

**REMEDIATION SERVICES  
ENGINEERING REPORT**

**PERFORMED ON THE  
GREYSTON BAKERY SITE**

**Located at**

**104 Ashburton Avenue  
City of Yonkers  
Westchester County, New York**

**December 2003  
(Revised February 2004)**

**Voluntary Cleanup Index: D3-0002-00-09  
ESI File: GY99143.50**

**Prepared By:**

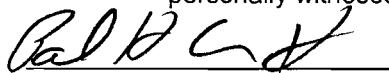
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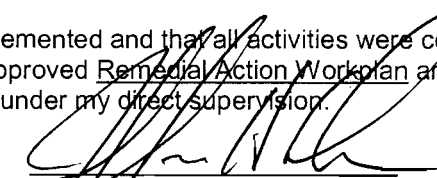
**Prepared For:**

**Greyston Foundation  
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The undersigned has reviewed this Report and certifies to Greyston Foundation that the information provided in this document is accurate as of the date of issuance by this office. Any and all questions or comments, including requests for additional information, should be submitted to the undersigned.

I certify that the Remedial Action Workplan was implemented and that all activities were completed substantially in accordance with the Department-approved Remedial Action Workplan and were personally witnessed by a person under my direct supervision.

  
Paul H. Ciminello  
President

  
Jefferson Akins, P.E.  
Project Engineer

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## **1.0 INTRODUCTION**

### **1.1 Purpose**

This Remediation Services Engineering Report (Report) summarizes relevant fieldwork (completed by Ecosystems Strategies, Inc. (ESI) and authorized subcontractors) performed to satisfy the Workplan For Site Remediation Activities (Workplan), revised and approved by the NYSDEC October 2000, on the property known as the Greyston Bakery Site, located at 104 Ashburton Avenue, City of Yonkers, Westchester County, New York. The Workplan is incorporated as part of this Report by reference. The work summarized in this Report was performed to address known environmental contamination identified by ESI during previous investigations of the property, conducted from 1999 to the present.

The specific purpose of this Report is to satisfy the requirements set forth in the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program and to document all remedial activities performed on the subject property. Remedial activities (see Section 2.0) were deemed necessary based upon information obtained from prior fieldwork, which revealed the presence of petroleum hydrocarbons in localized on-site soils and groundwater. This Report: 1) describes soil excavation, fieldwork methodology, and soil/groundwater sampling procedures; 2) includes discussions of the resulting analytical data from collected soil samples; and, 3) provides conclusions and recommendations drawn from the fieldwork and analytical data.

### **1.2 Limitations**

This written analysis is a summary of fieldwork activities conducted at the Greyston Bakery property and is not relevant to any other property. It is a representation of the property analyzed as of the respective dates of fieldwork. This Report cannot be held accountable for activities or events resulting in contamination after the dates of fieldwork.

Services summarized in this Report were performed in accordance with generally accepted practices and established NYSDEC protocols. Unless specifically noted, the findings and conclusions contained herein must be considered not as scientific certainties but as probabilities based on professional judgment.

### **1.3 Site Location and Description**

The subject property is an irregularly-shaped parcel having approximately 195 feet of frontage on the northern side of Ashburton Avenue, approximately 216 feet of frontage on the eastern side of Alexander Street, and extending approximately 295 feet northward from Ashburton Avenue (see the Site Location Map included in Appendix A). The subject property is comprised of a single tax lot (City of Yonkers Tax ID: Section 2, Block 2618, Lot 1).

The northern and western portions of the subject property are comprised of unpaved, fenced-in areas that are overgrown with vegetation. The central eastern portion of the property is a fenced-in, macadam-paved parking lot. A one-story, brick structure, occupied by a Metro-North substation is present near the eastern border of the subject property. A concrete retaining wall separates the subject property from adjoining railroad usages to the east. A Fieldwork Map is included in Appendix A of this Report.

## 1.4 Previous Environmental Investigations

The subject property was historically used as a manufactured gas plant (MGP). Contamination with petroleum products is often associated with MGP sites as the result of raw material storage and manufacturing procedures. According to available information, several structures and three crude oil tanks were present on the subject property until sometime between 1917 and 1942. Historic Sanborn Fire Insurance maps show that in 1942 only a few small structures remained on the western portion of the subject property, and that by 1951 only one structure (later identified as a motor oil storage shed) remained in the southwest corner of the subject property. Local building department records indicated the presence of on-site structures between 1969 and 1979. However, historical maps do not depict any on-site structures (other than the motor oil storage shed) between the years of 1951 and 1989. The present day Metro-North substation is depicted on the 1989 and later historic maps as having been built circa 1987.

The Site has been the subject of several environmental investigations that have accurately and comprehensively documented on-site environmental conditions. Laboratory data from soil, water, and product samples collected from the Site by ESI are provided in the Workplan (note: maps and data tables referenced below are provided in applicable attachments to the Workplan). A summary of previous investigative work is provided below:

1. Soil samples collected from multiple depths during fieldwork activities conducted on September 27th and 28th, 1999 indicated the presence of volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) at levels exceeding NYSDEC guidance values. Both light and dense non-aqueous phase liquids ("LNAPL" and "DNAPL", respectively) were encountered in the northeast corner of the Site, identified as Area 1 on the Site Features Map (see Appendix A of the Workplan). A sample of LNAPL was identified as #4 or #6 oil. VOC and PAH concentrations, identified by sample location, are presented in Data Table 1 and Data Table 2, respectively (see Appendix E of the Workplan).

Shallow soil samples were collected from a depth of 1-3' below grade during subsequent fieldwork activities conducted on April 26, 2000. These samples were analyzed for RCRA metals (arsenic, barium, cadmium, chromium, mercury, lead, selenium, and silver) and cyanide. Laboratory results indicated that cadmium, cyanide, mercury, and silver were either not detected above laboratory detection limits or were detected at concentrations below their respective action levels.

Subsurface soil samples were also collected on April 26, 2000 to determine the presence or absence of PAHs in the unpaved, overgrown area located in the northwest quadrant of the Site. All PAHs, with the exception of anthracene, benzo (g,h,i) perylene, dibenzo (a,h) anthracene, and indeno (1,2,3-cd) pyrene, were detected at concentrations exceeding NYSDEC guidance levels in these samples.

On April 26, 2000, soil borings were extended in the vicinity of boring B-1 (located in the parking area approximately 80 feet from the northeast property corner) for the purpose of delineating the extent of vertical and lateral contamination. PAHs were detected above NYSDEC guidance levels in samples submitted from boring B-1, with the exception of benzo(g,h,i) perylene and indeno (1,2,3-cd) pyrene. Laboratory analysis of samples obtained from various depths within the boring indicated that the concentration of contaminants increased significantly with sample depth for all PAHs detected. A summary of the data obtained from boring B-1 is presented in Table 3 (see Appendix E of the Workplan).

Based on field observations indicating gross contamination, soil samples obtained from borings B-3A, B-4A, B-5A and B-6A, which were collected for the purpose of delineating lateral contamination, were not submitted for laboratory analysis.

2. Prior to ESI being retained to provide environmental services on the Site, groundwater sampling was conducted by Malcolm Pirnie in 1995 (only incomplete results of the Malcolm Pirnie sampling were made available to ESI). Laboratory results from water sampling conducted by ESI on August 31, 1999 confirmed the presence of VOCs and PAHs in on-site groundwater monitoring wells at levels exceeding NYSDEC guidance values. Comparisons of VOC and PAH concentrations between the two sampling rounds are provided in Table 4 (VOCs) and Table 5 (PAHs); both Tables are provided in Appendix E of the Workplan.

On April 26, 2000, one groundwater monitoring well and one product recovery well were installed on the Site. A product sample was collected from the recovery well.

Five of the existing monitoring wells were purged and sampled to determine the presence or absence of chemical and petroleum contamination. All samples collected were submitted for laboratory analysis of dissolved metals and petroleum hydrocarbons. No metals were detected above established NYSDEC guidance levels. Petroleum hydrocarbon data obtained from this sampling event are provided in Table 6 (see Appendix E of the Workplan). Dissolved hydrocarbons were detected in all on-site monitoring wells (except MW-6) at levels exceeding NYSDEC groundwater protection standards.

On May 17, 2000, a Tidal Influence Study (TIS) was conducted on the Site. Groundwater flow was documented to be in a southwesterly direction, toward the Hudson River, located approximately 480 feet west of the Site. Based on the direction of flow, on-site groundwater travels an estimated distance of 3,000 feet before entering the Hudson River. A Groundwater Contour Map, illustrating on-site groundwater flow, is included in the Workplan. Data documented in the TIS indicate that tidal influence on the Site is relatively minor.

3. During the subsurface investigation conducted in September 1999, free product was encountered in boring B-1. The sample collected from B-1 separated into three distinct layers: an upper LNAPL layer, a middle aqueous layer, and a lower DNAPL layer. Laboratory analysis of the upper layer identified the presence of #4 or #6 fuel oil. Laboratory analysis of the lower DNAPL layer determined this product to be a heavy petroleum-related compound. A second sampling event, conducted on April 26, 2000 from the base of the product recovery well (RW-1, located approximately 6 feet northwest of soil boring B-1), confirmed this analysis.

## **2.0 Summary of Remedial Activities**

### **2.1 Summary of Services**

ESI conducted the following remedial services on the Site, in accordance with an approved NYSDEC Remedial Action Workplan under the Voluntary Cleanup Agreement:

- Excavation and disposal of approximately 120 tons and 29.4 tons of petroleum-contaminated soils located in the vicinity of the DNAPL collection system on two distinct dates respectively;
- Installation of a DNAPL/LNAPL monitoring/collection well and hydraulic barrier;
- Installation of a Soil Vapor Extraction (SVE) system under the slab of the on-site structure;
- Installation of a geosynthetic clay liner (GCL) Geocomposite liner over all portions of the Site not covered by the building or impervious surfaces; and,
- Collection and analysis of building interior air-quality samples.

Each task is described below, including relevant field observations, analytical data, disposal manifests, and other supporting documentation. Any variations to the approved Workplan are provided herein with justifications for the modifications and any referenced prior NYSDEC approvals for said modifications.

All samples collected for chemical analysis were submitted to York Analytical Laboratories, Inc. (York), a New York State Department of Health certified laboratory (ELAP Certification Number 10854), in accordance with NYSDEC sample collection protocols.

Relevant photographs of remedial activities are provided in Appendix B.

### **2.2 Excavation and Disposal of Petroleum-Contaminated Soil**

#### **2.2.1 Approved Task (Summary of Workplan)**

The Workplan proposed that any encountered petroleum-contaminated soil in the vicinity of the proposed building slab and in utility trenches be removed from the Site, or be re-used (as appropriate) as on-site fill to be placed under the proposed barrier layer.

Soils subject to off-site disposition were identified in the northeastern portion of the property where the DNAPL remediation system was proposed to be installed. In addition, it was anticipated that excavation to install the storm drainage system in the portion of the Site would encounter soils warranting off-site disposition.

#### **2.2.2 Specific Remedial Actions Completed**

During the course of construction activity at the Bakery site it was necessary to excavate soil material from discreet areas throughout the site. Excavated soil material was field screened with a photo-ionization detector (PID) for the presence of VOCs, and all soils exhibiting positive PID readings were stockpiled on and covered with 6 millimeter polyurethane sheeting (poly sheeting).

Excavation and stockpiling of soil material occurred during September 2002 during installation of hydraulic barrier and again in July 2003 during installation of DNAPL-LNAPL Removal/Monitoring System.

Two off-site soil disposal events were recorded during the on-site construction activity. Approximately 120 tons of petroleum-contaminated soil was removed from the site on September 17, 2002. This soil material was stockpiled during the installation phase of the Hydraulic barrier. The soil was delivered to Clean Earth of Philadelphia for recycling. Soil disposal manifests are included as Appendix C of this document.

The second off-site soil disposal event occurred on July 25, 2003. Approximately 30 tons of petroleum contaminated soil material was removed from the site and delivered to T.T Materials Corporation. This material was generated during the drilling and installation of the DNAPL/LNAPL Recovery/Monitoring Well. Soil disposal manifests are included as Appendix C.

Soils excavated in the footprint of drainage pipes as well as in the footprint of the sewer lines were inspected by ESI personnel using field-screening instruments (i.e., PID). As soils were excavated, ESI personnel inspected the soils and provided recommendations for re-use. PID readings in the southwestern portion of the Site ranged from 0.5 ppm to 50 ppm, consistent with soils remaining in the ground. No sheens were identified in standing water in the utility trenches, indicating an absence of leachable petroleum contamination. Based on these observations, ESI personnel recommend that soils in these areas be re-used as backfill in the trenches or as soil to be placed under the barrier layer.

### **2.2.3 Deviations from Workplan**

No substantive deviations from the approved Workplan are noted.

## **2.3 Installation/Operation of DNAPL-LNAPL Removal/Monitoring System**

### **2.3.1 Approved Task (Summary of Workplan)**

#### **System Design and Installation**

A product recovery system was proposed to be installed and maintained to remove LNAPL and DNAPL from on-site saturated soils located on the eastern central portion of the site. Monitoring wells and borings in other portions of the site did not contain measurable free product; therefore, it was concluded that free product was restricted to the eastern-central portion of the site.

#### **LNAPL**

The use of a shallow (2'-10') recovery well (EMW-2R) to recover LNAPL via a preferential product-water separator system, operating on an "as-needed" basis to mechanically remove accumulated free-floating product, was proposed. (This system was not utilized, see Section 2.3.2, below).

### *DNAPL*

A funnel and gate system was proposed to recover the DNAPL in the vicinity of boring B-1. Approximately seventy-five (75) linear feet of tight steel sheeting would be installed immediately west and south of the deep recovery well EMW-3. As proposed, the tight sheeting would be installed in a vertical, open "L" configuration such that a 50-foot section of sheeting running roughly north-south and a 25-foot wing of sheeting running generally east-southeast (the "funnel"), would be aligned in an approximate 150-degree angle with an open gap (the "gate") at the confluence of the walls. The gate would be open to the northeast, facing into the groundwater flow.

The sheeting would be installed to approximately 28 feet below grade surface (bgs), such that it penetrated the organic silty-clay layer by several feet. The top of the installed sheeting would be cut approximately three feet bgs so that the upper regime of the groundwater flow would not be affected. A deep (minimum two-foot), wide-bore recovery well (EMW-3) would be installed approximately three feet east of the gate, thus creating the "funnel and gate" system. The base of the wide-bore well, located approximately 25 feet bgs, would act via gravity flow as a collection chamber.

Accumulated product would be monitored via a product thickness gauge located within the chamber and would be removed by connecting a vacuum truck to an extraction pipe exiting the chamber (accessible through a man-way at the surface). The collected DNAPL (and small volumes of groundwater) would be containerized and removed from the site periodically by a certified waste hauler.

The installation sequence would begin with the downgradient monitoring point then proceed to the sheet pile and end with the deep recovery well (EMW-3). Using this sequence, the location and extent of the DNAPL contamination can be confirmed using the downgradient monitoring point and the sheet piling and deep recovery well can be accurately installed between the monitoring point and boring.

### **2.3.2 Specific Remedial Actions Completed**

#### **LNAPL Recovery Well Installation**

No recoverable volume of LNAPL product was observed during trenching activity related to installation of the hydraulic barrier. LNAPL product observed on trench groundwater was consistently measured at less than ¼ inch. Based on the absence of a recoverable volume of LNAPL product, no LNAPL recovery well was installed and all product recovery activities were limited to the installation and operation of the hydraulic-barrier funnel and gate system at the eastern portion of the site.



**LNAPL Recovery during hydraulic barrier installation trenching activity**

During the trenching activity related to installation of the hydraulic barrier, a vacuum truck was utilized on two occasions to remove surface LNAPL sheens. On April 29 and May 17, 2002, the open trench utilized to install the hydraulic barrier was vacuumed in an attempt to recover LNAPL product. Approximately 1,136 gallons and 1,100 gallons, respectively, of a petroleum/water mix were vacuumed from the trench. Although a visible sheen was observed on the water surface, no significant level of LNAPL was recorded. Product recovery was initiated in an attempt to reduce petroleum odors generated during trenching activity and to record any potential LNAPL recharge for future recovery determination. After pumping, no additional LNAPL sheens were observed on the groundwater surface. Slight sheens were observed wicking from the soils on the trench edges. Liquid disposal manifests are included as Appendix C of this document.

**DNAPL Recovery Well Installation**

On April 29, 2002, ESI personnel observed the excavation of a trench (50 feet long, 5 feet wide, and approximately 5 feet deep) east of the piling network at the center of the site. This trench was excavated to facilitate the installation of hydraulic barrier. The location of this trench and subsequent barrier is provided in the DNAPL-LNAPL Removal-Monitoring System Drawing included in Appendix A.

Excavated material encountered from the surface to a depth of approximately 3 feet appeared free of contamination. These soils included a large volume of bricks and granite cobbles. The soils 3 to 4 feet bgs exhibited a petroleum odor and staining, but only minimal PID readings (less than 1.0 ppm). Groundwater was encountered at 4 feet bgs. A slight sheen was observed on standing water observed in the excavation. As permitted in the Workplan, excavated materials were stockpiled separately for on-site reuse.

A brick building footing was encountered at approximately 3.5 feet bgs at a distance 40 feet south of the northern end of the trench. Increased levels of overt contamination (odors and staining) were noted in subsurface material encountered south of the footing at 3 to 5 feet bgs. Contaminated materials from this area were segregated and stockpiled on poly sheeting on the northeast corner of the site. These soils were covered with poly sheeting and were disposed of off-site during September 2002.

Free product was observed on the surface of the groundwater in this portion of the excavation and was removed utilizing a vacuum truck provided by Luzon Environmental Services. Approximately 1,136 gallons were pumped from the excavation. Pumping was intended to skim off the floating product and to assess the timing of returning product.

Constant air-quality monitoring of the excavation and work zone was conducted utilizing a PID. PID readings were recorded continuously and ranged from 0.2 ppm - 5.5 ppm for the duration of the excavation and stockpiling activity. As PID levels approached 5.0 ppm, actions intended to reduce vapor generation were suggested by ESI and were implemented by the construction manager. Plastic sheeting was used to cover the south end of the excavation at the conclusion of work activities to provide a temporary vapor barrier and potential relief from nuisance odors for the duration of excavation activities. At the conclusion of trenching and barrier installation activity, the features were backfilled and nuisance odors diminished. The funnel-gate (DNAPL Recovery Well) is located beneath the asphalt paved area of the site identified by a steel man-hole cover adjacent to the east exterior staircase.

Excavation of the elevator pit was also observed on April 29, 2002 at the site. Excavation activity conducted in the center, west border of the site did not reveal any visibly contaminated soils. Groundwater was encountered at approximately four feet. No visibly stained soils or sheens were encountered on groundwater. Field observations and PID readings confirmed the absence of any measurable odors or VOCs in the work zone and excavation. Material encountered in the excavation consisted of brown fill type soils with rocks to approximately 12 inches in diameter. Soils removed from this area were stockpiled adjacent to the excavation for potential re-use on-site.

On July 21, 2003, representatives from ESI/DE personnel inspected the installation of the DNAPL Recovery Well in accordance with specifications outlined in the Workplan. Precision Drilling, Inc. of Stockton, N.J., installed an 18-inch diameter steel recovery well immediately upgradient from the location of the "gate" confluence gap (unimpeded location of DNAPL Recovery well) of the installed steel sheeting. The Recovery Well consisted of an 18-inch diameter stainless steel casing pipe equipped with a ten-foot length of .04-inch screen (from approximately 13 to 23 feet bgs). A five-foot stainless steel sump was installed immediately below the well screen (approximately 23 to 28 bgs) with welded cap. A 4-inch diameter stainless steel recovery pipe was installed to the floor of the sump section to allow recovery of accumulating DNAPL utilizing a vacuum truck on a yet-to-be determined basis. DNAPL-LNAPL Removal-Monitoring System drawing is provided as Appendix A.

#### **Initial DNAPL Monitoring/Pumping Event (August 12, 2003)**

ESI conducted initial field monitoring and pumping events at the DNAPL recovery well on August 12, 2003 and during the week of September 1, 2003. Peak PID readings of 942 ppm and strong petroleum odors were recorded at the interior recovery collar, and a sheen was noted on the water surface within the well, during fieldwork activities on August 12. A 7-foot thick column of DNAPL and water (from approximately 20' bgs) was observed and approximately 400 gallons of an oil/water mix were pumped from the well during this initial pumping/observation event. The well pumping protocol included drawing the water column within the well down to the well screening (visible at approximately 12' bgs) and awaiting re-charge. After complete re-charge (30 to 60 minutes) the well column was again pumped down to the depth of the screening.

#### **Subsequent DNAPL Monitoring/Pumping Event (Week of September 1, 2003)**

The DNAPL Recovery well was revisited on September 2, 3, 4, and 5, 2003 for pumping and monitoring activity, and to record observations relevant to planning future recovery operations. Observation protocols were identical to those utilized during the August fieldwork event. No product column was detected during the September screenings, with a product level meter. A visible petroleum sheen and odors were observed atop the water column during all screening events. During these events approximately 200 gallons of oil-water mix was pumped from the recovery well. Product was removed utilizing a vacuum truck provided by Enviro-Waste Inc. of Brewster New York. Pumping was suspended after the September 5, 2003 event to re-assess observations and encountered well conditions.

#### **Monitoring/Recovery for DNAPL Well**

The current rate for the recharge of measurable and recoverable DNAPL product from EMW-3 is unknown. It is recommended that additional monitoring of the well be accomplished utilizing the product level meter to determine if a recoverable volume of DNAPL is accumulating in the well column.

### **2.3.3 Deviations from Workplan**

The following deviations from the approved Workplan occurred:

- No active LNAPL recovery was installed because no measurable LNAPL has been documented on the Site. LNAPL was removed from the trench during the installation of the hydraulic barrier and the DNAPL recovery well has been monitored for the presence of LNAPL, with no evidence of measurable product documented from well installation (September 2003 to November 2003). Continued monitoring is proposed (see Section 3.0, below).
- The DNAPL barrier was relocated to accommodate a design change in the building.
- The DNAPL barrier was reconfigured to accommodate a subgrade obstruction. During the DNAPL barrier installation process various subsurface obstacles were encountered. These obstacles included large timbers and massive concrete rubble. Refusal was encountered (approximately 12' bgs) in areas immediately southeast of the proposed DNAPL recovery well point (the barrier was to continue at a 135 degree angle toward the southeast). The DNAPL barrier was instead relocated and installed at a right angle from the proposed DNAPL well. The alteration is shown in full detail on the "as built drawing". The barrier is currently the same linear feet but the collection angle is roughly 90 degrees instead of the more oblique 135 degrees originally proposed.
- Removal of accommodated DNAPL has been suspended until this product is of sufficient volume to warrant removal. Continued monitoring is proposed (see Section 3.0, below).

## **2.4 Installation of Vapor Extraction System under the On-Site Structure**

### **2.4.1 Approved Task (Summary of Workplan)**

As a supplemental preventative measure, a vapor barrier underlain by a vapor extraction system (VES) would be installed under the proposed foundation for the building. The purpose of this barrier VES would be to eliminate the migration of petroleum hydrocarbon vapors into the building, consistent with good construction practices.

Generally, the barrier VES would consist of a minimum 10-mil plastic liner, properly sealed at the interior joints, underlain by a highly porous substrate (e.g., gravel) containing 2-inch slotted PVC piping. All penetrations through the plastic liner would be properly sealed. The PVC piping would be connected to vertical pipes extending above the roofline. Vacuum pumps (fans) connected to each vertical pipe would ensure the maintenance of an appropriate air-pressure gradient under the building. Venting discharge points would be properly located above the roofline to minimize the likelihood of air emissions impacting building air-quality via roof-mounted air intakes.

Four vapor extraction points (possibly connected to maximize fan efficiency), and six monitoring points (located throughout the building to confirm effective vacuum in the entire subgrade), were proposed.

System start-up and initial testing would occur after the concrete floor had been poured. Extraction wells would be connected to fans and carbon filtration systems, and would be operated for a minimum of 12 hours prior to data and sample collection activities.

Air samples would be collected at each extraction point (before and after carbon filtration) and be analyzed for PAHs using NIOSH Method 5515. (These data would be used to determine the need for any applicable air-quality permits and the need for continued air discharge treatment). Vacuum data would be collected from the six monitoring points.

The Workplan proposed that the VES would be monitored for fourteen (14) calendar days, with monitoring consisting of vacuum measurement at all monitoring points and air-emission screening with a PID. At the end of the monitoring period, one air sample would be collected from the sampling port prior to any air treatment. System effectiveness would be achieved if: 1) field data documented continued maintenance of specified vacuum levels; and, 2) laboratory data documented air discharge PAH levels consistent with previously collected data.

#### **2.4.2 Specific Remedial Actions Completed**

A double layer of 6-mil plastic was laid (12-mil total thickness) over all areas of the building's footprint prior to the pouring of the concrete floor. ESI personnel inspected the vapor barrier and documented proper sealing of all penetrations. Extraction points were constructed of four-inch PVC piping.

On April 16, 2003, ESI personnel inspected the installation of the VES and related components, and oversaw the temporary installation of three of the fan units, which were utilized to begin the initial vapor venting process during the construction activities. No positive PID readings were recorded at discharge points or in ambient air. No significant petroleum odors were detected at the fan exhaust points. Slight vacuum was observed at all air intake points throughout the foundation, although quantitative measurements of vacuum were not conducted at that time.

A vacuum test was conducted at the monitoring points on September 23 utilizing a Magnehelic gauge fitted to attach securely to the vacuum monitor point. Two monitor points located in the southeast and southwest portion of the building were suitable for monitoring. The third vacuum monitoring point previously located in the northwest portion of the structure could not be located and may have been lost during construction activity. Monitoring point S.E.-MP (located in the southeast portion of the structure) exhibited approximately 1.6 FPM of vacuum. Monitoring point S.W.-MP (located in the southwest portion of the structure) exhibited 1.7 FPM of vacuum. A slight vacuum was detectable at both monitoring points.

ESI personnel conducted air discharge monitoring for PAH's on May 14, 2003. High and low volume air pumps utilizing appropriate sampling tubes were placed at vapor extraction/stack discharge points on the roof of the on-site structure to provide a profile of sub-slab petroleum vapors. Two, high volume air pumps were placed at discharge stacks one and two (SD-1, north-central portion of the roof, and SD-2, eastern portion of roof). Pump failure prevented sampling of the third stack (SD-3, located to the northwest). One low volume air pump (GIL Air III) was also placed at stack discharge one (SD-1 Duplicate) to provide a low-flow control profile. An additional high volume pump was used to collect an ambient background sample at the rooftop, at a point distant from all other vapor extraction/stack discharge points. The high volume pumps were fitted with intake flow regulators and allowed to collect air samples for a period of 24 hours (flow rate of approximately 20 liters per minute).

On October 23, 2003 four of the five discharge stacks were sampled (grab sampled into 3-litre tedlar bags filled at 4 litres/minute.) for VOCs utilizing a low volume air pump (GIL Air III). The fifth stack was inaccessible at the time of sample collection. A PID was utilized by ESI personnel to screen the air during fieldwork activities. No PID readings above 0.0 ppm were noted at any of the active stacks. Samples of the stack discharge were collected into tedlar bags and sent to York Analytical Laboratories for analysis of VOCs utilizing USEPA method TO-14 (all data are summarized in Table 1, below and complete laboratory data packages are provided in Appendix D). Low levels of VOCs are identified at each stack, confirming the effectiveness of the VES system in removing VOCs from the subslab. Individual VOC concentrations are well below NYSDEC short term guidance concentrations at each sample location. Total VOC concentrations are well below discharge levels that would warrant a permit as a pollution emission point; therefore, no NYSDEC air discharge permit is required for this facility.

Table 1: Discharge Stack Samples

| Compound            | SGC*/1hr<br>( $\mu\text{g}/\text{M}^3$ ) | Sample<br>F1                 |                        | Sample<br>F2                 |                        | Sample<br>F3                 |                        | Sample<br>F4                 |                        |
|---------------------|--|------------------------------|------------------------|------------------------------|------------------------|------------------------------|------------------------|------------------------------|------------------------|
|                     |  | ( $\mu\text{g}/\text{M}^3$ ) | Discharge<br>(lbs/day) | ( $\mu\text{g}/\text{M}^3$ ) | Discharge<br>(lbs/day) | ( $\mu\text{g}/\text{M}^3$ ) | Discharge<br>(lbs/day) | ( $\mu\text{g}/\text{M}^3$ ) | Discharge<br>(lbs/day) |
| Benzene             | 1300                                     | 11.37                        | 0.0087728              | 5.74                         | 0.0044288              | 3.57                         | 0.0027545              | ND                           | ND                     |
| Ethylbenzene        | 54000                                    | 4.85                         | 0.0037421              | ND                           | ND                     | ND                           | ND                     | ND                           | ND                     |
| o-xylene            | 4300                                     | 6.61                         | 0.0051001              | ND                           | ND                     | ND                           | ND                     | ND                           | ND                     |
| p&m-xylene          | 4300                                     | 9.7                          | 0.0074843              | ND                           | ND                     | ND                           | ND                     | ND                           | ND                     |
| Tetrachloroethylene | 1000                                     | ND                           | ND                     | ND                           | ND                     | 12.42                        | 0.0095829              | 15.18                        | 0.0117125              |
| Toluene             | 37000                                    | 49.75                        | 0.0383858              | 22.2                         | 0.0171289              | 16.86                        | 0.0130087              | 14.95                        | 0.011535               |
| Total VOCs          |  | 82.28                        | 0.0634851              | 27.94                        | 0.0215578              | 32.85                        | 0.0253462              |                              |                        |

## NOTES:

\* = Short-Term Guidance Concentration

**2.4.3 Deviations from Workplan**

The following deviations are noted:

- The Workplan specified two-inch slotted PVC piping; 4-inch PVC piping was installed.
- The Workplan anticipated the installation of 6 monitoring points; only three 3 monitoring points were installed for measuring vacuum. One of the three monitoring points located in the northwest corner of the structure was lost during construction activity.
- The Workplan anticipated the need for carbon filtration. Air-quality testing documented the absence of VOCs and SVOCs in the air discharge at levels warranting treatment.
- The Workplan specified the use of NIOSH Method 5515 to assess levels of SVOCs inside the building and in the air discharged at the roof. Based on subsequent communications with the NYSDEC, USEPA Method TO-13 was substituted.
- No requirement for testing for VOCs is specified in the Workplan. In subsequent communications with the NYSDEC, the Department requested additional air-quality sampling for these compounds using USEPA Method TO-14.

**2.5 Installation of the Geomembrane over Non-Paved Portions of the Site****2.5.1 Approved Task (Summary of Workplan)**

The Workplan proposed the installation of a geosynthetic clay liner (GCL), across all contaminated areas (with slopes less than 25% in grade) not covered by asphalt or buildings, to prohibit potential contact with subsurface contaminated soils. The GCL would be visually inspected during installation.

**2.5.2 Specific Remedial Actions Completed**

Representatives from Dewkett Engineering, P.C. reviewed delivery, handling, and installation procedures for geosynthetic clay liner (GCL) with the Contractor prior to product delivery. Periodic inspections were conducted from the initial installation date through completion of GCL installation to verify subgrade preparation, material handling, product installation (e.g. – seam overlap, etc.) and cover soil installation were conducted in conformance with project specifications. GCL installation was conducted across portions of the site not covered by either the building or asphalt surfaces.

**2.5.3 Deviations from Workplan**

Cover soil thickness was varied in select portions of the site (e.g. – “run up” alongside curbed parking) to ensure that positive drainage resulted across all portions of the project. Some portions of the GCL were prematurely hydrated due to sudden weather events and these portions of the GCL were trimmed and replaced prior to final cover soil installation.

## **2.6 Completion of Air-Quality Testing**

### **2.6.1 Approved Task (Summary of Workplan)**

Post-construction indoor and outdoor air-quality sampling, performed in accordance with established NYSDOH protocols, would be conducted to document on-site air-quality both within the on-site building(s) and the exterior areas. External air-quality would be determined by collecting and analyzing five air samples (two upwind locations and three downwind locations), with both a sample and a duplicate sample collected at one sample location. Internal air would be determined by collecting and analyzing two air samples at locations inside the bakery. Samples will be analyzed for VOCs using USEPA Method TO-14 and for PAHs using USEPA Method TO-13.

### **2.6.2 Specific Remedial Actions Completed**

On September 24, 2003 ESI conducted an interior air-quality sampling event. Interior operating conditions were achieved by this time and interior conditions were deemed acceptable to conduct air-quality monitoring. Three SUMA canisters were placed at locations throughout the interior of the structure and fitted with 2-hour intake regulators. One canister was placed outside the structure to act as a background sample. Prior to the sampling event a thorough interior survey was conducted including screening for VOCs with a PID. No readings above 0.0 ppm were recorded with the PID. No materials were encountered which would influence the outcome of the sampling. All canisters were sent to York analytical laboratories for analysis of VOCs utilizing USEPA Method TO-14.

SUMA canister York 509 was placed in the west center of the building interior within the retail and office space. SUMA canister York 526 was placed on the east wall of the oven room at the oven outlet. SUMA canister York 505 was placed in the building center adjacent to the sugar and flour storage silos. SUMA canister York 518 was placed in the northeast corner of the parking lot to provide a background sample. Concentrations of 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, ethylbenzene, p- & m- xylenes, styrene and toluene were detected at various concentrations in the interior ambient air samples. No VOCs above minimum detection limits were detected in the background sample. This is unusual for a sample obtained in an urban environment. All interior air samples exhibited concentrations of at least three VOCs which represent an exceedance of background concentrations (collected from the exterior of the structure). Specific mastics, paint and caulk were being used in the interior finish stages of building construction. There is the potential for vapors from these products to have interfered with the collection of representative interior ambient air samples.

Data documented acceptable concentrations of VOCs within the structure. All concentrations are acceptable when compared with OSHA and NIOSH values (which have not been currently updated). Concentrations of the five detected VOCs are well below OSHA and NIOSH guidance values (see enclosed laboratory data in Appendix D).



Laboratory analysis of interior air samples was also compared to New York State Department of Health (NYSDOH) interior air-quality data. NYSDOH has established comparison values for certain VOCs in indoor and outdoor air. Comparison with the NYSDOH data indicates that seven VOCs were detected at various concentrations above the 25<sup>th</sup> percentile (NYSDOH comparison value) in at least one of the samples. Two VOCs were detected at concentrations above the 75<sup>th</sup> percentile (NYSDOH comparison value) in six samples. One VOC was detected at concentrations above the 95<sup>th</sup> percentile (NYSDOH comparison value) in three interior air samples. No VOCs were detected in air sample 518 (Background) collected from the rear exterior parking area as a background sample (see the Summary of Indoor Air-Quality table, below).

**Table 2: Summary of Indoor Air-Quality Data**

(Results in **bold** exceed the NYSDOH 75 percentile concentration. All results measured in ppbv.)

| Detected Compounds  | Action Levels <sup>1</sup>         |                                    |                                    |     |     |     |                |
|---|------------------------------------|------------------------------------|------------------------------------|-----|-----|-----|----------------|
|   | NYSDOH 25 <sup>th</sup> Percentile | NYSDOH 75 <sup>th</sup> Percentile | NYSDOH 95 <sup>th</sup> Percentile | 509 | 526 | 505 | 518 Background |
| styrene   | <0.2                               | <2.4                               | <2.4                               | 2.0 | ND  | ND  | ND             |
| 1,2,4-trimethylbenzene  | 0.45                               | 1.4                                | 4.1                                | 1.5 | 1.7 | 2.0 | ND             |
| 1,3,5-trimethylbenzene  | <0.2                               | <2.0                               | <2.0                               | 1.3 | ND  | 1.5 | ND             |
| ethylbenzene  | 0.39                               | 1.1                                | 1.5                                | ND  | ND  | 1.0 | ND             |
| p&m-xylenes   | 0.51                               | 2.2                                | 4.8                                | 1.3 | 1.0 | 2.0 | ND             |
| o-xylene  | 0.44                               | 1.2                                | 1.8                                | ND  | ND  | 1.1 | ND             |
| toluene   | 1.7                                | 6.7                                | 13                                 | 46  | 17  | 7.5 | ND             |
| Notes:  |                                    |                                    |                                    |     |     |     |                |
| 1. Source: <u>Background Indoor/Outdoor Air Levels of VOCs Sampled by the NYSDOH, 1989-1996.</u> (August, 1997) |                                    |                                    |                                    |     |     |     |                |
| ND= Not Detected.   |                                    |                                    |                                    |     |     |     |                |

### 2.6.3 Deviations from Workplan

No substantive deviation occurred.

### 3.0 CONCLUSIONS AND RECOMMENDATIONS

This office has completed the services summarized in Section 2.0 for the Greyston Bakery property, located at 104 Ashburton Avenue, City of Yonkers, Westchester County, New York. All work was completed in coordination with New York State Department of Environmental Conservation (NYSDEC) personnel and consistent with the Workplan for Site Remediation Activities (Revised October 2000) (Workplan) prepared by ESI (approved by the NYSDEC, Voluntary Clean-up Index: D3-0002-00-09). Remedial activities outlined in the Workplan were completed in conjunction with construction of the Bakery, conducted between April 2002 and October 2003.

Based on the services provided and data generated, the following conclusions have been made:

1. Petroleum contaminated soils as identified in the Workplan have been either excavated and disposed of off-site at a licensed repository or re-interred on-site under the approved barrier layer.

**No further remedial work is warranted.**

2. The LNAPL recovery system as proposed was determined to be unnecessary at this time due to the absence of recoverable floating product. Site observations continue to document a slight sheen but no recoverable thickness of LNAPL.

**Continued monitoring is recommended to document any change in site conditions. Monitoring is recommended on a monthly basis with quarterly reports submitted to the owner and the NYSDEC.**

3. The DNAPL recovery system has been installed and the initial product within the collection chambers was removed for proper off-site disposition. Initial short-term monitoring has documented a slower-than-expected rate of DNAPL recharge into the collection chamber.

**Additional monitoring of the DNAPL recovery system is recommended to document DNAPL concentrations. Specifically it is recommended that a long term (once monthly for a period of one year or bi-weekly for six months) monitoring plan be implemented to observe and record DNAPL trends. In addition to monitoring the DNAPL recovery system two adjacent monitoring wells (MP-1 and MP1-5) should also be monitored quarterly for the presence of DNAPL. Data obtained from all monitoring shall be provided to the NYSDEC.**

4. A Vapor Extraction System (VES) was installed under the building. Testing was conducted for both vacuum levels under the slab and the air-quality of the discharge for the roof-top fans. Data confirm the effectiveness of the VES.

**No further remediation activities are warranted. An inspection of the system should be conducted on an annual basis with a statement of its condition provided to both the Client and the NYSDEC.**

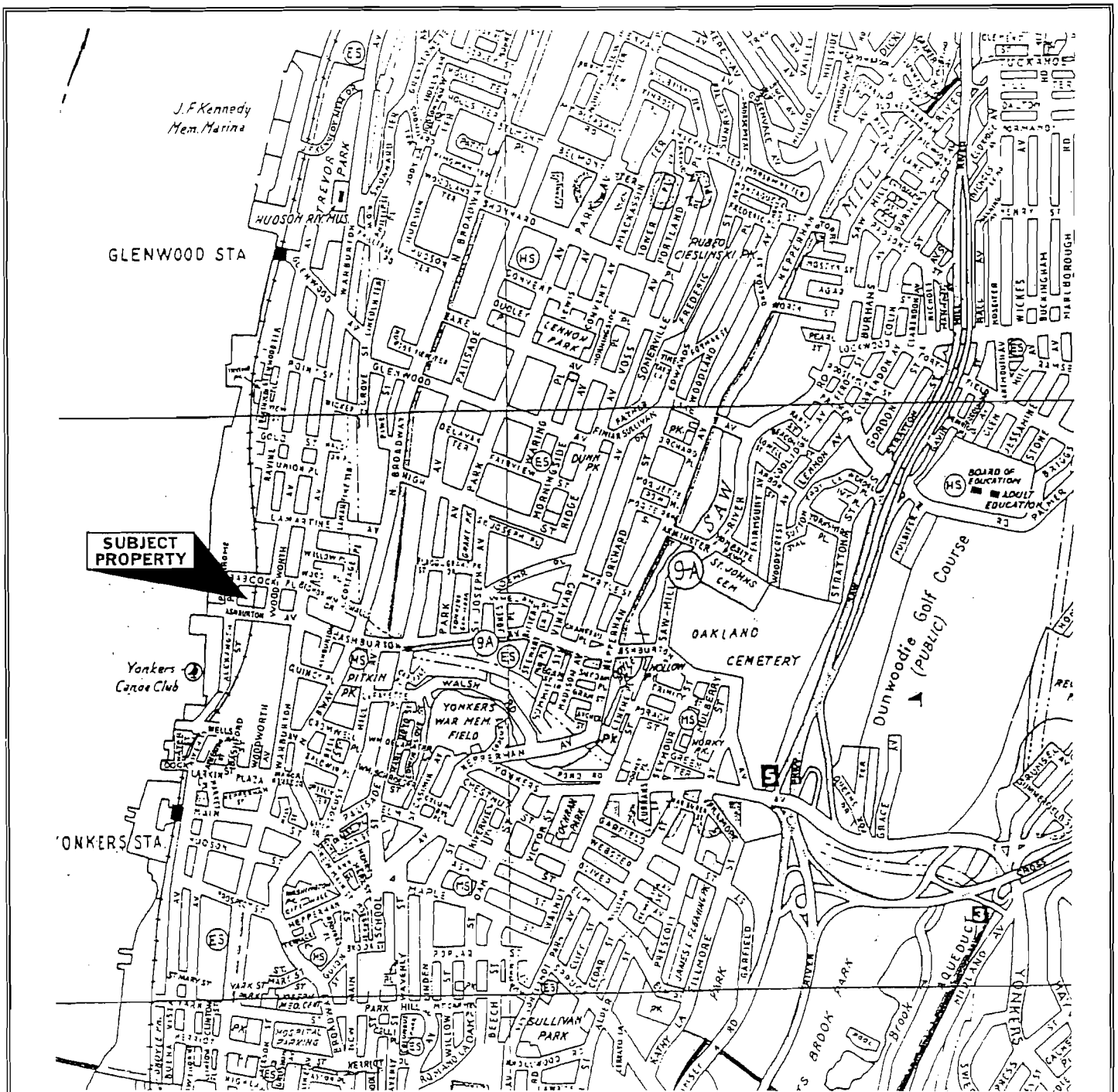
5. A geomembrane has been installed over all portions of the Site not covered by an impervious surface. Oversight of the installation was conducted by a professional engineer, who has concluded that the installation was in conformance with specifications.

**No further remedial action is warranted. An inspection of membrane should be conducted on an annual basis with a statement of its condition provided to both the Client and the NYSDEC.**

6. Indoor and outdoor air-quality testing was conducted to document ambient levels of VOCs and compare these levels to concentrations detected inside the building. Data from air samples inside the building were below OSHA/NIOSH and NYSDOH exposure levels. Stack emissions were below SGC guidance levels.

**No further remedial actions is warranted.**

**APPENDIX A**  
**Maps and Drawings**



Source: Hagstrom Map Company, dated 1997

### Site Location Map

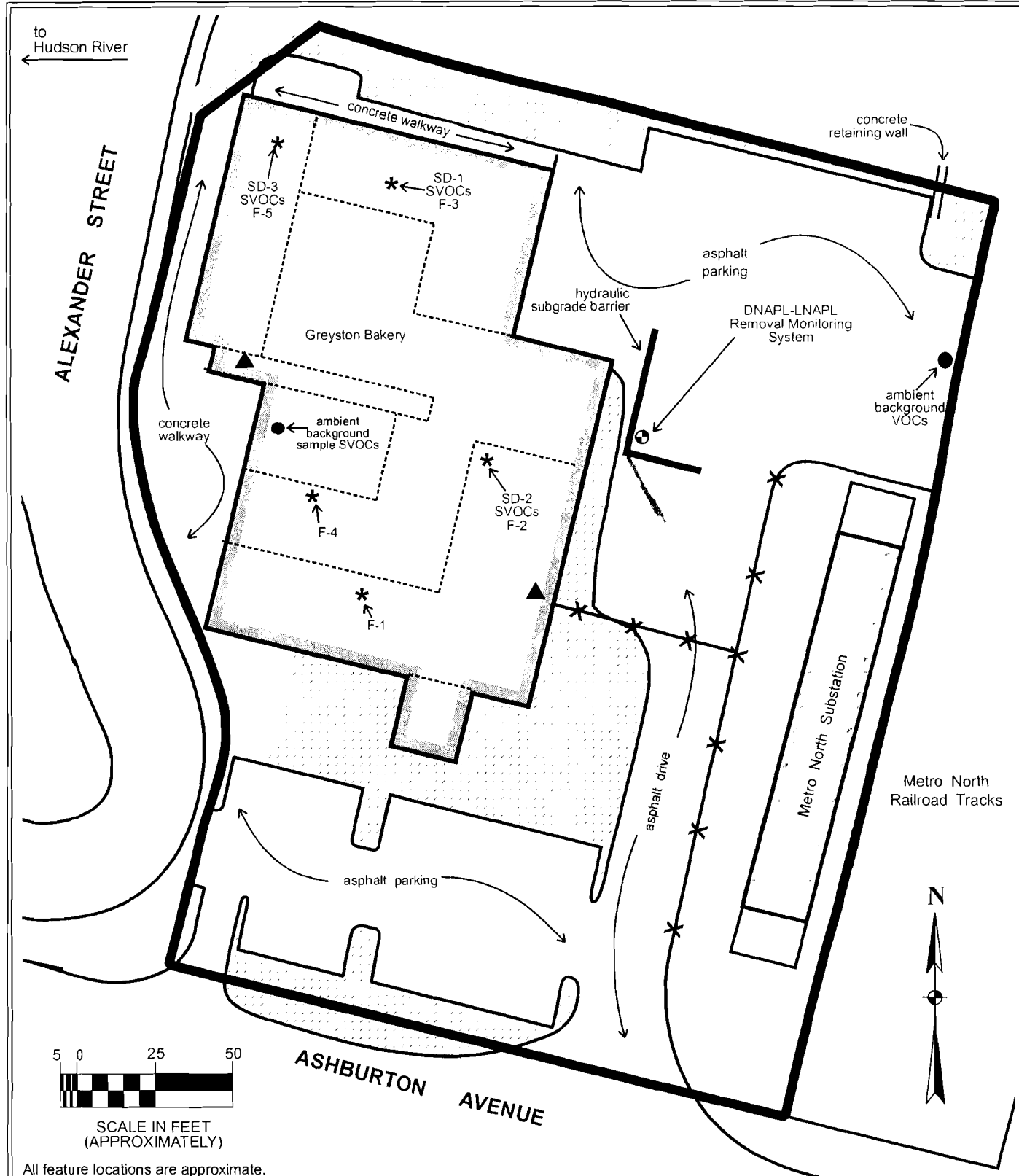
104 Ashburton Avenue  
City of Yonkers  
Westchester County, New York



ESI File: GY99143.50R

Date: February 2004

Appendix A



## Fieldwork Map

104 Ashburton Avenue  
 City of Yonkers  
 Westchester County  
 New York

### Legend:

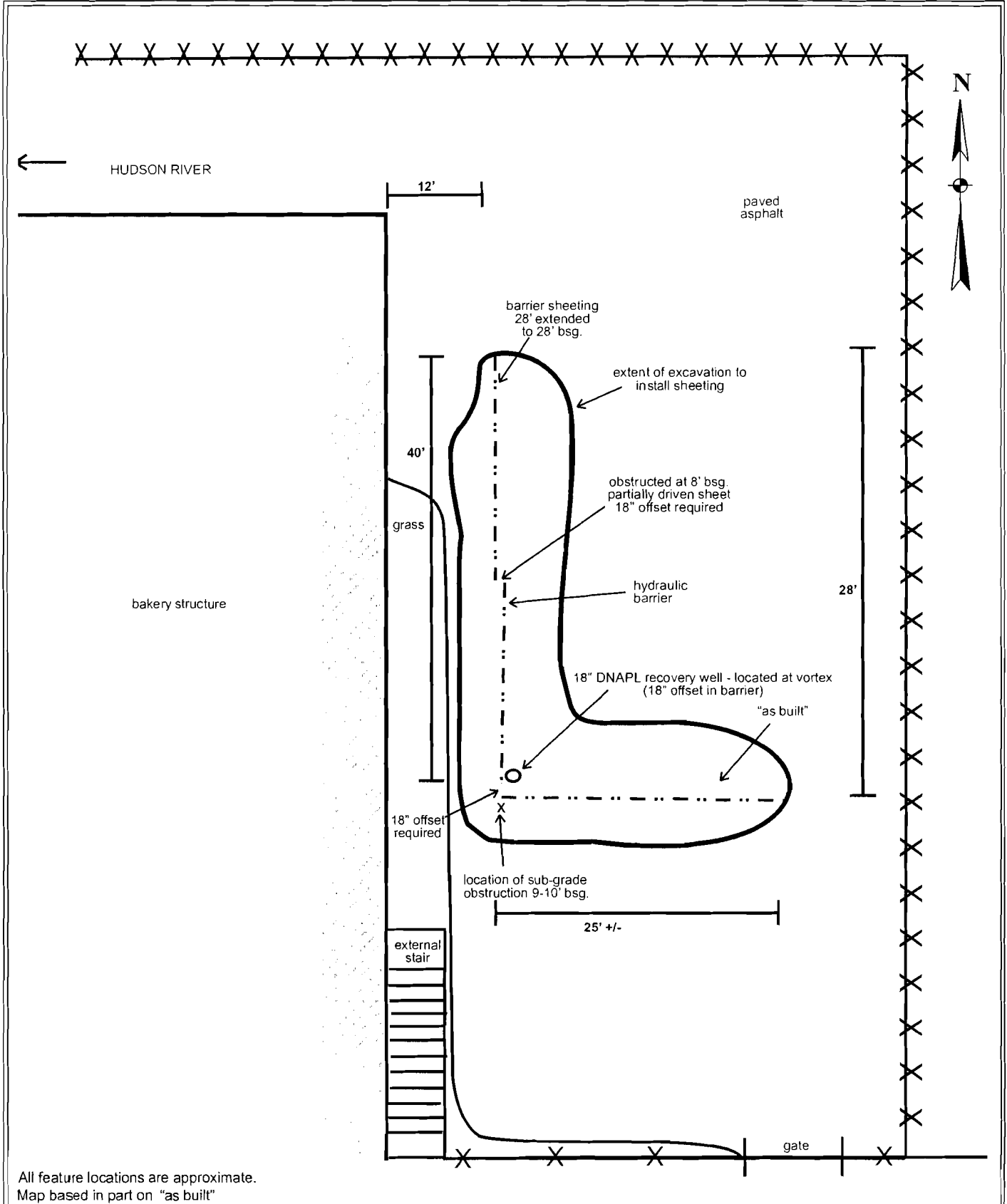
- subject property border
- VES monitoring point
- VES roof discharge point
- area of GCL barrier
- chain link fence

ESI File: GY99143.50R

February 2004

Scale: 1" = 45' (approximately)

Appendix A



All feature locations are approximate.  
Map based in part on "as built"

**"As Built" Drawing**  
**Funnel & Gate System**  
 104 Ashburton Avenue  
 City of Yonkers  
 Westchester County, New York

Legend:

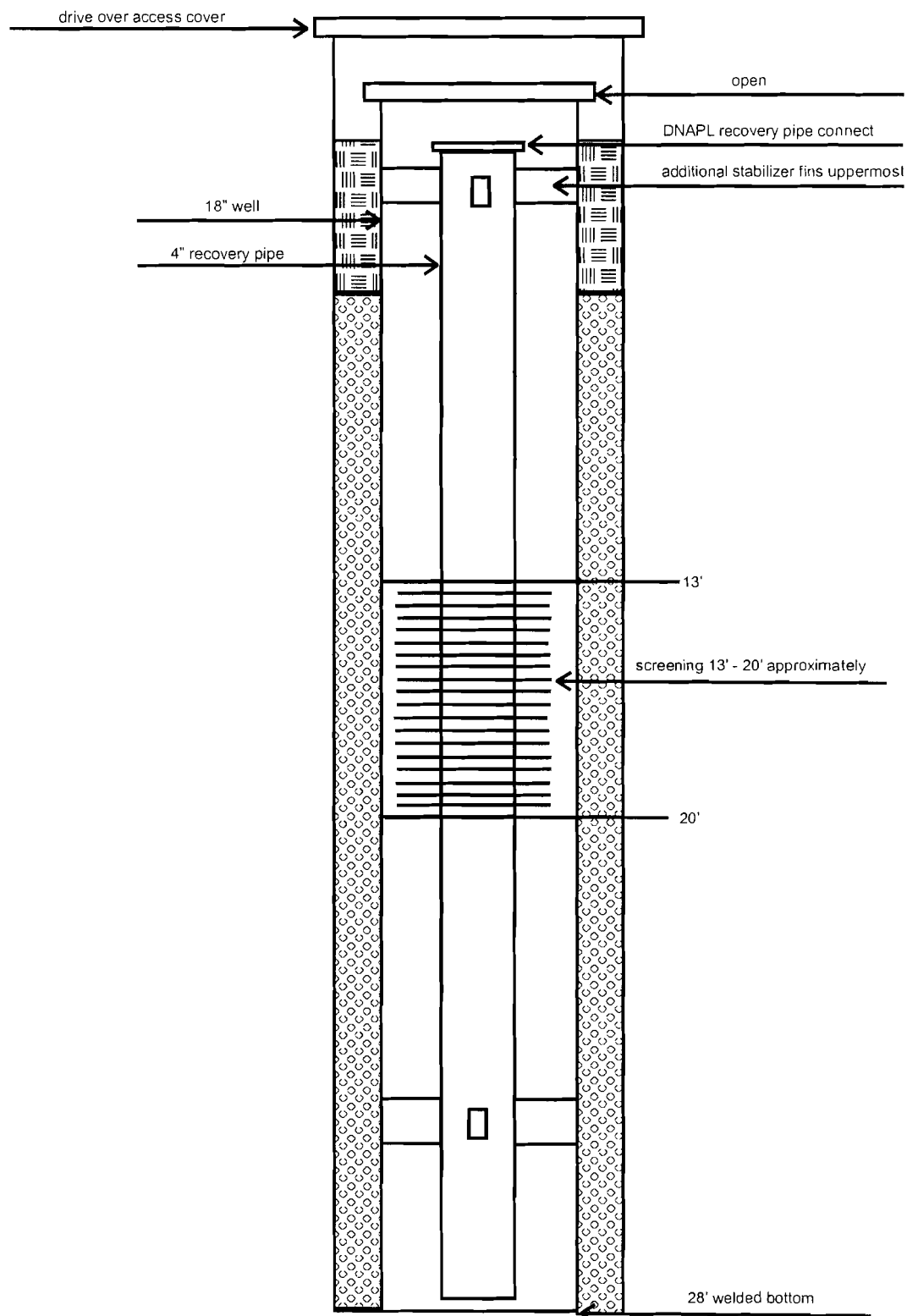
chain link fence 

ESI File: GY99143.50R

February 2004

Scale: 1" = 12'

Appendix A



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

**"As Built" Drawing**  
**DNAPL Recovery System Detail**  
 104 Ashburton Avenue  
 City of Yonkers  
 Westchester County, New York

Legend:



gravel pack 1"



bentonite seal 12" typical

ESI File:GY99143.50R

February 2004

Not to Scale

Appendix A



**APPENDIX B**

**Photographs**

**PHOTOGRAPHS**



1. **Pre building construction. Backfilling of building footprint.**



2. **VES module installation.**



**PHOTOGRAPHS**



3. **Installation of DNAPL/LNAPL – Removal Monitoring System collection of auger spoils for off-site dispensation.**



4. **Installation of DNAPL/LNAPL Removal Monitoring System auger casing installation.**



**PHOTOGRAPHS**



5. **18" diameter DNAPL/LNAPL Removal Monitoring System detail.**



6. **4" diameter DNAPL recovery pipe being inserted into DNAPL/LNAPL Removal Monitoring System.**



**PHOTOGRAPHS**



7. **Collection of tedlar samples for VOC analysis VES roof discharge.**

**APPENDIX C**

**Waste Disposal Manifests**

# ADVANCED OIL RECYCLING

807 Avenue K, Matamoras, PA 18336

1-866-OLD-OILS

3274

## CUSTOMER

|                           |                                     |
|---------------------------|-------------------------------------|
| Name<br><b>ECOSYSTEMS</b> | Contact<br><b>Paul / John</b>       |
| Delivery Address          | Phone                               |
| <b>Poughkeepsie NY</b>    | Special Instr<br><b>Yonkers Job</b> |

| DESCRIPTION | QUANTITY | AMOUNT |
|-------------|----------|--------|
| Used Oil    |          |        |
| Anti-Freeze |          |        |

# LUZON ENVIRONMENTAL SERVICES

1 INDUSTRIAL PARK, WOODBRIDGE, NY 12789  
 (914) 434-7805  
 FAX (914) 434-0307  
 1-800-828-8249 EMERGENCY NO

## NON HAZARDOUS WASTE MANIFEST

**GENERATOR**

Generator Name: LUZON ENVIRONMENTAL SERVICES  
 Address: 1 INDUSTRIAL PARK, WOODBRIDGE, NY 12789  
 Phone No: (914) 434-7805  
 Shipping Location: WOODBRIDGE, NY 12789

**CONTAINERS**

| Code       | Quantity | Units | No | Type |
|------------|----------|-------|----|------|
| G. Gallons | 0        | 1     | 5  | 6    |
| D. Drum    | 0        | 1     | 5  | 6    |
| C. Carton  | 0        | 1     | 5  | 6    |
| B. Bag     | 0        | 1     | 5  | 6    |
| T. Truck   | 0        | 1     | 5  | 6    |
| P. Pallet  | 0        | 1     | 5  | 6    |
| Y. Yards   | 0        | 1     | 5  | 6    |
| O. Other   | 0        | 1     | 5  | 6    |

**DESCRIPTION OF WASTE**

WASTE PETROLEUM OIL  
 COMBUSTIBLE LIQUID  
 UN 1270 III

**LAB NUMBER**

845-4521658

I hereby certify that the above named material is not a hazardous waste nor does it contain PCB's as defined by 40 CFR Part 261 or any applicable state law.

Generator Authorized Agent Name: George Schuman  
 Signature: [Signature]  
 Date: 04/29/02

**TRANSPORTER**

Transporter Name: LUZON OIL CO., INC.  
 Address: P.O. BOX 1070, WOODBRIDGE, N.Y. 12789  
 Vehicle No. / License No: 218  
 Vehicle Certification: 3A-005  
 Driver Name (Print): George Schuman  
 Driver Signature: [Signature]  
 Shipment Date: 04/29/02  
 Delivery Date: 04/29/02

**DESTINATION**

Site Name: LUZON ENVIRONMENTAL SERVICES  
 Address: 1 INDUSTRIAL PARK, WOODBRIDGE, NY 12789  
 Phone No: (914) 434-7805

This is to certify that \_\_\_\_\_ of the above cited waste material was received at \_\_\_\_\_

(Total amount or portion in cubic yards, gallons, or truck loads)

Name of Authorized Agent: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 White - Destination  
 Canary - Transporter  
 Pink - Return to Generator  
 Gold - Leave with Generator

Receipt Date: \_\_\_\_\_

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.





Site 11719

33 34

# NOTHING

Weight Date

Welding time

WEIGHT TICKET PROCESSED BY

11-2

**TT Materials Corp**  
**Non-Hazardous Waste Manifest**  
Solid Waste Facility #14M03  
NYDEC Permit Number # 3-1326-00144/00001-0

**TT MATERIALS CORP.**

**Generator**

Generator Name GREYSTON ~~BAKERY~~ FOUNDATION  
Generator Address \_\_\_\_\_  
Address YONKERS, N.Y.  
Phone # ( 845 ) 452-1658 (ESI)

**Site**

Site Name NEW GREYSTON BAKERY CONST. SITE  
Site Address 104 ALEXANDER ST.  
Address YONKERS NY.  
Phone # ( \_\_\_\_\_ ) \_\_\_\_\_

**Waste Description**

#2 Oil ☒  
#4 Oil ☒

Diesel Fuel ☒  
#6 Oil ☒  
COAL TAIL

Gasoline ☐  
Mineral Oil ☐

Jet Fuel ☐  
Kerosene ☐

I hereby certify that the above designated soils are not a hazardous waste nor does it contain PCB's as defined by 40 CFR Part 261 or any applicable state law.

JONATHAN A. KAPLAN ESI AS AGENT FOR  
Generator or authorized name GREYSTON

Jonathan A. Kaplan  
Signature

7/25/03  
Date

**Transporter**

Transporter name NICCO TRUCK  
Address 12 CAROL DR POK NY  
Contact CHIEF  
Phone ( 845 ) 471-9473

Driver name Nick Luma  
Veh. No./Lic # 10796TR  
Vehicle cert # 3A527

I hereby certify that the above named material was picked up at the generator site listed above:

I hereby certify that the above named material was delivered without incident to the facility listed below:

X Nick 7-25-03 X  
Driver signature Shipment date

Nick 7/25/03  
Driver signature Delivery date

**Facility**

This Manifest document certifies that 29.47 Tons of the above described non-hazardous virgin contaminated petroleum soils was received at TT Materials Corp. Solid Waste Facility in Wingdale, NY.

I hereby certify that the above named materials has been accepted and to the best of my knowledge the foregoing is true and accurate.

Print name of Facility authorized agent

X [Signature]  
Signature of Facility authorized agent

7/25/03  
Date



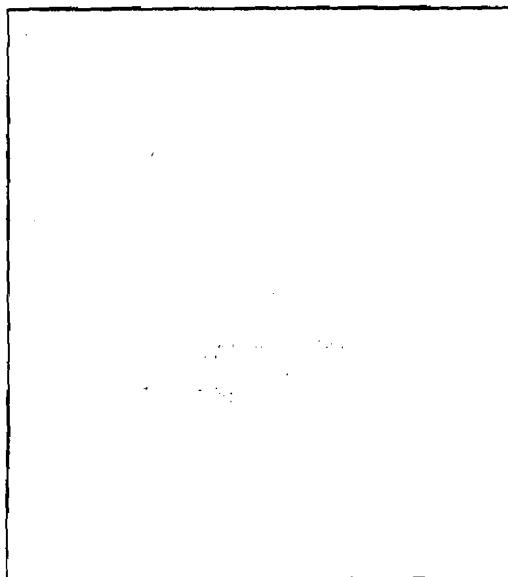
## Facility Weight Ticket

|                         |       |
|-------------------------|-------|
| Customer ID #           | _____ |
| Date of form generation | _____ |
| Job ##                  | _____ |

Site Name Greystone Bakery  
Site Address Yonkers NY  
Transporter Name Nico  
Generator Name Greystone Foundation  
Contr Agent Company ECO SYSTEMS  
Contr Agent Address \_\_\_\_\_  
Contr Agent Contact J. Kaplan

### SCALE WEIGHT PRINTOUT

Scale ID# \_\_\_\_\_  
Truck ID# \_\_\_\_\_  
LB Gross \_\_\_\_\_  
LB Tare \_\_\_\_\_  
LB Net \_\_\_\_\_  
Net tonnage 29.47  
Weight Date \_\_\_\_\_  
Weight time \_\_\_\_\_



WEIGHT TICKET PROCESSED BY \_\_\_\_\_

Date

7-25-03

THIS COPY GOES TO: \_\_\_\_\_

**TT Materials Corp**  
**Non-Hazardous Waste Manifest**

Solid Waste Facility #14M03  
NYDEC Permit Number # 3-1326-00144/00001-0

**TT MATERIALS CORP**

**Generator**

Generator Name GREYSTON FOUNDATION BAKERY  
Generator Address \_\_\_\_\_  
Address YONKERS, NY  
Phone # ( 845 ) 452-1658 (ESI)

**Site**

Site Name NEW GREYSTON BAKERY CONST. SITE  
Site Address 104 ALEXANDER ST.  
Address YONKERS NY  
Phone # ( \_\_\_\_\_ ) \_\_\_\_\_

**Waste Description**

#2 Oil ☒ Diesel Fuel ☐ Gasoline ☐ Jet Fuel ☐  
#4 Oil ☒ #6 Oil ☒ Mineral Oil ☐ Kerosene ☐  
COAL TAIL

I hereby certify that the above designated soils are not a hazardous waste nor does it contain PCB's as defined by 40 CFR Part 261 or any applicable state law.

JONATHAN A. KAPLAN ESI IS AGENT FOR  
Generator or authorized name GREYSTON

Jonathan A. Kaplan  
Signature

7/25/03  
Date

**Transporter**

Transporter name NICLO TRUCK  
Address 2 LAROI DR POK NY  
Contact CHARLES  
Phone ( 845 ) 471-9433

Driver name NICK LUMA  
Veh. No./Lic # 10796TR  
Vehicle cert # 34527

I hereby certify that the above named material was picked up at the generator site listed above:

I hereby certify that the above named material was delivered without incident to the facility listed below:

X Nick Luma 7-25-03 X  
Driver signature Shipment date

Nick Luma 7/25/03  
Driver signature Delivery date

**Facility**

This Manifest document certifies that 29.47 Tons of the above described non-hazardous virgin contaminated petroleum soils was received at TT Materials Corp. Solid Waste Facility in Wingdale, NY.

I hereby certify that the above named materials has been accepted and to the best of my knowledge the foregoing is true and accurate.

Print name of Facility authorized agent

X [Signature]  
Signature of Facility authorized agent

7/25/03  
Date

White: Facility

Yellow: Transporter

Pink: Generator

Gold: Other

APPENDIX D  
Laboratory Results

**YORK**  
ANALYTICAL LABORATORIES, INC.

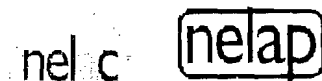
# Technical Report

prepared for

**Ecosystems Strategies, Inc.**  
24 Davis Avenue  
Poughkeepsie, NY 12603  
Attention: Jon Kaplan

Report Date: 5/28/2003  
*Re: Client Project ID: GY99143.40*  
York Project No.: 03050516 R

CT License No. PH-0723   New York License No. 10854   Mass License No. M-CT106   Rhode Island License No. 93   NJ License No. CT401



Report Date: 5/28/2003  
Client Project ID: GY99143.40  
York Project No.: 03050516 R

**Ecosystems Strategies, Inc.**  
24 Davis Avenue  
Poughkeepsie, NY 12603  
Attention: Jon Kaplan

## Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on 05/19/03. The project was identified as your project "GY99143.40".

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the NELAC acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All the analyses met the method and laboratory standard operating procedure requirements except as indicated under the Notes section of this report, or as indicated by any data flags, the meaning of which is explained in the attachment to this report, if applicable.

The results of the analyses, which are all reported on an as-received basis unless otherwise noted, are summarized in the following table(s).

## Analysis Results

| Client Sample ID                        |              |          | SD-1         |      | SD-1 Duplicate LF |      |
|---|--------------|----------|--------------|------|-------------------|------|
| York Sample ID                          |              |          | 03050516-01  |      | 03050516-02       |      |
| Matrix                                  |              |          | AIR          |      | AIR               |      |
| Parameter                               | Method       | Units    | Results      | MDL  | Results           | MDL  |
| <b>Polynuclear Aromatic Hydrocarbon</b> | EPA CompTO13 | ug/cu.m. | ---          | ---  | ---               | ---  |
| Acenaphthene                            |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Anthracene                              |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Benzo[a]anthracene                      |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Benzo[a]pyrene                          |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Benzo[b]fluoranthene                    |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Benzo[g,h,i]perylene                    |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Benzo[k]fluoranthene                    |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Chrysene                                |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Dibenz[a,h]anthracene                   |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Fluoranthene                            |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Fluorene                                |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Indeno[1,2,3-cd]pyrene                  |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Naphthalene                             |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Phenanthrene                            |              |          | Not detected | 0.35 | Not detected      | 1.74 |
| Pyrene                                  |              |          | Not detected | 0.35 | Not detected      | 1.74 |

**YORK**



|                                  |              |          |              |      |                    |      |
|----------------------------------|--------------|----------|--------------|------|--------------------|------|
| Client Sample ID                 |              |          | SD-2         |      | Ambient Background |      |
| York Sample ID                   |              |          | 03050516-03  |      | 03050516-04        |      |
| Matrix                           |              |          | AIR          |      | AIR                |      |
| Parameter                        | Method       | Units    | Results      | MDL  | Results            | MDL  |
| Polynuclear Aromatic Hydrocarbon | EPA CompT013 | ug/cu.m. | ---          | ---  | ---                | ---  |
| Acenaphthene                     |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Anthracene                       |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Benzo[a]anthracene               |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Benzo[a]pyrene                   |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Benzo[b]fluoranthene             |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Benzo[g,h,i]perylene             |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Benzo[k]fluoranthene             |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Chrysene                         |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Dibenz[a,h]anthracene            |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Fluoranthene                     |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Fluorene                         |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Indeno[1,2,3-cd]pyrene           |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Naphthalene                      |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Phenanthrene                     |              |          | Not detected | 0.35 | Not detected       | 0.35 |
| Pyrene                           |              |          | Not detected | 0.35 | Not detected       | 0.35 |

Units Key:

For Waters/Liquids: mg/L = ppm : ug/L = ppb

For Soils/Solids: mg/kg = ppm : ug/kg = ppb

### Notes for York Project No. 03050516 R

1. The MDL (Minimum Detectable Limit) reported is adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation.
6. All analyses conducted met method or Laboratory SOP requirements.
7. It is noted that no analyses reported herein were subcontracted to another laboratory.

Approved By:

Robert Q. Bradley  
Managing Director

Date: 5/28/2003

**YORK**

ANALYTICAL LABORATORIES, INC.

ONE RESEARCH DRIVE  
STAFFORD, CT 06900

1203) 325-1371 FAX (203) 357-0166

Page 1 of

## Field Chain-of-Custody Record

05/20/2003 08:36

4857083

PAGE 02

|                             |                    |                    |                       |   |
|-----------------------------|--------------------|--------------------|-----------------------|---|
| <u>Company Name</u>         | <u>Report To:</u>  | <u>Invoice To:</u> | <u>Project ID/No.</u> | <u>Samples Collected By (Signature)</u>     |
| Ecosystems Strategies, Inc. | Jonathan A. Kaplan | Pam Quenzler       | GY99143.40            | Jonathan A. Kaplan<br><u>Name (Printed)</u> |

[illegible]

|   |           |                        |           |                           |                         |       |  |           |  |
|---|-----------|------------------------|-----------|---------------------------|-------------------------|-------|--|-----------|--|
| <b>Chain-of-Custody Record</b>  |           | JK                     |           | 5/19/12 P                 |                         | Wayne |  | 5/19 1230 |  |
| Bottles Relinquished from Lab by  | Date/Time | Sample Relinquished by | Date/Time | Sample Received by        | Date/Time               |       |  |           |  |
| Bottles Received in Field by  | Date/Time | Sample Relinquished by | Date/Time | Sample Received in LAB by | Date/Time               |       |  |           |  |
| <b>Comments/Special Instructions</b>                                    |           |                        |           |                           | <b>Turn-Around Time</b> |       |  |           |  |
| KAW SAMPLES COLLECTED AT 20 L/M FOR 24 HOURS EXCEPT 20-1 (DUPLICATE-LE) |           |                        |           |                           | X Standard RUSH(define) |       |  |           |  |



# Technical Report

prepared for

**Ecosystems Strategies, Inc.**  
24 Davis Avenue  
Poughkeepsie, NY 12603  
Attention: Jonathan A. Kaplan

Report Date: 9/29/2003  
*Re: Client Project ID: GY99143.40*  
York Project No.: 03090736

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Report Date: 9/29/2003  
Client Project ID: GY99143.40  
York Project No.: 03090736

Ecosystems Strategies, Inc.  
24 Davis Avenue  
Poughkeepsie, NY 12603  
Attention: Jonathan A. Kaplan

## Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on 09/25/03. The project was identified as your project "GY99143.40".

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the NELAC acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All the analyses met the method and laboratory standard operating procedure requirements except as indicated under the Notes section of this report, or as indicated by any data flags, the meaning of which is explained in the attachment to this report, if applicable.

The results of the analyses, which are all reported on an as-received basis unless otherwise noted, are summarized in the following table(s).

## Analysis Results

| Client Sample ID              |          |       | 509          |     | 526          |     |
|-------------------------------|----------|-------|--------------|-----|--------------|-----|
| York Sample ID                |          |       | 03090736-01  |     | 03090736-02  |     |
| Matrix                        |          |       | AIR          |     | AIR          |     |
| Parameter                     | Method   | Units | Results      | MDL | Results      | MDL |
| Volatiles(TO-14 list)         | EPA TO14 | ppbv  | ---          | --- | ---          | --- |
| 1,1,1-Trichloroethane         |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1,2,2-tetrachloroethane     |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1,2-Trichloroethane         |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1-Dichloroethane            |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1-Dichloroethylene          |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2,4-Trichlorobenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2,4-Trimethylbenzene        |          |       | 1.5          | 1.0 | 1.7          | 1.0 |
| 1,2-Dibromoethane             |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichloroethane            |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichloropropane           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichlorotetrafluoroethane |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,3,5-Trimethylbenzene        |          |       | 1.3          | 1.0 | Not detected | 1.0 |
| 1,3-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,4-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 3-Chloropropene               |          |       | Not detected | 1.0 | Not detected | 1.0 |

**YORK**

| Client Sample ID            |        |       | 509          |     | 526          |     |
|-----------------------------|--------|-------|--------------|-----|--------------|-----|
| York Sample ID              |        |       | 03090736-01  |     | 03090736-02  |     |
| Matrix                      |        |       | AIR          |     | AIR          |     |
| Parameter                   | Method | Units | Results      | MDL | Results      | MDL |
| 4-Ethyltoluene              |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Benzene                     |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Benzyl Chloride             |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Bromomethane                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Carbon Tetrachloride        |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chlorobenzene               |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloroethane                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloroform                  |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloromethane               |        |       | Not detected | 1.0 | Not detected | 1.0 |
| cis-1,2-Dichloroethylene    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| cis-1,3-Dichloropropylene   |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Dichlorodifluoromethane     |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Ethylbenzene                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Freon-113                   |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Hexachloro-1,3-Butadiene    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Methylene Chloride          |        |       | Not detected | 1.0 | Not detected | 1.0 |
| o-Xylene                    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| p- & m-Xylenes              |        |       | 1.3          | 1.0 | 1.0          | 1.0 |
| Styrene                     |        |       | 2.0          | 1.0 | Not detected | 1.0 |
| Tetrachloroethylene         |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Toluene                     |        |       | 46           | 1.0 | 17           | 1.0 |
| trans-1,3-Dichloropropylene |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Trichloroethylene           |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Trichlorofluoromethane      |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Vinyl Chloride              |        |       | Not detected | 1.0 | Not detected | 1.0 |

| Client Sample ID              |          |       | 505          |     | 518 (Background) |     |
|-------------------------------|----------|-------|--------------|-----|------------------|-----|
| York Sample ID                |          |       | 03090736-03  |     | 03090736-04      |     |
| Matrix                        |          |       | AIR          |     | AIR              |     |
| Parameter                     | Method   | Units | Results      | MDL | Results          | MDL |
| Volatiles(TO-14 list)         | EPA TO14 | ppbv  | ---          | --- | ---              | --- |
| 1,1,1-Trichloroethane         |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,1,2,2-tetrachloroethane     |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,1,2-Trichloroethane         |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,1-Dichloroethane            |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,1-Dichloroethylene          |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,2,4-Trichlorobenzene        |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,2,4-Trimethylbenzene        |          |       | 2.0          | 1.0 | Not detected     | 1.0 |
| 1,2-Dibromoethane             |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,2-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,2-Dichloroethane            |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,2-Dichloropropane           |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,2-Dichlorotetrafluoroethane |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,3,5-Trimethylbenzene        |          |       | 1.5          | 1.0 | Not detected     | 1.0 |
| 1,3-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 1,4-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 3-Chloropropene               |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| 4-Ethyltoluene                |          |       | Not detected | 1.0 | Not detected     | 1.0 |
| Benzene                       |          |       | Not detected | 1.0 | Not detected     | 1.0 |

**YORK**

| Client Sample ID            |        |       | 505          |     | 518 (Background) |     |
|-----------------------------|--------|-------|--------------|-----|------------------|-----|
| York Sample ID              |        |       | 03090736-03  |     | 03090736-04      |     |
| Matrix                      |        |       | AIR          |     | AIR              |     |
| Parameter                   | Method | Units | Results      | MDL | Results          | MDL |
| Benzyl Chloride             |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Bromomethane                |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Carbon Tetrachloride        |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Chlorobenzene               |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Chloroethane                |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Chloroform                  |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Chloromethane               |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| cis-1,2-Dichloroethylene    |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| cis-1,3-Dichloropropylene   |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Dichlorodifluoromethane     |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Ethylbenzene                |        |       | 1.0          | 1.0 | Not detected     | 1.0 |
| Freon-113                   |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Hexachloro-1,3-Butadiene    |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Methylene Chloride          |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| o-Xylene                    |        |       | 1.1          | 1.0 | Not detected     | 1.0 |
| p- & m-Xylenes              |        |       | 2.0          | 1.0 | Not detected     | 1.0 |
| Styrene                     |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Tetrachloroethylene         |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Toluene                     |        |       | 7.5          | 1.0 | Not detected     | 1.0 |
| trans-1,3-Dichloropropylene |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Trichloroethylene           |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Trichlorofluoromethane      |        |       | Not detected | 1.0 | Not detected     | 1.0 |
| Vinyl Chloride              |        |       | Not detected | 1.0 | Not detected     | 1.0 |

Units Key: For Waters/Liquids: mg/L = ppm ; ug/L = ppb For Soils/Solids: mg/kg = ppm ; ug/kg = ppb

#### Notes for York Project No. 03090736

1. The MDL (Minimum Detectable Limit) reported is adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation.
6. All analyses conducted met method or Laboratory SOP requirements.
7. It is noted that no analyses reported herein were subcontracted to another laboratory.

Approved By: \_\_\_\_\_

Robert Q. Bradley  
Managing Director

Date: 9/29/2003

**YORK**

## ANALYTICAL LABORATORIES, INC.

ONE RESEARCH DRIVE  
STAMFORD, CT 06906  
(203) 375-1371 FAX (203) 375-1372

1203) 35-1371 FAX (202) 357-0166

**Company Name**

**Report To:**

**Invoice To:**

Project ID/No.

**Ecosystems Strategies, Inc.**

**Jonathan A. Kaplan**

**Barbara Quinn**

Gy99143.40

Forrest & Vign  
Samples Collected

Samples Collected By (Signature)

**Jonathan A. Kaplan**

Name (Printed)

[illegible]

### Chain-of-Custody Record

Bottles Relinquished from Lab by

Date/Time

**Sample Relinquished by**

DateTime

10:40 A 7/25/03

Sample Received by

Sample Received by

**Bottles Received in Field by**

Date/Time:

**Sample Relinquished by**

Date/Time

Sample Reconnected in LAB by

## Dealing

## Comments/Special Instructions

### **Turn-Around Time**

X Standard RUSH(define)

**YORK**  
ANALYTICAL LABORATORIES, INC.

# Technical Report

prepared for

**Ecosystems Strategies, Inc.**  
24 Davis Avenue  
Poughkeepsie, NY 12603  
Attention: Jonathan A. Kaplan

Report Date: 10/28/2003  
***Re: Client Project ID: GY99143.40***  
York Project No.: 03100754

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Report Date: 10/28/2003  
Client Project ID: GY99143.40  
York Project No.: 03100754

**Ecosystems Strategies, Inc.**  
24 Davis Avenue  
Poughkeepsie, NY 12603  
Attention: Jonathan A. Kaplan

## Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on 10/24/03. The project was identified as your project "GY99143.40".

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the NELAC acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All the analyses met the method and laboratory standard operating procedure requirements except as indicated under the Notes section of this report, or as indicated by any data flags, the meaning of which is explained in the attachment to this report, if applicable.

The results of the analyses, which are all reported on an as-received basis unless otherwise noted, are summarized in the following table(s).

### Analysis Results

| Client Sample ID              |          |       | F-1          |     | F-2          |     |
|-------------------------------|----------|-------|--------------|-----|--------------|-----|
| York Sample ID                |          |       | 03100754-01  |     | 03100754-02  |     |
| Matrix                        |          |       | AIR          |     | AIR          |     |
| Parameter                     | Method   | Units | Results      | MDL | Results      | MDL |
| Volatiles(TO-14 list)         | EPA TO14 | ppbv  | ---          | --- | ---          | --- |
| 1,1,1-Trichloroethane         |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1,2,2-tetrachloroethane     |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1,2-Trichloroethane         |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1-Dichloroethane            |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1-Dichloroethylene          |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2,4-Trichlorobenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2,4-Trimethylbenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dibromoethane             |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichloroethane            |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichloropropane           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichlorotetrafluoroethane |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,3,5-Trimethylbenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,3-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,4-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 3-Chloropropene               |          |       | Not detected | 1.0 | Not detected | 1.0 |

**YORK**

| Client Sample ID            |        |       | F-1          |     | F-2          |     |
|-----------------------------|--------|-------|--------------|-----|--------------|-----|
| York Sample ID              |        |       | 03100754-01  |     | 03100754-02  |     |
| Matrix                      |        |       | AIR          |     | AIR          |     |
| Parameter                   | Method | Units | Results      | MDL | Results      | MDL |
| 4-Ethyltoluene              |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Benzene                     |        |       | 3.5          | 1.0 | 1.5          | 1.0 |
| Benzyl Chloride             |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Bromomethane                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Carbon Tetrachloride        |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chlorobenzene               |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloroethane                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloroform                  |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloromethane               |        |       | Not detected | 1.0 | Not detected | 1.0 |
| cis-1,2-Dichloroethylene    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| cis-1,3-Dichloropropylene   |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Dichlorodifluoromethane     |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Ethylbenzene                |        |       | 1.1          | 1.0 | Not detected | 1.0 |
| Freon-113                   |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Hexachloro-1,3-Butadiene    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Methylene Chloride          |        |       | Not detected | 1.0 | Not detected | 1.0 |
| o-Xylene                    |        |       | 1.5          | 1.0 | Not detected | 1.0 |
| p- & m-Xylenes              |        |       | 2.2          | 1.0 | Not detected | 1.0 |
| Styrene                     |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Tetrachloroethylene         |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Toluene                     |        |       | 13           | 1.0 | 5.8          | 1.0 |
| trans-1,3-Dichloropropylene |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Trichloroethylene           |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Trichlorofluoromethane      |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Vinyl Chloride              |        |       | Not detected | 1.0 | Not detected | 1.0 |

| Client Sample ID              |          |       | F-3          |     | F-4          |     |
|-------------------------------|----------|-------|--------------|-----|--------------|-----|
| York Sample ID                |          |       | 03100754-03  |     | 03100754-04  |     |
| Matrix                        |          |       | AIR          |     | AIR          |     |
| Parameter                     | Method   | Units | Results      | MDL | Results      | MDL |
| Volatiles(TO-14 list)         | EPA TO14 | ppbv  | ---          | --- | ---          | --- |
| 1,1,1-Trichloroethane         |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1,2,2-tetrachloroethane     |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1,2-Trichloroethane         |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1-Dichloroethane            |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,1-Dichloroethylene          |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2,4-Trichlorobenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2,4-Trimethylbenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dibromoethane             |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichloroethane            |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichloropropane           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,2-Dichlorotetrafluoroethane |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,3,5-Trimethylbenzene        |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,3-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 1,4-Dichlorobenzene           |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 3-Chloropropene               |          |       | Not detected | 1.0 | Not detected | 1.0 |
| 4-Ethyltoluene                |          |       | Not detected | 1.0 | Not detected | 1.0 |
| Benzene                       |          |       | 1.1          | 1.0 | Not detected | 1.0 |

**YORK**

| Client Sample ID            |        |       | F-3          |     | F-4          |     |
|-----------------------------|--------|-------|--------------|-----|--------------|-----|
| York Sample ID              |        |       | 03100754-03  |     | 03100754-04  |     |
| Matrix                      |        |       | AIR          |     | AIR          |     |
| Parameter                   | Method | Units | Results      | MDL | Results      | MDL |
| Benzyl Chloride             |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Bromomethane                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Carbon Tetrachloride        |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chlorobenzene               |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloroethane                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloroform                  |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Chloromethane               |        |       | Not detected | 1.0 | Not detected | 1.0 |
| cis-1,2-Dichloroethylene    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| cis-1,3-Dichloropropylene   |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Dichlorodifluoromethane     |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Ethylbenzene                |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Freon-113                   |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Hexachloro-1,3-Butadiene    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Methylene Chloride          |        |       | Not detected | 1.0 | Not detected | 1.0 |
| o-Xylene                    |        |       | Not detected | 1.0 | Not detected | 1.0 |
| p- & m-Xylenes              |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Styrene                     |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Tetrachloroethylene         |        |       | 1.8          | 1.0 | 2.2          | 1.0 |
| Toluene                     |        |       | 4.4          | 1.0 | 3.9          | 1.0 |
| trans-1,3-Dichloropropylene |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Trichloroethylene           |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Trichlorofluoromethane      |        |       | Not detected | 1.0 | Not detected | 1.0 |
| Vinyl Chloride              |        |       | Not detected | 1.0 | Not detected | 1.0 |

**Units Key:**

For Waters/Liquids: mg/L = ppm ; ug/L = ppb

For Soils/Solids: mg/kg = ppm ; ug/kg = ppb

**Notes for York Project No. 03100754**

1. The MDL (Minimum Detectable Limit) reported is adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation.
6. All analyses conducted met method or Laboratory SOP requirements.
7. It is noted that no analyses reported herein were subcontracted to another laboratory.

Approved By:

Robert Q. Bradley  
Managing Director

Date: 10/28/2003

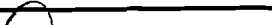
**YORK**

ANALYTICAL LABORATORIES, INC.



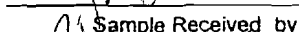
ONE RESEARCH DRIVE  
STAMFORD, CT 06906  
(203) 325-1371 FAX (203) 357-0166

## Field Chain-of-Custody Record

03100754 Pa=

|                             |                    |                    |                       |   |
|-----------------------------|--------------------|--------------------|-----------------------|---|
| <u>Company Name</u>         | <u>Report To:</u>  | <u>Invoice To:</u> | <u>Project ID/No.</u> | <br>Samples Collected By (Signature) |
| Ecosystems Strategies, Inc. | Jonathan A. Kaplan | Barbara Quinn      | GY99143.40            | Jonathan A. Kaplan  |
|                             |                    |                    |                       | Name (Printed)  |

[illegible]

|                                  |           |   |                                |   |                            |
|----------------------------------|-----------|---|--------------------------------|---|----------------------------|
| <b>Chain-of-Custody Record</b>   |           |   |                                |   |                            |
| Bottles Relinquished from Lab by | Date/Time | <br>Sample Relinquished by | 10/24/03 10:00 am<br>Date/Time | <br>Sample Received by         | 10/24/03<br>Date/Time      |
| Bottles Received in Field by     | Date/Time | Sample Relinquished by  | Date/Time                      | <br>Sample Received in LAB by  | 10-24-03/1700<br>Date/Time |
| Comments/Special Instructions    |           |   |                                | <b>Turn-Around Time</b><br><input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH(define) _____ |                            |