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## LETTER OF TRANSMITTAL

DATE: 3/31/05

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Re: 1800 Broadway, Buffalo, New York

NYSDEC-Region 9

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Jeffrey M. Rowley, Geologist

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**Environmental Investigation Summary Report  
Operable Unit #1  
Buffalo Business Park Site  
1800 Broadway  
Buffalo, New York**

Prepared by:

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P.O. Box 406  
Buffalo, New York 14205

Prepared for:

New York State Department of Environmental Conservation  
Department of Environmental Remediation  
270 Michigan Avenue  
Buffalo, New York 14205

**Voluntary Cleanup Site No. V00663-9**  
**Voluntary Agreement Index No. B9-0637-03-06**

**March 2005**

Professional Engineer Peter M. McKee

Date 3/29/05



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**INVESTIGATION WORK PLAN  
BUFFALO BUSINESS PARK, INC. SITE  
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APPENDIX B = WELL CONTRUCTION DETAILS
APPENDIX C = DATA USABILITY SUMMARY REPORT
APPENDIX D = ANALYTICAL RESULTS SUMMARY TABLES

## 1.0 INTRODUCTION

### 1.1 PROJECT BACKGROUND AND SITE HISTORY

Lender Consulting Services, Inc. (LCS) was retained by the Buffalo Business Park (BBP) to perform environmental investigation on a portion of the BBP property referred to herein as "Site" (see Figure 1). The Site is situated on the southwest portion of tax parcel 101.19-1-5 and measures approximately 1.004 acres, described as:

ALL THAT TRACT OR PARCEL OF LAND situated in the City of Buffalo, County of Erie and State of New York, being part of Lot 42, Township 11, Range 7 of the Holland Land Company's survey, and being more particularly bounded and described as follows: Beginning at a point on the north line of Broadway (99 feet wide, and formerly known as Batavia Street), which point is 1,380.94 feet east of the east line of Bailey Avenue (66 feet wide); thence northerly at an interior angle of  $89^{\circ} 41' 18''$  a distance of 74.40 feet to the TRUE POINT OF BEGINNING; thence easterly at an interior angle of  $89^{\circ} 51' 07''$  a distance of 190.86 feet to a point; thence northerly, along the west face of a brick building, at an interior angle of  $90^{\circ} 52' 19''$  a distance of 16.67 feet to a point; thence easterly, along the north face of a brick building, at an interior angle of  $269^{\circ} 06' 19''$  a distance of 57.01 feet to a point; thence northerly at an interior angle of  $90^{\circ} 10' 15''$  a distance of 162.91 feet to a point; thence westerly at an interior angle of  $90^{\circ} 07' 58''$  a distance of 248.09 feet to a point; thence southerly at an interior angle of  $89^{\circ} 52' 02''$  a distance of 180.81 feet to the point and place of beginning (see Figure 1).

According to historic Sanborn maps, the Site has been utilized as a portion of the Buffalo Industrial Park since 1961 before being converted to the Buffalo Business Park. Prior to that time, the Site was used for railroad transport/tracks associated with the Pullman Car Company from at least 1900 until at least 1950. There is no evidence of historic structures or industrial operations on the Site. Its only apparent use has been for railcar transport and, more recently, automobile drive and parking areas.

Contamination known to exist on-site was discovered during intrusive studies completed by LCS between March 2001 and May 2002. The contaminants identified generally consisted of volatile organic compounds (VOCs); soils were found to contain tetrachloroethene and groundwater was found to contain tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, methylene chloride and vinyl chloride.

Buffalo Industrial Park, Inc., acting as an innocent owner, agreed to participate in the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Plan (VCP) and enter into a Voluntary Cleanup Agreement (VCA) for remedial investigation/remedial action under Voluntary Cleanup Site No. V00663-9 and Index No. B9-0637-03-06. This VCA was initiated upon Buffalo Industrial Park's submittal of a VCA application, dated May 23, 2003.

### 1.2 PURPOSE AND OBJECTIVE

The purpose of this Investigation was to better assess the environmental quality of a portion of the Site not fully assessed in previous studies. This work also served to supplement previous studies completed by LCS at the Site prior to acceptance into the VCP, previously provided to the NYSDEC. The work completed was initially presented to and approved by the NYSDEC and is detailed in LCS' Investigation Work Plan dated December 2003.

### 1.3 SURROUNDING PROPERTY USE

Properties adjacent to the Site are used predominantly for industrial/commercial use. A few structures/portions of structures (located south of Broadway) are used residentially. The portions of the structures used residentially are generally upper floors.

## **2.0 SITE INVESTIGATION PROCEDURES AND RATIONALE**

### 2.1 PRE-INVESTIGATION TASKS

Prior to the on-site intrusive investigation, several tasks were completed. Those tasks included notifying the underground facilities protection organization (Dig Safely New York), constructing a decontamination pad on-site, preparation of the health and safety plan (HASP), inspecting the site for potential health and safety hazards and marking proposed borehole/monitoring well locations.

#### 2.1.1 Pre-investigation Meeting

On June 4, 2004, LCS met with representatives of the NYSDEC to review anticipated borehole and monitoring well locations. During that meeting, LCS proposed relocating select boreholes and monitoring well locations from locations proposed within LCS' Investigation Work Plan due to overhead and underground utilities which made the proposed locations unsafe/inaccessible. The NYSDEC approved of the changes and a revised site map was provided to the NYSDEC.

#### 2.1.2 Decontamination Pad

Prior to the initiation of field activities, an equipment decontamination pad was constructed by the drilling subcontractor in the equipment decontamination area. The decontamination pad was constructed so that liquid and solid wastes could be contained and subsequently collected. The decontamination pad was constructed using wood and high-density polyethylene (HDPE) plastic as a barrier with raised berms on each side to contain decontamination water. Decontamination wastes were removed from the decontamination pad and placed into covered drums located adjacent to the decontamination pad. [Disposal of the decontamination water will take place during implementation of the approved Remedial Action Plan (RAP).] The decontamination pad was dismantled at the completion of the drilling operations and the materials containerized within drums for disposal.

### 2.2 TEST BORINGS

Test borings were advanced into the overburden using either a rotary drill rig and 6-1/4 inch inside diameter (I.D.) hollow stem augers (HSA) or a direct-push drilling unit as described below. Drilling fluids were not required until bedrock was encountered. Samples from ahead of the HSA were obtained by driving a 1-3/8 inch I.D. by 24 inch long steel split-spoon sampler. The sampler was driven its entire length (unless refusal was encountered) with a 140-pound hammer falling 30 inches, in general accordance with ASTM D1586 (Standard Penetration Test). Blows to drive the sampler per six inches were recorded on the test boring logs. Upon completion of the test boring to the desired depth, a monitoring well was installed within the borehole as described in Section 2.4. Auger spoil and excess samples generated from this task were containerized as detailed in Section 5.0.

In select locations, only soil samples needed to be sampled or there was insufficient access for the auger rig due to utilities. At these locations, direct push borings were advanced into the overburden and soil samples collected using a truck-mounted Geoprobe unit equipped with an approximate two inch outside diameter (O.D.) by 4-foot long sampler. The Geoprobe unit utilized a hydraulic and percussion drive system to advance the sampler. No drilling fluids were used during the Geoprobe work.

Soil samples were classified by LCS in the field by visual examination in general accordance with American Society of Testing and Materials (ASTM) method D-2488 [Unified Soil Classification System (USCS) (visual-manual method)]. A log of each boring was prepared with blow counts, sample identification, sample depth interval, recovery and date. Refer to Figure 3 for specific surface sample locations. Refer to Appendix A for subsurface soil logs.

Bedrock was cored at four locations (see Figure 3) once the formation became too hard to be sampled by soil-sampling methods (i.e., a 1 inch penetration or less for 50 blows with the slide hammer). Each of the rock cores was classified in general accordance with ASTM methods D-6032 (Standard Test Method for Determining Rock Quality Designation of Rock Core) and ASTM method D-420 (Standard Guide to Site Characterization for Engineering, Design and Construction Purposes). A log of each core was prepared with rock core interval, percent recovery, rock core density, and rock type. Refer to Appendix A for subsurface rock core logs.

During coring of the bedrock, drilling fluids (potable water) were used and re-circulated. Additional fluids were added as necessary.

### 2.3 SOIL SAMPLING

Soil was sampled by opening the split-spoon sampler (auger borings) or PVC liners (direct push), bisecting the core (if intact) vertically down the middle with a cleaned sharp knife or similar blade, and scooping sufficient sample from the long axis of the split core with a decontaminated stainless steel spoon. If the core was not intact, then upon opening the sampler or liner, the contents were scooped directly with the spoon. If the core was not homogeneous, representative portions of each type of material within the spoon were collected. Soil samples collected for analysis, with the exception of those for VOCs, were homogenized. The homogenization was completed by removing the soil from the sampling equipment and transferred to a stainless steel bowl and mixed to provide a more homogeneous sample to the laboratory. The soil was scraped from the sides, corners, and bottom of the clean surface, rolled to the middle, and thoroughly mixed until the material appeared homogenous. An aliquot of this mound was then transferred to the required sample containers, slightly tamped-down, filled to near the top of the container, and sealed with the appropriate cap. Soil or sediment on the threads of the container, if any, was removed using a clean paper towel prior to placing the cap on the sample container.

Samples for VOCs were collected and transferred to sample containers immediately after opening and bisecting the split-spoon sample. VOC soil samples were not mixed, but were placed directly from the sampling equipment into the sample container (a 4 oz. wide mouth glass jar) in a manner limiting headspace by compacting the soil into the container. Samples for VOC analysis were placed into the appropriate container prior to sample homogenization for the remaining analyses.

### 2.3.1 Headspace Screening

Soil screening was performed by headspace screening with the photoionization detector (PID). Prior to screening, a representative portion of each sample interval was first collected for VOC analysis and containerized to minimize loss of potential VOC constituents present in the soil sample. The remainder of each sample interval was placed into sealable PVC bags and allowed to equilibrate to approximate ambient temperature. The container was opened slightly and the PID sample inlet probe was placed within the headspace of the container to allow for a reading of the VOCs within the headspace. The PID measurements were recorded on the subsurface logs.

## 2.4 MONITORING WELL INSTALLATION

### 2.4.1 Overburden Wells

Overburden monitoring wells installed with the auger drilling rig were constructed of 2 inch I.D. flush jointed Schedule 40, PVC riser and screen. Overburden monitoring wells installed with the direct push drilling rig were constructed of 1 inch I.D. flush jointed Schedule 40 PVC riser and screen. [Space limitations required use of the smaller direct push rig and installation of one-inch wells, as opposed to the planned two-inch well at two locations.] The actual installation depth of the screen was selected based upon the intended purpose of the well (the zone to be monitored), observation of subsurface materials and headspace screening test results. The screened interval consisted of a 10-foot long section of 0.010-inch factory slotted PVC.

Following determination of the monitoring zone and placement of the assembled screen and riser, the annular space of the borehole was backfilled. Generally, this included the placement of a sand filter pack consisting of Morie #00 sand around the well screen such that the sand extended a minimum of 1 foot above the top of the screen. An approximate two-foot layer of bentonite pellets was placed above the sand filter, tap water was poured over the pellets and they were allowed time to hydrate. A mixture of cement/bentonite extended from the top of the bentonite to the ground surface. Each monitoring well was finished with a flush mount protective casing. Concrete was then placed in the borehole around the protective casing and sloped away from the casing to limit surface water from entering the well.

Materials used in well installation were brought to the site as needed. Items were brought to the site clean and in like-new condition and kept clean and in satisfactory condition for potential use. Site personnel handled well equipment using clean rubber gloves. Schematics of the well construction details are provided in Appendix B.

### 2.4.2 Bedrock Wells

In order to install bedrock monitoring wells, bedrock was cored at four locations (see Figure 3) once the formation became too hard to be sampled by soil-sampling methods (i.e., a 1 inch penetration or less for 50 blows with the slide hammer). The wells consisted of a steel casing installed into the top of the bedrock and an open rock hole beneath, as detailed below.

Prior to setting of the overburden casing, the bedrock was cored with an approximate 3-inch nominal rock core until three feet of competent rock had been encountered. A 5-7/8 inch diameter roller bit was then used to create a rock socket into the cored hole. A four-inch diameter steel casing was installed approximately three feet into the rock socket and set in a concrete/bentonite grout. The grout was allowed to set for approximately 24 hours prior to continuing with bedrock coring.

After the cement/bentonite had cured, the casing was cleaned out with a 3-7/8-inch diameter roller bit. A 3-inch nominal rock core was continued beyond the depth of the steel casing until a depth of approximately 30 ft. below ground surface (bgs). Coring of the bedrock was completed in general accordance with ASTM D 2113 (Diamond Core Drilling for Site investigation). During coring of the bedrock, drilling fluids (potable water) were used and re-circulated. Additional fluids were added as necessary.

The remainder of the borehole within the bedrock was left open. Following completion of the bedrock coring, the monitoring wells were completed by placing a locking steel protective casing over the steel casing. Each bedrock monitoring well was completed with a flush mount protective casing. Concrete was then placed in the borehole around the protective casing and sloped away from the casing to limit surface water from entering the well.

Materials used in well installation were brought to the site as needed. Items were brought to the site clean and in like-new condition and kept clean and in satisfactory condition for use. Well materials (steel overburden casing) were cleaned on-site prior to use as described in Section 2.8.4. Site personnel handled well equipment using clean rubber gloves. Well construction diagrams are located within Appendix B.

## 2.5 BOREHOLE ABANDONEMENT

Following completion of each borehole, those that were not to be completed as monitoring wells were abandoned by the driller using a bentonite grout injected into the boreholes. Following curing of the grout the surface was repaired with asphalt cold patch where applicable.

## 2.6 GROUNDWATER SAMPLING

Groundwater sampling from monitoring wells included initial recording of data, purging of the well, and collection of the sample. The text below addresses these items.

### 2.6.1 Initial Data Recording

Groundwater sampling began by locating the well to be sampled and recording the appropriate field data, as summarized below.

- Observations of the well (conditions of cap, collar, casing, etc.) and the ambient conditions (weather, surrounding area, date and time, sampling crew members, and observers, if any).
- Unlocking the well cover, surveying ambient air, upwind air, and air directly at the top of the well.
- Taking a water level measurement, noting the reference point from which the measurement is made (typically a mark on the north lip of the inner casing).
- Sounding the bottom of the well.

## 2.6.2 Well Development/Well Purging

### Overburden Monitoring Wells

The newly installed and existing overburden monitoring wells were developed/re-developed prior to sampling. The wells were developed to remove residual sediments and to ensure good hydraulic connection with the water-bearing zone. Each of the overburden monitoring wells was developed on July 30, 2004, August 3, 2004, August 4, 2004, and August 5, 2004 prior to sampling on August 5, 2004. As monitoring well VCA-MW3 OB went "dry" and did not recharge sufficiently to sample groundwater, it was further developed on September 16, 2004 and September 17, 2004, prior to sampling.

Monitoring wells were developed as follows. After the initial observations were recorded, the total volume of water within the well was calculated. The well was then purged of standing water. Purging was accomplished by bailing and/or pumping, using a gasoline powered centrifugal pump connected to dedicated tubing connected to a foot valve set within the well, to remove water from the well.

### Bedrock Monitoring Wells

Each newly installed bedrock monitoring well was developed prior to sampling. Wells were developed to remove residual sediments and to ensure good hydraulic connection with the water-bearing zone. Each of the bedrock monitoring wells was developed on July 30, 2004, August 3, 2004, August 4, 2004, and August 5, 2004 prior to sampling on August 5, 2004. As monitoring wells VCA-MW1-BR and VCA-MW2-BR went "dry" and did not recharge sufficiently to sample groundwater, they were further developed on September 16, 2004 and September 17, 2004, prior to sampling.

The bedrock monitoring wells were developed as follows. Each bedrock well was purged using a gasoline powered centrifugal pump connected to dedicated tubing connected to a foot valve set within the well. At a minimum, the approximate volume of water introduced during the coring of the bedrock was evacuated.

## 2.6.3 Groundwater Sampling

On the days groundwater sampling was anticipated or completed, prior to removal of the first volume of water, and after each subsequent volume of water removed, field parameters (pH, turbidity, temperature and specific conductance) were measured and recorded to document the presence of representative water in the well (i.e., equilibration to steady readings). Prior to sample collection, the variability of field testing results between successive well volumes did not vary by more than 10% for specific conductance,  $\pm 0.2$  units for pH, and  $\pm 0.5^{\circ}\text{C}$  for temperature. The turbidity objective was less than 50 NTUs, particularly prior to collection of groundwater for metals analysis. If 50 NTUs could not be reached, a note was made on the field forms indicating the turbidity level prior to sample collection. Elevated turbidity was noted upon collection of groundwater for metals analysis from wells VCA-MW3-BR, VCA-MW2-OB, LCS-MW4, and LCS-MW7.

LCS had originally planned on removing a minimum of three well volumes from each well immediately prior to sampling; however, due to slow recharge rates, no more than three well volumes could be removed on the respective day sampling was completed. Each of the groundwater monitoring wells recharged very slowly following being purged "dry". Only monitoring wells VCA-MW1-OB, VCA-MW2 – OB, VCA-MW3-BR and LCS-MW7 recharged to near pre-purge levels within a maximum of two hours. As indicated in the approved Work Plan, in the wells that recharge was slow, samples were collected when groundwater had recharged sufficiently to collect samples for analysis. The degree of recharge was indicated on the field forms along with time and depth to water noted.

Bailers were used for sample collection and were equipped with a bottom check-valve. Bailers were dedicated and made of disposable PVC. Bailers were clean upon arrival at the site, therefore, site decontamination of bailers was not necessary. Bailers were lowered gently with minimal water agitation into the well with dedicated polypropylene line.

### Sample Collection

Once field parameters were within specific limits as described within Section 2.6.3, groundwater was collected for analysis. Groundwater for VOC analysis was collected first.

Three 40-ml glass vials (with Teflon septa) were used to collect samples for VOCs. The vials were filled by gently pouring water from the top of the bailer into the vial until a convex meniscus was formed. The vials were filled concurrently, alternating between vials. The vials were then capped, inverted and inspected for air pockets/bubbles on the inside surfaces of each vial.

Subsequently sampled water was collected for the remaining and field parameter testing. The remaining sample bottles were filled sequentially in the following order:

- Semi-volatile organic compounds (SVOCs);
- Total metals/cyanide; and
- PCBs/Pesticides

Sample bottles are discussed in more detail in Section 4.2.

## 2.7 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) SAMPLING

In order to provide control over the collection of environmental measurements and subsequent validation, review and interpretation of generated analytical data, QA/QC samples were analyzed.

### 2.7.1 Non-Aqueous Matrix

#### Equipment (Rinsate) Blanks

The purpose of this sample was to assure proper decontamination of the soil sampling equipment. The performance of field blanks required two sets of identical bottles; one set filled with demonstrated analyte-free water provided by the laboratory and one empty set of bottles. At the field location, in an area suspected to be contaminated, the water was passed from the full set of bottles through the decontaminated sampling devices (undisturbed tube or split-spoon samplers, bailers, etc.) into the empty set of bottles. This constituted identical bottle-to-bottle transfer. The blanks were preserved in the same manner as samples and only analyzed for each of the parameters being analyzed. One rinsate blank was collected for every 20 soil samples submitted to the laboratory or one each week, whichever was more frequent.

### Trip Blanks

Trip blanks were not completed for non-aqueous matrix samples.

### Duplicate Samples

The purpose of these samples was to assess the quality of the laboratory analyses. Field duplicate non-aqueous matrix samples were collected at a frequency of one per 20 environmental samples submitted to the laboratory for analysis. These samples were collected on different days. Obtaining duplicate samples in soil required homogenization of the sample aliquot prior to the filling of sample containers. Regardless, volatile organic samples were always taken from discrete locations or intervals without compositing or mixing.

Homogenization and sample collection were accomplished as discussed in Section 2.3. Each duplicate soil sample was analyzed for each of the analytical parameters for the respective sample location. All duplicate samples were submitted to the laboratory as blind samples. A note within the field log or field forms was made referencing the sample location of all duplicate samples.

### 2.7.2 Aqueous Matrix

#### Equipment (Rinsate) Blanks

The purpose of this sample was to assure the disposable bailers were clean when received from the vendor. The performance of equipment blanks required two sets of identical bottles; one set filled with demonstrated analyte free water provided by the laboratory and one empty set of bottles. At the field location, the water was passed from the full set of bottles through the decontaminated sampling devices (disposable bailer) into the empty set of bottles. This constituted identical bottle-to-bottle transfer. Equipment blanks were preserved in the same manner as samples and were analyzed for all the same parameters as samples collected that day.

### Trip Blanks

The purpose of the trip blank was to determine whether the sample vials and/or samples had been impacted by contaminants throughout their use. Trip blanks consisted of a set of sample bottles filled at the laboratory with laboratory demonstrated analyte-free water. These bottles accompanied the bottles that were prepared at the lab into the field and back to the laboratory, along with the collected samples for analysis. Each trip blank was analyzed for volatile organic parameters only. Trip blanks were included at a rate of one per sample shipment.

### Duplicate Samples

The purpose of these samples was to assess the quality of the laboratory analyses. Duplicate aqueous matrix samples were collected at a frequency of one per 20 environmental samples submitted for laboratory analysis. One was collected for each day groundwater sampling was completed.

Each duplicate sample was created by alternating filling sample containers in nearly equal portions. This ensured that the two samples were homogenous.

## 2.8 EQUIPMENT DECONTAMINATION

To avoid cross contamination, non-dedicated sampling equipment (defined as any piece of equipment which may contact a sample) was decontaminated according to the following procedures outlined below.

### 2.8.1 Non-Dedicated Reusable Equipment

Non-dedicated reusable equipment, such as knives, split-spoons, stainless steel mixing bowls and spoons, were decontaminated between uses, as applicable. Decontamination typically involved scrubbing/washing with a laboratory grade detergent (e.g., Alconox) to remove visible contamination, followed by potable (tap) water and analyte-free water rinses (as provided by the analytical laboratory). Equipment was allowed to air dry prior to use. Steam cleaning or high-pressure hot water cleaning wash was used in the decontamination of drilling related-equipment. Any tubing was dedicated (new tubing was used for each well).

### 2.8.2 Disposable Sampling Equipment

Disposable sampling equipment consisting of disposable bailers, bailer cords, direct push sampling tubes, tubing associated with groundwater sampling/purging pumps; etc. was not field-decontaminated, but disposed of after use.

### 2.8.3 Heavy Equipment

Certain heavy equipment, such as the direct push rig, sampling tubes, auger rig and drilling augers, etc., used to obtain samples were subject to high-pressure hot water or steam cleaning between uses. A member of the sampling team visually inspected the equipment to check that visible contamination has been removed by this procedure prior to sampling. The rods and drilling augers were cleaned between test borings. Decontamination of heavy equipment was completed on the decontamination pad.

### 2.8.4 Well Materials

Well construction materials including well screens, well riser and end caps/tailpieces were not cleaned prior to installation as the plastic packaging was intact and the well materials appeared clean. Decontaminating of the well piping was completed by steam cleaning and high-pressure hot water rinse. The steel casing was then allowed to air dry prior to installation.

## 2.9 SURVEY

A licensed land surveyor (LLS) was subcontracted to establish vertical and horizontal control of the new and existing monitoring wells and test borings as well as the limits of OU#1. Vertical measurements included the top of the steel casing or PVC riser at each monitoring well. A mark made into the north side of the top of the riser served as the water level monitoring points. Vertical measurements were made relative to the National Geodetic Vertical Datum (NGVD). Monitoring point measurements are accurate to within 0.01 foot. Horizontal measurements are accurate to within 0.1 foot.

Data from the land survey was be utilized for the development of a base map. The base map includes site boundary lines, existing monitoring wells, and other key site features (see Figure 3).

## **2.10 HYDRAULIC CONDUCTIVITY TESTING**

Hydraulic conductivity testing was done using by removing water from the well. The recovery of the water level within the well was measured with respect to time. Data obtained using these test procedures was evaluated using the Bouwer and Rice and/or Hvorslev methods.

## **2.11 GROUNDWATER FLOW DETERMINATION**

The direction of ground water flow within the overburden and the bedrock zones was estimated through mapping of the respective groundwater tables. Water level measurements were obtained from the wells from a monitoring point mark of known elevation established at the top of the well riser. The depth to water was measured relative to the monitoring point. The water elevations were then calculated based on the known elevation and measured depth to water. Wells were allowed to equilibrate to static levels prior to measuring the water level. The overburden wells were gauged on August 5, 2004; the bedrock wells were gauged on September 16, 2004.

## **3.0 DATA DOCUMENTATION**

### **3.1 FIELD NOTEBOOK**

A dedicated field notebook was initiated at the start of on-site work. In addition to any forms that were filled out summarizing fieldwork (and became part of the project file), the field notebook included the following daily information for most site activities:

- date;
- meteorological conditions (temperature, precipitation, etc.);
- site conditions;
- identification of crew members (LCS staff and subcontractor present) and other personnel (e.g., agency or site owner) present;
- description of field activities;
- location(s) where work was performed;
- problems encountered and corrective actions taken; and,
- records of field measurements or descriptions recorded.

During drilling operations, the supervising field personnel noted the following information:

- rig type;
- documentation of materials used; and,
- diagram of well construction.

During sampling of wells, field samplers added the following:

- sampling point locations and test results such as pH, specific conductance, etc.;
- information about sample collection;
- chain of custody information; and,
- field equipment calibration.

#### **4.0 SAMPLE HANDLING**

##### **4.1 SAMPLE IDENTIFICATION/LABELING**

Samples were assigned a unique identification using the sample location or other sample-specific identifier. The general sample identification format follows.

SL-XX-YY

Where:

SL = Location identifier (2 characters, as below)

GP = Geoprobe direct push boring (GP)/Soil

AP = Auger probe (AP)/Soil

VCA-MW = Groundwater monitoring well installed as part of this investigation.

LCS-MW = Groundwater monitoring well previously installed by LCS

Equipment Blank = Equipment (Rinsate) Blank.

Trip Blank = Trip Blank

Duplicate = Duplicate Sample

XX = Numerical location identifier (1 character). This was typically a number corresponding to the probe, well, etc. location (i.e., 1, 2, 3, etc.).

YY = Numerical sample identifier (2 characters). This was an arbitrary, sequential number and corresponded to the two-foot sample interval from which the sample was obtained [i.e. S1 (augur probes), 01 (Geoprobes)].

QC field duplicate samples were submitted blind to the laboratory; a fictitious sample ID was created. The sample identifications (of the original sample and its field duplicate) were marked in the field book and on the copy of the chain-of-custody kept by the sampler and copied to the project manager. To the extent possible, sample containers were labeled in the field prior to the collection of samples. Affixed to each sampling container was a non-removable label on which the following information was recorded with permanent waterproof ink.

- Site name, location, and job number;
- Sample identification code;
- Date and time;
- Sampler's name;
- Preservative;
- Type of sample (e.g., water, soil); and,
- Requested analyses.

## 4.2 SAMPLE, BOTTLES, PRESERVATION, AND HOLDING TIME

### 4.2.1 Sample Bottles

The selection of sample containers used to collect samples was based on the criteria of sample matrix, analytical method, potential contaminants of concern, reactivity of container material with the sample, QA/QC requirements and regulatory protocol requirements. All sample containers were certified clean as provided by the analytical laboratory under sample bottle tracking sheets.

### 4.2.2 Sample Preservation

Samples were preserved as detailed below.

#### Soil Samples

Analytical (all analyses) - cooled to 4 °C with ice; no chemical preservatives added.

#### Aqueous Samples

VOCs - cooled to <4 °C; HCl added.

Semi-volatile organics (S-VOCs) - cooled to <4 °C; no chemical preservatives added.

PCBs/Pesticides - cooled to <4 °C; no chemical preservatives added.

Metals - HNO<sub>3</sub> to pH ≤2; cooled to <4 °C.

Cyanide - NaOH to pH ≥12; cooled to <4 °C.

Chemical preservatives were added to the sample bottles (prior to sample collection) by the analytical laboratory. Sample preservation was checked upon sample receipt or prior to analysis by the laboratory.

#### 4.2.3 Holding Times

Holding times were judged from the verified time of sample receipt (VTSR) by the laboratory; samples were hand delivered from the field to the lab no later than 24 hours from the time of sample collection. Holding time requirements were those specified in the NYSDEC Analytical Services Protocol (ASP) (June 2000); it should be noted that for some analyses, these holding times were more stringent than the holding time for the corresponding analytical method.

Although trip blanks were prepared in the analytical laboratory and shipped to the site prior to the collection of environmental samples, for the purposes of determining holding time conformance, trip blanks were considered to have been generated on the same day as the environmental samples with which they are shipped and delivered. Procurement of bottles and blanks was scheduled to prevent trip blanks from being stored for excessive periods prior to their return to the laboratory.

#### 4.3 CHAIN OF CUSTODY AND SHIPPING

A chain-of-custody form was used to trace the path of sample containers from the project site to the laboratory. Sample/bottle tracking sheets or the chain-of-custody were used to track the containers from the laboratory to the containers' destination. Insulated sample shipping containers (e.g., coolers) were provided by the laboratory for shipping samples. Project personnel receiving the sample containers from the laboratory checked each cooler for the condition and integrity of the bottles prior to fieldwork.

Once the sample containers were filled, they were immediately placed in the cooler with ice (in sealable plastic bags to prevent leaking) to maintain the samples at approximately 4 °C. The chain of custody forms were signed and placed in a sealed plastic sealable bag in the cooler. The completed shipping container was closed for transport with shipping tape, and a paper seal was affixed to the lid. When the laboratory received the coolers, the custody seals were checked and lab personnel signed the chain-of-custody form and provided one copy to the Project Manager to verify receipt.

### **5.0 STORAGE AND DISPOSAL OF INVESTIGATION DERIVED WASTE**

The sampling methods and equipment selected served to limit both the need for decontamination and the volume of waste material to be generated. Excess soil cuttings and sediment from the decontamination pad were drummed and stored on-site to be included within the (planned) on-site ex-situ soil vapor extraction system (SVES), if appropriate.

Excess well purge water and decontamination waters were drummed. It is currently assumed that any waters can eventually be discharged to the ground surface or through the municipal sanitary sewer system during completion of planned remedial measures at the site.

Personal protective equipment and disposable sampling equipment were placed in drums for future disposal.

## 6.0 DATA QUALITY VERIFICATION

### 6.1 ANALYTICAL METHODS

Analyses for volatile and semi-volatile organic compounds, and inorganics (metals and cyanide) utilized NYSDEC Analytical Services Protocol (ASP) 2000 methods as follows:

Target Compound List (TCL) Volatile Organic Compounds	OLMO4.2/ASP 2000
TCL SVOCs	OLMO4.2/ASP 2000
TCL PCBs/TCL Pesticides	OLMO4.2/ASP 2000
Target Analyte List (TAL) Metals (including cyanide)	ILMO5.2/ASP 2000

LCS subcontracted soil and groundwater testing to an analytical laboratory approved by the NYSDEC. A single laboratory (Severn Trent Laboratories) was utilized. Severn Trent Laboratories is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program.

### 6.2 QUALITY ASSURANCE OBJECTIVES

Data quality objectives (DQOs) for measurement data in terms of sensitivity and the PARCC parameters (precision, accuracy, representativeness, comparability, and completeness) were established so that the data collected would be sufficient and of adequate quality for their intended uses. Data collected and analyzed in conformance with the DQO process described in this document were used in assessing the uncertainty associated with decisions related to this site.

### 6.3 DATA USABILITY

A data usability summary was prepared by an independent validator. The DUSR report and comments by the testing laboratory in response to the DUSR are located in Appendix C.

### 6.4 LABORATORY QUALITY ASSURANCE

#### 6.4.1 Method Blanks

Method blanks were analyzed at a minimum frequency of one for every 20 samples analyzed.

#### 6.4.2 Laboratory Duplicates

Laboratory duplicates were performed on spiked samples as a Matrix Spike and a Matrix Spike Duplicate (MS/MSD) for volatile and semi-volatile organics, and as a matrix spike and matrix duplicate for inorganics.

#### 6.4.3 Spiked Samples

Two types of spiked samples were prepared and analyzed as quality controls. Matrix Spikes and Matrix Spike Duplicates (MS/MSD) were analyzed to evaluate instrument and method performance and performance on samples of similar matrix. MS/MSD were analyzed at a frequency of one (pair) for every 20 samples. For inorganics, a MS and MSD samples are analyzed for each set of 20 samples. In addition, matrix spike blanks (MSBs) were analyzed by the lab as part of the NYSDEC ASP.

### **7.0 DATA VALIDATION**

Data was validated by Waste Stream Technologies, Inc. (WST), a NYSDEC-approved environmental laboratory. Data validation was performed by following guidelines established in the USEPA Region 2 SOP No. HW-6, "CLP Organics Data Review" (Revision No. 8, January 1992); and SOP No. HW-2, "Evaluation of Metals Data for the Contract Laboratory Program (CLP)" (based on SOW 3/90; January 1992). These documents are checklists that are designed to formally and rigorously assess the quality and completeness of CLP data packages. The use of these USEPA SOPs was adapted to conform to the specific requirements of the NYSDEC ASP (e.g., NYSDEC/ASP holding times, matrix spike blank requirements, etc.). Where necessary and appropriate, supplemental validation criteria were derived from the EPA Functional Guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Publication 9240.1-05, EPA-540/R-94/012, February, 1993; and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Publication 9240.1-05-01; EPA-540/R-94/013, PB94-963502, February, 1994).

The validation report consists of text results of the review. Validation consisted of target and non-target compounds with corresponding method blank data, spike and surrogate recoveries, sample data, and a final note of validation decision or qualification, along with any pertinent footnote references. Qualifiers applied to the data are documented in the report text.

## **8.0 INVESTIGATION RESULTS**

### **8.1 GEOLOGY**

Mapping indicates the surficial geology of the area to consist primarily of Lacustrine silt and clay. Lacustrine silt and clay was deposited in pro-glacial lakes and is generally laminated and calcareous. The thickness varies up to 100 meters.

Bedrock mapping indicates that the subject property is underlain by bedrock of the Onondaga and Bois Blanc Limestone. The Onondaga has Seneca, Morehouse (cherty) and Clarence Limestone Members and Edgecliff cherty Limestone Member, having local coral biotherms. The Bois Blanc limestone is thin, sandy and discontinuous. This formation has a thickness ranging from 60 to 150 meters.

Based on the investigation completed on-site, the overburden consists primarily of miscellaneous fill material consisting of sandy gravel, gravelly sand and sandy gravel were generally encountered down to approximately four ft. bgs. Apparent native soils consisting of gravelly sand, sandy gravel, silty sand and clayey silt were encountered beneath the fill material and extended to the underlying bedrock which was generally encountered at approximately 14 ft. bgs.

Based on the investigation completed, the bedrock consists primarily of limestone. Generally, the bedrock was encountered at approximately 14 ft. bgs. Generally, coring of the bedrock indicated relatively high rock core densities (typically between 67 and 85 percent). Two bedrock wells (VCA MW1-BR and VCA-MW2-BR) exhibited lower rock core densities, at approximately 45%.

### **8.2 HYDROLOGY**

The subject property is situated regionally in the Lake Erie-Niagara River Major Drainage Basin and locally within the Buffalo River Sub-Basin. There are no open water bodies or surficial water bodies located on-site. Surface drainage appears to flow in a direction toward the lowest elevated points on-site.

The results of the hydraulic head measurements were used to generate contour maps of hydraulic head distribution in the overburden and bedrock zones. Figure 4 presents a contour map of the hydraulic head distribution in the overburden zone. Figure 5 presents a contour map of the hydraulic head distribution in the bedrock zone. Groundwater flows from high hydraulic head to low hydraulic head. Groundwater flow in the overburden and bedrock zones within OU#1 is generally in the east-southeast direction.

### 8.3 ANALYTICAL RESULTS

Appendix C includes an independent Data Usability Summary Report prepared by WST. The laboratory results were found to be defensible with only minor discrepancies noted. The analytical results are summarized below.

#### 8.3.1 Surface Soil Samples

Two surface soil samples [collected from areas not covered with asphalt (i.e., GP-1 and GP-3)] were collected on OU#1 for analytical testing parameters including TCL SVOCs, TAL metals, including cyanide, and TCL PCBs/TCL pesticides. These samples were collected to document the condition of on-site surface soils to assess surface soil as a potential exposure pathway of contaminants. The analytical summary tables located within Appendix D list the analytes detected and respective Recommended Soil Cleanup Objectives as listed within the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046-94, revised August 2001.

In summary, seven SVOCs were detected within the both surface soil samples collected from GP-01-01 and GP-03-01 at concentrations above Recommend Soil Clean-up Objectives. The following table summarizes the analytes and range of concentrations detected. There were no pesticides, PCBs or cyanide detected above Recommend Soil Clean-up Objectives as set forth within TAGM 4046. Three metals were detected above Eastern USA Background Concentrations but appear to indicate the presence of an elevated site background condition, thus do not exceed Recommended Soil Cleanup Objectives.

The following table summarizes the analytes detected at concentrations above TAGM Recommended Soil Cleanup Objectives.

Analyte	Minimum Concentration Detected ug/kg	Maximum Concentration Detected ug/kg	TAGM Recommended Soil Cleanup Objectives ug/kg
Benzo(a)anthracene	1500	2400 DJ	224 or MDL
Benzo(a)pyrene	1300	2000 D	61 or MDL
Benzo(b)fluoranthene	1500 DJ	2200 D	220 or MDL
Benzo(k)fluoranthene	730	1500	220 or MDL
Chrysene	1400	2600 D	400
Dibenzo(a,h)anthracene	260 J	710 DJ	14.3 or MDL
Phenol	35 J	52 J	30 or MDL

ug/kg = micrograms per kilogram

TAGM Recommended Soil Cleanup Objectives = Division Technical and Administrative Guidance Memorandum No. 4046 (TAGM 4046): Determination of Soil Cleanup Objectives and Cleanup Levels and addendum (August, 2001)

MDL = Method Detection Limit

J = Indicates and estimated value.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

### 8.3.2 Subsurface Soil Samples

Seven subsurface soil samples (AP-01-S3, AP-02-03, AP-03-02, GP-01-03, GP-02-S3, GP-03-06, GP-04-06) were collected from OU#1 for analytical testing parameters including TCL VOCs, TCL SVOCs, TAL metals, including cyanide, and TCL PCBs/TCL pesticides. These samples were collected to document the condition of on-site subsurface soils. The analytical summary tables located within Appendix D list the analytes detected and respective Recommended Soil Cleanup Objectives.

In summary, seven SVOCs were detected within the subsurface soil samples collected at concentrations above Recommend Soil Clean-up Objectives. The following table summarizes the analytes and elevated concentrations detected. There were no VOCs, pesticides, PCBs or cyanide detected above Recommend Soil Clean-up Objectives. Three metals were detected above Eastern USA Background Concentrations, but appear to indicate the presence of an elevated site background condition, thus not exceeding Recommended Soil Cleanup Objectives.

The following table summarizes the analytes detected at concentrations above TAGM Recommended Soil Cleanup Objectives in subsurface soils.

**SVOCs - Soil**

Analyte	Minimum Concentration ug/kg	Maximum Concentration ug/kg	TAGM Recommended Soil Cleanup Objectives ug/kg
Benzo(a)anthracene	15 J	2400 D	224 or MDL
Benzo(a)pyrene	110 J	2000 D	61 or MDL
Benzo(b)fluoranthene	11 J	2200 D	220 or MDL
Benzo(k)fluoranthene	140 J	1500 D	220 or MDL
Chrysene	14 J	2600 D	400
Dibenzo(a,h)anthracene	41 J	710 DJ	14.3 or MDL
Phenol	16 J	30 J	30 or MDL

ug/kg = micrograms per kilogram

MDL = Method Detection Limit

J = Indicates and estimated value.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

### 8.3.3 Groundwater Sampling

Two previously installed overburden (LCSMW4, LCSMW7), three new overburden (VCA-MW1-OB, VCA-MW2-OB, VCA-MW3-OB) and four new bedrock (VCA-MW1-BR, VCA-MW2-BR, VCA-MW3-BR, VCA-MW4-BR) monitoring wells were sampled. Each of the monitoring wells were sampled on OU#1 for analytical testing parameters including TCL-VOCs, TCL-SVOCs, TAL metals, including cyanide, and TCL PCBs/TCL pesticides. These samples were collected to document the condition of on-site groundwater for general site characterization of OU#1. Refer to Figure 3 for specific monitoring well locations. The analytical summary tables located in Appendix D list the analytes detected and respective NYSDEC groundwater criteria as set forth within the NYSDEC document 6 NYCRR Part 703, June 1998, revised April 2000.

The following tables summarize the analytes detected at concentrations above NYSDEC groundwater criteria as set forth within 6 NYCRR Part 703, June 1998, revised April 2000.

#### VOCs – Overburden Wells

Analyte	Minimum Concentration Detected ug/L	Maximum Concentration Detected ug/L	NYSDEC Groundwater Value (Class GA) ug/L
cis-1,2-Dichloroethene	20	1300	5
Tetrachloroethene	6 J	31,000	5
Trichloroethene	6 J	2600	5

ug/L = micrograms per liter

J = Indicates and estimated value.

NYSDEC Groundwater Value = 6NYCRR Part 703 (June 1998 and April 2000 addendum)

#### SVOCs - Overburden Wells

Analyte	Minimum Concentration Detected ug/L	Maximum Concentration Detected ug/L	NYSDEC Groundwater Value (Class GA) ug/L
Benzo(b)fluoranthene	0.4 J	0.4 J	0.002

ug/L = micrograms per liter

J = Indicates and estimated value.

NYSDEC Groundwater Value = 6NYCRR Part 703 (June 1998 and April 2000 addendum)

#### Metals - Overburden Wells

Analyte	Minimum Concentration Detected ug/L	Maximum Concentration Detected ug/L	NYSDEC Groundwater Value (Class GA) ug/L
Iron	64.2 B	25200	300
Lead	1.8 B	27.9	25
Magnesium	35,400	80,900	35,000
Manganese	10.9 BE	1060	300
Sodium	22,200	168,000	20,000

ug/L = micrograms per liter

J = Indicates and estimated value.

B = Analyte was found in the associated bland, as well as the sample.

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

NYSDEC Groundwater Value = 6NYCRR Part 703 (June 1998 and April 2000 addendum)

#### VOCs – Bedrock Wells

Analyte	Minimum Concentration Detected ug/L	Maximum Concentration Detected ug/L	NYSDEC Groundwater Value (Class GA) ug/L
cis-1,2-Dichloroethene	290 E	1500 J	5
Tetrachloroethene	230 B	26000	5
trans-1,2-Dichloroethene	38	38	5
Trichloroethene	6 J	2600	5

ug/L = micrograms per liter

J = Indicates and estimated value.

NYSDEC Groundwater Value = 6NYCRR Part 703 (June 1998 and April 2000 addendum)

B = Analyte was found in the associated bland, as well as the sample.

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

#### SVOCs– Bedrock Wells

Analyte	Minimum Concentration Detected ug/L	Maximum Concentration Detected ug/L	NYSDEC Groundwater Value (Class GA) ug/L
Diethyl phthalate	100 BE	130 BD	50

ug/L = micrograms per liter

J = Indicates and estimated value.

B = Analyte was found in the associated bland, as well as the sample.

D = Identified all compounds identified in an analysis at the secondary dilution factor.

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

NYSDEC Groundwater Value = 6NYCRR Part 703 (June 1998 and April 2000 addendum)

#### Metals– Bedrock Wells

Analyte	Minimum Concentration Detected ug/L	Maximum Concentration Detected ug/L	NYSDEC Groundwater Value (Class GA) ug/L
Copper	3 B	269	200
Iron	962 E	28,400 E	300
Lead	27.9	27.9	25
Magnesium	37900	61,300	35,000
Manganese	10.9 BE	295 E	300
Sodium	34,400	58,700	20,000

ug/L = micrograms per liter

J = Indicates and estimated value.

B = Analyte was found in the associated bland, as well as the sample.

D = Identified all compounds identified in an analysis at the secondary dilution factor.

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

NYSDEC Groundwater Value = 6NYCRR Part 703 (June 1998 and April 2000 addendum)

## 8.4 HYDRAULIC ASSESSMENT

Hydraulic data, including determination of hydraulic conductivity, was collected. Hydraulic conductivity data was collected from two overburden (LCS-MW4, LCS-MW7) and two bedrock locations (VCA-MW1-BR, VCA-MW3-BR) on OU#1. Such was calculated employing a draw-down test as described in section 2.10. Hydraulic conductivity in the overburden ranged between  $1.37 \times 10^{-4}$  centimeters/second (cm/sec) (LCSMW7) and  $1.52 \times 10^{-4}$  cm / sec (LCSMW4); hydraulic conductivity in the bedrock ranged between  $7.48 \times 10^{-7}$  cm / sec (VCA-MW1-BR) and  $1.20 \times 10^{-4}$  cm / sec (VCA-MW3-BR).

Groundwater flow in the overburden and bedrock zones within OU#1 is are generally in the east-southeast direction. The hydraulic gradient within the overburden wells is approximately 0.01 feet per foot (ft./ft.); the hydraulic gradient within the bedrock wells is approximately 0.01 ft./ft.

## 9.0 ON-SITE AND OFF-SITE EXPOSURE ASSESSMENT

LCS performed an exposure pathway and receptor analysis for the Site. This exposure pathway and receptor analysis consists of identifying the following: a contaminant source; contaminant release and transport mechanisms; a point of exposure; a route of exposure; and, a receptor population. Contaminant transport mechanisms include on-site soil, groundwater and air. Routes of potential exposure include inhalation and dermal adsorption of contaminants. The potential receptor population for the contamination identified on-site includes tenants of the adjacent off-site structures as well as on-site and/or off-site construction workers who may be exposed via inhalation or dermal adsorption during future construction activities.

The contaminant source appears to be on-site chlorinated solvent-impacted soils, the source of which to date has not been determined.

Contaminant transport mechanisms include on-site soil, groundwater and air. Solvent contamination identified within OU #1 appears to have been transported through the soils and into the bedrock as evidenced by the discovery of impacted groundwater within bedrock. Groundwater was identified within OU#1 within the overburden and bedrock. The groundwater noted within the overburden and bedrock appears to be connected as evidenced by similar groundwater elevations.

Routes of potential exposure include inhalation and dermal adsorption of contaminants. However, the impacted soils and water are not readily accessible to site employees or tenants, except as may be encountered during site excavation. Ingestion is an unlikely route of exposure as the area of the subject property is supplied with a municipal potable water supply system.

Exposure points for the contaminants identified on-site include utility trenches within OU#1 and other portions of the Buffalo Business Park, further to the south, beneath Broadway and basements of structures south of Broadway.

The subject property is located in a highly developed urban area. The closest residential structure is located south of Broadway and apparently down/cross-gradient to OU#1. No known utility trenches are known within OU#1. Off-site utilities are known to exist off-site and along Broadway to the south.

There are no structures located within OU#1. The potential receptor population for the contamination identified off-site includes off-site tenants via VOC vapor inhalation as well as on-site and/or off-site construction workers who may be exposed via inhalation or dermal adsorption during future construction activities. Due to the lack of soil contamination within the boreholes near the on-site structures, the lack of evidence of significant VOC vapors near the surface (based on PID readings and analytical testing) and the asphalt/concrete cover over the subject property (with the exception of a grass-covered area to the north and west of the impacted area), exposure to these potential receptors appears limited.

In summary, potential exposure pathways exist for on-site and/or off-site construction workers via inhalation or dermal adsorption during future construction activities. Exposure of the on-site personnel to VOCs is not expected.

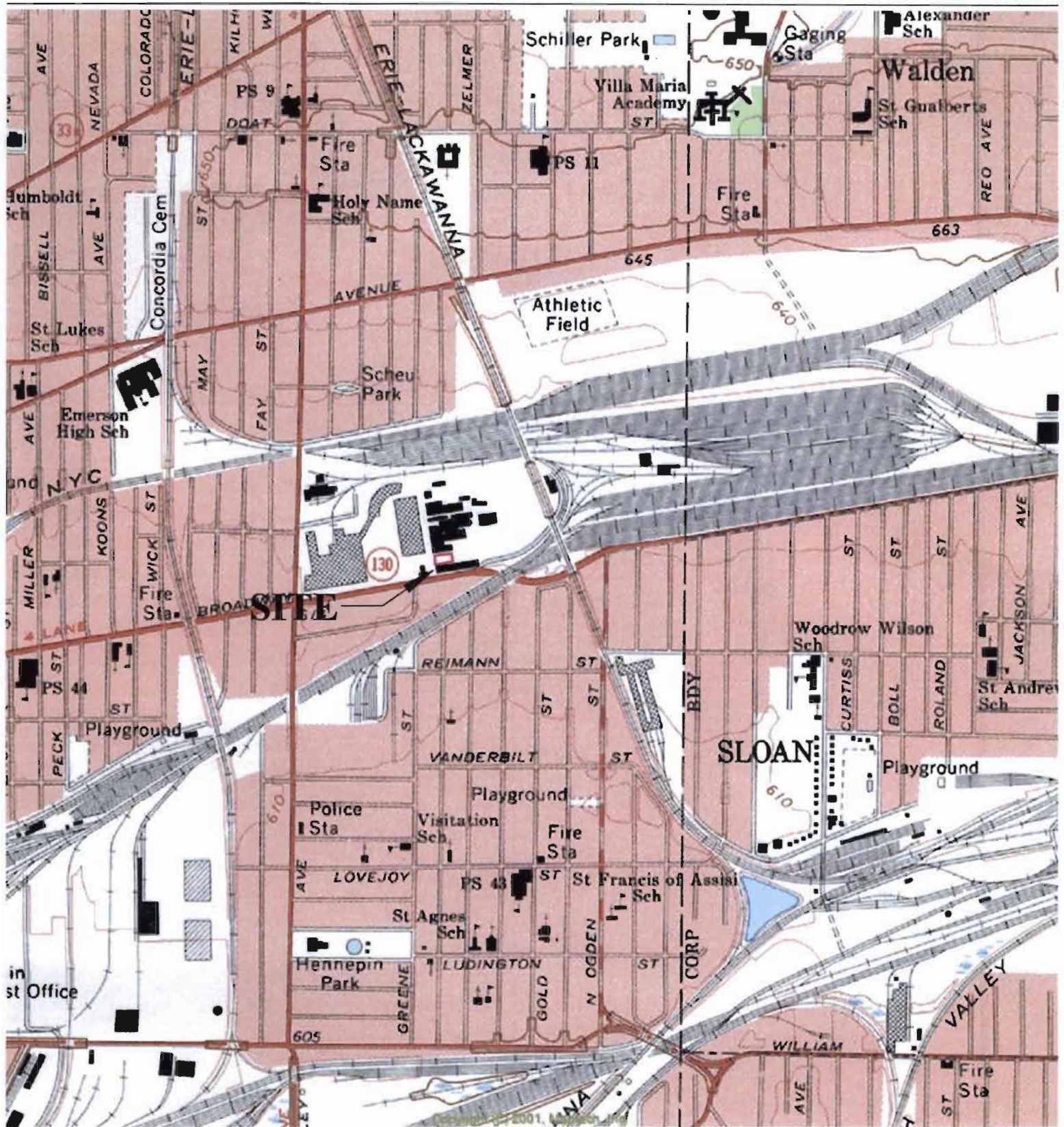
## **10.0 ADDITIONAL DATA THAT MUST BE COLLECTED**

Based on the information collected on-site since 2001, the extent of soil impact within OU#1 has been identified. In addition, contaminant concentrations of both overburden and bedrock groundwater within OU#1 have been quantified and the extent of overburden groundwater impact above the approved site-specific action levels has been determined. While the groundwater flow direction has been established, continued groundwater monitoring would be required to confirm groundwater conditions seasonally and over time. LCS would anticipate that contaminant concentrations will also vary seasonally.

No further study is warranted to complete the soil removal as presented in the approved RAP. If there is an on-site source, LCS would anticipate encountering it during implementation of the RAP as currently approved. The RAP is also intended to address the overburden groundwater. While further study would be required to confirm the full extent of groundwater impact within the bedrock, as detailed in Section 9.0, no receptors for this groundwater have been identified.

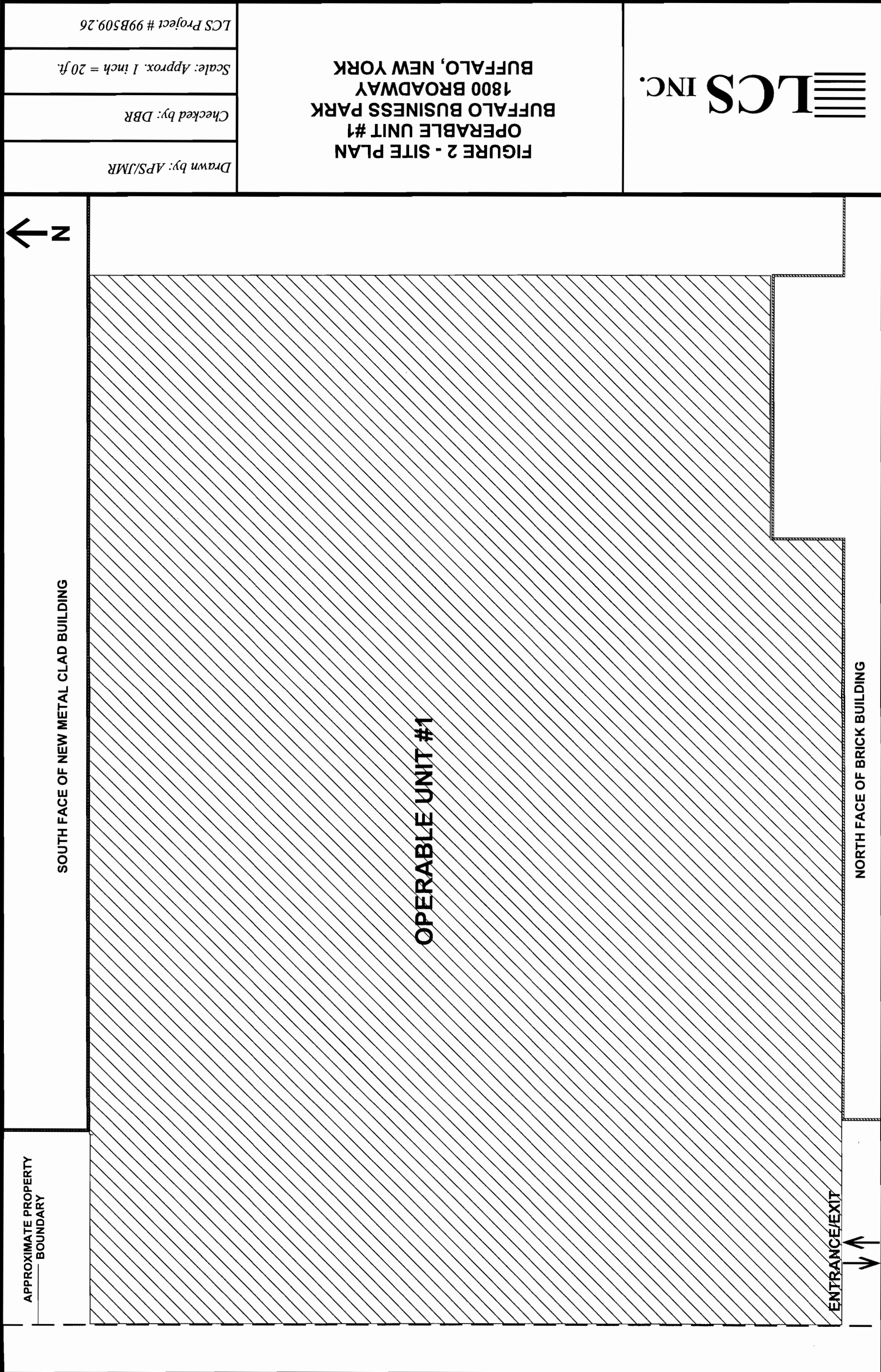
**FIGURE 1- SITE LOCATION MAP**



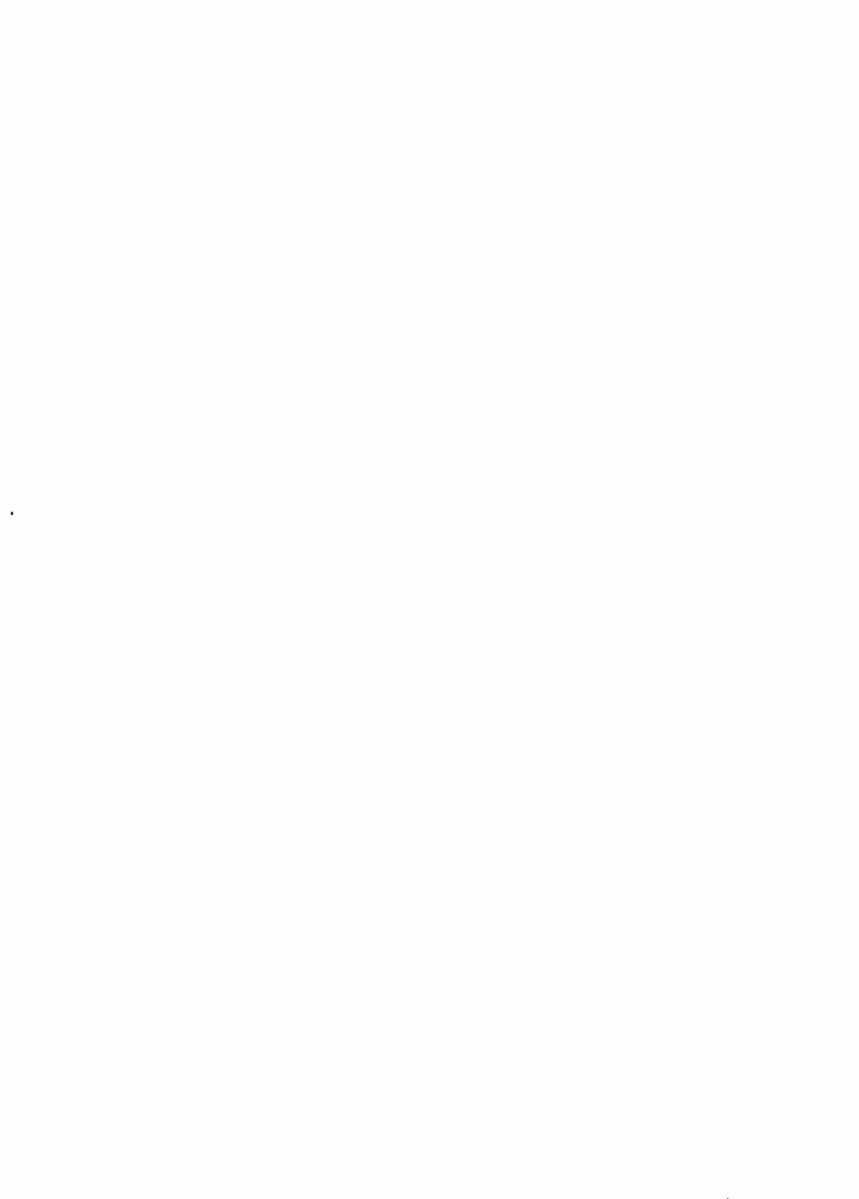


**Figure 1- Site Location Map**  
**1800 Broadway**  
**Buffalo, New York**  
**LCS Project No. 99B509.26**

**FIGURE 2- SITE PLAN**



**FIGURE 3- SOIL BORING AND MONITORING WELL LOCATIONS**

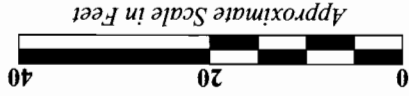




**FIGURE 3- SOIL BORING & MONITORING WELL LOCATIONS**  
**1800 BROADWAY**  
**BUFFALO, NEW YORK**

*Drawn by: DPS*

*Checked by: DBR*



## SOUTH FACE OF NEW METAL CLAD BUILDING

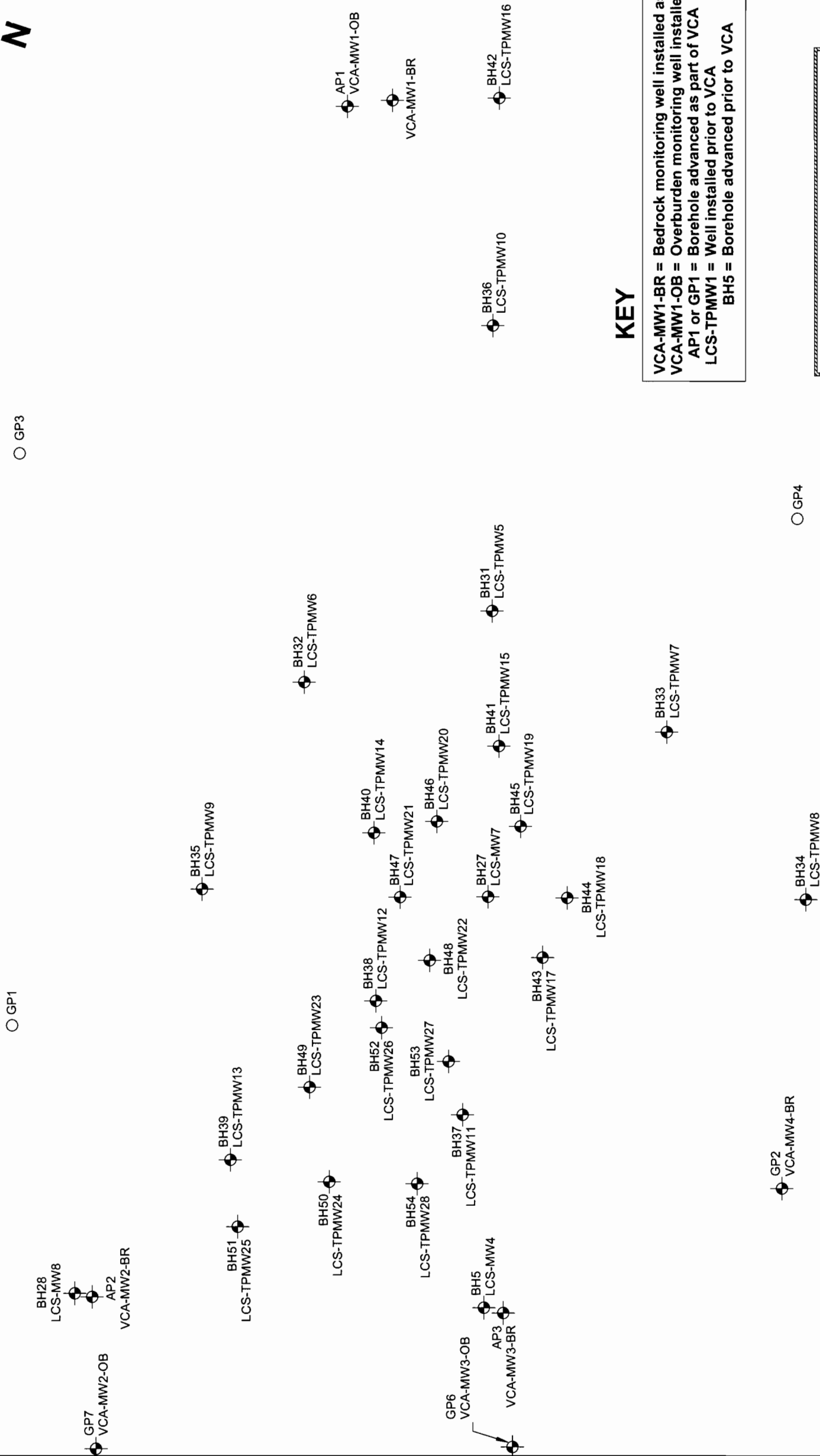
# NORTH FACE OF BRICK BUILDING

**TO  
BROADWAY**

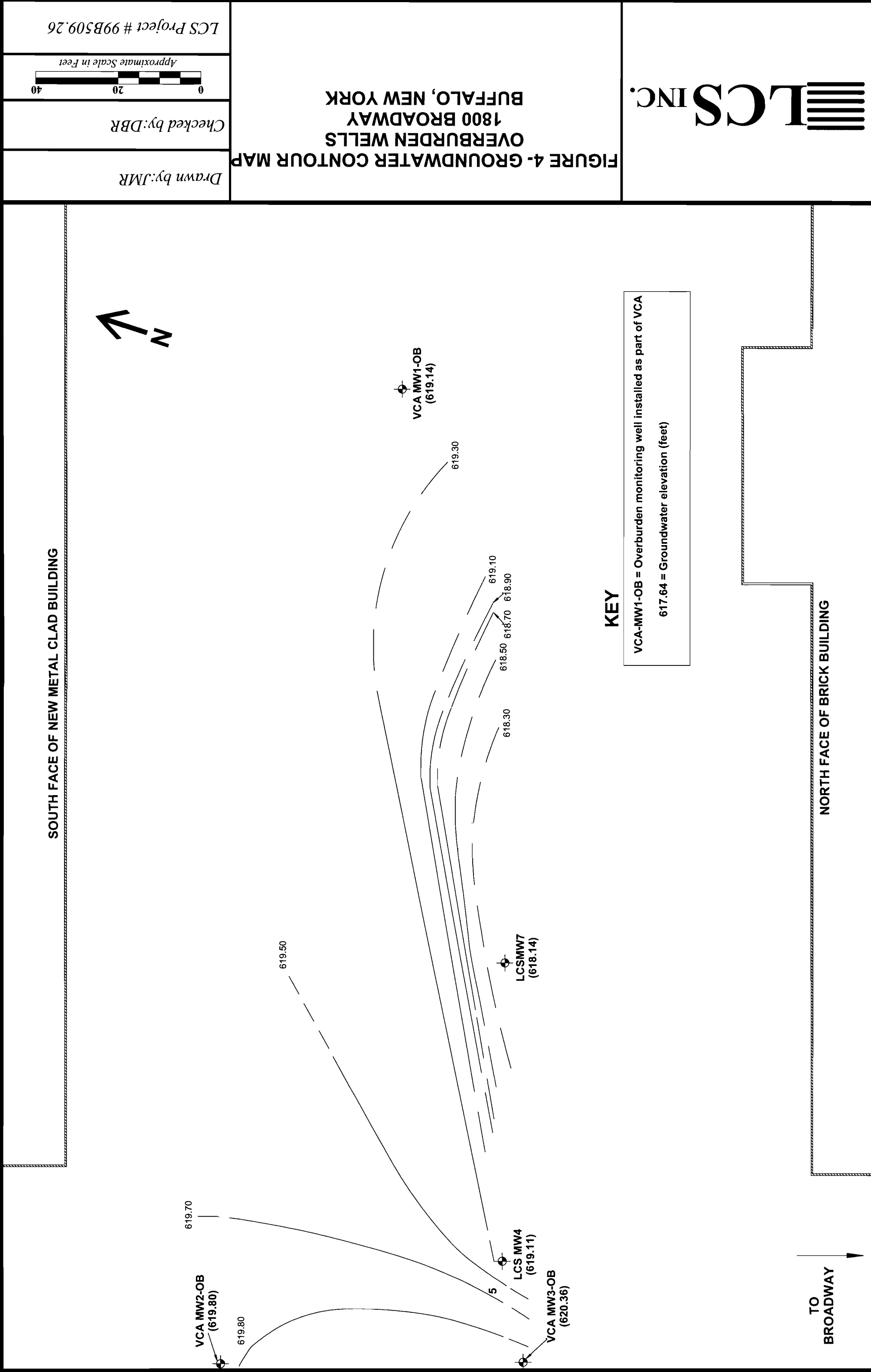


## KEY

VCA-MW1-BR = Bedrock monitoring well installed as part of VCA  
VCA-MW1-OB = Overburden monitoring well installed as part of VCA  
AP1 or GP1 = Borehole advanced as part of VCA  
LCS-TPMW1 = Well installed prior to VCA  
BH5 = Borehole advanced prior to VCA



**FIGURE 4- GROUNDWATER CONTOUR MAP – OVERBURDEN WELLS**



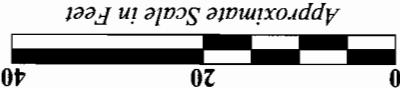
**FIGURE 5- GROUNDWATER CONTOUR MAP – BEDROCK WELLS**

FIGURE 5- GROUNDWATER CONTOUR MAP  
BEDROCK WELLS  
1800 BROADWAY  
BUFFALO, NEW YORK



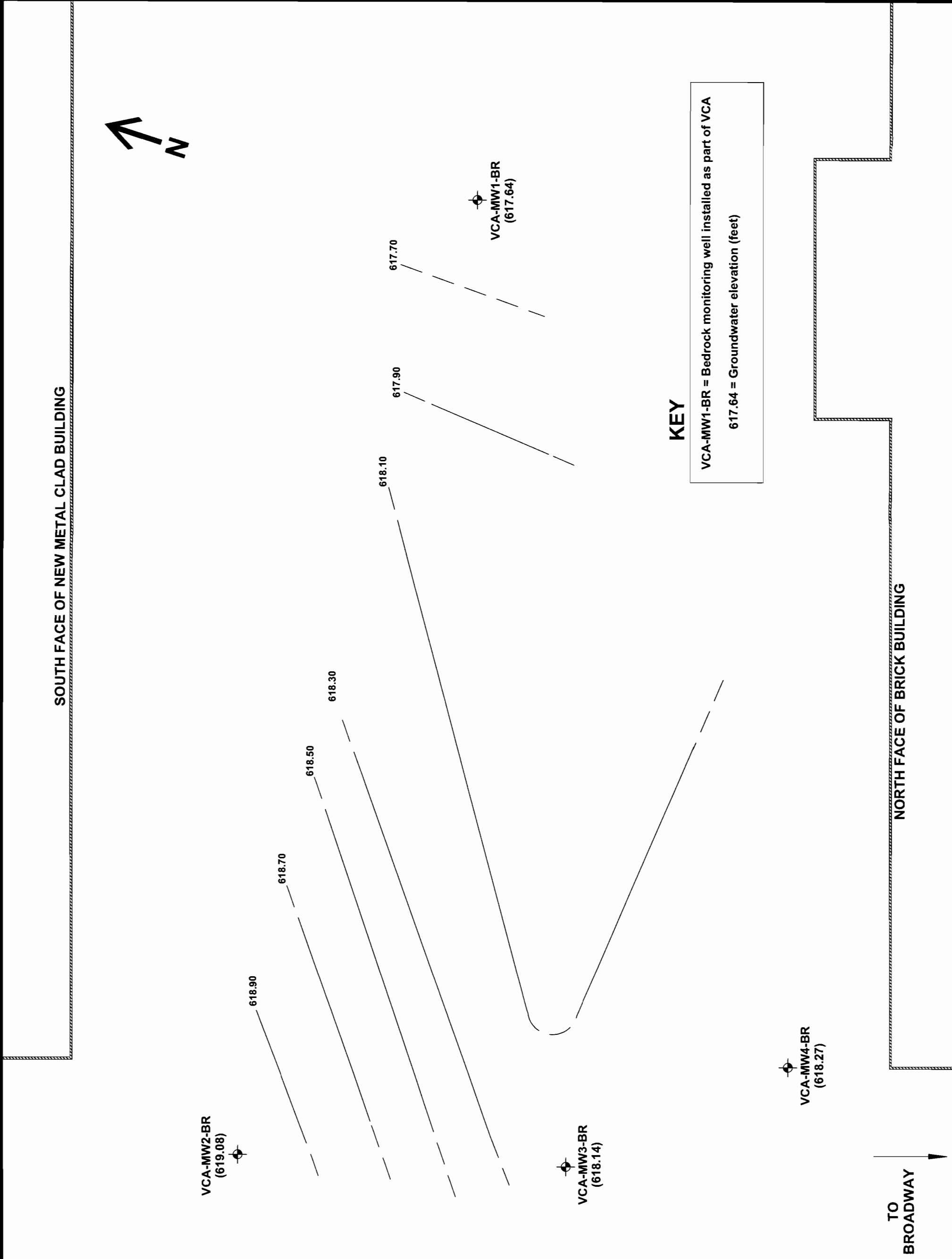
Drawn by: JMR

Checked by: DBR



LCS Project # 99B509.26

KEY  
VCA-MW1-BR = Bedrock monitoring well installed as part of VCA  
617.64 = Groundwater elevation (feet)



**APPENDIX A**  
**SUBSURFACE LOGS**



# SUBSURFACE LOG

[illegible]

No suspect odors detected

C - CORE

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL/BORING No.	VCA-MW4-BR/GP2
DATE STARTED:	6/7/04	DATE COMPLETED:	6/8/04
		RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:	~10 ft. bgs	AFTER COMPLETION:	NA
WEATHER:	~70F, Sunny	DRILL RIG:	CME55
		DRILLER:	C&W Environmental
DRILL SIZE/TYPE:	Split Spoon	SAMPLE HAMMER: WEIGHT	140 lbs.
		FALL	30 in.

[illegible]

NOTES    NA = Not Applicable

ft. bgs = feet below ground surface

Fill to ~2.5 ft. bgs

No suspect odors detected

\* This test boring was advanced with the Auger Rig rather than the Direct Push Rig

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE



# SUBSURFACE LOG

[illegible]

No suspect odors detected

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE



# SUBSURFACE LOG

[illegible]

Fill to ~4 ft. bgs  
No suspect odors detected

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE

# SUBSURFACE LOG

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York		PROJECT No.	99B509.26	
CLIENT:	Buffalo Business Park		WELL/BORING No.	GP6	
DATE STARTED:	7/21/04	DATE COMPLETED:	7/21/04	RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:		NA	AFTER COMPLETION:		~7 ft. bgs
WEATHER:	~80F, Sunny	DRILL RIG:	Geoprobe	DRILLER:	BMS Drilling
DRILL SIZE/TYPE:	Macro-core	SAMPLE HAMMER: WEIGHT	NA	FALL	NA

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

Fill to ~4 ft. bgs

No suspect odors detected

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE

# SUBSURFACE LOG

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL/BORING No.	GP7
DATE STARTED:	7/21/04	DATE COMPLETED:	7/21/04
		RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:	~13 ft. bgs	AFTER COMPLETION:	~7 ft. bgs
WEATHER:	~80F, Sunny	DRILL RIG:	Geoprobe
		DRILLER:	BMS Drilling
DRILL SIZE/TYPE:	Macro-core	SAMPLE HAMMER: WEIGHT	NA
			FALL
			NA

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

Fill to ~4 ft. bgs  
No suspect odors detected

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE

# LCS Inc.

# SUBSURFACE LOG

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL/BORING No.	VCA-MW1-OB/AP-01
DATE STARTED:	6/7/04	DATE COMPLETED:	6/8/04
		RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:	~6 ft. bgs	AFTER COMPLETION:	NA
WEATHER:	~70F, Sunny	DRILL RIG:	CME55
		DRILLER:	C&W Environmental
DRILL SIZE/TYPE:	Split Spoon	SAMPLE HAMMER: WEIGHT	140 lbs.
		FALL	30 in.

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

Fill to ~6.5 ft. bgs  
No suspect odors detected

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL/BORING No.	VCA-MW1-BR
DATE STARTED:	6/10/04	DATE COMPLETED:	6/15/04
		RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:	NA	AFTER COMPLETION:	~7 ft. bgs
WEATHER:	~70F, Cloudy	DRILL RIG:	CME-55
		DRILLER:	C & W Environmental
DRILL SIZE/TYPE:	NQ	SAMPLE HAMMER: WEIGHT	NA
			FALL
			NA

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE



PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York		PROJECT No.	99B509.26	
CLIENT:	Buffalo Business Park		WELL/BORING No.	VCA-MW2-BR	
DATE STARTED:	6/14/04	DATE COMPLETED:	6/16/04	RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:		NA	AFTER COMPLETION:		~7 ft. bgs
WEATHER:	~60F, Sunny	DRILL RIG:	CME-55	DRILLER:	C & W Environmental
DRILL SIZE/TYPE:	NQ	SAMPLE HAMMER:	WEIGHT	NA	FALL NA

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York		PROJECT No.	99B509.26	
CLIENT:	Buffalo Business Park		WELL/BORING No.	VCA-MW3-BR	
DATE STARTED:	6/11/04	DATE COMPLETED:	6/15/04	RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:	NA	AFTER COMPLETION:	~7 ft. bgs		
WEATHER:	~60F, Cloudy	DRILL RIG:	NA	DRILLER:	C & W Environmental
DRILL SIZE/TYPE:	NQ	SAMPLE HAMMER:	WEIGHT	NA	FALL NA

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE



# SUBSURFACE LOG

PROJECT/ LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL/BORING No.	VCA-MW4-BR
DATE STARTED:	6/9/04	DATE COMPLETED:	6/11/04
		RECORDED BY:	JMR
GROUNDWATER DEPTH WHILE DRILLING:	NA	AFTER COMPLETION:	~7 ft. bgs
WEATHER:	~60F, Sunny	DRILL RIG:	NA
		DRILLER:	C & W Environmental
DRILL SIZE/TYPE:	NQ	SAMPLE HAMMER: WEIGHT	NA
		FALL	NA

[illegible]

NOTES    NA = Not Applicable  
ft. bgs = feet below ground surface

\*SS - SPLIT-SPOON SAMPLE      U - UNDISTURBED TUBE      P - PISTON TUBE      C - CORE

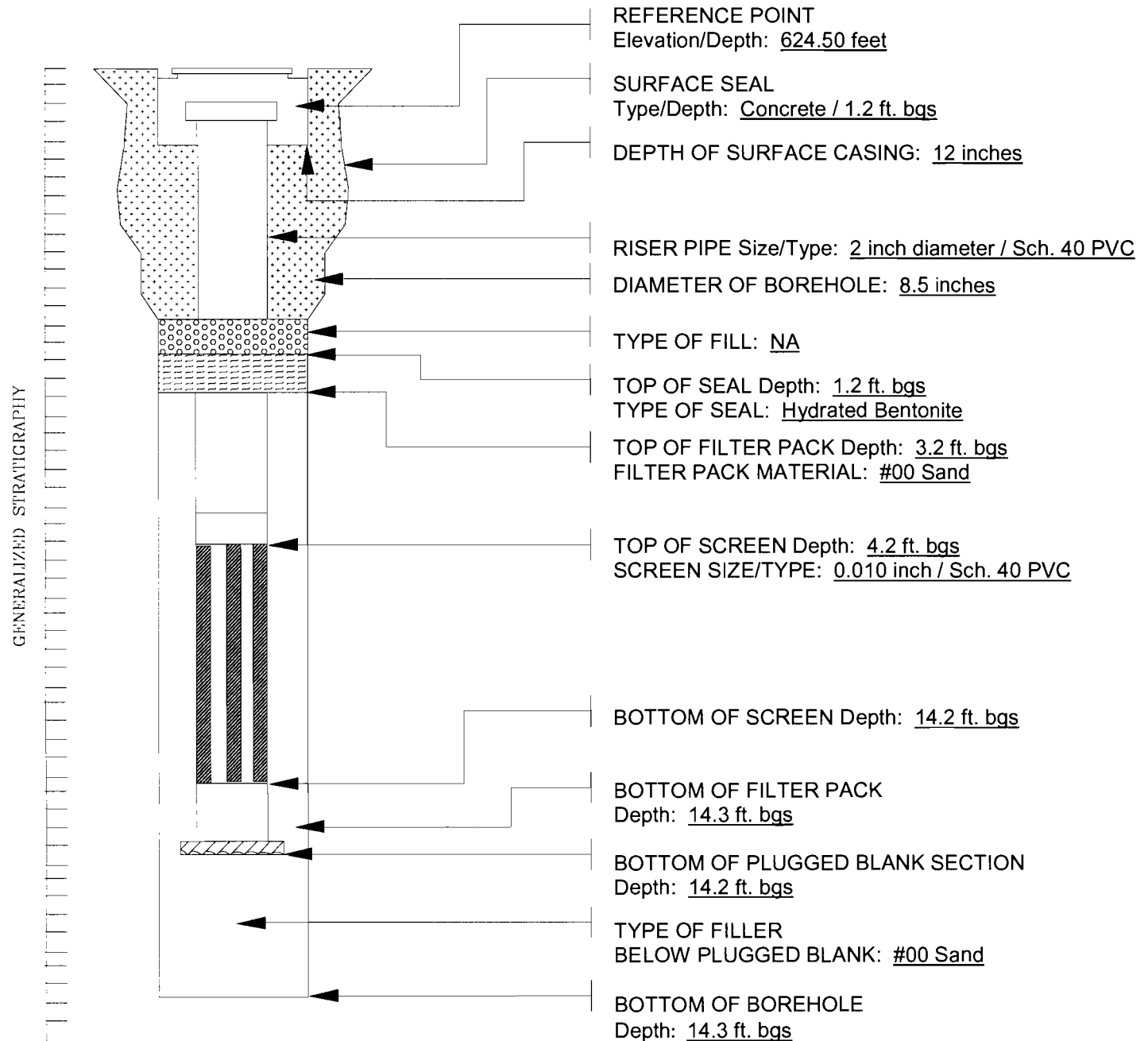
## **APPENDIX B**

### **WELL CONSTRUCTION DETAILS**

**LCS Inc.**

# WELL CONSTRUCTION DETAIL

PROJECT/LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL No.	VCA-MW1-OB
DATE COMPLETED:	6/8/04	SUPERVISED BY:	JMR



NOTES     ft. bgs = feet below ground surface  
             NA = Not Applicable

**LCS Inc.**

# WELL CONSTRUCTION DETAIL

PROJECT/LOCATION: 1800 Broadway, Buffalo, New York

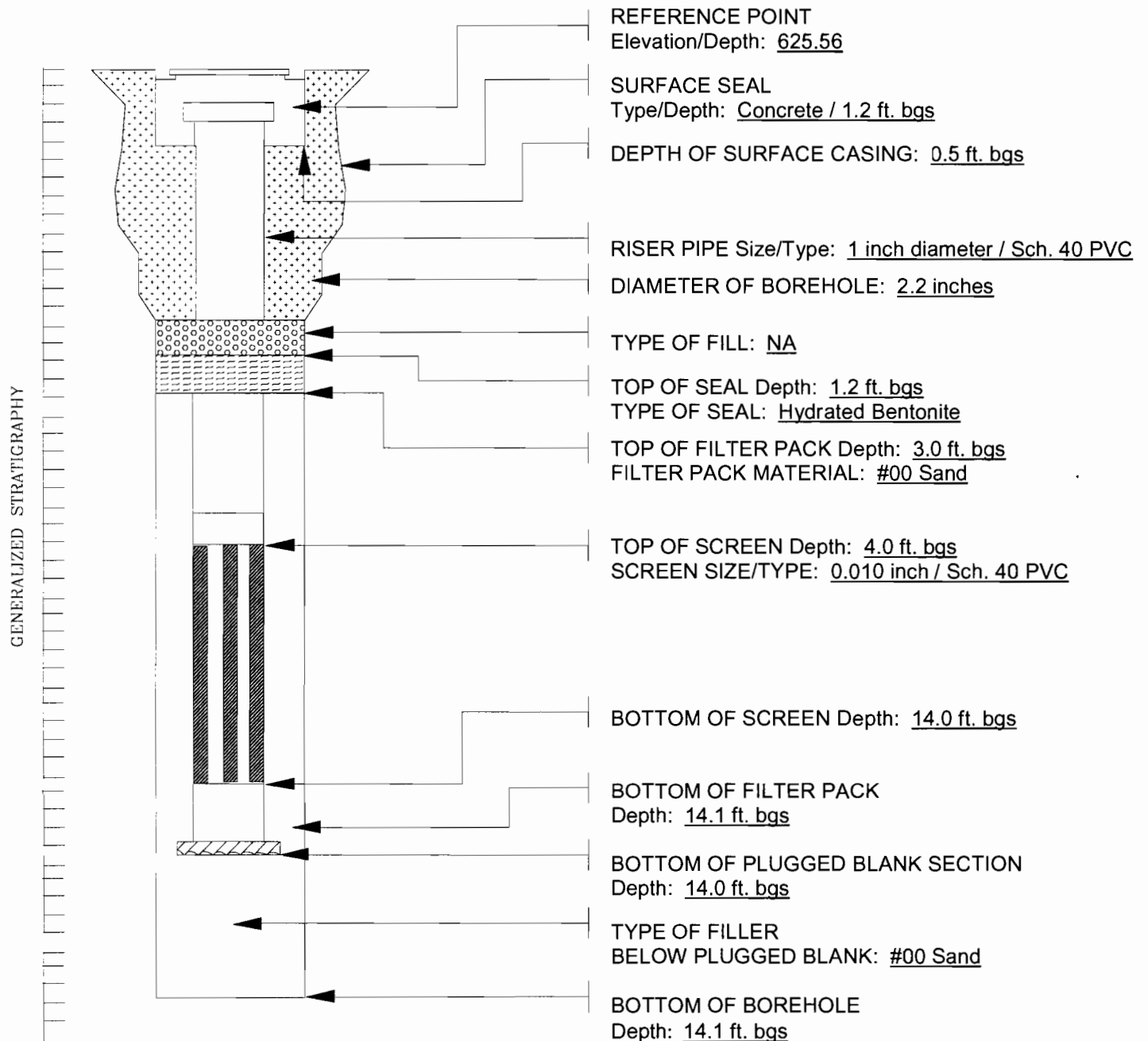
PROJECT No. 99B509.26

CLIENT: Buffalo Business Park

WELL No. VCA-MW2-OB

DATE COMPLETED: 7/21/04

SUPERVISED BY: JMR



NOTES ft. bgs = feet below ground surface

NA = Not Applicable

**LCS Inc.**

# WELL CONSTRUCTION DETAIL

PROJECT/LOCATION: 1800 Broadway, Buffalo, New York

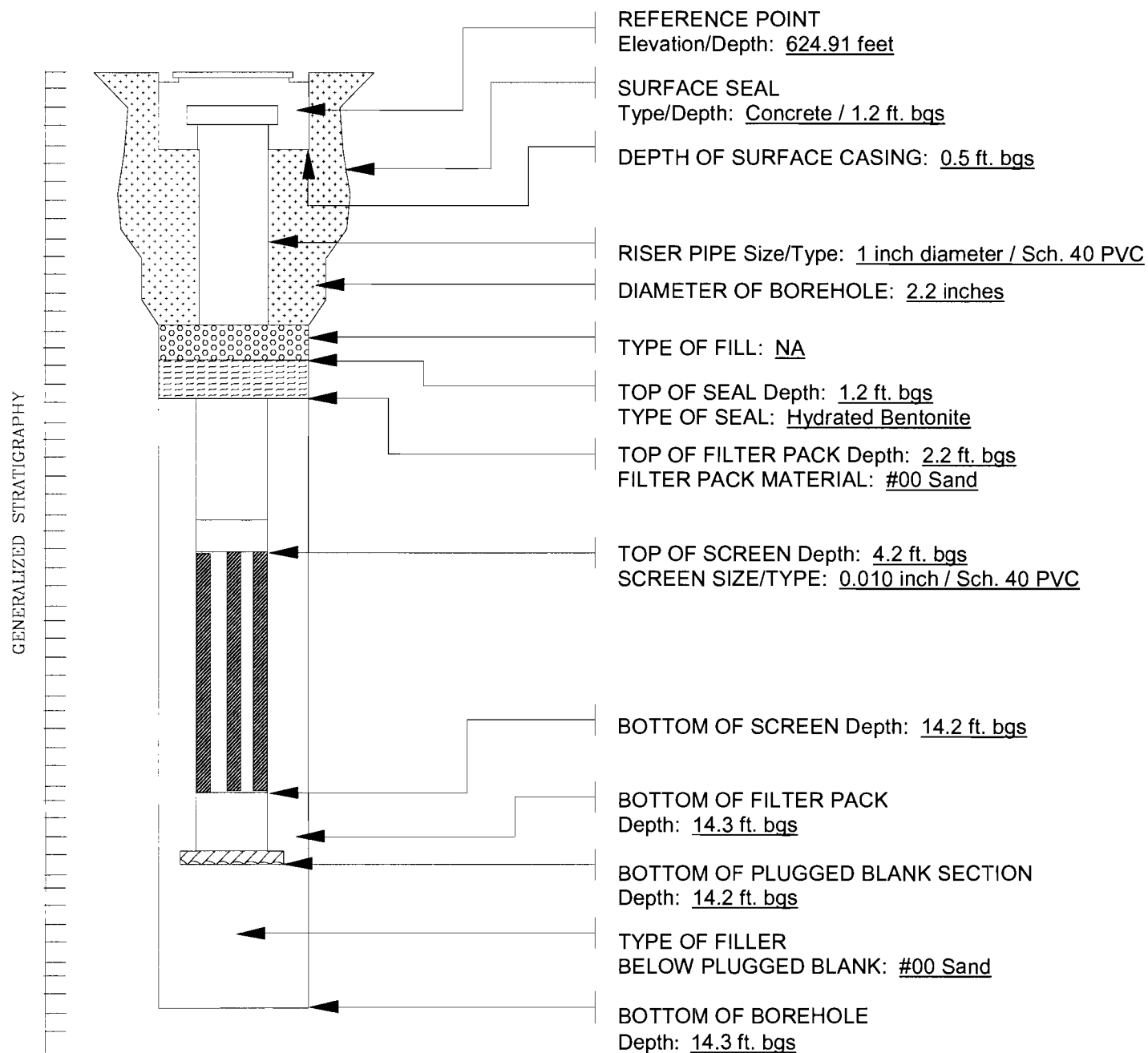
PROJECT No. 99B509.26

CLIENT: Buffalo Business Park

WELL No. VCA-MW3-OB

DATE COMPLETED: 7/21/04

SUPERVISED BY: JMR



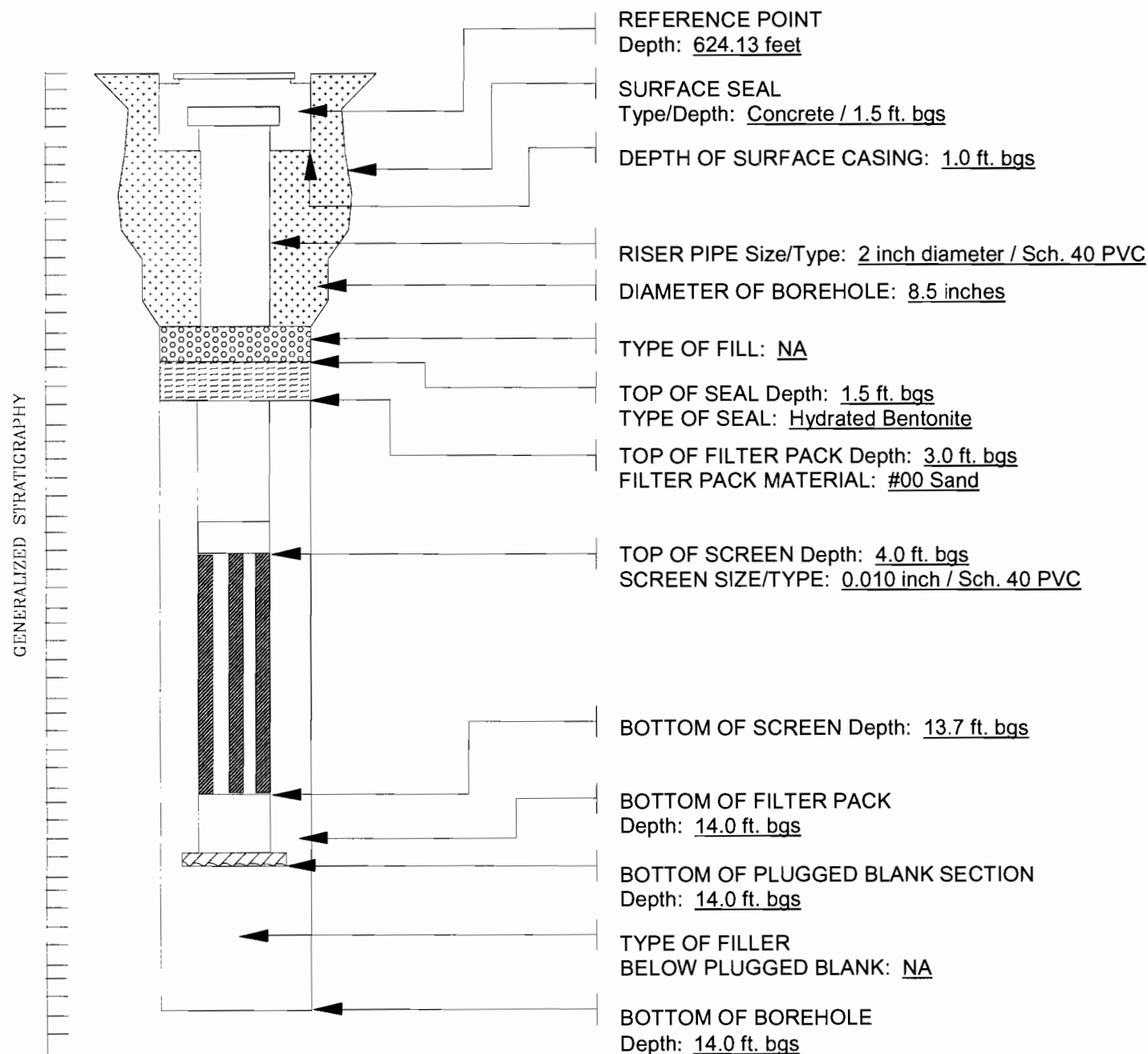
NOTES ft. bgs = feet below ground surface

NA = Not Applicable

**LCS Inc.**

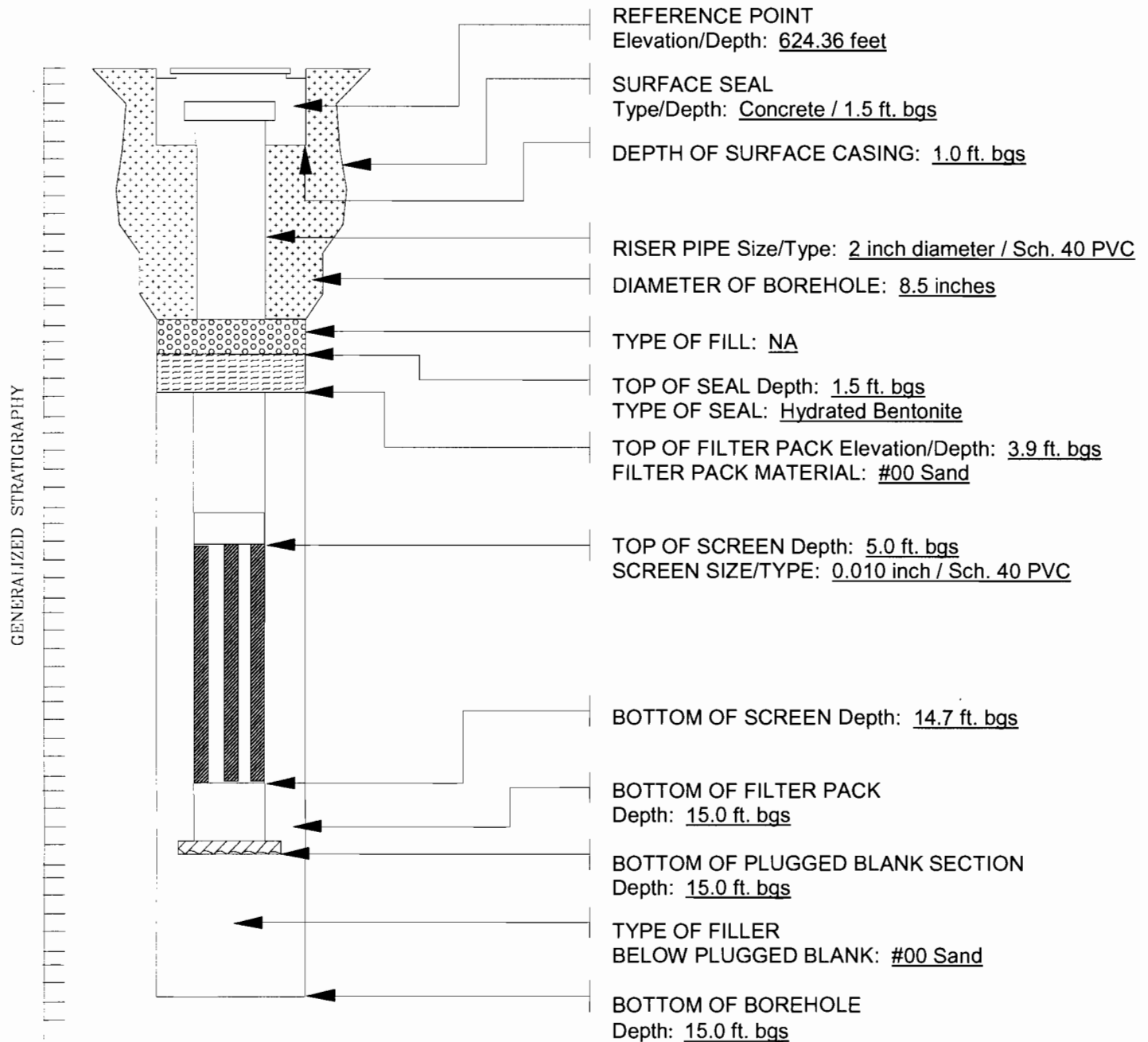
# WELL CONSTRUCTION DETAIL

PROJECT/LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL No.	LCSMW4
DATE COMPLETED:	3/15/01	SUPERVISED BY:	JMR



NOTES     ft. bgs = feet below ground surface  
             NA = Not Applicable

PROJECT/LOCATION:	1800 Broadway, Buffalo, New York	PROJECT No.	99B509.26
CLIENT:	Buffalo Business Park	WELL No.	LCSMW7
DATE COMPLETED:	6/14/01	SUPERVISED BY:	JMR



**NOTES**     ft. bgs = feet below ground surface  
               NA = Not Applicable

PROJECT/LOCATION: 1800 Broadway, Buffalo, New York

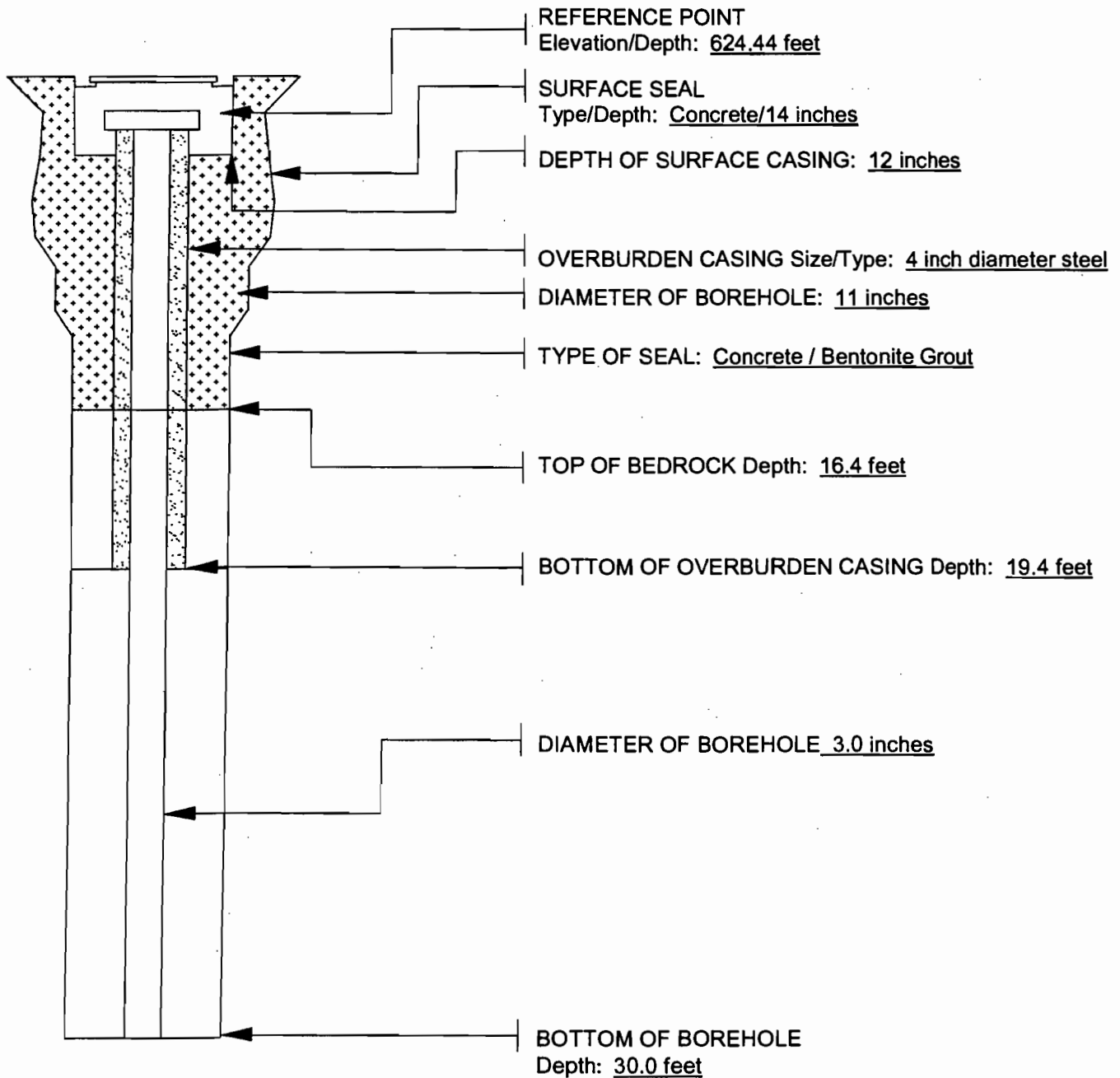
PROJECT No. 99B509.26

CLIENT: Buffalo Business Park

WELL No. VCA-MW1-BR

DATE COMPLETED: 6/15/04

SUPERVISED BY: JMR



NOTES

PROJECT/LOCATION: 1800 Broadway, Buffalo, New York

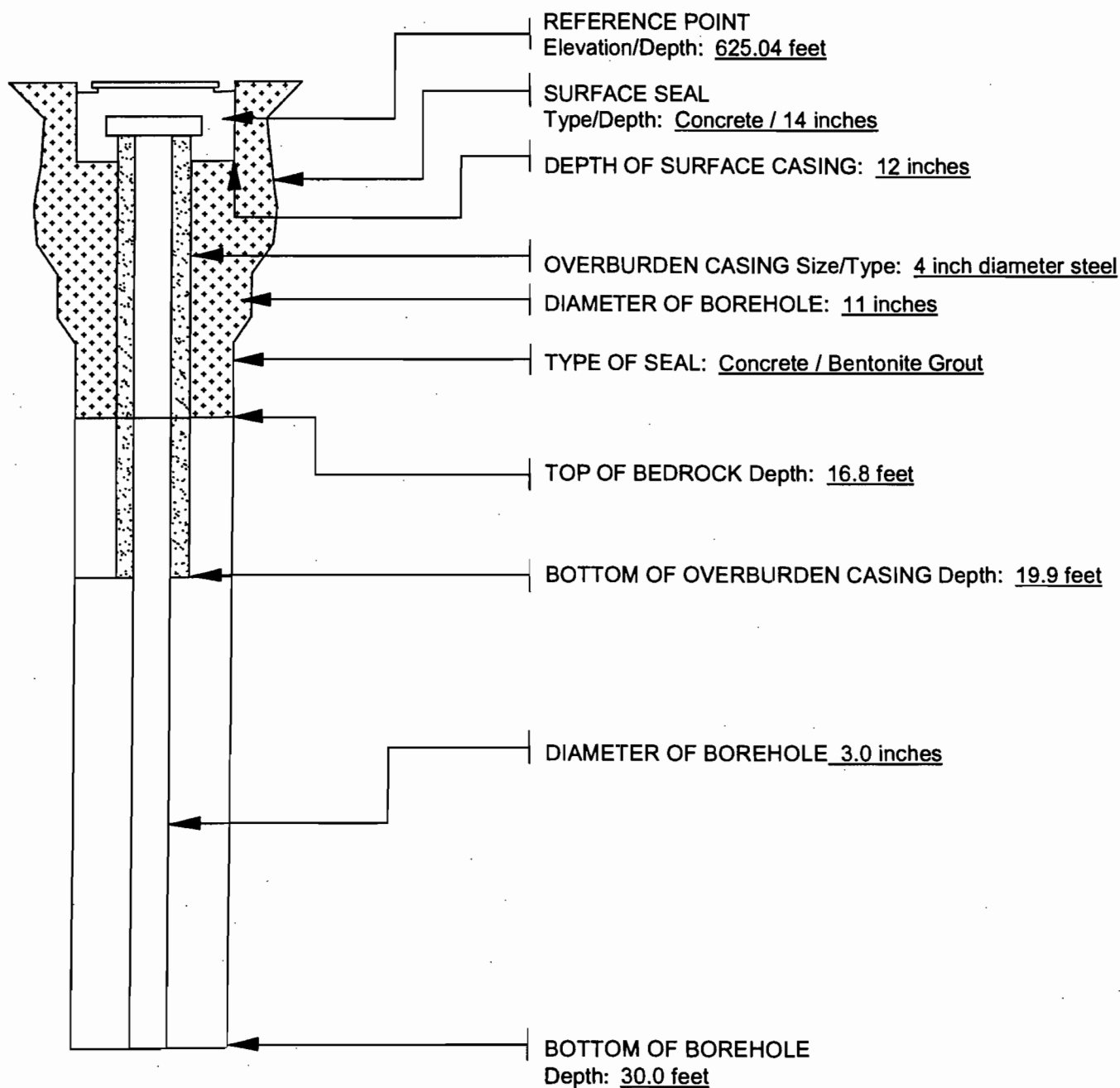
PROJECT No. 99B509.26

CLIENT: Buffalo Business Park

WELL No. VCA-MW2-BR

DATE COMPLETED: 6/16/04

SUPERVISED BY: JMR



NOTES

PROJECT/LOCATION: 1800 Broadway, Buffalo, New York

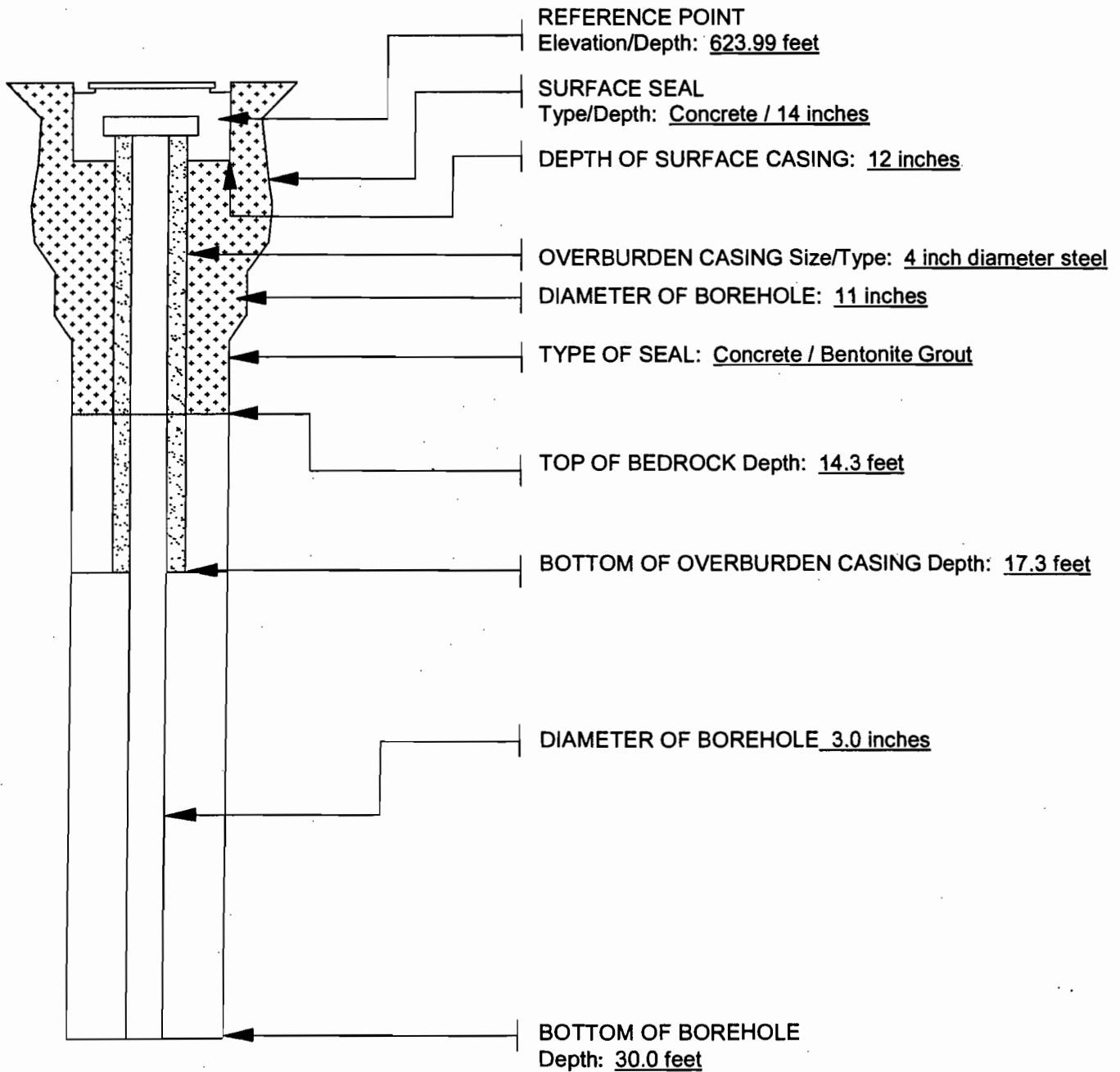
PROJECT No. 99B509.26

CLIENT: Buffalo Business Park

WELL No. VCA-MW3-BR

DATE COMPLETED: 6/15/04

SUPERVISED BY: JMR



NOTES

PROJECT/LOCATION: 1800 Broadway, Buffalo, New York

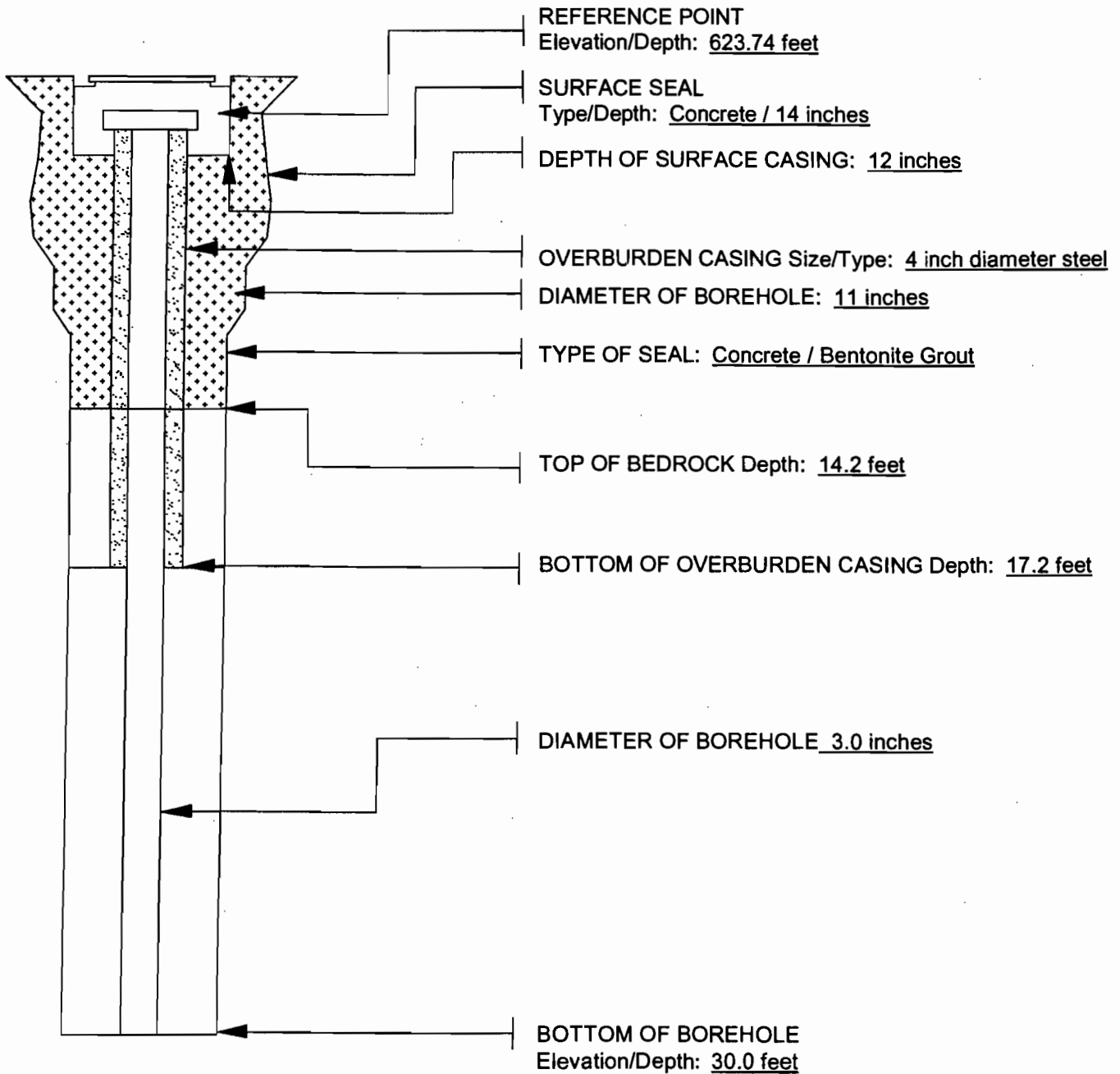
PROJECT No. 99B509.26

CLIENT: Buffalo Business Park

WELL No. VCA-MW4-BR

DATE COMPLETED: 6/11/04

SUPERVISED BY: JMR



NOTES

VOC SOIL DATA - ASP 2000 CLP												
Sample ID	AP-01-S3	AP-02-03	AP-03-02	GP-01-03	GP-02-S3	GP-03-06	GP-04-06	DUPLICATE SAMPLE 1 (GP-02-S3)		DUPLICATE SAMPLE 2 (AP-03-02)		TAGM Recommended Soil
Date Sampled	6/8/2004	7/21/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	7/21/2004	7/21/2004	Cleanup Objectives
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
2-Butanone	11 U	11 U	12 U	10 U	6 J	11 U	11 U	11 U	12	11 U	11 U	300
Acetone	49	9 J	8 J	10 U	35	11 U	11 U	11 U	66	12	12	200
cis-1,2-Dichloroethene	11 U	11 U	12 U	10 U	12 U	78	180		12 U	11 U	11 U	NL
Methylene chloride	26 B	8 BJ	7 BJ	15 B	15 B	8 BJ	7 BJ	22 B	22 B	7 BJ	7 BJ	100
Trichloroethene	11 U	11 U	12 U	10 U	12 U	11 U	15	12 U	12 U	11 U	11 U	700
Vinyl chloride	11 U	11 U	12 U	10 U	12 U	12	11 U	12 U	12 U	11 U	11 U	200

ug/kg = micrograms per kilogram  
TAGM Recommended Soil Cleanup Objectives = Division Technical and Administrative Guidance Memorandum No. 4046  
(TAGM 4046): Determination of Soil Cleanup Objectives and Cleanup Levels and addendum (August, 2001)  
NL = Not Listed

J = Indicates an estimated value

U = Indicates compound was analyzed for, but not detected at or above the reporting limit

B = This analyte was also detected within the laboratory's method blank and may be the result of laboratory contamination.

SVOC SOIL DATA - ASP 2000 CLP													
Sample ID Date Sampled	AP-01-S3 6/8/2004 ug/kg	AP-02-03 7/21/2004 ug/kg	AP-03-02 7/21/2004 ug/kg	GP-01-01 7/21/2004 ug/kg	GP-01-01 DL 7/21/2004 ug/kg	GP-01-03 7/21/2004 ug/kg	GP-02-S3 6/8/2004 ug/kg	GP-03-01 7/21/2004 ug/kg	GP-03-01 TL 7/21/2004 ug/kg	GP-03-06 7/21/2004 ug/kg	DUPLICATE SAMPLE 1 (GP-02-S3) 6/8/2004 ug/kg	DUPLICATE SAMPLE 2 (AP-03-02) 7/21/2004 ug/kg	TAGM Recommended Soil Cleanup Objectives ug/kg
2-Methylnaphthalene	3600 U	380 U	360 U	130 J	120 DJ	580 U	400 U	39 J	1400 U	380 U	390 U	400 U	36,400
Acenaphthene	3600 U	380 U	360 U	410	410 DJ	26 J	400 U	210 J	240 DJ	380 U	390 U	400 U	50,000***
Acenaphthylene	3600 U	380 U	360 U	45 J	1900 U	580 U	400 U	110 J	86 DJ	380 U	390 U	400 U	50,000***
Anthracene	170 J	380 U	360 U	690	740 DJ	100 J	400 U	690	780 DJ	380 U	390 U	400 U	50,000***
Benzo(a)anthracene	680 J	380 U	360 U	1500	1800 DJ	210 J	15 J	2000	2400 D	380 U	18 J	400 U	224 or MDL
Benzo(a)pyrene	660 J	380 U	220 J	1300	1600 DJ	160 J	400 U	1700	2000 D	380 U	390 U	110 J	61 or MDL
Benzo(b)fluoranthene	820 J	380 U	360 U	1900	1500 DJ	140 J	11 J	2200	2200 D	380 U	12 J	400 U	220 or MDL
Benzo(ghi)perylene	110 J	380 U	360 U	140 J	320 DJ	29 J	400 U	180 J	460 DJ	380 U	390 U	400 U	50,000***
Benzo(k)fluoranthene	580 J	380 U	360 U	730	1200 DJ	140 J	400 U	830	1500 D	380 U	310 J	400 U	220 or MDL
Bis(2-ethylhexyl) phthalate	850 J	48 BJ	37 BJ	120 BJ	100 BDJ	91 BJ	87 J	46 BJ	64 BDJ	40 BJ	38 BJ	41 BJ	50,000***
Butylbenzylphthalate	3600 U	380 U	360 U	380 U	1900 U	580 U	400 U	11 J	1400 U	380 U	390 U	400 U	50,000***
Carbazole	92 J	380 U	360 U	480	420 DJ	65 J	400 U	300 J	270 DJ	380 U	390 U	400 U	NL
Chrysene	660 J	380 U	360 U	1400	1900 D	190 J	14 J	1900	2600 D	380 U	530	400 U	400
Di-n-butyl phthalate	3600 U	380 U	19 J	30 J	1900 U	28 J	400 U	33 J	1400 U	16 J	390 U	13 J	8,100
Di-n-octyl phthalate	3600 U	13 BJ	10 BJ	46 BJ	1900 U	25 BJ	400 U	18 BJ	1400 U	13 BJ	390 U	13 BJ	50,000***
Dibenzo(a,h)anthracene	100 J	380 U	360 U	260 J	530 DJ	41 J	400 U	340 J	710 DJ	380 U	390 U	400 U	14.3 or MDL
Dibenzofuran	3600 U	380 U	360 U	310 J	300 DJ	32 J	400 U	130 J	140 DJ	380 U	390 U	400 U	6,200
Fluoranthene	1800 J	380 U	360 U	3300 E	4200 D	500 J	53 J	3900 E	5800 D	380 U	1500	400 U	50,000***
Fluorene	3600 U	380 U	360 U	380	390 DJ	35 J	400 U	240 J	270 DJ	380 U	390 U	400 U	50,000***
Indeno(1,2,3-cd)pyrene	200 J	380 U	360 U	480	1000 DJ	76 J	400 U	620	1400 D	380 U	390 U	400 U	3,200
Naphthalene	3600 U	380 U	360 U	240 J	250 DJ	29 J	400 U	56 J	65 DJ	380 U	390 U	400 U	13,000
Phenanthrene	970 J	380 U	360 U	2500	3600 D	440 J	400 U	2400	3400 D	380 U	1000	400 U	50,000***
Phenol	3600 U	380 U	360 U	52 J	1900 U	30 J	400 U	35 J	1400 U	16 J	400 U	400 U	30 or MDL
Pyrene	820 J	380 U	360 U	2400	3400 D	360 J	27 J	2800	4400 D	380 U	890	400 U	50,000***

ug/kg = micrograms per kilogram  
TAGM Recommended Soil Cleanup Objectives = Division Technical and Administrative Guidance Memorandum No. 4046  
(TAGM 4046); Determination of Soil Cleanup Objectives and Cleanup Levels and addendum (August, 2001)  
NL = Not Listed

\*\*\* = Total SVOCs < 500,000 ug/kg, and Individual Semi-VOCs < 5,000 ug/kg  
MDL = Method Detection Limit  
J = Indicates an estimated value.  
U = Indicates compound was analyzed for, but not detected at or above the reporting limit.  
D = Identifies all compounds identified in an analysis at the secondary dilution factor  
E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis  
B = This analyte was also detected within the laboratory's method blank and may be the result of laboratory contamination.  
= Analyte Detected above Recommended Soil Cleanup Objectives.

METALS SOIL DATA - ASP 2000 CLP

ID Sample	AP-01-S3	AP-02-03	AP-03-02	GP-01-01	GP-01-03	GP-02-S3	GP-03-01	GP-03-06	GP-04-06	DUPLICATE SAMPLE 1 (GP-02-S3)	DUPLICATE SAMPLE 2 (AP-03-02)	Eastern USA Background Concentrations	NYSDEC Guidance Value
Date Sampled	6/8/2004	7/21/2004	7/21/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	mg/kg	mg/kg
Aluminum	4,170	11,400	13,200	6,740	6,580	15,700	4,560	5,790	4,750	14,600	12,200	33,000	mg/kg
Antimony	0.35	0.43	0.44	0.65	0.39	0.39	0.56	0.38	0.2	0.39	0.35	NL	SB
Arsenic	2.4	5.1	6.1	4.9	2.9	4	4.1	2.1	2.1	4.3	4.4	3-12**	7.5 or SB
Barium	36.2	83.4	88.8	69.7	39	97.5	58.7	36.1	44.8	97.5	81.7	15-600	300 or SB
Beryllium	0.26	0.62	0.69	0.52	0.46	0.75	0.3	0.32	0.22	0.72	0.68	0-1.75	0.16 or SB
Cadmium	0.37	0.52	0.6	0.78	0.28	0.47	0.55	0.28	0.27	0.45	0.56	0.1-1	1 or SB
Calcium	74,900	74,900	46,300	105,000	187,000	16,600	90,700	97,700	90,000	60,900	123,000	130-35,000**	SB
Chromium	10.3	16.4	16.7	9.8	9.3	18.5	34.7	7.9	8.8	17.8	16.5	1.5-40**	10 or SB
Cobalt	3.1	10.1	10.8	4.2	4.6	11.1	3.2	3.6	3.2	9	8.5	2.5-60**	30 or SB
Copper	27.6	22	15.8	144	32.3	14	154	11.2	15.9	18.3	17.6	1-50	25 or SB
Iron	9,180	19,500	24,300	10,800	12,500	23,400	11,800	9,990	9,400	22,200	19,100	2,000-550,000	2,000 or SB
Lead	55.9	15.4	14.9	129	17.9	20.1	138	6.5	26.1	14.2	13.6	***	SB***
Magnesium	33,500	28,200	17,000	48,700	87,900	9,480	39,100	41,500	35,300	18,700	23,700	100-5,000	SB
Manganese	368	560	599	314	544	400	778	432	308	541	539	50-5,000	SB
Mercury	0.033	0.011	0.023	0.18	0.034	0.046	0.204	0.011	0.08	0.037	0.036	0.001-0.2	0.1
Nickel	7.3	21.5	20	14.4	10.9	21.4	11.5	8.2	7.2	21.5	19.3	0.5-25	13 or SB
Potassium	908	2,560	1,860	1,240	1,810	1,770	999	1,210	1,110	2,060	2,260	8,500-43,000**	SB
Selenium	0.34	0.56	0.53	0.55	0.87	0.67	0.51	0.56	0.61	0.55	0.61	0.1-3.9	2 or SB
Silver	0.11	0.14	0.13	0.97	0.21	0.11	0.47	0.13	0.15	0.12	0.15	NL	SB
Sodium	109	310	360	325	299	229	224	211	215	275	380	6,000-8,000	SB
Thallium	0.78	0.56	0.53	0.87	0.87	0.44	0.51	0.56	0.61	0.44	0.61	NL	SB
Vanadium	8.5	23.9	25.4	13.9	17	28.5	14.2	13.6	13.5	26.7	23.6	1-300	150 or SB
Zinc	80.6	67.5	63.4	178	82.9	63.5	133	41.9	58.8	68.5	63.8	9-50	20 or SB

mg/kg = milligrams per kilogram

NYSDEC Guidance Values = Division Technical and Administrative Guidance Memorandum No. 4046 (TAGM) 4046); Determination of Soil Cleanup Objectives and Cleanup Levels (August, 2001)

SB = Site Background Levels

NL = Not Listed

\* = Indicates analysis is not within the quality control limits.

\*\* = New York State Background

\*\*\* = Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61ppm. Average background levels in metropolitan or suburban areas, or near highways, typically range from 200-500ppm.

B = Analyte was in the associated blank, as well as in the sample

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis

N = Indicates presumptive evidence of a compound

U = Indicates element was analyzed for, but not detected at or above the reporting limit.

█ = Analyte detected above Eastern USA and Recommended Soil Cleanup Objectives

**Bold** = Indicates analyte appears present at an elevated site background concentration.

Cyanide SOIL DATA - ASP 2000 CLP												
Sample ID	AP-01-S3	AP-02-03	AP-03-02	GP-02-S3	GP-01-01	GP-01-03	GP-03-01	GP-03-06	GP-04-06	DUPLICATE SAMPLE 1 (GP-02-S3)	DUPLICATE SAMPLE 2 (AP-03-02)	TAGM Recommended Soil
Date Sampled	6/8/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	7/21/2004	7/21/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	Cleanup Objectives
Cyanide	1,800 ug/kg	1,000 ug/kg	1,100 ug/kg	1,100 ug/kg	990 ug/kg	780 ug/kg	1,000 ug/kg	1,100 ug/kg	1,000 ug/kg	1,100 ug/kg	1,000 ug/kg	***
Leachable pH	8.1	8.1	7.8	7.8	8.0	8.4	8.2	8.0	9.7	7.8	8.1	NA

ug/kg = micrograms per kilogram

TAGM Recommended Soil Cleanup Objectives = Division Technical and Administrative Guidance Memorandum No. 4046 (TAGM 4046); Determination of Soil Cleanup Objectives and Cleanup Levels and addendum (August, 2001)

NA = Not Applicable

U = Indicates compound was analyzed for, but not detected at or above the reporting limit

\*\*\* = Some forms of Cyanide are complex and very stable while other forms are pH dependant and hence are very unstable. Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objectives.

Pesticides SOIL DATA - ASP 2000 CLP											
Sample ID	AP-01-S3	AP-02-03	AP-03-02	GP-01-01	GP-02-S3	GP-01-03	GP-03-06	GP-04-06	DUPLICATE SAMPLE 1 (GP-02-S3)	DUPLICATE SAMPLE 2 (AP-03-02)	TAGM Recommended Soil Cleanup Objectives
Date Sampled	6/8/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	7/21/2004	7/21/2004	7/21/2004	6/8/2004	7/21/2004	ug/kg
4,4'-DDE	15 U	2 JP	3.6 U	2.2 JP	2.5 JP	3.9 U	3.7 U	1.9 JP	3.8 U	4 U	2,100
4,4'-DDT	15 U	1.8 JP	3.6 U	44	5.8 U	3.9 U	3.7 U	0.46 JP	3.8 U	4 U	2,100
alpha-Chlordane	7.5 U	2 U	1.9 U	1.8 JP	3 U	2 U	1.9 U	2.1 U	2 U	2.1 U	NA
delta-BHC	7.5 U	2 U	1.9 U	0.37 JP	3 U	2 U	1.9 U	2.1 U	2 U	2.1 U	300
Endosulfan I	7.5 U	2 U	1.9 U	0.92 J	3 U	2 U	1.9 U	2.1 U	2 U	2.1 U	900
Endosulfan II	15 U	2.2 JP	3.6 U	1.9 JP	0.6 J	3.9 U	3.7 U	4.1 U	3.8 U	4 U	900
Endosulfan Sulfate	15 U	3 JP	3.6 U	12	5.8 U	3.9 U	3.7 U	4.1 U	3.8 U	4 U	1,000
Endrin	15 U	0.68 JP	3.6 U	4 P	5.8 U	3.9 U	3.7 U	4.1 U	3.8 U	4 U	100
Endrin aldehyde	15 U	1.8 JP	3.6 U	5.2	5.8 U	3.9 U	0.94 J	3.1 JP	3.8 U	4 U	NL
gamma-Chlordane	7.5 U	2 U	1.9 U	0.95 JP	3 U	2 U	1.9 U	2.1 U	2 U	2.1 U	540
Heptachlor epoxide	7.5 U	2 U	1.9 U	1.8 JP	3 U	2 U	1.9 U	2.1 U	2 U	2.1 U	20
Methoxychlor	75 U	14 JP	19 U	76 P	3.3 JP	20 U	19 U	12 JP	20 U	21 U	***

ug/kg = micrograms per kilogram

TAGM Recommended Soil Cleanup Objectives = Division Technical and Administrative Guidance Memorandum No. 4046 (TAGM 4046); Determination of Soil Cleanup Objectives and Cleanup Levels and addendum (August, 2001)

NA = Not Available

NL = Not Listed

P = This flag is used for a pesticide target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported.

J = Indicates an estimated value

U = Indicates element was analyzed for, but not detected at or above the reporting limit

\*\*\* = Total Pesticides < 10ppm

VOC Groundwater Data - ASP 2000 CLP

Sample ID	VCA-MW-01-OB	VCA-MW-01-BR	VCA-MW-02-OB	VCA-MW-02-BR	VCA-MW-02-OB	VCA-MW-02-BR	VCA-MW-03-OB	VCA-MW-03-BR	VCA-MW-03-OB	VCA-MW-03-BR	VCA-MW-04-BR	LCS-MW-04	LCS-MW-07	DUPLICATE SAMPLE 3 (VCA-MW4-BR)	DUPLICATE SAMPLE 4 (VCA-MW2-BR)	DUPLICATE SAMPLE 4 DL (VCA-MW2-BR)	NYSDEC Groundwater Value (Class GA)
Date Sampled	8/5/2004	9/17/2004	8/5/2004	9/17/2004	8/5/2004	9/17/2004	9/17/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	9/17/2004	9/17/2004	ug/l
1,1-Dichloroethene	10 U	20 U	10 U	3 J	10 U	500 U	10 U	5 J	500 U	2,000 U	2,000 U	10 U	2,000 U	1,000 U	2 J	500 U	5
cis-1,2-Dichloroethene	20	20 U	10 U	10 U	10 U	500 U	10 U	290 E	360 DU	1,500 J	10 U	10 U	1,300 J	760 J	10 U	500 U	5
Cyclohexane	10 U	20 U	10 U	3 J	10 U	500 U	10 U	2 J	500 U	2,000 U	2,000 U	10 U	2,000 U	1,000 U	3 J	500 U	NL
Methylcyclohexane	10 U	20 U	10 U	2 J	10 U	500 U	10 U	3 J	500 U	2,000 U	2,000 U	10 U	2,000 U	1,000 U	2 J	500 U	NL
Tetrachloroethene	6 J	230 B	10 U	3,000 E	10 U	4,700 BD	10 U	3,400 E	9,400 D	26,000	10 U	10 U	31,000	13,000	3,000 E	4,500 BD	5
trans-1,2-Dichloroethene	10 U	20 U	10 U	10 U	10 U	500 U	10 U	38	500 U	2,000 U	2,000 U	10 U	2,000 U	1,000 U	10 U	500 U	5
Trichloroethene	6 J	6 J	10 U	20	10 U	500 U	10 U	800 E	1,000 D	3,200	10 U	10 U	2,600	1,600	19	500 U	5

ug/l = micrograms per liter

NYSDEC Groundwater Value (Class GA) = 6 NYCRR Part 703 (June 1998 and April 2000 Addendum)

NL = Not Listed

J = Indicates an estimated value

U = Indicates compound was analyzed for, but not detected at or above the reporting limit

E = Compound that exceeded the calibration range of the instrument for the specific analysis

B = Analyte was found in the associated blank, as well as in the sample

D = Identifies all compounds identified in an analysis at the secondary dilution factor

BD = Analyte Detected above NYSDEC Groundwater Standards

SVOC Groundwater Data - ASP 2000 CLP

Sample ID	VCA-MW-01-OB	VCA-MW-01-BR	VCA-MW-02-OB	VCA-MW-02-BR	VCA-MW-02-OB	VCA-MW-02-BR	VCA-MW-03-OB	VCA-MW-03-BR	VCA-MW-04-BR	LCS-MW-04	LCS-MW-07	DUPLICATE SAMPLE 3 (VCA-MW4-BR)	DUPLICATE SAMPLE 4 (VCA-MW2-BR)	DUPLICATE SAMPLE 4 DL (VCA-MW2-BR)	NYSDEC Groundwater Value (Class GA)
Date Sampled	8/5/2004	9/17/2004	8/5/2004	9/17/2004	8/5/2004	9/17/2004	9/17/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	9/17/2004	ug/l
Benzol(b)fluoranthene	9 U	10 U	40 U	10 U	10 U	10 U	10 U	9 U	10 U	9 U	9 U	9 U	9 U	10 U	0.002
Benzol(k)fluoranthene	9 U	10 U	40 U	10 U	10 U	10 U	10 U	9 U	10 U	9 U	9 U	9 U	9 U	10 U	NL
Bis(2-ethylhexyl) phthalate	0.3 BJ	10 U	40 U	0.4 BJ	0.5 BJ	4 BJ	0.9 BJ	0.5 BJ	4 BJ	9 U	0.6 BJ	9 U	0.9 BJ	5 BJ	5
Caprolactam	40	12	40 U	9 J	10 U	10 U	10 U	14	64	71	480 E	220 D	27	10 U	NL
Di-n-butyl phthalate	0.5 J	10 U	40 U	10 U	10 U	10 U	10 U	9 U	0.6 J	0.5 J	0.5 J	94 U	9 U	10 U	50
Diethyl phthalate	9 U	100 BE	10 U	10 U	10 U	10 U	10 U	9 U	10 U	9 U	9 U	94 U	9 U	10 U	50
Fluoranthene	9 U	10 U	40 U	10 U	10 U	10 U	10 U	9 U	10 U	9 U	9 U	9 U	9 U	10 U	50
Pyrene	9 U	10 U	40 U	10 U	10 U	10 U	10 U	9 U	10 U	9 U	9 U	9 U	9 U	10 U	50

ug/l = micrograms per liter

NYSDEC Groundwater Value (Class GA) = 6 NYCRR Part 703 (June 1998 and April 2000 Addendum)

NL = Not Listed

B = Analyte was found in the associated blank, as well as in the sample

D = Identifies all compounds identified in an analysis at the secondary dilution factor

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis

J = Indicates an estimated value

U = Indicates compound was analyzed for, but not detected at or above the reporting limit

BD = Analyte Detected above NYSDEC Groundwater Standards

METALS GROUNDWATER DATA - ASP 2000 CLP

Sample ID	VCA-MW-01-OB	VCA-MW-01-BR	VCA-MW-02-OB	VCA-MW-02-BR	VCA-MW-03-BR	VCA-MW-03-OB	VCA-MW-04-BR	LCS-MW-04	LCS-MW-07	DUPLICATE SAMPLE 3 (VCA-MW4-BR)	DUPLICATE SAMPLE 4 (VCA-MW-02-BR)	NYSDEC Groundwater Value (Class GA)
Date Sampled	8/5/2004	9/17/2004	8/5/2004	9/17/2004	8/5/2004	9/17/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	9/17/2004	
Aluminum	61.1 B	324	19,200	21.9 U	750	1,170	165 B	1,860	6,900	155 B	27.4 B	ug/l
Antimony	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	NL
Arsenic	2.1 U	2.1 U	6.9 B	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.4 B	2.1 U	2.1 U	25
Barium	80.2 B	15.1 B	179 B	11.6 B	51.7 B	41 B	35.8 B	162 B	126 B	36.4 B	10.4 B	1,000
Beryllium	0.24 U	0.24 U	0.95 B	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.34 B	0.24 U	0.24 U	3
Cadmium	0.35 U	0.35 U	0.45 B	0.35 B	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	5
Calcium	128,000	68,500 E	156,000	53,700 E	130,000	83,100 E	89,500	156,000	157,000	91,400	50,300 E	NL
Chromium	1.2 U	15.3	30.9	1.2 U	2.3 B	4.2 B	1.2 U	4 B	14.3	1.2 U	1.2 U	50
Cobalt	1.1 B	1.6 B	11.8 B	0.93 U	0.93 U	1.6 B	0.93 U	1.9 B	4.1 B	0.93 U	0.93 U	NL
Copper	1.4 U	269	39	1.4 U	51	7.3 B	3 B	7.8 B	21.7 B	4.8 B	1.4 U	200
Iron	64.2 B	28,400 E	25,200	1,020 E	4,290	1,810 E	11,500	2,600	10,400	11,400	962 E	300
Lead	1.5 U	1.5 U	27.9	1.5 U	1.5 U	9.2	1.5 U	1.8 B	13.1	1.5 U	1.5 U	25
Magnesium	38,400	47,300	40,700	40,500	61,300	35,400	49,100	80,900	70,600	50,700	37,900	35,000
Manganese	80.2	295 E	1,060	11.8 BE	71.5	150 E	142	128	222	143	10.9 BE	300
Mercury	0.037 U	0.037 NU	0.037 U	0.037 U	0.037 NU	0.037 NU	0.037 U	0.037 U	0.037 U	0.037 U	0.037 NU	0.7
Nickel	2.1 B	23.2 B	27.6 B	1.4 B	9.9 B	4.2 B	4.2 B	6.6 B	10.8 B	4.4 B	1.7 B	100
Potassium	6,910 B	7,330	1,340 B	5,540	6,400	3,890 B	4,870 B	830 B	5,960	5,150	5,190	NL
Selenium	4.8 U	4.9 BN	4.8 U	4.8 U	4.8 U	5.2 BN	4.8 U	4.8 U	4.8 U	4.8 U	4.8 NU	10
Silver	1.2 U	3.3 B	1.2 U	1.2 U	30.8	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	50
Sodium	85,500	58,700	22,200	87,100	56,800	168,000	35,100	34,800	25,700	34,400	81,600	20,000
Vanadium	1.1 U	1.1 U	30.9 B	1.1 U	1.5 B	4.5 B	1.1 U	3.9 B	14.8 B	1.1 U	1.1 U	NL
Zinc	3.4 B	123	191	3 U	11.4 B	44.8	5.2 B	18.1 B	56.9	6.8 B	4.2 B	2,000

ug/l = micrograms per liter

NYSDEC Groundwater Value (Class GA) = 6 NYCRR Part 703 (June 1998 and April 2000 Addendum)

NL = Not listed

N = Indicates presumptive evidence of a compound

E = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis

B = Analyte was found in the associated blank, as well as in the sample

U = Indicates element was analyzed for, but not detected at or above the reporting limit.

██████████ = Analyte detected above NYSDEC Groundwater Criteria (Class 6A)

VOC-Equipment Blanks					
Sample ID	Equipment Blank 1 (Split-Spoon)		Equipment Blank 2 (Macro-Core)		Equipment Blank 3 (Bailer)
Date Sampled	6/8/2004		7/21/2004		8/5/2004
	ug/l		ug/l		ug/l
1,1,1-Trichloroethane	10	U	10	U	10
1,1,2,2-Tetrachloroethane	10	U	10	U	10
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	10	U	10
1,1,2-Trichloroethane	10	U	10	U	10
1,1-Dichloroethane	10	U	10	U	10
1,1-Dichloroethene	10	U	10	U	10
1,2,4-Trichlorobenzene	10	U	10	U	10
1,2-Dibromo-3-chloropropane	10	U	10	U	10
1,2-Dibromoethane	10	U	10	U	10
1,2-Dichlorobenzene	10	U	10	U	10
1,2-Dichloroethane	10	U	10	U	10
1,2-Dichloropropane	10	U	10	U	10
1,3-Dichlorobenzene	10	U	10	U	10
1,4-Dichlorobenzene	10	U	10	U	10
2-Butanone	10	U	10	U	10
2-Hexanone	10	U	10	U	10
4-Methyl-2-pentanone	10	U	10	U	10
Acetone	10	U	6	J	10
Benzene	10	U	10	U	10
Bromodichloromethane	10	U	10	U	10
Bromoform	10	U	10	U	10
Bromomethane	10	U	10	U	10
Carbon Disulfide	10	U	10	U	10
Carbon Tetrachloride	10	U	10	U	10
Chlorobenzene	10	U	10	U	10
Chloroethane	10	U	10	U	10
Chloroform	10	U	10	U	10
Chloromethane	10	U	10	U	10
cis-1,2-Dichloroethene	10	U	10	U	10
cis-1,3-Dichloropropene	10	U	10	U	10
Cyclohexane	10	U	10	U	10
Dibromochloromethane	10	U	10	U	10
Dichlorodifluoromethane	10	U	10	U	10
Ethylbenzene	10	U	10	U	10
Isopropylbenzene	10	U	10	U	10
Methyl acetate	10	U	10	U	10
Methyl tert butyl ether	10	U	10	U	10
Methylcyclohexane	10	U	10	U	10
Methylene chloride	4	BJ	10	U	10
Styrene	10	U	10	U	10
Tetrachloroethene	10	U	10	U	10
Toluene	10	U	10	U	10
Total Xylenes	10	U	10	U	10
trans-1,2-Dichloroethene	10	U	10	U	10
trans-1,3-Dichloropropene	10	U	10	U	10
Trichloroethene	10	U	10	U	10
Trichlorofluoromethane	10	U	10	U	10
Vinyl chloride	10	U	10	U	10

ug/l = micrograms per liter

B = Analyte was in the associated blank, as well as in the sample

J = Indicates an estimated value

U = Indicates compound was analyzed for, but not detected at or above the reporting limit

SVOC-Equipment Blanks								
LCS Sample	Equipment Blank 1 (Split-Spoon)		Equipment Blank 1 RE (Split-Spoon)		Equipment Blank 2 (Macro-Core)		Equipment Blank 3 (Bailer)	
Date Sampled	6/8/2004		6/8/2004		7/21/2004		8/5/2004	
	ug/l		ug/l		ug/l		ug/l	
2,2'-Oxybis(1-Chloropropane)	10	U	10	U	9	U	10	U
2,4,5-Trichlorophenol	24	U	24	U	24	U	24	U
2,4,6-Trichlorophenol	10	U	10	U	9	U	10	U
2,4-Dichlorophenol	10	U	10	U	9	U	10	U
2,4-Dimethylphenol	10	U	10	U	9	U	10	U
2,4-Dinitrophenol	24	U	24	U	24	U	24	U
2,4-Dinitrotoluene	10	U	10	U	9	U	10	U
2,6-Dinitrotoluene	10	U	10	U	9	U	10	U
2-Chloronaphthalene	10	U	10	U	9	U	10	U
2-Chlorophenol	10	U	10	U	9	U	10	U
2-Methylnaphthalene	10	U	10	U	9	U	10	U
2-Methylphenol	10	U	10	U	9	U	10	U
2-Nitroaniline	24	U	24	U	24	U	24	U
2-Nitrophenol	10	U	10	U	9	U	10	U
3,3'-Dichlorobenzidine	10	U	10	U	9	U	10	U
3-Nitroaniline	24	U	24	U	24	U	24	U
4,6-Dinitro-2-methylphenol	24	U	24	U	24	U	24	U
4-Bromophenyl phenyl ether	10	U	10	U	9	U	10	U
4-Chloro-3-methylphenol	10	U	10	U	9	U	10	U
4-Chloroaniline	10	U	10	U	9	U	10	U
4-Chlorophenyl phenyl ether	10	U	10	U	9	U	10	U
4-Methylphenol	10	U	10	U	9	U	10	U
4-Nitroaniline	24	U	24	U	24	U	24	U
4-Nitrophenol	24	U	24	U	24	U	24	U
Acenaphthene	10	U	10	U	9	U	10	U
Acenaphthylene	10	U	10	U	9	U	10	U
Acetophenone	10	U	10	U	9	U	10	U
Anthracene	10	U	10	U	9	U	10	U
Atrazine	10	U	10	U	9	U	10	U
Benzaldehyde	10	U	10	U	9	U	10	U
Benzo(a)anthracene	10	U	10	U	9	U	10	U
Benzo(a)pyrene	10	U	10	U	9	U	10	U
Benzo(b)fluoranthene	10	U	10	U	9	U	10	U
Benzo(ghi)perylene	10	U	10	U	9	U	10	U
Benzo(k)fluoranthene	10	U	10	U	9	U	10	U
Biphenyl	10	U	10	U	9	U	10	U
Bis(2-chloroethoxy) methane	10	U	10	U	9	U	10	U
Bis(2-chloroethyl) ether	10	U	10	U	9	U	10	U
Bis(2-ethylhexyl) phthalate	0.6	BJ	10	U	0.8	BJ	4	BJ
Butyl benzyl phthalate	10	U	10	U	9	U	10	U
Caprolactam	10	U	10	U	9	U	10	U
Carbazole	10	U	10	U	9	U	10	U
Chrysene	10	U	10	U	9	U	10	U
Di-n-butyl phthalate	10	U	10	U	9	U	10	U
Di-n-octyl phthalate	10	U	10	U	9	U	10	U
Dibenzo(a,h)anthracene	10	U	10	U	9	U	10	U
Dibenzofuran	10	U	10	U	9	U	10	U
Diethyl phthalate	10	U	10	U	9	U	10	U
Dimethyl phthalate	10	U	10	U	9	U	10	U
Fluoranthene	10	U	10	U	9	U	10	U
Fluorene	10	U	10	U	9	U	10	U
Hexachlorobenzene	10	U	10	U	9	U	10	U
Hexachlorobutadiene	10	U	10	U	9	U	10	U
Hexachlorocyclopentadiene	10	U	10	U	9	U	10	U
Hexachloroethane	10	U	10	U	9	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	9	U	10	U
Isophorone	10	U	10	U	9	U	10	U
N-Nitroso-Di-n-propylamine	10	U	10	U	9	U	10	U
N-nitrosodiphenylamine	10	U	10	U	9	U	10	U
Naphthalene	10	U	10	U	9	U	10	U
Nitrobenzene	10	U	10	U	9	U	10	U
Pentachlorophenol	24	U	24	U	24	U	24	U
Phenanthrene	10	U	10	U	9	U	10	U
Phenol	10	U	10	U	9	U	10	U
Pyrene	10	U	10	U	9	U	10	U

ug/l = micrograms per liter

U = Indicates an estimated value.

U = Indicates compound was analyzed for, but not detected at or above the reporting limit.

B = This analyte was also detected within the laboratory's method blank and may be the result of laboratory contamination.

METALS-Equipment Blanks						
Sample ID	Equipment Blank 1 (Split-Spoon)		Equipment Blank 2 (Macro-Core)		Equipment Blank 3 (Bailer)	
Date Sampled	6/8/2004		7/21/2004		8/5/2004	
	ug/l		ug/l		ug/l	
Aluminum	29	B	27.4	B	21.9	U
Antimony	3.2	U	3.7	U	3.7	U
Arsenic	3.2	U	2.7	B	2.1	U
Barium	1.4	B	1	B	0.54	B
Beryllium	0.2	U	0.24	U	0.24	U
Cadmium	0.2	U	0.35	U	0.35	U
Calcium	432	B	235	B	53	B
Chromium	0.6	U	1.2	U	1.2	U
Cobalt	0.9	U	1.3	B	0.93	U
Copper	1.2	U	1.4	U	2	B
Iron	112		24	B	21	U
Lead	1.7	U	1.5	U	1.5	U
Magnesium	117	B	78.6	B	18.8	B
Manganese	1.5	B	0.49	B	0.24	U
Mercury	0.037	U	0.037	U	0.037	U
Nickel	1.6	B	2.7	B	1.4	U
Potassium	39.4	B	73.2	B	54.2	U
Selenium	5	B	4.8	U	4.8	U
Silver	0.8	U	1.2	U	1.2	U
Sodium	204	U	378	B	194	U
Thallium	3.6	B	5.9	B	4.8	U
Vanadium	0.7	U	1.1	U	1.1	U
Zinc	2.7	U	3	U	3	U

ug/l = micrograms per liter

NYSDEC Groundwater Value (Class GA) = 6 NYCRR Part 703 (June 1998 and April 2000 Addendum)

NL = Not listed

B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

U = Indicates element was analyzed for, but not detected at or above the reporting limit.

CYANIDE-Equipment Blanks						
Sample ID	EQUIPMENT BLANK 1 (Split-Spoon)		EQUIPMENT BLANK 2 (Macro-Core)		EQUIPMENT BLANK 3 (Bailer)	
Date Sampled	6/8/2004		7/21/2004		8/5/2004	
	ug/l		ug/l		ug/l	
Cyanide	10	U	10	U	10	U

ug/l = micrograms per liter

U = Indicates element was analyzed for, but not detected at or above the reporting limit.

### PCBs-Equipment Blanks

Sample ID	Equipment Blank 1 (Split-Spoon)	Equipment Blank 2 (Macro-Core)	Equipment Blank 3 (Bailer)
Date Sampled	6/8/2004	7/21/2004	8/5/2004
	ug/l	ug/l	ug/l
Aroclor 1016	0.95 U	0.94 U	0.95 U
Aroclor 1221	1.9 U	1.9 U	1.9 U
Aroclor 1232	0.95 U	0.94 U	0.95 U
Aroclor 1242	0.95 U	0.94 U	0.95 U
Aroclor 1248	0.95 U	0.94 U	0.95 U
Aroclor 1254	0.95 U	0.94 U	0.95 U
Aroclor 1260	0.95 U	0.94 U	0.95 U

ug/l = micrograms per liter

U = Indicates compound was analyzed for, but not detected at or above the reporting limit.

### PESTICIDES-Equipment Blanks

Sample ID	Equipment Blank 1 (Split-Spoon)	Equipment Blank 2 (Macro-Core)	Equipment Blank 3 (Bailer)
Date Sampled	6/8/2004	7/21/2004	8/5/2004
	ug/l	ug/l	ug/l
4,4'-DDD	0.095 U	0.094 U	0.095 U
4,4'-DDE	0.095 U	0.094 U	0.095 U
4,4'-DDT	0.095 U	0.094 U	0.095 U
Aldrin	0.048 U	0.047 U	0.048 U
alpha-BHC	0.048 U	0.047 U	0.048 U
alpha-Chlordane	0.048 U	0.047 U	0.048 U
beta-BHC	0.048 U	0.047 U	0.048 U
delta-BHC	0.048 U	0.047 U	0.048 U
Dieldrin	0.095 U	0.094 U	0.095 U
Endosulfan I	0.048 U	0.047 U	0.048 U
Endosulfan II	0.095 U	0.094 U	0.095 U
Endosulfan Sulfate	0.095 U	0.094 U	0.095 U
Endrin	0.095 U	0.094 U	0.095 U
Endrin aldehyde	0.095 U	0.094 U	0.095 U
Endrin ketone	0.095 U	0.094 U	0.095 U
gamma-BHC (Lindane)	0.048 U	0.047 U	0.048 U
gamma-Chlordane	0.048 U	0.047 U	0.048 U
Heptachlor	0.048 U	0.047 U	0.048 U
Heptachlor epoxide	0.048 U	0.047 U	0.048 U
Methoxychlor	0.48 U	0.47 U	0.48 U
Toxaphene	4.8 U	4.7 U	4.8 U

ug/l = micrograms per liter

U = Indicates element was analyzed for, but not detected at or above the reporting limit

VOC-Trip Blanks				
Sample ID	Trip Blank		Trip Blank	
Date Sampled	8/5/2004		9/17/2004	
	ug/l		ug/l	
1,1,1-Trichloroethane	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U
1,1-Dichloroethane	10	U	10	U
1,1-Dichloroethene	10	U	10	U
1,2,4-Trichlorobenzene	10	U	10	U
1,2-Dibromo-3-chloropropane	10	U	10	U
1,2-Dibromoethane	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U
1,2-Dichloroethane	10	U	10	U
1,2-Dichloropropane	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U
2-Butanone	10	U	10	U
2-Hexanone	10	U	10	U
4-Methyl-2-pentanone	10	U	10	U
Acetone	10	U	10	U
Benzene	10	U	10	U
Bromodichloromethane	10	U	10	U
Bromoform	10	U	10	U
Bromomethane	10	U	10	U
Carbon Disulfide	10	U	10	U
Carbon Tetrachloride	10	U	10	U
Chlorobenzene	10	U	10	U
Chloroethane	10	U	10	U
Chloroform	10	U	10	U
Chloromethane	10	U	10	U
cis-1,2-Dichloroethene	10	U	10	U
cis-1,3-Dichloropropene	10	U	10	U
Cyclohexane	10	U	10	U
Dibromochloromethane	10	U	10	U
Dichlorodifluoromethane	10	U	10	U
Ethylbenzene	10	U	10	U
Isopropylbenzene	10	U	10	U
Methyl acetate	10	U	10	U
Methyl tert butyl ether	10	U	10	U
Methylcyclohexane	10	U	10	U
Methylene chloride	10	U	10	U
Styrene	10	U	10	U
Tetrachloroethene	10	U	10	U
Toluene	10	U	10	U
Total Xylenes	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U
Trichloroethene	10	U	10	U
Trichlorofluoromethane	10	U	10	U
Vinyl chloride	10	U	10	U

ug/l = micrograms per liter

U = Indicates compound was analyzed for, but not detected at or above the reporting limit