THE CITY OF NEW YORK
Department of Sanitation

FINAL

Edgemere Landfill
Operations and Maintenance Plan

September 30, 2022
Revised December 8, 2022

Submitted to:

The City of New York
Department of Sanitation
44 Beaver Street
New York, NY 10004

Prepared by:
Aptim Environmental & Infrastructure, LLC
17 Princess Road
Lawrenceville, NJ 08648

EDGEMERE LANDFILL
OPERATIONS AND MAINTENANCE PLAN

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SECTION 1
INTRODUCTION

1.1 PURPOSE OF THIS PLAN

The purpose of this Operation and Maintenance (O&M) Plan is to provide guidance for performing the post-closure activities at Edgemere Landfill ("the Landfill"). The Landfill closure and remedial facilities were installed during completion of earlier contracts with New York City Department of Sanitation (DSNY).

This plan specifies basic periodic inspection and maintenance of the landfill. There are no active remedial systems that require operation and maintenance. Specifically, the O&M Plan:

- Describes the various components of the closure systems including:
  - Landfill cover system;
  - Final cover drainage system;
  - Landfill gas management system; and
  - Ancillary Systems (i.e., access roads, fencing, etc.).
- Provides Safety, Emergency and Contingency guidelines,
- Provides a detailed description of the site systems for an understanding of the Landfill systems,
- Specifies detailed instructions regarding inspection and maintenance of appropriate components of the closure systems.

1.2 SITE LOCATION AND DESCRIPTION

The Edgemere Landfill is located on the Rockaway Peninsula in the Borough of Queens, New York City, New York, as shown on **Figure 1-1**, Site Location. The Edgemere Landfill property encompasses an area of approximately 173 acres on the Rockaway Peninsula, which is bounded on the east by Norton Basin and Little Bay, on the north by Jamaica Bay and Norton Basin, on the west by Somerville Basin and Grass Hassock Channel, and on the south by Rockaway Peninsula (specifically Almeda Avenue).

The Landfill site extends northeast from Almeda Avenue approximately 3,200 feet into Jamaica Bay and is approximately 2,000 feet wide at its widest location forming a peninsula into Jamaica Bay. The Landfill was constructed on this peninsula made up of 2.5 million cubic yards of dredge sand fill, which was placed over the original bay marshlands at this location. The parcel on which the Landfill is located can be divided into three (3) major regions as follows:

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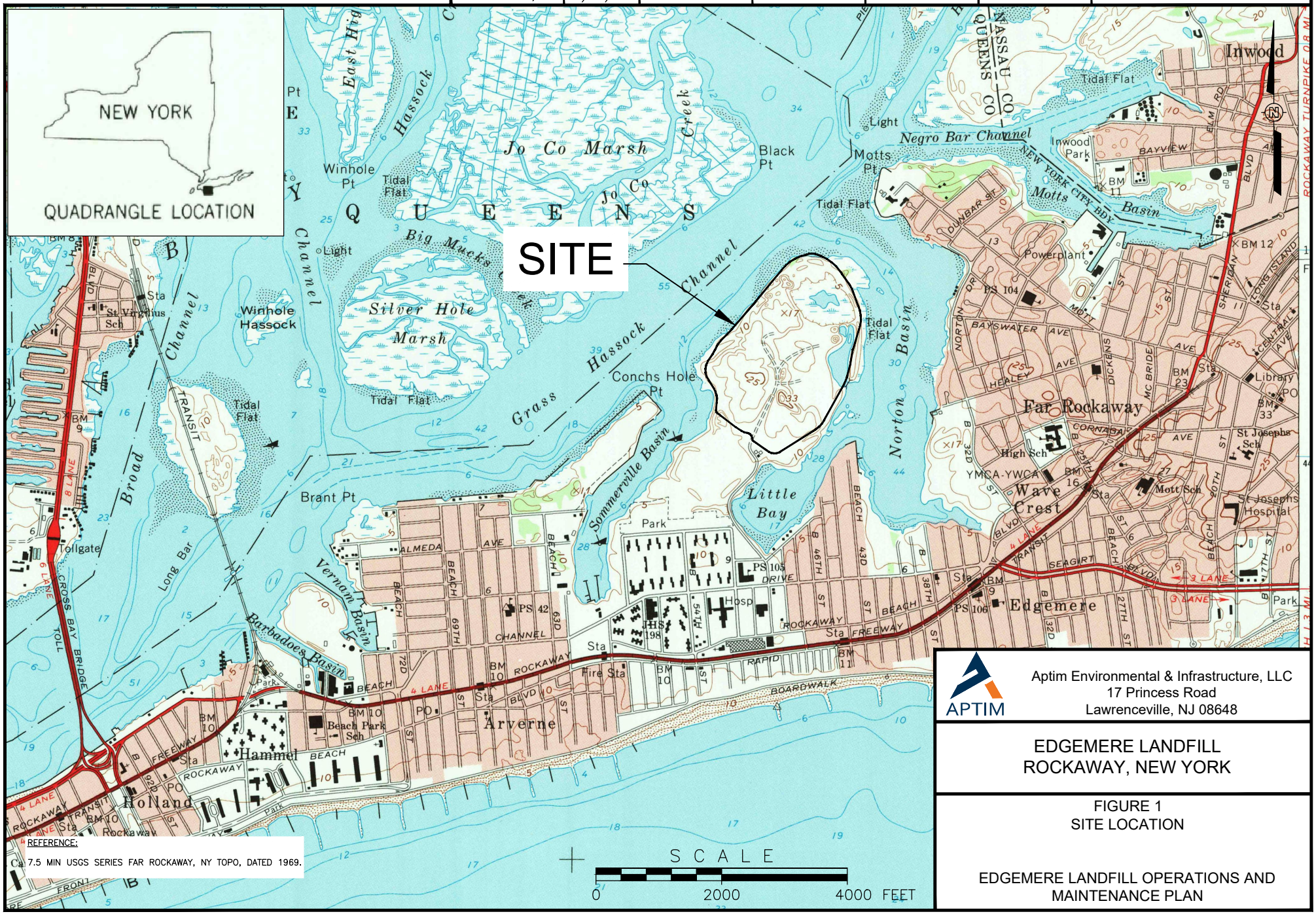

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Aptim Environmental & Infrastructure, LLC
17 Princess Road
Lawrenceville, NJ 08648

EDGEMERE LANDFILL
ROCKAWAY, NEW YORK

FIGURE 1
SITE LOCATION

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

- The Fill Area, which encompasses approximately 118 acres of the site was primarily used for landfilling of municipal waste and has a maximum elevation of 70 feet above mean sea level (MSL) based on the Queens Topographical Bureau Vertical Datum (QTBVD), and the as-built survey of the top of topsoil layer of the final cover system dated November 1997.

- The Neck Area, which encompasses approximately 40 acres of the site currently has relatively low topographic relief of approximately 5 to 10 feet above MSL based on QTBVD and is devoid of municipal waste. It is located immediately south of the Fill Area and immediately north of the Rockaways Community Park.

- Rockaways Community Park and the park and landfill access road entrances comprise the remaining 15 acres of the site and are located immediately south of the Neck Area and immediately north of Almeda Avenue and are also devoid of municipal waste.

The Edgemere Landfill site began operation in 1938 and received approximately 1,200 tons per day of New York City's solid wastes until June of 1991. It ceased operation in accordance with the closure date agreed to in the August 1987 Consent Order between the New York State Department of Environmental Conservation (NYSDEC) and the New York City Department of Sanitation (DSNY). Approximately 9 million cubic yards of wastes consisting of residential waste, rubbish, street dirt, construction waste and demolition debris were received at the site. The landfill is now considered an inactive hazardous waste site.

1.3 LANDFILL CLOSURE AND REMEDIATION

In accordance with the Record of Decision (ROD) of March 1993, DSNY implemented the selected remedial action of construction of a final cover; a landfill gas management system; stormwater and erosion control system; and air, groundwater, and surface water monitoring system. The design of the Edgemere Landfill Closure and Final Remediation project was completed in March 1995, and the construction of the project began in August 1995. The project was completed in November 1997.

An active landfill gas management system was operated from November 1997 until February 2016. The landfill gas management system at the Edgemere Landfill included landfill gas extraction wells, collection piping, blowers, an enclosed flare, and a condensate management system.

Based on the 2011 LFG flow rate and NMOC concentration, the NMOC emission rate for Edgemere was estimated is 4.9 MG/yr. This emission rate was well below 50 MG/yr emission rate cited in 6 NYCRR 208.3(b)(2)(v)(c).) as one of the conditions that needed to be met for the collection and control system to be capped or removed.

To demonstrate that the landfill satisfied this requirement, DSNY performed NMOC emission testing per 6 NYCRR 208.3(b)(2)(v)(c) with three samples taken at least 90 days apart to verify the current NMOC concentration of the LFG at the landfill. In accordance with the *Work Plan for Non-Methane Organic Compound (NMOC) Sampling of Landfill Gas*, sampling was performed on May 21, August 27, and November 26, 2013. Based on the results of the three LFG sampling events, the calculated mass emission rate of NMOC was well below the threshold of 50 MG/yrs., thereby meeting the conditions necessary for the LFG collection and control system to be capped or removed.

Consequently, DSNY proceeded with plans to discontinue operation of the LFG active gas management system. A study was performed, and a plan was developed to convert the active landfill gas management system to a passive venting system. Passive LFG venting appurtenances were installed at Edgemere Landfill and were proven to be effective. The active system was switched over to a passive vent system on March 1, 2016.

Concurrent with the conversion to a passive venting system, an approximately 500-linear foot, 10-foot-deep passive gas vent trench was designed and constructed along the southeastern toe of the landfill to mitigate potential methane migration towards the DSNY Garage/Maintenance facility. The passive venting system and gas vent trench remain at the site.

1.4 DOCUMENT ORGANIZATION

This O&M Plan is organized into 7 sections and 2 appendices, as detailed below:

- **Section 1,** "Introduction," discusses the purpose of the document, outlines the site location and description, landfill closure and remediation, document organization and lists relevant studies and documents relating to the Edgemere Landfill.

- **Section 2,** "Description of Landfill Closure Systems," describes in detail the major systems that require inspection and maintenance at the Edgemere Landfill.

- **Section 3,** "Personnel," discusses staffing requirements, qualifications, and training requirements for the performance of required activities under the O&M Plan.

- **Section 4,** "Safety Policies and Guidelines," outlines safety guidelines and procedures intended to reduce the risk of employee injury and occupational illness; satisfy regulatory requirements regarding health and safety; and satisfy DSNY health and safety and emergency response requirements.

- **Section 5,** "Documentation and Reporting," discusses the proper use of various media used for documentation, including field forms, checklists, photographs, maps and drawings, and repair logs, as well as reporting requirements to DSNY.

- **Section 6,** "Emergencies and Contingency Plan," details steps to be taken in case of incidents, emergencies, and other situations at the Site requiring corrective action.

- **Section 7**, "Monitoring, Inspection, and Maintenance," contains standard inspection checklists, regular and preventive maintenance schedules, and performance monitoring schedules for the closure systems installed at the Site.

- **Appendix A** provides a table listing emergency contacts and associated telephone numbers.

- **Appendix B** contains the various Inspection Checklist Forms, as well as instructions for many of the forms.

1.5 PREVIOUS STUDIES AND DOCUMENTS

The following documents, which relate to the Edgemere Landfill and vicinity, are relevant to the development of this Operations and Maintenance Plan:

- "Landfill Gas Utilization Feasibility Study" November 1994, Roy F. Weston of New York, Inc.
- "Post-Closure Environmental and Facility Monitoring Program," December 1994, Roy F. Weston of New York, Inc.
- "Final Design Report," March 1995, Roy F. Weston of New York, Inc.
- "Bid Documents for Edgemere Landfill Closure and Final Remediation," March 1995, Roy F. Weston of New York, Inc.
- "Addendum No. 1 to Bid Documents for Edgemere Landfill Closure and Final Remediation," April 1995, Roy F. Weston of New York, Inc.
- "Edgemere Landfill Closure and Final Remediation, Construction Certification Report," August 1998, RUST Environment and Infrastructure.
- "Technical Justification to Terminate Groundwater Monitoring and Landfill Gas Flaring at the Edgemere Landfill," 2012, Weston Solutions of New York, Inc., prepared for DSNY, dated November 16, 2012.
- "Letter to Ted Nabavi, New York Department of Sanitation from Nigel N. Crawford, P.E., New York State Department of Environmental Conservation," 2013, NYSDEC, dated January 30, 2013.

- "Letter Work Plan for Non-Methane Organic Compound (NMOC) Sampling of Landfill Gas," 2013, Shaw Environmental, Inc., prepared for DSNY, February 28, 2013.
- "Letter to Mr. Ted R. Nabavi, NYC Department of Sanitation from Nigel N. Crawford, P.E., NYSDEC Region 2," 2013, NYSDEC, dated April 9, 2013.
- "Landfill Gas Collection System Conversion," 2015, Beech and Bonaparte Engineering, P.C., prepared April 27, 2015.
- "Landfill Gas Monitoring Plan," 2015, Beech and Bonaparte Engineering P.C., prepared April 27, 2015, and revised December 1, 2015.
- "Report of Landfill Gas Performance Monitoring Results," 2016, Beech and Bonaparte Engineering P.C., prepared December 27, 2016, and revised August 9, 2018.
- "Dismantling and Disposal of Select Landfill Gas Flare Station Components," 2017, Aptim Environmental & Infrastructure, Inc., prepared under the direction of New York City Department of Sanitation, September 8, 2017, updated November 6, 2017.
- "Vent Hardening Report," 2018, Aptim Environmental & Infrastructure, Inc., prepared under the direction of New York City Department of Sanitation, January 18, 2018.
- Periodic Review Report, 2018, Aptim Engineering New York P.C, prepared May 30, 2018 and revised January 18, 2019.

SECTION 2
DESCRIPTION OF LANDFILL CLOSURE SYSTEMS

2.1 MAJOR SYSTEMS

The major systems that require inspection and maintenance at the Edgemere Landfill include the following:

- Landfill Final Cover System
- Final Cover Drainage System
- Landfill Gas Management System
- Ancillary Systems

Each of these systems is described in the following sections.

2.2 LANDFILL FINAL COVER SYSTEM

The landfill final cover system is depicted in **Figures 2-1 and 2-2**, which show typical final cover cross-sections for the landfill sideslopes and landfill top, respectively. As regulated under 6 NYCRR Part 360, the final cover systems for both the sideslopes and the top consists of a geomembrane, overlain by a geosynthetic drainage net, and covered by 18 inches of compacted cover soil and 6 inches of topsoil suitable to support vegetation.

The landfill cover system for the landfill sideslopes (i.e., areas with slopes greater than 10%) is comprised of the following elements, from top to bottom:

- 6-inch thick vegetated topsoil layer
- 18-inch thick barrier protection layer
- 6-ounce geotextile
- Drainage net
- PVC composite, consisting of a 6-ounce geotextile glued onto 40 mil PVC geomembrane glued onto a 12-ounce bedding geotextile
- 12-inch thick sub-base layer (fill soil)

The landfill cover system for the landfill top (i.e., areas with slopes greater than 4% but less than 10%) is comprised of the following elements, from top to bottom:

- 6-inch thick vegetated topsoil layer
- 18-inch thick barrier protection layer
- 6-ounce separation/filter geotextile
- Drainage net

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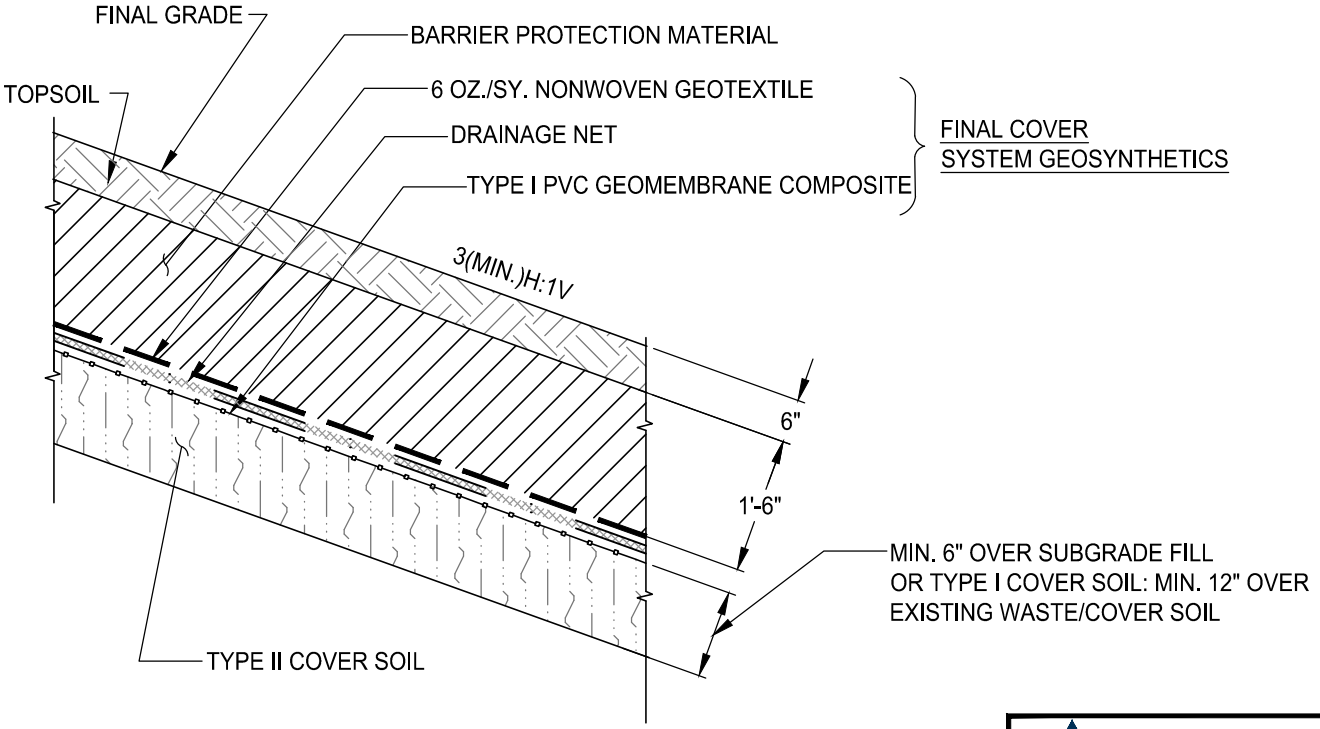

NOTE:

DRAWING NOT TO SCALE

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FIGURE 2-1
TYPICAL FINAL COVER CROSS-SECTION ON LANDFILL SIDE SLOPES

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

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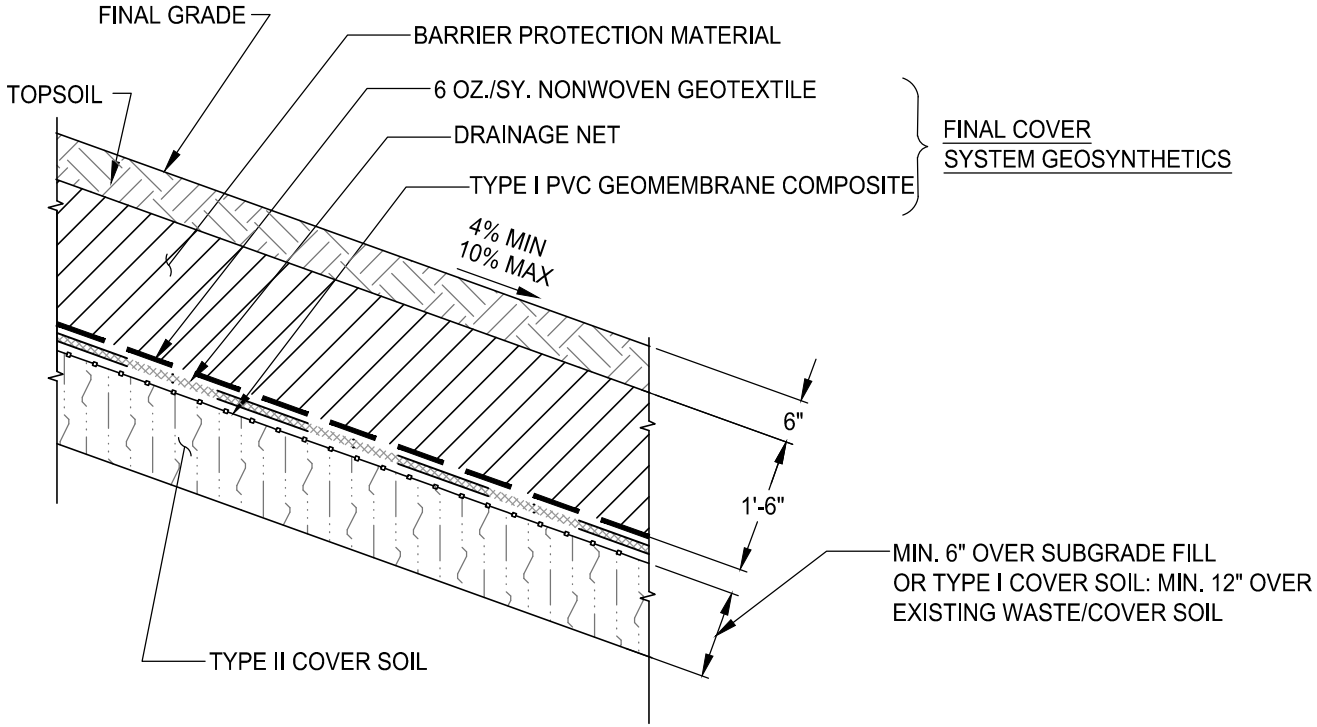

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FIGURE 2-2
TYPICAL FINAL COVER CROSS-SECTION ON LANDFILL TOP

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

- 40 mil PVC geomembrane
- 12-ounce bedding geotextile
- 12-inch thick sub-base layer (fill soil)

On both the sideslopes and the landfill top, the topsoil layer was constructed to support vegetative growth over the landfill surface and consists of a minimum 6-inch thick soil layer. Specifications for the topsoil layer call for a soil free from undesirable materials such as refuse, hard clods and woody vegetation and from stones larger than 2 inches.

Underlying the topsoil is an 18-inch protective soil barrier with a specified maximum particle size of 0.5 inch in the first lift of material adjacent to the geosynthetics and 1 inch elsewhere. This layer consists of imported soil, which meets the required classification and is free from undesirable material.

The purpose of the drainage net layer is to collect infiltration moisture and divert it to the surface drainage trenches and to the stormwater discharge points. The geomembrane underlying the drainage net is used to minimize rainfall infiltration into the landfill and release of landfill gas migration into the atmosphere. On the sideslopes, the geomembrane is part of a composite in which geotextiles are glued to both sides of the 40 mil PVC geomembrane, to increase veneer stability of the final cover system. On the landfill top, the geomembrane and geotextiles are placed in a "loose-lay" configuration.

The soil sub-base layer located immediately under the geomembrane is used to provide a smooth subgrade on which to place the geomembrane. The sub-base layer consists of material free from debris, landfill waste and frozen material and having a maximum particle size of one inch.

2.3 FINAL COVER DRAINAGE SYSTEM

The final cover drainage system, shown on **Figure 2-3**, was designed to accomplish the following:

- To remove stormwater runoff from the landfill surface during storm events to prevent ponding of water on the landfill
- To provide sediment control prior to discharge to the surrounding bay waters
- To control the effects of erosion on the landfill cap
- To collect precipitation infiltrating through the barrier soil to the drainage system above the geomembrane liner

The final cover drainage system consists of the following elements:

- Diversion dikes
- Drainage swales
- The perimeter drainage channel

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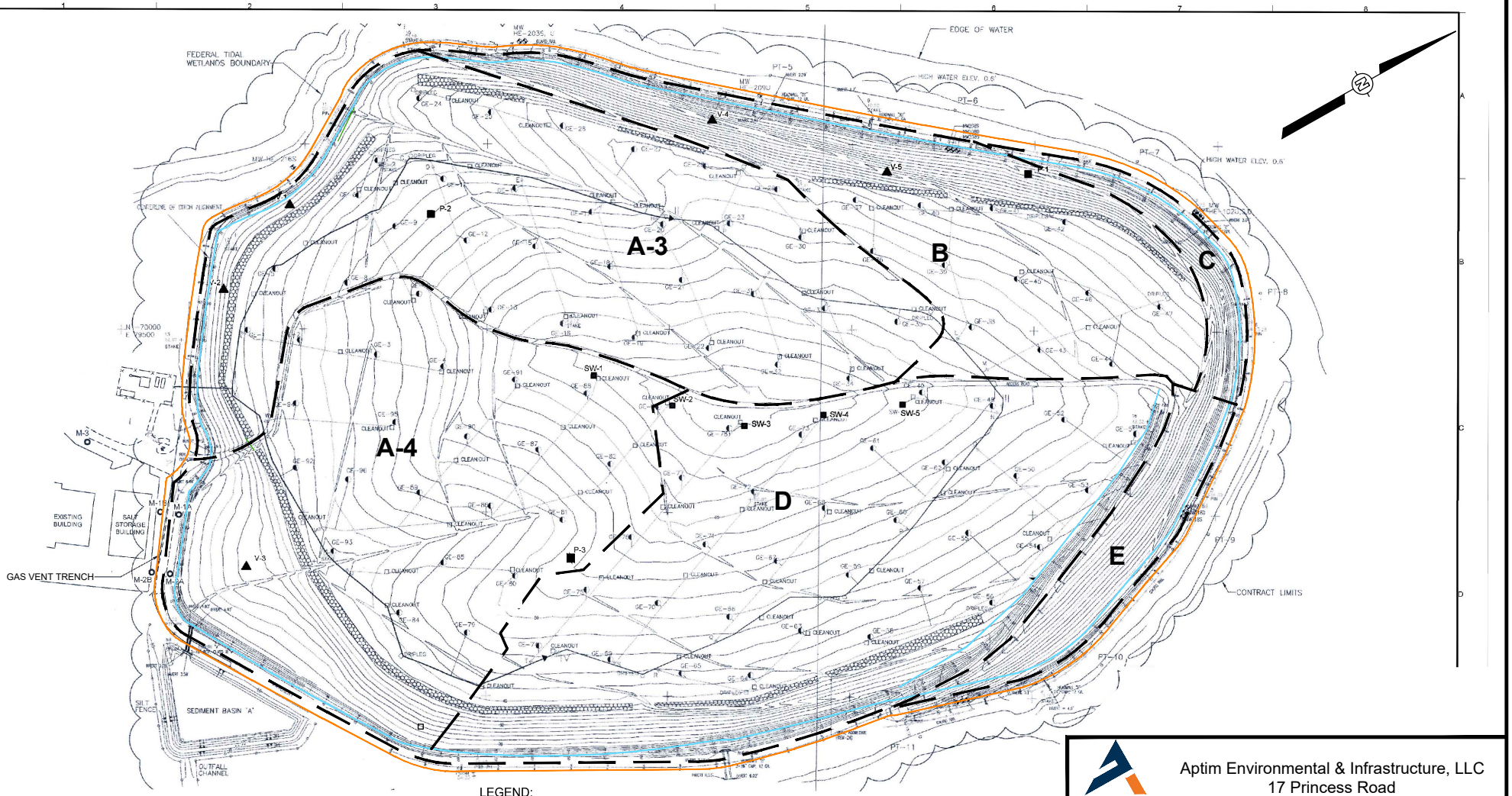

LEGEND:

- E — INSPECTION AREA BOUNDARY AND IDENTIFICATION
- DRAINAGE CHANNEL
- OUTSIDE ROAD BOUNDARY
- FORMER GROUNDWATER MONITORING WELL
- P-1 — GAS PRESSURE MONITOR
- V-1 — LFG VENT
- SW-1 — MODIFIED LFG WELL

SCALE
0 400 800 FEET

REFERENCE:

"SITE PLAN B: GPM, LFG VENT, AND LFG MIGRATION PROBE LOCATIONS"
DRAWING BY BEECH AND BONAPARTE, DATED MAY 1999

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FIGURE 2-3
FINAL COVER AND DRAINAGE SYSTEMS INSPECTION AREAS

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

- Sediment contro1 Basin A
- Culverts from the perimeter drainage channel to the bay

Runoff on the landfill surface is collected by diversion dikes located strategically to control erosion and stormwater flow. The diversion dikes are grass-lined with erosion control blankets placed at the low ends (at discharge points) of the dikes prior to flowing into the larger drainage swales. A series of fourteen individual diversion dikes (over 9,000 linear feet total length) cut across the landfill top, and an additional three grass-lined runoff diversion dikes were constructed across the West, North, and East side slopes, respectively. Drainage channels A3 and A4 provide runoff collection and conveyance at the southwestern and southeastern quadrants, respectively. Grass-lined drainage features entitled "Diversion Terraces One and Two" traverse the side slopes of the West and Northwest slopes, respectively. Depending on flow intensity, the drainage swales are either vegetative lined, vegetative lined with erosion control blankets, or rip-rap lined.

The drainage swales flow into the 9-acre perimeter drainage channel, which is riprap lined. The perimeter drainage channel includes five culverts which discharge the stormwater flow to the surrounding bay water. The channel is approximately 8,800 feet long, averages 30 feet wide at the top and 5 feet wide at the bottom, and its depth varies from 3 feet to 12 feet. The 18-inch thick channel surface is constructed of NYSDOT "light" riprap, underlain by a 6-inch thick layer of 2-inch diameter NYSDOT bedding stone. Underlying the bedding stone is a Type II PVC composite liner consisting of the following components, from top to bottom:

- A 24-ounce cushion geotextile
- 40-mil PVC geomembrane
- 12-ounce bedding geotextile
- 12 inches of cover soil overlying graded waste

The drainage channel discharges either through drainage culverts and to the surrounding bay waters, or through sediment control Basin A and then out to the bay waters. The runoff from approximately the southern 30 acres of the landfill surface is directed to sediment control Basin A.

The final cover drainage system on the landfill surface is designed to convey runoff from the 25-year, 24-hour event within the drainage dikes, swales, and channels, and stormwater conveyance piping.

The two-acre sediment control Basin A serves the following purpose:

- Lowers the peak flow of the stormwater runoff prior to its discharge into the bay;
- Allows suspended solids to settle out in the ponds prior to discharge;
- Provides distinct monitoring points for sampling of discharges into the bay.

Low permeability soil (10^{-6} cm/sec) was used for the berms forming Basin A to prevent seepage.

Details of the final cover drainage structures are shown on **Figure 2-4**.

2.4 LANDFILL GAS MANAGEMENT SYSTEM

The landfill gas management system is a passive system consisting of LFG vents and a vent trench. The active LFG collection system was switched over to a passive vent system on March 1, 2016.

A final report titled Report on Landfill Gas Performance Monitoring Results dated December 27, 2016 was submitted to NYSDEC on January 3, 2017. The final report presented the data and performance of LFG pressure and migration monitoring programs; conclusions based on the data and performance; and recommendations based on the NYSDEC reviewed and approved plans. The report concluded that the conversion from active LFG control to passive venting was demonstrated to be acceptable and could be made permanent by decommissioning the active LFG control system, and that monitoring of gas migration probes at the site may be suspended.

2.4.1 Landfill Gas Passive Vent System

Passive LFG venting appurtenances were installed at Edgemere Landfill. The modifications to the LFG system included installation of field gas pressure monitor devices and data loggers (P-1 through P-3), passive gas vents (V-1 through V-5), methane migration monitoring probes (M-1A and M-2A), and LFG well modifications to supplement passive venting (SW-1 through SW-5).

Conversion from active LFG control to passive gas venting also included the installation of a 500-foot long, 10-foot deep (nominal) LFG vent trench outside the limits of waste on the southeastern toe of the Landfill, as well as installation of additional migration monitoring probes. Probe pairs M-1A and M-1B and M-2A and M-2B serve to monitor performance of the vent trench in the vicinity of the garage facility. Probes EAST and M-3 serve to monitor potential methane migration around the western terminus of the trench. The landfill gas passive vent system in shown on **Figure 2-5** and the system component details are shown on **Figures 2-6A** and **2-6B.**

2.5 ANCILLARY SYSTEMS

The ancillary systems consist of the remaining miscellaneous landfill closure components, which were not covered in the previous sections. They include roads, fencing, gates, locks, signage, and miscellaneous other items.

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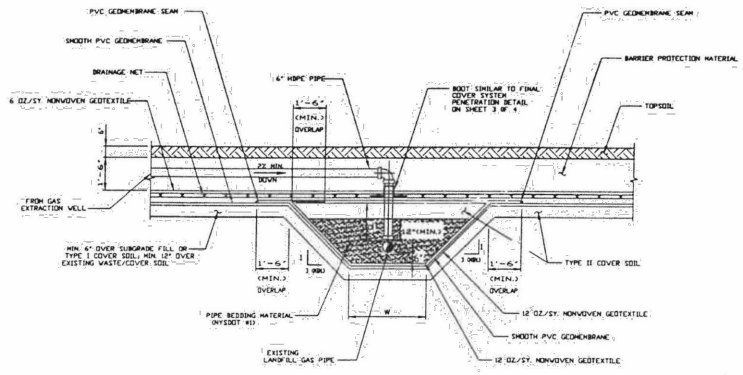
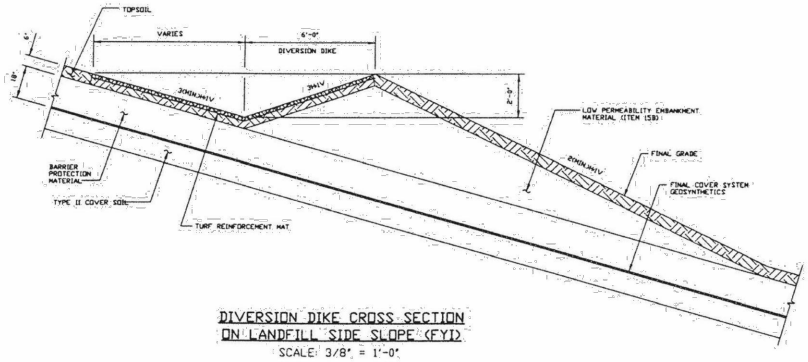
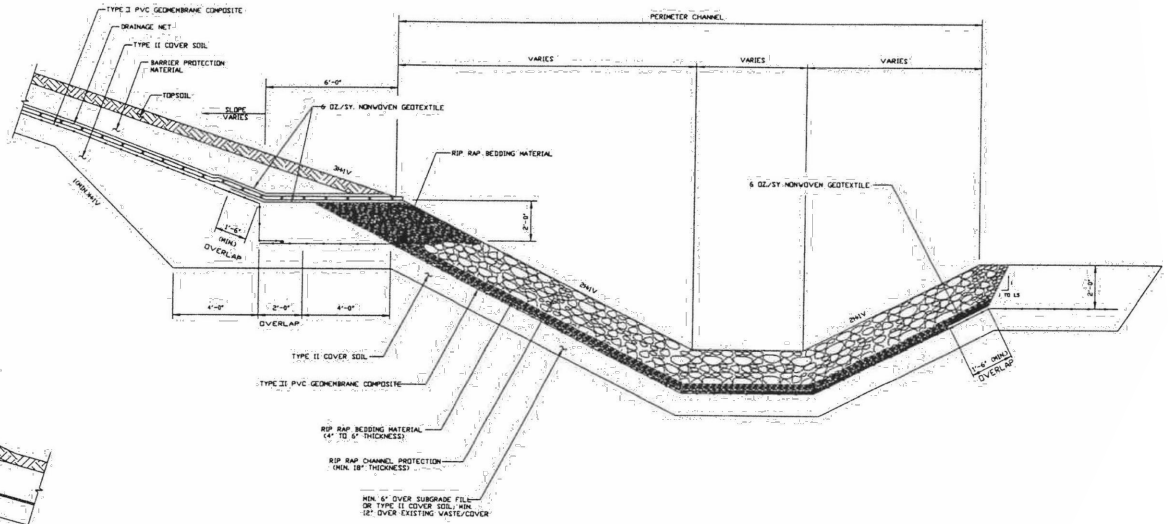


TYPICAL FINAL COVER SYSTEM
LANDFILL GAS PIPE TRENCH ON LANDFILL TOP AND TIE-IN FROM NEW LATERAL PIPE TO PIPE IN TRENCH
SCALE: 3/8" = 1'-0"



DIVERSION DIKE CROSS SECTION
ON LANDFILL SIDE SLOPE (FYI)
SCALE: 3/8" = 1'-0"



FINAL COVER SYSTEM ANCHORAGE
AT PERIMETER CHANNEL (FYI)
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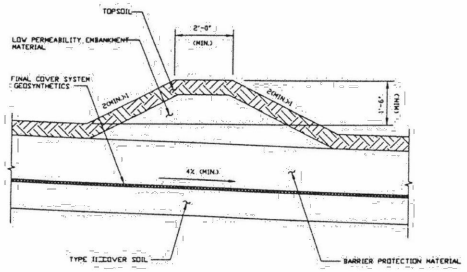

DIVERSION DIKE CROSS SECTION ON LANDFILL TOP (FYI)
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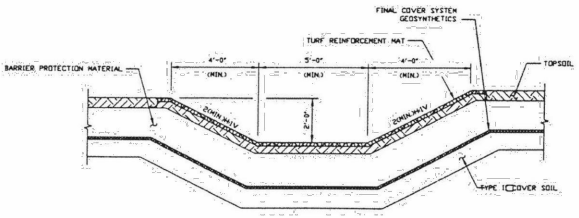

REINFORCED TURF LINED
LANDFILL CHANNEL CROSS SECTION (FYI)
SCALE: 3/8" = 1'-0"

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FIGURE 2-4
DRAINAGE SYSTEM DETAILS

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

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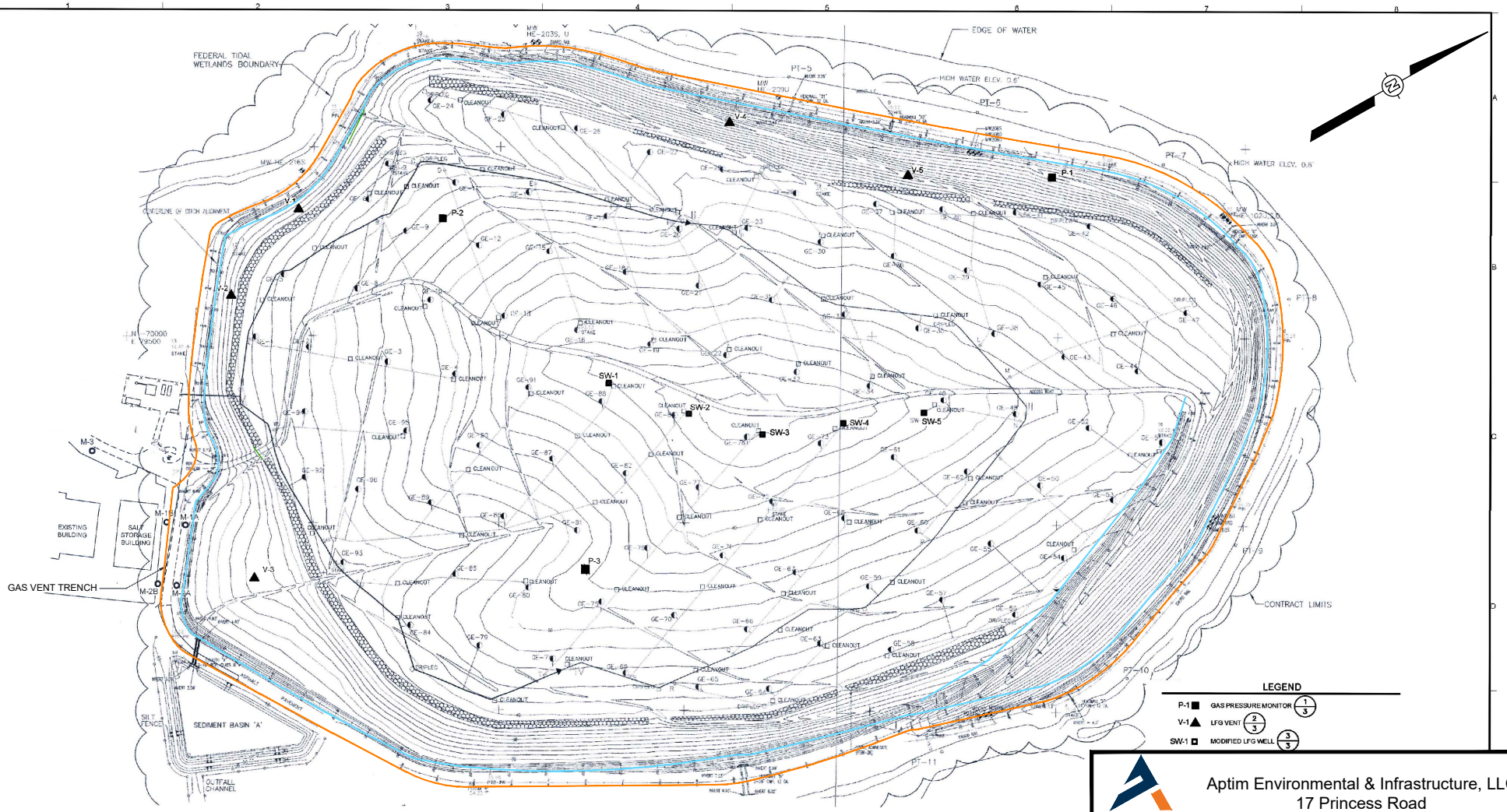

LEGEND:

DRAINAGE CHANNEL

OUTSIDE ROAD BOUNDARY

SCALE

0 400 800 FEET

REFERENCE:

"SITE PLAN B: GPM, LFG VENT, AND LFG MIGRATION PROBE LOCATIONS"
DRAWING BY BEECH AND BONAPARTE, DATED MAY 1999

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FIGURE 2-5
PLAN VIEW OF LANDFILL PASSIVE GAS SYSTEM

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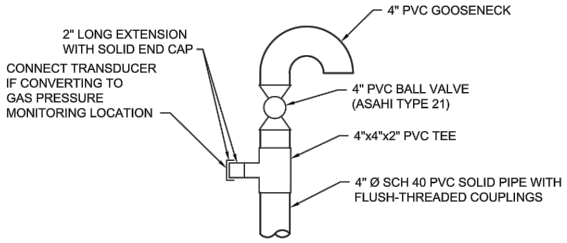
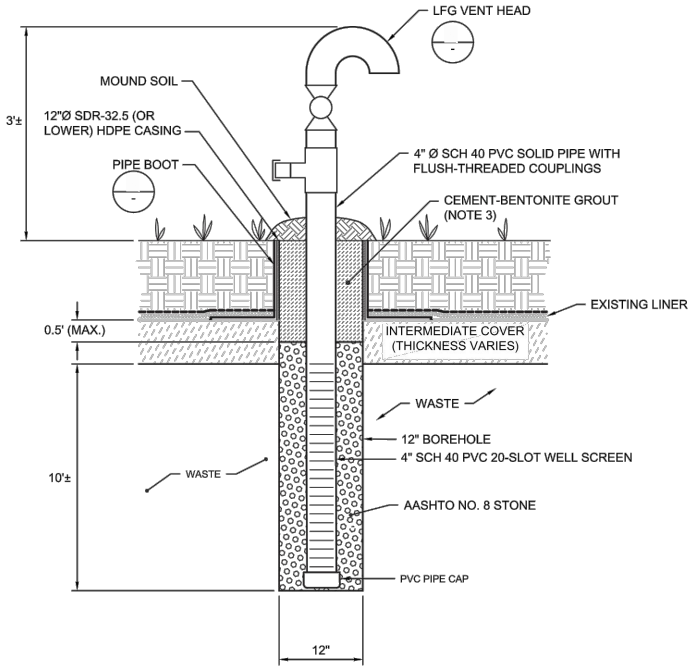


DETAIL
LFG VENT HEAD
SCALE: NTS



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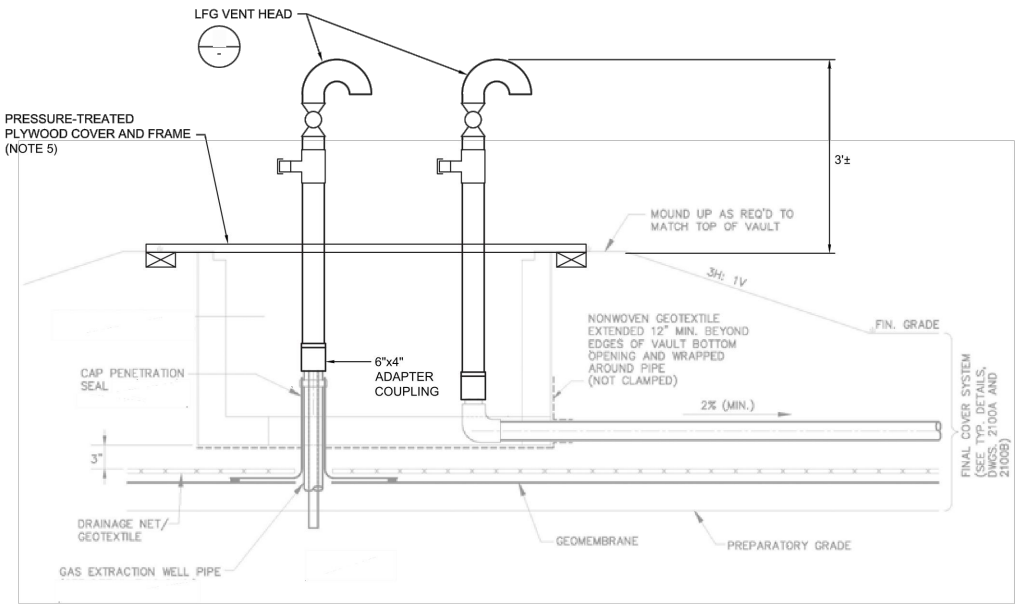
LFG VENT
SCALE: NTS



FINAL CONDITIONS

DETAIL
LFG WELL MODIFICATION
SCALE: NTS

NOTE:
DRAWING NOT TO SCALE

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EDGEMERE LANDFILL
ROCKAWAY, NEW YORK

FIGURE 2-6A
LFG PASSIVE GAS SYSTEM DETAILS

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

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Plot Date/Time: Nov 30, 2022 - 9:02am
Plotted By: Andrius.Yanavicius

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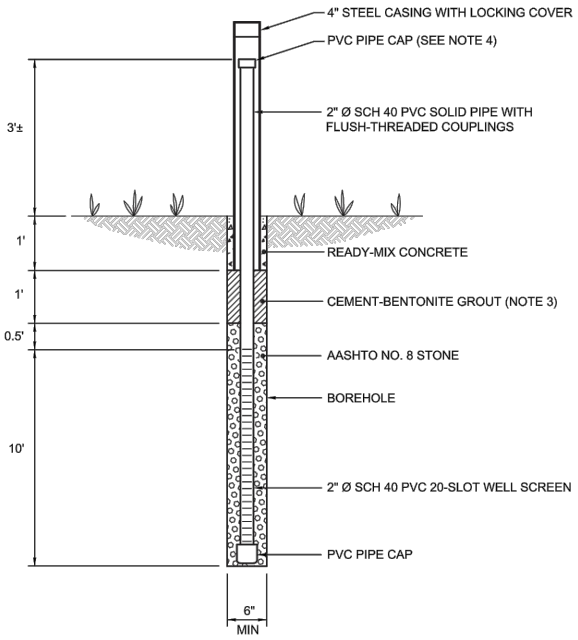
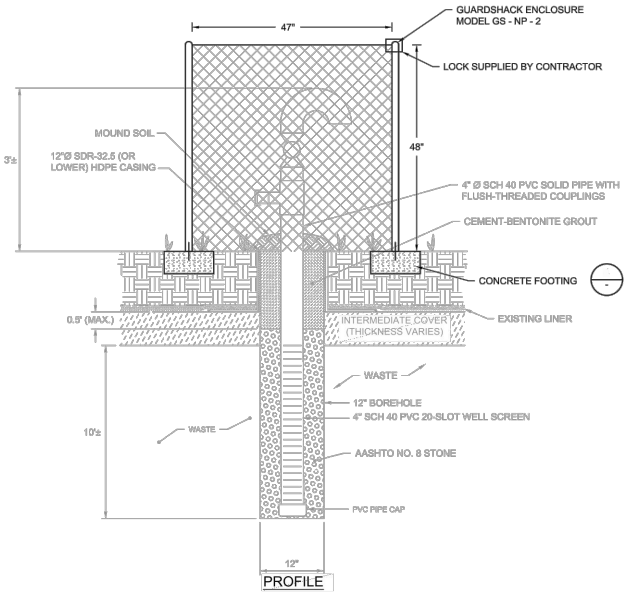
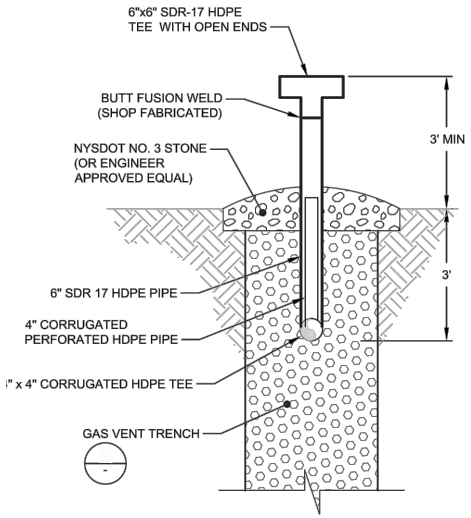


DETAIL
LFG MIGRATION PROBE
SCALE: NTS



DETAIL
LFG VENT ENCLOSURE



DETAIL
GAS VENT TRENCH AND VENT PIPE

NOTE:
DRAWING NOT TO SCALE

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EDGEMERE LANDFILL
ROCKAWAY, NEW YORK

FIGURE 2-6B
PASSIVE LFG SYSTEM DETAILS

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

2.5.1 Site Access and Security

The Edgemere Landfill has only one vehicular entrance at Beach 49th Street and Beach Cannel Drive, west of Almeda Avenue. Entrance gates and security fencing, including parking areas, have been instituted as part of security. Natural barriers (e.g., Jamaica Bay waterways), security, and berms minimize unauthorized entry to the site by vehicles and pedestrians.

The previous landfill gas flare blower building is located near the entrance road at the southern end of the landfill. This building is surrounded by a chain link fence.

A perimeter access road, which leads from the site entrance road, circumscribes the Fill Area. The eastern side of the perimeter access road, extending from the southern end near the flare/blower building to approximately 400 feet north of Culvert D, is paved and has streetlights. The remainder of the perimeter access a gravel surface. The entire perimeter access road is lined by a guard rail on the outside edge of the road. Guard rails are also located on the inside of the perimeter access road adjacent to monitoring well clusters.

A second access road constructed during landfill closure is located across the top of the landfill from north to south. This road has a gravel surface and has neither guard rails nor streetlights.

New security gates and signage were installed in January 2017. Site access is restricted by DSNY primarily to environmental, research and education groups. Access is coordinated with the Queens District 14 Garage/Maintenance facility, where visitors check-in, execute disclosure/waiver forms and check-out when leaving, which ensures the gates are locked.

SECTION 3
PERSONNEL

3.1 ORGANIZATION

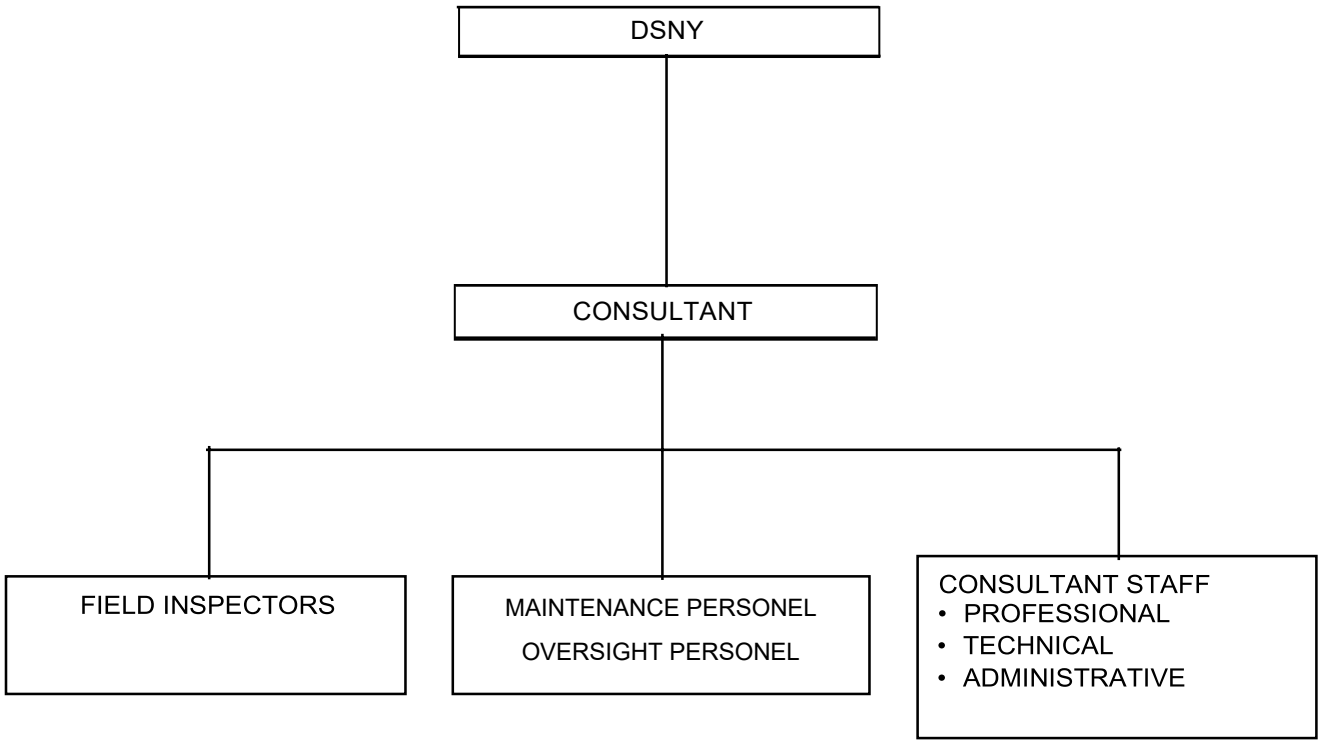
A general organizational chart for O&M Plan is presented in **Figure 3-1**.

3.2 STAFFING REQUIREMENTS

The necessary staff to perform the following activities/tasks specific to the O&M Plan at the Site are required:

- General site inspection
- Cover system inspection and reporting
- Final cover drainage system inspection and reporting
- Scheduling and inspection of subcontracting activities (when required)
- Oversight of maintenance activities
- Reporting

FIGURE 3-1
GENERAL OPERATIONS AND MAINTENANCE ORGANIZATION CHART



3.3 RESPONSIBILITIES AND DUTIES

The DSNY will be responsible for all primary decisions, technical and budgetary, related to O&M at the Site. The DSNY will have the responsibility of retaining and overseeing the activities of the O&M Consultant.

The O&M Consultant will inspect the final cover and drainage system once a year and immediately after each rainfall event (5-year 24-hour storm event or larger). Related facilities, including fencing, and access roads will also be inspected.

The O&M Consultant will designate a qualified individual for the overall administration of the O&M Contract. He/she will be responsible for all contract related decisions, and to assure that all activities for the O&M Contract are carried out in accordance with the terms of the O&M Contract, the Edgemere Landfill O&M Plan, and the DSNY instructions.

3.4 QUALIFICATIONS

Inspectors and oversight personnel (including subcontractors, if any) shall be suitably qualified and have the education and experience necessary to execute the tasks to be performed under the O&M Plan effectively and safely.

3.5 TRAINING

Personnel will have completed instruction/training programs required to conduct assignments. These programs may include, but are not limited to, the following:

- Health and Safety (including 40-hour OSHA training, plus have current annual 8-hour OSHA refresher training)
- Equipment Operation
- Record Keeping Practices

SECTION 4

SAFETY POLICIES AND GUIDELINES

4.1 OVERVIEW

At Edgemere Landfill, the "Fill" area is listed as a Class 2 inactive hazardous waste disposal site in the New York State Department of Environmental Conservation's Registry of Inactive Hazardous Waste Disposal Sites. The remainder of the Site has been delisted from NYSDEC's registry, including the area of the landfill gas system facility compound. Safety policies and guidelines will be provided in a site-specific Health and Safety Plan (HASP). The HASP will be updated as required for any task or project activities.

4.2 GENERAL SAFETY RULES

The following general safety rules will be reviewed, implemented and strictly adhered to by all workers, as appropriate:

- Report immediately all injuries or incidents to a supervisor, and attend to the injured or ill employee
- Report immediately all fires, spills or leaks of hazardous materials to a supervisor
- Report unsafe conditions to a supervisor.
- Authorize all visitors before entering or doing any work at the Site by proper site representatives
- Horseplay or fighting on premises is prohibited
- The use, possession, transport or sale of illegal drugs, alcoholic beverages, firearms, deadly weapons or explosives on the Site is prohibited
- When lifting loads manually, use proper lifting techniques such as bending knees, obtaining assistance and mechanical lifting aids
- Erect barricades around areas of hazardous work, such as work areas, trenches or overhead activities. Only the person in charge may grant permission for entry into these areas
- All personnel, including visitors, contractors and subcontractors, are required to wear hard hats and safety glasses with side shields while at the Site if overhead hazards exist
- General footwear consisting of substantial shoes or boots with ANSI approved steel toes shall be worn at the Site. More protective footwear may be required in specific areas or for specific activities
- Hearing protection is required when the noise level exceeds 85 Dba
- Use intrinsically safe and/or "spark-proof' equipment and tools while performing intrusive work in areas where potentially explosive levels of flammable gas may be present

- If clothing becomes contaminated, the clothing shall be removed as soon as possible, and potentially affected parts of the body thoroughly washed
- Personnel protective equipment shall be worn by personnel performing work requiring such equipment. Personnel protective equipment shall be consistent with the Safety Data Sheets when handling hazardous materials
- Use only proper tools and maintain tools in good working condition
- Fire extinguishers, first aid kits and other emergency equipment shall be in good condition, inspected regularly, and kept clear of obstructions
- Under normal operations, operating machinery shall have all required safety guards, switches and alarms in place and be functional
- When transferring flammable or combustible liquids into metal containers, the metal containers shall be grounded.
- No confined space entry shall be allowed without implementing proper Lockout/Tagout procedures.

4.3 HEALTH AND SAFETY PLAN

A site-specific Health and Safety Plan (HASP) and Emergency Response Plan, in accordance with the requirements of OSHA Regulations including 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response) and local regulations shall be prepared and implemented. The HASP and Emergency Response Plan may be separate documents, or they may be integrated into a single document. Additional details on requirements for the Emergency Response Plan are provided in Section 6.3.

The HASP necessary for work activities at the Site must be provided to DSNY for review a minimum of two weeks prior to the start of these work activities. Review by DSNY does not constitute approval of the HASP or relief to any health and safety responsibilities.

The requirements described herein may be used as a minimum outline description of the HASP. The HASP will need to be site-specific and incorporate an assessment of the hazards associated with the work required. The HASP shall address potential chemical, physical and biological hazards associated with the performances of work.

The HASP will, at a minimum, address the following subject areas in accordance with 29 CFR 1910 and 1926, in accordance with 29 CFR 1910.120(I)(2) for work performed in the Final Cover areas:

a. Health and Safety Organization (responsibilities, qualifications, and chain- of-command)
b. Hazard Assessment

c. Training
d. Site Control and Security
e. Standard Operating Safety Procedures, Engineering Controls, and Work Practices
f. Personal Protective Equipment
g. Personnel Hygiene and Decontamination
h. Equipment Decontamination and Waste Disposal
i. Air Monitoring (Personnel and Environmental)
j. Emergency Equipment and First-Aid Requirements
k. Emergency Response/Contingency Plans and Procedures
l. Heat/Cold Stress Monitoring
m. Logs, Reports and Record keeping
n. Site Description and Evaluation

The HASP will also address the health and safety issues associated with the landfill gas in accordance with the GRCDA National Landfill Gas Committee Safety Guidelines.

Neither the act nor failure to act by the DSNY shall affect or relieve the Consultant of responsibility for the safety of its employees, its subcontractor's employees, the employees of other Contractors engaged in the work, DSNY's employees and the public against bodily injury or damage to property.

It is the responsibility of the Consultant to provide the facilities, equipment, monitoring instruments, materials, and personnel necessary to protect the onsite personnel from physical injury and adverse health effects due to exposure to physical, chemical or biological hazards. All onsite personnel are required to meet the specifications of the HASP.

Current copies of SDSs for all hazardous chemicals used in the work area are to be obtained and maintained throughout the work period. SDSs for chemicals used in a given work area will be readily accessible to employees working in that area. The SDSs will be located close to workers and readily available. When subcontractors are hired to perform work at the Landfill, SDSs for all chemicals the subcontractor proposes to use will be obtained.

SECTION 5

DOCUMENTATION AND REPORTING

5.1 INTRODUCTION

Procedures for recording inspection and maintenance activities, including a program of recordkeeping and reporting will be implemented. Recordkeeping and reporting procedures are discussed in the following sections.

Documentation refers to all printed and electronic media produced, copied, or other information recorded to support visual observations and document maintenance of the site. Information collected during inspections and maintenance activities shall be recorded in the following manner: field notes, checklists, photographs, maps, and drawings. Detailed records of inspections, investigations, and photographs will be taken. Notes will be reviewed for accuracy before leaving the Site.

Each document shall be maintained in a project database, which will be maintained for the duration of the project. Waterproof ink shall be used to record field observations on the documents. Red pencil marks shall be used to update the field copy of the record drawings. The final record drawing documents showing composite information shall be drafted using computer applications.

5.2 FIELD DOCUMENTATION

Inspectors will maintain legible field documentation containing accurate and inclusive information of inspection and maintenance activities and observations. Documentation, at a minimum will include the following:

- Inspection and/or maintenance work
- Weather conditions, and
- Emergency situations

Any entries in the field documentation must include the date and time of the observation. The field documentation will also include photograph descriptions as appropriate (see Section 5.4, below) and descriptions of areas of potential problems. The field documentation shall contain facts and observations to be used for preparing written reports.

5.3 CHECKLISTS

Checklists will be used in conjunction with the field documentation to record inspection observations. The checklists for inspection of the various components of the landfill are included in Appendix B of the O&M Plan. The checklists are intended to be used as tools for organizing, conducting, and recording the results of an inspection. The purpose and scope of an inspection is not limited to the items on a checklist; the checklists shall be used

as guidance. Comments or observations recorded on checklists need not be duplicated in the field documentation. Checklists will be entered in an electronic database to maintain a permanent record.

5.4 PHOTOGRAPHS

Photographs will be used to provide documentation of the observations of problems or deficiencies in the Final Cover areas. Documentation with photographs is important in validating an existing condition. For each photograph taken, the following items shall be recorded by the inspector:

- Date and time
- General direction faced by inspector when taking photograph
- Location including coordinates and description of photograph (e.g., heavy erosion near diversion dike A3-2)
- Other comments (e.g., weather conditions)

The camera shall be capable of taking color photographs that are clear and distinct. When taking photos, a ruler or other item which helps to show the scale of the object photographed shall be used as appropriate.

5.5 MAPS AND DRAWINGS

Schematic maps, drawings, charts, and other graphic records will be used to document areas that require special maintenance (e.g., severely eroded areas). Maps and drawings will be free of extraneous details. Basic measurements will be included to provide a magnitude of a condition; coordinates shall be included as necessary. As-built record drawings will be provided to document areas of major cover system repair, well installation or abandonment, or other changes to the landfill area.

5.6 REPORTING REQUIREMENTS

Final Cover and Drainage System:

An annual report will be prepared and submitted to DSNY. Storm event reports shall be prepared and submitted as required. At a minimum the following information will be included:

- a summary of the inspection, including the name of the inspector(s) and the date(s) on which the inspection was conducted.

- inspection checklists, including forms detailing deficiencies and problems, with recommendations for maintenance and actions taken.

- drawings (hand markups of site plan are acceptable) detailing the location any significant deficiencies and problems identified.

- type, intensity and duration of storm event.

- health and safety incident reports, if any.

SECTION 6

EMERGENCIES AND CONTINGENCY PLAN

6.1 INTRODUCTION

6.1.1 Emergencies

Employees, subcontractors and other personnel involved in the on-site inspection and maintenance shall be familiar with the emergency response procedures outlined in the HASP. Incidents/emergencies that may include, but not be limited to, the following:

- Toxic substance exposure
- Fire/explosion
- Hazardous material spill
- Personnel injury

If a life-threatening emergency occurs, all personnel shall follow the Emergency Response and Contingency Plan section of the HASP.

6.2 EMERGENCY CONTACTS

Appendix A provides a lists of telephone numbers for emergency contacts.

Emergencies shall be coordinated with the DSNY Operations Control Office (OCO) and Queens East District 14 Garage.

6.3 DIRECTIONS TO THE ST JOHN'S EPISCOPAL HOSPITAL

In event of an emergency, onsite personnel shall be aware of the proper evacuation and/or medical treatment procedures outlined in the site-specific Health and Safety Plan. In the event of a medical emergency, the route to St John's Episcopal Hospital is detailed below:

- Depart Almeda Avenue toward Conch Place;
- Road name changes to Conch Place;
- Road name changes to Beach 49th Street;
- Turn left onto Beach Channel Drive;
- Keep straight onto Seagirt Boulevard;
- Turn left onto Beach 19th Street;
- Arrive at 327 Beach 19th Street, Far Rockaway, NY 11691.

A map of the route to St John’s Episcopal Hospital from the Site is provided on **Figure 6-1**. The hospital's main telephone number is (718) 869-7000.

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Plotted By: Andrius.Yanavicius

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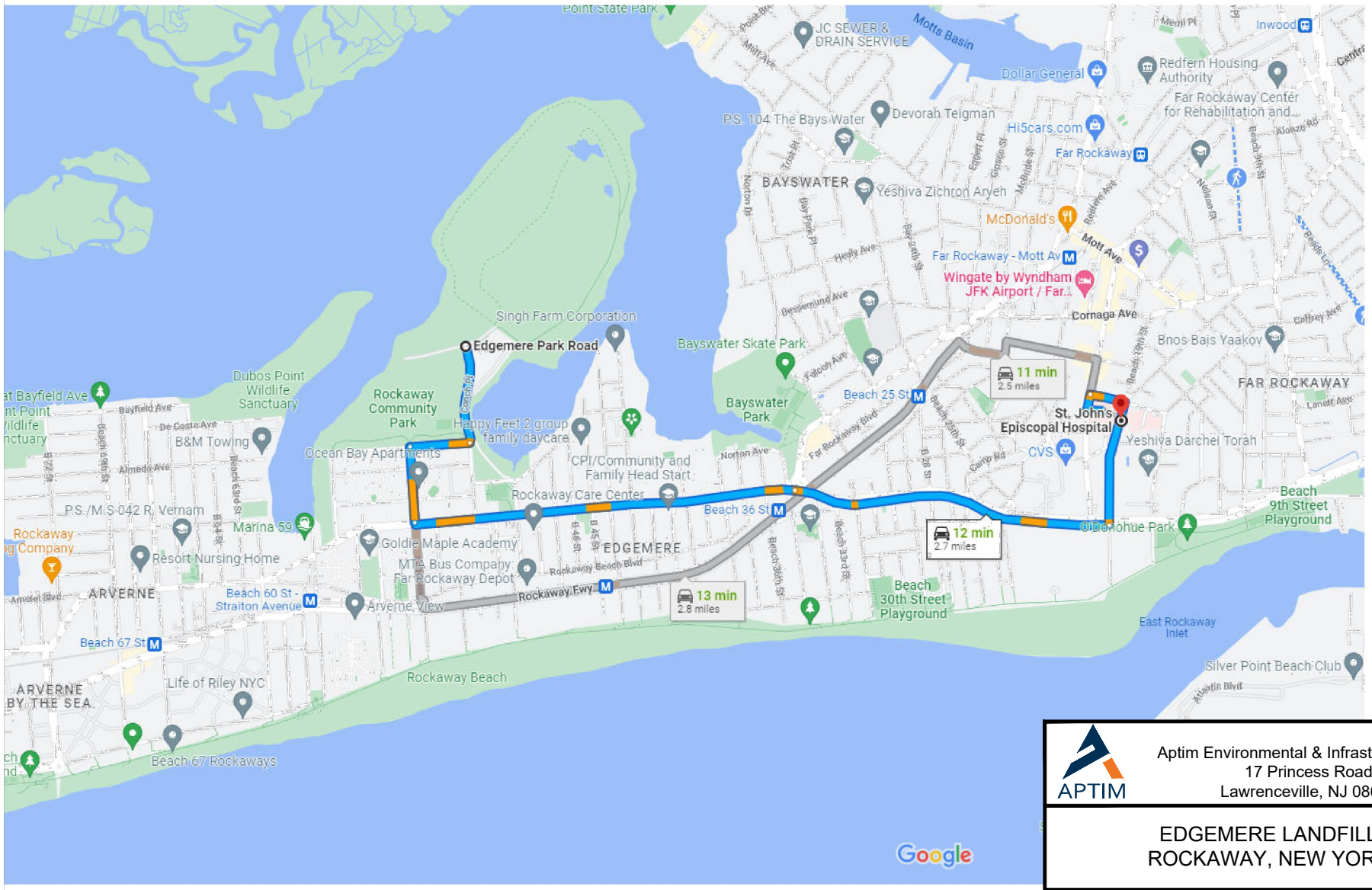

REFERENCE:

GOGGLE MAPS

1000 ft

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FIGURE 6-1
ROUTE TO HOSPITAL MAP

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

SECTION 7
INSPECTION AND MAINTENANCE

7.1 INTRODUCTION

This section contains standard operating procedures, inspection checklists, regular and preventive maintenance schedules. These systems, which were described in detail in Section 2**,** include the following:

- Final Cover System
- Final Cover Drainage System
- Landfill Gas Management System
- Ancillary systems

This section provides the basic scope of work for the inspection and maintenance at the Site, including:

- Inspection, and maintenance schedules and procedures

7.2 LANDFILL COVER SYSTEM

As detailed in Section 2, the landfill cover system is comprised of the following elements, from top to bottom:

- 6-inch thick vegetated topsoil layer
- 18-inch thick barrier protection layer
- 6-ounce geotextile
- Drainage net
- PVC composite, consisting of a 6-ounce geotextile glued onto 40 mil PVC geomembrane glued onto a 12-ounce bedding geotextile (landfill sideslopes) *or* 40 mil PVC geomembrane and 12-ounce bedding geotextile in "loose-lay" configuration (landfill top)
- 12-inch thick sub-base layer (fill soil)

For inspection and maintenance purposes, the landfill cover system can be divided into the following sections:

- Vegetative cover/topsoil layer; and,
- Protective cover and cap components (including barrier protection layer, geocomposite, and geomembrane).

The landfill cover system does not have equipment or controls that require maintenance.

7.2.1 Vegetative Cover (Topsoil and Grass Cover) - Preventive Maintenance and Corrective Action

Preventive maintenance is used in combination with periodic inspection of the final cover to prevent damage to the cover system that will require corrective action. The goal of the preventive maintenance program is to minimize corrective actions by identifying and addressing maintenance needs, before a more costly repair is required.

Inspection of the vegetative cover will be performed at the frequency specified by, and in accordance with, the procedures and performance criteria presented on the inspection checklist (see Form E1 in Appendix B). The visual inspection will include, but not be limited to, erosion, surface depressions, bare spots, dead plant species, and undesirable plant species. Bare and dead areas of vegetation will be further examined for the possibility of landfill gas migration, leachate, erosion, or burrowing animals. The apparent cause of any damage will be recorded on the deficiencies and problems report (see Form E1 – "Maintenance Required/Comments" section in Appendix B).

Preventive maintenance of the vegetative cover will be performed based on the results of the inspections and the performance criteria highlighted for each of the maintenance activities discussed below. The preventive maintenance for the vegetative cover includes:

- Mowing
- Reseeding of areas in insufficient vegetation

The O&M procedures for these activities are presented as follows:

- The grass cover will be mowed annually, approximately 15 acres will be left un-mowed for migratory animal habitat.
- The grass will be cut to between 4 inches to 6 inches in height
- Low grade pressure tractors with mower attachments having a maximum total weight of 4,000 lbs. will be used
- Trimming around existing features such as fences, equipment, drainage ditches, and other areas that cannot be reached with a mower, will be completed as necessary with smaller (portable) equipment (i.e., weed clippers or grass trimmers) that will not damage the features
- Mowers will mulch grass, and clippings will be left in place.
- Vegetation greater than 2 inches in diameter will be grubbed during mowing and trimming as necessary.

Sparsely vegetated areas will be re-vegetated during the next planning season, as appropriate. If seeding is not possible due to seasonal constraints, silt fence or hay bales may be installed above the sparsely vegetated area, if necessary, to help control erosion until such time as

vegetation can be established.

Reseeding of the cover system will be performed in accordance with the Final Design Report Technical Specification 27 (Roy F. Weston, March 1995) as needed, to replace distressed or dead vegetation.

Insect infestation will be addressed by subcontracting with qualified licensed exterminators. Undesirable species discovered during visual inspections may be exterminated if DSNY determines that their presence negatively impacts the integrity of the cover system. Insecticides will not be applied until the insecticide contents have been approved by NYSDEC. corrective action for erosion rills observed during the inspection of the vegetative cover will be based on the following performance criteria: If the erosion rills are less than 6 inches deep and are vegetated, no corrective action is required. These types of erosion rills are generally self-healing. Erosion rills greater than 6 inches in depth resulting from a loss of topsoil and vegetation will be repaired as soon as practicable of the reported condition.

The corrective actions include the following:

- Fill with clean topsoil
- Compact with hand tools or a backhoe
- Reseed
- Install silt fences or hay bales above the remediated area as necessary.

Filling with topsoil, reseeding, and erosion control will be performed in accordance with the Final Design Report Technical Specifications 14, 25 and 27 (Roy F. Weston, March 1995).

7.2.2 Protective Cover and Cap Components - Preventive Maintenance and Corrective Action

The protective cover and cap components are to be inspected at the same time as the vegetative cover. The frequency performance criteria for the inspections are presented in Section 7.2.3. The visual inspection includes identifying the following conditions that may require corrective action depending on the performance criteria, and the potential cause of the condition:

- Signs of erosion damage - erosion rills greater than 6 inches or large washouts
- Presence of animal burrowing
- Evidence of settlement/subsidence and surface water ponding
- Extensive die-off of vegetation
- Signs of unstable conditions including surface cracking and sloughing of cover
- Evidence of leachate breakout

- Signs of unauthorized access such as vehicular tracks or disturbed cover soil
- Presence of unauthorized dumping or vandalism.

A sample inspection checklist form (see Form E1) that includes a list of the conditions noted above is provided in Appendix B. Based on the inspection reports, repairs to or replacement of the cover soil or cap components may be necessary. Repairs and/or replacements are to be made in accordance with the following protocols and the Final Design Report Technical Specifications 11, 13, 14, 25 and 27 (Roy F. Weston, March 1995).

Erosion Damage

Erosion may indicate that some portion of the final cover drainage system is not functioning correctly. Examples of this could be sediment impeding water flow through swales or down chutes, debris clogging water inflow through the openings of down chutes or inlets, or differential settlement along drainage ditches contributing to stormwater overtopping the drainage systems. When erosion is identified, investigate these or other possible causes, complete the checklist form (E1), provide description of deficiencies and problems on Form E1, and record areas of erosion on the appropriate record drawings.

As noted above in Section 7.2.1, erosion rills that are less than 6 inches deep and vegetated will require no maintenance. All others will be repaired as soon as practicable of the inspection, in accordance with the corrective actions outlined in Section 7.2.1.

Repair of sloughing or excessive erosion over a large area (greater than 3 feet in diameter) will be as follows:

- Remove any accumulated soils down slope of the area, and
- Add the appropriate soil(s) in the proper sequence and thickness.

Animal Burrowing

Animal burrow holes will be monitored to determine if the conditions worsen. In general, animal burrow holes do not compromise the integrity of the geomembrane liner and will not require repair. Complete the checklist form (E1), provide description of problem on Form E1, and record locations on record drawings. Excessive animal burrow holes that lead to significant erosion will be repaired in the same manner as erosion rills Final Design Report Technical Specifications 14, 25 and 27 (Roy F. Weston, March 1995). Replace original soil materials and compact. Reseed if necessary. If significant damage is observed, notify DSNY and contract with an exterminator to remove burrowing animals subject to DSNY approval.

Settlement/Subsidence and Surface Water Ponding

When settlement that results in ponding of water is observed, the extent of the affected area will be determined. Complete the checklist form (E1), provide description of deficiencies/extent of depression on Form E1 and record areas of settlement on the appropriate record drawings. Categorize the areas as small or large depressions on Form E1. Repair them accordingly as described below:

Repair of small depressions, less than 6 feet wide, will be as follows:

- Clear vegetation
- Fill to grade with clean topsoil
- Compact with hand tools or a backhoe
- Reseed
- Install a silt fence or hay bales above the remediated area as necessary.

Repair of large depressions created by settlement (not erosion), greater than 6 feet wide and 1 foot deep, will be as follows:

- Remove topsoil, soil barrier and protection layer with a low-grade pressure backhoe (smooth bucket), and hand tools. This work area will be at least as large as the deformed topsoil or until such time as the barrier layer shows no evidence of deformation
- Stockpile layers separately
- Carefully cut any geocomposite drainage layer with "hook" blades so as not to damage any geomembrane liner beneath
- Roll back geocomposite drainage layer
- Examine the geomembrane liner
- Visually examine the PVC liner for cracks or deformation. If deformation does not exceed the outlined limits, and cracks do not exist, carefully replace the removed components in accordance with the Final Design Report Technical Specifications 11, 13, 14, 25 and 27 (Roy F. Weston, March 1995). Otherwise, proceed as outlined below:
- Before instituting repairs to the hydraulic barrier layer, carefully expose the void area beneath. Refill void area with well-graded soil, compacting by hand in 6-inch lifts. A firm base must be established upon which the hydraulic barrier layer will be repaired
- Contract a PVC liner contractor if the geomembrane liner is damaged
- After the geomembrane liner is repaired, replace geocomposite drainage layer
- Tie geocomposite where cut with cable ties spaced at 5-foot intervals
- Replace the excavated barrier protection soil

- Replace the excavated topsoil and match surrounding grade
- Reseed
- Install a silt fence or hay bales above the remediated area, as necessary.

Extensive Grass Die-Off

When vegetative stress is observed, visually check for a potential cause (i.e., gas odors, leachate seepage, insect infestation, extreme dry periods, etc.). If grasses are stressed due to lack of water, reseed affected area after dry period ends, only if stand has not reestablished itself within 2 months. Refer to the Technical Specifications for topsoil, seed mix, planting criteria, and planting seasons (Final Design Report Technical Specifications 14 and 27 (Roy F. Weston, March 1995).

Slope Stability

Surface cracks, sloughing of the cover soil and bulging of the cover at the toe of slope may be indications of cover instability and is to be noted on the inspection reports.

Vandalism

Report any vandalism or illegal dumping to the DSNY immediately. Concurrently, inform on-site security personnel of each occurrence. Repair damage from vandals to original condition. Refer to the Specifications (Final Design Report, Roy F. Weston, March 1995) for materials and methods of construction.

7.2.3 Cover Inspection

Appendix B contains a site inspection checklist form (E1) for the final cover system addressing the various operations and maintenance components for the cover system. Instructions for filling out the form are also included in Appendix C. **Figure 7-1** shows the landfill divided into six inspection areas. As is shown on this figure, the inspection areas are demarcated by drainage features (dikes, culverts, swales, and the perimeter drainage channel) to facilitate inspection.

Inspections are to be performed in an orderly fashion, completing all the items on the checklist in each area and completing the checklist form prior to proceeding to the next area. The inspector is required to walk up and down the side slopes at least once in each area to obtain close inspection of the slope conditions, as heavy vegetation may keep some problems from being easily observed.

The inspector will follow the inspection procedures for the final cover described on the checklist and complete the inspection form (Form E1). All significant deficiencies are to be recorded accurately on an 11" x 17" drawing in the field and transferred later to a 24" x 36" O&M "record" drawing of the Site. The locations can be described on Form E1 (see

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Plotted By: Andrius.Yanavicius

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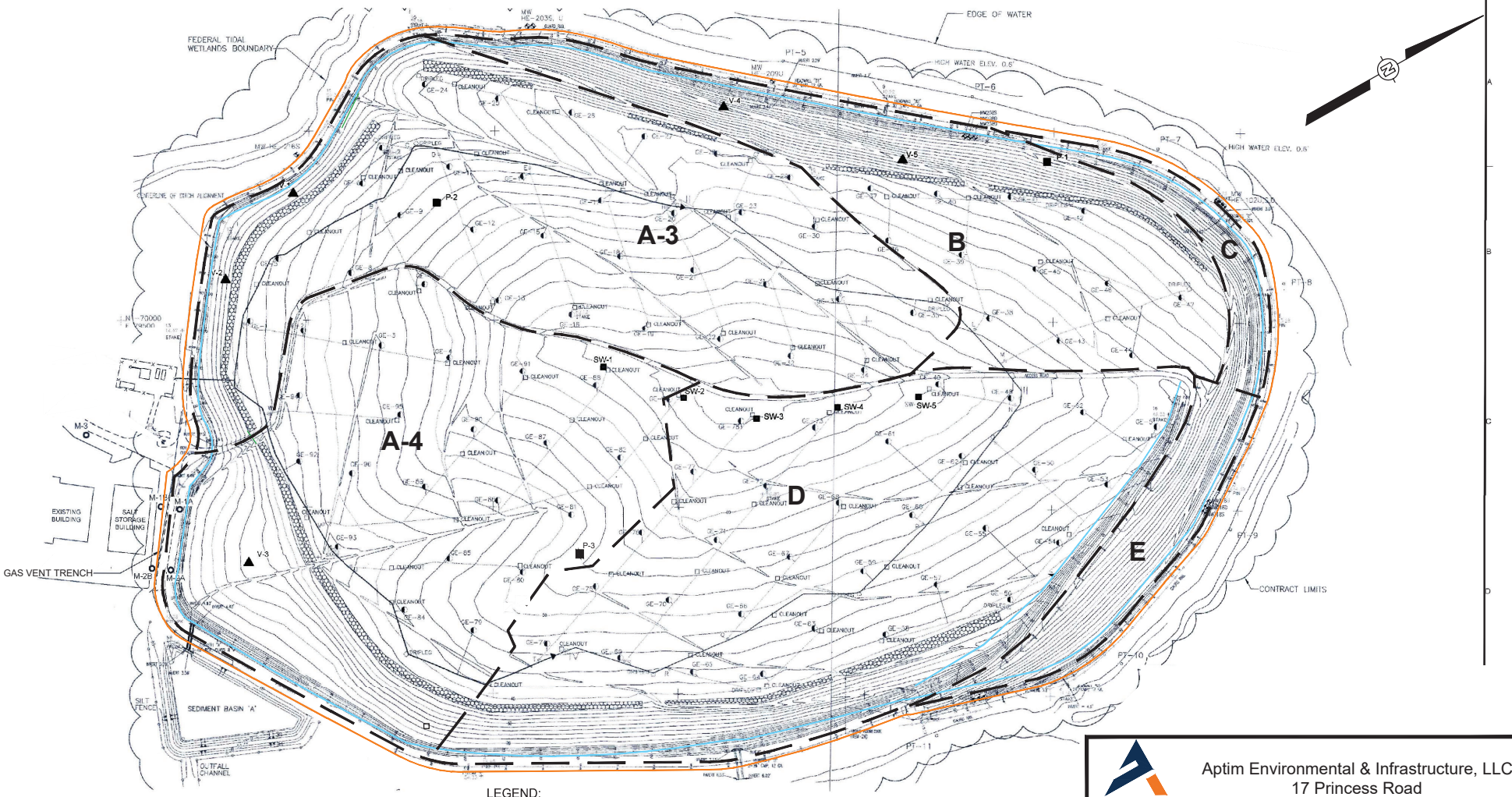

LEGEND:

- E — INSPECTION AREA BOUNDARY AND IDENTIFICATION
- DRAINAGE CHANNEL
- OUTSIDE ROAD BOUNDARY
- FORMER GROUNDWATER MONITORING WELL
- P-1 — GAS PRESSURE MONITOR
- V-1 — LFG VENT
- SW-1 — MODIFIED LFG WELL

SCALE
0 400 800 FEET

REFERENCE:

"SITE PLAN B: GPM, LFG VENT, AND LFG MIGRATION PROBE LOCATIONS"
DRAWING BY BEECH AND BONAPARTE, DATED MAY 1999

APTIM
Aptim Environmental & Infrastructure, LLC
17 Princess Road
Lawrenceville, NJ 08648

EDGEMERE LANDFILL
ROCKAWAY, NEW YORK

FIGURE 7-1
FINAL COVER INSPECTION AREAS

EDGEMERE LANDFILL OPERATIONS AND MAINTENANCE PLAN

Appendix B) and be surveyed or accurately measured by GPS from known features at the Landfill. Information will be shown to scale on the record drawings.

7.2.3.1 Vegetative Cover (Topsoil and Grass Cover) Inspection

The grass cover will be visually inspected annually and immediately after each rainfall event (5-year 24-hour storm event or larger; approximately 4.75 inches) using the inspection checklist form (Form E1). The inspection may be scheduled to provide greater coverage during summer and fall seasons when greater rainfall and more intense storm events are more likely to occur.

The visual inspection includes, but not be limited to, erosion, sinkholes, bare spots, dead species, undesirable species, grass height, and vegetation greater than 2-inches in diameter. Bare or dead areas of vegetation will be further examined for the possibility of landfill gas migration, leachate, erosion, burrowing animals, or insect infestation. Note that lack of water or fertilizer, or improper soil pH, may also result in bare or dead areas of vegetation. The apparent cause of any damage is to be recorded in the inspection report.

7.2.3.2 Protective Cover and Cap Components Inspection

The protective cover and cap components can be inspected at the same time as the vegetative cover. The visual inspection includes identifying the following conditions as identified on the inspection checklist, which may require corrective action depending on the performance criteria, and the potential cause of the condition.

- Signs of erosion damage - erosion rills greater than 6 inches or large washouts
- Presence of animal burrowing
- Evidence of settlement/subsidence and surface water ponding
- Extensive die-off of vegetation
- Signs of unstable conditions including surface cracking and sloughing of cover
- Evidence of leachate break-out
- Signs of unauthorized access such as vehicular tracks or disturbed cover soil
- Presence of unauthorized dumping or vandalism.

The inspection checklist form (Form E1) can be used to identify where problems have been observed. If damage to the geosynthetics and/or underlying barrier soil component is suspected, expose the affected area to allow for inspection and assessment of damage. The instructions to the inspection checklist form outline the conditions that are related to the performance criteria and required maintenance and repair procedures outlined in Section 7.2.2. Based on the inspection reports, repairs to, or replacement of, the cover soil or cap components may be necessary. All repairs and/or replacements necessary will be made in accordance with these performance criteria and maintenance and repair

procedures, and the Specifications (Final Design Report, Roy F. Weston, March 1995).

7.3 FINAL COVER DRAINAGE SYSTEM

As detailed in Section 2, the final cover drainage system consists of the following elements:

- Diversion dikes
- Drainage swales
- The perimeter drainage channel
- Sediment control Basin A
- Culverts from perimeter channel to bay

7.3.1 Drainage Control Structures-Preventive Maintenance and Corrective Action

Preventive maintenance is used in combination with inspections to maintain the design capacity of the drainage structures and control sediment transport to surrounding surface water. Inspection of the final cover drainage structures will cover the items and be performed at the frequency specified in Section 7.3.2 and on the inspection forms (see Forms E2 and E3 in Appendix B). Based on the results of the inspection, maintenance or repairs will be conducted in accordance with the performance criteria summarized on Tables 7-1 through 7-3 and outlined below for each of the three categories of structures.

Drainage Structures on the Landfill

The objective of preventive maintenance of drainage structures on the Landfill is to maintain the structures' design capacity to allow for effective conveyance and control of stormwater on the landfill. The performance criteria for these structures, therefore, address this objective by addressing conditions that reduce the flow capacity of the swales.

The preventive maintenance for the drainage dikes and swales on the landfill is to be performed based on the results of the inspections and the performance criteria listed on Tables 7-1 and 7-2. These tables show the performance criteria and the required action based on the observed condition recorded on the inspection form. Table 7-1 includes the performance criteria and maintenance requirements for grass and geosynthetic lined channels. Table 7-2 provides these criteria and requirements for rip-rap-lined channels.

Perimeter Drainage Channel

The objective of preventive maintenance of the perimeter drainage channel is to maintain the design capacity of the channel to allow for effective conveyance and control of stormwater at the Landfill. The performance criteria for the channel, therefore, attain this objective by addressing conditions that reduce the flow capacity of the channel. Preventive

maintenance and corrective action for the perimeter drainage channel is to be performed based on the results of the inspections, and in accordance with the performance criteria and maintenance/repair requirements outlined for rip-rap lined channels in Table 7-2.

Sedimentation Basin A

The performance criteria for the preventive maintenance of Sedimentation Basin A are based on the objective of maintaining the design capacity and subsequent effective sedimentation by the basin. The basin outlet structure is to be maintained to control the flow rate of the stormwater discharge from the basin while providing retention for sediment control.

The preventive maintenance for Sedimentation Basin A is to be performed based on the results of the inspections and the performance criteria listed on Table 7-3. The table shows the performance criteria and the required action based on the observed condition recorded on the inspection form.

TABLE 7-1

Performance Criteria and Maintenance and Repair Requirements for Grass and Geosynthetic Lined Channels

Performance Criteria/ Observed Condition	Maintenance/ Repair Procedures
Overgrown Vegetation -Height of grass exceeds 12 inches. -Vegetation other than the established grasses is growing in the trench and is restricting flow as observed through localized ponding.	- Mow grass in channel to a height of 4 to 6 inches. - Remove undesirable and excessive vegetation and debris that is impeding flow in the trench. - Grub vegetation more than 2 inches in diameter.
Standing Water -Debris is observed in the channel that is restricting flow evident by ponding and/or build-up of sediment behind debris. -Standing water observed greater than 6 inches deep and extending for more than 25 feet. Standing water may indicate settlement if no obstruction observed.	- Remove debris to eliminate blockage. - Regrade the channel to drain using like materials and in accordance with record drawing and specifications.
Sediment and Debris -Excessive siltation of greater than 6 inches in depth.	- Remove silt and debris with a backhoe, or preferably a grade all. - Re-establish vegetation where needed.
Erosion/ Washout -Erosion rills that are less than 6 inches in depth and vegetated. -All other erosion rills and wash-outs.	-No action required. -Replace washed-out damage materials with like materials (geosynthetic and rip-rap material requirements - see Specifications). Fill in with clean topsoil and compact with hand tools or a back-hoe. Reseed in accordance with specifications. Install erosion control matting in accordance with the manufacturer's instructions, in areas of severe erosion or where damaged.

TABLE 7-2

Performance Criteria and Maintenance and Repair Requirements for Rip-Rap Lined Channels

Performance Criteria/ Observed Condition	Maintenance/ Repair Procedures
Vegetation -Vegetation has established in the trench and is restricting flow as observed through localized ponding and siltation.	- Remove vegetation that is impeding flow in the trench. - Repair any underlying materials as needed.
Standing Water -Debris is observed in the channel that is restricting flow, evident by ponding and/or build-up of sediment behind debris.	- Remove debris to eliminate blockage.
-Standing water observed greater than 6 inches deep and extending for more than 25 feet. Standing water may indicate settlement if no obstruction observed.	- Regrade the channel to drain using like materials and in accordance with record drawing and specifications.
Sediment and Debris -Excessive siltation of greater than 3 inches in depth.	- Remove silt and debris with a backhoe and replace riprap as needed.
Erosion/ Washout -Erosion/ wash-out of riprap is observed.	- If riprap is washed out, inspect underlying materials for damage and replace if necessary. Use like materials and repair erosion or washout to the relative grades described in the record drawings and specifications.
-Erosion has resulted in loss of cross-sectioned area.	- Redevelop swale by adding new rip-rap design grades. - Determine cause of erosion/ washout and correct accordingly.

TABLE 7-3
Performance Criteria and Maintenance and Repair Requirements for Sedimentation Basin A

Performance Criteria/ Observed Condition	Maintenance/ Repair Procedures
Silt Accumulation -Silt is observed to above the marker indicated on the riser that corresponds to the allowable design (1 year) sediment storage.	-Remove silt with a loader or an excavator. Regrade basin floor and interior slopes with stone in accordance with applicable specifications to maintain design grades in accordance with the record drawings and specifications. -Dispose of silt at off-site approved facility -Replace 12-inch lateral each time silt is removed.
Slope Erosion/Stability -Inlet structures show signs of erosion.	-Investigate cause of damage. Erosion damage of inlet structure will be repaired based on findings. Repair in accordance with record drawings and specifications.
-Erosion of the side slopes and/or bottom of the basin adjacent to the inlet structure is observed.	-Repair erosion damage and provide greater stabilization with larger rip-rap or gabions. Inspect for damage of underlying materials and repair or replace if damaged in accordance with record drawings and specifications.
-Cracks observed on the outer slope that are parallel to slope and greater than 20 ft. in length and 2 inches deep may indicate slope stability concern.	-Notify DSNY immediately. Repair any minor cracks (less than indicated) using structural fill compacted with excavators and hand operated compactors in accordance with record drawings and specifications.
Debris -Debris observed in the bottom of the basin that may result in blockages and/or restriction of flow.	-Remove and properly dispose of debris off-site.
Settlement -Settlement has occurred and resulted in change of invert through elevations that affect flow to and outlet structure.	-Repair inlet structures and lateral as needed to effectively drain basin under low flow conditions and maintain design flow capacity of the outlet structure.

TABLE 7-3

Performance Criteria and Maintenance and Repair Requirements for Sedimentation Basin A (continued)

Performance Criteria/ Observed Condition	Maintenance/ Repair Procedures
Sedimentation Basin A	
Condition of Wetland Plantings -General health of plants	-Unhealthy plants may be a result of insufficient water in basin or improper soil conditions. If insufficient water appears to be the cause, check for blockages in the inlet structure. Also confirm that adequate slope exists between inlet structure, basin floor, and outlet structure. If necessary, regrade basin floor. If water levels are sufficient, sample soil for organic content, phosphorus, nitrogen, potassium, and pH.
-Areas of sparse vegetation or die-out (if so, also investigate cause of damage)	-Examine basin for possible causes of die-out. See guidelines above regarding water levels and soil conditions. If die-out is extensive (i.e., a single unvegetated area greater than 10 square feet), replant in accordance with record drawings and specifications after fixing cause.
Vandalism -Damage observed due to vandalism	-Repair accordingly
Inlet/Outlet Structures	
Debris/Silt Blockage -Silt and debris observed around lateral pipe gravel/ geotextile wrap.	-Remove silt and debris and dispose off-site.
-Inspection of flow after storm event under low flow conditions (less than 25-year 24-hour event) indicate possible blockage after silt and debris removed.	-Remove gravel annulus and inspect for blinding of the geotextile wrap. If blinded with silt, replace geotextile and then place stone annulus in accordance with record drawings and specifications.
-Silt and debris observed in inlet or outlet structure.	-Remove silt and debris and dispose off-site.

TABLE 7-3

Performance Criteria and Maintenance and Repair Requirements for Sedimentation Basin A (continued)

Performance Criteria/ Observed Condition	**Maintenance/ Repair Procedures**
Connection to Pipe -Deflection or gaps between the structure and the pipe observed.	-Repair to restore integrity and design elevation of pipe.
Erosion around Structure -Erosion damage observed around inlet structures or downstream of outlet structures.	-Determine cause of erosion and repair areas using greater stabilization as needed and in accordance with record drawings and specifications.
Rust, Vandalism -Rusting of inlet or outlet structure -Damage observed due to vandalism	-Depending on extent of rust, repair, repaint with rust-proof paint, or replace -Repair

7.3.2 Drainage Structures Inspection

Site inspection checklist forms and instructions for the drainage structures are provided in Appendix B. Each item on the checklist will be reviewed based on field observations, and an acceptable (check mark) or not satisfactory response provided on the checklist form for each structure and area. Inspection checklists and forms are provided for the drainage channels (Form E2 - to be used for the drainage dikes and swales on the landfill and the perimeter drainage channel), and for Sedimentation Basin A (Form E3).

The inspection of the swales on the landfill will be performed for landfill areas that are shown on Figure 7-1, which correspond to the areas used for final cover inspection. The checklist form includes a response block for each item and for each area. The checklist forms for the sedimentation basins will be completed for each item on the instructions. Inspections are to be performed in an orderly fashion, completing all the items on the checklist in each area or basin, and completing the checklist form prior to proceeding to the next area.

Inspection of the drainage structures on the Landfill (swales and diversion dikes) and the perimeter drainage channel will be conducted at the same time and frequency as the final cover system. Inspections will be conducted annually and after each major rainfall event equal to or greater than the 5-year 24-hour storm event (4.5 inches in 24 hours). The inspections may include the inspections that occur after the major rainfall event.

The inspection of Sedimentation Basin A will be performed under the same performance criteria as the other drainage structures but may occur at different scheduled times.

The inspection procedures described in the instructions to the checklist forms will be followed. All significant deficiencies will be recorded accurately on an 11" x 17" drawing in the field and transferred to a record drawing of the landfill. The location will be surveyed or accurately measured from known features at the landfill and the information shown to scale on the record drawings.

7.4 LANDFILL GAS MANAGEMENT SYSTEM

As discussed in Section 2, the landfill gas management system has been switched to a passive landfill gas management system. Visual inspection on the passive vent system appurtenances will be performed as part of the final cover inspection. This will include the vents and associated enclosures, and the surface of the vent trench.

7.5 ANCILLARY SYSTEMS

As detailed in Section 2, the ancillary systems consist of the remaining miscellaneous landfill closure components not covered in the previous sections. They typically include roads, fencing, gates, locks, signage, monitoring wells, and miscellaneous items.

7.5.1 Monitoring, Inspection and Maintenance of Post-Closure Access Roads

The perimeter access road, which leads from the site entrance road, circumscribes the Fill Area. The eastern side of the perimeter access road, extending from the southern end approximately 400 feet north of Culvert D, is paved and has streetlights. This remainder of the perimeter access road has a gravel surface. The entire perimeter access road is lined by a guard rail on the outside. Guard rails are also located on the inside of the perimeter access road adjacent to monitoring well clusters.

A second access road constructed during landfill closure is located across the top of the landfill from north to south. This road has a gravel surface; there are no guard rails or streetlights along this road.

Access roads will be inspected annually. A site inspection checklist form for the access roads is provided in Appendix B (see **Form E4**). Each item on the checklist will be reviewed based on field observations, and an acceptable (check mark) or not satisfactory response provided on the checklist form for each structure and area. If any damage is observed, the location and problem will be noted on a deficiencies/problems form (Form E4 – "Maintenance Required/Comments" section). Significant deficiencies will be recorded on an 11" x 17" drawing in the field and transferred to a record drawing.

As detailed on **Form E4**, the access roads will be inspected for the following:

- Potholes
- Condition of asphalt (if paved)
- Loss of crushed stone cover (if gravel surface)
- Evidence of debris and/or obstructions
- Condition of guard rails (if applicable)
- Evidence of uneven settlement
- Ponding of water

Damage to the road surface will be repaired as required. Maintenance of the access roads includes, but is not limited to, the following:

- Removal of any debris and/or obstructions
- Repair of ruts deeper than 6 inches with like material in accordance with the Specifications Final Design Report Technical Specifications 16 and 17 (Roy F. Weston, March 1995).
- Repair of shoulders, slopes, and drainage areas
- Repair of guard rails in accordance with the Final Design Report Technical Specification 30 (Roy F. Weston, March 1995).

Fence, gates, and locks at the front entrance will be inspected during each visit to the site, but at a minimum of one time a year, for the following:

- Condition of gates and locks
- Condition of the fence and signs of forced entry or damage
- Excessive vegetative growth that could damage the fence

Damage to fences, gates, and locks will be repaired or replaced with like material. Excessive vegetative growth will be removed as directed by DSNY.

Groundwater Monitoring was terminated in 2012 so the groundwater wells require no further maintenance.

APPENDIX A:

EMERGENCY CONTACTS AND TELEPHONE NUMBERS

APPENDIX A

EMERGENCY CONTACTS AND TELEPHONE NUMBERS
EDGEMERE LANDFILL

Ambulance 911

Fire Department ..... 911 or (718) 476-6247

Police Department ..... 911 or (718) 868-3400

St John's Episcopal Hospital ..... (718) 869-7000

Poison Control Center ..... (212) 764-7667

EPA National Response Center. ..... (800) 424-8802

U.S. Coast Guard Emergency Response ..... (718) 354-4121

NYS Spill Hotline ..... (800) 457-7362

NYC Department of Environmental Protection

Hazardous Materials ..... (718) 595-4681

DSNY Operations Control Office (OCO) ..... (646) 885-4700

Queens East District 14 Garage……. (718) 734-3706

Mahesh Desai, DSNY Project Manager (718) 983-0490
Cell phone..... (646) 937-0326

APPENDIX B:

INSPECTION INSTRUCTIONS AND INSPECTION FORMS

LIST OF FORMS

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM E1 FINAL COVER SYSTEM
EDGEMERE LANDFILL, FAR ROCKAWAY, NEW YORK
(Reference Section 7.2)

This form is to be used by the inspector during the annual inspection, and immediately after each rainfall event (5-year storm event or larger). The inspection is generally scheduled during the late summer to early fall seasons after mowing of the landfill is completed.

The surface of the landfill has been divided into five inspection areas as shown on Figure 7-1. As is shown on this figure, the inspection areas are demarcated by drainage features (dikes, culverts, swales, and the perimeter drainage channel) to facilitate inspection.

The inspector shall perform the work in an orderly fashion, completing all the items on the checklist in each area and completing the checklist form prior to proceeding to the next area. The inspector is required to walk up and down the side slopes at least once in each area to obtain close inspection of the slope conditions, as heavy vegetation may keep some problems from being easily observed.

Observations shall be recorded at the time they are viewed. If no problems or deficiencies are observed in a given zone, the item shall be noted as satisfactory by inserting a √ in the appropriate box. If adverse conditions are observed or if other conditions exist that deviate from normal and could cause damage to the landfill cover (in the opinion of the inspector), the appropriate checkbox should be marked as not satisfactory (NS), and the location and problem noted on a deficiencies/problems in the form (E1 - Maintenance Required/Comments section). Maintenance procedures and performance criteria are detailed in Sections 7.2.1 (Vegetative Cover) and 7.2.2 (Protective Cover and Cap Components). All significant deficiencies should be recorded accurately on an 11" x 17" drawing in the field and transferred to a record drawing.

Inspection Item	**Inspection and Maintenance Requirements/Procedures**
Vegetated Cover	Inspect for the following: • Bare spots • Dead plant species • Undesirable plant species • Grass height (height greater than 18 inches indicates need for mowing) • Vegetation greater than 2 inches in diameter If bare and dead areas of vegetation are visible, examine further for apparent cause, which may include: • Landfill gas migration (check for odors) • Presence of leachate

Checklist Form E1
Edgemere Landfill, Rockaway, New York
Final Cover Inspection Checklist

MM/DD/YYYY	Edgemere-YYYY	
INSPECTON DATE	LANDFILL-YEAR	INSPECTOR NAME

Final Cover Inspection Areas						
Checklist Parameters	**A-3**	**A-4**	**B**	**C**	**D**	**E**
Vegetated Cover						
Avg. Grass Height (inches)- after Annual Mowing Event						
Vegetation greater than 2 inch in diameter						
Undesirable Species						
Sparce/Dead Vegetation						
Protective Soil Cover & Cap Components						
Erosion Rill greater than 6 inches in depth						
Large Washouts						
Animal Burrowing						
Settlement						
Surface Water Ponding						
Surface Cracking						
Sloughing of Cover						
Vehicle Tracks						
Unauthorized Dumping						
Vandalism						
Passive Vent & Former Gas Wells						
Vent enclosures & locks						
Capped Gas Pressure monitoring pipe						
Former Gas Extraction Well enclosures & covers						
LFG vent pipe, trench & appurtenances						
Vandalism						

Maintenance Required/Comments:

Inspectors Signature Date

General Notes:

✓: Satisfactory

X: Not Satisfactory

Any item(s) marked 'x' will have a detailed description of the unsatisfactory condition on the "Observation Form" in Section 8 of this Report.

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM E2
STORMW ATER DRAINAGE SWALES AND CHANNELS
EDGEMERE LANDFILL, FAR ROCKAWAY, NEW YORK
(Reference Section 7.3)

Inspection of stormwater drainage swales and channels shall be conducted at the same time as the inspection of the final cover system. Inspections shall be conducted annually, and immediately after each rainfall event (5-year 24-hour storm event or larger, 4.75 inches).

The swales and channels identified on Form E2 are depicted on Figure 7-1. The inspector shall perform the work in an orderly fashion, completing all the items on the checklist for each channel or swale and completing the checklist form prior to proceeding to the next channel or swale.

Observations shall be recorded at the time they are viewed. If no problems or deficiencies are observed in a given zone, the item shall be noted as satisfactory by inserting a √ in the appropriate box. If adverse conditions are observed or if other conditions exist that deviate from normal and could cause damage to the landfill cover (in the opinion of the inspector), the appropriate checkbox should be marked as not satisfactory (NS) and the location and problem noted on a deficiencies/problems in the form (E2 - Maintenance Required/Comments section). Maintenance procedures and performance criteria are detailed in Section 7.3.1 and Tables 7-1 (Grass and Geosynthetic Lined Channels) and 7-2 (Rip-Rap Lined Channels). All significant deficiencies should be recorded accurately on an 11" x 1*T'* drawing in the field and transferred to a record drawing.

Inspection Item	Inspection and Maintenance Requirements/Procedures
Overgrown Vegetation	*For grass and geosynthetic lined channels:* Inspect for the following: • Grass height (height greater than 12 inches indicates need for mowing) • Vegetation other than established grasses growing in the trench and restricting flow • Vegetation greater than 2 inches in diameter *For rip-rap lined channels:* Inspect for the following: • Vegetation established in the trench and restricting flow, as observed through localized ponding and siltation
Standing Water	Inspect for the following: • Debris observed in the channel that is restricting flow, as evidenced by ponding or build-up of sediment behind debris

Inspection Item	Inspection and Maintenance Requirements/Procedures
	• Standing water observed greater than 6 inches deep and extending for more than 25 feet (standing water may indicate settlement if no obstruction is observed)
Sediment and Debris	Inspect for the following: • Excessive siltation of greater than 3 inches in depth
Erosion/Washout	*For grass and geosynthetic lined channels:* Inspect for the following: • Erosion rills (unvegetated or greater than 6 inches m depth) • Wash-outs *For rip-rap lined channels:* • Erosion or wash-out of riprap • Erosion-related loss of cross-sectioned area

Checklist Form E2
Edgemere Landfill, Rockaway, New York
Drainage System Inspection Checklist

MM/DD/YYYY	Edgemere-YYYY	
INSPECTON DATE	LANDFILL-YEAR	INSPECTOR NAME

Drainaged System Inspection Areas						
Checklist Parameters	**A-3**	**A-4**	**B**	**C**	**D**	**E**
Drainage Swales (Dikes) <u>On Landfill</u>						
Avg. Grass Height (inches)						
Vegetation greater than 2 inches in diameter						
Standing Water						
Sediment & Organic Debris less than 3 inches in depth						
Erosion/Washout						
Perimeter Drainage <u>Channels</u>						
Avg. Grass Height (inches) in Channel						
Vegetation greater than 2 inches diameter						
Standing Water						
Sediment & Organic Debris less than 3 inch in depth						
Erosion/Washout greater than 6 inch in depth						

Maintenance Required/Comments:

Inspectors Signature Date

<u>General Notes:</u>

✓: Satisfactory

X: Not Satisfactory

Any item(s) marked 'x' will have a detailed description of the unsatisfactory condition on the "Observation Form" in Section 8 of this Report.

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM E3
SEDIMENTATION BASIN A
EDGEMERE LANDFILL, FAR ROCKAWAY, NEW YORK
(Reference Section 7.3)

Inspection of Sedimentation Basin A shall be conducted at the same time as the final cover system and stormwater drainage swales and channels inspection. The inspections shall be conducted annually, and immediately after each rainfall event (5-year storm event or larger).

The location of Sedimentation Basin A is depicted on Figure 7-1. The inspector shall perform the work in an orderly fashion, examining the entire basin for each of the items on the checklist.

Observations shall be recorded at the time they are viewed. If no problems or deficiencies are observed, the item shall be noted as satisfactory by inserting a √ in the appropriate box. If adverse conditions are observed or if other conditions exist that deviate from normal (in the opinion of the inspector), the appropriate checkbox should be marked as not satisfactory (NS) and the location and problem noted on a deficiencies/problems in the form (E1 - Maintenance Required/Comments section). Maintenance procedures and performance criteria are detailed in Section 7.3.1 and Tables 7-3. All significant deficiencies should be recorded accurately on an 11" x 17" drawing in the field and transferred to a record drawing.

Inspection Item	Inspection and Maintenance Requirements/Procedures
Silt Accumulation	Confirm that silt is not observed above the marker indicated on the riser that corresponds to the allowable design (1 year) sediment storage
Slope Erosion/Stability	Inspect for the following: • Inlet structures showing signs of erosion (if so, also investigate cause of damage) • Erosion of the side slopes and/or bottom of the basin adjacent to the inlet structure (if so, also inspect for damage of underlying materials) • Cracks observed on the outer slope that are parallel to slope and greater than 20 feet in length and 2 inches deep (may indicate slope stability concern)
Debris	Check for any debris observed in the bottom of the basin that may result in blockages and/or restriction of flow
Settlement	Examine whether settlement has occurred and resulted in change of invert that may affect flow to and from structure

Inspection Item	Inspection and Maintenance Requirements/Procedures
Vandalism	Check for any damage observed due to vandalism
Inlet/Outlet Structures *Debris/Silt Blockage*	Inspect for the following: • Silt and debris observed around lateral pipe gravel/geotextile wrap • Silt and debris observed in inlet or outlet structure Also inspect flow after storm event under low flow conditions (less than 25-year, 24-hour event), which may indicate possible blockage after silt and debris removed
Connection to Pipe	Examine for deflection or gaps between the structure and the pipe Examine for erosion damage around inlet structures or downstream of outlet structures. If erosion damage is visible, determine cause of erosion
Erosion around Structure Rust, Vandalism, Etc.	Inspect for the following: • Rusting of inlet or outlet structure • Damage observed due to vandalism

Inspection Item	Inspection and Maintenance Requirements/Procedures
	• Erosion • Burrowing animals • Insect infestation
Protective Soil Cover and Cap Components	Inspect for the following: • Signs of erosion damage - erosion rills greater than 6 inches or large washouts (rills of this size require repairs. Also investigate possible causes of erosion damage, such as sediment impeding water flow through swales or down chutes, debris clogging water inflow through the openings of down chutes or inlets, or differential settlement along drainage ditches) • Presence of animal burrowing (if visible, also check area for damage to geosynthetics by hand-excavating a test pit near the burrow holes) • Evidence of settlement/subsidence and surface water ponding (note size of depression, and compare against performance criteria in Section 7.2.2) • Extensive die-off of vegetation (see notes above re possible causes) • Signs of unstable conditions, including surface cracking, sloughing of cover soil, and bulging of cover at toe of slope • Signs of unauthorized access such as vehicular tracks or disturbed cover soil • Presence of unauthorized dumping or vandalism.
Passive LFG System Components	Inspect for the following: • Broken PVC vent pipes • Intact vent enclosures and locks • Damage to surface of vent trench (e.g., rutting, vegetation growth) • Intact LFG migration probes and locks • Missing former LFG gas extraction well covers and damaged enclosures

Checklist Form E3
Edgemere Landfill, Rockaway, New York
Sediment Control Basin A Inspection Checklist

MM/DD/YYYY	Edgemere-YYYY	
INSPECTON DATE	LANDFILL-YEAR	INSPECTOR NAME

Sediment Control Basin A Inspection			
Checklist Parameters	Sediment Control Basin A	Checklist Parameters	Sediment Control Basin A
Basin		**Inlet/Outlet Structures**	
Silt Accumulation		Debris/Silt Blockage	
Slope Erosion/Stability		Connection to Pipe	
Debris		Erosion Around Structure	
Settlement		Rust & Vandalism	
Wetland Vegetation Condition		Erosion Around Structure	
Vandalism			

Maintenance Required/Comments:

Inspectors Signature Date

General Notes:

✓**: Satisfactory**

X: Not Satisfactory

Any item(s) marked 'x' will have a detailed description of the unsatisfactory condition on the "Observation Form" in Section 8 of this Report.

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM E4
ACCESS ROADS
EDGEMERE LANDFILL, FAR ROCKAWAY, NEW YORK
(Reference Section 7.5.1)

This form is to be used by the inspector during the annual inspection. It is to be used for both the perimeter access road and the access road located across the top of the landfill from north to south.

The perimeter access road, which leads from the site entrance road, circumscribes the Fill Area. The eastern side of the perimeter access road, extending from the southern end to approximately 400 feet north of Culvert D, is paved and has streetlights. This remainder of the perimeter access road has a gravel surface. The entire perimeter access road is lined by a guard rail on the outside. Guard rails are also located on the inside of the perimeter access road adjacent to monitoring well clusters.

A second access road constructed during landfill closure is located across the top of the landfill from north to south. This road has a gravel surface and has neither guard rails nor streetlights.

The inspector shall perform the work in an orderly fashion, completing all the items on the checklist for each section of access road and completing the checklist form prior to proceeding to the next section. Observations shall be recorded at the time they are viewed. If no problems or deficiencies are observed in a given zone, the item shall be noted as satisfactory by inserting a √ in the appropriate box. If adverse conditions are observed or if other conditions exist that deviate from normal, the appropriate checkbox should be marked as not satisfactory (NS), and the location and problem noted on a deficiencies/problems in the form (E4-Maintenance Required/Comments section). Note that, in accordance with the guidelines give in Section 7.5.1, ruts deeper than 6 inches shall be repaired. All significant deficiencies should be recorded accurately on an 11" x 17" drawing in the field and transferred to a record drawing.

Checklist Form E4
Edgemere Landfill, Rockaway, New York
Inspection of Related Facilities Checklist

MM/DD/YYYY	Edgemere-YYYY	
INSPECTON DATE	LANDFILL-YEAR	INSPECTOR NAME

Inspection of Related Facilities						
Checklist Parameters	**A-3**	**A-4**	**B**	**C**	**D**	**E**
Access Roads						
Loss of Gravel-asphalt cracks						
Debris/Obstruction						
Uneven Settlement						
Ponding of Water						
Overgrown Vegetation						
Fence, Gates and Locks						
Condition of Gates & Locks						
Damage to Fence & Signs						
Overgrown Vegetation						

Maintenance Required/Comments/ Photo Log:

Inspectors Signature Date

General Notes:

✓: Satisfactory

X: Not Satisfactory

N/A: Not applicable

Any item(s) marked 'x' will have a detailed description of the unsatisfactory condition on the "Observation Form" in Section 8 of this Report.