REMEDIAL INVESTIGATION REPORT ADDENDUM/ FORMER PRESTO PLASTICS (OU-2) KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK

PURSUANT TO NYSDEC VOLUNTARY CLEANUP AGREEMENT NYSDEC VCA No. A2-0403-9911

TECHNICAL REPORT AND APPENDICES A THROUGH D

NOVEMBER 2003

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REMEDIAL INVESTIGATION REPORT ADDENDUM
Former Presto Plastics (OU-2)
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911

1.0 INTRODUCTION

This Remedial Investigation (RI) Report Addendum (RIRA) has been prepared by Excel Environmental Resources, Inc. (Excel) on behalf of Alexander's, Kings Plaza Center, Inc. (hereafter referred to as the Volunteer) in accordance with the reporting requirements outlined in the Voluntary Cleanup Agreement (VCA) executed on February 26, 2001 between the Volunteer and the New York State Department of Environmental Conservation (NYSDEC). This RIRA outlines the results of supplemental RI activities conducted by Excel within the Former Presto Plastics Area [referred to as Operable Unit-2 (OU-2) or the Site] on behalf of the Volunteer and presents conclusions and recommendations for addressing concentrations of Base Neutral Organic Compounds (BNs) that have been identified in soil and groundwater in OU-2 above NYSDEC Recommended Cleanup Objectives. A site location map is provided as Figure 1 and a generalized site plan showing the area defined as OU-2 is provided as Figure 2.

As detailed in the following subsections and subsequent Chapters of this report, previous investigations conducted by IVI Environmental, Inc. (IVI) documented elevated BN concentrations in soil and groundwater within OU-2 that were attributed to a historic discharge from past site operations. Review of boring logs historically prepared by IVI for soil borings and monitoring wells installed in OU-2, OU-1 (Underground Storage Tank Area), and areas surrounding the perimeter of the Kings Plaza Shopping Center, indicated the presence of fill material containing concrete, brick, wood, ash, and/or cinders in the majority of boring locations. Based on the elevated BN concentrations in soil and the composition of the fill, the fill meets the NYSDEC definition of contaminated Historic Fill (defined as non-native fill that was contaminated prior to emplacement; usually due to the presence of ash and cinders which can contribute BNs, metals, and other contaminants to the fill). Furthermore, the historic OU-2 groundwater analytical results were likely biased high due to elevated turbidity in the samples and the fact that NYSDEC-recommended low flow sampling techniques were not used.

In order to complete groundwater quality delineation and to confirm the most appropriate remedial alternative, Excel conducted a focused soil and groundwater RI in OU-2 to verify whether elevated BN concentrations historically reported in soil and groundwater in OU-2 are in fact attributed to Historic Fill. This report documents the findings of this investigation as well as Excel's conclusions and recommendations regarding the elevated BN concentrations reported in soil and groundwater.

This RIRA has been prepared in accordance with the NYSDEC Draft Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (hereafter referred to as the Technical Guidance).

1.1 Site Location and Description

The Former Presto Plastics Area that is identified as OU-2 is located at the northern end of the 55th Street access road to the Kings Plaza Shopping Center as shown on Figure 2. The Kings Plaza Shopping Center is a ±31-acre parcel identified on local tax maps as Section 1, Block 847, Lots 50 and 55. Figure 1 shows the location of the Site on the Coney Island, N.Y. United States Geological Survey (USGS) 7.5 Minute Series topographic map. The Site is bounded by Avenue U to the north, the Kings Plaza Shopping Center to the west, a paved parking area that is part of the Kings Plaza property (OU-3) to the east, and the 55th Street access road and OU-1 to the south. As shown in Figure 2, the closest surface water body is the Mill Basin located immediately adjacent to the southern side of the Kings Plaza Shopping Center.

The topography of the area in the vicinity of the Kings Plaza Shopping Center is generally flat. Review of Figure 1 indicates that the ground surface in the vicinity of OU-2 and south along 55th Street slopes gently from approximately eight feet above mean sea level (MSL) along the northern boundary adjacent to Avenue U to approximately five feet MSL to the south along 55th Street adjacent to the Mill Basin.

1.2 Site Operational History

The area identified as OU-2 is currently owned by Kings Plaza Alexanders, Inc., a majority-owned subsidiary to Vornado Realty Trust (Vornado). This area is currently identified as the northern end of the 55th Street access road to the Kings Plaza Shopping Center which has only been used as an access road since Alexanders acquisition and development of the property in the early 1970s. Review of existing environmental reports indicates that Presto Plastic Products Company, Inc. and its successors operated at the Site from the early 1940s to the mid-1960s.

According to a Phase I Environmental Site Assessment (ESA) prepared by Certified Engineering and Testing Company, Inc., approximately 20 railroad tankers were uncovered and removed from the Kings Plaza property in 1969. These tankers were reportedly used as petroleum and/or chemical storage tanks by the Presto Plastic Products Company, Inc. and were in approximately the same location as the Macy's building located to the west of the 55th Street access road. Review of Sanborn™ Fire Insurance Maps of the Site and a 1951 aerial photograph of the Site does not indicate that any operations were specifically located at the northern end of 55th Street in the immediate vicinity of the area defined as OU-2 during the time period shown on the maps and the aerial photographs reviewed.

1.3 Summary of Previous Environmental Investigations

The following reports document the findings of several environmental site assessments and investigations conducted by others at the subject property, inclusive of OU-2:

- Phase I ESA of Kings Plaza Shopping Mall, Flatbush Avenue and Avenue U, Brooklyn, New York, prepared by Certified Engineering and Testing Company, Inc. on behalf of Alexander's, dated October 4, 1993;
- Contaminant Assessment (CA)/Site Investigation (SI), prepared by IVI on behalf of Rosenman & Colin, LLP, dated July 1997;
- Groundwater Monitoring Report Nos. 1 through 17, prepared by IVI on behalf of Vornado;
- Remedial Investigation Report (RIR)/Remedial Action Workplan (RAW) for the Former Presto Plastics Facility, Operable Unit No. 2, prepared by IVI, dated April 19, 2000;
- Remedial Investigation Report/Remedial Action Workplan (RI/RAW) for the Former Presto Plastics Facility, Operable Unit No. 2, prepared by IVI, dated August 15, 2001; and
- Progress Report Nos. 18 through 25, prepared by Excel on behalf of Vornado.

A summary of the information contained in the above-referenced documents has been provided in several historic reports, including Chapter 2.0 of the RIR/RAW for the Former Presto Plastics Facility, dated August 15, 2001, prepared by IVI on behalf of Vornado for submission to the NYSDEC.

The July 1997 CA/SI Report, prepared by IVI, summarizes the results of an initial investigation of areas within the 55th Street access road, the areas surrounding the Shopping Mall, and the adjacent paved parking lot (OU-3). As outlined in the July 1997 CA/SI Report, the investigation conducted by IVI included the evaluation of groundwater quality through the installation of 13 monitoring wells (designated as MW-1 through MW-13) in the 55th Street access road and around the perimeter of the Shopping Mall, as well as six monitoring wells (designated as MW-14 through MW-19) in OU-3 and the collection and analysis of representative groundwater samples from the monitoring wells.

The August 2001 RIR/RAW summarizes the results of an additional investigation of OU-2 soil and groundwater quality conducted by IVI from June 1999 through September 1999. As outlined in the August 2001 RIR/RAW, the investigation conducted by IVI included evaluation of soil quality in OU-1 and OU-2 with the completion of 19 soil borings and collection and laboratory analysis of representative soil samples. This investigation also included the installation of seven monitoring wells in the 55th Street access road and in the sidewalk adjacent to Macys and the collection and analysis of groundwater samples from 18 monitoring wells within OU-1, OU-2, and around the perimeter of the Shopping Mall to evaluate groundwater quality.

Review of the August 2001 RIR/RAW indicates that five soil borings (designated B-1 through B-3, B-12, and B-19) were advanced in the immediate vicinity of OU-2 as shown on Figure 3. Analytical results of soil samples collected at depths between six to eight feet below ground surface (bgs) indicate that there were no Volatile Organic Compounds (VOCs) detected at concentrations above the NYSDEC soil cleanup criteria in any of these five soil borings. The Semi-Volatile Organic Compound (SVOC) results indicated that several BN compounds were reported in soil boring B-19 at concentrations above the NYSDEC soil cleanup criteria. There were no elevated BN concentrations reported in samples collected from the other four soil borings.

Review of the boring logs prepared by IVI for monitoring wells and soil borings advanced in the 55th Street access road during the RI indicate that fill material consisting of brown to gray, medium to coarse sand with wood, bricks, cinders, glass, cobbles, and shells is laterally extensive within 55th Street from the OU-2 Area at the northern end of the street to the south near the Mill Basin. Review of boring logs provided in the CA/SI Report for monitoring wells installed in the 55th Street access road and around the perimeter of the Shopping Mall (MW-1 through MW-13 as shown on Figure 2) also document the presence of fill material containing wood, coal, ash, brick, and cobbles within the upper six to eight feet of the soil column indicating that the fill material is laterally continuous across the Kings Plaza property. The soil borings prepared by IVI are provided in Appendix A.

As part of the RI, IVI also collected groundwater samples from monitoring wells MW-4, MW-33, and MW-34 within the OU-2 Area. Analytical results indicated that several VOCs, including Naphthalene, and BN compounds were reported at concentrations above the New York Groundwater Quality Criteria (NYGWQC). Although there were no groundwater sampling data forms provided by IVI in any of the reports, it is likely that the sampling methods used (purging and sampling with disposable bailers) likely resulted in highly turbid samples and therefore the concentrations biased high due to the sampling methods. As shown in Tables 1 and 2, the historic groundwater analytical results for the OU-2 monitoring wells indicate that BNs are predominantly the only parameters historically reported in groundwater at OU-2 wells MW-4 and MW-33.

1.4 Site-Specific Geology and Hydrogeology

The following summarizes key aspects of the site-specific geology and hydrogeology based on review of the previous environmental reports and review of soil boring logs prepared by IVI and Excel for the Site.

- The overburden soil across the Site consists predominantly of coarse to fine-grained sandy fill material to a depth of approximately three to 10 feet bgs. With depth, the fill is increasingly fine-grained with higher amounts of silt;
- The fill composition is heterogeneous and contains varying amounts of wood, brick, ash and cinders, coal, glass, cobbles, shells, and other miscellaneous materials;
- Underlying the fill and silty sand is a silty, organic clay stratum that appears to be native estuarine sediments deposited prior to the initial development of the property;

- As detailed in a previous RIRA and RAW prepared by Excel in July 2003 for OU-3, the clay is laterally continuous across the Site and, consistent with an estuarine depositional environment, increases in thickness from north to south towards the Mill Basin;
- Shallow groundwater occurs under unconfined water table conditions in the upper sandy fill material and the groundwater flow direction is generally towards the south and southeast across the Site although there are areas of localized mounding. In the vicinity of the OU-2 Area, the primary groundwater flow direction is apparently toward the south and southwest. As discussed later in Section 2.2.4, data provided by the installation of additional monitoring wells in this area also indicates a component of flow toward the northwest;
- The organic clay is underlain by alternating sand and silt deposits. The data indicate that groundwater occurs within this lower formation under confined conditions; and
- The data indicate that the underlying organic clay strata effectively serves as a confining unit and that the underlying sand and silt formation is hydraulically isolated from the shallow water bearing zone.

1.5 Report Objectives and Organization

The objective of this RIRA is to summarize the scope and findings of supplemental RI activities that were conducted by Excel in late 2002 and 2003. These activities were conducted to complete delineation of groundwater quality within the OU-2 Area and verify soil quality in the immediate vicinity of existing monitoring wells in which BNs have historically been reported in soil and groundwater above the NYSDEC Recommended Cleanup Objectives. The scope of work for the supplemental RI included the following:

- Installation of two additional shallow groundwater monitoring wells (designated MW-45 and MW-46) to verify the groundwater flow gradient and to delineate groundwater quality within OU-2;
- Abandonment and replacement of monitoring well MW-33 in which the well screen was determined to be damaged;
- Collection and analysis of groundwater samples from monitoring wells within OU-2 to verify dissolved-phase groundwater quality and complete groundwater quality delineation;
- Advancement of three soil borings at former soil boring locations B3, B12, and B19 to verify soil quality within the overburden unsaturated fill material within OU-2.

Based on the initial data generated by IVI during the CA/SI and RI, in-situ chemical remediation of both unsaturated soil and groundwater was recommended. Based on a subsequent review of IVI's findings (including soil and groundwater analytical results and field observations) and the data generated during this supplemental RI, the elevated BN concentrations and the composition of the fill clearly meets the NYSDEC definition of contaminated Historic Fill. The data indicate that the

elevated BN concentrations historically reported in soil and groundwater are reflective of the Historic Fill which is laterally continuous across the Site and not attributed to a historic discharge from past site operations.

The remainder of this RIRA is organized as follows:

Chapter 2.0: Remedial Investigation Addendum Work Scope and Procedures

Chapter 3.0: Remedial Investigation Addendum Results

Chapter 4.0: Conclusions and Recommendations

Chapter 5.0: References

2.0 REMEDIAL INVESTIGATION ADDENDUM WORK SCOPE AND PROCEDURES

This Chapter summarizes the scope and investigative procedures used by Excel during implementation of the work scope outlined in Chapter 1.0. As previously discussed in Section 1.5, the objectives of the supplemental RI are to complete delineation of groundwater quality within the OU-2 Area and verify soil quality in the immediate vicinity of existing monitoring wells and former borings in which BNs have historically been reported in groundwater and soil above the NYSDEC cleanup criteria.

2.1 Soil Quality Investigation

Although the results of previous soil samples collected in the OU-2 Area indicated the presence of BNs at concentrations above the NYSDEC soil cleanup criteria, review of these data and the soil boring logs prepared by IVI indicate that the soil samples were likely collected below the water table and therefore are not representative of unsaturated soil quality. As part of the supplemental RI conducted by Excel, three soil borings were advanced at former soil boring locations B-3, B-12, and B-19 to verify the unsaturated soil quality (i.e., soil composition, presence or absence of fill material, and contaminant concentrations).

The following subsections outline the scope and investigative procedures utilized by Excel during implementation of the soil quality investigation. The soil sampling and analytical work scope is summarized in Table 3 and the soil boring locations are shown on Figure 3. The soil analytical results are shown on Table 4 and summarized on Figure 4 and the findings of the soil quality investigation are discussed in Section 3.2.

2.1.1 Soil Boring Advancement

As shown on Figure 3, three soil borings (designated as B3A, B12A, and B19A) were advanced within the OU-2 Area at former boring locations B3, B12, and B19 within which impacts to soil had previously been identified. The soil borings were advanced on June 30, 2003 by Aquifer Drilling and Technology, Inc. (ADT) using direct push drilling techniques under the direct supervision of an experienced Excel scientist. Each soil boring was advanced to the top of the water table which was encountered at approximately seven feet bgs. At each soil boring location, an Excel scientist visually inspected and characterized the soil and materials encountered. Excel's observations were recorded on the soil boring logs provided in Appendix A.

2.1.2 Field Screening and Air Quality Monitoring

During soil boring activities, field screening of subsurface soils was performed and ambient air quality monitoring was conducted for VOC vapors using a Rae Systems Model MiniRae photoionization detector (PID). The field screening results were recorded on the soil boring logs provided in Appendix A.

The field screening procedure included placing a soil sample into a Ziploc™ bag, sealing the bag closed, and allowing the sample to remain undisturbed for approximately five minutes. The soil samples were then agitated by shaking the bag for approximately one minute. The samples were then allowed to sit undisturbed for approximately three minutes prior to measuring the concentration of organic vapors in the sample headspace. The headspace measurements were obtained by piercing the sealed Ziploc™ bag with the probe of the PID.

2.1.3 Soil Sampling and Analysis

One soil sample was collected at each soil boring location from the six-inch interval above the observed saturated zone which also coincided with the presence of Historic Fill material. Soil samples were collected from four-foot long direct push macrocores using decontaminated stainless steel sampling trowels and placed into laboratory-provided sample bottles.

The soil sampling and analytical work scope is summarized in Table 3. As shown, a total of three soil samples were collected and submitted to Severn Trent Laboratories, Inc. (STL) of Edison, New Jersey for polynuclear aromatic hydrocarbon (PAH) analysis using Environmental Protection Agency (EPA) Method 8270C. A field blank sample was also collected and analyzed in accordance with NYSDEC requirements. Chain-of-custody documentation was completed in the field for transport with the samples to the laboratory.

2.2 Groundwater Quality Investigation

The groundwater quality investigation conducted during the supplemental RI included the installation of two groundwater monitoring wells to complete groundwater quality delineation in the vicinity of OU-2 and to verify the occurrence and source of previously reported elevated BN concentrations in groundwater. In addition, existing monitoring well MW-33 was overdrilled and replaced since it was suspected that the screen had been breached. The OU-2 well locations are shown in Figure 3. Groundwater samples were collected for laboratory analysis during two rounds of monitoring in September 2002 and July/August 2003.

The following subsections summarize the investigation scope, methods, and procedures utilized by Excel during implementation of the groundwater component of the supplemental RI activities conducted in OU-2.

2.2.1 Monitoring Well Installation

The two shallow groundwater monitoring wells (designated as MW-45 and MW-46) were installed by ADT on August 27, 2002 using hollow-stem auger drilling techniques under the onsite supervision of an Excel geologist. Monitoring well MW-33 was replaced by ADT on June 30, 2003. Monitoring well construction details are summarized on Table 5 and are provided in Appendix B. The monitoring wells were completed to a depth of approximately 15 feet bgs. Each well was constructed of 10 feet of two-inch diameter, 0.010-inch factory-slotted Schedule 40 polyvinyl chloride (PVC) well screen and two-inch diameter Schedule 40 PVC riser pipe extending to approximately six inches bgs.

Following installation of each well screen and riser, a No. 1 Morie sand filter pack was installed in the annular space between the borehole and the well screen, extending from the bottom of the borehole to approximately two feet above the screen. Above the sand filter pack, the annular space was grouted with a cement/bentonite grout from the top of the sand filter pack to within one-half foot of the ground surface. A steel, flush-mount protective casing was then installed and marked with each monitoring well number. A cement pad was constructed around the steel casing and the well was capped with a locking, expanding plug to complete the monitoring well installation. Upon completion, each monitoring well was then surveyed to establish vertical and horizontal control as outlined in Subsection 2.2.3.

2.2.2 Monitoring Well Development

Upon installation, each monitoring well was developed using a submersible pump with dedicated polyethylene tubing for a minimum of 30 minutes or until the discharge was relatively sediment-free. The development water was pumped into containers and transported to the onsite OU-1 groundwater treatment system for subsequent treatment and discharge to the storm sewer.

2.2.3 Surveying

Following installation of the shallow monitoring wells, Albert W. Tay Surveying, of Plainview, New York, a New York-licensed surveyor, surveyed the newly installed monitoring wells. Each monitoring well was surveyed to establish horizontal location relative to an onsite datum and vertical elevation to the top of the PVC casing and steel casing rim relative to the Brooklyn datum as established by the Topographic Bureau for the Borough of Brooklyn. The horizontal locations are accurate to +/- 0.1 foot and the vertical elevations are accurate to +/- 0.01 foot. The survey data are summarized on Table 6 and are provided in Appendix B.

2.2.4 Groundwater Elevation and Free Phase Product Measurements

After installation and development of the two new shallow monitoring wells (MW-45 and MW-46), collection of water level and free-phase product measurements at all of the OU-1, OU-2, and OU-3 monitoring wells continued on a monthly basis. Table 6 summarizes the groundwater and free-phase product levels and calculated groundwater elevation data for August 2003. The elevation data calculated from these data were used to construct a groundwater elevation contour map to illustrate the groundwater flow gradient across the entire King Plaza site, and specifically within the OU-2 area at the northern end of 55th Street. The groundwater flow gradient at the site is discussed in Section 3.3.1 and illustrated on Figure 5.

2.2.5 Groundwater Sampling and Analysis

Representative groundwater samples were collected from the five OU-2 monitoring wells MW-4, MW-33, MW-34, MW-45, and MW-46 during two monitoring events; one event conducted on September 19 and 26, 2002 and the second event conducted on July 17/18 and August 18, 2003. The wells included in the monitoring program are summarized in Table 3. Groundwater samples

were collected in accordance with the Final United States USEPA, Region II, Low Stress (Low Flow) Groundwater Sampling Standard Operating Procedure dated March 1998 as follows:

1. The monitoring wells were inspected for damage or any indication of tampering and the pertinent information was recorded on the Groundwater Sampling Field Data Logs provided in Appendix C;

2. Immediately upon unlocking and removing the well cap, the VOC concentration in the well headspace was measured using a PID. The headspace results were documented on the Groundwater Sampling Field Data Logs provided in Appendix C;

3. The static water level and total well depth were measured from a well casing reference point using an oil/water interface probe;

4. A bladder pump with dedicated tubing was used to purge the wells. Measurements of temperature, pH, specific conductivity, turbidity, Eh (as oxidation-reduction potential or ORP), and dissolved oxygen (DO) were collected at the start of purging. Precautions were taken to ensure that the well was pumped at a low enough rate to minimize the potential for significant drawdown within the well or purging to dryness;

5. Measurements of the field parameters noted above were collected using an in-line, flow-through cell approximately every five minutes during purging until the parameters stabilized in accordance with the Final USEPA, Region II, Low Stress (Low Flow) Groundwater Sampling Standard Operating Procedure dated March 1998;

6. Upon completion of well purging, the in-line flow-through cell was disconnected and the groundwater samples were collected directly into laboratory-prepared and pre-preserved sample containers.

The groundwater samples were submitted to STL of Edison, New Jersey (New York State Certification No. 11452) for VOC analyses using EPA Method 8021 in September 2002 and Method 8260B in July/August 2003 and for BN analyses using EPA Method 8270C. Field and trip blank samples were collected and proper chain-of-custody documentation was completed in the field and transported to the laboratory with the samples. The groundwater geochemical field measurements are summarized on Table 7. The groundwater analytical results are summarized on Tables 8 and 9, shown on Figure 6, and discussed in Section 3.3.2.

2.3 Quality Assurance/Quality Control (QA/QC) Procedures

The QA/QC procedures that were adhered to during implementation of the supplemental RI field activities to ensure accurate and reliable data are summarized in the following subsections.

2.3.1 Field Equipment Calibration

Field analytical instrumentation, including the PID and groundwater quality meters, were calibrated prior to use in the field each day and each instrument was maintained according to the manufacturer's instructions. Calibration results were documented in a bound field notebook.

2.3.2 Equipment Decontamination Procedures

Where possible, dedicated sampling equipment was utilized during collection of soil and groundwater samples. If dedicated sampling equipment was not used, sampling equipment was decontaminated using Liqui-Nox™ and tap water followed by a de-ionized water rinse to minimize the potential for cross-contamination between sample locations. Decontamination wash waters were stored in containers and transported to the onsite OU-1 treatment system for subsequent treatment and discharge to the storm sewer.

2.3.3 QA/QC Samples

Field and trip blank samples were collected during each sampling event. Field blank samples were collected by pouring lab-grade reagent water from laboratory bottles over the field sampling equipment and into an identical set of laboratory sample containers. Trip blanks were prepared by the laboratory using analyte-free water and accompanied the sample containers to and from the Site. Proper chain-of-custody documentation accompanied all samples to the laboratory.

2.3.4 Sample Management

Sample containers were labeled with the following information:

- Project name;
- Sample number;
- Analyses to be performed;
- Date and time of sample collection;
- Preservation used (if applicable); and
- Name of Sampler.

Each sample was placed into a cooler and properly packed to prevent breakage. A sufficient quantity of ice was placed in the cooler to maintain a temperature approximately at or below four degrees Celsius. Excel field personnel delivered the cooler, along with a properly completed chain-of-custody documentation, to the analytical laboratory.

3.0 REMEDIAL INVESTIGATION ADDENDUM RESULTS

This Chapter summarizes the results of the supplemental RI activities conducted by Excel and incorporates these results into an overall assessment of the OU-2 soil and groundwater quality conditions. Excel has utilized the data from the supplemental RI in conjunction with previously generated soil and groundwater analytical results and field observations to evaluate the presence of Historic Fill across the Site as the source of elevated BN concentrations reported in soil and groundwater.

3.1 Data Reliability

Upon receipt of the laboratory analytical results generated during the supplemental RI, each data package was reviewed to confirm that it contained the original chain-of-custody documentation that accompanied the samples from the field and to the laboratory, the samples were received without any break in custody, and each sample container was received by the laboratory cool and intact.

Each of the laboratory Compliance/Non-Compliance Summaries were reviewed for each data package received. The Compliance/Non-Compliance Summary documents that each sample was analyzed within acceptable ranges for a variety of laboratory QA/QC parameters, including:

- Instrument calibration;
- Field and laboratory blank contamination;
- Surrogate recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries; and
- Sample holding times.

There were no issues of non-compliance associated with blank contamination or holding times reported by the laboratory on the Conformance/Non-conformance Summary pages for any of the laboratory data packages. Note, however, that the laboratory reported the following information associated with surrogate recoveries, MS/MSD recoveries, and/or instrument calibration for samples collected during the supplemental RI:

- Laboratory Job Number A696 for groundwater samples received on May 20, 2002: MS percent recovery for Acenaphthene is biased high and the S-6 surrogate recovery is biased low; and
- Laboratory Job Number N005 for groundwater samples received on August 18, 2003: S-4 and S-5 surrogate standard recoveries are biased low for the Field Blank.

Review of the data indicates that these minor non-conformances had no adverse affect on the validity of the data. In addition, the data were reviewed by Excel to ensure that the analytical

results reported as non-detect (ND) were reported at method detection limits (MDL) that are equal to or less than the applicable published NYSDEC soil cleanup criteria. The vast majority of data for samples with one or more parameters reported as ND were reported at an MDL below the applicable soil or groundwater criteria. Note that all samples with one or more parameters reported as ND at an MDL greater than the applicable soil or groundwater criteria are identified with a notation on the appropriate data summary tables included in this report.

3.2 Soil Quality

This section summarizes the results of the supplemental soil quality investigation conducted by Excel. Observations and field screening results are documented on the soil boring logs provided in Appendix A and the soil analytical results are summarized in Table 4. Figure 4 summarizes the soil boring locations and soil analytical results that exceed the NYSDEC soil cleanup criteria at each soil boring location. The Laboratory Analytical Data Reports are provided in Appendix D

3.2.1 Field Observations and Soil Analytical Results

As discussed in Chapter 1.0, IVI previously reported concentrations of several BNs at concentrations that exceeded NYSDEC soil cleanup criteria at three OU-2 boring locations (specifically, IVI Borings B-3, B-12, and B-19). The boring locations are shown on Figure 3. Excel's review of the soil analytical data, the soil boring logs prepared by IVI, and depth to groundwater data generated by both IVI and Excel indicated that the IVI soil samples were collected from below the water table; therefore, the BN concentrations may not be reflective of unsaturated soil quality. While in the field to re-install defective OU-2 monitoring well MW-33, Excel therefore re-collected soil samples (designated Borings B3A, B12A, and B19A) at each of the three soil boring locations as necessary to verify soil quality above the water table at each of these locations.

The field observations and soil analytical results indicate the following:

- Depth to groundwater data in nearby monitoring wells at the time IVI's soil samples were collected and observations of the depth to groundwater during Excel's soil boring program indicate that the depths at which the IVI soil samples were collected are clearly below the water table and therefore the reported concentrations are not representative of unsaturated soil quality;

- There were no elevated field screening measurements and no other field indication (i.e., odors, discoloration, staining, etc.) of any petroleum or chemical discharge in soil at any of the OU-2 soil boring locations;

- As shown on the boring logs provided in Appendix A, a one to two foot thick layer of fill occurs within OU-2 at the soil water interface. This fill layer contains concrete brick, wood, glass, as well as ash and cinders. Review of boring logs prepared by IVI for OU-2, OU-1, and the areas surrounding the perimeter of the Kings Plaza Shopping Center indicates that this fill layer extends across and laterally beyond OU-2 to the northern,

southern, and western property boundaries. The data also suggest that Historic Fill occurs within the area designated as OU-3 extending to the eastern property boundary;

- As shown in Table 4 and on Figure 4, the analytical results for soil samples collected within the fill and above the water table indicate that no VOCs were detected; however, concentrations of BNs were reported above the NYSDEC TAGM No. 4046 soil cleanup criteria in the fill material in all three of Excel's OU-2 boring locations;

- Based on the elevated BN concentrations and the composition of the fill (specifically the existence of ash and cinders), the fill meets the NYSDEC definition of contaminated Historic Fill (defined as non-native fill that was contaminated prior to emplacement; usually due to the presence of ash and cinders which can contribute BNs, metals, and other contaminants to the fill);

- The IVI boring logs confirm that the fill material that meets the physical characteristics of Historic Fill (i.e., contains concrete, brick, wood, ash and/or cinders, etc.) is laterally extensive across OU-2, OU-1, and beneath the Kings Plaza Shopping Center to the northern, western, and southern property boundaries. The data also suggest that Historic Fill occurs within the area designated as OU-3 extending to the eastern property boundary; and

- Overall, the soil analytical results, field observations, and physical soil characteristics indicate that the BN concentrations reported in soil at levels above the NYSDEC TAGM No. 4046 soil cleanup criteria are attributable to Historic Fill and are not reflective of a historic discharge from site operations.

3.3 Groundwater Quality

This section summarizes the data generated from the supplemental RI groundwater investigation activities conducted by Excel, including groundwater analytical results generated during two rounds of groundwater sampling and analysis.

3.3.1 Groundwater Flow Gradient

Table 6 summarizes the groundwater elevation data as calculated from the depth to groundwater measurements at each of the site monitoring wells collected by Excel on August 5, 2003. A groundwater contour map prepared by Excel using these groundwater elevation data is presented as Figure 5.

As shown on Figure 5, the groundwater elevation data indicate that the overall groundwater flow gradient at the Site is predominantly toward the south-southeast toward the Mill Basin. In the vicinity of OU-2, the localized groundwater flow direction is radially outward to the northwest toward Avenue U, west, southwest, and south from the western end of 55th Street.

3.3.2 Groundwater Analytical Results

This subsection summarizes the results of the OU-2 rounds of groundwater monitoring conducted as part of the supplemental RI and provides an overall assessment of the groundwater quality conditions. The geochemical field parameters are summarized in Table 7 and are shown on the Groundwater Sampling Field Data Logs provided in Appendix C. The groundwater analytical results are summarized in Tables 8 and 9 and on Figure 6. The Laboratory Analytical Data Reports are provided in Appendix D.

Note that a review of the analytical data and the field sampling data logs for the July 2003 sampling event indicated low levels of chlorinated VOCs reported in monitoring well MW-33. Since chlorinated VOCs had never been historically detected in any OU-2 monitoring wells, cross-contamination associated with the elevated VOCs in groundwater at the MW-39 well location (OU-1) was suspected since well MW-39 was sampled immediately prior to MW-33. Monitoring well MW-33 was subsequently re-sampled on August 18, 2003, and as discussed below, there were no chlorinated VOCs detected in well MW-33 thus confirming that the chlorinated VOCs reported in MW-33 in July 2003 were in fact due to field equipment cross-contamination.

As shown in Table 8, the groundwater analytical results for samples collected in September 2002 and July/August 2003 indicate that no VOCs are reported above the NYGWQC at any of the OU-2 well locations with the exception of naphthalene (which is also reported in the BN analyses) and trace concentrations of tetrachloroethene (2.3 ug/L), trichloroethene (3.4 ug/L), and cis-1,2-dichloroethene (9.1 ug/L) in well MW-33. As indicated above, it was suspected that these concentrations were the result of cross-contamination with monitoring well MW-39 that was sampled immediately prior to well MW-33. Monitoring well MW-33 was therefore re-sampled on August 18, 2003 and as shown in Table 8, the data confirm that the slightly elevated chlorinated VOC concentrations were in fact due to field equipment cross-contamination and not representative of groundwater quality in OU-2.

As shown in Table 9, the groundwater analytical results for the September 2002 sampling round indicated several BNs at concentrations above the NYGWQC, including naphthalene, acenaphthalene, fluorene, phenanthrene, benzo (a) anthracene, and chrysene in monitoring well MW-33. BNs were either ND or reported below the NYGWQC in the remaining OU-2 monitoring wells, with the exception of acenaphthene in groundwater at well MW-4. Review of the Groundwater Sampling Field Data Log for well MW-33 provided in Appendix C indicates that the turbidity values for MW-33 were high with values above 100 Nephalometric Turbidity Units (NTU's). Due to observations during pumping (e.g., a pumping rate could not be sustained without the well going dry) and measurements of the total depth of the well, Excel suspected that the well screen integrity had been breached. On June 30, 2003, monitoring well MW-33 was replaced with a new well at the same location as previously discussed in Section 2.2.1.

During the next round of sampling conducted in July/August 2003, turbidity values of less than 10 NTU were achieved at well MW-33. As shown in Table 9, trace concentrations of BNs were reported above the NYGWQC in wells MW-4 and MW-33; however, the BN concentrations in

MW-33 were considerably reduced in comparison to the previous results indicating that the previously reported BN concentrations were likely biased high due to the sample turbidity.

In addition, as shown on Figure 6, the groundwater analytical results confirm that groundwater quality delineation is complete in OU-2 with VOC and BN concentrations either ND or reported below the NYGWQC in monitoring wells MW-45 and MW-46. Overall, the September 2002 and July/August 2003 groundwater analytical results confirm that the elevated concentrations of VOCs and BNs historically reported by IVI were likely biased high due to turbidity resulting from the sampling techniques IVI used. The soil and groundwater data also indicate that the residual BN concentrations reported in groundwater at monitoring wells MW-33 and MW-4 are attributable to the Historic Fill located throughout OU-2 and are not reflective of a historic point source discharge as previously suggested by IVI.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The following conclusions are presented based on completion of the supplemental RI and the evaluation of the findings presented in this report.

4.1.1 Soil Quality

- As part of this supplemental RI, Excel verified the existence of a layer of non-indigenous fill at the soil/water interface in OU-2 that contains concrete, brick, wood, glass, ash, and cinders;

- The elevated BN concentrations and the composition of the fill meets the NYSDEC definition of contaminated Historic Fill (defined as non-native fill that was contaminated prior to emplacement; most commonly due to the existence of ash and cinders which can contribute BNs, metals, and other contaminants to the fill);

- Based on the historic boring logs prepared by IVI, the Historic Fill is laterally continuous across the Site extending from 55th Street to the western property boundary at Flatubush Avenue, and from the northern property boundary at Avenue U south to the Mill Basin. The data also suggest that Historic Fill extends to the eastern property boundary within the area designated as OU-3;

- The BN concentrations in soil at levels above the NYSDEC soil cleanup criteria are attributable to the Historic Fill and are not reflective of a historic point source discharge from site operations as previously indicated by IVI;

- Since the Historic Fill material is laterally extensive across the 55th Street access road and underneath the footprint of the Mall, active remediation or removal of the Historic Fill material is impractical and cost prohibitive, and is not required by the NYSDEC Technical Guidance. The NYSDEC regulations, however, require remedial action in the form of Engineering Controls (e.g. the existing building, asphalt pavement, concrete sidewalks, etc.) and a Deed Restriction because BN concentrations in the fill exceed TAGM No. 4046 soil cleanup criteria; and

- Since the data indicate that the Historic Fill is laterally extensive underneath the footprint of the Mall and the extent of the Historic Fill is delineated vertically as well as laterally to the property boundaries, a Deed Restriction with Engineering Controls is the only feasible remedial action alternative for the Historic Fill.

4.1.2 Groundwater Quality

- Groundwater analytical data generated during two rounds of groundwater sampling and analysis using NYSDEC-recommended low flow sampling techniques indicate that only BNs are reported in groundwater at OU-2 at concentrations slightly above the NYGWQC;
- The groundwater data support the conclusion that the trace BN concentrations are associated with the Historic Fill and not a historic point source discharge as previously suggested by IVI.

4.2 Recommendations

Based on the findings of the recent supplemental RI activities conducted within OU-2, coupled with the re-evaluation of the historic IVI analytical data and field observations, the following recommendations are presented:

- Excel recommends re-directing the remedial action for OU-2 in lieu of the current plan for insitu chemical treatment that was previously submitted to the NYSDEC but not formally approved. Since the Historic Fill is laterally extensive and treatment and/or removal of the Historic Fill is technically and economically unfeasible, Excel recommends remedial action in the form of Engineering Controls with a Deed Restriction to address the contaminated Historic Fill identified throughout the 55th Street access road and beneath the footprint of the Mall for compliance with the requirements of the Technical Guidance; and
- Since residual BN concentrations in groundwater are attributed to the Historic Fill, consistent with the Technical Guidance, the Volunteer requests concurrence from the NYSDEC that no further action for groundwater in OU-2 is required.

5.0 REFERENCES

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TABLES

TABLE 1
OU-2 HISTORIC GROUNDWATER ANALYTICAL RESULTS SUMMARY: VOCs
Kings Plaza Shopping Center
Brooklyn, New York
(Concentrations reported in µg/L)

PARAMETERS		Ben	Tol	Etb	o-Xyl	m+p-Xyl	IsoP	n-Prop	1,3,5-TMB	T-but	1,2,4-TMB	sec-B	IPT	N-but	Nap	MTBE	TBA	PET	DCE	cis-1,2 DCE	TCE	1,3-DCP	1,2-DCB	1,3-DCB	1,4-DCB	MC	1,2,4-TCB	VC	Total VOCs
NYSDEC Groundwater Quality Standard		0.7	5	5	5	5	5	5	5	5	5	5	5	5	10	10	--	--	5	5	5	5	3	3	3	5	5	2	--
Sampling Point	Sample Date																												
MW-4	11/9-10/1998	2	19	ND	ND	2	ND	ND	2	ND	5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30
	02/25/1999	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.49
	06/10/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50
	9/28-29/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/16-18/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	2/21-23/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/23-25/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	8/29-30/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	5/22-24/2001	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17
	7/31-8/2/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	24	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
	11/27-29/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
MW-33	9/28-29/1999	ND	ND	35	9.8	12	ND	ND	3.2	ND	9.3	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.3
	12/16-18/1999	ND	ND	16	5.7	6	ND	ND	ND	ND	5.7	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.4
	2/21-23/2000	ND	ND	8.1	ND	2.8	ND	ND	ND	4.3	ND	ND	ND	ND	900	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	915.2
	5/23-25/2000	ND	ND	6.3	2.8	2.1	ND	ND	ND	ND	1.7	ND	ND	ND	2.3	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.2
	8/29-30/2000	ND	ND	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,300 D	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,305.2
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	5/22-24/2001	ND	ND	4.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300 D	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	304.9
	7/31-8/2/2001	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	28	350 D	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	380.3
	11/27-29/2001	ND	1.3	4.1	2.3	ND	ND	ND	1.1	ND	2.1	ND	ND	ND	350 D	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	360.9
MW-34	9/28-29/1999	3.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4
	12/16-18/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
	2/21-23/2000	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	37	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	40.6
	5/23-25/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	8/29-30/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12
	12/19-21/2000	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	4.4	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	8.5
	3/14-16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	43	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43
	5/22-24/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.9	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9
	7/31-8/2/2001	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6
	11/27-29/2001	13	6.2	5.7	13	18	ND	ND	ND	ND	2.6	ND	ND	ND	5.1	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63.6

KEY:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
NYSDEC - New York State Department of Environmental Conservation
Ben - Benzene
Tol - Toluene
Etb - Ethylbenzene
o-Xyl - o-Xylenes
m,p-Xyl - m&p-Xylenes
Iso-p - Isopropylbenzene
n-Prop - n-Propylbenzene
1,3,5-TMB - 1,3,5-Trimethylbenzene
T-but - Tert-Butylbenzene
1,2,4-TMB - 1,2,4-Trimethylbenzene
sec-B - sec-Butylbenzene
IPT - Isopropyltoluene
N-but - n-Butylbenzene
Nap - Naphthalene
MTBE - Methyl Tertiary Butyl Ether
TBA - Tert-butyl alcohol
PET - p-ethyltoluene
DCE- 1,1 Dichloroethene
cis-1,2 DCE - cis 1,2 Dichloroethene
TCE - Trichloroethene
1,3 DCP - 1,3 Dichloropropane
1,2-DCB - 1,2-Dichlorobenzene
1,3-DCB- 1,3-Dichlorobenzene
1,4-DCB- 1,4-Dichlorobenzene
MC - Methylene Chloride
1,2,4-TCB - 1,2,4 Trichlorobenzene
VC - Vinyl Chloride
ND - Not Detected at MDL below NYSDEC Groundwater Quality Standard
NA - Not Analyzed
FP - Not Analyzed due to the presence of Free Product
NP - Data Not Provided
J - Estimated Concentration, Compound Detected but at Concentration Below MDL
D - Diluted Sample
U - Undetected at MDL
MDL - Method Detection Limit

NOTES:
Values in **Bold** exceed NYSDEC Groundwater Quality Standard.

TABLE 2
OU-2 HISTORIC GROUNDWATER ANALYTICAL RESULTS SUMMARY: SVOCs
Kings Plaza Shopping Center
Brooklyn, New York
(Concentrations reported in µg/L)

PARAMETERS		Nap	2-Mnap	Acn	Flu	Phe	Ant	Flo	Pyr	Di-ETH	Di-Meth	Di-n-OCT	Di-n-b	BbP	BisEP	DBf	Car	Acy	DiMP	B (g,h,i)	B(a)A	B(b)F	B(k)F	B(a)P	Inden	Chry	TOTAL BNAs
NYSDEC Groundwater Quality Standard		10	50	20	50	50	50	50	50	50	50	50	50	50	50	---	---	---	5	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	
Sampling Point	Sample Date																										
MW-4	11/9-10/1998	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
	02/25/1999	ND	NA	**37**	0.97 J	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.97
	6/10-11/1999	ND	1 J	**32**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	33
	9/28-29/1999	ND	1.4	**31**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	32.4
	12/16-18/1999	ND	1.6	**40**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	41.6
	2/21-23/2000	ND	ND	11	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.2
	5/23-25/2000	ND	ND	**31**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31
	8/29-30/2000	ND	ND	**31**	ND	ND	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	32.2
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	ND	ND	**25**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 J	ND	ND	8.9 J	ND	ND	ND	ND	ND	ND	ND	ND	34.9
	5/22-24/2001	**240 D**	15	**120 D**	**65**	**59**	8.2 J	10	4.8 J	21	1.4 J	ND	19	1.3 J	4.5	57	NA	4.3 J	NA	ND	ND	ND	ND	ND	ND	ND	630.5
	7/31-8/1&2/2001	ND	ND	**31**	ND	ND	ND	ND	ND	9.5 J	ND	ND	ND	ND	3 J	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	43.5
	11/27-29/2001	ND	ND	**35**	1.2 J	4.2 J	1.3 J	3.6 J	2.5 J	ND	ND	ND	1.2 J	ND	5.4 J	ND	NA	12	NA	ND	**1.1 J**	ND	**1.3 J**	ND	ND	**1.3 J**	70.1
MW-33	9/28-29/1999	**640 E**	**87 E**	**180 E**	**93 E**	**110 E**	16	13	7.4	ND	ND	ND	ND	ND	1.5	87 E	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	1240.3
	12/16-18/1999	**840 D**	**65 D**	**200 D**	**89 D**	**76 D**	**73 D**	ND	ND	ND	ND	ND	ND	ND	ND	75 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1418
	2/21-23/2000	**46**	6.4	**35**	22	18	3.2	2.5	1.6	1	ND	ND	ND	ND	ND	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	152.7
	5/23-25/2000	ND	ND	**87**	21	9.9 J	3.1 J	3.2 J	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	126.2
	8/29-30/2000	**380 D**	**52**	**160 D**	**67**	**67**	**86 J**	6.1	2.6 J	ND	ND	ND	1.7 J	ND	ND	57	ND	4.3 J	**17**	ND	ND	ND	ND	ND	ND	ND	900.7
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	**260 D**	36	**120 D**	**61**	**46**	6 J	6 J	3.4 J	ND	ND	ND	ND	ND	2.6 J	47	45	3.6 J	ND	ND	ND	ND	ND	ND	ND	ND	636.6
	5/22-24/2001	ND	1.6 J	**35**	ND	ND	ND	ND	ND	19	ND	ND	14	ND	ND	1.7	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	71.3
	7/31-8/1&2/2001	**230 D**	11	**160 D**	**67**	**57**	**63 J**	5.3 J	ND	ND	ND	ND	ND	ND	4 J	57	NA	3.5 J	NA	ND	ND	ND	ND	ND	ND	ND	657.8
	11/27-29/2001	**380 D**	41	**210 D**	**74**	**72**	9.9 J	12	5.7 J	ND	ND	ND	2.3 J	ND	1.7 J	67	NA	4.9 J	NA	ND	ND	ND	ND	ND	ND	ND	880.5
MW-34	9/28-29/1999	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
	12/16-18/1999	ND	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5
	2/21-23/2000	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	5/23-25/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
	8/29-30/2000	ND	ND	1.4 J	ND	ND	ND	ND	ND	1.1 J	ND	ND	3.6 J	1.1 J	6.9 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.1
	12/19-21/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 J	2 J	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6
	3/14-16/2001	5.8 J	ND	6 J	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3 J	2.4 J	2.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	19.8
	5/22-24/2001	ND	1 J	3.6 J	ND	ND	ND	ND	ND	22	1.2 J	ND	17	ND	4 J	1.1 J	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	49.9
	7/31-8/1&2/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6 J	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	3.6
	11/27-29/2001	4 J	ND	1.9 J	ND	2 J	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	9.1

KEY:

µg/L - micrograms per liter
NYSDEC - New York State Department of Environmental Conservation
Nap - Naphthalene
2-Mnap - 2-Methylnaphthalene
Acn - Acenaphthene
Flu - Fluorene
Phe - Phenanthrene
Ant - Anthracene
Flo - Fluoranthene
Pyr - Pyrene
Di-ETH - Di-ethylphthalate
Di-Meth - Di-methylphthalate
Di-n-OCT - Di-n-Octylphthalate
Di-n-b - Di-n-butylphthalate
BbP - Butylbenzyl phthalate
BisEP - Bis(2-ethyl-hexyl)phthalate
DBf - Dibenzofuran
Car - Carbazole
Acy - Acenaphthylene
DiMP - 2,4 Dimethylphenol
B (g,h,I) - Benzo (g,h,I) Pyrene
B(a)A - Benzo (a) Anthracene
B(b)F - Benzo (b) Fluoranthene
B(k)F - Benzo (k) Fluoranthene
B(a)P - Benzo (a) Pyrene
Inden - Indeno (1,2,3-cd) Pyrene
Chry - Chrysene
ND - Not Detected
NA - Not Analyzed
FP - Not Sampled due to the presence of free product
NS - Not Sampled

NOTES:

J - Indicates that concentration was detected at a value below the minimum detection limit.
U - Indicates that the sample was undetected.
D - Indicates that the concentration was based on a diluted sample analysis.
E - Indicates that the compound exceeded the laboratories calibration curve for the sample.
Bold - Indicates an exceedance of the NYDEC GWQC.
* 0.002 or Practical Quantitation Limit (PQL), which is the lowest level that can be reliably detected in the laboratory.

TABLE 3
REMEDIAL INVESTIGATION ADDENDUM SAMPLING SUMMARY
Kings Plaza Shopping Center
Brooklyn, New York

WORK SCOPE ITEM	NUMBER OF SAMPLES\ WELLS	SAMPLE LOCATIONS	SAMPLE MEDIA	SAMPLING METHOD	ANALYTICAL PARAMETER	ANALYTICAL METHOD
Soil Quality Sampling	3 Soil Samples	B3A (5.5-6.0) B12A (5.5-6.0) B19A (5.5-6.0)	Soil	Split Spoon	PAHs	SW846 Method 8270 C
Monitoring Well Installation	2	No soil sampling conducted during the well installation activities.				
Groundwater Monitoring Well Sampling and Analysis	5	MW-4 MW-33 MW-34 MW-45 MW-46	Water	Low-Flow Groundwater Sampling Techniques	VOCs	SW846 Method 8260B
					SVOCs	SW846 Method 8270 C

KEY:
PAHs - Polynuclear Aromatic Hydrocarbons
VOCs - Volatile Organic Compounds
SVOCs - Semi Volatile Organic Compounds

TABLE 4
JUNE 2003 SOIL ANALYTICAL RESULTS: PAHs
Kings Plaza Shopping Center
Brooklyn, New York
(Concentrations reported in mg/kg)

PARAMETERS						Nap	Acy	Acn	Flu	Phe	Ant	Flo	Pyr	BaA	Chr	BbF	BkF	BaP	IP	DbA	BP	Total PAHs
NYSDEC TAGM #4046 RECOMMENDED CLEAN-UP OBJECTIVE						13	41	50	50	50	50	50	50	0.224	0.4	1.1	1.1	0.061	3.2	0.014	50	500
Excel Sample No.	Lab Sample No.	Sample Depth	Sample Matrix	Collection Date	Collection Time																	
B3A	439634	5.5 - 6.0	Soil	06/30/2003	1150	0.29 J	0.12 J	1.30 J	0.98 J	9.6	3.9	24	28	**11**	**12**	**8**	**11**	**11**	**7.2**	**2.6**	8.4	139.39
B12A	439636	5.5 - 6.0	Soil	06/30/2003	1105	0.96 J	0.34 J	3.20 J	4.40 J	**52**	15	**76**	**81**	**33**	**34**	**26**	**29**	**32**	**21**	**6.2**	23	437.1
B19A	439638	5.5 - 6.0	Soil	06/30/2003	1020	0.22 J	0.049 J	2.5	0.82	5.8	2.4	12	13	**3**	**3**	**1.6**	**2.4**	**2.3**	1.3	**0.48**	1.4	52.27
FB	439640	---	Aq	06/30/2003	1230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY:
mg/kg - milligrams per kilogram
Nap - Naphthalene
Acy - Acenaphthylene
Acn - Acenaphthene
Flu - Fluorene
Phe - Phenanthrene
Ant - Anthracene
Flo - Fluoranthene
Pyr - Pyrene
BaA - Benzo(a)anthracene
Chr - Chrysene
BbF - Benzo(b)fluoranthene
BkF - Benzo(k)fluoranthene
BaP - Benzo(a)pyrene
IP - Indeno(1,2,3-cd)pyrene
DbA - Dibenz (a,h) anthracene
BP - Benzo (g,h,i) perylene
PAHs - Polynuclear Aromatic Hydrocarbons
ND - Not Detected Above Method Detection Limits
Aq - Aqueous

NOTES:
Samples denoted in Military Time.
Sample depths are reported in feet (ft.) below ground surface.
NYSDEC Guidance Values from NYSDEC TAGM #4046 Recommended Clean-up Objective.
Bold and Shaded values exceed NYSDEC Recommended Soil Clean-up Objective.

TABLE 5
MONITORING WELL CONSTRUCTION DETAILS
Kings Plaza Shopping Center
Brooklyn, New York

Well No.	Top of Well Casing Elevation (Ft.)	Well Depth (Ft. Below Grade)	Screen Interval (Ft. Below Grade)	Screen Interval Elevation (Ft.)	Monitoring Well Diameter (In.)/Material	Filter Sand Interval (Ft. Below Grade)	Bentonite Seal Interval (Ft. Below Grade)
MW-45	7.73	15.00	5.0 to 15.0	2.73 to -7.27	2/0.01-Slot PVC	4.0 to 15.0	3.0 to 4.0
MW-46	5.08	15.00	5.0 to 15.0	0.08 to -9.92	2/0.01-Slot PVC	4.0 to 15.0	3.0 to 4.0

KEY:
Ft. = Feet
In. = Inch
PVC = Polyvinyl Chloride

NOTES:
Elevation Source - NJGCS Monument No.

TABLE 6

GROUNDWATER ELEVATION AND FREE PRODUCT THICKNESS DATA: August 5, 2003 - LOW TIDE

Kings Plaza Shopping Center

Brooklyn, New York

WELL NUMBER	MP ELEV. [1]	TIME	DTP	DTW	PRODUCT THICKNESS[2]	ADJ. DTW	ADJ. GW ELEV.
OU-1 Monitoring Wells							
MW-1	8.50	0758	NM	8.57	NM	8.57	-0.07
MW-2	8.78	0935	7.15	7.34	**0.19**	7.17	1.61
MW-3	8.71	0855	6.21	6.31	**0.10**	6.22	2.49
MW-8	8.59	0905	NM	7.79	NM	7.79	0.80
MW-20	8.66	0819	NM	6.20	NM	6.20	2.46
MW-21	8.56	0931	7.19	7.32	**0.13**	7.20	1.36
MW-35	8.70	0843	NM	6.45	NM	6.45	2.25
MW-36	9.34	0844	NM	7.45	NM	7.45	1.89
MW-37	9.28	0845	NM	7.76	NM	7.76	1.52
MW-38	9.30	0847	NM	8.14	NM	8.14	1.16
MW-39	8.77	0759	NM	8.69	NM	8.69	0.08
OU-1 Recovery Wells							
MW-23	9.20	0900	6.05	6.07	**0.02**	6.05	3.15
HV-1	8.68	0921	NM	6.93	NM	6.93	1.75
HV-2	8.64	0811	NM	6.30	NM	6.30	2.34
HV-3	8.60	0814	NM	5.88	NM	5.88	2.72
HV-4	8.53	0852	NM	5.90	NM	5.90	2.63
HV-5	8.56	0927	7.11	7.46	**0.35**	7.15	1.41
HV-6	8.72	0904	NM	7.76	NM	7.76	0.96
OU-2 Monitoring Wells							
MW-4	8.91	0915	NM	6.65	NM	6.65	2.26
MW-33	9.31	0823	NM	7.17	NM	7.17	2.14
MW-34	8.64	0839	NM	6.24	NM	6.24	2.40
MW-45	9.02	0836	NM	6.89	NM	6.89	2.13
MW-46	8.26	0835	NM	6.08	NM	6.08	2.18
OU-3 Monitoring Wells							
MW-5	**Reported Destroyed**						
MW-6	9.01	0956	NM	8.63	NM	8.63	0.38
MW-7	8.51	0955	NM	9.24	NM	9.24	-0.73
MW-9	9.14	0829	NM	8.04	NM	8.04	1.10
MW-10	6.32	0959	NM	7.20	NM	7.20	-0.88
MW-11	10.20	0949	NM	10.95	NM	10.95	-0.75
MW-12	5.40	0952	NM	6.40	NM	6.40	-1.00
MW-13	5.17	0953	NM	6.28	NM	6.28	-1.11
MW-14	5.69	0759	NM	6.50	NM	6.50	-0.81
MW-15	5.70	0817	NM	3.52	NM	3.52	2.18
MW-16	4.98	0755	NM	4.87	NM	4.87	0.11
MW-17	4.82	0857	NM	0.00	NM	0.00	4.82
MW-18	5.41	0906	NM	2.61	NM	2.61	2.80
MW-19	4.94	0902	NM	1.40	NM	1.40	3.54
MW-22	4.81	0900	NM	1.01	NM	1.01	3.80
MW-24	5.49	0806	NM	1.39	NM	1.39	4.10
MW-25	5.44	0802	NM	3.88	NM	3.88	1.56
MW-26	5.27	0757	4.18	4.55	**0.37**	4.23	1.04
MW-27	4.83	0908	2.30	3.41	**1.11**	2.45	2.38
MW-28	5.35	0804	4.48	5.77	**1.29**	4.65	0.70
MW-29	5.17	0820	NM	3.26	NM	3.26	1.91
MW-30	5.15	0823	NM	2.30	NM	2.30	2.85
MW-31	5.11	0826	NM	1.61	NM	1.61	3.50
MW-32	5.55	0812	NM	3.37	NM	3.37	2.18
MW-40	5.92	0838	NM	3.00	NM	3.00	2.92
MW-41	5.65	0835	3.08	3.10	**0.02**	3.08	2.57
MW-42	7.23	0843	NM	4.88	NM	4.88	2.35
MW-43	6.71	0845	NM	6.70	NM	6.70	0.01
MW-44	4.88	0850	NM	0.50	NM	0.50	4.38
MW-47	7.73	0832	NM	5.42	NM	5.42	2.31
MW-48	5.08	0853	NM	1.53	NM	1.53	3.55
MW-49	5.04	0855	NM	2.08	NM	2.08	2.96
MW-50	5.12	0904	2.00	2.03	**0.03**	2.00	3.12
MW-51	8.49	0832	NM	6.38	NM	6.38	2.11
TWP-1	5.66	0829	NM	1.14	NM	1.14	4.52
TWP-2	5.14	0848	NM	2.12	NM	2.12	3.02
TWP-3	5.54	0809	NM	1.11	NM	1.11	4.43
P-1	6.06	0800	NM	7.61	NM	7.61	-1.55
P-2	5.55	0814	NM	6.60	NM	6.60	-1.05
P-3	5.93	0840	NM	6.48	NM	6.48	-0.55

KEY:

DTP - Depth To Product from Measuring Point.

DTW - Depth To Water from Measuring Point.

ADJ. DTW- Groundwater depth corrected for the presence of free product.

N/M - Not Measured due to inaccessibility resulting from large surface water accumulation.

ADJ. GW ELEV. - Groundwater elevation relative to onsite datum and corrected for the presence of free product.

NM - None Measurable

TWP - Temporary Well Point.

MP ELEV. - Measuring Point Elevation

Bold - Indicates Free Product detection

NOTES:

Measurements collected during low tide.

Measurements provided in feet.

[1] - Based on previous survey data obtained by IVI and assumed to be the inner well casing.

[2] - Free product thickness as measured in the well without adjustment to reflect results of bail down testing.

TABLE 7
SUMMARY OF GROUNDWATER SAMPLING GEOCHEMICAL FIELD PARAMETERS
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911

Well No.	Date	Time	Hdsp (ppm)	Temp (°C)	pH	Spec Cond (mS/cm)	Turbidity (ntu)	DO (mg/L)	ORP (mV)
MW-4	09/19/2002	1625	0.0	22.1	6.72	3.39	8.7	0.60	-217
MW-33	09/19/2002	1645	0.0	---	---	---	117	---	---
MW-34	09/19/2002	1355	0.0	19.8	6.78	5.64	9.3	0.53	-209
MW-45	09/19/2002	0955	22.0	21.8	6.59	5.14	3.98	0.97	-95
MW-46	09/19/2002	1225	77.4	20.1	6.62	3.28	23.2	0.53	-121
MW-4	07/17/2003	0940	0.3	19.9	6.74	5.82	4.4	1.05	-151
MW-33	07/18/2003	0925	0.0	18.8	6.85	7.27	9.4	0.00	-100
MW-34	07/17/2003	1110	34.2	19.3	6.72	5.14	4.6	7.75	-140
MW-45	07/17/2003	0815	0.6	20.1	6.58	7.05	6.1	0.86	-123
MW-46	07/17/2003	0900	0.1	16.3	6.57	6.94	6.7	0.23	-120

Key:
Hdsp - Well headspace measured in parts per million
Temp oC - Temperature measured in degrees Centigrade
pH - Measured in Standard Units
Spec Cond mS/cm - Specific Conductivity measured in millisiemens per centimeter
ntu - Nephalometric Turbidity Units
DO (mg/L) - Dissolved Oxygen measured in milligrams per Liter
ORP (mV) - Oxidation Reduction Potential measured in milliVolts

Notes:
Geochemical parameters reported are the final reading when stabilization had occurred during well purging.
Sample time denoted in military time.

TABLE 8
SUMMARY OF OU-2 QUARTERLY GROUNDWATER ANALYTICAL RESULTS:
VOLATILE ORGANIC COMPOUNDS
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911
(Concentrations reported in ug/l)

PARAMETERS					MTBE	Ben	Tol	Etb	Total Xyl	PCE	TCE	c-DCE	t-DCE	1,1-DCE	VC	Chf	Nap	Iso-p	t-Ben	n-Ben	Sec-B	Total VOCs
NEW YORK STATE AMBIENT WATER QUALITY STANDARDS					10	1	5[1]	5[1]	5[1]	5[1]	5[1]	5[1]	5[1]	5	2	7	10	5	---	5	5	---
Excel Sample No.	Sample Matrix	Lab Sample No.	Collection Date	Collection Time																		
MW-4[3]	Aq	377678	09/19/2002	1625	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-33[3]	Aq	377679	09/19/2002	1645	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-34[3]	Aq	377680	09/19/2002	1355	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-45[3]	Aq	377681	09/19/2002	0955	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-46[3]	Aq	377682	09/19/2002	1225	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	32	ND	ND	ND	ND	32
FB[3]	Aq	377683	09/19/2002	1655	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
TB[3]	Aq	377684	09/18/2002	---	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-33[3]	Aq	379626	09/26/2002	1100	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	150	ND	ND	ND	ND	150
FB[3]	Aq	379627	09/26/2002	1115	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
TB[3]	Aq	379628	09/26/2002	---	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-4[4]	Aq	444180	07/17/2003	0940	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
MW-33[4]	Aq	444186	07/18/2003	0925	NA	ND	ND	ND	ND	2.3	3.4	9.1	ND	ND	1.8 J	ND	NA	NA	NA	NA	NA	16.6
MW-34[4]	Aq	444181	07/17/2003	1110	NA	ND	ND	ND	ND	ND	ND	1.4 J	ND	ND	ND	ND	NA	NA	NA	NA	NA	1.4
MW-45[4]	Aq	444182	07/17/2003	0815	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
MW-46[4]	Aq	444178	07/17/2003	0900	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
MW-33[4]	Aq	452825	08/18/2003	0935	NA	ND	ND	ND	ND	ND	ND	1.8 J	ND	ND	0.8 J	ND	NA	NA	NA	NA	NA	2.6
FB-1[4]	Aq	444189	07/18/2003	1100	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
FB	Aq	452826	08/18/2003	0945	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-1[4]	Aq	444190	07/16/2003	---	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND

KEY:

ug/l - micrograms per liter
VOCs - Volatile Organic Compounds
MTBE - Methyl Tertiary Butyl Ether
Ben - Benzene
Tol - Toluene
Etb - Ethylbenzene
Total Xyl - Total Xylene
PCE - Tetrachloroethene
TCE - Trichloroethene
c-DCE - cis-1,2 - Dichloroethene
t-DCE - trans - 1,2 - Dichloroethene
1,1-DCE - 1,1-Dichloroethene
VC - Vinyl Chloride
Chf - Chloroform
Nap - Naphthalene
Iso-p - Isopropyl benzene
t-Ben - tert-Butylbenzene
n-Ben - n-Propylbenezene
Sec-B - sec-Butylbenzene
Aq - Aqueous
ND - Not Detected Above Method Detection Levels
NA - Not Analyzed
D - Indicates sample dilution

NOTES:

Sample times denoted in military time.
Guidance values may be used where a standard for a substance or group of substances has not been established for a particular water class and type of value.
Bold and Shaded - Indicates an exceedance of the New York Groundwater Quality Criteria.
(1) - The compound is included in a principal organic contaminant (POC) list and therefore the POC general standard for groundwater is used.
(2) - Method Detection Level exceeds New York State Ambient Water Quality Standards due to high sample dilution.
(3) - Indicates sample was analyzed by Method 8021B.
(4) - Indicates sample was analyzed by Method 8260B.

TABLE 9
SUMMARY OF OU-2 QUARTERLY GROUNDWATER ANALYTICAL RESULTS:
SEMI-VOLATILE ORGANIC COMPOUNDS
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911
(Concentrations reported in ug/l)

PARAMETERS					Nap	Acn	Flu	Phe	Ant	Flo	Pyr	B(a)A	Chr	BeP	B(b)F	B(k)F	B(a)P	Inden	Dibenz	Ben (g,h,I)	Total SVOCs
NEW YORK STATE AMBIENT WATER QUALITY STANDARDS					10	20	50	50	50	50	50	0.002	0.002	5	0.002	0.002	0.002	0.002	50	5*	---
Excel Sample No.	Sample Matrix	Lab Sample No.	Collection Date	Collection Time																	
MW-4	Aq	377678	09/19/2003	1625	1.0 J	**33**	1.1 J	1.5 J	0.3 J	1.0 J	0.6 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	38.5
MW-33	Aq	377679	09/19/2003	1645	**250**	**220**	**160**	**160**	19 J	20 J	10 J	**1.3 J**	**0.6 J**	NA	ND	ND	ND	ND	ND	ND	840.9
MW-34	Aq	377680	09/19/2003	1355	ND	5.1 J	ND	ND	ND	0.3 J	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	5.4
MW-45	Aq	377681	09/19/2003	0955	ND	0.8 J	ND	0.3 J	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	1.1
MW-46	Aq	377682	09/19/2003	1225	ND	1.5 J	0.2 J	ND	ND	0.3 J	0.4 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	2.4
FB	Aq	377683	09/19/2002	1655	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
MW-4	Aq	444180	07/17/2003	0940	0.2 J	**29**	0.5 J	2.4 J	0.5 J	8.1 J	6.6 J	**3.6**	**5.3 J**	NA	**4.5**	**5**	**4.9**	**3.3**	ND	3.8 J	77.7
MW-33	Aq	444186	07/18/2003	0925	**21**	**44**	23	25	3.2 J	3.1 J	1.5 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	120.8
MW-34	Aq	444181	07/17/2003	1110	1.0 J	4.7 J	1.1 J	1.0 J	ND	0.4 J	0.3 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	8.5
MW-45	Aq	444182	07/17/2003	0815	ND	0.8 J	ND	ND	ND	0.3 J	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	1.1
MW-46	Aq	444178	07/17/2003	0900	3.4 J	2.4 J	1.2 J	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	7
MW-33	Aq	452825	08/18/2003	0935	**11**	**43**	21	26	3.4 J	2.8 J	1.4 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	108.6
FB	Aq	444189	07/18/2003	1100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB	Aq	452826	08/18/2003	0945	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND

KEY:
ug/l - micrograms per liter
SVOCs - Semi Volatile Organic Compounds
Nap - Naphthalene
Acn - Acenaphthene
Flu - Fluorene
Phe - Phenanthrene
Ant - Anthracene
Flo - Fluoranthene
Pyr - Pyrene
B(a)A - Benzo(a)anthracene
Chr - Chrysene
BeP - bis(2-Ethylhexyl)phthalate
B(b)F - Benzo(b)fluoranthene
B(k)F - Benzo(k)fluoranthene
B(a)P - Benzo(a)pyrene
Inden - Indeno(1,2,3-cd)pyrene
Dibenz - Dibenz(a,h)anthracene
Ben(g,h,I) - Benzo(g,h,I)perylene
Aq - Aqueous
ND - Not Detected
NA - Not Analyzed

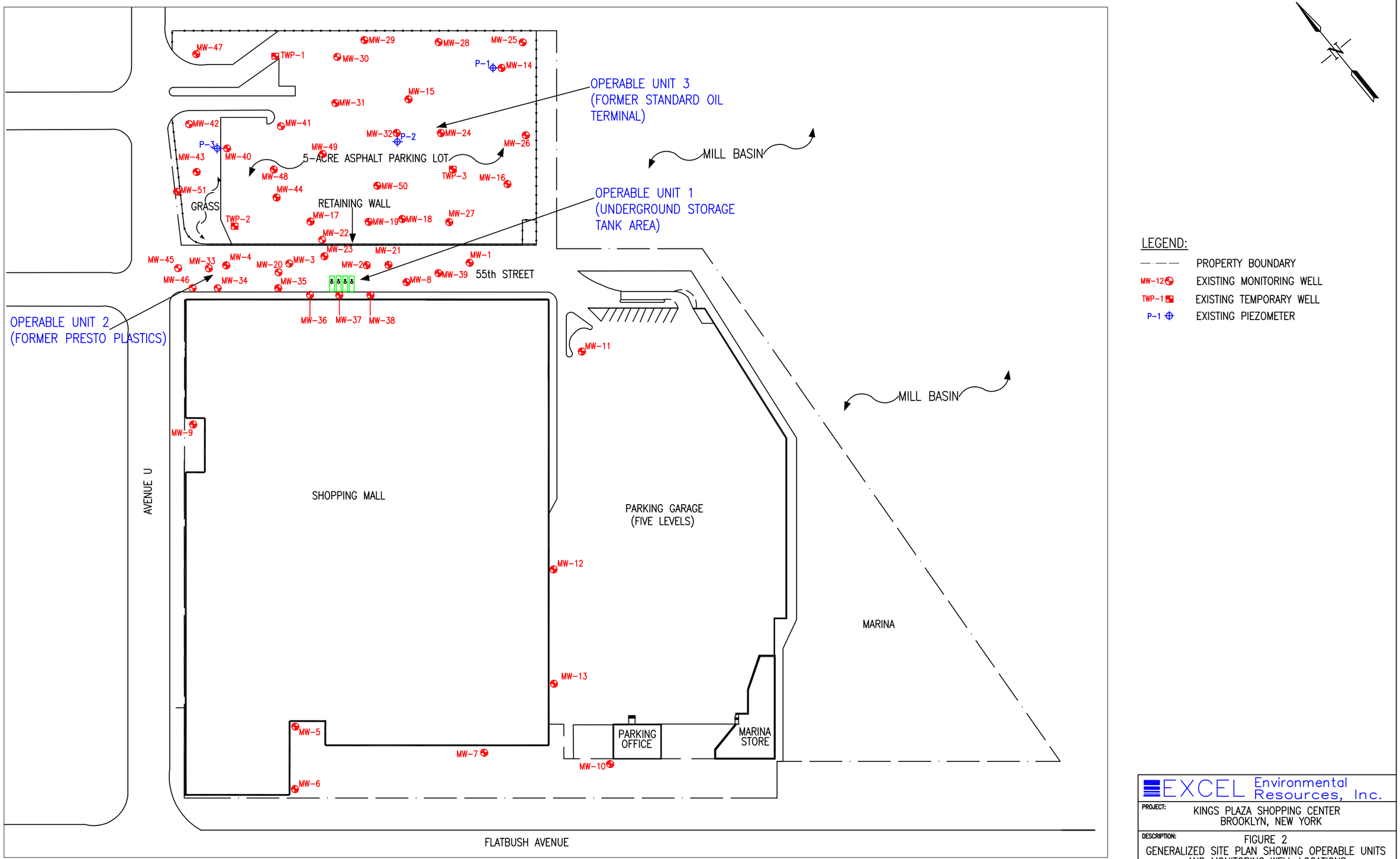
NOTES:
Sample times denoted in military time.
Guidance values may be used where a standard for a substance or group of substances has not been established for a particular water class and type of value.
Bold and Shaded - Indicates an exceedance of the New York Groundwater Quality Criteria.
* - The compound is included in a principal organic contaminant (POC) list and therefore the POC general standard for groundwater is used.
J - The result is less than the specified quantation limit but greater than zero. The concentration given is an approximate value.

FIGURES

SOURCE:
UNITED STATES GEOLOGICAL SURVEY
7.5 MINUTE SERIES (TOPOGRAPHIC)
CONEY ISLAND, NY QUADRANGLE
1995

EXCEL ENVIRONMENTAL RESOURCES, INC.		
KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
FIGURE 1 SITE LOCATION MAP		
DRAWN BY: NA	SCALE: 1:24,000	10/17/2003
CHECKED BY: EM	REVISION: 2.0	PROJECT #: 02432

G:\PROJECTS\02432-OU 2\FIGURES\SITEPLAN.DWG



LEGEND:

- PROPERTY BOUNDARY
- MW-12 EXISTING MONITORING WELL
- TWP-1 EXISTING TEMPORARY WELL
- P-1 EXISTING PIEZOMETER

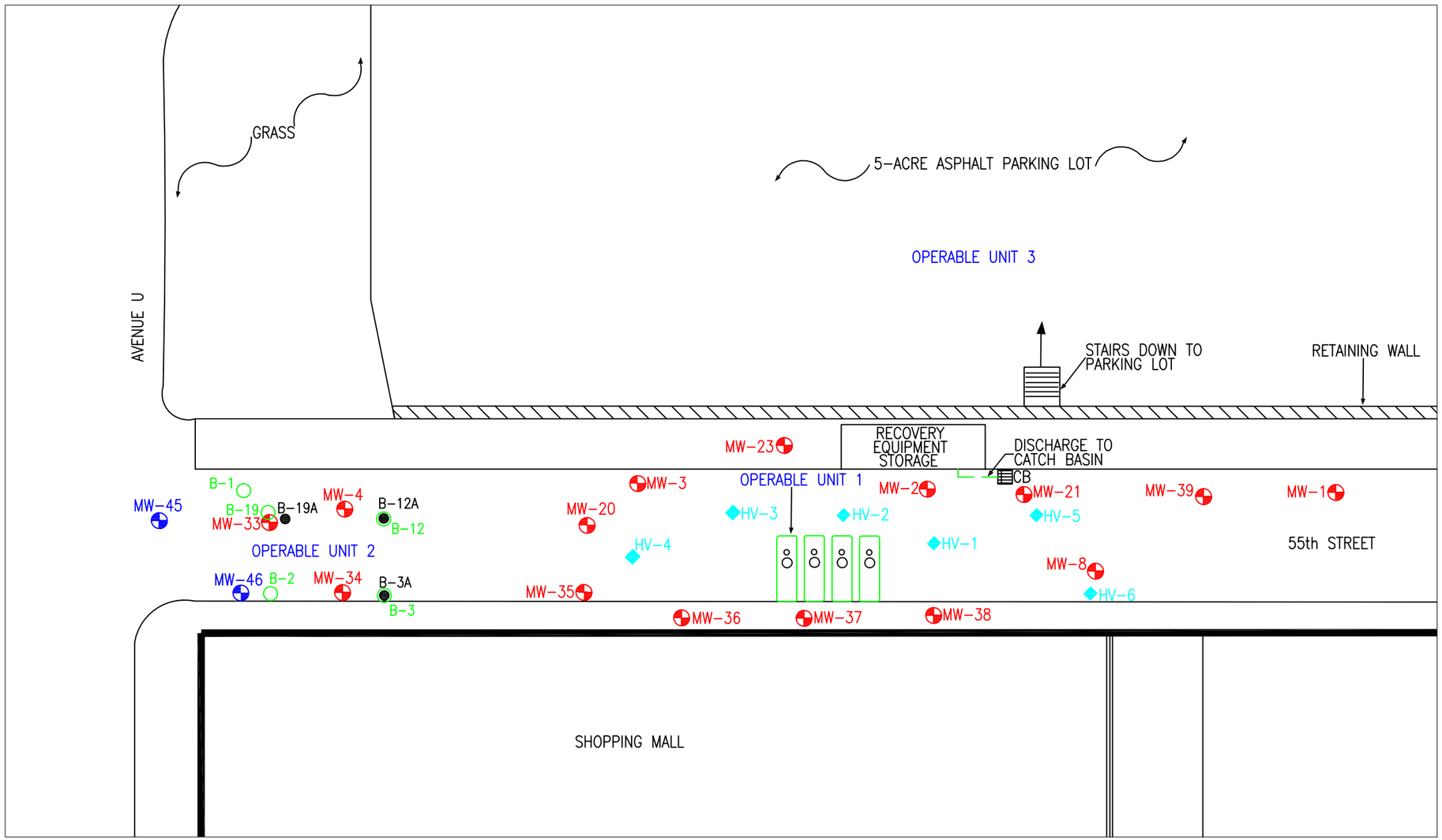
0 75 150 300

SCALE IN FEET

EXCEL Environmental Resources, Inc.

PROJECT: KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
DESCRIPTION: FIGURE 2 GENERALIZED SITE PLAN SHOWING OPERABLE UNITS AND MONITORING WELL LOCATIONS		
DRAWN BY: MLE	SCALE: 1" = 150'	DATE: 8/13/03
CHECKED BY: RAH	REVISION: 1.0	PROJECT #: 02432

G:\02432-OU 2\FIGURES\FIGURE 3.dwg



LEGEND:

- MW-1 — MONITORING WELL
- MW-45 — NEW MONITORING WELL
- HV-6 — HVDPE WELL
- B-12 — FORMER SOIL BORING CONDUCTED BY IVI
- B-3A — SOIL BORING CONDUCTED BY EXCEL IN JUNE 2003
- DISCHARGE PIPE
- CB — CATCH BASIN
- EXISTING UNDERGROUND STORAGE TANK

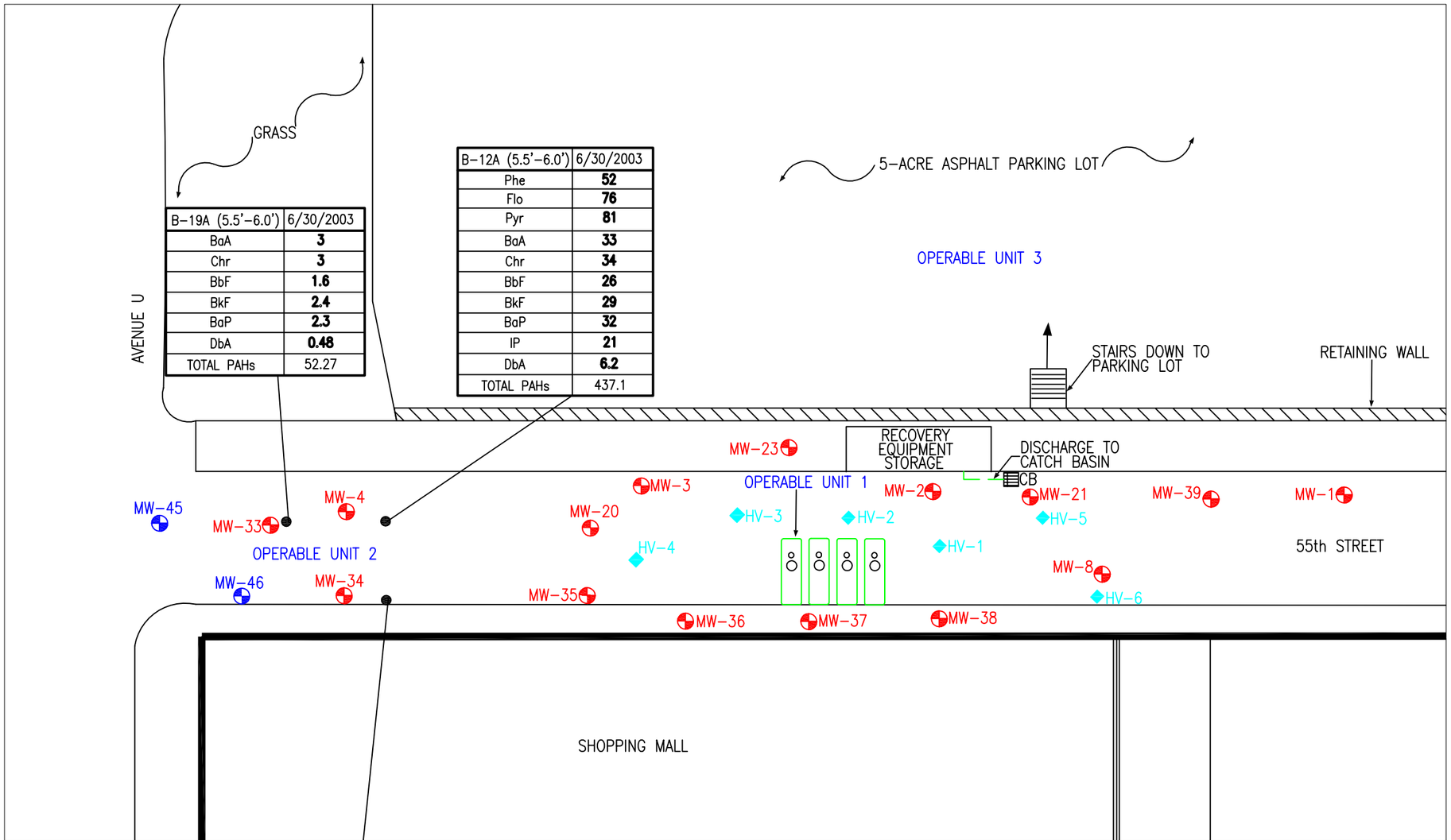
SCALE IN FEET

0 50 100 150

EXCEL Environmental Resources, Inc.

PROJECT: KING'S PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
DESCRIPTION: FIGURE 3 SITE PLAN SHOWING SOIL BORING AND MONITORING WELL LOCATIONS		
DRAWN BY: MLE	SCALE: 1" = 50'	DATE: 8/13/02
CHECKED BY: EM	REVISION:	PROJECT #: 01363

G:\02432-OU 2\FIGURES\FIGURE 4.dwg



B-19A (5.5'-6.0')	6/30/2003
BaA	**3**
Chr	**3**
BbF	**1.6**
BkF	**2.4**
BaP	**2.3**
DbA	**0.48**
TOTAL PAHs	52.27

B-12A (5.5'-6.0')	6/30/2003
Phe	**52**
Flo	**76**
Pyr	**81**
BaA	**33**
Chr	**34**
BbF	**26**
BkF	**29**
BaP	**32**
IP	**21**
DbA	**6.2**
TOTAL PAHs	437.1

B-3A (5.5'-6.0')	6/30/2003
BaA	**11**
Chr	**12**
BbF	**8**
BkF	**11**
BaP	**11**
IP	**7.2**
DbA	**2.6**
TOTAL PAHs	139.39

SCALE IN FEET

0 50 100 150

LEGEND:

MW-1	MONITORING WELL
MW-45	NEW MONITORING WELL
HV-6	HVDPE WELL
B-3A	SOIL BORING
	DISCHARGE PIPE
CB	CATCH BASIN
	EXISTING UNDERGROUND STORAGE TANK
Phe	PHENANTHRENE
Flo	FLUORANTHENE
Pyr	PYRENE
BaA	BENZO(a)ANTHRACENE
Chr	CHRYSENE
BbF	BENZO(b)FLUORANTHENE
BkF	BENZO(k)FLUORANTHENE
BaP	BENZO(a)PYRENE
IP	INDENO(1,2,3-cd)PYRENE
DbA	DIBENZ(a,h)ANTHRACENE
PAHs	POLYNUCLEAR AROMATIC HYDROCARBONS
NYSDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
BOLD	VALUE EXCEEDS NYSDEC TAGM#4046 RECOMMENDED SOIL CLEAN-UP OBJECTIVES

B-12A	6/30/03
TOTAL PAHs	437.1

SAMPLE LOCATION
SAMPLE DATE
ANALYTICAL RESULT IN MILLIGRAM PER KILOGRAM (MG/KG)
ANALYTICAL PARAMETER

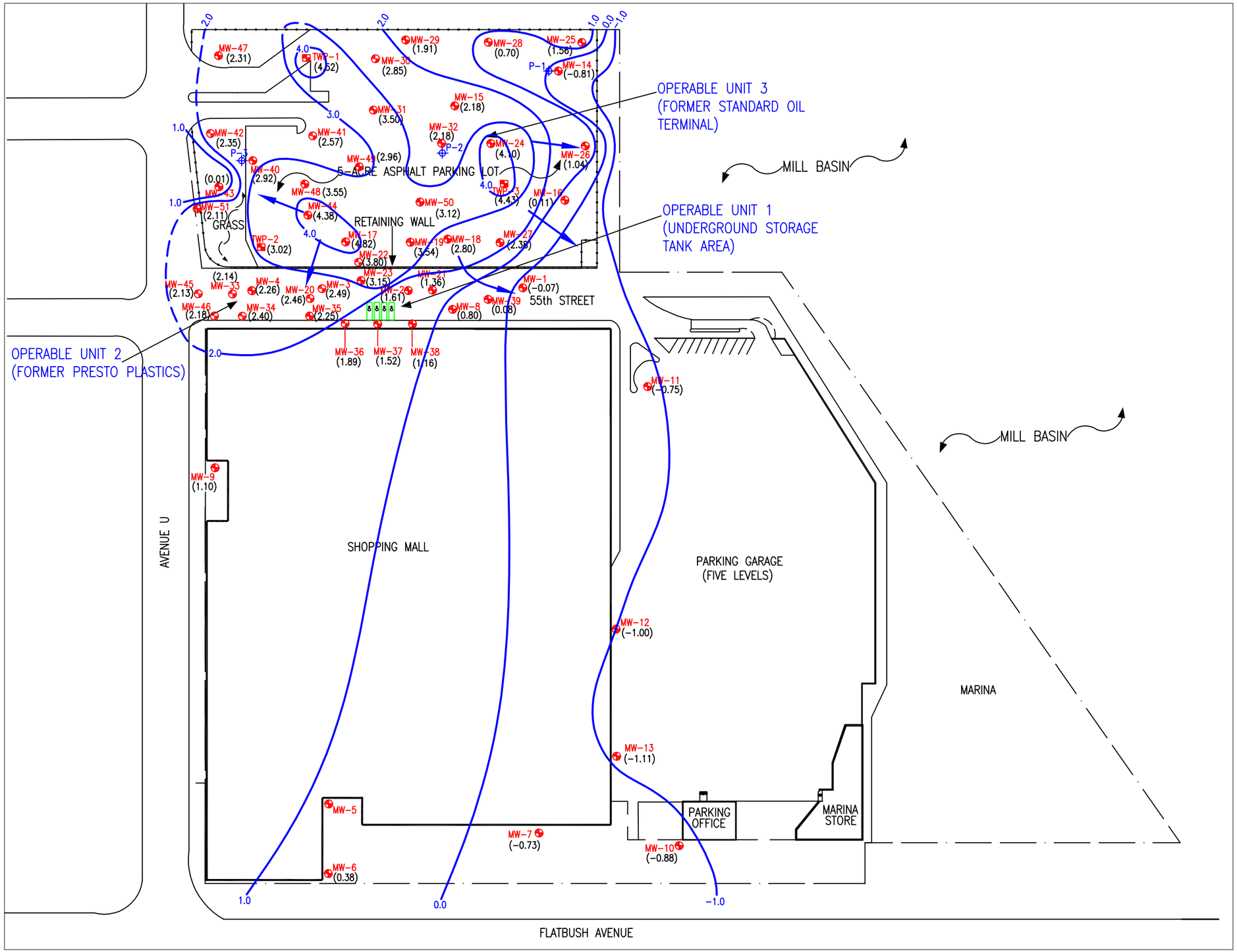
NOTE:

ONLY EXCEEDANCES OF THE NYSDEC TAGM#4046 RECOMMENDED SOIL CLEAN-UP OBJECTIVES ARE REPORTED

EXCEL Environmental Resources, Inc.

PROJECT: KING'S PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
DESCRIPTION: FIGURE 4 SOIL ANALYTICAL RESULTS ABOVE NYSDEC RECOMMENDED CLEAN-UP OBJECTIVES		
DRAWN BY: MLE	SCALE: 1" = 50'	DATE: 8/13/02
CHECKED BY: EM	REVISION:	PROJECT #: 01363

G:\PROJECTS\02432-OU 2\figures\gwcontour.8.5.03



LEGEND:

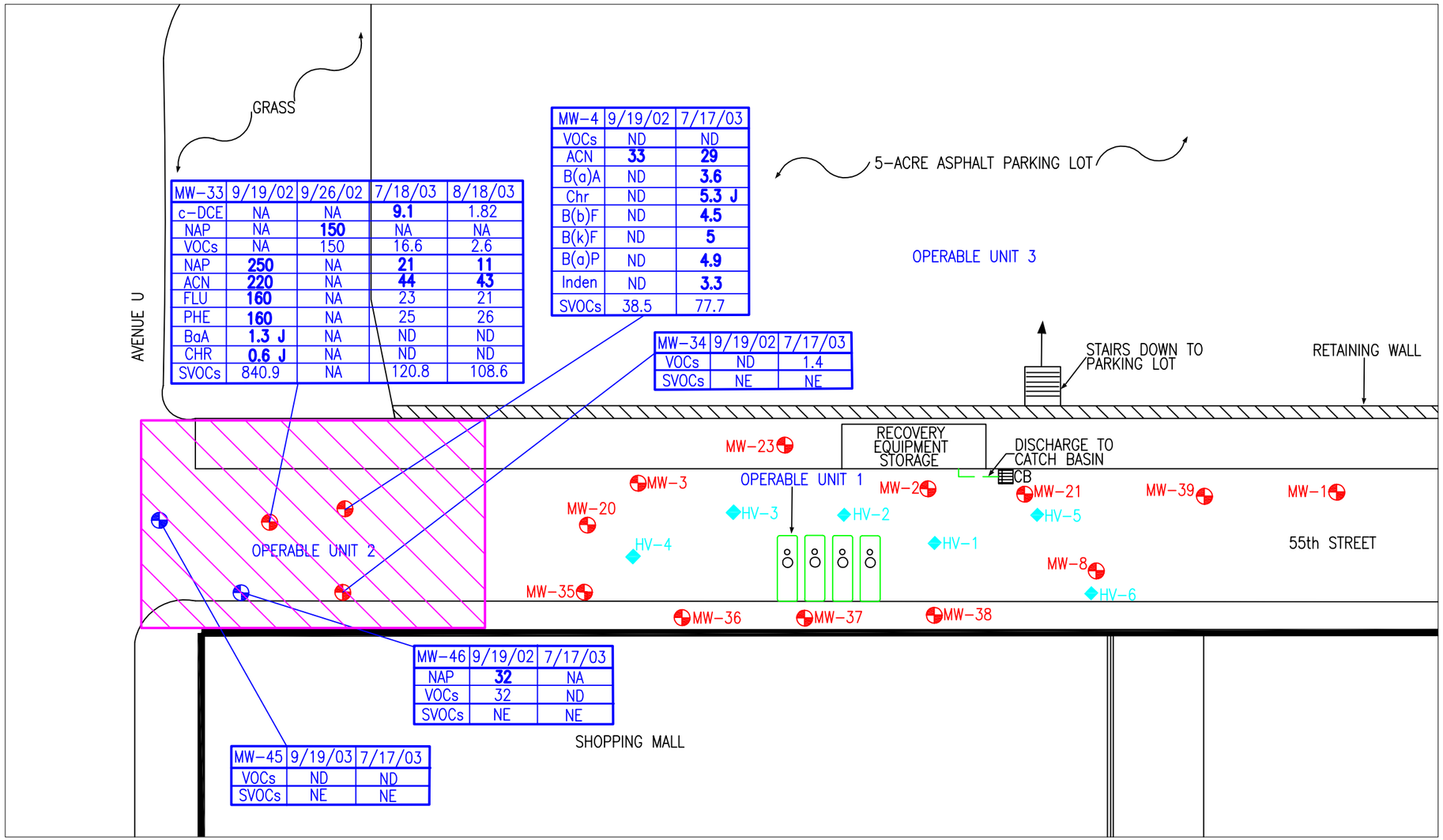
- PROPERTY BOUNDARY
- MW-12 — EXISTING MONITORING WELL
- P-1 — EXISTING PIEZOMETER (NOT USED FOR CONTOUR MAP)
- (0.90) — GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- NM — NOT MEASURED
- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- INDICATES ESTIMATED GROUNDWATER FLOW DIRECTION

0 75 150 300
SCALE IN FEET

EXCEL Environmental Resources, Inc.

PROJECT: KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
DESCRIPTION: FIGURE 5 GROUNDWATER ELEVATION CONTOUR MAP: AUGUST 5, 2003 (LOW TIDE)		
DRAWN BY: KJ	SCALE: 1" = 150'	DATE: 8/13/03
CHECKED BY: MJM	REVISION: 1.0	PROJECT #: 02432

G:\02432 OU-2\FIGURES\FIGURE 6



MW-33	9/19/02	9/26/02	7/18/03	8/18/03
c-DCE	NA	NA	**9.1**	1.82
NAP	NA	**150**	NA	NA
VOCs	NA	150	16.6	2.6
NAP	**250**	NA	**21**	**11**
ACN	**220**	NA	**44**	**43**
FLU	**160**	NA	23	21
PHE	**160**	NA	25	26
BaA	**1.3 J**	NA	ND	ND
CHR	**0.6 J**	NA	ND	ND
SVOCs	840.9	NA	120.8	108.6

MW-4	9/19/02	7/17/03
VOCs	ND	ND
ACN	**33**	**29**
B(a)A	ND	**3.6**
Chr	ND	**5.3 J**
B(b)F	ND	**4.5**
B(k)F	ND	**5**
B(a)P	ND	**4.9**
Inden	ND	**3.3**
SVOCs	38.5	77.7

MW-34	9/19/02	7/17/03
VOCs	ND	1.4
SVOCs	NE	NE

MW-46	9/19/02	7/17/03
NAP	**32**	NA
VOCs	32	ND
SVOCs	NE	NE

MW-45	9/19/03	7/17/03
VOCs	ND	ND
SVOCs	NE	NE

LEGEND:

- LATERAL EXTENT OF OPERABLE UNIT UNIT 2 DEED RESTRICTION AND ENGINEERING CONTROLS
- MW-1 MONITORING WELL
- MW-45 NEW MONITORING WELL
- HV-6 HVDPE WELL
- DISCHARGE PIPE
- CB CATCH BASIN
- EXISTING UNDERGROUND STORAGE TANK

c-DCE	cis-1,2-DICHLOROETHENE
VOCs	TOTAL VOLATILE ORGANIC COMPOUNDS
NAP	NAPHTHALENE
ACN	ACENAPHTHENE
B(a)A	BENZO(a)ANTHRACENE
Chr	CHRYSENE
B(b)F	BENZO(b)FLUORANTHENE
B(k)F	BENZO(k)FLUORANTHENE
B(a)P	BENZO(a)PYRENE
Inden	INDENO(1,2,3-cd)PYRENE
SVOCs	TOTAL SEMI VOLATILE ORGANIC COMPOUNDS
ND	NOT DETECTED
NA	NOT ANALYZED
NE	NO EXCEEDANCE OF THE NEW YORK STATE AMBIENT WATER QUALITY STANDARD OR GUIDANCE VALUE
BOLD	VALUE EXCEEDS NEW YORK STATE GROUNDWATER QUALITY CRITERIA
J	RESULT IS LESS THAN QUANTITATION LIMIT AND IS AN APPROXIMATE VALUE

SAMPLE LOCATION

SAMPLE DATE

MW-34	7/17/03
VOCs	1.4

ANALYTICAL RESULT IN MICROGRAMS PER LITER (ug/L)

ANALYTICAL PARAMETER

NOTE:

ONLY EXCEEDANCES OF THE NEW YORK STATE AMBIENT WATER QUALITY STANDARDS AND/OR GUIDANCE VALUES ARE REPORTED.

SCALE IN FEET

0 50 100 150

EXCEL Environmental Resources, Inc.

PROJECT:	KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK
DESCRIPTION:	FIGURE 6 GROUNDWATER ANALYTICAL RESULTS

DRAWN BY:	SCALE:	DATE:
MLE	1" = 50'	11/5/03
CHECKED BY:	REVISION:	PROJECT #
EM		02432

APPENDIX A

IVI AND EXCEL SOIL BORING LOGS

EXCEL
Environmental
Resources, Inc.

LOG OF BORING MW-45

PROJECT NAME: Kings Plaza		**START DATE:** 8/27/02	**FINISH DATE:** 8/27/02
LOCATION: Brooklyn, NY		**ELEVATION AND DATUM:**	
DRILLING CONTRACTOR:	ADT	**HYDRO/GEOLOGIST:**	EC
DRILLING RIG:	Auger Rig	**DRILLER:**	SM
DRILLING METHOD:	8" Hollow Stem	**DEPTH TO GROUNDWATER:**	8' bgs
SAMPLING DEVICES:	NA	**COMPLETION DEPTH:**	15' bgs

NO.	INCHES DRIVEN/ RECORD	DEPTH	SOIL DESCRIPTION	PID READINGS Depth (FT. BGS)	PID (PPM)	REMARKS
		1	0.0'-1.0' Asphalt		0.0	
		2	1.0'-4.5' Dark gray, moist, medium-fine grained SAND, some silt. (Debris: Asphalt)			
		3			0.0	
		4				
		5	4.0'-15.0' Dark gray, moist-wet, medium-fine grained SAND, some silt. (Debris: glass metal to 8.0' bgs)		0.0	
		6				
		7				
		8				Groundwater @ 8.0' bgs
		9				
		10			0.0	
		11				
		12				
		13				
		14				
		15			0.0	
		16	End Boring @ 15.0' bgs			
		17				
		18				
		19				
		20				

NOTES:

EXCEL
Environmental
Resources, Inc.

LOG OF BORING MW-46

PROJECT NAME: Kings Plaza		**START DATE:** 8/27/02	**FINISH DATE:** 8/27/02
LOCATION: Brooklyn, NY		**ELEVATION AND DATUM:**	
DRILLING CONTRACTOR:	ADT	**HYDRO/GEOLOGIST:**	EC
DRILLING RIG:	Auger Rig	**DRILLER:**	SM
DRILLING METHOD:	8" Hollow Stem	**DEPTH TO GROUNDWATER:**	8' bgs
SAMPLING DEVICES:	NA	**COMPLETION DEPTH:**	15' bgs

NO.	INCHES DRIVEN/ RECVRD	DEPTH	SOIL DESCRIPTION	PID READINGS Depth (FT. BGS)	PID (PPM)	REMARKS
		1	0.0'-1.0' Asphalt		0.0	
		2	1.0'-2.5' Dark gray, moist, medium-fine grained SAND, some silt. (Debris: glass, wood)		0.0	
		3	2.5'-4.0' Dark gray, moist, medium-coarse grained SAND, some silt. (Debris:cinders)		0.0	
		4				
		5	4.0'-15.0' Dark gray, moist-wet, medium-fine grained SAND, some silt.		0.0	
		6				
		7				
		8			0.0	Groundwater @ 8.0'bgs
		9				
		10				
		11				
		12			0.0	
		13				
		14				
		15			0.0	
		16	End Boring @ 15.0' bgs			
		17				
		18				
		19				
		20				

NOTES:

EXCEL Environmental Resources, Inc.

LOG OF BORING B-3A

Sheet 1 of 1

PROJECT NAME: Former Presto Plastics	**ELEVATION AND DATUM:**
LOCATION: Brooklyn, NY	**START DATE:** 6/30/03 **FINISH DATE:** 6/30/03
DRILLING CONTRACTOR: Aquifer Drilling & Testing	**HYDRO/GEOLOGIST:** Eric Mertz
DRILLING RIG: CME 75	**DRILLER:** Lloyd Adams
DRILLING METHOD: Hollow Stem Augar	**DRILLING ASSISTANT:** Glenn Stringham
SAMPLING DEVICES: 2-inch diameter, 24-inch split spoon	**COMPLETION DEPTH:** 7.0' bgs

NO.	INCHES DRIVEN/ RECVRD	BLOWS	DEPTH	STRATA	SOIL DESCRIPTION	PID READINGS INTERV. (INCHES)	PID READINGS PID (PPM)	REMARKS
			1		0.0-1.0 - Asphalt and Asphalt Bedding		N/M N/M	Augered w/ HSA
		25 17	2		1.0-2.5 - Brown f-m Sand, some coarse sand, grey		2.1 1.0	(wood, ash + cinders, glass,
		27 40	3		2.5-5.0 - Brown f-m Sand with Black and white Coarse Sand,		2.4 0.5	
		25 22	4		wood and glass (S+P Historic Fill)		1.4 0.1	
		22 20	5				0.1 3.5	
		11 9	6		5.0-6.5 - Black and white coarse sand, wood + glass (S+P Hist Fill)		0.3 0.3	
		9	7		6.5-7.0 - Grey m-c Sand		0.3 0.4	moist @ 7.0
			8					Completed at 7.0' bgs
			9					
			10					
			11					
			12					
			13					
			14					
			15					
			16					
			17					
			18					
			19					
			20					

NOTES:

DTW @ MW-33 6.80' bgs

EXCEL Environmental Resources, Inc.

LOG OF BORING B-12A

Sheet 1 of 1

PROJECT NAME: Former Presto Plastics	**ELEVATION AND DATUM:**
LOCATION: Brooklyn, NY	**START DATE:** 6/30/03 **FINISH DATE:** 6/30/03
DRILLING CONTRACTOR: Aquifer Drilling & Testing	**HYDRO/GEOLOGIST:** Eric Mertz
DRILLING RIG: CME 75	**DRILLER:** Lloyd Adams
DRILLING METHOD: Hollow Stem Augar	**DRILLING ASSISTANT:** Glenn Stringham
SAMPLING DEVICES: 2-inch diameter, 24-inch split spoon	**COMPLETION DEPTH:** 9.0' bgs

NO.	INCHES DRIVEN/ RECVRD	BLOWS	DEPTH	STRATA	SOIL DESCRIPTION	PID READINGS INTERV. (INCHES)	PID READINGS PID (PPM)	REMARKS
			1		0.0-1.0 - Asphalt + Bedding		NM NM	HSA to 1.0
		10 10	2		1.0-3.0 - Gray F-m Sand		2.7 0.1	
		9 12	3				0.3 0.4	
		12 8	4		3.0-5.0 - Brown F-m Sand and Clay, some Black and		0.8 0.5	(wood, ash + cinder, glass)
		8 7	5		white Coarse Sand (C+P H.S+ F.11)		1.4 1.5	
		14 14	6		5.0-7.0 - Black + white m-c Sand, some wood (C+P H.S+ F.11)		0.4 1.5	
		9 8	7				0.2 0.1	
		9 7	8		7.0-8.0 - Gray m-c Sand		NM NM	moist @ 7.0
		5 7	9				NM NM	
			10					Completed at 9.0' bgs
			11					
			12					
			13					
			14					
			15					
			16					
			17					
			18					
			19					
			20					

NOTES:

DTW @ MW-33 6.80' bgs

Collected B12A (5.5-6.0) for laboratory analysis

EXCEL Environmental Resources, Inc.

LOG OF BORING B/14

Sheet 1 of 1

PROJECT NAME: Former Presto Plastics	**ELEVATION AND DATUM:**
LOCATION: Brooklyn, NY	**START DATE:** 6/30/03 **FINISH DATE:** 6/30/03
DRILLING CONTRACTOR: Aquifer Drilling & Testing	**HYDRO/GEOLOGIST:** Eric Mertz
DRILLING RIG: CME 75	**DRILLER:** Lloyd Adams
DRILLING METHOD: Hollow Stem Augar	**DRILLING ASSISTANT:** Glenn Stringham
SAMPLING DEVICES: 2-inch diameter, 24-inch split spoon	**COMPLETION DEPTH:** 6.5 - 6.5

NO.	INCHES DRIVEN/ RECVRD	BLOWS	DEPTH	STRATA	SOIL DESCRIPTION	PID READINGS INTERV. (INCHES)	PID READINGS PID (PPM)	REMARKS
					0.0-0.5 - Asphalt + Bedding		N/M	HSA
		40	1		0.5-1.0 - Concrete		N/M	
		10			1.0-2.0 - Grey F-m Sand some silt + clay, some gravel m		0.1	
		9	2				0.1	
		10			2.0-5.5 - Brown F-m sand some silt and clay		1.1	
		7	3				0.1	
		8					0.4	
		8	4				0.1	
		6			~~4-5.5~~		0.2	
		8	5				0.1	
		9					0.4	
		6	6		5.5-6.5 - Black and white coarse sand some (wood + glass) (Ash + Cinder)		0.4	(Sand Mix + Fill)
		6					1.8	
			7					Completed @ 6.5
			8					
			9					
			10					
			11					
			12					
			13					
			14					
			15					
			16					
			17					
			18					
			19					
			20					

NOTES:

TWO MW-33 ~~8405.~~ 6.90 6.5

Location potentially disturbed due to subsurface utility installation.

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
9' FT AFTER 0 HOURS
____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-1

BORING LOCATIONS: as located
OFFSET:

DATE START 6-13-97 DATE FIN. 6-13-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											5"	ASPHALT
												Brn F-M SAND
	1	ss	24"	20"	5'0"	10	15			moist dense		Blk F-M SAND, sm silt, lit F-gravel (odor)
						15	15					
	2	ss	24"	13"	10'0"	11	11			v-moist wet compact		Blk F-C SAND, sm silt, lit F-M gravel
						10	8					
											17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT
A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-1

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 5'6" FT AFTER 0 HOURS
____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-2

BORING LOCATIONS: as located

OFFSET:

DATE START 6-13-97 DATE FIN. 6-13-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	TYPE	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0-6	6-12	12-18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											5"	ASPHALT
	1	ss	24"	20"	5'0"	17	16			dry-moist v-dense		Blk/gry F-C SAND, sm F-M gravel, coal, ash, wood, silt, cobbles
						45	40					
	2	ss	24"	23"	10'0"	4	2			wet loose		Blk/gry F-C SAND, lit clay & silt, tr organics
						2	2					
	3	ss	24"	2"	12'0"	WOH	1			wet v-soft		Gry CLAY, lit F-M sand & organics
						1	1					
	4	ss	24"	20"	14'0"	1	1			wet v-soft		Gry CLAY, tr organics (odor)
						1	1					
5	5	ss	24"	24"	16'0"	WOH	1			wet v-soft		Gry CLAY, tr shells
						1	2				17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-2

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 6'6" FT AFTER 0 HOURS
AT ____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-3

BORING LOCATIONS: as located
OFFSET:

DATE START 6-13-97 DATE FIN. 6-13-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											5"	ASPHALT
	1	ss	24"	22"	5'0"	15	7			dry-moist compact		Blk/gry F-C SAND, sm F-M gravel, glass, brick, coal, ash, wood, silt
						10	30					
	2	ss	24"	19"	10'0"	7	4			wet loose		Blk/gry F-M SAND, lit silt (odor)
						3	3					
	3	ss	24"	20"	15'0"	WOH	WOH			wet v-soft		Blk/gry CLAY, lit organics
						WOH	1					
											17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-3

SOILTESTING, INC.

140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 6' FT AFTER 0 HOURS
AT ____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-4

BORING LOCATIONS: as located
OFFSET:

DATE START 6-13-97 DATE FIN. 6-13-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											5"	ASPHALT
	1	ss	24"	20"	5'0"	10	20			dry-moist dense		Blk F-M SAND, sm F-gravel, brick frags, silt, glass, wood frags
						12	9					
	2	ss	24"	20"	10'0"	6	6			wet loose		Gry F-M SAND, lit silt
						4	3					
	3	ss	24"	24"	15'0"	WOH	WOH			wet v-soft		Gry CLAY (odor)
						WOH	2					
											17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-4

SOILTESTING, INC.

140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 5' FT AFTER 0 HOURS
AT ____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-5

BORING LOCATIONS: as located
OFFSET:

DATE START 6-16-97 DATE FIN. 6-16-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											12"	6" CONCRETE/6" 1/2-3/4 CRUSHED STONE
	1	ss	24"	20"	5'0"	15	15			moist compact		Brn F-C SAND, sm silt, lit F-M gravel, concrete frags, brick frags
						13	14				8'0"	
	2	ss	24"	12"	10'0"	8	11			wet compact		Brn F-M SAND, lit C-sand, F-C gravel
						12	11				10'0"	
												Gry F-M SAND, sm silt
	3	ss	24"	20"	15'0"	1	1			wet v-soft	13'0"	
						1	2					Gry SILTY CLAY
											17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-5

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 8' FT AFTER 0 HOURS
AT ____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-6

BORING LOCATIONS: as located
OFFSET:

DATE START 6-16-97 DATE FIN. 6-16-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	TYPE	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0-6	6-12	12-18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											12"	6" CONCRETE/6" CRUSHED STONE
	1	SS	24"	12"	5'0"	11	7			moist compact	3'0"	Brn F-M SAND & SILT, lit C-sand, F-M gravel
						14	13				5'0"	SAME: tr brick, asphalt, concrete frags
												Gry SAND & SILT
	2	SS	24"	11"	10'0"	7	7			wet compact	8'0"	
						6	6				10'0"	Brn F-M SAND
												Gry F-M SAND
15	3	SS	24"	20"	15'0"	3	2			wet loose		SAME
						5	8				17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-6

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 8'6" FT AFTER 0 HOURS
AT ____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-7

BORING LOCATIONS: as located
OFFSET:

DATE START 6-16-97 DATE FIN. 6-16-97
SURFACE ELEV.:
GROUND WATER ELEV.:

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST MOIST	STRATA CHANGE DEPTH ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
												6"	CONCRETE
													Tan F-SAND
		1	ss	24"	18"	5'0"	14	18			moist		
5							26	35			dense		SAME
											wet		
		2	ss	24"	18"	10'0"	14	18			wet		Gry F-SAND
10							18	15			dense		
		3	ss	24"	24"	15'0"	2	1			wet		
15							1	2			v-loose		SAME
												17'0"	E.O.B.
20													
25													
30													
35													E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT
A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-7

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 7'6" FT AFTER 0 HOURS
_____ FT AFTER _____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-8

BORING LOCATIONS: as located
OFFSET:

DATE START 6-17-97 DATE FIN. 6-17-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											4"	ASPHALT
											3'0"	Brn F-M SAND
	1	SS	24"	18"	5'0"	14	9			moist compact		
						5	6				5'0"	ASH, tr silt, wood frags
										wet		
											8'0"	Brn F-M SAND, lit C-sand, tr silt
	2	SS	24"	19"	10'0"	5	5			wet loose		
						4	4					Gry F-M SAND
15	3	SS	24"	18"	15'0"	2	2			wet v-loose		SAME
						1	1				15'0"	E.O.B.

E.O.B. 15'0"

GROUND SURFACE TO _____ FT. USED _____ CASING THEN _____ CASING TO _____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-8

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 8' FT AFTER 0 HOURS
AT ____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-9

BORING LOCATIONS: as located
OFFSET:

DATE START 6-17-97 DATE FIN. 6-17-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											6"	CONCRETE
	1	SS	24"	16"	5'0"	4	4				3'0"	Brn F-C SAND, sm silt, lit F-M gravel, wood, brick frags
						4	4			moist		ASH & CINDERS
	2	SS	24"	22"	10'0"	3	3			wet		SAME
						3	3			loose	10'0"	
	3	SS	24"	24"	15'0"	WOH	1			wet		Gry SILTY CLAY
						1	2			v-soft	15'0"	E.O.B.

E.O.B. 15'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-9

SOILTESTING, INC.
140 OXFORD RD.
OXFORD, CT 06478
CT (203) 888-4531
N.Y. (914) 946-4850

FOREMAN - DRILLER: RD/jc
INSPECTOR:

GROUND WATER OBSERVATIONS
AT 7' FT AFTER 0 HOURS
____ FT AFTER ____ HOURS

CLIENT: IVI Environmental
PROJECT NO.: E112-4854-97
PROJECT NAME: Kings Plaza
LOCATION: Avenue "U" - Brooklyn, NY

	CASING	SAMPLER	CORE BAR
TYPE	HSA	SS	
SIZE I.D.	4 1/4"	1 3/8"	
HAMMER WT.		140#	BIT
HAMMER FALL		30"	

SHEET 1 OF 1
HOLE NO. MW-10

BORING LOCATIONS: as located
OFFSET:

DATE START 6-17-97 DATE FIN. 6-17-97
SURFACE ELEV.:
GROUND WATER ELEV.:

CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE TYPE	SAMPLE PEN	SAMPLE REC	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN. ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORING TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
											8"	CONCRETE
	1	ss	24"	16"	5'0"	4	2			moist loose		Lt-brn F-M SAND
						2	2					
										wet	7'0"	
	2	ss	24"	24"	10'0"	3	5			wet compact		Gry F-M SAND
						8	10					
	3	ss	24"	24"	15'0"	3	7			wet compact		SAME
						10	14					
											17'0"	E.O.B.

E.O.B. 17'0"

GROUND SURFACE TO ____ FT. USED ____ CASING THEN ____ CASING TO ____ FT

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS
SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%
C = COARSE M = MEDIUM F = FINE

HOLE NO. MW-10

IVI Environmental, Inc.

105 Corporate Park Drive
White Plains, New York 10604
(914) 694-9600

Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-1

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0 – 3'			100 %		Dark brown fine sand.
3' – 4'			100%	32 ppm	Dark Brown fine sand with clay.
4' – 6'			100 %	11.3 ppm	Light Brown fine sand.
6' – 8'			100 %	0 ppm	Dark Brown fine – medium sand (sample moist @ 8').
					Sample from 6' – 7' retained for analysis.

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IVI Environmental, Inc.

105 Corporate Park Drive
White Plains, New York 10604
(914) 694-9600

Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-2

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0 – 4'			50 %	0 ppm	Fill material, cinders, wood, cobbles. No odor.
4' – 8'			100%	32 ppm	Fill material to 6.5' (same as above).
					6.5' – 8' orange brown fine to medium sand. (moist @ 8')
8'-12'			100%	0 ppm	Brown/gray medium to coarse sand (sample moist @ 8').
					11.5'-12' gray clay.
					Sample from 7' – 8' retained for analysis.

IVI Environmental, Inc.

105 Corporate Park Drive
White Plains, New York 10604
(914) 694-9600

Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 8'
Water Table Depth: Moist @ 8'

Date: June 22, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-3

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0 – 4'			100%	1.6 ppm	Fill material, cinders, wood, cobbles. No odor.
4' – 8'			100%	0 ppm	Fill material to 7' (same as above).
					7' – 7.5' Brown coarse sand. Sample moist. No odor
			100%		Brown/gray medium to coarse sand (sample moist @ 8').
					7.5'-8' Brown medium to coarse sand (sample wet). No odor.
					Sample from 7' – 8' retained for analysis.

IVI Environmental, Inc.

105 Corporate Park Drive
White Plains, New York 10604
(914) 694-9600

Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 8'
Water Table Depth: Moist @ 8'

Date: June 22, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-4

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0 – 2'			80%	0 ppm	Fill material, cinders, wood, cobbles. No odor.
2'-4'				0 ppm	Same as above mixed with brown coarse sand.
4'-6.5'			100%	0 ppm	Same as above. No odor
6.5'-8'				0 ppm	Brown medium sand. Sample moist @ 6.5.
					Sample from 6' – 7' retained for analysis.

IVI Environmental, Inc.

105 Corporate Park Drive
White Plains, New York 10604
(914) 694-9600

Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-5

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0 – 3'			90%	0 ppm	Fill material, cinders, wood, cobbles. No odor.
3'-4'				0 ppm	Same as above mixed with brown coarse sand. No odor.
4'-6.5'			100%	0 ppm	Fill material with gray/brown sand. No odor
6.5'-8'				300 ppm	Gray fine to coarse sand. Strong odor.
					Sample from 6' – 7' retained for analysis.
					Sample from 7' – 8' retained for analysis.

IVI Environmental, Inc.

105 Corporate Park Drive
White Plains, New York 10604
(914) 694-9600

Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-6

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0 – 1'			100%	15.7 ppm	Fill material, cobbles, shells, coarse sand.
1'-2'				7.5 ppm	Fine sand.
2'-4'				4.6 ppm	Brown fine to medium sand with pebbles.
4'-7'			100%		Fill material
-8'					Gray fine sand. Strong odor. Moist @ 7'
					Sample from 6' – 7' retained for analysis.
					Sample from 7' – 8' retained for analysis.

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Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-7

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' -2'			100%	0 ppm	Fill material, cobbles, shells, coarse sand.
2'-4'			100%	0 ppm	Brown fine sand. No odors, no variation.
4'-5'			100%	0 ppm	Brown fine to medium sand. No odors, no variation.
5'-6'			100%	0 ppm	Brown fine to medium sand and fill material as described above.
-8'			100%	>100 ppm	Orange fine to coarse sand. Gray fine to coarse sand at 8'. Petroleum like odors at 8'.
					Sample from 6' – 7' retained for analysis.
					Sample from 7' – 8' retained for analysis.

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Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-8

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' -2'			100%	0 ppm	Fill material, cobbles, shells, coarse sand intermixed coarse brown sand. No odors.
2'-3'			100%	0 ppm	Fill material, cobbles, shells.
3'-4'			100%	0 ppm	Fill material, wood, cobbles, shells, coarse sand. No odors.
-6'			100%	0 ppm	Fill material as described above.
6'-8'			100%	0 ppm	Orange fine to coarse sand and fill as described above with pebbles.
					Sample from 7.5' – 8' retained for analysis.
					Sample from 7' – 7.5' retained for analysis.

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Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-9

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' -2'			100%	0 ppm	Fill material, cobbles, shells, coarse sand intermixed coarse brown sand. No odors.
2'-3'			100%	0 ppm	Fill material, cobbles, shells.
3'-4'			100%	0 ppm	Fill material, wood, cobbles, shells, coarse sand. No odors.
-6'			100%	0 ppm	Fill material as described above.
o'-8'			100%	>100 ppm	Orange fine to coarse sand and fill as described above with pebbles.
					Sample from 7.5' – 8' retained for analysis.
					Sample from 7' – 7.5' retained for analysis.

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 12'
Water Table Depth: Moist @ 11'

Date: June 22, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-10

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' -4'			50%	0 ppm	Light brown medium to fine sand, no odor, no variation.
4'-7.5'			50%	0 ppm	Light brown medium to fine sand, no odor, no variation.
7.5'-8'			80%	0 ppm	Fill material, wood, cobbles, shells, medium to brown coarse sand. No odors.
8.5'			90%	7.7 ppm	Fill material, as described above.
10.5'-12'			100%	0 ppm	Fine to coarse sand. Wet throughout, slight petroleum odor at 12'.
10'-12'			100%	0 ppm	Gray coarse sand and fine gravel, wet at 10'. No odors.
					Sample from 9' – 9.5' retained for analysis (directly above maximum PID).
					Sample from 10' – 10.5' retained for analysis (maximum PID).

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 12'
Water Table Depth: Moist @ 12'

Date: June 22, 1999
Location: 55th Street Access Road Sidewalk
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-11

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' -4'			30%	0 ppm	Light brown fine sand, no odor, no variation.
4'-7.5'			30%	0 ppm	Brown fine sand and medium to coarse sand, no odor, no variation.
7.5'-8'			30%	0 ppm	Fill material, wood, cobbles, shells, medium to brown coarse sand. No odors.
-12'			30%	0 ppm	Brown fine to coarse sand, wet at 12'.
					Sample from 7.5' – 8' retained for analysis.

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 8'
Water Table Depth: Moist @ 8'

Date: June 22, 1999
Location: 55th Street Access Road Sidewalk
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-12

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –3.5'			100%	0 ppm	Light brown fine sand, no odor, no variation.
3.5'-4'			30%	0 ppm	Fill material, wood, cobbles, shells, gray medium to coarse sand. No odors.
7.5'-8'			30%	0 ppm	Fill material, wood, cobbles, shells, medium to brown coarse sand. No odors.
–12'			30%	7.7 ppm	Brown fine to coarse sand, wet at 12'.
					Sample from 7.5' – 8' retained for analysis.

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 8'
Water Table Depth: Moist @ 8'

Date: June 22, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-13

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –3'			75%	0 ppm	Brown to orange fine sand, no odor, no variation.
3'-4'			75%	0 ppm	Fill material, wood, cobbles, shells, gray medium to coarse sand. No odors.
4'-7'			100%	0 ppm	Fill material, wood, cobbles, shells.
-8'			100%	43 ppm	Gray coarse sand, wet at 8'. Slight odor at 8'.
					Sample from 6' – 7' retained for analysis (above maximum PID).
					Sample from 7' – 8' retained for analysis (maximum PID).

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Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-14

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –4'			100%	7.2 ppm	Fill material (wood, cobbles, shells) with alternating layers of rock and light brown medium sand. PID = 7.2 at 2.5'.
4'-7'			100%	8.7 ppm	Fill material as described above. PID = =8.7 at 7'.
7'-8'			100%	>200 ppm	Dark gray coarse sand, wet at 8', petroleum like odors at 8'.
					Sample from 6' – 7' retained for analysis (above maximum PID).
					Sample from 7' – 8' retained for analysis (maximum PID).

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Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-15

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –3'			100%	81.6 ppm	Brown fine to coarse sand, slight odor.
3'-4'			100%	28.3 ppm	Fill material (wood, cobbles, shells). Slight odor. PID =28.3 at 3'.
4'-8'			100%	>200 ppm	Fill material (wood, cobbles, shells) with medium to coarse gray sand. PID ≥200 at 8'.

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Boring Log

Project No.: E8073468
Date: June 22, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 8'
Boring No.: B-16

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –2'			100%	8 ppm	Brown fine to coarse sand with fill (wood, cobbles, shells, cinders). No odor.
2'-3.5'			100%	0 ppm	Brown fine to medium sand. No odor.
3.5'-4'			100%	0 ppm	Fill material (wood, cobbles, shells).
[illegible]6'			100%	0 ppm	Fill material (wood, cobbles, shells).
[illegible]'			100%	20.1 ppm	Medium to coarse brown sand. Wet at 7' with some gray clay slightly mottled with orange. Slight odor at 7.5'.
					Sample from 5' – 6' retained for analysis (above maximum PID).
					Sample from 7' – 8' retained for analysis (maximum PID).

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 8'
Water Table Depth: Moist @ 8'

Date: June 23, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-17

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –3.5'			100%	0 ppm	Light brown and orange fine to medium sand. No odor.
4 '-4.5'			100%	0 ppm	Light brown fine to medium sand. No odor.
4.5'-5.5'			100%	0 ppm	Dark brown and black fine to coarse sand, no odors.
5'-7'			100%	93 ppm	Fill material (cobbles, wood, brick, cinders, glass). No odors.
7.5'-8'			100%	>200 ppm	Gray medium to coarse sand. Petroleum like odors, PID >200.
					Sample from 5' – 6' retained for analysis (above maximum PID).
					Sample from 7' – 8' retained for analysis (maximum PID).

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Boring Log

Project No.: E8073468
Date: June 23, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 8'
Method Used: Geoprobe
Water Table Depth: Moist @ 7.5'
Boring No.: B-18

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –2'			100%	0 ppm	Light brown and orange medium to coarse sand. No odor.
2'-4'			100%	4 ppm	Dark brown and black medium to coarse sand with fill (cobbles, wood, brick, cinders, glass).
4.'-7.5'			100%	70 ppm	Fill as described above intermixed with brown and black medium to coarse sand.
7'-8'			100%	>200 ppm	Gray medium to coarse sand and free product. PID >300.
					Sample from 6' – 7' retained for analysis (above maximum PID).
					Sample from 7.5' – 8' retained for analysis (maximum PID).

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 8'
Water Table Depth: N/A

Date: June 23, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: B-19

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –2'			100%	0 ppm	Light brown and orange fine to coarse sand and pebbles. No odor.
2'-3'			100%	0 ppm	Fill (cobbles, wood, brick, cinders, glass).
3'-4'			100%	0 ppm	Light brown sand with a gray clay layer at 4'.
-8'			100%	0 ppm	Light brown and orange fine to coarse sand and pebbles. No odor.
					Sample from 7' – 8' retained for analysis.

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Boring Log

Project No.: E8073468
Date: June 24, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 17'
Method Used: Geoprobe
Water Table Depth: 8'
Boring No.: MW-33

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0' –2'			80%	31 ppm	Dark brown fine to coarse sand and pebbles. No odor.
5'-7'			80%	99 ppm	Fill (cobbles, wood, brick, cinders, glass).
10'-12'			10%	0 ppm	Saturated dark brown fine to medium sand with silt and some clay.
15'-17'			75%	0 ppm	Saturated gray clay.

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Boring Log

Project No.: E8073468
Date: June 24, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 15'
Method Used: Geoprobe
Water Table Depth: 7.5'
Boring No.: MW-34

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5'-7'			10%	0 ppm	Fill (cobbles, wood, brick, cinders, glass) and fine to medium brown sand. No odors.
10'-12'			90%	0 ppm	Saturated dark gray medium to coarse sand with silt and some clay.

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Boring Log

Project No.: E8073468
Date: June 24, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 15'
Method Used: Geoprobe
Water Table Depth: 7.5'
Boring No.: MW-35

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5'-7'			10%	0 ppm	Fill (cobbles, wood, brick, cinders, glass) and fine to medium brown sand. No odors.
10'-12'			90%	0 ppm	Saturated dark gray medium to coarse sand with silt and some clay.

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Boring Log

Project No.: E8073468
Project Name: Kings Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 15'
Water Table Depth: 8'

Date: June 25, 1999
Location: 55th Street Access Road
Drilling Company: ADT
Method Used: Geoprobe
Boring No.: MW-36

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5'-7'			100%	6.9 ppm	Fine to medium brown sand underlain by multi-colored fill material (brick, wood, cobbles, cinders, glass). No odors.
10'-12'			100%	0 ppm	Saturated dark gray medium to coarse sand underlain by clay.

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Boring Log

Project No.: E8073468
Date: June 25, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 15'
Method Used: Geoprobe
Water Table Depth: 8'
Boring No.: MW-37

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5'-7'			100%	0 ppm	Fine to medium light brown sand underlain by multi-colored fill material (brick, wood, cobbles, cinders, glass). No odors.
10'-12'			100%	0 ppm	Saturated dark gray coarse sand and gravel.

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Boring Log

Project No.: E8073468
Date: June 25, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 12'
Method Used: Geoprobe
Water Table Depth: 8'
Boring No.: MW-38

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5'-7'			25%	0 ppm	Light brown fine sand. No odors.
10'-12'			100%	0 ppm	Gray coarse sand and gravel with medium gray clay.

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Boring Log

Project No.: E8073468
Date: June 25, 1999
Project Name: Kings Plaza Shopping Center
Location: 55th Street Access Road
Project Manager: Steven Gustems
Drilling Company: ADT
Total Depth: 14'
Method Used: Geoprobe
Water Table Depth: 8'
Boring No.: MW-39

Depth (feet)	Sample No.	Sample Interval	Recovered (%)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
0'-5'			25%	10 ppm	Light brown fine sand. Slight odors.
5'-7'			100%	15 ppm	Light brown fine sand underlain by 6" layer of concrete underlain by fill material.
7'-12'			100%	>185	Gray medium to coarse sand, wet throughout.

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Boring Log

Project No.: E8073468
Project Name: King's Plaza Shopping Center
Project Manager: Steven Gustems
Total Depth: 17'
Water Table Depth: 8.5'

Date: 1-28-00
Location: 55th Street Access Road
Drilling Company: Soil Testing, Inc.
Method Used: Hollow Stem Auger
Boring No.: SP-1

Depth (feet)	Sample No.	Sample Interval	Recovered (feet)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
1-3	1	1'-3'	1.5	--	f-c SAND, dark gray and black, petroleum type odors.
3-5	2	3'-5'	1.5	--	f-c SAND, dark gray and black, petroleum type odors.
5-7	3	5'-7'	1.5	--	f-c SAND, dark gray and black, petroleum type odors.
7-9	4	7'-9'	1	--	f-c SAND, trace fill (brick, cinders, glass), dark gray and black, petroleum type odors. Wet at about 8.5'.
9-11	5	9'-11'	1	--	f-c SAND, trace fill (brick, cinders, glass), dark gray and black, petroleum type odors.
11-13	6	11'-13'	0	--	Zero recovery on this spoon.
13-15	7	13'-14'	1.5	--	Fine and medium SAND and Silt, gray and black.
		14'-15'		--	CLAY, gray and black.
					Sparge point SP-1 set at 11' bgs.

IVI Environmental, Inc.

105 Corporate Park Drive
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Boring Log

Project No.: E8073468

Project Name: King's Plaza Shopping Center

Project Manager: Steven Gustems

Total Depth: 17'

Water Table Depth: ~8.5'

Date: 1-28-00

Location: 55th Street Access Road

Drilling Company: Soil Testing, Inc.

Method Used: Hollow Stem Auger

Boring No.: SP-2A and SP-2B

Depth (feet)	Sample No.	Sample Interval	Recovered (feet)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5-7	1	5'-7'	1	--	f-c SAND, trace Silt, dark gray and black, petroleum type odors.
7-9	2	7'-9'	1	--	f-c SAND, trace Silt, dark gray and black, petroleum type odors. Wet at about 8.5'.
9-11	3	9'-11'	1	--	f-c SAND, dark gray and black, petroleum type odors. Wet at about 8.5'.
11-13	4	11'-13'	0.25	--	f-c SAND, dark gray and black.
13-15	5	13'-14'	1	--	Fine and medium SAND and Silt, gray and black.
		14'-15'		--	CLAY, gray and black.
					Sparge point SP2A set at 14' bgs, SP2B set at 11' bgs.

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APPENDIX B

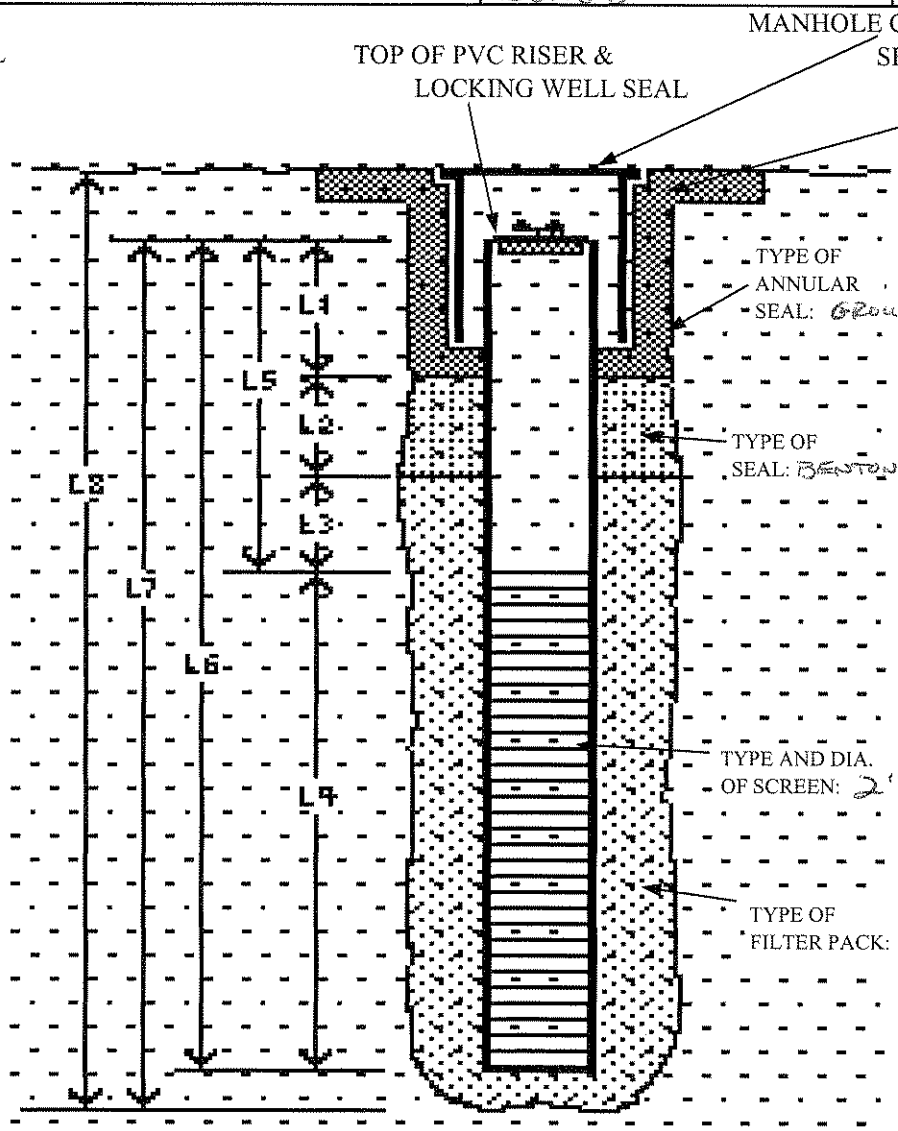
MONITORING WELL INSTALLATION DETAILS

EXCEL
Environmental
Resources, Inc.

CONSTRUCTION OF MONITORING WELL NO. MW-45

PROJECT AND LOCATION	GROUND ELEVATION AND DATUM	PROJECT NUMBER
KINGS PLAZA		0136 3
DRILLING AGENCY	**TOP OF RISER ELEVATION**	**DATE FINISHED**
AQUIFER DRILLING + TESTING		8/27/02
METHOD OF DRILLING	**TOP OF PROTECTIVE CASING ELEV.**	**INSPECTOR**
HOLLOW STEM AUGER		
DIAMETER OF BOREHOLE	**GROUND WATER ELEVATION**	**CHECKED BY**
4.25" & 2" PVC well		
DEPTH OF BOREHOLE	**MUNICIPALITY**	**LOT/BLOCK**
15'	NYC	
LATITUDE AND LONGITUDE	**COUNTY**	**PERMIT NO.**
	Kings	

GENERALIZED SOIL DESCRIPTION



L1: 1'
L2: 1'
L3: 2'
L4: 10'
L5: 5'
L6: 15'
L7: 15'
L8: 15'

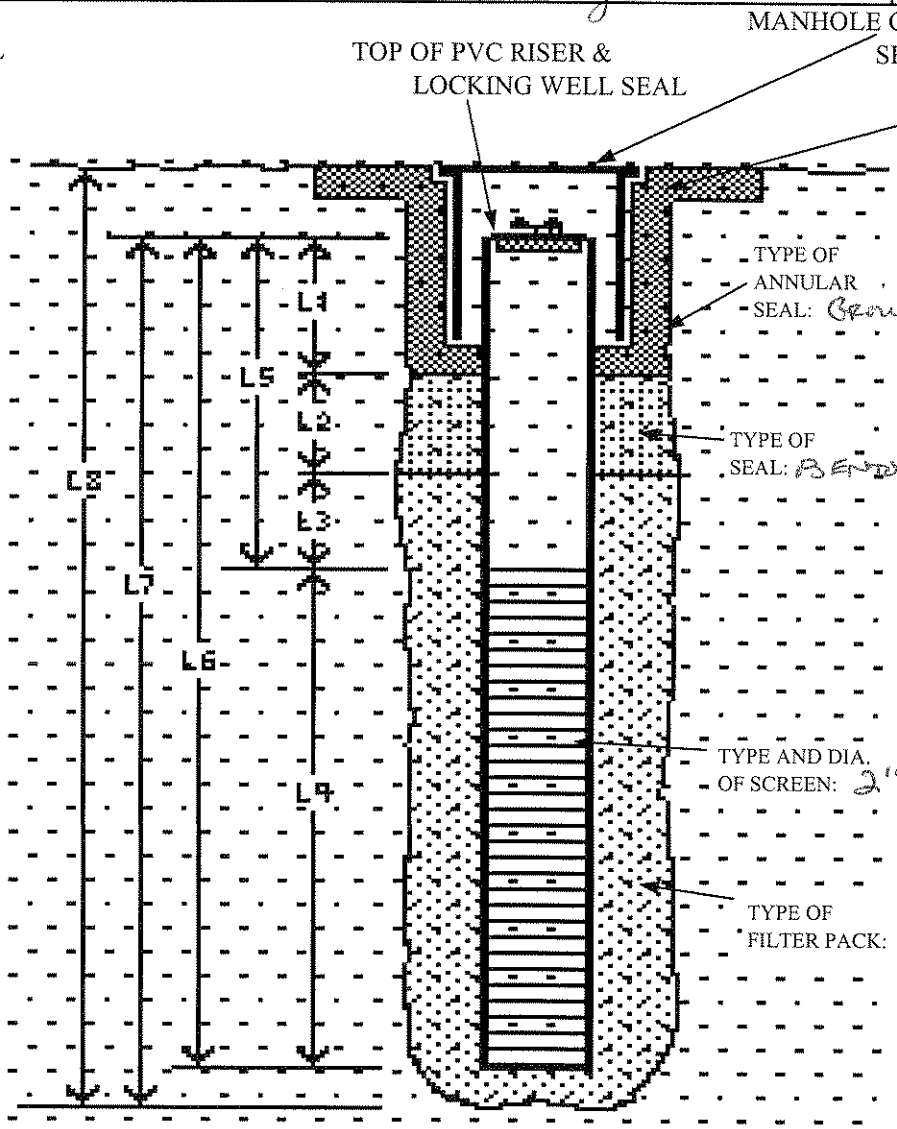
NOT TO SCALE
(VALUES REPORTED IN FEET)
REMARKS

EXCEL
Environmental
Resources, Inc.

CONSTRUCTION OF MONITORING WELL NO. MW-46

PROJECT AND LOCATION	GROUND ELEVATION AND DATUM	PROJECT NUMBER
KINGS PLAZA		01363
DRILLING AGENCY	**TOP OF RISER ELEVATION**	**DATE FINISHED**
AQUIFER DRILLING & TESTING		8/27/02
METHOD OF DRILLING	**TOP OF PROTECTIVE CASING ELEV.**	**INSPECTOR**
HOLLOW STEM AUGER		
DIAMETER OF BOREHOLE	**GROUND WATER ELEVATION**	**CHECKED BY**
4.25" ; 2" PVC well		
DEPTH OF BOREHOLE	**MUNICIPALITY**	**LOT/BLOCK**
15'	NYC	
LATITUDE AND LONGITUDE	**COUNTY**	**PERMIT NO.**
	Kings	

GENERALIZED SOIL DESCRIPTION



L1: 1'
L2: 1'
L3: 2'
L4: 10'
L5: 5'
L6: 15'
L7: 15'
L8: 15'

NOT TO SCALE
(VALUES REPORTED IN FEET)
REMARKS

APPENDIX C

GROUNDWATER SAMPLING FIELD DATA LOGS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-4
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY
Well Permit No.:
Sampled By: MLE
Date: 7/17/03
Weather: 75°F, Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.6 eV
Time 0835
Well Headspace Reading 0.3 ppm
Background 0.1 ppm
Depth to screen from measuring point: — ft
Depth to water from measuring point (DTW): 6.90 ft
Depth to well bottom from measuring point (DTB): 16.60 ft
Height of water column (h): (subtract DTW from DTB) 9.70 ft
Measuring instrument: ☐ M-Scope ☒ Oil/Water Interface Probe
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder pump w/ dedicated tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.583 g
Minimum volume to be purged prior to sampling: (3 x well volume) 4.74 g
Actual volume purged: 5.0 g
Purge Start and End Time: 0840/0940
Purge Rate: g
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder
Parameter Measurement Method and Equipment: ~~ME~~ ~~Submersible~~ Pump - DEDICATED POLY TUBING
FLOW-THROUGH CELL, ORION METERS

TIME	0850	0900	0910	0915
Temperature	~~ME 6.73~~ 18.7 °C	19.1 °C	19.6 °C	19.7 °C
pH	6.73 Std. Units	6.67 Std. Units	6.71 Std. Units	6.73 Std. Units
Specific Conductivity	10.7 mS/cm	6.90 mS/cm	6.29 mS/cm	6.17 mS/cm
ORP	-125 mV	-124 mV	-142 mV	-148 mV
Dissolved Oxygen	1.11 mg/l	1.08 mg/l	1.05 mg/l	1.07 mg/l
Turbidity	64.2 NTU	43.8 NTU	23.8 NTU	20.4 NTU
ESTIMATED GALLONS	0.75	1.50	2.25	2.5
SHEEN	none	none	none	none
COLOR	clear	clear	clear	clear
SOLIDS	none	none	none	none
ODOR	none	none	none	none

Depth to water from measuring point after sampling: 7.8
Sampling Time: 0940

REMARKS (Well condition, etc.)

GW/FIELD/Low-Flow

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-4
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY
Well Permit No.:
Sampled By: MLE
Date: 7/17/03
Weather: 75°F, sunny

TIME	0920	0925	0930	0935	0940
Temperature	19.7 °C	19.8 °C	19.8 °C	19.9 °C	19.9
pH	6.87 Std. Units	6.74 Std. Units	6.74 Std. Units	6.74 Std. Units	6.74 Std. Un
Specific Conductivity	6.04 mS/cm	5.92 mS/cm	5.89 mS/cm	5.81 mS/cm	5.82 mS/
ORP	-151 mV	-151 mV	-151 mV	-151 mV	-151
Dissolved Oxygen	1.04 mg/l	1.05 mg/l	1.04 mg/l	1.06 mg/l	1.05 m
Turbidity	14.0 NTU	7.9 NTU	5.7 NTU	4.8 NTU	4.4 N
EST. GALLONS	3.0	3.5	4.0	4.5	5.0
SHEEN	none	none	none	none	none
COLOR	clear	clear	clear	clear	clear
SOLIDS	none	none	none	none	none
ODOR	none	none	none	none	none

REMARKS

Sampled @ 0940 for VOCs, SVOCs

TIME	Post				
Temperature	19.9 °C	°C	°C	°C	
pH	6.74 Std. Units	Std. Units	Std. Units	Std. Units	Std. U
Specific Conductivity	5.82 mS/cm	mS/cm	mS/cm	mS/cm	mS
ORP	-151 mV	mV	mV	mV	
Dissolved Oxygen	1.06 mg/l	mg/l	mg/l	mg/l	
Turbidity	4.2 NTU	NTU	NTU	NTU	N
EST. GALLONS	5.0				
SHEEN	none				
COLOR	clear				
SOLIDS	none				
ODOR	none				

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-33
Project Name: Kings Plaza
Project No.: 01063
Location: Brooklyn, NY
Well Permit No.:
Sampled By: AM
Date: 7/16/03
Weather: Clear ~80°F

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.6 eV
Time 08:40
Well Headspace Reading 0.0 ppm
Background 0.0 ppm
Depth to screen from measuring point: Pump set at 14.0' bgs ft
Depth to water from measuring point (DTW): 7.16 ft
Depth to well bottom from measuring point (DTB): 15.13 ft
Height of water column (h): (subtract DTW from DTB) 7.97 ft
Measuring instrument: ☐ M-Scope ☒ Oil/Water Interface Probe
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder Pump/Dedicated Tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.30 g
Minimum volume to be purged prior to sampling: (3 x well volume) 3.90 g
Actual volume purged: 8.0 g
Purge Start and End Time: 08:40 - 09:25
Purge Rate: 0.20 g
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: ~~Submersible Pump~~ - DEDICATED POLY TUBING
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ~~ORION METERS~~ Horiba U-22

TIME	08:40	08:45	08:50	08:55
Temperature	18.3 °C	17.7 °C	18.6 °C	18.8 °C
pH	6.74 Std. Units	6.82 Std. Units	6.75 Std. Units	6.73 Std. Units
Specific Conductivity	10.6 mS/cm	9.7 mS/cm	7.04 mS/cm	6.76 mS/cm
ORP	-55 mV	-24 mV	-22 mV	-63 mV
Dissolved Oxygen	2.75 mg/l	3.12 mg/l	1.94 mg/l	0.76 mg/l
Turbidity	999 NTU	94.9 NTU	29.3 NTU	12.9 NTU
ESTIMATED GALLONS	0.0	0.25	1.5	2.5
SHEEN	NO	NO	NO	NO
COLOR	Gray	Clear	Clear	Clear
SOLIDS	Yes	NO	NO	NO
~~ODOR~~ Salinity	0.57	0.54	0.38	0.36
Depth to water from measuring point after sampling: DTW	7.42	7.83	7.86	7.70
Sampling Time:			09:20	

REMARKS (Well condition, etc.)

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-33
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY
Well Permit No.:
Sampled By: KM
Date: 7/12/03
Weather: Clear ~80°F

TIME	09:00	09:05	09:10	09:16	09:20
Temperature	18.7 °C	18.7 °C	18.6 °C	18.6 °C	18.8
pH	6.79 Std. Units	6.80 Std. Units	6.82 Std. Units	6.83 Std. Units	6.85 Std. Un
Specific Conductivity	6.60 mS/cm	6.91 mS/cm	6.95 mS/cm	6.96 mS/cm	7.53 mS/
ORP	-85 mV	-93 mV	-97 mV	-100 mV	-100
Dissolved Oxygen	0.58 mg/l	0.05 mg/l	0.00 mg/l	0.00 mg/l	0.00
Turbidity	10.4 NTU	10.1 NTU	9.9 NTU	10.3 NTU	8.6 N
EST. GALLONS	4.1	5.0	6.0	7.0	8.0
SHEEN	NO	NO	→	→	→
COLOR	Clear	Clear	→	→	→
SOLIDS	NO	NO	→	→	→
~~ODOR~~ Solinity	0.37	0.37	0.37	0.37	0.41
REMARKS DTW	7.78	7.80	7.90	7.85	7.72

TIME	09:25	Pos +			
Temperature	18.8 °C	18.8 °C	°C	°C	
pH	6.85 Std. Units	6.85 Std. Units	Std. Units	Std. Units	Std. U
Specific Conductivity	7.27 mS/cm	7.27 mS/cm	mS/cm	mS/cm	mS
ORP	-100 mV	-101 mV	mV	mV	
Dissolved Oxygen	0.00 mg/l	0.00 mg/l	mg/l	mg/l	
Turbidity	9.4 NTU	8.3 NTU	NTU	NTU	
EST. GALLONS	9.0	→			
SHEEN	None	→			
COLOR	None	→			
SOLIDS	None	→			
~~ODOR~~ Solinity	0.39	0.39			
REMARKS DTW	7.70	7.70			

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD LOG

GENERAL

Well ID No.: MW-33
Project Name: Former Standard Oil Facility (OU2)
Project No.: 02432
Location: 55th Street and Avenue U, Brooklyn, New York
Well Permit No.:
Sampled By: MLE
Date: 8/18/03
Weather: 75°F, sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.6 eV
Well Headspace Reading 4.6 ppm
Time 0825
Background 0.1 ppm
Depth to screen from measuring point: —
Depth to water from measuring point (DTW): 7.20 ft
Depth to well bottom from measuring point (DTB): 15.13 ft
Height of water column (h): (subtract DTW from DTB) 7.93 ft
Measuring instrument: ☐ M-Scope ☒ Oil/Water Interface Probe
Measuring point description: Mark On Inner Well Casing

WELL PURGING

Purge Method and Equipment: Bladder Pump - Dedicated Poly Tubing
Pump Depth: 9.50
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.294
Minimum volume to be purged prior to sampling: (3 x well volume) 3.882
Actual volume purged: 6.50
Purge Start and End Time: 0830/0935
Was the well pumped dry? ☐ Yes ☒ No
Purge Rate: 0.10

SAMPLE PARAMETERS

Sample Collection Method: Bladder Pump - Dedicated Poly Tubing
Parameter Measurement Method and Equipment: Flow-Through Cell, Horiba U-22 Meter

TIME	0830	0845	0855	0905
Temperature	21.13 °C	21.07 °C	21.09 °C	21.08 °C
pH	6.72 Std. Units	6.76 Std. Units	6.76 Std. Units	6.75 Std. Units
Specific Conductivity	7.42 mS/cm	6.87 mS/cm	6.79 mS/cm	6.78 mS/cm
ORP	-207 mV	-292 mV	-307 mV	-317 mV
Dissolved Oxygen	2.67 mg/l	0.61 mg/l	0.49 mg/l	0.47 mg/l
Salinity	— %	— %	— %	— %
Turbidity	324.0 NTU	128.0 NTU	68.3 NTU	41.2 NTU
ESTIMATED GALLONS	0.75	1.50	2.50	3.50
SHEEN	no	no	no	no
COLOR	light brown	clear	clear	clear
SOLIDS	none	none	none	none
ODOR	no	no	no	no

Depth to water from measuring point after sampling: 7.65
Sampling Time: 0935

REMARKS (Well condition, etc.)
Salinity could not be measured, due to error in meter

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD LOG

GENERAL

Well ID No.: MW-33
Project Name: Former Standard Oil Facility (OU2)
Project No.: 02432
Location: 55th Street and Avenue U, Brooklyn, New York
Well Permit No.:
Sampled By: MLE
Date: 8/18/03
Weather: 75°F, Sunny

TIME	0910	0915	0920	0925	0930
Temperature	21.10 °C	21.43 °C	21.70 °C	21.81 °C	21.82
pH	6.76 Std. Units	6.76 Std. Units	6.78 Std. Units	6.76 Std. Units	6.77 Std. Ui
Specific Conductivity	6.73 mS/cm	6.69 mS/cm	6.61 mS/cm	6.64 mS/cm	6.62 mS/
ORP	-330 mV	-328 mV	-326 mV	-327 mV	-325
Dissolved Oxygen	0.42 mg/l	0.38 mg/l	0.37 mg/l	0.39 mg/l	0.40
Salinity	— %	— %	— %	— %	—
Turbidity	25.5 NTU	20.3 NTU	14.1 NTU	11.4 NTU	8.8
EST. GALLONS	4.0	4.25	4.50	5.0	5.5
SHEEN	none	none	none	none	none
COLOR	clear	clear	clear	clear	clear
SOLIDS	none	none	none	none	none
ODOR	none	none	none	none	none

REMARKS

TIME	0935	0940			
Temperature	21.81 °C	21.60 °C	°C	°C	
pH	6.76 Std. Units	6.74 Std. Units	Std. Units	Std. Units	Std
Specific Conductivity	6.80 mS/cm	6.74 mS/cm	mS/cm	mS/cm	
ORP	-324 mV	-316 mV	mV	mV	
Dissolved Oxygen	0.40 mg/l	0.44 mg/l	mg/l	mg/l	
Salinity	— %	— %	%	%	
Turbidity	6.2 NTU	9.1 NTU	NTU	NTU	
EST. GALLONS	6.0	6.5			
SHEEN	none	none			
COLOR	clear	clear			
SOLIDS	none	none			
ODOR	none	none			

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-34
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY
Well Permit No.:
Sampled By: MLE
Date: 7/17/03
Weather: 75°F, sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.6 eV
Time 0955
Well Headspace Reading 34.2 ppm
Background 0.1 ppm
Depth to screen from measuring point: — ft
Depth to water from measuring point (DTW): 6.45 ft
Depth to well bottom from measuring point (DTB): 14.7 ft
Height of water column (h): (subtract DTW from DTB) 8.25 ft
Measuring instrument: ☐ M-Scope ☒ Oil/Water Interface Probe
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder pump w/ dedicated tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.346 g
Minimum volume to be purged prior to sampling: (3 x well volume) 4.03 g
Actual volume purged: 5.5 g
Purge Start and End Time: 1005/1110
Purge Rate: — g
Was the well pumped dry? ☐ Yes ☐ No

SAMPLE PARAMETERS

Sample Collection Method: Submersible Pump - DEDICATED POLY TUBING
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	1015	1025	1035	1040
Temperature	20.6 °C	19.6 °C	20.0 °C	20.1 °C
pH	6.64 Std. Units	6.58 Std. Units	6.61 Std. Units	6.65 Std. Units
Specific Conductivity	6.88 mS/cm	6.41 mS/cm	6.01 mS/cm	5.61 mS/cm
ORP	-119 mV	-133 mV	-136 mV	-139 mV
Dissolved Oxygen	8.54 mg/l	8.50 mg/l	8.24 mg/l	8.01 mg/l
Turbidity	258.0 NTU	171.0 NTU	78.0 NTU	49.2 NTU
ESTIMATED GALLONS	0.75	1.5	2.25	2.5
SHEEN	none	none	none	none
COLOR	cloudy	cloudy	clear	clear
SOLIDS	none	none	none	none
ODOR	none	none	none	none

Depth to water from measuring point after sampling: 6.80
Sampling Time: 1110

REMARKS (Well condition, etc.)

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-34
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY

Well Permit No.:
Sampled By: MLE
Date: 7/17/03
Weather: 75°F, sunny

TIME	1045	1050	1055	1100	1105
Temperature	19.2 °C	19.2 °C	19.2 °C	19.3 °C	19.3 °C
pH	6.70 Std. Units	6.71 Std. Units	6.71 Std. Units	6.72 Std. Units	6.72 Std. Units
Specific Conductivity	5.17 mS/cm	5.15 mS/cm	5.14 mS/cm	5.14 mS/cm	5.15 mS/cm
ORP	-142 mV	-142 mV	-141 mV	-140 mV	-140 mV
Dissolved Oxygen	7.92 mg/l	7.86 mg/l	7.79 mg/l	7.79 mg/l	7.76 mg/l
Turbidity	32.7 NTU	22.2 NTU	15.6 NTU	10.4 NTU	7.7 NTU
EST. GALLONS	3.0	3.5	4.0	4.5	5.0
SHEEN	none	none	none	none	none
COLOR	clear	clear	clear	clear	clear
SOLIDS	none	none	none	none	none
ODOR	none	none	none	none	none

REMARKS

TIME	1110	post			
Temperature	19.3 °C	19.3 °C	°C	°C	
pH	6.72 Std. Units	6.72 Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	5.14 mS/cm	5.14 mS/cm	mS/cm	mS/cm	mS/cm
ORP	-140 mV	-140 mV	mV	mV	
Dissolved Oxygen	7.75 mg/l	7.75 mg/l	mg/l	mg/l	
Turbidity	4.6 NTU	4.7 NTU	NTU	NTU	
EST. GALLONS	5.5	5.5			
SHEEN	none	none			
COLOR	clear	clear			
SOLIDS	none	none			
ODOR	none	none			

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-45
Project Name: Kings Plaza
Project No.: 01303
Location: Brooklyn, NY
Well Permit No.:
Sampled By: MLE
Date: 7/17/03
Weather: 70°F, Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.6 eV
Time 0710
Well Headspace Reading 0.6 ppm
Background 0.1 ppm

Depth to screen from measuring point:	5.70	ft
Depth to water from measuring point (DTW):	~~6.88~~	ft
Depth to well bottom from measuring point (DTB):	15.71	ft
Height of water column (h): (subtract DTW from DTB)	8.86	ft

Measuring instrument: ☐ M-Scope ☒ Oil/Water Interface Probe
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder pump w/dedicated tubing

Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft)	1.445	gal
Minimum volume to be purged prior to sampling: (3 x well volume)	4.33	gal
Actual volume purged:	4.75	gal

Purge Start and End Time: 0720 / 0815
Purge Rate: gpm
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder
~~Submersible~~ Pump - DEDICATED POLY TUBING
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	0730	0740	0750	0755
Temperature	20.0 °C	21.2 °C	21.7 °C	21.2 °C
pH	6.62 Std. Units	6.56 Std. Units	6.55 Std. Units	6.57 Std. Units
Specific Conductivity	8.46 mS/cm	7.98 mS/cm	7.26 mS/cm	7.11 mS/cm
ORP	-112 mV	-114 mV	-117 mV	-119 mV
Dissolved Oxygen	0.91 mg/l	0.89 mg/l	0.86 mg/l	0.87 mg/l
Turbidity	108.0 NTU	72.2 NTU	55.6 NTU	35.9 NTU
ESTIMATED GALLONS	0.25	1.50	2.25	2.75
SHEEN	none	none	none	none
COLOR	cloudy	clear	clear	clear
SOLIDS	none	none	none	none
ODOR	none	none	none	none

Depth to water from measuring point after sampling: 7.24 ft
Sampling Time: 0815

REMARKS (Well condition, etc.)

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-45
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY

Well Permit No.:
Sampled By: MLE
Date: 7/17/03
Weather: 90°F, sunny

TIME	0800	0805	0810	0815	post
Temperature	20.1 °C	20.0 °C	20.1 °C	20.1 °C	20.1 °C
pH	6.58 Std. Units	6.58 Std. Units	6.58 Std. Units	6.58 Std. Units	6.58 Std. Units
Specific Conductivity	7.09 mS/cm	7.09 mS/cm	7.01 mS/cm	7.05 mS/cm	7.05 mS/cm
ORP	-125 mV	-125 mV	-123 mV	-123 mV	-123 mV
Dissolved Oxygen	0.88 mg/l	0.86 mg/l	0.87 mg/l	0.86 mg/l	0.86 mg/l
Turbidity	19.6 NTU	12.0 NTU	8.3 NTU	6.1 NTU	6.1 NTU
EST. GALLONS	3.25	3.75	4.25	4.5	4.5
SHEEN	none	none	none	none	none
COLOR	clear	clear	clear	clear	clear
SOLIDS	none	none	none	none	none
ODOR	none	none	none	none	none

REMARKS

Sampled @ 0815 for VOCs, SVOCs

TIME					
Temperature	°C	°C	°C	°C	°C
pH	Std. Units	Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	mS/cm	mS/cm	mS/cm	mS/cm	mS/cm
ORP	mV	mV	mV	mV	mV
Dissolved Oxygen	mg/l	mg/l	mg/l	mg/l	mg/l
Turbidity	NTU	NTU	NTU	NTU	NTU
EST. GALLONS					
SHEEN					
COLOR					
SOLIDS					
ODOR					

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-46
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY
Well Permit No.:
Sampled By: TN
Date: 7-17-03
Weather: 85° clear

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.6 eV
Time 0720
Well Headspace Reading 0.1 ppm
Background 0.1 ppm
Depth to screen from measuring point:
Depth to water from measuring point (DTW): ~~6.10~~ TN ft
Depth to well bottom from measuring point (DTB): 6.10 ft
Height of water column (h): (subtract DTW from DTB) 15.75 ft
Measuring instrument: ☐ M-Scope ☒ Oil/Water Interface Probe 9.65 ft
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder Pump with dedicated tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.57 g
Minimum volume to be purged prior to sampling: (3 x well volume) 4.71 g
Actual volume purged: 30 g
Purge Start and End Time: 0730 - 0900 Purge Rate: 0.33 g
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder ~~Submersible~~ Pump - DEDICATED POLY TUBING
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ~~ORION METERS~~ Horiba U-22

TIME	0735	0735	0740	0745
Temperature	16.8 °C	16.7 °C	16.7 °C	16.8 °C
pH	6.42 Std. Units	6.48 Std. Units	6.56 Std. Units	6.54 Std. Units
Specific Conductivity	6.29 mS/cm	5.71 mS/cm	5.34 mS/cm	5.45 mS/cm
ORP	-99 mV	-133 mV	-105 mV	-107 mV
Dissolved Oxygen	2.92 mg/l	0.45 mg/l	1.15 mg/l	0.49 mg/l
Turbidity	135.0 NTU	45.1 NTU	37.2 NTU	25.2 NTU
ESTIMATED GALLONS	—	5	2.5	2
SHEEN	none	none	none	none
COLOR	clear	clear	clear	clear
SOLIDS	light	none	none	none
ODOR	none	none	none	none

Depth to water from measuring point after sampling: ~~6.65~~ TN
Sampling Time: 0900 7.15

REMARKS (Well condition, etc.)

Sample from 0900 will be submitted to the lab.

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-46
Project Name: KP
Project No.: 01363
Location: NY
Well Permit No.:
Sampled By: TN
Date: 7-17
Weather: 85°

TIME	0750	0755	0800	0805	0820
Temperature	16.8 °C	17.0 °C	17.0 °C	17.1 °C	17.1
pH	6.54 Std. Units	6.55 Std. Units	6.54 Std. Units	6.52 Std. Units	6.53 Std. Un
Specific Conductivity	5.41 mS/cm	5.48 mS/cm	5.53 mS/cm	5.53 mS/cm	5.52 mS/c
ORP	-115 mV	-124 mV	-125 mV	-125 mV	-125 m
Dissolved Oxygen	0.36 mg/l	0.24 mg/l	0.24 mg/l	0.26 mg/l	0.26 m
Turbidity	22.5 NTU	21.3 NTU	21.0 NTU	20.7 NTU	21.0 NT
EST. GALLONS	1	1	1	0.5	1.5
SHEEN	none	none	none	none	none
COLOR	clear	clear	clear	clear	clear
SOLIDS	none	none	none	none	none
ODOR	none	none	none	none	none

REMARKS

TIME	0825	0830	0835	0840	0845
Temperature	17.1 °C	17.2 °C	16.9 °C	16.8 °C	16.8
pH	6.51 Std. Units	6.50 Std. Units	6.54 Std. Units	6.52 Std. Units	6.56 Std. U
Specific Conductivity	5.47 mS/cm	5.50 mS/cm	5.77 mS/cm	5.86 mS/cm	5.87 mS
ORP	-123 mV	-122 mV	-93 mV	-99 mV	-110
Dissolved Oxygen	0.28 mg/l	0.27 mg/l	1.04 mg/l	0.37 mg/l	0.23
Turbidity	21.7 NTU	20.8 NTU	56.5 NTU	29.0 NTU	14.5 N
EST. GALLONS	0.5	0.5	—	4	3
SHEEN	none	none	none	none	none
COLOR	clear	clear	clear	clear	clear
SOLIDS	none	none	none	none	none
ODOR	none	none	none	none	none

REMARKS

0830 - Sampled - VO/BN 0835 - Increase Purge Rate

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-46
Project Name: EP
Project No.: 01363
Location: NY

Well Permit No.:
Sampled By: TW
Date: 7-17-03
Weather: 75°

TIME	0850	0855	0900	POST	
Temperature	16.7 °C	16.6 °C	16.3 °C	16.3 °C	°
pH	6.58 Std. Units	6.58 Std. Units	6.57 Std. Units	6.57 Std. Units	Std. Un
Specific Conductivity	5.97 mS/cm	6.26 mS/cm	6.94 mS/cm	6.98 mS/cm	mS/c
ORP	-115 mV	-119 mV	-120 mV	-121 mV	m
Dissolved Oxygen	0.20 mg/l	0.22 mg/l	0.23 mg/l	0.25 mg/l	m
Turbidity	9.3 NTU	9.9 NTU	6.7 NTU	6.5 NTU	NT
EST. GALLONS	2.5	2.5	2.5	2.5	
SHEEN	none	none	none →		
COLOR	clear	clear	clear →		
SOLIDS	none	none	none →		
ODOR	none	none	none →		

REMARKS

0900 - ReSampled for VO/BN DTW - 7.15

TIME					
Temperature	°C	°C	°C	°C	
pH	Std. Units	Std. Units	Std. Units	Std. Units	Std. U
Specific Conductivity	mS/cm	mS/cm	mS/cm	mS/cm	mS
ORP	mV	mV	mV	mV	
Dissolved Oxygen	mg/l	mg/l	mg/l	mg/l	
Turbidity	NTU	NTU	NTU	NTU	N
EST. GALLONS					
SHEEN					
COLOR					
SOLIDS					
ODOR					

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.:	MW-4	Well Permit No.:	
Project Name:	Kings Plaza	Sampled By:	EC + TN
Project No.:	01363	Date:	9-19-02
Location:	Brooklyn	Weather:	80° Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.2 eV Time 0815

Well Headspace Reading 0.0 ppm Background 0.0 ppm

Depth to screen from measuring point:		ft
Depth to water from measuring point (DTW):	7.03	ft
Depth to well bottom from measuring point (DTB):	16.00	ft
Height of water column (h): (subtract DTW from DTB)	8.97	ft

Measuring instrument: ☐ Steel Tape ☒ ~~M Scope~~ O/W Probe ☐ Sounder

Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: bladder pump with dedicated tubing

Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft)	1.463	gal
Minimum volume to be purged prior to sampling: (3 x well volume)	4.389	gal
Actual volume purged:	16	gal
Purge Start and End Time: 1455 / 1625	Purge Rate: ~~0.1 E-E~~ 0.25	gpm

Was the well pumped dry? ☐ Yes ☐ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder pump w dedicated tubing

Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	1500	1515	1530	1545
Temperature	— °C	— °C	— °C	21.3 °C
pH	— Std. Units	— Std. Units	— Std. Units	6.72 Std. Units
Specific Conductivity	— mS/cm	— mS/cm	— mS/cm	3.83 mS/cm
ORP	— mV	— mV	— mV	-120 mV
Dissolved Oxygen	— mg/l	— mg/l	— mg/l	0.55 mg/l
Turbidity	7500 NTU	95.3 NTU	68.0 NTU	22.2 NTU
ESTIMATED GALLONS	.5	2	5	8
SHEEN	yes	Slight	N	N
COLOR	Gray	Clear	Clear	C
SOLIDS	Heavy	EC ~~light~~ Med	light	L
ODOR	petroleum	N	N	N

Depth to water from measuring point after sampling: 7.49 ft

Sampling Time: 1625 VOA's + metals + etc

REMARKS (Well condition, etc.)

Water contains worms; white 1/2 1/64"

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-4
Well Permit No.:
Project Name: Kings Plaza
Sampled By: EC + TN
Project No.: 01363
Date: 9/19/02
Location: Brooklyn, NY
Weather: 80° Sunny

TIME	1600	1615	1620	1625	
Temperature	22.2 °C	22.1 °C	22.0 °C	22.1 °C	°C
pH	6.72 Std. Units	6.72 Std. Units	6.77 Std. Units	6.72 Std. Units	Std. Units
Specific Conductivity	3.54 mS/cm	3.42 mS/cm	3.40 mS/cm	3.39 mS/cm	mS/cm
ORP	-135 mV	-282 mV	-212 mV	-217 mV	mV
Dissolved Oxygen	0.58 mg/l	0.63 mg/l	0.59 mg/l	0.60 mg/l	mg/l
Turbidity	22.8 NTU	12.7 NTU	9.3 NTU	8.7 NTU	NTU
EST. GALLONS	10	12	14	16	
SHEEN	none	none	N	N	
COLOR	clear	clear	C	C	
SOLIDS	low	none	N	N	
ODOR	none	none	N	N	

REMARKS

TIME					
Temperature	°C	°C	°C	°C	°C
pH	Std. Units	Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	mS/cm	mS/cm	mS/cm	mS/cm	mS/cm
ORP	mV	mV	mV	mV	mV
Dissolved Oxygen	mg/l	mg/l	mg/l	mg/l	mg/l
Turbidity	NTU	NTU	NTU	NTU	NTU
EST. GALLONS					
SHEEN					
COLOR					
SOLIDS					
ODOR					

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-33 | Well Permit No.:
Project Name: Kings Plaza | Sampled By: EC + TN
Project No.: 01363 | Date: 9-19-02
Location: Brooklyn | Weather: 80° Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.2 eV | Time 0800
Well Headspace Reading 0.0 ppm | Background 0.0 ppm
Depth to screen from measuring point: ft
Depth to water from measuring point (DTW): 9.43 ft
Depth to well bottom from measuring point (DTB): 14.63 ft
Height of water column (h): (subtract DTW from DTB) 7.2 ft
Measuring instrument: ☐ Steel Tape ☒ ~~M Scope~~ EC oil/water probe ☐ Sounder
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder pump w/ ded. tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.175 gal
Minimum volume to be purged prior to sampling: (3 x well volume) 3.525 gal
Actual volume purged: — gal
Purge Start and End Time: 1005 / 1015 1415 / 1645 Purge Rate: 0.12 gpm
Was the well pumped dry? ☒ Yes ~~☐~~ EC No

SAMPLE PARAMETERS

Sample Collection Method: Bladder pump w/ Ded. tubing
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	1015	EC 1030 1425	~~1045~~ 1440	1645
Temperature	— °C	— °C	— °C	— °C
pH	— Std. Units	— Std. Units	— Std. Units	— Std. Units
Specific Conductivity	— mS/cm	— mS/cm	— mS/cm	— mS/cm
ORP	— mV	— mV	— mV	— mV
Dissolved Oxygen	— mg/l	— mg/l	— mg/l	— mg/l
Turbidity	NTU	331 NTU	132 NTU	117 NTU
STIMATED GALLONS		1	2	—
EN		none	N	none
OR		gray	Sl. G	sl. gray
S		heavy	mod	med
		no odor	N	none

water from measuring point after sampling: 10.38 ft
Time: 1645

KS (Well condition, etc.)
1015 Dry move to mw 46 Restart Purge 1415 / 1445 Dry

ield\Low Flow
well was sampled for BN * FB ~~1655~~ EC 1655

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-34
Well Permit No.:
Project Name: Kings Plaza
Sampled By: EC + TN
Project No.: 01363
Date: 9-19-02
Location: Brooklyn
Weather: 80° Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.2 eV Time 0825
Well Headspace Reading 0.0 ppm Background 0.0 ppm
Depth to screen from measuring point: ______ ft
Depth to water from measuring point (DTW): 6.71 ft
Depth to well bottom from measuring point (DTB): 14.7 ft
Height of water column (h): (subtract DTW from DTB) 7.99 ft
Measuring instrument: ☐ Steel Tape ☒ ~~M-Scope~~ Oil/water probe ☐ Sounder
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: bladder pump ; dedicated tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.303 gal
Minimum volume to be purged prior to sampling: (3 x well volume) 3.909 gal
Actual volume purged: 14 gal
Purge Start and End Time: 1245 / 1355 Purge Rate: 0.25 gpm
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder pump / dedicated tubing
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	1300	1315	1330	1345
Temperature	— °C	— °C	19.8 °C	19.7 °C
pH	— Std. Units	— Std. Units	6.77 Std. Units	6.80 Std. Units
Specific Conductivity	— mS/cm	— mS/cm	5.73 mS/cm	5.95 mS/cm
ORP	— mV	— mV	-169 mV	-196 mV
Dissolved Oxygen	— mg/l	— mg/l	0.67 mg/l	0.60 mg/l
Turbidity	456 NTU	95.6 NTU	31.2 NTU	10.4 NTU
ESTIMATED GALLONS	3	6	9	12
SHEEN	N	N	N	None
COLOR	Gray	Gray	Clear	clear
SOLIDS	Heavy	Med	Light	light
ODOR	N	N	N	none

Depth to water from measuring point after sampling: 7.01 ft
Sampling Time: 1355 VO + DNT metal tetra

REMARKS (Well condition, etc.)

Gwfield\Low Flow

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-34
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn, NY

Well Permit No.:
Sampled By: EC + TN
Date: 9/19/02
Weather: 80° Sunny

TIME	1350	1355			
Temperature	14.8 °C	14.8 °C	°C	°C	°C
pH	6.77 Std. Units	6.78 Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	5.70 mS/cm	5.64 mS/cm	mS/cm	mS/cm	mS/cm
ORP	-209 mV	-209 mV	mV	mV	mV
Dissolved Oxygen	0.55 mg/l	0.53 mg/l	mg/l	mg/l	mg/l
Turbidity	9.7 NTU	9.3 NTU	NTU	NTU	NTU
EST. GALLONS	13	14			
SHEEN	N	N			
COLOR	C	C			
SOLIDS	N	N			
ODOR	N	N			

REMARKS

TIME					
Temperature	°C	°C	°C	°C	°C
pH	Std. Units	Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	mS/cm	mS/cm	mS/cm	mS/cm	mS/cm
ORP	mV	mV	mV	mV	mV
Dissolved Oxygen	mg/l	mg/l	mg/l	mg/l	mg/l
Turbidity	NTU	NTU	NTU	NTU	NTU
EST. GALLONS					
SHEEN					
COLOR					
SOLIDS					
ODOR					

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-45
Well Permit No.:
Project Name: Kings Plaza
Sampled By: EC + TN
Project No.: 01363
Date: 9-19-02
Location: Brooklyn
Weather: 80° Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.2 eV
Time 0810
Well Headspace Reading 22.0 ppm
Background 0.0 ppm
Depth to screen from measuring point: 5.70 ft
Depth to water from measuring point (DTW): 7.15 ft
Depth to well bottom from measuring point (DTB): 15.71 ft
Height of water column (h): (subtract DTW from DTB) 8.56 ft
Measuring instrument: ☐ Steel Tape ☒ ~~M-Scope~~ EC oil/water probe ☐ Sounder
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder pump w/ Dedicated tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.396 gal
Minimum volume to be purged prior to sampling: (3 x well volume) 4.188 gal
Actual volume purged: 16.5 gal
Purge Start and End Time: 0845 / 0955
Purge Rate: 0.33 gpm
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder pump w/ dedicated tubing
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	0900	0915	0930	945
Temperature	— °C	25 °C	22.0 °C	21.9 °C
pH	— Std. Units	4.52 Std. Units	6.29 Std. Units	6.55 Std. Units
Specific Conductivity	— mS/cm	5.17 mS/cm	5.15 mS/cm	5.12 mS/cm
ORP	— mV	−89 mV	−98 mV	−96 mV
Dissolved Oxygen	— mg/l	4.35 mg/l	1.26 mg/l	1.07 mg/l
Turbidity	157 NTU	26.5 NTU	8.61 NTU	6.86 NTU
ESTIMATED GALLONS	0	4.5	9	13.5
SHEEN	N	N	N	N
COLOR	gray	clear	C	C
SOLIDS	Heavy-med	light	L	L
ODOR	N	N	N	N

Depth to water from measuring point after sampling: 7.43 ft
Sampling Time: 0955 VO, BN, metals

REMARKS (Well condition, etc.)

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-45
Project Name: King Plaza
Project No.: 01363
Location: Brooklyn, NY

Well Permit No.:
Sampled By: EC + TN
Date: 9/18/02
Weather: 80° Sunny

TIME	0950	0955			
Temperature	21.9 °C	21.8 °C	°C	°C	°C
pH	6.58 Std. Units	6.59 Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	5.12 mS/cm	5.14 mS/cm	mS/cm	mS/cm	mS/cm
ORP	~~EC~~ -96 mV	-95 mV	mV	mV	mV
Dissolved Oxygen	1.02 mg/l	0.97 mg/l	mg/l	mg/l	mg/l
Turbidity	4.42 NTU	3.98 NTU	NTU	NTU	NTU
EST. GALLONS	15	16.5			
SHEEN	N	N			
COLOR	C	C			
SOLIDS	N	N			
ODOR	N	N			

REMARKS

TIME					
Temperature	°C	°C	°C	°C	°C
pH	Std. Units	Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	mS/cm	mS/cm	mS/cm	mS/cm	mS/cm
ORP	mV	mV	mV	mV	mV
Dissolved Oxygen	mg/l	mg/l	mg/l	mg/l	mg/l
Turbidity	NTU	NTU	NTU	NTU	NTU
EST. GALLONS					
SHEEN					
COLOR					
SOLIDS					
ODOR					

REMARKS

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-46
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn
Well Permit No.:
Sampled By: EE TN
Date: 9-19-02
Weather: 80° Sunny

GROUNDWATER LEVEL AND VOLUME

PID Model / Lamp: MiniRae 10.2 eV
Time 0745
Well Headspace Reading 77.4 ppm
Background ~~77.4~~ TW ppm
Depth to screen from measuring point: 5.75 ft
Depth to water from measuring point (DTW): 6.35 ft
Depth to well bottom from measuring point (DTB): 15.75 ft
Height of water column (h): (subtract DTW from DTB) 9.4 ft
Measuring instrument: ☐ Steel Tape ☒ ~~M-Scope~~ o/l water Probe ☐ Sounder
Measuring point description: MARK ON INNER WELL CASING

WELL PURGING

Purge Method and Equipment: Bladder Pump with dedicated tubing
Volume of water in well: (2" = 0.1632g/ft, 4" = 0.6528g/ft, 6" = 1.4687g/ft, 8" = 2.6110g/ft) 1.5 gal
Minimum volume to be purged prior to sampling: (3 x well volume) 4.5 gal
Actual volume purged: 23 gal
Purge Start and End Time: 1050 / 1225 Purge Rate: 0.25-0.5 gpm
Was the well pumped dry? ☐ Yes ☒ No

SAMPLE PARAMETERS

Sample Collection Method: Bladder pump with dedicated tubing
Parameter Measurement Method and Equipment: FLOW-THROUGH CELL, ORION METERS

TIME	1100	1115	1130	1145
Temperature	— °C	20.2 °C	20.2 °C	20.3 °C
pH	— Std. Units	6.64 Std. Units	6.61 Std. Units	6.59 Std. Units
Specific Conductivity	— mS/cm	4.81 mS/cm	4.11 mS/cm	3.82 mS/cm
ORP	— mV	-87 mV	-94 mV	-102 mV
Dissolved Oxygen	— mg/l	0.74 mg/l	0.69 mg/l	0.63 mg/l
Turbidity	40.3 NTU	32.1 NTU	27.2 NTU	~~37.4~~ 26.3 NTU
ESTIMATED GALLONS	3.0	7.0	10.0	13
SHEEN	none	N	none	N
COLOR	slightly cloudy	S. Cloudy	clear	C
SOLIDS	medium	Light	none	N
ODOR	none	N	none	N

Depth to water from measuring point after sampling: 6.72 ft
Sampling Time: 1235 VO, BN, tmetals etc.

REMARKS (Well condition, etc.)

EXCEL ENVIRONMENTAL RESOURCES, INC.
LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

GENERAL

Well ID No.: MW-46
Project Name: Kings Plaza
Project No.: 01363
Location: Brooklyn
Well Permit No.:
Sampled By: EC + TN
Date: 9-19-02
Weather: 80° Sunny

TIME	1200	1215	1220	1225	
Temperature	20.1 °C	20.1 °C	20.0 °C	20.1 °C	°C
pH	6.62 Std. Units	6.62 Std. Units	6.60 Std. Units	6.62 Std. Units	Std. Units
Specific Conductivity	3.56 mS/cm	3.33 mS/cm	3.30 mS/cm	3.28 mS/cm	mS/cm
ORP	-107 mV	-117 mV	-119 mV	-121 mV	mV
Dissolved Oxygen	0.72 mg/l	0.57 mg/l	0.55 mg/l	0.53 mg/l	mg/l
Turbidity	24.9 NTU	24.6 NTU	23.7 NTU	23.2 NTU	NTU
EST. GALLONS	15	18	20	23	
SHEEN	none	N	N	N	
COLOR	clear	C	C	C	
SOLIDS	none	N	N	N	
ODOR	none	N	N	N	

REMARKS

TIME					
Temperature	°C	°C	°C	°C	°C
pH	Std. Units	Std. Units	Std. Units	Std. Units	Std. Units
Specific Conductivity	mS/cm	mS/cm	mS/cm	mS/cm	mS/cm
ORP	mV	mV	mV	mV	mV
Dissolved Oxygen	mg/l	mg/l	mg/l	mg/l	mg/l
Turbidity	NTU	NTU	NTU	NTU	NTU
EST. GALLONS					
SHEEN					
COLOR					
SOLIDS					
ODOR					

REMARKS

APPENDIX D

LABORATORY ANALYTICAL DATA REPORTS
(NOT INCLUDED WITH THIS COPY OF REPORT)

REMEDIAL INVESTIGATION REPORT ADDENDUM/ FORMER PRESTO PLASTICS (OU-2) KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK

PURSUANT TO NYSDEC VOLUNTARY CLEANUP AGREEMENT NYSDEC VCA No. A2-0403-9911

APPENDIX D
LABORATORY ANALYTICAL DATA REPORTS

NOVEMBER 2003

PREPARED FOR:

VORNADO REALTY TRUST
PARAMUS, NEW JERSEY

PREPARED BY:

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