gal/ft
2 in. = 0.163 gal/ft
4 in. = 0.653 gal/ft
6 in. = 1.469 gal/ft
8 in. = 2.611 gal/ft

* Measurement Point:
___ Well Casing
___ Protective Casing
___ Other: ________
Well Volume: ________ gal.
Pump Intake Depth*: ________ ft. bmp.

Initial Observations
Start Purge Time: ________

Color: ____________ ***Odor:*** ____________ ***Sheen/Free Product:*** ____________

indicate units

Elapsed Time	Depth to Water *ft bmp*	Volume Purged	Temperature	pH	Specific Conductivity	Other
Initial						

Final Observations
End Purge Time: ________ **Final Water Level:** ________ ft bmp. **Total Volume Purged:** ________ gal.

Color: ____________ ***Odor:*** ____________ ***Sheen/Free Product:*** ____________

Analytical Sample ID: ____________ **Date:** ____________ **Time:** ____________

Container Size	Container Type	Quantity	Field Filtered?	Preservative	Analysis	Laboratory

Notes:

Summary of Green Remediation Metrics for Site Management

Site Name: ________________________________ Site Code: ____________________

Address: __________________________________ City: ___________________

State: ____________ Zip Code: _________ County: ______________________

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

Start Date: ____________________

Current Reporting Period

Reporting Period From: _____________________ To: _________________________

Contact Information

Preparer's Name: __________________________ Phone No.: ___________________

Preparer's Affiliation: __________________________________

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

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

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

II. Solid Waste Generation: Quantify the management of solid waste generated onsite.

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

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

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

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

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

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

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

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

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

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

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

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

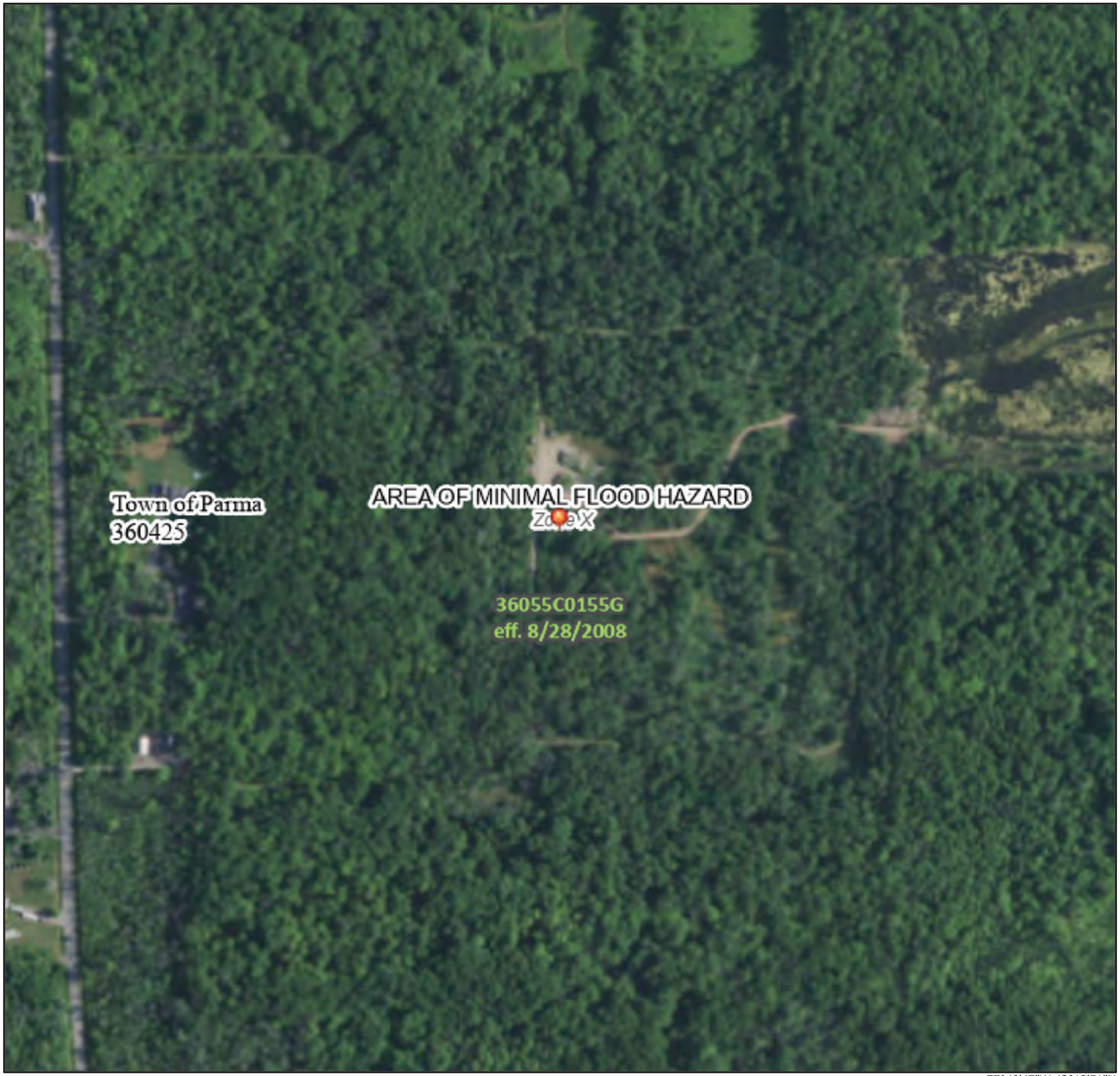
CERTIFICATION BY CONTRACTOR
I, ______________________________ (**Name**) do hereby certify that I am ________________________ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief,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

APPENDIX 9 - FIRMETTE SITE MAP
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: FEMA.GOV, OCTOBER 2022

National Flood Hazard Layer FIRMette

FEMA

77°49'24"W 43°14'17"N



77°48'47"W 43°13'51"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/13/2022 at 10:27 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX 10 - RSO OUTLINE
RAMBOLL AMERICAS ENGINEERING SOULTIONS INC., NOVEMBER 2022
SOURCE: NYSDEC SMP TEMPLATE

APPENDIX 10

REMEDIAL SYSTEM OPTIMIZATION TABLE OF CONTENTS

REMEDIAL SYSTEM OPTIMIZATION FOR TRIMMER ROAD LANDFILL

TABLE OF CONTENTS