Final Engineering Report

Brownfield Cleanup Program
Former Griffin Technology Site
Farmington, New York

BCP Site # C835008

December 2008

S&W
REDEVELOPMENT

FINAL ENGNEERING REPORT

BCP SITE No. C835008

FORMER GRIFFIN TECHNOLOGY SITE

FARMINGTON, NEW YORK

Prepared for

New York State Department of Environmental Conservation
Division of Environmental Remediation
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December 2008

Project No. B6003

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SECTION 1 INTRODUCTION

SW Victor Manchester, LLC (Applicant and Owner) has completed the implementation of remediation activities at a site located at 6132 Victor Manchester Road in Ontario County, New York (the *site* – see Figure 1-1). The remediation activities were completed under New York State Brownfield Cleanup Agreement (BCA) No. C835008, and in accordance with the following documents prepared by S&W Redevelopment of North America, LLC (SWRNA), and approved by the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH):

- *Groundwater Interim Remedial Measure (IRM) Work Plan* (Groundwater IRM WP) (SWRNA, April 2008);
- *Amendments to IRM Work Plan* (SWRNA, April 4, 2008), and
- *Groundwater IRM In-Situ Chemical Oxidation (ISCO) Design* (ISCO Design Document) (SWRNA, July 2008).

Remediation activities completed by the Applicant under the BCA followed remediation activities that were initiated by the previous site owner prior to the site's entry into the New York State Brownfield Cleanup Program (BCP). Previous remedial action included a groundwater recovery system implemented at the site in 1997, in accordance with a 1996 IRM Work Plan (Woodward-Clyde, 1996).

Remedial actions taken prior to and under the BCA achieve a Track 4 cleanup level under the BCP (Title 14 Section 27-1415), which relies on institutional and engineering controls consistent with the proposed commercial end use. These controls are set forth in the Environmental Easement that includes a metes and bounds survey of the BCP site, included herein as part of the Site Management Plan (see Attachment 1).

The purpose of this Final Engineering Report (FER) is to document that the remedial activities were completed in accordance with the NYSDEC-approved *Groundwater IRM WP* and *ISCO Design Document*. The FER includes a summary of historical information, a description of the remedial activities completed, and other pertinent information outlined in 6 NYCRR Part 375 (September 2006). Detailed information regarding the

site history, investigation findings, and remedy selection is contained in the *Groundwater IRM WP* (SWRNA, April 2008) and *ISCO Design Document* (SWRNA, July 2008). In addition, a Site Management Plan (SMP), which includes an ALTA survey for the site with metes and bounds description, is included as Attachment 1 to this FER.

1.1 - Site Description

The Former Griffin Technology property is located at 6132 Victor-Manchester Road, Ontario County, Farmington, New York (Figure 1-1). The subject site of the NYSDEC BCA is 3.64 acres and included two (2) abandoned buildings consisting of a former manufacturing building encompassing a footprint of approximately 12,000 sq. ft. and a separate approximate 2,400 ft^2 storage building. The 2,400 square foot storage building has since been demolished and only the concrete slab on grade remains. The BCA describes the site as consisting of Tax Parcel 29.00-1-12 and the southern quarter of parcel 29.00-1-76-1 (Figure 1-2). The site is immediately bordered by wooded areas (north), Victor-Manchester Road (south), wooded areas (east) and an auto repair facility (west). Griffin Technology operated on the site from 1975 until the mid-1990s performing photocoating (laminating) operations.

1.2 - Environmental History

The former Griffin Technology Site had been undergoing investigation and remediation of solvents for approximately ten years prior to entry into the BCP (see Section 1.3). Reportedly, during its operations on the property from 1975 through 1986, Griffin Technologies released small quantities of trichloroethene (TCE) on the ground surface near the west side of their manufacturing facility. Over time these releases impacted groundwater. Aside from this historic release, previous site investigations identified no source of contamination at the site.

The site was in the monitoring phase with an active pump-and-treat system for groundwater remediation at the time it was accepted into the BCP. The pump-and-treat system had been implemented in accordance with an Interim Remedial Measure (IRM) Work Plan (Woodward Clyde 1996), and an IRM Program Final Design Document (Woodward Clyde, September 1996). The Work Plan and Design Document were

approved by NYSDEC.

The IRM approach consisted of groundwater recovery and discharge to the local publicly owned treatment works (POTW) sanitary sewer. Progress reports documenting the operation of the system, quantity of groundwater removed and groundwater monitoring results were submitted by the previous site owner directly to the NYSDEC.

Concentrations of the contaminants of concern still exceeded Class GA groundwater quality standards at the time the site was accepted by NYSDEC into the BCP, suggesting that the groundwater recovery system had reached its performance limits.

After taking title to the site, the BCP Applicant, with NYSDEC's concurrence, shut down the pump-and-treat system and developed an alternate remedial approach for NYSDEC approval, to complete the remediation of the site. The Applicant's remedial approach, presented to NYSDEC in the previously referenced documents prepared by SWRNA in 2008, addressed the nature and extent of site contamination described in previous site investigation and monitoring reports.

1.3 - Nature and Extent of Site Contamination

1.3.1 – Previous Investigations

Several site investigations were conducted since the early 1990s by a number of consultants, and certain actions were taken to initiate remediation of contamination based on investigation findings. These activities are described in the following documents:

- Blasland Bouck & Lee (BB&L), July 1991. *Phase II Investigation – Griffin Technology, Inc., Victor, New York.*
- BB&L, February 1995. *Off-Site Ground-Water Evaluation – Griffin Technology, Inc., Victor, New York.*
- Woodward-Clyde, July 1996. *Supplemental Off-Site Investigation – Griffin Technology, Inc., Victor, New York.*
- Woodward-Clyde, July 1996. *Interim Remedial Measure Work Plan – Griffin Technology, Inc., Victor, New York.*

- URS/Woodward-Clyde, June 1999. *Soil Investigation Report, Former Griffin Technology Facility, Town of Farmington, Ontario County, New York.*
- URS, October 2003. *Focused Feasibility Study – Former Griffin Technology Facility, Town of Farmington, Ontario County, New York.*
- URS, November 2005. *Interim Remedial Measure 2005 Annual Progress Report - Griffin Technology Facility, Town of Farmington, Ontario County, New York.*

The above reports provide an understanding of the nature and extent of contamination that existed prior to remedial activities under the BCP. The following findings and conclusions are based on information provided in the above documents.

Trichloroethene (TCE) was believed to be present in liquid waste that was released onto the ground outside the western door of the site building from approximately 1975 until 1986. It is estimated that it is possible that approximately 490 gallons of waste was released in 5 gallon increments or less over that time (BB&L, July 1991).

The contaminated wastewater evidently migrated downward through the soil in the release area and into the groundwater, where it subsequently migrated away from the release area, towards the southwest, in the direction of groundwater flow.

In total, seventeen (17) groundwater monitoring wells, including nine (9) located downgradient of the site, were installed at the site during the course of previous investigations. Ten of the 17 wells are screened in bedrock, five in overburden, and two straddle the contact between these two units. These wells have horizontally and vertically delineated a groundwater plume that extends southwest of the site, affecting both overburden and bedrock.

Volatile organic compounds (VOCs) were detected in site groundwater samples above Class GA groundwater quality standards. The detected groundwater contaminants included TCE; cis-1,2-dichloroethene (DCE); and vinyl chloride (VC). Figure 1-3 shows the approximate areas of overburden and bedrock groundwater contamination at the site. Analytical data indicated that the groundwater contamination had naturally degraded since its release, based on the presence of DCE and vinyl chloride which are degradation

products of TCE.

Previous site investigations indicated that soil in the release area was not significantly contaminated. In 1991, nineteen (19) soil samples were collected from 16 soil borings drilled in the historic release area (BB&L, July 1991). Analytical results indicated only two of the 19 samples contained organic compounds above Part 375 soil cleanup objectives for unrestricted site use and for the protection of groundwater. Subsequent soil sampling conducted in 1999 in this area included twenty three (23) soil samples collected from seven soil borings (URS/Woodward-Clyde, June 1999). Analytical results for the subsequent round of soil samples did not indicate the presence of soil contamination above SCOs. Seven (7) additional soil borings were completed at the site by SWRNA in April 2008, including one boring below the site building. Thirteen (13) soil samples were analyzed, and only one sample, collected from 0 to 2 inches below asphalt, contained organic compounds (polycyclic aromatic hydrocarbons) above SCOs..

The initial detection in 1991 of organic compounds above SCOs in 2 of 19 soil samples was not confirmed by subsequent analysis of thirty six (36) soil samples from the same area of the site in 1999 and 2007, which found no evidence of contamination.

1.3.2 - Interim Remedial Measure (IRM)

A groundwater recovery system was implemented at the site in 1997, in accordance with a 1996 IRM Work Plan (Woodward-Clyde, 1996). Three (3) recovery wells screened in bedrock across the overburden/bedrock interface began operating in 1997, and a fourth recovery well went into operation in 1999.

The recovery system operated for ten years. Although groundwater analytical results indicated the extent of groundwater contamination had diminished, concentrations of the contaminants of concern still exceeded Class GA groundwater quality standards, indicating that the recovery system may have reached its performance limits.

1.4 - HUMAN HEALTH EXPOSURE ASSESSMENT

SWRNA completed a Human Health Exposure Assessment in June 2008. The

Assessment utilized previous site investigation data for soil and groundwater samples, as well as additional soil analytical data collected in April and May 2008 by the Applicant, in accordance with an approved Soil Sampling Work Plan (SWRNA, April 2008).

The assessment indicated that under existing site conditions there were no potentially complete exposure pathways at the site. Under reasonably foreseen future land use conditions, two (2) pathways were identified as potentially complete:

- potential on-site contact with on-site groundwater
- potential on-site contact with soil vapors (soil vapor intrusion)

The results of the assessment did not indicate any human health exposure issues relative to site soils.

1.5 - GROUNDWATER IRM WORK PLAN/DESIGN DOCUMENT

Previous site investigations indicated contamination in site groundwater, but laboratory analysis did not indicate a source of contamination in site soils. Based on the nature and extent of site contamination and potential human health exposure risk, and prior remedial efforts at the site, an IRM was proposed to address groundwater contamination, as described in a *Groundwater IRM Work Plan* (SWRNA, April 2008; amended in April 2008), and further detailed in an *IRM Design Document* (SWRNA, July 2008). The IRM approach targeted remaining groundwater contamination in the source area, to further reduce contaminant mass on site, and thereby effect a reduction in contaminant levels downgradient of the site over time.

The Work Plan and Design Document were subsequently approved by NYSDEC/NYSDOH.

1.5.1 - CITIZEN PARTICIPATION

A site specific Citizen Participation Plan (CPP) was prepared and approved by NYSDEC (SWRNA, December 2007) that established a protocol for communicating with the community, identified document repositories, and established a site contact list in accordance with 6 NYCRR Part 375-1.10. In conformance with Part 375, and as directed

by the CPP, Fact Sheets were prepared, and distributed at the milestones listed in the CPP and submitted to the document repository. Fact sheets were sent concurrently to the project contact list to notify them that new documents were available for review, and to identify the start and end date of public comment periods as appropriate.

The site document repositories are located at the Victor Free Library in Victor, New York; and the NYSDEC Region 8 office in Avon, New York. The CPP, Project Fact Sheets, *Groundwater IRM Work Plan* and *Groundwater ISCO Design Document*, and other project documents are available for reference at the document repository.

1.5.2 - Remedial Objectives

The overarching remedial objective of the BCP is to meet standards, criteria and guidance, and be protective of human health and the environment. The specific goals identified in the IRM WP and Design Document for this site are as follows:

In order to achieve site remediation goals, the following Remedial Action Objectives (RAOs) have been identified.

- Eliminate to the extent practicable, potential on-site chlorinated hydrocarbon impacts to shallow and deep groundwater;

- Eliminate to the extent practicable, human exposure to site groundwater through ingestion;

- Eliminate to the extent practicable, chlorinated VOC contamination in shallow groundwater to mitigate potential human exposure to volatile organic vapors that may migrate into future site structures;

1.5.3 - General Remedial Approach

The general remedial approach described below is based on the nature and extent of contamination and potential human health exposure scenarios as discussed in the following documents:

- Groundwater Interim Remedial Measure (IRM) Work Plan (SWRNA, April 2008)
- Groundwater IRM Design Document (SWRNA, July 2008)
- Supplemental Soil Investigation Results and Human Health Exposure Assessment (SWRNA, June 10, 2008 letter)

a. Building Facilities. Although the site buildings were not part of the remedial action for the site, asbestos abatement and demolition of the small storage building was completed to remove it as a potential public nuisance. Based on existing data, past operation at the site and the fact that the buildings are and will remain unoccupied, no remediation specific to the buildings was needed.

b. Soil. No soil remediation was needed based on the analytical data from previous investigations, and soil samples collected by the volunteer in April and May 2008 (SWRNA, June 2008). Soil beneath the existing building footprint will require evaluation should the building be demolished and/or excavation of those soils be initiated.

c. Groundwater ISCO. An in-situ chemical oxidation (ISCO) system was implemented to treat groundwater contamination by chemical oxidation. The application of chemical oxidant will reduce the contaminant mass, and permanently reduce the potential for future migration of, and exposure to, site contaminants.

d. Engineering Controls. Based on soil sample analytical results the on-site soils will meet commercial use soil cleanup objectives (SCO). Therefore, there are no engineering controls proposed for soils. No engineering controls are proposed to mitigate soil vapor intrusion at this time since the existing site building is unoccupied. However, if the building is considered for future occupancy, a soil vapor investigation must be done in accordance with the Site Management Plan (SMP).

Although the remedial action for the site did not require implementation of any engineering controls, a Site Management Plan (SMP) has been prepared that specifies engineering controls may be implemented in the future if it is determined necessary to mitigate potential soil vapor intrusion (SVI) in new buildings constructed in the future, or

before the existing building is re-occupied. Engineering controls of this type may include SVI mitigation systems installed in future site buildings to depressurize the soil below the buildings (sub-slab depressurization) or systems to create positive pressure inside the buildings. Such systems would be required unless it is determined that the potential for SVI is insignificant, with NYSDEC and NYSDOH concurrence.

e. **Institutional Controls.** Institutional Controls including an Environmental Easement will be put in place to prohibit the use of groundwater at the site without proper treatment and approval by the NYSDEC/NYSDOH and restrictions on the end use for commercial development unless approved by the NYSDEC.

SECTION 2 - REMEDIATION ACTIVITIES

As previously noted, remediation activities were completed accordance with the following NYSDEC/NYSDOH-approved documents:

- *Groundwater Interim Remedial Measure (IRM) Work Plan* (Groundwater IRM WP) (SWRNA, April 2008);
- *Amendments to IRM Work Plan* (SWRNA, April 4, 2008), and
- *Groundwater IRM In-Situ Chemical Oxidation (ISCO) Design* (ISCO Design Document) (SWRNA, July 2008).

2.1 - COMMUNITY AIR MONITORING

Prior to the start of field activities, SWRNA established a Community Air Monitoring Plan (CAMP) that was approved by the NYSDEC. The objective of the CAMP was to provide a measure of protection for the downwind community from potential airborne contaminant releases that might arise as a result of well installation activities. The CAMP described procedures for monitoring and/or controlling the airborne release of VOCs and particulate matter (i.e. airborne "dust") during well installation activities.

Periodic PID measurements of the work space area indicated a maximum VOC concentration of 1.3 ppm as the injection/observation wells were installed. VOC readings taken during well installation activities from April 8, through May 5, 2008 are presented on Table 2-1.

To minimize the airborne release of particulates (i.e. "dust"), dust suppression techniques were applied to drill cuttings as bedrock was being cored during injection/observation well installation. The bedrock coring method utilized potable water to bring rock fragments out of the borehole to the surface. The water/rock mixture was expelled from the boring through a T connection (i.e. a wash T). The end of the wash T was placed through a hole cut in the bottom of a 55-gallon drum placed on its side, and a sheet of 6 mil plastic was placed over the open top end of the drum. The water/rock mixture that passed through the drum was captured by the plastic sheet and directed to the ground, to prevent airborne release. Moreover, because the mixture was wet, the process created no dust, obviating the need for continuous particulate air monitoring.

2.2 - IN-SITU CHEMICAL OXIDATION (ISCO)

2.2.1 - GENERAL APPROACH

ISCO by potassium permanganate has been identified by NYSDEC's Division of Environmental Remediation (DER) as a presumptive/proven remedial technology for VOCs in groundwater, including chlorinated VOCs such as TCE and its degradation products (DER-15, February 2007). As noted in the Groundwater IRM WP, the aim of the ISCO groundwater IRM was to treat groundwater in the region of the overburden/bedrock interface, targeting primarily the upper 15 feet of the weathered bedrock zone where the majority of groundwater contamination resides.

The objective for groundwater remediation per Part 375 is to meet applicable standards, and the proposed ISCO technology utilizing potassium permanganate was implemented because it is considered the best available technology to reach that objective. The ISCO design objective was to destroy 100% of the contamination by a single injection of potassium permanganate solution, in order to reach the stated remedial objective.

Post-implementation groundwater monitoring will be conducted using observation wells across the site, including within the injection zone and the downgradient site boundary, in accordance with a Site Management Plan (SMP – Attachment 1). The post-implementation monitoring will establish ISCO effectiveness at meeting the RAOs as indicated in Section 1.5.2. The SMP indicates that if post-implementation monitoring data indicates that ISCO has not substantially met RAOs for this project, additional remedial measures will be evaluated for implementation.

2.2.2 - PILOT TEST

A pilot test was done in January 2008 to provide specific hydraulic information to provide a basis for system design, including radius of influence (ROI), travel time, mounding, and injection flow rates. Approximately 425 gallons of a 2 percent potassium permanganate solution were introduced into groundwater monitoring well MW-2S over two days (January 30 – 31, 2008). Although the Groundwater IRM Work Plan had indicated approximately 1,000 gallons would be injected during the pilot test, below-freezing weather conditions reduced the solubility of the solution and the effectiveness of

injection equipment such that a smaller quantity was injected at a slightly lower concentration.

Figure 2-1 shows the orientation of pilot test overburden observation wells (OW-1, OW-2, OW-3, OW-4) and bedrock observation wells (ROW-1, and ROW-2), with respect to pilot test injection well MW-2S. Travel time and the effective ROI were estimated by examining the color of water samples collected from six observation wells (OW-1, OW-2, OW-3, OW-4, ROW-1, and ROW-2), which were installed at distances of approximately 10 feet (OW-1 and OW-3), 15 feet (ROW-1 and ROW-2), and 20 feet (OW-2 and OW-4) away from MW-2S.

The ROI was verified when water samples from the observation wells turned purple, as occurs when permanganate is mixed with water. On the first day of injection, it took approximately one hour to observe breakthrough at ROW-1, fifteen feet away from MW-2S, after approximately 75 to 100 gallons of permanganate solution had been delivered to MW-2S. Breakthrough at ROW-2 was observed after 2.5 hours, after 175 gallons had been introduced.

On the second day, approximately 20 hours after injection the previous day had stopped, and prior to injecting any additional permanganate solution, groundwater at ROW-1 was still purple, but groundwater from ROW-2 was clear. Groundwater at ROW-2 turned purple after approximately 130 gallons of solution was injected, approximately 90 minutes after injection was resumed. Mounding of less than 12-inches was observed in the injection well. From the above observations, an ROI of approximately 20 feet was estimated for the ISCO system design.

Based on the findings of the pilot test a remedial design document was prepared and submitted for NYSDEC/NYSDOH review and approval.

2.2.3 - ISCO IMPLEMENTATION

a. Injection and Observation Wells. Figure 2-2 depicts a network of seventeen (17) injection wells (IW-1 through IW-17) and five (5) observation wells (OW-1 through OW-5) installed during April 8 to May 5, 2008.

The injection wells included seven (7) across the contaminant source area west of the site building (IW-1 through IW-6, and IW-15), which is the core of the groundwater contamination plume. Ten (10) additional downgradient injection wells were positioned downgradient or cross gradient of the contaminant source area (IW-7 through IW-14, IW-16, IW-17), including six located in proximity to the western and southern downgradient site boundaries (IW-11, -12, -13, -14, -16, -17). Note that three of the pre-existing site monitoring wells – MW-2S, MW-5S and MW-5D – were used as injection wells IW-15, -16, and -17, respectively.

Observation wells were installed within and downgradient of the injection well array (Figure 2-2) to monitor the effectiveness of the ISCO injection. Five (5) new observation wells were installed (OW-1 through OW-5), and four (4) pre-existing monitoring/recovery wells were also used as ISCO observation wells: MW-3 (OW-9), MW-4 (OW-8), RW-1 (OW-7), and RW-2 (OW-6).

A SWRNA hydrogeologist was present during installation of the injection and observation wells, to record field observations, including photoionization detector (PID) readings of soil samples. PID readings are included on soil boring/well construction logs included as Appendix A of this FER. Eighty (80) PID measurements were made on soil samples collected from the injection/observation well borings, with only two of the readings indicating VOC concentrations greater than 3 ppm. The two readings above 3 ppm included a soil sample at approximately 12.5 feet below ground surface (bgs) at IW-10 (11 ppm), and a soil sample at approximately 2 feet bgs at IW-7 (8.2 ppm). The average PID reading was less than 1 ppm.

All of the injection and observation wells were surveyed after installation to a known point of reference and their top of casing (PVC) elevations were measured.

Previous site investigation data indicated groundwater contamination existed primarily in the upper weathered bedrock zone. The injection and observations wells were therefore screened in the upper 15 feet of bedrock to target the contamination zone and maximize the dispersion of the potassium permanganate. Construction details for the injection and observation wells are shown on the boring logs in Appendix A.

The total depth of the injection/observation wells ranged from approximately 19 to 28 feet across the site, depending on bedrock depth. Near the west side of the building, in the contaminant source area, the depth to bedrock ranged from 4.5 feet bgs (IW-1) to approximately 12 feet bgs (IW-3), the depth increasing from north to south. The depth to bedrock increases away from the source area to the west and south. Near the southwest corner of the site, bedrock was encountered in observation well borings OW-4 and OW-5 at 18 feet bgs and 16 feet bgs, respectively.

The injection wells were installed using 6 ¼ inch inside diameter hollow stem augers, which were drilled at least one foot into the upper weathered bedrock. Drilling continued into rock by coring 15 feet using an H-bit, within which a 4-inch diameter schedule 40 PVC well was placed, with 0.01 slot well screen. The well screens extend up from the bottom of each borehole to the top of bedrock.

The observation wells were installed using 4 ¼ inch inside diameter hollow stem augers as opposed to 6 ¼ inch augers used for the injection wells, and were constructed of 2-inch diameter PVC instead of 4-inch diameter PVC. Drilling and construction methods were otherwise the same as those used for the injection well installation.

The annular space of each borehole was filled with #3 silica sand from the bottom of the borehole to at least 2 feet above the top of the well screen. At least two feet of bentonite pellets was placed above the sand filter pack, and the remaining space was backfilled with a grout/Portland cement mixture. The wells were secured with locking stick-up protective iron casings. The top of the PVC riser was threaded, with screw-on PVC caps, to provide easy connection with remediation system components.

b. Baseline Groundwater Sampling. Groundwater samples were taken from the ISCO observation wells OW-1 through OW-9 on June 2 and 4, 2008, to establish a pre-remediation baseline. The nine observation wells were sampled for the following parameters:

- **VOCs.** Baseline analytical results indicated the presence of TCE above groundwater quality standards in all nine observation wells.

TCE concentrations ranged from 11 ug/L (OW-2) to 510 ug/L (OW-1).

- **Metals**. Except for one metal (lead – 31 ug/L) in a single monitoring well (OW-5), metals were below standards in all of the observation well groundwater samples.

- **Chemical Oxygen Demand (COD)**. The COD for groundwater measures the amount of reduced (i.e. oxidizable) material dissolved in the water, and is an indicator of how much of the chemical oxidant may be consumed by parameters other than the target VOCs. COD concentrations ranged from non-detect (OW-4 and OW-8) to 13.1 mg/L (OW-7) in the baseline samples. This is a fairly modest COD indicative of water that contains only a small amount of oxidizable material.

- **Total Organic Carbon (TOC)**. TOC analysis measures all forms of organic carbon is the groundwater, both natural and contaminant-related. Because natural organic carbon may consume the chemical oxidant as well as the target VOCs, it is important to measure it as a baseline parameter. Similar to previous groundwater data, TOC concentrations in the baseline observation well samples were fairly low, ranging from 0.77 mg/L (OW-3) to 1.9 mg/L (OW-2).

- **Field Parameters**. In addition to pH, field parameters were measured, including Eh, specific conductance, dissolved oxygen, temperature, and turbidity.

Baseline analytical results are summarized on Tables 2-2 through 2-4, for VOCs, inorganics (metals, COD, and TOC), and field parameters, respectively. Laboratory analytical reports are included in this FER as Appendix B. Baseline results will be compared to future post-implementation groundwater samples, as indicated in the Design Document and SMP, as a means to determine ISCO effectiveness.

c. **Potassium Permanganate Injection.** Figure 2-3 shows the layout and components of the ISCO injection system. Photographs of the injection event are included in Appendix C. The main elements of the system are listed below.

- A **20,000 gallon water supply tank** stores water delivered from a local potable water source;
- A **transfer pump** conveys water from the supply tank to an **eductor system** that draws potassium permanganate powder into a stream of water to create a concentrated slurry.
- The slurry is conveyed to one of two (2) **270 gallon mixing (dilution) tanks** where they are mixed using a air mixing wand;
- A **pneumatic pump** conveys the potassium permanganate solution from the dilution tank via a hose to the injection wells.

The ISCO remedial approach for this site applied an adequate mass of chemical oxidant in a single injection event to destroy groundwater contamination in the source area. The design of the ISCO system utilized oxidant demand results from bench-scale oxidation testing, together with empirical observations from the field-scale pilot test, so that one injection event should be sufficient to meet remedial objectives.

Table 2-5 presents the volume of permanganate solution injected each day, from July 23, 2008 through September 5, 2008. A total of 41,246 gallons of solution was injected into the seventeen (17) injection wells, plus an additional 1,770 gallons of solution injected into pre-existing recovery well RW-4. The total mass of potassium permanganate injected was approximately 13,530 pounds (lbs).

RW-4 was added to the injection well network, with NYSDEC concurrence, following observations that certain injection wells at the site boundary, near the edge of the treatment zone, were less effective at dispersing permanganate solution than injection wells located towards the center of the target treatment zone. Injection wells IW-9, IW-12, and IW-17 had relatively low injection capacities, so with NYSDEC concurrence it was decided to inject additional chemical in RW-4, in the core of the plume where it would have the greatest effect on groundwater based on potassium permanganate breakthrough observations. By injecting some of the permanganate solution into RW-4

as opposed to injection wells with lower flow capacities around the perimeter of the site, more oxidant was placed into contact with groundwater contamination.

Various factors affected the volume of solution injected each day, but the primary factors were weather and the hydraulic characteristics of the injection wells being used. The daily injection volume ranged from 145 to 3,100 gallons, and the average daily volume was approximately 1,350 gallons.

Table 2-5 also includes the total volume injected into each individual well. The volume of solution injected per well was dictated by the localized hydraulic characteristics for bedrock near each well, primarily the fracture density. Accordingly, more solution could be injected into certain wells than in others.

The ISCO approach, despite the hydraulic heterogeneity, resulted in a fairly uniform application of permanganate solution across the site. Ten of the 18 wells received between 1,000 and 3,000 gallons of solution, and only three wells received less than 1,000 gallons. The five injection wells (IW-1, IW-2, IW-5, IW-6, IW-15) that received more than 3,000 gallons of solution were located in the vicinity of the former release area.

SECTION 3 – ISCO EFFECTIVNESS

As previously noted, ISCO by potassium permanganate has been identified by NYSDEC's Division of Environmental Remediation (DER) as a presumptive/proven remedial technology for VOCs in groundwater, including chlorinated VOCs such as TCE and its degradation products (DER-15, February 2007). The ISCO injection included the release area near the site building and extended to the west and south toward the site boundary, encompassing the downgradient portion of the site. Forty-one (41) drums of potassium permanganate were applied to this site (~13,530 lbs) in a single injection, to destroy the estimated contaminant mass in groundwater.

Recorded field observations of colored water (purple/pink) in all of the observation wells indicate that the potassium permanganate is dispersing in the subsurface and coming into contact with the groundwater contamination, which supports that the ISCO injection will have its intended effect.

The full effect of ISCO can be slow to appear. In some instances, it may take several months for a discernable decrease in contaminant levels to emerge after ISCO injection. Post-implementation groundwater monitoring will be conducted downgradient of the injection zone, in accordance with the SMP (Attachment 1), to establish ISCO effectiveness at meeting the RAOs as indicated in Section 1.5.2. The SMP indicates that if post-implementation monitoring data indicates that ISCO has not substantially met RAOs for this project, additional remedial measures will be evaluated for implementation.

3.1 - DISPERSION OF PERMANGANATE SOLUTION

A combination of factors, including the rate of dispersion of permanganate solution and the reaction rate of permanganate with groundwater contamination, dictate the time required to see a decline in contaminant levels. Potassium permanganate is considered a presumptive remedy for remediation chlorinated VOCs in groundwater, provided that the injection of permanganate solution brings it into contact with groundwater contamination with which it can react. Once contact is made, potassium permanganate will destroy chlorinated VOCs by reactions indicated below:

TCE: $2KMnO_4 + C_2HCl_3 \Rightarrow 2CO_2 + 2MnO_2(s) + 2K^+ + 3Cl^- + H^+$

DCE: $8KMnO_4 + 3C_2H_2Cl_2 + 2H^+ \Rightarrow 6CO_2 + 8MnO_2(s) + 8K^+ + 6Cl^- + 4H_2O$

VC: $10KMnO_4 + 3C_2H_3Cl \Rightarrow 6CO_2 + 10MnO_2(s) + 10K^+ + 3Cl^- + H_2O + 7OH^-$

The above reactions are thermodynamically favorable, and begin when permanganate solution contacts VOC contamination.

As long as an adequate mass of potassium permanganate has been injected to account for both VOC contaminants and the permanganate soil oxidant demand (PSOD), complete destruction of contaminants is achieved over time. The appropriate permanganate mass for this site was determined by analyzing groundwater samples for VOC concentrations, and analyzing bedrock samples for PSOD.

3.1.1 - COLOR OBSERVATIONS

Groundwater samples were examined for color during ISCO injection for evidence of permanganate dispersion. The following table shows that groundwater samples from six of the nine observation wells showed evidence of breakthrough (turning purple or pink) within 10 days of starting ISCO injection on July 23, 2008.

Observation Well	Date of breakthrough	Days since start of ISCO injection
OW-3	7/25/08	2
OW-4	7/25/08	2
OW-2	7/29/08	7
OW-8	8/1/08	9
OW-1	8/2/08	10
OW-6	8/2/08	10
OW-7	8/18/08	26
OW-5	8/21/08	29
OW-9	9/6/08	45

The time required for breakthrough to appear in a particular well is partly dependent on the permanganate injection sequence: permanganate was injected in different groups of

wells in different areas on different days, so certain wells were prone to show breakthrough before others regardless of the hydraulic characteristics of the aquifer. However, because only three of the observation wells (OW-5, -7, and -9) did not show signs of permanganate breakthrough within 10 days, it appears that permanganate solution dispersed fairly quickly across the site. By August 2, 2008, with six of nine observation wells showing evidence of breakthrough, approximately 11,400 gallons of solution had been introduced, approximately ¼ of the total volume that was eventually injected at the site.

Figure 2-4 shows the relative position of the injection and observation wells, with injection progress indicated for each date on which breakthrough was observed in a new observation well. By August 18, 2008, the day in which breakthrough was observed at OW-7 (west site boundary), all seventeen of the injection wells (IWs) had received permanganate solution[1], and a total of approximately 24,600 gallons of solution had been injected (approximately 61% of the total 43,000 gallons that would eventually be injected). By that time, 26 days after ISCO injection started, only observation wells OW-5 and OW-9 (former MW-3), located at the northwest and southwest corners of the site, respectively, had not shown signs of breakthrough. It is noted that two other observation wells in proximity to OW-5, including OW-4 and OW-6, showed evidence of breakthrough within 10 days of beginning ISCO injection. As was noted in the Groundwater IRM Work Plan and ISCO Design Document, bedrock fractures control the migration path for groundwater and the dispersion of potassium permanganate. In the case of OW-5, it appears that fracture orientation directed permanganate solution to wells OW-4 and OW-6 more quickly. However, permanganate solution will tend to follow the same fracture system as groundwater contamination, to bring it into contact with the contamination.

On September 30, 2008, twenty-five (25) days after ISCO injection was completed, groundwater samples from all of the injection and observation wells were checked for color prior to collecting samples for laboratory analysis. (See Section 3.1.2 for a discussion of laboratory analytical results). Field observations indicated purple water had reached all of the observation wells, demonstrating two significant points concerning

[1] Former recovery well RW-4 had not yet received any permanganate solution by August 18, but received 1,770 gallons during August 26-28, 2008.

dispersion and residence time: (1) the permanganate solution had effectively dispersed throughout the target injection zone, and (2) it was still reactive. These are key factors for ISCO effectiveness.

3.1.2 - POST-ISCO GROUNDWATER SAMPLING - SEPTEMBER 2008

In accordance with the Groundwater IRM Design Document (SWRNA, July 2008), post-ISCO groundwater samples are to be collected only from observation wells in which the groundwater is no longer purple. Only one of the wells, observation well OW-4 near the southwest site boundary, produced groundwater that wasn't purple or pink on September 30, 2008. Accordingly, this was the only well from which a groundwater sample was collected for analysis.

The persistence of purple water in all but one observation well 25 days after ISCO injection stopped indicates that permanganate has been widely dispersed and remains chemically reactive. High degrees of dispersion and chemical persistence are significant indications of ISCO effectiveness shortly after implementation. Longer-term effectiveness over subsequent months will be verified by laboratory analysis of groundwater samples, in accordance with the SMP.

Because of reaction kinetics, VOC analytical data for the short term following ISCO injection are often less revealing than color observations or manganese concentrations for assessing the effectiveness of permanganate dispersion. Reactions that destroy contamination will occur as permanganate contacts contaminated groundwater, but the sequence and speed of those reactions may vary from location to location.

The laboratory analytical report for the groundwater sample collected from OW-4 on September 30, 2008 is included in Appendix B. The groundwater sample contained two VOCs, including TCE (75 ug/L) and 1,1,1-trichloroethane (TCA - 4.2 ug/L). The baseline (June 2008) groundwater sample collected from OW-4 prior to ISCO injection contained 67 ug/L TCE, but no detection of 1,1,1 TCA (see Table 2-2). Although 1,1,1-TCA was not detected in any of the baseline groundwater samples collected prior to ISCO injection, it was detected historically in groundwater samples from the site during previous investigations.

Pre- and post-ISCO data for OW-4 do not yet indicate a significant reduction in VOC concentrations, which is probably a consequence of the short period of time between the pre- and post-ISCO sampling events relative to ISCO reaction kinetics. The VOC results for a single sampling event at a single observation well are not by themselves adequate for demonstrating site-wide ISCO effectiveness over time. However, other parameters analyzed such as chemical oxygen demand (COD) and total organic carbon (TOC) provide some indication that ISCO reactions are nevertheless occurring.

Contrary to initial expectations, the concentrations of both COD and TOC in the OW-4 groundwater samples were higher in September 2008 (post-ISCO) than in June 2008 (pre-ISCO). The September 2008 COD concentration was 24 mg/L, and the TOC concentration was 6.9 mg/L. No COD was detected in the June 2008 groundwater sample, and TOC was 0.85 mg/L. Both COD and TOC were initially expected to decrease due to ISCO reactions, as has been observed on numerous other sites. However, the Naval Facilities Engineering Command (NAVFAC) has indicated that on some of its sites where ISCO was applied, the concentration of COD and TOC actually increased following injection (Remediation Innovative Technology Seminar, Fall 2003). The increase in COD and TOC is attributed by NAVFAC to the breakdown of complex organic molecules by ISCO to multiple simpler carbon compounds that are more susceptible to oxidation reactions than the original compounds.

The increase in COD and TOC in the September 2008 OW-4 groundwater sample suggests that ISCO reactions at that location have begun breaking down complex natural organic carbon molecules, but reaction kinetics have not yet reached an observable decrease in organic contaminants such as TCE. Because the permanganate dose applied at the site accounts for the ancillary demand of non-target constituents (based on the PSOD bench test analyses of aquifer material), the observed increase in the oxidant demand should be temporary, and enough permanganate still resides in the aquifer to destroy the target compounds.

Although it may take several months to observe the full effects of ISCO at the site, the widespread color observations on September 30, 2008 indicate dispersion rate and chemical persistence of permanganate are both high, providing an early indication that

post-ISCO conditions are moving toward the desired remediation end-point.

3.2 - NATURAL ATTENUATION

The IRM Work Plan for groundwater (SWRNA April 2008) indicated there is evidence of natural attenuation of contaminants in groundwater at the site, which would provide reduction of groundwater contaminants over time. ISCO treatment of the groundwater will accelerate the remediation of contaminants and control the potential for on-site and off-site impacts in groundwater.

It is expected that natural attenuation reactions will continue to occur in the future, and the attenuation rate may increase due to the removal/destruction of contamination by the implementation of the remedy. The baseline sampling parameters that were analyzed in groundwater samples before the ISCO remedy will apply to post-ISCO implementation sampling as part of the SMP. The expected behavior of these parameters in response to the chemical oxidant is described below.

- **VOCs.** The ISCO system was designed to destroy 100 percent of the contaminant that it comes in contact with in the source area, with a remedial goal of Class GA groundwater quality standards. ISCO effectiveness will be measured in the future in terms of the percent reduction in VOC levels. Post-remediation monitoring may be determined complete, subject to NYSDEC/NYSDOH review and approval, if asymptotic conditions are reached or analytical data indicate the cleanup target will be achieved. Groundwater samples will be collected from observation wells to measure the reduction in contaminant levels.

- **pH** may decrease slightly depending on how well buffered (i.e. resistant to changes in pH) the soil and groundwater is. A decline in pH at a monitoring well downgradient of an injection point could indicate that the monitoring well is within the radius of influence (ROI) of the injection point.

- **Eh.** Like pH, Eh is measured as a field parameter. Eh is a measure of the "redox state" of groundwater – whether it is oxidizing or reducing. Dispersion of the chemical oxidant will tend to increase Eh.

- **Temperature.** A slight rise in groundwater temperature may signal exothermic reactions that occur as permanganate reacts with dissolved groundwater constituents.

- **Color.** As permanganate reacts with water it produces a pink or purple color. In many cases the color is clearly visible so that no colorimetric instruments are needed to verify it. In any case, color will be monitored during the post-injection period to determine the ongoing distribution of the permanganate solution.

- **COD & TOC.** Both of these parameters may decrease in the ROI of the injection points, as the chemical oxidant consumes oxidizable material including organic carbon. However, as previously noted, NAVFAC has reported that COD and TOC concentrations may increase on occasions where complex organic compounds break down into simpler compounds that are more reactive. The effectiveness of COD and TOC as ISCO indicators will be re-evaluated as post-ISCO data under the SMP become available.

Future monitoring will be conducted, as indicated below, as part of the SMP to substantiate further dispersion and destruction of groundwater contaminants.

3.3 – SITE MANAGEMENT PLAN (SMP) POST-IMPLEMENTATION SAMPLING

Post-implementation groundwater sampling will occur, in accordance with the SMP included as Attachment 1 of this FER. The ISCO dosage was formulated to destroy 100% of the contamination by a single injection of potassium permanganate solution, in order to reach RAOs. The cleanup goal for groundwater under the BCP is the New York State groundwater standards. If this goal can not be achieved, the alternate groundwater

cleanup goal is based on the practicable limits of the groundwater remediation technology. Low-level asymptotic conditions and bulk contaminant removal shall be used to consider the need for further remediation. This will be determined based on post-implementation groundwater sampling that will be conducted in accordance with the SMP at the designated observation wells OW-1 through OW-9. Well locations are shown on Figure 2-2.

Part of the post-implementation data evaluation process will involve a comparison of baseline sampling data (see Section 2.2.3.b) with future sampling rounds, as described in the SMP.

SECTION 4 - INSTITUTIONAL CONTROLS

Under the BCA the site is designated for Track 4 cleanup with a commercial end use designation. Track 4 clean up scenarios allow for the use of engineering and institutional controls to mitigate potential human and ecological exposure to contaminants that may remain at the site in groundwater and soil vapors.

VOCs were detected in groundwater samples at concentrations above NYS groundwater standards. To mitigate the potential for human and ecological exposure to groundwater based on the proposed commercial end use, the following *institutional controls* will be implemented for this site:

- Creation and filing of an Environmental Easement pursuant to ECL 71-3605. Any affected local governments will be notified that such easement has been recorded.
- Prohibition on the use of groundwater without the prior approval by the NYSDEC and NYSDOH.
- The future use of the site is limited to restricted commercial uses as defined in 6 NYCRR Part 375.

Site groundwater will be monitored in accordance with the SMP to assess the ongoing effectiveness of the ISCO remediation. Two (2) rounds of groundwater samples will be collected, and analyzed by a NYS ELAP-certified laboratory for target compound list VOCs by EPA Method 8260, plus field parameters (pH, Eh, conductance, temperature, turbidity). In addition metals will be analyzed (arsenic, cadmium, chromium, lead, selenium, silver, barium) for samples collected from observation wells OW-4 through -9. The groundwater monitoring data will be evaluated after second monitoring event to assess trends in groundwater quality, and the need for additional quarterly sampling will be discussed with NYSDEC. If the data indicate that remedial action objectives are not being met or are unlikely to be met, the need for additional remedial action will be evaluated in consultation with the NYSDEC.

Engineering controls may be implemented in the future to mitigate potential human

exposure to soil vapor, as indicated in the SMP. Any new buildings constructed at the site in the future will have sub-slab depressurization systems installed prior to occupancy, or an evaluation of the potential for soil vapor intrusion. In addition, if the existing site building is demolished in the future and/or soil underlying the building is excavated, the soils underlying the building will require evaluation based on an NYSDEC/NYSDOH-approved soil investigation work plan.

The Environmental Easement, approved by the NYSDEC, will be executed, and recorded with the Ontario County Clerks Office. Following recording of the Environmental Easement, the local municipal officials will be notified.

The Site Management Plan (SMP) is included in Attachment 1. The SMP outlines the operation, maintenance and monitoring requirements for the site including:

- Description of potential future engineering controls to mitigate potential soil vapor intrusion.
- The post-remediation groundwater sampling program for ongoing assessment of groundwater quality.
- Annual certification requirements to certify the institutional controls and any future engineering controls are in place and functioning appropriately.

SECTION 5 – SUMMARY AND CONCLUSIONS

Remedial action objectives under the Brownfield Cleanup Program (BCP) have been met at the former Griffin Technology Brownfield site, by implementing the NYSDEC approved Groundwater ISCO IRM Work Plan (SWRNA, April 2008) and subsequent Groundwater ISCO Design (SWRNA, July 2008). Potential exposure to on-site contamination associated with groundwater has been reduced to the extent practicable. Potential exposure to soils is currently of no significant concern based on site investigation and human health exposure assessment. Since the existing site building is currently vacant, potential exposure to soil vapors is not an existing concern, but is a potential future concern that is addressed in the Site Management Plan (SMP).

Specific actions taken to address groundwater contamination include:

- Injection of approximately 13,530 pounds of potassium permanganate, as 41,246 gallons of potassium permanganate solution, into seventeen (17) injection wells. Evidence of potassium permanganate in groundwater indicates the solution is effectively dispersing across the site downgradient of the contaminant release area, and over time will likely destroy the contamination by ISCO reactions.
- Development of a Site Management Plan that prescribes a post-remediation groundwater sampling program to assess ISCO effectiveness. The SMP also defines actions that will be taken in the future to address potential exposure to soil vapors related to soil vapor intrusion. The SMP sets procedures to investigate the presence of soil vapors and/or to implement the engineering controls to mitigate soil vapor intrusion in new buildings that are constructed on site.

Based on the results of the supplemental soil sampling, the implementation of the approved groundwater remedy, and the execution on an environmental easement, there are no further remedial actions required to be implemented at this time.

SECTION 6 - CERTIFICATION

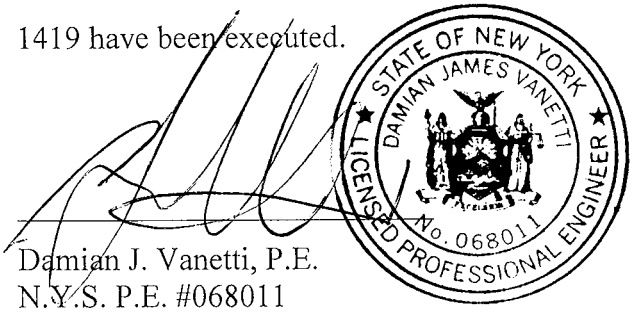
I, Damian Vanetti, certify that the Remedial Work Plan/Design was implemented and that all construction activities were completed in substantial conformance with the Department approved Remedial Work Plan/Design and were personally witnessed by me or a person under my direct supervision.

The data submitted to the Department demonstrates that the remediation requirements set forth in the remedial work plan and any other relevant provisions of ECL 27-1419 have been or will be achieved in accordance with the time frames, if any, established in the work plan.

Any use restrictions, institutional controls, engineering controls and/or any operation and maintenance requirements applicable to the site are contained in an environmental easement created and recorded pursuant to ECL 71-3605 and that any affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

A Site Management Plan has been submitted by the applicant for the continual and proper operation, maintenance, and monitoring of any engineering controls employed at the site including the proper maintenance of any remaining monitoring wells, and that such plan has been approved by the Department.

Any financial assurance mechanisms required by the Department pursuant to ECL 27-1419 have been executed.



Damian J. Vanetti, P.E.
N.Y.S. P.E. #068011
December 2008

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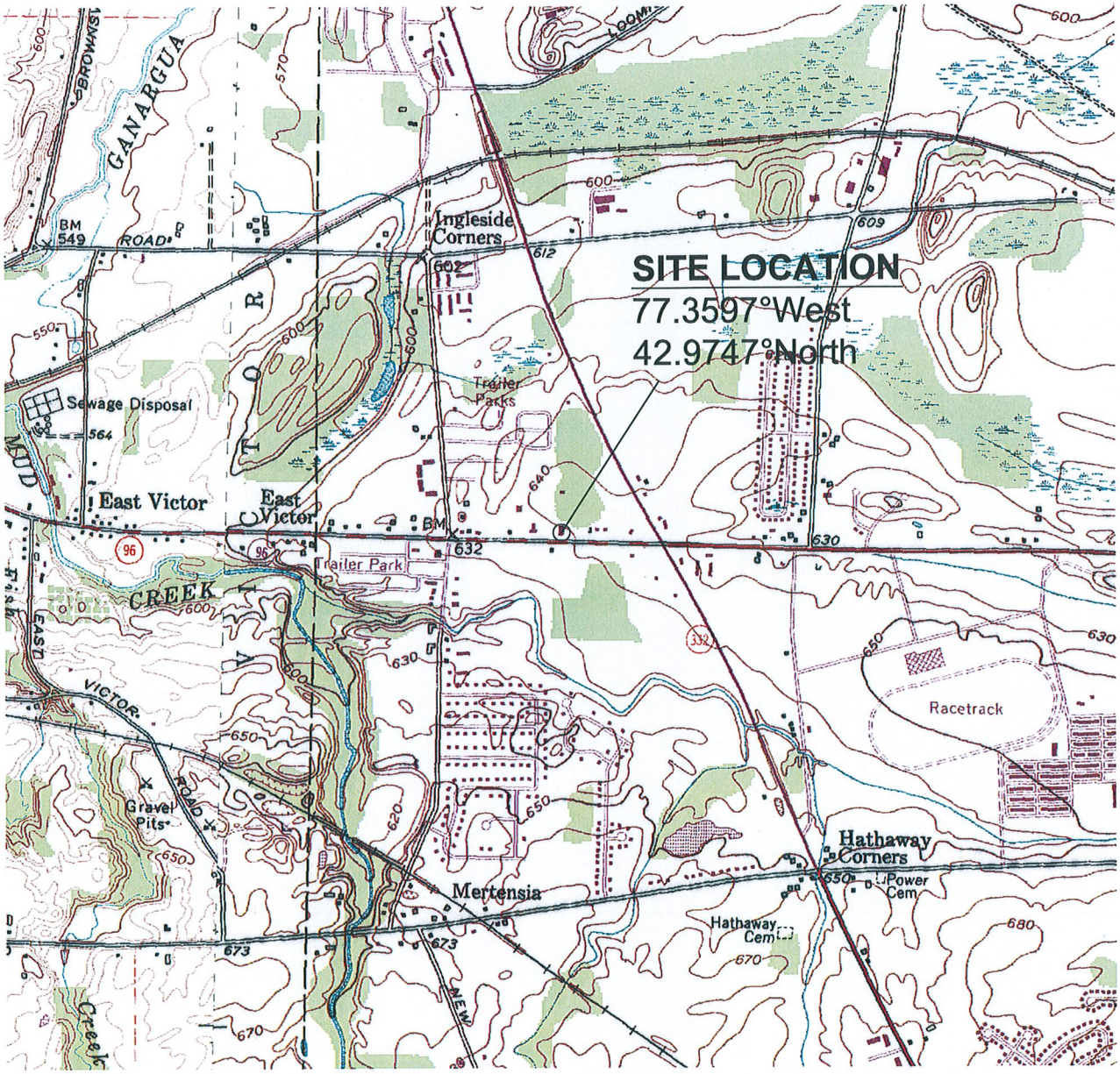
Figures



SCALE in FEET

1,000 0 1,000 3,000 5,000

Contour Interval: 10 Feet

Map Taken From: USGS 7.5 Minute Series Topographic Quadrangles - Victor, NY (1971, Photorevised 1978) & Canandaigua, NY (1951, Photorevised 1978) (www.nysgis.state.ny.us/quads/usgsdrg.htm)

QUADRANGLE LOCATION

S&W Redevelopment of North America, LLC. Syracuse, New York DATE:11/2008 JOB No.: B6003.70	Final Engineering Report Former Griffin Technology Site, BCP #C835008 6132 Victor Manchester Rd, Farmington(T), Ontario(C), New York Figure 1-1 Site Location

Victoro42077h4, Canandaiguao42077h3
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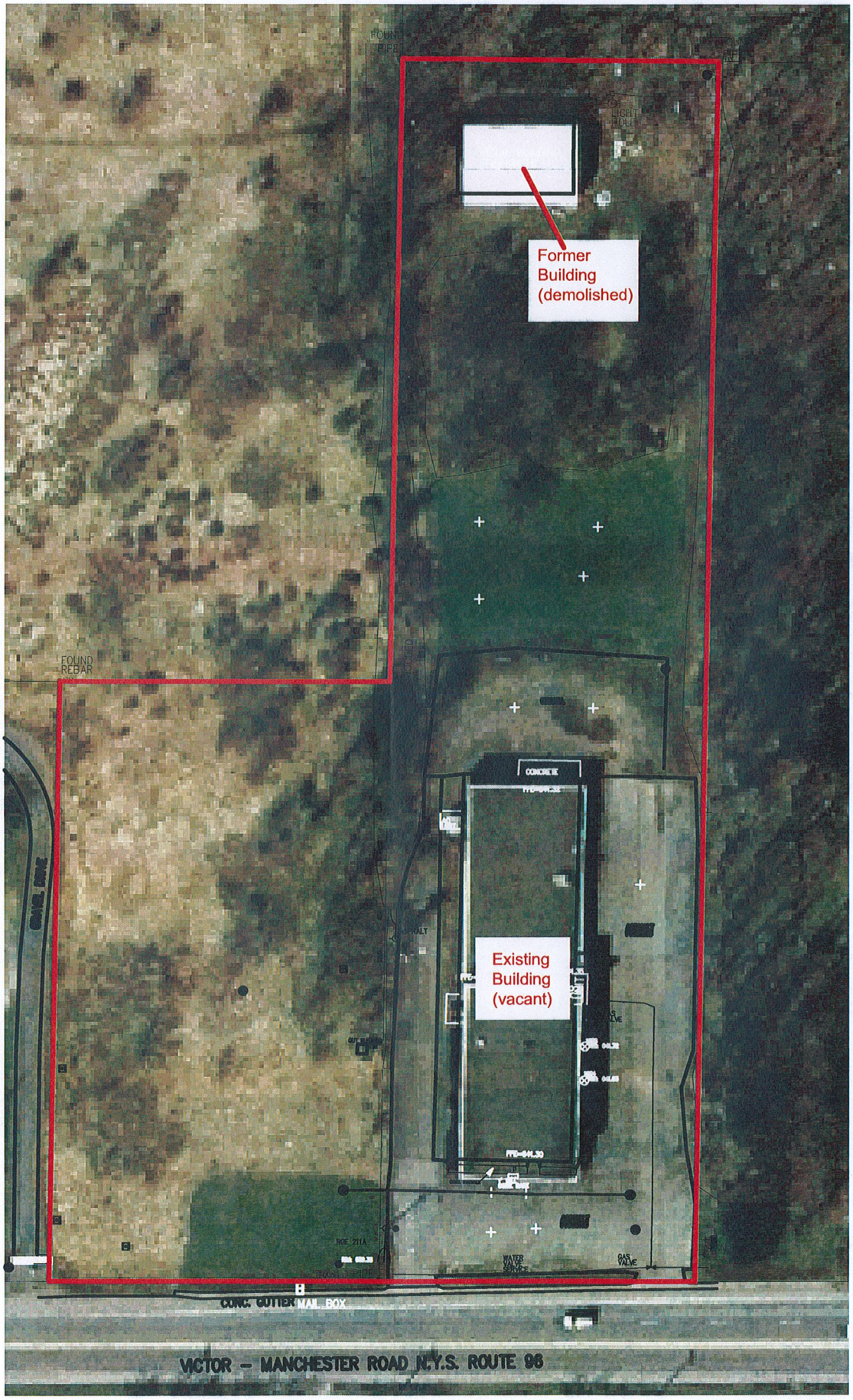

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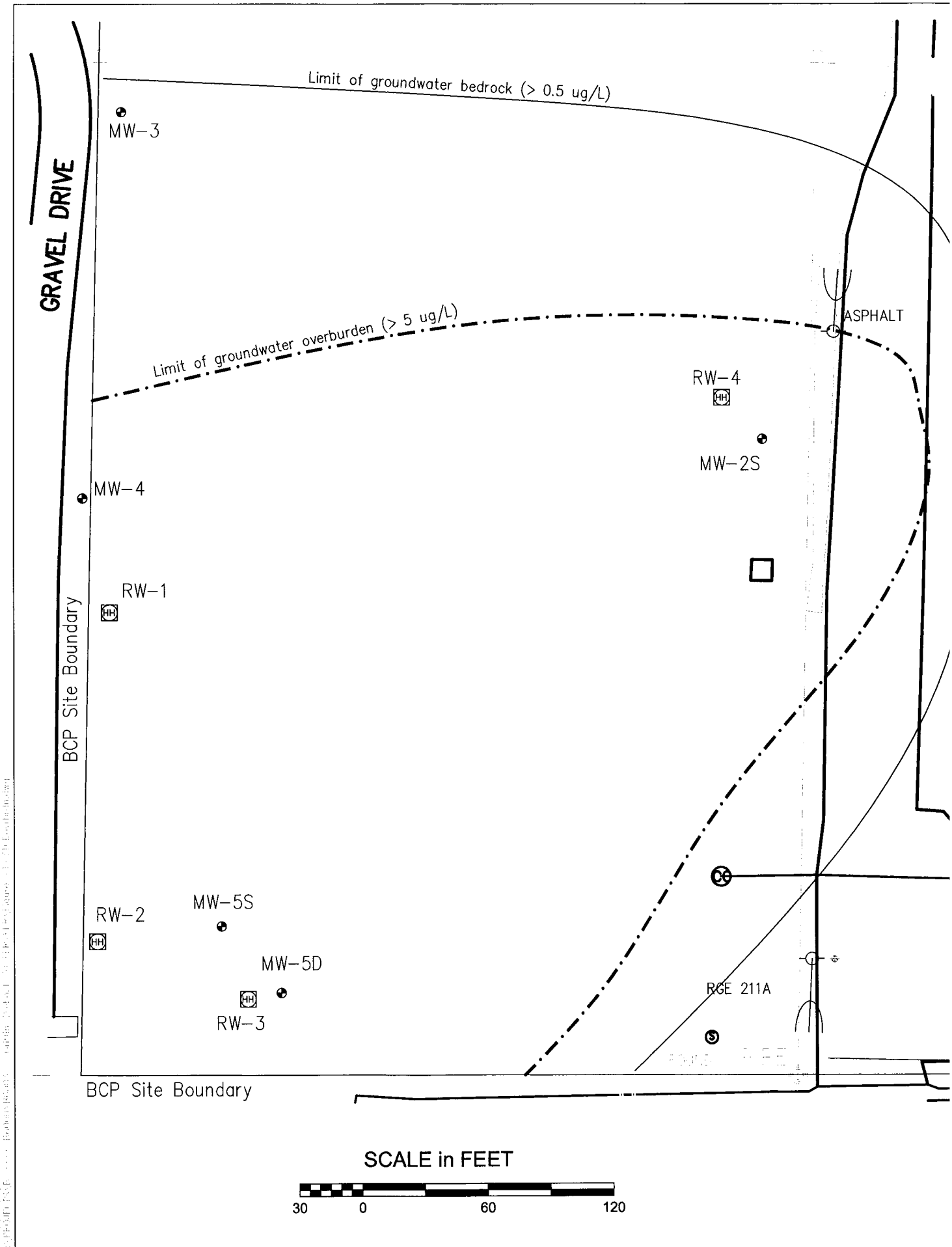
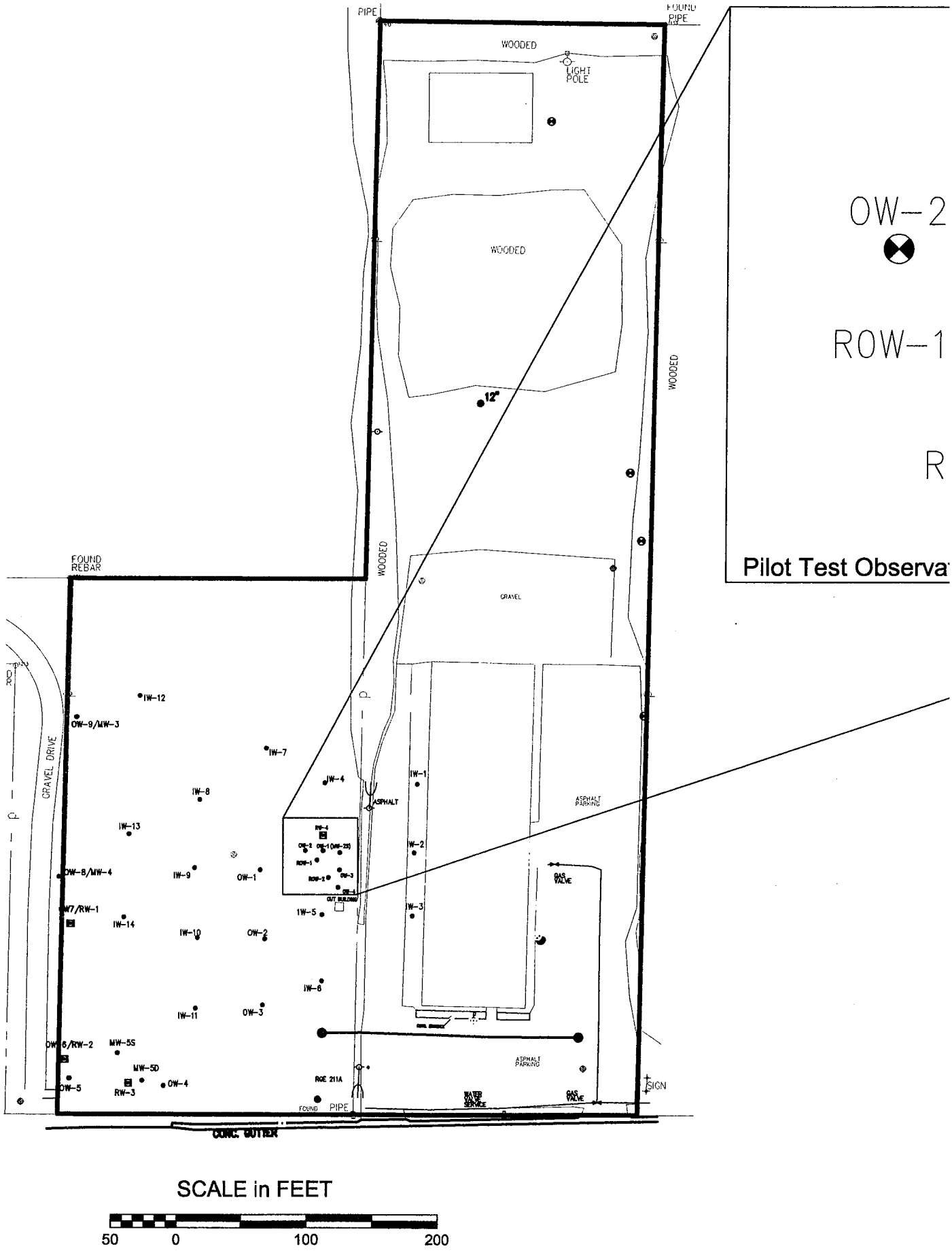

Limit of groundwater bedrock (> 0.5 ug/L)
Limit of groundwater overburden (> 5 ug/L)
GRAVEL DRIVE
ASPHALT
MW-3
MW-4
MW-2S
RW-4
RW-1
RW-2
RW-3
MW-5S
MW-5D
BCP Site Boundary
BCP Site Boundary
RGE 211A
SCALE in FEET
30
0
60
120



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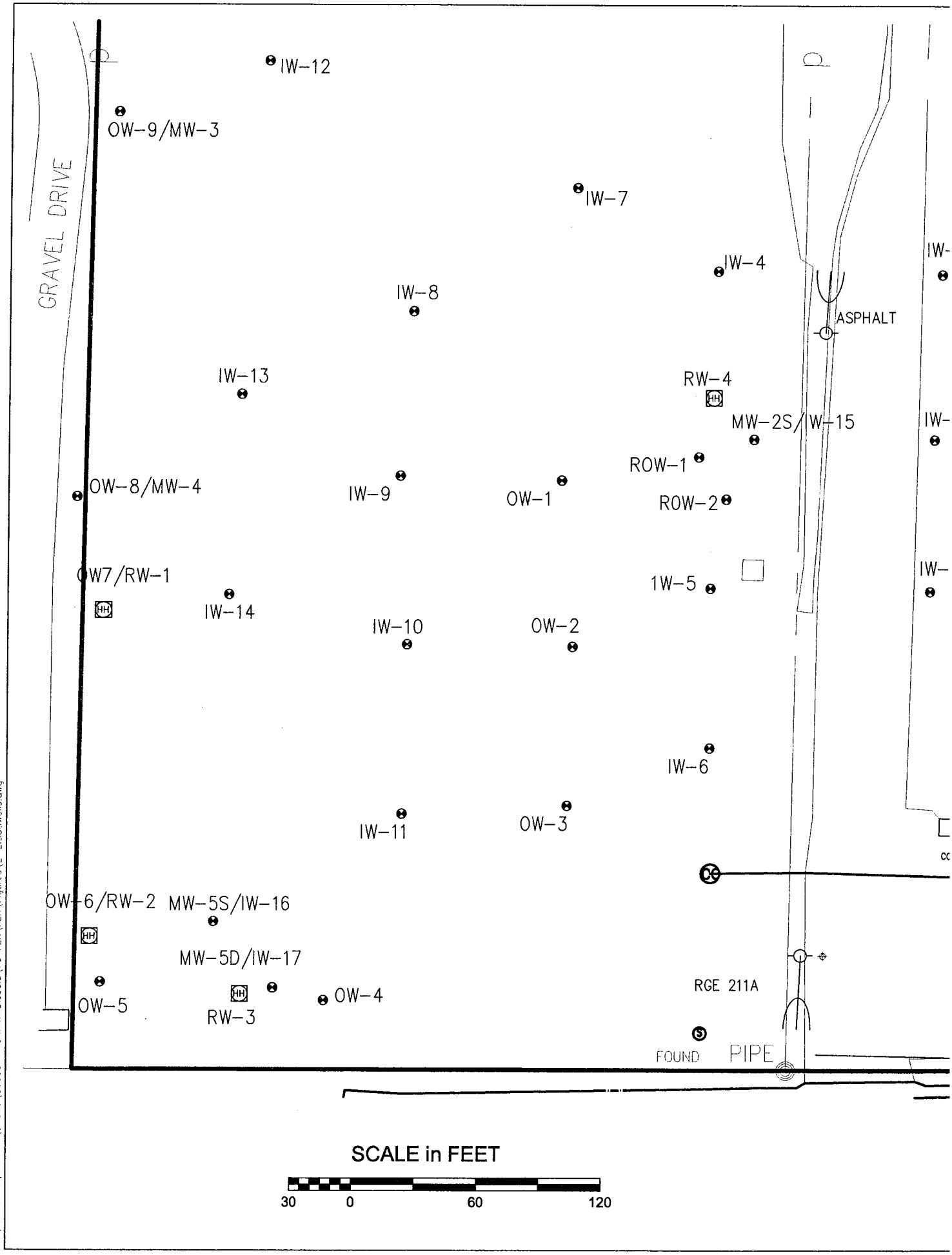

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MIXING TANKS
275 Gallon IBC Poly Tote with Tubular Galvanized Steel Cage, 6-inch top opening, 2-inch drain opening with 2-inch valve

PNEUMATIC DIAPHRAGM PUMP
Yamada NDP-25BPS (1 inch Polyethylene)

AIR COMPRESSOR
185 CFM/125 PSI Diesel Air Compressor

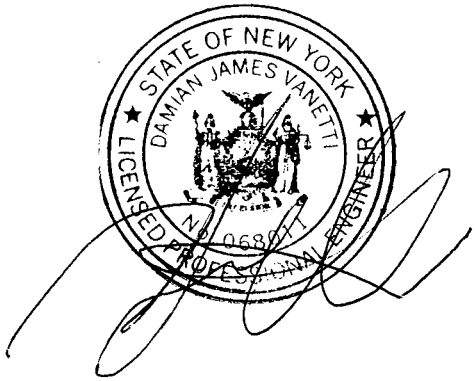
EDUCTOR
Carus supplied hydraulic venturi vacuum.
Requires a minimum water supply of 50 gpm @ 70 psi (162 feet/head)

WATER SUPPLY
-20,000 gallon frac tank filled by hydrant through back flow preventer
-High Head Pump (minimum 50gpm @ 70 psi (162 feet/head)) or equivalent.

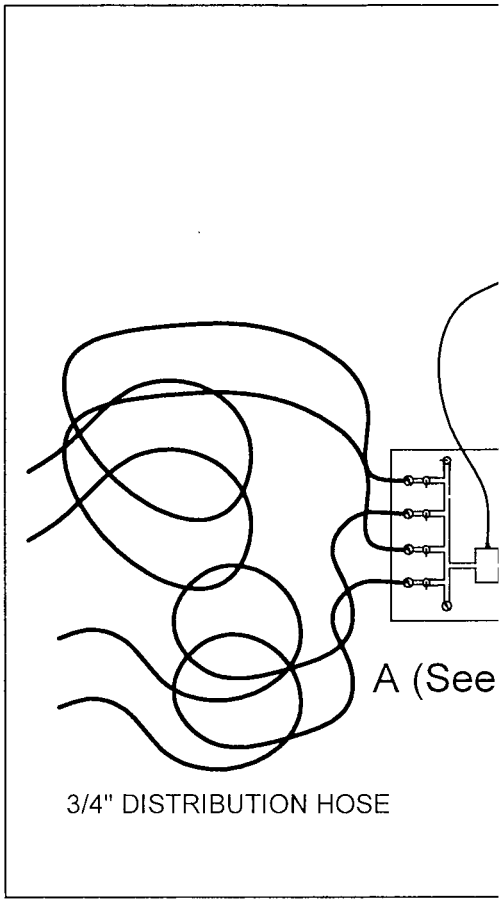
PNEUMATIC MIXER
½ -inch PVC schedule 80 pipe with "T" and end caps with ⅛-inch holes connected to the compressor by ⅜-inch air hose with international quick connections

FLOW CONTROL
(a) - 1-inch PVC-80 Globe Valve
(b) - 1-inch PVC-80 Economy True Union Ball Valve
(c) - Pressure Gauge 0 - 100 PSI
(d) - Air Pressure Control Valve (0 - 125 PSI) with Pressure Gauge (0 - 100 PSI)
(e) - ⅜-inch Brass Ball Valve
(f) - 2-inch PVC-80 Economy True Union Ball Valve
(g) - 3-inch Brass Gate Valve
(h) - Adjustable Pressure Release Valve (0 - 120 PSI)
(i) - 1-inch PVC-80 "Y" Strainer (20 mesh screen)
(j) - 1-inch Brass Flow Totalizer (gallons)

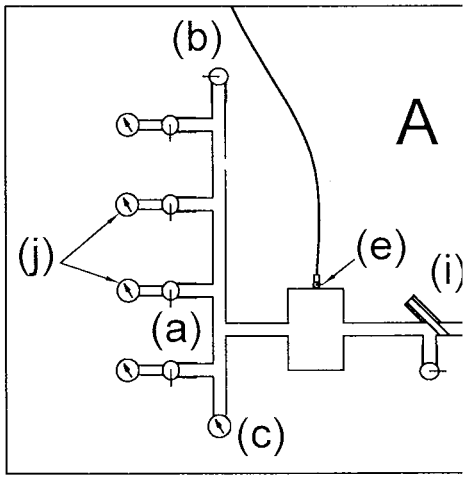
PLUMBING
1-inch and 2-inch PVC schedule 80 tubing and fittings with cemented or taped NPT connections.
1-inch, 2-inch, and 3-inch chemically compatible suction hose with cam and grove couplings
¾-inch EPDM hose with threaded brass hose connections



Note:
Equipment size and configuration subject to change based on project requirements and equipment availability.



3/4" DISTRIBUTION HOSE



PNEUMATIC DIAPHRAM PUMP & DISTRIBUTION MANIFOLD

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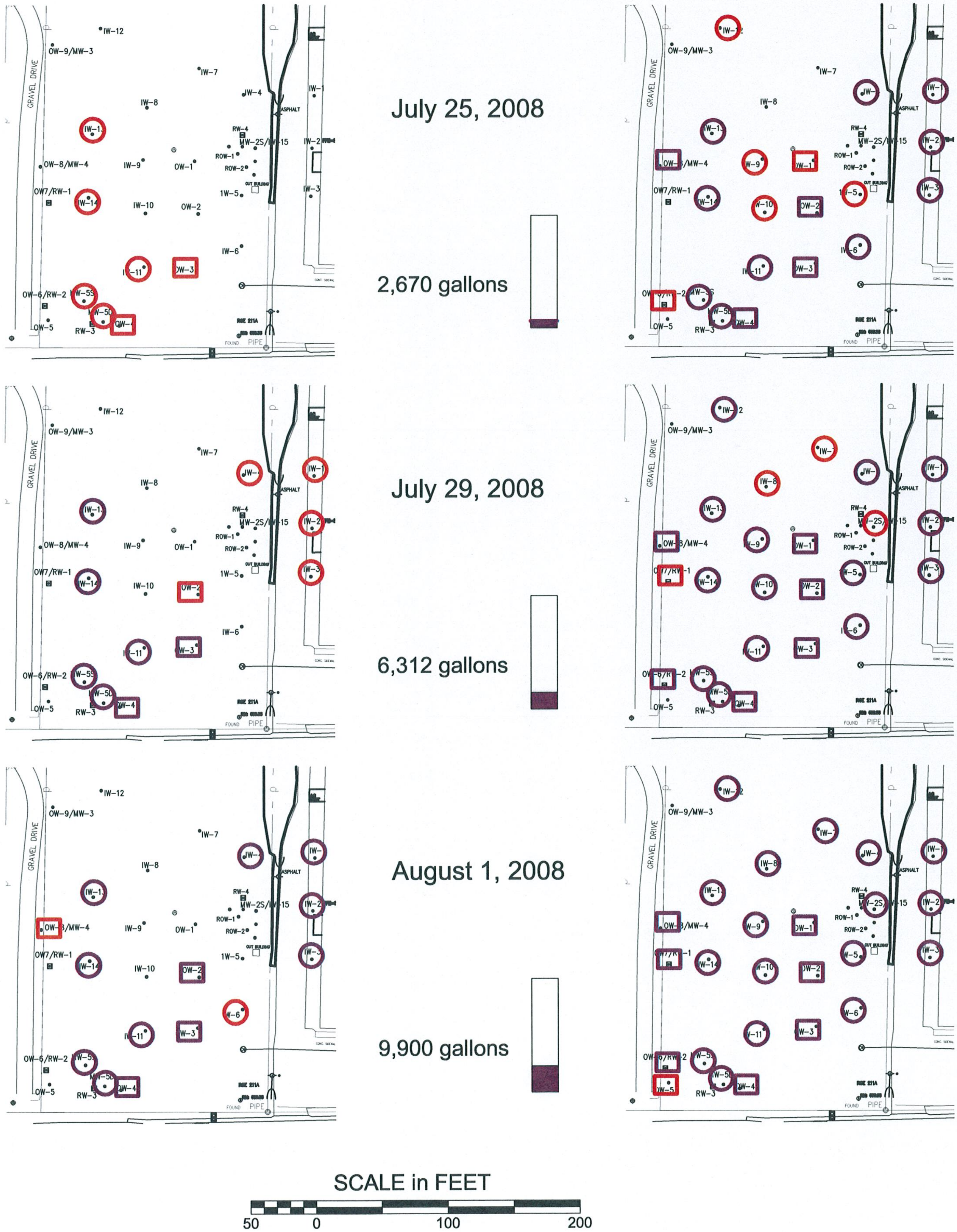
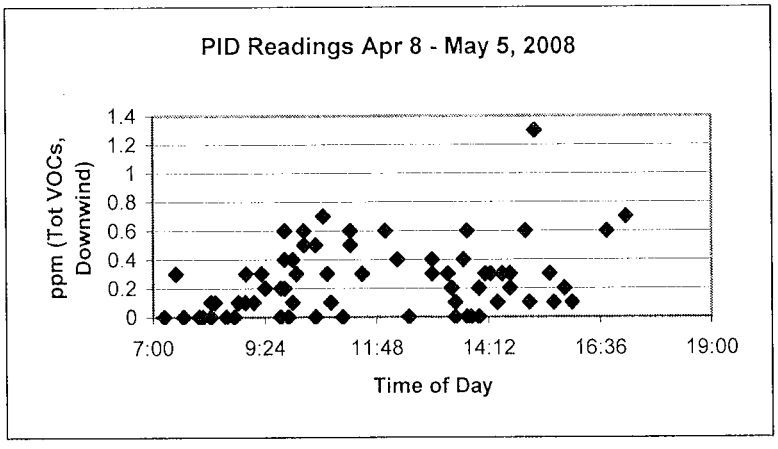

July 25, 2008
2,670 gallons
July 29, 2008
6,312 gallons
August 1, 2008
9,900 gallons
SCALE in FEET
50
0
100
200
GRAVEL DRIVE
ASPHALT
FOUND PIPE

Tables

Table 2-1. PID Readings for Volatile Organic Compounds, Community Air monitoring Program
Former Griffin Technology Site, Farmington, New York.

Date	Time	PID (ppm)*
4/8/2008	9:45	0
	10:15	0.5
	13:30	0
4/9/2008	8:35	0
	9:20	0.3
4/15/2008	11:05	0
4/16/2008	10:50	0.1
	13:50	0
	14:00	0
	14:00	0
	15:05	0.1
	15:36	0.1
	16:00	0.1
4/17/2008	8:35	0
	9:00	0.3
	9:50	0.4
	10:00	0.4
	10:30	0.5
	14:15	0.3
	15:00	0.6
	15:12	1.3
	15:31	0.3
4/18/2008	8:50	0.1
	10:00	0.1
	10:30	0.5
	12:30	0
	13:30	0.1
	14:24	0.1
	14:40	0.2
4/21/2008	10:30	0
	13:40	0.4
	14:30	0.3
4/22/2008	12:15	0.4
	13:00	0.3
	14:40	0.3
4/23/2008	7:15	0
	7:30	0.3
	9:50	0.6
	10:15	0.6
	10:40	0.7
	11:15	0.6
	12:00	0.6
	13:45	0.6
	16:45	0.6
	17:10	0.7

Date	Time	PID (ppm)*
4/24/2008	8:05	0
	8:15	0.1
	8:59	0.1
	9:25	0.2
	9:50	0.2
	10:05	0.3
	13:25	0.2
	14:08	0.3
4/25/2008	7:40	0
	9:25	0.2
	11:30	0.3
	13:20	0.3
4/29/2008	8:45	0
	9:50	0.2
	1:45	0
4/30/2008	8:35	0
	14:00	0.2
	15:50	0.2
5/1/2008	8:00	0
	8:20	0.1
	11:15	0.5
5/2/2008	8:15	0
	9:10	0.1
	9:45	0.2
	13:00	0.4
5/5/2008	9:55	0
	10:45	0.3



Downwind PID readings are indicated versus time of day for the April 8 - May 5, 2008 period

* Downwind of work area

Table 2-2. Baseline Groundwater Analytical Results, June 2008 - Volatile Organic Compounds (VOCs).
Former Griffin Technology Site, Farmington, New York

Compound - µg/L (ppb)	NYS Standard	OW-1	OW-2	OW-3	OW-4	OW-5	OW-6	OW-7	OW-8	OW-9	Duplicate
Acetone	50(G)	U	U	U	U	U	U	U	U	U*	U
Benzene	1	U	U	U	U	0.37 J	U	0.52 J	U	U	U
Bromodichloromethane	50(G)	U	U	U	U	U	U	U	U	U	U
Bromoform	50(G)	U	U	U	U	U	U	U	U	U	U
Bromomethane	5	U	U	U	U	U	U	U	U	U	U
2-Butanone (MEK)	50(G)	U	U	U	U	U	U	U	U	U	U
Carbon disulfide	60	U	U	U	U	U	U	U	U	U	U
Carbon tetrachloride	5	U	U	U	U	U	U	U	U	U	U
Chlorobenzene	5	U	U	U	U	U	U	U	U	U	U
Chloroethane	5	U	U	U	U	U	U	U	U	U	U
Chloroform	7	U	U	U	U	U	U	U	U	U	U
Chloromethane		U	U	U	U	U	U	U	U	U	U
Dibromochloromethane	50(G)	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethane	5	U	U	U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.6	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U
1,2-Dichloropropane	1	U	U	U	U	U	U	U	U	U	U
cis-1,3-Dichloropropene	0.4	U	U	U	U	U	U	U	U	U	U
trans-1,3-Dichloropropene	0.4	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	U	U	U	U	U	U	U	U	U	U
2-Hexanone	50(G)	U	U	U	U	U	U	U	U	U	U
Methylene Chloride	5	**5.2** JB	U	2 JB	U	U	U	2.7 JB	U	U	U
4-Methyl-2-pentanone (MIBK)		U	U	U	U	U	U	U	U	U	U
Styrene	50	U	U	U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	5	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5	U	U	U	U	U	U	U	U	U	U
Toluene	5	U	U	U	U	0.31 J	U	U	U	U	U
1,1,1-Trichloroethane	5	U	U	U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	1	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5	**510**	**11**	**210**	**67**	**120**	**120**	**180**	**57**	**23**	**11**
Vinyl chloride	2	U	U	U	U	U	U	U	U	U	U
Xylenes, Total	5	U	U	U	U	U	U	U	U	U	U
cis-1,2-Dichloroethene	5	**6.3** J	1.1 J	U	U	U	U	**5.7** J	1.1 J	U	0.85 J
trans-1,2-Dichloroethene	5	U	U	U	U	U	U	U	U	U	U

Groundwater Standards from Technical and Operational Guidance Series (TOGS) Class GA ambient water quality standards - New York State Department of Environmental Conservation

(G) Signifies a NYSDEC guidance value where a standard has not been established.

U - Not Detected

J - Estimated value, Result greater than MDL but below CRDL

Bold and boxed results indicate detection above NYS standards

Table 2-3. Baseline Groundwater Analytical Results, June 2008 - Inorganics.
Former Griffin Technology Site, Farmington, New York

Metal - µg/L (ppb)	NYS Standard	OW-1	OW-2	OW-3	OW-4	OW-5	OW-6	OW-7	OW-8	OW-9	Duplicate
arsenic	25	U	U	U	U	7.2 J	U	U	U	U	U
cadmium	5	U	U	U	U	U	U	U	U	U	U
chromium	50	U	U	5.4 J	4.9 J	26	1.9 J	23	U	U	U
lead	25	U	U	3.8 J	4.7 J	**31**	U	25	U	U	U
selenium	10	U	U	U	U	U	U	U	U	U	U
silver	50	U	U	U	U	U	U	U	U	U	U
barium	1000	230	120	200	200	500	170	440	320	320	120
Total organic carbon	ns	1.4	1.9	0.77 J	0.85 J	0.85 J	0.77 J	1.7	1.7	1.1	1.7
Chemical oxygen demand	ns	3.6 J	2.6 J	2 J	U	7.2 J	2.6 J	13.1	U	3.3 J	3.9 J

ns - no standard
Groundwater Standards from Technical and Operational Guidance Series (TOGS) Class GA ambient water quality standards - New York State Department of Environmental Conservation
U - Not Detected
J - Estimated value, Result greater than MDL but below CRDL
Bold and boxed results indicate detection above NYS standards

Table 2-4. Baseline Groundwater Analytical Results, June 2008 - Field Parameters.
Former Griffin Technology Site, Farmington, New York

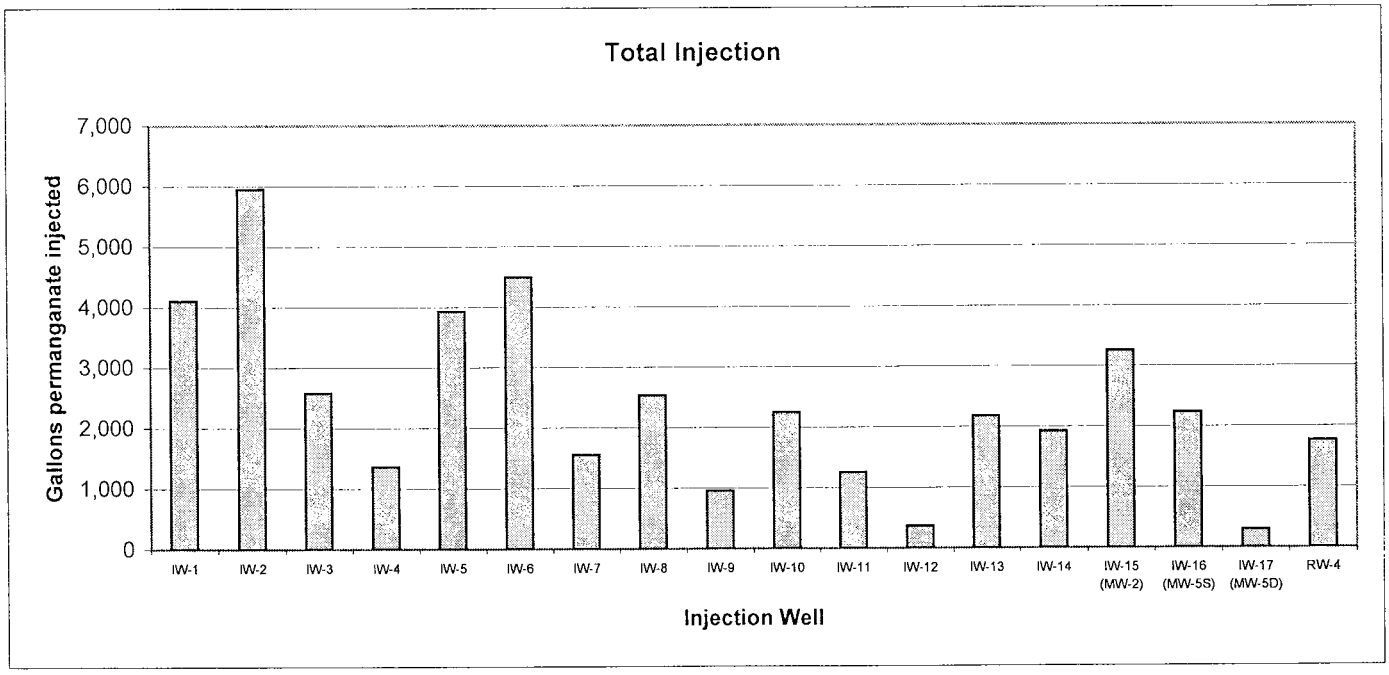
	OW-1	OW-2	OW-3	OW-4	OW-5	OW-6	OW-7	OW-8	OW-9
Temperature (deg C)	11.91	11.18	11.65	11.19	10.96	11.76	9.7	10.24	9.94
Conductivity (mmhos/cm)	0.581	0.465	0.591	0.498	0.63	0.565	0.59	0.584	0.397
Dissolved Oxygen (ppm)	2.62	2.08	3.3	3.68	5.21	2.47	0.63	2.45	3.36
pH (units)	5.39	5.01	5.11	5.17	6.2	5.91	6.33	6.15	6.55
Eh (mV)	225.4	125.9	196.1	220.8	95.1	178	157.5	160.4	163.6
Turbidity (ntu)	5.2	7.2	56.2	19.1	45.3	103.5	720.5	8.2	0.7

Measurments taken June 2, 2008 after purging the wells prior to collecting groundwater samples.

Table 2-5. ISCO Daily Injection Volumes.
Former Griffin Technology Site, Farmington, New York

	7/23/2008	7/24/2008	7/25/2008	7/28/2008	7/29/2008	7/31/2008	8/1/2008	8/2/2008	8/4/2008	8/5/200
IW-1	0	0	0	356	617	0	0	0	0	
IW-2	0	0	0	0	348	839	0	0	0	85
IW-3	0	0	0	428	666	0	0	0	0	
IW-4	0	0	0	0	395	247	164	0	0	
IW-5	0	0	0	0	0	0	0	509	640	
IW-6	0	0	0	0	0	427	979	0	0	
IW-7	0	0	0	0	0	0	0	0	0	26
IW-8	0	0	0	0	0	0	0	0	0	67
IW-9	0	0	0	0	0	0	0	402	556	
IW-10	0	0	0	0	0	0	0	598	711	
IW-11	302	548	191	0	0	0	0	0	0	
IW-12	0	0	0	0	0	0	0	34	42	5
IW-13	0	0	256	126	276	270	168	0	0	
IW-14	0	0	306	125	305	262	212	0	0	
IW-15 (MW-2)	0	0	0	0	0	0	0	0	0	
IW-16 (MW-5S)	231	521	290	0	0	0	0	0	0	
IW-17 (MW-5D)	25	0	0	0	0	0	0	0	0	
RW-4	0	0	0	0	0	0	0	0	0	
DAILY TOTALS	558	1,069	1,043	1,035	2,607	2,045	1,523	1,543	1,949	1,85

	8/19/2008	8/20/2008	8/21/2008	8/25/2008	8/26/2008	8/27/2008	8/28/2008	8/29/2008	9/2/2008	9/3/200
IW-1	0	0	0	0	242.2	620.8	620.5	220.5	365	
IW-2	0	0	0	0	0	0	0	0	0	143
IW-3	0	0	0	0	0	0	0	0	0	
IW-4	91	124	90	63	0	0	0	0	0	
IW-5	766	0	0	0	0	0	0	0	0	
IW-6	0	972	0	0	0	0	0	0	0	
IW-7	86	0	0	0	0	0	0	0	0	
IW-8	0	0	0	0	0	0	0	0	0	
IW-9	0	0	0	0	0	0	0	0	0	
IW-10	0	0	941	0	0	0	0	0	0	
IW-11	0	0	0	217.5	0	0	0	0	0	
IW-12	17	24	17	8	0	0	0	0	0	
IW-13	0	0	0	0	182.3	50.5	395.5	127.5	130	20
IW-14	0	0	0	0	0	0	0	189.6	230	29
IW-15 (MW-2)	0	0	0	0	0	0	0	620.6	365	63
IW-16 (MW-5S)	0	0	0	0	9.9	813.9	150.4	0	0	
IW-17 (MW-5D)	0	165	103	5.3	0	0	0	0	0	
RW-4	0	0	0	0	302.1	752	715.7	0	0	
DAILY TOTALS	960	1285	1151	293.8	736.5	2237.2	1882.1	1158.2	1090	256



APPENDICES

Appendix A
Soil Boring/Well Construction Logs

S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 20-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING IW-1

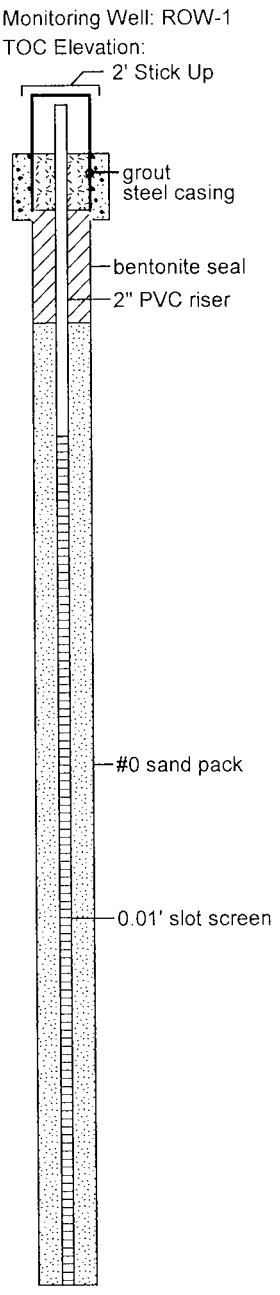
(Page 1 of 1)

Date/Time Started	: 4-28-08; 11:45
Date/Time Completed	: 4-28-08: 2:20
Weather	: heavy rain, 50F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		12"	.4	grey, wet, gravel and course sand
2	640				
4	638		3"	.5	light brown, stiff, refusal at 4.5', top of rock, silt, wet
6	636		50.4"		
8	634				
10	632				calcite
12	630		60"		
14	628				
16	626		60"		
18	624				
20					End Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	Run #1 some natural breaks, RQD-41.1%
8	
10	Run #2 natural breaks, RQD-13.3%
12	
14	Run #3 natural and mechanical breaks. RQD-13.3%
16	
18	
20	



NOTES:
bgs - below ground surface
NR - no recovery
RQD - Rock Quality Designation (%)
HSA - Hollow Stem Auger

LOG OF BORING IW-1

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S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 21.5-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING IW-2

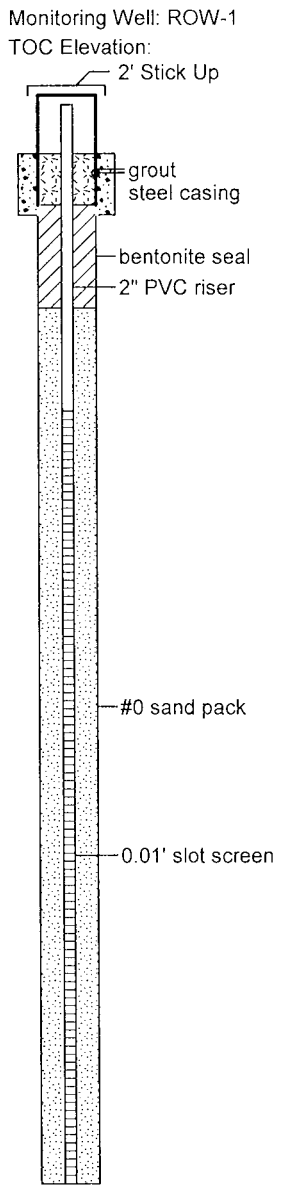
(Page 1 of 1)

Date/Time Started	: 4-29-08; 8:00 a.m.
Date/Time Completed	: 4-29-08; 12:40
Weather	: cloudy, 39 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		16"	.3	moist, stiff, light brown, slit, some gravel, (top 2"-topsoil)
2	640		20"	.2	moist, very stiff' light brown, slit & clay, trace of gravel
4	638		22"	.2	SAA
6	636		6"	.2	SAA
8	634		28"		
10	632		12"		
12	630		53"		
14	628				
16	626		60"		
18	624				
20	622		18"		
22					End Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	Run #1 natural breaks red stone last 2", RQD-13.7%
8	
10	Run #2 natural breaks some fossils, RQD-33.3%
12	natural breaks slight vertical fracture at 10.1' to 10.3'some mineral deposit veins at 11.5' to 12.0', RQD-16.0%
14	
16	Run # 4 calcite deposits natural breaks mechanical breaks, RQD-30%
18	
20	calcite deposits
22	



LOG OF BORING IW-2

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S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 27.5-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-03

(Page 1 of 1)

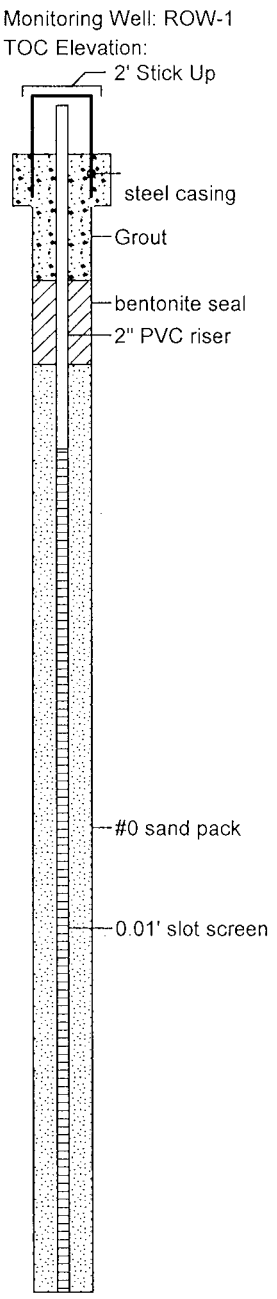
Date/Time Started	: 4-25-08; 10:00 a.m.
Date/Time Completed	: 4-25-08; 2:00 p.m.
Weather	: overcast, 47 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			16"	.8	grass, dry, stiff, brown, silt, little clay
2	640				
			14"	.7	dry, moist, red/brown, clay with little silt, trae of sand and gravel
4	638				
			8"	1.0	stiff, SAA
6	636				
			24"	.9	SAA, stiff-hard
8	634				
			24"	.8	13" SAA hard 6" varied red clays, brown, stiff, sand
10	632				
			14"	1.2	6" wet, loose, brown, silt and fine sand 8" moist, hard, weatherd rock spoon refusal at 11.7"
12	630				
			54.5"		
14	628				
16	626				
			60"		
18	624				
20	622				
22	620		54.5"		
24	618				
26			23"		

End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	
12	Run #1 vertical fracture at 14-15' RQD-0.0%
14	
16	Run #2 vertical fracture at 19.8'
18	
20	Run #3 RQD-56.8%
22	
24	
26	Run #4 natural breaks, vertical fractures 25.6-27'



LOG OF BORING IW-03

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S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 28-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-04

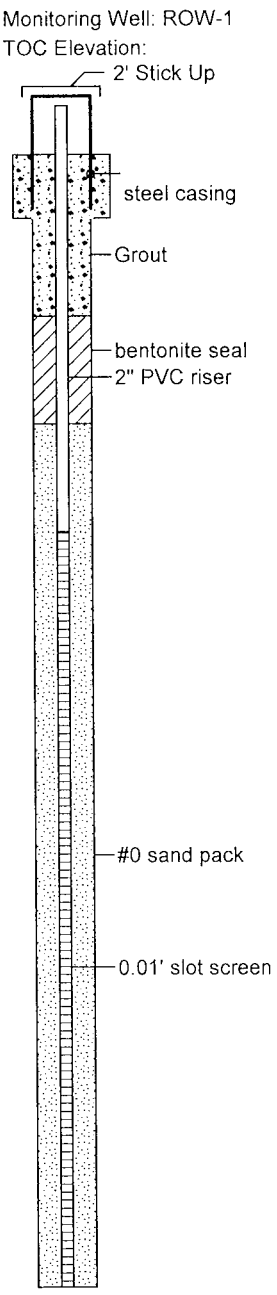
(Page 1 of 1)

Date/Time Started	: 4-21-08; 1:00 p.m.
Date/Time Completed	: 4-22-08; 4:15 p.m.
Weather	: Partly cloudy, 62 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			20"	.8	moist, brown, stiff, silt and clay
2	640				
			22"	.8	wet, stiff, light brown, silt
4	638				
			14"		10" SAA, 2" red/brown, hard, dry, clay 2" weathered rock
6	636				bedrock
8	634				
10	632				
12	630		52.75"		
14	628				
16	626				
18	624		60"		
20					End of Boring

Depth in Feet (bgs)	REMARKS
0	
10	Run #1 natural braks, trace of calcite, vertical fracture at 12.5', 13' and 14' RQD-31.3%
14	Run #2 natural breaks, vertical fracture 14.9'-16' RQD-20.8%



LOG OF BORING IW-04

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S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 28-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-05

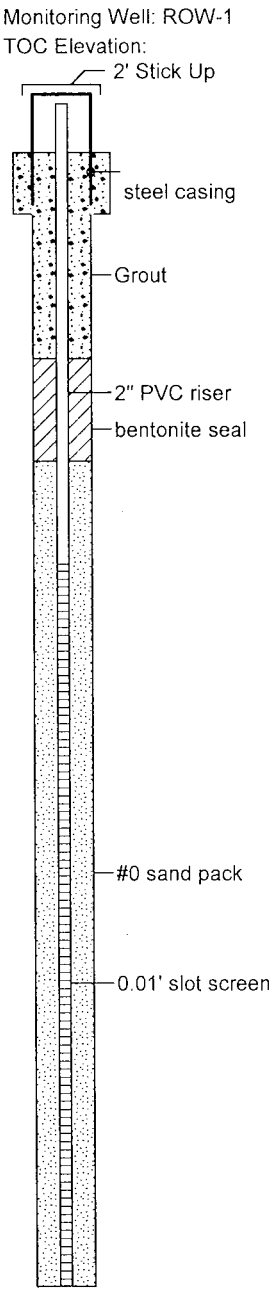
(Page 1 of 1)

Date/Time Started	: 4-21-08; 1:00 p.m.
Date/Time Completed	: 4-22-08; 4:15 p.m.
Weather	: Partly cloudy, 62 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		16"	.5	Dry, moist, red/brown, mostly stiff, clay, some silt, trace of sand
2	640		16"	.6	SAA, stiff-hard, trace of gravel
4	638		2"		SAA, hard
6	636		1"		SAA, rock fragments
8	634				
10	632				
12	630		58.75"		
14	628				
16	626				
18	624		58.75"		
20	622		24"		
22					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	Run #1 vertical fractures 11.9-12.1', 14.1-14.3, all natural fractures RQD-14.9%
12	
14	
16	Run #2 natural breaks, vertical fracture17.3-17.6' RQD-22.6%
18	
20	Run #3 natural breaks RQD-65.6%
22	



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LOG OF BORING IW-05

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S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 28-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-06

(Page 1 of 1)

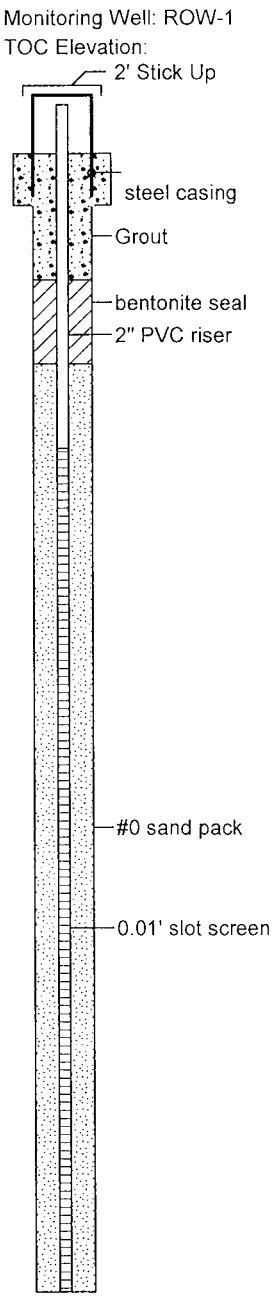
Date/Time Started	: 4-21-08; 1:00 p.m.
Date/Time Completed	: 4-22-08; 4:15 p.m.
Weather	: Partly cloudy, 62 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			22"	1.2	stiff, dry-moist, brown, Clay some silt, trace of gravel, (wetter with depth)
2	640				
			14"	1.6	Dry, mostly stiff, red\brown, clay some silt, trace of sand and gravel (harder with depth)
4	638				
			16"	2.3	Dry/moist, red/brown mainly stiff, clay some silt, trace of sand and gravel
6	636				
			16"	1.6	Dry, hard, SAA
8	634				
			18"	2.5	SAA
10	632				
			20"	2.0	moist to wet, SAA
12	630		4"		spoon refusal, water in spoon, saturated rock fragments, little sand and silt
14	628				
16	626				
18	624		58.75"		
20	622				
22	620				
24	618		57.5"		
26					

End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	
12	
14	
16	Run #1 natural breaks, diagonal fracture RQD-48.1%
18	
20	Run #2 natural breaks RQD-76.1%
22	
24	
26	



Note: Run #3 begans at 19.5'

LOG OF BORING IW-06

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S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 20.2-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-07

(Page 1 of 1)

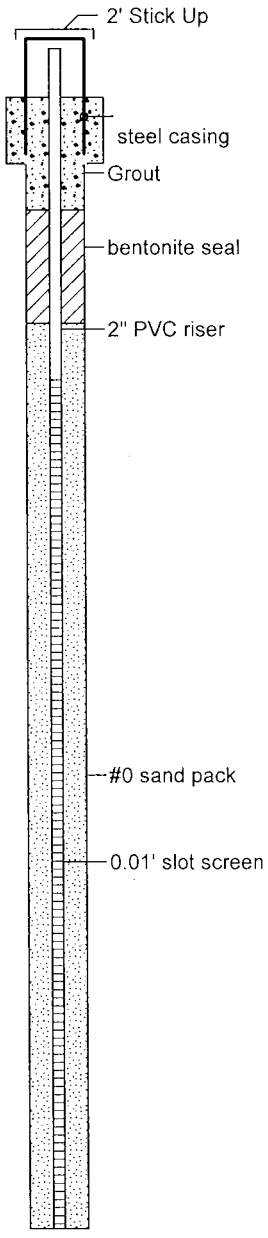
Date/Time Started	: 4-24-08; 1:20 p.m.
Date/Time Completed	: 4-24-08; 4:20 p.m.
Weather	: Partly cloudy, 62 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			16"	8.2	Dry, moist, stiff, brown, clay some silt
2	640				
			14"	1.2	moist, brown, silt little clay
4	638				
			7"	.9	4" SAA wet 3" weathered rock spoon refusal at 5'
6	636				
			36"		
8	634				
			24"		
10	632				
12	630		60"		
14	628				
16	626				
18	624		60"		
20					End of Boring

Depth in Feet (bgs)	REMARKS
0	
6	Run #1 natural fractures, vertical fracture at 7' RQD-31.3%
8	Run #2 natural breaks
10	Run #3 natural breaks, clay and weathered rock at 14.5'
16	Run #4 natural breaks, vertical fractures 16-16.5' and 17.5-18'

Monitoring Well: ROW-1
TOC Elevation:



LOG OF BORING IW-07

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 20-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-8

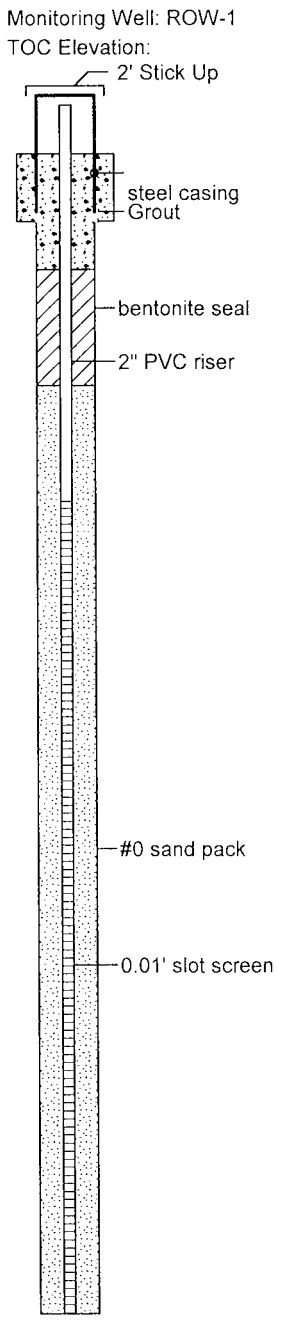
(Page 1 of 1)

Date/Time Started	: 4-11-08; 2:15 p.m.
Date/Time Completed	: 4-14-08; 4:10 p.m.
Weather	: Partly cloudy, 45 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		24"	.3	wet, mostly stiff, brown/red, trace of organics in 6" and wetter
2	640		24"	.3	Dry-moist, stiff, brown clay trace of silt
4	638		2"		wet, rock
					Augered to rock at 5'
6	636				
8	634				
10	632		47"		
12	630				
14	628		30"		
16	626				
18	624		60"		
20					

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	Run #1 Natural fractures, 90 degree vertical fracture 10-10.5' RQD-28.7%
10	
12	Run #2 natural fractures, RQD-0.0%
14	
16	Run#3 mechanical breaks RQD-51.7%
18	
20	



LOG OF BORING IW-8

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S&W Redevelopment

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 21-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-9

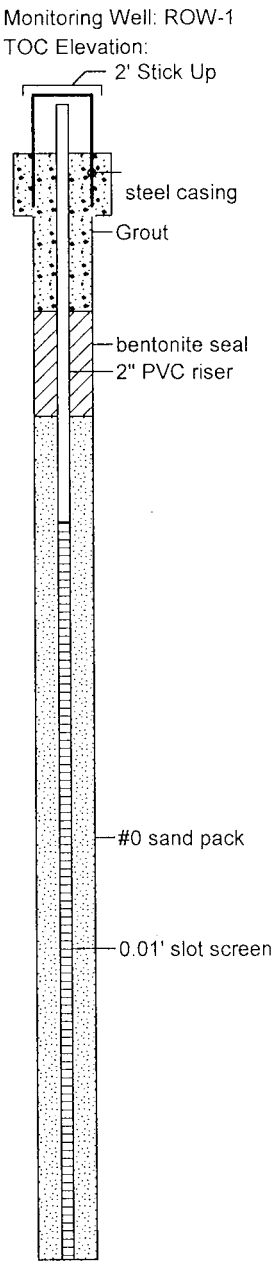
(Page 1 of 1)

Date/Time Started	: 4-15-08; 10:55 a.m.
Date/Time Completed	: 4-15-08; 4:10 p.m.
Weather	: Sunny, 42 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			18"	.3	Dry-moist, stiff, brown, clay with little slit
2	640				
			18"	.8	moist to wet, soft, brown, clay with little silt, trace of gravel
4	638				
			4"		wet with rock and rock chips, water at 5', 5.5' spoon refusal
6	636				
8	634				
			21"		
10	632				
12	630				
			60"		
14	628				
16	626				
18	624		30"		
20	622				
22					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	Run #1 vertical fracture 8.7-10.7' RQD-0.0% Run #2 natural fractures, vertical fracture 14.3-15.1' RQD-27.5%
12	
14	
16	Run #3 natural breaks RQD-57.1%
18	
20	
22	



LOG OF BORING IW-9

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 25.7-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-10

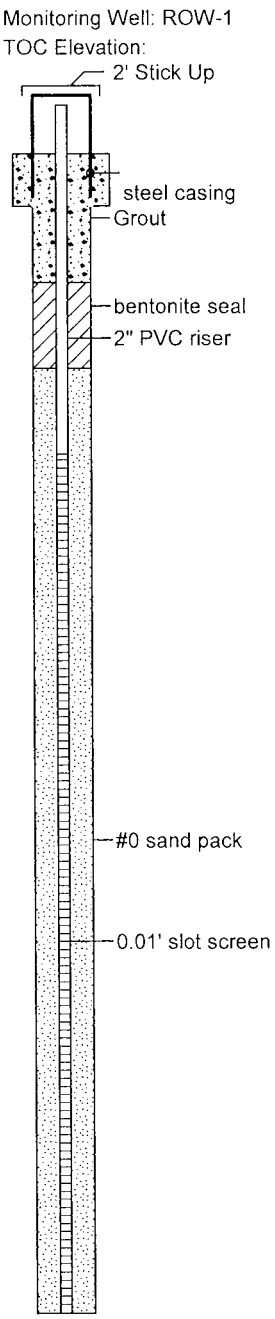
(Page 1 of 1)

Date/Time Started	: 4-16-08; 9:50 a.m.
Date/Time Completed	: 4-17-08; 2:00 p.m.
Weather	: Sunny, 47 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		20"	.3	moist, stiff, red\brown, clay with little silt, trace of gravel
2	640		17"	.5	moist, stiff, brown/red, clay trace of silt
4	638		10"	.8	2" Dry moist, sand and gravel, 8" Dry moist, red\brown, clay and silt
6	636		16"	.6	stiff, moist\wet Red brown, clay and silt
8	634		2"		weathered Dolomite and Rock
10	632		22"	1.8	18" moist, hard, grey, clay and silt 4" weathered rock
12	630		9"	11.0	weathered Dolostone, moist, spoon refusal at 13.5
14	628		52.75"		
16	626				
18	624				
20	622		58"		
22	620				
24	618		44.5"		
26					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	
12	Run #1 natural breaks, verical fracture RQD-23.7%
14	
16	
18	Run #2 natural breaks, vertical fracture 19.1-19.5' RQD-64.2%
20	
22	Run #3 vertical fracture 22-25' RQD-0.0%
24	
26	



LOG OF BORING IW-10

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 28-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-11

(Page 1 of 1)

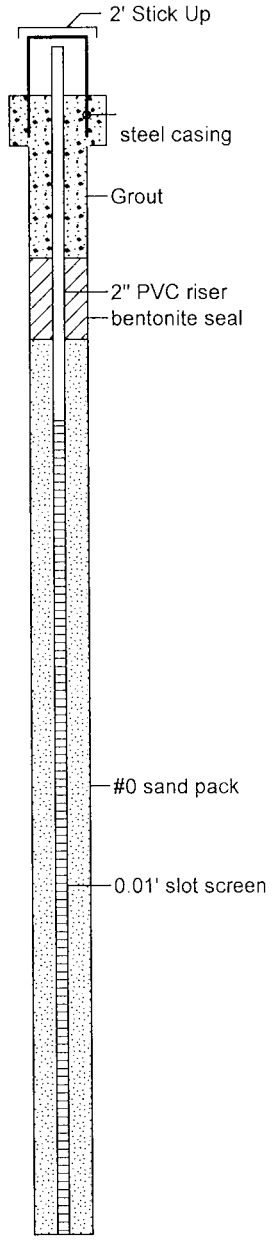
Date/Time Started	: 4-17-08; 2:15 p.m.
Date/Time Completed	: 4-18-08; 3:00 p.m.
Weather	: Sunny, 75 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			16"	.9	moist, stiff, red\brown, clay with little silt, trace of gravel
2	640				
			14"	.9	moist, stiff, brown/red, clay trace of silt
4	638				
			24"	1.0	2" Dry moist, sand and gravel, 8" Dry moist, red\brown, clay and silt
6	636				
			24"	.8	stiff, moist\wet Red brown, clay and silt
8	634				
			24"	.9	weathered Dolomite and Rock
10	632				
			14"	1.8	18" moist, hard, grey, clay and silt 4" weathered rock
12	630		6"	1.3	weathered Dolostone, moist, spoon refusal at 13.5
14	628				
16	626		44"		
18	624				
			15.5"		
20	622				
22	620		60"		
24	618				
26	616		33.5"		
28					End of Boring

Depth in Feet (bgs)	REMARKS
0	
14	Run #1 natural breaks, verical fracture at 15-15.4' RQD-13.1%
18	Run #2 short runs casing issues, vertical fracture 18.5-18.8', 19-19.5' RQD-25.8%
22	Run #3 mechanical breaks, vertical fracture 22-22.5' RQD-48.3%
24	Run #4 Hair line fractures, but intact natural breaks RQD-93.0%
28	

Monitoring Well: ROW-1
TOC Elevation:



Note: Run #3 begans at 19.5'

LOG OF BORING IW-11

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 29.5.-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-12

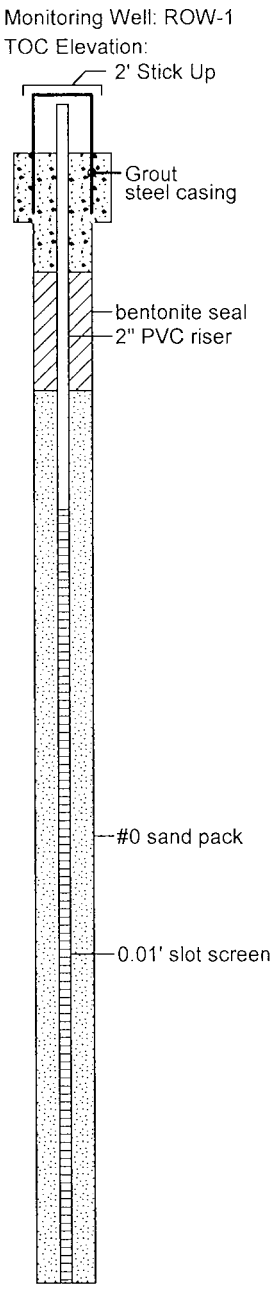
(Page 1 of 1)

Date/Time Started	: 4-8-08; 10:00 a.m.
Date/Time Completed	: 4-8-08; 3:00 p.m.
Weather	: Sunny, 48 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			16"	.1.2	moist, stiff, brownish grey, motted clay, trace of gravel, silt
2	640				
			14"	1.0	12" mosit, stiff, brown red, clay, trace of silt and gravel
					spoon refusal at 3.2'
4	638				
6	636				
8	634				
10	632				
			62.5"		
12	630				
14	628				
16	626		60.5"		
18					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	Run #1 Natural and mechanical fractures RQD-24.7%
6	
8	
10	Run #2 lots of fractures, calcite inclusions, some mechanical fractures RQD-20.8%
12	
14	Run#3 Lots of calcite top 9", some mechanical and natural fractures, mostly horizontal
16	
18	



LOG OF BORING IW-12

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S&W Redevelopment

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 29.5.-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: JLK
Surveyed By	:

LOG OF BORING IW-13

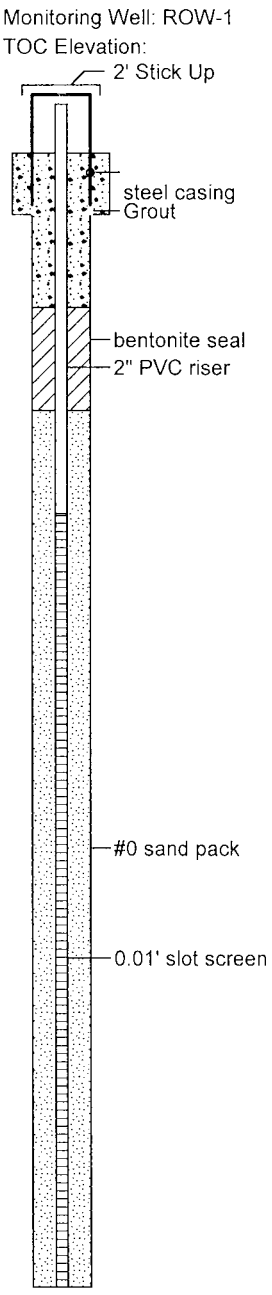
(Page 1 of 1)

Date/Time Started	: 4-9-08; 9:30 a.m.
Date/Time Completed	: 4-9-08; 3:00 p.m.
Weather	: Sunny, 53 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		18"	.4	very moist, stiff, brown\grey, clay
2	640		9"	.5	wet, loose, stiff, brown, and gravel
4	638		14"	1.6	wet, loose, grey with red rock
6	636		2"		rock in nose of spoon, refusal
8	634				
10	632		64"		
12	630				
14	628				
16	626		60."		
18	624				
20	622		38"		
22					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	Run #1 Natural and mechanical fractures RQD-13.3%
10	
12	
14	Run #2 mechanical and natural fractures RQD-23.3%
16	
18	Run#3 mostly natural fractures, vertical fractue 80 degrees
20	
22	



LOG OF BORING IW-13

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 24-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: DSS
Surveyed By	:

LOG OF BORING IW-14

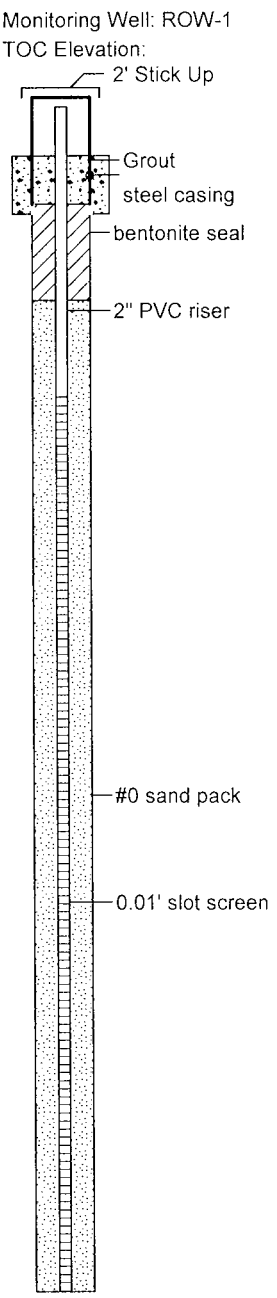
(Page 1 of 1)

Date/Time Started	: 4-10-08; 8:40 a.m.
Date/Time Completed	: 4-11-08; 9:00 a.m.
Weather	: Partly cloudy, 45 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		12"	.0	moist, brown silt and clay, topsoil
2	640		18"	2.8	4" wet, brown slit and clay, sand, little slit
4	638		8"	1.1	moist, red brown, slit, little gravel
6	636		24"	.3	20" moist red brown silt, some clay, little gravel and sand
8	634				
10	632		60"		
12	630				
14	628				
16	626		60"		
18	624				
20	622				
22	620		60"		
24					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	Run #1 Natural fractures, 50 degree vertical fracture 9.4-9.5' RQD-43.9%
12	
14	Run #2 natural fractures, vertical fracture 16.5-16.7' 85 degree RQD-23.3%
16	
18	Run#3 mechanical breaks RQD-56.0%
20	
22	
24	



LOG OF BORING IW-14

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S&W Redevelopment

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 21.5-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING OW-1

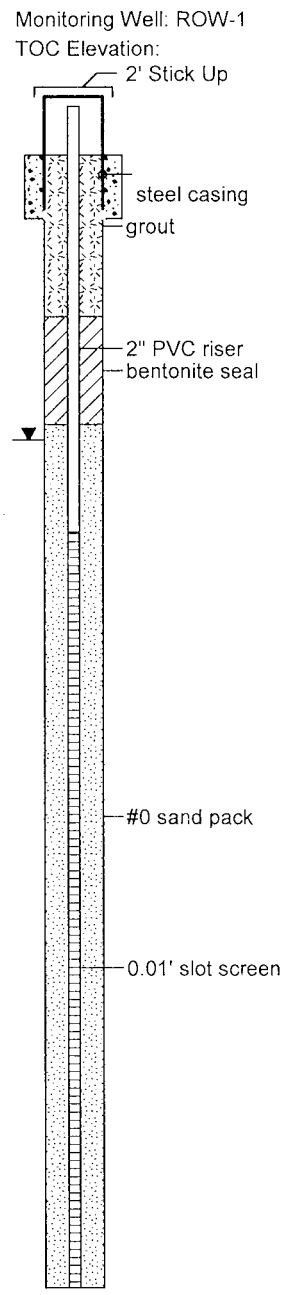
(Page 1 of 1)

Date/Time Started	: 4-30-08; 8:35 a.m.
Date/Time Completed	: 4-30-08; 1:15 p.m.
Weather	: Sunny, 36 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		12"	.4	moist, stiff, light brown, slit, some gravel, pieces of wood (top 2"-topsoil)
2	640		20"	.2	moist, stiff, light brown, silt, trace of fine sand, traces of gravel and wood
4	638		3"	.3	SAA, wet
6	636				refusal at 6.1"
8	634		55"		
10	632				
12	630		60"		
14	628				
16	626				
18	624		55"		
20					End Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	Run #1 natural and mechanical breaks, vertical fracture at 10.5', RQD-42.8 %
8	
10	
12	Run #2 natural breaks, RQD-13.3%
14	
16	Run #3 natural and mechanical breaks, vertical fractures at 16-16.5' and 19-20', RQD-0.0%
18	
20	



LOG OF BORING OW-1

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 25.-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING OW-2

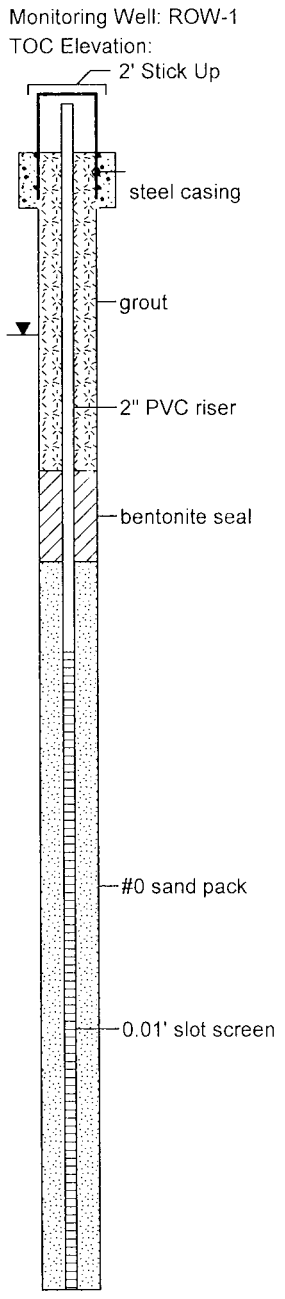
(Page 1 of 1)

Date/Time Started	: 4-30-08; 1:35 p.m
Date/Time Completed	: 4-30-08; 3:50 p.m.
Weather	: Sunny, 50 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		20"	.3	moist,stiff, light brown, silt and clay, trace of gravel
2	640		18"	.4	SAA
4	638		18"	.6	SAA
6	636		22"	.4	SAA, more clay then silt
8	634		16"	.8	wet, hard, light-dark brown, frist 6" SAA, last 10" gravel fine sand and silt
10	632				
12	630		57"		
14	628				
16	626				
18	624		60"		
20	622				
22	620		60"		
24					End Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	Run #1 natural breaks, vertical fracture at 11.5-12', RQD-6.8%
12	
14	
16	Run #2 natural and mechanical breaks, calcite deposits, RQD-18.3%
18	
20	Run #3 RQD-63.3%
22	
24	



LOG OF BORING OW-2

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Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 29.5.-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING OW-3

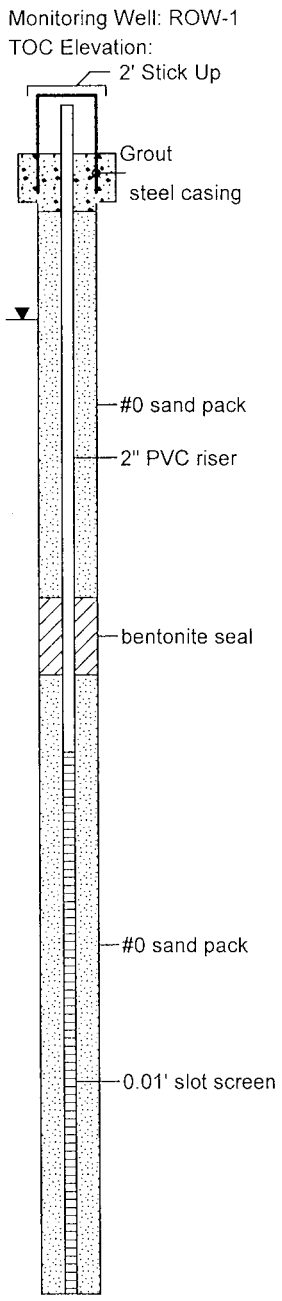
(Page 1 of 1)

Date/Time Started	: 5-1-08; 8:00 a.m.
Date/Time Completed	: 5-1-08; 3:05 p.m.
Weather	: Sunny, 40 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		18"	.0	moist, stiff, light brown, slit, some gravel (top 2" topsoil)
2	640		16"	.0	moist, very stiff, light brown, silt
4	638		12"	.0	SAA(last 3"-silt and fine sand)
6	636		12"	.1	moist/wet, stiff, light brown, silt, some fine sand and clay, trace of gravel
8	634		24"	.1	wet, very stiff, light brown, silt and clay
10	632		20"	.2	wet, very stiff, light brown, silt, clay some fine sand and gravel
12	630		1"	.1	SAA, Refusal at 12.2'
14	628		18"		
16	626				
18	624		9"		
20	622				
22	620		60"		
24	618				stoped aurguring and began roller biting
26	616				
28	614				
30					End of Boring

Depth in Feet (bgs)	REMARKS
0	
2	
4	
6	
8	
10	
12	Run #1 top of rock is 14.7' RQD-0.0%
14	
16	
18	
20	Run #2 natural breaks, veritcal fracture at 18.7-19' RQD-0.0%
22	Run #3 natural breaks, calcite deposits, RQD-20.0% (began at 19.5')
24	
26	
28	
30	



LOG OF BORING OW-3

(Page 1 of 1)

10-06-2008 J:\PROJECTS\B-XXXX\B6000\B6003 - Griffin-Diebold\60 Remedial Action\Pilot Test\boringlogs\OW-3.bor

S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 29.5.-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING OW-4

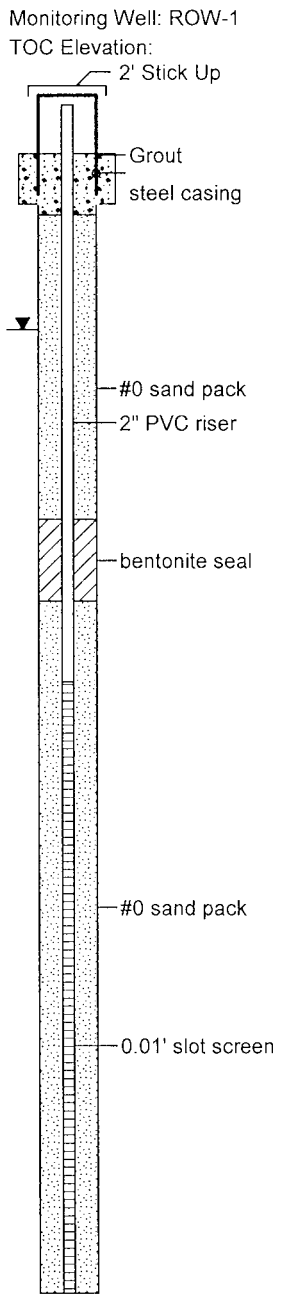
(Page 1 of 1)

Date/Time Started	: 5-2-08; 8:15 a.m.
Date/Time Completed	: 5-2-08; 12:35 p.m.
Weather	: Cloudy, 50 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642				
			12"	.3	moist, stiff, light brown, silt, some fine sand, (top 3" topsoil)
2	640			.3	moist, very stiff, light brown, silt, some clay, trace of gravel
4	638		12"	.6	moist, light brown, very stiff, silt and clay, trace of gravel
6	636				SAA
			16"	.3	
8	634				SAA
			24"	.3	
10	632				SAA
			23"	.3	
12	630		12"	.6	wet, stiff, light brown, very stiff, silt and clay, (last 6" coarse sand and gravel)
14	628				
16	626				
18	624				
20	622		48"		
22	620				
24	618				
26	616		60"		
28					End of Boring

Depth in Feet (bgs)	REMARKS
0	
18	Run #1 RQD-0.0%
22	Run #2 RQD-30.0%



Note: Run #2 begans at 17'

LOG OF BORING OW-4

(Page 1 of 1)

S&W Redevelopment

of North America, LLC

Former Griffin Technology
BCP Site # C835008
6132 Victor-Manchester Rd. (Rte 96)
Farmington, Ontario County, New York

Project No. B6003.60

Depth of Boring	: 29.5.-feet bgs
Drilling Contractor	: Parratt Wolff
Drilling Rig Type	: CME-45
Driller	: Mike
Drilling Method	: HSAs/core barrel
Hydraulic Hammer	: 140 # Hammer
Sampling Method	: Split Spoon 1-3/8" ID
Logged By	: AM
Surveyed By	:

LOG OF BORING OW-5

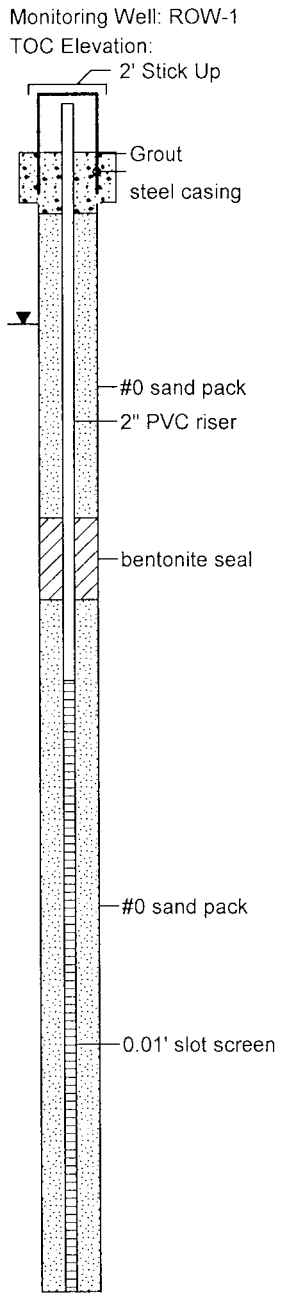
(Page 1 of 1)

Date/Time Started	: 5-2-08; 1:00 p.m.
Date/Time Completed	: 5-5-08; 12:15 p.m.
Weather	: Sunny, 40 F
Boring Location	:

Sample Type
- No Recovery
- Recovery
- Not Sampled

Depth in Feet (bgs)	Surf. Elev. 642	Sample	Recovery (Inches)	PID Reading (ppm)	DESCRIPTION
0	642		12"	.4	moist, stiff, light brown, silt, some fine sand (top 3" topsoil)
2	640		24"	.2	moist, stiff, light brown, silt, some clay
4	638		18"	.5	moist stiff, light brown, silt and clay, some gravel
6	636		24"	.5	SAA, (more clay then silt)
8	634		8"	1.4	SAA
10	632		20"	.8	frist 15" SAA, last 5" wet coarse and and gravel
12	630		18"	.6	SAA(wet coarse sand and gravel)
14	628				
16	626		6"		
18	624				
20	622		60"		
22	620				
24	618		54"		
26	616				
28			18"		End of Boring

Depth in Feet (bgs)	REMARKS
16	Run #1 natural breaks RQD-0.0%
18	Run #2 natural and mechanical breaks, veritcal fracture at 20.0-20.5' RQD-23.3%
22	Run #3 natural and mechanical breaks, vertival fracture at 23-23.4', RQD-55.5%
26	Run #4 natural breaks, RQD-61.1%



Note: Run #2 begans at 17'

LOG OF BORING OW-5

(Page 1 of 1)

Appendix B
Laboratory Analysis Reports

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

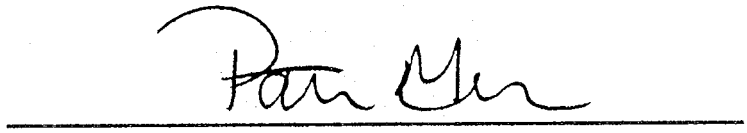
Job Number: 220-5274-1

SDG Number: 220-5274

Job Description: Diebold

For:
S & W Redevelopment LLC
430 East Genesee Street, Suite 140
Syracuse, NY 13202

Attention: Mr. Don Sorbello



Designee for
Paul Hobart
Project Manager I
paul.hobart@testamericainc.com
06/22/2008

TestAmerica Connecticut Certifications and Approvals: CTDOH PH-047, MADEP CT023, RIDOH A43, NYDOH 10602, NY NELAP 10602, NHDES 2528, NJDEP CT410, ME DOH CT023, UT DOH 2032614458

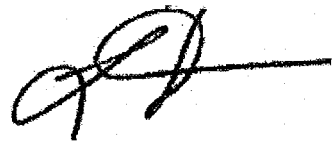
TestAmerica Laboratories, Inc.
TestAmerica Connecticut 128 Long Hill Cross Road, Shelton, CT 06484
Tel (203) 929-8140 Fax (203) 929-8142 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Case Narrative for Job: 220-5274-1

Client: S & W Redevelopment LLC
Date: June 23, 2008

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.



Lawrence Decker
Laboratory Director

June 23, 2008
Date

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

FORMULAS FOR NYSDEC SAMPLE CALCULATIONS

Volatiles

(Ax)(IS)(DF)
(AIS)(RRF)(V)(% solids) = C

(AX)(IS)(VT)(1000)(DF)
(AIS)(RRF)(VA)(V)(% solids) = C (for medium level soils)

SemiVolatiles

(AX)(IS)(VE)(DF)(GPC factor is 2 if needed)
(AIS)(RRF)(volume injected)(V)(% solids) = C

Pesticides

(AX)(VE)(DF)
(RRF)(V)(% solids)(volume injected) = C

PCBs for compound/retention time

(AX)(VE)(DF)
(RRF of compound at the stated retention time)(V)(% solids)(volume injected) = C

DRO/CTETPH

(AX)(VE)(DF)
(RRF)(V)(% solids)(volume injected) = C

AX = area of the target Ion
AIS = Area of Internal standard
C = concentration as ug/L or ug/Kg
DF = dilution
IS = Internal standard concentration (ng)
RRF = average RF (from initial cal except CLP methods from continuing cal)
V = sample volume for liquids in mls or sample weight for solids in grams
VA = volume of aliquot for medium level soils
VE = volume of concentrated extract
VT = volume of methanol for volatile medium level soils

SAMPLE SUMMARY

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
220-5274-1	OW-1	Water	06/02/2008 1348	06/05/2008 0935
220-5274-2	OW-2	Water	06/02/2008 1225	06/05/2008 0935
220-5274-3	OW-3	Water	06/02/2008 1105	06/05/2008 0935
220-5274-4	OW-4	Water	06/04/2008 0910	06/05/2008 0935
220-5274-5	OW-5	Water	06/04/2008 0935	06/05/2008 0935
220-5274-6	OW-6	Water	06/04/2008 0955	06/05/2008 0935
220-5274-7	OW-7	Water	06/04/2008 1025	06/05/2008 0935
220-5274-8	OW-8	Water	06/04/2008 1045	06/05/2008 0935
220-5274-9	OW-9	Water	06/04/2008 1100	06/05/2008 0935
220-5274-10	DUPLICATE	Water	06/02/2008 0000	06/05/2008 0935

METHOD SUMMARY

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds by GC/MS	TAL CT	SW846 8260B	
Purge-and-Trap	TAL CT		SW846 5030B
Inductively Coupled Plasma - Atomic Emission Spectrometry	TAL CT	SW846 6010B	
Acid Digestion of Aqueous Samples and Extracts for	TAL CT		SW846 3010A
Chemical Oxygen Demand (Colorimetric, Automated; Manual)	TAL CT	MCAWW 410.4	
Total Organic Carbon - Low Level (UV Promoted, Persulfate Oxidation)	TAL CT	MCAWW 415.2	

Lab References:

TAL CT = TestAmerica Connecticut

Method References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Method	Analyst	Analyst ID
SW846 8260B	Kostrzewska, Barbara	BK
SW846 6010B	Petronchak, Nestor	NP
MCAWW 410.4	Mendoza, Julia	JM
MCAWW 415.2	Madumadu, Dave	DM

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-1

Lab Sample ID: 220-5274-1
Client Matrix: Water

Date Sampled: 06/02/2008 1348
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 4.0
Date Analyzed: 06/06/2008 1629
Date Prepared: 06/06/2008 1629

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7119.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	40	U	6.4	40
Benzene	20	U	0.92	20
Bromodichloromethane	20	U	0.96	20
Bromoform	20	U	4.6	20
Bromomethane	20	U	4.1	20
Methyl Ethyl Ketone	40	U	4.2	40
Carbon disulfide	20	U	0.56	20
Carbon tetrachloride	20	U	1.2	20
Chlorobenzene	20	U	0.60	20
Chloroethane	20	U	1.9	20
Chloroform	20	U	1.1	20
Chloromethane	20	U	0.96	20
Dibromochloromethane	20	U	0.84	20
1,1-Dichloroethane	20	U *	0.92	20
1,2-Dichloroethane	20	U	1.0	20
1,1-Dichloroethene	20	U	1.0	20
1,2-Dichloropropane	20	U *	1.3	20
cis-1,3-Dichloropropene	20	U	1.1	20
trans-1,3-Dichloropropene	20	U	1.1	20
Ethylbenzene	20	U	1.1	20
2-Hexanone	40	U	1.5	40
Methylene Chloride	5.2	J B	1.0	20
methyl isobutyl ketone	40	U	1.5	40
Styrene	20	U	2.8	20
1,1,2,2-Tetrachloroethane	20	U	0.92	20
Tetrachloroethene	20	U	1.2	20
Toluene	20	U	0.36	20
1,1,1-Trichloroethane	20	U	1.5	20
1,1,2-Trichloroethane	20	U *	1.3	20
Trichloroethene	510		1.0	20
Vinyl chloride	20	U	1.2	20
Xylenes, Total	20	U	1.8	20
cis-1,2-Dichloroethene	6.3	J	1.3	20
trans-1,2-Dichloroethene	20	U	0.88	20

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	81	53 - 125
4-Bromofluorobenzene	83	73 - 127
Dibromofluoromethane	80	54 - 137
Toluene-d8 (Surr)	78	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-2

Lab Sample ID: 220-5274-2
Client Matrix: Water

Date Sampled: 06/02/2008 1225
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/05/2008 1929
Date Prepared: 06/05/2008 1929

Analysis Batch: 220-16649

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7080.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	5.0	U	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	5.0	U	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U	0.33	5.0
Trichloroethene	11		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	1.1	J	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	77	53 - 125
4-Bromofluorobenzene	83	73 - 127
Dibromofluoromethane	78	54 - 137
Toluene-d8 (Surr)	75	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-3

Lab Sample ID: 220-5274-3
Client Matrix: Water

Date Sampled: 06/02/2008 1105
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 2.0
Date Analyzed: 06/06/2008 1559
Date Prepared: 06/06/2008 1559

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7118.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	20	U	3.2	20
Benzene	10	U	0.46	10
Bromodichloromethane	10	U	0.48	10
Bromoform	10	U	2.3	10
Bromomethane	10	U	2.0	10
Methyl Ethyl Ketone	20	U	2.1	20
Carbon disulfide	10	U	0.28	10
Carbon tetrachloride	10	U	0.58	10
Chlorobenzene	10	U	0.30	10
Chloroethane	10	U	0.96	10
Chloroform	10	U	0.54	10
Chloromethane	10	U	0.48	10
Dibromochloromethane	10	U	0.42	10
1,1-Dichloroethane	10	U *	0.46	10
1,2-Dichloroethane	10	U	0.50	10
1,1-Dichloroethene	10	U	0.50	10
1,2-Dichloropropane	10	U *	0.64	10
cis-1,3-Dichloropropene	10	U	0.56	10
trans-1,3-Dichloropropene	10	U	0.56	10
Ethylbenzene	10	U	0.56	10
2-Hexanone	20	U	0.74	20
Methylene Chloride	2.0	J B	0.52	10
methyl isobutyl ketone	20	U	0.76	20
Styrene	10	U	1.4	10
1,1,2,2-Tetrachloroethane	10	U	0.46	10
Tetrachloroethene	10	U	0.60	10
Toluene	10	U	0.18	10
1,1,1-Trichloroethane	10	U	0.76	10
1,1,2-Trichloroethane	10	U *	0.66	10
Trichloroethene	210		0.52	10
Vinyl chloride	10	U	0.60	10
Xylenes, Total	10	U	0.92	10
cis-1,2-Dichloroethene	10	U	0.66	10
trans-1,2-Dichloroethene	10	U	0.44	10

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	77	53 - 125
4-Bromofluorobenzene	83	73 - 127
Dibromofluoromethane	83	54 - 137
Toluene-d8 (Surr)	79	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-4

Lab Sample ID: 220-5274-4
Client Matrix: Water

Date Sampled: 06/04/2008 0910
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/06/2008 1332
Date Prepared: 06/06/2008 1332

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7112.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	5.0	U	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U *	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	5.0	U	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U *	0.33	5.0
Trichloroethene	67		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	5.0	U	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	85	53 - 125
4-Bromofluorobenzene	92	73 - 127
Dibromofluoromethane	87	54 - 137
Toluene-d8 (Surr)	82	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: **OW-5**

Lab Sample ID: 220-5274-5
Client Matrix: Water

Date Sampled: 06/04/2008 0935
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/05/2008 2042
Date Prepared: 06/05/2008 2042

Analysis Batch: 220-16649

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7083.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	0.37	J	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	0.31	J	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U	0.33	5.0
Trichloroethene	120		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	5.0	U	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	78	53 - 125
4-Bromofluorobenzene	78	73 - 127
Dibromofluoromethane	78	54 - 137
Toluene-d8 (Surr)	75	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-6

Lab Sample ID: 220-5274-6
Client Matrix: Water

Date Sampled: 06/04/2008 0955
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/06/2008 1653
Date Prepared: 06/06/2008 1653

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7120.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	5.0	U	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U *	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	5.0	U	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U *	0.33	5.0
Trichloroethene	120		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	5.0	U	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	82	53 - 125
4-Bromofluorobenzene	87	73 - 127
Dibromofluoromethane	85	54 - 137
Toluene-d8 (Surr)	79	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-7

Lab Sample ID: 220-5274-7
Client Matrix: Water

Date Sampled: 06/04/2008 1025
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 2.0
Date Analyzed: 06/12/2008 1815
Date Prepared: 06/12/2008 1815

Analysis Batch: 220-16898

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7278.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	20	U	3.2	20
Benzene	0.52	J	0.46	10
Bromodichloromethane	10	U	0.48	10
Bromoform	10	U	2.3	10
Bromomethane	10	U	2.0	10
Methyl Ethyl Ketone	20	U	2.1	20
Carbon disulfide	10	U	0.28	10
Carbon tetrachloride	10	U	0.58	10
Chlorobenzene	10	U	0.30	10
Chloroethane	10	U	0.96	10
Chloroform	10	U	0.54	10
Chloromethane	10	U	0.48	10
Dibromochloromethane	10	U	0.42	10
1,1-Dichloroethane	10	U	0.46	10
1,2-Dichloroethane	10	U	0.50	10
1,1-Dichloroethene	10	U	0.50	10
1,2-Dichloropropane	10	U	0.64	10
cis-1,3-Dichloropropene	10	U	0.56	10
trans-1,3-Dichloropropene	10	U	0.56	10
Ethylbenzene	10	U	0.56	10
2-Hexanone	20	U	0.74	20
Methylene Chloride	2.7	J B	0.52	10
methyl isobutyl ketone	20	U	0.76	20
Styrene	10	U	1.4	10
1,1,2,2-Tetrachloroethane	10	U	0.46	10
Tetrachloroethene	10	U	0.60	10
Toluene	10	U	0.18	10
1,1,1-Trichloroethane	10	U	0.76	10
1,1,2-Trichloroethane	10	U	0.66	10
Trichloroethene	180		0.52	10
Vinyl chloride	10	U	0.60	10
Xylenes, Total	10	U	0.92	10
cis-1,2-Dichloroethene	5.7	J	0.66	10
trans-1,2-Dichloroethene	10	U	0.44	10

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	83	53 - 125
4-Bromofluorobenzene	88	73 - 127
Dibromofluoromethane	82	54 - 137
Toluene-d8 (Surr)	80	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-8

Lab Sample ID: 220-5274-8
Client Matrix: Water

Date Sampled: 06/04/2008 1045
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/06/2008 1742
Date Prepared: 06/06/2008 1742

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7122.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	5.0	U	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U *	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	5.0	U	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U *	0.33	5.0
Trichloroethene	57		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	1.1	J	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	80	53 - 125
4-Bromofluorobenzene	85	73 - 127
Dibromofluoromethane	82	54 - 137
Toluene-d8 (Surr)	76	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-9

Lab Sample ID: 220-5274-9
Client Matrix: Water

Date Sampled: 06/04/2008 1100
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/06/2008 1806
Date Prepared: 06/06/2008 1806

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7123.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	5.0	U	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U *	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	5.0	U	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U *	0.33	5.0
Trichloroethene	23		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	5.0	U	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	81	53 - 125
4-Bromofluorobenzene	85	73 - 127
Dibromofluoromethane	83	54 - 137
Toluene-d8 (Surr)	78	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: DUPLICATE

Lab Sample ID: 220-5274-10
Client Matrix: Water

Date Sampled: 06/02/2008 0000
Date Received: 06/05/2008 0935

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 06/06/2008 1831
Date Prepared: 06/06/2008 1831

Analysis Batch: 220-16702

Instrument ID: HP 5890/5971 GC/MS
Lab File ID: L7124.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.6	10
Benzene	5.0	U	0.23	5.0
Bromodichloromethane	5.0	U	0.24	5.0
Bromoform	5.0	U	1.2	5.0
Bromomethane	5.0	U	1.0	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.14	5.0
Carbon tetrachloride	5.0	U	0.29	5.0
Chlorobenzene	5.0	U	0.15	5.0
Chloroethane	5.0	U	0.48	5.0
Chloroform	5.0	U	0.27	5.0
Chloromethane	5.0	U	0.24	5.0
Dibromochloromethane	5.0	U	0.21	5.0
1,1-Dichloroethane	5.0	U *	0.23	5.0
1,2-Dichloroethane	5.0	U	0.25	5.0
1,1-Dichloroethene	5.0	U	0.25	5.0
1,2-Dichloropropane	5.0	U *	0.32	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.28	5.0
Ethylbenzene	5.0	U	0.28	5.0
2-Hexanone	10	U	0.37	10
Methylene Chloride	5.0	U	0.26	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.70	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.23	5.0
Tetrachloroethene	5.0	U	0.30	5.0
Toluene	5.0	U	0.090	5.0
1,1,1-Trichloroethane	5.0	U	0.38	5.0
1,1,2-Trichloroethane	5.0	U *	0.33	5.0
Trichloroethene	11		0.26	5.0
Vinyl chloride	5.0	U	0.30	5.0
Xylenes, Total	5.0	U	0.46	5.0
cis-1,2-Dichloroethene	0.85	J	0.33	5.0
trans-1,2-Dichloroethene	5.0	U	0.22	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	82	53 - 125
4-Bromofluorobenzene	79	73 - 127
Dibromofluoromethane	80	54 - 137
Toluene-d8 (Surr)	76	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-1

Lab Sample ID: 220-5274-1
Client Matrix: Water

Date Sampled: 06/02/2008 1348
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1409
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	230		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-2

Lab Sample ID: 220-5274-2
Client Matrix: Water

Date Sampled: 06/02/2008 1225
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1415
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	120		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-3

Lab Sample ID: 220-5274-3
Client Matrix: Water

Date Sampled: 06/02/2008 1105
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1421
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	5.4	J	1.0	10
Lead	3.8	J	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	200		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-4

Lab Sample ID: 220-5274-4
Client Matrix: Water

Date Sampled: 06/04/2008 0910
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1426
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	4.9	J	1.0	10
Lead	4.7	J	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	200		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-5

Lab Sample ID: 220-5274-5
Client Matrix: Water

Date Sampled: 06/04/2008 0935
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1449
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	7.2	J	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	26		1.0	10
Lead	31		3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	500		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-6

Lab Sample ID: 220-5274-6
Client Matrix: Water

Date Sampled: 06/04/2008 0955
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1506
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	1.9	J	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	170		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-7

Lab Sample ID: 220-5274-7
Client Matrix: Water

Date Sampled: 06/04/2008 1025
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1512
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	23		1.0	10
Lead	25		3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	440		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-8

Lab Sample ID: 220-5274-8
Client Matrix: Water

Date Sampled: 06/04/2008 1045
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1518
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	320		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: OW-9

Lab Sample ID: 220-5274-9
Client Matrix: Water

Date Sampled: 06/04/2008 1100
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1524
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	320		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-5274-1
Sdg Number: 220-5274

Client Sample ID: DUPLICATE

Lab Sample ID: 220-5274-10
Client Matrix: Water

Date Sampled: 06/02/2008 0000
Date Received: 06/05/2008 0935

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 06/12/2008 1529
Date Prepared: 06/11/2008 1043

Analysis Batch: 220-16843
Prep Batch: 220-16788

Instrument ID: TJA Trace ICAP
Lab File ID: W061208
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	120		1.2	5.0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 220-6756-1

SDG Number: 220-6756

Job Description: Griffin Diebold

For:
S & W Redevelopment LLC
430 East Genesee Street
Suite 401
Syracuse, NY 13202

Attention: Mr. Don Sorbello

Approved for release.
Cheryl Cascella
10/14/2008 1:07 PM

Designee for
Paul Hobart
Project Manager I
paul.hobart@testamericainc.com
10/14/2008

TestAmerica Connecticut Certifications and Approvals: CTDOH PH-047, MADEP CT023, RIDOH A43, NYDOH 10602, NY NELAP 10602, NHDES 2528, NJDEP CT410, ME DOH CT023, UT DOH 2032614458

TestAmerica Laboratories, Inc.
TestAmerica Connecticut 128 Long Hill Cross Road, Shelton, CT 06484
Tel (203) 929-8140 Fax (203) 929-8142 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Case Narrative for Job: 220-6756-1

Client: S&W Redevelopment
Date: October 14, 2008

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Lawrence Decker
Laboratory Director

October 14, 2008
Date

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

FORMULAS FOR NYSDEC SAMPLE CALCULATIONS

Volatiles

$$\frac{(Ax)(IS)(DF)}{(AIS)(RRF)(V)(\%\ solids)} = C$$

$$\frac{(AX)(IS)(VT)(1000)(DF)}{(AIS)(RRF)(VA)(V)(\%\ solids)} = C \quad \text{(for medium level soils)}$$

SemiVolatiles

$$\frac{(AX)(IS)(VE)(DF)(GPC\ factor\ is\ 2\ if\ needed)}{(AIS)(RRF)(volume\ injected)(V)(\%\ solids)} = C$$

Pesticides

$$\frac{(AX)(VE)(DF)}{(RRF)(V)(\%\ solids)(volume\ injected)} = C$$

PCBs for compound/retention time

$$\frac{(AX)(VE)(DF)}{(RRF\ of\ compound\ at\ the\ stated\ retention\ time)(V)(\%\ solids)(volume\ injected)} = C$$

DRO/CTETPH

$$\frac{(AX)(VE)(DF)}{(RRF)(V)(\%\ solids)(volume\ injected)} = C$$

AX = area of the target Ion
AIS = Area of Internal standard
C = concentration as ug/L or ug/Kg
DF = dilution
IS = Internal standard concentration (ng)
RRF = average RF (from initial cal except CLP methods from continuing cal)
V = sample volume for liquids in mls or sample weight for solids in grams
VA = volume of aliquot for medium level soils
VE = volume of concentrated extract
VT = volume of methanol for volatile medium level soils

SAMPLE SUMMARY

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
220-6756-1	OW-4	Water	09/30/2008 1120	10/01/2008 1000
220-6756-2	DUP	Water	09/30/2008 0000	10/01/2008 1000
220-6756-3TB	TRIP BLANK	Water	09/30/2008 0000	10/01/2008 1000

METHOD SUMMARY

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL CT	SW846 8260B	
Purge and Trap	TAL CT		SW846 5030B
Metals (ICP)	TAL CT	SW846 6010B	
Preparation, Total Metals	TAL CT		SW846 3010A
COD	TAL CT	MCAWW 410.4	
TOC, Low-Level	TAL CT	MCAWW 415.2	

Lab References:

TAL CT = TestAmerica Connecticut

Method References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Method	Analyst	Analyst ID
SW846 8260B	Kostrzewska, Barbara	BK
SW846 6010B	Petronchak, Nestor	NP
MCAWW 410.4	Mendoza, Julia	JM
MCAWW 415.2	Madumadu, Dave	DM

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Client Sample ID: OW-4

Lab Sample ID: 220-6756-1
Client Matrix: Water

Date Sampled: 09/30/2008 1120
Date Received: 10/01/2008 1000

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 10/11/2008 1624
Date Prepared: 10/11/2008 1624

Analysis Batch: 220-20943

Instrument ID: HP 6890/5973 GC/MS
Lab File ID: W9720.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	11		1.0	10
Benzene	5.0	U	0.74	5.0
Bromodichloromethane	5.0	U	0.48	5.0
Bromoform	5.0	U	0.46	5.0
Bromomethane	5.0	U	2.1	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.90	5.0
Carbon tetrachloride	5.0	U	1.1	5.0
Chlorobenzene	5.0	U	0.72	5.0
Chloroethane	5.0	U	1.1	5.0
Chloroform	5.0	U *	0.67	5.0
Chloromethane	5.0	U	1.1	5.0
Dibromochloromethane	5.0	U	0.55	5.0
1,1-Dichloroethane	5.0	U	1.0	5.0
1,2-Dichloroethane	5.0	U	0.72	5.0
1,1-Dichloroethene	5.0	U	0.83	5.0
1,2-Dichloropropane	5.0	U	0.71	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.57	5.0
Ethylbenzene	5.0	U	0.87	5.0
2-Hexanone	10	U	1.1	10
Methylene Chloride	5.0	U	0.78	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.64	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.81	5.0
Tetrachloroethene	5.0	U	0.81	5.0
Toluene	5.0	U	0.72	5.0
1,1,1-Trichloroethane	4.2	J	0.69	5.0
1,1,2-Trichloroethane	5.0	U *	0.65	5.0
Trichloroethene	75		0.62	5.0
Vinyl chloride	5.0	U	0.99	5.0
Xylenes, Total	5.0	U	2.3	5.0
cis-1,2-Dichloroethene	5.0	U	0.99	5.0
trans-1,2-Dichloroethene	5.0	U	0.76	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	116	53 - 125
4-Bromofluorobenzene	93	73 - 127
Dibromofluoromethane	121	54 - 137
Toluene-d8 (Surr)	100	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Client Sample ID: DUP

Lab Sample ID: 220-6756-2
Client Matrix: Water

Date Sampled: 09/30/2008 0000
Date Received: 10/01/2008 1000

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 10/11/2008 1651
Date Prepared: 10/11/2008 1651

Analysis Batch: 220-20943

Instrument ID: HP 6890/5973 GC/MS
Lab File ID: W9721.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	9.4	J	1.0	10
Benzene	5.0	U	0.74	5.0
Bromodichloromethane	5.0	U	0.48	5.0
Bromoform	5.0	U	0.46	5.0
Bromomethane	5.0	U	2.1	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.90	5.0
Carbon tetrachloride	5.0	U	1.1	5.0
Chlorobenzene	5.0	U	0.72	5.0
Chloroethane	5.0	U	1.1	5.0
Chloroform	5.0	U *	0.67	5.0
Chloromethane	5.0	U	1.1	5.0
Dibromochloromethane	5.0	U	0.55	5.0
1,1-Dichloroethane	5.0	U	1.0	5.0
1,2-Dichloroethane	5.0	U	0.72	5.0
1,1-Dichloroethene	5.0	U	0.83	5.0
1,2-Dichloropropane	5.0	U	0.71	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.57	5.0
Ethylbenzene	5.0	U	0.87	5.0
2-Hexanone	10	U	1.1	10
Methylene Chloride	5.0	U	0.78	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.64	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.81	5.0
Tetrachloroethene	5.0	U	0.81	5.0
Toluene	5.0	U	0.72	5.0
1,1,1-Trichloroethane	3.9	J	0.69	5.0
1,1,2-Trichloroethane	5.0	U *	0.65	5.0
Trichloroethene	78		0.62	5.0
Vinyl chloride	5.0	U	0.99	5.0
Xylenes, Total	5.0	U	2.3	5.0
cis-1,2-Dichloroethene	5.0	U	0.99	5.0
trans-1,2-Dichloroethene	5.0	U	0.76	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	116	53 - 125
4-Bromofluorobenzene	94	73 - 127
Dibromofluoromethane	125	54 - 137
Toluene-d8 (Surr)	99	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 220-6756-3TB
Client Matrix: Water

Date Sampled: 09/30/2008 0000
Date Received: 10/01/2008 1000

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 10/11/2008 1504
Date Prepared: 10/11/2008 1504

Analysis Batch: 220-20943

Instrument ID: HP 6890/5973 GC/MS
Lab File ID: W9717.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	10	U	1.0	10
Benzene	5.0	U	0.74	5.0
Bromodichloromethane	5.0	U	0.48	5.0
Bromoform	5.0	U	0.46	5.0
Bromomethane	5.0	U	2.1	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.90	5.0
Carbon tetrachloride	5.0	U	1.1	5.0
Chlorobenzene	5.0	U	0.72	5.0
Chloroethane	5.0	U	1.1	5.0
Chloroform	5.0	U *	0.67	5.0
Chloromethane	5.0	U	1.1	5.0
Dibromochloromethane	5.0	U	0.55	5.0
1,1-Dichloroethane	5.0	U	1.0	5.0
1,2-Dichloroethane	5.0	U	0.72	5.0
1,1-Dichloroethene	5.0	U	0.83	5.0
1,2-Dichloropropane	5.0	U	0.71	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.57	5.0
Ethylbenzene	5.0	U	0.87	5.0
2-Hexanone	10	U	1.1	10
Methylene Chloride	1.1	J	0.78	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.64	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.81	5.0
Tetrachloroethene	5.0	U	0.81	5.0
Toluene	5.0	U	0.72	5.0
1,1,1-Trichloroethane	5.0	U	0.69	5.0
1,1,2-Trichloroethane	5.0	U *	0.65	5.0
Trichloroethene	5.0	U	0.62	5.0
Vinyl chloride	5.0	U	0.99	5.0
Xylenes, Total	5.0	U	2.3	5.0
cis-1,2-Dichloroethene	5.0	U	0.99	5.0
trans-1,2-Dichloroethene	5.0	U	0.76	5.0

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95	53 - 125
4-Bromofluorobenzene	84	73 - 127
Dibromofluoromethane	102	54 - 137
Toluene-d8 (Surr)	91	63 - 121

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Client Sample ID: OW-4

Lab Sample ID: 220-6756-1
Client Matrix: Water

Date Sampled: 09/30/2008 1120
Date Received: 10/01/2008 1000

6010B Metals (ICP)

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 10/11/2008 1359
Date Prepared: 10/09/2008 1422

Analysis Batch: 220-20931
Prep Batch: 220-20844

Instrument ID: TJA Trace ICAP
Lab File ID: W101108
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	4.5	J	3.2	30
Silver	5.0	U	1.3	5.0
Barium	370		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Client Sample ID: DUP

Lab Sample ID: 220-6756-2
Client Matrix: Water

Date Sampled: 09/30/2008 0000
Date Received: 10/01/2008 1000

6010B Metals (ICP)

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 10/11/2008 1405
Date Prepared: 10/09/2008 1422

Analysis Batch: 220-20931
Prep Batch: 220-20844

Instrument ID: TJA Trace ICAP
Lab File ID: W101108
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	5.9	J	3.2	30
Silver	5.0	U	1.3	5.0
Barium	390		1.2	5.0

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

General Chemistry

Client Sample ID: OW-4

Lab Sample ID: 220-6756-1
Client Matrix: Water

Date Sampled: 09/30/2008 1120
Date Received: 10/01/2008 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chemical Oxygen Demand	24.0		mg/L	2.8	10.0	1.0	410.4
Anly Batch: 220-20661	Date Analyzed			10/04/2008 1942			
Total Organic Carbon - Quad	6.9		mg/L	0.10	1.0	1.0	415.2
Anly Batch: 220-20666	Date Analyzed			10/04/2008 0504			

Client Sample ID: DUP

Lab Sample ID: 220-6756-2
Client Matrix: Water

Date Sampled: 09/30/2008 0000
Date Received: 10/01/2008 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chemical Oxygen Demand	24.4		mg/L	2.8	10.0	1.0	410.4
Anly Batch: 220-20661	Date Analyzed			10/04/2008 1948			
Total Organic Carbon - Quad	6.9		mg/L	0.10	1.0	1.0	415.2
Anly Batch: 220-20666	Date Analyzed			10/04/2008 0556			

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	12DCE %Rec	TOL %Rec	BFB %Rec
220-6756-1	OW-4	121	116	100	93
220-6756-2	DUP	125	116	99	94
220-6756-3	TRIP BLANK	102	95	91	84
MB 220-20943/3		119	107	103	88
LCS 220-20943/2		112	99	101	86

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane	54-137
12DCE = 1,2-Dichloroethane-d4 (Surr)	53-125
TOL = Toluene-d8 (Surr)	63-121
BFB = 4-Bromofluorobenzene	73-127

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Method Blank - Batch: 220-20943

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 220-20943/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/11/2008 1410
Date Prepared: 10/11/2008 1410

Analysis Batch: 220-20943
Prep Batch: N/A
Units: ug/L

Instrument ID: HP 6890/5973 GC/MS
Lab File ID: W9715.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	MDL	RL
Acetone	10	U	1.0	10
Benzene	5.0	U	0.74	5.0
Bromodichloromethane	5.0	U	0.48	5.0
Bromoform	5.0	U	0.46	5.0
Bromomethane	5.0	U	2.1	5.0
Methyl Ethyl Ketone	10	U	1.1	10
Carbon disulfide	5.0	U	0.90	5.0
Carbon tetrachloride	5.0	U	1.1	5.0
Chlorobenzene	5.0	U	0.72	5.0
Chloroethane	5.0	U	1.1	5.0
Chloroform	5.0	U	0.67	5.0
Chloromethane	5.0	U	1.1	5.0
Dibromochloromethane	5.0	U	0.55	5.0
1,1-Dichloroethane	5.0	U	1.0	5.0
1,2-Dichloroethane	5.0	U	0.72	5.0
1,1-Dichloroethene	5.0	U	0.83	5.0
1,2-Dichloropropane	5.0	U	0.71	5.0
cis-1,3-Dichloropropene	5.0	U	0.28	5.0
trans-1,3-Dichloropropene	5.0	U	0.57	5.0
Ethylbenzene	5.0	U	0.87	5.0
2-Hexanone	10	U	1.1	10
Methylene Chloride	5.0	U	0.78	5.0
methyl isobutyl ketone	10	U	0.38	10
Styrene	5.0	U	0.64	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.81	5.0
Tetrachloroethene	5.0	U	0.81	5.0
Toluene	5.0	U	0.72	5.0
1,1,1-Trichloroethane	5.0	U	0.69	5.0
1,1,2-Trichloroethane	5.0	U	0.65	5.0
Trichloroethene	5.0	U	0.62	5.0
Vinyl chloride	5.0	U	0.99	5.0
Xylenes, Total	5.0	U	2.3	5.0
cis-1,2-Dichloroethene	5.0	U	0.99	5.0
trans-1,2-Dichloroethene	5.0	U	0.76	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107	53 - 125
4-Bromofluorobenzene	88	73 - 127
Dibromofluoromethane	119	54 - 137
Toluene-d8 (Surr)	103	63 - 121

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Lab Control Spike - Batch: 220-20943

Method: 8260B
Preparation: 5030B

Lab Sample ID: LCS 220-20943/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/11/2008 1303
Date Prepared: 10/11/2008 1303

Analysis Batch: 220-20943
Prep Batch: N/A
Units: ug/L

Instrument ID: HP 6890/5973 GC/MS
Lab File ID: W9713.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	10.0	14.3	143	18 - 263	
Benzene	10.0	11.8	118	68 - 126	
Bromodichloromethane	10.0	11.1	111	67 - 118	
Bromoform	10.0	11.0	110	63 - 115	
Bromomethane	10.0	9.79	98	27 - 171	
Methyl Ethyl Ketone	10.0	12.1	121	30 - 222	
Carbon disulfide	10.0	10.1	101	44 - 142	
Carbon tetrachloride	10.0	12.4	124	56 - 131	
Chlorobenzene	10.0	10.6	106	71 - 114	
Chloroethane	10.0	10.3	103	53 - 167	
Chloroform	10.0	12.5	125	70 - 124	*
Chloromethane	10.0	11.1	111	43 - 134	
Dibromochloromethane	10.0	11.2	112	65 - 114	
1,1-Dichloroethane	10.0	11.3	113	67 - 121	
1,2-Dichloroethane	10.0	11.6	116	68 - 124	
1,1-Dichloroethene	10.0	11.6	116	57 - 137	
1,2-Dichloropropane	10.0	11.3	113	69 - 122	
cis-1,3-Dichloropropene	10.0	10.6	106	60 - 122	
trans-1,3-Dichloropropene	10.0	10.3	103	55 - 126	
Ethylbenzene	10.0	10.3	103	71 - 115	
2-Hexanone	10.0	9.52	95	54 - 179	J
Methylene Chloride	10.0	12.2	122	61 - 129	
methyl isobutyl ketone	10.0	10.3	103	61 - 140	
Styrene	10.0	9.16	92	69 - 112	
1,1,2,2-Tetrachloroethane	10.0	11.1	111	66 - 129	
Tetrachloroethene	10.0	11.4	114	62 - 118	
Toluene	10.0	10.6	106	70 - 116	
1,1,1-Trichloroethane	10.0	12.1	121	60 - 128	
1,1,2-Trichloroethane	10.0	12.6	126	70 - 119	*
Trichloroethene	10.0	12.5	125	58 - 125	
Vinyl chloride	10.0	10.1	101	51 - 139	
Xylenes, Total	30.0	30.3	101	66 - 118	
cis-1,2-Dichloroethene	10.0	11.4	114	65 - 120	
trans-1,2-Dichloroethene	10.0	11.5	115	57 - 129	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	99	53 - 125
4-Bromofluorobenzene	86	73 - 127
Dibromofluoromethane	112	54 - 137
Toluene-d8 (Surr)	101	63 - 121

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Method Blank - Batch: 220-20844

Method: 6010B
Preparation: 3010A

Lab Sample ID: MB 220-20844/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/11/2008 1325
Date Prepared: 10/09/2008 1422

Analysis Batch: 220-20931
Prep Batch: 220-20844
Units: ug/L

Instrument ID: TJA Trace ICAP 61E2
Lab File ID: W101108
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Arsenic	20	U	4.4	20
Cadmium	5.0	U	2.8	5.0
Chromium	10	U	1.0	10
Lead	10	U	3.0	10
Selenium	30	U	3.2	30
Silver	5.0	U	1.3	5.0
Barium	5.0	U	1.2	5.0

Lab Control Spike - Batch: 220-20844

Method: 6010B
Preparation: 3010A

Lab Sample ID: LCS 220-20844/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/11/2008 1330
Date Prepared: 10/09/2008 1422

Analysis Batch: 220-20931
Prep Batch: 220-20844
Units: ug/L

Instrument ID: TJA Trace ICAP 61E2
Lab File ID: W101108
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Arsenic	1000	999	100	80 - 120	
Cadmium	300	306	102	80 - 120	
Chromium	300	316	105	80 - 120	
Lead	1000	997	100	80 - 120	
Selenium	500	499	100	80 - 120	
Silver	300	314	105	80 - 120	
Barium	300	313	104	80 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Method Blank - Batch: 220-20661

Method: 410.4
Preparation: N/A

Lab Sample ID: MB 220-20661/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/04/2008 1820
Date Prepared: N/A

Analysis Batch: 220-20661
Prep Batch: N/A
Units: mg/L

Instrument ID: WC Spectrophotometer
Lab File ID: N/A
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Result	Qual	MDL	RL
Chemical Oxygen Demand	10.0	U	2.8	10.0

Lab Control Spike - Batch: 220-20661

Method: 410.4
Preparation: N/A

Lab Sample ID: LCS 220-20661/6
Client Matrix: Water
Dilution: 4.0
Date Analyzed: 10/04/2008 1825
Date Prepared: N/A

Analysis Batch: 220-20661
Prep Batch: N/A
Units: mg/L

Instrument ID: WC Spectrophotometer
Lab File ID: N/A
Initial Weight/Volume: 2 mL
Final Weight/Volume: 2 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chemical Oxygen Demand	212	222.3	105	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

Method Blank - Batch: 220-20666

Method: 415.2
Preparation: N/A

Lab Sample ID: MB 220-20666/6
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/03/2008 1715
Date Prepared: N/A

Analysis Batch: 220-20666
Prep Batch: N/A
Units: mg/L

Instrument ID: Dorhman TOC Analyzer
Lab File ID: 10021513.bin
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 44 mL

Analyte	Result	Qual	MDL	RL
Total Organic Carbon - Quad	1.0	U	0.10	1.0

Lab Control Spike - Batch: 220-20666

Method: 415.2
Preparation: N/A

Lab Sample ID: LCS 220-20666/5 ^4
Client Matrix: Water
Dilution: 4.0
Date Analyzed: 10/03/2008 1633
Date Prepared: N/A

Analysis Batch: 220-20666
Prep Batch: N/A
Units: mg/L

Instrument ID: Dorhman TOC Analyzer
Lab File ID: 10021513.bin
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 44 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Organic Carbon - Quad	82.2	84.69	103	85 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

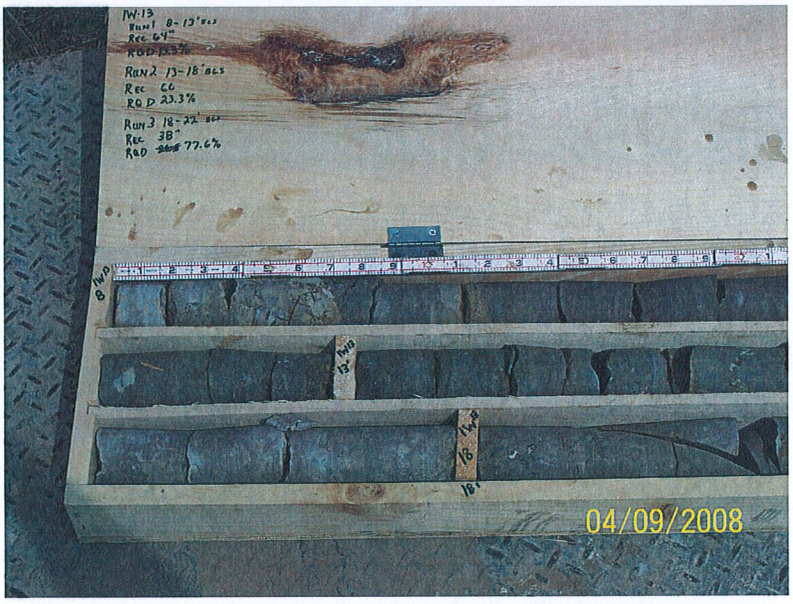
DATA REPORTING QUALIFIERS

Client: S & W Redevelopment LLC

Job Number: 220-6756-1
Sdg Number: 220-6756

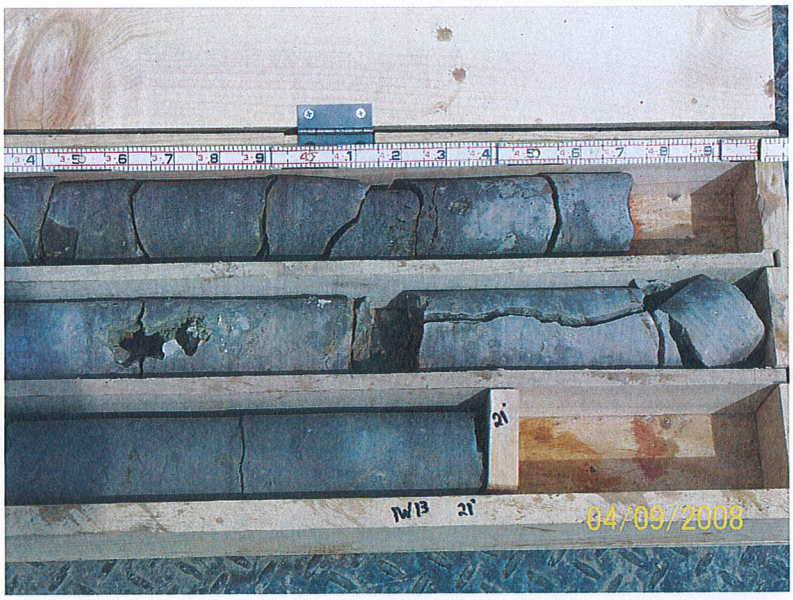
Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.
	J	Indicates an estimated value.
	*	LCS or LCSD exceeds the control limits
Metals		
	U	Indicates analyzed for but not detected.
	J	Sample result is greater than the MDL but below the CRDL
General Chemistry		
	U	Indicates analyzed for but not detected.
	J	Sample result is greater than the MDL but below the CRDL

Appendix C
Photographs



Top: Installing injection wells for ISCO

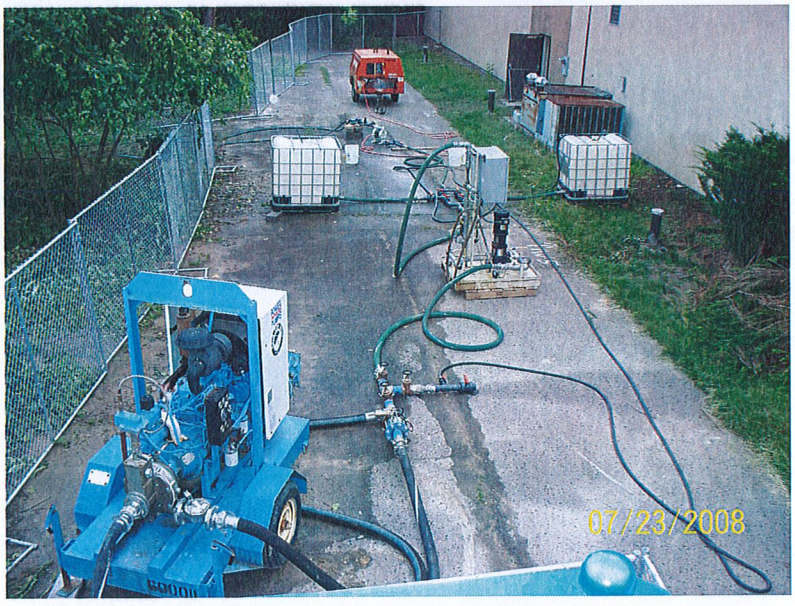
Bottom: Bedrock core showing fractures



Top: Vertical and horizontal bedrock fractures

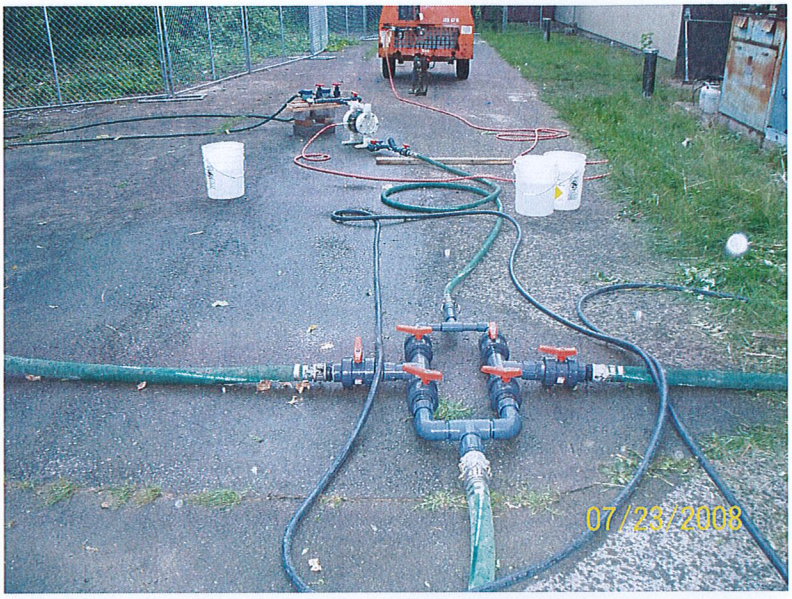
Bottom: Bedrock fractures and solution cavity

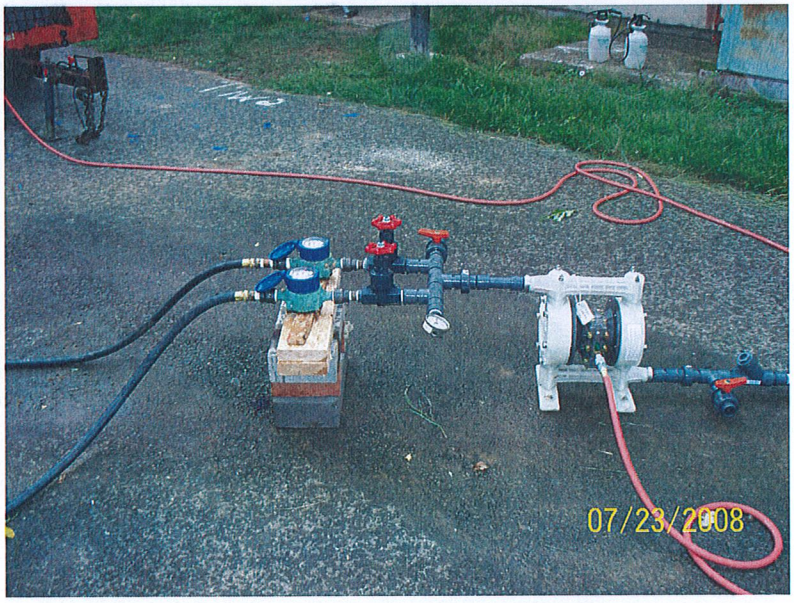
Top & Bottom: Highly fractured bedrock



Top: View of ISCO equipment looking north. Blue water supply tank in foreground at left.

Bottom: View looking north from top of water supply tank.
Clockwise from lower left: Transfer pump; mixing tank; generator (top); mixing tank; eductor;



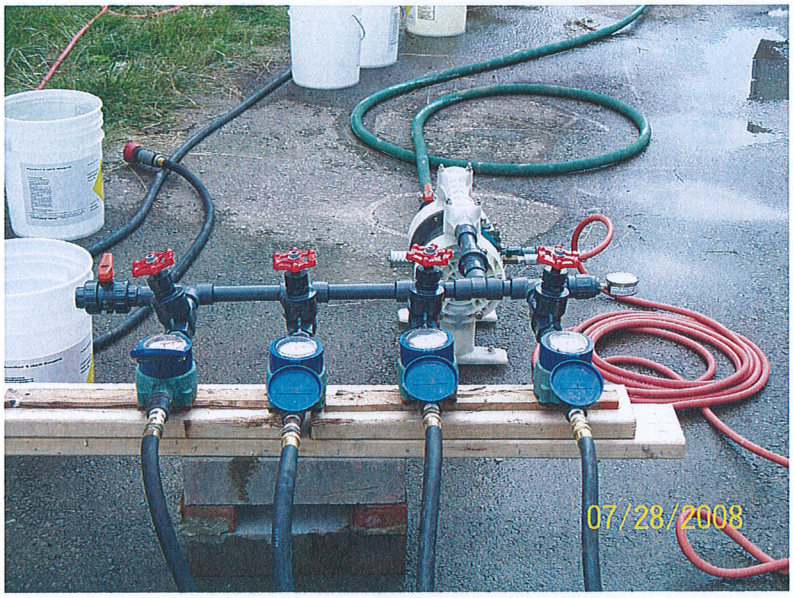


Top: Manifold from water supply to mixing tanks

Bottom: Manifold from mixing tank to injection wells. Note the two flow totalizers (blue gauges) connected to 1-inch black hose.

Top: Eductor system

Bottom: Mixing tote on right filled with purple permanganate solution



Four-way manifold to injection wells with four flow totalizers

ATTACHMENT 1
Site Management Plan