

eDocs

**NYSDEC
BROWNFIELDS CLEANUP PROGRAM
DRAFT
SUPPLEMENTAL REMEDIAL
INVESTIGATION WORK PLAN**

White Plains Courtyard Apartments
Redevelopment Project
2040 White Plains Road
Bronx, NY



THE ARKER COMPANIES
Metro Management, Inc.
930 Broadway
Woodmere, New York 11598
Telephone: (516) 374-3336
Fax: (516) 374-3326



PWGC 
Strategic Environmental Engineering Solutions

P.W. GROSSER CONSULTING
630 Johnson Avenue, Suite 7
Bohemia, NY 11716-2618
631.589.6353
Fax 631.589.8705

**P.W. GROSSER CONSULTING INC.
PROJECT No. ARK0401**

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DRAFT

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN

**2040 WHITE PLAINS ROAD
BRONX, NY**

July 2005



Charles B. Sosik, P.G.
Senior Project Manager
P.W. Grosser Consulting, Inc.

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1.0 INTRODUCTION

1.1 Project Background

This Supplemental Remedial Investigation Work Plan was prepared by P.W. Grosser Consulting Inc.(PWGC), on behalf of Metro Management, Inc. (Metro) of Woodmere, NY, for a commercial property located at 2040 White Plains Road, Bronx, New York (**Figure 1**).

Redevelopment plans for the property, formerly a Shell Service Station, include a residential apartment complex with first floor retail space and associated grounds. The site was accepted into the New York State Department of Environmental Conservation (“DEC”) Brownfields Cleanup Program (BCP) on May 18, 2005. A Remedial Investigation (RI) was completed by PWGC prior to acceptance into the BCP and a Draft RI Report was submitted to the DEC in May 2005.

The DEC reviewed the Draft RI Report and requested that additional samples be collected for analysis of pesticides, PCBs and metals. This document specifies the number and location of the additional samples and describes the methods and procedures that will be used to collect and process the samples.

1.2 Site Location and Description

The subject property is located at 2040 White Plains Road, on the east side of White Plains Road, between Bronxdale Avenue and Brady Avenue in the Bronx, New York. The property, identified as Block 4284, Lot 5, consists of an approximately 25,000 square foot parcel. The site is currently improved with a one-story 1,512 square foot masonry building constructed in 1954 (see **Figure 2 - Site Plan**). The building is currently vacant, but has been used recently as a service/gasoline station.

The property is located within a residential area of the Bronx. The general area is comprised of residential apartments and commercial buildings, such as restaurants, super markets, and gas stations. A one story strip mall is located on the property to the north of the site. The strip mall contains a restaurant, a martial arts studio, and a parking garage. The property adjacent to the south is occupied by a European super market and a bingo hall. A Mobil gas station is located across White Plains Road to the west and a six story residential building is located to the east of the site.

1.3 Summary of Previous Investigations

A Phase I ESA was completed by PWGC, and documented in a report dated December 21, 2004. The ESA revealed that the property has been in continual service as a gasoline station since at least 1956 and, prior to that, was used as an open air car lot since at least 1949. Currently, the site consists of a one story service station building, two dispenser islands covered with a canopy and a paved parking lot. The station, which was owned and operated by Motiva Enterprises (Motiva), has been closed for several months. The site inspection performed as part of the ESA identified the storage of batteries and drums containing oily rags and used oil filters, around the building’s exterior. The building interior was not accessible for inspection, leaving the possibility of floor drains and hydraulic lift equipment as a potential concern.

The records search identified two NYSDEC petroleum spill files, one of which remains open, and at least one unregistered fuel storage tank. The site is listed on the Petroleum Bulk Storage (PBS) database under the name Whitestone Shell. The listing (PBS No. 2-190780) indicates that there are five storage tanks at the site including:

Three 4,000 gallon gasoline underground storage tanks (USTs), one 550 gallon fuel oil UST and a 250 gallon waste oil above ground storage tank (AST). The PBS record indicates that the tanks were installed in 1971, and are listed as “in-service”.

The site is also listed on the NYSPILLS database. The database indicates that there are two spills associated with the site. The first spill (98-08824) was opened as a result of a limited subsurface investigation performed in 1998, which identified impacted groundwater at the site. The investigation and subsequent monitoring program were performed by EnviroTrac, Ltd under contract to Motiva. Initial sample results from the three monitoring wells installed at the site, indicated that BTEX compounds and MTBE were present at concentrations of 1,881 ug/L and 2,280 ug/L, respectively. Although remedial activity was not documented, a general declining trend was observed during a 2 year monitoring program implemented by EnviroTrac. At the end of this period EnviroTrac recommended closure of the spill file. In response to this request, the NYSDEC closed the spill in November 2000.

In July 2004 Phoenix Environmental Technology, Inc. (Phoenix), under contract to Motiva, collected groundwater samples at the site to determine if there had been a change in groundwater quality. Geoprobe equipment was used to collect groundwater samples from the three previously abandoned monitoring well locations. The results of the sampling indicated that the concentrations of BTEX and MTBE had decreased since the final sampling event performed by Envirotrac in August 2000.

The second spill (98-02162) was opened as a result of impacted soil identified during the removal of a waste oil UST in 1995. The tank was not registered with the NYSDEC and the spill file remains open.

1.4 Summary of the Remedial Investigation

A Remedial Investigation (RI) was performed by PWGC during the period of January 18, 2005 to April 14, 2005 to collect data of sufficient quality and quantity to adequately characterize the nature and extent of contamination at the site, evaluate contaminant migration, characterize the potential exposure to human health and the environment and to select the most appropriate remedial technology.

This work was performed in accordance with the Draft DER-10 Technical Guidance for Site Investigation and Remediation, as released by the NYSDEC on 12/25/02. Details of the RI are provided in “*Draft Remedial Investigation Report, 2040 White Plains Road, Bronx, New York*” dated May 5, 2005.

1.4.1 Summary of the Nature and Extent of Contamination

The results of sampling performed during the RI identified residual VOCs above the NYSDEC Recommended Soil Cleanup Objectives (RSCOs) concentrations within the former waste oil UST area (**Figure 3**). Although VOCs in groundwater were detected above NYSDEC Ambient Water

Quality Standards (AWQS) at sampling locations throughout the site (**Figures 4 and 5**), significant impact was encountered in three locations as follows: the suspect UST area along White Plains Road, the suspect dispenser area along Bronxdale Road and the former waste oil UST area north of the building. Of these, the most significant area of groundwater impact is along the north side of the building in the vicinity of the former waste oil tank. BTEX and total VOC concentrations, respectively, were one and two orders of magnitude greater than the other two areas.

Based on the groundwater flow direction (**Figure 6**) and the VOC concentrations in adjacent downgradient monitoring points, there does not appear to be significant plume migration from the suspect UST and dispenser areas.

VOCs in soil within the waste oil UST area are acting as a continuous source of contamination to groundwater in the area. Based on the proximity to the property line, the apparent direction of groundwater flow and the VOC concentrations in monitoring wells, impacted groundwater may be migrating off-site from the waste oil UST area.

2.0 SUPPLEMENTAL FIELD INVESTIGATION

The site was accepted into the New York State Department of Environmental Conservation (“DEC”) Brownfields Cleanup Program (BCP) on May 18, 2005. A Remedial Investigation (RI) was completed by PWGC prior to acceptance into the BCP and a Draft RI Report and Draft Interim Remedial Measure Work Plan (IRM) was submitted to the DEC in May 2005.

The results of the Remedial Investigation, as documented in the Draft Remedial Investigation Report, recommended an interim remedial measure to expedite removal of the existing UST system and impacted soil from the site, and thereby reduce obvious risks to the environment. The proposed IRM consists of the removal of the existing USTs/piping system and hydraulic lift systems and the excavation and disposal of impacted soil from the former waste oil UST area. In addition, exploratory pits will be advanced in suspect UST/dispenser areas to search for undocumented USTs and excavate USTs and/or impacted soil, if encountered. The NYSDEC approved the IRM Work Plan on July 13, 2005.

The DEC reviewed the Draft RI Report and requested that additional samples be collected for analysis of pesticides, PCBs and metals. This section specifies the number and location of the additional samples and describes the methods and procedures that will be used to collect and process the samples.

2.1 Soil Borings

In addition to the test pit and verification soil sampling from known and suspected source areas to be performed under the Interim Remedial Measure, four soil borings will be advanced to obtain general soil quality information across the site. At each soil boring location one composite soil sample will be collected from 2 ft to 6 feet below grade using a 4 foot macro-core sampler. In the event of equipment refusal, the deepest sample obtained from the boring will be substituted for the 2 to 6 foot interval. Borings will be advanced using a track or truck mounted Geoprobe™ sampling system. The Geoprobe™ uses direct push technology to drive core samplers/groundwater probe points to the desired depth for soil or groundwater sample collection.

Collected soil samples will be characterized by a PWGC hydrogeologist and field screened for the presence of volatile organic compounds (VOCs) using a photo-ionization detector (PID). One composite sample from the 2 to 6 foot interval will be submitted for laboratory analysis. The location of the soil borings is shown on **Figure 7**. A sample matrix showing the number, type and analysis of samples collected during the supplemental investigation is provided as **Table 1**.

2.2 Groundwater Sampling

As part of the supplemental investigation, the NYSDEC requested that additional groundwater samples be collected to further define the northern extent of VOCs in water north of the former waste oil tank area. Two temporary probe point sampling locations have been selected to provide this information, as shown in **Figure 8**. Temporary probe point samples will be collected using a track or truck mounted Geoprobe™ sampling system. The system will be used to drive a 1.5 or 1.6 inch screen point sampler to intersect the water table interface. The drive rods will then be pulled back to expose the screened section of the sampler. Polyethylene tubing fitted with a stainless steel check

valve will be inserted into the rods to collect the sample. After purging the standing water in the rods, groundwater samples will be collected by hand oscillating the polyethylene tubing. The tubing will be discarded between sampling locations.

The NYSDEC also requested that groundwater samples be collected to confirm the absence of pesticides, PCBs and metals at the site. Six of the fourteen existing monitoring wells representing the known and suspect former source areas at the site, and the two temporary probe point locations have been selected to collect this information (**Figure 8**).

Prior to sampling, a synoptic round of depth-to-groundwater (DTW) measurements will be obtained from the six wells to calculate the volume of standing water in the well. Standing water will be evacuated (purged) from each well using a bailer or a peristaltic pump. Field parameters including pH, conductivity, and temperature will be monitored periodically while purging. Purging will continue until stabilization of these parameters occurs or until three casing volumes have been evacuated. Upon completion of purging, a groundwater sample will be obtained using a disposable, dedicated polyethylene bailer and string. All purging and sampling data will be recorded on dedicated well sampling forms. A sample matrix showing the number, type and analysis of samples collected during the supplemental investigation is provided as **Table 1**.

2.3 Soil Vapor Sampling

Soil vapor samples will be collected in accordance with the Draft Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH 2/05) to determine if the medium is contaminated with VOCs. If VOCs are present, the results will be used to evaluate current off-site human exposures and future human exposures within the planned building. The evaluation of current off-site exposure will be useful in determining if further off-site investigation of the exposure pathway is warranted. The evaluation of future on-site exposure will determine whether or not the use of control measures will be necessary to prevent exposure by commercial workers in the first floor retail space of the building.

2.3.1 Soil Vapor Sampling Locations

In order to determine the vapor quality in the soil beneath the site, soil vapor samples will be taken from six vapor implants located as shown in **Figure 9**. Vapor sampling locations were selected to be representative of worst case conditions within the southern portion of the planned building footprint, near the identified source area, and along the east property line. Since the planned building will have a slab on grade construction with a footing depth which varies from 2 to 11 feet, the vapor implants will be set at the average footing depth of 6.5 feet.

2.3.2 Soil Vapor Sampling Protocols

The vapor implants will be installed with Geoprobe™ equipment and constructed in the same manner at all locations to minimize possible discrepancies. The implants will be made from stainless steel and fitted with polyethylene tubing. Coarse sand or glass beads will be added to create a sampling zone of one to two feet in length and sealed above with a bentonite slurry for a minimum distance of 3 feet.

After installation of the probes, one to three volumes (i.e., the volume of the sample probe and tube) will be purged prior to collecting the samples to ensure samples collected are representative. Flow

rates for both purging and collecting will not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling. Samples will be collected in Summa® canisters which have been certified clean by the laboratory and analyzed by using USEPA Method TO-15. All samples will be collected over the same period of time and submitted to Severn Trent Laboratories, Inc. (STL), an Environmental Laboratory Approval Program (ELAP) certified laboratory.

A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of soil vapor extracted, vacuum of canisters before and after samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

As part of the vapor intrusion evaluation, a tracer gas will be used in accordance with NYSDOH protocols to serve as a quality assurance/quality control (QA/QC) device to verify the integrity of the soil vapor probe seal. Helium will be used as the tracer gas and a box will serve to keep it in contact with the probe during the testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. At the conclusion of the sampling round, a second tracer sample will be collected to confirm the integrity of the probe seals.

After the collection of the analytical sample, a field reading will be recorded at each sampling point utilizing a photoionization detector capable of detecting organic compounds in the parts per billion range.

2.4 Laboratory Analysis

Samples will be submitted to the laboratory for a standard turnaround time, which is estimated to be one to two weeks. The proposed sampling program is summarized in **Table 1**.

2.4.1 Soil and Groundwater Samples

Collected soil and groundwater samples will be placed in pre-cleaned laboratory supplied glassware, and placed in a cooler packed with ice for transport to the laboratory. Sample analysis will be provided by American Analytical Laboratories, Inc., of Farmingdale, New York, a New York State certified environmental laboratory (NYSDOH ID #11418). Depending on the sample location and matrix, one or more of the following analyses will be performed.

- Volatile organic Compounds (VOCs) by EPA Method 8260;
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270 (STARS List);
- Target Analyte List (TAL) metals, and
- Pesticides/PCBs by Method 8081/8082.

2.4.2 Soil Vapor Samples

Analytical procedures and corresponding reporting limits will be identified when reporting the sampling results. Samples will be analyzed by USEPA Method TO-15 for the STARS list of volatile organic compounds. All samples will be analyzed by Severn Trent Laboratories, Inc. (STL), an ELAP certified laboratory.

2.5 Quality Assurance / Quality Control

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or "cold-paks" to maintain a temperature of 4°C.

2.5.1 *Soil and Groundwater Samples*

Since dedicated disposable materials will be used for both soil (acetate liners) and groundwater (polyethylene tubing, dedicated samplers) samples, field equipment (rinsate) blanks will not be part of the QA/QC program. Trip blanks will accompany samples each time they are transported to the laboratory.

2.5.2 *Soil Vapor Samples*

Extreme care will be taken during all aspects of sample collection to ensure that sampling error is minimized and high quality data are obtained. The sampling team members will avoid actions (e.g., using permanent marker pens and wearing freshly dry-cleaned clothes or personal fragrances) which can cause sample interference in the field. QA/QC protocols will be followed for sample collection and laboratory analysis, such as use of certified clean sample devices, meeting sample holding times and temperatures, sample accession, and chain of custody.

A tracer gas, helium, will be used in accordance with NYSDOH sampling protocols to serve as a QA/QC device to verify the integrity of the soil vapor probe seals.

Samples will be delivered to the analytical laboratory as soon as possible after collection. The laboratory analyzes QC samples with each analytical batch, including a Method Blank (MB), Laboratory Control Sample (LCS), and a Laboratory Control Sample Duplicate (LCSD). Internal standards are added to all calibration standards, samples, and blanks to verify that the analytical system is in control.

3.0 REFERENCES

- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 613 - Handling and Storage of Petroleum
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- NYSDEC, Division of Environmental Restoration, May 2004, *Draft Brownfield Program Cleanup Guide*.
- NYSDEC, Division of Environmental Restoration, December 2002, *Draft DER-10, Technical Guidance for Site Investigation and Remediation*.
- NYSDEC, Division of Technical and Administrative Guidance, January 24, 1994, *Memorandum # 4046, Determination of Soil Cleanup Objectives and Soil Cleanup Levels*.
- NYSDEC, Division of Technical and Administrative Guidance, October 27, 1989, *Memorandum #4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites*
- NYSDEC, Division of Water, June 1998, Addendum April 2000, *Technical and Administrative Guidance Series 1:1:1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*.
- NYSDOH, Center for Environmental Health, February 2005, *Draft Guidance for Evaluating Soil Vapor Intrusion in the State of New York*.
- P. W. Grosser Consulting, April, 2005. *Draft Remedial Investigation Report. 2040 White Plains Road, Bronx, NY*.
- P. W. Grosser Consulting, June, 2005. *Community Air Monitoring Plan, 2040 White Plains Road, Bronx, NY*.
- P. W. Grosser Consulting, June, 2005. *Health and Safety Plan, 2040 White Plains Road, Bronx, NY*.
- USEPA, Environmental Response Team, August 11, 1994. SOP # 2001, *Field Sampling Guidelines*.
- USEPA, Environmental Response Team, August 11, 1994. SOP # 2006, *Sampling Equipment Decontamination*.
- USEPA, Environmental Response Team, February 18, 2000. SOP # 2012, *Soil Sampling*.

TABLES

TABLE 1
SUMMARY OF SUPPLEMENTAL REMEDIAL INVESTIGATION
SAMPLING PROGRAM RATIONALE AND ANALYSIS

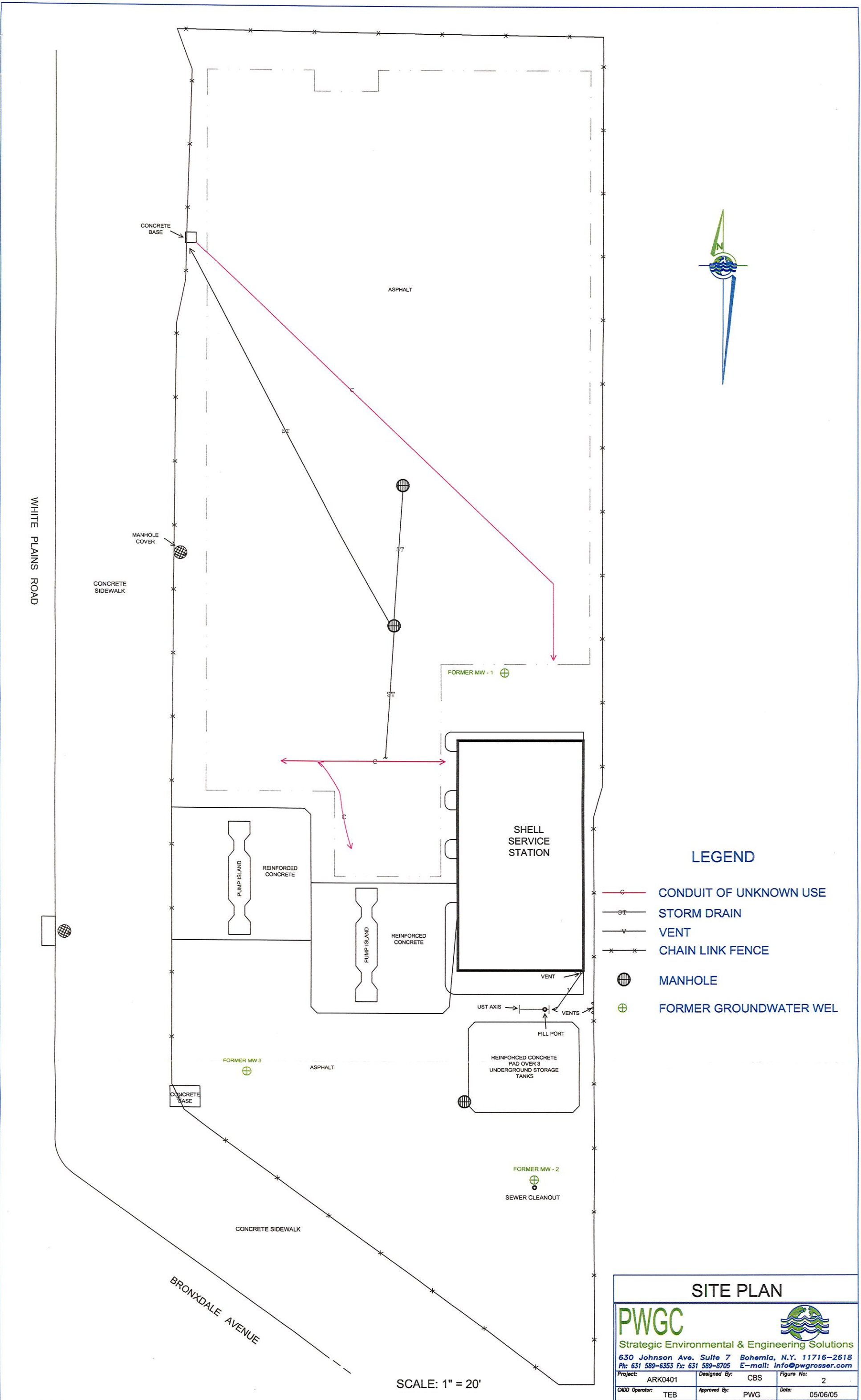
Matrix	Location	Approximate Number of Samples	Rationale for Sampling	Laboratory Analysis
Subsurface soil (2 to 15 feet bgs)	4 soil borings across site	4	Evaluate general soil quality across site	VOCs, SVOCs, TAL metals, pesticides and PCBs
Total (Soils)		4		
Groundwater	6 existing monitoring wells in source areas and across the site	6	Evaluate general groundwater quality for non-COCs	Pesticides, PCBs and TAL Metals
Groundwater	2 temporary probe points, 1 north of MW12 and 1 in the northern 3rd of the property	2	Evaluate general water quality in northern area of the site, delineate VOCs north of MW12	VOCs, SVOCs, TAL metals, pesticides and PCBs
Total (Groundwater)		8		
Soil Gas	6 locations along the southern third of the proposed building footprint and west property line	6	Evaluate potential for off-site vapor contamination and future exposure in proposed building	VOCs
Total (Soil Gas)		6		

FIGURES



SCALE: 1" = 1500'

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LEGEND

- CONDUIT OF UNKNOWN USE
- ST— STORM DRAIN
- V— VENT
- x—x— CHAIN LINK FENCE
- MANHOLE
- FORMER GROUNDWATER WEL

SITE PLAN

PWGC
 Strategic Environmental & Engineering Solutions
 630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
 Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgros.com

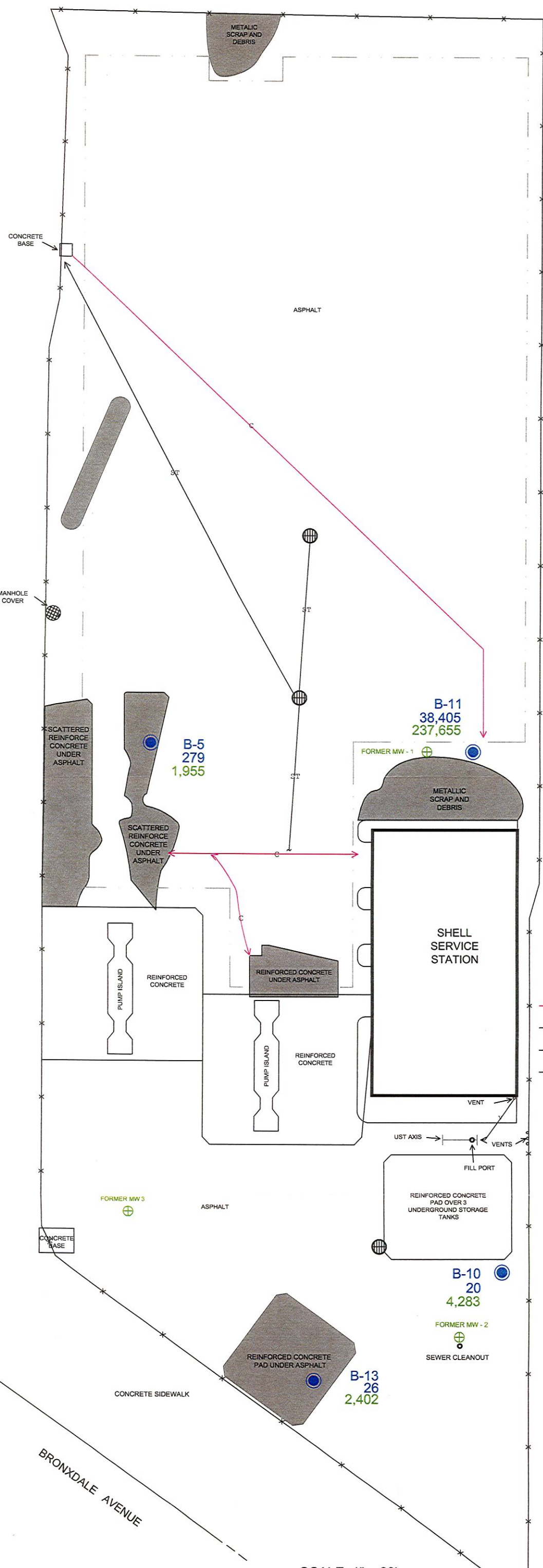
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WHITE PLAINS ROAD



LEGEND

- CONDUIT OF UNKNOWN USE
- STORM DRAIN
- VENT
- CHAIN LINK FENCE
- MANHOLE
- SOIL BORING
- FORMER GROUNDWATER WELL
- B-10
20
4,283
TOTAL BTEX COMPOUNDS ug/Kg
TOTAL VOCS ug/Kg

SUBSURFACE SOIL SAMPLES ANALYTICAL RESULTS FEBRUARY 11, 2005

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgros.com

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CADD Operator: TEB	Approved By: PWG	Date: 05/05/05

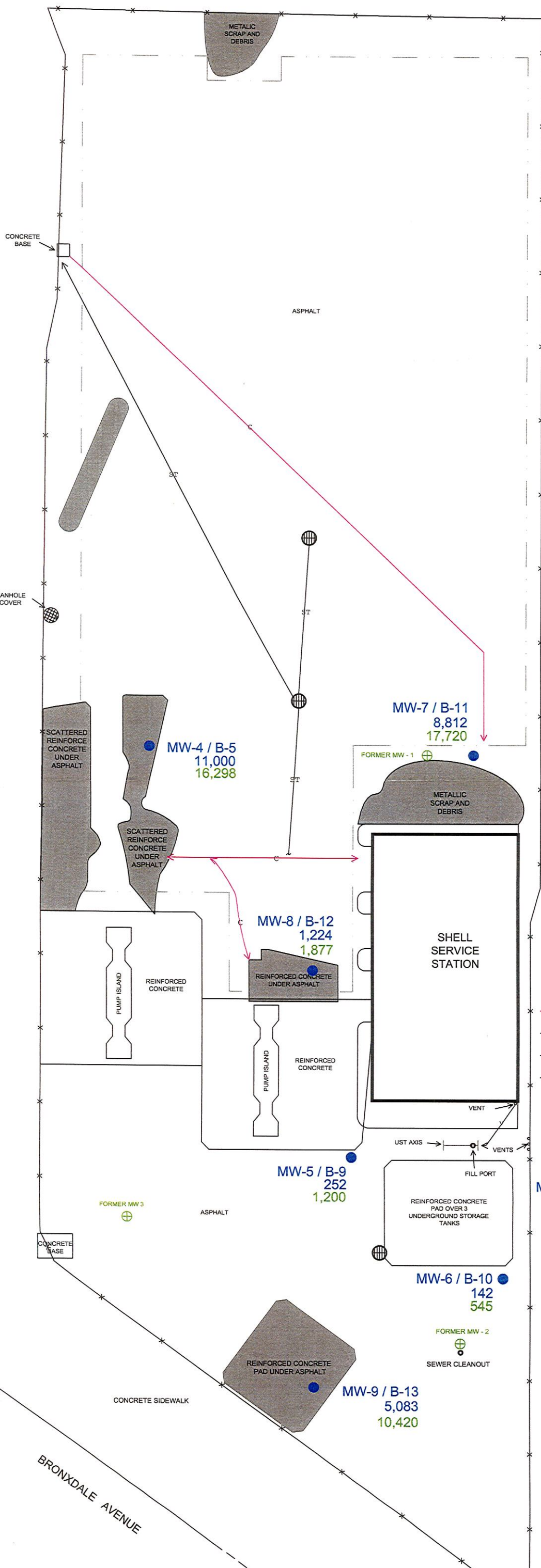
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WHITE PLAINS ROAD

BRONXDALE AVENUE



LEGEND

- CONDUIT OF UNKNOWN USE
- STORM DRAIN
- VENT
- CHAIN LINK FENCE
- MANHOLE
- MONITORING WELL
- FORMER GROUNDWATER WELL
- MW-6 / B-10 TOTAL BTEX
20 COMPOUNDS ug/L
4,283 TOTAL VOCs ug/L

SCALE: 1" = 20'

**GROUNDWATER ANALYTICAL RESULTS
FEBRUARY 23, 2005**

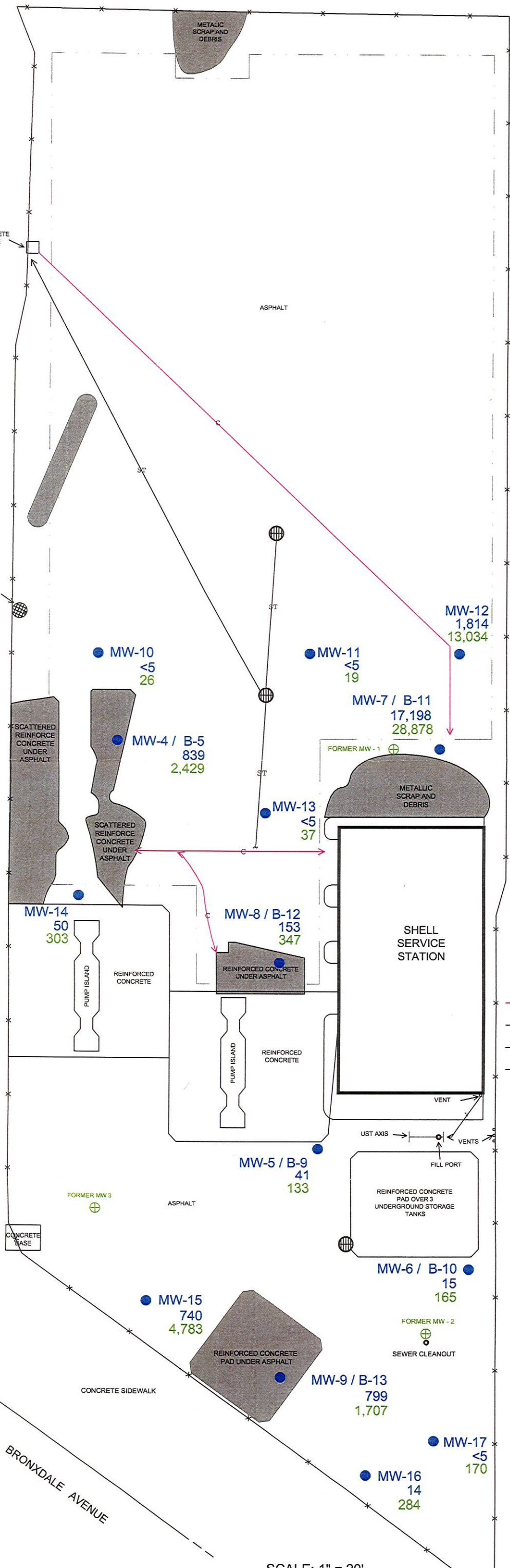
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Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fax: 631 589-8705 E-mail: info@pwgros.com

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WHITE PLAINS ROAD



LEGEND

- C — CONDUIT OF UNKNOWN USE
- ST — STORM DRAIN
- V — VENT
- x x CHAIN LINK FENCE
- MANHOLE
- MONITORING WELL
- FORMER GROUNDWATER WELL
- **B-10** TOTAL BTEX COMPOUNDS ug/L
- **20** TOTAL VOCS ug/L

**GROUNDWATER ANALYTICAL RESULTS
APRIL 11, 2005**

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgros.com

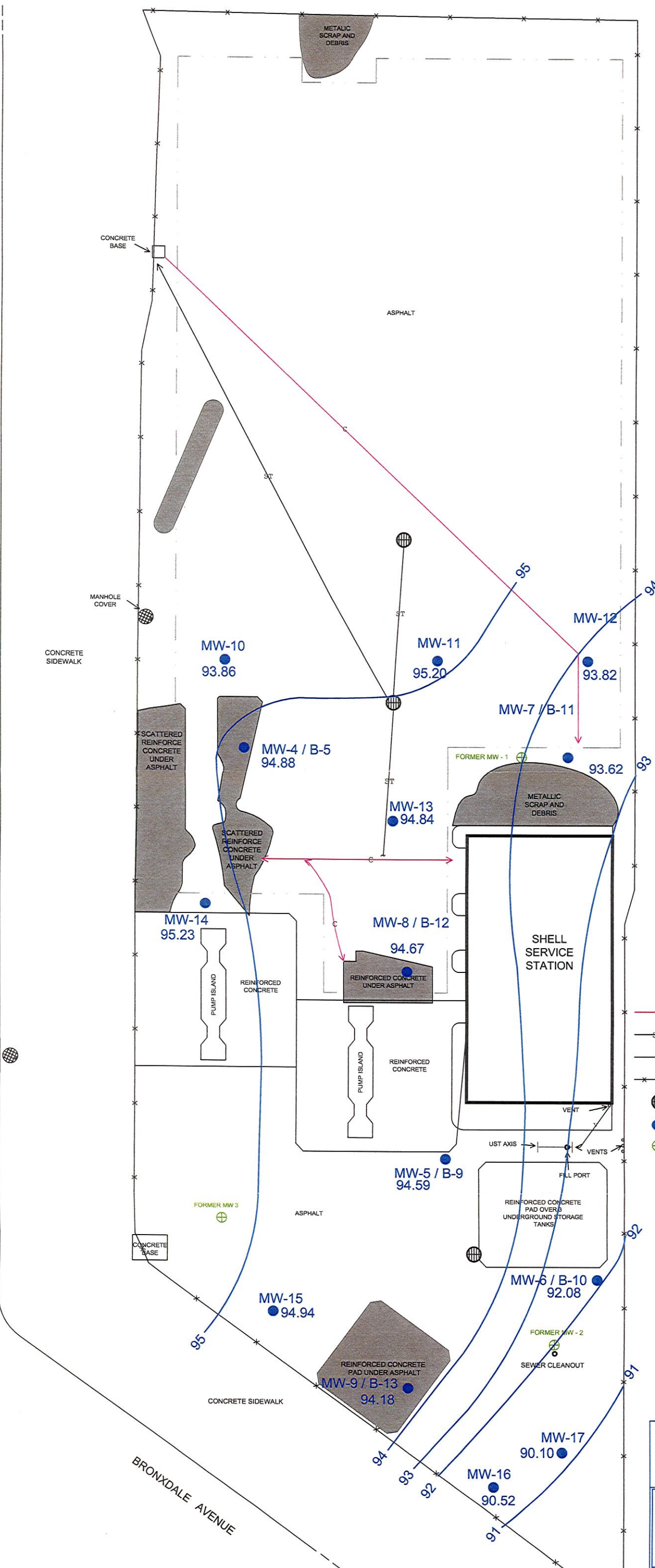
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SCALE: 1" = 20'



WHITE PLAINS ROAD

BRONXDALE AVENUE



LEGEND

- CONDUIT OF UNKNOWN USE
- STORM DRAIN
- VENT
- CHAIN LINK FENCE
- MANHOLE
- MONITORING WELL
- FORMER GROUNDWATER WELL

**GROUNDWATER ELEVATION
APRIL 28, 2005**

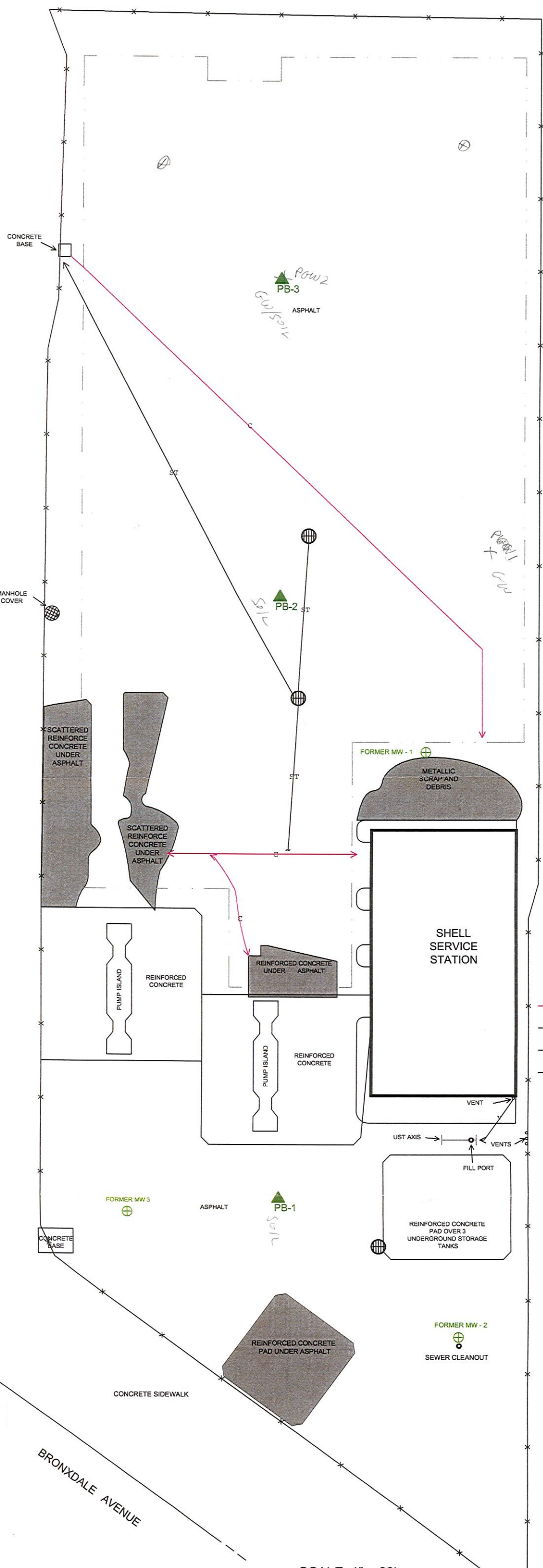
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630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
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WHITE PLAINS ROAD



LEGEND

- C — CONDUIT OF UNKNOWN USE
- ST — STORM DRAIN
- V — VENT
- X — CHAIN LINK FENCE
- MANHOLE
- PROPOSED SUPPLEMENTAL BORING COMPOSITE 2'-6"

PROPOSED SUPPLEMENTAL SOIL BORINGS

PWGC
 Strategic Environmental & Engineering Solutions
 630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
 Ph: 631 589-6353 Fax: 631 589-8705 E-mail: info@pwgrosser.com

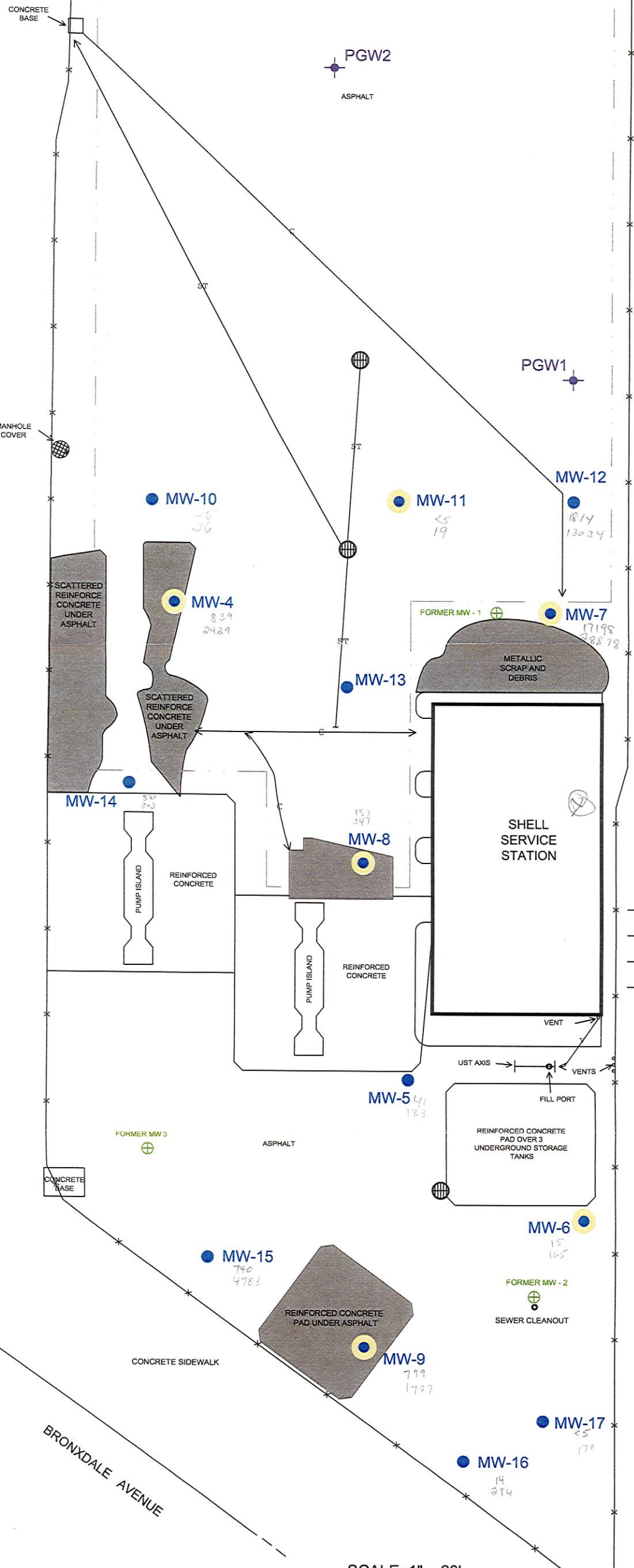
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CADD Operator:	TEB/LLG	Approved By:	PWG	Date:	7/19/05

SCALE: 1" = 20'



WHITE PLAINS ROAD

BRONXDALE AVENUE



LEGEND

- CONDUIT OF UNKNOWN USE
- ST— STORM DRAIN
- V— VENT
- x—x— CHAIN LINK FENCE
- ⊗ MANHOLE
- MONITORING WELL
- ⊕ FORMER MONITORING WELL
- ⊕ PROPOSED TEMPORARY SAMPLING POINT
- PROPOSED SUPPLEMENTAL SAMPLING LOCATIONS

SCALE: 1" = 20'

PROPOSED SUPPLEMENTAL GROUNDWATER SAMPLING LOCATIONS

PWGC
 Strategic Environmental & Engineering Solutions
 630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
 Ph: 631 589-6353 Fax: 631 589-8705 E-mail: info@pwgcs.com

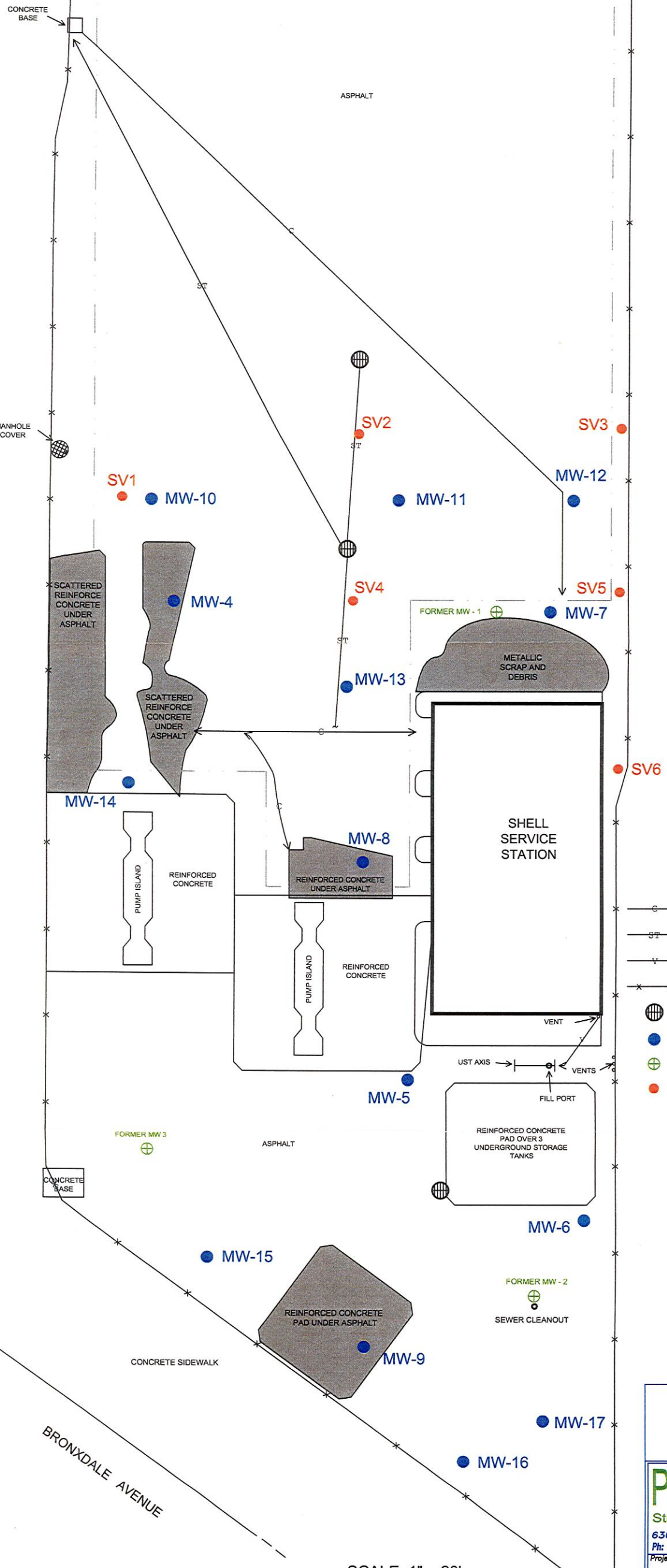
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WHITE PLAINS ROAD

BRONXDALE AVENUE



LEGEND

- CONDUIT OF UNKNOWN USE
- STORM DRAIN
- VENT
- CHAIN LINK FENCE
- MANHOLE
- MONITORING WELL
- FORMER MONITORING WELL
- SOIL VAPOR

PROPOSED SOIL VAPOR SAMPLING LOCATIONS

PWGC
 Strategic Environmental & Engineering Solutions
 630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
 Ph: 631 589-6353 Fax: 631 589-8705 E-mail: info@pwgros.com

Project: ARK0401	Designed By: CBS	Figure No: 9
CADD Operator: TEB/LLG	Approved By: PWG	Date: 07/19/05

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SCALE: 1" = 20'