SITE MANAGEMENT PLAN
SOUTH HILL DUMP SITE
SITE # 712009

(T) CORTLANDVILLE (C) CORTLAND
WORK ASSIGNMENT NO. D007619-16

Prepared for:

New York State Department of Environmental Conservation

Division of Environmental Remediation
Remedial Bureau E
Albany, New York

Prepared by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC Project No. 3612112249

SEPTEMBER 2013

Revision No.	Submittal Date	Summary of Revision	NYSDEC Approval Date
0	04/12/13	Original Submittal	04/12/13
1	09/18/13	Clarify Current Use of Site (Sections 1.4.2, 2.3 and 2.4)	09/18/13

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

CAMP	Community Air Monitoring Plan
CCPD	Cortland County Planning Department
COC	contaminant of concern
1,2-DCE	1,2-dichloroethene
EC	Engineering Control
EP	excavation plan
FDR	field data record
FER	Final Engineering Report
HASP	Health and Safety Plan
IC	Institutional Control
MACTEC	MACTEC Engineering and Consulting, P.C.
NYCRR	State of New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operation and maintenance
PCB	polychlorinated biphenyl
PM	Project Manager
PRR	Periodic Review Report
QA	quality assurance

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

QAPjP	Quality Assurance Project Plan
QC	quality control
QEP	qualified environmental professional
RA	Remedial Action
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
ROD	Record of Decision
SCGs	Standards, Criteria, and Guidance
Site	South Hill Dump site
SM	Site Management
SMP	Site Management Plan
TCE	trichloroethene
TCL	target compound list
µg/L	microgram(s) per liter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This Site Management (SM) Plan (SMP) is required as an element of the remedial program at the South Hill Dump Site, hereinafter referred to as the "Site", under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). Activities on site include site inspections and monitoring. The Site is being remediated in accordance with the Record of Decision (ROD) dated January 2008 (NYSDEC, 2008) which is attached as Appendix A.

1.1.1 General

The potentially responsible parties for the Site - Town of Cortlandville, Smith Corona, and Overhead Doors - declined to assume responsibility for the remedial action (RA) at the Site, so the NYSDEC conducted the remediation of the approximately 2.5-acre property located in Cortlandville, Cortland County, New York through the State Superfund (SSF) program. A map showing the Site location is provided in Figure 1.1. The boundaries of the Site are more fully described in the metes and bounds site description that accompanies the Land Title Survey completed in March 2013 by Fisher Associates, Rochester, NY and attached as Appendix B to this SMP.

After completing the remedial work at the site described in the March 2011 Remedial Action Contract Documents (MACTEC Engineering and Consulting, P.C. [MACTEC], 2011a), contamination greater than NYS Standards Guidance and Criteria (i.e., landfilled waste) remains at the site - hereafter referred to as 'remaining contamination'. This SMP has been prepared to manage remaining contamination at the Site in perpetuity or until extinguishment of the Environmental Easement in accordance with Environmental Conservation Law Article 71, Title 36.

The RA, including solid waste consolidation and installation of a landfill soil cover, began at the Site in 2011 and was completed in 2012. Reports associated with the Site can be viewed by

contacting the NYSDEC or visiting the document repository at the Cortlandville Town Hall, located at 3577 Terrace Road in the Town of Cortland.

This SMP was prepared by MACTEC, on behalf of the NYSDEC for the South Hill Dump Site, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010), and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that will be required by the Environmental Easement for the Site. The Environmental Easement is included in Appendix C.

1.1.2 Purpose

Remaining contamination exists at the Site after completing the RA. ECs have been incorporated into the Site remedy to provide proper management of remaining contamination in the future to ensure protection of public health and the environment. An Environmental Easement will be granted by the responsible parties in favor of the NYSDEC and recorded with the Cortland County Clerk to provide an enforceable legal instrument to ensure compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use and mandate operation and maintenance (O&M) and reporting measures for ECs and ICs. This SMP specifies the methods necessary to ensure compliance with ECs and ICs to be required by the Environmental Easement for contamination that remains at the Site. The NYSDEC is currently in the process of preparing the Environmental Easement for recording with Cortland County. This SMP has been approved by the NYSDEC, and compliance with this SMP is required by the future grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may be revised only with approval of the NYSDEC.

This SMP provides a detailed description of procedures required to manage remaining contamination at the Site after completion of the RA, including: (1) implementation and management of ECs/ICs; (2) media monitoring; (3) performance of periodic inspections, certification of results, and (3) submittal of Periodic Review Reports (PRRs). Table 1.1 summarizes the SM requirements.

To address these needs, this SMP includes three plans:

- an Institutional and Engineering Control Plan for implementation and management of IC/ECs (Section 2.0 of this SMP)
- a Monitoring Plan for implementation of Site monitoring (Section 3.0)
- an O&M Plan for implementation of remedial containment systems (Section 4.0)

It is important to note that:

- This SMP details the Site-specific implementation procedures associated with the Site that will be required by the Environmental Easement. Failure to properly implement the SMP is a violation of Environmental Conservation Law and the Environmental Easement, which is grounds for revocation of the Certificate of Completion
- Failure to comply with this SMP is also a violation of, Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 and the ROD dated January 2008 for Site #712009 and thereby subject to applicable penalties.

At the time this SMP was prepared, site documents related to the Remedial Investigation (RI) and the RA for the Site were maintained at the NYSDEC Headquarters in Albany, New York or the Cortlandville Town Hall repository.

1.1.3 Revisions

It is anticipated that revisions to the SMP will be completed by the NYSDEC. If the Site owner desires to make revisions to the SMP, the revisions will be proposed in writing to the NYSDEC's project manager (PM). In accordance with the Environmental Easement for the Site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The Site is located in the Town of Cortlandville, New York, two miles south of the Village of McGraw, on the south side of South Hill Road (Figure 1.1). A mix of forested areas and apple orchards are located east of the Site. The area west and north of the Site consists primarily of active farm land. The topography in this area slopes to the south, toward an unnamed stream

located approximately 1/4 mile south of the Site. The unnamed stream discharges to the Tioughnioga River via Hoxie Gorge Creek which is located approximately one mile from the Site.

1.2.2 Site History

The Site was operated as a municipal waste disposal facility by the Town of Cortlandville from the early 1960s until 1972, although it is reported that local residents used the Site for trash disposal as early as 1949. During its years of operation, wastes were received from the Village of McGraw and the Towns of Cortlandville and Solon, as well as local industry. Access to the Site was reportedly unrestricted.

In 1990, the NYSDEC conducted a Site inspection and collected soil and leachate samples. Analysis revealed the presence of chlorinated solvents and pesticides. Based on these data, the observed condition of the landfill (leachate seeps, numerous drum carcasses, etc.) and reported waste disposal history, the Site was proposed for listing on the NYS Hazardous Waste Site Registry in February 1991 and assigned a Class 2 designation. Class 2 Sites are defined as those which pose a significant threat to the public health or environment. In March 1991 five drums of hazardous waste were removed from the Site. Analysis revealed that the drums contained trichloroethene (TCE).

In 1991 and 1992, the Cortland County Planning Department (CCPD) collected several surface water samples at the Site from the intermittent stream at the toe of the landfill. Analytical data revealed relatively high concentrations of the solvents TCE and 1,2-dichloroethene (1,2-DCE).

In 1994, the NYSDEC collected surface water samples, sediment samples and soil samples from the Site. Analytical results revealed the presence of TCE and 1,2-DCE at concentrations slightly above NYSDEC guidance values. The samples were collected in immediate proximity to the CCPD sample locations. One sediment sample contained a relatively low concentration (9 micrograms per liter [µg/L]) of TCE. Polychlorinated biphenyls (PCBs) (at 79 µg/L) were detected in one sediment sample. Sediment sample results revealed relatively high concentrations of several metals including copper, mercury, nickel, and zinc. Analysis of the soil samples revealed relatively low concentrations of TCE, PCBs, cadmium, copper, and polyaromatic hydrocarbons.

Based upon the findings of the sampling programs, a RI was deemed necessary.

1.2.3 Geologic Conditions

Overburden at the Site consists of a dense compacted mixture of silt and clay with minor amounts of sand and gravel. The overburden is up to 30 feet thick in the area of the Site, and overlies shale bedrock.

The bedrock underlying the Site consists of shale units of the Upper Devonian Genesee Group. The upper 20 feet of bedrock is characterized as a grey fossiliferous shale, with a weathered surface of one to three feet.

Groundwater flow at the Site in both the overburden and the bedrock is to the south. Groundwater elevation data indicates a general downward vertical gradient between the till and bedrock water bearing units, suggesting that vertical flow, if any, would be from the overburden into the bedrock (NYSDEC, 2003).

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

The RI field work was conducted by Parsons Engineering Science, Inc., of Liverpool, New York, under contract to the NYSDEC. The RI Report was completed by the NYSDEC (NYSDEC, 2003).

The RI included the following activities:

- A records search to identify the Site history, past operations and probable contaminants of concern. The records search involved a review and compilation of available State, County and Town records pertaining to the Site.
- Development of a Site base map illustrating Site topographic contours, roadways, property boundaries, and environmental sample locations.
- A test pit investigation to visually delineate the extent of subsurface contamination and characterize the shallow overburden geology.
- Collection and analysis of subsurface soil samples during the test pit investigation to identify the nature of the contamination present.
- Collection and analysis of sediment and surface water samples from visible seeps and from the intermittent stream located at the toe of the landfill.
- Installation of groundwater monitoring wells in overburden and bedrock to characterize Site geology and hydrogeology.

- Collection and analysis of subsurface soil samples during the installation of monitoring wells.
- Collection and analysis of groundwater samples to identify potential Site impacts to groundwater.
- A Fish and Wildlife Impact Analysis to identify existing or potential impacts to fish and wildlife.
- Review of Applicable Standards, Criteria, and Guidance (SCGs) and comparison to on-Site contaminant levels to assess the threat, if any, posed at the Site.

The RI report recommended that a Feasibility Study and subsequent RA be conducted due to the following reported concerns:

- Unregulated historic landfill operation
- Observation of existing waste protruding from the ground surface
- Reported contamination in Site soil, surface water, sediment, and groundwater
- Unfavorable geologic conditions, particularly the relatively shallow depth to fractured bedrock
- Likely existence of additional drums within the landfill; the drums may be acting as a continuing source of contamination, creating potential for long-term offsite migration via surface water or groundwater.

1.4 SUMMARY OF REMEDIAL ACTIONS

An interim remedial measure was implemented by the NYSDEC on March 17, 1997. Marcor Environmental pumped 660 gallons of liquid (water reportedly containing a non-aqueous phase liquid) into a tanker truck from a test pit (TP-40 on the eastern edge of the landfill. Samples were collected for analysis to characterize the liquid for offsite disposal. Analysis revealed the presence of 1,2-DCE, TCE, vinyl chloride, acetone, methylphenol and several inorganics including calcium, iron, magnesium and potassium. The waste was disposed at CWM Chemical Services in Model City, NY.

The Site was subsequently remediated in accordance with the ROD dated January 2008, and as documented in the Final Engineering Report (FER) (MACTEC, 2013).

RAs conducted during implementation of the ROD included:

- Installation of stabilized vehicle entrance.

- Installation of perimeter erosion and sedimentation controls
- Clearing of trees and brush above the ground surface
- Grubbing of areas within the limit of grading, and disposal of grubbings onsite (beneath the new landfill cover)
- Excavation of onsite waste outside the new solid waste boundary and consolidation within the new solid waste boundary
- Decommissioning of two existing groundwater monitoring wells
- Installation of additional erosion and sedimentation controls and measures, including the sedimentation basin, in preparation for landfill grading and soil cover installation
- Grading of the landfill within the new solid waste boundary to achieve subgrade and/or the minimum grading performance criteria
- Excavation as required for installation of landfill storm water controls (slope benches and downdrains) within the new solid waste boundary
- Removal of bulky waste items uncovered during the course of waste consolidation and landfill grading, with off-site disposal of removed bulky wastes
- Characterization and offsite disposal of uncovered buried waste drums, drum nests, drum remnants, and adjacent spilled/leaked contents and visually impacted soils
- Installation of landfill cover system including associated landfill storm water controls
- Installation of landfill gas vents
- Installation of perimeter access road with waterbars
- Installation of perimeter storm water controls including riprap drainage channel, east drainage swale, and culverts
- Cleaning of sediment basin and outlet structure of accumulated sediment, and conversion to a storm water detention basin
- Installation of two new groundwater monitoring wells
- Seeding and mulching of all vegetated areas within the limit of work.

Remedial construction activities for the Site were completed in December 2012.

1.4.1 Remaining Contamination

Remaining contamination at the Site consists primarily of municipal and industrial wastes beneath the landfill cover.

1.4.2 Engineering and Institutional Controls

Because remaining contamination is present at this Site, ECs and ICs have been implemented to protect public health and the environment for the applicable future use. The Controlled Property has the following ECs:

- a cover system placed over the landfilled waste
- site access controls
- surface water drainage conveyance
- landfill gas vents

A series of ICs are required to implement, maintain and monitor these ECs. The Environmental Easement will require compliance with these ICs, to ensure that:

- All ECs must be operated and maintained as specified in this SMP
- All ECs on the Site must be inspected and certified at a frequency and in a manner defined in this SMP
- Environmental monitoring must be performed as defined in this SMP
- Data and information pertinent to SM for the Controlled Property must be reported at the frequency and in a manner defined in this SMP
- On-site environmental monitoring devices, including but not limited to groundwater monitoring wells, must be protected and replaced as necessary to ensure continued functioning in the manner specified in this SMP.

In addition, the Environmental Easement will place the following restrictions on the property:

- Required compliance with the approved SMP. Restrict the use of groundwater as a source of potable water, without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) and/or the NYSDEC
- The owner of the Property shall provide information to the NYSDEC to assist it in carrying out its obligation to provide a periodic certification, prepared and submitted by a professional engineer or environmental professional acceptable to the NYSDEC or Relevant Agency, which will certify that the IC/ECs put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired
- The owner of the Property shall continue in full force and effect any IC/ECs required for the Remedy and shall not, through any act or omission, interfere with the NYSDEC's maintenance and monitoring of such controls, unless the owner first obtains permission to discontinue such controls from the NYSDEC or Relevant Agency, in compliance with the approved SMP subject to modifications as approved by the NYSDEC or Relevant Agency

- Limit the use and development of the property to the current use as a closed and capped/covered landfill only.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with remaining contamination
- Prevent inhalation of or exposure to contaminants volatilizing from remaining contamination
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards
- Prevent contact with or inhalation of volatiles from contaminated groundwater.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

Remedial activities completed at the Site were conducted in accordance with the January 2008 ROD and the NYSDEC-approved remedial design for South Hill Dump, March 2011 as outlined within the Contract Documents. The remedial goals for this site, as presented in the ROD, are to eliminate or reduce to the extent practicable:

- exposures of persons and wildlife at or around the site to waste, sediment and surface soil
- the release of contaminants from the waste into groundwater that may create exceedances of groundwater quality standards
- prevent releases of contaminants from the waste that would result in surface water levels in excess of ambient water quality criteria.

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

- ambient groundwater quality standards
- soil cleanup standards.

Because remaining contamination is present at the Site, EC/ICs are required to protect human health and the environment. This EC/IC Plan describes the procedures for the implementation and management of EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by the NYSDEC.

2.1.1 Purpose

The purpose of this EC/IC Plan is to provide:

- A description of all EC/ICs on the Site
- The basic operation and intended role of each implemented EC/IC
- A description of the key components of the ICs created to be stated in the Environmental Easement
- A description of the features that should be evaluated during each periodic inspection and compliance certification period
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Plan (EP) for the safe handling of remaining

contamination that may be disturbed during maintenance or redevelopment work on the Site

- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the NYSDEC
- A description of the reporting requirements for these controls.

2.2 ENGINEERING CONTROLS

This section describes the ECs at the Site.

2.2.1 Engineering Control Systems

There are currently four EC systems at the Site:

- Landfill Cover System
- Site Access Controls
- Surface Water Drainage Conveyance
- Landfill Gas Vents

2.2.1.1 Landfill Cover System

Exposure to remaining contamination at the Site is prevented by a landfill cover system placed over the landfilled waste. The cover (see Figure 2.1 for typical cross section) is comprised of:

- cover soil layer - 18-inch thickness,
- vegetative (top soil and seed) layer - six-inch thickness.

The Excavation Plan (Section 2.4) outlines the procedures required to be implemented in the event the landfill cover is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of the landfill cover are provided in the O&M Plan discussed in Section 4 of this SMP.

2.2.1.2 Site Access Controls

The Site includes site access via a stone road that provides access to and around the perimeter of the landfill area. The Site is in a relatively remote area, with only occasional passersby typically observed. Access to the site is controlled by a newly-constructed chain link fence along the South Hill Road side of the property (where vehicles enter on the access road) which serves to discourage trespassers. The fence contains a locked gate across the access road entrance.

2.2.1.3 Surface Water Drainage Conveyance

The site drainage system includes a riprap-lined drainage swale at the eastern side of the property, and a storm water detention basin at the property's south end into which drains runoff from the stone-lined drainageways on the landfill cover. The detention basin outlet drains to an unnamed stream which eventually discharges to the Tioughnioga River via Hoxie Gorge Creek.

Procedures for maintaining the drainage systems are documented in the O&M Plan discussed in Section 4 of this SMP. Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP).

2.2.1.4 Landfill Gas Vents

Seven passive landfill gas vents penetrate the landfill cover. The purpose of the vents is to collect potential landfill gas for direct venting to the atmosphere, thereby preventing subsurface gas migration.

2.2.2 Criteria for Completion of Remediation / Termination of Remedial Systems

Generally, the remedial processes will be considered to be completed when effectiveness monitoring indicates that the remedy has achieved the RA Objectives identified by the ROD. The specific determination of when the following remedial processes are complete will be made in compliance with Section 6.5 of the NYSDEC DER-10, May 2010.

The landfill cover is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals (see Subsection 4.1 of this SMP for the inspection schedule), until such time that the NYSDEC agrees in writing that inspection of this system is no longer required.

2.3 INSTITUTIONAL CONTROLS

ICs are required by the ROD to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to the current use. Adherence to these ICs on the Site will be required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement by the Grantor and the Grantor's successors and assigns with all elements of this SMP
- All ECs must be operated and maintained as specified in this SMP
- All ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP
- Environmental monitoring must be performed as defined in this SMP
- Data and information pertinent to SM for the Controlled Property must be reported at the frequency and in a manner defined in this SMP
- On-site environmental monitoring devices, including but not limited to groundwater monitoring wells, must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.

ICs may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The Site has a series of ICs in the form of site restrictions. Adherence to these ICs will be required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- Groundwater – use restriction covers the entire Environmental Easement area
- SMP – covers entire Environmental Easement area
- The use and development of the site is limited to its current use as a closed and capped/covered landfill

- Compliance with the Environmental Easement and the SMP by the Grantor and the Grantor's successors and assigns
- All ECs must be operated and maintained as specified in the SMP
- All ECs on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP
- Groundwater, soil vapor and other environmental or public health monitoring must be performed as defined in the SMP
- Data and information pertinent to SM of the Controlled Property must be reported at the frequency and in a manner defined in the SMP
- The property may not be used for a higher level of use, such as unrestricted use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use
- Vegetable gardens and farming on the property are prohibited
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. The NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that the NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.4 EXCAVATION PLAN

The site remedy allows for current use as a closed and capped/covered landfill only. Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, and any modifications or repairs to the existing cover system will be performed in compliance with this excavation plan (EP). Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared by the contractor. The HASP is must be in compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations.

Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided below. Any intrusive construction work will be performed in compliance with the EP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the SM Reporting Plan (See Section 2.6).

The parties preparing the remedial documents submitted to the NYSDEC, and parties performing this work, are completely responsible for the safe performance of all invasive work and the structural integrity of excavations.

The Site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, remedial activities ongoing in this SMP. Mechanical processing of historical fill and contaminated soil on-site is prohibited.

2.4.1 Notification

At least 10 days prior to the start of any activity that is reasonably anticipated to encounter remaining contamination, the Site owner or their representative will notify the NYSDEC. Currently, this notification will be made to:

Mr. David Chiusano, Project Manager
NYSDEC
Remediation Bureau E, Section A
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the landfill cover, or any work that may impact an EC
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern (COCs), 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 statement that the work will be performed in compliance with this EP and 29 CFR 1910.120
- A copy of the contractor's HASP, in electronic format
- Identification of disposal facilities for potential waste streams
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.4.2 Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional (QEP) during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

2.4.3 Stockpile 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.

2.4.4 Materials Excavation and Disposal

A QEP or person under their supervision will oversee all invasive work and the excavation and disposal of all excavated material. The presence of utilities and easements on the Site will be investigated by the QEP. Prior to any excavation work the QEP will determine whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Prior to excavation, a call is to be placed to the Call Before You Dig Number 811 for consultation regarding underground utility lines.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYS Department of Transportation requirements (and all other applicable transportation requirements). Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The QEP 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.

2.4.5 Materials Transport Off-Site

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

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

Truck transport routes will be identified that will: (a) limit transport through residential areas and past sensitive sites; (b) use city-mapped truck routes; (c) minimize off-site queuing of trucks entering the facility; (d) limit total distance to major highways; and (e) promote safety in access to highways. 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.

Due to limited available space at the Site, some off-site queuing of trucks may be necessary. The number and duration of trucks lined up outside the Site entrance will be minimized through efficient scheduling and staging at a remote location. Offsite transport activities will be

coordinated with activities by owner and its' affiliates or tenants at the Site so as to minimize, to the extent practical, disruption of their activities.

2.4.6 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6 NYCRR Part 360) and Federal regulations. Waste characterization sampling will be in accordance with Part 1.06 of the Waste Removal, Handling, and Storage specification included in Appendix D.

If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-Site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction and demolition recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the PRR. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste pursuant to 6 NYCRR Part 360-1.2. Material that does not meet the lower of the SCGs for residential use or groundwater protection will not be taken to a NYS recycling facility (6 NYCRR Part 360-16 Registration Facility) without a beneficial use determination issued by the NYSDEC. The United States Environmental Protection Agency (USEPA) generator identification number for this Site is NYP003602158.

2.4.7 Materials Reuse On-Site

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

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

2.4.8 Fluids Management

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-site. Waste characterization sampling will be in accordance with Part 1.06 of the Waste Removal, Handling, and Storage specification included in Appendix D.

2.4.9 Cover System Restoration

After the completion of soil removal and any other invasive remedial activities the landfill cover will be restored in a manner that complies with the ROD and the approved remedial design as outlined within the Contract Documents. If the type of landfill cover changes from that which exists prior to the excavation (i.e., cover soil is replaced by geofabric), 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 PRR and in any updates to the SMP.

2.4.10 Backfill from Off-Site Sources

All materials proposed for import onto the Site will be approved by the QEP and will be in compliance with provisions in this SMP, applicable regulations (6 NYCRR 375-6.7(d)) and guidance (DER-10) prior to receipt at the Site. Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site. All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d). Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the Site without prior approval by the NYSDEC. Solid waste will not be imported onto the Site.

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

2.4.11 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 remedial construction area.

2.4.12 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition. Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (target analyte list metals; target compound list [TCL] volatile organic compounds (VOCs), semi-volatiles, TCL pesticides and PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to the NYSDEC's PM. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will also be included in daily and periodic electronic media reports.

2.4.13 Community Air Monitoring Plan

The contractor will prepare a CAMP, in accordance with Appendix 1A of DER-10 (see Appendix E), showing the location of air sampling stations based on generally prevailing wind conditions. 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 the NYSDEC and NYSDOH PMs.

2.4.14 Odor Control Plan

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. The 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 property owner's Remediation Engineer, and any measures that are implemented will be discussed in the PRR.

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

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

2.4.15 Dust Control Plan

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

- Dust suppression will be achieved through the use of dedicated on-site water supply for spraying water directly onto on and off-road areas including excavations and stockpiles. Fugitive dust and particulate monitoring shall be conducted in accordance with Appendix 1B of DER-10 (see Appendix E).

2.5 INSPECTIONS AND NOTIFICATIONS

2.5.1 Periodic Inspections

Periodic inspections of remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the PRR. The inspections will determine and document the following:

- Whether ECs continue to perform as designed
- If these controls continue to be protective of human health and the environment
- Compliance with requirements of this SMP and the Environmental Easement
- Achievement of remedial performance criteria
- Sampling and analysis of appropriate media during monitoring events
- If site records are complete and up to date
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the SM Reporting Plan (Section 2.6).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 calendar days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a QEP as determined by the NYSDEC. A list of emergency contacts is presented in Section 4.2.

2.5.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the ROD, 6 NYCRR Part 375, and/or Environmental Conservation Law
- 10-day advance notice of any proposed ground-intrusive activities
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other ECs and likewise any action to be taken to mitigate the damage or defect
- Notice within 48-hours 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, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 calendar days and shall describe and document actions taken to restore the effectiveness of the ECs.

Notifications will be made to:

Mr. David Chiusano, Project Manager
NYSDEC
Remediation Bureau E, Section A
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017

In the event that the NYSDEC develops a centralized notification system, that system will be used instead.

2.6 REPORTING PLAN

2.6.1 Introduction

A PRR will be submitted to the NYSDEC every year, beginning 18 months after approval of the Final Engineering Report (FER). The PRR will be prepared in accordance with the NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation". The frequency of submittal of the PRR may be modified with the approval of the NYSDEC.

This report will include the following:

- Identification of all EC/ICs required by the RA Work Plan (RAWP) for the Site
- An assessment of the effectiveness of all EC/ICs for the Site
- An evaluation of the EC/IC Plan and the Monitoring Plan for adequacy in meeting remedial goals and effectiveness in protecting public health and the environment
- Results of the required annual site inspections
- A compilation of all deliverables generated during the reporting period, as specified in Section 2 EC/IC Plan, Section 3 Monitoring Plan and Section 4 O&M Plan
- Certification of the EC/ICs.

2.6.2 Certification of Engineering and Institutional Controls

Inspection of the EC/ICs will occur at the frequency described in Section 3 (Monitoring Plan) and Section 4 (O&M Plan). After the last inspection of the reporting period, a Professional Engineer licensed to practice in NYS will prepare a PRR which certifies that:

- On-site ECs/ICs are unchanged from the previous certification
- They remain in-place and are effective
- The systems are performing as designed
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment
- Nothing has occurred that would constitute a violation or failure to comply with any O&M plan for such controls
- Access is available to the Site for the NYSDEC and NYSDOH to evaluate continued maintenance of such controls
- Site use is compliant with the Environmental Easement.

2.6.3 Periodic Review Report

A PRR will be submitted every year beginning in October 2014. The report will be submitted within 45 calendar days of the end of each certification period. Other reports, such as soil vapor monitoring data, will be included as part of the PRR, and may also be submitted separately as determined by the NYSDEC. Media sampling results will also be incorporated into the PRR. The report will include:

- EC/IC certification
- All applicable inspection forms and other records generated for the Site during the reporting period
- 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 COC by media (groundwater, surface water, sediment), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data sufficient for the NYSDEC to evaluate contaminant concentration trends
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format

- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the Site-specific ROD
    - Evaluation of the integrity of the cover system and site fencing
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan
    - The overall performance and effectiveness of the remedy.

The PRR will be submitted in electronic format to the NYSDEC Regional Office located closest to the Site, and in electronic format to the NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

The owner of the Property shall provide information to the NYSDEC to assist it in carrying out its obligation of providing a periodic certification, which will certify that the IC/ECs put in place are unchanged from the previous certification, are in compliance with the SMP, and have not been impaired.

3.0 MONITORING PLAN

The Monitoring Plan has been designed to: monitor the affect of the landfill on groundwater and surface water in the vicinity of the landfill; to determine if site contaminants are migrating off-Site; and to monitor long term trends in concentrations of contaminants to evaluate the effectiveness of the landfill cap and drainage design.

The following sections discuss specific data collection activities that will be conducted to evaluate and monitor the condition of groundwater, surface water, and site drainage sediments, as well as more general field activities that will support the data collection. Figure 3.1 shows the monitoring locations, and Table 3.1 summarizes the sampling and analysis plan. Table 3.2 presents a summary of the monitoring well network. Boring logs and well completion logs for monitoring wells are included in Appendix F.

3.1 EFFECTIVENESS MONITORING

The effectiveness of the landfill cap and drainage design will be evaluated as follows:

- **Groundwater Elevation Monitoring:** The collection of water levels from nine monitoring wells.
- **Monitoring Well Inventory and Repair:** A well inventory will be conducted during each sampling event to document the condition and integrity of the monitoring wells. Observations will be recorded on a monitoring well checklist and/or the field data record (FDR) and the field logbook. Repairs will be made on an as-needed basis.
- **Groundwater Sampling and Analysis:** The collection of "no purge" groundwater samples from nine monitoring wells. Samples will be collected with Hydrasleeve samplers as described in the Site-specific Quality Assurance Project Plan (QAPjP) (Appendix G).
- **Surface Water/Sediment Sampling and Analysis:** The collection of surface water and sediment samples from the outfall of the storm water detention pond located at the southern end of the landfill.

The monitoring fieldwork will be conducted in accordance with the Site-specific QAPjP appended to this report (see Appendix G). The monitoring fieldwork activities are described in more detail in the following sections.

3.1.1 Groundwater Elevation Survey

A synoptic round of water level measurements will be collected from the nine groundwater monitoring wells at the Site. The monitoring wells are listed on Table 3.2 and locations are shown on Figure 3.1. Water level measurements will be collected using procedures as described in the QAPjP (Appendix G). Water level measurements will be measured to the surveyed top of riser and referenced to the mean sea level. Water levels will be measured to the nearest 0.01 feet, and recorded in the field book and/or the Field Data Record (FDR). The FDR is included in Appendix H.

3.1.2 Groundwater Monitoring Well Inventory and Repair

During the water level survey and groundwater sampling activities a monitoring well checklist (Appendix I) will be completed to document the condition and physical details of the monitoring wells. Recommendations to repair damages or deficiencies that are noted during the well inventory will be included in the quarterly landfill inspection reports. Monitoring wells that are no longer functioning will be decommissioned or replaced on an as-needed basis.

3.1.3 Groundwater Sampling

Groundwater sampling events will be conducted at 15 month intervals. Groundwater samples will be collected from nine locations at the Site for the parameters listed in Table 3.1. Monitoring well locations will be sampled following the MACTEC NYSDEC Program QAPP (MACTEC, 2011b). The QAPjP describes the hydrasleeve "no purge" sample technique and is located in Appendix G. A Hydrasleeve sampler will be installed in each well as described in the QAPjP which will cause minimal disturbance to sediment at the bottom of the well. The sampler will be left in the monitoring well for a minimum of two weeks before retrieval so that any particulate disturbed during installation can settle out of the water column. Water levels and turbidity readings will be recorded. Samples will be collected for metals and VOCs by USEPA methods 6010B and 8260B, respectively, with standard 30-day turnaround time for laboratory reporting.

3.1.4 Surface Water/Sediment Sampling

Concurrent with groundwater sampling, one surface water and one sediment sample will be collected from the storm water detention basin outfall located at the southern end of the Site. The approximate sampling location is shown in Figure 3.1.

The samples will be collected and documented in accordance with procedures detailed in the QAPjP (Appendix G) using a surface water/sediment FDR (Appendix H). The samples will be submitted for offsite laboratory analysis for metals (USEPA method 6010B), VOCs (8260B), and PCBs (8082), with standard 30-day turnaround time for laboratory reporting.

3.1.5 Laboratory Analysis

Off-Site laboratory analyses will be performed by, a NYSDOH approved laboratory. Off-Site laboratory analysis will comply with the NYSDEC Analytical Services Protocols (NYSDEC, 2005) for metals, VOCs, and PCBs by the USEPA methods cited previously.

3.2 GENERAL FIELD ACTIVITIES

General field activities supporting data collection include health and safety, decontamination, and investigation derived waste disposal. Prior to implementing a monitoring field event, sampling staff will familiarize themselves with Site history, health and safety requirements including preparation of and adherence to Site-specific HASP, equipment calibration procedures, and all other investigation methods and procedures.

3.2.1 Decontamination and Investigation Derived Wastes

Sampling methods and equipment for this field program have been chosen to minimize decontamination requirements mitigating potential for cross-contamination. Disposable sampling equipment will be used as much as practical to minimize decontamination time and water disposal. Non-disposable sampling equipment will be decontaminated before and after the collection of each sample. Decontamination methods and materials are described in detail in the QAPjP (Appendix G).

Non-disposable sampling equipment will be decontaminated by washing the sample collection equipment with potable water and Liquinox, rinsing with potable water, rinsing with deionized water, and then allowing the equipment to air dry. Decontamination fluids will be released on-Site to the ground surface in the area of decontamination, so as to allow the liquids to infiltrate into the soil and not run off-Site. In the event that decontamination fluids exhibit visual or olfactory evidence of site related contamination, fluids will be temporarily containerized for offsite disposal.

Used protective clothing will be double-bagged in polyethylene trash bags and sealed with twist ties. The bags will be disposed of as municipal solid waste.

Purge water from groundwater sampling will be released on-Site to the ground surface in the area of well, so as to allow the liquids to infiltrate into the soil and not run off-Site. In the event that purge water exhibits visual or olfactory evidence of site-related contamination, fluids will be containerized for sampling and offsite disposal.

3.3 WELL REPAIRS, REPLACEMENT AND DECOMMISSIONING

Repairs and/or replacement of groundwater monitoring wells will be performed based on assessments of structural integrity and overall performance. The NYSDEC will be notified prior to any repair, replacement, or decommissioning of monitoring wells, and the notification will be documented in the subsequent monthly report. Well decommissioning without replacement will be done only with prior approval by the NYSDEC. Well abandonment will be performed in accordance with the NYSDEC's CP-43: "Groundwater Monitoring Well Decommissioning Policy" dated November 3, 2009. Wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC. The monitoring well inspection schedule is included in Table 1.1.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The Site does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the O&M of such components is not applicable and has not been incorporated into this SMP.

The O&M Plan for the Site includes:

- Inspection and maintenance of the landfill cover system. Landfill inspections will be completed semi-annually in the spring and fall to evaluate and document the conditions at the Site including:
    - vegetative cover condition
    - mowing required
    - presence of debris
    - ponded water
    - exposed geofabric
    - erosion
    - woody growth
    - leachate seepage
    - animal burrows
- Inspection and maintenance of the surface water drainage conveyance system
    - drainage channel conditions
    - erosion/sedimentation
    - rip-rap condition
    - condition of culverts
- Inspection and maintenance of landfill gas vents
- Inspection and maintenance of the chain link fence located along the South Hill Road side of the property (where vehicles enter on the access road)
- Inspection and maintenance of groundwater monitoring wells

The inspection activities will be documented using an Inspection Form (Appendix I), taking photographs, and noting field observations in a log book.

4.2 CONTINGENCY PLAN

In the event of any environmentally related situation or unplanned occurrence requiring assistance the appropriate party from the contact list below shall be notified. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the NYSDEC Project Manager.

Emergency Contact Numbers

Medical, Fire, and Police	911
Dig Safely	1-800-962-7962 or 811
Poison Control Center	(800) 222-1222
NYSDEC Spills Hotline	1-800-457-7362
NYSDEC Project Manager David Chiusano	(518) 402-9814

Contact Numbers

MACTEC Engineering and Consulting, PC Project Manager Mark Stelmack	Office: 207-828-3592
NYSDEC Project Manager David Chiusano	Office: 518-402-9814
NYSDEC Bureau Chief Gerard Burke	Office: 518-402-9814
NYSDOH Project Manager Richard Jones	Office: 315-477-8148

* Note: Contact numbers subject to change and should be updated as necessary

5.0 REPORTING AND CERTIFICATIONS

5.1 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the annual reporting period, a QEP will prepare the following certification for each IC/EC identified for the Site:

- The inspection of the Site to confirm the effectiveness of the IC/ECs required by the remedial program was performed under my direction.
- The IC and/or EC employed at this site is unchanged from the date the control was put in place, or last approved by the NYSDEC.
- 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 SMP for this control.
- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control.
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document
- Use of the Site is compliant with the Environmental Easement.
- The EC systems are performing as designed and are effective.
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices.
- No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid.
- 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 or Owner's Designated Site Representative] for the Site.

Each year (annually) the following certification will be added:

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

The signed certification will be included in the PRR described below.

5.2 PERIODIC REVIEW REPORT

A PRR will be submitted to the NYSDEC once each year beginning eighteen months after the FER is approved by the NYSDEC. In the event that the Site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the Site identified by the metes and bounds description in Appendix B. The report will be prepared in accordance with the NYSDEC DER-10 guidance and submitted within 45 days of the end of each certification period. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of COCs by media (groundwater, surface water, sediment), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the Site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan;
    - The overall performance and effectiveness of the remedy.

The PRR will be submitted, in hard-copy format, to the NYSDEC Central Office in Albany and Regional Office in Syracuse, and in electronic format to the NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.3 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an IC or EC, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

6.0 REFERENCES

MACTEC Engineering and Consulting, P.C. (MACTEC), 2011a. *Remedial Design Contract Documents – South Hill Dump – Site No. 712009.* Prepared for the New York State Department of Environmental Conservation. March 2011.

MACTEC, 2011b. Quality Assurance Program Plan. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June 2011.

MACTEC, 2013. *Final Engineering Report – South Hill Dump Remedial Action – Site No. 712009.* Prepared for the New York State Department of Environmental Conservation. April 2013.

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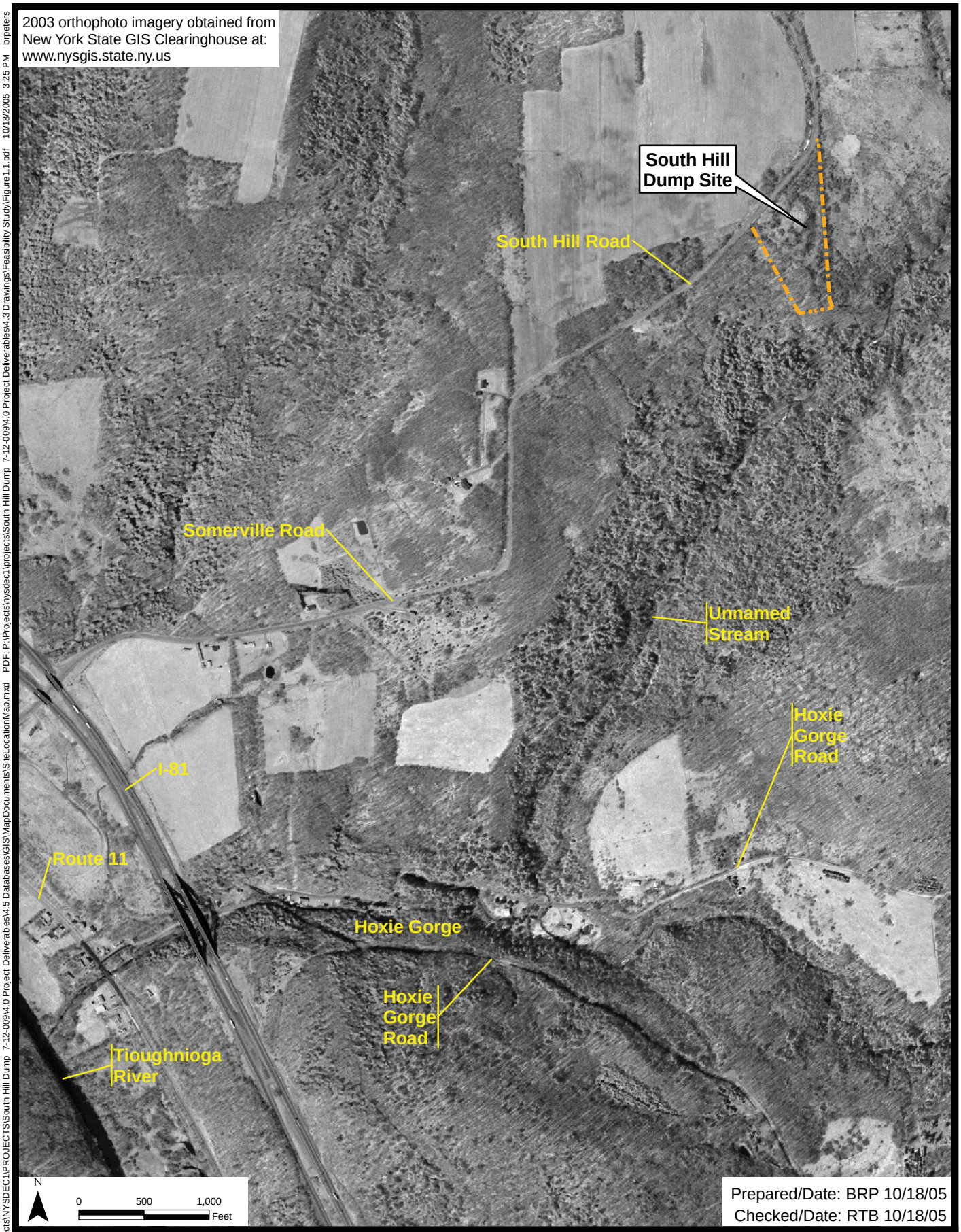
NYSDEC, 2005. *"Analytical Services Protocols"*; 7/05 Edition; July 2005.

NYSDEC, 2008. Record of Decision. South Hill Dump Inactive Hazardous Waste Disposal Site, Cortlandville, Cortland County, NY, Site No. 712009. January 2008.

NYSDEC, 2010. *DER-10, Technical Guidance for Site Investigation and Remediation. Division of Environmental Remediation.* May 3, 2010.

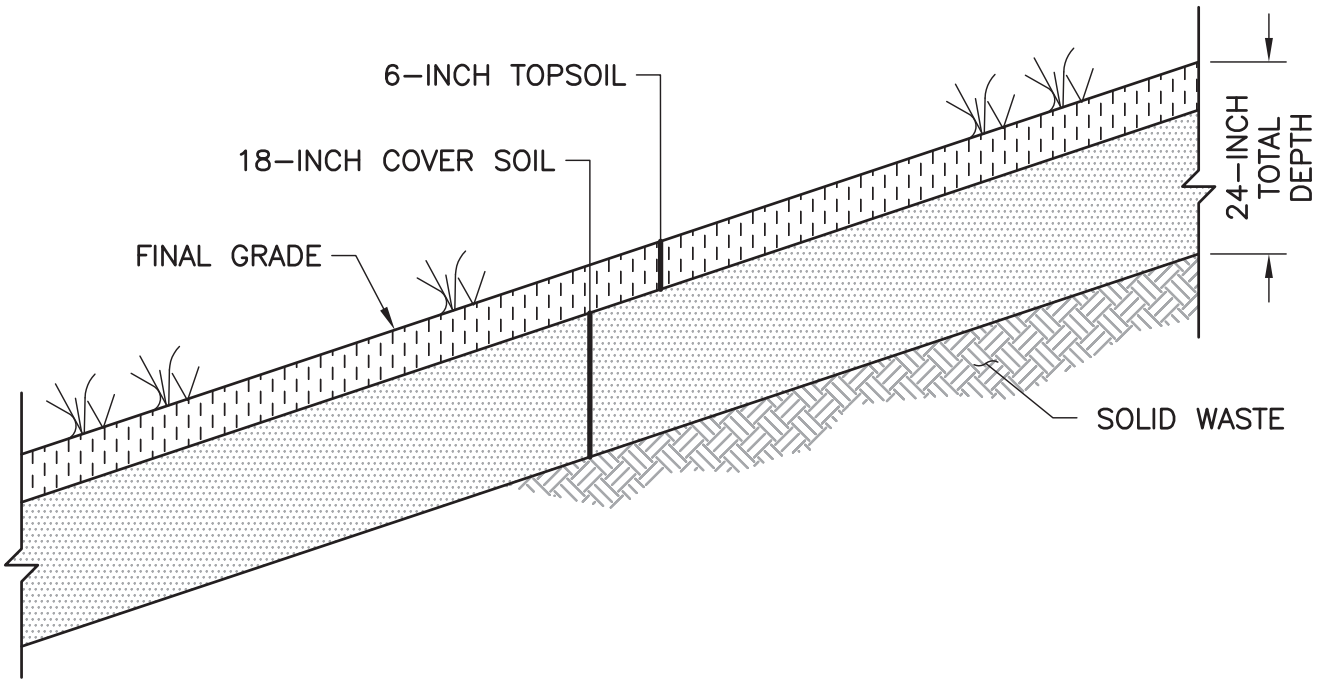
FIGURES



NYSDEC
South Hill Dump Site
Cortlandville, NY

MACTEC

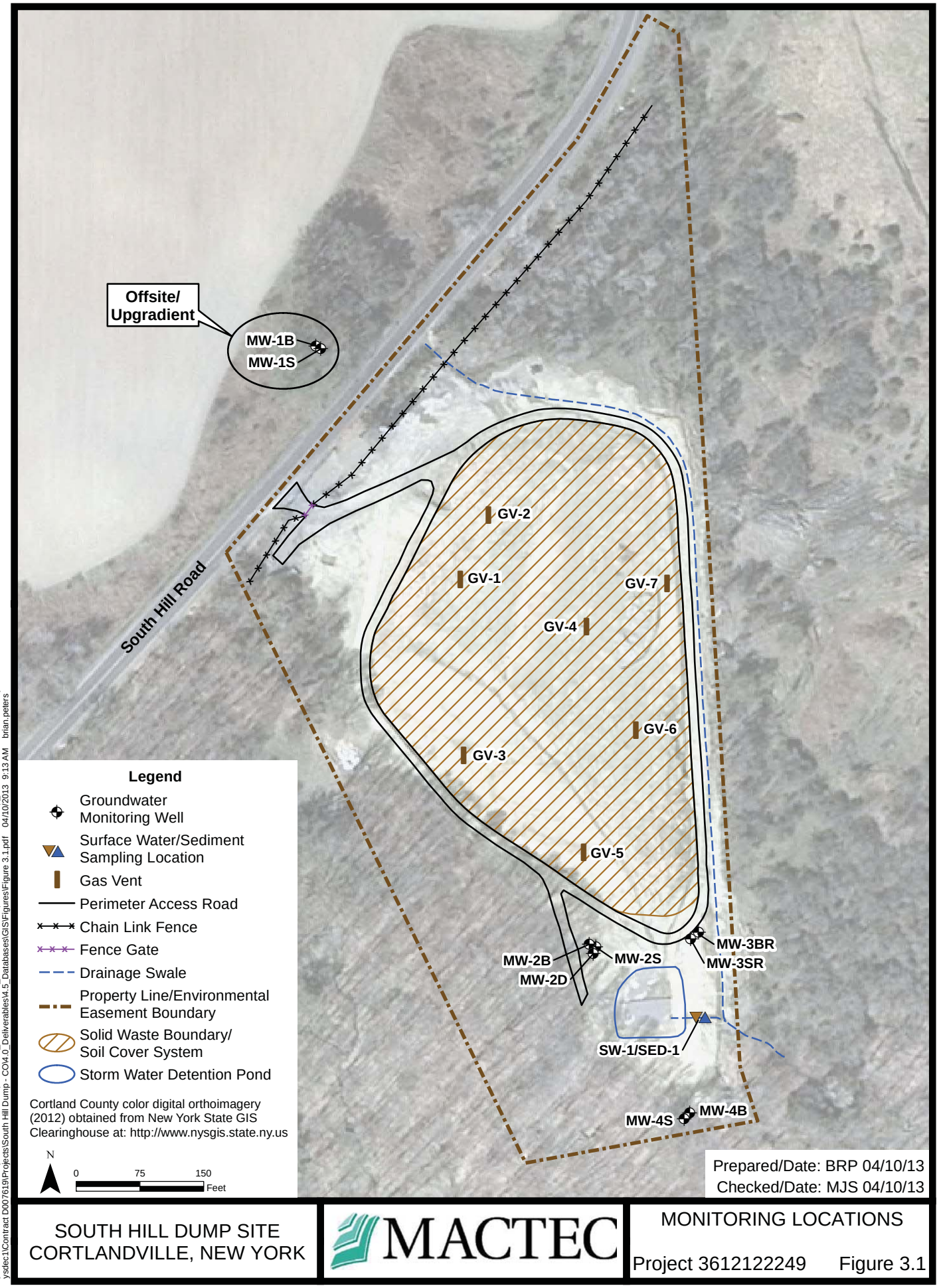
Site Location
Project 3612122249
Figure 1.1



NOT TO SCALE

Prepared/Date: JPM 04/11/2013
Checked/Date: MJS 04/11/2013

SOUTH HILL DUMP SITE CORTLANDVILLE, NEW YORK	MACTEC	LANDFILL COVER SYSTEM CROSS-SECTION Project 3612122249 Figure 2.1



SOUTH HILL DUMP SITE
CORTLANDVILLE, NEW YORK

MACTEC

MONITORING LOCATIONS

Project 3612122249 Figure 3.1

TABLES

Table 1.1: Site Management Plan Requirements
(Inspection and Long Term Monitoring)

Component	Action	Required Frequency
LANDFILL		
Landfill Cover System	Inspection	Semi-annually in spring and summer*
Landfill Cover System	Mowing	Semi-annually in spring and summer
Site Drainage System	Inspection	Semi-annually in spring and summer*
Site Security	Inspection	Semi-annually in spring and summer
Access Road	Inspection	Semi-annually in spring and summer
Gas Vents	Inspection	Semi-annually in spring and summer
Ground Water Monitoring System	Inspection	Semi-annually in spring and summer
LONG TERM MONITORING		
Ground Water Monitoring Program		
9 monitoring locations	No purge sampling (Hydrasleeve)	Every 15 months
Surface Water/Sediment Monitoring Program		
1 monitoring location	Surface Water/Sediment grab sampling	Every 15 months

*Additonal inspections to occur after a major rain event. A major rain event is defined as as a five-year, 24-hour storm.

Table 3.1: Monitoring Sampling and Analysis Plan

Sample Locations	Metals (6010B)	PCBs (8082)	VOC (8260B)
Monitoring Wells			
MW-1S upgradient	X	NA	X
MW-1B upgradient	X	NA	X
MW-2S downgradient	X	NA	X
MW-2D downgradient	X	NA	X
MW-2B downgradient	X	NA	X
MW-3SR downgradient	X	NA	X
MW-3BR downgradient	X	NA	X
MW-4S downgradient	X	NA	X
MW-4B downgradient	X	NA	X
Surface Water			
SW-1 (Detention Basin Outfall)	X	X	X
Sediment			
SED-1 (Detention Basin Outfall)	X	X	X

Notes:
An 'X' marked in a column indicates the analysis to be performed for that sample location.
VOCs = Volatile Organic Compounds
NA = Not Applicable

Table 3.2: Monitoring Well Summary

Well ID	Casing Elevation (ft, bgs)	Riser Elevation (ft, bgs)	Ground Elevation (ft)	Total Depth of Well (ft, bgs)	Comments	Screen (ft, bgs)	Depth to Water (ft, bgs)
MW-1S	1670.85	16.70.95	1668.10	~15	2-inch Overburden	10-ft Screen (5'-15')	~6.5
MW-1B	1671.65	1671.35	1668.50	~35	2-inch Bedrock	10-ft Screen (25'-35')	~6.5
MW-2B	1574.85	No Riser	1573.40	~41.5	3-inch Open Hole Bedrock	Open from 31.5'-41.5'	~6.5
MW-2D	1576.30	1575.00	1572.00	~24	2-inch Overburden	10-ft Screen (14'-24')	~6.5
MW-2S	1575.40	1575.45	1572.60	~10	2-inchOverburden	5-ft Screen (5'-10')	~6.5
*MW-3D	NM	NM	NM	~41	3-inch Open Hole Bedrock	Open from 31'-41'	~6.4
*MW-3S	NM	NM	NM	~24	2-inch Overburden	5-ft Screen (19'-24')	~4.2
MW-4B	1545.45	No Riser	1541.90	~46.6	3-inch Open Hole Bedrock	Open from 36.6'-46.6'	~6.5
MW-4S	1545.45	1545.40	1542.60	~16	2-inch Overburden	10-ft Screen (6'-16')	~6.5

All Data taken from "Bedrock Monitoring Well Construction Log 1997" Except where noted*

March/April 1997, SJB Services, Inc

*Monitoring Wells Installed October 2012 - Data taken from Boring/Well Development Logs

October 2012, SJB Services, Inc

ft = Feet

bgs = below ground surface

NM = Not Measured

Prepared by: RCM 2/21/2013
Checked by: MJS 3/01/2013

APPENDIX A

RECORD OF DECISION

Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
South Hill Dump Site

Cortlandville, Cortland, New York
Site Number 712009

January 2008

New York State Department of Environmental Conservation
ELIOT SPITZER, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

South Hill Dump Inactive Hazardous Waste Disposal Site

Cortlandville, Cortland, New York
Site No. 712009

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the South Hill Dump site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the South Hill Dump inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the South Hill Dump site and the criteria identified for evaluation of alternatives, the Department has selected a two foot soil cover over the waste mass. The components of the remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. A soil cover would be constructed over all fill areas to prevent exposure to contaminated soils and minimize percolation. The soil cover would consist of eighteen (18) inches of clean fill and six inches of topsoil. Vegetation would be established, and runoff control devices would be constructed to reduce erosion.

3. Imposition of an institutional control in the form of an environmental easement that would require (a) compliance with the approved site management plan; (b) restricting the use of

groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (c) the property owner or person implementing the remedy to complete a periodic certification of institutional and engineering controls.

4. Development of a site management plan which would include the following institutional and engineering controls: (a) management of the final cover system to maintain the cover and restrict excavation in the cover area; (b) environmental monitoring including groundwater, surface water, and sediment; (c) identification of any use restrictions on the site and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

5. The property owner or the person implementing the remedy would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies them in writing that this certification is no longer needed. This submittal would:(a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

_____ _____

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

South Hill Dump Site

Cortlandville, Cortland, New York
Site No.712009
January, 2008

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the South Hill Dump. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, the site was a municipal disposal facility for the Town of Cortlandville from the early 1960's until 1972, although it is reported that local residents used the site for trash disposal as early as 1949 and there is evidence of industrial disposal. These wastes have contaminated the groundwater, surface water, and soils at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to surface soils and exposed waste.

- a significant threat to wildlife associated with potential exposure to surface water, sediments and surface soils.

To eliminate or mitigate these threats, the NYSDEC has selected the installation of a soil cover system over the disposal area, establish vegetation, and apply institutional controls.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

The South Hill Dump consists of approximately 2.5 acres in a rural portion of the Town of Cortlandville, Cortland County, on a six (6) acre property, and is surrounded by woodlands (see Figure 1). The site is approximately 1.25 miles from Route 81. Much of the property is steeply sloped. The surrounding properties are either used for farming or are forest. The nearest

residence is approximately 0.25 mile away. The dump operated from the early 1960's until 1972 and received wastes from surrounding communities and local industries.

The site is located in an upland area of the Tioughnioga River valley. The Tioughnioga River flows south from the City of Cortland where five valleys converge. The river flows southeast from the Cortland area approximately 30 miles, where it joins the Chenango River and eventually the Susquehanna River.

The Tioughnioga is one of five major tributaries to the Susquehanna in New York State and the site falls within the Susquehanna River basin, which covers 6,100 square miles in New York. The basin is characterized by highly productive, deep stratified drift aquifers in its valleys. The site and surrounding area also overlie a 25-square mile USEPA designated sole-source aquifer system. The Cortland-Homer-Preble Aquifer System has also been designated by the NYSDEC as a primary aquifer.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The site was operated as a municipal disposal facility by the Town of Cortlandville from the early 1960's until 1972, although it is reported that local residents used the site for trash disposal as early as 1949. During its years of operation, wastes were received from the Village of McGraw and the Towns of Cortlandville and Solon, as well as local industry. Access to the site was reportedly unrestricted. It has also been reported that waste was often allowed to burn during landfill operation, and that at one time a waste oil pit may have existed. Operations are reported to have involved pushing waste over the working face of the landfill with some spreading and compaction. Cover material was reportedly spread one or more times per week. Presently, waste is protruding from the surface of the landfill across much of the site, and includes road construction debris, brush, stumps, tires, white metal, automobile parts, and miscellaneous industrial waste materials. Numerous decomposed drums are present across many areas of the landfill.

3.2: Remedial History

In 1991, the NYSDEC listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

In 1990, the NYSDEC conducted a site inspection and collected soil and leachate samples. Analysis revealed the presence of solvents and pesticides. Based on this data, the observed condition of the landfill (leachate seeps, numerous drum carcasses, etc.) and the reported disposal history, the site was proposed for listing on the New York State Registry of Inactive Hazardous Waste Disposal sites.

In response to site findings, the NYSDEC performed an interim remedial measure (IRM) drum removal. In March of 1991, five drums of hazardous waste were removed from the site. Analysis revealed that the drums contained trichloroethene (TCE). The waste was disposed at Frontier Chemical in Niagara Falls, NY. In 1991 and 1992, the Cortland County Planning Department (CCPD) collected several surface water samples at the site. The samples were collected from the intermittent stream at the toe of the landfill. Analytical data revealed elevated concentrations of the solvents TCE and dichloroethene (DCE). In the 1991 sampling event, a concentration of 200 parts per billion (ppb) of each of these compounds was detected. In 1994, the NYSDEC collected two surface water samples, three sediment samples and three soil samples from the site. Data revealed the presence of TCE and DCE in surface water at levels slightly above the NYSDEC standards, criteria and guidance (SCG) values. These two samples were collected in immediate proximity to the CCPD samples. One sediment sample contained a low concentration (9 ppb) of TCE. A low concentration of PCBs (79 ppb) was also detected in one sediment sample below the applicable SCG. The sediment sample results also revealed slightly elevated concentrations of several metals including copper, mercury, nickel and zinc. Analysis of the soil samples revealed low concentrations of TCE, cadmium, copper and several polyaromatic hydrocarbons.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

- Town of Cortlandville
- Smith Corona
- Overhead Doors

The PRPs declined to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs may be subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI field work was conducted between August 1996 and July 2003. The field activities and findings of the investigation are described in the RI report.

The RI included the following activities:

- A records search was conducted to identify the site history, past operations and probable contaminants of concern. The literature search involved a review and compilation of all available State, County and Town records which pertain to the site.

- A site base map was developed which illustrates the site contours, roadways, property boundaries and sample points.

- A test pit investigation was conducted to visually delineate the extent of subsurface contamination and characterize the shallow overburden geology. Subsurface samples were collected to identify the nature of the contamination present.

- Sediment and surface water samples were collected from visible seeps and from the intermittent stream located at the toe of the landfill.

- Monitoring wells were installed in overburden and bedrock to characterize site geology and hydrogeology. Groundwater samples were collected and analyzed to identify any site impacts to groundwater.

- A Fish and Wildlife Impact Analysis was conducted to identify existing or potential impacts to fish and wildlife.

- Applicable Standards, Criteria, and Guidance (SCGs) were reviewed and compared to on site contaminant levels to assess the threat posed, if any, by the site.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, sediment, surface water and groundwater contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the NYSDEC's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the NYSDEC's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels.") and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.

- Sediment SCGs are based on the NYSDEC's "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the RI report, many soil, groundwater and sediment samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs), pesticides, and inorganics (metals). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for waste, soil, and sediment.

Table 1 summarizes the degree of contamination for the contaminants of concern in groundwater, surface water, surface soils and sediments and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Investigations consisted of excavation of test pits to collect subsurface soil samples, installation of monitoring wells both above and in the bedrock to collect groundwater samples, and collection of surface water and sediment samples. No surface soil samples were collected. Chemical analysis has revealed the presence of contamination in subsurface soils, sediment, surface water and groundwater.

In each sample submitted for inorganic analysis, at least one analyte was detected above SCG levels. The presence of inorganic compounds is typical of solid waste landfills.

Several SVOCs were detected at concentrations above SCGs in soil samples collected during the test pit program. Benzo(a)pyrene, benzo(a)anthracene and chrysene were detected above SCGs. Phenol was also detected above SCGs in several test pit soil samples. SVOC concentrations did not exceed SCGs in soil boring samples or sediment, and in general were found at concentrations less than 1 ppm. SVOCs did not exceed SCGs in surface water or groundwater, with the exception of bis(2-ethylhexyl)phthalate, which was detected above SCGs in five of the six surface water samples.

VOC's detected during the RI included tetrachloroethylene (PCE), TCE, DCE, vinyl chloride, and BTEX compounds (benzene, toluene, ethylbenzene and xylene). These compounds were detected in groundwater, sediment and soil borings.

The only pesticide detected above the SCGs was 4,4-DDT. It was detected in test pit soils and sediments.

Waste Materials

Potential source areas are believed to be confined within the limits of the landfill waste, an area of approximately 2.5 acres.

Waste identified during the RI/FS will be addressed in the remedy selection process.

Surface and Subsurface Soils

Figure 3 depicts the estimated extent of landfill materials based upon the RI Test Pit Investigation results. According to the RI, dumping activities were confined to about 2.5 acres of the site. Concentrations of chrysene and phenol exceed SCGs in soil at five test pit locations within the landfill area. Concentrations of metals such as lead and zinc exceeded the SCGs at almost all locations. Sample locations are shown on Figure 2. The location of surface debris observed during an April 2005 site walk is also indicated on Figure 3. Site surface debris will also be considered during the development of remedial alternatives for soil.

Surface and subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Surface Water and Sediments

Sediment contamination exceeding SCGs is present at all sediment sample locations at the edge of the landfill's waste disposal area. However, all samples collected at the perimeter of the property were below SCGs. Sample locations are shown on Figure 2. Surface water contamination exceeding SCGs is present at surface water sample locations SW002 through SW006. Surface water and sediment samples were collected from the ditch along the eastern boundary of the site. This ditch receives flow from the roadside ditch and culvert via the swale in the northern portion of the site, surface runoff from the landfill area, and groundwater (leachate) seeps located along the southeastern edge of the landfill area. The entire length of this drainage is approximately 1,040 feet, from the culvert at South Hill Road to where the ditch leaves the site to the southeast.

Surface water and sediment contamination identified during the RI/FS will be addressed in the remedy selection process.

Groundwater

Groundwater samples were collected on May 22, 1997. The analytical data showed elevated levels of several volatile compounds including DCE and TCE in both MW-3S and MW-3B. These wells are located at the toe of the landfill. The concentrations of DCE and TCE in MW-3S were 18 ppb and 80 ppb, respectively. The concentrations of DCE and TCE in MW-3B were 56 ppb and 540 ppb, respectively. Wells 2D, 2B, 2S, 4S and 4B which are further away from the waste mass show no exceedances of SCGs. No semivolatile compounds, or pesticides were detected above groundwater standards in any of the wells.

Several inorganic compounds were detected above groundwater standards during the 1997 sampling. Aluminum, cobalt, iron, manganese, vanadium and sodium were observed above groundwater quality standards. When compared to the background concentrations of the compounds, as observed in upgradient monitoring wells MW-1S and MW-1B, only iron and sodium were elevated in concentration. A concentration of iron of 47,600 ppb was observed in well MW-2B versus the background concentration, as observed in MW-1B, of 21,400 ppb. The groundwater quality standard is 300 ppb. Concentrations of sodium in wells MW-3S and MW-3B of 20,900 ppb and 23,600 ppb, respectively, were slightly elevated when compared to the groundwater standard of 20,000 ppb.

Additional groundwater samples were collected in September of 2001. The analytical data showed elevated levels of several volatile compounds including DCE and TCE in both MW-3S and MW-3B. The concentrations of DCE and TCE in MW-3S were 264 ppb and 200 ppb, respectively. The concentrations of DCE and TCE in MW-3B were 97 ppb and 360 ppb, respectively. Again, no semivolatile compounds or pesticides were detected above groundwater standards in any of the wells and the wells at the site boundary were below SCGs for volatiles.

Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

In response to site observations, the NYSDEC performed an IRM drum removal program before starting the RI. The purpose of the program was to characterize the contents of drums observed to contain product, and properly dispose of these drums. In March of 1991, five drums were removed from the site. Analysis revealed that the drums contained TCE.

An additional IRM was performed during the RI Test Pit Investigation. Excavation of TP-40 was terminated when water reportedly containing non aqueous phase liquids (NAPL) was observed flowing into the hole. TP-40 is located at the site's eastern edge near the area where the five drums of waste containing TCE were removed in 1991. Drums and drum remnants were also observed to be present, but all the drums appeared to be empty. The area was fenced off, sorbent pads were applied to contain the liquids and a spill response contractor was procured. On March 17, 1997, the contractor pumped 660 gallons of liquid into a tanker truck. Samples were collected for analysis to characterize the liquid for off-site disposal. Analysis revealed the presence of DCE, TCE, vinyl chloride, acetone, methylphenol and several inorganics including calcium, iron, magnesium and potassium.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 5.3 of the RI report . An exposure pathway describes the means by which an individual may

be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Current complete exposure pathways are limited to direct contact by trespassers with contaminated sediment and exposed waste. Exposed waste, such as construction debris and white-goods, may also present a physical hazard. Because of the site's remote location, current exposure pathways involving other media are not complete. Potential future exposure pathways include direct contact with sediment, surface and subsurface soil by on-site remedial workers. The remedy will prohibit future consumption of contaminated groundwater on site and soil vapor intrusion into occupied structures from volatilization of compounds in the groundwater will also not occur, as no structures will be allowed. The potential exposure to contaminated groundwater or soil vapor downgradient of the site in the future is unlikely because of the proximity of the site boundary to the unnamed stream.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

Analysis of leachate, stained soil, sediment and surface water has revealed the primary contaminants of concern are solvents and pesticides. Low levels of metals such as arsenic, copper, lead and cadmium were also detected in surface water subsurface soils and sediments. Semivolatile contaminants including benzo(a)pyrene, benzo(a)anthracene, phenol and chrysene were also detected in sub-surface soils and these detections may be evidence that burning of the waste occurred. Investigations indicate the landfill is contaminating the groundwater and an intermittent stream at the toe of the landfill.

Field observations and analytical results from environmental samples indicate that groundwater, surface soil, surface water, and sediment are potential complete exposure pathways for wildlife located on and downgradient of the site. Chemicals disposed on-site were detected in leachate

(groundwater), surface water, and sediment samples. However, field observations and sample results indicate that ecologically significant migration of chemicals in surface water and sediment to the unnamed stream south of the site is unlikely. Concentrations in downgradient groundwater, surface water, and sediment samples collected near the site property line (approximately 500 feet from the landfill area) were near or below analytical detection limits. Furthermore, little aquatic vegetation was observed in the stream during the site visit, and the bottom sediment consists mostly of a mixture of rock and gravel with very little organic content.

The following environmental exposure pathways and ecological risks have been identified:

Site contamination has the potential to impact the groundwater resource in the Cortland-Homer-Preble aquifer system. The Cortland-Homer-Preble Aquifer System has also been designated by the NYSDEC as a primary aquifer. The site is situated at the eastern edge of this aquifer system.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons and wildlife at or around the site to waste, sediment and surface soil;
- the release of contaminants from the waste into groundwater that may create exceedances of groundwater quality standards;
- prevent releases of contaminants from the waste that would result in surface water levels in excess of ambient water quality criteria.

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

- ambient groundwater quality standards and
- soil cleanup standards.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the South Hill Dump were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soils, sediments, surface water and groundwater at the site.

Alternative 1: No Further Action

The No Further Action alternative recognizes remediation of the site conducted under previously completed IRMs. To evaluate the effectiveness of the remediation completed under the IRMs, only continued monitoring is necessary.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Limited Action

Present Worth: *$1,391,000*
Capital Cost: *$182,000*
Annual Costs:
(Years 1-5): *$114,000*
(Years 6-10): *$63,000*
(Years 11-30): *$38,000*

This alternative includes institutional controls, engineering controls and long term environmental monitoring.

Institutional controls include implementing land-use restrictions to limit site access, prohibit subsurface activity and installation of drinking water wells in the area of contamination. Land-use restrictions would be implemented through environmental easements. The existing site fence would be expanded to encompass the entire property and warning signs will be posted. Long-term maintenance of fencing and warning signs are included in the alternative. Surface and ground water would be monitored quarterly. After five years, the frequency of monitoring could be reduced from quarterly to annual. Construction of the fence could be completed in three months.

Alternative 3: 6 NYCRR 360 CAP

Present Worth: *$3,147,000*
Capital Cost: *$1,492,000*
Annual Costs:
(Years 1-5): *$147,000*
(Years 6-10): *$96,000*
(Years 11-30): *$71,000*

This alternative would cap the landfill with a cover compliant with current 6 NYCRR Part 360 regulations, including a gas venting layer, impermeable cover liner, barrier protection layer and topsoil. The site would be fenced. Institutional controls and long term environmental monitoring would be necessary. Pre-design investigations would be conducted to provide site-specific data needed to conduct final design of the remedial actions. The investigations would include a shallow test pit investigation to identify the extent of landfill materials at the site. Once the extent of the landfill materials is identified, bulky metal surface debris would either be removed and potentially recycled, or crushed and consolidated at the base of the landfill tier embankments. The presence of steep embankment slopes at the edge of the landfill tiers would require placement of clean fill materials and/or regrading to provide a stable slope for cover system construction. The cap would greatly reduce percolation of precipitation into the waste mass, thereby reducing leachate generation and contaminant migration. Construction of the cover system would require rerouting of the drainage ditch to an area beyond the toe of the constructed cover system.

To address potential landfill leachate, the cover system would include a leachate collection system. The leachate collection system would consist of a toe drain with subsurface drain pipes along the downgradient perimeter of the landfill material to collect leachate. The leachate would be drained to a central location for collection and proper off-site disposal.

Because contamination above SCGs would remain on site, institutional controls as described in Alternative 2 would be implemented to prevent exposure. Environmental monitoring would be similar to Alternative 2 with additional air monitoring at the perimeter (for methane as per 6 NYCRR 360.2.f.ii). The results would be used to evaluate the effectiveness and protectiveness of this alternative. After five years, the frequency of monitoring would be reduced from quarterly to annual. Maintenance activities would include periodic inspection and, if necessary, repair of the cover system and fence. The pre-design investigations would take approximately three months and the design another three. Construction of the cap could be completed in one construction season.

Alternative 4: HOT SPOT REMOVAL

Present Worth: *$2,740,000*
Capital Cost: *$1,623,000*
Annual Costs:
(Years 1-5): *$119,000*
(Years 6-10): *$68,000*

(Years 11-30): $43,000

This alternative would entail excavation within the landfill. While no specific hot spot areas were delineated during the RI, it is known that the landfill contains drum carcasses, and some may contain residual waste. Institutional and engineering controls as well as long term environmental monitoring would be necessary. It is estimated that approximately 500 cubic yards of contaminated soil would be removed along with the drum material.

Excavated soil and drums would be sampled for characterization prior to transportation for off-site disposal. Following hot spot removal, excavated areas would be backfilled with clean fill, the steeper slopes regraded and the landfill re-vegetated. Because contamination above SCGs would remain on-site, institutional controls, maintenance and environmental monitoring would be implemented similar to Alternative 2. The pre-design investigations and design would take approximately three months. Construction of the remedy could be completed in one construction season.

Alternative 5: HOT SPOT REMOVAL WITH 6 NYCRR 360 CAP

Present Worth: $4,242,000
Capital Cost: $2,622,000
Annual Costs:
Years 1-5): $147,000
(Years 6-10): $96,000
(Years 11-30): $71,000

This alternative is a combination of Alternatives 3 and 4. Excavation within the landfill to locate and remove drums and contaminated soil as in Alternative 4 would be followed by consolidation and capping of the landfill as in Alternative 3. Since portions of the landfill would be excavated to determine the locations of hot spots, consolidation could provide significant savings over Alternative 3 by reducing the footprint of the landfill. Because contamination above SCGs would remain on-site, institutional controls, maintenance and environmental monitoring would be implemented similar to Alternative 3. Design efforts would take approximately three months and construction could be completed in one construction season.

Alternative 6 :EXCAVATION OF ENTIRE LANDFILL AND DISPOSAL AT AN OFF-SITE LOCATION

Present Worth: $5,507,000
Capital Cost: $4,989,000
Annual Costs:
(Years 1-5): $107,000
(Years 6-30): $5,000

This alternative includes excavation and off-site disposal of the entire landfill. Excavated soil, sediment, and waste would be sampled for characterization prior to transportation for off-site disposal. Waste excavation, handling, and staging would be conducted similar to Alternative 4. After excavation, some limited environmental monitoring would be necessary to ensure that all the waste had been removed. The pre-design investigations would take approximately three months. Excavation of the landfill could be completed in two construction seasons.

Alternative 7 :TWO FOOT SOIL COVER OVER THE LANDFILL

Present Worth: $2,040,000
Capital Cost: $888,000
Annual Costs:
(Years 1-5): $121,000
(Years 6-10): $70,000
(Years 11-30): $45,000

This alternative would "close" the landfill in compliance with 6 NYCRR Part 360 requirements in effect at the time the landfill was last used for waste disposal. Scrap metal on the surface would be removed and recycled or disposed off-site. A two foot soil cover would be placed over the entire landfill to prevent wildlife or trespasser contact with waste currently exposed at the surface. The landfill will be regraded during the cover installation, vegetation would be established, and the drainage ditch would be re-routed to an area beyond the toe of the constructed cover system. These actions will reduce infiltration of precipitation through the waste mass and reduce contaminant migration. Institutional and engineering controls, land use restrictions and long term monitoring of groundwater, surface water and sediment would be performed to verify the effectiveness of the remedy at reducing infiltration. Maintenance activities would include periodic inspection and, if necessary, repair of the cover system. The pre-design investigations would take approximately three months and the design another three. Construction of the soil cover could be completed in one construction season.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy would meet environmental laws, regulations, and other standards

and criteria. In addition, this criterion includes the consideration of guidance which the NYSDEC has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the NYSDEC addressed the concerns raised.

In general, the public comments received were supportive of the selected remedy. Several comments were received, however, pertaining to continued releases from the landfill and the need to remove the landfill in its entirety.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 7, a two foot soil cover over the landfill with long term monitoring and institutional controls, as the remedy for this site. The specific elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 7 is being selected because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It will achieve the remediation goals for the site by covering the exposed waste mass to prevent direct exposure to the waste. By regrading the landfill, installing a proper cover, and reconfiguring an intermittent stream which carries rainwater from upgradient of the landfill, the amount of water passing through the waste mass will be reduced, which will reduce the potential for waste migration. A post-remedial monitoring program will confirm the effectiveness of the remedial approach. Any changes in the groundwater quality or any indication of contaminant migration from the landfill would be detected by the environmental monitoring program. In such a case, any need for additional investigations and remedial actions would be evaluated. Because contamination above SCGs will remain on site, institutional controls will be implemented.

Neither Alternative 1 nor Alternative 2 meets the threshold criteria for protecting human health and the environment because they do not protect trespassers and wildlife from direct contact to exposed waste. In addition to Alternative 7, Alternative 3 (6 NYCRR PART 360 CAP), Alternative 4 (HOT SPOT REMOVAL), Alternative 5 (HOT SPOT REMOVAL WITH 6 NYCRR 360 CAP), and Alternative 6 (EXCAVATION OF ENTIRE LANDFILL) also comply with the threshold criteria. Therefore, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternative 7 will have some controllable short term adverse impacts, including dust generation during construction and increased truck traffic. However, all alternatives which comply with the threshold criteria would have short term impacts to some degree. Alternatives 3, 4, 5 and 6 would have more significant adverse impacts, since both dust and truck traffic would be increased.

All of the alternatives are readily implementable using standard construction techniques. The cost analysis for all alternatives is presented in Table 2, which details the capital cost, annual cost and total present worth cost for each alternative (based on a 5% discount rate).

Ultimately the volume and toxicity of the waste is expected to decrease under all the alternatives as the waste decomposes and natural attenuation breaks down the chemical constituents. Alternative 6 would provide reduction of the waste on site, and Alternatives 3, 5 and 7 will reduce exposure to the waste by covering the landfill as well as reduce potential contaminant mobility by decreasing infiltration.

Alternatives 4 and 5 focus on "hot spot" removal. However, the remedial investigation did not locate or define any hot spots that may remain in the landfill. Therefore, these two alternatives involve significant additional short term impacts and cost without providing any confidence that the level of protectiveness is any greater than Alternatives 3 and 7, respectively, which describe similar remedies but without further attempts toward locating potential hot spots for removal.

Alternative 3 is similar to Alternative 7 except Alternative 3 includes a cap that would effectively eliminate infiltration of precipitation into the landfill, whereas Alternative 7 includes a cover which will be designed to reduce infiltration. Infiltration can increase the risk of waste mobilization. However, the results of the remedial investigation indicate that even in the landfill's current state, waste mobilization does not appear to be impacting the off-site environment. The increased short-term impacts and cost of implementing Alternative 3, when compared to Alternative 7, do not appear warranted.

Alternative 6 would provide the best long term effectiveness and permanence, since the entire landfill would be excavated and disposed off site. However, this would create a substantial rise in the short term impacts and cost of the remedy. The very significant complications created by implementing Alternative 6 - the potential impacts to human health and the environment caused by excavating, loading and transporting the entire landfill - do not appear warranted by current conditions.

On the basis of the rationale outlined in this section, Alternative 7 - a two foot soil cover over the landfill with long term monitoring and institutional controls - is the Department's preferred remedy for the South Hill Dump.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. A soil cover will be constructed over all fill areas to prevent exposure to contaminated soils and minimize percolation. The soil cover will consist of eighteen (18) inches of clean fill and six inches of topsoil. Vegetation will be established, and runoff control devices will be constructed to reduce erosion.

3. Imposition of an institutional control in the form of an environmental easement that will require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (c) the property owner or person implementing the remedy to complete a periodic certification of institutional and engineering controls.

4. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the final cover system to maintain the cover and restrict excavation in the cover area; (b) environmental monitoring including groundwater, surface water, and sediment; (c) identification of any use restrictions on the site and (d)

provisions for the continued proper operation and maintenance of the components of the remedy.

5. The property owner or the person implementing the remedy will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies them in writing that this certification is no longer needed. This submittal will:(a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

Since the remedy may result in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. This program will allow the effectiveness of the landfill cover to be monitored and will be a component of the long-term management for the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A fact sheet was sent to the people on the contact list on September 28, 2007
- A public meeting was held on October 4, 2007 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination
March, 1997 to September, 2001

SEDIMENT	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
PCB/Pesticides	4,4-DDD	ND to 0.012	0.01	1 of 7
	4,4-DDE	ND to 0.055	0.01	1 of 7
	4,4- DDT	ND to 0.2	0.01	1 of 7
	alpha-Chlordane	ND to 0.0017	0.001	1 of 7
Inorganic Compounds	Antimony	ND to 8.4	2	3 of 7
	Arsenic	ND to 7.3	6	3 of 7
	Cadmium	ND to 8.3	0.6	3 of 7
	Chromium	15.4 to 97.7	26	2 of 7
	Copper	13.6 to 60.5	16	5 of 7
	Lead	15.5 to 334	31	4 of 7
	Manganese	521 to 1970	460	7 of 7
	Nickel	27.7 to 91.5	16	7 of 7
	Silver	ND to 2.4	1	1 of 7
	Zinc	170 to 1240	1	7 of 7

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic	Benzo(a)anthracene	ND to 0.76	0.224	3 of 24
Compounds (SVOCs)	Benzo(a)pyrene	ND to 0.78	0.061	7 of 24
	Chrysene	ND to 0.81	0.22	2 of 24
	Phenol	ND to 1.4	0.03	3 of 24
Inorganic	Arsenic	4.8 to 40.7	7.5/SB (7-12)	6 of 24
Compounds	Barium	45.6 to 904	300/SB (15-600)	3 of 24
	Cadmium	ND to 49.8	10/SB (0.01-1)	4 of 24
	Calcium	688 to 61,900	SB (13-35,000)	2 of 24
	Chromium	11.8 to 435	50/SB (1.5-40)	8 of 24
	Copper	11.9 to 1820	25/SB (1-50)	12 of 24
	Iron	6,350 to 569,000	SB (2,000-500,000)	1 of 24
	Lead	7.5 to 2,910	SB (14)	18 of 24
	Magnesium	461 to 9,510	SB (100-500)	9 of 24
	Mercury	ND to 0.79	0.10	11 of 24
	Nickel	15.3 to 249	13/SB (0.5-25)	19 of 24
	Zinc	50.7 to 4130	20/SB (9-50)	24 of 24

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	DCE	ND to 56	5	2 of 8
	TCE	ND to 540	5	2 of 8
Inorganic Compounds	Aluminum	463 to 11500	100	8 of 8
	Cobalt	ND to 7.1	5	1 of 8
	Iron	811 to 47,600	300	8 of 8
	Manganese	25 to 876	300	3 of 8
	Sodium	1,900 to 23,600	20,000	2 of 8
	Vanadium	ND to 17.7	14	1 of 8

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1-DCE	ND to 180	5	1 of 6
	TCE	ND to 530	110	1 of 6
	Vinyl Chloride	ND to 32	0.7	1 of 6
Semivolatile Organic	BIS(2-ethylhexyl)phthalate	ND to 18	0.6	5 of 6
Inorganic Compounds	Aluminum	137 to 283,000	100	6 of 6
	Antimony	ND to 105	10	2 of 6
	Barium	0.137 to 283	1,000	2 of 6

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
	Cadmium	ND to 16.2	1.2	3 of 6
	Chromium	ND to 457	207	1 of 6
	Cobalt	ND to 237	5	5 of 6
	Copper	2.9 to 595	24	5 of 6
	Iron	105 to 242,000	300	5 of 6
	Lead	ND to 2,970	4	5 of 6
	Magnesium	3,710 to 102,000	35,000	2 of 6
	Manganese	0.0049 to 11	300	5 of 6
	Mercury	ND to 28	0.2	2 of 6
	Nickel	ND to 819	96	2 of 6
	Silver	ND to 11	0.1	2 of 6
	Vanadium	ND to 405	14	5 of 6
	Zinc	9.4 to 14,500	30	5 of 6
	Total Cyanides	ND to 32	5.2	1 of 6

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

[b] SCG = standards, criteria, and guidance values;

[c]ND= not detected
[d]SB=site background

Table 2

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1 No Action	0		
Alternative 2 Limited Action	$180,000	$110,000 (years 1-5) $63,000 (years 6-10) $38,000 (years 11-30)	$1,400,000
Alternative 3 6 NYCRR 360 Cap	$1,500,000	$150,000 (years 1-5) $96,000 (years 6-10) $71,000 (years 11-30)	$3,100,000
Alternative 4 Hot Spot Removal	$1,600,000	$120,000 (years 1-5) $68,000 (years 6-10) $43,000 (years 11-30)	$2,700,000
Alternative 5 Hot Spot Removal and a 6 NYCRR Part 360 Cap	$2,600,000	$150,000 (years 1-5) $96,000 (years 6-10) $71,000 (years 11-30)	$4,200,000
Alternative 6 Excavation Of Entire Landfill and Disposal at an Off-Site Location	$5,000,000	$110,000 (years 1-5) $5,000 (year 6-30)	$5,500,000
Alternative 7 Construction of Soil Cover	$890,000	$120,000 (years 1-5) $70,000 (years 6-10) $45,000 (years 11-30)	$2,000,000

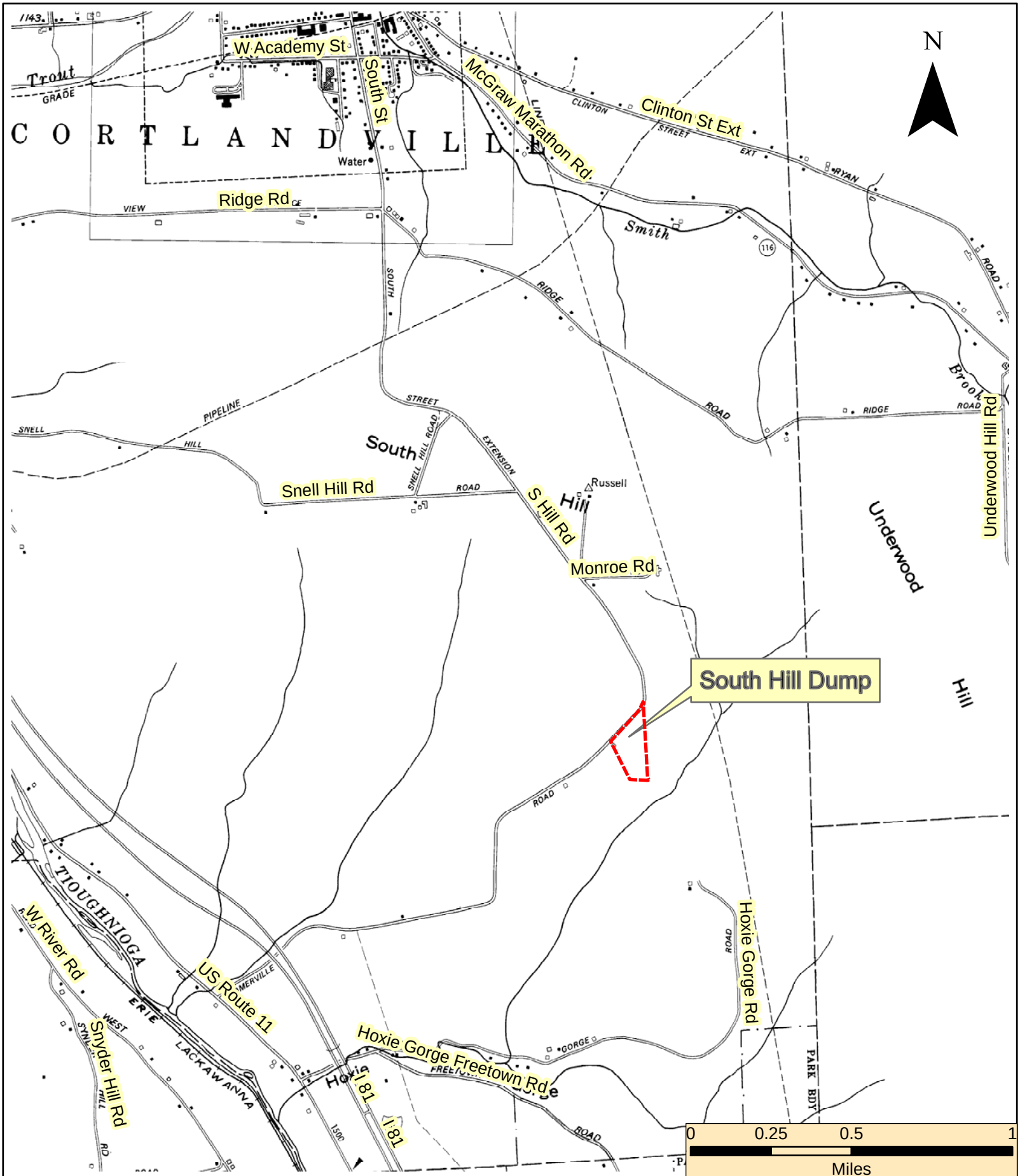


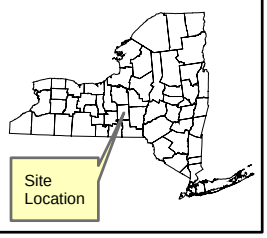
Figure 1

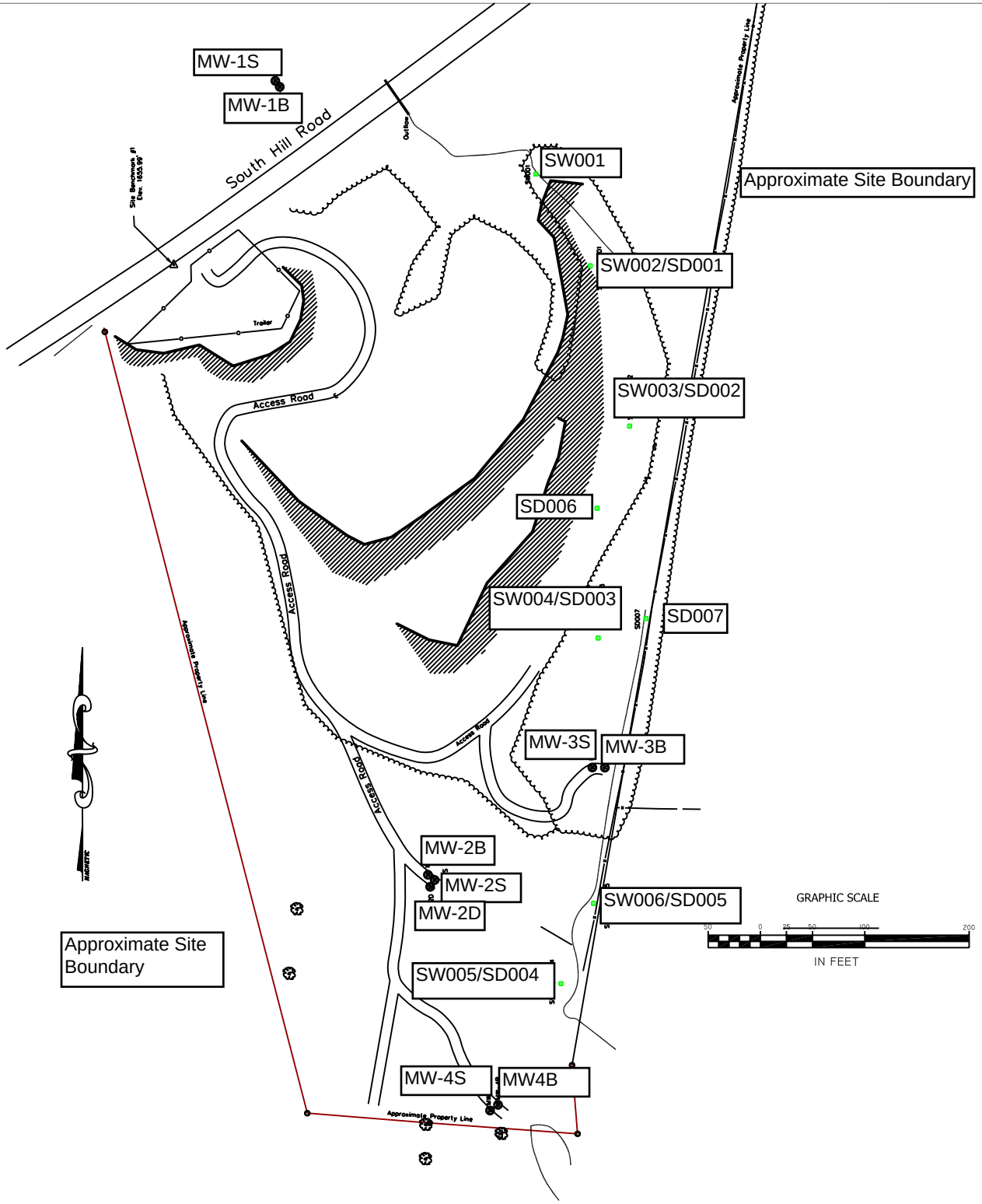
Site Location Map

South Hill Dump Site (Site #712009)

Cortland, NY

Map Source: NYSDOT 1:24,000-scale planimetric quadranqles





KEY

SWxxx- Surface Water Sample

SDxxx- Sediment Sample

MWxx- Monitoring Well

SOUTH HILL DUMP
CORTLANDVILLE, CORTLAND COUNTY, NEW YORK
SITE NO. 7-12-009

New York State Department of Environmental Conservation

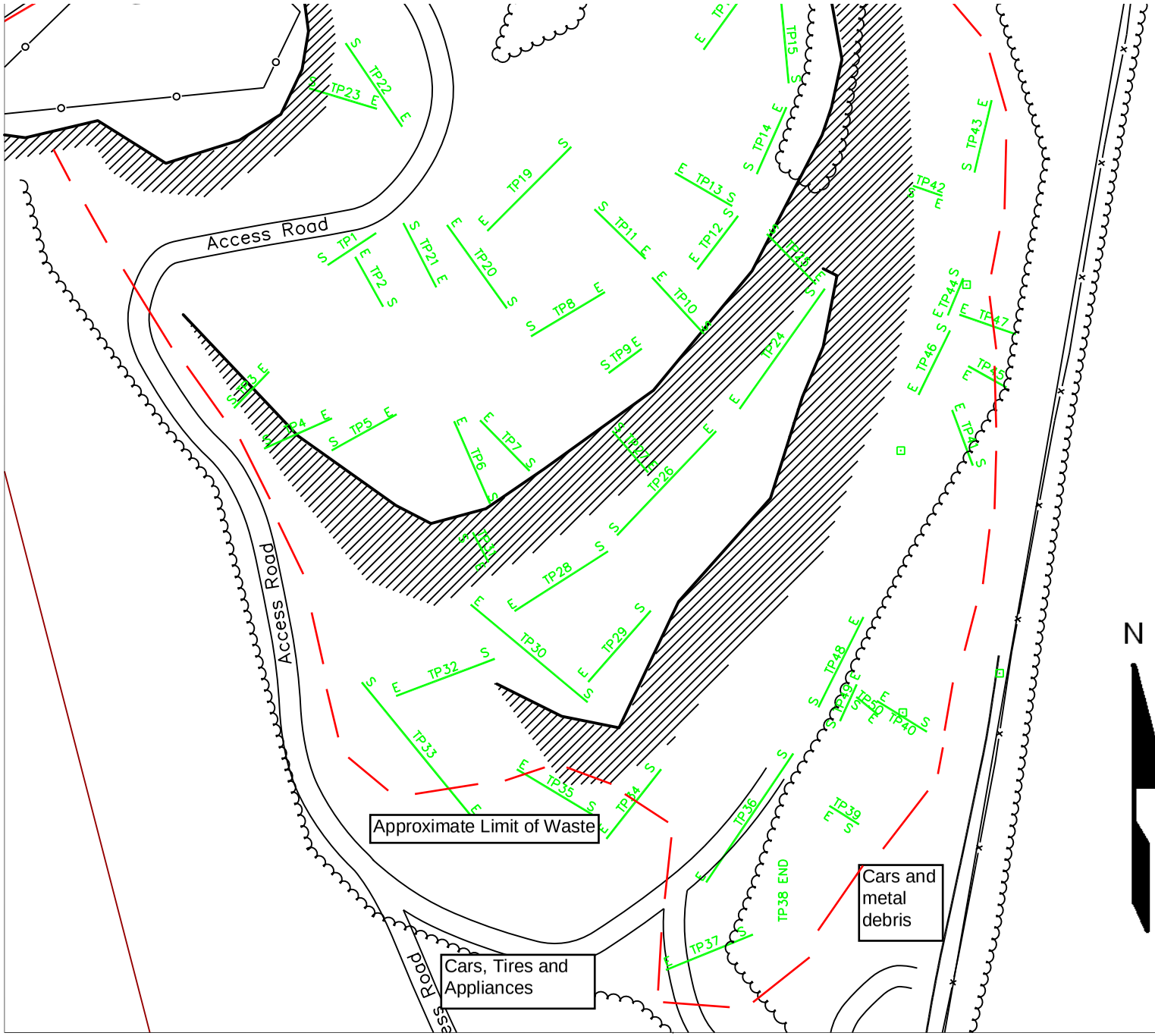
FILE:

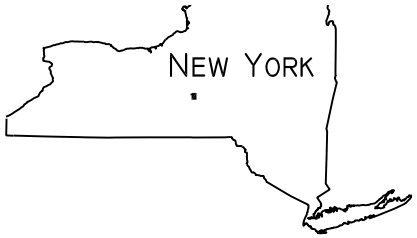
DRAWING: DRAWN FROM SPENCER F. THEW, PE - LS BASE MAP BY:BAB

MONITORING WELLS AND SAMPLE LOCATIONS

Date 3/27/07

Figure 2





KEY

Test Pit

S Start of test pit
E End of test pit

SOUTH HILL DUMP
CORTLANDVILLE, CORTLAND COUNTY, NEW YORK
SITE NO. 7-12-009

New York State Department of Environmental Conservation

FILE:

DRAWING: DRAWN FROM SPENCER F. THEW, PE - LS BASE MAP BY:BAB

TEST PIT LOCATIONS

02/26/07

FIGURE 3

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

South Hill Dump

Cortlandville, Cortland, New York
Site No. 712009

The Proposed Remedial Action Plan (PRAP) for the South Hill Dump site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on September 17, 2007. The PRAP outlined the remedial measure proposed for the contaminated groundwater, surface water and sediment at the South Hill Dump site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on October 4, 2007, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on October 17, 2007.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

Comment 1: What will be done with the drums in the fenced in area?

Response 1: Those drums will be disposed off site.

Comment 2: After the remedy is in place, will the landfill cover be mowed?

Response 2: Yes. The cover area will be mowed annually to prevent woody growth.

Comment 3: Will there be a fence around the landfill?

Response 3: Currently the NYSDEC does not envision a fence around the landfill. During post closure site management, the need for a fence will be routinely re-assessed.

Comment 4: Will there be restrictions on how close to the landfill someone can build ?

Response 4: An environmental easement will be placed on the property. This will preclude anyone from building on the site.

Comment 5: Will there be any sampling of the creek at the bottom of the ravine?

Response 5: There are currently no plans to re-sample the creek. Sampling during the investigation showed that contamination was not migrating any significant distance from the landfill, and the extent of detected

contamination did not extend beyond the site property boundary. The creek at the bottom of the ravine is approximately 1200 feet from the property. A post-closure monitoring plan will be implemented to ensure that any unanticipated migration of contamination away from the property would be detected. Post-closure environmental monitoring on site will include sampling of sediment and surface water from the drainage swale uphill from the creek as well as groundwater.

Comment 6: How long will it be before the remedy is in place?

Response 6: After signing the Record of Decision, the Department will attempt to find a responsible party willing to implement the remedy. The timing of the actual design work will depend upon the success of this effort. It is believed that the remedial design can be completed in 2008, and remedial construction can begin in late 2008 or 2009. As noted in Section 7.1 above, it is estimated that remedial construction can be completed in one construction season.

Comment 7: When will the remedial construction project go out to bid?

Response 7: As discussed above, several tasks need to be completed before the construction project is ready for open bidding. Currently it is estimated that bidding will take place in late 2008 or early 2009. When the project goes out to bid, the Department will place a public notice in the local paper.

Comment 8: Wouldn't it be better if the contamination wasn't disturbed? Did the Department consider simply placing the soil cover upon the waste pile as currently configured? Could the regrading release contamination?

Response 8: Placing fill on top of the existing waste, without regrading of the material, would result in very steep slopes and create an unacceptable potential for erosion. A community health and safety plan, including a community air monitoring plan, will be in place during any regrading activities at the site. These plans include the utilization of engineering controls to limit fugitive emissions during construction, and dust suppression techniques will be utilized if necessary.

Comment 9: The waste pile currently occupies 2.5 acres of the 6-acre parcel. Will you be covering the remaining 3.5 acres?

Response 9: Only the areas containing waste will be covered. Institutional controls will be placed on the entire 6-acre parcel, which will provide additional protection against encroachment of future development.

Comment 10: Will you be using a borrow pit to obtain the soil cover?

Response 10: The source of the cover soils isn't known at this time. That decision will be made during the remedial design and remedial construction process.

Comment 11: How much will the remediation cost the town?

Response 11: Once the remedy has been selected, the NYSDEC's attorneys will contact all the responsible parties (PRP), which will include the Town of Cortlandville, and request that they participate in the funding of the remedy. If an agreement cannot be reached with the PRPs, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs may be subject to legal actions by the state for recovery of all response costs the state has incurred.

Comment 12: What kind of soils will be used to cover the waste?

Response 12: That will be determined during the design studies.

A letter from Assemblywoman Barbara Lifton dated October 17, 2007 offered the following comments:

Comment 13: Alternative 7 is inadequate because it will not resolve the site's groundwater or soil gas vapor intrusion threat.

Response 13: The remedial investigation of the South Hill Dump has shown that migration of contamination from this site has not had a significant impact on the surrounding environment. While contamination of the groundwater was discovered in the vicinity of the waste, which is not unexpected, groundwater in MW-4, the most downgradient monitoring well located at the site boundary, met drinking water standards. Regrading and covering the landfill will further reduce the potential for contaminant migration via the groundwater. The limited extent of contaminant migration in the groundwater, combined with the area's geology and the relative isolation of the site, give confidence that exposure to contaminants through soil vapor intrusion will not be an issue at this site. The Department will develop and implement a post-closure monitoring plan to ensure that the remedy remains protective and that the Department becomes aware in a timely fashion of any change in site conditions that may warrant additional actions.

Comment 14: DEC should pursue a plan that includes full remediation of the site, thus eliminating the necessity to put restrictions on groundwater and site use.

Response 14: Unfortunately, it is often not feasible to completely excavate historic municipal landfills such as the South Hill Dump and dispose of the waste in modern, permitted facilities. These actions may create significant short-term impacts involving waste management, transportation, and odor control. Alternative 7, while requiring site use restrictions, is protective of human health and the environment.

A letter from Jamie Dangler on behalf of the Citizens for Aquifer Protection and Employment dated October 17, 2007, in addition to reiteration of Comment 13 and Comment 14, offered the following comments:

Comment 15: It is questionable whether Alternative 7 is more cost-effective in the long-term then Alternative 5 or Alternative 6, and Alternative 7 is less effective in terms of remediation and protection of human health and wildlife.

Response 15: Cost-effectiveness, short-term effectiveness, and long-term effectiveness and permanence are three of eight criteria which the Department uses to compare various remedial alternatives. At a minimum, any selected remedial action must be protective of human health and the environment. The Department has determined that Alternative 7 provides the best balance among the eight criteria used to compare the various remedial alternatives and is protective of human health and the environment.

Comment 16: Institutional controls will place an indefinite burden on the site owner and will not limit exposure pathways for wildlife.

Response 16: Implementation and monitoring of institutional controls are required for any remedy that leaves waste on site to ensure that the remedy remains protective. As noted in Response 14, it is often not feasible to completely excavate and remove all waste from each site. Under Alternative 7, institutional controls will include a prohibition on disturbance of the covered waste, thereby limiting the exposure pathways for wildlife.

In addition, post-closure monitoring will include sampling at the toe of the covered waste mass to ensure that there are no unacceptable wildlife exposures. It is important to realize that although there are potential exposure pathways at the site, the remedial investigation did not find actual exposure pathways creating a significant threat to fish and wildlife resources, even in the landfill's present state.

A letter from Joseph J. Heath on behalf of the Onondaga Nation dated October 18, 2007 expressed the following additional comments:

Comment 17: Alternative 7 will do little to protect the groundwater, surface water, or human health.

Response 17: The Department disagrees. The Department believes that Alternative 7 will be protective of human health and the environment as discussed in the ROD in Section 8. It satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It will achieve the remediation goals for the site by containing the waste that creates the potential threat to public health and the environment, it will reduce infiltration of precipitation, thus reducing the potential for contaminant migration. The soil cover will also prevent direct exposures to trespassers and wildlife. Institutional controls and long term monitoring will ensure continued protectiveness.

Comment 18: The proposed plan is short-sighted, in that it will not meet long-term remedial goals or long-term cost effectiveness. Considering the cost differential, rather than implementing Alternative 7 (estimated present worth cost of $2 Million), the Department is urged to implement Alternative 6, complete excavation of the waste and off-site disposal, (estimated present worth cost of $5.5 Million.)

Response 18: See Response 14 and Response 15, above.

APPENDIX B

Administrative Record

Administrative Record

South Hill Dump

Site No. 712009

1. Proposed Remedial Action Plan for the South Hill Dump site, dated September, 2007, prepared by the Department.

2. Remedial Investigation Work Plan for the South Hill Dump site, dated January 1997.

3. Final Remedial Investigation Report for the South Hill Dump site, dated July 2003.

4. Feasability Study work plan for the South Hill Dump site, dated December 2006.

5. Final Feasability Study Report for the South Hill Dump site, dated December 2006.

6. Referral Memorandum dated November 27, 1995 for the state funded RI/FS .

7. Letter dated October 17, 2007 from Assemblywoman Barbara S. Lifton.

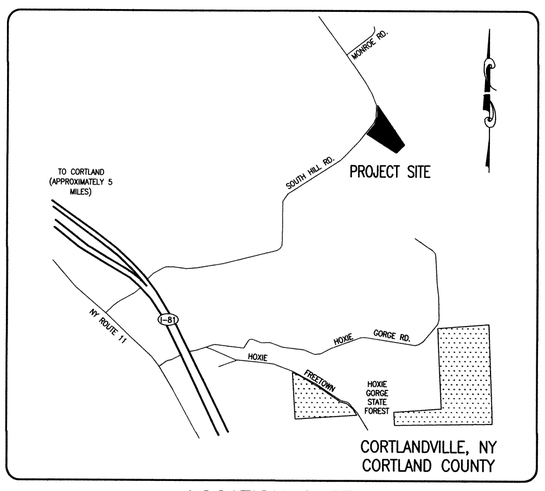
8. Letter dated October 17, 2007 from Citizens for Aquifer Protection and Employment.

9. Letter dated October 18, 2007 from Joe Heath, Esq. Representing the Onondaga Nation.

APPENDIX B

LAND TITLE SURVEY

FILE NAME: H:\Projects\112022-South_Hill_Dump_Site\Sur\Transmit\03-18-13\112022 S Hill Dump ALTA (2012)-MACTEC.dwg
DATE/TIME: 3/18/2013 9:21 AM
USER: Joseph Hefner



LOCATION SKETCH
(NOT TO SCALE)

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW.

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

THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THE EASEMENT ARE SET FORTH IN MORE DETAIL IN THE SITE MANAGEMENT PLAN ("SMP"). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP MAY BE OBTAINED FROM THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT derweb@gw.dec.state.ny.us.

ENGINEERING / INSTITUTIONAL CONTROLS

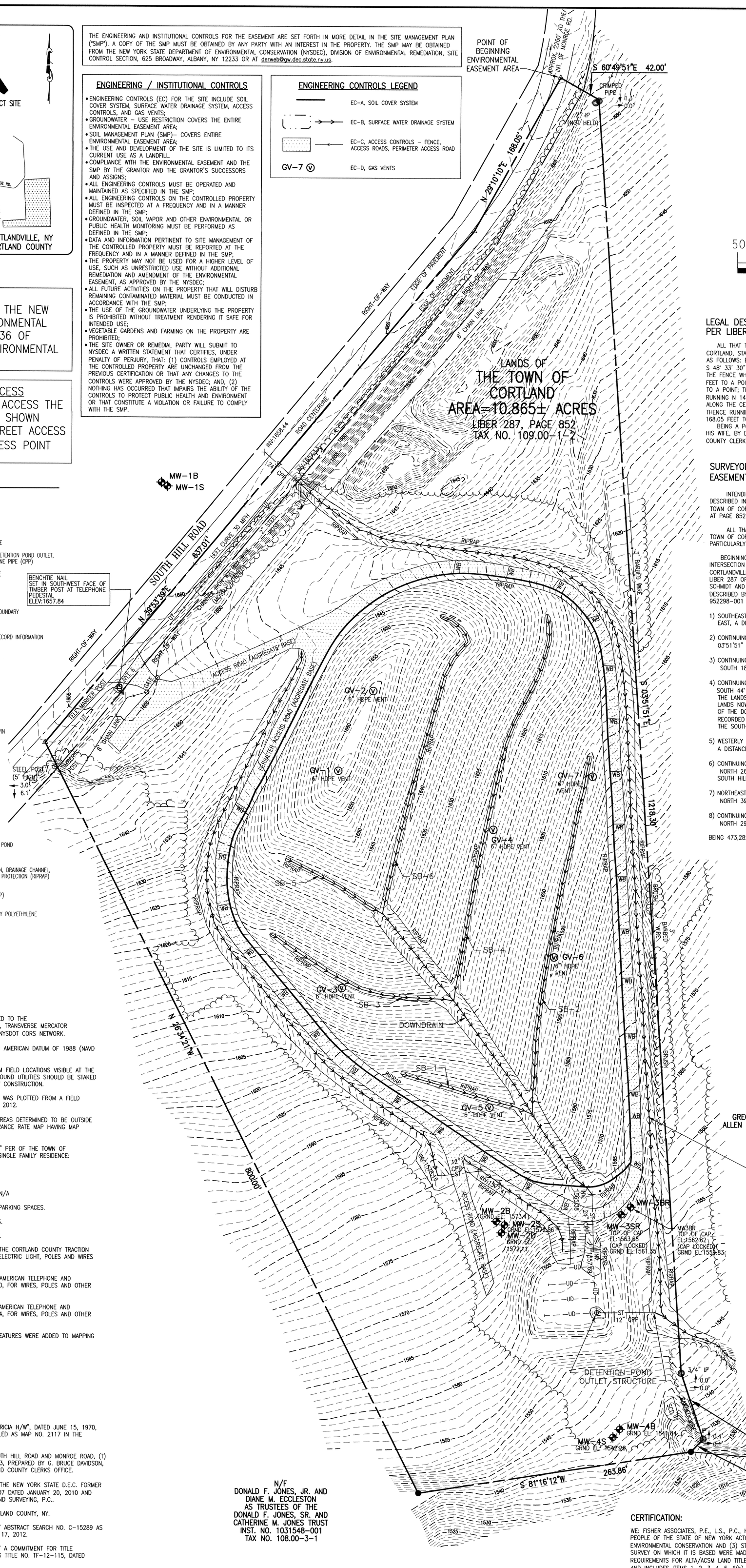
- ENGINEERING CONTROLS (EC) FOR THE SITE INCLUDE SOIL COVER SYSTEM, SURFACE WATER DRAINAGE SYSTEM, ACCESS CONTROLS, AND GAS VENTS;
- GROUNDWATER – USE RESTRICTION COVERS THE ENTIRE ENVIRONMENTAL EASEMENT AREA;
- SOIL MANAGEMENT PLAN (SMP)– COVERS ENTIRE ENVIRONMENTAL EASEMENT AREA;
- THE USE AND DEVELOPMENT OF THE SITE IS LIMITED TO ITS CURRENT USE AS A LANDFILL.
- COMPLIANCE WITH THE ENVIRONMENTAL EASEMENT AND THE SMP BY THE GRANTOR AND THE GRANTOR'S SUCCESSORS AND ASSIGNS;
- ALL ENGINEERING CONTROLS MUST BE OPERATED AND MAINTAINED AS SPECIFIED IN THE SMP;
- ALL ENGINEERING CONTROLS ON THE CONTROLLED PROPERTY MUST BE INSPECTED AT A FREQUENCY AND IN A MANNER DEFINED IN THE SMP;
- GROUNDWATER, SOIL VAPOR AND OTHER ENVIRONMENTAL OR PUBLIC HEALTH MONITORING MUST BE PERFORMED AS DEFINED IN THE SMP;
- DATA AND INFORMATION PERTINENT TO SITE MANAGEMENT OF THE CONTROLLED PROPERTY MUST BE REPORTED AT THE FREQUENCY AND IN A MANNER DEFINED IN THE SMP;
- THE PROPERTY MAY NOT BE USED FOR A HIGHER LEVEL OF USE, SUCH AS UNRESTRICTED USE WITHOUT ADDITIONAL REMEDIATION AND AMENDMENT OF THE ENVIRONMENTAL EASEMENT, AS APPROVED BY THE NYSDEC;
- ALL FUTURE ACTIVITIES ON THE PROPERTY THAT WILL DISTURB REMAINING CONTAMINATED MATERIAL MUST BE CONDUCTED IN ACCORDANCE WITH THE SMP;
- THE USE OF THE GROUNDWATER UNDERLYING THE PROPERTY IS PROHIBITED WITHOUT TREATMENT RENDERING IT SAFE FOR INTENDED USE;
- VEGETABLE GARDENS AND FARMING ON THE PROPERTY ARE PROHIBITED;
- THE SITE OWNER OR REMEDIAL PARTY WILL SUBMIT TO NYSDEC A WRITTEN STATEMENT THAT CERTIFIES, UNDER PENALTY OF PERJURY, THAT: (1) CONTROLS EMPLOYED AT THE CONTROLLED PROPERTY ARE UNCHANGED FROM THE PREVIOUS CERTIFICATION OR THAT ANY CHANGES TO THE CONTROLS WERE APPROVED BY THE NYSDEC; AND, (2) NOTHING HAS OCCURRED THAT IMPAIRS THE ABILITY OF THE CONTROLS TO PROTECT PUBLIC HEALTH AND ENVIRONMENT OR THAT CONSTITUTE A VIOLATION OR FAILURE TO COMPLY WITH THE SMP.

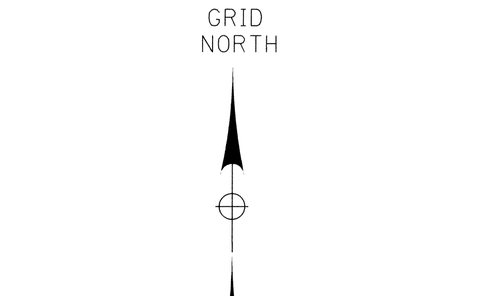
ENGINEERING CONTROLS LEGEND

EC-A, SOIL COVER SYSTEM
EC-B, SURFACE WATER DRAINAGE SYSTEM
EC-C, ACCESS CONTROLS – FENCE, ACCESS ROADS, PERIMETER ACCESS ROAD
GV-7 Ⓥ EC-D, GAS VENTS

LEGEND

- TREE LINE
- 1' INTERVAL CONTOUR
- 1630 5' INDEX CONTOUR
- UT UNDERGROUND TELEPHONE
- ST STORM DRAIN CULVERT/DETENTION POND OUTLET, CORRUGATED POLYETHYLENE PIPE (CPP)
- UD 4" CPP UNDERDRAIN PIPE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- SOLID WASTE/LANDFILL BOUNDARY
- x x FENCE LINE
- (REC) UTILITY PLOTTED FROM RECORD INFORMATION
- BENCHMARK
- MW-1B MONITORING WELL
- TELEPHONE PEDESTAL
- GAS MARKER
- FOUND IRON PIPE/IRON PIN
- WB WATER BAR (3' WIDE)
- SET REBAR W/CAP
- SET MAG NAIL
- SB SLOPE BENCH (RIPRAP)
- SCD STONE CHECK DAM
- STORM WATER DETENTION POND
- RIPRAP SLOPE BENCH, DOWNDRAIN, DRAINAGE CHANNEL, SWALE, OR ROCK OUTLET PROTECTION (RIPRAP)
- RIPRAP PERIMETER APRON (RIPRAP)
- GV-7 Ⓥ 6" DIAMETER HIGH DENSITY POLYETHYLENE (HDPE) GAS VENT





LEGAL DESCRIPTION OF LANDS OF THE TOWN OF CORTLANDVILLE PER LIBER 287 OF DEEDS, AT PAGE 852:

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE TOWN OF CORTLANDVILLE, COUNTY OF CORTLAND, STATE OF NEW YORK, AND BEING PART OF LOT #100 BEING BOUNDED AND DESCRIBED AS FOLLOWS: BEGINNING AT A POINT IN THE CENTER LINE OF SOMERVILLE ROAD; THENCE RUNNING S 48° 33' 30" E A DISTANCE OF 42.0 FEET TO A FENCE; THENCE RUNNING S 8° 24' 30" W ALONG THE FENCE WHICH RUNS ALONG THE EAST SIDE OF THE ABANDONED ROAD A DISTANCE OF 1218.3 FEET TO A POINT; THENCE RUNNING S 6° 05' 30" E ALONG SAID FENCE A DISTANCE OF 66.5 FEET TO A POINT; THENCE RUNNING WEST A DISTANCE OF APPROXIMATELY 265 FEET TO A POINT; THENCE RUNNING N 14° 18' W A DISTANCE OF 800 FEET TO A POINT; THENCE RUNNING N 52° N 52° 10' E ALONG THE CENTER LINE OF SAID SOMERVILLE ROAD A DISTANCE OF 637.01 FEET TO A POINT; THENCE RUNNING N 41° 26' 30" E ALONG SAID CENTER LINE OF SOMERVILLE ROAD A DISTANCE OF 168.05 FEET TO THE POINT OF BEGINNING, CONTAINING MORE OR LESS OF LAND.

BEING A PORTION OF THE PREMISES CONVEYED TO LOUIS C. RUSSELL AND HELEN B. RUSSELL, HIS WIFE, BY DANIEL CORTRIGHT BY DEED DATED APRIL 25, 1958 AND RECORDED IN THE CORTLAND COUNTY CLERK'S OFFICE IN BOOK 256 OF DEEDS AT PAGE 247.

SURVEYORS DESCRIPTION OF PARCEL SUBJECT TO ENVIRONMENTAL EASEMENT FOR NYSDEC SITE NO. 712009 (SOUTH HILL DUMP):

INTENDING AND BEING A PORTION OF THE SAME PIECES AND PARCELS OF PROPERTY AS THAT DESCRIBED IN DEED DATED JULY 3, 1963 FROM LOUIS C. RUSSELL AND HELEN B. RUSSELL TO THE TOWN OF CORTLANDVILLE AND RECORDED IN THE CORTLAND COUNTY CLERK'S OFFICE IN BOOK 287 AT PAGE 852.

ALL THAT TRACT OR PARCEL OF LAND BEING KNOWN AS PART OF LOT 100 SITUATED IN THE TOWN OF CORTLANDVILLE, COUNTY OF CORTLAND, STATE OF NEW YORK AND BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE CENTER LINE OF RIGHT-OF-WAY OF SOUTH HILL ROAD AT ITS INTERSECTION WITH THE DIVISION LINE BETWEEN THE LANDS NOW OR FORMERLY OF THE TOWN OF CORTLANDVILLE AS DESCRIBED BY A DEED RECORDED IN THE CORTLAND COUNTY CLERK'S OFFICE IN LIBER 287 OF DEEDS, AT PAGE 852 ON THE WEST AND THE LANDS NOW OR FORMERLY OF GREG SCHMIDT AND CAROLYN SCHMIDT AND ALLEN S. CRAWFORD AND ROBERTA J. CRAWFORD AS DESCRIBED BY A DEED RECORDED IN THE CORTLAND COUNTY CLERK'S OFFICE IN INSTRUMENT NO. 952298-001 ON THE EAST; THENCE

1) SOUTHEASTERLY ALONG THE LAST MENTIONED DIVISION LINE ON A BEARING OF SOUTH 60°49'51" EAST, A DISTANCE OF 42.00 FEET TO A POINT; THENCE

2) CONTINUING SOUTHERLY ALONG THE LAST MENTIONED DIVISION LINE ON A BEARING OF SOUTH 03°51'51" EAST, A DISTANCE OF 1218.30 FEET TO A POINT; THENCE

3) CONTINUING SOUTHERLY ALONG THE LAST MENTIONED DIVISION LINE ON A BEARING OF SOUTH 18°21'51" EAST, A DISTANCE OF 66.50 FEET TO A POINT; THENCE

4) CONTINUING SOUTHWESTERLY ALONG THE LAST MENTIONED DIVISION LINE ON A BEARING OF SOUTH 44°19'22" WEST, A DISTANCE OF 16.50 FEET TO A POINT ON THE DIVISION LINE BETWEEN THE LANDS OF NOW OR FORMERLY THE TOWN OF CORTLANDVILLE ON THE NORTH AND THE LANDS NOW OF FORMERLY OF DONALD F. JONES, JR. AND DIANE M. ECCLESTON AS TRUSTEES OF THE DONALD F. JONES, SR. AND CATHERINE M. JONES TRUST AS DESCRIBED BY A DEED RECORDED IN THE CORTLAND COUNTY CLERK'S OFFICE IN INSTRUMENT NO. 1031548-001 ON THE SOUTH; THENCE

5) WESTERLY ALONG THE LAST MENTIONED DIVISION LINE ON A BEARING OF SOUTH 81°16'12" WEST, A DISTANCE OF 263.86 FEET (265± FEET DEED) TO A POINT; THENCE

6) CONTINUING NORTHWESTERLY ALONG THE LAST MENTIONED DIVISION LINE ON A BEARING OF NORTH 26°34'21" WEST, A DISTANCE OF 800.00 FEET TO A POINT IN THE CENTER LINE OF SOUTH HILL ROAD; THENCE

7) NORTHEASTERLY ALONG THE CENTER LINE OF SOUTH HILL ROAD ON A BEARING OF NORTH 39°53'39" EAST, A DISTANCE OF 637.01 FEET TO A POINT; THENCE

8) CONTINUING NORTHEASTERLY ALONG THE CENTER LINE OF SOUTH HILL ROAD ON A BEARING OF NORTH 29°10'10" EAST, A DISTANCE OF 168.05 FEET TO THE POINT OR PLACE OF BEGINNING.

BEING 473,282 SQUARE FEET OR 10.865 ACRES MORE OR LESS.

N/F
GREG SCHMIDT AND CAROLYN SCHMIDT AND
ALLEN S. CRAWFORD AND ROBERTA J. CRAWFORD
INST. NO. 952298-001
TAX NO. 109.00-1-1

N/F
DONALD F. JONES, JR. AND
DIANE M. ECCLESTON
AS TRUSTEES OF THE
DONALD F. JONES, SR. AND
CATHERINE M. JONES TRUST
INST. NO. 1031548-001
TAX NO. 108.00-3-1

DETENTION POND OUTLET STRUCTURE

DESCRIPTION	ELEVATION
TOP OF 18" CPP CAP (NOTE 1)	1555.85
TOP OF 12" CPP RISER PIPE	SEE NOTE 3
INV OF 3-2" RISER PIPE ORIFICES	SEE NOTE 4
INV IN OF 12" CPP OUTLET PIPE	SEE NOTE 3
INV OUT OF 12" CPP OUTLET PIPE	1548.58

DETENTION POND OUTLET STRUCTURE NOTES:

1. TOP OF CPP (CORRUGATED POLYETHYLENE PIPE) CAP IS THE TOP OF THE CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE.
2. STRUCTURE ELEVATIONS WERE SURVEYED BY FISHER ASSOCIATES IN 2013.
3. TOP OF 12" CPP RISER PIPE AND 12" CPP OUTLET PIPE INV. IN NOT ACCESSIBLE FOR AS BUILT LOCATE AS CAP IS NOT REMOVABLE.
4. RISER PIPE ORIFICES NOT ACCESSIBLE FOR AS BUILT LOCATE AS IT IS COVERED WITH 18" OF FILL MATERIAL, FIELD CREW DUG THROUGH 12" OF FROZEN FILL BEFORE DETERMINING ACCESS TO BE IMPRACTICAL UNDER CURRENT CONDITIONS.

SURVEY NOTES:

1. COORDINATES AND BEARINGS SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, TRANSVERSE MERCATOR PROJECTION, NAD 83/96 USING GPS PROCEDURES AND THE NYSDOT CORS NETWORK.
2. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN DATUM OF 1988 (NAVD 88, GEOID 09).
3. UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM FIELD LOCATIONS VISIBLE AT THE TIME OF SURVEY. THE PHYSICAL LOCATION OF ALL UNDERGROUND UTILITIES SHOULD BE STAKED BY THE RESPECTIVE UTILITY SERVICE PROVIDER PRIOR TO ANY CONSTRUCTION.
4. TOPOGRAPHIC AND PLANIMETRIC INFORMATION SHOWN HEREON WAS PLOTTED FROM A FIELD SURVEY COMPLETED BY FISHER ASSOCIATES ON OCTOBER 11, 2012.
5. PREMISES SHOWN HEREON LIES WITHIN FLOOD ZONE "X" – AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP HAVING MAP NUMBER 36023C0265D, DATED MARCH 2, 2010.
6. PREMISES SHOWN HEREON IS ZONED "AGRICULTURAL DISTRICT" PER OF THE TOWN OF CORTLANDVILLE, HAVING THE FOLLOWING REQUIREMENTS FOR SINGLE FAMILY RESIDENCE:

A) MINIMUM SIDE YARD SETBACKS: 32' WITH A MINIMUM OF 12'.
B) MINIMUM FRONT: 60'
C) MINIMUM REAR: 40'
D) MINIMUM BUILDING HEIGHT AND FLOOR SPACE RESTRICTIONS: N/A

7. PREMISES SHOWN HEREON DOES NOT CONTAIN ANY PAINTED PARKING SPACES.
8. PREMISES SHOWN HEREON DOES NOT CONTAIN ANY BUILDINGS.
9. PREMISES SHOWN HEREON IS USED AS A SOLID WASTE DUMP.
10. PREMISES SHOWN HEREON IS SUBJECT TO AN EASEMENT TO THE CORTLAND COUNTY TRACTION CO., FILED IN LIBER 160 OF DEEDS, AT PAGE 542, FOR AN ELECTRIC LIGHT, POLES AND WIRES UPON AND OVER THE LAND (NOT PLOTTABLE).
11. PREMISES SHOWN HEREON IS SUBJECT TO AN EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH CO., FILED IN LIBER 164 OF DEEDS, AT PAGE 410, FOR WIRES, POLES AND OTHER FIXTURES UPON AND OVER THE LAND (NOT PLOTTABLE).
12. PREMISES SHOWN HEREON IS SUBJECT TO AN EASEMENT TO AMERICAN TELEPHONE AND TELEGRAPH CO., FILED IN LIBER 163 OF DEEDS, AT PAGE 414, FOR WIRES, POLES AND OTHER FIXTURES UPON AND OVER THE LAND (NOT PLOTTABLE).
13. ENGINEERING CONTROLS AND DETENTION POND UNDERDRAIN FEATURES WERE ADDED TO MAPPING BY MACTEC ENGINEERING AND CONSULTING, P.C..

REFERENCES:

1. DEEDS LISTED HEREON.
2. A MAP ENTITLED "LANDS OF DONALD W. MONROE AND PATRICIA H/W", DATED JUNE 15, 1970, PREPARED BY W.M. MOTT ASSOCIATES, P.E. & L.S. AND FILED AS MAP NO. 2117 IN THE CORTLAND COUNTY CLERKS OFFICE.
3. A MAP ENTITLED "LANDS OF CORTLAND [SIC] COUNTY, SOUTH HILL ROAD AND MONROE ROAD, (T) CORTLANDVILLE, CORTLAND CO., N.Y., DATED JULY 28, 1993, PREPARED BY G. BRUCE DAVIDSON, L.S. 49603 AND FILED AS MAP NO. 3315 IN THE CORTLAND COUNTY CLERKS OFFICE.
4. A MAP ENTITLED "BOUNDARY AND TOPOGRAPHIC MAP FOR THE NEW YORK STATE D.E.C. FORMER SOUTH HILL DUMP SITE" BEING SURVEYOR JOB NO. 3282.07 DATED JANUARY 20, 2010 AND PREPARED BY POPLI, ARCHITECTURE, ENGINEERING AND LAND SURVEYING, P.C..
5. TAX MAP 109.00 OF THE TOWN OF CORTLANDVILLE, CORTLAND COUNTY, NY.
6. THIS SURVEY HAS BEEN PERFORMED WITH THE BENEFIT OF ABSTRACT SEARCH NO. C-15289 AS PREPARED BY CORTLAND ABSTRACT, INC., DATED OCTOBER 17, 2012.
7. THIS SURVEY HAS BEEN PERFORMED WITH THE BENEFIT OF A COMMITMENT FOR TITLE INSURANCE BY STEWART TITLE INSURANCE COMPANY HAVING TITLE NO. TF-12-115, DATED OCTOBER 17, 2012.

CERTIFICATION:

WE: FISHER ASSOCIATES, P.E., L.S., P.C., HEREBY CERTIFY TO: (1) THE TOWN OF CORTLANDVILLE., (2) THE PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH ITS COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND (3) STEWART TITLE INSURANCE COMPANY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6(b), 7(a), 7(b1), 7(c), 8, 9, 10(a), 11(b), 12, 13, 14, 15, 16, 18 AND 19 OF TABLE A THEREOF.

WE FURTHER CERTIFY THAT THIS MAP WAS PREPARED ON OCTOBER 26, 2012 FROM THE NOTES OF AN INSTRUMENT SURVEY COMPLETED ON OCTOBER 11, 2012 USING REFERENCES AND EVIDENCE SHOWN HEREON.

THIS MAP IS SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES THAT AN ABSTRACT OF TITLE UPDATED FROM OCTOBER 17, 2012 MAY SHOW.

BY: Scott V. Smith DATE: March 18, 2013
SCOTT V. SMITH, N.Y.S.P.L.S. NO. 050561

PROJECT NO. 112022
DRAWING NO. FA-1

PROJECT
SOUTH HILL DUMP SITE
TOWN OF CORTLANDVILLE, CORTLAND COUNTY, NY
PART OF LOT 100, OLD TOWNSHIP OF HOMER
NYSDEC SITE NO. 712009

TITLE OF DRAWING
ALTA/ACSM LAND TITLE SURVEY

FISHERASSOCIATES
135 Calkins Road, Rochester, NY 14623
Phone: 585-334-1310

STATE OF NEW YORK SCOTT V. SMITH 050561 LICENSED LAND SURVEYOR

PROJECT ENGINEER
PROJECT MANAGER
SCOTT SMITH
DRAWN BY
JEFF HEFNER
SCALE 1 INCH = 50 FEET
ISSUE DATE NOVEMBER 2012

	REVISIONS	DATE	BY
7			
6			
5			
4			
3			
2			
1	UPDATED PER COMMENTS	3/18/13	JH

APPENDIX C

ENVIRONMENTAL EASEMENT

APPENDIX D

SPECIFICATION 02110 – WASTE REMOVAL, HANDLING, AND STORAGE

SECTION 02110

WASTE REMOVAL, HANDLING, AND STORAGE

PART 1 GENERAL

1.01 SUMMARY

A. This section includes a description of responsibilities and project requirements for on-site management of wastes including removal, handling and storage. For the South Hill Dump Site, these materials and wastes are identified as the following:

1. Clearing Debris;
2. Grubbings;
3. Solid Waste;
4. Bulky Waste;
5. Construction Water;
6. Visually Impacted Soils (See Section 02125 – Drum and Visually Impacted Soil Removal, Handling, and Storage);
7. Drums (See Section 02140 – Drum and Visually Impacted Soil Removal, Handling, and Storage);
8. Soil Boring Cuttings;
9. Remediation Waste;
10. Sanitary Waste; and
11. Site Trash.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02105 – Chemical Sampling and Analysis
B. Section 02120 – Off-Site Transportation and Disposal
C. Section 02125 – Drums and Visually Impacted Soil Removal, Handling, and Storage
D. Section 02231 – Clearing and Grubbing
E. Section 02245 – Construction Water Management
F. Section 02300 - Earthwork

1.02 SUBMITTALS

A. The Contractor shall include as a component of the Construction Work Plan (described in Section 01110 – Summary of Work) a description of planned means and methods for management of all waste materials removed or generated as a component of the Work.
B. Laboratory Reports: Provide laboratory reports of analytical testing performed as required by the waste characterization program.

1.03 DEFINITIONS

A. Clearing Debris: refer to Section 02231 – Clearing and Grubbing for definition.
B. Grubbings: refer to Section 02231 - Clearing and Grubbing for definition
C. Solid Waste: typical municipal household and/or commercial/ industrial waste in solid form and not classified as bulky waste or hazardous waste, including rubbish/trash, garbage, other miscellaneous discarded material/debris, soil, sediment, sludge, and/or ash.
D. Bulky Waste: surficial and buried solid wastes that are large in size and difficult to breakup and incorporate into the landfill through grading and compacting including but not limited to white goods (appliances); tires and rims; construction and demolition debris; large scrap metal including junk car carcasses; large waste items (i.e. mattresses), and other items identified by the Engineer.
E. Visually Impacted Soils: Contaminated soils adjacent to damaged/leaking buried drums uncovered during landfill waste consolidation and grading identified by observed staining, sheening, and/or the presence of tar/oily residuals. Chemical sampling and analysis is required to determine classification of material as hazardous or non-hazardous. Refer to Section 02140 – Drums and Visually Impacted Soil Removal, Handling, and Storage.
F. Drums: Surficial and buried drums, drum remnants/carcasses, and their contents. Refer to Section 02140 – Drums and Visually Impacted Soil Removal, Handling, and Storage
G. Construction Water: Wastes in liquid form collected during construction that may include construction water from dewatering activities, groundwater monitoring well development water, leachate, sediment laden stormwater runoff, and/or decontamination fluids.
H. Chemical Liquid Wastes: Chemicals in liquid form found inside or in proximity to damaged/leaking buried drums uncovered during landfill waste consolidation and grading.
I. Leachate – Waste generated from the percolation of liquids (usually stormwater) through or contact of liquids with solid waste or contaminated soils, sediment, or sludge.
J. Soil boring cuttings: Cuttings generated during drilling of groundwater monitoring wells
K. Remediation Waste: Waste generated during remediation work as a result of environmental protections, worker protections and/or sampling procedures including disposable personal protective equipment (PPE), plastic sheeting, and sampling equipment.
L. Sanitary Wastes: Wastes characterized as sanitary sewage. Refer to Section 01500 – Temporary Facilities and Controls.
M. Site trash: Waste generated during the course of construction from site workers, equipment, and/or imported materials.

1.04 WASTE CONTAINERS

A. The Contractor shall provide:

1. Equipment and materials as defined in Section 02140 – Drum and Visually Impacted Soil Removal, Handling, and Storage for on-site handling of drums and visually impacted soil.
2. Trucks or other equipment as required for handling grubbings and solid waste during excavation and on-site consolidation/grading.
3. Appropriate containers and/or trucks for the management and off-site disposal/recycling of non-contaminated material including clearing debris and bulky wastes.
5. Portable, temporary storage tanks (e.g. FRAC tanks.) for the storage/treatment of collected construction water.
5. Containers (e.g., roll-off containers) for non-hazardous site trash collected during the course of the project and during final site cleanup activities.
6. Plastic bags for disposable personnel protection equipment. Plastic bags shall have a minimum thickness of six (6) mils

1.05 ON-SITE MANAGEMENT AND STORAGE OF MATERIALS

A. The Contractor shall be responsible for proper on-site management of wastes generated in compliance with all Federal, State and local regulations. Management shall include handling, segregating, testing, and storing, as required, for the wastes listed in Sup-Part 1.01A of this Section.

1. Clearing Debris: manage and store as described in Section 02231 – Clearing and Grubbing
2. Grubbings: manage and store as described in Section 02231 – Clearing and Grubbing
3. Solid Waste: material excavated/removed from outside the new solid waste boundary shall be consolidated within the boundary.
4. Bulky Waste: segregate and manage material for off-site disposal.
5. Construction Water: manage and store as described in Section 02245 – Construction Water Management.
6. Visually Impacted Soils: manage and store as described in Section 02125 – Drum and Visually Impacted Soil Removal, Handling, and Storage.
7. Drums: manage and store as described in Section 02125 – Drum and Visually Impacted Soil Removal, Handling, and Storage.
8. Soil Boring Cuttings: manage and store as described in Section 02522 – Groundwater Monitoring Wells.
9. Remediation Waste: segregate and bag all remediation waste separately from other Site Trash and store in the on-site Site Trash container.
10. Sanitary Wastes: manage as described in Section 1500 – Temporary Facilities and Controls.

11 Site Trash: manage and store on-site during construction in a designated roll-off container or similar.

B. The Contractor shall be responsible for movement of the containers, trucks, etc. into positions required for proper loading and management of material.

C. The Contractor shall segregate hazardous from non-hazardous materials as required for proper off-site disposal.

D. The Contractor shall be responsible for loading all waste containers, trucks, etc. with all removed waste, debris, and soil.

E. The Contractor shall limit stockpiling of waste materials on-site.

F. Solid waste for on-site waste consolidation, if stockpiled, shall be maintained inside the new solid waste boundary.

F. The Contractor shall not load waste containers, trucks, etc. with non-contaminated materials prior to inspection and determination by the Engineer that decontamination of the waste containers has been achieved.

G. The Contractor shall be responsible for coordinating the schedule for delivery and pick-up of supplied waste containers. The Contractor shall also be responsible for movement and storage of containers within the Site to allow the progress of the Work.

H. The Contractor shall cover any waste stockpiles with plastic sheeting and anchoring system to prevent stormwater runoff from contacting the waste material.

1.06 WASTE CHARACTERIZATION SAMPLING AND TESTING

A. Testing shall not be required for the following classifications of wastes:

1. Clearing Debris;
2. Grubbings;
3. Solid Waste consolidated on-site;
4. Bulky Wastes;
5. Soil Boring Cuttings;
6. Remediation Waste;
7. Sanitary Waste; and
8. Site Trash.

B. The Contractor shall be responsible for the sample collection and laboratory testing of the following classifications of wastes:

1. Construction Water;
2. Visually Impacted Soil;
3. Solid Waste disposed off-site; and
4. Drum contents.

C. The Contractor shall collect samples and perform testing in accordance with the in accordance with Section 02105 – Chemical Sampling and Analysis and in coordination with the off-site disposal facility and the Engineer.

D. Laboratory testing of wastes shall be performed by a certified laboratory as required by the selected disposal facility:

1. Laboratory reports shall be prepared by the subcontracted laboratory to include all requirements of the State.
2. All laboratory test methods and frequencies shall be in accordance with the Department requirements.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

END OF SECTION

APPENDIX E

DER-10

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

Overview

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

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

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

Community Air Monitoring Plan

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

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

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

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

VOC Monitoring, Response Levels, and Actions

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

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

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

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

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

Particulate Monitoring, Response Levels, and Actions

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

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

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

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

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX F

GROUNDWATER MONITORING WELL BORING LOGS AND CONSTRUCTION DIAGRAMS

WELL BORING LOGS

Contractor: SJB Services
Driller: Dale Matthies
Inspector: N. Smith / S. Dillman
Rig Type: CME-550

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

PROJECT NAME: NYSDEC - South Hill Dump
PROJECT NUMBE 729396.02000

BORING/ WELL NO. MW-1B Sheet 1 of 2

Location Description: North of South Hill Road in tree cluster across road from site. Upgradient well location.

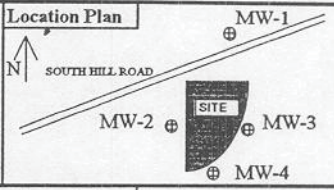
GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 20 to 40 degrees, sun, wind, snow

Date/Time Start: March 26, 1997 / 0810

Date/Time Finish: April 10, 1997 / 1218

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
+2						
+1						
0		SS			0 feet	
	A	1	25%	0.0	SILT, little clay, brown, dry.	
1		1				
		2				
2		3				
	B	4	50%	0.0		
3		7			some siltstone fragments	
		10				
4		23				
	C	5	40%	0.0	SILT, some siltstone fragments, brown-gray, dry.	
5		11				
		19				MW-1S screen set 5 to 15 feet bgs Details on Well Construction Log
6		40				
	D	20	35%	0.1	stiff	
7		50/0.5'				
		A				
8		A			8.0 feet	
	E	15	70%	0.0	SILT, little clay and weathered shale, brown, wet.	
9		27				
		50/0.4'				
10		A			10.0 feet	
	F	42	70%	0.0	CLAY and weathered SHALE, little silt, gray, wet.	
11		30				
		23				
12		50/0.4'				
	G	19	25%	0.0	damp	
13		50/0.3'				
		A				
14		A				
	H	19	50%	0.0	CLAY and weathered SHALE, gray, wet.	
15		14				
		17				
16		38				
	I	29	40%	0.0		
17		50/0.3'				
		A				
18		A			18.0 feet	
	J	50/0.3'	0%	N/A	SHALE, gray, competent.	

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 2-4 feet and from 6-10 feet bgs.

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

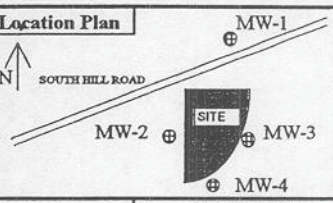
BORING/ WELL NO. MW-1B Sheet 2 of 2

Contractor: SJB Services
Driller: Dale Matthies
Inspector: N. Smith / S. Dillman
Rig Type: CME-550

PROJECT NAME: NYSDEC - South Hill Dump
PROJECT NUMBE 729396.02000

Location Description: North of South Hill Road in tree cluster across road from site. Upgradient well location.

Location Plan



GROUNDWATER OBSERVATIONS

Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 20 to 40 degrees, sun, wind, snow

Date/Time Start: March 26, 1997 / 0810

Date/Time Finish: April 10, 1997 / 1218

Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
18		C				
	1-1	73	92%		SHALE, gray, competent.	
19		C			Vertical fracture from 18.5 to 19.8 feet bgs.	
		C			Drilling breaks at 18.9, 19.1, and 19.5 feet bgs.	
20		C				MW-1B outer casing set to 20 feet bgs Details on Well Construction Log
	1-2	LOW			SHALE, some weathered, gray.	
21		C			Core recovery mostly gravel-sized rubble with some 3-5" pieces.	
		C				
22		C				
		C				
23		C				
		C				
24		C				
		C				
25		C				
		C				MW-1B screen set 25 to 35 feet bgs Details on Well Construction Log
26		C				
	1-3	35	100%		SHALE, gray, calcareous, fossiliferous, some angular porosity.	
27		C			Crinoid layer from 26.5-27 feet bgs.	
		C			Bedding-plane fractures at 27.4 and 28.4 feet bgs.	
28		C				
		C				
29		C				
		C			Hole in core at 29 feet from former crinoid stem (removed by solution).	
30		C				
	1-4	49	100%		SHALE, gray, few fossils.	
31		C			Vertical fracture at 31.6 feet bgs.	
		C			Bedding-plane fractures at 30.9, 31.1, 31.3, 31.4, 32.8, 32.9, 33.1, and 34.0 feet bgs.	
32		C				
		C				
33		C				
		C				
34		C				
		C				
35		C			35.0 feet	
					Boring terminated at 35 feet bgs.	
36						
37						
38						

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 2-4 feet and from 6-10 feet bgs.

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. Sheet 1 of 3 — MW-2 S/B

Contractor: SJB Services
Driller: Dale Matthies
Inspector: N. Smith / C. Torell
Rig Type: CME-550

PROJECT NAME: NYSDEC - South Hill Dump
PROJECT NUMBE: 729396.02000

Location Description West of edge of fill Level 3, southwest of stacked resin drums.

GROUNDWATER OBSERVATIONS

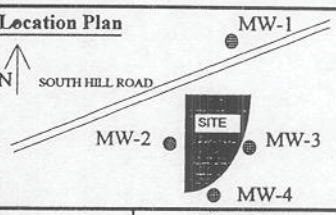
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 30 to 60 degrees, sun, wind

Date/Time Start: March 27, 1997 / 1302

Date/Time Finish: April 7, 1997 / 1630

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
+2						
+1						
0		SS			0 feet	
	A	2	50%	0.0	SILT, little-some clay, brown, damp.	
1		2				
		4				
2		5				
	B	10	38%	7.9	SILT, little clay and siltstone fragments, brown-gray, dry-damp.	
3		9				
		8				
4		6				
	C	3	30%	3.5	SILT and CLAY, little siltstone fragments, trace weathered shale, brown, damp.	
5		7			moist at 4.5 feet bgs	
		6				MW-2S screen set 5 to 10 feet bgs Details on Well Construction Log
6		8				
	D	5	45%	3.9	CLAY, little silt, trace fine gravel (rounded) and weathered shale (angular), brown-gray, wet.	
7		8				
		17				
8		18				
	E	9	70%	2.7	CLAY, little fine gravel-pebbles (rounded, 1/2"-3/4" diameter), brown, moist.	
9		11				
		14				
10		20				
	F	8	55%	11.2	iron staining at 10.2-10.4 feet bgs, damp	
11		17				
		21				
12		27				
	G	45	85%	12.5	SILT, some clay, little fine-medium gravel and rock fragments, stiff, dry (TILL).	
13		30				
		36				
14		A				
	H	14	70%	14.6	water and iron staining on gravel	MW-2D screen set 14 to 24 feet bgs Details on Well Construction Log
15		16				
		26				
16		21				
	I	16	50%	26.9	SILT, some clay, little-some fine-medium gravel and rock fragments, stiff, dry (TILL).	
17		13				
		17				
18		20			wet at 17.5 feet	
	J	8	25%	69.4	CLAY, some shale fragments, brown, loose, wet.	

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 2-4 feet, 10-14 feet, and 20-28 feet bgs.

Contractor SJB Services Driller: Dale Matthies Inspector: N. Smith / C. Torell Rig Type: CME-550	**PARSONS ENGINEERING SCIENCE, INC.** **DRILLING RECORD** **PROJECT NAME:** NYSDEC - South Hill Dump **PROJECT NUMBE** 729396.02000	**BORING/ WELL NO.** Sheet 2 of 3 MW-2S/B **Location Description** West of edge of fill Level 3, southwest of stacked resin drums.

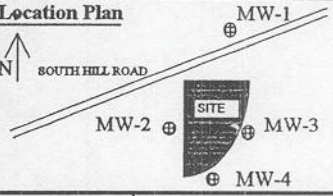
GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 30 to 60 degrees, sun, wind

Date/Time Start: March 27, 1997 / 1302

Date/Time Finish: April 7, 1997 / 1630

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
19	J	15	25%	69.4	CLAY, some shale fragments, brown, loose, wet.	
		19				
20		23				
	K	19	30%	150	little-some shale fragments	
21		12				
		29				
22		38				
	L	8	45%	54.7	CLAY, some silt, little fine gravel and shale fragments, brown, soft, wet to 22.3 feet bgs.	
23		10				
		12			clay and silt moist, gravel is wet	
24		25				
	M	6	65%	32.2		
25		16				
		17				
26		18				
	N	10	40%	104	CLAY, some shale fragments, brown, wet. 26.5 feet	
27		50/0.4'			SHALE fragments, gray, wet.	
		A				
28		A				
	O	50/0.2'	10%	105	SHALE fragments, trace clay, partially weathered, gray, wet.	
29		A				
		A			29.3 feet	
30	2-1	78	100%		SHALE, gray, trace fossils, competent.	
		C			Several horizontal-angular drilling breaks.	
31		C			Horizontal iron-stained fractures at 30, 30.5, and 31 feet bgs.	
		C				MW-2B casing set
32	2-2	64	98%		SHALE, gray.	to 31.5 feet bgs
		C			Several drilling breaks.	Details on Well
33		C			Iron-stained fractures at 31.8-32.1, 32.2-32.5, and 36.2-36.4 feet bgs.	Construction Log
		C				
34		C				
		C				
35		C				
		C				
36		C				
		C				
37		C				
		C				
38		C				
		C				
39		C				
		C				

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 2-4 feet, 10-14 feet, and 20-28 feet bgs.

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. Sheet 3 of 3 — MW-2S/B

Contractor: SJB Services
Driller: Dale Matthies
Inspector: N. Smith / C. Torell
Rig Type: CME-550

PROJECT NAME: NYSDEC - South Hill Dump
PROJECT NUMBE 729396.02000

Location Description West of edge of fill Level 3, southwest of stacked resin drums.

GROUNDWATER OBSERVATIONS

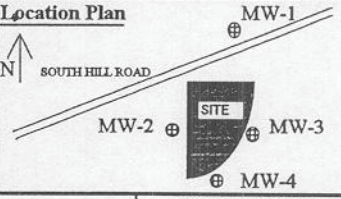
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 30 to 60 degrees, sun, wind

Date/Time Start: March 27, 1997 / 1302

Date/Time Finish: April 7, 1997 / 1630

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
40	2-2	64	98%		SHALE, gray.	MW-2B open from 31.5 to 41.5 feet bgs Details on Well Construction Log
		C			Several drilling breaks.	
41		C				
		C			41.5 feet	
42					Boring terminated at 41.5 feet bgs.	
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 2-4 feet, 10-14 feet, and 20-28 feet bgs.

DATE 11/1/2012
STARTED: 10/11/12
FINISHED: 10/16/12

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. MW-3BR
SURF. ELEV.
G.W. DEPTH See Notes
SHEET 1 of 2

PROJECT: South Hill Landfill
LOCATION: Town of Cortlandville, NY
CLIENT: The Environmental Service Group

DEPTH-FT	SAMPLES	SAMPLE #	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
		1	1	3	5	7	8	0.6	Brown SILT with f. Sand & Gravel Moist-Loose	
		2	7	8	8	11	16	1.0	Firm	
5		3	2	2	3	5	5	0.7	Loose	
		4	11	8	10	5	18	1.2	Silt w/ f-m Gravel, some Sand, Clay Firm	
		5	1	3	8	10	11	1.0		
10		6	12	23	19	25	42	1.3	Brown SILT w/ embedded f. Gravel Compact	
		7	50/.3				ref	0.3		ref = Spoon Refusal
15		8	29	29	43	42	72	1.0	w/ weathered rock very compact	
		9	50/.3				ref	0.3		
		10	15	16	13	17	29	0.7	SILT w/ f. Sand & Gravel Firm	
20		11	32	50/.3			ref	0.5	Gray SILT w/ Gravel Very Compact	
		12	36	49	50/.4		ref	1.2	with weathered rock	
		13	26	28	8	10	36	1.2	Compact	With augers @ 24', groundwater @ 22.6'.
25		14	50/.4				ref	0.4	Very Compact 27'	
									Gray SHALE Medium - Hard Weathered then bedded	Run 1 27' - 29.5' REC: 92% PQD: 0%
30										Run 2 31' - 36' REC: 98% RQD: 50%
35									Sound, Bedded	Run 3 36' - 41'
40										

DRILLER: G. Spizzirri
DRILL RIG: CME 850
METHOD OF INVESTIGATION: 4 1/4" I.D. Hollow Stem Auguers, 6" Split Spoon Sampler (ASTM D1586)
JOB NUMBER: CD-11-55
TEMPERATURE:
CLASSIFIED BY: Visual by Driller

DATE 11/1/2012
STARTED: 10/11/12
FINISHED: 10/16/12

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. MW-3BR
SURF. ELEV.
G.W. DEPTH See Notes
SHEET 2 of 2

PROJECT: South Hill Landfill
LOCATION: Town of Cortlandville, NY
CLIENT: The Environmental Service Group

DEPTH-F	SAMPLES	SAMPLE	BLOWS ON SAMPLER (0 6 12 18 24 N)	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
					Test boring complete at 41.0'	REC: 100% RQD: 80% At completion of sampling before coring, groundwater at 15.8'. After coring ground-water at 1.5'

45 50 55 60 65 70 75 80

DRILLER: G. Spizzirri
DRILL RIG: CME 850
METHOD OF INVESTIGATION: 4 1/4" I.D. Hollow Stem Auguers, 6" Split Spoon Sampler (ASTM D1586)
JOB NUMBER: CD-11-055
TEMPERATURE:
CLASSIFIED BY: Visual by Driller

DATE 11/1/2012
STARTED: 10/16/12
FINISHED: 10/16/12

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. MW-3SR
SURF. ELEV.
G.W. DEPTH See Notes
SHEET 1 of 1

PROJECT: South Hill Landfill
LOCATION: Town of Cortlandville, NY
CLIENT: The Environmental Service Group

DEPTH-FT	SAMPLES	SAMPLE I	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24 N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
						Drill unsampled to 24'.
						See MW 3D for soil description
5						
10						Install 2" monitoring well @ 24'
15						
20						
					24'	
25					Auger Refusal @ 24'.	
30						
35						
40						

DRILLER: G. Spizzirri
DRILL RIG: CME 850
METHOD OF INVESTIGATION: 4 1/4" I.D. Hollow Stem Auguers, 6" Split Spoon Sampler (ASTM D1586)
JOB NUMBER: CD-11-55
TEMPERATURE:
CLASSIFIED BY: Visual by Driller

PARSONS ENGINEERING SCIENCE, INC.
DRILLING RECORD

BORING/ WELL NO. MW-4B — Sheet 1 of 3

Contractor: SJB Services
Driller: Dale Matthies
Inspector: N. Smith / C. Torell
Rig Type: CME-550

PROJECT NAME: NYSDEC - South Hill Dump
PROJECT NUMBE 729396.02000

Location Description At top of ravine, south of site.

GROUNDWATER OBSERVATIONS

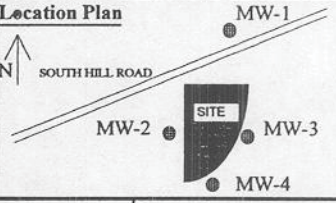
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 20 to 40 degrees, sun, clouds, wind

Date/Time Start: March 31, 1997 / 1325

Date/Time Finish: April 8, 1997 / 1510

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
+2						
+1						
0		SS			0 feet	
	A	2	40%	0.0	SILT, little clay, trace roots and rock fragments, brown, moist.	
1		2				
		3				
2		20				
	B	12	35%	0.0	SILT and CLAY, some cobble fragments, brown, trace iron staining, moist.	
3		10				
		21				
4		36				
	C	6	50%	0.0	SILT, little clay and fine gravel, firm, brown, damp.	
5		5				
		14				
6		8				MW-4S screen set
	D	3	75%	0.0	SILT, some fine-medium gravel, trace fine-medium sand and clay, brown,wet.	6 to 16 feet bgs
7		4				Details on Well
		5			SILT, little clay and fine gravel, brown, damp.	Construction Log
8		4				
	E	6	45%	0.0	SILT, little clay, trace pebbles, brown, firm, damp (TILL).	
9		8				
		9				
10		14				
	F	6	40%	0.0	trace shale, moist	
11		10				
		16				
12		49				
	G	14	30%	0.0	SILT, some clay, little pebbles, brown, firm, moist, wet around pebbles.	
13		19				
		18				
14		16				
	H	7	40%	0.0		
15		8				
		7				
16		25				
	I	31	25%	0.0		
17		17				
		26				
18		30				
	J	11	35%	0.0		

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 4-6 feet and 16-20 feet bgs.

Contractor SJB Services Driller: Dale Matthies Inspector: N. Smith / C. Torell Rig Type: CME-550	**PARSONS ENGINEERING SCIENCE, INC.** **DRILLING RECORD** **PROJECT NAME:** NYSDEC - South Hill Dump **PROJECT NUMBE** 729396.02000	**BORING/ WELL NO.** Sheet 2 of 3 **MW-4B** **Location Description** At top of ravine, south of site.

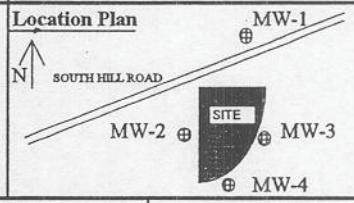
GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 20 to 40 degrees, sun, clouds, wind

Date/Time Start: March 31, 1997 / 1325

Date/Time Finish: April 8, 1997 / 1510

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
19		22			SILT, some clay, little pebbles, brown, firm, moist, wet around pebbles.	
		50/0.4'				
20		A			20.2 feet	
	K	50/0.4'	20%	0.0	SHALE fragments, little till, moist.	
21		A				
		A				
22		A				
	L	50/0.3'	10%	0.0	SHALE fragments, dry.	
23		A				
		A				
24		A				
		A				
25		C				
	4-1	0	67%		SHALE fragments, fossiliferous, not competent, fragments <1/2" to 1-1/2" diameter.	
26		C				
		C			CLAY layer 26-26.2 feet bgs.	
27	4-2	22	43%		SHALE fragments, gray, not competent, fragments approx. 2" diameter.	
		C			Angular fracture from at 27 feet bgs.	
28		C			CLAY and GRAVEL layer, gray, 27.5-27.7 feet bgs.	
		C				
29		C				
		C				
30		SS				
	P	6	45%	0.0	SAND, fine-medium, trace fine-medium gravel, gray, compact, wet.	
31		46			CLAY, little shale fragments, gray, stiff, wet.	
		50/0.4'				
32		A				
	Q	50/0.4'	10%	0.0	CLAY and SHALE fragments, gray, wet.	
33		A			33.2 feet	
	4-3	88	97%	0.0	SHALE, gray, competent, scattered fossils, several drilling breaks.	
34		C			Angular fracture from 34 to 34.2 feet bgs.	
		C			Horizontal clay-filled fractures at 34.9-35.1 and 35.7 feet bgs.	
35		C				
		C				
36		C				MW-4B casing set to 36 feet bgs Details on Well Construction Log
	4-4	53	96%		SHALE, gray, competent, some fossils.	
37		C			Fractures at 38.8, 39-39.3, 39.6 feet bgs.	
		C				
38		C				
		C				
39		C				
		C				

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

COMMENTS:
Analytical samples collected from 4-6 feet and 16-20 feet bgs.

Contractor SJB Services **Driller:** Dale Matthies **Inspector:** N. Smith / C. Torell **Rig Type:** CME-550	**PARSONS ENGINEERING SCIENCE, INC.** **DRILLING RECORD** **PROJECT NAME:** NYSDEC - South Hill Dump **PROJECT NUMBE** 729396.02000	**BORING/ WELL NO.** Sheet 3 of 3 MW-4B **Location Description** At top of ravine, south of site.

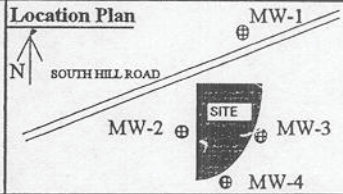
GROUNDWATER OBSERVATIONS				
Water Level				
Date				
Time				
Meas. From				

Weather: Variable - 20 to 40 degrees, sun, clouds, wind

Date/Time Start: March 31, 1997 / 1325

Date/Time Finish: April 8, 1997 / 1510

Location Plan



Sample Depth	Sample I.D.	SPT / RQD	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	COMMENTS
40	4-4	53	96%		SHALE, gray, competent, some fossils.	MW-4B open from 36.6 to 46.6 feet bgs Details on Well Construction Log
		C			Fractures at 41, 42.1-43, and 46.1 feet bgs.	
41		C				
		C				
42		C				
		C				
43		C				
		C				
44		C				
		C				
45		C				
		C				
46		C				
		C			46.6 feet	
47					Boring terminated at 46.6 feet bgs.	
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						

SAMPLING METHOD
SS = SPLIT SPOON
A = AUGER CUTTINGS
C = CORED

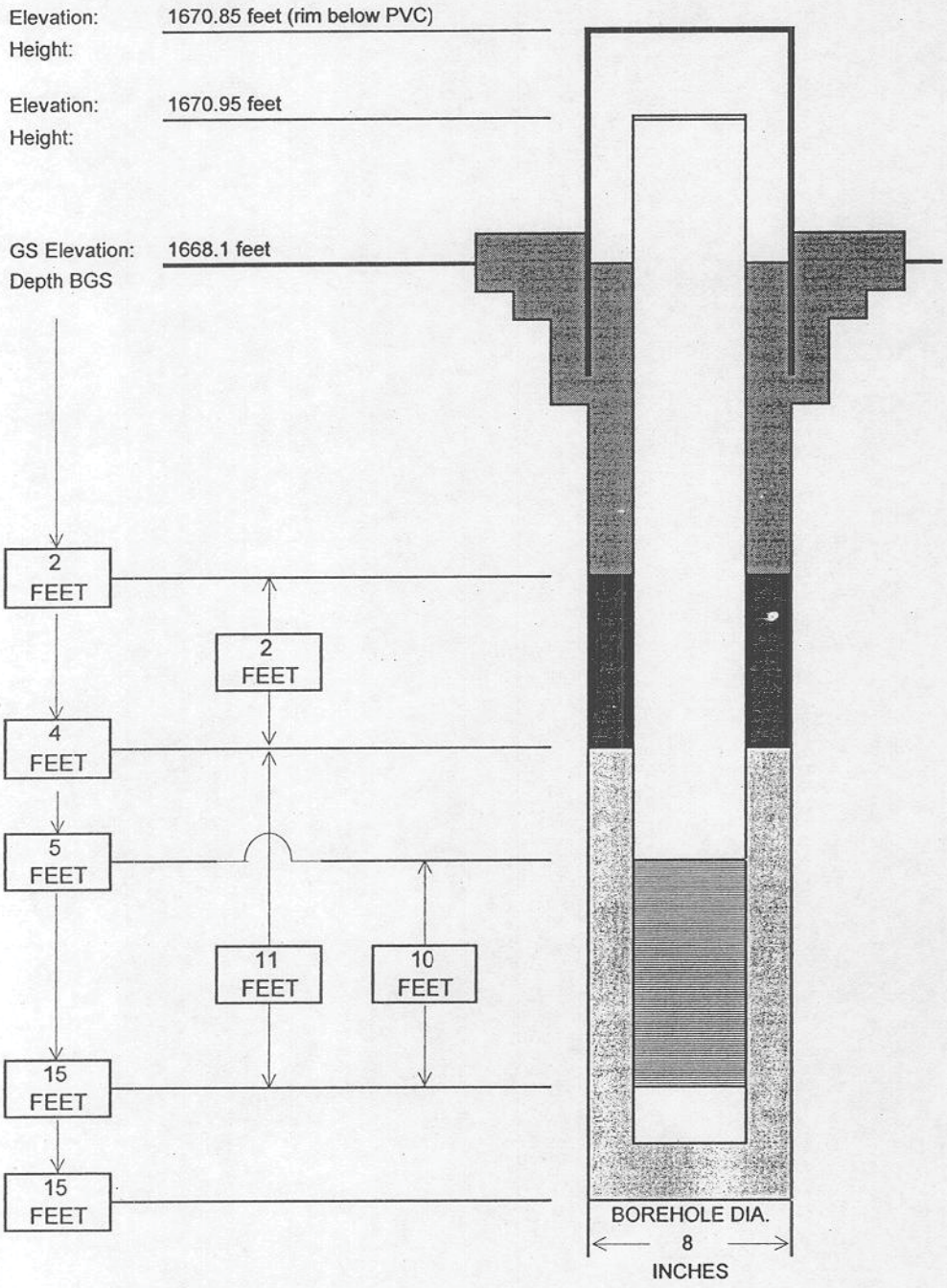
COMMENTS:
Analytical samples collected from 4-6 feet and 16-20 feet bgs.

WELL CONSTRUCTION DIAGRAMS

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-1S	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS:	N.A. SMITH	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	MARCH 26, 1997	DATE END:	MARCH 27, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-1

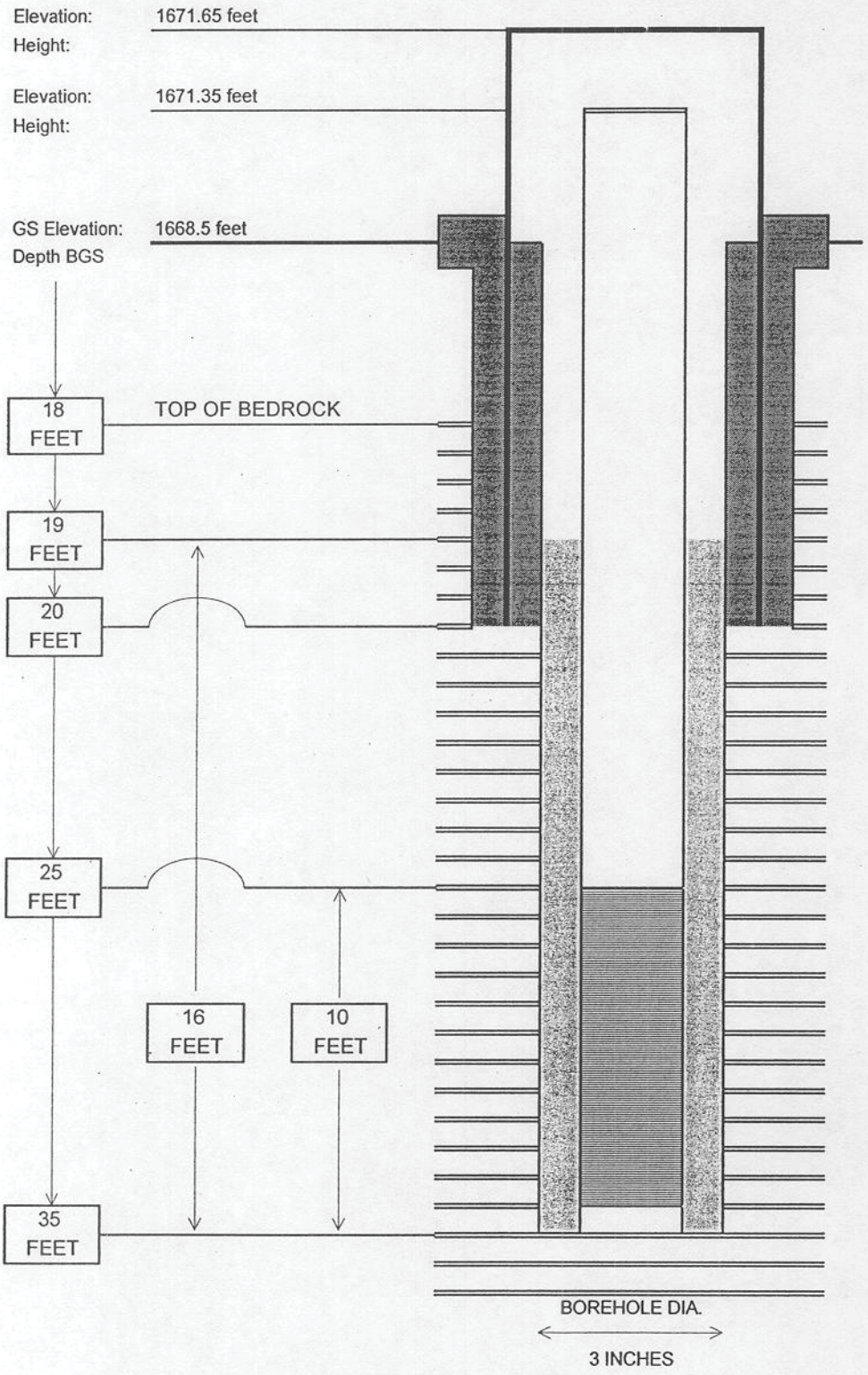


PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	2 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
RISER PIPE	
Material:	PVC
Schedule:	SCH 40
Joint Type:	THREADED
O-ring:	RUBBER
Diameter:	2 INCHES
GROUT	
Amt cement:	47 POUNDS
Amt bentonite:	5 POUNDS
Amt water:	5 GALLONS
Tremied:	NO
Interval BGS:	0-2 FEET
SEAL	
Material:	BENTONITE
Type:	CHIPS
Amount Used:	50 POUNDS
Interval BGS:	2-4 FEET
FILTER PACK	
Material:	SILICA SAND
Brand Name:	MORIE
Amount Used:	275 POUNDS
Grain Size Dist.:	#0
Interval BGS:	4-15 FEET
SCREEN	
Material:	PVC
Diameter:	2 INCHES
Slot Size & Type:	0.01 INCHES
Interval BGS:	5-15 FEET
SUMP	
Interval BGS:	N/A
Bottom Cap:	YES
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

BEDROCK MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-1B	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS	N.A. SMITH / S.B. DILLMAN	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	MARCH 26, 1997	DATE END:	APRIL 10, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-1

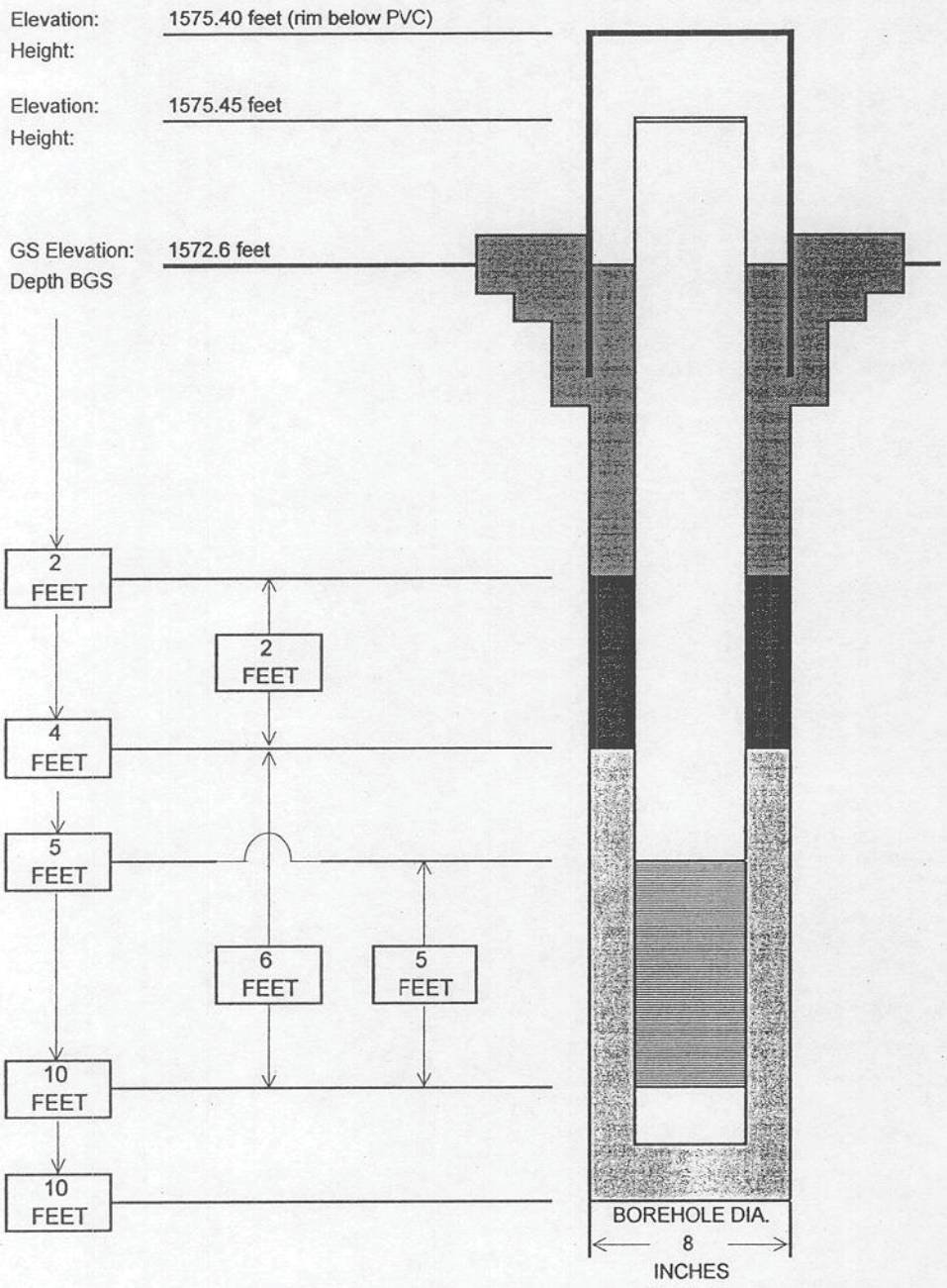


PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	20 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
OUTER CASING	
Material:	STEEL
Diameter:	4 INCHES
RISER PIPE	
Material:	PVC
Schedule:	SCH 40
Joint Type:	THREADED
O-ring:	RUBBER
Diameter:	2 INCHES
GROUT	
Amt cement:	564 POUNDS
Amt bentonite:	25 POUNDS
Amt water:	60 GALLONS
Tremied:	YES
Interval BGS:	0-27 FEET
SEAL	
Material:	N/A
Type:	N/A
Amount Used:	N/A
Interval BGS:	N/A
FILTER PACK	
Material:	SILICA SAND
Brand Name:	MORIE
Amount Used:	150 POUNDS
Grain Size Dist.:	#0
Interval BGS:	19-35 FEET
SCREEN	
Material:	PVC
Diameter:	2 INCHES
Slot Size & Type:	0.01"
Interval BGS:	25-35 FEET
SUMP	
Interval BGS:	N/A
Bottom Cap:	YES
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-2S	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS:	N.A. SMITH	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	MARCH 27, 1997	DATE END:	MARCH 27, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-2

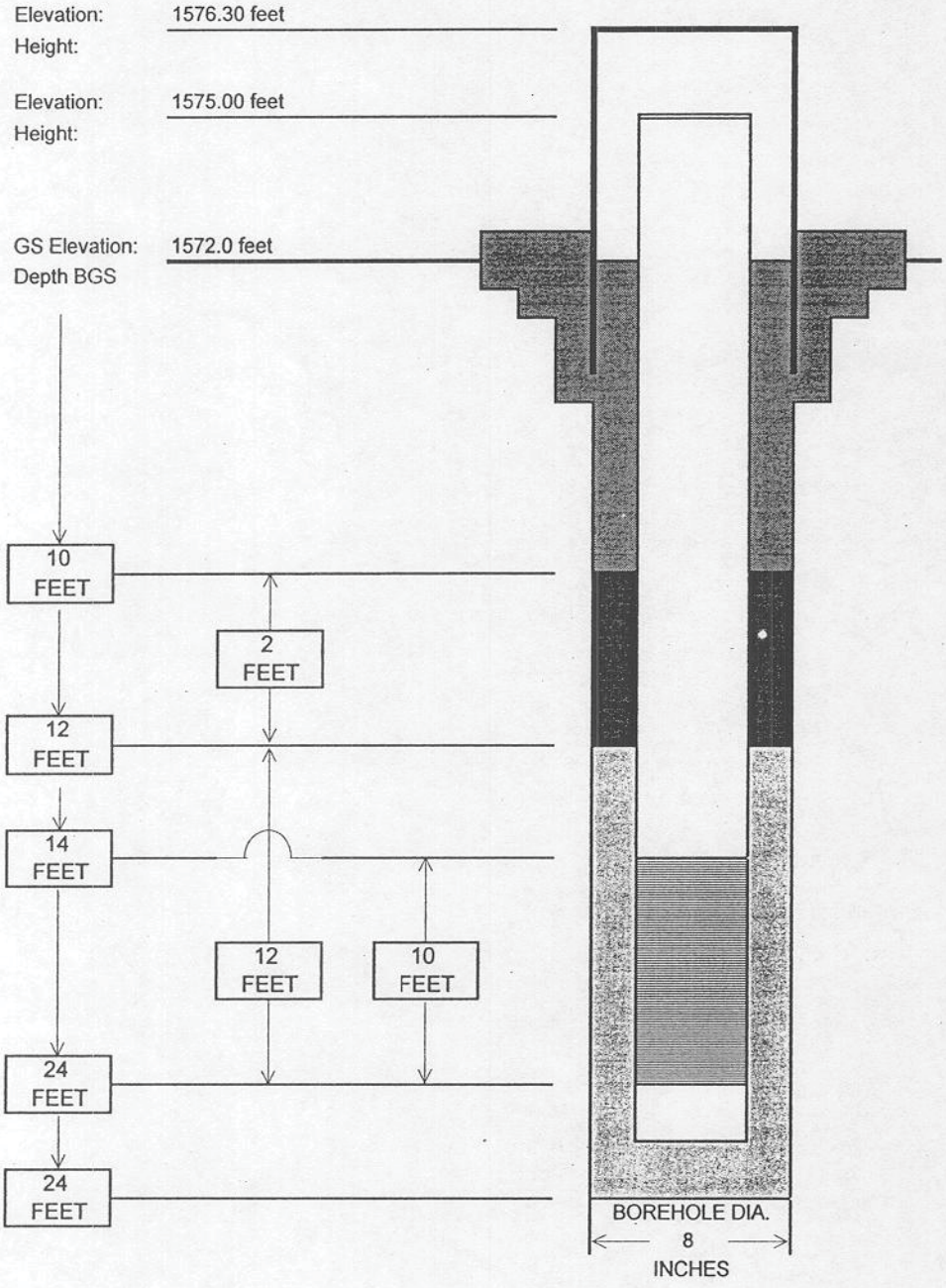


PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	2 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
RISER PIPE	
Material:	PVC
Schedule:	SCH 40
Joint Type:	THREADED
O-ring:	RUBBER
Diameter:	2 INCHES
GROUT	
Amt cement:	94 POUNDS
Amt bentonite:	8 POUNDS
Amt water:	10 GALLONS
Tremied:	NO
Interval BGS:	0-2 FEET
SEAL	
Material:	BENTONITE
Type:	CHIPS
Amount Used:	50 POUNDS
Interval BGS:	2-4 FEET
FILTER PACK	
Material:	SILICA SAND
Brand Name:	MORIE
Amount Used:	125 POUNDS
Grain Size Dist.:	#0
Interval BGS:	4-10 FEET
SCREEN	
Material:	PVC
Diameter:	2 INCHES
Slot Size & Type:	0.01 INCHES
Interval BGS:	5-10 FEET
SUMP	
Interval BGS:	N/A
Bottom Cap:	YES
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-2D	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS:	N.A. SMITH / C.R. TORELL	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	MARCH 27, 1997	DATE END:	APRIL 7, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-2

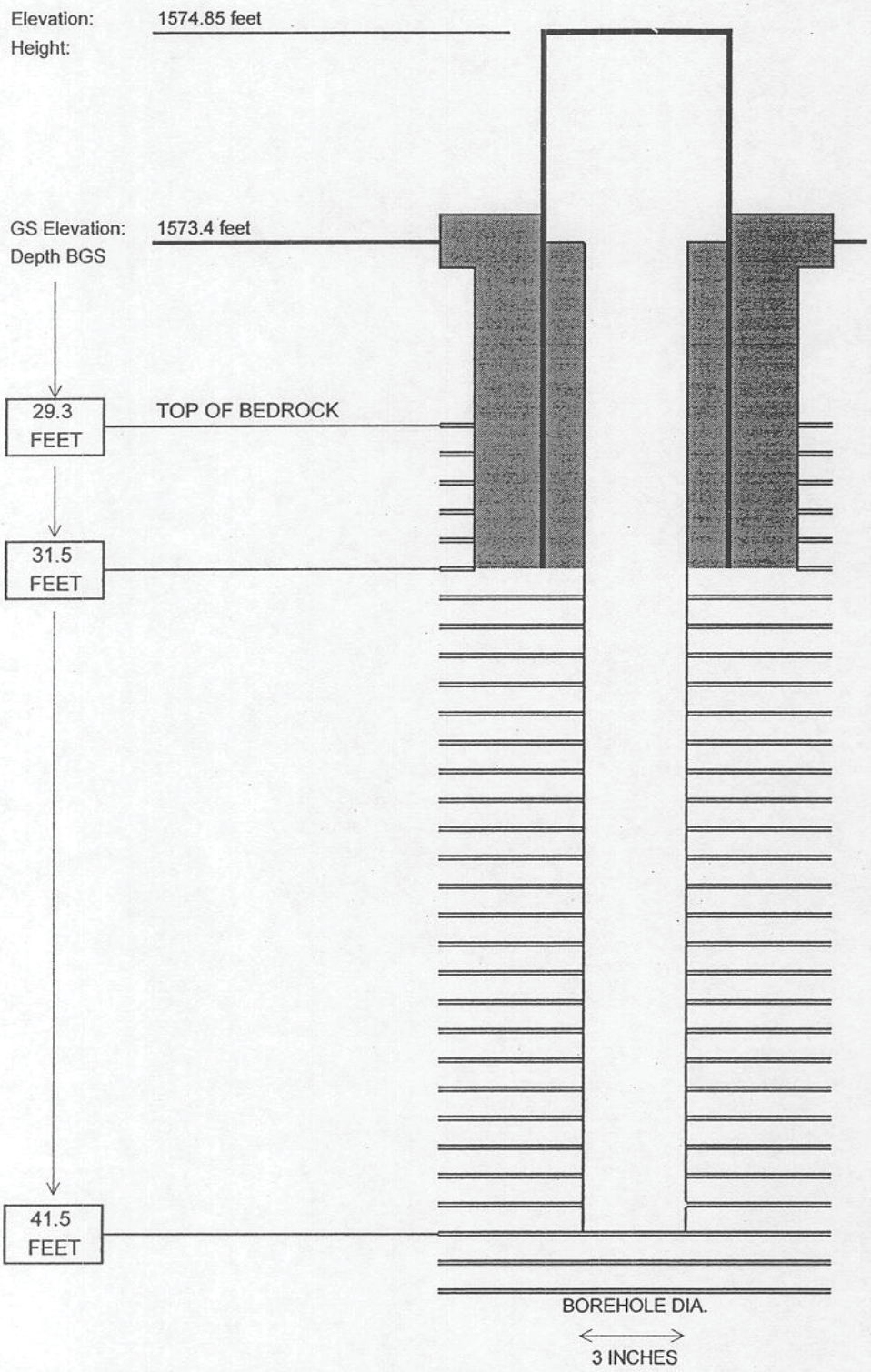


PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	2 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
RISER PIPE	
Material:	PVC
Schedule:	SCH 40
Joint Type:	THREADED
O-ring:	RUBBER
Diameter:	2 INCHES
GROUT	
Amt cement:	282 POUNDS
Amt bentonite:	25 POUNDS
Amt water:	20 GALLONS
Tremied:	NO
Interval BGS:	0-10 FEET
SEAL	
Material:	BENTONITE
Type:	CHIPS
Amount Used:	37.5 POUNDS
Interval BGS:	10-12 FEET
FILTER PACK	
Material:	SILICA SAND
Brand Name:	MORIE
Amount Used:	300 POUNDS
Grain Size Dist.:	#0
Interval BGS:	12-24 FEET
SCREEN	
Material:	PVC
Diameter:	2 INCHES
Slot Size & Type:	0.01 INCHES
Interval BGS:	14-24 FEET
SUMP	
Interval BGS:	N/A
Bottom Cap:	YES
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

BEDROCK MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-2B	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS:	N.A. SMITH / C.R. TORELL	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	MARCH 27, 1997	DATE END:	APRIL 7, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-2



PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	31.5 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
OUTER CASING	
Material:	STEEL
Diameter:	4 INCHES
RISER PIPE	
Material:	N/A - OPEN HOLE
Schedule:	N/A
Joint Type:	N/A
O-ring:	N/A
Diameter:	N/A
GROUT	
Amt cement:	470 POUNDS
Amt bentonite:	37.5 POUNDS
Amt water:	25 GALLONS
Tremied:	YES
Interval BGS:	0-31.5 FEET
SEAL	
Material:	N/A - OPEN HOLE
Type:	N/A
Amount Used:	N/A
Interval BGS:	N/A
FILTER PACK	
Material:	N/A - OPEN HOLE
Brand Name:	N/A
Amount Used:	N/A
Grain Size Dist.:	N/A
Interval BGS:	N/A
SCREEN	
Material:	N/A - OPEN HOLE
Diameter:	N/A
Slot Size & Type:	N/A
Interval BGS:	N/A
SUMP	
Interval BGS:	N/A - OPEN HOLE
Bottom Cap:	N/A
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

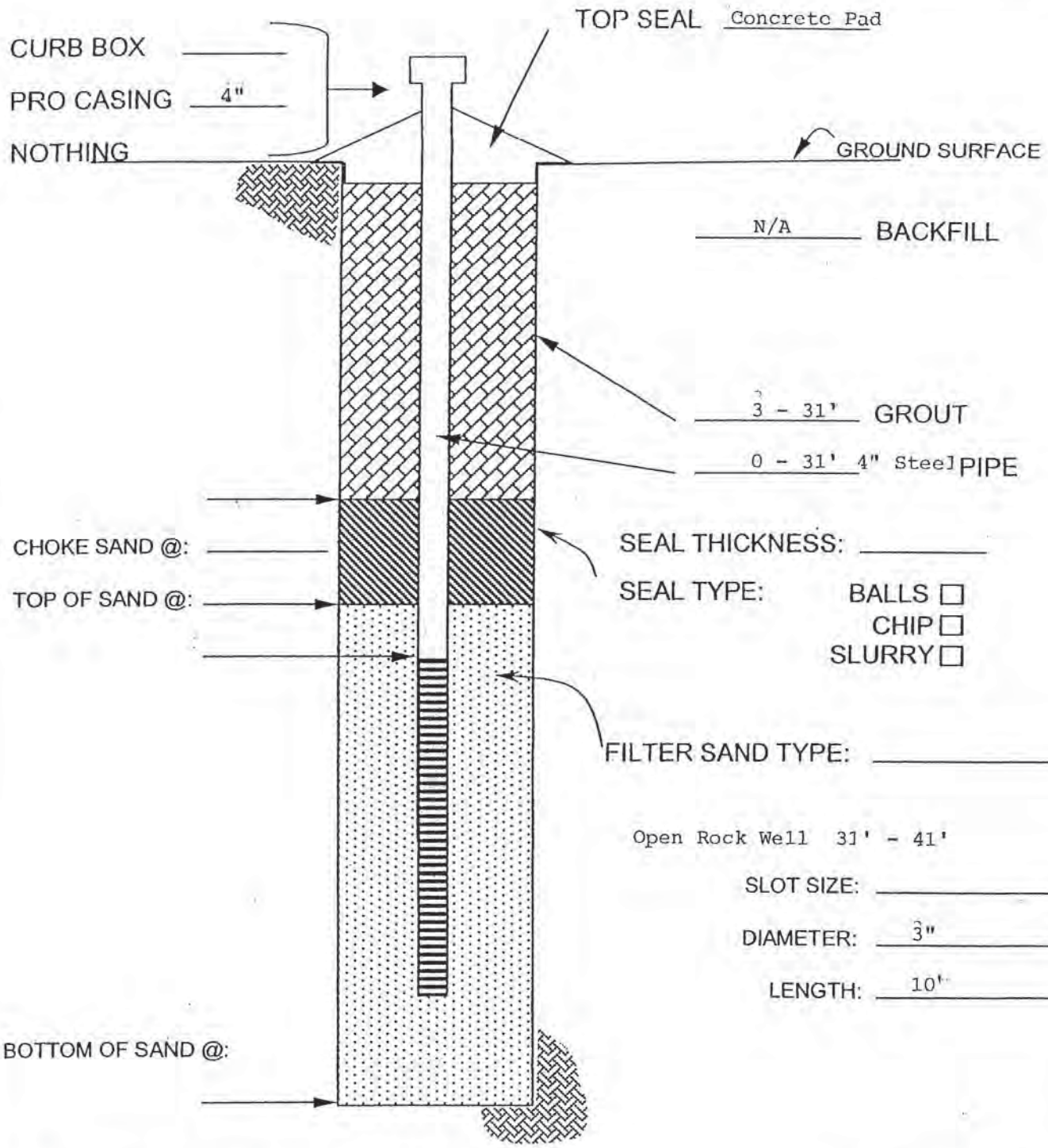
DATE 11/01/12
STARTED: 10/11/12
FINISHED: 10/16/12

SJB SERVICES, INC.

WELL DETAILS

WELL NO. MW-3BR
SURF. ELEV.
G.W. DEPTH
SHEET ___ of ___

PROJECT: South Hill Landfill
CLIENT: The Environmental Service Group
LOCATION: Town of Cortlandville, NY



DRILLER: G. Spizzirri
METHOD OF INVESTIGATION: 4 1/4" HSA
WEATHER:
TEMPERATURE:
DRILL RIG: CME-850
CLASSIFIED BY:

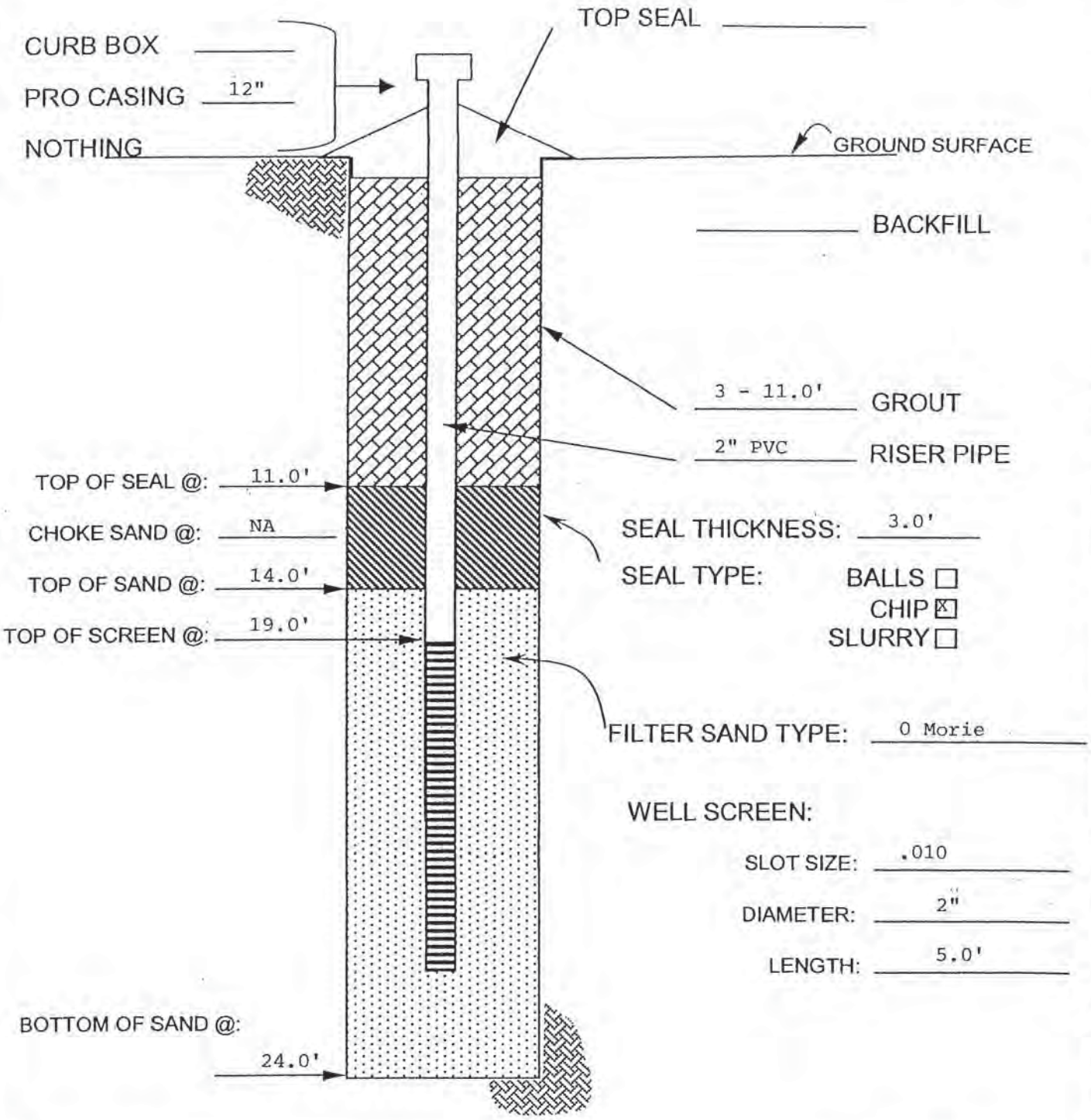
DATE
STARTED: 10/16/12
FINISHED: 10/16/12

SJB SERVICES, INC.

WELL DETAILS

WELL NO. MW-3SR
SURF. ELEV.
G.W. DEPTH
SHEET 1 of 1

PROJECT: South Hill Landfill
CLIENT: The Environmental Service Group
LOCATION: Town of Cortlandville, NY

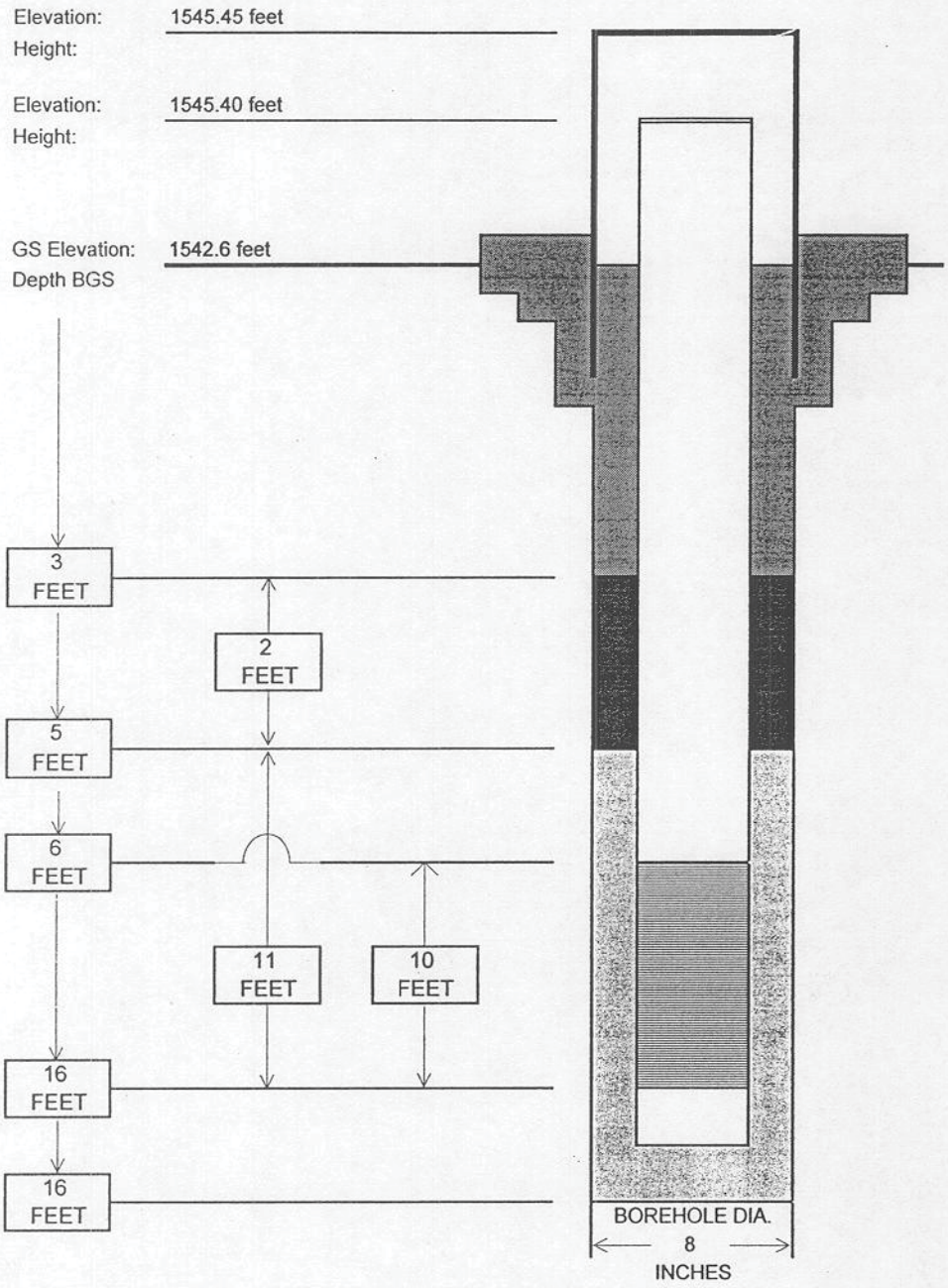


DRILLER: G. Spizzirri
METHOD OF INVESTIGATION: 4 1/4" HSA
WEATHER:
TEMPERATURE:
DRILL RIG: CME-850
CLASSIFIED BY:

OVERBURDEN MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-4S	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS:	N.A. SMITH / C.R. TORELL	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	APRIL 8, 1997	DATE END:	APRIL 8, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-4

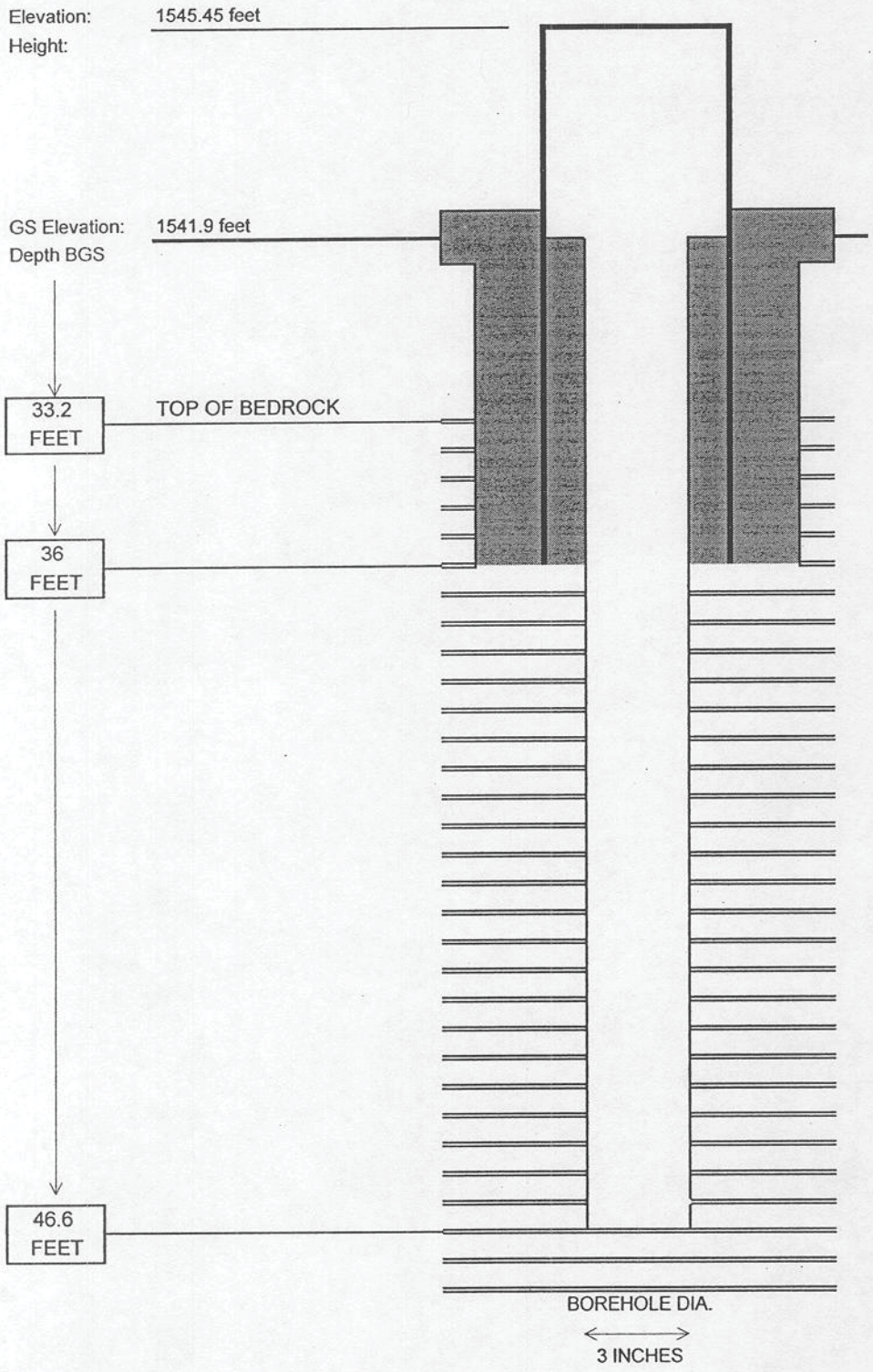


PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	2 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
RISER PIPE	
Material:	PVC
Schedule:	SCH 40
Joint Type:	THREADED
O-ring:	RUBBER
Diameter:	2 INCHES
GROUT	
Amt cement:	94 POUNDS
Amt bentonite:	10 POUNDS
Amt water:	10 GALLONS
Tremied:	NO
Interval BGS:	0-3 FEET
SEAL	
Material:	BENTONITE
Type:	CHIPS
Amount Used:	50 POUNDS
Interval BGS:	3-5 FEET
FILTER PACK	
Material:	SILICA SAND
Brand Name:	MORIE
Amount Used:	350 POUNDS
Grain Size Dist.:	#0
Interval BGS:	5-16 FEET
SCREEN	
Material:	PVC
Diameter:	2 INCHES
Slot Size & Type:	0.01 INCHES
Interval BGS:	6-16 FEET
SUMP	
Interval BGS:	N/A
Bottom Cap:	YES
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

BEDROCK MONITORING WELL CONSTRUCTION LOG

WELL NO.:	MW-4B	FACILITY/SITE NAME:	SOUTH HILL DUMP
PROJ. NO.:	729396.02000	CLIENT:	NYSDEC
INSPECTORS:	N.A. SMITH / C.R. TORELL	DRILLING CONTACTOR:	SJB SERVICES. INC.
DATE START:	MARCH 31, 1997	DATE END:	APRIL 8, 1997

AREA GEOLOGY DESCRIBED ON BORING LOG MW-4



PROTECTIVE CASING	
Material:	STEEL
Diameter:	4 INCHES
Depth BGS:	36 FEET
Water Tight Seal:	YES
Flushmount:	NO
Weep hole:	
GUARD POSTS	
Material:	N/A
No. & Size:	N/A
SURFACE PAD	
Composition:	N/A
Size:	N/A
OUTER CASING	
Material:	STEEL
Diameter:	4 INCHES
RISER PIPE	
Material:	N/A - OPEN HOLE
Schedule:	N/A
Joint Type:	N/A
O-ring:	N/A
Diameter:	N/A
GROUT	
Amt cement:	376 POUNDS
Amt bentonite:	42 POUNDS
Amt water:	20 GALLONS
Tremied:	YES
Interval BGS:	0-36 FEET
SEAL	
Material:	N/A - OPEN HOLE
Type:	N/A
Amount Used:	N/A
Interval BGS:	N/A
FILTER PACK	
Material:	N/A - OPEN HOLE
Brand Name:	N/A
Amount Used:	N/A
Grain Size Dist.:	N/A
Interval BGS:	N/A
SCREEN	
Material:	N/A - OPEN HOLE
Diameter:	N/A
Slot Size & Type:	N/A
Interval BGS:	N/A
SUMP	
Interval BGS:	N/A - OPEN HOLE
Bottom Cap:	N/A
BACKFILL PLUG	
Material:	N/A
Setup/Hydration Time:	N/A

APPENDIX G

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN
SOUTH HILL DUMP – SITE MANAGEMENT PLAN

This Site-specific quality assurance project plan (QAPjP) describes specific procedure and method variations to sections of the New York State Department of Environmental Conservation (NYSDEC) quality assurance project plan (QAPP) (MACTEC, June 2011). Variations include: monitoring well sampling protocol, purge water disposal, specifications for the analytical methods used for laboratory analysis of environmental samples, and sampling identification.

General Procedures and Practices. The general procedures used to conduct the Site Management Plan (SMP) scope of work at the South Hill Dump site will be taken from the following sections of the NYSDEC program QAPP:

Section 2.0	Program Organization and Responsibilities
Section 7.0	Analytical Program
Section 8.0	Data Reduction, Validation, and Reporting
Section 9.0	Internal Quality Control
Section 11.0	Preventive Maintenance
Section 12.0	Data Assessment
Section 13.0	Corrective Action
Section 14.0	Reports to Management

Field Procedures and Sampling. The following field sampling procedures set forth in the program QAPP will be used at the site:

QA/QC Procedures	Section 3.0
Decontamination	Subsection 4.3
Sample Collection and Handling	Sections 4.0 and 5.0
Sediment Sampling	Section 4.5.5
Surface Water Sampling	Section 4.5.4.1
Field Instrument Calibration	Section 6.0

The following variances to the above procedures are described in sections 1.0 to 1.3

1.0 Monitoring Well Sampling. Groundwater samples will be collected using a "no purge" sampling technique. The procedure for collecting these samples using the HydraSleeve sampler is included as Attachment 1.

1.1 Purge Water Disposal. Decontamination of equipment will follow procedures described in the QAPP except for disposal of purge water Purge water from groundwater sampling will be released on-Site to the ground surface in the area of well, so as to allow the liquids to infiltrate into the soil and not run off-Site. In the event that purge water exhibits visual or olfactory evidence of site-related contamination, fluids will be containerized for proper disposal.

1.2 Data Quality Objectives. Data Quality Objectives (DQOs) for the South Hill Dump site sampling activities are summarized in Table E-1. DQOs are described in accordance with USEPA guidelines (USEPA, 1987) and the NYSDEC ASP (NYSDEC, 2005).

Analytical data requirements were established using the methods described in the ASP. Analytical methods to be used for laboratory analysis are presented in Table E-2. Analytical Category B deliverables as described in the ASP will be provided by the laboratory. A chemist review will be conducted for each batch of groundwater, sediment and surface water and the data will be submitted to the NYSDEC as an EQuIS electronic data deliverable.

1.3 Sampling Identification. Sample identification will adhere to the Site's pre-designated monitoring location IDs.

REFERENCE

MACTEC, 2011. *Program Quality Assurance Program Plan*. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June, 2011.

New York State Department of Environmental Conservation (NYSDEC), 2005. *"Analytical Services Protocols"*; 7/05Edition; July 2005.

United States Environmental Protection Agency (USEPA), 1987. *"Data Quality Objectives for Remedial Response Activities"*; Office of Emergency and Remedial Response and Office of Waste Programs Enforcement; Washington DC; EPA/540/G-87/003; March 1987.

Table E-1

Analytical DQO Levels

Parameter	**Use**	**Data Quality Level**
Turbidity	Provides physical data on groundwater samples for use during sampling collection.	Level I (Field measurements)
PID screening	Provides qualitative real-time information on air quality in the breathing zone for health and safety decisions, and to identify potentially contaminated groundwater.	Level I (Field measurements)
VOCs, Metals, and PCBs	Provides analytical information to: 1) compare to standards and guidance values, 2) evaluate groundwater quality	Level III

Table E-2

Summary of Analytical Methods

Media	**Parameter**	**Method**
Groundwater from Monitoring Wells	VOCs	8260B
	Metals	6010B
Surface Water and Sediment	VOCs	8260B
	Metals	6010B
	PCBs	8082

ATTACHMENT 1

HYDRASLEEVE SAMPLER STANDARD OPERATING PROCEEDURE

Groundwater sampling using HYDRASleeve™ samplers

This procedure is intended to describe the procedure for collection of representative groundwater samples using the HydraSleeve sampler. The HydraSleeve is classified as a no-purge (passive) grab sampling device designed to collect groundwater samples directly from the screened interval of a monitoring well without having to purge the well prior to sample collection. The Hydrasleeve can be used to collect representative groundwater samples for all analytes including; VOCs, SVOCs, metals, anions, dissolved gasses total dissolved solids radionuclide's, PCBs and other compounds.

The sampling generally uses the following equipment/items:

- Well construction data, location map, and field data from the previous sampling event,
- Water level tape (0.01-ft accuracy),
- HydraSleeve samplers,
- Groundwater FDR,
- PID,
- PPE,
- Sample containers and cooler (provided by the laboratory),
- Ice for sample preservation, and
- Clean plastic sheeting, and miscellaneous supplies.

The HydraSleeve sampler consists of the following basic components;

- A suspension line or tether attached to a spring tip at the top of the sampler or directly to the sampler itself.
- A long (36 to 38 inches) flexible, 4-mil thick lay-flat polyethylene sample sleeve, sealed at the bottom and with a self sealing reed type polyethylene check valve at the top.
- A reusable stainless steel weight with clip, which is attached to the bottom of the sample sleeve.
- A discharge tube that is used to puncture the sample sleeve after it is recovered from the well so the sample can be decanted into bottles.

- Just above the self sealing check valve at the top of the sleeve are two holes which provide attachment points for the spring clip or suspension line. At the bottom of the sleeve are two holes which provide attachment points for the weight clip and weight.

HydraSleeve deployment

Before installing the HydraSleeve you will need to know the following;

- The inside diameter of the well.
- The length of the well screen.
- The water level in the well.
- The length and depth of the well screen.
- The total depth of the well.

HydraSleeve placement

The Hydrasleeve should be placed such that the stainless steel weight attached to the bottom of the sample sleeve is at the bottom of the well or within 6 inches of the bottom of the well.

Procedures for sampling with the HydraSleeve

- Collect well measurements including depth to water and depth to bottom of well.
- Assemble the HydraSleeve
- Remove HydraSleeve from its packing, unfold it and hold by its top.
- Crimp the top of the HydraSleeve by folding the hard polyethylene reinforcing strips at the holes.
- Attach the spring clip to the holes to insure the top remains open until the sampler is retrieved.
- Attach suspension line to spring clip. Alternatively if no spring clip is used attach line to one (not both) of the holes at the top of the HydraSleeve.
- Fold the flaps with the two holes at the bottom of the HydraSleeve together and slid the weight clip thru the holes.
- Attach a weight to the bottom of the weight clip to insure that the HydraSleeve will descend to the bottom of the well.
- Measure the suspension line so that the weight attached to the bottom of the HydraSleeve will be positioned at the bottom of the well screen.

- Using the suspension line carefully lower the Hydrasleeve to the desired sample position. Make sure that the HydraSleeve is not pulled upwards at any time during installation into the well. If the HydraSleeve is pulled upward at a rate of 0.5 feet/second the top check valve will open and water will enter the HydraSleeve prematurely.
- Secure the HydraSleeve sampler in place by tying off the suspension line at the top of the well.
- Allow the monitoring well to equilibrate following installation of the HydraSleeve. In many cases the well will equilibrate within a few hours but the HydraSleeve can be left in place indefinitely.

HydraSleeve recovery and sample collection.

- Access the monitoring well and secure the suspension line without moving HydraSleeve.
- Measure the water level.
- In on smooth motion pull the suspension line (and HydraSleeve) upwards for three to five feet at a rate of 1 foot per second or faster. The motion will open the top check valve and allow the HydraSleeve to fill (it should fill after being pulled up about 1 to 1.5 times the length of the HydraSleeve). When the HydraSleeve is full the top check valve will close. You should begin to feel the weight of the HydraSleeve on the suspension line after the valve closes and the full sampler begins displace water.
- Continue to pull the suspension line until the HydraSleeve is at the top of the well.
- Decant and discard the small volume of water trapped in the HydraSleeve above the check valve by turning the sleeve over.
- Remove the discharge tube from its packing sleeve.
- Hold the HydraSleeve at the check valve.
- Puncture the HydraSleeve just below the check valve with the pointed end of the discharge tube.
- Discharge water from the HydraSleeve through the discharge tube into sample containers. The discharge rate can be controlled by either raising the bottom of the HydraSleeve or by squeezing it like a tube of toothpaste.

Collection of Field Water Quality Parameters.

After sample collection, a turbidity sample will be collected and analyzed using a HACH 2100P (or similar). The field sampling form will be completed after each well is sampled, including

sample date and time (time of retrieval from the well), well sampling sequence, types of sample bottles used, sample identification numbers, preservatives used, parameters requested for analysis, and field observations of the sampling event. Finally, replace the cap and lock the well.

APPENDIX H

FIELD DATA RECORD

Field Data Record
American Valve Manufacturing
Long Term Monitoring

SAMPLER NAME

DATE Deployed: **DATE Retrieved**

Sample Location	Sample Time	Water Level (Ft BTOR)	Turbidity (ntu)	Samples Collected				Comments/Obsrevations
				VOC (8260B)	Metals (6010B)	PCBs (8082)	Other	
MW-1S								
MW-1B								
MW-2B								
MW-2D								
MW-2S								
MW-3SR								
MW-3BR								
MW-4S								
MW-4B								
SW-1								
SED-1								

Notes:
Ft BTOR- feet below top of riser
ntu- nephelometric turbidity units
Shaded cells- data not collected

Prepared by: JMF 11-20-12
Reviewed by: JPC 11-20-12

APPENDIX I

INSPECTION FORMS

APPENDIX I-1

New York Department of Environmental Conservation
Inactive Hazardous Waste Site
Inspection Form-Landfills

Site Name:	NYSDEC Site Number:	NYSDEC PM:
Site Location:	Site Classification # (circle): 1 2 2a 3 4	Primary Site Contact:

Site Inspection Date:	Purpose of Inspection:		
Name of Inspector:	Title:	Agency/Company:	Address:
Phone Number:			

Landfill Cover System				
Cover System Onsite?	*Yes*	*No*	*(Proceed to next Section)*	Cover System Observations:
Vegetative Cover Condition	*Good*	*Poor*	*NA*	
Evidence of Vegetative Stress	*Yes*	*No*	*NA*	
Mowing Required	*Yes*	*No*	*NA*	
Presence of Debris	*Yes*	*No*	*NA*	
Evidence of Ponded Water	*Yes*	*No*	*NA*	
Exposed Geotextile	*Yes*	*No*	*NA*	
Evidence of Erosion Settlement	*Yes*	*No*	*NA*	
Engineered Drainage Swale Condition	*Good*	*Poor*	*NA*	
Evidence of Leachate Seepage	*Yes*	*No*	*NA*	
Evidence of Erosion	*Yes*	*No*	*NA*	
Presence of Woody Growth	*Yes*	*No*	*NA*	
Animal Burrows	*Yes*	*No*	*NA*	
Stormwater Collection and Drainage				
Drainage Channel Condition	*Good*	*Poor*	*NA*	Collection System Observations:
Sedimentation	*Yes*	*No*	*NA*	
Debris	*Yes*	*No*	*NA*	
Erosion/Slope Loss	*Yes*	*No*	*NA*	
Evidence of Leachate Seepage	*Yes*	*No*	*NA*	
Rip-Rap Condition	*Good*	*Poor*	*NA*	
Condition of Synthetic Liner	*Good*	*Poor*	*NA*	
Culvert Condition	*Good*	*Poor*	*NA*	
Other Drainage Structures/Pipes	*Good*	*Poor*	*NA*	
Condition of Drainage Grates	*Good*	*Poor*	*NA*	
Retention Ponds	*Good*	*Poor*	*NA*	
Building Structures				
Are there any building structures at the site?	*Yes*	*No*	*(Proceed to next section)*	Building Condition Observations:
Overall Exterior Condition	*Good*	*Poor*	*NA*	
Overall Interior Condition	*Good*	*Poor*	*NA*	
Interior Floor	*Good*	*Poor*	*NA*	
Vaulted Areas	*Good*	*Poor*	*NA*	
Leachate Collection System				
Is there a leachate collection system at the site?	*Yes*	*No*	*(Proceed to next section)*	Collection System Observations:
Collection Trench Condition	*Good*	*Poor*	*NA*	
Transfer Flow Pipes	*Good*	*Poor*	*NA*	
Condition of Valves	*Good*	*Poor*	*NA*	
Leachate Pump Condition	*Good*	*Poor*	*NA*	
Holding Tank(s) Condition	*Good*	*Poor*	*NA*	
Leachate Transfer/Loading Area	*Good*	*Poor*	*NA*	
List other applicable components and their overall condition				
Environmental Monitoring Locations				
Is there a monitoring network at the site?	*Yes*	*No*	*(Proceed to next section)*	Monitoring Network Observations:
Monitoring Wells/Piezometers	*Good*	*Poor*	*NA*	
Soil Gas Monitoring Probes	*Good*	*Poor*	*NA*	
Landfill Gas Vents	*Good*	*Poor*	*NA*	
List other applicable location types and their overall condition				

APPENDIX I-1

New York Department of Environmental Conservation
Inactive Hazardous Waste Site
Inspection Form-Landfills

Interviews/Additional Contacts			
Name/Title	**Phone:**	**Company/Entity**	**Contact Information**

Additional Observation Notes:

Photograph Log:
Photograph 1
Photograph 2
Photograph 3
Photograph 4
Photograph 5
Photograph 6
Photograph 7
Photograph 8
Photograph 9
Photograph 10

Performance Monitoring

Were check samples collected during this visit? Yes No

Sample type collected *(circle or write in other)* : Groundwater Sediment Soil Leachate Air Surface Water

List Parameters/Methods Collected Per Media:

Analytical Laboratory/Location:

Sample Observations:

Well Inspection Checklist

Inspected by:_____

Date:_____

Well ID	Measuring Point Elevation	Protective Casing Stickup (ft. AGS)	Protective Casing Stickup/Well Difference (ft.)	Depth to Water (ft. TOR)	Depth to BOW (ft. TOR)	Well ID Clearly Labeled (Y/N)	Well Lock/Cap (G/F/P)	Protective Casing (G/F/P)	Water in Annular Space (Y/N)	Concrete Pad (G/F/P)	Well Riser/Cap (G/F/P)	Well Obstruction (Y/N)	Comments
MW-1S													
MW-1B													
MW-2S													
MW-2D													
MW-2B													
MW-3SR													
MW-3BR													
MW-4S													
MW-4B													

Notes:

G = Good	N = No	ft. = feet	AGS = Above ground surface
F = Fair	Y = Yes	in. = inches	TOR = Top of Riser
P = Poor	NA = Not Applicable	BOW = bottom of well	