

APPENDIX E

Environmental Monitoring Plan

**WASTE MANAGEMENT OF NEW YORK
MILL SEAT LANDFILL**

ENVIRONMENTAL MONITORING PLAN

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ACRONYMS

A	A-weighted
A1	Artesian site monitoring location
DO	Dissolved oxygen
DP	Detention pond monitoring locations
EFM	Environmental Facilities Manager
EMP	Environmental Monitoring Plan
LEL	Lower explosive limit
Leq	Sound measurement
LSS	Landfill Site Supervisor
MCDES	Monroe County Department of Environmental Services
MCDOH	Monroe County Department of Health
MCDPW	Monroe County Department of Public Works
MSW	Municipal solid waste
NYCRR	Official Compilation of Codes, Rules and Regulations of the State of New York
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
P	Private well (off-site) monitoring location
PM10	Particulate matter 10 microns
PSC	New York State Public Service Commission
S	Surface water monitoring locations
SAP	Site Analytical Plan
SED	Sediment monitoring locations
SPDES	New York State Pollutant Discharge Elimination System
TNMOC	Total non-methane organic compounds
TSP	Total suspended particulate matter
USEPA	United States Environmental Protection Agency

PREFACE

The Environmental Monitoring Plan (EMP) for the Mill Seat Landfill was approved by the New York State Department of Environmental Conservation (NYSDEC) in 2003. In 2011, the NYSDEC requested modifications to the EMP during their review of the Final Supplemental Environmental Impact Statement (FSEIS) and permit modification application for a soil borrow area proposed to be constructed south of the operating landfill. This version of the EMP incorporates NYSDEC requested modifications and is being submitted with the FSEIS while the NYSDEC conducts further review pursuant to the Part 360 permit application. The EMP text modifications contained in this document are shown in MS Office Track Changes. It is anticipated that the EMP may be modified based on the existing, and any future, NYSDEC permit review processes.

ENVIRONMENTAL MONITORING PLAN

Mill Seat Landfill

Bergen, New York

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

In accordance with Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York Part 360-2.11 [6 NYCRR Part 360-2.11(c)] - *Environmental Monitoring Plan*, a landfill facility is required to prepare a site-specific monitoring program that describes:

"all proposed on-site and off-site monitoring, including the location of all environmental, facility, and other monitoring points, sampling schedule, analyses to be performed, statistical methods, and reporting requirements. The plan must also include a schedule for construction of the ground water monitoring wells based on site-specific hydrogeology and the sequencing of construction of landfill cells; a schedule for initiation of the existing water quality and operational water quality monitoring programs and a contingency water quality monitoring plan which specifies trigger mechanisms for its initiation."

In October 1989, the Monroe County Department of Public Works (MCDPW) prepared the *Environmental Monitoring Plan for the Mill Seat Landfill* (herein referred to as the EMP) to provide the framework for compliance with the conditions of 6 NYCRR Part 360-2.11(c)] - *Environmental Monitoring Plan*. The EMP is a resource and a reference document that identifies the specific solid waste management requirements for the Mill Seat Landfill.

Prior to the operation of the landfill in April 1993, the MCDPW revised the October 1989 EMP in November 1989 and September 1990.

In maintaining compliance with solid waste management regulations, the objective of the facility is to operate the landfill in a manner which does not pose adverse impacts to public health; safety or welfare; the environment; or natural resources. In light of this objective, the Mill Seat Landfill EMP identifies those monitoring requirements in the following categories which are specified by state solid waste regulations and its facility permit:

- ground water monitoring requirements,
- surface water monitoring requirements,

- sediment monitoring requirements,
- leachate collection and detection system monitoring requirements,
- ambient air quality monitoring requirements,
- explosive gas monitoring requirements,
- noise level monitoring requirements,
- vector and litter control requirements, and
- sedimentation and erosion control requirements.

In June 2000, the EMP was revised by O'Brien & Gere (OBG) to incorporate several factors which affected factors that have occurred that influence the scope and content of the 1990 EMP. These factors included:

- a revision of 6 NYCRR Part 360 - Solid Waste Management Facilities was revised in November 1996;
- a Site Analytical Plan (SAP) was prepared by Monroe County to obtain consistency with the revised solid waste management facility regulations; and
- several years of experience have provided beneficial and valuable information regarding actual landfill operations versus those the initial EMP was intended to reflect; and
- Based on these factors, the 1990 version of the EMP was revised to reflect consistency with the current solid waste regulations, the SAP, and actual landfill operations.
- Since the development of the revised EMP (June 2000),
- a Landfill lease agreement was executed between Monroe County (County) and Waste Management of New York (WMNY) in 2001 have agreed to a life-use lease of the landfill. In doing so, Waste Management has assumed the operation and maintenance of the landfill.
- As a result, the 2000 version of the EMP has been revised to reflect current landfill operations. This document represents the revised version of the EMP. It should be noted that, where applicable, relevant information from the 2000 EMP that demonstrates consistency with the above factors has been incorporated directly in the revised EMP.

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In 2003, WMNY and OBG sought and subsequently obtained an EMP modification from the NYSDEC following the assessment of monitoring data obtained from 1993 to 2002. The 2003 EMP has been in use since that time.

At the request of the NYSDEC, this revision to the 2003 EMP was prepared to document additional monitoring requirements required for approval to construct a soil borrow area on County-owned property immediately south of the existing landfill. The EMP revisions included herein expand the monitoring program to address construction activities south of the landfill. No revisions to the SAP were required.

It is important at this point to identify the differences between the EMP and the SAP so that the reader is fully aware of how to properly and effectively use these documents:

- The EMP is to be used as a resource and a reference document, which compiles the specific solid waste monitoring requirements for the Mill Seat Landfill. The requirements are either specified directly in the EMP or a reference is provided in the EMP to describe where additional information is located (generally in the form of a specific document prepared in response to regulatory requirements). The EMP provides information regarding the following solid waste management facility monitoring requirements:

Solid waste management regulations

- ground water monitoring requirements,
- surface water monitoring requirements*,
- sediment monitoring requirements,
- leachate monitoring requirements,
- ambient air quality monitoring requirements,
- noise level monitoring requirements,
- explosive gas monitoring requirements,
- vector and litter control requirements, and
- sedimentation and erosion control requirements.

Note: * Surface water monitoring required by NYSDEC Natural Resources Division.

Although under separate cover, the SAP is a component of the EMP. It provides information ranging from sample collection planning to the evaluation of the data for potential landfill-related impacts. The SAP provides an orderly set of standard operating procedures for the following monitoring programs only:

- ground water monitoring program,
- surface water monitoring program,
- sediment monitoring program, and
- leachate monitoring program.

1.2 LANDFILL HISTORY

The landfill facility is located on 500 acres of land on Brew and O'Brien Roads in the Town of Riga. The landfill itself is located on approximately 100 acres, with the remaining acreage used for internal roadways, buffer areas, and support facilities (administration and maintenance buildings, detention basins, leachate collection and pump stations, a scale house, a hot load pad) (Clark Engineers 1989a). The location of the landfill facility is illustrated in Figures 1 through 3.

The Mill Seat Landfill is a state-of-the-art solid waste management facility that is comprised of a double composite liner system with a primary and secondary leachate system (see Figure 4). The landfill is being constructed in a phased approach which coincides with the development of separate stages for receiving municipal solid waste (MSW), non-hazardous industrial solid waste, and incinerator ash (Clark Engineers 1989a). Four stages of development have been proposed:

- Stage 1 began receiving waste in May 1993.
- Stage 2 began receiving waste in February 1996.
- Stage 3 began receiving waste in December 2002.
- Stage 4 is currently active and began receiving waste in 2009~~has yet to be developed (as of the writing of this plan).~~

~~Additional stage development would depend on volume of waste received.~~

Prior to operation of the landfill, Monroe County was required by 6 NYCRR Part 360 to establish the site's existing water quality to document the chemistry of the water prior to construction activities and receipt of waste. These pre-operational activities included hydrogeological investigation of the site's ground water, placement of monitoring wells,

identification of potentially-impacted surface water sites, sampling and analyses of both ground water and surface water, and review and evaluation of analytical data. Pre-operational water quality data was collected for a period of six years, from 1987 to 1993 (March).

In April 1993, the Monroe County Department of Environmental Services (MCDES) received a permit (No. 8-2648-00014/1-0) from the New York State Department of Environmental Conservation (NYSDEC) to operate the Mill Seat Landfill and began to receive municipal wastes.

Upon operation of the landfill, four quarters of monitoring per year (January - March, April - June, July - September, and October - December) were initiated based on the EMP (MCDPW 1989a) and the requirements of 6 NYCRR Part 360 at that time.

In 1997, Monroe County sought and subsequently obtained an EMP modification from the NYSDEC for the omission of the winter monitoring program (January - March) from the overall monitoring program at the landfill (Personal correspondence 1997 and 1998). As such, ~~no~~ quarterly monitoring of ground-water, surface water, explosive gases, ambient air, ~~or~~ and noise levels ~~will be~~ is not conducted at the landfill during the winter event (January - March).

~~In 2001, Monroe County also sought and subsequently obtained an EMP modification from the NYSDEC for the omission of wells P7 and P45 from the program (Personal correspondence 2001). Prior to the October - December 2000 sampling event, the owner removed the pump at P7 and since the July - September 1996 sampling event, mechanical problems associated with the pump at P45 have prevented any sampling from the well. As such, no monitoring of ground water at these wells will be conducted.~~

~~Monroe County and Waste Management agreed to a life-use lease of the landfill in December 2001. In doing so, Waste Management assumes the operation and maintenance of the landfill.~~

~~In 2003, Waste Management sought and subsequently obtained an EMP modification from the NYSDEC for the reduction of surface water monitoring. Based on ten-years of data (1993-2002) and the fact that no trends were identified, detention pond monitoring has been reduced from weekly and monthly to quarterly and Hotel Creek monitoring has been reduced to one location (S-8).~~

1.3 SITE ANALYTICAL PLAN (SAP)

Due to its important relationship to the EMP, a detailed summary of the *Mill Seat Landfill Site Analytical Plan* (O'Brien & Gere 2003) and its content is provided herein. As previously noted,

the SAP is a component of the EMP. The SAP provides an orderly set of standard operating procedures specific to the Mill Seat Landfill ~~ground-water~~ndwater, surface water, leachate, and sediment monitoring programs. The SAP, under separate cover, includes detailed information starting with planning for the collection of samples and ending with the evaluation of validated data for the identification of potential landfill-related impacts. This revised EMP incorporates the SAP (O'Brien & Gere 2003) and its requirements by reference. The 2003 SAP remains unchanged.

The SAP was developed in accordance with 6 NYCRR Part 360-2.11(d) - *Site analytical plan*, and was prepared to transition the ~~ground-water~~ndwater, surface water, and leachate monitoring components of the 1990 EMP to meet the most current version of 6 NYCRR Part 360 (November 1996). In addition to providing information required by 6 NYCRR Part 360, the SAP includes information regarding those sampling activities defined by the facility's operating permit. Information contained within the SAP replaces those parallel portions of the Mill Seat Landfill EMP (MCDPW 1989a).

The SAP does not include information relative to:

- ambient air quality monitoring requirements,
- noise level monitoring requirements,
- explosive gas monitoring requirements,
- vector and litter control requirements,
- wetlands monitoring, and
- sedimentation and erosion control requirements.

The EMP is the document which defines the monitoring requirements (directly or by reference) of the above components.

1.4 OTHER LANDFILL-RELATED DOCUMENTS

Other documents which provide detailed information regarding the landfill include the following:

- Mill Seat Solid Waste Landfill Draft Environmental Impact Statement (Clark Engineers 1989a)
- Mill Seat Solid Waste Landfill Final Environmental Impact Statement (Clark Engineers 1989b)

- Hydrogeologic Report for the Proposed Mill Seat Solid Waste Landfill (H & A of New York 1989)
- Engineering Report for the Mill Seat Landfill (MCDPW 1989b)
- Operation and Maintenance Report for the Mill Seat Landfill (MCDPW 1989c)
- Mill Seat Solid Waste Landfill Draft Supplemental Environmental Impact Statement (Clark Engineers 1990a)
- Mill Seat Solid Waste Landfill Permit Engineering Plans (including landscape plan and operation plan) (Clark Engineers 1990b)
- Mill Seat Solid Waste Landfill Final Supplemental Environmental Impact Statement and Responsiveness Summary (Clark Engineers 1990c)
- Quality Assurance/Quality Control Manual for the Mill Seat Landfill (MCDPW 1989d)
- Environmental Monitoring Plan for the Mill Seat Landfill (MCDPW 1989a)
- Contingency Plan for the Mill Seat Landfill (MCDPW 1989e)
- Closure/Post Closure Plan for the Mill Seat Landfill (MCDPW 1989f)
- Environmental Monitoring Plan for the Mill Seat Landfill (O'Brien & Gere 2000)
- Environmental Monitoring Plan for the Mill Seat Landfill (O'Brien & Gere 2003)

These documents have been incorporated by reference and should be reviewed, as needed, for additional information about the Mill Seat Landfill.

2.0 GROUND-WATER/DWATER MONITORING PROGRAM

2.1 BACKGROUND

Based on the requirements of 6 NYCRR Part 360, a series of wells was developed at the Mill Seat Landfill to assist in providing a database of information regarding the quality of the site's ground-water/dwater. During the pre-operational phase of the landfill, ground-water/dwater monitoring wells were installed on a temporary basis and a permanent basis. The reader is directed to review the *Hydrogeologic Report for the Proposed Mill Seat Solid Waste Landfill* (H & A of New York 1989) for information regarding pre-operational activities.

In addition to the solid waste requirements, the facility permit requires ground-water/dwater from five off-site wells to be monitored as part of the program. These ground-water/dwater wells, referred to as private wells, are monitored at the same frequency as the on-site monitoring wells (*i.e.*, quarterly routine or baseline monitoring). Additional information regarding the private well monitoring program is described below where appropriate.

2.2 ON-SITE MONITORING LOCATIONS

2.2.1 On-site wells

The ground-water/dwater monitoring network for the landfill consists of a series of well clusters located around the perimeter of the landfill (see Figure 5). Referred to as "M" wells, each cluster incorporates a minimum of one well screened across the overburden-bedrock interface (M-B wells) and one well screened in the bottom 15 feet of the critical stratigraphic section of the site (M-A wells). In addition, several well clusters consist of a third, deeper bedrock well (M-Z wells) to provide monitoring for potential contamination deeper in the bedrock aquifer (MCDPW 1989a). As detailed in Table 1, a total of 43 ground-water/dwater monitoring locations exist on-site:

- eighteen M-A intermediate wells,
- seventeen M-B overburden/interface wells,
- seven M-Z deep wells, and
- one artesian source (A-1).

2.2.2 Ground-water/dwater suppression system

The ground-water/dwater suppression system consists of a layer of filter fabric placed directly on the liner system sub-grade, a network of perforated drainage collection pipes, a 12 inch thick bed of #2 stone, and a top layer of filter fabric to separate the stone from the secondary clay liner directly on top of the ground-water/dwater suppression layer. The ground-water/dwater drainage collection pipes daylight outside the landfill road (see Figure 7).

Groundwater suppression system monitoring locations are designated with a "GW" as noted in Table 2. Swales convey the groundwater to the existing surface water drainage ways (wetlands and Hotel Creek) (MCDPW 1989a).

2.3 PRIVATE WELL MONITORING LOCATIONS

The off-site groundwater monitoring wells consists of three wells located between 0.3 - 2.0 miles outside the footprint of the landfill (see Figure 6). Referred to as "P" wells, each well is a former residential well now sampled as part of the monitoring program. The selection of the P wells (as identified in Figure 6) was based on the wells having been a part of the historical baseline monitoring well program and concurrence from the homeowner to sample the particular well. As detailed in Table 1, the ~~five~~ two wells consist of the following locations:

- ~~P27 - 1241 Johnson Road~~
- P35 - 135 Brew Road
- P55 - Hidden Meadows

Residential well P27 was included as a monitoring location in the 2003 EMP, however, the well is currently located beneath the resident's deck, and is not directly accessible to sampling personnel. Additionally, the pump in the well is non-operational. The NYSDEC was notified of this condition in correspondence dated April 14, 2009. WMNY will be notified if the pump in the well becomes operational. It should be noted that the above wells are no longer actively used for potable water; Monroe County Water Authority provides potable water to these off-site locations.

2.4 SOIL BORROW AREA MONITORING LOCATIONS

A soil borrow area will be constructed south of the operating landfill. Figure 11 shows the approximate limits of soil borrow area excavation. While soil excavation will occur above the principal groundwater flow zone identified at the landfill facility (weather bedrock zone), the potential hydraulic effects to the water table in the area of the central wetland (Wetland RG-6) will be evaluated. Groundwater elevations in the vicinity of the wetland will be monitored through the collection of water level data from monitoring wells M-7A, M-7B, M-2A, M-2B and piezometer PZ-2 (2006). Locations are shown on Figure 11. Groundwater elevations will be obtained during quarterly sampling events.

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2.45 PARAMETERS AND ANALYTICAL METHODS

2.45.1 ~~Ground water~~ndwater wells

Solid waste management facility requirements. Inorganic and organic parameters required for sampling and analysis as part of the monitoring program at the Mill Seat landfill are defined by 6 NYCRR Part 360 (NYSDEC 1996a) *Water Quality Analysis Tables*. These tables list them as routine, baseline, and expanded parameters. The on-site well clusters, including the artesian well, and the private wells, will be sampled quarterly for routine parameters (Table 3) or baseline parameters (Table 4). The ~~ground water~~ndwater suppression system monitoring may require the analysis of expanded parameters (see below). Contingency monitoring may also warrant the analysis of expanded parameters (refer to the SAP for more information).

Field parameters are included as part of each parameter list noted above. The field parameters consist of:

- dissolved oxygen (DO) (surface water only)
- pH
- specific conductivity (SpCond)
- temperature
- turbidity

The specific set of parameters to be analyzed during each quarterly monitoring event are defined in Section 2.5 - *Monitoring schedule*. The specific analytical methods to be utilized by the laboratory for routine and baseline parameter analyses are described in detail in the *Site Analytical Plan* (O'Brien & Gere 2003).

Additional operational requirements. In addition to monitoring ~~ground water~~ndwater for routine or baseline parameters, several on-site wells are required by the EMP to be monitored for additional compounds known to be historically present at the landfill. These compounds are referred to as special parameters and are listed in Table 5. The specific analytical methods to be utilized by the laboratory for special parameter analyses are the same as those described for routine and baseline parameters described in the *Site Analytical Plan* (O'Brien & Gere 2003).

In addition, due to limited historic data (pre-operational), the MA and MZ sites will be collected quarterly for aluminum until sufficient background data regarding aluminum values at these sites exist. The sampling and analyses of aluminum at these sites have occurred since operations began in April 1993.

It should be noted that prior to the initiation of the SAP, boron had been considered a special parameter at M10A, M17A, M20A, M22A, M1Z, M2Z, M8Z, M16Z, M18Z, M19Z, and M23Z. However, since boron is currently considered a routine parameter under the new 6 NYCRR Part 360, and will be analyzed quarterly, boron is no longer labeled a special parameter.

Private well monitoring does not require the collection and analysis of special parameters.

2.45.2 ~~Ground-water~~ndwater suppression system

The ~~ground-water~~ndwater suppression system monitoring locations are listed in Table 2 and illustrated in Figure 7. The discharge points are 6 inch perforated drainage pipes that daylight outside of the landfill perimeter road. Swales convey the ~~ground-water~~ndwater to the existing surface water drainage ways. The ~~ground-water~~ndwater suppression system will be visually checked and flow rates estimated on a quarterly basis by landfill facilities personnel. This information will be documented in a log book maintained at the landfill. All samples shall be collected from the drainage pipe where these pipes daylight.

Once the system for each stage is in place and when flow is observed, quarterly sampling for routine parameters will be initiated. These sample results will be reviewed in order to determine whether an equilibrium has been attained which would be indicative of background conditions within the suppression system. Once an equilibrium has been attained, the following sampling event for a representative number (minimum of three or 10%, whichever is greater) of the actively flowing pipes will be monitored for expanded parameters (Table 6). This procedure applies to each individual stage of the landfill after construction of that stage has been completed.

The specific analytical methods to be utilized by the laboratory for expanded parameter analyses are described in detail in the *Site Analytical Plan* (O'Brien & Gere 2003).

2.56 MONITORING SCHEDULE

2.56.1 Ground-water wells

Solid waste management facility requirements. The sampling and analysis for ~~ground water~~ndwater will consist of two quarters of routine parameter monitoring and one quarter of baseline parameter monitoring. The baseline parameter monitoring program will be rotated quarterly. No sampling activities will occur during the winter sampling event (January - March).

Additional operational requirements. The special parameters associated with the Mill Seat Landfill as described above are required to be monitored on a quarterly basis. Therefore, special parameters will be monitored:

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- once during the April - June sampling event,
- once during the July - September sampling event,
- once during the October - December sampling event.

~~Based on a NYSDEC approved EMP modification (Personal correspondence 1997 and 1998), quarterly ground water monitoring will not be performed at the landfill during the winter sampling event (January - March).~~

2.56.2 ~~Ground water~~ndwater suppression system

As previously noted in Section 2.4.2, once the system for each stage is in place and when flow is observed, quarterly sampling for routine parameters will be initiated. When an equilibrium has been attained, the following sampling event for a representative number (minimum of three or 10%, whichever is greater) of the actively flowing pipes will be monitored for expanded parameters (Table 6). This procedure applies to each individual stage of the landfill after construction of that stage has been completed.

The ~~ground water~~ndwater suppression system will be monitored through the operational, closure, and post-closure periods of the landfill, or for as long as leachate is produced, which ever is longer. Each quarter, a minimum of three or 25%, whichever is greater, of the pipes which are discharging ~~ground water~~ndwater will be sampled and analyzed for routine parameters (Table 3) for each landfill stage. The sampling points will be rotated quarterly so that at the end of the calendar year all pipes that are carrying ~~ground water~~ndwater have been sampled at least once during the year (excluding the January - March event which has been omitted from the sampling program).

If leachate is detected in any zone of the leak detection system, then sampling frequency of the corresponding ~~ground water~~ndwater suppression pipe beneath the affected zone will be increased to quarterly.

2.67 SAMPLE COLLECTION METHODOLOGY

2.67.1 ~~Ground water~~ndwater wells

The specific activities and methodologies to be employed during ~~ground water~~ndwater sample collection are detailed in the *Site Analytical Plan* (O'Brien & Gere 2003). In summary, as described in the SAP, sampling activities include:

- preparation of sample containers
- preparation of chain-of-custody forms

- check and calibration of field equipment
- collection of samples specific to SAP requirements
- storage of samples prior to shipment to laboratory
- shipment of samples to the laboratory

2.67.2 Ground-water~~ndwater~~ suppression system

Ground-water~~ndwater~~ suppression system samples will be collected from flowing discharge points in accordance with procedures identified in Section 2.5.2 and in the *Site Analytical Plan* (O'Brien & Gere 2003). The specific activities and methods to collect ground-water~~ndwater~~ suppression samples are consistent with those noted above for the on-site wells.

2.78 DATA REVIEW

Data obtained from monitoring the on-site and private ground-water~~ndwater~~ wells will be reviewed in accordance with the *Site Analytical Plan* (O'Brien & Gere 2003).

2.89 NOTIFICATION REQUIREMENTS AND DOCUMENTS

2.8.1 Quarterly requirements

Unless a more rapid reporting procedure is required to address an imminent environmental or public health concern, Waste Management will report the sampling data (water, sediment, and leachate) to the NYSDEC within 60 days of the end of each quarterly sampling event. Detailed notification and documentation requirements associated with the ground-water~~ndwater~~ monitoring program are described in the *Site Analytical Plan* (O'Brien & Gere 2003).

2.8.2 Annual requirements

Notification. Prior to beginning monitoring at the landfill, Waste Management will notify the NYSDEC in writing of the tentative monitoring schedule for ground-water~~ndwater~~, surface water, sediment, leachate, and ambient air quality monitoring at the landfill.

Documentation. Waste Management is responsible for providing a report which summarizes the findings of the monitoring program (ground-water~~ndwater~~, surface water, sediment, leachate only) on an annual basis. The specific information to be included in the annual report is contained within the facility permit. The reader is directed to review the permit to identify annual reporting requirements associated with ground-water~~ndwater~~ monitoring.

2.910 ~~GROUND-WATER~~NDWATER CONTINGENCY PLAN

2.9.1 ~~Ground-water~~ndwater wells

The *Site Analytical Plan* (O'Brien & Gere 2003) describes the contingency actions to be implemented following the review of the analytical data during the monitoring program.

2.9.2 ~~Ground-water~~ndwater suppression systems

The *Site Analytical Plan* (O'Brien & Gere 2003) describes the contingency actions to be implemented following the review of the analytical data during the monitoring program.

2.1011 ~~CLOSURE/POST~~E CLOSURE GROUND-WATERNDWATER MONITORING ACTIVITIES

2.10.1 ~~Ground-water~~ndwater wells

Monitoring associated with closure and post-closure activities for the on-site and off-site wells are described in detail in the *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f).

2.10.2 ~~Ground-water~~ndwater suppression system

Monitoring associated with closure and post-closure activities for the ~~ground-water~~ndwater suppression system is described in detail in the *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f).

3.0 SURFACE WATER MONITORING PROGRAM

3.1 BACKGROUND

During the pre-operational phase of the landfill, surface water monitoring was performed to establish baseline surface water quality conditions at and in the vicinity of the landfill. The reader is directed to review the *Groundwater and Surface Water Monitoring Program* memorandum for additional information regarding pre-operational activities (Elliott 1987). Based on the requirements of the NYSDEC Natural Resources Department, selected surface water and on-site detention pond locations will be monitored at the Mill Seat Landfill to identify the quality of the site's surface water during the operational phase of the landfill.

3.2 SURFACE WATER MONITORING LOCATIONS

The surface water monitoring locations at the Mill Seat Landfill consist of water collected from: a drainage ditch, a creek, and wetlands (S locations); and on-site detention ponds (DP locations):

Surface water sites	Detention pond sites
- S1	- DP1
- S2	- DP2
- S3	- DP3
- S4	
- S5	
- S6	
- S8	

Note: Artesian source (A1) was historically referred to as S7.

The approximate locations of the surface water sites are illustrated in on Figures 8 and 11.

The ~~two~~three outfalls of the detention ponds (DP-series samples) will also be monitored and sampled on a quarterly basis, if flowing. The sampling point is the outlet at the gabion structure.

Additional information regarding the surface water monitoring locations is included in the *Site Analytical Plan* (O'Brien & Gere 2003). The reader is directed to review the SAP for detailed information regarding these monitoring locations.

In addition to surface water monitoring for landfill operations, surface water monitoring will be conducted in accordance with the Wetlands Monitoring Plan for Wetlands RG-5, RG-6, and RG-7 prepared by Barton & Loguidice P.C. (B&L) (January 2011). The B&L Wetlands Monitoring Plan requires monitoring of surface water elevations in each of the three wetland

areas and photographic survey and visual vegetative analysis. Wetland monitoring staff gauge and photographic and vegetative survey locations are shown on Figure 11.

3.3 PARAMETERS AND ANALYTICAL METHODS

Solid waste management facility requirements. The surface water monitoring locations (S and DP sites) will be sampled quarterly for routine parameters (Table 3) or baseline parameters (Table 4). The DP locations will be sampled on a quarterly basis when flow is observed during sample collection. The specific analytical methods to be utilized by the laboratory are identified in the SAP.

Additional operational requirements. Detention ponds. When flow is observed, the DP effluent will be monitored quarterly for the parameters specified in the *Site Analytical Plan* (O'Brien & Gere 2003).

Surface water site S8. As required by the Natural Resources Department of the NYSDEC, additional sampling and analysis will be conducted at Hotel Creek (sampling site S8). This monitoring will consist of daily monitoring for temperature and weekly (April – October) and monthly (November – December) monitoring for DO as specified in the *Site Analytical Plan* (O'Brien & Gere 2003).

3.4 MONITORING SCHEDULE

Solid waste management facility requirements. Surface water samples will be collected once during the following events:

- April – June
- July – September
- October – December

The surface water sites listed above (and illustrated in Figure 8) will be sampled each quarter as required by the SAP, unless the site(s) is dry, in which case no sample will be collected.

The sampling and analysis for surface water will consist of two quarters of routine parameter monitoring and one quarter of baseline parameter monitoring. The baseline parameter monitoring program will be rotated quarterly. No sampling activities will occur during the winter sampling event (January - March).

Additional operational requirement. The monitoring schedule for the additional sampling and analysis for the DP and S8 locations is specified in Section 3.3 above and in the *Site Analytical Plan* (O'Brien & Gere 2003).

Soil Borrow Area requirements: The monitoring schedule for wetlands monitoring is described in the *B&L Wetlands Monitoring Plan* (January 2011).

~~Based on a NYSDEC approved EMP modification (Personal correspondence 1997 and 1998), quarterly surface water monitoring will not be performed at the landfill during the winter sampling event (January – March).~~

3.5 SAMPLE COLLECTION METHODOLOGY

The specific activities and methodologies to be employed during surface water sample collection are detailed in the *Site Analytical Plan* (O'Brien & Gere 2003). In summary, as described in the SAP, sampling activities include:

- preparation of sample containers
- preparation of chain-of-custody forms
- check and calibration of field equipment
- collection of samples specific to SAP requirements
- storage of samples prior to shipment to laboratory
- shipment of samples to the laboratory

3.6 DATA REVIEW

Data obtained from monitoring the surface water locations will be reviewed in accordance with the *Site Analytical Plan* (O'Brien & Gere 2003). Wetlands monitoring data requirements are described in the *B&L Wetlands Monitoring Plan* (January 2011).

3.7 NOTIFICATION REQUIREMENTS AND DOCUMENTATION

3.7.1 Quarterly requirements

Unless a more rapid reporting procedure is required to address an imminent environmental or public health concern, Waste Management will report the sampling data (water, sediment, and leachate) to the NYSDEC within 60 days of the end of each quarterly sampling event. Detailed notification and documentation requirements associated with the ~~ground water~~ndwater monitoring program are described in the *Site Analytical Plan* (O'Brien & Gere 2003).

3.7.2 Annual requirements

Notification: Prior to beginning monitoring at the landfill, Waste Management will notify the NYSDEC in writing of the tentative monitoring schedule for ~~ground-water~~ndwater, surface water, sediment, leachate, and ambient air quality monitoring at the landfill.

Documentation: Waste Management is responsible for providing a report which summarize the findings of the monitoring program (~~ground-water~~ndwater, surface water, sediment, leachate only) on an annual basis. The specific information to be included in the annual report is contained within the facility permit. The reader is directed to review the permit to identify annual reporting requirements associated with surface water monitoring.

3.8 CLOSURE/POST-CLOSURE SURFACE WATER MONITORING ACTIVITIES

Monitoring associated with closure and post-closure activities for the surface water sites is

4.0 LEACHATE MONITORING PROGRAM

4.1 BACKGROUND

Based on the requirements of 6 NYCRR Part 360, regularly scheduled monitoring of the primary and secondary leachate collection systems at the Mill Seat Landfill will be conducted during the operational phase of the landfill. Each of the operating stages of the landfill to date have leachate collection systems that ultimately combine at the storage tanks on the site.

4.2 LEACHATE MONITORING LOCATIONS

The primary leachate and secondary leachate collection systems of the landfill's staged development will be sampled as part of this program. Detailed information regarding the leachate monitoring locations is included in the *Site Analytical Plan* (O'Brien & Gere 2003). ~~In summary, however, at the writing of this plan, four possible leachate samples to be collected could be collected (depending on flow) include:~~

- Stage 1 - Primary leachate - The primary leachate collection system of Stage 1 (**L1 Stage 1**) will be sampled from the clean out port at Manhole 37P. Formatted: Font: Bold
- Stage 1 - Secondary leachate - If flow is observed, the secondary leachate collection system of Stage 1 (**L2 Stage 1**) will be sampled from the clean out port at Manhole 37S. Formatted: Font: Bold
- Stage 2 and 3 - Primary leachate - The primary leachate collection system of Stage 2 and 3 (**L1 Stage 2 & 3**) will be sampled from the clean out port at Manhole 38P. Formatted: Font: Bold
- Stage 2 and 3 - Secondary leachate - If flow is observed, the secondary leachate collection system of Stage 2 and 3 (**L2 Stage 2 & 3**) will be sampled from the secondary lateral outfall at the wet well located at Pump Station 1. Formatted: Font: Bold
Formatted: Font: Bold
- Stage 4 – Primary leachate – The primary leachate collection system of Stage 4 (**S4A-P**) will be sampled from the Pump #1 sample tap in the Stage 4 Leachate Riser House Formatted: Font: Bold
- Stage 4 – Secondary leachate – If flow is observed, the secondary leachate collection system of **Stage 4 (S4A-S)** will be sampled from the secondary line sample tap in the Stage 4 Leachate Riser House. Formatted: Font: Bold

4.3 PARAMETERS AND ANALYTICAL METHODS

Solid waste management facility requirements. The leachate collection systems will be sampled quarterly for routine parameters (Table 3) or baseline parameters (Table 4). Leachate samples will also be collected and analyzed for expanded parameters (Table 6) on a semiannually basis for the Expanded parameter list. The specific analytical methods to be utilized by the laboratory are defined in the SAP. No sampling activities will occur during the winter sampling event (January - March).

4.4 VISUAL OBSERVATION REQUIREMENTS

Visual inspections of the leachate collection systems monitoring locations will be conducted in accordance with facility permit requirements by landfill personnel to evaluate the presence/absence of flow, leaks, and to inspect equipment condition. The inspections will be documented in the daily operations log maintained at the landfill.

4.5 MONITORING SCHEDULE

The sampling and analysis for leachate will consist of ~~two quarters of routine parameter (Table 3) monitoring and one quarter of baseline parameter (Table 4) monitoring. Semi-annual~~ sampling for Expanded parameter list analysis (Table 6) ~~will be conducted semiannually. Based on a NYSDEC approved EMP modification (Personal correspondence 1997 and 1998),~~ quarterly leachate collection system monitoring will not be performed at the landfill during the winter sampling event (January – March).

4.6 SAMPLE COLLECTION METHODOLOGY

The specific activities and methodologies to be employed during leachate sample collection are detailed in the *Site Analytical Plan* (O'Brien & Gere 2003). In summary, as described in the SAP, sampling activities include:

- preparation of sample containers
- preparation of chain-of-custody forms
- check and calibration of field equipment
- collection of samples specific to SAP requirements
- storage of samples prior to shipment to laboratory
- shipment of samples to the laboratory

4.7 DATA REVIEW

Data obtained from monitoring the leachate will be reviewed in accordance with the *Site Analytical Plan* (O'Brien & Gere 2003).

4.8 NOTIFICATION REQUIREMENTS AND DOCUMENTATION

4.8.1 Quarterly requirements

Unless a more rapid reporting procedure is required to address an imminent environmental or public health concern, Waste Management will report the sampling data (water, sediment, and leachate) to the NYSDEC within 60 days of the end of each quarterly sampling event. Detailed

notification and documentation requirements associated with the ground-water~~ndwater~~ monitoring program are described in the *Site Analytical Plan* (O'Brien & Gere 2003).

4.8.2 Annual requirements

Notification: Prior to beginning monitoring at the landfill, Waste Management will notify the NYSDEC in writing of the tentative monitoring schedule for ground-water~~ndwater~~, surface water, sediment, leachate, and ambient air quality monitoring at the landfill.

Documentation: Waste Management is responsible for providing a report which summarize the findings of the monitoring program (ground-water~~ndwater~~, surface water, sediment, leachate only) on an annual basis. The specific information to be included in the annual report is contained within the facility permit. The reader is directed to review the facility 6 NYCRR Part 360 permit to identify annual reporting requirements associated with leachate monitoring.

4.9 CLOSURE/POST-CLOSURE LEACHATE MONITORING ACTIVITIES

Monitoring associated with closure and post-closure activities for the leachate is described in detail in the *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f).

5.0 AMBIENT (OUTDOOR) AIR QUALITY MONITORING

5.1 MONITORING LOCATIONS

The outdoor ambient air quality monitoring program for the Mill Seat Landfill has been developed to meet the guidelines specified in 6 NYCRR Part 360-1.14 - *Operational requirements for all solid waste management facilities* and 6 NYCRR Part 360-2.17 - *Landfill operation requirements*. These regulations were promulgated so landfill activities would not have an adverse impact on public health, safety or welfare, the environment, or natural resources.

5.2 MONITORING LOCATIONS

Ambient air quality monitoring locations consist of those illustrated in Figures 9 and 11:

- working face of the landfill,
- northern property boundary,
- southern property boundary,
- eastern property boundary, and
- western property boundary.

To obtain the most representative sample, the direction of the wind at the time of sampling (prevailing winds) will dictate the placement of monitoring equipment so that we monitor the ambient air coming off the landfill.

5.3 MONITORING FREQUENCY

In accordance with 6 NYCRR Part 360-1.14 - *Operational requirements for all solid waste management facilities*, the frequency at which air quality parameters are monitored at the Mill Seat Landfill varies:

- quarterly - working face of the landfill,
- annually - northern property boundary,
- annually - southern property boundary,
- annually - eastern property boundary, and
- annually - western property boundary.

~~Based on a NYSDEC approved EMP modification (Personal correspondence 1997 and 1998), quarterly ambient air monitoring will not be performed at the landfill during the winter sampling event (January—March).~~

5.4 PARAMETERS TO BE MONITORED

Section 360-1.14 - Operational requirements for all solid waste management facilities requires that:

“dust must be effectively controlled so that it does not constitute a nuisance or hazard to health, safety, or property. The facility owner or operator must undertake any and all measures as required by the department to maintain and control dust at and emanating from the facility.”

In order to meet the requirements of this section, ambient air monitoring will be performed for total suspended particulate matter (TSP) and particulate matter 10 microns (PM₁₀) at the working face and the property boundaries at the frequencies specified in Section 5.2. Samples will be collected by qualified landfill personnel or a designee.

Furthermore, 6 NYCRR Part 360-2.17- *Landfill operation requirements* states that

“decomposition gases generated within a landfill must be controlled to avoid hazards to health, safety, or property.”

To meet this requirement, methane monitoring will be performed by Mill Seat Landfill personnel or designee. Options for collecting an ambient air sample could include the use of a SUMMA® canister for laboratory analysis or by using an explosive gas monitor.

Chain-of-custody forms will be prepared by the sampler for each sample to be sent off-site for analysis. Samples sent off-site for analysis will be analyzed by New York State Department of Health (NYSDOH)-approved laboratory(ies) using methodologies consistent with 6 NYCRR Part 360 - *Solid Waste Management Facilities*.

5.5 CONTINGENCY ACTIONS

To assess whether a decrease in ambient air quality has occurred, the quarterly ambient air quality data will be compared to existing state and/or federal standards for TSP and PM₁₀, or other applicable comparison guidelines such as the chemical reference book standard (Lewis 1991) in the case of methane.

Should contingency sampling be required, the specific sampling regime and frequency to be followed would be at the discretion of the Mill Seat Environmental Facilities Manager or designee in coordination with the NYSDEC.

5.6 NOTIFICATION REQUIREMENTS

Should imminent public health concerns from elevated levels of ambient air quality parameters occur at the landfill, the Environmental Facilities Manager or designee will immediately notify the NYSDEC.

On an annual basis, prior to conducting any ambient air monitoring activities, a letter will be submitted to the NYSDEC by Waste Management which describes the tentative monitoring schedule for the year.

5.7 DOCUMENTATION

The quarterly ambient air monitoring program results will be documented under a separate heading in the quarterly comprehensive monitoring report.

An annual summary of the ambient air quality surface water, sediment, leachate is not required by 6 NYCRR Part 360 - *Solid Waste Management Facilities* or facility permit requirements and, therefore, will not be prepared.

5.8 CLOSURE/POST-CLOSURE AMBIENT AIR QUALITY AND MONITORING ACTIVITIES

Requirements for TSP and PM₁₀ monitoring during closure and post-closure activities are not specified in 6 NYCRR Part 360 - *Solid Waste Management Facilities* or the facility permit. Therefore, closure and post-closure monitoring activities for TSP and PM₁₀ will not be conducted at the Mill Seat Landfill.

Information regarding explosive gas monitoring during close and post-closure activities is described in this plan in Section 6 - *Explosive gas monitoring*.

6.0 EXPLOSIVE GAS MONITORING

6.1 BACKGROUND

Explosive gas monitoring will be performed at the Mill Seat Landfill to meet the requirements of 6 NYCRR Part 360-2.9(k) - *Gas monitoring program* and 360-2.17(f) - *Landfill operation requirements*. As stipulated in 6 NYCRR Part 360-2.17(f), the concentration of methane gas and other explosive gases generated by the landfill must not exceed:

- 25% of the lower explosive limit (LEL) in structures both on-site and off-site, excluding components of the gas control recovery system, and
- the LEL for gases at, or beyond, the property boundary.

The New York State Public Service Commission (PSC) is the responsible agency for regulating utility standards in New York State. The PSC uses a concentration value of 4% combustible gas-in-air, or greater, within manholes, vaults or catch basins to identify potentially hazardous conditions to the public or buildings (16 NYCRR Part 255.811). The PSC also considers any indication on a combustible gas indicator of natural gas entering buildings as a potentially hazardous condition to the public or buildings (16 NYCRR Part 255.811). The U.S. Environmental Protection Agency (USEPA) has established 5% methane in air as its acceptable limit (Lewis 1991). For the purposes of this monitoring plan, the PSC standard (4% methane in air and any detectable combustible gas in buildings) will be the established standard for explosive gas monitoring at the landfill.

In accordance with 6 NYCRR Part 360-2-16 - *Landfill gas recovery facilities*, the existing landfill gas control systems were designed to prevent airborne migration of elevated levels of landfill gas beyond the site boundary; prevent damage to vegetation both on the final cover and off the landfill site; and control objectionable odors from landfill gas emissions. Future gas control systems developed as a result of landfill expansions will be designed to meet the above criteria. Additional information regarding Mill Seat Landfill gas control systems are included in the *Engineering Report for the Mill Seat Landfill* (MCDPW 1989b) and the *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f).

6.2 MONITORING LOCATIONS

The explosive gas monitoring sites for the Mill Seat Landfill will include:

- on-site structures including the main office, scale house and maintenance building, and pump stations;
- monitoring sites at the north, east, south, and west property boundaries (see Figures 9 and 11); and,

- testing each time a manhole is opened for the purpose of personnel entering the manhole.

6.3 MONITORING FREQUENCY

The explosive gas sampling frequency during the landfill operational phase is outlined in Table 7.

6.4 MONITORING METHODS

6.4.1 Continuing monitoring

Equipment approved by the Mill Seat Landfill Environmental Facilities Manager or designee will be used for the continuous monitoring of explosive gas conditions in on-site landfill structures. This equipment can include permanent combustible gas monitoring systems (for example, Det-tronics).

6.4.2 Periodic monitoring

Methods for periodic explosive gas sampling at the landfill will be conducted by trained landfill personnel or a designee, using hand-held electronic explosive gas monitors or gas leak detectors.

6.4.3 Quarterly monitoring

Equipment approved by the Mill Seat Landfill Environmental Facilities Manager or designee will be used for the quarterly monitoring of explosive gas conditions at the landfill boundaries. Equipment such as the Dynamation CGM 929 can be used. Monitoring will be conducted by trained landfill personnel or their designee.

6.5 CONTINGENCY ACTIONS

The detected levels of explosive landfill gas that will trigger contingency actions are outlined in the *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e). Table 8 summarizes contingency monitoring requirements.

6.6 NOTIFICATION REQUIREMENTS

In the event explosive gas generated by the landfill is detected as described below, the NYSDEC will be notified in accordance with 6 NYCRR Part 360-2.17(f)(3) - *Landfill operation requirements*, following:

- in excess of 25% of the LEL in structures both on-site and off-site, excluding components of the gas control recovery system, and/or
- the LEL at or beyond the property boundary.

Notification requirements for exceedances of these levels are as follows:

- within seven days of detection, submit to the NYSDEC the methane gas levels detected and provide a description of the steps taken to protect human health, and
- within 45 days of detection, submit a plan to implement a remediation plan for the methane gas releases and schedule for the implementation of this plan within 60 days beyond the date of the detection. This plan must describe the nature and extent of the problem and the proposed remedy.

6.7 DOCUMENTATION

Explosive gas monitoring logs will be maintained by the Environmental Facilities Manager or designee for the explosive gas monitoring conducted at the landfill. The logs will be maintained in accordance with 6 NYCRR Part 360-1.14(l) - *Record keeping*.

The results of the quarterly explosive gas monitoring will also be included in the comprehensive quarterly monitoring report under a separate heading.

An annual summary of explosive gas conditions at the landfill, if any, is not required by 6 NYCRR Part 360 - *Solid Waste Management Facilities* or the facility permit and, therefore, will not be prepared.

6.8 CLOSURE/POST-CLOSURE EXPLOSIVE GAS MONITORING ACTIVITIES

In accordance with 6 NYCRR Part 360-2.15 - *Landfill closure and post-closure criteria* and as described in the closure/post-closure plan, an explosive gas investigation will be performed to evaluate whether conditions at the landfill meet the requirements of 6 NYCRR Part 360-2.17(f) - *Decomposition gases*.

Specific procedures for explosive gas monitoring activities during closure and post-closure activities are addressed in the facility's closure plan, *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f). In summary, Table 9 reflects the frequency and sites associated with post-closure monitoring.

7.0 SEDIMENT MONITORING PROGRAM

7.1 BACKGROUND

The sampling and analysis of sediment samples was not required of the Mill Seat Landfill prior to its operation. Based on the requirements of 6 NYCRR Part 360 effective November 1996, selected sediment locations will be monitored at the Mill Seat Landfill for qualitative purposes to establish a database of information regarding the quality of the environmental medium.

7.2 SEDIMENT MONITORING LOCATIONS

Sediment samples will be collected from the surface water sites and will be designated as SED:

Sediment designation	Corresponding surface water site
- SED1	- S1
- SED2	- S2
- SED3	- S3
- SED4	- S4
- SED5	- S5
- SED6	- S6
- SED8	- S8

Note: Artesian source (A1) was historically referred to as S7.

The locations of the sediment sites are the same as those surface water sites illustrated in Figures 8 and 11.

7.3 PARAMETERS AND ANALYTICAL METHODS

Analysis of the sediment samples will correspond with the parameters specified for the surface water samples for that quarter's sampling event:

- two quarterly routine sampling events (Table 3)
- one quarterly baseline sampling event (Table 4)

Specific analytical methods to be utilized by the laboratory are included in the SAP.

No sediment samples will be collected at the detention pond sites (gabion structures) or the artesian site (A1). In addition, the sediment samples will not be analyzed for field parameters.

7.4 MONITORING SCHEDULE

Sediment sampling will be conducted on a quarterly basis during the -operational phase of the landfill. The sediment sample will be collected from the same area as the surface water sample, after the surface water sample has been collected.

AMEC Geomatrix, Inc.

~~Based on a NYSDEC approved EMP modification (Personal correspondence 1997 and 1998), quarterly sediment monitoring will not be performed at the landfill during the winter sampling event (January–March).~~

7.5 SAMPLE COLLECTION METHODOLOGY

After the surface water sample has been collected, the sediment sample will be collected from the same area as the surface water sample and analyzed for the same parameters as the surface water sample. The upper five centimeters of sediment will be collected using a dedicated trowel or scoop providing the water is shallow and the flow is minimal. If the flow or depth of water is significant, as judged by the sampler(s) experience, a dedicated coring device will be used to avoid loss of sediment sample.

No sediment samples will be collected at the detention pond sites, which are gabion structures, or the artesian site A1.

7.6 DATA REVIEW

Data obtained from sediment monitoring will be reviewed in accordance with the *Site Analytical Plan* (O'Brien & Gere 2003).

7.7 NOTIFICATION REQUIREMENTS AND DOCUMENTATION

7.7.1 Quarterly requirements

Unless a more rapid reporting procedure is required to address an imminent environmental or public health concern, Waste Management will report the sampling data (water, sediment, and leachate) to the NYSDEC within 60 days of the end of each quarterly sampling event. Detailed notification and documentation requirements associated with the ~~ground water~~ndwater monitoring program are described in the *Site Analytical Plan* (O'Brien & Gere 2003).

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7.7.2 Annual requirements

Notification: Prior to beginning monitoring at the landfill, Waste Management will notify the NYSDEC in writing of the tentative monitoring schedule for ~~ground water~~ndwater, surface water, sediment, leachate, and ambient air quality monitoring at the landfill.

Documentation: Waste Management is responsible for providing a report which summarize the findings of the monitoring program (~~ground water~~ndwater, surface water, sediment and leachate only) on an annual basis. The specific information to be included in the annual report will be consistent with that of the surface water samples.

7.8 CLOSURE/POST-CLOSURE SEDIMENT MONITORING ACTIVITIES

Since sediment monitoring was not a required component of the *Closure/Post Closure Plan* developed in 1989, monitoring associated with closure and post-closure activities for sediment will parallel those described for surface water.

8.0 NOISE MONITORING

8.1 CONTENT

The following sections provide information on the noise monitoring program for the Mill Seat landfill.

8.2 MONITORING LOCATIONS

Figures ~~11-10~~ and 11 illustrates the noise monitoring locations at the landfill. Noise monitoring locations are located at facility boundaries and the southern limits of property owned by Waste Management.

8.3 MONITORING FREQUENCY

Noise monitoring will be conducted on a quarterly basis during active hours of the operational phase of the landfill.

~~BASED ON A NYSDEC APPROVED EMP MODIFICATION (PERSONAL CORRESPONDENCE 1997 AND 1998), QUARTERLY NOISE MONITORING WILL NOT BE PERFORMED AT THE LANDFILL DURING THE WINTER SAMPLING EVENT (JANUARY – MARCH).~~

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8.4 MONITORING METHODS

Noise monitoring will be conducted by qualified landfill personnel or designee. The measuring instruments that can be used will be:

- Type 1 general purpose sound level meters,
- Type 2 sound level meters, or
- corresponding special sound level meters Type S1A or Type S2A.

Noise level monitoring will be performed to evaluate the L_{eq} at the landfill. The L_{eq} is defined in 6 NYCRR Part 360-1.14(p) - *Noise levels* as the equivalent steady-state sound level which contains the same acoustic energy as the time varying sound level during a one hour period exceeded no more than 10% of the time.

8.5 CONTINGENCY ACTIONS

Noise levels at the facility must be controlled to prevent sound levels beyond the property boundary exceeding the L_{eq} energy equivalent ambient sound levels shown in Table 10. As specified by 6 NYCRR Part 1.14(p) - *Noise levels*, if background sound levels (excluding any contributions) exceed these limits, operation of the facility must not cause a L_{eq} statistical sound level exceeding the background.

Mufflers are required for internal combustion powered equipment used at the facility. Sound levels for internal combustion powered equipment must not exceed 80 decibels A-weighted (A) at a distance of 50 feet from the operating equipment.

The acceptable decibel limits resulting from operations at a landfill are set forth in 6 NYCRR Part 360-1.14(p) - *Noise levels*. These limits will serve as the contingency triggers for the Mill Seat Landfill and are shown in Table 10. Contingency actions are outlined in the *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e) should noise levels exceed these limits.

8.6 NOTIFICATION REQUIREMENTS

Should imminent public health concerns from elevated noise levels occur at the landfill, the Environmental Facilities Manager or designee will immediately notify the NYSDEC. Otherwise, documentation and notification to the NYSDEC for landfill noise levels are required on a quarterly basis.

8.7 DOCUMENTATION

The *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e) identifies the reporting requirements of the Environmental Facilities Manager or designee for daily noise issues. The quarterly noise monitoring results will be documented in the comprehensive quarterly monitoring report under a separate heading. An annual summary of noise levels at the landfill is not required by 6 NYCRR Part 360 - *Solid Waste Management Facilities* or facility permit requirements and, therefore, will not be prepared. Closure/post-closure noise monitoring activities,

~~8.8. Closure/post-closure noise monitoring activities~~

Requirements for noise monitoring during closure and post-closure activities are not specified in 6 NYCRR Part 360 - *Solid Waste Management Facilities* or the facility permit. Therefore, closure and post-closure noise monitoring activities will not be conducted at the Mill Seat Landfill.

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9.0 VECTOR CONTROL PROGRAM

9.1 BACKGROUND

Vectors are described in 6 NYCRR Part 360-1.2 - *Definitions* as carriers that are capable of transmitting a pathogen from one organism to another including, but not limited to, flies and other insects, rodents, birds, and vermin. Municipal solid waste landfills, especially those which accept putrescible wastes, can provide food, shelter and breeding areas for vectors.

As presented in 6 NYCRR Part 360-1.14 (l) - *Vector control*, the facility must be maintained to prevent or control on-site populations of vectors using techniques appropriate for the protection of human health and the environment and to prevent the facility from being a vector breeding area. Various methods may be employed to reduce the populations of vectors at the Mill Seat Landfill, but the primary means of control will be through the application of cover materials in accordance with required schedules.

9.2 VECTOR TO MONITOR

Table 11 presents a list of potential vectors to be monitored at the Mill Seat Landfill.

9.3 MONITORING LOCATIONS

Due to the putrescible fraction of the waste stream, the largest populations of potential vectors observed will be concentrated at the working face of the landfill. However, additional areas will also be monitored to protect human health. Such areas include, but are not limited to:

- detention ponds (mosquitoes, etc.),
- on-site structures (all vectors), and
- perimeter areas (all vectors).

9.4 MONITORING FREQUENCY

Observations for vectors will be an on-going landfill activity and, therefore, will be conducted throughout the operational phase of the landfill.

9.5 CONTINGENCY ACTIONS

In accordance with 6 NYCRR Part 360-2.17 - *Daily cover*, landfill operation requirements state that a minimum of six inches of compacted cover material or alternate daily cover must be applied on all exposed surfaces of solid waste at the close of each operating day to control vectors. A reduction in the size of the working face may occur should a vector control issue arise.

Extraordinary actions to reduce the presence of vectors will not be undertaken without prior approval of the Environmental Facilities Manager or designee. Such actions may include, but are not limited to:

- noise producing devices and flares, and
- the application of pesticides.

The *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e) identifies additional vector control contingency actions.

9.6 NOTIFICATION REQUIREMENTS

The *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e) identifies the notification requirements to the Environmental Facility Manager or designee should landfill operations be ceased due to vector control issues.

Notification of vector issues or contingency actions to appropriate agencies with jurisdiction over the landfill (*e.g.*, MCDOH, NYSDEC) will be at the discretion of the Environmental Facilities Manager or designee.

9.7 DOCUMENTATION

The *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e) identifies the reporting requirements of the Environmental Facility Manager or designee for vector control issues. In general, observations of unusually high concentrations of vectors, damage caused by vectors, or illness attributable to vectors will be brought to the attention of the Environmental Facilities Manager or designee and noted in the daily operations log.

In accordance 6 NYCRR Part 360-1.14 - *Record keeping*, monitoring records will be kept by the landfill for a period of at least seven years.

9.8 CLOSURE/POST-CLOSURE VECTOR CONTROL ACTIVITIES

As presented in 6 NYCRR Part 360-2.15(a)(4) - *Closure site investigation*, a vector investigation must be performed as part of the landfill closure and post-closure activities. If vector problems are identified, an appropriate remediation program must be implemented 6 NYCRR Part 360-2.15(j) - *Vectors*. The vector remediation program must be implemented to mitigate vector problems before cessation of waste disposal occurs at the landfill.

Specific procedures for the vector investigation and monitoring activities during closure and post-closure activities are addressed in the facility's closure plan, *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f).

10.0 EROSION AND SEDIMENTATION CONTROL PROGRAM

10.1 CONTENT

The following sections provide information on the erosion and sedimentation control program for the Mill Seat landfill.

10.2 MONITORING LOCATIONS

10.2.1 Erosion

The erosion control features that will be monitored by qualified landfill personnel or designee will include, but are not limited to:

- slopes 4:1 and steeper,
- perimeter drainage channel,
- roadway drainage swales, and
- perimeter swales.

10.2.2 Sedimentation

The sedimentation control features to be monitored are primary drainage channels, detention ponds, and temporary barriers (straw bales, silt fences, *etc.*).

10.3 MAINTENANCE AND CONTINGENCY ACTIONS

10.3.1 Ditch clearing

Maintenance ditch clearing will be conducted using appropriately sized equipment and from a road surface whenever possible. Spoil will be taken to designated on-site spoil areas for dewatering and disposition.

Ditches clogged with sediment, vegetation or both will be cleared. The frequency of ditch clearing will be based on the ability of ditches to convey and contain a 25 year storm runoff without overflow [6 NYCRR Part 360-2.7(b)(8) - *Engineering report*]. The Environmental Facilities Manager or designee will determine the schedule for ditch clearing activities.

10.3.2 Pond dredging

Maintenance dredging of the detention ponds will be accomplished through the use of either conventional earth moving equipment or a floating dredge if the pond is not dry. Spoil will be taken to designated on-site spoil areas for dewatering and disposition. Runoff of turbid waters, originating from detention pond dredging activities, to the regulated wetlands or other surface water bodies will be prevented.

The frequency of detention pond dredging will be based on a minimum of the pond's ability to detain the run-off of a 25 year storm without overflow [6 NYCRR Part 360-2.7(b)]. The Environmental Facilities Manager or designee will determine the schedule for pond dredging activities, likely annually at the end of the summer. Detention pond performance will be monitored and operations will be modified, at the discretion of the Environmental Facilities Manager or designee, to retain the design capacity of the detention pond.

10.3.3 Surface erosion

Erosion rills larger than six inches deep and/or twelve inches wide and twenty feet in length will be cause for repair on slopes equal to or greater than 1 on 4.

Surface erosion areas in excess of the specified trigger levels noted above will be regraded and stabilized within five working days of observation.

10.3.4 Spoil materials

Materials removed from drainage ditches and detention ponds will be deposited and dewatered at designated on-site spoil areas or used as daily cover. No spoil materials will be deposited within a 100 foot buffer zone of regulated wetlands. Turbid water runoff originating from spoil material will be prevented from entering regulated wetlands or other surface water bodies.

10.4 NOTIFICATION REQUIREMENTS AND DOCUMENTATION

In the event of an imminent threat to the environment or public health, the Landfill Operations Supervisor or designee will immediately notify the Environmental Facilities Manager. Further notification to other parties will be at the discretion of the Environmental Facilities Manager.

The Landfill Operations Supervisor will keep a record in the daily operations log of substantive corrective actions taken with regard to the erosion and sedimentation control features.

A summary of erosion and sedimentation control activities will be included in the comprehensive quarterly monitoring report under a separate heading. An annual summary of erosion and sedimentation control activities is not required by 6 NYCRR Part 360 - *Solid Waste Management Facilities* or the facility permit and, therefore, will not be prepared.

10.5 CLOSURE/POST-CLOSURE EROSION AND SEDIMENTATION CONTROL ACTIVITIES

Procedures for erosion and sedimentation control at the landfill are addressed in the *Closure/Post Closure Plan for the Mill Seat Landfill* (MCDPW 1989f).

11.0 LITTER CONTROL PROGRAM

11.1 BACKGROUND

As presented in 6 NYCRR Part 360-1.14 (j) - *Confinement of solid waste*, blowing litter must be confined to solid waste holding and operating areas by fencing or other suitable means. Additionally, solid waste must not be accepted at the facility unless the waste is adequately covered or confined in the vehicle transporting the waste to prevent dust and blowing litter.

Litter control at the Mill Seat Landfill will be an on-going process. Various control measures will be taken to ensure that wind blown litter is reduced to as high a degree as practical. Control methods include, but are not limited to:

- catch fences at the working face and the transfer truck un-tarping area,
- un-tarping of trucks as close as practical to the working face,
- positioning of the working face such that it is relatively protected from the prevailing weather, and/or
- perimeter litter control fences,
- a reduction in the size of the working face during episodes of extreme weather.

Implementation of litter control measures will be at the discretion of the Environmental Facilities Manager or designee.

11.2 INSPECTION AREAS

The landfill will be inspected regularly for wind blown litter; however, certain areas will require more intensive efforts than others. Areas requiring more intensive efforts include, but are not limited to:

- the scale house,
- the un-tarping area catch fences,
- the working face and the sweep out area catch fences, and
- area roads, and perimeter fences.

11.3 CLEAN-UP FREQUENCY

Table 12 presents the frequency and location of litter clean-up for the landfill.

11.4 CONTINGENCY ACTIONS

Immediate response will follow observation of unusually large amounts of wind blown litter, or spills of MSW at locations other than at the working face of the landfill. Severe weather episodes, such as high winds, may cause the litter control plan to be triggered. The *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e) provides contingency measures to be followed at the Mill Seat Landfill.

11.5 REMEDIATION MEASURES

In the event that unusually large amounts of litter are detected on-site or off-site, additional work details will be assigned to pick up litter from the affected areas. Spills of MSW shall be cleaned up immediately.

In the event of severe weather or extreme high winds, measures will be taken to reduce the amount of wind blown litter. These measures may include, but are not limited to:

- un-tarping of the transfer trucks at the working face instead of in separate un-tarping area,
- reducing the exposed area of the working face, and
- placement of higher containment fences and potential curtailment of landfill activities.

11.6 NOTIFICATION REQUIREMENTS AND DOCUMENTATION

As specified in the *Contingency Plan for the Mill Seat Landfill* (MCDPW 1989e), observations of unusually high concentrations of litter will be brought to the attention of the Environmental Facilities Manager or designee and noted in the daily operations log.

Notification of other agencies (*e.g.*, MCDOH, NYSDEC) will be at the discretion of the Environmental Facilities Manager or designee.

In accordance 6 NYCRR Part 360-1.14 - *Record keeping*, monitoring records will be kept by the landfill for a period of at least seven years.

11.7 CLOSURE/POST-CLOSURE LITTER CONTROL ACTIVITIES

As presented in 6 NYCRR Part 360-2.15 - *Landfill closure and post closure criteria*, if through the site closure investigation report, litter problems are identified, an appropriate remediation program will be implemented.

12.0 REDUCED MONITORING CONDITIONS

Monitoring frequencies and requirements at the Mill Seat Landfill, as specified within this EMP, will be periodically evaluated by Waste Management for potential reductions. Reduced monitoring conditions will be based on reviews of operational conditions and data from landfill sampling events and will be approved by the NYSDEC prior to implementation.

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Table 1. Ground water monitoring locations (on- and off-site)

M1A*	M14A	M22A
M1Z*	M14B	M22B
M2A ⁽²⁾	M15A	M23A
M2B ⁽²⁾	M15B	M23B
M2Z		M23Z
M4A	M16A	M24A
M4B	M16B	M24B
	M16Z	
M6A	M17A	M25A
M6B	M17B	M25B
M7A** ⁽²⁾	M18A	
M7B** ⁽²⁾	M18B	A-1
	M18Z	
M8A	M19A	P35
M8B	M19B	P55
M8Z	M19Z	
M10A	M20A	PZ-2(2006) ^(1,2)
M10B	M20B	

Notes: * upgradient wells
 ** cross gradient wells
 (1) monitored for groundwater elevation only
 (2) groundwater elevation data will support assessment of soil excavation from western and eastern soil borrow areas shown on Figure 11.
 M on-site monitoring wells PZ- soil borrow area piezometer
 A on-site artesian wells
 P off-site private wells

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Table 2. *Ground water suppression system sites.*

GW 9-1.2	GW 22-1.2	GW 32-1.2
GW 11-1.2	GW 23-1.2	GW 33-1.2
GW 13-1.2	GW 24-1.2	GW 39-1.2
GW 15-1.2	GW 25-1.2	<u>S4A-U</u>
GW 16-1.2	GW 26-1.2	
GW 17-1.2	GW 27-1.2	
GW 18-1.2	GW 28-1.2	
GW 19-1.2	GW 29-1.2	
GW 20-1.2	GW 30-1.2	
GW 21-1.2	GW 31-1.2	

Table 3. Routine parameters.

<u>Field parameters*</u>	<u>Inorganic parameters</u>
Dissolved oxygen (surface water only)	Cadmium, total
Field observations	Calcium, total
Floater or sinkers**	Iron, total
Oxidation-reduction potential	Lead, total
pH	Magnesium, total
Specific conductance	Manganese, total
Static water level	Potassium, total
Temperature	Sodium, total
Turbidity	
<u>Leachate indicators*</u>	
Alkalinity, total	
Ammonia	
Biological oxygen demand	
Boron, total	
Bromide	
Chemical oxygen demand	
Chloride	
Color	
Nitrate	
Total phenols	
Sulfate	
Total dissolved solids	
Total hardness as CaCO ₃	
Total Kjeldahl nitrogen	
Total organic carbon	

Source: 6NYCRR Part 360; November 1996.

Notes: * To be measured in the ground water and surface water samples only. Sediment samples will not be analyzed for field parameters or leachate indicators

** Any floaters or sinkers found to be analyzed for baseline parameters.

Table 4. Baseline parameters.

<u>Field parameters*</u>	<u>Inorganic parameters</u>	<u>Organic Parameters</u>
Dissolved oxygen (surface water only)	Aluminum, total	1,2-Dibromo-3-chloropropane
Field observations	Antimony, total	1,2,3-Trichloropropane
Floaters or sinkers**	Arsenic, total	1,1,2-Trichloroethane
Oxidation-reduction potential	Barium, total	1,1,1-Trichloroethane
pH	Beryllium, total	1,1,2,2-Tetrachloroethane
Specific conductance	Cadmium, total	1,1,1,2-Tetrachloroethane
Static water level	Calcium, total	1,2-Dibromoethane
Temperature	Chromium, hexavalent	1,2-Dichlorobenzene
Turbidity	Chromium, total	1,4-Dichlorobenzene
	Cobalt, total	1,2-Dichloropropane
<u>Leachate indicators*</u>	Copper, total	1,2-Dichloroethene
Alkalinity, total	Cyanide	1,2-Dichloroethane
Ammonia	Iron, total	1,1-Dichloroethane
		<u>1,1-Dichloroethene</u>
Biochemical oxygen demand	Lead, total	2-Butanone
Boron, total	Magnesium, total	2-Hexanone
Bromide	Manganese, total	4-Methyl-2-pentanone
Chemical oxygen demand	Mercury, total	Acetone
Chloride	Nickel, total	Acrylonitrile
Color	Potassium, total	Benzene
Nitrate	Selenium, total	Bromochloromethane
Sulfate	Silver, total	Bromodichloromethane
Total phenols	Sodium, total	Bromoform
Total dissolved solids	Thallium, total	Bromomethane
Total hardness as CaCO ₃	Vanadium, total	Carbon disulfide
Total Kjeldahl nitrogen	Zinc, total	Carbon tetrachloride
Total organic carbon		Chlorobenzene
		Chloroethane
		Chloroform
		Chloromethane
		cis-1,2-Dichloropropene
		cis-1,2-Dichloroethene
		Dibromochloromethane
		Dibromomethane
		Ethylbenzene
		<u>Iodomethane</u>
		Methylene chloride
		Styrene
		Tetrachloroethene
		Toluene
		trans-1,2-Dichloroethene
		trans-1,3-Dichloropropene
		trans-1,4-Dichloro-2-butene
		Trichloroethene
		Trichlorofluoromethane
		Vinyl acetate
		Vinyl chloride
		Xylenes, total

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Source: 6 NYCRR Part 360; November 1996. List updated by AMEC on April 2011

Notes: * To be measured in the ground water and surface water samples only. Sediment samples will not be analyzed for field parameters or leachate indicators.

** Any floaters or sinkers found to be analyzed for baseline parameters.

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Table 5. Special parameters.

Special Parameters	Well		
	A-well	B-well	Z-well
Organic Parameters			
Methylene chloride	M14A	M7B M15B	
Bis(2-ethylhexyl)phthalate	M1A M4A M7A	M2B M7B M8B M14B M19B M20B M24B M25B	M8Z
Dichlorodifluoromethane	M19A	M19B	M8Z M19Z
Inorganic Parameters			
Antimony	M6A M8A M18A M19A M22A M23A M25A	M2B M4B M6B M10B M19B M22B	M1Z M2Z M8Z M18Z M19Z
Sulfide	M17A M19A	M19B	M19Z

Table 6. Expanded parameters.

<u>Field parameters*</u>	<u>Leachate indicators*</u>	<u>Inorganic parameters</u>
Dissolved oxygen (surface water only)	Alkalinity, total	Aluminum, total
Field observations	Ammonia	Antimony, total
Floater or sinkers**	Biological oxygen demand	Arsenic, total
Oxidation-reduction potential	Boron, total	Barium, total
pH	Bromide	Beryllium, total
Specific conductance	Chemical oxygen demand	Cadmium, total
Static water level	Chloride	Calcium, total
Temperature	Color	Chromium, hexavalent
Turbidity	Nitrate	Chromium, total
	Phenols	Cobalt, total
	Sulfate	Copper, total
	Total dissolved solids	Cyanide
	Total hardness as CaCO ₃	Iron, total
	Total Kjeldahl nitrogen	Lead, total
	Total organic carbon	Magnesium, total
		Manganese, total
		Mercury, total
		Nickel, total
		Potassium, total
		Selenium, total
		Silver, total
		Sodium, total
		Sulfide
		Thallium, total
		Tin, total
		Vandium, total
		Zinc, total

Source: 6 NYCRR Part 360; November 1996.

Notes: * To be measured in the ground water and surface water samples only. Sediment samples will not be analyzed for field parameters or leachate indicators.

** Any floaters or sinkers found to be analyzed for baseline parameters.

Table 6. Expanded parameters.

Organic Parameters		
0,0,0-Triethylphosphorothioate	2-Nitroaniline	Bromochloromethane
0,0-Diethyl 0-2-pyrazinyl phosphorathioate	2-Nitrophenol	Bromodichloroemethane
1,3,5-Trinitrobenzene	3,3-Dimethylbenzidine	Bromoform
1,2-Dichloroethane	3,3-Dichlorobenzidine	Bromomethane
1,3-Dichloropropane	3-Methylcholanthrene	Butyl benzyl phthalate
1,2,3-Trichloropropane	3-methylphenol	Carbon tetrachloride
1,2-Dichloropropane	3-Nitroaniline	Carbon disulfide
1,2,2-Trichloroethane	4,4-DDT	Chlordane
1,1,1-Trichloroethane	4,4-DDE	Chlorobenzene
1,2,4-Trichlorobenzene	4,4-DDD	Chlorobenzilate
1,1-Dichloropropene	4,6-Dinitro-2-methylphenol	Chloroethane
1,1,2,2-Tetrachloroethane	4-Aminobiphenyl	Chloroform
1,1,1,2-Tetrachloroethane	4-Bromophenyl phenyl ether	Chloromethane
1,2,4,5-Tetrachlorobenzene	4-Chloro-3-methylphenol	Chrysene
1,2-Dibromo-3-chloropropane	4-Chlorophenyl phenyl ether	cis-1,2-Dichloroethene
1,4-Naphthoquinone	4-Methyl-2-pentanone	cis-1,3-Dichloropropene
1,1-Dichloroethane	4-methylphenol	Delta-BHC
1,1-Dichloroethene	4-Nitroaniline	Di-n-butyl phthalate
1,3-Dichlorobenzene	4-Nitrophenol	Di-n-octyl phthalate
1,2-Dichlorobenzene	5-Nitro-o-toluidine	Diallate
1,2-Dibromoethane	7,12-Dimethyl benz(a) anthracene	Dibenz(a,h)anthracene
1-Naphthylamine	Acenaphthene	Dibromomethane
2,4-Dichlorophenol	Acenaphthylene	Dibromochloromethane
2,4,5-TP (Silvex)	Acetone	Dichlorodifluoromethane
2,4,5-T	Acetonitrile	Dieldrin
2,3,4,6-Tetrachlorophenol	Acetophenone	Diethyl phthalate
2,4,6-Trichlorophenol	Acrolein	Dimethoate
2,4-Dinitrophenol	Acrylonitrile	Dimethyl phthalate
2,2-Dichloropropane	Aldrin	Dinoseb
2,4-Dinitrotoluene	Allyl chloride	Diphenylamine
2,4-D	Alpha-BHC	Disulfoton
2,4,5-Trichlorophenol	Anthracene	Endosulfan sulfate
2,4-Dimethylphenol	Benzene	Endosulfan I
2,6-Dinitrotoluene	Benzo(a)anthracene	Endosulfan II
2-6-Dichlorophenol	Benzo(a)pyrene	Endrin
2-Acetylaminofluorene	Benzo(b)fluoranthene	Endrin aldehyde
2-Butanone	Benzo(ghi)perylene	Ethyl parathion
2-Chloro-1,3-butadiene	Benzo(k)fluoranthene	Ethyl methacrylate
2-Chloronaththalene	Benzyl alcohol	Ethyl methanesulfonate
2-Chlorophenol	Beta-BHC	Ethylbenzene
2-Hexanone	Bis 2-chloroisopropyl ether	Famphur
2-Methylnaphthalene	Bis(2-chloro-ethoxy) methane	Fluoranthene
2-methylphenol	Bis(2-chloroethyl) ether	Fluorene
2-Naphthylamine	Bis(2-ethylhexyl) phthalate	Gamma-BHC

Source: 6 NYCRR Part 360; November 1996.Hexachloropropene

Notes: * To be measured in the ground water and surface water samples only. Sediment samples will not be analyzed for field parameters or leachate indicators.

** Any floaters or sinkers found to be analyzed for baseline parameters.

Table 6. Expanded parameters.

Organic Parameters

Heptachlor	Polychlorinated biphenyls:
Heptachlor epoxide	PCB-1016
Hexachlorobenzene	PCB-1221
hexachlorobutadiene	PCB-1232
hexachlorocyclopentadiene	PCB-1242
hexachloroethane	PCB-1248
Hexachloropropene	PCB-1254
Indeno(1,2,3-cd)pyrene	PCB-1260
Isobutyl alcohol	Pronamide
Isodrin	Propionitrile
Isophorone	Pyrene
Isosafrole	Safrole
Kepone	Styrene
m-Dinitrobenzene	Tetrachloroethene
Methacrylonitrile	Toluene
Methapyriene	Toxaphene
Methoxychlor	trans-1,2-Dichloroethene
Methyl parathion	trans-1,3-Dichloropropene
Methyl methanesulfonate	trans-1,4-Dichloro-2-butene
Methyl methacrylate	Trichloroethene
Methyl iodide	Trichlorofluoromethane
Methylene chloride	Vinyl acetate
N-Nitroso-di-n-butylamine	Vinyl chloride
N-Nitrosodiethylamine	Xylene (total)
N-Nitrosodimethylamine	
N-Nitrosodi-n-propylamine	
N-Nitrosodiphenylamine	
N-Nitrosomethylethylamine	
N-Nitrosopiperidine	
N-Nitrosopyrrolidine	
Naphthalene	
Nitrobenzene	
o-Toluidine	
p-(Dimethylamino)	
azobenzene	
p-Chloroaniline	
p-Phenylenediamine	
Pentachlorobenzene	
Pentachloronitrobenzene	
Pentachlorophenol	
Phenacetin	
Phenanthrene	
Phenol	
Phorate	

Source: 6 NYCRR Part 360; November 1996. Hexachloropropene

Notes: * To be measured in the ground water and surface water samples only. Sediment samples will not be analyzed for field parameters or leachate indicators.

** Any floaters or sinkers found to be analyzed for baseline parameters.

Table 7. Explosive gas monitoring frequency.

Frequency	Locations
Continuous	On-site structures including: <ul style="list-style-type: none">• office buildings• scale house,• maintenance building, and• pump stations
Periodic ¹	<ul style="list-style-type: none">• leachate collection system manholes, and• leachate storage tanks
Quarterly ²	<ul style="list-style-type: none">• northern landfill boundary• southern landfill boundary• eastern landfill boundary, and• western landfill boundary

See Figure 8

¹ Testing for explosive landfill gas will be conducted each time a manhole is opened for the purpose of personnel entering the manhole.

² Explosive gas monitoring will be conducted on a quarterly basis during active hours of the operational phase of the landfill. Based on a NYSDEC-approved EMP modification (Personnel correspondence 1997 and 1998), quarterly explosive gas monitoring will not be performed at the landfill during the winter event (January – March).

Table 8. *Contingency trigger levels for explosive gas monitoring.*

Concentration (in relation to the lower explosive limit – LEL)	Response
1 – 10%	<ul style="list-style-type: none"> • no action
11 – 24%	<ul style="list-style-type: none"> • Ventilate • Search for source • Document in daily log
25 – 74%	<ul style="list-style-type: none"> • Ventilate • Notify Environmental Facilities Manager • Search for Source • Notify NYSDEC • Where applicable, repair • Fill out critical incident report (see Figure 9)
75% +	<ul style="list-style-type: none"> • Evacuate structure and structures within 500 ft • Shut off electric power to the structures • Extinguish all flames (cigarettes, candles, etc.) • Notify Environmental Facilities Manager • Notify Fire Department • Notify NYSDEC • Fill out critical incident report (see Figure 9) <p>Proceed with ventilation, under direction of Fire Department</p>

Table 9. Post-closure explosive gas monitoring frequency.

Frequency	Locations
Quarterly	<ul style="list-style-type: none">• Primary leachate collection system manholes• Secondary leachate detection system manholes• Remaining on-site structures• Maintenance buildings• Leachate storage facility• Pump stations• Any other on-site buildings• North, south, east, and west site boundaries
Annually	<ul style="list-style-type: none">• Selected off-site buildings*

Notes: * Specific off-site buildings are to be approved by Monroe County and NYSDEC prior to sampling.

Table 10. Noise level limits.

Community Character	L_{eq} energy equivalent sounds levels (decibels)	
	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
Rural	57 (A)	47 (A)
Suburban	62 (A)	52 (A)
Urban	67 (A)	57 (A)

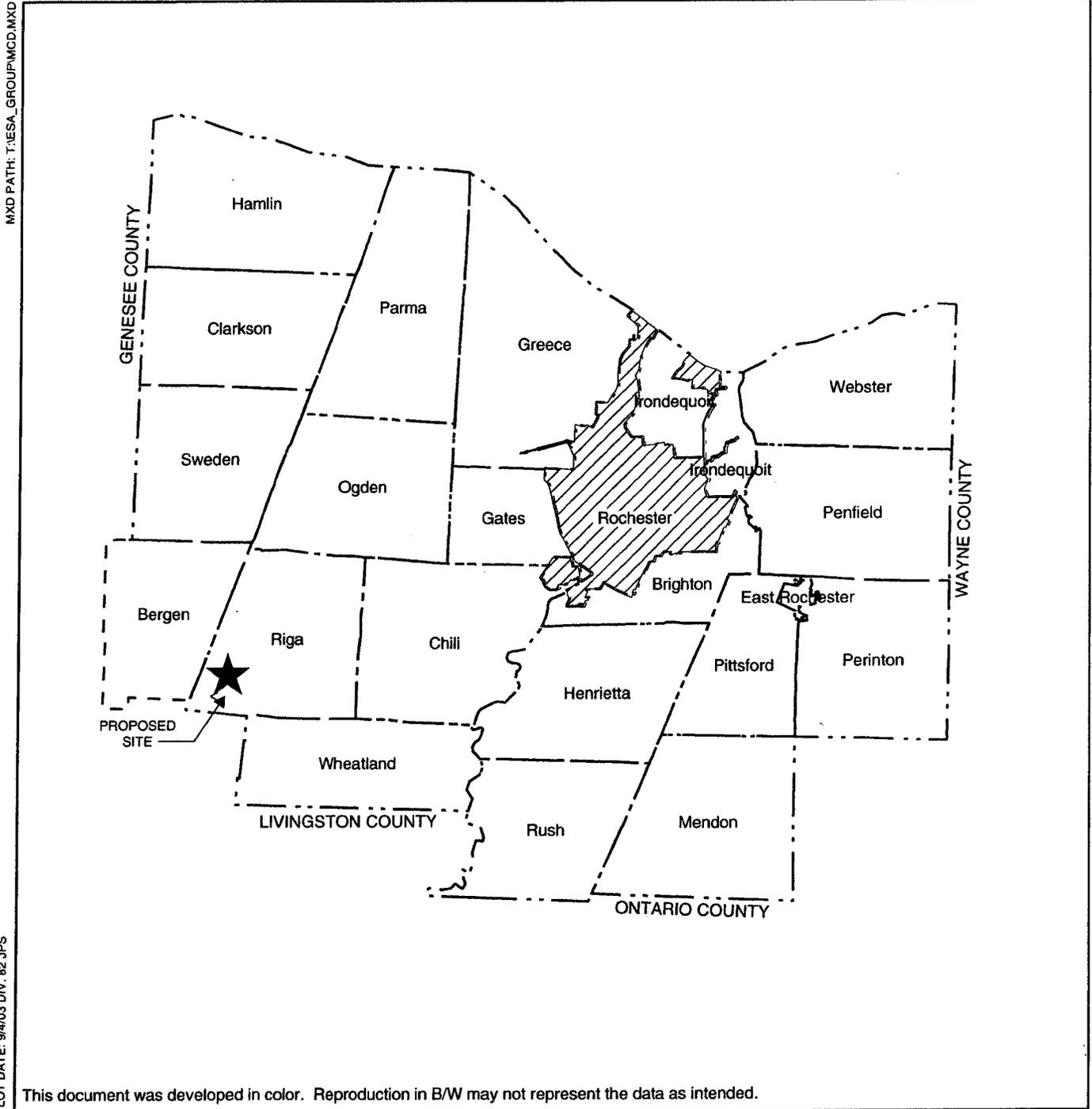
Source: 6NYCRR Part 360-1.14 – *Noise levels*
Notes: (1) A-weighted

Table 11. *List of potential vectors.*

Common name	Scientific name
Insects	
Mosquitoes	Family – Culicidae
House fly (adult & larva)	<i>Musca domestica</i>
Horse fly	<i>Tabanus americanus</i>
Soft tick	Family – Argasidae
Hard tick	Family – Ixodidae
Birds	
American Crow	<i>Corvus brachyrhynchos</i>
Common raven	<i>Corvus corax</i>
Herring gull	<i>Larus argentatus</i>
European starling	<i>Sturnus vulgaris</i>
Rock dove (pigeon)	<i>Columbia livia</i>
Mammals	
Norway rat	<i>Rattus norvegicus</i>
Deer mouse	<i>Peromyscus maniculatus</i>
White-footed mouse	<i>Peromyscus leucopus</i>
Raccoon	<i>Procyon lotor</i>
Virginia opossum	<i>Didelphis virginiana</i>
Striped skunk	<i>Mephitis mephitis</i>
Squirrels	Family – Sciuridae
Black bear	<i>Ursus americanus</i>
Woodchuck	<i>Marmota monax</i>

Table 12. *Litter control clean-up frequency.*

Frequency	Location
Weekly (as needed)	Scale house Un-tarpping area Un-tarpping area catch fences Other catch fences Sweep out area Perimeter roads Other on-site roads Wetland tree lines Perimeter security fences
It should be noted that litter volumes and weather conditions may dictate variations to this schedule	



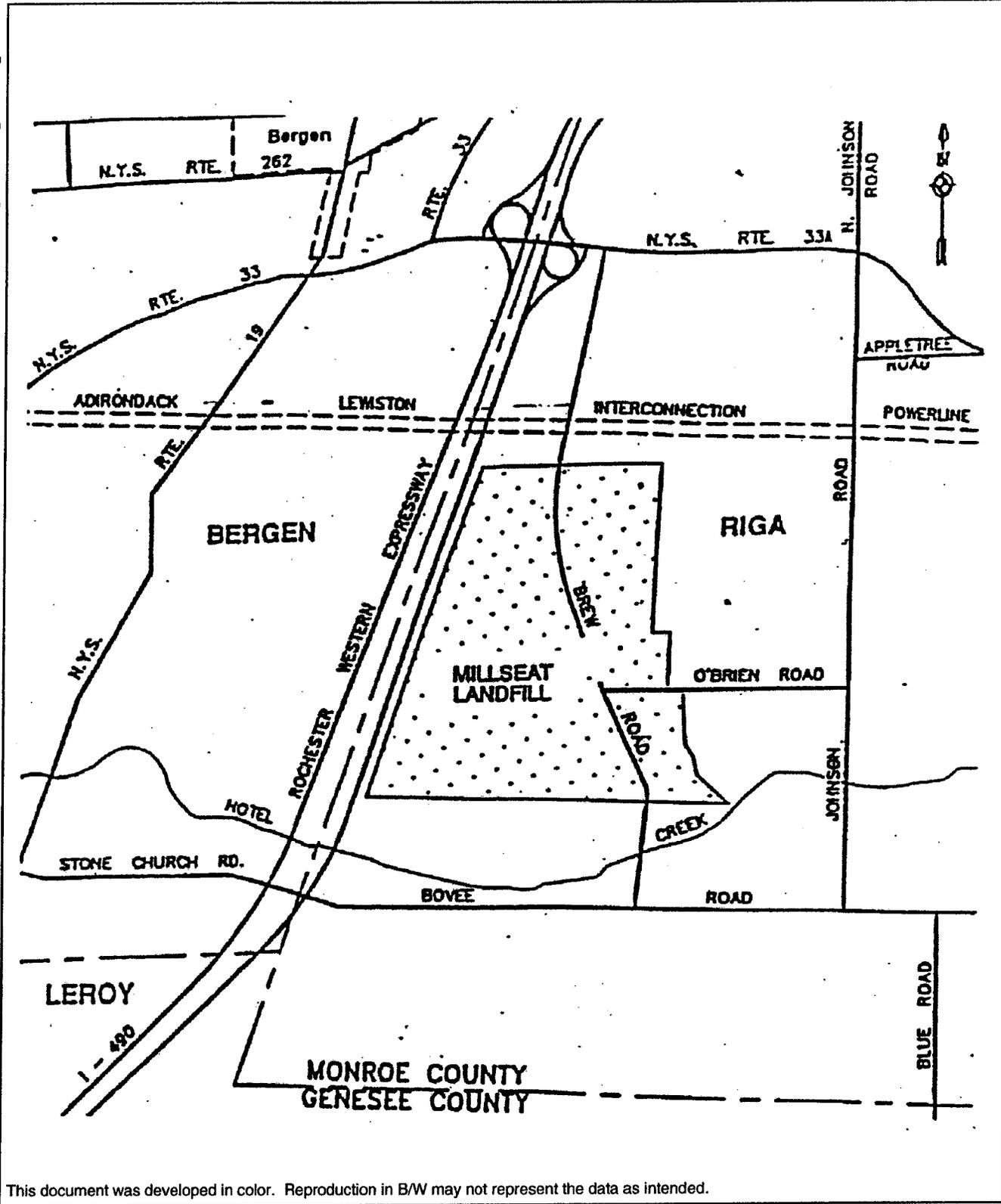
MILL SEAT LANDFILL
 ENVIRONMENTAL MONITORING PLAN
 RIGA, NEW YORK

REGIONAL LOCATION



PATH: T:\ESA_GROUP\MILL_SEATSITE_LOC.MXD

PLOT DATE: 9/5/03 DIV. 82 JPS



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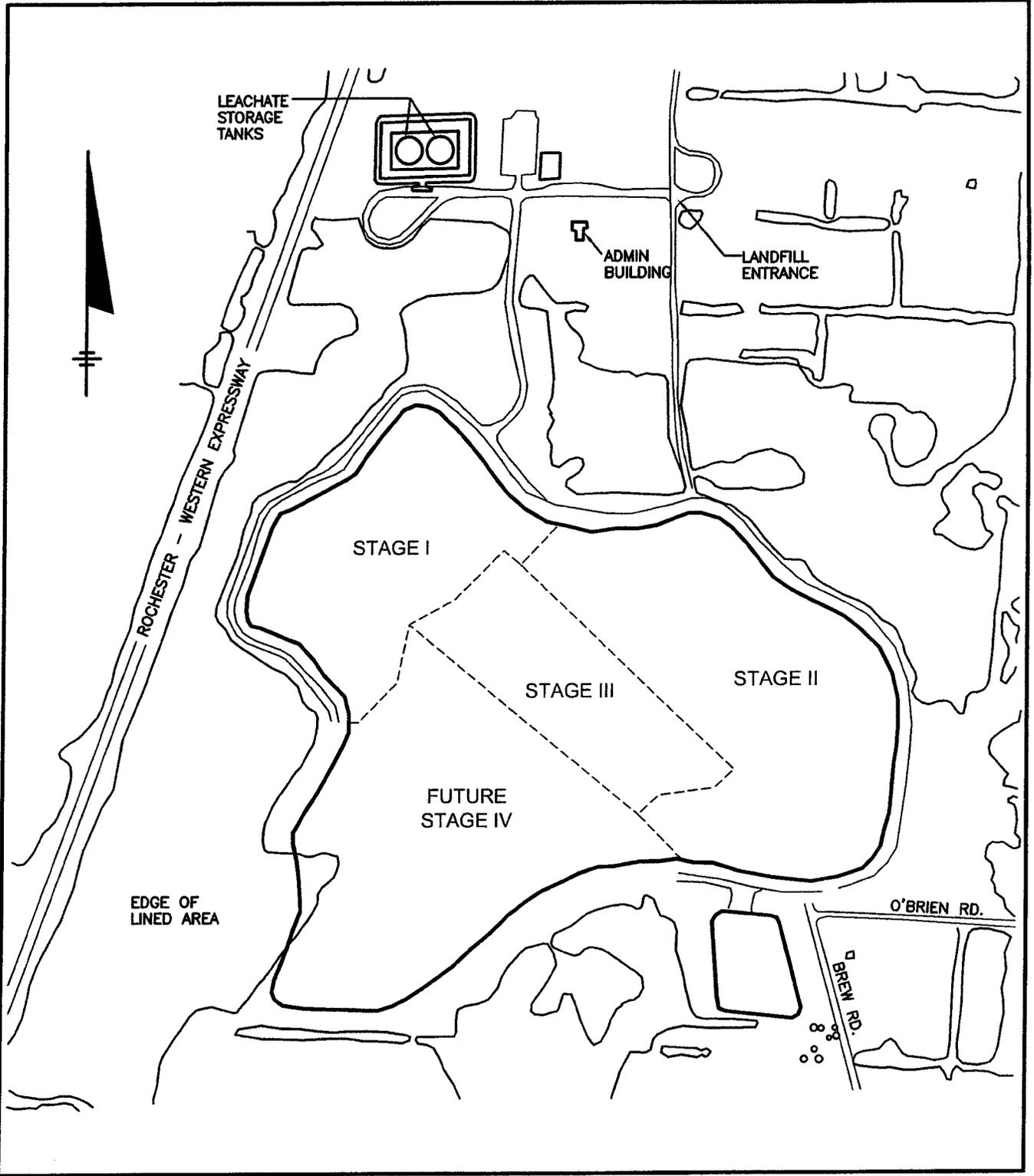
MILL SEAT LANDFILL ENVIRONMENTAL MONITORING PLAN

SITE LOCATION

FIGURE 3

DWG PATH: I:\DIV82\PROJECTS\3143\32344\DWGS\32344-001.DWG

PLOT DATE: 09/05/03 DIV83 SLS



MILL SEAT LANDFILL
ENVIRONMENTAL MONITORING PLAN
LANDFILL SITE PLAN

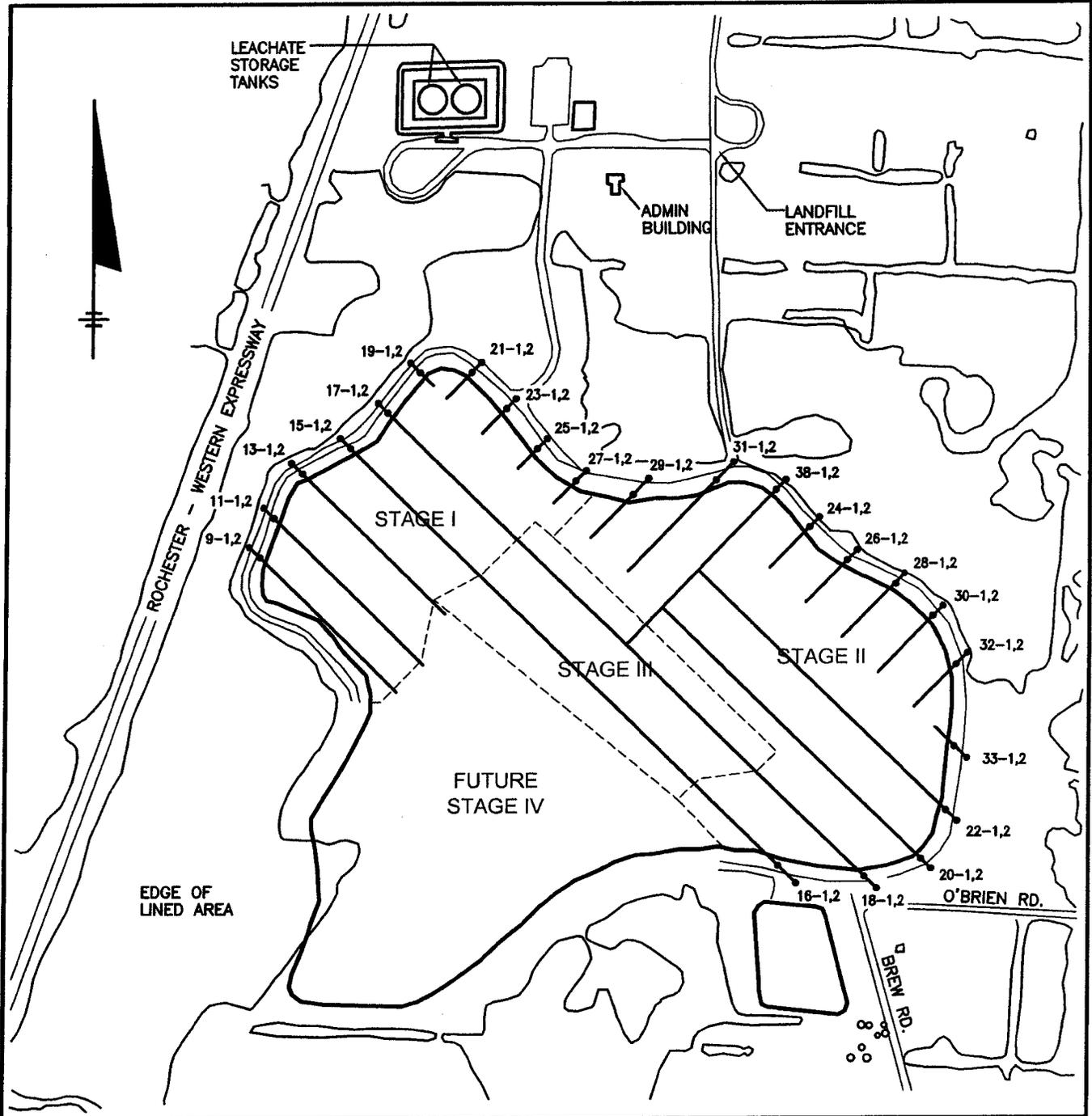
DATE: SEPTEMBER 2003
FILE NO. 3143.32344-002

(NOT TO SCALE)



DWG PATH: I:\DIV82\PROJECTS\143\32344\DWGS\32344-001.DWG

PLOT DATE: 09/05/03 DIV83 SLS



NOTES:

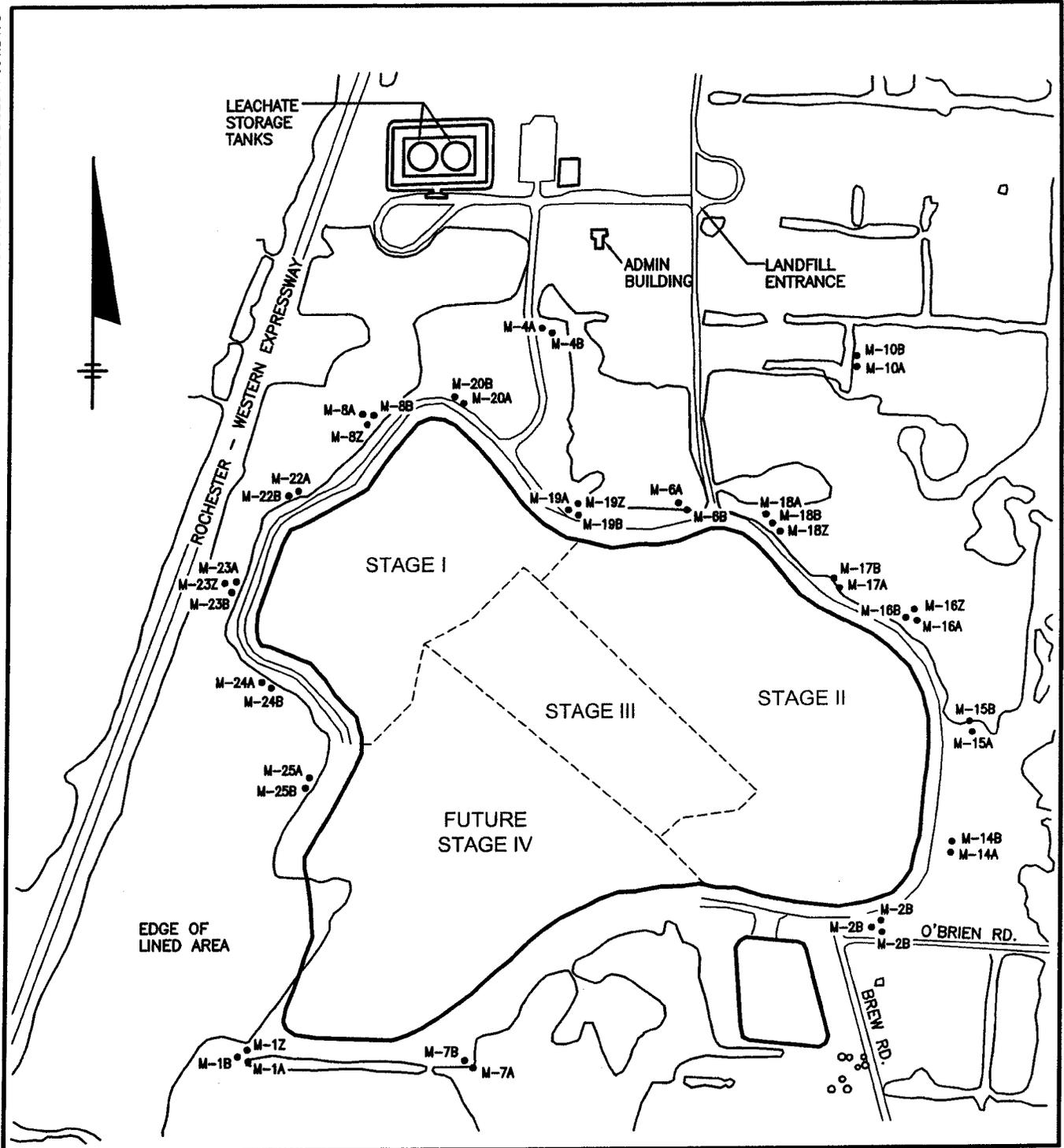
1. MANHOLE #37P IS THE PRIMARY LEACHATE COLLECTION SYSTEM MANHOLE ALONG THE HEADER BETWEEN LEACHATE LATERALS 21 AND 23. MANHOLE #37S IS THE SECONDARY LEACHATE COLLECTION SYSTEM MANHOLE ALONG THE HEADER BETWEEN LEACHATE LATERALS 21 AND 23. THE PRIMARY SYSTEM MANHOLES ARE LOCATED INSIDE THE PERIMETER ROAD; THE SECONDARY SYSTEM MANHOLES ARE OUTSIDE.
2. MANHOLE #38-1 IS THE PRIMARY LEACHATE COLLECTION SYSTEM MANHOLE ON LEACHATE LATERAL #36. MANHOLE #36-2 IS THE SECONDARY LEACHATE COLLECTION SYSTEM MANHOLE ON LEACHATE LATERAL #36. THE PRIMARY SYSTEM MANHOLES ARE LOCATED INSIDE THE PERIMETER ROAD; THE SECONDARY SYSTEM MANHOLES ARE OUTSIDE.

**MILL SEAT LANDFILL
ENVIRONMENTAL MONITORING PLAN
PRIMARY & SECONDARY LEACHATE SYSTEM**

FIGURE 5

DWG PATH: I:\DIV82\PROJECTS\3143\32344\DWGS\32344-001.DWG

PLOT DATE: 09/05/03 DIV83 SLS



NOTE:

1. MONITORING WELL M1B HAS HISTORICALLY BEEN DRY AND IS NOT INCLUDED AS A PERMANENT MONITORING WELL.

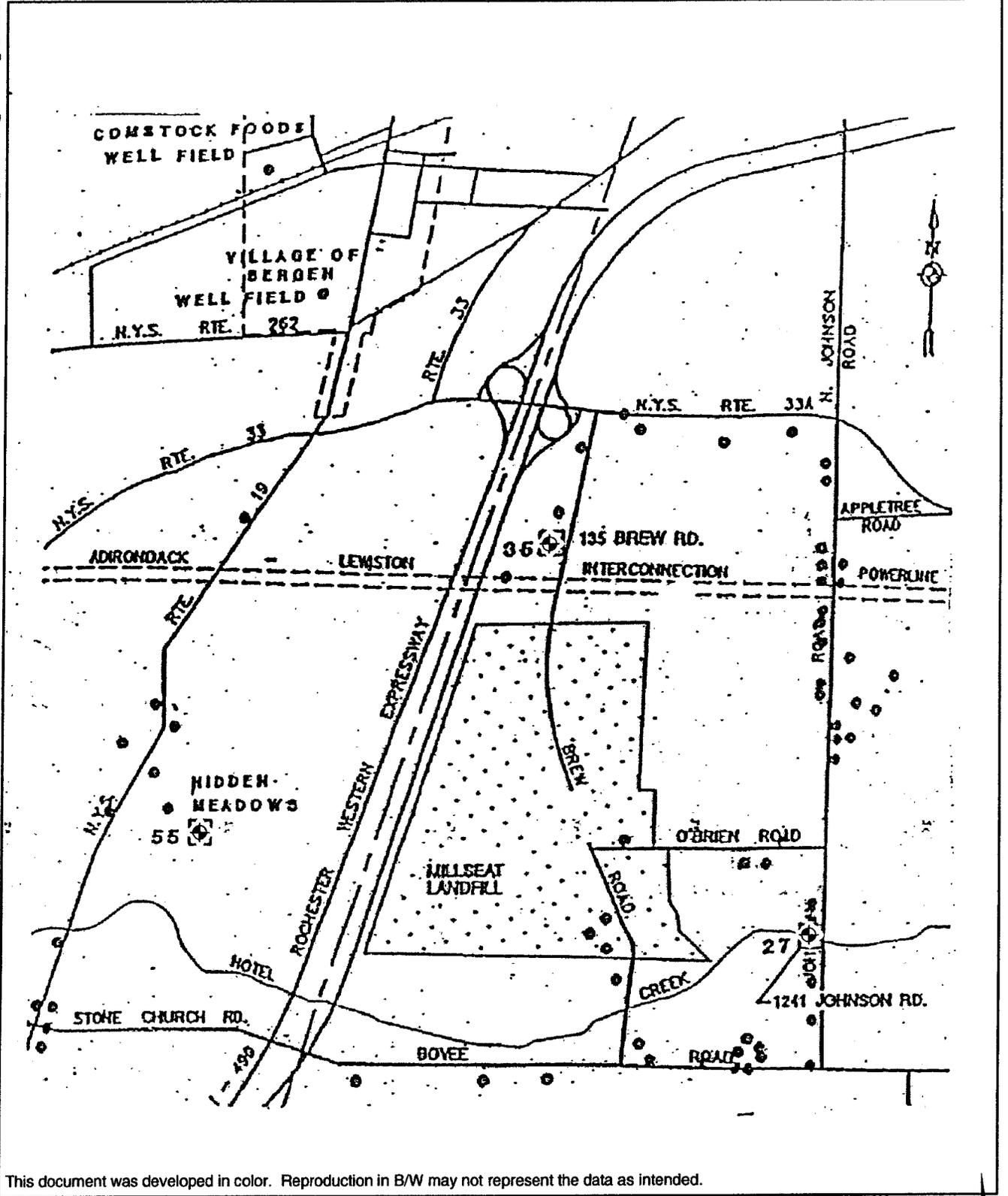
LEGEND:

- EXISTING MONITORING WELLS IN THE GROUND WATER MONITORING NETWORK

**MILL SEAT LANDFILL
ENVIRONMENTAL MONITORING PLAN
ON-SITE GROUND WATER MONITORING LOCATIONS**

PATH: T:\ESA_GROUP\MILL_SEAT\MW_NET.MXD

PLOT DATE: 9/5/03 DIV. 82 JPS



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MILL SEAT LANDFILL ENVIRONMENTAL MONITORING PLAN

MONITORING NETWORK WELLS

PRIVATE WELL MONITORING LOCATIONS

DATE: SEPTEMBER 2003 FILE_NO. 0888.29040

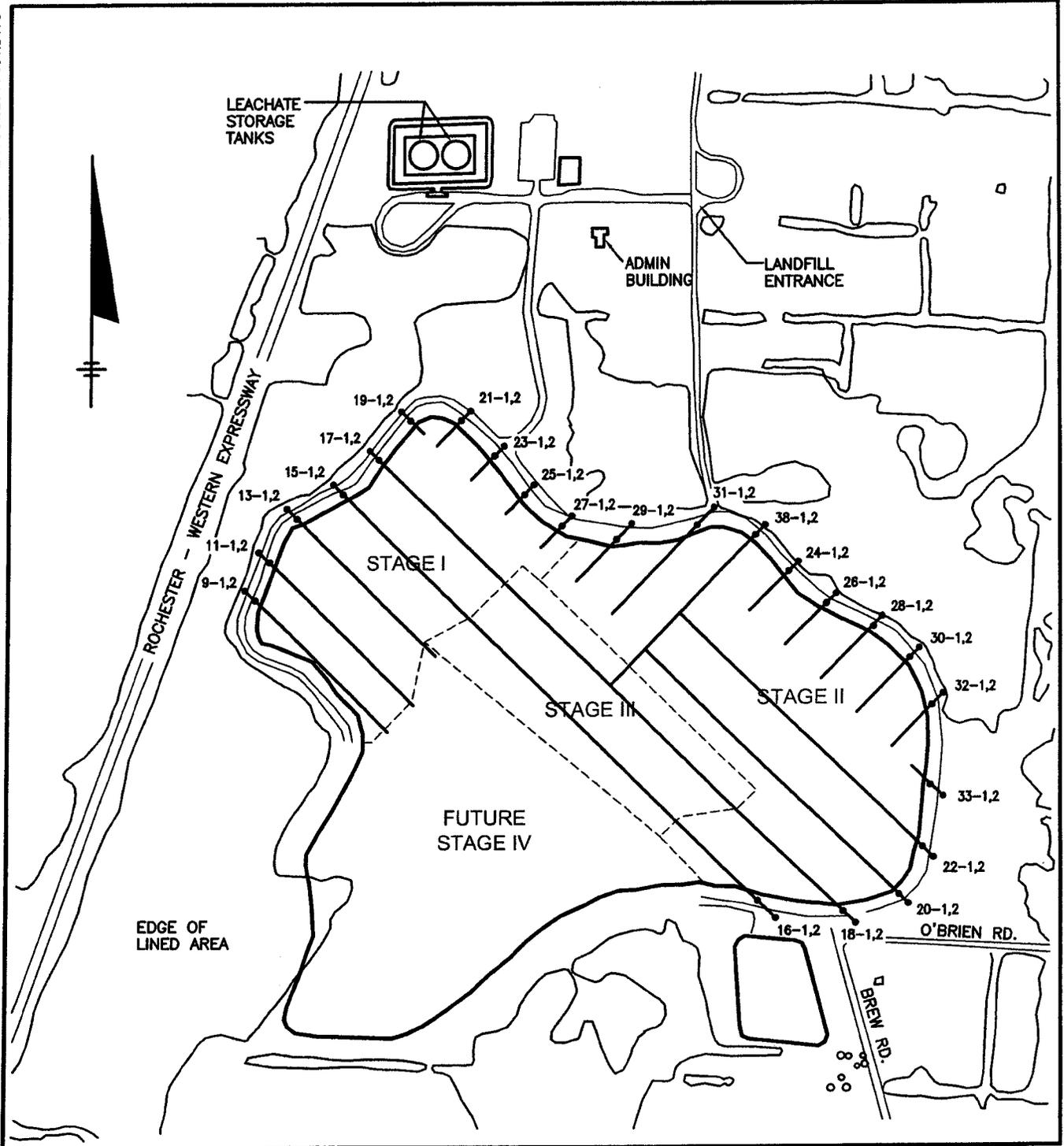
(NOT TO SCALE)



FIGURE 7

DWG PATH: I:\DIV82\PROJECTS\3143\32344\DWGS\32344-001.DWG

PLOT DATE: 09/05/03 DIV83 SLS



NOTE:

1. GROUND WATER SUPPRESSION SYSTEM MONITORING LOCATION NORMALLY IS AT THE END OF A DAYLIGHT PIPE. FOR LATERAL #'S 16, 18, 20, 24, AND 26 THE MONITORING LOCATION IS IN A MANHOLE NEXT TO THE SECONDARY LEACHATE COLLECTION SYSTEM PERIMETER MANHOLE.

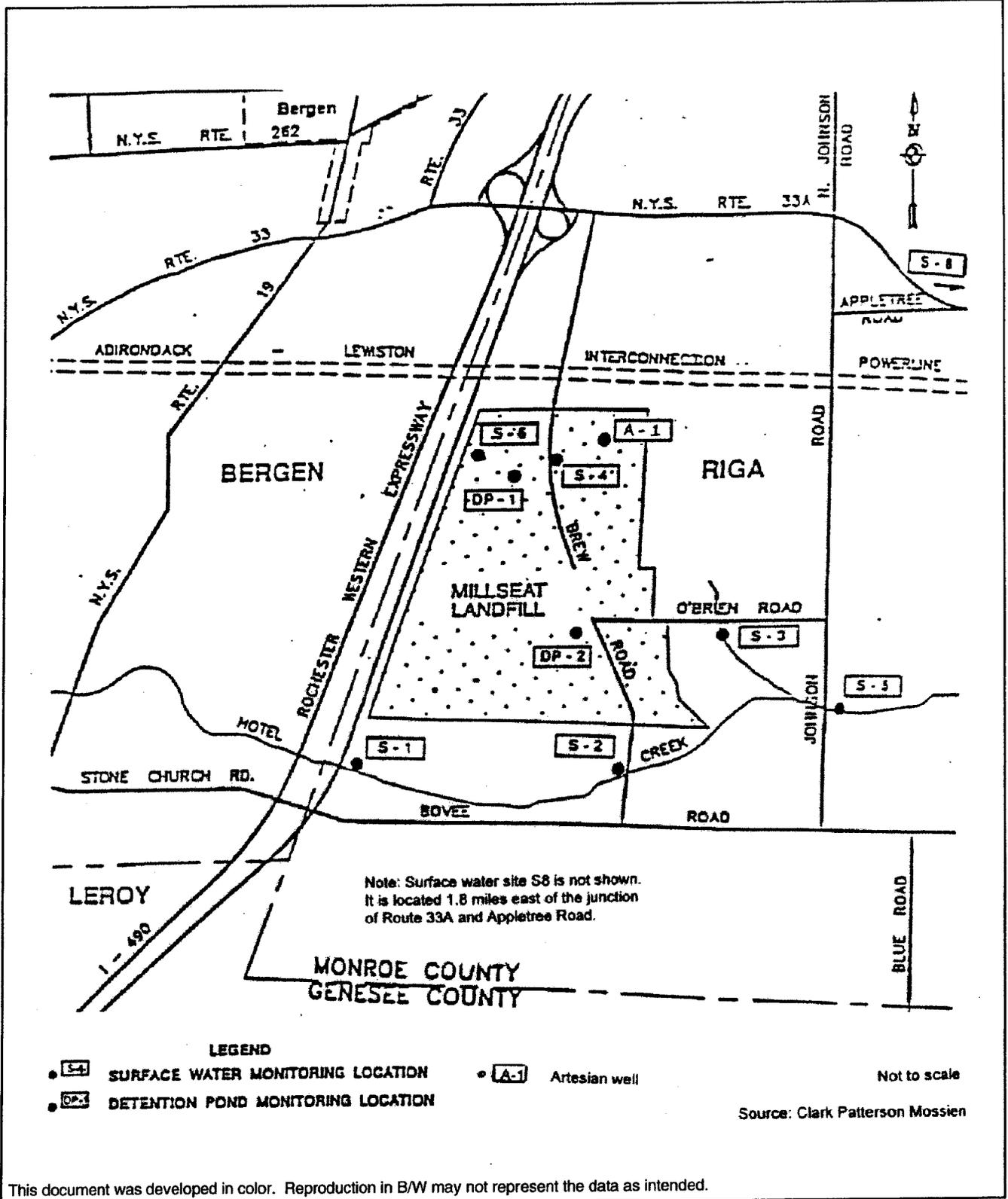
MILL SEAT LANDFILL
 ENVIRONMENTAL MONITORING PLAN
GROUND WATER SUPPRESSION SYSTEM

DATE: SEPTEMBER 2003
 FILE NO. 3143.32344-005

(NOT TO SCALE)



PATH: T:\ESA_GROUP\MILL_SEAT\SW.MXD



PLOT DATE: 9/5/03 DIV. 82 JPS

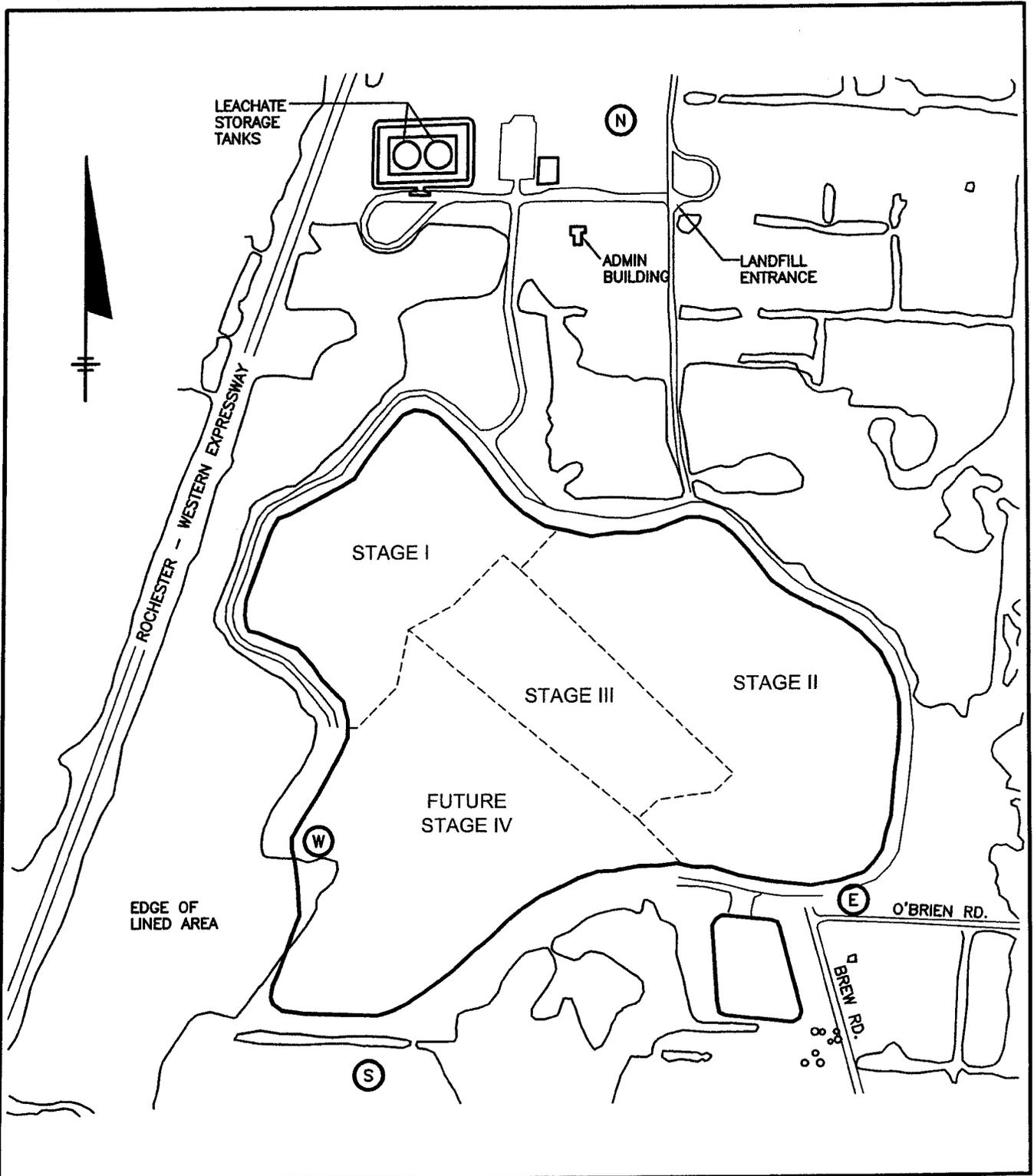
MILL SEAT LANDFILL
ENVIRONMENTAL MONITORING PLAN

**SURFACE WATER
MONITORING LOCATIONS**

FIGURE 9

DWG PATH: I:\DIV82\PROJECTS\3143\32344\DWGS\32344-001.DWG

PLOT DATE: 09/05/03 DIV83 SLS



LEGEND:
N, S, E, & W PROPERTY BOUNDARY SAMPLING LOCATIONS

MILL SEAT LANDFILL
ENVIRONMENTAL MONITORING PLAN
AMBIENT AIR MONITORING LOCATIONS

DATE: SEPTEMBER 2003
FILE NO. 3143.32344-007

(NOT TO SCALE)

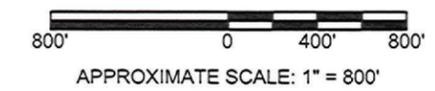




LEGEND

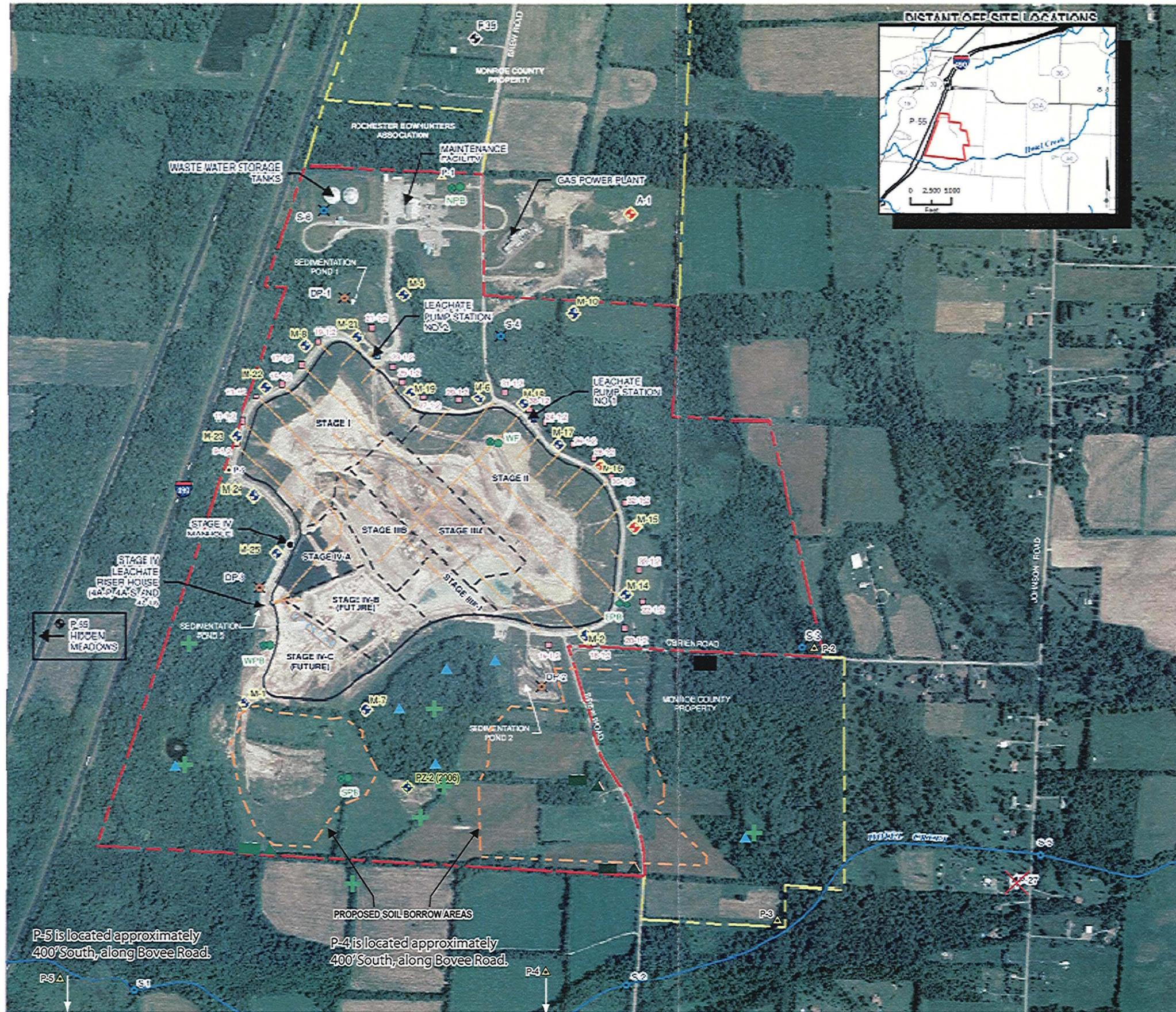
- EXISTING LANDFILL LIMITS
- PROPOSED BORROW AREA LIMITS
- MONROE COUNTY PROPERTY LINE (SEE NOTE 3)
- WASTE MANAGEMENT PROPERTY LINE (SEE NOTE 3)
- DELINEATED WETLAND LIMITS (SEE NOTE 4)
- P-1 ▲ NOISE MONITORING LOCATION

- NOTES:
1. Figure modified from original DWG No. 08015-029D by McMahon & Mann Consulting Engineers, P.C.
 2. Base map image provided by Aero-Metric from aerial photography dated July 2, 2008.
 3. Property lines were provided by Golder Associates from drawing file X07386309A-Property Line and by Passero Associates from drawing file 200765103bsBovee.
 4. Wetland boundaries and buffers are based on Barton & Loguidice, P.C. Wetland Delineation Map dated August 12, 2009.



NOISE MONITORING LOCATIONS
Millseat Sanitary Landfill
Riga, New York

By: MAC	Date: May 2011	Project No. BU11160380
AMEC Geomatrix		Figure 10



P-5 is located approximately 400' South, along Bovee Road.

P-4 is located approximately 400' South, along Bovee Road.

FIGURE 11



LEGEND

- SAMPLE LOCATION TYPE**
- AMBIENT AIR
 - EXPLOSIVE GAS
 - ▲ NOISE MONITORING LOCATION (SEE ALSO FIGURE 10 FOR NOISE MONITORING LOCATIONS)
 - ▲ DETENTION POND
 - ▲ SURFACE WATER
 - PRIVATE WELL
 - MONITORING WELL
 - WELL WITH ARTESIAN FLOW
 - PRIMARY AND SECONDARY LEACHATE MONITORING SYSTEM
 - GROUNDWATER SUPPRESSION MONITORING LOCATION
 - RISER HOUSE PUMP STATION
 - PROPERTY BOUNDARY
 - OFF-SITE PARCEL BOUNDARY
 - - - PROPOSED SOIL BORROW PIT BOUNDARY (APPROXIMATE)
 - + STAFF GAUGE LOCATION
 - ▲ PHOTOGRAPHIC SURVEY AND VEGETATIVE ANALYSIS LOCATION
- ✗ PRIVATE WELL P-27 IS INOPERABLE, INACCESSIBLE FOR REPAIR, AND IS NO LONGER SAMPLED

WASTE MANAGEMENT OF NEW YORK, LLC

MILL SEAT LANDFILL BERGEN, NEW YORK

SUMMARY OF SITE SAMPLE LOCATIONS

NOTE:
ALL SAMPLE LOCATIONS ARE APPROXIMATE



AMEC Geomatrix
MAY 2011

Base map prepared March 17, 2009, by Golder Assoc., Inc.
Revised by O'Brien and Gere October 2009
Revised by AMEC-Geomatrix May 2011