

915011

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PRELIMINARY SITE ASSESSMENT

Buffalo City - Hopkins Street Landfill Site No. 915011

City of Buffalo Erie County



Prepared for:

**New York State
Department of
Environmental Conservation**

50 Wolf Road, Albany, New York 12233

Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation

Michael J. O'Toole, Jr., *Director*

By:

**Rust Environment & Infrastructure
of New York, Inc.**

in association with

TAMS CONSULTANTS, INC.

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November 1993

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EXECUTIVE SUMMARY

Site Description

The Buffalo City-Hopkins Street Landfill is a 12.4 acre parcel of land located in the City of Buffalo, Erie County, New York (Figure ES-1). The site is bordered to the south by South Park; to the west by Hopkins Street; to the north and northwest by industrial properties, including the LTV/Republic Steel landfills; to the northeast by a portion of regulated wetland BU-1; and to the east by undeveloped woodlands, beyond which is a residential area (Figure ES-2). The site is relatively flat and heavily vegetated, and was reportedly used by the Buffalo Streets Department for disposal of an estimated 60,000 cubic yards of non-putrescible waste during the 1970s.

Summary of Preliminary Site Assessment

The fill material disposed on the site was characterized during the Preliminary Site Assessment (PSA) as predominantly silty sand with varying quantities of the following: box springs; scrap metal; plastic; wood; glass; tires; carpeting; bricks; slag; concrete; household appliances; and foam rubber. Overburden beneath the site consists of low permeability lacustrine deposits (silt and clay) extending to a depth of 20 to 25 feet.

Results of the soil gas survey, geophysical surveys and chemical analysis of the various samples collected during the PSA did not indicate that hazardous wastes were disposed at the Hopkins Street Landfill. Inorganic constituents (metals) were detected in samples of surface water, surface sediment, subsurface soil and groundwater collected at the site. Metals concentrations exceeded NYS Recommended Soil Cleanup Objectives and/or NYS Water Quality Standards/Guidance Values. Surface water contained aluminum, lead, iron, manganese and zinc in excess of surface water standards; sediments contained arsenic, chromium, lead and zinc at concentrations in excess of expected ranges for uncontaminated soils; soils contained arsenic, chromium, lead, mercury and zinc above the expected range for uncontaminated soils and groundwater contained several metals, including antimony, lead, arsenic, barium, beryllium, cadmium, chromium and copper in excess of New York State Water Quality Standards. Polynuclear aromatic hydrocarbons (PAHs) were also detected in the sediment and subsurface soil samples at slightly elevated levels. However, given the urban/industrial location of the site, as well as its proximity to the LTV/Republic Steel landfills, the slightly elevated levels of metals and PAHs do not appear to pose a significant threat to public health or the environment. The presence of these analytes within the various media may be addressed by other divisions within the NYSDEC (e.g. Division of Solid Waste).

Conclusion

The data generated in this investigation and information gathered from the data and records search provide no evidence that hazardous waste as defined by 6 NYCRR Part 371 was disposed at the Buffalo City-Hopkins Street Landfill. It also appears that the site does not pose a significant threat to either public health or the environment as defined by 6 NYCRR Part 375.

Recommendation

Based on findings presented herein Rust E&I recommends that the Buffalo City-Hopkins Street Landfill site be removed from the Registry of Inactive Hazardous Waste Sites in New York State. Rust further recommends that no additional action be undertaken by NYSDEC under Work Assignment No. D002520-3. This recommendation may be subject to modification in the future if new information becomes available.

The detection of elevated levels of several analytes in soil, sediment, surface water and groundwater may indicate that this site requires further action by another division within the NYSDEC (e.g., Division of Solid Waste or Division of Water).

1.0 INTRODUCTION

This report, prepared for the New York State Department of Environmental Conservation (NYSDEC), presents the results of a Preliminary Site Assessment (State Superfund Standby Contract Work Assignment No. D002520-3) at the Buffalo City-Hopkins Street Landfill site (the site), NYS Site Number 915011, located in the City of Buffalo, Erie County, New York. The tax map number for the 2441 South Park property is 142.05-1-1.1.

Dunn Engineering Company (now Rust Environment & Infrastructure of New York, Inc.), in association with TAMS Consultants (TAMS), performed this investigation in order to ascertain whether on-site disposal of hazardous waste as defined by 6 NYCRR Part 371 is documented, and if so, to determine if the site thereby poses a significant threat to public health or the environment. The information generated from this investigation is needed to either classify or delist the site as defined by Article 27, Title 13, of the Environmental Conservation Law (ECL).

In order to achieve the goals of the PSA, a review of the following information regarding the site was performed:

- History of use;
- Topography;
- Geology and hydrology;
- Demographics of surrounding area;
- Proximity to possible receptors; and
- Previously noted contamination or regulatory actions.

Sources for the information included the following:

- New York State Department of Environmental Conservation (NYSDEC), Region 9 files;
- New York State Department of Health (NYSDOH), Region 9 office;
- Aerial photographs;
- Local historical society files;
- Topographic maps;
- Drilling logs for local wells;
- Interviews with current and former site employees;
- City of Buffalo records;
- A USEPA, NUS Corporation Site Inspection Report; and
- An Ecology & Environment Phase I report.

The following individuals and agencies were contacted:

- Mr. Mark Mateunas, NYSDEC, Bureau of Hazardous Site Control;
- Mr. Michael Rivara, NYSDOH, Bureau of Environmental Exposure Investigation;
- Mr. Greg Ecker, NYSDOH, Region 9; and
- Ms. Judith Larosa, Town of Hamburg, Engineer's Office.

Literature sources used to perform the investigation and to prepare this report are listed in Appendix A. Specific documentation used in support of the text are listed in Appendix B.

2.0 SITE ASSESSMENT

2.1 SITE HISTORY

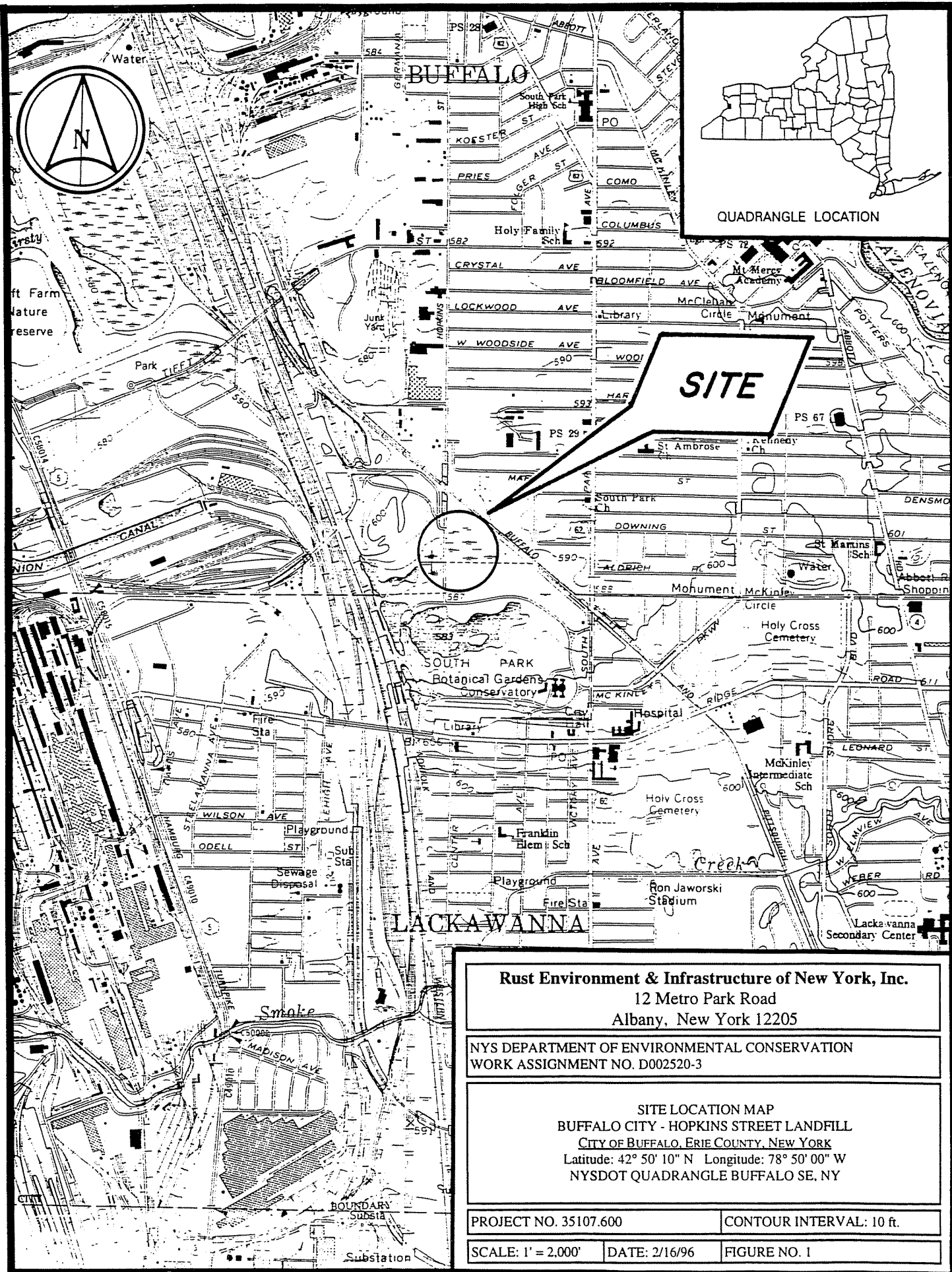
The Hopkins Street Landfill is a 12.4 acre parcel of land located east of Hopkins Street and north of South Park in the City of Buffalo, Erie County, New York (Figure 1). The site is owned by the City of Buffalo and was reportedly used by the Buffalo Streets Department for the disposal of clean fill in the early 1970s (Reference A-1). An estimated 60,000 cubic yards of non-putrescible materials including street rubble, construction/demolition debris, leaves, discarded appliances and other items were disposed at the site. Several site inspections conducted by the NYSDEC in 1974 and 1975 indicated that the site had not been properly closed and refuse was noted near the entrance to the site (Document B-1). The site was first identified as a landfill in 1979 by the Interagency Task Force on Hazardous Waste (Document B-2). Site features are shown in Figure 2.

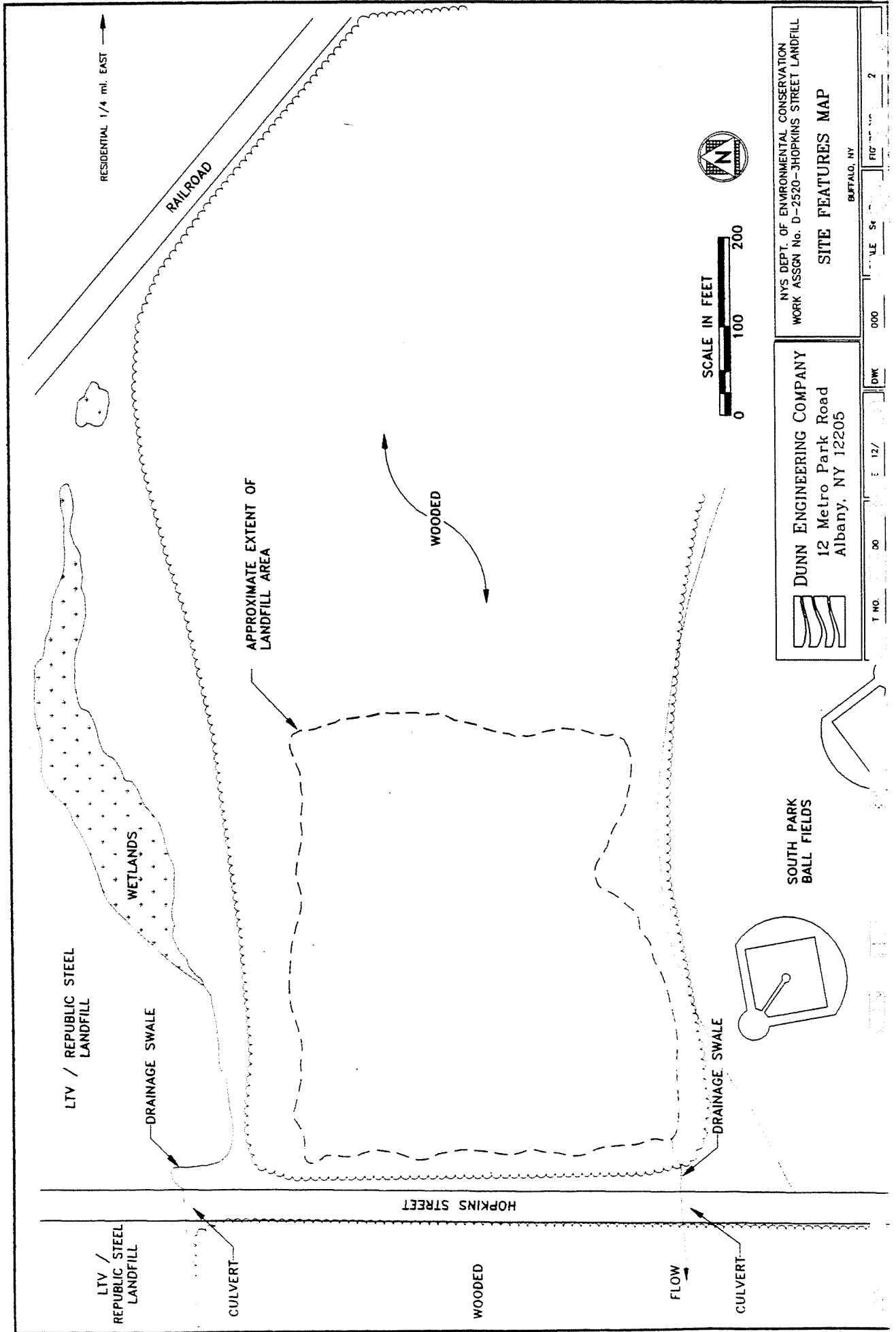
During a May 29, 1981 site inspection, the Erie County Department of Environment and Planning (ECDEP) noted the presence of "non-putrescible material" (Document B-3).

A September 1982 NYSDEC investigation using a mobile air monitoring unit detected polychlorinated biphenyls (PCBs) in the ambient air near the site. As a result of these findings, the ECDEP conducted a preliminary site survey in October 1982 and recommended a series of actions that should be taken before the county initiates a soil sampling program (Document B-4). A follow-up study was conducted by the Erie County Department of Health which confirmed the NYSDEC's findings. The origin of the PCBs was "thought to be the Horowitz (sic) Brothers Scrap Yard", located north of the site (Document B-5).

A 1984 inspection, which included surface soil, sediment and water sample collection and analyses, was conducted for the USEPA by NUS Corporation in the Hopkins Street Landfill area. It is uncertain whether any samples were collected from the site itself. Analytical results from the sampling event detected metals, volatile organic compounds and semi-volatile organic compounds. The report identifies a trench allegedly operated by Allied Chemical Company near or possibly on the Hopkins Street Landfill site (References A-1 and A-2). This may be one of the trenches reported by the USGS in a 1985 EPA document (Document B-6). A USGS field sketch indicates trenches along Hopkins Street, near Marilla Street, adjacent to railroad tracks. The sketch is not to scale; therefore, it is not certain whether any trenches extended to the Hopkins Street Landfill.

A NYSDEC Phase I investigation was initiated at the site in 1987 by Ecology & Environment (E&E). E&E reported in 1989 (Reference A-1) that the site was primarily flat with mounds of non-putrescible material, street rubble and debris. The site was also noted to be heavily vegetated with trees and shrubs and a cable fence was observed on the western side of the property along Hopkins Street. In the previous investigation for the USEPA, it was reported that an alleged waste disposal lagoon was operated near the site. No evidence of this lagoon presently exists; however, it may be one of the trenches noted in the 1985 NUS report (Reference A-2).





2.2 SITE TOPOGRAPHY

The Hopkins Street Landfill is a relatively flat, heavily vegetated parcel of land lying at an approximate elevation of 587 feet above mean sea level. Numerous piles of debris which may be as much as six feet high are located on the site. Surface drainage is to the north and to the south into two manmade ditches (Figure 2). The northern ditch connects a large area of standing water adjacent to the northeast border of the site with a portion of regulated wetland BU-1 across Hopkins Street to the west. The northern ditch discharges to the east into a wetland area northeast of the site. Just north of the man-made ditch is an industrial landfill (elevation 592 feet) owned by LTV Corporation (formerly Republic Steel). The southern drainage ditch discharges to the west into a wetland area on the west side of Hopkins Street. South of the site is a flat open section of South Park which slopes gently toward South Park Lake. To the east of the site is a wooded area beyond which are residential properties.

The site lies in Zone C as designated by the Federal Emergency Management Agency (FEMA) flood zone insurance map (Reference A-3). Zone C includes areas outside the 500 year floodplain.

2.3 GEOLOGY

2.3.1 Physiography

New York State is divided into nine distinct physiographic provinces on the basis of topographic relief and geology (Reference A-4). The Hopkins Street site is located within the Erie Ontario Lowlands which are characterized as a relatively low, flat area lying south of Lake Erie and Lake Ontario, and ranging in width from two to five miles. Maximum elevations of 1,000 to 1,500 feet above mean sea level are found in the eastern and southern portions of the province.

2.3.2 Surficial Deposits

The site is classified by the USDA Soil Conservation Service as a "dump", defined as an area consisting "mostly of excavations that are filled or to be filled with rubbish and debris" (Reference A-5). Soils in the adjacent areas are characterized as Niagara silt loam which typically comprises an upper 5 inches of mottled yellowish brown light silt loam, underlain by mottled dark brown light silty clay loam grading to silt loam. The substratum is dark brown silt loam to a depth of 60 inches and olive brown coarse silt and very fine sand below 60 inches.

Soil borings and monitoring wells installed in 1984 by Earth Dimensions, Inc. at the LTV Steel landfill to the north of the site encountered soils which are typical of the Niagara silt loam at depths of approximately seven feet. Regional mapping by the NYS Geological Survey indicates the presence of lacustrine silt and clay deposited by proglacial lakes (Reference A-6). Site-specific subsurface geology is presented in Section 4.5 of this report.

2.3.3 Bedrock

Bedrock underlying the site is mapped as the Middle Devonian Levanna Shale of the Skaneateles Formation (Reference A-7). The Stafford Limestone which underlies the Levanna Shale ranges in thickness from 6.5 to 15 feet in the region. The limestone is typically gray and weathers to a chocolate brown color (Reference A-8). The bedding varies from massive to shaly. The Levanna Shale, which is a black, fissile shale, is expected to be impermeable and may act as a confining layer to the underlying limestone aquifer (Reference A-9).

2.4 HYDROGEOLOGY

2.4.1 Groundwater

Groundwater was encountered at a depth of less than two feet in perimeter monitoring wells installed for the PSA.

Water level measurements obtained on February 4, 1993 indicated that groundwater flow within the overburden at the site appeared to be in a southerly direction toward South Park Lake. However, regional flow within the overburden is presumed to be to the west toward Lake Erie. Site-specific groundwater depth and flow information obtained during this PSA is presented in Section 4.7 of this report.

Groundwater within the Stafford Limestone aquifer is presumed to be under confined conditions due to the presence of the Levanna Shales and overlying clay-rich overburden. The direction of groundwater flow within the bedrock is uncertain, but is believed to be controlled by secondary features such as fractures and solution channels, and is most likely in a westerly direction toward Lake Erie.

Overburden wells installed to a depth of 25 feet penetrated silt and clay lacustrine deposits beneath the fill. Below the lacustrine deposits was a dense till. These tight fine-grained deposits probably preclude migration of site contaminants into the bedrock aquifer. Hydraulic conductivities measured in two site wells were 1.18×10^{-6} centimeters per second (cm/sec) and 9.55×10^{-6} cm/sec. Water level measurements in three wells show that the hydraulic gradient was 0.005 feet per foot to the south. Overburden lithology and these hydraulic data suggest that lateral and vertical groundwater flow would be restricted.

2.5 PROXIMITY TO POTENTIAL RECEPTORS

2.5.1 Surface Water

A wetland area is located west of Hopkins Street. South Park Lake, a federally designated wetland, is located approximately 500 feet directly south of the site. Three federally and state designated wetlands are located within one and one-half miles northwest of the site (Document B-7). The Republic Steel wetland (BU-1), a Class I wetland, is located approximately 100 feet north of the Hopkins Street Landfill and covers an area of approximately 50 acres. The Tift Farm wetland (BU-

15), also Class I, is located one mile northwest of the site, and covers approximately 95 acres. This wetland is part of the Tift Farm Nature Preserve and is further classified as a significant coastal fish and wildlife habitat area. Just south of the Tift Farm wetland is the Tift Street wetland (BU-7), a 20-acre Class II wetland.

2.5.2 Population

The nearest private homes are located approximately 1,500 feet northeast of the site. The total population residing within three miles of the site is approximately 95,300 (Document B-8).

Drinking water for the Buffalo/Lackawanna area is provided by municipal supply and distribution systems (Reference A-10). The NYSDEC Phase I investigation identified a private well within three miles south of the site on Mile Strip Road in Blasdell (Document B-5). However, the Town of Hamburg Engineer's office has indicated that the residence in question has since been demolished and the property is now on public water (Document B-7).

2.5.3 Agricultural Land

No agricultural land is located within three miles of the site.

2.5.4 Commercial Land

The nearest commercial land is owned by LTV Corporation, which is adjacent to the north side of the site.

3.0 TASK DISCUSSION

The information presented herein is based on the results of a Data and Records Search (Task 1) of state and local agency files. Evaluation of this information resulted in the development of a site-specific work plan/health and safety plan (Task 2), and subsequently, the implementation of non-intrusive (Task 3) and intrusive investigations (Task 4).

3.1 DATA AND RECORDS SEARCH

The information gathered in the Data and Records Search indicated that the site was used for the disposal of non-putrescible waste. Available information included reports on: two USGS investigations in 1982 and 1983; NYSDEC air monitoring in 1982; an NUS Corporation inspection in 1984; and NYSDEC Phase I investigation in 1989. The reports did not allow an assessment of the extent or impact of contamination of soil and/or groundwater caused by prior waste disposal practices at the site.

In two USGS field investigations conducted in 1982 and 1983, test borings were placed in the vicinity of the Hopkins Street Landfill (Document B-6, pages 163-167). Due to the inadequacy of boring location information, it is not known whether any borings were placed on the site itself. An August 11, 1982, soil sampling event detected levels of chromium and iron. A second sampling event was performed on May 18, 1983, with samples collected at the same locations and depths as the first sampling event. Volatile organic compounds detected in soils included benzene [27.9 parts per billion (ppb)], toluene (2.8 ppb) and methylene chloride (313 ppb).

On September 22, 1982, PCBs were detected when the NYSDEC performed an air monitoring survey in the area of the Hopkins Street Landfill. An Erie County Department of Health follow-up study confirmed the findings. The Horowitz (sic) Brothers Scrap Yard north of the landfill was "thought" to be the source (Document B-5).

In 1984, an inspection was conducted in the landfill area by NUS Corporation for the USEPA. Soil, water and sediment samples were apparently collected near the perimeter of the site and analyzed for volatile organics, semi-volatile organics, pesticides/PCBs and metals using the USEPA Contract Laboratory Program (CLP). The results indicated background levels for many metals including aluminum [5090 parts per million (ppm)], barium (129 ppm) and iron (29,400 ppm); and elevated levels for chromium (773 ppm) and manganese (5,590 ppm). Volatile organic compounds and semi-volatile compounds were also detected in sediment and soil samples (Reference A-2).

Samples for chemical analysis were not collected in the NYSDEC Phase I investigation in September 1989. VOC screenings using photoionization detectors (HNU-PID) and a subsequent site inspection by DUNN/TAMS in 1990 did not reveal any organic vapor readings above background levels. During the DUNN/TAMS site inspection on August 14, 1990, a radiation screening using a Geiger counter indicated no radiation above background levels.

3.2 TASKS A AND 2 - GLOBAL WORK PLAN AND SITE-SPECIFIC DOCUMENTS

3.2.1 Global Work Plan

Task A consisted of preparation of a global work plan, quality assurance project plan (QAPP) and master health and safety plan (MHASP). The project documents presented information relevant to work planned at all 19 sites in the Work Assignment. The global work plan included:

- a description of the major tasks to be performed;
- a detailed work assignment project schedule with milestones and deliverables;
- a staffing plan; and
- a detailed work assignment budget.

The global QAPP provided descriptions, methodologies and quality assurance/quality control (QA/QC) procedures for the field activities proposed at each of the sites. General sampling and analytical protocol were also discussed.

An MHASP was prepared to provide the general health and safety procedures to be followed by all DUNN employees and subcontractors while performing site investigation activities. Activity-specific health and safety procedures were also included in the MHASP.

3.2.2 Site-Specific Documents

A work plan, QAPP and health and safety plan (HASP) were developed in Task 2 specifically for use in the Buffalo City-Hopkins Street Landfill PSA. The work plan described the proposed site-specific activities, objectives, methodology and schedule of implementation for Tasks 3 and 4. The QAPP described the analytical program for the site, and provided other site-specific information. The HASP detailed site-specific information, including known or suspected contaminants, health and safety levels of protection required, special monitoring equipment, emergency information and procedures and a route-to-hospital map. The site-specific work plan, QAPP and HASP were prepared as one document and submitted to NYSDEC for review and approval.

3.3 TASK 3 - NON-INTRUSIVE INVESTIGATIONS

Several non-intrusive activities were performed at the site prior to initiating the intrusive program. These activities included sampling and completion of geophysical and soil gas surveys. The non-intrusive activities were performed in order to delineate anomalies at the site and to guide the selection of appropriate test pit and monitoring well locations.

3.3.1 Geophysical Surveys

The geophysical surveys performed on September 16, 1992 employed both electromagnetic (EM) and magnetic techniques. The purpose of these surveys was to delineate the extent of the fill areas and to identify anomalies that may be associated with buried metal (e.g., drums). In order to provide horizontal control, a 400' x 400' grid with 50' spacings was laid out across the suspected fill area

(Figure 3-1). Several grid stations were excluded from the survey due to the inaccessibility of the locations caused by the presence of thick underbrush.

3.3.1.1 Electromagnetic (EM) Conductivity Methodology

The conductivity of soil is a function of lithology, porosity, pore-water chemistry and degree of water saturation. Thus, by conductivity profiling, abnormal conditions in the subsurface such as the migration of leachate plumes, contamination of groundwater, abandoned trenches and lagoons, bedrock fracture zones and buried metallic objects may be detected if site conditions are favorable. Some of the limitations of the EM technique are related to interference created by manmade features, such as buildings, fences, power lines, scrap metal and pipes.

Terrain conductivity surveying is based on the principle of electromagnetic induction. By creating a primary magnetic field, a transmitter coil induces the flow of very small electrical currents in the subsurface. These currents generate a secondary magnetic field which is sensed together with the primary field by the receiver. The intensity of this generated electromagnetic force is a function of the conductivity and depth of the subsurface material. The EM survey was conducted using the Geonics EM-31 non-contacting terrain conductivity meter and Omnidata DL55/31 Polycorder data logger. The EM-31 effective exploration depth is directly related to the separation of the transmitter and receiver and the coil orientation. In the normal operating mode (vertical coplanar) used during this survey, the instrument yields an approximate exploration depth of 20 feet.

The quadrature (Q) and in-phase (I) components of the secondary magnetic field were measured at the stations by the EM-31 and recorded by the data logger. The Q component, expressed in millimhos/meter (mmhos/m), is a weighted average of the electrical conductivity of assumed horizontal layers within approximately 20 feet of the ground surface. The I component of the secondary magnetic field, expressed in parts per thousand (ppt) of the primary (inducing) field, offers greater sensitivity to metallic conductors than the Q component.

The data generated in this investigation was downloaded from the data logger and transferred to a personal computer for subsequent contouring. The results are presented in Section 4.1.1.

3.3.1.2 Magnetometer Methodology

The magnetometer survey was performed with a Geometrics G-856 proton precession magnetometer which measures the earth's total vertical magnetic field. The unit of measurement of the magnetic field is the gamma. Materials of high magnetic susceptibility (ferromagnetic materials such as drums, pipes, etc.) produce variations and anomalies in the total magnetic field. Evaluation of anomalous measurements indicates where ferromagnetic materials are present. The magnitude of the anomalous measurement is related to the mass, orientation and depth of burial of the ferromagnetic materials.

Magnetometer surveys can be conducted to locate an anomaly resulting from a suspected pollution source (e.g., drums, pipes, etc.). However, other materials (such as scrap metal, power lines, fences, etc.) on the surface or below the surface can cause anomalies which may bias or mask readings, or provide false anomalies.

The data generated in this investigation was downloaded from the magnetometer and transferred to a personal computer for processing and subsequent contouring. The results are presented in Section 4.1.2.

3.3.2 Soil Gas Survey

The soil gas survey was conducted during the period October 22 through 30, 1992 and utilized the same 400' x 400' grid as the geophysical surveys. The presence of standing water prohibited soil gas sampling at several grid stations. The results of the soil gas survey are presented in Section 4.2.

3.3.2.1 Sample Collection

Soil gas samples were collected by first advancing a small diameter borehole to a maximum depth of four feet using a "slam bar" and a 5/8-inch diameter solid steel rod. After driving the steel rod to its maximum depth, it was removed and a dedicated 1/2-inch diameter aluminum tube inserted in order to prevent the borehole from collapsing. Care was taken to ensure that the tube was not plugged or inserted into shallow groundwater. Surface soil was packed into the annular space around the top of the tube to eliminate infiltration of surface air during sampling preventing sample dilution.

Soil gas samples were collected using 125 milliliter (ml) gas sampling bulbs. The device consists of a glass bulb with Teflon valves at either end and a septa in the center to allow sample withdrawal. The top of the aluminum tube was connected to one of the valves on the sampling bulb by dedicated 1/2-inch polyethylene tubing. The other valve was connected to a laboratory bench style vacuum pump. The vacuum pump was used to create flow within the polyethylene tubing causing soil gas to be drawn from the subsurface probe. The pump was operated until approximately two liters (six bulb volumes) had been purged. After purging, the soil gas in the glass bulb was contained by closing the valve nearest the pump before the pump stopped, then the valve nearest the aluminum tube was closed. The pump was shut off and the 125 ml glass bulb removed for analysis. The dedicated polyethylene tubing was discarded. The samples were labeled and stored in a cool, dark place until the time of analysis, within two hours of collection. A 500 microliter (μ l) syringe was inserted through the septa of the sampling bulb, a sample was withdrawn and injected into the gas chromatograph.

3.3.2.2 Sample Analysis

A Photo Vac Model 10570 portable gas chromatograph (GC) was used to analyze the soil gas samples. The GC was equipped with a photoionization detector (PID) and an on-board computer programmed to analyze samples for the volatile organic compounds (VOCs) outlined in the QAPP. The GC generates quantitative data specific to each compound. After injection into the instrument, the sample flows through a chromatographic column prior to the PID. The various VOCs pass

through this column at different rates and thus reach the detector at different times after the injection. A strip-chart record of detector response versus time is obtained during each analysis and the presence of VOCs in the sample is manifested by peaks on this strip-chart record.

The GC measures two parameters for each peak observed during an analysis. First, the length of time (retention time) is measured between the initial injection of the sample and the detection of the peak; each VOC has a characteristic retention time by which it is tentatively identified. Second, the GC integrates the detector response to measure the area under the peak. This area, measured in millivolt seconds (mv-s), is proportional to the concentration of the compound in the sample.

Prior to the start of field activities, the instrument was calibrated to recognize retention times and convert peak areas into concentrations for target VOCs. Gas calibration standards were prepared in accordance with USEPA Areal/RAP-SPO-MRDD-086, Revision 2, March 1990, Standard Operating Procedure for the Preparation and Use of Standard Organic Mixtures in a Static Dilution Bottle. This method utilizes liquid densities at room temperature to prepare standards in milligrams per cubic meter (mg/m^3). Conversion of mg/m^3 to parts per million (ppm) was achieved by use of the following equation:

$$\text{ppm} = \frac{24.45 (\text{L}/\text{mole})}{\text{MW} (\text{g}/\text{mole})} \times \frac{\text{Density} (\text{mg}/\mu\text{l}) \times \mu\text{l added} \times 1000 \mu\text{g}/\text{mg}}{0.125 \text{ liter Bulb Volume}}$$

A stock calibration standard was prepared by syringing pure organic compound into a 125 ml glass bulb that had been thoroughly flushed with organic free (ultra zero grade) air. The 125 ml glass bulb with standards was then heated to 60 degrees centigrade.

A working calibration standard was prepared by syringing 500 μl (via gas tight syringe) of the stock calibration standard and delivering the aliquot to a one liter glass bulb achieving a 1-to-200 dilution. Field conditions can vary dramatically from initial calibration conditions thereby influencing both compound retention times and response factors in the library. Continuing calibrations were therefore routinely performed by injecting a standard, typically toluene, into the GC. Using a keyboard command, the instrument recalibrates the programmed library updating retention times and response factors for all the target VOCs by linear adjustment relative to the continuing calibration standard.

Soil gas analyses were conducted by injecting a 250 μl aliquot of the sample vapor into the GC which compared the sample instrument response to that of the calibration standard stored in the GC memory. Documenting the analysis, the GC prepared a strip-chart report detailing the concentration of the recognized compounds and the raw instrument response of "unknown" compounds detected in the sample. In the event that the sample results were above the linear range of the instrument calibration, a smaller aliquot was injected and the sample results were corrected for the "dilution factor."

3.3.2.3 Quality Assurance / Quality Control

Field notebooks were used to record all pertinent information (e.g., odors, visual observations, weather), field measurements and any irregularities or deviation from the prescribed sampling

procedure. All entries were initialed for personnel identification. All notebooks were weatherproof and entries were made with waterproof ink.

The 5/8-inch steel rod was cleaned following the preparation of each sampling location. The rod was rinsed with distilled water, washed with a detergent and again rinsed with distilled water. Each aluminum tube was cleaned prior to mobilization to the site and was dedicated to a single sample location; therefore, field cleaning was not required. The polyethylene tubing used to connect the aluminum tube to the glass sampling bulb was dedicated and discarded following collection of each sample.

In general, samples were analyzed within one-half hour of collection. Any subsequent analyses (i.e., dilution of off-scale peaks) were completed within two hours of collection. Duplicate samples were collected at a frequency of five percent.

Initial calibrations were performed routinely to update relative response factors which may vary due to column detector aging and environmental conditions. Continuing calibrations were performed generally after every five samples, updating analyte retention times and response factors.

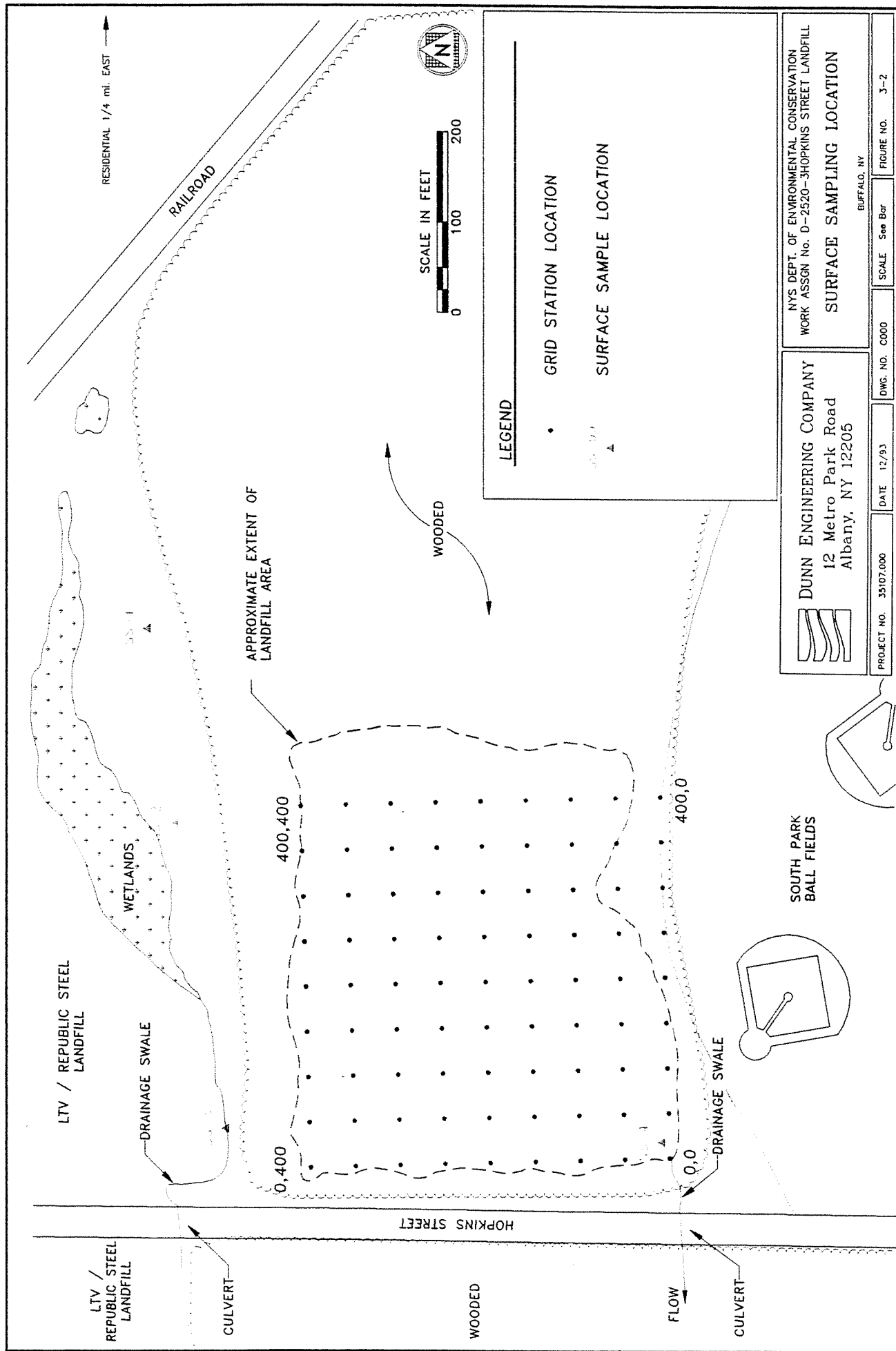
Background ambient air blanks were collected and analyzed daily prior to sample collection. These blanks were collected approximately four feet above the ground in the vicinity of daily sampling activities in order to establish background ambient air levels.

Bulb blanks and sample bulb blanks consisting of ultra zero grade air were routinely injected throughout the analyses to evaluate contamination. Bulb blanks from sampling bulbs which were not used for sample collection were injected to evaluate the instrument baseline prior to standard and sample analyses. Similar blanks were also analyzed immediately following samples that contained high concentrations of target compounds in order to detect possible instrument and syringe carry-over. Sample bulbs used in sampling and decontaminated by flushing with ultra zero grade air were analyzed throughout the day and prior to recalculation standards in order to evaluate the decontamination procedures and the possibility of sampling bulb carry-over.

3.3.3 Initial Environmental Sampling

3.3.3.1 Surface Water/Sediment Sampling

Sampling of both surface water and sediment was performed at the site on January 15, 1993 in order to ascertain the presence or absence of surficial contamination adjacent to the landfill. A total of four surface water samples (HOP-SW1 through HOP-SW4) and four sediment samples (HOP-SED1 through HOP-SED4) were collected in the initial sampling program. These samples were collected at the locations labeled SS-1 through SS-4 on Figure 3-2. SS-1 and SS-2 were located to the north-northeast of the site adjacent to the wetland area; SS-3 was located in the drainage swale located northwest of the site adjacent to the LTV/Republic Steel landfill; SS-4 was located in the drainage swale in the southwest corner of the site.



Surface water samples were obtained by directly submerging the sample bottles or by using a precleaned glass dipper jar. All sediment samples were collected using a shovel and stainless steel trowel. After excavation of the sediment with the shovel, the trowel was used to transfer the sediment from the shovel into a stainless steel mixing bowl. The sample was then mixed in the bowl and placed into the appropriate sample containers. The sediments to be analyzed for volatile organics were not placed into the bowl, but rather transferred from the shovel directly into the appropriate sample containers. All equipment utilized in the sampling program (i.e., mixing bowl, trowel and shovel) were decontaminated between each sampling location with a non-phosphate detergent wash and distilled water rinse.

All sediment and surface water samples collected in the initial sampling program were analyzed for the full suite of Target Compound List/Target Analyte List (TCL/TAL) of parameters according to NYSDEC Analytical Services Protocol - Contract Laboratory Program of December 1991 (NYSDEC - ASP-CLP, 12/91). The results of the chemical analyses are summarized in Section 4.3. Field sampling records are presented in Appendix E.

3.4 TASK 4 - INTRUSIVE INVESTIGATIONS

Intrusive investigations at the Hopkins Street Landfill included excavation of 10 test pits and installation of three monitoring wells. A bulldozer was used to provide access to the test pit and monitoring well locations shown in Figure 3-3.

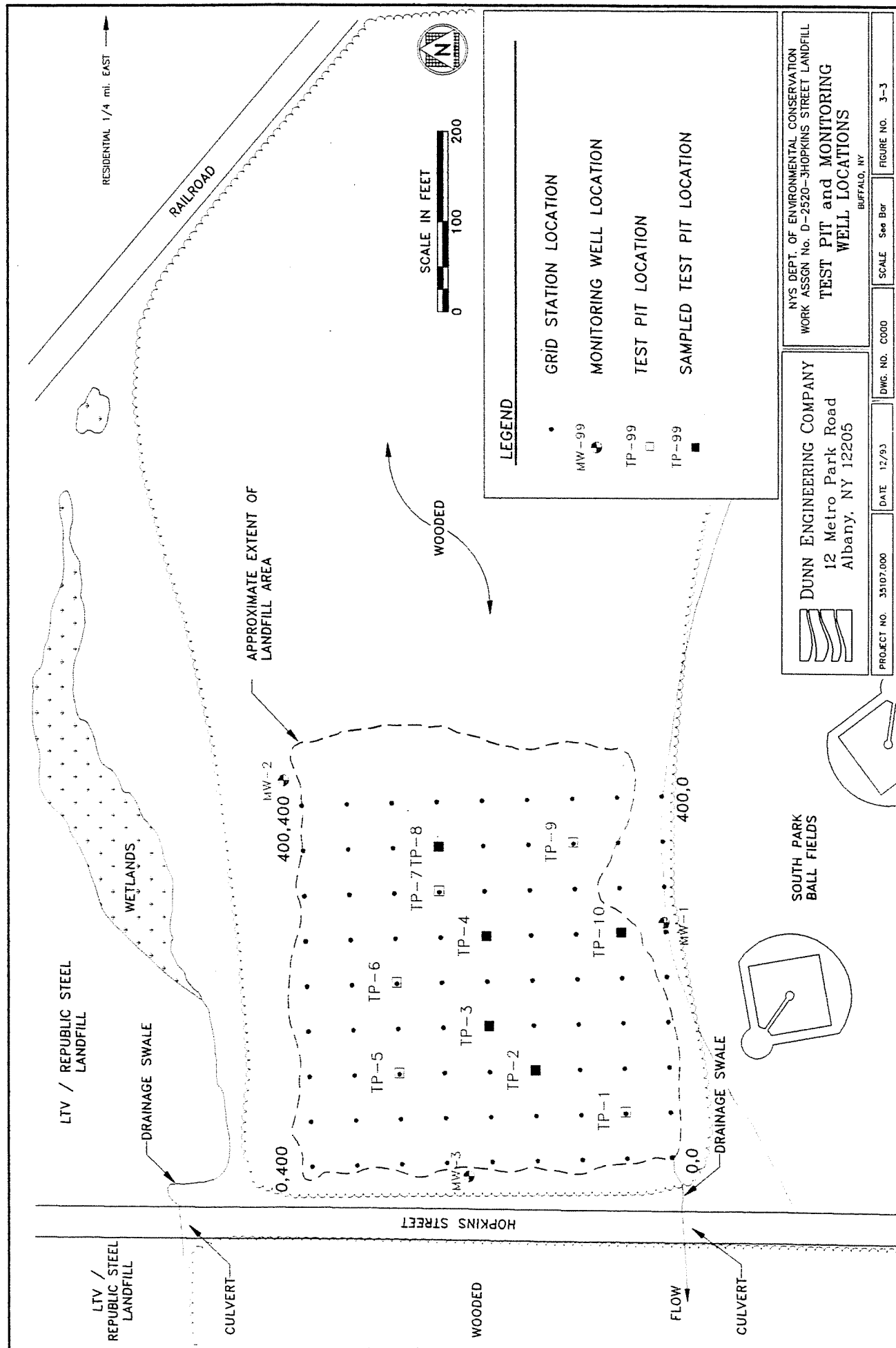
The locations of the test pits were selected based on visual observations of the landfill surface (e.g., surficial staining, stressed vegetation) and the geophysical and soil gas survey results. The test pits were completed to characterize the subsurface fill material and soil samples were collected to assess the presence or absence of hazardous waste materials.

The monitoring wells were located adjacent to the landfill area in both upgradient and downgradient locations. The assessment of groundwater conditions and quality was accomplished through water level measurements, permeability testing and groundwater sampling.

3.4.1 Test Pits

Ten test pits, HOP-TP1 through HOP-TP10, were excavated with a backhoe on January 13 and 14, 1993. The work was performed by American Auger and Ditching Co. (AAD) of Constantia, New York, under the supervision of a DUNN environmental geologist.

Each test pit was advanced through the fill until native soils were encountered. Excavated soils were visually classified by the on-site geologist using the NYSDOT Soil Description Procedure. In addition, excavated soils were screened with an HNU photoionization detector for volatile organic compounds (VOCs). Test pit logs presented in Appendix F include soil descriptions, field observations made during excavation activities and HNU screening results. A total of five soil samples were collected from selected test pits. The samples were selected based upon field observations and HNU screening results. Field sampling records are presented in Appendix E. Each soil sample was analyzed for the full suite of TCL/TAL parameters according to NYSDEC ASP-CLP of 12/91, Extraction Procedure Toxicity (EP-TOX) and hazardous waste characteristics (ignitability, corrosivity, flammability). The results of the chemical analysis are summarized in Section 4.4.



3.4.2 Monitoring Well Installation

Three groundwater monitoring wells, HOP-MW1 through HOP-MW3, were installed at the site on January 19-21, 1993. The monitoring wells were installed in conventional test borings. The work was performed by American Auger and Ditching, with supervision by a DUNN environmental geologist.

The boreholes were advanced through unconsolidated (overburden) soils utilizing hollow stem augers. A hollow-stem auger stabilizes the borehole walls preventing collapse and allows continuous split barrel (split spoon) sampling of soils. Sampling was performed in general accordance with ASTM D-1586, "Standard Method of Penetration Testing and Split Barrel Sampling of Soils".

Classification and HNU screening of the recovered soil samples were performed by the on-site geologist. Test boring logs are presented in Appendix G. All split spoons, drill rods and augers were steam-cleaned between boring locations to prevent cross contamination.

A total of three soil samples were collected from the borings for geotechnical analyses. The samples were representative of the three distinct stratigraphic units described by the field geologist who examined the split spoon samples (see Section 4.5). The geotechnical analyses included grain size analysis, Atterberg limits and moisture content. The results of the geotechnical analyses are presented in Appendix H.

Upon completion of each boring, a permanent monitoring well was constructed in the borehole. The monitoring wells consisted of nominal two-inch diameter machine slotted PVC well screen and PVC riser pipe. The screen and riser were flush-threaded which allowed construction without the use of glues or solvents. The annulus between the borehole wall and the monitoring casing was packed with clean silica sand to a level above the screened portion of the well, followed by a minimum two-foot thick bentonite seal to restrict the downward migration of surface run-off into the well. The portion of the annular space extending from the seal to ground surface was filled with cement grout. A locking metal protective casing, grouted in place, completed each well installation. Monitoring well diagrams are presented in Appendix I.

3.4.3 Monitoring Well Development and Sampling

Monitoring well development was performed by DUNN personnel on January 22 and 25, 1993 utilizing dedicated PVC bailers. Development of a well was terminated when the well was bailed dry. Measurements of pH, conductivity, temperature and turbidity were recorded after each well volume was removed. The number of well volumes evacuated from each well ranged from four to six. Well development logs are presented in Appendix J.

The monitoring wells were sampled on January 26 and 27, 1993. Prior to sampling, the wells were again bailed dry. Well sampling logs are presented in Appendix J. The groundwater samples were analyzed for the full suite of TCL/TAL parameters according to NYSDEC ASP-CLP 12/91. The results of the chemical analyses are summarized in Section 4.5.

3.4.4 Permeability Testing

Two of the newly installed monitoring wells were subjected to permeability (slug) testing in order to determine the horizontal hydraulic conductivity of the overburden unit. Water level recoveries to a static (initial) water level were measured in response to the instantaneous displacement of water after inserting an object of known volume (slug). The water level recovery of each monitoring well was automatically measured at programmed time intervals using an In-Situ Hermit SE 1000B Environmental Data Logger and pressure transducer.

The data generated in the permeability tests were downloaded to a personal computer and evaluated using the Bouwer and Rice method to determine the hydraulic conductivity of the screened interval within each well. The results are discussed in Section 4.7.2 and the field data and calculations are presented in Appendix K.

3.4.5 Elevation Survey

In order to determine the relative elevations of ground surface and top of PVC casing at each monitoring well location, an elevation survey was completed by DUNN on January 22, 1993. The elevations were referenced to an assumed datum of 100.00 feet at an arbitrarily selected benchmark. Unless otherwise indicated, all elevations presented and utilized in this report are relative to this arbitrary datum.

3.4.6 Laboratory Analyses

Chemical analyses of all sediment, surface water and subsurface soil samples collected in this investigation were performed by NYTEST Environmental, Inc. of Port Washington, N.Y. Chemical analyses of groundwater samples were performed by Galson Laboratories of Syracuse, N.Y. Data validation was performed by DUNN.

4.0 RESULTS OF INVESTIGATION

This section presents a discussion of the results of the non-intrusive (Task 3) and intrusive investigations (Task 4) performed at the Hopkins Street Landfill.

4.1 GEOPHYSICAL SURVEYS

4.1.1 EM Survey

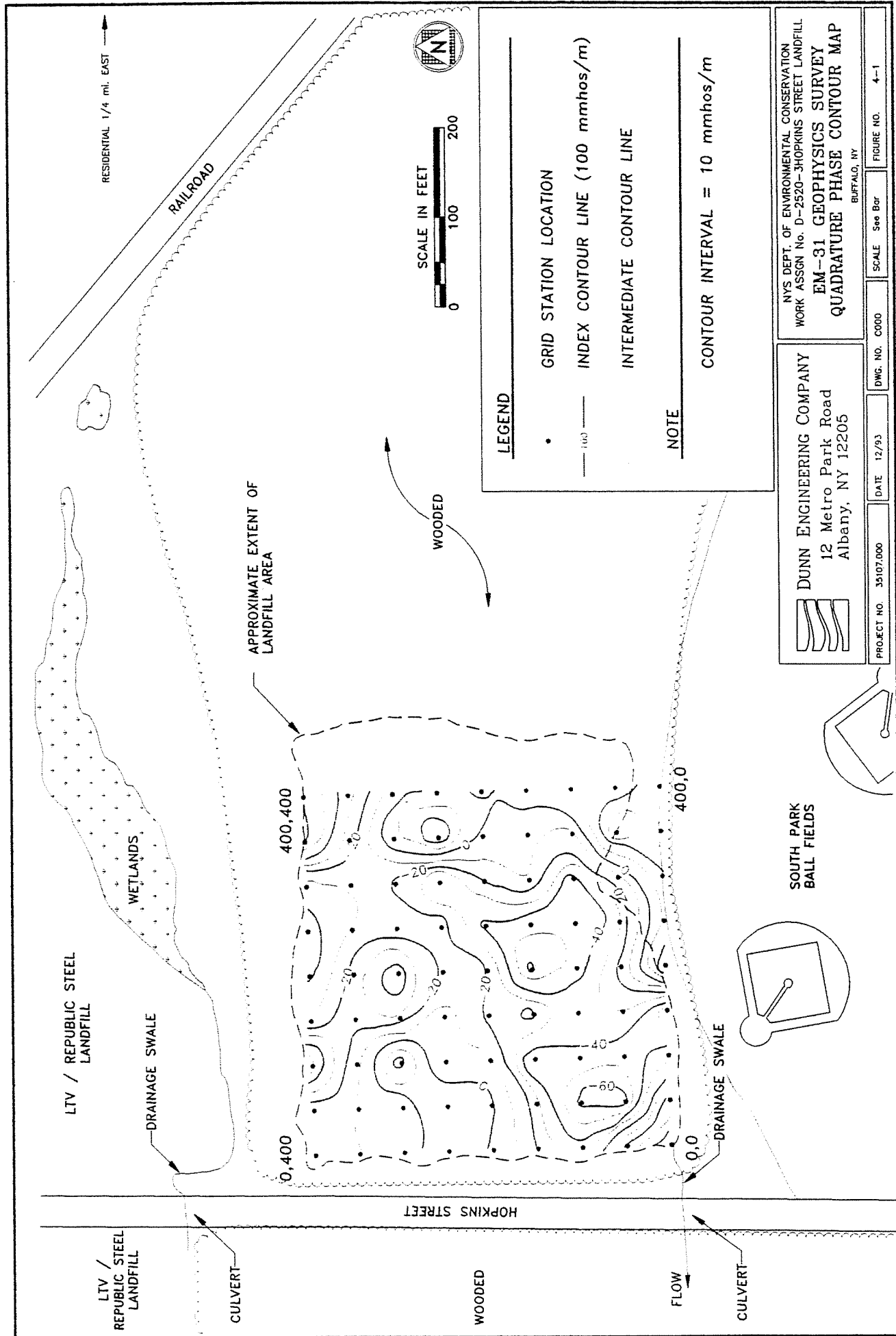
The terrain conductivity survey identified several anomalous areas (Figures 4-1 and 4-2) at the site. A background value for the quadrature-phase component suggesting clean fill or native soil was determined to be 40 mmhos/m. Readings greater or less than the background value were considered to be anomalous. The relative quadrature-phase values (i.e., after subtraction of the background value) are presented on Table 4-1. The readings for the in-phase component presented in Table 4-2 are absolute (i.e., field) measurements.

A review of the contour maps presented in Figures 4-1 and 4-2 indicates that there are several anomalous areas common to each figure. The corresponding anomalies were detected at the following grid stations: (50, 50); (50, 100); (100, 150); (250,150); (300, 250); and (200, 300). The anomalies may indicate the presence of buried metal and/or a greater thickness of miscellaneous fill material. It should be noted that the presence of surficial metal debris may be the cause of some of the anomalies detected.

4.1.2 Magnetometer Survey

A background magnetic field intensity for the site was determined to be 56,233 gammas. Magnetic field values which were greater or less than the background value were considered anomalous. Corrections for the natural diurnal fluctuations of the geomagnetic field were not necessary because the data were collected very rapidly (2 hours). The magnetometer data presented in Table 4-3 have been corrected for background. A computer-generated contour map was produced using these data (Figure 4-3).

A review of the contour map indicates the presence of a significant anomaly, located in the southeast portion of the grid. Anomalies were located at grid stations (250,50) and (350,100). The anomaly at station (250,50) can be attributed to a large quantity of surficial metal debris (e.g., old appliances and scrap metal) located proximal to the grid station. However, there was no surficial metal observed in the area of grid station (350,100), which indicates a significant mass of buried ferrous metal. The minor anomalies delineated across the remainder of the site may be attributed to the presence of surficial metal debris.




LEGEND

- GRID STATION LOCATION
- 100 — INDEX CONTOUR LINE (100 mmhos/m)
- INTERMEDIATE CONTOUR LINE

NOTE

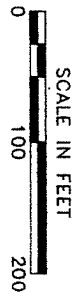
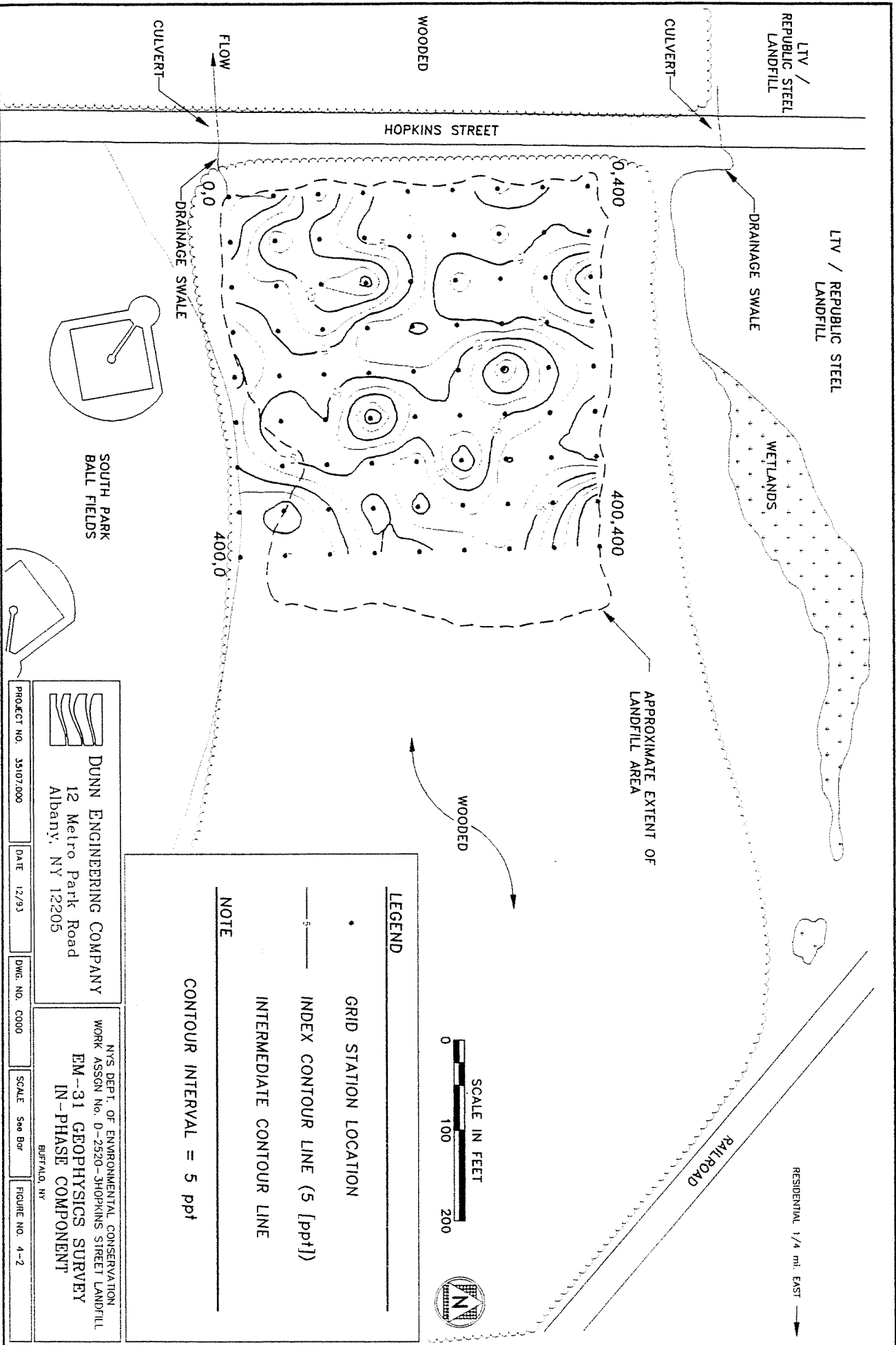
CONTOUR INTERVAL = 10 mmhos/m



DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGN No. D-2520-3HOPKINS STREET LANDFILL
EM-31 GEOPHYSICS SURVEY
QUADRATURE PHASE CONTOUR MAP
BUFFALO, NY

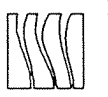
PROJECT NO. 35107.000	DATE 12/93	DWG. NO. C000	SCALE See Bdr	FIGURE NO. 4-1
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LEGEND

- GRID STATION LOCATION
- INDEX CONTOUR LINE (5 [ppt])
- INTERMEDIATE CONTOUR LINE

NOTE
CONTOUR INTERVAL = 5 ppt



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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGN. NO. 0-2520-SHOPKINS STREET LANDFILL
EM-31 GEOPHYSICS SURVEY
IN-PHASE COMPONENT
BUFFALO, NY

PROJECT NO. 35107.000

DATE 12/93

DWG. NO. C000

SCALE See Bar

FIGURE NO. 4-2

TABLE 4-1

**HOPKINS STREET LANDFILL SITE
EM-31 SURVEY DATA - QUADRATURE PHASE COMPONENT**

Readings presented are relative to a background value of 40 mmhos/m

East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	EM-31 Reading (mmhos/m)	East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	EM-31 Reading (mmhos/m)
0	0	27.9	0	250	6.6
50	0	4.4	50	250	4.7
100	0	-33.8	100	250	-7.1
150	0	-57.4	150	250	-2.9
200	0	33.5	200	250	-19.6
0	50	2.7	250	250	-12.1
50	50	-67.6	300	250	-45.8
100	50	-45.3	350	250	35.1
150	50	-28.4	400	250	-0.4
200	50	-17.3	0	250	-5.8
250	50	-37.8	50	300	-4.9
300	50	-13.5	100	300	26.8
350	50	43.7	150	300	-34.8
400	50	13.7	200	300	-49.3
0	100	-38.2	250	300	-11.4
50	100	-62.1	300	300	-20.8
100	100	-42.2	350	300	8.3
150	100	-32.4	400	300	-6.9
200	100	-46.0	0	350	--
250	100	-49.4	50	350	--
300	100	-45.6	100	350	--
350	100	-13.0	150	350	--
400	100	9.7	200	350	--
0	150	--	250	350	--
50	150	-24.3	300	350	--
100	150	-48.9	350	350	--
150	150	-16.2	400	350	--
200	150	-63.6	0	400	-19
250	150	-44.4	50	400	-14.6
300	150	-8.5	100	400	-61.1
350	150	-4.8	150	400	-8.7
400	150	4.9	200	400	2.9
0	200	1.0	250	400	3.3
50	200	7.5	300	400	-5.3
100	200	-7.3	350	400	-67.5
150	200	-23.7	400	400	-58
200	200	-14.3			
250	200	-43.1			
300	200	-19.2			
350	200	-2.1			
400	200	-1.3			

TABLE 4-2

**HOPKINS STREET LANDFILL SITE
EM-31 SURVEY DATA - IN-PHASE COMPONENT**

Readings are presented in parts per thousand

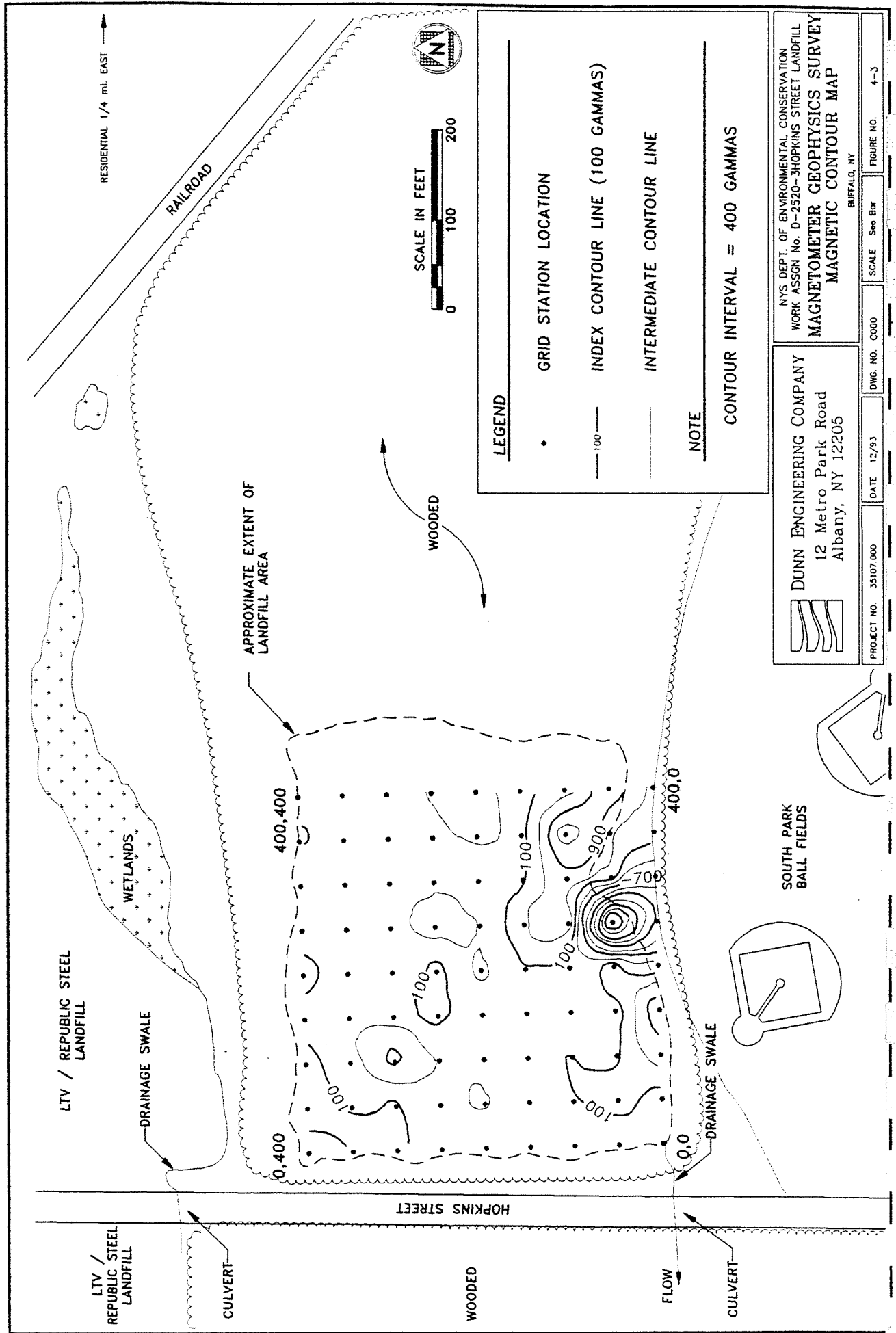
East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	EM-31 Reading (ppt)	East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	EM-31 Reading (ppt)
0	0	0.69	0	250	1.57
50	0	-0.03	50	250	1.07
100	0	-9.72	100	250	12.53
150	0	3.02	150	250	4.09
200	0	7.63	200	250	-5.95
0	50	1.04	250	250	-6.73
50	50	-25.35	300	250	-21.66
100	50	-7.77	350	250	-0.40
150	50	-6.30	400	250	-0.60
200	50	-2.88	0	250	11.14
250	50	-12.26	50	300	-2.03
300	50	-3.61	100	300	6.37
350	50	20.42	150	300	5.45
400	50	9.45	200	300	-27.52
0	100	-22.77	250	300	-5.54
50	100	-10.81	300	300	5.29
100	100	-20.50	350	300	3.92
150	100	-12.80	400	300	-0.63
200	100	0.44	0	350	--
250	100	-4.47	50	350	--
300	100	-8.70	100	350	--
350	100	5.55	150	350	--
400	100	11.59	200	350	--
0	150	--	250	350	--
50	150	-0.54	300	350	--
100	150	-28.87	350	350	--
150	150	4.71	400	350	--
200	150	-2.65	0	400	4.30
250	150	-31.75	50	400	0.38
300	150	-0.46	100	400	34.81
350	150	-9.51	150	400	10.87
400	150	-4.66	200	400	2.16
0	200	0.30	250	400	7.66
50	200	-0.99	300	400	7.93
100	200	-4.45	350	400	-31.86
150	200	5.97	400	400	-31.86
200	200	-0.68			
250	200	-6.42			
300	200	3.06			
350	200	7.95			
400	200	-7.66			

TABLE 4-3

**HOPKINS STREET LANDFILL SITE
MAGNETOMETER SURVEY DATA**

Readings presented are relative to a background value of 56233 gammas

East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	Magnetometer Reading (gammas)	East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	Magnetometer Reading (gammas)
0	0	-93	0	250	-49
50	0	-89	50	250	-149
100	0	709	100	250	-270
150	0	1305	150	250	246
200	0	-199	200	250	246
0	50	-212	250	250	-532
50	50	424	300	250	-219
100	50	-71	350	250	-207
150	50	-208	400	250	-327
200	50	-355	0	250	139
250	50	-4125	50	300	146
300	50	-338	100	300	-888
350	50	562	150	300	-78
400	50	1147	200	300	-331
0	100	-333	250	300	-208
50	100	48	300	300	5
100	100	116	350	300	-100
150	100	-253	400	300	-60
200	100	-113	0	350	--
250	100	933	50	350	--
300	100	756	100	350	--
350	100	1687	150	350	--
400	100	304	200	350	--
0	150	--	250	350	--
50	150	-25	300	350	--
100	150	-36	350	350	--
150	150	73	400	350	--
200	150	78	0	400	10
250	150	427	50	400	274
300	150	2	100	400	191
350	150	-178	150	400	-33
400	150	-106	200	400	238
0	200	-50	250	400	-110
50	200	-360	300	400	-214
100	200	-252	350	400	146
150	200	-211	400	400	-29
200	200	-413			
250	200	-295			
300	200	-95			
350	200	-349			
400	200	-402			




LEGEND

- GRID STATION LOCATION
- 100 — INDEX CONTOUR LINE (100 GAMMAS)
- — — INTERMEDIATE CONTOUR LINE

NOTE

CONTOUR INTERVAL = 400 GAMMAS



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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSGN No. D-2520-3HOPKINS STREET LANDFILL
MAGNETOMETER GEOPHYSICS SURVEY
MAGNETIC CONTOUR MAP

PROJECT NO. 35107.000	DATE 12/93	DWG. NO. C000	SCALE See Bar	FIGURE NO. 4-3
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BUFFALO, NY

4.2 SOIL GAS SURVEY

Ambient air samples were collected and analyzed daily in order to establish background values for the target VOC constituents. Individual VOC concentrations detected in each sample were corrected by subtracting the respective ambient air value. The corrected values were then totaled to establish a total VOC concentration for each sample. It should be noted that an individual corrected value would not be included in the total if it did not exceed the method detection limit of the instrument for the corresponding constituent. The values presented in Table 4-4 represent the total VOC concentrations detected in the soil gas samples. A computer generated contour map was produced using these values and is presented in Figure 4-4.

A review of the results indicates the presence of elevated VOC levels at a number of sample locations. The most significant VOC concentration, 31 ppm, was recorded at grid station (200,250). The analytes detected at this location included 1,1,1-trichloroethane, 1,1-dichloroethene (DCE); cis-1,2-DCE, toluene, vinyl chloride, methyl ethyl ketone and toluene. Total VOC concentrations in the 1-2 ppm range were detected at the following grid stations: (50,50); (100,50); (0,100); (100,200); (150,200); and (300,200). The VOCs detected at one or more of these locations included: chlorobenzene; toluene; xylene; trichloroethene; ethylbenzene; vinyl chloride; acetone; and DCE. In addition, there were numerous other sample locations at which total VOC concentrations were detected under 1 ppm.

4.3 INITIAL ENVIRONMENTAL SAMPLING

This section presents a discussion of the analytical results generated from the chemical analyses of the four surface water and four surface sediment samples collected during the initial sampling program. There were no sheens, staining or discoloration observed in any of the surface water or sediment samples.

4.3.1 Surface Water - Analytical Results

The analytical results for the surface water samples are summarized in Tables 4-5 and 4-6. Chemical analyses of the four surface water samples did not indicate the presence of any volatile organic compounds (VOCs) at levels exceeding NYS Surface Water Standards or Guidance Values. There were no detectable pesticides or PCBs in any of the surface water samples.

Semi-volatile organic compounds were detected at levels exceeding NYS Guidance Values at one sample location. Benzo(a) anthracene and chrysene were detected in HOP-SW4 at estimated levels of 1 ppb each, exceeding the NYS Guidance Value for surface water (0.002 ppb).

Analyses of the surface water samples indicated the presence of several metals in each sample at concentrations exceeding NYS Surface Water Standards. Exceedences common to all four samples included aluminum, iron, lead and manganese. There was no detectable cyanide in any of the surface water samples.

TABLE 4-4

**HOPKINS STREET LANDFILL SITE
SOIL GAS SURVEY DATA**

Readings presented represent total VOC concentrations
(VOC Value - Ambient Air Value > Method Detection Limit)

East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	Total VOC Concentration (ppb)	East-West Trending Grid Line(ft)	North-South Trending Grid Line(ft)	Total VOC Concentration (ppb)
0	0	--	0	250	687
50	0	--	50	250	632
100	0	--	100	250	663
150	0	--	150	250	627
200	0	--	200	250	31198
0	50	319	250	250	675
50	50	2025	300	250	0
100	50	1634	350	250	0
150	50	196	400	250	0
200	50	295	0	300	0
250	50	313	50	300	86
300	50	154	100	300	27
350	50	179	150	300	0
400	50	0	200	300	0
0	100	1143	250	300	332
50	100	964	300	300	284
100	100	243	350	300	0
150	100	177	400	300	0
200	100	138	0	350	0
250	100	293	50	350	23
300	100	0	100	350	44
350	100	230	150	350	0
400	100	185	200	350	0
0	150	454	250	350	0
50	150	924	300	350	0
100	150	229	350	350	0
150	150	0	400	350	0
200	150	0	0	400	0
250	150	67	50	400	290
300	150	297	100	400	120
350	150	0	150	400	328
400	150	0	200	400	338
0	200	377	250	400	276
50	200	328	300	400	351
100	200	1008	350	400	724
150	200	1013	400	400	86
200	200	0			
250	200	540			
300	200	1105			
350	200	289			
400	200	0			

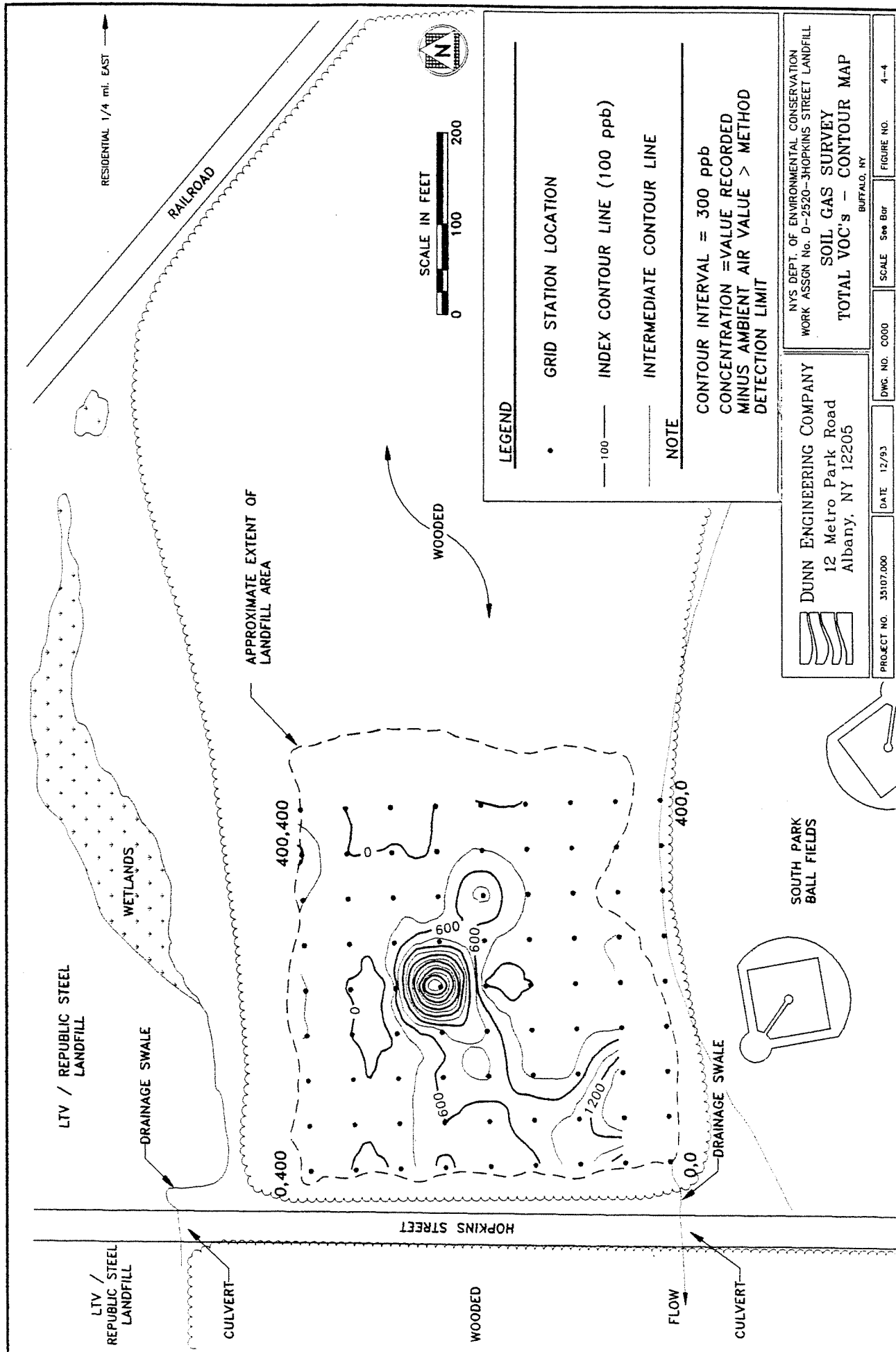


TABLE 4-5

Hopkins Street Landfill Site
Summary Table of Organic Parameters
Surface Water Samples
 CLP Analytical Results - Validated
 (Concentration Values in ug/l - ppb)

Analytes	Sample Location				*NYS Surface Water Standard or Guidance Value
	HOP-SW1	HOP-SW2	HOP-SW3	HOP-SW4	
Volatile Organic Parameters					
Carbon Disulfide	ND	2 J	ND	ND	--
Total VOC's	ND	2	ND	ND	--
Total VOC TIC's	ND	ND	ND	ND	--
Semi-Volatile Organics					
4-Chloroaniline	ND	ND	7 J	ND	--
Diethylphthalate	ND	6 JS	ND	4 JS	50
Phenanthrene	ND	ND	ND	1 J	50
Fluoranthene	ND	ND	ND	1 J	50
Pyrene	ND	ND	ND	1 J	50
Benzo(a)anthracene	ND	ND	ND	1 J	0.002
Chrysene	ND	ND	ND	1 J	0.002
Total Semi-VOC's	ND	6	7	9	--
Total Semi-VOC TIC's	ND	--	3 J	ND	--
Pesticides/PCB's					
All Parameters	ND	ND	ND	ND	--

S - Indicates suspected laboratory contamination.

J - Indicates an estimated value.

ND - Not Detected

* 6NYCRR Part 703

Note : Shaded areas indicate concentration exceeds NYS Guidance Values or Standards

TABLE 4-6

Hopkins Street Landfill Site
Summary Table of Inorganic Parameters
Surface Water Samples
 CLP Analytical Results - Validated
 (Concentration Values in ug/l - ppb)

Analytes	Sample Location				**NYS Surface Water Standard or Guidance Value
	HOP-SW1	HOP-SW2	HOP-SW3	HOP-SW4	
TAL Metals					
Aluminum	10400 N*	10100 N*	28000 N*	3890 N*V	100***
Antimony	ND	ND	89.2 V	ND	3.0
Arsenic	16.0 N	10.6 N	10.5 SN	ND	50
Barium	131 B	112 B	243	87.4 B	1000
Beryllium	ND	1.1 B	1.5 B	ND	3.0
Cadmium	ND	ND	ND	6.9 *V	10
Calcium	48900	57500	163000	156000	--
Chromium	19.9 V	17.1	78.8	9.2 B	50
Cobalt	ND	ND	27.0 B	ND	5.0***
Copper	42.4	24.9 B	87.0	42.8	200
Iron	30100 *	34700 *	65200 *	8080 *	300
Lead	302 *	184 *	196 *	147 *	50
Magnesium	11400	13600	40100	31000	35000
Manganese	1350 *	1710 *	2360 *	318 *	300
Mercury	ND	ND	ND	ND	2.0
Nickel	ND	ND	50.2	ND	--
Potassium	5540	3210 B	7790	4610 B	--
Selenium	ND	ND	ND	ND	10
Silver	ND	ND	ND	ND	50
Sodium	5440	4990 B	8640	79600	--
Thallium	ND	ND	ND	ND	8.0***
Vanadium	22.2 B	1801 B	49.3 B	8.4 B	14***
Zinc	483 *	350 *	315	266 *	300
Misc. Compounds					
Total Cyanide	ND	ND	ND	ND	100/5.2***

B - Reported value less than CRDL but greater than IDL.

ND - Not Detected

N - Spike sample recovery not within control limits.

V - Validated estimated value.

S - Reported value was determined by method of standard additions.

* - Duplicate analysis not within control limits.

** - 6NYCRR Part 703(Class A Waters)

*** - Class B Waters

Note : Shaded areas indicate concentration exceeds NYS Guidance Values or Standards

4.3.2 Surface Sediment - Analytical Results

The analytical results for the sediment samples are summarized in Tables 4-7 and 4-8. Results of the volatile organic analyses revealed the presence of 2-Butanone (MEK) in each of the sediment samples at concentrations ranging from 2 to 14 ppb, which are well below the NYSDEC Recommended Soil Clean-Up Objective (RSCO) for MEK (300 ppb). There were no other detectable VOCs in any of the sediment samples.

There were numerous semi-volatile organic compounds detected in each of the sediment samples. However, several PAHs were detected at levels exceeding NYSDEC RSCOs. Slightly elevated concentrations of benzo(a) anthracene (260 ppb) and benzo(a) pyrene (170 ppb) were detected in HOP-SED3. The following PAHs were detected in HOP-SED4 at slightly elevated concentrations: benzo(a) anthracene (1700 ppb); chrysene (2200 ppb); benzo(b) fluoranthene (2300 ppb); benzo(k) fluoranthene (1800 ppb); and benzo(a) pyrene (1400 ppb).

The results of the pesticides analyses indicated the presence of 4,4-DDE in sediment samples HOP-SED1 and HOP-SED4 at concentrations of 4 ppb and 330 ppb, respectively. In addition, 4,4-DDT was detected in HOP-SED4 and endrin aldehyde was detected in HOP-SED3 at concentrations of 37 ppb and 23 ppb, respectively. PCBs were detected in only one sample; HOP-SED4 contained the PCB compound Aroclor-1254 at a concentration of 370 ppb. However, the levels of pesticides and PCBs detected in the sediment samples do not exceed NYSDEC RSCOs for the respective constituents.

Several metals were detected in each sediment sample at concentrations which slightly exceed expected ranges for uncontaminated soils. Some of these elements included arsenic, chromium, lead and zinc.

4.4 TEST PITS

This section presents a discussion of subsurface conditions encountered during the excavation of the test pits in the landfill area. In addition, the results of the chemical analyses performed on the recovered test pit soil samples will be discussed. Test pit logs are presented in Appendix F.

4.4.1 Subsurface Conditions

Miscellaneous fill material was encountered in each test pit at depths ranging from two to eight feet below ground surface. The fill consisted predominantly of silty sand with varying amounts of gravel. General household refuse and/or construction and demolition debris was encountered in each test pit in varying quantities and consisted of the following items: wood; bricks; scrap metal; box springs; carpeting; automobile tires; slag; plastic; foam rubber, water heaters; and glass. Native lacustrine (i.e., ancient lake) deposits consisting of varying amounts of silt and clay were encountered beneath the fill material at each test pit location.

TABLE 4-7

Hopkins Street Landfill Site
Summary Table of Organic Parameters
Surface Sediment Samples
 CLP Analytical Results - Validated
 (Concentration Values in ug/kg - ppb)

Analytes	Sample Location				RSCO*
	HOP-SED1	HOP-SED2	HOP-SED3	HOP-SED4	
Volatile Organic Parameters					
2-Butanone(MEK)	14 J	9 JV	2 J	5 JV	300
Total VOC's	14	9	2	5	< 10000
Total VOC TIC's	57 J	91 J	38 J	80 J	--
Semi-Volatile Organics					
4- Methylphenol	20 J	18 JV	ND	ND	100 or MDL
2,4-Dimethylphenol	ND	ND	3 J	ND	--
2-Methylnaphthalene	82 J	88 JV	29 J	130 JV	36400
Acenaphthalene	31 J	30 JV	57 J	680 JV	41000
Acenaphthene	14 J	12 JV	19 J	72 JV	50000
Dibenzofuran	36 J	37 JV	24 J	110 JV	6200
Fluorene	24 J	19 JV	26 J	270 JV	50000
Hexachlorobenzene	ND	ND	27 J	ND	410
Phenanthrene	220 J	200 JV	210 J	2200 V	50000
Anthracene	30 J	30 JV	53 J	480 JV	50000
Carbazole	16 J	14 JV	17 J	180 JV	--
Di-n-butylphthalate	21 J	25 JV	ND	25 JV	8100
Fluoranthene	330 J	600 JV	490	2900 V	50000
Pyrene	260 J	180 JV	280 J	3400 V	50000
Benzo(a)anthracene	130 J	130 JV	260 J	1700 V	220 or MDL
Chrysene	220 J	200 JV	340 J	2200 V	400
Di-n-octylphthalate	ND	ND	4 J	13 JV	50000
Benzo(b)fluoranthene	ND	ND	450	2300 V	1100
Benzo(k)fluoranthene	ND	ND	270 J	1800 V	1100
Benzo(a)pyrene	ND	ND	170 J	1400 V	61 or MDL
Indeno(1,2,3-cd)pyrene	ND	ND	ND	1200 JV	3200
Total Semi-VOC's	1434	1573	2729	21060	< 500000
Total Semi-VOC TIC's	27360 J	38690 J	3541 J	26290 J	--
Pesticides/PCB's					
4,4'-DDE	4.0 J	ND	ND	330 V	2100
4,4'-DDT	ND	ND	ND	37 PV	2100
Endrin aldehyde	ND	ND	23 PV	ND	--
Aroclor-1254	ND	ND	ND	370 V	1000

* - Recommended Soil Clean-up Objectives (NYSDEC TAGM Nov. 16, 1992)

J - Indicates estimated value.

V - Indicates validated estimated value.

P - Indicates greater than 25% difference between GC columns.

Note : Shaded areas indicate concentration exceeds RSCO.

TABLE 4-8

Hopkins Street Landfill Site
Summary Table of Inorganic Parameters
Surface Sediment Samples
 CLP Analytical Results - Validated
 (Concentration Values in mg/kg - ppm)

Analytes	Sample Location				Average Concentration in Uncont. Soils**	Concentration Range in Uncont. Soils**
	HOP-SED1	HOP-SED2	HOP-SED3	HOP-SED4		
TAL Metals						
Aluminum	19200 V	12500 V	16100	16300 V	33000	10000-300000
Antimony	50.3 N*V	ND	18.0 N*V	ND	0.8	0.2-150
Arsenic	14.9 V	15 V	5.7	32.4 V	5.0	3.0-12
Barium	155 V	76.5 BV	321	169 V	290	15-600
Beryllium	0.92 BV	0.44 BV	2.5	1.0 BV	0.6	0-1.75
Cadmium	ND	ND	ND	ND	0.6	0-7.0
Calcium	5130 *V	3890 *V	85500	23500 * V	3400	130-35000
Chromium	36.8 N*V	23.4 N*V	161 N*	65.4 N*V	33	1.5-40
Cobalt	11.1 BV	12.4 BV	7.4 B	14.0 BV	5.9	2.5-60
Copper	29.8 V	18.8 V	27.7	79.7 V	20	2.0-100
Iron	43600 V	38500 V	41900	68100 V	14000	2000-550000
Lead	202 BV	134 NV	78.0 NV	619 NV	14	4.0-61
Magnesium	2600 V	1380 BV	12800	5570 V	6300	400-9000
Manganese	696 V	684 V	4450	1570 V	850	100-4000
Mercury	ND	ND	ND	0.24 V	0.06	0.001-0.2
Nickel	26.6 V	ND	13.5	50.7 V	40	0.5-60
Potassium	1110 BV	ND	1140 B	1510 BV	12000	100-37000
Selenium	ND	ND	ND	ND	0.2	0.01-12
Silver	ND	ND	ND	ND	--	0.01-8.0
Sodium	ND	ND	408 B	2270 V	6300	150-15000
Thallium	ND	ND	ND	ND	--	--
Vanadium	34.1 *V	24.4 *V	63.3 *	52.6 V	100	1.3-300
Zinc	569 V	428 V	152	1050 V	50	10-300
Misc. Compounds						
Total Cyanide	ND	ND	1.2 V	ND	--	--

B - Reported value less than CRDL but greater than IDL.

ND - Not Detected

N - Spike sample recovery not within control limits.

V - Validated estimated value.

* - Duplicate analysis not within control limits.

** - From various sources for northeastern U.S.

Note : Shaded areas indicates value exceeds concentration range.

HNU screening of the material excavated in the landfill area did not indicate the presence of any elevated levels of VOCS. There was no staining or discoloration observed in any of the soils excavated from the test pits. A "sweet", unidentifiable, industrial fill-type odor was encountered in the fill material excavated from HOP-TP3.

Perched groundwater zones were encountered at the fill/native soil interface at several test pit locations. There were no sheens observed or odors noted in the perched water encountered in the landfill area.

4.4.2 Analytical Results

The analytical results for the test pit soil samples are summarized in Tables 4-9 through 4-12. Chemical analyses of the five soil samples collected from the test pits revealed the presence of several volatile organics at three sample locations: HOP-TP2; HOP-TP3; and HOP-TP4. The following volatile organics were detected at relatively low levels in one or more of the test pit samples: MEK; benzene; 4-methyl-2-pentanone; toluene; ethylbenzene; and xylenes. The concentrations detected were well below NYSDEC RSCOs for the respective constituents. The majority of these volatile organics were also detected in the soil gas survey, although the concentrations detected were orders of magnitude less.

Numerous semi-volatile organics were detected in each test pit soil sample. The majority of these detections were at levels below NYSDEC RSCOs; however, slightly elevated levels of several PAHs were detected at every test pit location except HOP-TP2. PAHs detected were benzo(a)anthracene, chrysene and benzo(a) pyrene. In addition, slightly elevated levels of benzo(b) fluoranthene and benzo(k) fluoranthene were detected in HOP-TP3 and HOP-TP4.

Results of the pesticides analyses indicated the presence of at least one pesticide in each test pit sample. The pesticides detected included: 4,4'-DDE, DDD, DDT, endrin aldehyde and alpha chlordane. However, none of the pesticides were detected at concentrations exceeding NYSDEC RSCOs.

PCBs were detected in three of the test pit samples: HOP-TP2; HOP-TP3; and HOP-TP4. Aroclor-1248 was detected in HOP-TP3 and HOP-TP4 at concentrations of 370 ppb and 390 ppb, respectively. Aroclor-1260 was detected in HOP-TP2, HOP-TP3 and HOP-TP4 at concentrations of 440 ppb, 53 ppb and 880 ppb, respectively. However, the concentrations were well below the NYSDEC RSCO for PCBs in subsurface soils (10,000 ppb).

Results of the total metals analyses indicated the presence of several metals at slightly elevated concentrations in every test pit sample except HOP-TP8. The following metals were detected at concentrations above expected ranges for uncontaminated soils in one or more test pit samples: arsenic; calcium; chromium; lead; magnesium; mercury; nickel; and zinc. There was no cyanide detected in any of the test pit samples.

In order to determine if the test pit soil samples were hazardous according to 6 NYCRR Part 371, each sample was analyzed for EP-TOX and hazardous waste characteristics (corrosivity, ignitability

TABLE 4-9
Hopkins Street Landfill Site
Summary Table of Volatile & Semi-Volatile Organic Parameters
Test Pit Soil Samples
CLP Analytical Results - Validated
(Concentration Values in ug/kg - ppb)

Analytes	Sample Location and Depth					RSCO*
	HOP-TP2 2.0'	HOP-TP3 2.0'	HOP-TP4 3.5'	HOP-TP8 1.5'	HOP-TP10 3.5'	
Volatile Organic Parameters						
Acetone	ND	130 BS	ND	ND	ND	100
Carbon Disulfide	ND	2 J	ND	ND	ND	2700
2-Butanone(MEK)	ND	17	17	ND	ND	300
Benzene	ND	1 J	ND	ND	ND	60
4-Methyl-2-Pentanone	ND	2 J	ND	ND	ND	100
Toluene	2 J	29	3 J	ND	ND	1500
Ethylbenzene	ND	3 J	ND	ND	ND	5500
Total Xylenes	1 J	26	2 J	ND	ND	1200.0
Total VOC's	3	210	22	ND	ND	< 10000
Total VOC TIC's	69 J	227 J	83 J	ND	ND	--
Semi-Volatile Organics						
1,4-Dichlorobenzene	ND	ND	11 J	ND	ND	8500
4- Methylphenol	59 J	150 J	130 J	ND	130 J	900
Isophorone	ND	ND	81 J	ND	ND	--
2,4-Dimethylphenol	130 J	49 J	ND	ND	ND	--
Naphthalene	39 J	240 J	1300	62 J	68 J	13000
2-Methylnaphthalene	36 J	250 J	630 J	120 J	80 J	36400
Acenaphthalene	22 J	160 J	270 J	ND	48 J	41000
Acenaphthene	10 J	280 J	1300	17 J	19 J	50000
Dibenzofuran	18 J	210 J	1000	15 J	37 J	6200
Diethylphthalate	ND	12 J	ND	ND	13 J	7100
Fluorene	15 J	ND	1600	51 J	33 J	50000
N-Nitrosodophenylamine	ND	ND	110 J	ND	ND	--
Hexachlorobenzene	ND	ND	59 J	ND	19 J	410
Phenanthrene	190 J	2400	4000	2400	330 J	50000
Anthracene	25 J	510 J	740 J	170 J	50 J	50000
Carbazole	12 J	150 J	310 J	59 J	24 J	--
Di-n-butylphthalate	360 J	220 J	100 J	ND	19 J	8100
Fluoranthene	290 J	1900	2300	590 J	450 J	50000
Pyrene	130 J	1700	2500	4900 V	410 J	50000
Butylbenzylphthalate	27 J	770 J	350 J	ND	63 J	50000
Benzo(a)anthracene	110 J	1000	1800	5100 V	280 J	220 or MDL
Chrysene	210 J	1600	2600	7600 V	430 J	400
bis(2-Ethylhexyl)phthalate	ND	4300 B	7000 B	ND	1000 B	50000
Benzo(b)fluoranthene	180 J	1300	1900	2500 V	370 J	1100
Benzo(k)fluoranthene	140 J	1200	1300	560 JV	270 J	1100
Benzo(a)pyrene	ND	920	1400	5100 V	390 J	61 or MDL
Indeno(1,2,3-cd)pyrene	ND	560 J	810 J	ND	ND	3200
Dibenz(a,h)anthracene	ND	ND	ND	560 JV	ND	--
Benzo(g,h,i)perylene	ND	ND	ND	950 JV	ND	30000
Total Semi-VOC's	2003	19881	33601	30754	4533	< 500000
Total Semi-VOC TIC's	7040 J	21510 J	14460 J	40060	35310	--

* - Recommended Soil Clean-up Objectives (NYSDEC TAGM Nov. 16, 1992)

J - Indicates estimated value.

V - Indicates validated estimated value.

S - Indicates suspected laboratory contamination.

Note : Shaded areas indicate concentration exceeds RSCO.

TABLE 4-9a

**Hopkins Street Landfill Site
Summary Table of Pesticide/PCB Parameters
Test Pit Soil Samples**

CLP Analytical Results - Validated
(Concentration Values in ug/kg - ppb)

Analytes	Sample Location and Depth					RSCO*
	HOP-TP2 2.0'	HOP-TP3 2.0'	HOP-TP4 3.5'	HOP-TP8 1.5'	HOP-TP10 3.5'	
Pesticides/PCB's						
4,4'-DDE	15	46 PV	48 PV	ND	32	2100
4,4'-DDD	22 V	96 PV	ND	ND	18 PV	2100
4,4'-DDT	28	ND	ND	ND	12 JPV	2900
Endrin aldehyde	ND	ND	ND	79 PV	ND	--
alpha-Chlordane	ND	ND	15 PV	ND	ND	540
Aroclor-1248	ND	370	390	ND	ND	10000
Aroclor-1260	53 J	440 PV	880	ND	ND	10000

* - Recommended Soil Clean-up Objectives (NYSDEC TAGM Nov. 16, 1992)

J - Indicates estimated value.

V - Indicates validated estimated value.

P - Indicates greater than 25% difference between GC columns.

Note : Shaded areas indicate concentration exceeds RSCO.

TABLE 4-10

Hopkins Street Landfill Site
Summary Table of Inorganic Parameters
Test Pit Soil Samples

CLP Analytical Results - Validated
(Concentration Values in mg/kg - ppm)

Analytes	Sample Location and Depth					Average Concentration in Uncont. Soils**	Concentration Range in Uncont. Soils**
	HOP-TP2 2.0'	HOP-TP3 2.0'	HOP-TP4 3.5'	HOP-TP8 1.5'	HOP-TP10 3.5'		
TAL Metals							
Aluminum	14500	6690	7760	13400	17700	33000	10000-300000
Antimony	24.4 N	ND	17.9 NV	ND	ND	0.8	0.2-150
Arsenic	15.7 SN	4.7 N	8.3 SNV	2.9 SN	14.8 SN	5.0	3.0-12
Barium	100 *	176 *	462 *	23.4 B*	108 *	290	15-600
Beryllium	0.71 B	0.57 B	0.51 B	ND	0.88 B	0.6	0-1.75
Cadmium	ND	ND	ND	ND	ND	0.6	0-7.0
Calcium	10600 *	84600 *	99800 *V	1060 B*	9360 *	3400	130-35000
Chromium	33.7 N*	72.3 N*	56.9 N*V	14.7 N*	35.1 N*	33	1.5-40
Cobalt	14.1 B*	6.8 B*	6.9 B*	3.3 B*	14.8 B*	5.9	2.5-60
Copper	27.4 *	59.7 *	51.0 *	5.2 B*	26.2 *	20	2.0-100*
Iron	46900 *	38400 *	30900 *V	14400 *	48700 *	14000	2000-550000
Lead	214 V	867 V	737 V	9.8 *	176 V	14	4.0-61
Magnesium	4370 *	12500 *	9820 *	509 B*	3600 *	6300	400-9000
Manganese	1050 V	1300	1090	183	1050	850	100-4000
Mercury	ND	ND	5.1	ND	ND	0.06	0.001-0.2
Nickel	28.4 N*	12.7 N*	64.3 N*V	19.8 N*	34.3 N*	40	0.5-60
Potassium	1310 B	465 B	708 B	697 B	1780	12000	100-37000
Selenium	ND	ND	ND	ND	ND	0.2	0.01-12
Silver	ND	ND	ND	ND	ND	--	0.01-8.0
Sodium	228 B	541 B	263 B	296 B	ND	6300	150-15000
Thallium	3.1	2.8	2.5 B	ND	2.8 B	--	--
Vanadium	31.0	27.5	26.2	17.6	34.1	100	1.3-300
Zinc	662	415	1040	8.1	637	50	10-300
Misc. Compounds							
Total Cyanide	ND	ND	ND	ND	ND	--	--

B - Reported value less than CRDL but greater than IDL.

ND - Not Detected

N - Spike sample recovery not within control limits.

V - Validated estimated value.

S - Reported value was determined by method of standard additions.

* - Duplicate analysis not within control limits.

** - From various sources for northeastern U.S.

Note : Shaded areas indicates value exceeds concentration range.

TABLE 4-11

Hopkins Street Landfill Site
Summary Table of EP Toxicity Results
Test Pit Soil Samples
 (Concentration Values in ppm)

Analytes	Sample Location and Depth					Maximum Allowable Concentration
	HOP-TP2 2.0'	HOP-TP3 2.0'	HOP-TP4 3.5'	HOP-TP8 1.5'	HOP-TP10 3.5'	
Organics						
Endrin	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Lindane	<0.01	<0.01	<0.01	<0.01	<0.01	0.4
Methoxychlor	<1.0	<1.0	<1.0	<1.0	<1.0	10.0
Toxaphene	<0.01	<0.01	<0.01	<0.01	<0.01	0.5
2,4-D	<1.0	<1.0	<1.0	<1.0	<1.0	10.0
2,4,5-TP (Silvex)	<0.1	<0.1	<0.1	<0.1	<0.1	1.0
Metals						
Arsenic	ND	ND	ND	ND	ND	5.0
Barium	0.279	0.422	0.456	0.281	0.284	100.0
Cadmium	ND	ND	ND	0.0057	ND	1.0
Chromium	ND	ND	ND	ND	ND	5.0
Lead	0.0543	ND	ND	0.0475	ND	5.0
Mercury	ND	ND	ND	ND	ND	0.2
Selenium	ND	ND	ND	ND	ND	1.0
Silver	0.0072 B	ND	ND	ND	ND	5.0

B - Indicates analyte result between IDL and CRDL.

ND - Not Detected above IDL.

TABLE 4-12

**Hopkins Street Landfill Site
Summary Table of RCRA Waste Characteristics
Test Pit Soil Samples**

Parameters	Sample Location and Depth					Allowable Range
	HOP-TP2 2.0'	HOP-TP3 2.0'	HOP-TP4 3.5'	HOP-TP8 1.5'	HOP-TP10 3.5'	
pH	7.50	7.22	6.95	7.60	7.44	2-12.5
Corrosivity(in./yr)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.25
Ignitability(F)	>212	>212	>212	>212	>212	>140
Reactivity to Cyanide(ppm)	<1	<1	<1	<1	<1	--
Reactivity to Sulfide(ppm)	<1	<1	<1	<1	<1	--

and reactivity). The EP-TOX analyses did not indicate that any of the soil samples would leach analytes at levels above the maximum allowable concentrations. In addition, the reactivity, corrosivity and ignitability values determined for each test pit sample were all within allowable ranges.

4.5 TEST BORINGS

The three test borings completed on-site were converted to monitoring wells HOP-MW1, HOP-MW2 and HOP-MW3. Test boring logs are presented in Appendix G.

Fill material was encountered at two boring locations, HOP-MW1 and HOP-MW3, to depths of two feet below ground surface. Native deposits of sandy silt were encountered in HOP-MW2 from ground surface to a depth of two feet and in HOP-MW1 from two to five feet below ground surface. Native lacustrine deposits consisting of varying amounts of silt and clay were encountered in each boring to a depth of 20 to 25 feet. The lacustrine deposits were observed to grade into a glacial till in HOP-MW3 beginning at a depth of approximately eighteen feet. The glacial till was identified by the presence of embedded sand and gravel within the silt and clay as well as increased blow counts on the split-spoon sampler. HNU screening of the soils recovered from the test borings did not indicate the presence of any elevated levels of VOCs. In addition, there was no soil staining; discoloration or odors noted during completion of the borings.

Results of the geotechnical analyses generally confirmed the visual classifications of the on-site geologist. The geotechnical results are presented in Appendix H.

4.6 GROUNDWATER

This section presents a discussion of the analytical results obtained from the analysis of the groundwater samples collected from the three overburden monitoring wells installed at the site. These results are summarized in Tables 4-13 and 4-14.

Results of the volatile organics analyses indicated the presence of acetone in each groundwater sample at levels below NYS Groundwater Standards. There were no other detectable volatiles.

Results of the semi-volatile organics analyses indicated the presence of phenol in HOP-MW3 at an estimated concentration of 3 ppb, which exceeds the NYS Groundwater Standard of 1 ppb. There were no other detectable semi-volatiles in the groundwater samples.

There were no detectable pesticide/PCB compounds in the groundwater samples. Results of the metals analyses indicated the presence of several elements in each groundwater sample which were detected at concentrations above NYS Groundwater Standards or Guidance Values. HOP-MW1 and HOP-MW2 contained slightly elevated levels of the following metals: antimony; iron; lead; magnesium; and manganese. In addition to the aforementioned metals (except antimony), HOP-MW3 also contained slightly elevated levels of the following: arsenic; barium; beryllium; cadmium; chromium; copper; and zinc. There was no cyanide detected in any of the groundwater samples.

TABLE 4-13

**Hopkins Street Landfill Site
Summary Table of Organic Parameters
Groundwater Samples**

CLP Analytical Results - Validated

(Concentration Values in ug/l - ppb)

Analytes	Sample Location			*NYS Groundwater Standard Guidance Value
	HOP-MW1	HOP-MW2	HOP-MW3	
Volatile Organic Parameters				
Acetone	8 J	9 J	7 J	50
Total VOC's	8	9	7	--
Total VOC TIC's	ND	ND	ND	--
Semi-Volatile Organics				
Phenol	ND	ND	3 J	1.0
Total Semi-VOC's	--	--	3	--
Total Semi-VOC TIC's	160 J	523 J	405 J	--
Pesticides/PCB's				
All Parameters	ND	ND	ND	--

J - Indicates an estimated value.

ND - Not Detected

* 6NYCRR Part 703(Class GA Waters)

Note : Shaded areas indicate concentration exceeds NYS Guidance Values or Standards

TABLE 4-14

**Hopkins Street Landfill Site
Summary Table of Inorganic Parameters
Groundwater Samples**

CLP Analytical Results - Validated
(Concentration Values in ug/l - ppb)

Analytes	Sample Location			*NYS Groundwater Standard Guidance Value
	HOP-MW1	HOP-MW2	HOP-MW3	
TAL Metals				
Aluminum	22000	16700	141000	--
Antimony	3.5 B	8.8 B	ND	3.0
Arsenic	13.1	12	38.8	25
Barium	259	307	1190	1000
Beryllium	ND	ND	9.0	3.0
Cadmium	9.0	7.0	23	10
Calcium	292000	305000	1540000	--
Chromium	37	33	230	50
Cobalt	17 B	8.0 B	106	--
Copper	67	36	252	200
Iron	45800	33200	229000	300
Lead	27.2	49.5	124	15
Magnesium	113000	130000	441000	35000
Manganese	1330	898	5430	300
Mercury	0.52	0.28 B	0.65	2.0
Nickel	53	34 B	251	--
Potassium	5520	8310	31100	--
Selenium	ND	ND	ND	10
Silver	ND	ND	ND	50
Sodium	66300	64400	109000	20000
Thallium	2.2 B	ND	ND	--
Vanadium	31 B	24 B	328	--
Zinc	178	135	762	300
Misc. Compounds				
Total Cyanide	ND	ND	ND	100

B - Reported value less than CRDL but greater than IDL.

ND - Not Detected

* - 6NYCRR Part 703(Class GA Waters)

Note : Shaded areas indicate concentration exceeds NYS Guidance Values or Standards

4.7 SITE HYDROGEOLOGY

This section presents a discussion of site-specific hydrogeology which was determined utilizing field data obtained during this investigation.

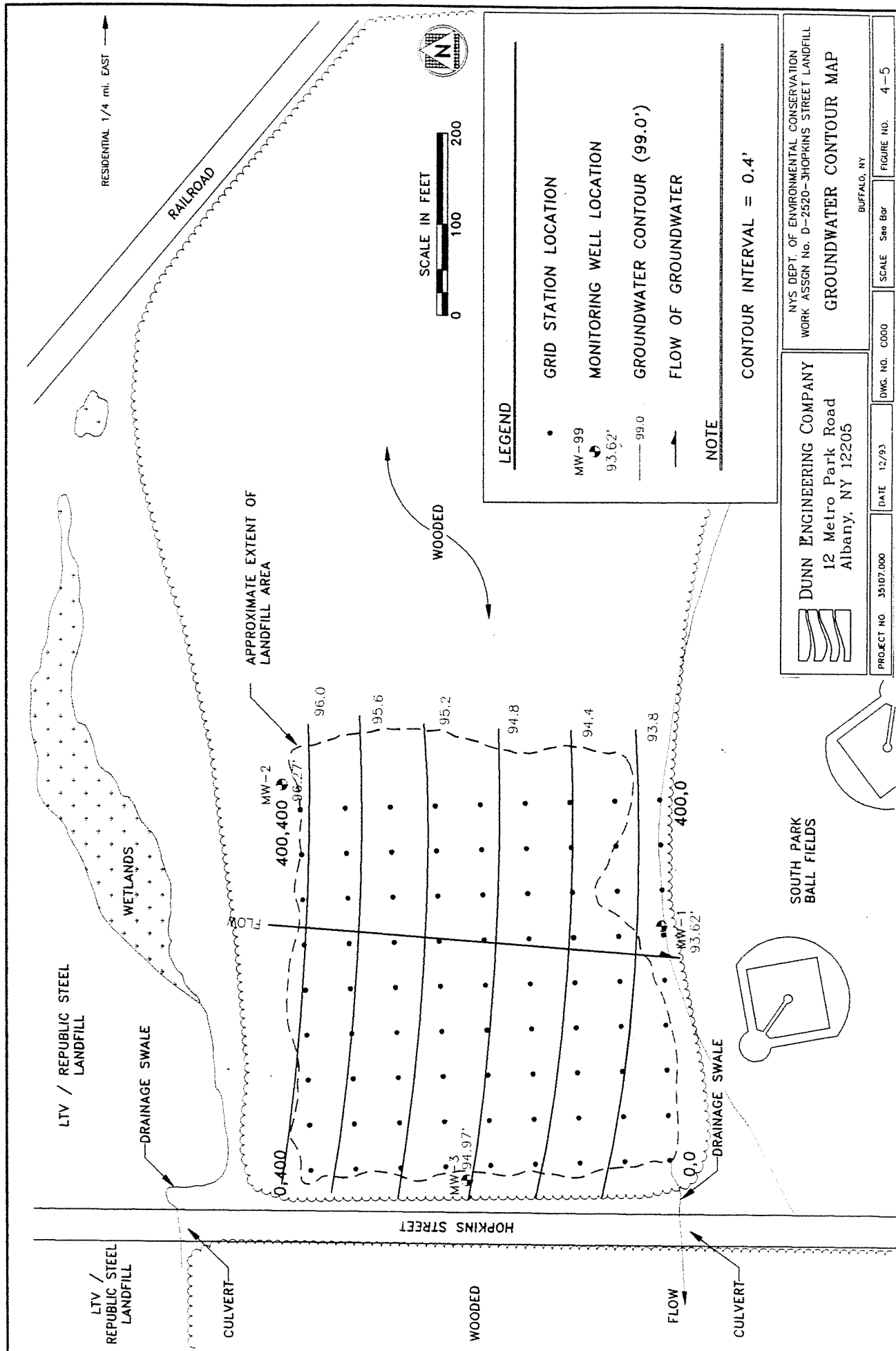
4.7.1 Groundwater Flow and Depth

Water level measurements in the monitoring wells showed that the water table beneath the perimeter of the landfill was within two feet of the ground surface. Water level readings in the three monitoring wells recorded on February 4, 1993 were utilized to contour the water table across the site (Figure 4-5). The map shows that overall groundwater flow in the overburden appears to be in a southerly direction toward South Park Lake.

4.7.2 Hydraulic Gradient and Conductivity

After constructing a groundwater contour map, a hydraulic gradient in the overburden was determined along the groundwater flow path perpendicular to equipotential contour lines. The hydraulic gradient in the overburden is 0.005 ft/ft (0.5%). The accuracy of the hydraulic gradient calculation may be affected by the limited number of wells at the site.

Horizontal hydraulic conductivities were determined for the screened intervals in HOP-MW2 and HOP-MW3 using the field methodology and procedures described in Section 3.4.4. The data and calculations are presented in Appendix K. HOP-MW2, which was screened across lacustrine deposits, exhibited a hydraulic conductivity of 1.18×10^{-6} cm/sec. HOP-MW3, which was screened across the glacial till unit as well as the lacustrine deposits, exhibited a hydraulic conductivity of 9.55×10^{-6} cm/sec.



5.0 CONCLUSIONS

- The fill material disposed on-site consists primarily of non-putrescible waste. The fill was encountered from the ground surface to depths ranging from two to eight feet and consisted predominantly of silty sand with varying quantities of the following: box springs; scrap metal; plastic; wood; glass; tires; carpeting; bricks; slag; concrete; household appliances; and foam rubber.
- The geophysical anomalies delineated in the EM-31 and magnetometer surveys were caused by buried scrap metal (e.g., automobile parts, piping) and/or greater thickness of miscellaneous fill material.
- The presence of elevated levels of volatile organics detected in the landfill during the soil gas survey was not confirmed by chemical analyses of soil samples collected from the landfill. The volatile organics detected in the soil gas survey may have been caused by isolated pockets of miscellaneous household waste (e.g., paint cans) containing small quantities of residual vapors.
- Overburden beneath the site consists of lacustrine deposits of silt and clay extending to a depth of 20 to 25 feet. It is anticipated from data generated by this and other investigations conducted in the area that a five to ten foot layer of glacial till underlies the lacustrine deposit and directly overlies bedrock. Groundwater flow in the overburden beneath the site appears to be in a southerly direction toward South Park Lake. The hydraulic conductivity of the overburden was measured at 1.18×10^{-6} cm/sec and 9.55×10^{-6} cm/sec and the hydraulic gradient in the overburden across the site was 0.005 feet per foot or 0.5%. Given the low permeability and thickness of the lacustrine deposit, there is limited potential for lateral and/or vertical migration of contaminants from the site in the subsurface.
- Chemical analyses of the four surface water samples collected at the perimeter of the site indicated the presence of slightly elevated levels of PAHs in HOP-SW4, located in the southwest corner of the site. Benzo(a) anthracene (1 ppb) and chrysene (1 ppb) were detected in HOP-SW4 at levels exceeding NYS Surface Water Guidance Values for these analytes (0.002 ppb). In addition, several metals were detected in each surface water sample at concentrations exceeding NYS Surface Water Standards. The following metals were detected in one or more of the samples at slightly elevated levels: aluminum; antimony; chromium; cobalt; iron; lead; magnesium; manganese; vanadium; and zinc. There were no elevated levels of volatile organics, pesticides or PCBs detected in any of the surface water samples.
- Chemical analyses of the four surface sediment samples collected from the perimeter of the site indicated the presence of slightly elevated levels of PAHs in two samples, HOP-SED3 and HOP-SED4. The following PAHs were detected in HOP-SED4 at concentrations exceeding their respective NYSDEC RSCOS: benzo(a) anthracene (1700 ppb); chrysene (2200 ppb); benzo(b) fluoranthene (2300 ppb); benzo(k)

fluoranthene (1800 ppb); and benzo(a) pyrene (1400 ppb). Slightly elevated levels of benzo(a) anthracene (260 ppb) and benzo(a) pyrene (170 ppb) were also detected in HOP-SED3. In addition, several metals were detected in each of the sediment samples at concentrations exceeding expected ranges for uncontaminated soils. The following metals were detected in one or more of the sediment samples at slightly elevated concentrations: arsenic; beryllium; chromium; iron; lead; magnesium; manganese; and zinc. There were no elevated levels of volatile organics, pesticides or PCBs detected in any of the sediment samples.

- Chemical analyses of the five soil samples collected from the test pits completed in the landfill indicated the presence of slightly elevated levels of several PAHs in all but one of the samples (HOP-TP2). The following PAHs were detected in one or more of the remaining four samples at concentrations exceeding their respective NYSDEC RSCOS: benzo(a) anthracene; chrysene; benzo(b) fluoranthene; benzo(k) fluoranthene; and benzo(a) pyrene. In addition, several metals were detected in four of the five samples (excluding HOP-TP8) at levels exceeding expected ranges for uncontaminated soils. The types of metals detected included arsenic, chromium, lead, magnesium mercury, nickel and zinc. There were no elevated levels of volatile organics, pesticides or PCBs detected in any of the test pit samples. The test pit soil samples collected from the landfill were non-hazardous as defined by 6 NYCRR Part 371 for the four waste characteristics: EP-TOX; reactivity; ignitability; and corrosivity.
- Chemical analyses of the three groundwater samples collected from the site indicated the presence of phenol in HOP-MW3 at a concentration of 3 ppb, which exceeds the NYS Groundwater Standard of 1 ppb. Phenol is a naturally occurring substance produced by biodegradation of organics. There were no other semi-volatile organics detected in any of the groundwater samples. Several metals were detected in each groundwater sample, both upgradient and downgradient of the site at levels exceeding NYS Groundwater Standards and/or Guidance Values. However, it should be noted that these levels represent total metals concentrations and that the concentrations detected in the groundwater may have been influenced by the presence of suspended solids. The groundwater samples had a high turbidity due to the fine-grained nature of the overburden. There were no elevated levels of volatile organics, pesticides or PCBs detected in any of the groundwater samples.
- Based on visual observations, field data and chemical analyses performed during this investigation, there is no evidence which indicates that hazardous waste as defined by 6 NYCRR Part 371 was disposed at the Buffalo City-Hopkins Street Landfill site.
- Given the urban/industrial location of the site and the fact that a municipal water supply (from Lake Erie) serves the surrounding community, the slightly elevated levels of contaminants found in soil, sediment, surface water and groundwater does not appear to pose a significant threat to human health or the environment as defined by 6 NYCRR Part 375.

6.0 RECOMMENDATION

Based on the findings presented herein, Rust E&I of New York recommends that the Buffalo City-Hopkins Street Landfill site (Site No. 915011) be removed from the Registry of Inactive Hazardous Waste Sites in New York State and that no further work be performed on this site by the NYSDEC under Work Assignment No. D-002520-3.

The detection of elevated levels of several analytes in soil, sediment, surface water and groundwater may indicate that this site requires further action by another division within the NYSDEC (e.g., Division of Solid Waste or Division of Water).

APPENDIX A

List of References

LIST OF REFERENCES

- A-1 Ecology and Environment Engineering, P. C., Phase I Investigation, City of Buffalo - Hopkins Street, Site Number 915011, Buffalo, Erie County, September 1989.
- A-2 NUS Corporation, Superfund Division, Project for Performance of Remedial Response Activities at Uncontrolled Hazardous Substance Facilities - Zone 1, 1985.
- A-3 Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map, City of Buffalo, New York, Erie County, Community Panel Number 360230-0010B, November 1981.
- A-4 Broughton, J. G., Fisher, D. W., Isaachsen, Y. W., Rickard, L. V., Geology of New York State - A Short Account, Educational Leaflet 20. The University of the State of New York/The State Education Department, NYS Museum and Science Service, Albany, New York, 1976.
- A-5 U.S. Department of Agriculture, Soil Conservation Survey, in cooperation with Cornell University, Soil Survey of Erie County, 1986.
- A-6 Cadwell, D.H., Surficial Geologic Map of New York, Niagara Sheet, 1988.
- A-7 Rickard and Fisher, Geologic Map of New York, Niagara Sheet, 1970.
- A-8 Buehler, E.J., and Tesmer, I.H., Geology of Erie County, Buffalo Society of Natural Science, Vol. 21, No. 3, 1963.
- A-9 LaSala, M. A., Jr., Ground-Water Resources of the Erie-Niagara Basin, New York, New York State Conservation Department, Division of Water Resources, Albany, New York, 1968.
- A-10 New York State Atlas of Community Water System Sources, New York State Department of Health, 1982.

APPENDIX B

List of Documents Cited

LIST OF DOCUMENTS CITED

- B-1 NYSDEC Refuse Disposal and Inspection Reports.
- B-2 Waste Disposal Sites (Erie County)
- B-3 Erie County Department of Environment and Planning Memorandum.
- B-4 Erie County Department of Environment and Planning, Hopkins/Marilla Street Site Survey, City of Buffalo, October 1982.
- B-5 Ecology and Environment Correspondence and Telephone Interview Documents.
- B-6 USEPA, Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites, March 1985.
- B-7 Dunn Geoscience Engineering Co., P.C. Interview Documents.
- B-8 Population Figures, Buffalo News, January 25, 1991.

APPENDIX C

Site Photographs



Photo 1 Southerly view of drainage ditch which runs along the north edge of the landfill.



Photo 2 View of the west side of the landfill from across Hopkins Street.



Photo 3 Looking north on Hopkins Street along west edge of the landfill.



Photo 4 Looking southeast from southern edge of the landfill toward baseball field in South Park.

APPENDIX D

USEPA Form 2070-13

EPA		POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 1-SITE LOCATION AND INSPECTION INFORMATION		I. IDENTIFICATION	
				01 STATE NY	02 SITE NUMBER D980507800
II. SITE NAME AND LOCATION					
01 SITE NAME (Legal, common, or descriptive name of site) Hopkins Street Landfill		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Hopkins Street, South of Marilla Street			
03 CITY Buffalo	04 STATE NY	05 ZIP CODE 14220	06 COUNTY Erie	07 COUNTY CODE 029	08 CONG DIST 38
09 COORDINATES LATITUDE 42 50'10.0"N	LONGITUDE 078 50'00.0"W	10 TYPE OF OWNERSHIP (Check one) <input type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input checked="" type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER <input type="checkbox"/> G. UNKNOWN			
III. INSPECTION INFORMATION					
01 DATE OF INSPECTION 08 / 14 / 90 MONTH DAY YEAR		02 SITE STATUS <input type="checkbox"/> ACTIVE <input checked="" type="checkbox"/> INACTIVE	03 YEARS OF OPERATION 1973 1975 UNKNOWN BEGINNING YEAR ENDING YEAR		
04 AGENCY PERFORMING INSPECTION (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. MUNICIPAL <input type="checkbox"/> D. MUNICIPAL CONTRACTOR (Name of firm) (Name of firm) <input type="checkbox"/> E. STATE <input checked="" type="checkbox"/> F. STATE CONTRACTOR <input type="checkbox"/> G. OTHER Dunn Geoscience/TAMS Consultants (Specify)					
05 CHIEF INSPECTOR George Moretti	06 TITLE Environmental Scientist	07 ORGANIZATION DUNN Geoscience Corp.	08 TELEPHONE NO. (716)691-3866		
09 OTHER INSPECTORS Ted Yen	10 TITLE Environmental Engineer	11 ORGANIZATION TAMS Consultants, Inc.	12 TELEPHONE NO. (201)338-6680		
			()		
			()		
			()		
			()		
13 SITE REPRESENTATIVES INTERVIEWED		14 TITLE	15 ADDRESS	16 TELEPHONE NO. ()	
				()	
				()	
				()	
				()	
				()	
				()	
				()	
17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT		18 TIME OF INSPECTION 1330	19 WEATHER CONDITIONS Sunny, 86 degrees Fahrenheit		
IV. INFORMATION AVAILABLE FROM					
01 CONTACT Mark Mateunas		02 OF (Agency/Organization) NYSDEC		03 TELEPHONE NO. (518)457-0639	
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM Ted Yen	05 AGENCY	06 ORGANIZATION TAMS Consultants	07 TELEPHONE NO. (201)338-6680	08 DATE 08 / 29 / 90 MO. DAY YR.	



POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE
NY02 SITE NUMBER
D980507800

II. WASTE STATE, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES

(Check all that apply)

☒ A. SOLID ☐ E. SLURRY☐ B. POWDER, FINES ☐ F. LIQUID☐ C. SLUDGE ☐ G. GAS☐ D. OTHER _____

(Specify)

02 WASTE QUANTITY AT SITE

(Measures of waste quantities

must be independent)

TONS _____

CUBIC YARDS 60,000

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

☒ A. TOXIC☐ B. CORROSIVE☐ C. RADIOACTIVE☒ D. PERSISTENT☐ E. SOLUBLE☐ F. INFECTIOUS☐ G. FLAMMABLE☐ H. IGNITABLE☐ I. HIGHLY VOLATILE☐ J. EXPLOSIVE☐ K. REACTIVE☐ L. INCOMPATIBLE☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	Unknown		See below

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONC.
MES	Manganese	7439-96-5	Landfilled	5,590	mg/kg
MES	Lead	7439-92-1	Landfilled	173	mg/kg
MES	Barium	7440-39-3	Landfilled	129	mg/kg
MES	Iron	9999	Landfilled	29,400	mg/kg
MES	Chromium	7440-47-3	Landfilled	773	mg/kg
MES	Aluminum	7429-90-5	Landfilled	5,090	mg/kg

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Not Applicable		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NYSDEC Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Report

E&E site inspection, 6/16/87 and site inspection report (EPA form 2070-13)

Dunn Geoscience Engineering Co./TAMS Consultants, Inc. site reconnaissance, 08/14/87

EPA	POTENTIAL HAZARDOUS WASTE SITE	I. IDENTIFICATION	
	SITE INSPECTION REPORT	01 STATE	02 SITE NUMBER
	PART 3 – DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS	NY	D980507800

II. HAZARDOUS CONDITIONS AND INCIDENTS			
01 <input checked="" type="checkbox"/> A. GROUNDWATER CONTAMINATION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: <u>0</u>	04 NARRATIVE DESCRIPTION		
Hopkins Street Landfill is adjacent to two landfills owned by Republic Steel. There is a potential for groundwater contamination, but sampling would be necessary to determine the source of the contaminants as it could be attributed to either landfills. Groundwater is not used for drinking water purposes except by one family.			
01 <input checked="" type="checkbox"/> B. SURFACE WATER CONTAMINATION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: <u>92,000</u>	04 NARRATIVE DESCRIPTION		
Metals concentrations were detected in surface water samples at the swamp adjacent to the landfill.			
01 <input type="checkbox"/> C. CONTAMINATION OF AIR	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____	04 NARRATIVE DESCRIPTION		
A low potential exists as the landfill is capped and abundant vegetation covers the landfill.			
01 <input type="checkbox"/> D. FIRE/EXPLOSIVE CONDITIONS	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____	04 NARRATIVE DESCRIPTION		
No potential for fire/explosive conditions was observed during the site reconnaissance.			
01 <input checked="" type="checkbox"/> E. DIRECT CONTACT	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: <u>13,000</u>	04 NARRATIVE DESCRIPTION		
A potential exists because South Park is near the landfill. Two ballfields are directly adjacent to the landfill. There is no site access restrictions from the ballfield to the landfill.			
01 <input checked="" type="checkbox"/> F. CONTAMINATION OF SOIL	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 AREA POTENTIALLY AFFECTED: <u>12.4</u> (acres)	04 NARRATIVE DESCRIPTION		
Metals and unknown organics were detected in previous soil analyses.			
01 <input checked="" type="checkbox"/> G. DRINKING WATER CONTAMINATION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: <u>92,000</u>	04 NARRATIVE DESCRIPTION		
A low potential exist as the groundwater is not generally used for drinking purposes. According to Ecology & Environment site inspection report, one private well uses groundwater as potable water.			
01 <input checked="" type="checkbox"/> H. WORKER EXPOSURE/INJURY	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 WORKERS POTENTIALLY AFFECTED: <u>Unknown</u>	04 NARRATIVE DESCRIPTION		
Some potential exists for South Park grounds keepers as the landfill is adjacent to the park.			
01 <input checked="" type="checkbox"/> I. POPULATION EXPOSURE/INJURY	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input checked="" type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
03 POPULATION POTENTIALLY AFFECTED: <u>92,000</u>	04 NARRATIVE DESCRIPTION		
The potential for population exposure exists as a public park is located adjacent to the landfill.			

EPA**POTENTIAL HAZARDOUS WASTE SITE****SITE INSPECTION REPORT****PART 3 – DESCRIPTION OF HAZARDOUS CONDITIONS
AND INCIDENTS****I. IDENTIFICATION****01 STATE**

NY

02 SITE NUMBER

D980507800

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 X_ J. DAMAGE TO FLORA 02 __ OBSERVED (DATE: _____) X_ POTENTIAL __ ALLEGED

No damage to flora was observed during the site inspection; however, the potential exists as metals were detected in surface water and soil samples and unknown organics were detected in soils.

01 X_ K. DAMAGE TO FAUNA 02 __ OBSERVED (DATE: _____) X_ POTENTIAL __ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

No damage to fauna was observed during the site visit. However, many wastes were dumped on the cap including a drum and detergent bottles and potential for damage to fauna exists from exposure to unknown substances contained in the drum.

01 X_ L. CONTAMINATION OF FOOD CHAIN 02 __ OBSERVED (DATE: _____) X_ POTENTIAL __ ALLEGED

04 NARRATIVE DESCRIPTION

Unknown, but there may be a potential for damage to the food chain.

01 X_ M. UNSTABLE CONTAINMENT OF WASTES 02 X_ OBSERVED (DATE: 8/14/90) X_ POTENTIAL __ ALLEGED

(Spills/Runoff/Standing liquids, Leaking drums)

03 POPULATION POTENTIALLY AFFECTED: _13,000_

04 NARRATIVE DESCRIPTION

The surface of the landfill is littered with refuse including an empty drum.

Surface runoff leads to a ditch and to a marshy area. No leachate was observed during the site reconnaissance.

01 X_ N. DAMAGE TO OFFSITE PROPERTY 02 __ OBSERVED (DATE: _____) X_ POTENTIAL __ ALLEGED

04 NARRATIVE DESCRIPTION

No damage to offsite property was observed during the site inspection.

A low potential does exist since the landfill is not properly capped and possible contaminants can migrate off-site.

01 X_ O. CONTAMINATION OF SEWERS, STORM DRAINS, OR WWTPs 02 __ OBSERVED (DATE: _____) X_ POTENTIAL __ ALLEGED

04 NARRATIVE DESCRIPTION

No contamination of storm sewers was observed during the site reconnaissance.

A low potential does exist since the landfill is not properly capped and possible contaminants can migrate off-site.

01 X_ P. ILLEGAL/UNAUTHORIZED DUMPING 02 X_ OBSERVED (DATE: 8/14/90) __ POTENTIAL __ ALLEGED

04 NARRATIVE DESCRIPTION

Evidence of dumping was observed during the site inspection. Refuse was strewn on the cap and one drum was found on the southern portion of the landfill.

Construction debris was also encountered throughout the site.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED
HAZARDS**III. TOTAL POPULATION POTENTIALLY AFFECTED: _92,000_****IV. COMMENTS**

The adjacent landfill is owned by Republic Steel. Republic Steel is currently capping the landfill. The cap will cover the wetlands area between Hopkins St. Landfill and the adjacent landfill. Allied Chemicals allegedly had one or two lagoons near the landfill.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site reconnaissance conducted by Dunn Geoscience Engineering Co./TAMS Consultants, Inc. on 8/14/90.

Site inspection (1987) and site report (1990) performed by E&E.

EPA FORM 2070-13(7-81)

EPA**POTENTIAL HAZARDOUS WASTE SITE****SITE INSPECTION****PART 4—PERMIT AND DESCRIPTIVE
INFORMATION****I. IDENTIFICATION****01 STATE**

NY

02 SITE NUMBER

D980507800

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A. NPDES				
<input type="checkbox"/> B. UIC				
<input type="checkbox"/> C. AIR				
<input type="checkbox"/> D. RCRA				
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
X G. STATE(Specify)	Unknown			Dumping permit rescinded
<input type="checkbox"/> H. LOCAL(Specify)				on 4/19/74
<input type="checkbox"/> I. OTHER(Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input type="checkbox"/> A. SURFACE IMPOUNDMENT			<input type="checkbox"/> A. INCINERATION	0 A. BUILDINGS ON SITE
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	None
<input type="checkbox"/> C. DRUMS, ABOVE GROUND			<input type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input type="checkbox"/> D. TANK, ABOVE GROUND			<input type="checkbox"/> D. BIOLOGICAL	06 AREA OF SITE
<input type="checkbox"/> E. TANK, BELOW GROUND			<input type="checkbox"/> E. WASTE OIL PROCESSING	
X F. LANDFILL	60,000	cubic yards	<input type="checkbox"/> F. SOLVENT RECOVERY	12.4 (Acres)
<input type="checkbox"/> G. LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	
<input type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER	
<input type="checkbox"/> OTHER (Specify)			(Specify)	

07 COMMENTS

According to Erie County Department of Environment and Planning (ECDEP), the landfill was operating without a permit. There were no records of any permit application for approval in ECDEP records. The landfill did not operate properly and it was not closed properly according to ECDEP Refuse Disposal and Inspection Reports.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)			
<input type="checkbox"/> A. ADEQUATE, SECURE	<input type="checkbox"/> B. MODERATE	<input checked="" type="checkbox"/> C. INADEQUATE, POOR	<input type="checkbox"/> D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINER, BARRIERS, ETC.

Drums and loose refuse were found on the surface of the landfill.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE:	X YES	<input type="checkbox"/> NO
-----------------------------	-------	-----------------------------

02 COMMENTS

The site is not fenced to restrict access.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site reconnaissance conducted by Dunn Geoscience Engineering Co./TAMS Consultants, Inc. - 8/14/90

E&E site visit (1987) and inspection report (1990).

ECDEP Refuse Disposal and Inspection Reports - 2/1/74, 5/21/74, 4/26/75, and 6/20/75

<h1 style="margin: 0;">EPA</h1> <p style="margin: 5px 0;">POTENTIAL HAZARDOUS WASTE SITE</p> <p style="margin: 5px 0;">SITE INSPECTION REPORT</p> <p style="margin: 5px 0;">PART 5—WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA</p>		I. IDENTIFICATION	
		01 STATE NY	02 SITE NUMBER D980507800

II. DRINKING WATER SUPPLY						
01 TYPE OF DRINKING SUPPLY (Check as applicable)			02 STATUS			03 DISTANCE TO SITE
SURFACE	WELL		ENDANGERED	AFFECTED	MONITORED	
COMMUNITY A. <input checked="" type="checkbox"/>	B. <input checked="" type="checkbox"/>		A. _____	B. _____	C. _____	A. 2.0 (mi)
NON-COMMUNITY C. _____	D. _____		D. _____	E. _____	F. _____	B. _____ (mi)

III. GROUNDWATER			
01 GROUNDWATER USE IN VICINITY (Check one)			
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> A. ONLY SOURCE FOR DRINKING </div> <div> <input type="checkbox"/> B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) </div> <div> <input checked="" type="checkbox"/> C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) </div> <div> <input type="checkbox"/> D. NOT USED, UNUSEABLE </div> </div>			
02 POPULATION SERVED BY GROUNDWATER <u>0</u>		03 DISTANCE TO NEAREST DRINKING WATER WELL <u>>5</u> (mi)	
04 DEPTH TO GROUNDWATER <u>5-10</u> (ft)	05 DIRECTION OF GROUNDWATER FLOW <u>West</u>	06 DEPTH TO AQUIFER OF CONCERN <u>5-10</u> (ft)	07 POTENTIAL YIELD OF AQUIFER <u>Unknown</u> (gpd)
08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings) One family uses groundwater for drinking purposes but is farther than 5 miles from the site. Several well are located within 3 miles of the site and are used for industrial purposes only.			
10 RECHARGE AREA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		11 DISCHARGE AREA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
COMMENTS Recharge thru precipitation		COMMENTS Groundwater may discharge into the swamp and drainage ditch	

IV. SURFACE WATER															
01 SURFACE WATER USE (Check one)															
<div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> A. RESERVOIR, RECREATION DRINKING WATER SOURCE </div> <div> <input type="checkbox"/> B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES </div> <div> <input type="checkbox"/> C. COMMERCIAL, INDUSTRIAL </div> <div> <input type="checkbox"/> D. NOT CURRENTLY USED </div> </div>															
02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER <table style="width: 100%;"> <tr> <th style="width: 50%;">NAME:</th> <th style="width: 20%;">AFFECTED: (Y/N)</th> <th style="width: 30%;">DISTANCE TO SITE</th> </tr> <tr> <td>South Park Lake _____</td> <td style="text-align: center;"><u>N</u></td> <td><u>0.1</u> (mi)</td> </tr> <tr> <td>Swamp pond northeast of the site _____</td> <td style="text-align: center;"><u>N</u></td> <td><u><0.1</u> (mi)</td> </tr> <tr> <td>_____</td> <td></td> <td>_____ (mi)</td> </tr> </table>				NAME:	AFFECTED: (Y/N)	DISTANCE TO SITE	South Park Lake _____	<u>N</u>	<u>0.1</u> (mi)	Swamp pond northeast of the site _____	<u>N</u>	<u><0.1</u> (mi)	_____		_____ (mi)
NAME:	AFFECTED: (Y/N)	DISTANCE TO SITE													
South Park Lake _____	<u>N</u>	<u>0.1</u> (mi)													
Swamp pond northeast of the site _____	<u>N</u>	<u><0.1</u> (mi)													
_____		_____ (mi)													

V. DEMOGRAPHIC AND PROPERTY INFORMATION			
01 TOTAL POPULATION WITHIN			02 DISTANCE TO NEAREST POPULATION
ONE (1) MILE OF SITE A. <u>13,000</u> NO. OF PERSONS	TWO (2) MILES OF SITE B. <u>56,000</u> NO. OF PERSONS	THREE (3) MILES OF SITE C. <u>92,000</u> NO. OF PERSONS	<u><0.2</u> (mi)
03 NUMBER OF BUILDING WITHIN TWO(2)MILES OF SITE _____		04 DISTANCE TO NEAREST OFF-SITE BUILDING <u>0.2</u> (mi)	
05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area) The site is bounded to the north by two landfills and some commercial/industrial properties, to the south by a recreational park, to the west by railroad tracks, and to the east by a densely populated residential area.			

POTENTIAL HAZARDOUS WASTE SITE <div style="font-size: 2em; font-weight: bold; margin-bottom: 10px;">EPA</div> SITE INSPECTION REPORT PART 5-WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA		I. IDENTIFICATION <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> 01 STATE NY </td> <td style="width: 50%; vertical-align: top;"> 02 SITE NUMBER D980507800 </td> </tr> </table>		01 STATE NY	02 SITE NUMBER D980507800
01 STATE NY	02 SITE NUMBER D980507800				
VI. ENVIRONMENTAL INFORMATION					
01 PERMEABILITY OF UNSATURATED ZONE (Check one) <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> A. 10-6 to 10-8 cm/sec <input type="checkbox"/> B. 10-4 to 10-6 cm/sec <input checked="" type="checkbox"/> C. 10-4 to 10-3 cm/sec <input type="checkbox"/> D. GREATER THAN 10-3 cm/sec </div>					
02 PERMEABILITY OF BEDROCK (Check one) <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> A. IMPERMEABLE (Less than 10-6 cm/sec) <input checked="" type="checkbox"/> B. RELATIVELY IMPERMEABLE (10-4 to 10-6 cm/sec) <input type="checkbox"/> C. RELATIVELY PERMEABLE (10-2 to 10-4 cm/sec) <input type="checkbox"/> D. VERY PERMEABLE (Greater than 10-2 cm/sec) </div>					
03 DEPTH TO BEDROCK <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> >24 (ft) Unknown (ft) </div>	04 DEPTH OF CONTAMINATED SOIL ZONE <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> Unknown </div>		05 SOIL pH <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> Unknown </div>		
06 NET PRECIPITATION <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> 5.0 (in) </div>	07 ONE YEAR 24 HOUR RAINFALL <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> 2.1 (in) </div>	08 SLOPE SITE SLOPE <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> 0-3 % </div>	DIRECTION OF SITE SLOPE TERRAIN AVERAGE SLOPE <div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> North </div> </div> <div style="width: 40%;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> 3-5 % </div> </div> </div>		
09 FLOOD POTENTIAL SITE IS IN <u>500</u> YEAR FLOODPLAIN		10 SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY			
11 DISTANCE TO WETLANDS (5 acre minimum) <div style="display: flex; justify-content: space-around;"> ESTUARINE OTHER </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> A. <u>>3</u> (mi) B. <u>0.10</u> (mi) </div>		12 DISTANCE TO CRITICAL HABITAT (of endangered species) <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> >3 (mi) </div> ENDANGERED SPECIES: <u>Not Applicable</u>			
13 LAND USE IN VICINITY DISTANCE TO: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> COMMERCIAL/INDUSTRIAL RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FOREST, OR WILDLIFE RESERVES </div> <div style="width: 45%;"> AGRICULTURAL LANDS PRIME AG LAND AG LAND </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> A. <u>0.1</u> (mi) B. <u>0.2</u> (mi) C. <u>>3</u> (mi) D. <u>>3</u> (mi) </div>					
14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY The site lies in a flat area, slightly elevated relative to the surrounding lands mostly due to the wastes placed on the site. The site is bounded by a man-made ditch to the north, a swamp to the northeast, and South Park to the south.					
VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)					
NYSDEC Phase I report and Region 9 files on the Hopkins St. Landfill site. Interview with Dave Denk of NYSDEC Regulations, 7/18/90. Interview with Mark Kandel of NYSDEC Fish and Wildlife, 7/20/90. Heritage maps, 1986 wetlands maps, and Coastal Fish and Wildlife maps supplied by the NYSDEC Division of Regulations.					

EPA		POTENTIAL HAZARDOUS WASTE SITE		I. IDENTIFICATION	
		SITE INSPECTION REPORT PART 6-SAMPLE AND FIELD INFORMATION		01 STATE NY	02 SITE NUMBER D980507800
II. SAMPLES TAKEN					
SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO		03 ESTIMATED DATE RESULTS AVAILABLE	
GROUNDWATER	None				
SURFACE WATER	None				
WASTE	None				
AIR	None				
RUNOFF	None				
SPILL	None				
SOIL	None				
VEGETATION	None				
OTHER	None				
III. FIELD MEASUREMENTS TAKEN					
01 TYPE	02 COMMENTS				
Air Monitoring	HNu-PID readings not above background.				
Radiation Monitoring	Monitor 4 mini-rad readings not above background.				
IV. PHOTOGRAPHS AND MAPS					
01 TYPE <input type="checkbox"/> X_GROUND <input type="checkbox"/> X_AERIAL		02 IN CUSTODY OF - Dunn Geoscience Engineering Co./ SUNY Buffalo at Amherst Undergraduate Library (Name of organization or individual)			
03 MAPS X YES _NO	04 LOCATION OF MAPS Dunn Geoscience Engineering Co./TAMS Consultants, Inc.				
V. OTHER FIELD DATA COLLECTED (provide narrative description)					
Field notes in custody of Ted Yen-TAMS Consultants, Inc.-book 011R					
VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)					
1966 aerial photographs from SUNY Buffalo US Dept. of the Interior, Geological Survey Topographic Map, 7.5 minute series - "Buffalo SE, NY" - photorevised 1989 Site reconnaissance conducted by Dunn Geoscience Engineering Co./TAMS Consultants, Inc. on 8/14/90					

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7-OWNER INFORMATION

I. IDENTIFICATION

01 STATE NY	02 SITE NUMBER D980507800
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II. CURRENT OWNER(S)				PARENT COMPANY(If applicable)	
01 NAME City of Buffalo		02 D+B NUMBER		08 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.) Room 201 City Hall		04 SIC CODE 9111		10 STREET ADDRESS(P.O.Box, RFD#,etc.)	
05 CITY Buffalo	06 STATE NY	07 ZIP CODE 14220	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
III. PREVIOUS OWNER(S)(List most recent first)					
01 NAME		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		03 STREET ADDRESS(P.O.Box,RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		03 STREET ADDRESS(P.O.Box,RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER		01 NAME	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		03 STREET ADDRESS(P.O.Box,RFD#,etc.)	
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION(Cite specific references, e.g., state files, sample analysis, reports)

NYSDEC Region 9, Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Report.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8-OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE NY	02 SITE NUMBER D980507800
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II. CURRENT OPERATOR(Provide if different from owner)				OPERATOR'S PARENT COMPANY(If applicable)							
01 NAME City of Buffalo		02 D+B NUMBER		08 NAME		09 D+B NUMBER					
03 STREET ADDRESS(P.O.Box,RFD#,etc.) Room 201 City Hall		04 SIC CODE 9111		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE					
05 CITY Buffalo		06 STATE NY		07 ZIP CODE 14220		12 CITY		13 STATE		14 ZIP CODE	
08 YEARS OF OPERATION 3 years		09 NAME OF OWNER City of Buffalo									
III. PREVIOUS OPERATOR(S)(List most recent first; provide only if different from owner)				PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)							
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER					
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE					
05 CITY		06 STATE		07 ZIP CODE		12 CITY		13 STATE		14 ZIP CODE	
08 YEARS OF OPERATION		09 NAME OF OWNER									
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER					
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE					
05 CITY		06 STATE		07 ZIP CODE		12 CITY		13 STATE		14 ZIP CODE	
08 YEARS OF OPERATION		09 NAME OF OWNER									
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER					
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE					
05 CITY		06 STATE		07 ZIP CODE		12 CITY		13 STATE		14 ZIP CODE	
08 YEARS OF OPERATION		09 NAME OF OWNER									
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER					
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE					
05 CITY		06 STATE		07 ZIP CODE		12 CITY		13 STATE		14 ZIP CODE	
08 YEARS OF OPERATION		09 NAME OF OWNER									
V. SOURCES OF INFORMATION(Cite specific references, e.g., state files, sample analysis, reports)											
NYSDEC Region 9, Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Report											

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9-GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980507800

II. ON-SITE GENERATOR

01 NAME Not Applicable	02 D+B NUMBER
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY 13 STATE 14 ZIP CODE
01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY 13 STATE 14 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY 13 STATE 14 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY 06 STATE 07 ZIP CODE

V. SOURCES OF INFORMATION(Cite specific references, e.g., state files, sample analysis, reports)

NYSDEC Region 9 files on the Hopkins Street Landfill.

EPA

POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION

SITE INSPECTION REPORT

01 STATE

02 SITE NUMBER

PART 10 - PAST RESPONSE ACTIVITIES

NY

D980507800

II. PAST RESPONSE ACTIVITIES

01 __ A. WATER SUPPLY CLOSED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ B. TEMPORARY WATER SUPPLY PROVIDED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ C. PERMANENT WATER SUPPLY PROVIDED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ D. SPILLED MATERIAL REMOVED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ E. CONTAMINATED SOIL REMOVED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ F. WASTE REPACKAGED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ G. WASTE DISPOSED ELSEWHERE

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ H. ON SITE BURIAL

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ I. IN SITU CHEMICAL TREATMENT

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ J. IN SITU BIOLOGICAL TREATMENT

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ K. IN SITU PHYSICAL TREATMENT

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ L. ENCAPSULATION

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ M. EMERGENCY WASTE TREATMENT

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ N. CUTOFF WALLS

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ O. EMERGENCY DIKING/SURFACE WATER DIVERSION

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ P. CUTOFF TRENCHES/SUMP

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ Q. SUBSURFACE CUTOFF WALL

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

EPA**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 – PAST RESPONSE ACTIVITIES****I. IDENTIFICATION**
01 STATE 02 SITE NUMBER
NY D980507800**II. PAST RESPONSE ACTIVITIES(Continued)**

01 __ R. BARRIER WALLS CONSTRUCTED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ S. CAPPING/COVERING

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ T. BULK TANKAGE REPAIRED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ U. GROUT CURTAIN CONSTRUCTED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ V. BOTTOM SEALED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ W. GAS CONTROL

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ X. FIRE CONTROL

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ Y. LEACHATE TREATMENT

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ Z. AREA EVACUATED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ 1. ACCESS TO SITE RESTRICTED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ 2. POPULATION RELOCATED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 __ 3. OTHER REMEDIAL ACTIVITIES

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

III. SOURCES OF INFORMATION (Cite specific references, e.g., state file sample analysis, reports)

NYSDEC Phase I report on Hopkins St Landfill prepared by E&E – 1990

APPENDIX E

Field Sampling Records

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 9:20 A.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DO NN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
 Containers Filled (primary) # 2-40ml, 2-2L, 1-1qt, 1-16oz List ID #s HOP-SW 1
 Containers Filled (replicates) # _____ List ID #s _____
 Test for FULL TCL/TAL CLP
 Physical Appearance and Odor Gray, turbid, sulfur odor

Field Tests:	Meter ID #	Test Value
Temperature (C °F)	<u>0.6</u>	_____
pH	<u>6.86</u>	_____
Spec. Conductivity (umhos/cm)	<u>374</u>	_____
Dissolved Oxygen (mg/l)	_____	_____
Other:	_____	_____

Units _____

Weather: Snow -25°F
 Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 11:10 AM.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other Undeveloped

Sampling Methods: Sampling Bottle / Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
 Containers Filled (primary) # 2-40ml, 2-2L, 1-1qt, 1-16oz List ID #s HOP-SW2
 Containers Filled (replicates) # _____ List ID #s _____
 Test for FULL TCL/TAL CLP
 Physical Appearance and Odor Gray-brown, turbid, no odor

Field Tests:	Sample Meter ID #	Test Value
Temperature (C) <u>X</u>	<u>0.6</u>	_____
pH	<u>6.89</u>	_____
Spec. Conductivity (umhos/cm)	<u>421</u>	_____
Dissolved Oxygen (mg/l)	_____	_____
Other:	_____	_____

Units _____

Weather: Snow -25°F
 Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 12:10 P.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical Other Undeveloped

Sampling Methods: Sampling Bottle Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
 Containers Filled (primary) # 2-40ml, 2-2L, 1-10L, 1-16oz List ID #s HOP-SW3
 Containers Filled (replicates) # _____ List ID #s _____
 Test for FULL TCL / TAL CLP
 Physical Appearance and Odor Brown, turbid, no odor

Field Tests:

	Sample Meter ID #	Test Value
Temperature (C) <u>NE</u>	<u>0.5</u>	_____
pH	<u>7.44</u>	_____
Spec. Conductivity (umhos/cm)	<u>473</u>	_____
Dissolved Oxygen (mg/l)	_____	_____
Other:	_____	_____ Units _____

Weather: Snow -25°F
 Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 12:40 AM.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____

Containers Filled (primary) # 240ml, 2-2L, 1-1qt, 1-16oz List ID #s HOP-SW4

Containers Filled (replicates) # 440ml, 4-2L, 2-2qt, 2-16oz List ID #s MS1/MS2

Test for FULL TCL/TAL CLP

Physical Appearance and Odor Light brown, low turbidity, no odor

Field Tests:

Temperature (°C) 17

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Sample
Meter ID #

Test Value

0.4

8.1

1119

Units _____

Weather: Snow - 25°F

Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 9:40 A.M.
 CLIENT: NYSDOC SITE ID: _____
 SAMPLERS: J. TAFT of DUNN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commercial / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____

Field (wash) Blank ID _____

Containers Filled (primary) # 2402 & 1-802

List ID #s HOP-SED 1

Containers Filled (replicates) # _____

List ID #s _____

Test for FULL TCL/ITAL CLP

Physical Appearance and Odor GRY SILT, Some fine to med Sand, organics, no odor

Field Tests:

Meter ID #

Test Value

Temperature (C / F)

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Units

Weather:

Snow - 25°F

Comments:

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 11:20 A.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commercial / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/ Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____

Field (wash) Blank ID _____

Containers Filled (primary) # 2-40z, 1-80z

List ID #s AOP-SED 2

Containers Filled (replicates) # _____

List ID #s _____

Test for FULL TCL / TAL CLP

Physical Appearance and Odor Brown SILT, little clay, little fine sand, organics - no odor

Field Tests:

Meter ID #

Test Value

Temperature (C / F)

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Units

Weather:

Snow - 25°F

Comments:

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 12:20 P.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DUNN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/ Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
 Containers Filled (primary) # 2-4oz, 2-8oz List ID #s HOP-5E03
 Containers Filled (replicates) # _____ List ID #s _____
 Test for FULL TCL/TAL CLP
 Physical Appearance and Odor Gr-br fine to med SAND, little silt, organics - No odor

Field Tests:	Meter ID #	Test Value	Units
Temperature (C / F)	_____	_____	
pH	_____	_____	
Spec. Conductivity (umhos/cm)	_____	_____	
Dissolved Oxygen (mg/l)	_____	_____	
Other:	_____	_____	

Weather: Snow - 25°F
 Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-15-93
 PROJECT NO.: 00296-02483 TIME: 12:50
 CLIENT: NYSDEC SITE ID: _____
 SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
 Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commercial / Other Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar / Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon / Hand Auger /
 Stainless Spoon / Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
 Containers Filled (primary) # 2-402, 1-802 List ID #s HOP-SED4
 Containers Filled (replicates) # 2-402, 1-802 List ID #s MS/MSD
 Test for FULL TAL / TAL CLP
 Physical Appearance and Odor GR SILT, some clay, little fine sand; no odor

Field Tests:	Meter ID #	Test Value
Temperature (C / F)	_____	_____
pH	_____	_____
Spec. Conductivity (umhos/cm)	_____	_____
Dissolved Oxygen (mg/l)	_____	_____
Other:	_____	_____

Units _____

Weather: Snow - 25° F
 Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-13-93
 PROJECT NO.: 00296-02483 TIME: 10:00 A.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____

Field (wash) Blank ID _____

Containers Filled (primary) # 2-40z & 2-80z

List ID #s

HOP-TP2-2'

Containers Filled (replicates) # _____

List ID #s

Test for FULL TCL/TAL CLP, EP Toxicity and RCRA Waste Characteristics

Physical Appearance and Odor

Brown-gray SILT, no odor

Field Tests:

Meter ID #

Test Value

Temperature (C / F)

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Units

Weather:

Rain - 33°F

Comments:

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-13-93
 PROJECT NO.: 00296-02483 TIME: 11:00 A.M.
 CLIENT: NY50EC SITE ID: _____
 SAMPLERS: J. TAFT of DO NN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____
 Containers Filled (primary) # 2-4oz, 2-8oz

Field (wash) Blank ID _____

List ID #s HOP-TP3-2

Containers Filled (replicates) # _____

List ID #s _____

Test for FULL TAL/TCL CLP, EP Toxicity & RCRA Waste Characteristics

Physical Appearance and Odor FILL: 6r fine to coarse SAND & 6r gravel, silt - sweet odor

Field Tests:

Meter ID #

Test Value

Temperature (C / F)

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Units

Weather:

Rain - 32°F

Comments:

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-13-93
 PROJECT NO.: 00296-02483 TIME: 12:30 P.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DO NN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon Trowel /

Sample Type: Point / Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
 Containers Filled (primary) # 2-4oz + 2-8oz List ID #s HOP-TP4-3.5
 Containers Filled (replicates) # 2-4oz + 1 8oz List ID #s MS/MSD
 Test for FULL TAL/TCL CLP, EPTOXICITY + RCRA waste characteristics
 Physical Appearance and Odor FILL: Gray fine to coarse Sand + Gravel, silt, decaying organic odor

Field Tests:	Meter ID #	Test Value
Temperature (C / F)	_____	_____
pH	_____	_____
Spec. Conductivity (umhos/cm)	_____	_____
Dissolved Oxygen (mg/l)	_____	_____
Other:	_____	_____

Units _____

Weather: Rain, 32°F
 Comments: _____

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-14-93
 PROJECT NO.: 00296-02483 TIME: 9:00 A.M.
 CLIENT: NYSOEC SITE ID: _____
 SAMPLERS: J. TAFT of DOANN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commerical / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
 Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
 Stainless Spoon/Trowel

Sample Type: Point Grab / Composite /

Atmospheric Trip Blank ID _____
 Containers Filled (primary) # 2-4oz + 2-8oz

Field (wash) Blank ID _____
 List ID #s HOP-TP8-1.5

Containers Filled (replicates) # _____

List ID #s _____

Test for FULL TAL/TCL CLP, EP Toxicity + RURA Waste Characteristics

Physical Appearance and Odor OK gr fine to med SAND, some silt - slight fuel oil odor noted

Field Tests:

Meter ID #

Test Value

Temperature (C / F)

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Units _____

Weather:

Flurries - 25°F

Comments:

FIELD SAMPLING RECORD

PROJECT: HOPKINS ST. L.F. DATE: 1-14-93
PROJECT NO.: 00296-02483 TIME: 9:30 A.M.
CLIENT: NYSOEC SITE ID: _____
SAMPLERS: J. TAFT of DONN

Sample classification: Surface Water / Infiltration Water / Leachate / Sediment / Soil / Waste / Other

Sample From: Stream / River / Lake / Pond / Seep / Lagoon / Tank / Pipe Outfall / Drum /
Excavation / Boring / Embankment /

Surface: Residential / Industrial / Commercial / Other

Undeveloped

Sampling Methods: Sampling Bottle: Direct Fill Container / Remote Fill / Dipper Jar/Can /
Peristaltic Pump / Bailer / Core Sampler / Standard Split Spoon/ Hand Auger /
Stainless Spoon/ Trowel /

Sample Type: Point Grab / Composite /

Atmospheric Trip Blank ID _____ Field (wash) Blank ID _____
Containers Filled (primary) # 2-4oz, 2-8oz List ID #s HOP-TP10-3.5'
Containers Filled (replicates) # _____ List ID #s _____
Test for FULL TCL/TAL LLP, EPT toxicity + RCRA Waste Characteristics
Physical Appearance and Odor FILL: Brown fine to coarse SAND, Some Silt, no odor

Field Tests:

Meter ID #

Test Value

Temperature (C / F)

pH

Spec. Conductivity (umhos/cm)

Dissolved Oxygen (mg/l)

Other:

Units _____

Weather:

Snow -25°F

Comments:

APPENDIX F

Test Pit Logs

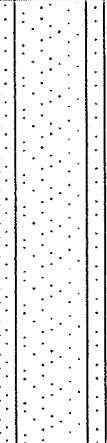


**Dunn Geoscience Engineering Co.**

Albany, NY 12205

(518)458-1313

TEST PIT LOG**TEST PIT No. TP-1**

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	NA	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
2		SM		Fill: Gray-brown Silty fine to medium SAND, gravelly, trace organics noted, moist, nonplastic		No groundwater encountered during excavation
				-box springs, scrap metal, plastic, glass bottles and carpeting noted -tire noted		HNU=BKG during excavation
4		MH		Gray-brown Clayey SILT, trace roots, moist, moderately plastic	3.5	No samples were collected
		ML		-grades to orange-brown to light gray mottled SILT, trace Clay, moist, non-plastic	4.5	
6				Test Pit Terminated @6.5'	6.5	



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TEST PIT LOG

TEST PIT No. TP-2

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	S.S. TROWEL	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
—		SM		Fill: Gray-brown Silty fine to medium SAND, with wood, bricks and scrap metal, moist, nonplastic		Water seep noted at fill/native soil interface.
2				-becomes wet		
—		ML		Light brown SILT, trace organics, moist, non-plastic	2.0	HNU=BKG during excavation
				Test Pit Terminated @4.0'	3.9	Sample was obtained from a depth of 2.0' (HOP-TP2-2')

**Dunn Geoscience Engineering Co.**

Albany, NY 12205

(518)458-1313

TEST PIT LOG**TEST PIT No. TP-3**

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S. Specific
SAMPLING EQUIP.	S.S. TROWEL	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
—		GM		Fill: Gray gravelly fine to coarse SAND, Silty with wood, slag, plastic, bricks and metal debris, moist, nonplastic		Sweet odor noted, industrial fill
2		CH		-becomes wet Gray-brown Silty CLAY, trace organics, moist, plastic	2.0	HNU=BKG during excavation
4		ML		-grades to light gray orange-brown mottled SILT, little Clay, moist, non-plastic	3.0	
				Test Pit Terminated @4.5'	4.5	Sample was obtained from a depth of 2.0' (HOP-TP3-2')



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TEST PIT LOG

TEST PIT No. TP-4

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	S.S. TROWEL	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
—				Fill: Gray Silty fine to coarse SAND and gravel with wood, plastic, concrete, metal piping, foam rubber and carpets, non-plastic, moist		Slight odor - decaying organics
2—		SM				HNU=BKG during excavation
—				-wet seam		Water running into hole
4—		MH		Gray-brown Clayey SILT, moist, plastic	4.0	Sample was obtained from a depth of 2.0' (HOP-TP3-2')
—		MH		-grades to gray orange-brown to light gray mottled SILT, Clayey, moist, plastic	4.5	
—				Test Pit Terminated @5.0	5.0	

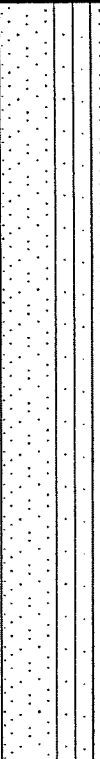
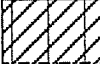



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TEST PIT LOG

TEST PIT No. TP-5

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	NA	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
— 2— — 4— — 6—		SM		Fill: Gray-brown gravelly SAND and SILT with tires, bricks, concrete, metal cable, plastic, moist, non-plastic -empty propane cylinder -wet seep		HNU=BKG during excavation No samples collected
		MH		Gray Clayey SILT, trace organics, moist, plastic	6.0	
		ML		-grades to light gray-brown mottled SILT, little Clay, moist, plastic.	6.5	
				Test Pit Terminated @7.0'	7.0	


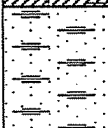


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TEST PIT LOG

TEST PIT No. TP-6

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	NA	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
— 2— — 4— —		SP		Fill: Gray-brown Silty fine to coarse SAND, some gravel with wood beams, scrap metal, tires and concrete blocks, moist, non-plastic -wet seep 2'-3'		HNU=BKG during excavation Seep noted 2'-3' above reworked clay zone No samples were collected
— 6—		MH		Orange-brown to light gray SILT, little Clay, moist, plastic	5.0	
				Test Pit terminated @6.0'	6.0	

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Albany, NY 12205

(518)458-1313

TEST PIT LOG**TEST PIT No. TP-7**

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S. Specific
SAMPLING EQUIP.	NA	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
—				Fill: Gray-brown Silty fine to coarse SAND, gravelly, with scrap metal, box spring, wood, tires and glass bottles, moist, non-plastic		
2		SM		-wet seep 2'		HNU=BKG during excavation
4		MH		Gray Clayey SILT, trace organics, moist, plastic	4.0	No samples were collected
—		ML		-grades to orange-brown to light gray mottled SILT, trace to little Clay, moist, plastic	4.5	
				Test Pit Terminated @5.5'	5.5	

**Dunn Geoscience Engineering Co.**

Albany, NY 12205

(518)458-1313

TEST PIT LOG**TEST PIT No. TP-8**

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	S.S. TROWEL	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
1		SM		Fill: Dark gray Silty fine to medium SAND with gravel and cobbles, moist, non-plastic		
2				-wood fragments, yarn and metal piping.		HNU=BKG during excavation
		CL		-Gray Clayey SILT, moist, plastic.	2.5	Water seeps noted
		CL		-grades to orange-brown to light gray Clayey SILT, moist, plastic	3.0	
4				TEST PIT TERMINATED	4.0	Sample was obtained from a depth of 1.5' (HOP-TP8-1.5')

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Albany, NY 12205

(518)458-1313

TEST PIT LOG**TEST PIT No. TP-9**

PROJECT	HOPKINS STREET LANDFILL	SHEET	1 OF 1
CLIENT	NYSDEC	Proj. No.	00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV.	NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.	
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM	S. Specific
SAMPLING EQUIP.	NA	DATE STARTED	01/13/93
GROUNDWATER ELEV.		DATE FINISHED	01/13/93
MEASURING POINT	SURFACE	EXCAVATOR	JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST	JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
—				Fill: Gray Silty fine to medium SAND with gravel, trace fine gravel, dry to moist, non-plastic		HNU=BKG during excavation
2—						No water in hole
—				-wood		
4—		SM				No samples were collected
—				-bricks, scrap metal, springs, rubber hose, car parts: frame, door, hood, floor boards, steering column with wheel. (1963 V.W. Bug)		
6—						
—						
8—						
		MH		Gray Clayey SILT, moist, plastic	8.0	
				TEST PIT TERMINATED	9.0	

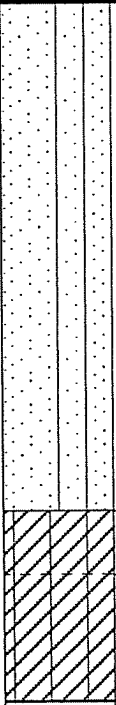
**Dunn Geoscience Engineering Co.**

Albany, NY 12205

(518)458-1313

TEST PIT LOG**TEST PIT No. TP-10**

PROJECT	HOPKINS STREET LANDFILL	SHEET 1 OF 1
CLIENT	NYSDEC	Proj. No. 00296-02483
PURPOSE	SUBSURFACE INVESTIGATION	MEAS. PT. ELEV. NA
CONTRACTOR	AMERICAN AUGER AND DITCH CO.	GROUND ELEV.
EXCAVATING EQUIP.	JOHN DEERE BACKHOE	DATUM S.Specific
SAMPLING EQUIP.	NA	DATE STARTED 01/13/93
GROUNDWATER ELEV.		DATE FINISHED 01/13/93
MEASURING POINT	SURFACE	EXCAVATOR JOHN PIETRUCH
DATE OF MEASUREMENT	NA	GEOLOGIST JOEL TAFT

DEPTH (FT.)	SAMPLE NUMBER	UNIFIED CLASSI- FICATION	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV. DEPTH	REMARKS
— 2— — — 4— — —		SM MH MH		FILL: Gray-brown Silty fine to medium SAND, with cobbles, piping, tires, metal debris, water heater, wood and yarn, moist, non-plastic. -water seep (3.5-4.0') Gray Clayey SILT, moist, plastic -grades to orange-brown to light gray mottled Clayey SILT, moist, plastic. TEST PIT TERMINATED	 4.0 4.5 5.5	HNU=BKG during excavation Sample was obtained from a depth of 3.5' (HOP-TP10-3.5')

APPENDIX G

Test Boring Logs



Dunn Geoscience Engineering Co.
Albany, NY 12205 (518)458-1313






TEST BORING LOG

BORING No. MW-1

PROJECT	HOPKINS STREET LANDFILL				SHEET 1 OF 2
CLIENT	NYSDEC				JOB No. 00296-02483
DRILLING CONTRACTOR	American Auger and Ditch Co.				MEAS. PT. ELEV. 98.07
PURPOSE	Monitoring Well Installation				GROUND ELEV. 95.1'
DRILLING METHOD	4 1/4" HSA	SAMPLE	CORE	CASING	DATUM S.Specific
DRILL RIG TYPE	Mobile B-57	TYPE	S.S.	NA	DATE STARTED 01/20/93
GROUNDWATER ELEV.		DIA.	2"	NA	DATE FINISHED 01/20/93
MEASURING POINT	Top of PVC	WEIGHT	140 #		DRILLER Lee Penrod
DATE OF MEASUREMENT	1-22-93	FALL	30"		GEOLOGIST Joel Taft

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
2	S-1	2	OM		Fill: Dark gray organic SILT with coarse gravel, brick fragments noted, moist, non-plastic.	93.1	HNU<1 REC=1.2'
		1					
		1					
		5					
4	S-2	4	ML		Light brown fine Sandy SILT, trace Clay, moist, low plastic.	2.0	HNU<1 REC=1.3'
		6					
		10					
		10					
6	S-3	7	MH		-grades to trace fine SAND, moist, non-plastic. -wet seem noted (4.5-5.0')	91.1 4.0	HNU<1 REC=1.4'
		10					
		16					
		20					
8	S-4	4	MH		Brown to light gray Clayey SILT, moist, plastic. -orange-brown weather staining noted along dissication cracks.	90.1 5.0	HNU<1 REC=1.8'
		7					
		10					
		13					
	S-5	4	MH				HNU<1 REC=1.3'
		5					
		7					
		6					



PROJECT					HOPKINS STREET LANDFILL		SHEET 2 OF 2	
CLIENT					NYSDEC		JOB No. 00296-02483	
DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS	
12	S-6	3	CH		Gray Silty CLAY, wet, plastic	84.1 11.0	HNU<1 REC=1.6'	
		2						
		2						
		2						
14	S-7	2	CH				HNU<1 REC=2.0'	
		1						
		2						
		2						
16	S-8	2	CH				HNU<1 REC=2.0'	
		2						
		2						
		4						
18	S-9	2	CH				HNU<1 REC=2.0'	
		1						
		3						
		3						
20	S-10	1	CH				HNU<1 REC=1.5'	
		2						
		3						
		2						
					END OF BORING = 20.0' SET WELL - 20' SCREEN - 20.0' to 5.0' SAND to 4.0' BENTONITE to 2.0' GROUT TO SURFACE LOCKING PROTECTIVE CASING INSTALLED	75.1 20.0		



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TEST BORING LOG

BORING No. MW-2

PROJECT	HOPKINS STREET LANDFILL				SHEET 1 OF 3
CLIENT	NYSDEC				JOB No. 00296-02483
DRILLING CONTRACTOR	American Auger and Ditch Co.				MEAS. PT. ELEV. 100.19
PURPOSE	Monitoring Well Installation				GROUND ELEV. 96.2'
DRILLING METHOD	4 1/4" HSA	SAMPLE	CORE	CASING	DATUM S.Specific
DRILL RIG TYPE	Mobile B-57	TYPE	S.S.	NA	DATE STARTED 01/19/93
GROUNDWATER ELEV.		DIA.	2"	NA	DATE FINISHED 01/19/93
MEASURING POINT	Top of PVC	WEIGHT	140 #		DRILLER Lee Penrod
DATE OF MEASUREMENT	1-22-93	FALL	30"		GEOLOGIST JOEL TAFT

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
2	S-1	1	ML		Organic SILT Brown fine Sandy SILT, little subrounded fine gravel, moist, non-plastic.	94.2	HNU<1 REC=1.2'
		6					
		9					
		10					
4	S-2	10	MH		Brown to light gray Clayey SILT, moist, plastic.	2.0	HNU<1 REC=1.2'
		16					
		16					
		16					
6	S-3	12	ML		Orange-brown to light gray SILT, little to some Clay, weather staining, moist, low plastic.	4.0	HNU<1 REC=1.2'
		12					
		16					
		12					
8	S-4	5	ML		-grades to SILT, little Clay, moist to wet, low plastic.	6.0	HNU<1 REC=1.9'
		11					
		16					
		22					
	S-5	1	MH		-grades to gray-brown Clayey SILT, moist plastic.	8.0	HNU<1 REC=1.4'
		6					
		8					
		9					



PROJECT HOPKINS STREET LANDFILL

SHEET 2 OF 3

CLIENT NYSDEC

JOB No. 00296-02483

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
12	S-6	2	MH				HNU<1 REC=1.7'
		4					
		9					
		11					
14	S-7	3	MH CL		-grades to gray Clayey SILT, moist to wet, plastic.	84.2 12.0	HNU<1 REC=1.6'
		3					
		5					
		8					
16	S-8	2	CH		-grades to gray Silty CLAY, moist, plastic.	82.2 14.0	HNU<1 REC=2.0'
		2					
		2					
		5					
18	S-9	3	--		NO RECOVERY		HNU<1 REC=0.0'
		3					
		4					
		7					
20	S-10	2	CH		Gray Silty CLAY, trace embedded rounded fine gravel, moist, plastic.	78.2 18.0	HNU<1 REC=2.0'
		4					
		3					
		6					
22	S-11	2	CH		Gray Silty CLAY, moist to wet, plastic.	76.2 20.0	HNU<1 REC=2.0'
		2					
		3					
		3					



Dunn Geoscience Engineering Co.
Albany, NY 12205 (518)458-1313

TEST BORING LOG


BORING No. MW-2

PROJECT HOPKINS STREET LANDFILL

SHEET 3 OF 3

CLIENT NYSDEC

JOB No. 00296-02483

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSI- FICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
24	S-12	5	CH				HNU<1 REC=2.0'
		10					
		12					
						71.2	
					END OF BORING = 25.0'	25.0	
					SET WELL - 25.0'		
					SCREEN - 25.0' - 20.0'		
					SAND to 4.0'		
					BENTONITE to 2.0'		
					GROUT TO SURFACE		
					LOCKING PROTECTIVE CASING		
					INSTALLED		



Dunn Geoscience Engineering Co.
Albany, NY 12205 (518)458-1313

TEST BORING LOG

BORING No. MW-3

PROJECT	HOPKINS STREET LANDFILL				SHEET 1 OF 3
CLIENT	NYSDEC				JOB No. 00296-02483
DRILLING CONTRACTOR	American Auger and Ditch Co.				MEAS. PT. ELEV. 99.48
PURPOSE	Monitoring Well Installation				GROUND ELEV. 96.6'
DRILLING METHOD	4 1/4" HSA	SAMPLE	CORE	CASING	DATUM S.Specific
DRILL RIG TYPE	Mobile B-57	TYPE	S.S.	NA	DATE STARTED 01/20/93
GROUNDWATER ELEV.		DIA.	2"	NA	DATE FINISHED 01/20/93
MEASURING POINT	Top of PVC	WEIGHT	140 #		DRILLER Lee Penrod
DATE OF MEASUREMENT	1-22-93	FALL	30"		GEOLOGIST JOEL TAFT

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
2	S-1	18	GP		Fill: Dark brown fine to coarse gravelly SAND, some Silt with wood, moist to wet, non-plastic.	94.6	HNU<1 REC=1.0'
		17					
		20					
		50					
4	S-2	5	ML		Light brown to dark gray Clayey SILT with organics, wood, glass, and roots, moist, plastic.	2.0	HNU<1 REC=1.9'
		3					
		5					
		5					
6	S-3	2	MH		-grades to light brown to light gray Clayey SILT, mottled, trace organics, moist, plastic.	92.6 4.0	HNU<1 REC=1.2'
		3					
		7					
		9					
8	S-4	3	MH		-small parting of wet silt noted.		HNU<1 REC=1.5'
		7					
		8					
		10					
	S-5	5	MH				HNU<1 REC=2.0'
		7					
		10					
		13					



PROJECT HOPKINS STREET LANDFILL

SHEET 2 OF 3

CLIENT NYSDEC

JOB No. 00296-02483

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
		5			NO RECOVERY		HNU<1 REC=0.0'
	S-6	7	--				
		9					
12		11				84.6	
		3			Gray brown varved Silty CLAY, moist, plastic.	12.0	HNU<1 REC=2.0'
	S-7	3	CH				
		3					
14		4				82.6	
		2			-grades to gray Silty CLAY, moist to wet, plastic.	14.0	HNU<1 REC=2.0'
	S-8	2	CH				
		2					
16		2					HNU<1 REC=2.0'
	S-9	2	CH				
		2					
18		4				78.6	
		2			-grades to gray CLAY, trace Silt with trace embedded subangular fine gravel, wet, plastic.	18.0	HNU<1 REC=1.8'
	S-10	2	CH				
		2					
20		3				76.6	
		2			Gray Silty CLAY, some embedded coarse Sand and fine Gravel, wet, plastic.	20.0	HNU<1 REC=1.8'
	S-11	2	CH				
		2					
22		3				74.6	
		2			-grades to Clayey SILT, some embedded subangular gravel and	22.0	




PROJECT HOPKINS STREET LANDFILL

SHEET 3 OF 3

CLIENT NYSDEC

JOB No. 00296-02483

DEPTH FT.	INTERVAL, RECOVERY, SAMPLE NUMBER	BLOWS ON SAMPLE SPOON PER 6"	UNIFIED CLASSIFICATION	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV. DEPTH	REMARKS
24	S-12	2 14 14	MH		rock fragments (Till) moist to wet, plastic.	71.6	HNU<1 REC=1.3'
					END OF BORING = 25.0' SET WELL - 25.0' SCREEN - 25.0' to 10.0' SAND to 8.0' BENTONITE to 6.0' GROUT TO SURFACE LOCKING PROTECTIVE CASING INSTALLED.	25.0	

APPENDIX H

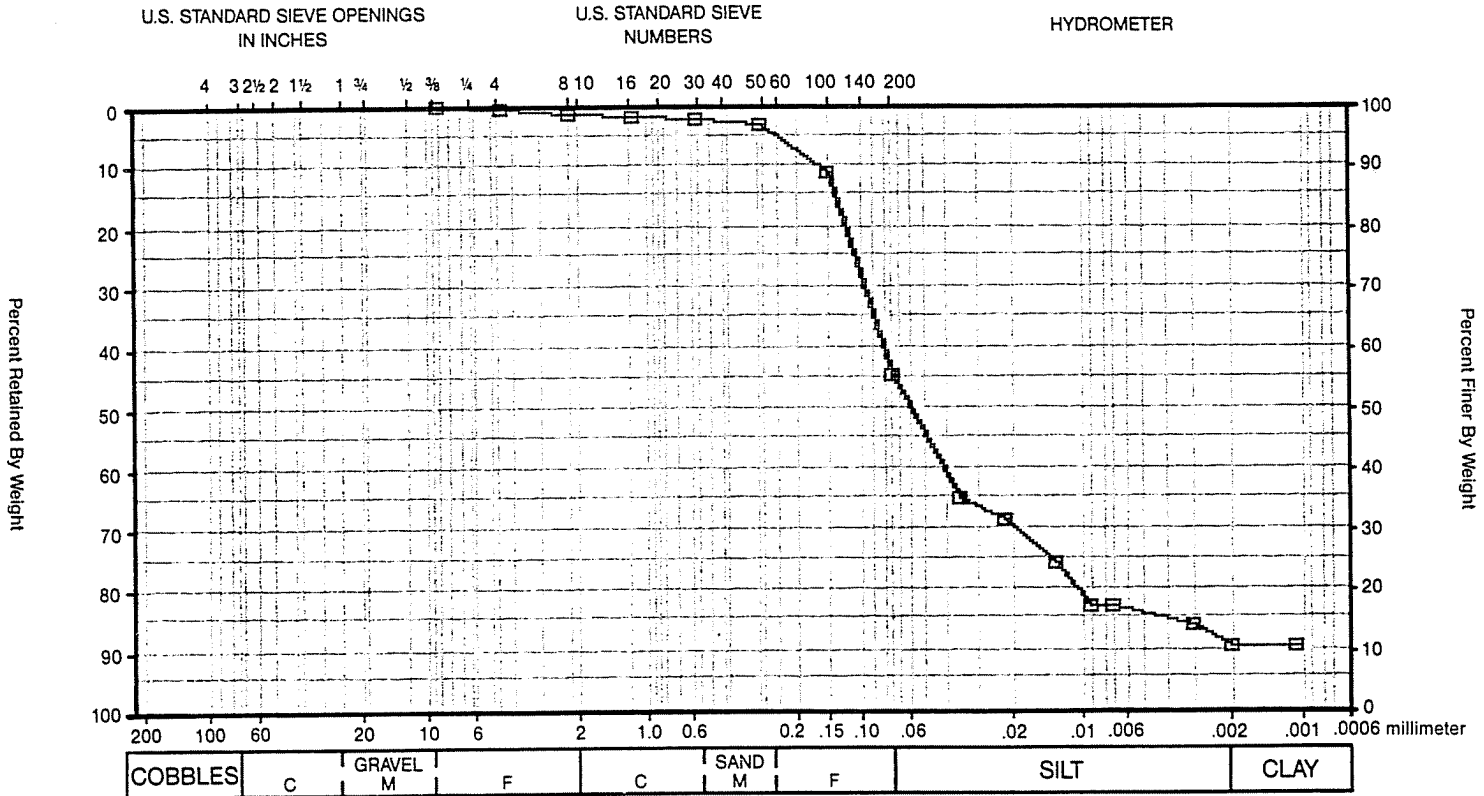
Geotechnical Analyses Results

Dunn Geoscience Laboratory

12 Metro Park Road, Albany, NY 12205 (518) 458-1313

CLIENT: HOPKINS STREET LANDFILL
 LAB NUMBER: 1-93-39/00296-02483 DATE RECEIVED: 1/27/93
 TEST BY: REF DATE TESTED: 2/4/93
 REVIEWED BY: *FLM* DATE REPORTED: 2/8/93
 SAMPLE DESCR: GEOTECH SAMPLE, MW-1, 2-4 feet

GRAIN SIZE DISTRIBUTION



COARSE			
SIZE (inches)	PERCENT RETAINED	CUMULATIVE PERCENT PASSING	SPECS.
3/8	0.00	100.00	

FINE			
SIEVE	PERCENT RETAINED	CUMULATIVE PERCENT PASSING	SPECS.
4	0.34	99.66	
8	1.19	98.47	
16	0.34	98.13	
30	0.34	97.79	
50	0.68	97.10	
100	8.35	88.76	
200	33.05	55.71	

HYDROMETER		
PARTICLE DIAMETER (mm)	PERCENT PASSING	SPECS.
0.036	35.08	
0.023	31.58	
0.013	24.56	
0.009	17.54	
0.007	17.54	
0.003	14.03	
0.002	10.53	
0.001	10.53	

Pan = 55.71%

Wash Loss Was Not Tested.

SPECIFICATION: ASTM C 136, ASTM D 422

TEST STANDARD:

NOTES: LL = 23.5, PL = 16.7, PI = 6.8

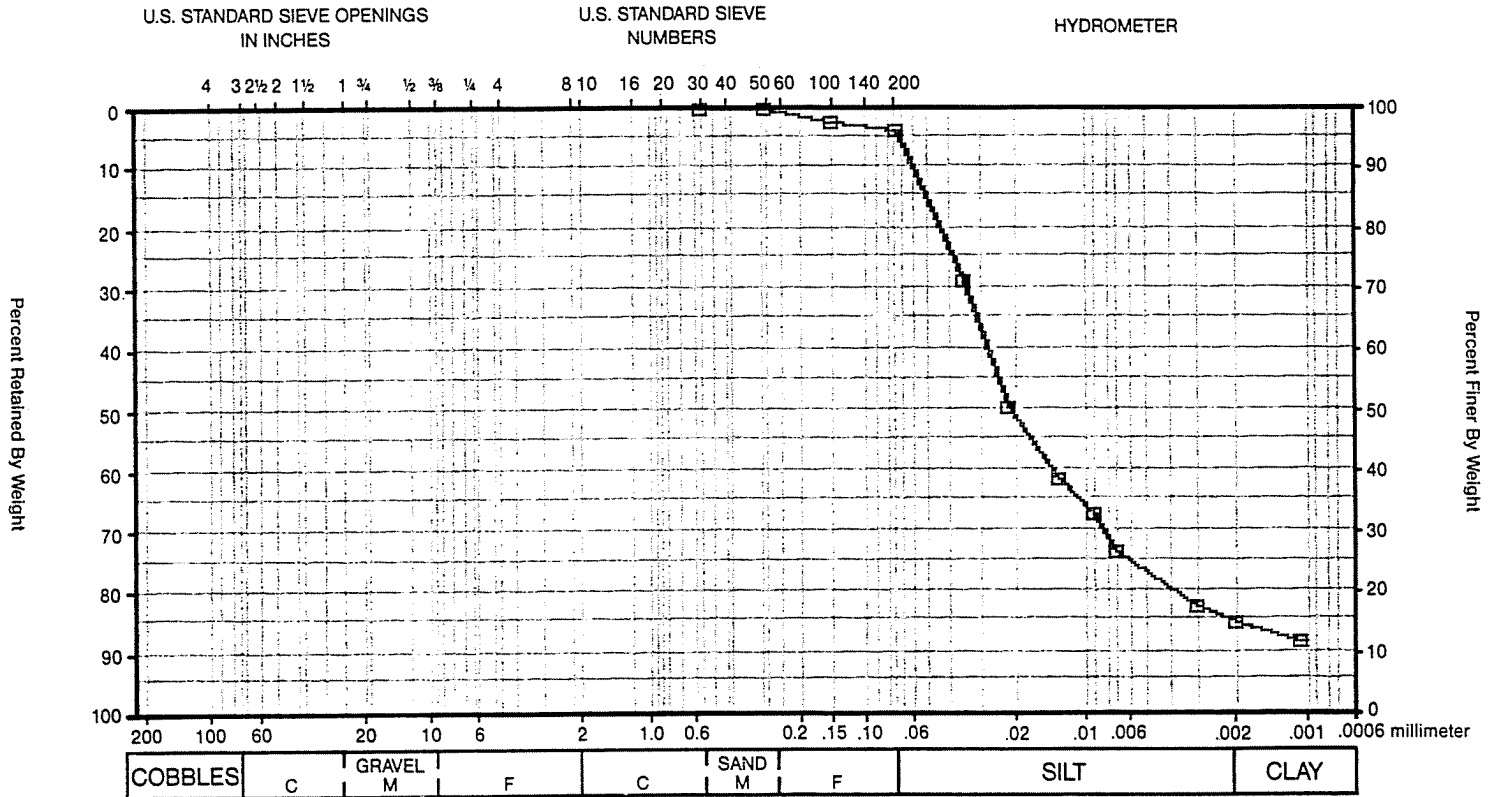
MOISTURE CONTENT AS RECEIVED = 22.1%

Test Samples are retained for 30 days after submission and then discarded, unless other arrangements are made.

Dunn Geoscience Laboratory
12 Metro Park Road, Albany, NY 12205 (518) 458-1313

CLIENT: HOPKINS STREET LANDFILL
LAB NUMBER: 1-93-40/00296-02483 DATE RECEIVED: 1/27/93
TEST BY: REF DATE TESTED: 2/4/93
REVIEWED BY: *HEM* DATE REPORTED: 2/8/93
SAMPLE DESCR: GEOTECH SAMPLE, MW-2, 4-6 feet

GRAIN SIZE DISTRIBUTION



COARSE				FINE				HYDROMETER		
SIZE (inches)	PERCENT RETAINED	CUMULATIVE PERCENT PASSING	SPECS.	SIEVE	PERCENT RETAINED	CUMULATIVE PERCENT PASSING	SPECS.	PARTICLE DIAMETER (mm)	PERCENT PASSING	SPECS.
				30	0.00	100.00		0.036	71.60	
				50	0.17	99.83		0.023	50.72	
				100	1.94	97.89		0.013	38.78	
				200	1.67	96.22		0.009	32.82	
								0.007	26.85	
								0.003	17.90	
								0.002	14.92	
								0.001	11.93	

Pan = 96.22%

Wash Loss Was Not Tested.

SPECIFICATION: ASTM C 136, ASTM D 422

TEST STANDARD:

NOTES: LL = 26.1, PL = 17.5, PI = 8.6
MOISTURE CONTENT AS RECEIVED = 19.6%

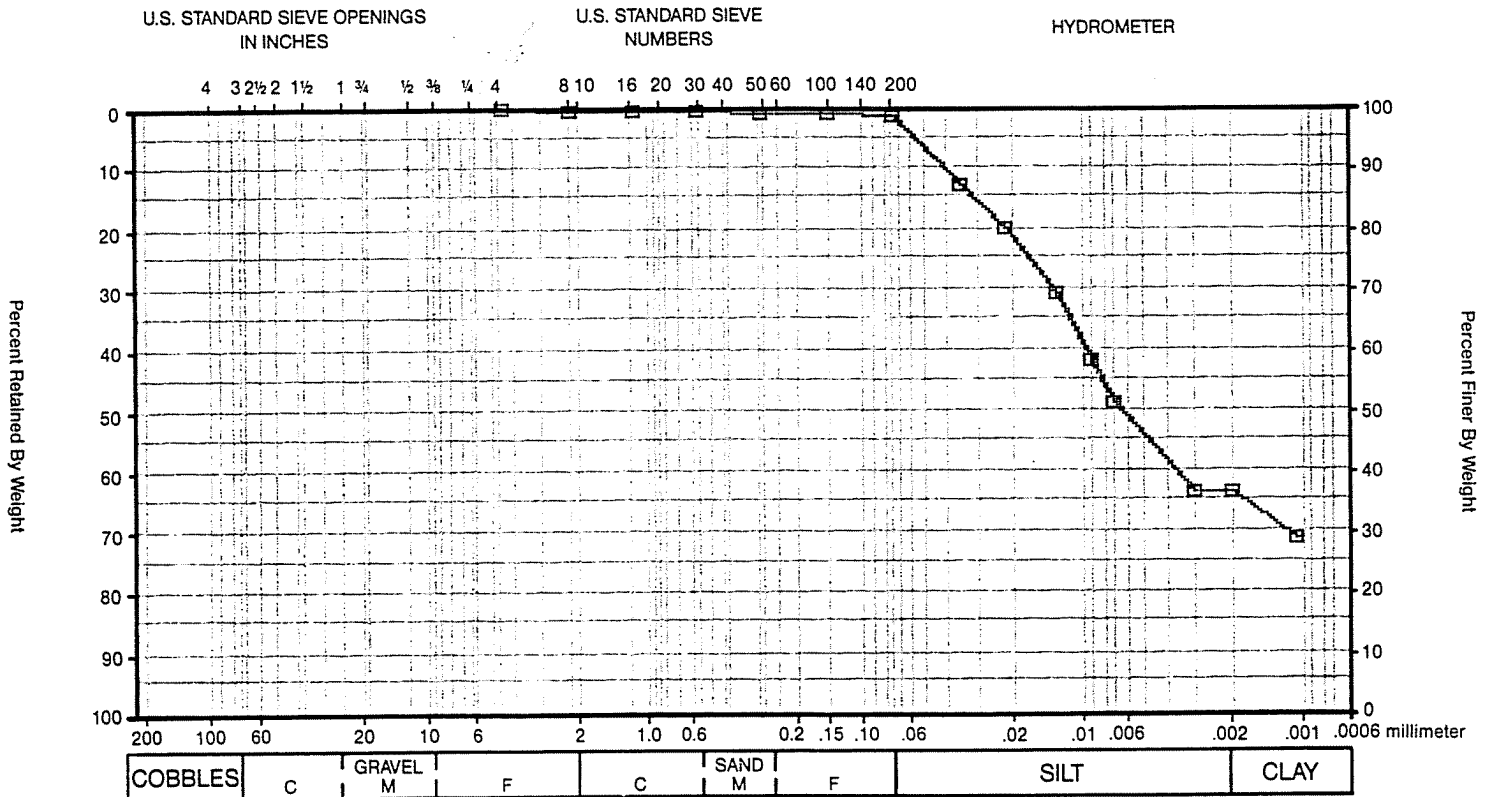
Test Samples are retained for 30 days after submission and then discarded, unless other arrangements are made.

Dunn Geoscience Laboratory

12 Metro Park Road, Albany, NY 12205 (518) 458-1313

CLIENT: HOPKINS STREET LANDFILL
 LAB NUMBER: 1-93-41/00296-02483 DATE RECEIVED: 1/27/93
 TEST BY: ref DATE TESTED: 2/4/93
 REVIEWED BY: *FRM* DATE REPORTED: 2/8/93
 SAMPLE DESCR: GEOTECH SAMPLE, MW-3, 14-16 feet

GRAIN SIZE DISTRIBUTION



COARSE				FINE				HYDROMETER		
SIZE (inches)	PERCENT RETAINED	CUMULATIVE PERCENT PASSING	SPECS.	SIEVE	PERCENT RETAINED	CUMULATIVE PERCENT PASSING	SPECS.	PARTICLE DIAMETER (mm)	PERCENT PASSING	SPECS.
				4	0.00	100.00		0.036	87.32	
				8	0.27	99.73		0.023	80.05	
				16	0.09	99.64		0.013	69.13	
				30	0.05	99.59		0.009	58.21	
				50	0.41	99.18		0.007	50.94	
				100	0.23	98.96		0.003	36.38	
				200	0.18	98.78		0.002	36.38	
								0.001	29.11	

Pan = 98.78%

Wash Loss Was Not Tested.

SPECIFICATION: ASTM C 136, ASTM D 422

TEST STANDARD:

NOTES: LL = 34.3, PL = 16.9, PI = 17.4

MOISTURE CONTENT AS RECEIVED = 25.3%

Test Samples are retained for 30 days after submission and then discarded, unless other arrangements are made.

APPENDIX I

Monitoring Well Diagrams

MONITORING WELL LOG



DUNN GEOSCIENCE ENGINEERING CO.

ALBANY, NY 12205

(518) 458-1313

WELL NO. MW-1

Project HOPKINS STREET LANDFILL

Client NYSDEC

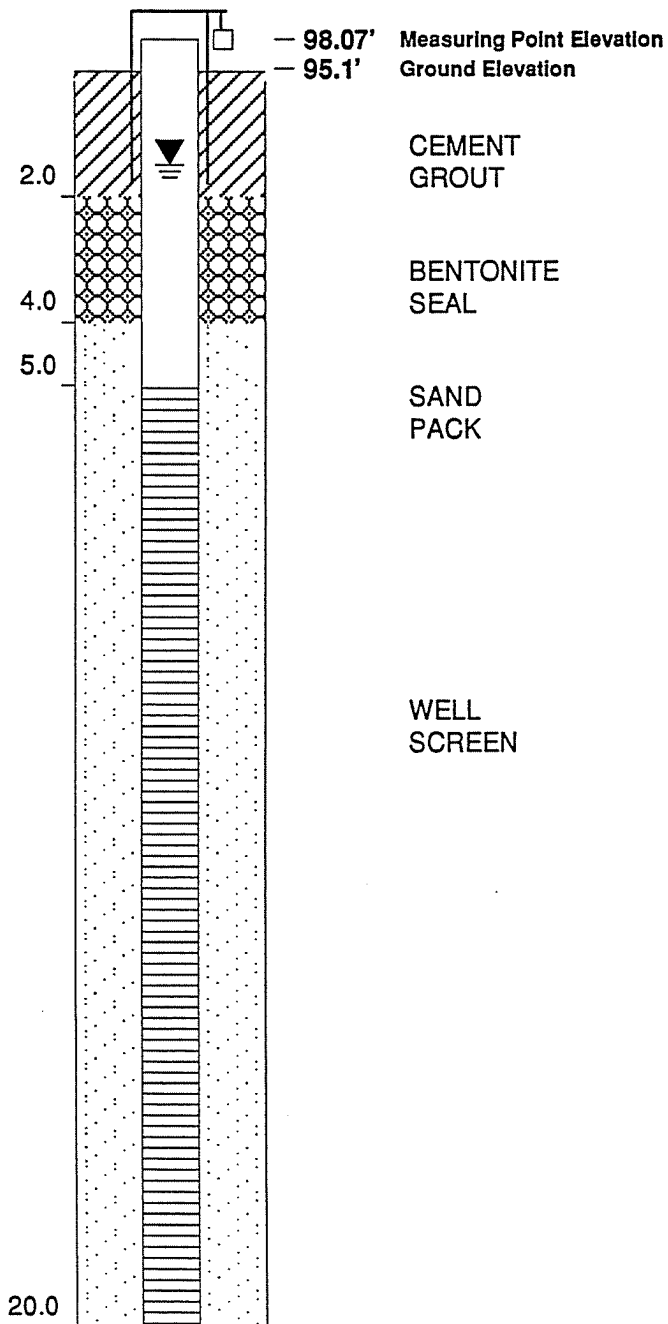
Location BUFFALO, NEW YORK

Wk.Assign.No. 00296-02483

Date Drilled 01/20/93 to 01/20/93

Date Developed 01/22/93

WELL CONSTRUCTION DETAIL



INSPECTION NOTES

Geologist Joel Taft

Drilling Contractor American Auger and Ditch Co.

Type of Well Groundwater Monitoring

Static Water Level Elev. 93.62' Date 2-4-93

Measuring Point (M.P.) Top of PVC

Total Depth of Well 20.0'

Total Depth of Boring 20.0'

Drilling Method

Type Hollow Stem Auger Diameter 4.25"ID

Casing HSA

Sampling Method

Type SplitSpoon Diameter 2"

Weight 140 # Fall 30"

Interval 2'

Riser Pipe Left in Place

Material Sch. 40 PVC Diameter 2"

Joint Type Flush Thread Length 5'

Screen

Material Sch. 40 PVC Diameter 2"

Slot Size .010" Length 15.0'

Strat. Unit Screened Lacustrine / TILL

Filter Pack

Sand X Gravel Natural

Grade Morie #0

Amount 800 lbs. Interval 4.0-20.0'

Seal(s)

Type Bentonite Pellets Interval 2.0-4.0'

Type Cement Grout Interval 0.0-2.0'

Type Interval

Locking Casing Yes

Notes:

MONITORING WELL LOG



DUNN GEOSCIENCE ENGINEERING CO.

ALBANY, NY 12205

(518) 458-1313

WELL NO. MW-2

Project HOPKINS STREET LANDFILL

Client NYSDEC

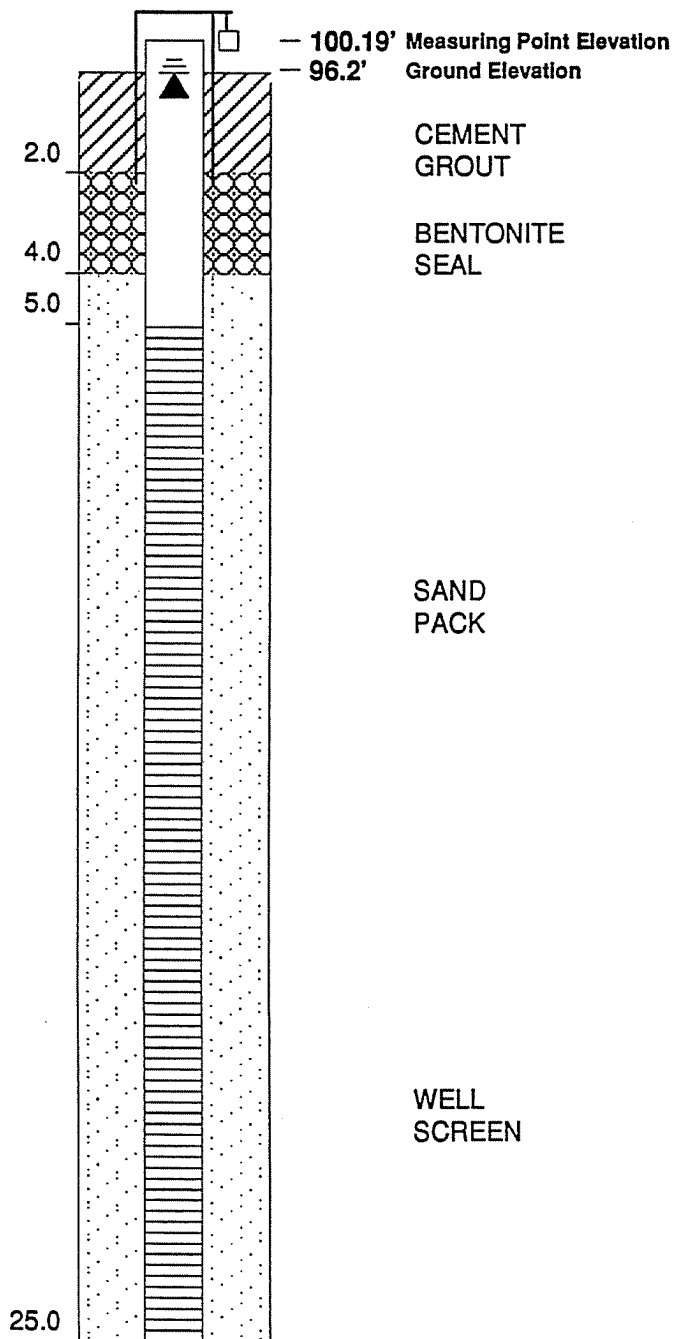
Location BUFFALO, NEW YORK

Wk.Assign.No. 00296-02483

Date Drilled 01/19/93 to 01/19/93

Date Developed 01/22/93

WELL CONSTRUCTION DETAIL



INSPECTION NOTES

Geologist Joel Taft

Drilling Contractor American Auger and Ditch Co.

Type of Well Groundwater Monitoring

Static Water Level Elev. 96.27' Date 2-4-93

Measuring Point (M.P.) Top of PVC

Total Depth of Well 25.0'

Total Depth of Boring 25.0'

Drilling Method

Type Hollow Stem Auger Diameter 4.25"ID

Casing HSA

Sampling Method

Type Split Spoon Diameter 2"

Weight 140 # Fall 30"

Interval 2'

Riser Pipe Left in Place

Material Sch. 40 PVC Diameter 2"

Joint Type Flush Thread Length 5'

Screen

Material Sch. 40 PVC Diameter 2"

Slot Size .010" Length 20.0'

Strat. Unit Screened Lacustrine

Filter Pack

Sand X Gravel Natural

Grade Morie #0

Amount 600 lbs. Interval 4.0-25.0'

Seal(s)

Type Bentonite Pellets Interval 2.0-4.0'

Type Cement Grout Interval 0.0-2.0'

Type Interval

Locking Casing Yes

Notes:

MONITORING WELL LOG



DUNN GEOSCIENCE ENGINEERING CO.

ALBANY, NY 12205

(518) 458-1313

WELL NO. MW-3

Project HOPKINS STREET LANDFILL

Client NYSDEC

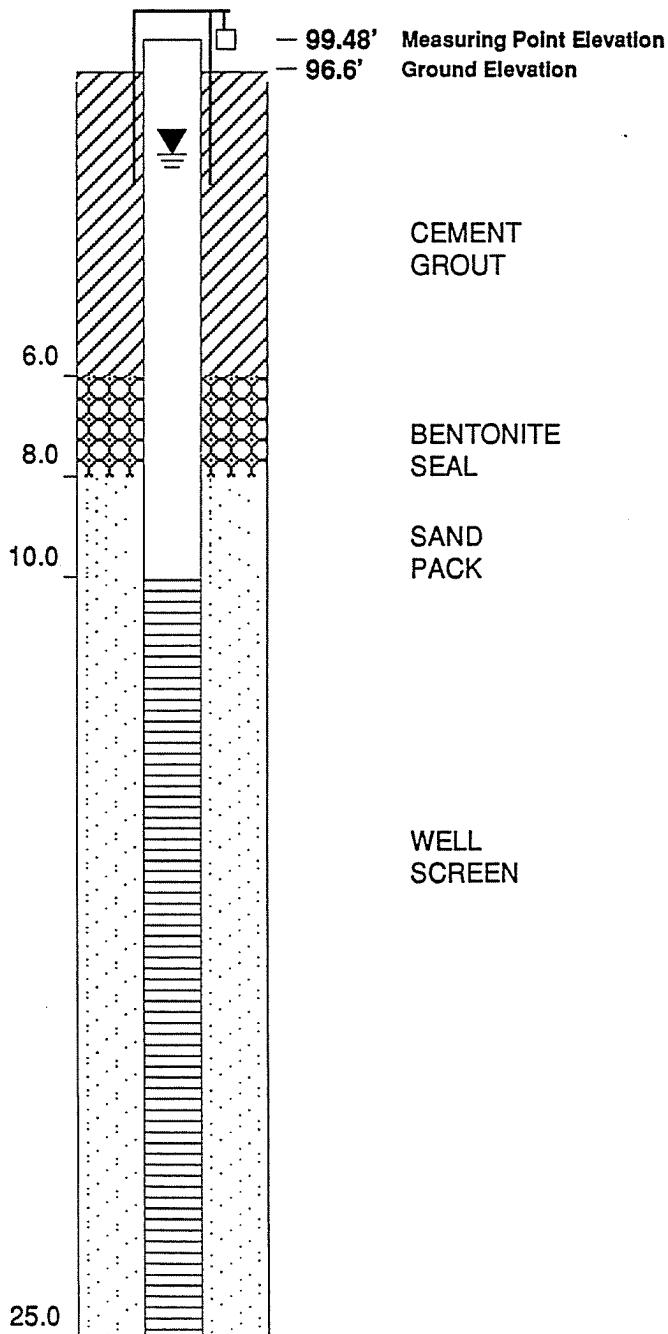
Location BUFFALO, NEW YORK

Wk. Assign. No. 00296-02483

Date Drilled 01/20/93 to 01/20/93

Date Developed 01/25/93

WELL CONSTRUCTION DETAIL



INSPECTION NOTES

Geologist Joel Taft

Drilling Contractor American Auger and Ditch Co.

Type of Well Groundwater Monitoring

Static Water Level Elev. 94.97' Date 2-4-93

Measuring Point (M.P.) Top of PVC

Total Depth of Well 25.0'

Total Depth of Boring 25.0'

Drilling Method

Type Hollow Stem Auger Diameter 4.25" ID

Casing HSA

Sampling Method

Type Split Spoon Diameter 2"

Weight 140 # Fall 30"

Interval 2'

Riser Pipe Left in Place

Material Sch. 40 PVC Diameter 2"

Joint Type Flush Thread Length 10'

Screen

Material Sch. 40 PVC Diameter 2"

Slot Size .010" Length 15.0'

Strat. Unit Screened Lacustrine

Filter Pack

Sand X Gravel Natural

Grade Morie #0

Amount 600 lbs. Interval 10.0-25.0'

Seal(s)

Type Bentonite Pellets Interval 6.0-8.0'

Type Cement Grout Interval 0.0-6.0'

Type Interval

Locking Casing Yes

Notes:

APPENDIX J

Well Development/Sampling Logs

WELL DEVELOPMENT LOG

DUNN GEOSCIENCE ENGINEERING CO. P.C.
12 Metro Park Rd.
Albany, N.Y. 12205 (518)458-1313

Well I.D.: MW-1
Project Name: Hopkins
Project No.: 00296 02483
Personnel: DWS / JAT
Date: 1-22-93
Time Start: 11:10
Time Finish: 11:40

WELL INFORMATION

Wellscreen Diameter: 2.0" Riser Diameter: 2.0"
Borehole Diameter: 8.0" Stratigraphic Unit Screened: Silt + Clay
Depth to Water: 4.15' Development Method: Dedicated Bailer
Total Well Depth: 23.50' Decon. Procedures: —
Well Volume: 3.10 Gallons Total Volume Removed: 12.0 gal
Flow Rate: —

DEVELOPMENT INFORMATION

Parameters	Gallons Evacuated					
	0	3.0	6.0	9.0	12.0	
pH	6.90	7.02	7.03	7.15	7.00	
Conductivity (Amhos/cm)	1634	1731	1668	1460	1461	
Temperature (°C)	3.4	3.7	3.7	4.2	4.6	
Turbidity (NTU)	50	7200	7200	7200	7200	
Color	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	
Odor	NONE	NONE	NONE	NONE	NONE	

Comments: Well Dry after 12.0 gallons
Slow Recharge noted

WELL DEVELOPMENT LOG

DUNN GEOSCIENCE ENGINEERING CO. P.C.
12 Metro Park Rd.
Albany, N.Y. 12205 (518)458-1313

Well I.D.: MW-2
Project Name: Hopkins
Project No.: 00296 02483
Personnel: DWS/JAT
Date: 1-22-93
Time Start: 10:20
Time Finish: 10:55

WELL INFORMATION

Wellscreen Diameter: 2.0" Riser Diameter: 2.0"
Borehole Diameter: 8.0" Stratigraphic Unit Screened: Silt + Clay
Depth to Water: 15.08' Development Method: Dedicated Bailer
Total Well Depth: 27.51' Decon. Procedures: -
Well Volume: 1.9 Gallons Total Volume Removed: 12.0 Gallons
Flow Rate: -

DEVELOPMENT INFORMATION

Parameters	Gallons Evacuated					
	0	2.0	4.0	6.0	12.0	
pH	7.04	6.89	6.85	7.13	7.34	
Conductivity (µmhos/cm)	2090	2100	2080	1970	1730	
Temperature (°C)	6.6	6.3	5.4	4.5	3.7	
Turbidity (NTU)	>200	>200	>200	>200	>200	
Color	Lt. Br	Lt. Br.	Br	Br	Br	
Odor	None	None	None	None	None	

Comments: Well dry after 12.0 gallons
Slow Recharge noted

WELL DEVELOPMENT LOG

DUNN GEOSCIENCE ENGINEERING CO. P.C.
12 Metro Park Rd.
Albany, N.Y. 12205 (518)458-1313

Well I.D.: MW - 3
Project Name: Hopkins
Project No.: 00296 02483
Personnel: DWS/JAT
Date: 1-25-93
Time Start: 11:00
Time Finish: 11:30

WELL INFORMATION

Wellscreen Diameter: <u>2.0"</u>	Riser Diameter: <u>2.0"</u>
Borehole Diameter: <u>8.0"</u>	Stratigraphic Unit Screened: <u>Silt + Clay</u>
Depth to Water: <u>4.20'</u>	Development Method: <u>Dedicated Bailer</u>
Total Well Depth: <u>27.30'</u>	Decon. Procedures: <u>-</u>
Well Volume: <u>3.7 Gallons</u>	Total Volume Removed: <u>12.0 Gallons</u>
	Flow Rate: <u>-</u>

DEVELOPMENT INFORMATION

	Gallons Evacuated						
	0	4.0	8.0	12.0			
Parameters							
pH	6.66	6.96	6.95	7.04			
Conductivity (µmhos/cm)	4830	4410	4790	4850			
Temperature (°C)	1.9	3.6	1.8	4.2			
Turbidity (NTU)	7200	7200	7200	7200			
Color	Lt. Br	Dk-Gt-Br	Dk-Gt-Br	Dk-Gt-Br			
Odor	NONE	NONE	NONE	NONE			

Comments: Well dry after 11 gallons
Slow recharge noted

DUNN GEOSCIENCE CORPORATION
Field Sampling Record

Sample ID <u>HOP-MW1</u>	Date <u>1/26+27/93</u>
Location _____	Project <u>HOPKINS ST. LANDFILL</u>
Samplers <u>J. TAFT</u>	Project # <u>00296-02483</u>
<u>D. SODARO</u>	Well Size/Type <u>2.0" PVC monitoring well</u>
Client <u>WYSDOC</u>	

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Total Well Depth <u>23.50'</u>	Gals to Purge <u>9.3</u>
Depth to Water <u>4.19'</u>	Gals Actually Purged <u>12.5</u>
Height of Water Column <u>19.31'</u>	Gals/ft: 2"ID=0.16 4"ID=0.65 6"ID=1.47
Gals of Standing Water <u>3.1</u>	

1-26-93

II. WELL PURGING: Start 2:30 p.m. Stop 3:10 p.m. Discharge Rate (GPM) _____

Equipment: Pump _____ Bailer X

Well behavior during purging: Slow recharge noted, turbid

1-27-93

III. SAMPLE COLLECTION: Time 9:30 A.m. ID# HOP-MW1

Method: Bailer X Other _____

Containers 2-40ml vials; 4-1L amber; 1-1L plastic; 1-16oz plastic

Sample Appearance and Odor Brown, cloudy; no odor

IV. FIELD MEASUREMENTS:

Temp	Sample <u>39.6°F</u>	_____	_____	_____	_____
pH	<u>-</u>	_____	_____	_____	_____
Conductivity	<u>2040 μmhos/cm</u>	_____	_____	_____	_____
Turbidity	<u>200 NTU</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Weather Sunny - 33°F

Comments _____

DUNN GEOSCIENCE CORPORATION
Field Sampling Record

Sample ID <u>HOP-mw2</u>	Date <u>1/26+27/93</u>
Location _____	Project <u>HOPKINS ST. LANDFILL</u>
Samplers <u>J. TAFT</u>	Project # <u>00296-02483</u>
<u>D. SODARO</u>	Well Size/Type <u>2.0" PVC Monitoring Well</u>
Client <u>NY/SHCL</u>	

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Total Well Depth <u>27.51'</u>	Gals to Purge <u>9.0</u>
Depth to Water <u>8.75'</u>	Gals Actually Purged <u>15</u>
Height of Water Column <u>18.76'</u>	Gals/ft: 2"ID=0.16 4"ID=0.65 6"ID=1.47
Gals of Standing Water <u>3.0</u>	

1-26-93

II. WELL PURGING: Start 2:30 P.m. Stop 3:15 P.m. Discharge Rate (GPM) _____
Equipment: Pump _____ Bailer X
Well behavior during purging: Slow Recharge - Turbid

1-27-93

III. SAMPLE COLLECTION: Time 9:00 A.m. ID# HOP-mw2
Method: Bailer X Other _____
Containers 2-40 ml vials, 4-1 Lamber, 1-1 qt plastic, 1-16oz plastic
Sample Appearance and Odor Brown, turbid - No odor

IV. FIELD MEASUREMENTS:

	Sample			
Temp	<u>38.2°F</u>	_____	_____	_____
pH	<u>-</u>	_____	_____	_____
Conductivity	<u>3900 umhos/cm</u>	_____	_____	_____
Turbidity	<u>2200 NTU</u>	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather Sunny - 33°F
Comments _____

DUNN GEOSCIENCE CORPORATION
Field Sampling Record

Sample ID <u>HOP-mw3</u>	Date <u>1/26, 27/93</u>
Location _____	Project <u>HOPKINS ST. LANDFILL</u>
Samplers <u>J. TAFT</u>	Project # <u>00296-02483</u>
<u>D. SODARO</u>	Well Size/Type <u>2.0" PVC Monitoring Well</u>
Client <u>NYSDEC</u>	

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Total Well Depth <u>27.30'</u>	Gals to Purge <u>11.1</u>
Depth to Water <u>4.09'</u>	Gals Actually Purged <u>13</u>
Height of Water Column <u>23.21'</u>	Gals/ft: 2"ID=0.16 4"ID=0.65 6"ID=1.47
Gals of Standing Water <u>3.7</u>	

1-26-93

II. WELL PURGING: Start 3:15 P.M. Stop 3:45 P.M. Discharge Rate (GPM) _____

Equipment: Pump _____ Bailer X

Well behavior during purging: Turbid, slow recharge - bails dry

1-27-93

III. SAMPLE COLLECTION: Time 10:00 A.M. ID# HOP-mw3

Method: Bailer X Other HOP-mw3 (MS/MSD)

Containers 4-40 ml vials + 8-12 amber + 2-1 qt plastic + 2-16 oz plastic

Sample Appearance and Odor Brown, turbid - no odor

IV. FIELD MEASUREMENTS:

Temp	<u>Sample</u> <u>37.9 °F</u>			
pH	<u>-</u>			
Conductivity	<u>660 umhos/cm</u>			
Turbidity	<u>>200 NTU</u>			
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather Sunny 33 °F

Comments _____

APPENDIX K

Permeability Data/Calculations

DUNN GEOSCIENCE CORPORATION

AQUIFER TEST WORKSHEET

Client Name: NYSDEC Well Number: HOP MW2 Test Type: Slug
 Project Number: 00296-02483 Topo. Elev.: 96.24 Weather: Sunny 30 F
 Project Name: Hopkins Sreet Landfill
 Date Started: 2/4/93 Completed: 2/4/93 Completed By: J. Taft
 Notes: Well screened in lacustrine unit only.

REQUIRED FIELD DATA

P	R	F	S	Note: Use consistent units	P	R	F	S	Note: Use consistent units
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Well Depth - TOC: <u>27.51</u>	<input type="checkbox"/>	<input type="checkbox"/>			Screened(+Pack) Interval: <u>21.0</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Water Level - TOC: <u>3.92</u>	<input type="checkbox"/>	<input type="checkbox"/>			Saturated Column Thickness: <u>21.0</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Well/Casing Diameter: <u>0.167</u>			<input type="checkbox"/>	<input type="checkbox"/>	Casing Soil Length (if appl.): <u>-</u>
		<input type="checkbox"/>		Casing Stickup: <u>-</u>				<input type="checkbox"/>	Thickness of Aquifer: <u>30.0</u>
<input type="checkbox"/>	<input type="checkbox"/>			Screen+Pack Diameter: <u>0.667</u>	<input type="checkbox"/>	<input type="checkbox"/>			Distance To Pumping Well: <u>-</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Init. Transducer / WL Value: <u>3.89</u>	<input type="checkbox"/>	<input type="checkbox"/>			Pumping Rate (m3/day, gpm): <u>-</u>
	<input type="checkbox"/>	<input type="checkbox"/>		Min / Max Transducer/WL Value: <u>2.34</u>			<input type="checkbox"/>		Total Pumping Period: <u>-</u>
		<input type="checkbox"/>		T.O.C. Transd. Depth (if appl.): <u>-</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		TOC Elevation: <u>100.19</u>

OFFICE DATA

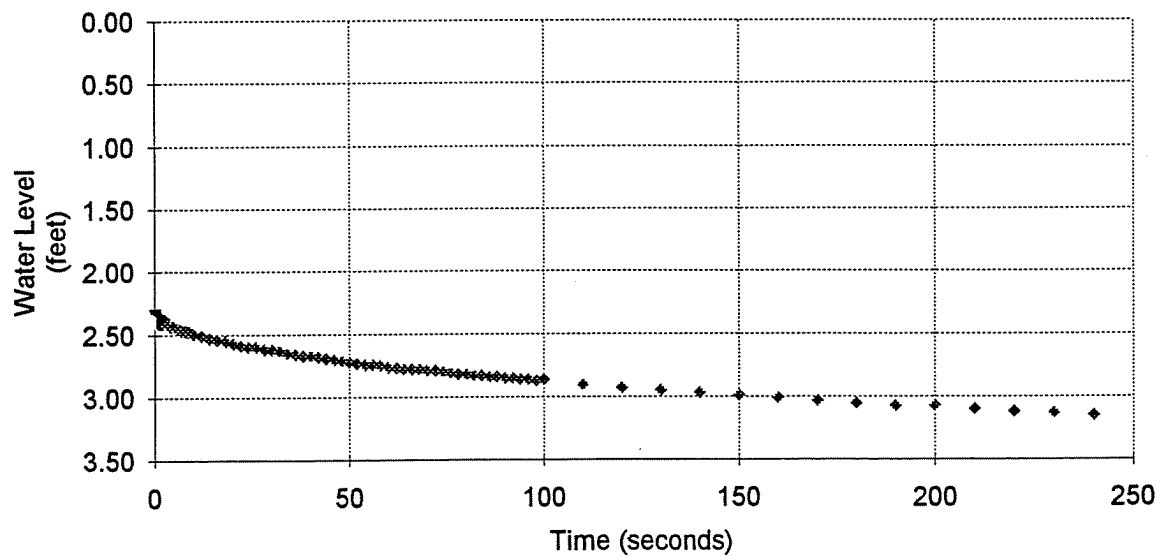
P	R	F	S	Note: Use consistent units	Disk Storage Information:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Aquifer Type-unconfined/confined <u>unconfined</u>	(units) Calculated Results
				Measurement Units	T () =
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Enter either English or Metric: <u>English</u>	K () =
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Enter Transducer or Depth data: <u>Depth</u>	S () =

Test Key: P = Pump Tests R = Recovery Test F = Falling Head Tests S = Slug & Bail Tests

AQUIFER TEST DATA

Time (minutes)	Trans. / WL	Time (minutes)	Trans. / WL	Time (min)	Trans. / WL	Time (min)	Trans. / WL
0.183	2.34	3.0	2.42	32.0	2.63	82.0	2.83
0.283	2.35	3.5	2.43	34.0	2.65	84.0	2.83
0.317	2.36	4.0	2.44	36.0	2.66	86.0	2.84
0.333	2.37	4.5	2.44	38.0	2.67	88.0	2.84
0.417	2.37	5.0	2.44	40.0	2.67	90.0	2.85
0.500	2.37	5.5	2.45	42.0	2.68	92.0	2.85
0.583	2.37	6.0	2.46	44.0	2.69	94.0	2.86
0.667	2.38	6.5	2.46	46.0	2.70	96.0	2.86
0.750	2.38	7.0	2.47	48.0	2.71	98.0	2.87
0.833	2.38	7.5	2.47	50.0	2.72	100.0	2.86
0.917	2.38	8.0	2.47	52.0	2.73	110.0	2.90
1.000	2.38	8.5	2.48	54.0	2.74	120.0	2.93
1.083	2.38	9.0	2.48	56.0	2.74	130.0	2.95
1.167	2.38	9.5	2.49	58.0	2.75	140.0	2.97
1.250	2.39	10.0	2.50	60.0	2.76	150.0	2.99
1.333	2.39	12.0	2.51	62.0	2.77	160.0	3.01
1.417	2.39	14.0	2.53	64.0	2.78	170.0	3.03
1.500	2.39	16.0	2.54	66.0	2.78	180.0	3.05
1.583	2.39	18.0	2.55	68.0	2.78	190.0	3.07
1.667	2.39	20.0	2.57	70.0	2.79	200.0	3.07
1.750	2.40	22.0	2.59	72.0	2.79	210.0	3.10
1.833	2.40	24.0	2.60	74.0	2.80	220.0	3.12
1.917	2.40	26.0	2.60	76.0	2.81	230.0	3.13
2.000	2.40	28.0	2.62	78.0	2.82	240.0	3.15
2.500	2.41	30.0	2.62	80.0	2.82		

**Aquifer Test Data
HOP - MW2**



Bouwer & Rice Method for Calculating Hydraulic Conductivity

Project Name: Hopkins Sreet Landfill
 Client Name: NYSDEC
 User Name: J. Taft

Project No.: 00296-02483
 Run Date: 2/4/93
 Identification: HOP MW2

Required Test Data

Casing/Hole Diameter:	0.167 feet	English or Metric Units?:	English			
Screen+Pack Diameter:	0.667 feet	Depth or Transducer Data?:	Depth			
Screen+Pack Length:	21 feet	Aquifer Thickness:	30 feet			
Saturated Column Length:	21 feet	Regression	Starting No. Ending No.			
Water Table Depth:	3.89 feet	Line Fit Stats:	1 70			
cm/sec		ft/day	Total No. of			
Hydraulic Conductivity:	1.1818E-06	3.3499E-03	Points Used			
Correlation Coefficient:	0.9743		70			
Time of Observation	Measured Depth to Water	Change from Original Level	Linear Line Fit To LN(Yt)	Regression Solution To LN(Yt)	Residuals To Regression Solution	
Seconds	Feet	Feet				
1)	11.0	2.34	1.55	0.4383	0.4005	0.0378
2)	17.0	2.35	1.54	0.4318	0.4000	0.0318
3)	19.0	2.36	1.53	0.4253	0.3998	0.0254
4)	20.0	2.37	1.52	0.4187	0.3997	0.0190
5)	25.0	2.37	1.52	0.4187	0.3993	0.0194
6)	30.0	2.37	1.52	0.4187	0.3989	0.0198
7)	35.0	2.37	1.52	0.4187	0.3985	0.0202
8)	40.0	2.38	1.51	0.4121	0.3981	0.0140
9)	45.0	2.38	1.51	0.4121	0.3977	0.0144
10)	50.0	2.38	1.51	0.4121	0.3973	0.0148
11)	55.0	2.38	1.51	0.4121	0.3969	0.0152
12)	60.0	2.38	1.51	0.4121	0.3965	0.0156
13)	65.0	2.38	1.51	0.4121	0.3961	0.0160
14)	70.0	2.38	1.51	0.4121	0.3957	0.0164
15)	75.0	2.39	1.50	0.4055	0.3953	0.0102
16)	80.0	2.39	1.50	0.4055	0.3949	0.0106
17)	85.0	2.39	1.50	0.4055	0.3945	0.0110
18)	90.0	2.39	1.50	0.4055	0.3941	0.0114
19)	95.0	2.39	1.50	0.4055	0.3937	0.0118
20)	100.0	2.39	1.50	0.4055	0.3933	0.0122
21)	105.0	2.40	1.49	0.3988	0.3929	0.0059
22)	110.0	2.40	1.49	0.3988	0.3925	0.0063
23)	115.0	2.40	1.49	0.3988	0.3920	0.0067
24)	120.0	2.40	1.49	0.3988	0.3916	0.0071
25)	150.0	2.41	1.48	0.3920	0.3892	0.0028
26)	180.0	2.42	1.47	0.3853	0.3868	-0.0015
27)	210.0	2.43	1.46	0.3784	0.3844	-0.0059
28)	240.0	2.44	1.45	0.3716	0.3819	-0.0104
29)	270.0	2.44	1.45	0.3716	0.3795	-0.0079
30)	300.0	2.44	1.45	0.3716	0.3771	-0.0055
31)	330.0	2.45	1.44	0.3646	0.3746	-0.0100
32)	360.0	2.46	1.43	0.3577	0.3722	-0.0145
33)	390.0	2.46	1.43	0.3577	0.3698	-0.0121
34)	420.0	2.47	1.42	0.3507	0.3674	-0.0167
35)	450.0	2.47	1.42	0.3507	0.3649	-0.0143

Bouwer & Rice Method for Calculating Hydraulic Conductivity

Project Name: Hopkins Sreet Landfill
 Client Name: NYSDEC
 User Name: J. Taft

Project No.: 00296-02483
 Run Date: 2/4/93
 Identification: HOP MW2

Required Test Data

Casing/Hole Diameter:		0.167 feet	English or Metric Units?:		English	
Screen+Pack Diameter:		0.667 feet	Depth or Transducer Data?:		Depth	
Screen+Pack Length:		21 feet	Aquifer Thickness:	30 feet		
Saturated Column Length:		21 feet	Regression	Starting No.	Ending No.	
Water Table Depth:		3.89 feet	Line Fit Stats:	1	70	
		cm/sec	ft/day	Total No. of		
Hydraulic Conductivity:		1.1818E-06	3.3499E-03	Points Used		
Correlation Coefficient:		0.9743		70		
Time of	Measured	Change from	Linear Line	Regression	Residuals To	
Observation	Depth to Water	Original Level	Fit To	Solution To	Regression	
Seconds	Feet	Feet	LN(Yt)	LN(Yt)	Solution	
36)	480.0	2.47	1.42	0.3507	0.3625	-0.0118
37)	510.0	2.48	1.41	0.3436	0.3601	-0.0165
38)	540.0	2.48	1.41	0.3436	0.3576	-0.0140
39)	570.0	2.49	1.40	0.3365	0.3552	-0.0187
40)	600.0	2.50	1.39	0.3293	0.3528	-0.0235
41)	720.0	2.51	1.38	0.3221	0.3431	-0.0210
42)	840.0	2.53	1.36	0.3075	0.3333	-0.0259
43)	960.0	2.54	1.35	0.3001	0.3236	-0.0235
44)	1080.0	2.55	1.34	0.2927	0.3139	-0.0212
45)	1200.0	2.57	1.32	0.2776	0.3042	-0.0266
46)	1320.0	2.59	1.30	0.2624	0.2945	-0.0321
47)	1440.0	2.60	1.29	0.2546	0.2848	-0.0301
48)	1560.0	2.60	1.29	0.2546	0.2750	-0.0204
49)	1680.0	2.62	1.27	0.2390	0.2653	-0.0263
50)	1800.0	2.62	1.27	0.2390	0.2556	-0.0166
51)	1920.0	2.63	1.26	0.2311	0.2459	-0.0148
52)	2040.0	2.65	1.24	0.2151	0.2362	-0.0211
53)	2160.0	2.66	1.23	0.2070	0.2265	-0.0195
54)	2280.0	2.67	1.22	0.1989	0.2168	-0.0179
55)	2400.0	2.67	1.22	0.1989	0.2070	-0.0082
56)	2520.0	2.68	1.21	0.1906	0.1973	-0.0067
57)	2640.0	2.69	1.20	0.1823	0.1876	-0.0053
58)	2760.0	2.70	1.19	0.1740	0.1779	-0.0039
59)	2880.0	2.71	1.18	0.1655	0.1682	-0.0027
60)	3000.0	2.72	1.17	0.1570	0.1585	-0.0015
61)	3120.0	2.73	1.16	0.1484	0.1487	-0.0003
62)	3240.0	2.74	1.15	0.1398	0.1390	0.0007
63)	3360.0	2.74	1.15	0.1398	0.1293	0.0105
64)	3480.0	2.75	1.14	0.1310	0.1196	0.0114
65)	3600.0	2.76	1.13	0.1222	0.1099	0.0123
66)	3720.0	2.77	1.12	0.1133	0.1002	0.0132
67)	3840.0	2.78	1.11	0.1044	0.0904	0.0139
68)	3960.0	2.78	1.11	0.1044	0.0807	0.0236
69)	4080.0	2.78	1.11	0.1044	0.0710	0.0333
70)	4200.0	2.79	1.10	0.0953	0.0613	0.0340

Bouwer & Rice Method for Calculating Hydraulic Conductivity

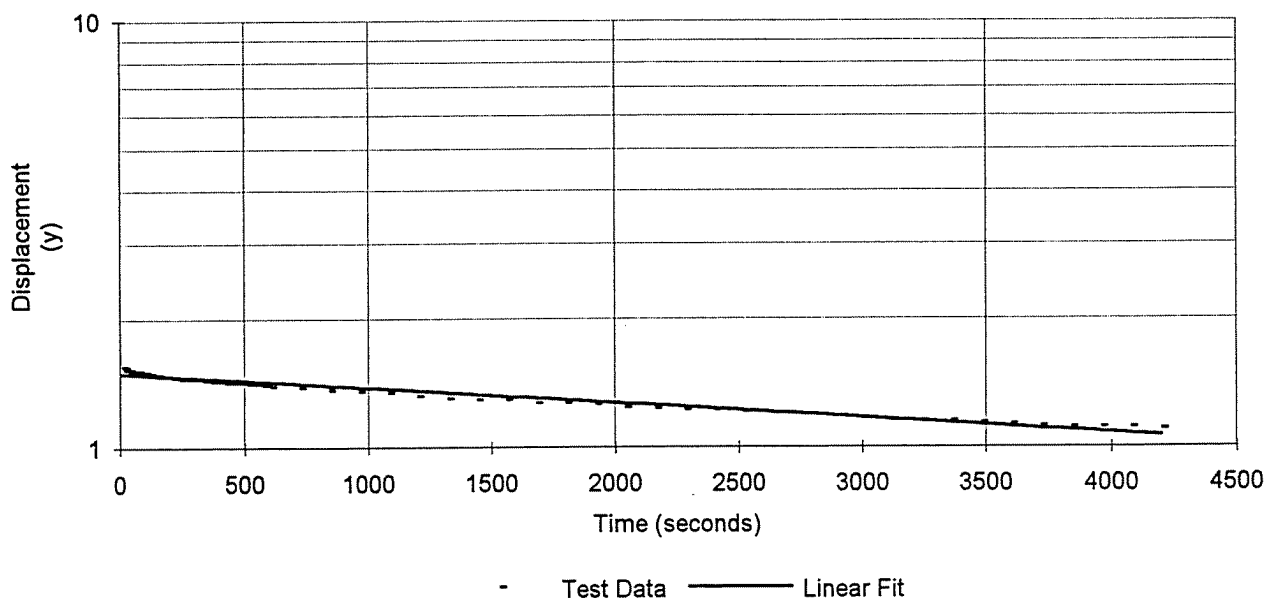
Project Name: Hopkins Sreet Landfill
 Client Name: NYSDEC
 User Name: J. Taft

Project No.: 00296-02483
 Run Date: 2/4/93
 Identification: HOP MW2

Required Test Data

Casing/Hole Diameter:		0.167 feet	English or Metric Units?:		English	
Screen+Pack Diameter:		0.667 feet	Depth or Transducer Data?:		Depth	
Screen+Pack Length:		21 feet	Aquifer Thickness:	30 feet		
Saturated Column Length:		21 feet	Regression	Starting No.	Ending No.	
Water Table Depth:		3.89 feet	Line Fit Stats:	1	70	
		cm/sec	ft/day	Total No. of		
Hydraulic Conductivity:		1.1818E-06	3.3499E-03	Points Used		
Correlation Coefficient:		0.9743		70		
Time of	Measured	Change from	Linear Line	Regression	Residuals To	
Observation	Depth to Water	Original Level	Fit To	Solution To	Regression	
Seconds	Feet	Feet	LN(Yt)	LN(Yt)	Solution	
71)	4320.0	2.79	1.10	0.0953	0.0516	0.0437
72)	4440.0	2.80	1.09	0.0862	0.0419	0.0443
73)	4560.0	2.81	1.08	0.0770	0.0321	0.0448
74)	4680.0	2.82	1.07	0.0677	0.0224	0.0452
75)	4800.0	2.82	1.07	0.0677	0.0127	0.0549
76)	4920.0	2.83	1.06	0.0583	0.0030	0.0553
77)	5040.0	2.83	1.06	0.0583	-0.0067	0.0650
78)	5160.0	2.84	1.05	0.0488	-0.0164	0.0652
79)	5280.0	2.84	1.05	0.0488	-0.0261	0.0749
80)	5400.0	2.85	1.04	0.0392	-0.0359	0.0751
81)	5520.0	2.85	1.04	0.0392	-0.0456	0.0848
82)	5640.0	2.86	1.03	0.0296	-0.0553	0.0849
83)	5760.0	2.86	1.03	0.0296	-0.0650	0.0946
84)	5880.0	2.87	1.02	0.0198	-0.0747	0.0945
85)	6000.0	2.86	1.03	0.0296	-0.0844	0.1140
86)	6600.0	2.90	0.99	-0.0101	-0.1330	0.1230
87)	7200.0	2.93	0.96	-0.0408	-0.1816	0.1408
88)	7800.0	2.95	0.94	-0.0619	-0.2302	0.1683
89)	8400.0	2.97	0.92	-0.0834	-0.2788	0.1954
90)	9000.0	2.99	0.90	-0.1054	-0.3273	0.2220
91)	9600.0	3.01	0.88	-0.1278	-0.3759	0.2481
92)	10200.0	3.03	0.86	-0.1508	-0.4245	0.2737
93)	10800.0	3.05	0.84	-0.1744	-0.4731	0.2987
94)	11400.0	3.07	0.82	-0.1985	-0.5217	0.3232
95)	12000.0	3.07	0.82	-0.1985	-0.5702	0.3718
96)	12600.0	3.10	0.79	-0.2357	-0.6188	0.3831
97)	13200.0	3.12	0.77	-0.2614	-0.6674	0.4060
98)	13800.0	3.13	0.76	-0.2744	-0.7160	0.4416
99)	14400.0	3.15	0.74	-0.3011	-0.7646	0.4635
100)	0.0	0.00	3.89	1.3584	0.4014	0.9571

**Bouwer & Rice Method
HOP - MW2**



DUNN GEOSCIENCE CORPORATION

AQUIFER TEST WORKSHEET

Client Name: NYSDEC Well Number: HOP MW3 Test Type: Slug
 Project Number: 00296-02483 Topo. Elev.: 96.6 Weather: Sunny 30 F
 Project Name: Hopkins Street Landfill
 Date Started: 2/4/93 Completed: 2/4/93 Completed By: J. Taft
 Notes: Well screened in lacustrine & till units

REQUIRED FIELD DATA

P	R	F	S	Note: Use consistent units	P	R	F	S	Note: Use consistent units
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Well Depth - TOC: <u>27.3</u>	<input type="checkbox"/>	<input type="checkbox"/>			Screened(+Pack) Interval: <u>17.0</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Water Level - TOC: <u>4.51</u>	<input type="checkbox"/>	<input type="checkbox"/>			Saturated Column Thickness: <u>21.0</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Well/Casing Diameter: <u>0.167</u>			<input type="checkbox"/>	<input type="checkbox"/>	Casing Soil Length (if appl.): <u>--</u>
		<input type="checkbox"/>		Casing Stickup: <u>--</u>				<input type="checkbox"/>	Thickness of Aquifer: <u>30.0</u>
<input type="checkbox"/>	<input type="checkbox"/>			Screen+Pack Diameter: <u>0.667</u>	<input type="checkbox"/>	<input type="checkbox"/>			Distance To Pumping Well: <u>--</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Init. Transducer / WL Value: <u>4.36</u>	<input type="checkbox"/>	<input type="checkbox"/>			Pumping Rate (m3/day; gpm): <u>--</u>
		<input type="checkbox"/>	<input type="checkbox"/>	Min / Max Transducer/WL Value: <u>2.61</u>			<input type="checkbox"/>		Total Pumping Period: <u>--</u>
		<input type="checkbox"/>		T.O.C. Transd. Depth (if appl.): <u>--</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		TOC Elevation: <u>99.48</u>

OFFICE DATA

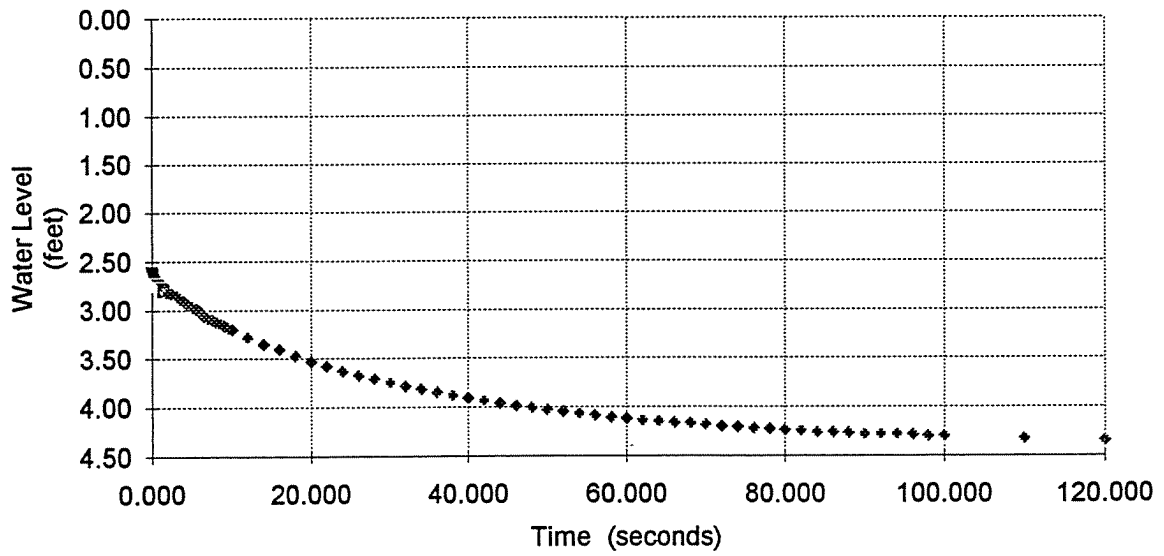
P	R	F	S	Note: Use consistent units	Disk Storage Information:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Aquifer Type-unconfined/confined <u>unconfined</u>	(units) Calculated Results
				Measurement Units	T () =
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Enter either English or Metric: <u>English</u>	K () =
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Enter Transducer or Depth data: <u>Depth</u>	S () =

Test Key: P = Pump Tests R = Recovery Test F = Falling Head Tests S = Slug & Bail Tests

AQUIFER TEST DATA

Time (minutes)	Trans. / WL	Time (minutes)	Trans. / WL	Time (min)	Trans. / WL	Time (min)	Trans. / WL
0.067	2.61	1.583	2.80	18.0	3.47	68.0	4.17
0.100	2.63	1.666	2.81	20.0	3.53	70.0	4.18
0.133	2.65	1.750	2.82	22.0	3.58	72.0	4.20
0.166	2.67	1.833	2.82	24.0	3.63	74.0	4.21
0.200	2.68	1.917	2.82	26.0	3.68	76.0	4.22
0.233	2.69	2.000	2.83	28.0	3.71	78.0	4.23
0.266	2.69	2.5	2.83	30.0	3.75	80.0	4.24
0.283	2.70	3.0	2.85	32.0	3.79	82.0	4.25
0.300	2.70	3.5	2.89	34.0	3.82	84.0	4.26
0.316	2.70	4.0	2.91	36.0	3.85	86.0	4.26
0.333	2.71	4.5	2.94	38.0	3.88	88.0	4.27
0.417	2.72	5.0	2.97	40.0	3.91	90.0	4.28
0.500	2.72	5.5	2.99	42.0	3.94	92.0	4.28
0.583	2.73	6.0	3.01	44.0	3.96	94.0	4.28
0.667	2.74	6.5	3.06	46.0	3.99	96.0	4.29
0.750	2.75	7.0	3.08	48.0	4.01	98.0	4.30
0.833	2.75	7.5	3.10	50.0	4.03	100.0	4.30
0.917	2.76	8.0	3.12	52.0	4.05	110.0	4.33
1.000	2.76	8.5	3.14	54.0	4.07	120.0	4.35
1.083	2.77	9.0	3.16	56.0	4.09		
1.167	2.78	9.5	3.18	58.0	4.11		
1.250	2.78	10.0	3.20	60.0	4.12		
1.333	2.79	12.0	3.28	62.0	4.14		
1.417	2.79	14.0	3.35	64.0	4.15		
1.500	2.80	16.0	3.41	66.0	4.16		

**Aquifer Test Data
Monitoring Well HOP - MW3**



Bouwer & Rice Method for Calculating Hydraulic Conductivity

Project Name: Hopkins Street Landfill
 Client Name: NYSDEC
 User Name: J. Taft

Project No.: 00296-02483
 Run Date: 2/4/93
 Identification: HOP MW3

Required Test Data

Casing/Hole Diameter:		0.167 feet	English or Metric Units?:		English	
Screen+Pack Diameter:		0.667 feet	Depth or Transducer Data?:		Depth	
Screen+Pack Length:		17 feet	Aquifer Thickness:		30 feet	
Saturated Column Length:		21 feet	Regression	Starting No.	Ending No.	
Water Table Depth:		4.36 feet	Line Fit Stats:	1	90	
		cm/sec	ft/day	Total No. of		
Hydraulic Conductivity:		9.5456E-06	2.7058E-02	Points Used		
Correlation Coefficient:		0.9994		90		
Time of	Measured	Change from	Linear Line	Regression	Residuals To	
Observation	Depth to Water	Original Level	Fit To	Solution To	Regression	
Seconds	Feet	Feet	LN(Yt)	LN(Yt)	Solution	
1)	4.0	2.61	1.75	0.5596	0.4979	0.0617
2)	6.0	2.63	1.73	0.5481	0.4968	0.0513
3)	8.0	2.65	1.71	0.5365	0.4957	0.0408
4)	10.0	2.67	1.69	0.5247	0.4947	0.0301
5)	12.0	2.68	1.68	0.5188	0.4936	0.0252
6)	14.0	2.69	1.67	0.5128	0.4925	0.0203
7)	16.0	2.69	1.67	0.5128	0.4914	0.0214
8)	17.0	2.70	1.66	0.5068	0.4908	0.0160
9)	18.0	2.70	1.66	0.5068	0.4903	0.0165
10)	19.0	2.70	1.66	0.5068	0.4898	0.0171
11)	20.0	2.71	1.65	0.5008	0.4892	0.0116
12)	25.0	2.72	1.64	0.4947	0.4865	0.0082
13)	30.0	2.72	1.64	0.4947	0.4838	0.0109
14)	35.0	2.73	1.63	0.4886	0.4811	0.0075
15)	40.0	2.74	1.62	0.4824	0.4783	0.0041
16)	45.0	2.75	1.61	0.4762	0.4756	0.0006
17)	50.0	2.75	1.61	0.4762	0.4729	0.0034
18)	55.0	2.76	1.60	0.4700	0.4702	-0.0002
19)	60.0	2.76	1.60	0.4700	0.4674	0.0026
20)	65.0	2.77	1.59	0.4637	0.4647	-0.0010
21)	70.0	2.78	1.58	0.4574	0.4620	-0.0046
22)	75.0	2.78	1.58	0.4574	0.4593	-0.0019
23)	80.0	2.79	1.57	0.4511	0.4566	-0.0055
24)	85.0	2.79	1.57	0.4511	0.4538	-0.0028
25)	90.0	2.80	1.56	0.4447	0.4511	-0.0064
26)	95.0	2.80	1.56	0.4447	0.4484	-0.0037
27)	100.0	2.81	1.55	0.4383	0.4457	-0.0075
28)	105.0	2.82	1.54	0.4318	0.4430	-0.0112
29)	110.0	2.82	1.54	0.4318	0.4403	-0.0085
30)	115.0	2.82	1.54	0.4318	0.4375	-0.0057
31)	120.0	2.83	1.53	0.4253	0.4348	-0.0095
32)	150.0	2.83	1.53	0.4253	0.4185	0.0068
33)	180.0	2.85	1.51	0.4121	0.4022	0.0099
34)	210.0	2.89	1.47	0.3853	0.3858	-0.0006
35)	240.0	2.91	1.45	0.3716	0.3695	0.0020

Bouwer & Rice Method for Calculating Hydraulic Conductivity

Project Name: Hopkins Street Landfill
 Client Name: NYSDEC
 User Name: J. Taft

Project No.: 00296-02483
 Run Date: 2/4/93
 Identification: HOP MW3

Required Test Data

Casing/Hole Diameter:		0.167 feet	English or Metric Units?:		English	
Screen+Pack Diameter:		0.667 feet	Depth or Transducer Data?:		Depth	
Screen+Pack Length:		17 feet	Aquifer Thickness:	30 feet		
Saturated Column Length:		21 feet	Regression	Starting No.	Ending No.	
Water Table Depth:		4.36 feet	Line Fit Stats:	1	90	
		cm/sec	ft/day	Total No. of		
Hydraulic Conductivity:		9.5456E-06	2.7058E-02	Points Used		
Correlation Coefficient:		0.9994		90		
Time of	Measured	Change from	Linear Line	Regression	Residuals To	
Observation	Depth to Water	Original Level	Fit To	Solution To	Regression	
Seconds	Feet	Feet	LN(Yt)	LN(Yt)	Solution	
36)	270.0	2.94	1.42	0.3507	0.3532	-0.0026
37)	300.0	2.97	1.39	0.3293	0.3369	-0.0076
38)	330.0	2.99	1.37	0.3148	0.3206	-0.0058
39)	360.0	3.01	1.35	0.3001	0.3042	-0.0041
40)	390.0	3.06	1.30	0.2624	0.2879	-0.0256
41)	420.0	3.08	1.28	0.2469	0.2716	-0.0248
42)	450.0	3.10	1.26	0.2311	0.2553	-0.0242
43)	480.0	3.12	1.24	0.2151	0.2390	-0.0239
44)	510.0	3.14	1.22	0.1989	0.2227	-0.0238
45)	540.0	3.16	1.20	0.1823	0.2063	-0.0240
46)	570.0	3.18	1.18	0.1655	0.1900	-0.0245
47)	600.0	3.20	1.16	0.1484	0.1737	-0.0253
48)	720.0	3.28	1.08	0.0770	0.1084	-0.0315
49)	840.0	3.35	1.01	0.0100	0.0431	-0.0332
50)	960.0	3.41	0.95	-0.0513	-0.0221	-0.0292
51)	1080.0	3.47	0.89	-0.1165	-0.0874	-0.0291
52)	1200.0	3.53	0.83	-0.1863	-0.1527	-0.0336
53)	1320.0	3.58	0.78	-0.2485	-0.2180	-0.0305
54)	1440.0	3.63	0.73	-0.3147	-0.2832	-0.0315
55)	1560.0	3.68	0.68	-0.3857	-0.3485	-0.0371
56)	1680.0	3.71	0.65	-0.4308	-0.4138	-0.0170
57)	1800.0	3.75	0.61	-0.4943	-0.4791	-0.0152
58)	1920.0	3.79	0.57	-0.5621	-0.5444	-0.0178
59)	2040.0	3.82	0.54	-0.6162	-0.6096	-0.0066
60)	2160.0	3.85	0.51	-0.6733	-0.6749	0.0016
61)	2280.0	3.88	0.48	-0.7340	-0.7402	0.0062
62)	2400.0	3.91	0.45	-0.7985	-0.8055	0.0070
63)	2520.0	3.94	0.42	-0.8675	-0.8707	0.0032
64)	2640.0	3.96	0.40	-0.9163	-0.9360	0.0197
65)	2760.0	3.99	0.37	-0.9943	-1.0013	0.0070
66)	2880.0	4.01	0.35	-1.0498	-1.0666	0.0168
67)	3000.0	4.03	0.33	-1.1087	-1.1319	0.0232
68)	3120.0	4.05	0.31	-1.1712	-1.1971	0.0259
69)	3240.0	4.07	0.29	-1.2379	-1.2624	0.0245
70)	3360.0	4.09	0.27	-1.3093	-1.3277	0.0183

Bouwer & Rice Method for Calculating Hydraulic Conductivity

Project Name: Hopkins Street Landfill
 Client Name: NYSDEC
 User Name: J. Taft

Project No.: 00296-02483
 Run Date: 2/4/93
 Identification: HOP MW3

Required Test Data

Casing/Hole Diameter:		0.167 feet	English or Metric Units?:		English	
Screen+Pack Diameter:		0.667 feet	Depth or Transducer Data?:		Depth	
Screen+Pack Length:		17 feet	Aquifer Thickness:		30 feet	
Saturated Column Length:		21 feet	Regression		Starting No.	Ending No.
Water Table Depth:		4.36 feet	Line Fit Stats:		1	90
		cm/sec			Total No. of	
Hydraulic Conductivity:		9.5456E-06	ft/day		Points Used	
Correlation Coefficient:		0.9994			90	
Time of	Measured	Change from	Linear Line	Regression	Residuals To	
Observation	Depth to Water	Original Level	Fit To	Solution To	Regression	
Seconds	Feet	Feet	LN(Yt)	LN(Yt)	Solution	
71)	3480.0	4.11	0.25	-1.3863	-1.3930	0.0067
72)	3600.0	4.12	0.24	-1.4271	-1.4582	0.0311
73)	3720.0	4.14	0.22	-1.5141	-1.5235	0.0094
74)	3840.0	4.15	0.21	-1.5606	-1.5888	0.0281
75)	3960.0	4.16	0.20	-1.6094	-1.6541	0.0446
76)	4080.0	4.17	0.19	-1.6607	-1.7193	0.0586
77)	4200.0	4.18	0.18	-1.7148	-1.7846	0.0698
78)	4320.0	4.20	0.16	-1.8326	-1.8499	0.0173
79)	4440.0	4.21	0.15	-1.8971	-1.9152	0.0181
80)	4560.0	4.22	0.14	-1.9661	-1.9805	0.0143
81)	4680.0	4.23	0.13	-2.0402	-2.0457	0.0055
82)	4800.0	4.24	0.12	-2.1203	-2.1110	-0.0093
83)	4920.0	4.25	0.11	-2.2073	-2.1763	-0.0310
84)	5040.0	4.26	0.10	-2.3026	-2.2416	-0.0610
85)	5160.0	4.26	0.10	-2.3026	-2.3068	0.0043
86)	5280.0	4.27	0.09	-2.4079	-2.3721	-0.0358
87)	5400.0	4.28	0.08	-2.5257	-2.4374	-0.0883
88)	5520.0	4.28	0.08	-2.5257	-2.5027	-0.0231
89)	5640.0	4.28	0.08	-2.5257	-2.5679	0.0422
90)	5760.0	4.29	0.07	-2.6593	-2.6332	-0.0260
91)	5880.0	4.30	0.06	-2.8134	-2.6985	-0.1149
92)	6000.0	4.30	0.06	-2.8134	-2.7638	-0.0496
93)	6600.0	4.33	0.03	-3.5066	-3.0902	-0.4164
94)	7200.0	4.35	0.01	-4.6052	-3.4166	-1.1886
95)	0.0	0.00	4.36	1.4725	0.5001	0.9724
96)	0.0	0.00	4.36	1.4725	0.5001	0.9724
97)	0.0	0.00	4.36	1.4725	0.5001	0.9724
98)	0.0	0.00	4.36	1.4725	0.5001	0.9724
99)	0.0	0.00	4.36	1.4725	0.5001	0.9724
100)	0.0	0.00	4.36	1.4725	0.5001	0.9724

**Bouwer & Rice Method
Monitoring Well HOP - MW3**

