SI/IRM WORK PLAN
BROWNFIELDS CLEANUP PROGRAM

for

73-79 W. Huron St. Site
Buffalo, NY 14202
(Site #C915282)

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(revised)

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1.0 INTRODUCTION AND PURPOSE

The 73-79 West Huron St. property, owned by Hurondel I, Inc. (Hurondel) in Buffalo, NY (see location on Figure 1) consists of a rectangular shaped parking lot (77-79 W. Huron) and a six-story vacant garage (73-75 W. Huron).

The Site has been the subject of investigations and remedial action since 2001, along with 181 Delaware Avenue (Former Sunoco Gas Station) to the west. Site assessments and remedial actions associated with the original spill number (0375208) spanned across three contiguous properties, including investigations and groundwater monitoring (GZA, Nature's Way and GES for Sunoco) from 2003 to 2010, remedial efforts (air sparging/soil vapor extraction, AS/SVE, by GES for Sunoco) from 2007 to 2009, and a pilot test (bioaugmentation with oxygen injection by Matrix Environmental Technologies for Sunoco) in May/June 2011. The in-situ remediation systems have been in the control of Sunoco since 2003.

In September 2011, the NYSDEC separated the 181 Delaware Avenue site from this group and issued Spill No. 1106834 under which all further remedial work by Sunoco has been performed, including site remediation (oxygen injection and bioaugmentation). However, the original Spill No. 0375208 from July 2003 associated with the earlier work remained associated with 77 W. Huron until the Huron site was accepted into the BCP.

In a letter dated May 10, 2012, NYSDEC directed Hurondel to investigate and remediate the petroleum contamination on the 75-77 W. Huron property. Subsequently, Hurondel submitted a BCP application as a participant to the NYSDEC for the 73-79 W. Huron site, and a BCP agreement was executed in September 2014.

This SI/IRM Work Plan provides details on the proposed site investigation and interim remedial action to be undertaken at the 73-79 W. Huron site under the Brownfields Cleanup Program. The site investigation is to better map the plume(s) of petroleum contamination at the Site, address areas of the property not targeted in previous investigations, and to assess the presence of any contamination not previously identified in the parking lot and in the garage.

The approach to remediation of the Site is to remove contaminated subsurface soil, and address other environmental issues identified in the parking lot and/or the garage that are associated with past activities. At a minimum, grossly contaminated soil in the parking lot will be excavated and disposed off-site. Following the remedial action, Hurondel proposes to redevelop 73-79 West Huron with its six-story building for mixed commercial/residential use. The parking lot will be repaved for automobile

parking. The garage basement and first floor will be modified for interior vehicular parking, and the upper floors for mixed commercial/residential use.

2.0 SITE DESCRIPTION AND HISTORY

Site Description: The site consists of a rectangular shaped, 0.216 acre parking lot (77-79 W Huron St.) and a rectangular shaped, six-story parking garage (73-75 W. Huron St.; previously referred to as the Hertz Garage) as shown on the aerial photo on Figure 1.

The garage is a vacant masonry/wood structure with mostly wooden floors, a full basement and a 0.34-acre footprint. It uses a steel frame as structural support, and supporting truss to suspend the remaining floors. The roof of the garage contains various skylights, and two stairway access rooms (north and south) protruding from the roof surface. AN electrically operated elevator was located adjacent to the south stairway. The painted surfaces are in fair to poor condition. Oil stains are observed on some floors. The second and third floors include rooms that were used as offices.

Several floors and the roof show signs of severe wear and tear, and several windows are broken. The building is currently not insulated from the weather, and is essentially open to the atmosphere. An underground spring flows beneath the garage basement. A concrete channel in the basement along the west wall of the foundation drains the water into a sump which is continuously emptied by a pump and discharged into the sewer.

The asphalt-paved parking lot on the west half of the site is currently in use, operated by Pay2Park for automobile parking. The parking spaces are marked for roughly 55 automobiles to park along the east wall of the garage, and also along the west property boundary.

To the north of this Site is another asphalt parking lot which extends both west and east of 77-79 W. Huron. To the east between the vacant parking garage and N. Franklin St. is the multi-story Curtiss building. To the south is W. Huron Street and across this road is an office building at 80 W Huron St. To the west are five (5) commercial buildings. These include, from north to south, an Event Center (#199 Delaware Ave), an office building (#193), King's Court Restaurant (#189; now Sidebar), Delaware Copy and Repo Center (#187; now Domino's), and Dave's Direct Performance Auto Repair shop (#181). The auto repair shop is the site of the former Sunoco Gas Station.

Site Topography & Hydrogeology: The general topography of the Site is relatively flat, with the parking lot sloping very gently to the south. Surface water in the parking lot drains into the City of Buffalo's storm water drainage intakes. There are no wetlands on, adjacent to, or abutting the Site.

The soil type at the Site is Urban Land (Ud) according to the Erie County Soil Conservation Service map. The subsurface soil below the urban soil/fil consists of outwash, terrace and delta deposits from strongly aggrading streams flowing from

former ice sheets of the glacial period. Bedrock is Onondaga Limestone, and the depth to bedrock is around 40 feet below ground surface (bgs).

Groundwater occurs at a depth of around 10 feet bgs at the Site. Groundwater is not a source of public water supply for this area which is served by the City of Buffalo. The nearest water body is Lake Erie, approximately 0.7 miles to the west.

Site History: The garage was originally constructed around 1892-94 as a three bay Romanesque Style commercial building with a flat roof and used by C. W. Miller Livery. It was altered in the 1920s with ramps heavily modified for use of the building as a public parking garage. The ramps provided automobiles with access to parking on all six floors of the garage. The garage had a freight elevator in the northeast corner (see basement layout on Figure 3). A painted sign reading "Hertz Garage" can still be seen at the top of the west wall close to Huron Street.

According to a 1993 Phase I Environmental Assessment, the garage housed mostly automobile parking and rental firms, including: Huron Street Garage from 1933 to 1989; Huron Auto Rental & U-Drive-It from 1933 to 1988; Cyphers Card Co. and Cyphers Incubator Co. from 1933 to 1960; Hertz Rent A Car & Truck from 1984 to 1985; All Right Garage from 1990 to 1992; Burke Associates Real Estate from 1989 to 1993; and Empark in 1993. The garage appears to have remained vacant since 1996.

The parking lot was operated from 1986 to 2003 by Huron Parking Services, and from 2003 to present by Pay2Park. Hurondel acquired the property (garage and parking lot) in October 2003, and leased the parking lot operation to Pay2Park.

3.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS/REMEDIATION

Since 1993 this Site and the adjacent Sunoco site to the west have been the subject of environmental investigations and remedial work. The environmental history of the site gathered from previous investigation reports is summarized below. For ease of reference, selected pages or cutouts from these reports are included as Appendix A-1 in the same order discussed below. Soil and groundwater data tables from some of these previous reports are included in Appendix B.

A. JUN '93 –ENVIRONMENTAL ASSESSMENT BY ENASCO – Huron garage
The first Phase I ESA completed in 1993 identified the use of small above ground tanks inside the building.

B. MAY '99 - PHASE I ESA BY MAXIM – garage and parking lot
This follow up 1999 Phase I ESA for the garage and parking lot referenced historical records indicating that many tank removals occurred at the subject property, and noted the adjacent parcel to the west (Sunoco site) as being used as a gasoline station with spill listings. The report was not clear as to whether all USTs were removed from this Site. The report recommended that a Phase II ESA consisting of a subsurface investigation and surficial/drum sampling plan be implemented.

C. AUG '01 - PHASE II ESI BY BENCHMARK – Huron garage and parking lot
Benchmark completed a Phase II ESI to address potential environmental conditions identified in the 1999 Phase I ESA by Maxim. It included an exterior UST/petroleum release investigation and a basement groundwater investigation. Out of six (6) Sanborn maps reviewed, only one from 1951 identified USTs: three in the surface lot near the Huron Street entrance.

The exterior investigation consisted of three (3) test pits at the UST locations identified on the 1951 Sanborn map, and three (3) within the remainder of the parking lot. The test pits were dug to depths of up to 5.8 feet below ground surface (bgs), and subsurface soil samples were collected and analyzed for STARS VOCs (volatile organic compounds) and SVOCs (semi-volatile organic compounds). A groundwater sample was also collected from the groundwater drainage system in the garage basement and analyzed for VOCs.

A limited number of VOCs were detected at trace levels (all below TAGM 4046 Soil Cleanup Criteria) in the soil, and none were detected in the groundwater sample from the basement. No SVOCs were detected in the soil. This Phase II investigation did not indicate the presence of remaining USTs.

D. JUL '03 - PHASE II INVESTIGATION BY GZA – Huron garage & parking lot
GZA completed a Phase II investigation within the #77 West Huron parking lot. It consisted of 10 soil probes up to 20 feet below ground surface, and the collection of 3 subsurface soil and 3 groundwater samples for VOCs and SVOCs. Data tables and figures from this report are included as Appendix B-1.

Fill soils were reported to be present from one to four feet below ground surface, and natural deposited sandy soils beneath that at all locations. Groundwater was

encountered at 8 - 9 feet bgs in the southern portion and 10 – 12 feet bgs in the northern portion of the parking lot.

VOCs were detected above TAGM 4046 values (294 and 335 mg/Kg total VOCs) in two soil samples in the saturated zone, and above Class GA groundwater standards in two groundwater samples.

E. APR '07 - BASEMENT INVESTIGATION BY IEG – Huron garage
Over the years, several people entering the vacant parking garage reported the presence of a strong petroleum-like odor. In January 2007, GES sampled air inside the building basement and found several VOCs but concluded no air contamination as a result of petroleum products. In March 2007, IEG screened air and water in the three basement sumps. VOCs were detected at low levels using a photo-ionization detector (PID) in the south section that is immediately adjacent to the area of petroleum contamination in the southern portion of the parking lot.

F. OCT '11 – GPR/METAL DETECTOR SURVEY BY IEG – Huron parking lot
In October 2011, Iyer Environmental conducted a GPR and metal detector survey across the parking lot at #77 and #79 W Huron St., and also a small area at the northwest corner of the garage. The survey revealed subsurface anomalies at several locations across the parking lot. Most of the anomalies appeared to be disturbed geology, including soil excavation and backfilling, and none appeared to be significant enough to be indicative of the presence of USTs. The GPR/metal survey and the accompanying review of historical documents did not reveal any existing USTs at 77-79 W. Huron St. as a possible source of the plumes in the parking lot.

G. FEB '13 – GEOPROBE SOIL INVESTIGATION BY IEG – Huron parking lot
Iyer Environmental completed a subsurface soil investigation across the parking lot that included 17 soil samples from Geoprobe borings completed at depths of up to 22 feet below ground surface. Data tables and figures from this report are included as Appendix B-2.

The subsurface soil characteristics were consistent with the findings of the 2002 Phase II by GZA, confirming the presence of soil fill in the top four feet bgs, and mostly undisturbed native fine grained sand beneath that. VOCs were detected in the saturated sand layer below the water table with a distinct blackening of the contaminated zone. VOCs in the saturated soil ranged up to 576 mg/ Kg. The high levels of VOCs were predominantly in the southern portion of the parking lot.

H. AUG '04 – Environmental Site Assessment by GES – for Sunoco
GES completed an Environmental Site Assessment In 2004 that included soil samples from the Sunoco and Huron sites, and groundwater samples from monitoring wells at the Sunoco site and sump in the Huron garage basement. Matrix installed seven wells on Sunoco property for long term monitoring and one air-sparge well. Data tables and figures from this report are included as Appendix B-3.

Fifteen of nineteen soil samples exceeded TAGM 4046 guidance values with total VOCs ranging up to 1,480 mg/Kg. Total VOCs ranged up to 20.1 mg/L in

groundwater, with the maximum occurring in a Sunoco well at the southeast corner of its property boundary with the Huron site. The groundwater sample from the Huron garage basement sump was reported to be below detection limits.

I. DEC '10 – Site Activity Report (AS/SVE System) by GES – for Sunoco
In 2008, Sunoco had GES install and operate an air-sparging (AS) and soil vapor extraction (SVE) system across the two sites, and convert selected monitoring wells for use as SVE points. As noted in the Site Activity Report, the AS/SVE system was shut down in December 2009 after hydrocarbon vapors were detected in the on-site building and three neighboring buildings, due to underperformance of the treatment system and significant groundwater mounding at the extraction points that would have pushed the petroleum contamination radially beyond its original boundaries.

J. Aug '11 Remedial Action Plan (Bio-augmentation System) by Matrix – for Sunoco
In 2011, Matrix Environmental Technologies developed a remedial action plan to replace GES's AS/SVE system with an in-situ bio-augmentation treatment process. The remediation work included indigenous biomass sampling, an oxygen injection pilot test and remediation system design. Subsequently, Matrix installed horizontal soil vapor extraction laterals and following the pilot test, implemented the in-situ technology comprising of oxygen injection and bioaugmentation which is still in operation at the 181 Delaware Ave site.

K. 4th Quarter 2014 Site Status Report by Matrix – for Sunoco

A quarterly groundwater monitoring program was initiated by GES in 2004 with the installation of seven monitoring wells (MW-1 through MW-7) on Sunoco property. In 2005, three wells (MW-8, MW-9 and MW-10) were installed in the Huron parking lot and added to the Sunoco monitoring program. In 2010, two more wells (MW-11 and MW-12) were installed on the Sunoco property.

Matrix took over groundwater monitoring in 2010 along with the implementation of the bio-augmentation system. Tables are provided (see Appendix B-4) listing groundwater analytical since monitoring began from this Site Status Report (for all wells except MW-8 and MW-9) and the 2nd Quarter 2012 Report (for MW-8 and MW-9) by Matrix. Monitoring wells MW-8 and MW-9 were not monitored since 2012.

Groundwater contaminant plume maps generated by Matrix from the quarterly groundwater monitoring are included in Appendix B-5.

4.0 GROUNDWATER FLOW AND CONTAMINANT MIGRATION

The regional groundwater flow is towards the southeast across the Sunoco and Huron sites based on the previous reports from GES/Matrix. The Huron garage basement/foundation wall essentially blocks groundwater further east from the parking lot. Quarterly monitoring reports by GES and Matrix indicate localized changes in groundwater with an easterly flow component across the Sunoco/Huron property boundary.

As noted in Matrix's 2010 Remedial Action Plan for Sunoco, "the flow direction is to the southeast across 181 Delaware Avenue with evidence of a trough or channel feature towards 77 West Huron. Although the properties adjoin, the flow direction at 77 West Huron Street is to the south towards West Huron Street. The seepage velocity at 181 Delaware Street is greater than expected, 0.89 ft/day." Bedrock appears to be at around 40' bgs based on no records of refusal below that depth.

More than ten years of groundwater level measurements has demonstrated groundwater to flow east-southeast across former the Sunoco site at 181 Delaware and thence through 77 W. Huron. Over these years, the water table sloped gently to the east-southeast, ranging from 90.7' at MW-2 to 89.5' at MW-6.

Groundwater contour maps developed by IEG using Surfer software and Sunoco's water level data are included in Appendix B-6. These contour maps confirm the overall groundwater flow towards the east-southeast, but also illustrate fluctuations associated with the remedial activities at the sites, beginning with the 2008 AS/SVE system by GES, and thence the bio-augmentation system by Matrix.

5.0 SUMMARY OF ENVIRONMENTAL CONDITIONS AND DATA GAPS

Summary of Environmental Conditions: The garage (#73-75 W Huron) and the parking lot (#77-79 W Huron) have been the subject of Phase I and II site assessments since 1993. Historical activities like fueling station and automobile parking at this site dating back to 1925 were associated with the use of petroleum products in above ground and underground tanks and drums. In addition, a plume of petroleum contamination from the adjacent auto service station extends into the parking lot and abuts the southwest corner of the garage.

The Site subsurface is made up of asphalt at the top, concrete below that in some areas, urban soil/fill from 1' to 4' bgs, and fine grained sand beneath that. The soil fill and the layer of fine grained sand above the groundwater table have not shown signs of significant contamination. The saturated sand layer below the water table appears visually stained across the site. Depth to bedrock appears to be around 40' bgs based on geotechnical work performed in the adjacent building to the east.

Petroleum-based VOCs are present in the saturated sand layer and groundwater at levels exceeding guidance values, while SVOCs have been at trace to below guidance values. The soil contamination appears to be below the water table predominantly at depths of around 11' to 18' bgs. The groundwater table is at a depth of about 13' bgs in the northern portion of the parking lot, and around 11' bgs in the southern portion.

As shown on Figure 3, this investigation revealed the southern area of the parking lot to have high level exceedances of the NYSDEC's CP-51 values for petroleum compounds, and the central portion of the parking lot to have low to medium level exceedances in the center of the parking lot. The distribution of petroleum contamination is as follows:

- Central area of parking lot: Soil contamination in this area ranged from 24 to 118 mg/Kg based on the 2013 Geoprobe Soil Investigation Report by IEG. Three samples had petroleum VOCs above CP-51 SCOs. Petroleum compounds that exceeded CP-51 values at the location with the maximum total VOC include 1,2,4-Trimethylbenzene (39 mg/Kg), n-butylbenzene (24 mg/Kg) and n-propylbenzene (40 mg/Kg).

- Southern area of parking lot (east of Sunoco site): Soil contamination in this area ranged from 315 to 857 mg/Kg based on the 2013 Geoprobe Soil Investigation Report by IEG. Three samples had petroleum VOCs above CP-51 SCOs. Petroleum compounds that exceeded CP-51 values at the location with the maximum total VOC include 1,2,4-Trimethylbenzene (290 mg/Kg), 1,3,5-Trimethylbenzene (81 mg/Kg), ethylbenzene (26 mg/Kg), isopropylbenzene (8.7 mg/Kg), naphthalene (49 mg/Kg), n-butylbenzene (22 mg/Kg max), n-propylbenzene (39 mg/Kg max) and xylene (170 mg/Kg).

No USTs were located in the Huron parking lot during these past investigations nor were there reports of possible USTs based on the nature of subsurface fill material

which occurred only within the top 4 feet bgs and Geoprobe soil sampling to depths of up to 22' bgs in the parking lot.

Groundwater flowing from an underground spring into a sump in the garage basement was sampled several times, and VOCs were only trace to non-detect in all occasions. No impact has been seen so far from petroleum contamination in the parking lot on groundwater from the underground spring in the basement.

Data Gaps: No other historical activities have been identified or reported from previous investigations that would be associated with contaminants other than petroleum-based VOCs and SVOCs. However none of the previous investigations included parameters other than VOCs and SVOCs for analysis in soil and/or groundwater samples.

City of Buffalo records and a 1951 Sanborn map indicated the presence of USTs in the south end of the parking lot beside the entrance from W. Huron Street. In addition, the 2011 GPR survey identified several subsurface anomalies across the parking lot. These areas need to be further investigated by laboratory analysis of subsurface soils showing elevated PID readings and/or visible evidence of contamination.

The 2001 test pit investigation by Benchmark only went down to a maximum of 5.8 feet bgs. Deeper soil samples (to depths of up to 27' bgs) were collected with Geoprobe borings spaced several feet across each other. It is possible to miss UST footprints in the subsurface soil with such sample spacing.

The in-situ remedial work by GES and Matrix could leave pockets of petroleum hotspots in areas not within the radius/zone of influence of the extraction (AS/SVE) of injection (bio-augmentation) points. Additional soil borings will be needed around these hot spot areas in the parking lot and upgradient from it. These hot spot areas and the presence/absence of USTs noted in historical records can also be investigated during the excavation of grossly contaminated soil.

The Sunoco site is upgradient to the Huron site, and so are monitoring wells MW-6 and MW-7 on the Sunoco property. Well MW-10 is at the southern boundary of the Huron site and may be considered downgradient to the Sunoco site based on regional groundwater flow. Additional downgradient wells have to be considered to further assess groundwater migration. Also, groundwater flow pattern is well established for the southern half of the parking lot using Sunoco's groundwater monitoring program; additional groundwater levels in the northern half of the parking lot will be needed to develop a groundwater contour map across the Huron site.

The Huron garage has had limited investigations related to petroleum contamination in the parking lot and its historical use. The garage floors that were used to park automobiles, the subsurface beneath the basement slab and other environmental media of possible concern (asbestos and lead) need to be investigated.

Hurondel will further investigate the 73-79 W Huron parcels and undertake appropriate remediation taking into consideration the above data gaps.

6.0 WORK PLAN FOR SITE INVESTIGATION

6.1 Objectives

The site investigation will be performed to fill in data gaps identified above and areas not previously covered so as to remediate and bring closure to this property under the Brownfield Cleanup Program. The objectives of this investigation will therefore be as follows:

- Determine the extent of on-site contamination, if any, beyond the limits of the previous investigation;
- Determine the extent of off-site contamination, if any, originating from this Site;
- Establish the groundwater table and obtain other hydrogeological data such groundwater gradient/flow/velocity;
- Determine the presence of environmental contamination, if any, inside the parking garage;
- Qualitatively assess exposure pathways and potential risks to human health and the environment; and
- Evaluate and develop a remedy for soil and groundwater contamination in the parking lot, and other contaminated media inside the garage.

The City of Buffalo records was re-canvassed to further research possible USTs that may have existed at the Site. Records obtained from the Buffalo Fire Department are included in Appendix A-2. During the course of the Site Investigation and IRM excavation, subsurface features (e.g. nature of soil/fill, piping and other materials associated with historical site use) will be properly catalogued.

The Site Investigation will be supplemented by the IRM excavation work to fill in data gaps related to the presence, if any, of USTs in the Huron parking lot and also better define the distribution of petroleum contamination (and others if present) in the subsurface. Grossly contaminated soils with petroleum contamination exceeding the NYSDEC's CP-51 criteria for soil cleanup and/or protection of groundwater will be included for remediation.

6.2 Schedule of Sampling and Analysis

The site investigation will include the sampling and analysis of soil and groundwater in the parking lot and downgradient, soil and soil vapor under the basement slab, flooring material inside the building, suspect asbestos containing materials and lead paint. Geoprobe soil sample locations, piezometers and monitoring wells will be surveyed by a licensed land surveyor.

The subsurface soil beneath the Huron garage basement is always saturated due to the underground spring, and the constant pumping of groundwater entering the sumps. Subslab vapor intrusion is therefore not an issue at this site. Also, an indoor air quality assessment is not suitable at this time since the garage is currently vacant and windows and roof are in a state of disrepair. However, temporary dewatering of the basement in the adjacent building to the east for utility work may also lower the water table beneath the Huron basement long enough to facilitate subslab vapor sampling.

Table 1 shows the proposed schedule of sampling and analysis along with analytical methods for the different matrices – soil, groundwater, subslab vapor and building materials. The anticipated numbers of soil, groundwater, building floor and paint samples that will be collected are shown in Table 1. Included in Table 1 are also soil and excavation samples that may be collected for characterization during the IRM excavation and analyzed for VOCs.

All samples will be collected in certified clean containers (see Table 2) provided by the analytical laboratory. The sampling will follow NYSDEC guidelines for sample collection, packaging and shipment (in coolers with ice), and chain of custody. The SI and IRM samples will require Category B deliverables. Analytical reports for VOC and SVOC samples will include tentatively identified compounds (TICs) as required by DER-10 and CP-51 guidelines.

The samples will be sent to Test America, Amherst, NY, an off-site laboratory that is certified by the NYSDOH Environmental Laboratory Program (ELAP) and USEPA's Contract Laboratory Program (CLP). Analytical methods and QA/QC, including matrix duplicates and spikes, and field blanks and duplicates will be in accordance with the NYSDEC's ASP protocols and USEPA methods, as applicable.

6.3 Soil Sampling and Analysis

Subsurface soil samples will be collected from the parking lot, upgradient and down gradient locations, and the basement through Geoprobe borings. In addition, grab samples of grossly contaminated soil will also be collected as necessary during the IRM excavation to better define the source and distribution of contaminants, and to determine the course for further excavation.

The proposed Geoprobe soil boring locations are shown on Figures 3 and 4 for the parking lot and garage basement respectively. Geoprobe soil locations in the parking lot are selected to fill in data gaps based on previous investigations. A Geoprobe soil boring will be completed in the northeast corner of the parking lot (i.e. outside northwest corner of garage). Two soil borings will be located inside and one outside the auto shop on Sunoco property to establish upgradient conditions. Two Geoprobe soil borings will be located along Huron Street on either side of MW-10 to assess off-site migration. In addition, soil samples will also be collected from borings drilled for the three new piezometer and two new monitoring wells to be installed at locations shown on Figure 5. Additional Geoprobe locations will be field determined.

The soil boring locations are spread out across the entire basement floor, and will include one next to the freight elevator (to be tested for hydraulic fluid).

Soil samples for laboratory analysis will be selected from each Geoprobe location based on PID readings at various sample depths, visual observations and prior contaminated sample locations. Table 1 shows the anticipated number of samples to be collected and analyzed for different parameters.

All soil samples will be analyzed for TCL volatile organics (VOCs), while a select number of samples will be analyzed for the full list of parameters including semivolatile organics (SVOCs), TAL metals (including mercury), PCBs, pesticides, and total cyanide. A select number of soil samples will also be analyzed for landfill parameters so as to obtain prior approval from the landfill for disposal.

Soil Boring Samples: As shown on Figures 3 and 4, up to eighteen (18) soil boring locations in the parking lot and eight (8) subslab soil boring locations in the basement will be completed and sampled. A direct push method with a tractor mounted Geoprobe or similar unit will be used for this purpose. The Geoprobe uses 4-foot long split spoons or Shelby tubes with plastic liners. The split spoon is pushed into the ground and the soil sample is collected within the plastic sleeve.

At least one sample will be collected from each soil boring location that is representative of the contamination and nature of source material. An additional soil sample will be collected where appropriate to distinguish contaminant levels by depth based on visual observations and PID measurements.

Grab samples will be collected for VOC analysis in the layer that shows elevated PID readings. Composited samples for the other parameters will be collected across soil depths with similar types of waste fill materials and/or contamination.

The following procedures will be followed for Geoprobe soil borings:

a. All equipment will be clean and free of soil, and the Geoprobe will be stabilized and leveled prior to sampling at each location.
b. For subsurface soil sampling in the basement, a hole will first be cored through the concrete floor. The hole will be plugged immediately if a significant hydraulic head exists under the slab.
c. The split spoon or Shelby tube with the plastic sleeve inserted will be advanced into the ground to the appropriate depth. After sample extraction from the ground, the plastic sleeve with the soil sample will be removed from the split spoon or Shelby tube and placed sequentially on a folding table with disposable plastic sheets. The sleeve will be cut along its axis and opened for sample screening with a PID and visual inspection. The PID readings and soil characterized will be recorded in a field form.
d. The samples will be described and logged by depth intervals in accordance with the Unified Soil Classification System.
e. After screening, sample aliquots will be collected from the selected depth interval in appropriate containers provided by the laboratory for analysis. The

samples will be placed in coolers containing ice bags for transport/shipment to the laboratory. Unused soil boring samples will be put back in the borehole.

f. A laboratory-provided chain of custody will be completed for all samples and included with the shipment to the laboratory. In the event a local laboratory is utilized, all sample coolers will be properly packed with ice and dropped off at the laboratory on the day of sampling. In the event an out-of-town laboratory is used, the sample coolers will be properly packed with ice, secured and shipped by overnight delivery.

6.4 Groundwater Sampling and Analysis

Only one monitoring well (MW-10) remains in the parking lot of this Site and is associated with the adjacent Sunoco site remediation and monitoring program. The other two wells in the parking lot (MW-8 and MW-9) were decommissioned by Matrix in October 2014 along with other components of the air sparging and bioremediation systems that extended into the Hurondel Site.

Two piezometers in the central area of the Huron parking lot, one downgradient piezometer, and three new downgradient monitoring wells are proposed to be installed. The locations of these new piezometers and monitoring wells are shown on Figure 5 along with three existing wells to be incorporated into the groundwater sampling program. The three existing wells will include the one remaining well (MW-10) on the Huron site, and two wells (MW-6 and MW-7) upgradient to the Huron site but on the Sunoco site along the property boundary. Together these will comprise a set of six (6) monitoring wells for groundwater sampling, and nine (9) data points for groundwater contouring.

Groundwater occurs at a depth of around 11' to 13' bgs across the site. Previous Geoprobe soil boring samples have shown the most petroleum contamination to be in saturated layer 11' to 18' bgs across the southern portion of the parking lot. The wells and piezometers will therefore be installed to a depth of 22 feet below ground surface so as to capture the depth interval contaminated and to not promote any downward migration of the contaminants.

Piezometer/Well Installation: Construction details for the piezometers and wells are shown on Figures 6A and 6B respectively. The monitoring wells will be installed with a 2" diameter screen straddling the water table from the bottom up to a depth of 6' bgs, and a 2" PVC riser above that. The piezometers will also be 2" in diameter. As shown on Figures 6A and 6B, the screened section of each piezometer or well will have a sand filter pack, followed by a bentonite-pellet seal above it, and then bentonite cement grout to the ground surface. All new piezometers and wells will be completed with a flush mount road box since they will be in areas with automobile access.

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The soil borings will be screened in the field, and samples will be collected for characterization and analysis using split spoons. After installation, the new and existing wells will be surveyed so as to facilitate water level measurements and establishment of groundwater flow gradients.

The following procedures will be followed for well installation:

a. All equipment will be cleaned and free of soil, and the drill rig will be stabilized and leveled prior to drilling at each location.
b. The auger will be advanced in 2-foot intervals to allow for split sampling. The number of blows per 6" of drilling will be recorded in the field form. Drilling will be continued until the required depth is reached.
c. Split spoon samples will be placed sequentially on a folding table with disposable plastic sheets. Each section will be screened with a PID for volatile organics, and logged on the field form along with depth and visual characteristics of the soil, and where water occurs. The samples will be described in accordance with the Unified Soil Classification System.
d. After screening, sample aliquots for analysis will be collected from the selected depth interval in appropriate containers provided by the laboratory and certified clean. The containers with the samples will be placed in coolers containing ice bags for shipment to the laboratory.
e. A bentonite plug, if needed in the absence of clay, will be placed at the bottom of the well. The screen and riser, cut to the desired lengths (so the screen straddles the water table), will be placed in the borehole, and aligned in place to remain vertical. The annular space between the screen and the borehole wall will be filled with sand in 6" increments to prevent any air pockets. Above the sand layer will be a layer of bentonite seal, and above that a layer of cement/bentonite slurry.
f. As the piezometers and wells are in paved areas, they will have a lockable flush mount road box.
g. The wells will be surveyed and water levels measured to establish a baseline water table elevation and groundwater flow gradient.
h. Drill cuttings from the well installation will be staged in 55-gallon drums for proper disposal following receipt of analytical results.

Well Development: The wells will be developed to remove fines by purging at least ten well volumes, and until the turbidity is less than 50 NTU as per NYSDEC guidelines for monitoring well development. In the event the turbidity persists above 50 NTU, as may happen in overburden wells, both unfiltered and filtered samples will be included for parameters of concern (particularly SVOCs and heavy metals). Alternately, low flow (less than 0.1 L/min) sampling with a peristaltic pump and dedicated tubing may be used for groundwater sampling when the target turbidity of 50 NTU cannot be attained. Groundwater sampling will be performed only after all other field readings (pH, temperature and specific conductivity) have stabilized.

Disposable bailers will be used for well development and for sample collection. During well development, field measurements (amount of water removed, pH, specific conductivity, temperature and turbidity) will be measured and recorded in the field log.

The following procedure will be followed for well development:

a. Dedicated, clean, soil-free bailers will be used for each well to be developed.
b. The water level will be measured and recorded to the nearest 0.01."

c. Well water will be bailed and collected in a 5-gallon pail (emptied into a 55-gal drum as needed) until the turbidity criteria (50 NTU) is met or a minimum of 10 well volumes is evacuated. Field parameters (turbidity, pH, specific conductance, ORP) will be measured every 3-4 gallons and recorded in a field form.
d. The evacuated well water will be staged in 55-gallon drums for disposal following receipt of analytical results. Alternately, a 5-gallon pail with granular activated carbon will be used to filter the water and drain it on to the ground.

Well Purging: The monitoring wells will be purged and sampled for at least VOCs and SVOCs, and may include PCBs, pesticides, TAL metals (including mercury) and total cyanide depending on the results of soil sampling at the Huron site.

Field measurements during sampling will include pH, specific conductivity, ORP and temperature. In addition, groundwater samples will be collected in the basement from the sump pump and, if possible, the Geoprobe soil boring locations.

The following procedure will be followed for well purging and sampling:

a. Dedicated, clean, soil-free bailers will be used for each well.
b. The water level will be measured and recorded to the nearest 0.01."
c. Well water will be bailed and collected in a 5-gallon pail (emptied into a 55-gal drum as needed) until the turbidity criteria (50 NTU) is met, a minimum of 3 well volumes is evacuated, and/or the well does not recharge. Field parameters (turbidity, pH, specific conductance, ORP) will be measured at the beginning, at 50% of purge volume gallons and before laboratory sampling. Field measurements and observations will be recorded in a field form.
d. At the conclusion of purging, groundwater samples will be collected in appropriate containers provided by the laboratory for analysis. All sample containers for analysis will be certified clean by the laboratory. The samples will be labeled and placed in coolers containing ice bags for shipment to the laboratory.
e. A laboratory-provided chain of custody will be completed for the samples and included with the shipment to the laboratory. In the event a local laboratory is utilized, all sample coolers will be properly packed with ice, and dropped off at the laboratory on the day of sampling. In the event an out-of-town laboratory is used, the sample coolers will be properly packed with ice, secured and shipped for overnight delivery.
f. The evacuated well water will be staged in 55-gallon drums for disposal following receipt of analytical results. A 5-gallon pail with granular activated carbon will be used to filter out organics and particulate from the purge water before draining it into the sewer.

6.5 SUBSLAB SOIL VAPOR

The basement is currently vacant and, with broken windows and damaged roof sections, is open to atmospheric elements. Also, the basement floor is at the level of the groundwater table around the building, and also has an underground spring running through it. The soil beneath the basement floor slab is therefore always saturated. These conditions are not suitable for Indoor air sampling according to NYSDOH guidelines, and soil vapor intrusion (SVI) is not an issue for this Site at this time.

The objective of this subslab vapor sampling is to determine: (a) if any of the activities inside the building or the petroleum plume in the parking lot has impacted the groundwater beneath the garage, and (b) if soil vapor intrusion can become a potential pathway for contaminant migration into the garage and impact indoor air of building. Hurondel temporarily dewatered the basement of the adjacent building for utility construction. While this dewatering lowered the water table beneath the basement slab, it did not have as much of an effect on groundwater level in the parking lot. Hurondel will keep this temporary dewatering going long enough during the SI to enable subslab soil vapor sampling.

Four (4) subslab vapor locations shown on Figure 4 will be sampled in the garage basement along with ambient air and basement air samples. The locations of these grab samples will be determined based on field screening of Geoprobe subsurface soil sampling below the basement. The basement and ambient air sampling is included to provide a baseline for comparison.

All six samples will be analyzed for VOCs using the USPEA's Method TO-15 which is inclusive of both petroleum and non-petroleum compounds. Subslab soil vapor samples will be collected following the NYSDOH's guidance document for evaluating SVI. A dedicated, pre-cleaned and evacuated (29" vacuum) Summa Canisters (1-liter capacity) from the analytical laboratory will be used at location to obtain grab samples of the subslab vapor and ambient/basement air.

The sub slab vapor sampling procedure will be as follows:

a. A hole small enough (3/8" diameter) to tightly fit the air sampling tube will be drilled through the concrete floor using a hammer drill.
b. The subslab vapor sample will be collected using a ¼" dedicated tubing inserted into the borehole on one end and connected to a dedicated summa canister on the other end. Once the tubing is inserted into the concrete slab, the entrance will be properly sealed with a plastic sleeve.
c. Each Summa canister will be pre-evacuated to a minimum 29" Hg vacuum prior to shipment by the laboratory and field checked with a vacuum gage prior to sampling.
d. The subslab vapor will be let into the Summa canister at a slow rate (around 0.2 liters/minute) by opening a valve until the vacuum drops to 0.
e. The valves on the canisters will be shut tight before removing the tubing.
f. All canisters will be dropped off at the analytical laboratory on the day of sampling.

6.6 WOOD FLOORS

The six-story building was constructed over a century ago for use as a livery, and modified in the 1920s for use as an automobile parking garage. Automobiles were thus historically parked on the all-wood floors of the building, and the wood floors show signs of staining in several areas.

Up to eight (8) surficial wood chips will be collected from the flooring inside the building and analyzed for VOCs and SVOCs, and up to four (4) of these samples will also be analyzed for PCBs, pesticides, TAL metals (including mercury) and total cyanide (see Table 1 for analytical methods). A vibrating chisel hammer will be used to peel off wood samples from the floor surface and the samples will be collected in a zip lock bag for submittal to the analytical laboratory.

6.7 OTHER BUILDING MATERIALS

Given its age and history and the proposed site redevelopment for commercial/residential use, lead paint and asbestos containing materials (ACM) would be a concern.

Materials inside the building such as thermal pipe insulation, roofing membrane/flashing, asphalt floor and window caulking will be sampled by an ACM professional (CEM Services, Grand Island, NY) for asbestos analysis. Samples of peeling paint inside the stairwell and other areas will be collected and analyzed for total lead. Analytical methods for asbestos and lead are listed in Table 1.

Asbestos: Several materials in the garage have been identified as suspect asbestos materials, including roofing, roofing mastic, boiler insulation, pipe insulation, floor tile and mastic, window glaze, etc. A complete assessment will be performed by CEM in compliance with NYS ICR56, and EPA and OSHA procedures. Up to 18 samples will be collected and tested for asbestos, and the results will be evaluated for remediation methods to be implemented.

Lead: OSHA regulations for potential tenants as well as workers during renovation. A complete assessment will be performed by CEM in accordance with EPA and OSHA procedures. Lead bearing materials in the garage may include windows, interior garage and stairwell walls, exterior walls and steel components. These materials will be sampled for lead and the results will be evaluated for remediation methods to be implemented.

6.8 QA/QC Plan

A site-specific Quality Assurance Project Plan (QAPP) is developed as part of this Work Plan and is included as Appendix E. The sampling will be conducted in accordance with accepted NYSDEC (May 2010 DER-10) and USEPA guidelines, and all samples will be analyzed as per NYSDEC ASP requirements.

QA/QC samples will include a field rinse blank (per event), field duplicate (one per 20 samples), and matrix spike/matrix spike duplicate (one per 20 samples). A NYSDOH ELAP-certified laboratory (Test America) will be utilized for all analysis during the supplemental investigation, remedial construction and long-term monitoring. Category B deliverables will be provided for all samples. All analytical data will be evaluated according to the Division of Environmental Remediation (DER) Data Usability Summary Report (DUSR) guidelines.

6.9 Health and Safety Plan (HASP)

A site-specific Health & Safety Plan (HASP), included as Appendix F, is developed as part of this Work Plan for the protection of on-site workers and other field personnel. The H&S program includes air quality monitoring during remedial construction as per New York State DOH's Generic Community Air Monitoring Plan.

7.0 SITE INVESTIGATION REPORT

The results of the site investigation will be compiled in a report along with data evaluation, and a qualitative risk assessment for both on-site and off-site receptors. The report will be prepared in accordance with the NYSDEC's DER-10 guidelines. All analytical data in the report will also be submitted in a NYSDEC-approved electronic deliverable format.

The SI Report will include an Alternatives Analysis Report (AAR). In accordance with DER-10 guidelines, the AAR will evaluate the following criteria to select the final remedy:

1. Overall protection of human health and the environment;
2. Compliance with Standards, Criteria and Guidance (SCGs);
3. Short-term impact and effectiveness;
4. Long-term effectiveness and permanence;
5. Reduction of toxicity, mobility, or volume;
6. Implementability;
7. Cost Effectiveness; and
8. Land Use

8.0 REGULATORY CRITERIA

The NYSDEC has established goals for acceptable contamination levels in soils based on a combination of human health risk factors and potential groundwater impacts. These goals are applicable when considering the need for a remedial measure at contaminated sites.

The Brownfield Cleanup Program provides for a multi-track approach to the remediation of soil contamination. The NYSDEC has developed tables of soil cleanup goals from four tracks ranging from unrestricted use (Tracks 1) to different degrees of restricted use (Tracks 2, 3 and 4).

The intent of this remedial effort is to clean up this property to restricted residential/commercial use under Track 2. Applicable SCGs as per DER-10 include the following (included as Appendix C):

- Part 375, Table 375-6.8(b), Restricted Residential Use SCOs
- CP-51, Table 1, Protection of Groundwater SCOs
- CP-51, Table 2, Soil Cleanup Levels for Gasoline Contaminated Soils
- CP-51, Table 3, Soil Cleanup Levels for Fuel Oil Contaminated Soils

Any excavation and off-site disposal of the contaminated soils will be compliant with the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA).

9.0 WORK PLAN FOR INTERIM REMEDIAL MEASURE

This preliminary approach is developed based on the results of previous investigations. It will be expanded as necessary to include additional areas of contamination that may be discovered as part of the supplemental investigation described in this Work Plan. The overall objective of this interim remedial measure is to remediate this site to the Track 2, restricted residential/ commercial requirements under the Brownfield Cleanup Program.

The IRM proposed in this section is based on the findings of previous investigations in the parking lot subsurface. The need for remedial measures inside the Huron garage will be determined based on the results of this BCP Site Investigation. The SI described above will provide additional details on the source and distribution of soil contamination in the parking lot. It will also determine the extent of off-site migration, if any, of contaminants from the Huron site.

The IRM soil excavation will include confirmatory wall and bottom samples as required by DER-10. In addition, soil samples will be collected during excavation to identify possible source areas and contamination distribution, and the course for further action.

9.1 Extent of Contamination

The parking lot subsurface consists of a 3' to 4' layer of urban fill below the asphalt, and below it a thick layer of fine sand that extends over 30 feet to bedrock. The north half of the parking lot has been shown to be free of contamination. The soil/fill layer (1' to 4' bgs) below the asphalt parking lot and the layer of fine grained sand (4' to 11' bgs) above the groundwater table have not shown signs of contamination or are at trace levels.

As described in Sections 4 and 5 above and as shown on Figure 7, petroleum contamination spreads across the southern half of the parking lot in the saturated sand layer (11' to 18' bgs) below the water table. Volatile organic compounds are at levels that exceed CP-51 and Part 375 SCOs at various locations in the southernmost section of the parking lot, directly east of the Sunoco site. Petroleum-related SVOCs have been below SCOs.

The contaminated layer in the saturated zone appears visually stained, consistent with petroleum products. The distribution of petroleum contamination in the saturated zone is as follows:

- Central area of parking lot: Soil contamination in this area ranged from 24 to 118 mg/Kg based on the 2012 Geoprobe Soil Investigation by IEG. Three samples had petroleum VOCs above CP-51 SCOs.

- Southern area of parking lot: Soil contamination in this area ranged from 315 to 857 mg/Kg based on the 2012 Geoprobe Soil Investigation by IEG. Three samples had petroleum VOCs above CP-51 SCOs.

9.2 Description of Remedy

The selected remedy for contaminated soil is excavation and off-site disposal. This remedy provides the quickest and the most cost effective means of rendering the Site suitable for redevelopment in the near future. The interim remedial measure will consist of at least the excavation of grossly contaminated soils based on visual observations and field PID readings, and will include areas that exceed one of more of the following SCOs:

- Part 375 SCOs for Track 2 (residential/commercial use)
- CP-51 Gasoline/Fuel Oil SCOs
- CP-51 Protection of Groundwater SCOs

The extent of remediation is shown on Figure 7, but the excavation will take into consideration limitations presented by the adjacent structures and the need to protect their foundations. Other areas will be included for excavation if necessary in incremental amounts based on the SI results. Groundwater encountered during excavation will be handled in accordance with Buffalo Sewer Authority (BSA) requirements for discharge to a nearby sewer.

Confirmatory soil samples from the excavation bottom and walls will be collected and analyzed to determine if the excavation has reached its objective. The IRM will also be used as an investigative means, and excavated soils will be sampled for VOC analysis to identify contaminant sources and distribution that may have been missed during the SI Geoprobe soil investigation. The course of further action will be determined, namely the need for additional excavation or other remedy (if necessary to protect the integrity of the structures), will be based on these sampling results.

The asphalt layer at the top will be sent off-site for recycling. The approximately 3' layer of urban fill/soil below it will be disposed off-site as solid waste along with contaminated soil targeted for excavation and off-site disposal. Pre-approval from the landfill will be obtained with the results from analysis of selected soil samples during the SI.

The clean layer of fine sand (4' to 10' bgs) above the water table will be staged for reuse on-site as backfill provided it meets the same DER-10 requirements for off-site sources. This clean sand layer will only be used as backfill above the water table.

Clean clay fill from an off-site virgin source meeting DER-10 requirements will be used to backfill from the bottom of all excavations in contaminated areas to up to at least a foot above the water table. The west wall of the excavation along the property boundary will also be backfilled with the clean clay fill to form a barrier to further migration of contaminants from the Sunoco site.

After backfilling and compacting/grading, the parking lot will be repaved for future use. Materials inside the building that may be contaminated or contain ACMs and/or lead paint will be targeted for removal so as not to pose a health hazard to its occupants or workers during building renovation.

The Community Air Monitoring Plan will be implemented during the intrusive activities so as to ensure the site work is protective of public health and the environment.

9.3 Mobilization and Staging

AJ Brodie, the selected remediation contractor, will mobilize with necessary equipment to the site and stage them for site work in the northern section of the parking lot at 77-79 West Huron. CEM Services will be the Construction Manager overseeing the Contractor's means and methods.

The northern half of the parking lot will be used to stockpile clean fill and a frac tank for excavation water. Additional staging is available inside the garage.

Contaminated soil meeting solid waste disposal criteria will be excavated and disposed at the Tonawanda Landfill, a NY State permitted solid waste facility. Analytical results from the SI Geoprobe soil sampling for landfill parameters will be used to develop the waste profile and to obtain prior approval from the landfill for contaminated material from the Site. Additional samples will be collected and analyzed for landfill parameters as necessary and as the excavation progresses to obtain landfill approval for additional soil disposal.

A sewer use permit will be obtained from the Buffalo Sewer Authority for the discharge of treated excavation water into a manhole just outside the northwest corner of the garage.

9.4 Shoring Plan

Excavation of contaminated soil will take into consideration any potential impact on the stability of the buildings to the east and west, as well as the sidewalk to the south. A Shoring Plan independently prepared by a qualified professional directly for Hurondel I is included as Appendix D and will serve as a guideline for the excavation and soil handling.

The Construction Manager and the Contractor will be responsible for implementing the Shoring Plan and to perform all excavations within the constraints therein.

9.5 Soil Excavation and Off-Site Disposal

Contaminated soil (mostly fine sand) within a 11' to 20' layer below the water table in the southern half of the parking lot is targeted for excavation and off-site disposal. This layer can be identified by a visible blackening of the sand layer from petroleum products dating back several decades, and elevated field PID readings.

As shown on Figure 5, the area of excavation is bordered along its entire length to the east by the six-story garage which has a deep basement and foundation extending well almost to the anticipated depth of excavation. A paved section borders the southern portion of the western boundary of the excavation area, while the auto shop (concrete block building) and a commercial business (brick building) form the northern edge. The excavation will be limited to the extent necessary to protect the integrity of these structures.

Excavation: The excavation will start in the north and progressively move south. Excavated material designated for off-site disposal will be direct loaded on to waste haulers, and staged as necessary only in areas to be further excavated. Only clean fill will be stockpiled in previously excavated areas that have been backfilled. The subsurface layers will be handled as follows:

- The top asphalt layer will be removed and sent to an off-site recycling facility.

- The urban fill and remnants of previous operations at the Site and remedial activities related to the adjacent Sunoco site form a 3' to 4' deep layer below the asphalt. This layer will be excavated and disposed off-site at the solid waste facility (Tonawanda Landfill).

- The sand layer below the urban fill and up to a foot above the groundwater table is expected to be clean. This layer will be screened in the field with the PID and visually. If suitable, it will be stockpiled for use as backfill. The on-site sand will be sampled and analyzed to ensure it meets DER-10 analytical and frequency requirements for clean fill.

- To the extent possible without impacting the integrity of the adjacent buildings, grossly contaminated soil/sand with elevated PID readings and visible petroleum contamination (i.e. blackened sand) will be excavated and disposed off-site. Any sand from this layer that caves into the excavation and mixes with the underlying contaminated sand will also be disposed off-site.

The soil excavation will be carried out with a backhoe large enough to reach the anticipated depths. To the extent possible the contaminated soil will be loaded directly on to dump trucks for off-site disposal. The dump truck will enter the Site from Huron street and will stage in a clean area for the loading of contaminated soils. This will prevent the trucks from tracking excavation spoils off-site. Any spills during loading will be immediately cleaned up. The sequence of operation will be such that no contaminated groundwater is drawn into areas not previously impacted.

Backfilling: At the anticipated depths of excavation (~ 20' bgs), the subsurface sand layer can easily cave-in. Therefore the excavations will be backfilled as work progresses so as to keep the excavation bottom to a minimum size. The excavation will stay a safe distance away from the building walls and the width of the excavation against the building walls will also be kept to a minimum.

Clean clay fill from an off-site source will be used to backfill the excavation below the water table. A mixture of the clean on-site sand layer and clean off-site clay will be used to backfill the excavation above the water table.

The bottom clay backfill under the water table will suppress groundwater flow through this area and prevent further migration of contaminants. All backfill material will be sampled and analyzed for VOCs, SVOCs, metals, pesticides/herbicides, PCBS and cyanide to meet DER-10 requirements.

Decontamination/Housekeeping: Equipment used for excavation will remain within the work zone until the work is completed. Any equipment used within the excavation zone will be cleaned properly before leaving the Site, either in between work phases or at the end of the excavation. A Separate decontamination pad is not proposed at this time due to severe space constraints from the excavation zone occupying the full width of the parking lot.

All effort will however be made to ensure no contaminated materials are tracked off-site by any equipment. In addition, a power broom will be used to sweep clean the sidewalk near the truck loading area periodically during loading activities and also at the end of each day of excavation.

To prevent nuisance odors from the work area, excavated materials will be direct loaded to the extent possible and any stockpile of contaminated soil will be minimized. Also, any such stockpile will be covered with plastic or clean clay if left overnight. Open excavations with contaminated soil at the bottom will be kept to a minimum, and covered with clean soil if necessary, particularly weekends.

West Property Boundary: Historical groundwater data has established that groundwater flows west to east/southeast, from the Sunoco property towards this Site. At no time in over ten years of monitoring of the two sites has there ever been a groundwater gradient in the opposite direction. Therefore, once this Site is remediated, it is important to protect the subsurface from further easterly migration of petroleum contaminants from the adjacent Sunoco property.

To achieve this, full depth of excavation at the property boundary between the two sites will be backfilled with tight clay that will serve as a barrier to groundwater flow. The entire excavation across this Site will have a clay layer from the bottom up to at least a foot above the water table. A mixture of sand and clay will be used to backfill above the water table in areas away from the property boundary with Sunoco.

In addition, Sunoco is considering options for a barrier wall of its own along the property boundary with possible in-situ groundwater treatment to prevent contaminants from leaving the Sunoco site across the property boundary.

Sequence of Operation:

A. The asphalt layer at the surface will be first removed and taken to an off-site recycling facility.
B. Urban fill, utilities and remnants of previous activities with the 3' to 4' thick layer below the asphalt will be disposed off-site.
C. Clean sand layer 4' bgs (below urban fill) to 11' bgs (above groundwater table) will be stockpiled, tested and reused on-site as backfill.
D. Contaminated soil/sand below the water table from 11' to 20' bgs will be excavated, loaded on to dump trucks and disposed off-site. Every effort will be made to stage the trucks so as to prevent excavation spoils from being tracked off-site. Also, any spills of contaminated materials during excavation will be immediately removed.
E. The excavated soil layers will be logged by depth intervals in accordance with the Unified Soil Classification System.
F. Water infiltrating into the excavation bottom will be pumped into a 20,000-gal frac tank for settling and discharged through a carbon drum into the on-site sewer.
G. The excavated area will be progressively backfilled following confirmatory sampling of the wall and bottom. Clay will be used as backfill for the bottom of the excavation to at least 1-foot above the water table. Mixture of clean on-site sand and off-site clay will then be backfilled above that. The backfill will be compacted in layers to minimize settlement.
H. The backfilled areas will be allowed to settle prior to paving. The surface of the excavated areas of the parking lot and any other areas impacted by the construction activities will be graded and re-paved to render it suitable for future use.

9.6 Confirmatory & Investigative Soil Sampling

Confirmatory soil samples will be collected from the walls and bottom of the excavation and analyzed for TCL/STARs VOCs at 30-foot intervals or smaller based on site conditions such as corners, reported UST locations, etc. The excavation will continue until the walls and bottom of the excavation meet the SCOs.

As discussed earlier, samples of excavated soils will also be collected during the course of excavation to further characterize possible sources and distribution of petroleum contamination at the Site.

All soil samples collected during excavation will be analyzed for VOCs (+ TICs). Selected samples will also be analyzed for SVOCs, particularly in areas where previous reports have indicated the possible presence of fuel or waste oil USTs.

9.7 Dust Control and Monitoring

Air monitoring and dust control measures will be implemented in accordance with the Community Protection Plan in Section 11 of the Health & Safety Plan and the associated NYSDOH Generic Community Air Monitoring Plan (CAMP; included with the Health & Safety Plan in Appendix F).

Real-time air monitoring will include visual observations and field measurements for volatile organics (MiniRae 2000 photoionization detector, PID) and particulates (MIE Miniram PDM-3, 0.1 to 10 μm particle size range) in ambient air around the excavation and Site perimeter. Particulate samplers (37mm PVC cassettes, analyzed for total dust by NIOSH 0500 gravimetric method) will also be placed at up to four locations around the Site perimeter to assess particulate emissions. Both the PID and PDM-3 will have audible alarms to indicate exceedance of the action levels.

Work will be stopped if PID measurements exceed 5 ppm or particulate emissions exceed 100 $\mu g/m^3$ (integrated over a 15-minute period), or background levels. Efforts will be taken to prevent nuisance odors by minimizing contaminated soil stock pile, covering it with plastic when necessary and covering open excavation bottoms with a thin layer of clean soil/sand if necessary. Dust suppression techniques (e.g. wetting of dry excavation soil with water sprays) will be implemented as necessary to maintain particulate emissions below its action level. Work will resume when the mitigating techniques are successful in bringing emissions and dust levels

As noted before, a power broom will be used to sweep around the truck loading area to minimize the spread of contaminated soil.

9.8 Excavation Water Treatment and Disposal

The anticipated depths of soil excavation (at least to 20' bgs) will require the handling of groundwater infiltrating into the excavation since the groundwater table is at 11' to 13' at this Site. The fine sand will limit the amount of water entering the excavation, and additional water may be encountered in any void space outside the garage foundation. Precipitation can add to the volume.

The excavation water will be pumped into a storage tank where suspended soil/sand will be allowed to settle, and then the settled supernatant will be treated on-site through an activated carbon drum before discharge into the sanitary sewer. A BSA sewer discharge permit will be obtained during mobilization and the tank water will be sampled at a frequency and for analytical parameters dictated by the sewer permit.

Due to the tightness of the fine sand layer extending from 4' bgs to over 30' bgs, the excavation is not anticipated to significantly impact the surrounding area. This is evident from the fact that continuous pumping of groundwater from the basement sump has not significantly depressed the groundwater table in the parking lot compared to upgradient wells. Water level measurements at MW-10 will still be monitored periodically during excavation.

9.9 Backfill

The excavation will be backfilled with clean clay fill from a known off-site virgin source that is tested (for VOCs, SVOCS, metals, pesticides/herbicides, PCBs and cyanide) as necessary to ensure it is appropriate for use at the site and meets DER-10 requirements. Clean sand excavated between 4' to 10' bgs and that is not impacted by petroleum contamination will also be used as backfill above the water table. This clean on-site sand will also be sampled and analyzed to ensure it meets DER-10 requirements for frequency and analytical parameters.

After backfilling, the area will be regraded and paved for its intended use.

9.10 Asbestos

CEM has tentatively identified suspect asbestos materials at the property at 73-77 West Huron. The materials do not pose a threat in their current condition, but Hurondel will remove the asbestos containing materials as part of the remedy.

Asbestos Removal: Hurondel will conduct all asbestos removal and related work in accordance with the provisions of NYCRR 56, the approved NYS Variance and applicable EPA NESHAPS, and OSHA Standards. Where differences in protocols and/or procedures occur, Hurondel will utilize the more stringent for the purpose of this Project. In general the following procedures will be followed:

- Notification and permits to the NYS DOL, and USEPA
- A site specific variance will be applied to the NYS Asbestos Engineering
- Asbestos Certified Contractors and workers to perform the work.
- An attached decon will be on-site
- Only NYS/EPA certified workers will be allowed in the work area.
- The work area will be cordoned off with barrier tape, signs and appropriate enclosures.
- Project/air monitoring will be conducted by the owner, before, during and after the entire project.

Disposal: The following permitted facilities will be used for ACMs:

- FRIABLE Asbestos – *Waste Management, Chaffee NY*
- NON-Friable Asbestos – *Waste Management, Chaffee NY*

Documentation:

- Asbestos Contractor will provide in a neatly bound and indexed format with a table of contents, the following documentation upon completion of the project in each area.
- Daily personal air monitoring records and test results.
- Daily logs and sign-in sheets maintained during all phases of the work including preparation, abatement, final cleaning and air clearance.

- Waste manifest(s) from landfill representative listing dates of waste delivery, quantity of material, confirmation of receipt in proper, undamaged containers and signature(s) by authorized designated representative(s). .
- Certifications and Licenses: NY State Asbestos Contractor License, Supervisor's certificate and all worker's Asbestos Handler's certificates and refresher training verifications.
- Permit number, name and address of licensed landfill where asbestos containing waste is to be disposed. Include contact person and telephone number, and DEC region number and representative or equivalent state authority having jurisdiction.
- Transporter Permits: DEC permit and permit(s) as required by county(s) through which the asbestos waste is transported to landfill.
- Notification submittals to Regional U.S. EPA NESHAPS and NYSDOL Asbestos Control Unit.

9.11 Lead Paint

CEM has tentatively identified several suspect lead containing materials. Currently the materials do not pose a danger to the public.

Job Work Procedure: This procedure has established requirements that are in compliance with OSHA's 29 CFR 1926.62. This program provides the guidance for projects with worker potential for exposure to lead. A job site posting will include WARNING – LEAD WORK AREA POISON SIGN for worker protection. These signs will be clearly visible at all times.

A job site trailer will be provided with a washing station for the employees so they can wash hands and face, prior to eating drinking or smoking. The trailer will provide a location to change clothes and store safety equipment.

A pre-work safety meeting will be conducted to assure that employees understand the safety requirements of this job. This safety meeting will advise employees of their responsibilities and compliance with the safety procedures. Documentation shall be required to verify attendance.

1. Employees will be issued safety equipment by the foreman or safety monitor, who assures that employees comply with the proper dress code of coveralls, gloves, respirators, hard hats, head covers as required, and foot covers.
2. Workers will use hepa vacuum equipment with proper attachments
3. Wet methods will be used
4. Employee will be vacuumed and/or brushed off as he leaves the work site or containment area by a co-worker or safety monitor.
5. Employees will go to their respective safety equipment storage area and after cleaning their gear, shall store it in the area and seal it.

Disposal:

- Lead Waste – Waste Management *Model City*

Documentation: Documentation for lead abatement will include:

- Documents include safety meeting rosters and safety equipment rosters.
- Medical records shall be maintained separately from employment files.
- Disposal Manifests
- Transporter Permits: DEC permit and permit(s) as required by county(s) through which the waste is transported to landfill.
- Certifications and Licenses of employees.

10.0 IRM REPORT

During remedy construction, daily field reports will be developed and provided to the NYSDEC. Within 90 days after completion of remediation, a final construction report will be submitted with details of the implemented remedy, as-built drawings, and a long-term monitoring plan. The report and drawings will be certified by a professional engineer.

11.0 INSTITUTIONAL CONTROLS

The need for institutional controls will be determined following completion of additional investigations and after a final remedial measure is developed.

12.0 O&M AND LONG-TERM MONITORING

The need for long-term O&M and monitoring will be determined prior to the implementation of the interim remedial measure. At this time, it is assumed that the six monitoring wells and three piezometers sampled during the Site Investigation will be monitored on a quarterly basis. The groundwater samples will be analyzed for VOCs unless the SI identifies other parameters of concern.

The monitoring will continue until such time a determination as to whether off-site petroleum contamination is associated with the Huron site.

13.0 SCHEDULE

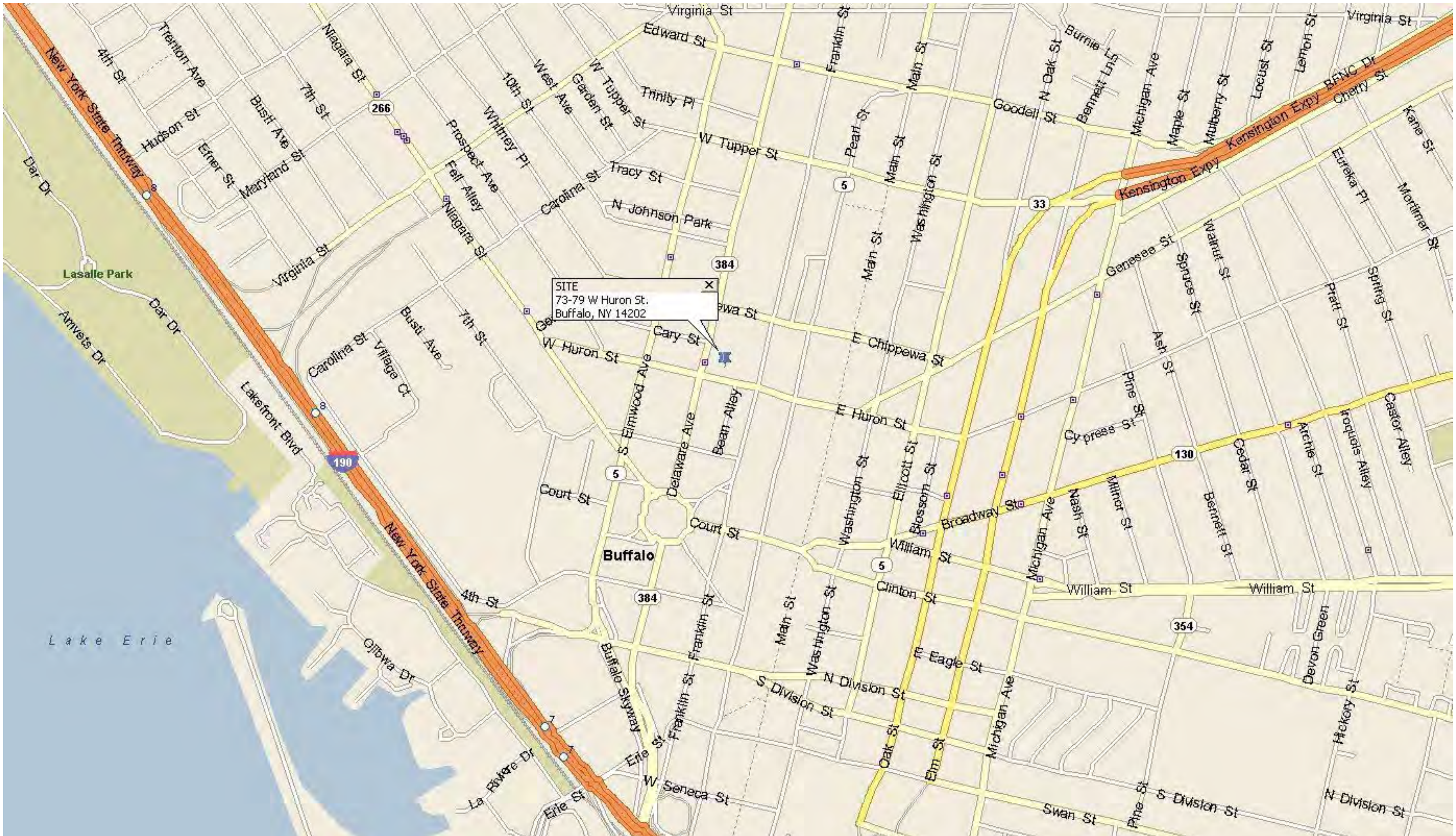
Subject to NYSDEC approval, the following is a tentative schedule for the site:

- Work Plan — November 2014 - June 2015
- Site Investigation — February – October 2015
- Interim Remedial Measure — March – August 2015
- Remedial Construction Report — December 2015

14.0 PROJECT ORGANIZATION

The proposed project organization chart is presented as Figure 8. Resumes of key personnel are included in Appendix H.

FIGURES



73-79 W HURON ST., BUFFALO, NY
SITE LOCATION MAP

FIGURE 1

IEG

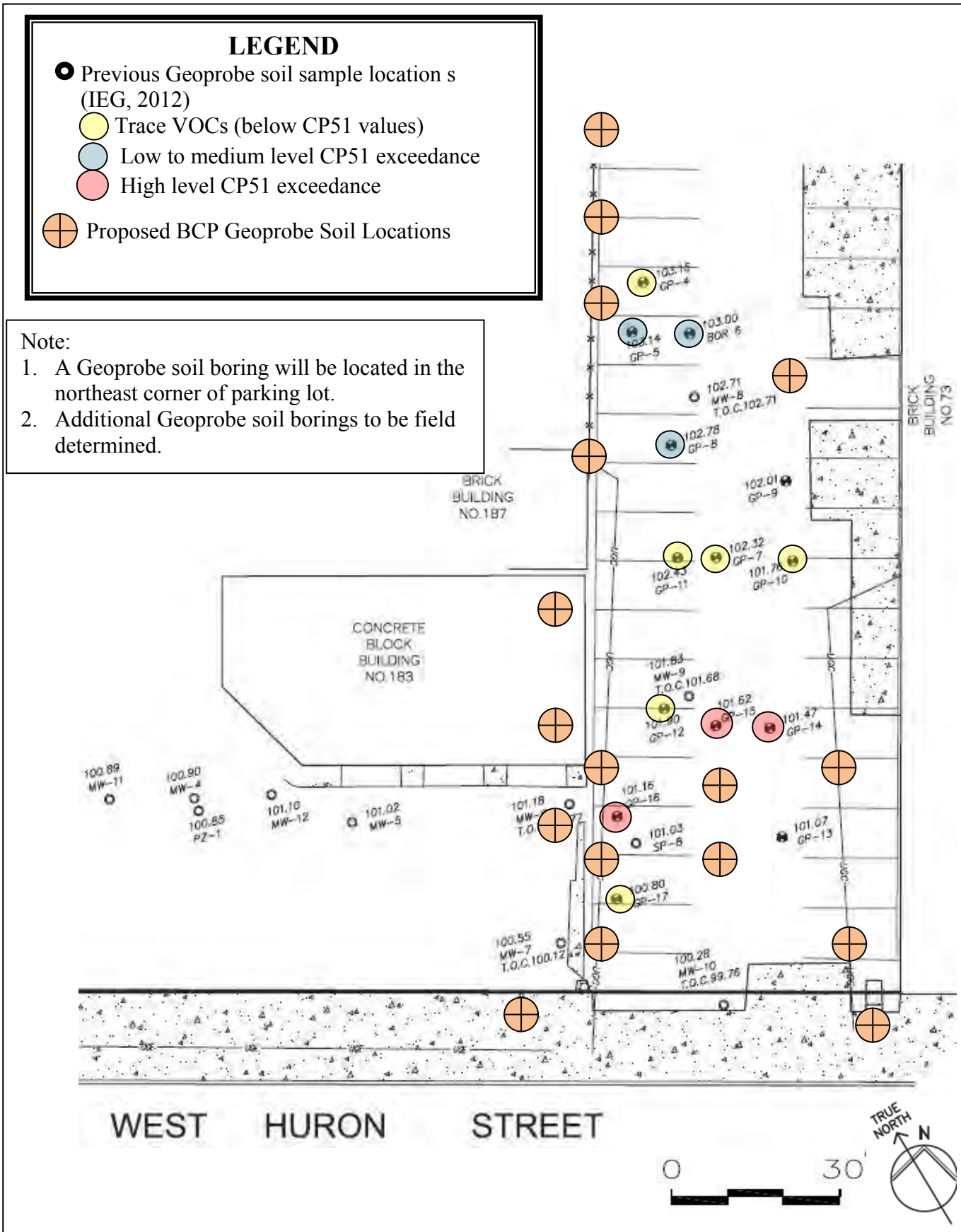
NOTE: 73-75 W. Huron have historically been part of one multi-story building
77-79 W. Huron have historically been part of one parking lot

N

73-79 W HURON ST., BUFFALO, NY
AERIAL PHOTO

FIGURE 2

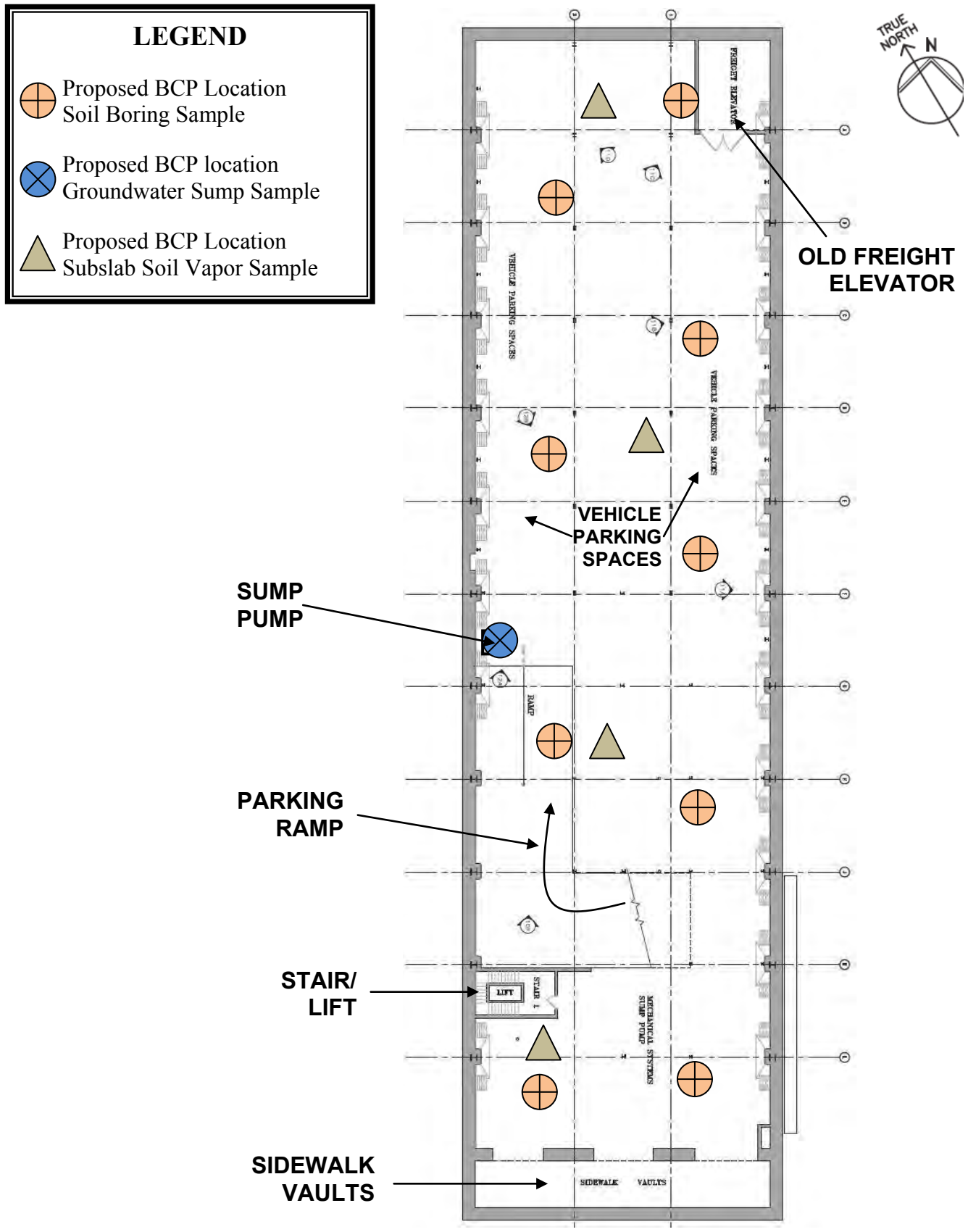
IEG



73-79 W HURON ST., BUFFALO, NY
PROPOSED PARKING LOT SAMPLING

FIGURE 3

IEG



73-79 W HURON ST., BUFFALO, NY
PROPOSED BASEMENT SAMPLING

FIGURE 4

IEG

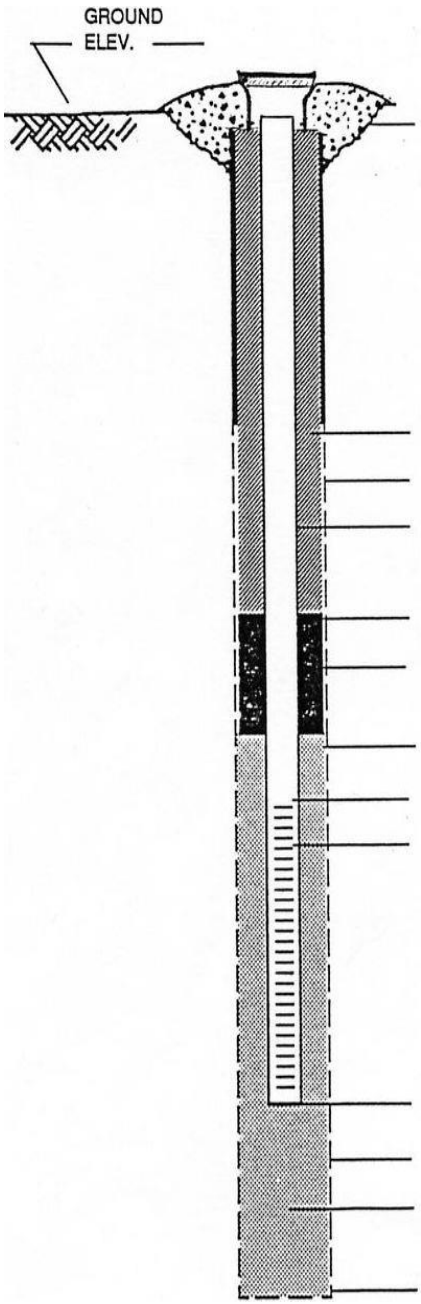
73-79 W HURON ST., BUFFALO, NY
PROPOSED PIEZOMETERS & MONITORING WELLS

FIGURE 5

IEG

FIGURE 6A
PIEZOMETER DETAIL

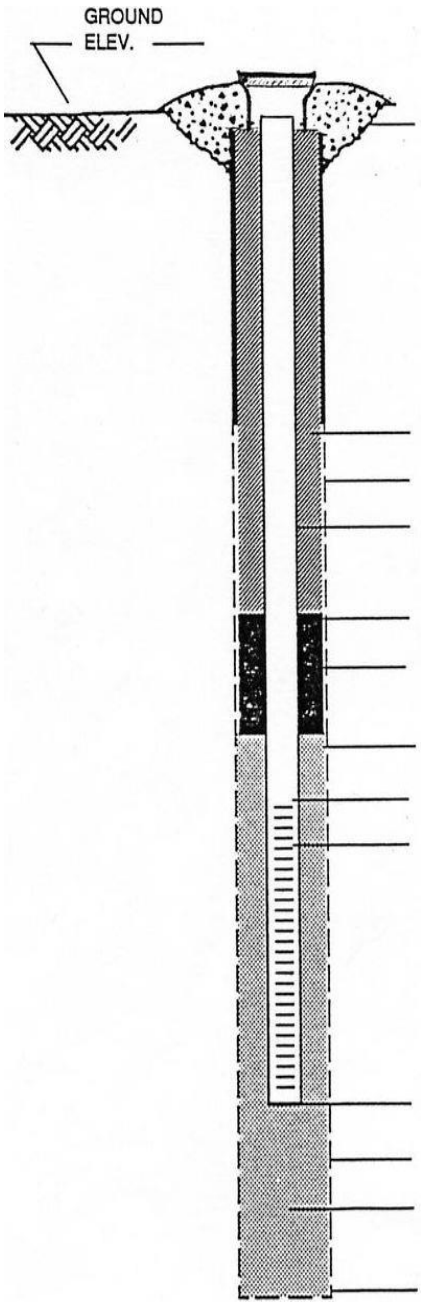
WELL NUMBER: (2-inch ID Piezometer)	
PROJECT: 73-79 W. HURON ST. SITE	**DRILLING METHOD:** ASTM D-1586 USING HOLLOW STEM AUGERS
PROJECT NUMBER:	**GEOLOGIST:** TBD
DRILLER: SJB	**INSTALLATION DATE(S):**



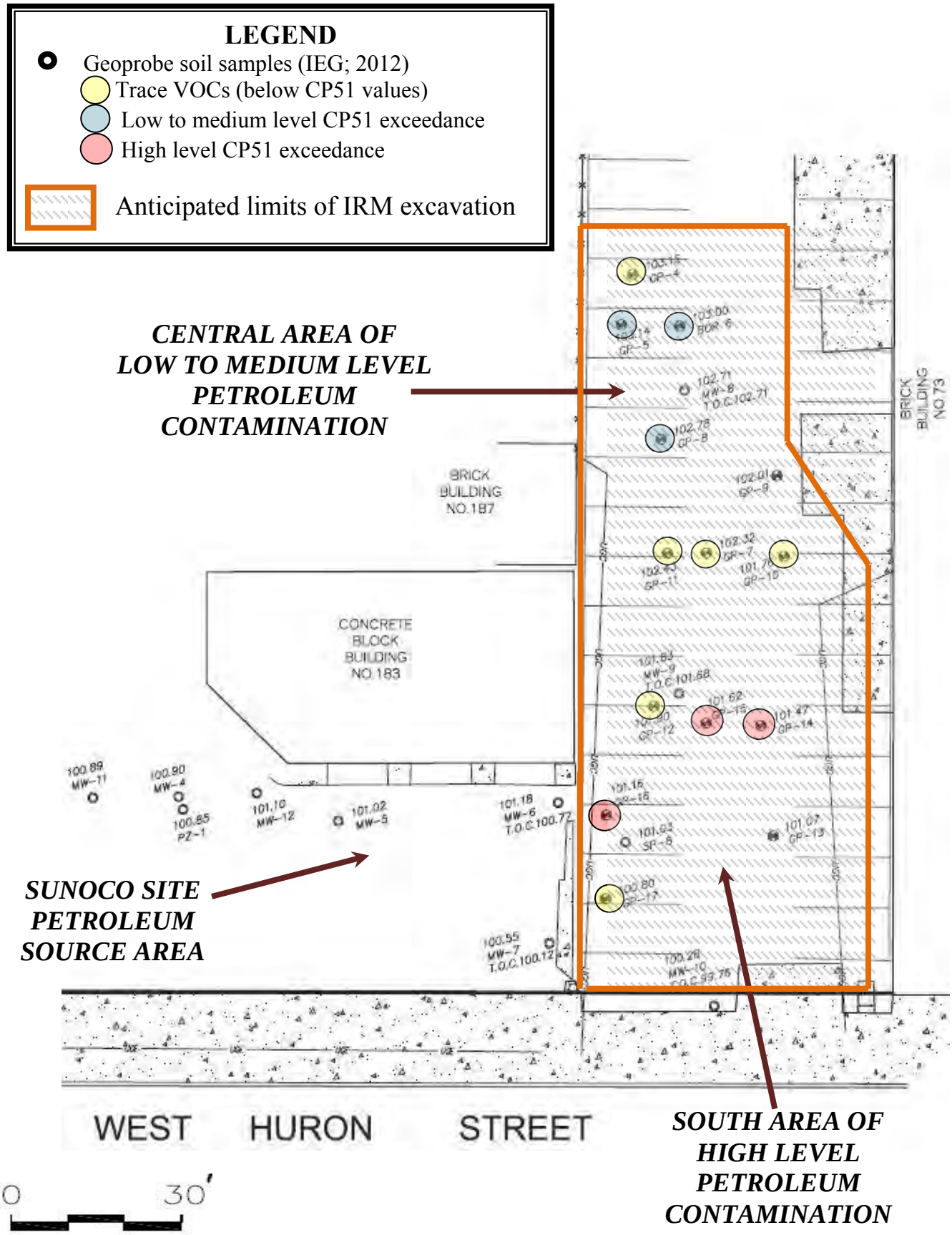
Flush Mount Road Box	
at Grade - 8 inch	
TYPE OF SURFACE SEAL:	Concrete
TYPE OF BACKFILL:	Cement/Bentonite Grout
BOREHOLE DIAMETER:	± 8"
I.D. OF RISER PIPE:	2.0"
TYPE OF RISER PIPE:	PVC
DEPTH OF SEAL:	3.0' - 5.0'
TYPE OF SEAL:	BENTONITE CHIPS
DEPTH OF SAND PACK:	5.0'
DEPTH OF TOP OF SCREEN:	6.0'
TYPE OF SCREEN:	PVC
SLOT SIZE X LENGTH:	.010" X 10.0'
I.D. OF SCREEN:	2.0"
TYPE OF SAND PACK:	MORIE '0' FILTER SAND
DEPTH BOTTOM OF SCREEN:	20.0'
DEPTH BOTTOM OF SAND PACK:	22.0"
TYPE OF BACKFILL BELOW SAND PACK	NA
ELEVATION/ DEPTH OF HOLE:	23.0'

FIGURE 6B
MONITORING WELL DETAIL

WELL NUMBER: (2-inch ID Monitoring Well)	
PROJECT: 73-79 W. HURON ST. SITE	**DRILLING METHOD:** ASTM D-1586 USING HOLLOW STEM AUGERS
PROJECT NUMBER:	**GEOLOGIST:** TBD
DRILLER: SJB	**INSTALLATION DATE(S):**



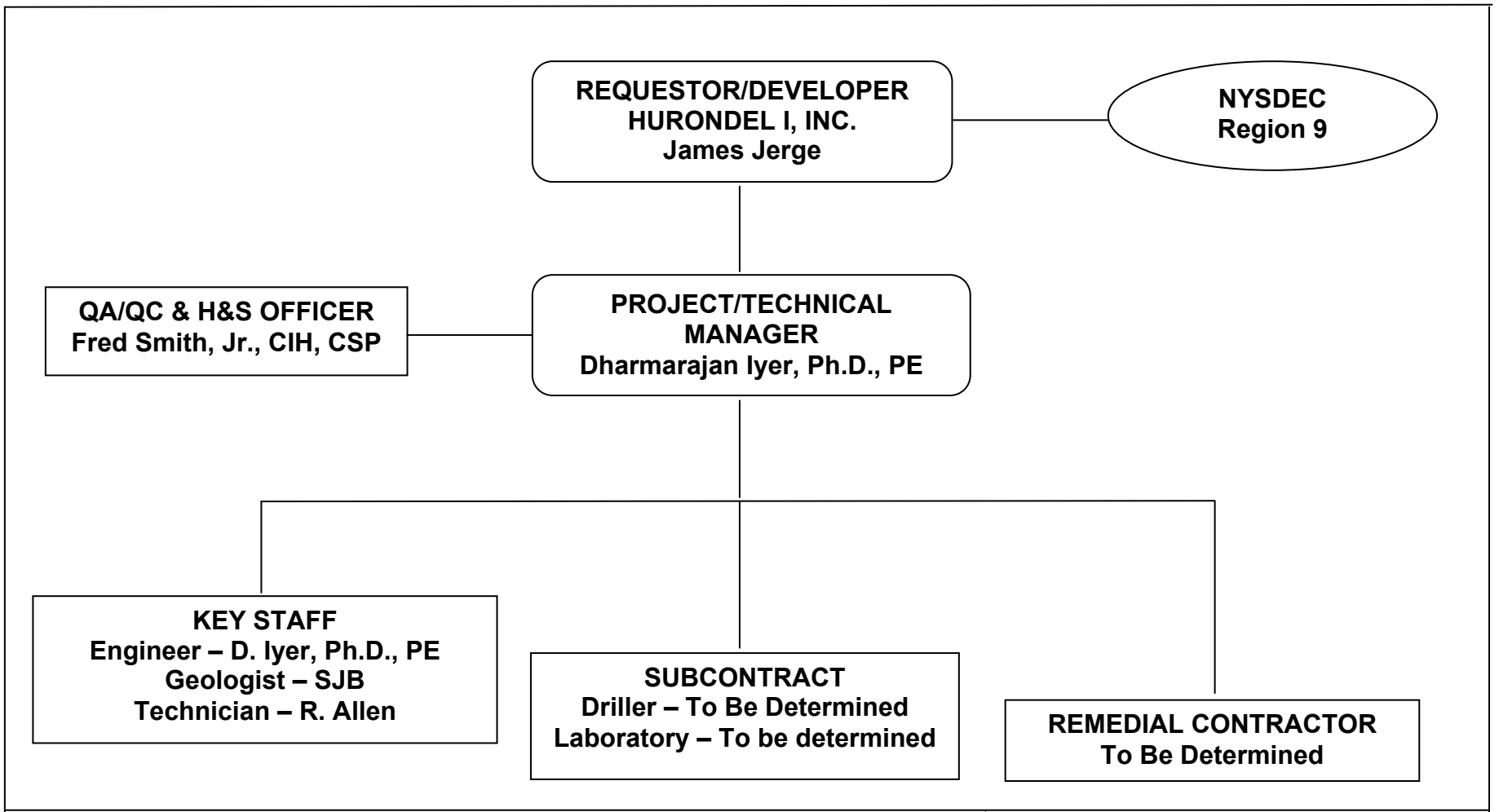
Flush Mount Road Box	
at Grade - 8 inch	
TYPE OF SURFACE SEAL:	Concrete
TYPE OF BACKFILL:	Cement/Bentonite Grout
BOREHOLE DIAMETER:	± 8"
I.D. OF RISER PIPE:	2.0"
TYPE OF RISER PIPE:	PVC
DEPTH OF SEAL:	3.0' - 5.0'
TYPE OF SEAL:	BENTONITE CHIPS
DEPTH OF SAND PACK:	5.0'
DEPTH OF TOP OF SCREEN:	6.0'
TYPE OF SCREEN:	PVC
SLOT SIZE X LENGTH:	.010" X 10.0'
I.D. OF SCREEN:	2.0"
TYPE OF SAND PACK:	MORIE '0' FILTER SAND
DEPTH BOTTOM OF SCREEN:	20.0"
DEPTH BOTTOM OF SAND PACK:	22.0"
TYPE OF BACKFILL BELOW SAND PACK	NA
ELEVATION/ DEPTH OF HOLE:	23.0'



73-79 W HURON ST., BUFFALO, NY
PRELIMINARY EXTENT OF SOIL CLEANUP

FIGURE 7

IEG



73-79 W HURON SITE – BCP SI/IRM

PROJECT ORGANIZATION CHART

FIGURE 8

IEG

TABLES

TABLE 1
73-79 W. HURON ST. - BCP SITE INVESTIGATION
PROPOSED SAMPLING AND ANALYSIS

ANALYTICAL PARAMETER	ANALYTICAL METHOD	SOIL SAMPLES PARKING LOT/BASEMENT GEOPROBE 18 SUBSURFAC/8 SUBSLAB/24 EXCAVATION/ 16 CONFIRMATORY SAMPLES/6 BACKFILL SAMPLES)				GROUNDWATER SAMPLES (6 MONITORING WELLS/1 BASEMENT SUMP/ 3 IRM EXCAVATION WATER)				SOIL VAPOR SAMPLES (4 SUBSLAB, 1 BASEMENT, 1 AMBIENT)		BUILDING SAMPLES FLOOR/ACM/LEAD PAINT	
		# OF SAMPLES	FIELD DUPLICATE (1 in 20)	MS/MSD (1 in 20)	RINSE BLANK	# OF SAMPLES	FIELD DUPLICATE (1 in 20)	MS/MSD (1 in 20)	TRIP BLANK	# OF SAMPLES	FIELD DUPLICATE (1 in 20)	# OF SAMPLES	FIELD DUPLICATE (1 in 20)
TCL Volatile Organics (VOCs)	8260/ TO-15	72	4	8	4	10	1	2	1	6	1	8	1
TCL Semivolatile Organics (SVOCs)	8270	16	1	2	1	6	--	--	--	--	--	8	1
Pesticides/ PCBs	8081/ 8082	14	1	2	1	3	--	--	--	--	--	4	1
TAL Metals/ Mercury	6010/ 7470	14	1	2	1	3	--	--	--	--	--	4	1
Cyanide	9012	14	1	--	1	3	--	--	--	--	--	4	1
Asbestos	TEM/ 198.6	--	--	--	--	--	--	--	--	--	--	18	--
Lead (Paint)	6010	--	--	--	--	--	--	--	--	--	--	4	--
LANDFILL PARAMETERS (Petroleum: TCLP Benzene, TCLP Lead, TPH, IGNITABILITY, pH)	8260/6010/ 1664/1010/ 9045	6	--	--	--	--	--	--	--	--	--	--	--

TABLE 2

73-79 W. HURON ST. - BCP SITE INVESTIGATION

HOLDING TIMES AND CONTAINERS FOR SAMPLING/ANALYSIS

ANALYTICAL PARAMETER	SAMPLE HOLDING TIMES	SOIL			GROUNDWATER (GW)			SUBSLAB SOIL VAPOR		BUILDING SAMPLES	
		TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample	TOTAL # of CONTAINERS	TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample	TOTAL # of CONTAINERS	TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample	TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample
TCL Volatile Organics (VOCs)	14 days	88	2-OZ GLASS: (x 2 each)	176	14	40-ml GLASS: (x 2 each) HCl preserv.	28	4	SUMMA CANISTER (x1 each)	--	--
TCL Semivolatile Organics (SVOCs)	Soil: 14 days GW: 7 days	20	4-OZ GLASS: (x 1 each)	20	6	1 L-GLASS AMBER (x 2 each) no preserv.	12	--	--	--	--
Pesticides/ PCBs	1 year (laboratory)	18		18	3	1 L-GLASS AMBER (x 2 each) no preserv.	6	--	--	--	--
TAL Metals/ Mercury	Metals: 180 days Hg: 28 days	18	4-OZ GLASS: (x 1 each)	18	3	200-ml PLASTIC (x 1 each) HNO3 preserv.	3	--	--	--	--
Cyanide	14 days	16	4-OZ GLASS: (x 1 each)	16	3	200ml PLASTIC (x 1 each) NaOH preserv.	3	--	--	--	--
Asbestos (ACM)	--	--	--	--	--	--	--	--	--	18	8-oz ziploc bag: (x 1 each)
Lead (Paint)	180 days	--	--	--	--	--	--	--	--	4	8-OZ GLASS: (x 1 each)
LANDFILL PARAMETERS (Petroleum: TCLP Benzene, TCLP Lead, TPH, IGNITABILITY, pH)	varies	6	16-OZ GLASS: (x 2 each)	12	--	--	--	--	--	--	--

APPENDIX A-1

SELECTED PAGES FROM PREVIOUS REPORTS

ATTACHMENT A-1

73-79 W. Huron St. Site, Buffalo, NY

SELECTED PAGES FROM PREVIOUS REPORTS

A. JUN '93 – parking garage
ENVIRONMENTAL ASSESSMENT REPORT by ENASCO

1.0 *INTRODUCTION*

This report describes the visit of Mr. Brian M. Demme on June 12, 1993. The purpose of this visit was to evaluate the environmental risks at a property located at 75 West Huron Street in the City of Buffalo. The parcel was inspected for the presence of Asbestos, PCB'S, Underground and Aboveground Storage tanks as well as for the general presence and use of chemicals. Present during the inspection was Mr. Peter Burke, co owner of the subject property.

[illegible] contamination

( ) Petroleum ( ) Other

(X) Tank

3.0 *OPINION OF RISK*

In light of the findings and information available as documented within this report, it is the opinion of Enasco, Inc. that this site carries a low probability of environmental risk.

4.5 *ABOVEGROUND STORAGE TANKS*

Observed. Two (2) two hundred seventy five (275) gallon aboveground storage tanks were observed on the first floor. These tanks were observed to be possibly empty and in good condition with no apparent leakage. These tanks are currently not in service according to Mr. Burke.

4.6 *UNDERGROUND STORAGE TANKS*

No visual indicators observed. Mr. John Otto of the New York State Department of Environmental Conservation was contacted regarding underground storage tanks at the parcel. According to his files there are are no records for this parcel regarding underground storage tanks.

B. MAY '99 – parking garage and parking lot

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT by MAXIM

EXECUTIVE SUMMARY

- The subject property occupies approximately 0.25 acre of land and is located on the north side of West Huron Street in the City of Buffalo, County of Erie, New York.

- The subject property can generally be described as rectangular-shaped with frontage on West Huron Street. Nearly the entire parcel is occupied by the six story masonry/wood-framed garage facility. The facility (circa 1900) is presently operated as a public parking garage. The basement and floors one through four are currently used for parking. The fifth and sixth floors are not presently utilized.

- The roof of the facility is made up of a rubber-like membrane with built-up flashing materials. The painted surfaces on the roof and both ground-to-roof stairways are in fair to poor condition.

- Two 55-gallon, one 10-gallon and one "pump type" steel drums of unknown contents were observed on the sixth floor.

- Oil staining was observed on the wood flooring along with potential asbestos containing building material (ACM) pipe insulation on the fifth floor.

- Significant oil staining and residue were present on the concrete floor area surrounding fourth and third floor drains. In addition, significant residue was observed with in these two drains. Asphalt shingle-like and vinyl flooring cover apparent wood flooring on portions of the fourth and second floors, respectively.

- A large out-of-use heater boiler with potential ACM insulation was observed in the basement.

- Excluding typical parking lot staining, moderate oil staining was observed near the southwest overhead door entrance to the building (adjacent to an inaccessible interior room).

- The subject property is bordered to the north by an asphalt covered parking lot. The "Health Care Services" office building/property are immediately adjacent to the east (very little separation). Located south of the subject property (across West Huron Street) are a parking lot, the "Huron Hotel" building, an office and an attorney's office/parking lot. The subject property is bordered to the west by an automobile repair facility, "Seneca Copy Center" facility, "King's Court" restaurant and various offices. For purposes of this ESA, the term "adjoining property", as defined by the ASTM standard means properties that border or are contiguous or partially contiguous with the subject property or would be so but for a street, road or other public thoroughfare separating them.

- Historical records indicate that many tank removals have occurred at the subject property. However, it is not clear whether all UST's have been removed from the parcel. In addition, no indication regarding the presence or absence of leaked/spilled petroleum in the subsurface was listed. The records also indicate that the parcel adjacent to the west of the subject property historically was used as a gasoline station.

- It is the opinion of Maxim that the available information collected for this Phase I ESA revealed the presence of recognized environmental concerns in connection with the subject property. The specific concerns associated with the subject property include the possible presence of UST's and potential petroleum product-related contamination. Additional concerns with the subject property include are the possible presence of ACM and lead based paint (fair to poor condition) on/within the building. Radon gas infiltration may also exist within the building. The petroleum product-related concerns are summarized below.

Exterior Petroleum-Related Contamination

o Subsurface contamination may be present due to:

1. Possible UST leakage;

2. Possible historic petroleum spillage at the subject property;

3. Adjacent parcel (to the west) spill site listings and its former usage as a gasoline station; and,

4. Current oil-like staining on the asphalt near the southwest garage door entrance of the building. This area was located adjacent to an inaccessible room of the ground floor of the building.

o Lead contamination of the subsurface may also be present due to its historic use as an additive of gasoline.

Interior Petroleum Contamination

o Oil-like staining/residue on the wood floors and in the vicinity of various floor drains within the building;

o The presence of various sized steel drums of unknown contents within the building;

Although not an environmental concern, it should be noted that the significant quantity of pigeon droppings observed on the sixth floor may pose a health concern for future building usage in this area.

Recommendations

Based on the results of the foregoing assessment, it is recommended that a Phase II ESA be completed at the subject property. The scope-of-work should include a subsurface investigation and surficial/drum sampling plan. The Phase II ESA should also include ACM/lead based paint/radon gas surveys for two reasons: 1) renovation of the structure is planned; 2) Although limited, office space is presently being utilized within the building.

5.0 HISTORICAL INFORMATION

CITY OF BUFFALO PERMIT DEPARTMENT RECORDS		
PERMIT DATE	LISTED OWNER	DESCRIPTION
10/27/14	---	Install water pressure tanks on roof
2/7/24	Huron Garage Co.	Alter public garage
12/15/58	Anne J. Weber	Alter masonry garage/car rental
7/23/63	75 West Huron St Inc.	Place/use 1,000-gal waste oil tank
9/28/65	"	Place/use 4,000-gal diesel tank
1/23/68	Hertz U-Drive It	place 550-gal gasoline tank
1/19/76	Huron Garage	Replace two gasoline pumps
11/10/80	75 West Huron St Inc.	Used car lot for car sales in conjunction w/existing vehicle rental service

The City of Buffalo Fire Prevention Department UST records were also researched. These records indicate the installation and removal of various sized UST's. These records also indicated the occurrence of tank leakage and spillage. These records are summarized in the table presented on the following page.

CITY OF BUFFALO FIRE PREVENTION RECORDS		
DATE	ACTION	DESCRIPTION
1931	Gasoline Tank Survey	1-7,000 gal, 1-1,000 gal & 2 unknown; Product supplied by Standard & Texaco
3/9/40	Survey	1-8,400 gal, 2-1,000 gal & 1-550 gal; contained gasoline/alcohol
1/3/55	Violation Notice	Mechanical ventilation for third floor grease pit and UST for waste oil required
7/17/63	Installation	Replacement of 1,000 gal waste oil UST
9/15/65	Installation Permit	Install 4,000 gal diesel (Drawing shows adjacent Sunoco station)
9/1/67	Inspection	500-gal gasoline UST should be replaced

CITY OF BUFFALO FIRE PREVENTION RECORDS		
DATE	ACTION	DESCRIPTION
1/23/68	Application	Install 550 gal gasoline UST ("Replacement of a Leaker")
3/8/74	Letter	Diesel fuel spill
2/6/80	Letter	2 abandoned UST's (1-1,000 gal/1-550 gal) must be removed/backfilled to grade
2/29/80	Letter	Bureau of Fire Prevention would consider closure in-place (fill w/concrete) of above tanks
10/2/80	Removal Record	1-1,000 gal & 1-550 gal UST's
11/12/85	Memo From Contractor	Removed 1-8,000 gal (unleaded gasoline), 1-4,000 gal (diesel fuel) & 1-1,000 gal (waste oil) UST's

The above records indicate that, although many tank removals have occurred at the subject property, it is not clear whether all UST's have been removed from the parcel. In addition, no indication regarding the presence or absence of leaked/spilled petroleum in the subsurface was listed. The records also indicate that the parcel adjacent to the west of the subject property historically was used as a gasoline station.

6.4 Underground And Above Ground Storage Tanks

No visible evidence of UST's or AST's such as fill pipes, vents, etc. was observed on the subject property. It should be noted that various sources indicate evidence of historic petroleum product storage in UST's at the subject property. Such petroleum products included gasoline, diesel fuel, waste oil and possibly alcohol. In addition, it is not clearly indicated in the available records whether all UST's have been removed from the parcel.

C. AUG '01 –parking garage and parking lot

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT by BENCHMARK

1.1 BACKGROUND

Benchmark Environmental Engineering & Science, PLLC (Benchmark) conducted a Phase II Environmental Site Investigation (ESI) for Mr. Peter J. Burke, Esq. for the property located at 75-77 West Huron Street, Buffalo, NY (commonly referred to as the Huron Street Garage). The subject property is comprised of an approximately 0.25 acre parcel containing an asphalt surface parking lot adjacent to a multi-level parking garage. The property is bounded on the north by an additional surface parking lot, to the east and west by commercial/office buildings and on the south by West Huron Street (Figure 1).

The Phase II ESI followed a 1993 Phase I Environmental Site Assessment (ESA) for the subject property prepared by Enasco, Inc. and a 1999 Phase I ESA prepared by Maxim Technologies. The Phase II ESI was designed to address potential environmental conditions identified in the 1999 ESA. Specifically, the 1999 ESA indicated that a number of underground storage tanks (USTs) had previously existed at the site, but that it was not possible to conclude whether all of the tanks had been removed. Therefore, the Phase II ESI consisted of two parts: an exterior UST/petroleum release investigation and a basement groundwater investigation. The exterior UST/petroleum release investigation involved excavation of test pits in the surface lot adjacent to the parking garage (i.e., the area of reported prior USTs) to investigate whether USTs and/or petroleum-impacted soils remained on the property. Test pits were selected over non-intrusive tank investigation measures, such as electromagnetic (EM) survey, due to the likely EM interference posed by a reinforced concrete pad that exists beneath the majority of the surface asphalt. Test

2.1 EXTERIOR UST PETROLEUM RELEASE INVESTIGATION

Although the 1999 ESA indicated the historic presence of underground storage tanks on the property, the specific locations of the USTs were not identified. Therefore, prior to initiating the test pit work Benchmark obtained copies of historic fire insurance (Sanborn) maps showing the subject property and surrounding parcels so as to better target the test pit locations. Sanborn maps were requested through Environmental Data Resources (EDR), Inc., which acquired assets of the Sanborn Map Company and its map archive in 1995. Sanborn map coverage was requested

for the subject parcel through submission of both address and direct (interactive map) site location information. EDR supplied Sanborn map coverage for the property and immediately surrounding parcels for the years 1889, 1899, 1925, 1951, 1981, and 1986. Copies of these are presented in Attachment 1.

None of the Sanborn maps identified USTs on the subject property with the exception of the 1951 map, which indicated three (3) USTs in the surface lot near the Huron Street entrance. Three (3) test pits were marked for excavation at these UST locations based on scaled measurements from the southwest corner of the parking garage. Three (3) additional test locations were marked for excavation within the remainder of the lot to spot check for additional, unmapped tanks and/or evidence of petroleum contamination (see Figure 2).

On July 28, 2001, a total of six test pits were excavated at the six target areas identified above. The test pits were excavated with a Komatsu PC150 excavator until subsurface conditions became consistent, which generally occurred at a depth of 4.0 to 5.8 fbgs. Discrete grab samples were collected and described by a Benchmark geologist for subsurface soil type and composition; visible or olfactory evidence of contamination; and moisture conditions. During test pit soil characterization, soil samples were screened for volatile organic vapors with a photoionization detector (PID). The PID is capable of detecting the presence of contaminants that emit volatile organic compounds such as petroleum products and solvents. No olfactory and/or visual evidence of petroleum-impacted soil/fill material was identified at any of the six test pit locations. PID scans of excavated soil for the six test pit locations did not detect any volatile organic compounds exceeding background concentrations (i.e., 0.0 ppm).

At each test pit location, Poorly Sorted Sand with Silt and Fill was present. Groundwater was not encountered at any of the locations. The fill material consisted of generally fine grained and loose soil with mixtures of brick and concrete. Test pit excavation logs are presented in Attachment 2. A summary of the field observations (i.e., lithology, dimensions, PID scan results etc.) at each test pit location is presented in Table 1.

2.2 *GROUNDWATER SAMPLE COLLECTION*

One groundwater grab sample was collected from a groundwater drainage system located in the basement of the parking garage. Upon collection the sample was measured in the field for pH, temperature, specific conductance and turbidity. A summary of field measurements is presented in Table 3. A sample was also transferred to appropriate laboratory-supplied sample containers for analysis of NYSDEC STARS Memorandum VOCs by USEPA Method 8260. A discussion of groundwater sample analytical results is presented in Section 3.0 of this report.

3.1 *EVALUATION OF SOIL SAMPLE ANALYTICAL RESULTS*

Subsurface soil sample analytical results are summarized in Table 2. As indicated, only a limited number of VOCs were detected at trace concentrations, all of which are well below the TAGM 4046 Soil Cleanup Criteria. No SVOCs were detected in the sample.

3.2 *EVALUATION OF GROUNDWATER SAMPLE ANALYTICAL RESULTS*

Groundwater sample analytical results are summarized in Table 3. For comparison purposes, analytical results are presented with corresponding NYSDEC Class "GA" ambient groundwater quality standards and guidance values as published in NYSDEC Division of Water Technical Operation and Guidance series (TOGS) 1.1.1 (June 1998). As indicated, no VOCs were detected in the groundwater sample.

4.0 CONCLUSIONS

The Phase II investigation undertaken by Benchmark at 75-77 West Huron Street did not indicate the presence of remaining underground storage tanks or evidence of significant petroleum contamination in the areas investigated. As discussed in Sections 3.1 and 3.2, detected compounds were limited to trace levels of petroleum VOCs in the soil/fill sample, which were present well below NYSDEC recommended soil cleanup objectives.

D. AUG '01 –parking garage and parking lot
PHASE II INVESTIGATION REPORT by GZA

2.00 PURPOSE AND SCOPE OF WORK

The purpose of this Phase II ESA was to assess whether the historical operations have impacted Site soil and/or groundwater. To accomplish this, the following activities were done.

- Observed the completion of 10 soil probes done by GZA's subcontractor SLC Environmental Services. The probes were completed in the driveway/parking lot area of the Site.

- Collected soil samples at continuous intervals, which varied from approximately 12 to 20 feet below ground surface (bgs).

- Field screened collected soil samples, using an organic vapor meter (OVM) equipped with a photoionization detector (PID).

- Selected three soil samples for chemical analysis, which included volatile organic compounds (VOCs) via EPA Method 8260 STARS[1] and semi-volatile organic compounds (SVOCs) via EPA Method 8270 STARS.

- Selected three groundwater samples for chemical analysis which included VOCs via EPA Method 8260 STARS and SVOCs via EPA Method 8270 STARS.

- Prepared this report, which summarizes the data collected during this Phase II ESA.

5.00 SUBSURFACE CONDITIONS

5.10 SOILS

Subsurface conditions at the soil probe locations generally consisted of granular fill materials overlying apparent natural deposited sandy soils. The fill soils were generally found to extend from approximately one to four feet below ground surface (bgs). However, fill material was encountered to a depth of approximately seven feet at B-9. The fill soils generally consisted of fine to course sand with varying and lesser amounts of gravel, brick, concrete, slag and rubble. Apparent naturally occurring silty sand was found below the fill material at each location and extended the full depth drilled. Probes were done to depths of approximately 16 feet bgs, with the exception of B-12 which extended to 12 feet bgs and B-4 which was completed to 20 feet bgs.

5.20 GROUNDWATER

GZA completed temporary piezometers at B-1, B-4 and B-7. In general, groundwater was encountered at approximately 8 to 9 feet bgs in the southern portion of the Site and from 10 to 12 feet bgs in the northern portion of the Site.

7.00 CONCLUSIONS AND RECOMMENDATIONS

A summary of our findings based upon the work conducted as part of this study follows.

- Subsurface conditions at the soil probe locations generally consisted of granular sandy fill soils, overlying apparent naturally occurring silty sand. The sandy soils were generally found to depths of around one to seven feet bgs. The borings were extended to depths ranging from 12 to 20 feet bgs.

- Groundwater was encountered at each boring and ranged in depth from approximately 8 to 12 feet bgs. In generally, groundwater was found at shallower depth (approximately 8 to 9 feet) in the southern portion of the Site and deeper depths (approximately 10 to 12 feet) in the northern portion.

- Seven VOCs from B-2 (9.2 to 12 feet) and six VOCs from B-6 (14.5 to 16 feet) were detected at concentrations above its respective TAGM 4046 RSCO. These samples were collected in the saturated soil zone. No VOCs were detected above method detection limits from B-4 (4 to 8 feet), which was collected from the unsaturated soil zone. Additionally, no SVOCs were detected in the three soil samples analyzed, at concentrations above their respective TAGM 4046 RSCO.

- Analytical results identified VOCs in two (B-1 and B-4) of the three groundwater samples analyzed. Twelve VOCs were detected in B-1 and eleven were detected in B-4 at concentrations that exceeded their NYSDEC Class GA groundwater criteria. Naphthalene was the only SVOC detected at these two locations at concentrations above the groundwater criteria. No VOCs or SVOCs were detected above the method detection limits in the groundwater sample from B-7.

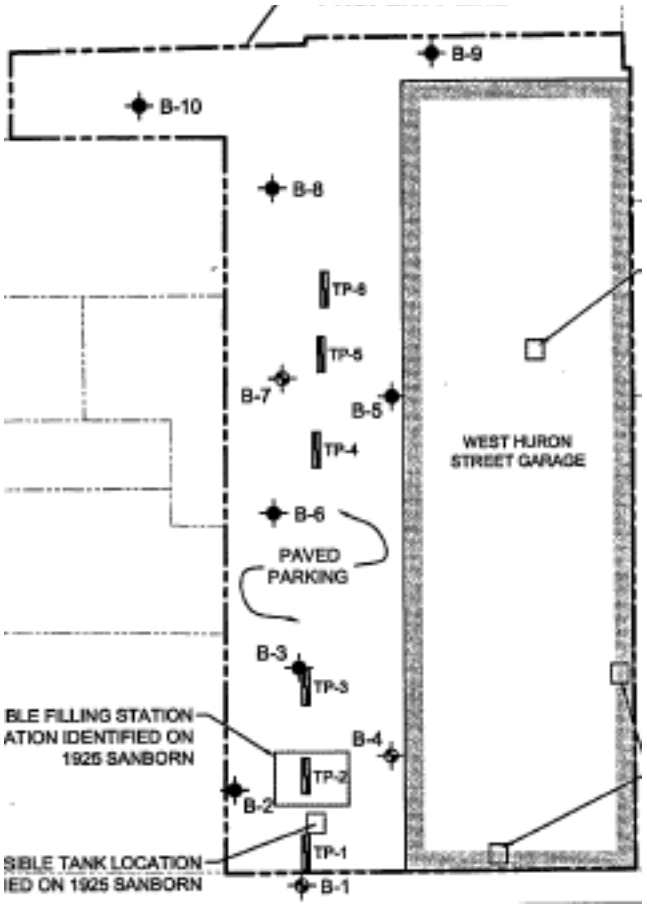


Table 2
Soil Analytical Testing Results Summary
Parking Garage
75 - 77 West Huron
Buffalo, New York

Parameter	NYSDEC TAGM 4046 RSCO	B-2 9.5 to 12 feet bgs	B-4 4 to 8 feet bgs	B-6 14.5 to 16 feet bgs
Volatile Organic Compounds - EPA Method 8260 STARS (ug/kg)				
Toluene	1,500	36,000		950
Ethylbenzene	5,500	20,000		210
m,p-Xylene	1,200	81,000		12,000
o-Xylene	1,200	31,000		660
Isopropylbenzene	5,000	3,900		10,000
n-Propylbenzene	14,000	12,000		34,000
1,3,5-Trimethylbenzene	3,300	22,000		49,000
1,2,4-Trimethylbenzene	13,000	66,000		190,000
sec-Butylbenzene	25,000	1,700		970
p-Isopropyltoluene	11,000	2,000		4,100
n-Butylbenzene	18,000			34,000
Naphthalene	13,000	19,000		
Total VOCs		294,600		335,890
Semi-Volatile Organic Compounds - EPA Method 8270 STARS (ug/kg)				
Naphthalene	13,000	12,000		5,700
2-Methylnaphthalene	36,400	13,000		15,000

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to Attachment C for list of all compounds included in analysis.
2. Analytical testing completed by GZA GeoEnvironmental Laboratory.
3. Recommended Soil cleanup objectives (RSCOs) based on the NYSDEC TAGM 4046 Determination of Soil Cleanup Levels dated January 1994.
4. ug/kg = part per billion (ppb) a
5. Blank indicates compound was not detected.
6. NT = not tested
7. SB = Site Background
8. NV = no value
9. MDL = method detection limit

Table 3
Groundwater Analytical Testing Results Summary
Parking Garage
75 - 77 West Huron
Buffalo, New York

Parameter	Class GA Criteria	B-1	B-4	B-7
Volatile OrganicCompounds - EPA Method 8260 STARS (ug/L)				
Benzene	1	21		
Toluene	5	290	23	
Ethylbenzene	5	400	180	
m&p-Xylene	5	90	860	
o-Xylene	5	120	240	
Isopropylbenzene	5	43	48	
N-propylbenzene	5	75	180	
1,3,5-Trimethylbenzene	5	69	280	
1,2,4-Trimethylbenzene	5	96	1200	
sec-Butylbenzene	5	5	16	
p-Isopropyltoluene	5	8.4	41	
Naphthalene	10	190	200	
Total VOCs		1407	3268	
Semi-Volatile Organic Compounds - EPA Method 8270 STARS (ug/L)				
Naphthalene	10	120	130	
2-Methylnaphthalene	NV	28	300	
Acenaphthene	NV		0.24 J	
Fluorene	NV		1.1 J	
Phenanthrene	NV		1.1 J	

E. APR '07 –parking garage
BASEMENT INVESTIGATION REPORT by IYER ENVIRONMENTAL

BACKGROUND

The Huron Street building is located in downtown Buffalo, NY, just east of Delaware Avenue on the north side of Huron Street. An auto repair shop is located on the northeast corner of Delaware Ave and Huron Street, had leaking USTs (west of the building) that required remediation. has been undergoing environmental remediation due to petroleum contamination. Phase I and Phase II investigations were conducted between 1993 and 2003 for this property.

In January 2007, GES conducted an indoor air sampling and analysis for volatile organics. Several VOCs were detected in the air samples (three in the building basement, and one immediately outside the building. In its report dated March 15, 2007, GES concluded that there is no air contamination as a result of petroleum products. However, several people entering the building continue to report the presence of a strong petroleum-like odor in the basement of the building. IEG was therefore asked by Knoer, Crawford & Bender, LLP to investigate the basement further.

ACTIVITY

Entrance was gained through an overhead door at the southeast corner of the building. There is a ramp going up to the First Floor straight ahead of the overhead door. It is in serious disrepair with two large holes in it. Immediately to the left of the Upper Ramp is the Lower Ramp leading to the Basement. The Basement was damp with water flowing through three drain trenches as shown on Figure 1. The northern section of the basement had a mild odor typical of a combined sewer. A strong petroleum odor was noticeable at the south end of the Basement. There is continuous flow from the north drain into the sump, while the drains in the south section appear to be stagnant.

IEG screened the air and water in the three sumps for volatile organics using a photoionization detector (PID). Each water sample was collected in a tall, one-liter plastic bottle to half its volume and allowed to sit for approximately five minutes after which the head space was screened with the PID. The water samples were also tested in the field for pH, Temperature and Specific Conductivity.

The field measurements indicate the presence of petroleum-related VOCs in the basement, contrary to the conclusions made by GES from the air sampling. Groundwater contamination by petroleum products (based on monitoring wells) has been reported to be most predominant on the auto service property outside the southwest corner of the building. The basement's south section is immediately adjacent to this area of groundwater contamination which is most likely entering the basement, and as it stagnates, creates the persistent petroleum odor in the basement's south section.

F. OCT '11 –parking lot
GPR/METAL DETECTOR SURVEY by IYER ENVIRONMENTAL GROUP (IEG)

A. GPR SURVEY at 77 WEST HURON

On September 23, 2011, Pegasus (Spencerport, NY) used a GPR with a 400 MHz antenna to scan an L-shaped area, extending from the 77 West Huron parking lot to the parking area north of the 75 West Huron building (see Figure 1). The method used is a "line scan," where random transects are scanned to pick up subsurface anomalies and disturbances. The GPR survey was supplemented with a scan of the area by a Schonstedt metal detector. The GPR survey report, with images, anomalies and descriptions, from Pegasus are attached. The attached photo pages show areas of anomalies and disturbances marked in the field.

Figure 2 delineates and describes areas where the GPR and metal detector indicated subsurface anomalies. Most of these areas appear to disturbed geology, including soil excavation and backfilling, and two small areas (G6 and G7) indicated possible UST, albeit at a shallower depth. None of these areas exhibited a GPR profile matching that of a UST (see example attached). It should be noted that the southern half of the parking lot has had several disturbances over the years, from test pits in 2001 to AS/SVE wells and trenches in 2007. Based on the GPR and metal detector survey, it appears unlikely that USTs may be present in the 77 West Huron parking lot. The following summarizes the findings of the GPR and metal detector survey:

- Anomalies were observed in seven (7) GPR and seven (7) metal detector areas (see Figure 1)
- GPR areas G1 through G5 appear to be from disturbed geology, excavations, backfill
- G6 (at 2001 test pit TP3) is highly suspect but GPR profile is not similar to that of a typical UST
- G7, just west of Auto Service building is also highly suspect, with possible UST or pipe. A 1951 Sanborn Map (attached as Figure 4) indicates "Gas ST" at this location. However, the GPR profile at this location also does not match that of a typical UST.

G. FEB '13 –parking lot
GEOPROBE SOIL INVESTIGATION by IYER ENVIRONMENTAL GROUP (IEG)

1.0 INTRODUCTION AND PURPOSE

Iyer Environmental Group PLLC (IEG) was retained by Hurondel LLC (Hurondel) to complete a Geoprobe Soil Investigation as a follow up to an October 2011 GPR survey, and questions about the possible presence of old UST(s) and/or source of petroleum contamination within the 77 W. Huron property. This report details field activities, laboratory analysis and results associated with this Investigation. The purpose of this soil investigation is to further assess recognized environmental conditions, to determine the nature and extent of contamination, and to provide clear guidance on any remediation necessary. This investigation included the collection of subsurface soil samples for VOC/SVOC analysis from across the site (see Figures 1 and 2, and survey map in Attachment B) and a survey of all sample locations.

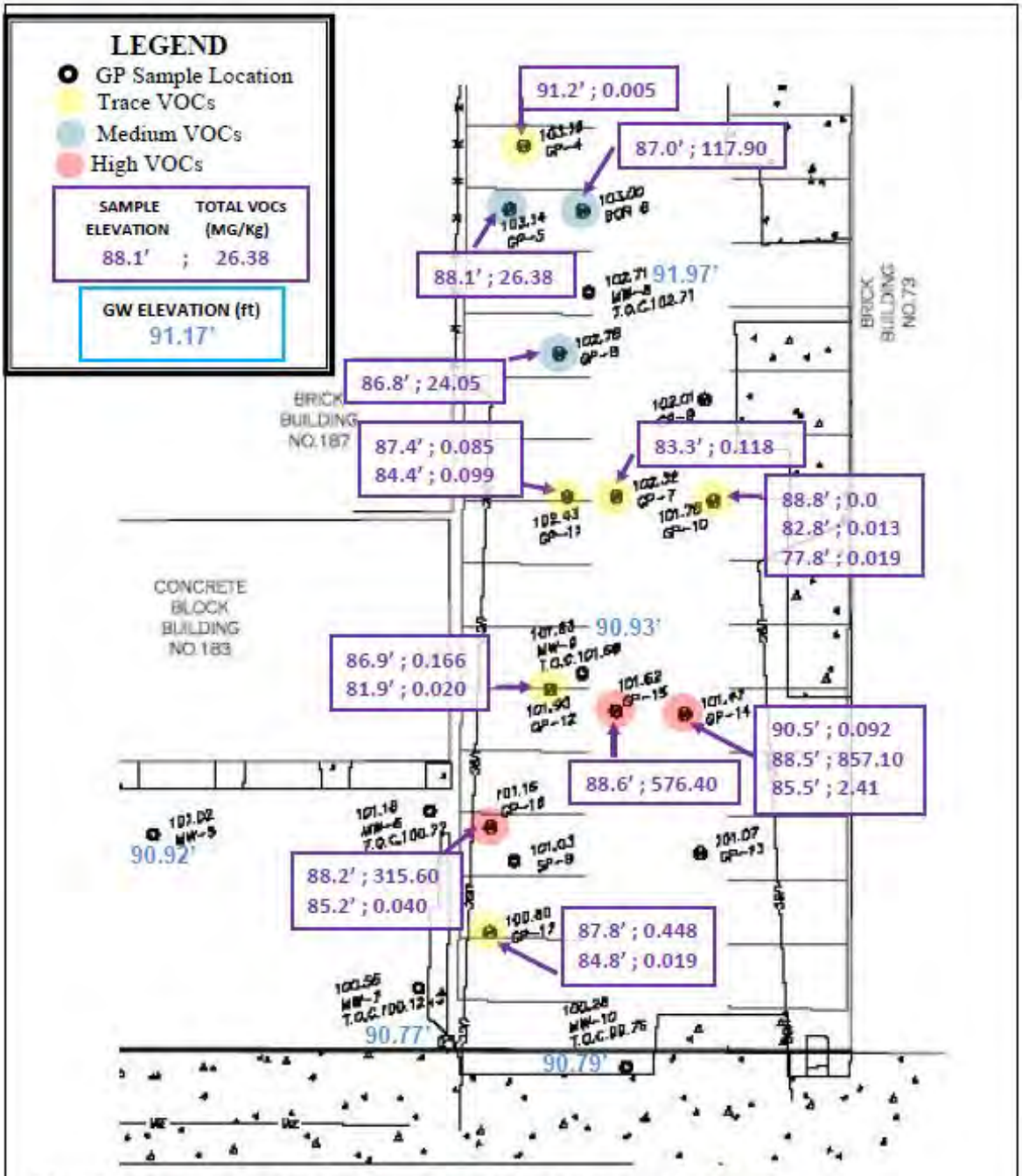
4.2.1 Geoprobe Soil Samples

Sampling: On Aug 14 and 16, 2012, soil borings using the Geoprobe were completed at sixteen (17) locations on the site (samples GP-1 through GP-17 on Figure 2). Continuous soil samples were collected in four-foot intervals to depths up to 24 feet or refusal, whichever came first. The soil borings were photographed, screened with a PID meter for VOCs, and sampled as appropriate. Table 1 shows a summary of the sampling and analysis along with field observations. The samples were analyzed for STARS VOCs and STARS SVOCs based on a combination of factors - field observations, PID readings and locations. Descriptions of the soil boring samples are included in Table 2. Analytical results for those samples so tested are tabulated in Table 3. Total VOCs and associated sample elevations are shown on Figure 3 along with groundwater elevations from 9/8/11 at monitoring wells in the vicinity.

Analytical Results: Fourteen (14) of the seventeen (17) samples sent to the lab were selected for VOC analysis based on field PID readings. Up to thirteen (13) VOC compounds were found in the samples analyzed. Soil sample locations are shaded in Figure 3 according to the relative levels of total VOCs. GP-14 located in the southern section of the lot near MW-9, posted by far the highest total VOC concentration (857 mg/Kg) at a depth of 13' below ground surface (bgs; relative elevation of 88.5'). At this location, total VOCs were orders of magnitude lower at depths of 11' and 16' bgs. GP-15, near MW-9 and MW-14, had the next highest total VOC concentration (576 mg/Kg) at 13' bgs. GP-16, located in the southern end near MW-6, posted the third highest (315 mg/Kg) at 13' bgs. GP-5, GP-6 and GP-8 near the middle of the lot posted elevated total VOC levels, although these were much lower than the previous three. Total VOCs for the other five samples were between 0.005 and 0.4 mg/Kg.

4.3 Data Assessment

VOC Contamination: Elevated PID readings and VOC contamination associated with gasoline was found in the subsurface soil in the southern half of the W. Huron St. parking lot. The contamination was found mostly at depths greater than 11' bgs (elevation less than 90'), and below the groundwater table. According to data from 9/8/11 in Sunoco's August 29, 2012, 2nd Quarter 2012 Site Status Report, groundwater was at elevation 90.84' at MW-6, 90.77' at MW-7, 91.17' at MW-8 and 90.93' at MW-9. The data for 12/1/11, 3/26/12 and 6/25/12 in Sunoco's report indicate higher groundwater levels with slight variations at MW-6 (91.50' – 91.71') and MW-7 (91.44' – 91.64') which are located on the Sunoco side of the southern property boundary with 77 W. Huron (no measurements were taken at MW-8, MW-9 and MW-10 during this data period).



Note: Soil samples from 8/14&16/12 by IEG; GW level data from 9/8/11 by Sunoco

77 W HURON STREET SOIL VOC CONCENTRATIONS	FIGURE 3 IEG

H. Aug '04 – Sunoco Site (NYSDEC Spill #0375208) ENVIRONMENTAL SITE ASSESSMENT BY GES

Environmental Site Assessment Report
Sunoco Service Station DUNS #0000-1189
181 Delaware Avenue
Buffalo, New York
NYSDEC Spill #0375208

1.0 EXECUTIVE SUMMARY

Groundwater and Environmental Services Inc. (GES), on behalf of Sunoco, Inc., performed an environmental site assessment (ESA) at the above referenced service station (hereafter referred to as "the Site"). The purpose of the work was to obtain information regarding the environmental quality of soil and groundwater onsite, and to document surrounding land use and potential sensitive receptors.

This ESA includes:

- A review of publicly available documents relevant to the environmental condition of the site and adjoining properties, such as aerial photographs and Sanborn® Maps.
- A visual inspection of the site to survey for signs of contamination and potential environmental impacts to groundwater and soil.
- Collection of eight (8) soil samples for volatile organic compound (VOC) analysis via EPA Method 8021 (NYSDEC STARS list) and semi-volatile organic compounds (SVOC) at select locations.
- Installation of seven (7) overburden groundwater-monitoring wells and one (1) remedial air-sparge well.
- Groundwater monitoring of site wells and collection of groundwater samples for VOC analysis via EPA Method 8021 (NYSDEC STARS list) and SVOCs at select wells.
- Surveying of monitoring well casings to an arbitrary datum point.

6.1 Soil Sample Analytical Results

Investigative activities have been conducted at the 181 Delaware and 75 West Huron Street sites the results are as follows (Table 1, 2, 6 & Appendix D):

- The approximate terminus of test pits/soil borings completed during investigative activities are as follows:
  - Benchmark test pits completed to approximately five (5) ftbg.
  - GZA 12 ftbg.
  - NWEC 12 ftbg.
  - GES 20 ftbg.
- Four (4) investigative events have been completed on the 181 Delaware and 75 West Huron Site, in the course of investigative activities nineteen (19) soil sample locations have been collected and submitted for laboratory analysis.
- BTEX concentrations in soil ranged from below detection limits at EP-7 to 817,000 ug/kg at MW-5.
- Total VOC concentrations in soil ranged from below detection limits at EP-7 to 1,479,700 ug/kg at MW-5.

- MtBE concentrations were below laboratory detection limits at all locations sampled however, detection limits were elevated due to interfering compounds.
- SVOC concentrations ranged from below detection limits at B-10 and EP-3 to 30,400 ug/kg at MW-5. All concentrations reported were represented solely by Naphthalene.
- Soil samples were not analyzed for SVOCs on the 75 West Huron Property.
- BTEX and VOC concentrations in soil exceeded TAGM guidance values at fifteen (15) of nineteen (19) locations sampled.
- MtBE concentrations in soil were below laboratory standards at locations sampled on the 181 Delaware site or 75 West Huron property, detection limits were elevated due to interfering compounds.
- SVOC concentrations in soil exceeded values set forth in TAGM.
- Soil analytical results from boring B-6 were elevated above TAGM standards. Based upon the location of B-6 in relation to Site and calculated groundwater flow data it would appear that impacts in and around B-6 may not be attributable to the petroleum storage and sales occurring at 181 Delaware Avenue. B-6 is located to the north east and groundwater flow is to the southeast. Boring B-3 located between the Site and B-6 was clean also. GES suggests additional investigation be completed on the 75 West Huron site to determine if these impacts at B-6 are associated with impacts discovered at the 181 Delaware Avenue property.
- Benchmark's Table 4 from the August 2003 letter report does not include Benzene on it, there is no explanation for this oversight nor is there any analytical laboratory attached to verify the data.

6.2 Groundwater Sample Analytical Results

Groundwater monitoring was conducted onsite on two (2) occasions July 2003 (GZA) and June 2004 (GES); available data from those monitoring are as follows (Table 3, 4, 5, 6 & Appendix D):

- Depth to groundwater ranged from 7.81 ftbg at MW-3 to 9.19 ftbg at MW-6 (June 2004).
- LPH was not encountered at any location sampled
- BTEX concentrations in groundwater ranged from below detection limits at 75 West Huron sump and B-7 to 16,518 ug/L at MW-7.
- VOC concentrations in groundwater ranged from below detection limits at 75 West Huron sump and B-7 to 20,105 ug/L at MW-7.
- MtBE concentrations were below laboratory detection limits at any location however, detection limits were elevated due to interfering compounds.
- SVOC concentrations from water samples collected at the 181 Delaware Avenue site ranged from 11 ug/l at MW-2 to 694 ug/l at MW-5. All concentrations were represented solely by Naphthalene.
- SVOC concentrations from water samples collected at the 75 West Huron property ranged from below detection limits at B-7 to 432.4 ug/l at B-4. Five (5) SVOC's were detected at B-4; three (3) had estimated concentrations below 1.0 ug/L.
- BTEX and total VOC concentrations from groundwater samples collected on the 181 Delaware and 75 West Huron properties exceeded values set forth in New York State Ambient Groundwater Quality Standards (6NYCRR – Part 703) at all locations sampled except B-7 and garage sump at the 75 West Huron Street property.

7.0 CONCLUSIONS

Based upon a review of available data and previous consultant reports, GES has concluded the following:

- The site and adjacent property have been petroleum product distribution centers for many years. As a result of the dispensing of petroleum products, subsurface media (soil and groundwater) have been impacted on both properties.
- At the present time there is not enough evidence to indicate that the 181 Delaware site is the sole source of impacts discovered in the area.
- Dating of the impacts to the subsurface could not be determined by MtBE due to the high level of interfering VOC impact onsite.
- Additional offsite delineation is required to quantify subsurface impacts.
- Based upon soil classification onsite the subsurface should be conducive to in-situ remedial technologies, however pilot testing of any remedial option should be completed before a remedial technology is selected.

I. Dec '10 – Sunoco Site (NYSDEC Spill #0375208)
SITE ACTIVITY REPORT BY GES

SITE ACTIVITY REPORT
December 28, 2010
Former Sunoco Service Station #0000-1289
181 Delaware Avenue
Buffalo, New York 14202

Consultant Project Number: 09-01366
Consultant Contact: GES Buffalo 800-287-7857
NYSDEC Spill No.: 0375208
NYSDEC Contact: Francine Gallego

- July 14, 2008: System start-up of the SVE portion of the system.
- August 28, 2008: The AS portion of the system was activated.
- September 23, 2008: Vapors were noted in the on-site building as well as three neighboring buildings. Air-sparging was suspended and vapor mitigation activities were conducted at all affected buildings until ambient air PID readings in the buildings were reduced to non-detect.
- October 26, 2009: GES replaced SVE well MW-1 with MW-1R for the purpose of remedial system optimization. MW-1R was tied into the SVE remedial piping.
- November 30, 2009: GES conducted a series of tests to determine the cause of underperformance with respect to vapor recovery. It was determined that the operation of the system has resulted in significant groundwater mounding. This mounding has effectively "blanked" off the screens of the SVE wells, preventing adequate vapor recovery. As a result, the AS and SVE technologies, in their current condition, cannot be utilized simultaneously without the risk of vapor intrusion in the subject site building and neighboring buildings.
- December 7, 2009: With NYSDEC approval, the SVE system was shut down due to underperformance with respect to vapor recovery.
- March 10, 2010: Monitoring well MW-12 was installed using a hollow-stem auger rig provided by SJB Services, Inc., of Hamburg, New York. During drilling, soil samples were logged and screened using a photoionization detector (PID). One soil sample exhibiting the highest PID measurement was collected and submitted for laboratory analysis of NYSDEC Spill Technology and Remediation Series (STARS)-listed volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method 8260. Concentrations of VOCs exceeded NYSDEC Technical and Administrative Guidance Memorandum (TAGM 4046).

J. Aug '10 – Sunoco Site (NYSDEC Spill #0375208)
REMEDIAL ACTION PLAN FOR BIO-AUGMENTATION BY MATRIX

1.0 INTRODUCTION

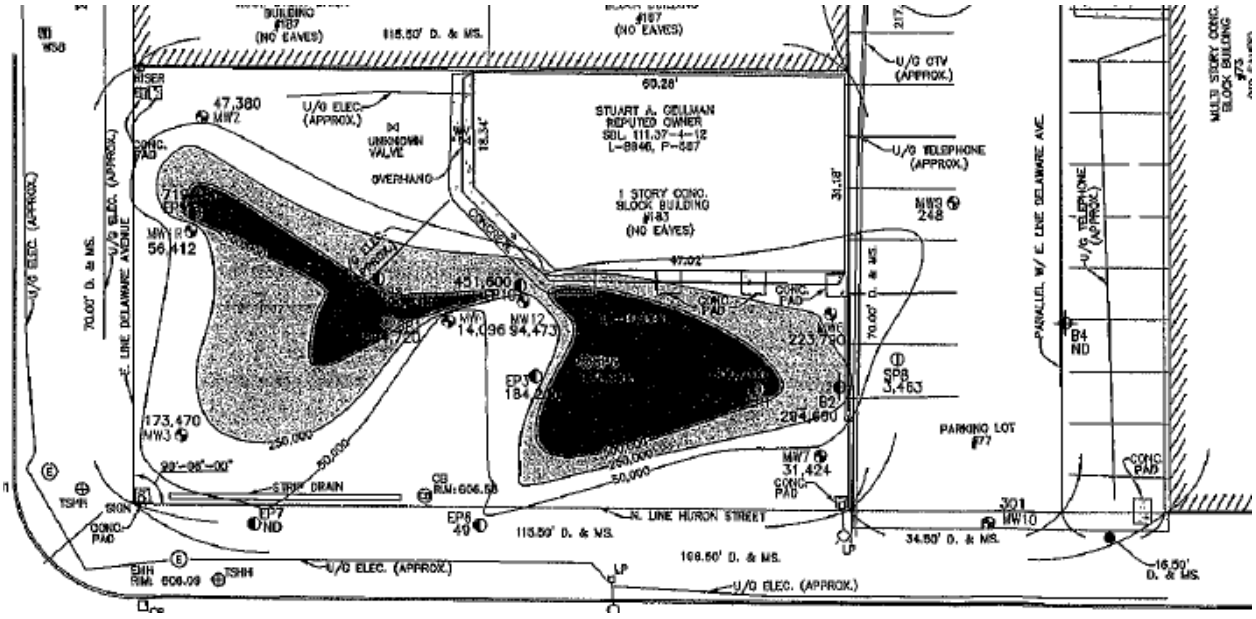
1.1 Authorization

Matrix Environmental Technologies Inc. (METI) was authorized by Sunoco, Inc. (R&M) to complete a subsurface investigation, an oxygen injection pilot testing program and an evaluation of remedial alternatives were authorized for the properties at 181 Delaware Avenue (Site) and 77 West Huron Street (Adjacent Property), located in Buffalo, New York. A tax map showing the Site and adjacent properties is included as **Figure 1**.

3.1 General Site Summary

The Site is located in the highly developed urban downtown area of the City of Buffalo approximately 0.7 miles northeast of Lake Erie. The Site Layout and Survey are depicted on **Figure 2** which includes the Adjoining Property. Surface topography at Delaware Avenue and West Huron Street is relatively flat at an elevation of approximately 607 feet above mean sea level. Surficial geology consists of fine to coarse sand with lesser amounts of gravel and intermittent fill. Available boring logs for monitoring wells MW-1 through MW-10, MW-12, and soil borings SB1 through SB3 and SB101 through SB118 include a maximum advancement depth of 27 feet bgs with no records of bedrock refusal. The depth to groundwater at the Site ranges from approximately 7.5 to 10 feet bgs.

The delineation of impacted soil from data collected from 2003 to 2010, shown on **Figure 3**, depicts two areas of impacts across the Site. The location of these impacts correlates with the location of closed USTs. The range in depth of soil impact, from the water table to 8 to 10 feet below the water table, suggests the releases occurred in the saturated zone potentially from the lower or bottom portions of the USTs.



Groundwater flow at 181 Delaware Street (westerly property) and 77 West Huron Street (easterly property) is likely being influenced by man-made features. The flow direction is to the southeast across 181 Delaware Avenue with evidence of a trough or channel feature towards 77 West Huron. Although the properties adjoin, the flow direction at 77 West Huron Street is to the south towards West Huron Street. The seepage velocity at 181 Delaware Street is greater than would be expected, 0.89 ft/day. The Site has very little relief and soil conditions are fairly homogenous. It is likely the extended basement for the parking garage at 77 West Huron Street has altered groundwater flow direction and steepened the hydraulic gradient (0.05). The building footer is in the saturated zone and drainage for the basement has likely created a localized "dewatered zone" influencing groundwater flow. These conditions have also affected the orientation and movement of the dissolved phase contaminant plume. Based on comparison of groundwater data from 2004 to March 2011, plume migration is towards the southeast consistent with groundwater flow across 181 Delaware Avenue. An overall decrease in the extent and concentrations of the dissolved phase hydrocarbon plume is also evident in comparison of these data.

Two areas of impacted soil were identified on the northern and southeastern portions of 77 Huron Street (denoted as Areas 2 and 3 on **Figure 4**). Based on groundwater flow direction and soil impact delineation, Areas 2 and 3 within 77 West Huron Street appear unrelated to the release at 181 Delaware Avenue. The VOC impact to soil at 77 West Huron Street is most likely related to the former storage and use of petroleum products on that property. Historical information identifies USTs and a former service station on the property. METI's remedial goals and objectives provided in **Section 7.0** of this report addresses Area 1 and 181 Delaware groundwater concerns, only.

An approximate 67% reduction of soil concentrations were observed between the 2003-2010 soil quality data and the data collected in March 2011 for 181 Delaware Avenue. Additionally, overall groundwater quality has improved across the Site from June 2004 to March 2011 with an average decline of 61% in total VOC concentrations. The decrease in VOC concentration in soil and groundwater is attributed in part to the operation of the SVE system, as well as the highly aerobic subsurface conditions, allowing for continued natural attenuation. Although there has been reduction in total VOCs concentrations, an evaluation of groundwater quality trends indicate that soil impacts are likely continuing to contribute to dissolved phase groundwater impacts.

6.7 Summary of Remedial Alternatives

Air sparging/soil vapor extraction, soil excavation and enhanced anaerobic bioremediation are not feasible for the Site and are eliminated for further consideration. *In situ* aerobic bioremediation using oxygen injection is selected as the best remedial method. However, highly impacted soils appear to be an ongoing source of groundwater VOCs and will require a supplemental technology to achieve the objective of inactive status in a reasonable time frame. *In situ* chemical oxidation and bioaugmentation are being evaluated for targeted soil remediation. Both methods involve liquid or slurry substrate delivery to the subsurface and repeated injections are an option to attain the desired results.

Bioaugmentation pilot testing is currently taking place at the Site. In order to effectively begin full scale remediation in 2011, the design and installation of an oxygen injection system is presented in **Section 7.0 through 9.0**. Implementation of this plan is independent of the evaluation and selection of a supplemental technology for targeted soil treatment. Based on the results of the current pilot test, either bioaugmentation or ISCO will be implemented after the startup of a full scale oxygen injection system.

7.0 REMEDIAL GOALS AND OBJECTIVES

The primary remedial goal is to reduce VOC concentrations in groundwater and saturated soils to within acceptable limits for spill inactive status associated with the release at 181 Delaware Avenue. Based on our interpretation of the historic and recent subsurface investigation data, Areas 2 and 3 within the 77 West Huron Street property appear unrelated to the 181 Delaware spill, which has impacted groundwater at 181 Delaware and the southwestern portion of 77 West Huron Street.

The specific objectives to meet the remedial goal include:

1. Reduce total STARS list VOC concentrations in groundwater to within 1 mg/L.

2. Reduce total STARS list VOC concentrations in soil to levels that no longer contribute to groundwater VOCs exceeding 1 mg/L.

3. Install on oxygen injection system to stimulate aerobic hydrocarbon biodegradation with the following performance benchmarks:
    a. Produce oxygen gas at a minimum purity of 85% and operate the system with a minimum up time of 90%;
    b. Pulse inject oxygen gas into groundwater resulting in DO up to solubility in the injection points without creating vapors or causing contaminant migration; and
    c. Increase DO in the VOC plume to a minimum of 5 mg/L and target of 10 mg/L to optimize aerobic biodegradation under oxidizing conditions.
4. Complete the targeted treatment of highly impacted soils to reduce the time to meet the remedial goal.

APPENDIX A-2

BUFFALO FIRE DEPARTMENT RECORDS

ATTACHMENT A-2

BUFFALO FIRE DEPARTMENT RECORDS

Copies of documents regarding:

75-79 West Huron Street
Buffalo, New York 14202

On file at:

Buffalo City Hall
Buffalo Fire Department Bureau of Fire Prevention
Room 321
65 Niagara Street
Buffalo, New York 14202

Survey of all gasoline tanks or places where gasoline is used, handled or transferred, within the area bounded by Oak, Tupper, Elmwood and Eagle Streets.

Huron St. Garage.

Location: Street and number 77-79 West Huron St.

Owner Huron St. Garage Co. Address " "

Manager H. Alperin Address 140 Linwood Ave.

Total No. of tanks in use 4 Capacity of each 1-7000 & 1-1000 Others unknown Total Capacity Unknown

Total No. of tanks not in use None Capacity of each

Date of installation 1931

Distance of tanks from curb 35'

Distance from building line at right angle to curb 20'

Number of pumps 6

Kinds of gasoline handled Standard & Tefaco

Where obtained " "

Quantity of gasoline handled per month Unknown

Shortage or loss per month None

Largest loss occurring at one time "

Most recent loss "

Application for additional 1100 Gal Tank
Accepted by Bd Of Appeals
May 2nd 1931
Storage at this time was one
7000 Gal Tank and
One 1100 Tank

77-79 West Huron St.

FORM 29

APPLICATION ☐
INSTALLATION ☐
SURVEY ☒

BUFFALO FIRE DEPARTMENT
VOLATILE FLAMMABLE LIQUID
TANK STORAGE AND USE

Gasoline & alcohol - 1 - 2
KIND OF LIQUID - GLASS

BATTALION 2
COMPANY 13
DATE 3-9-10

COMMISSIONER OF FIRE:

LOCATION 75 W. Huron
~~CITY PROPERTY (curb)~~ PRIVATE PROPERTY ☒

NAME Huron St. Garage
ZONED USE DISTRICT _____

PURPOSE OF USE: Commercial Filling Station
~~Private Filling Station~~
~~Private Storage 280 Gal.~~ or less

TYPE OF SYSTEM
PRESSURE ☐
SUCTION ☒

APPLICATION NUMBER _____ DATE _____

IS LICENSE REQUIRED? yes

PERMIT NUMBER _____ DATE _____

INSTALLATION: DATE 1930 & 1935

CONTRACTOR _____

ADDRESS _____

TANKS:

4 NUMBER OF
1-8400-2-1000-1-550 CAPACITY OF EACH
3900 11000 CAPACITY TOTAL
No yes ABOVE GROUND
~~75 & 30~~ 1½ FEET UNDERGROUND
75 & 30 FEET FROM BUILDING LINE
100 FEET FROM STREET LINE
75' FEET FROM CELLAR
yes UNDERWRITERS LABORATORY LABEL

VENT PIPE:

4 NUMBER OF
1½" SIZE
yes TERMINATES OUTSIDE
15' FEET ABOVE FILL PIPE
10' FEET FROM BUILDING OPENING
yes WEATHERPROOF HOOD
yes FLAME ARRESTER

FILL PIPE:

_____ LOCATED OUTSIDE
_____ FEET FROM BUILDING OPENING
_____ PROTECTED AGAINST DAMAGE

PUMPS:

6 QUANITY
3 inside & 10 FEET FROM BUILDING LINE
10' & 100 FEET FROM STREET LINE
yes UNDERWRITERS LAB. LABEL

As all tanks, pumps and piping ~~will be~~ are installed in accordance with the requirements of the City Ordiance and Standards of the National Board of Fire Underwriters, I therefore, ~~are not~~

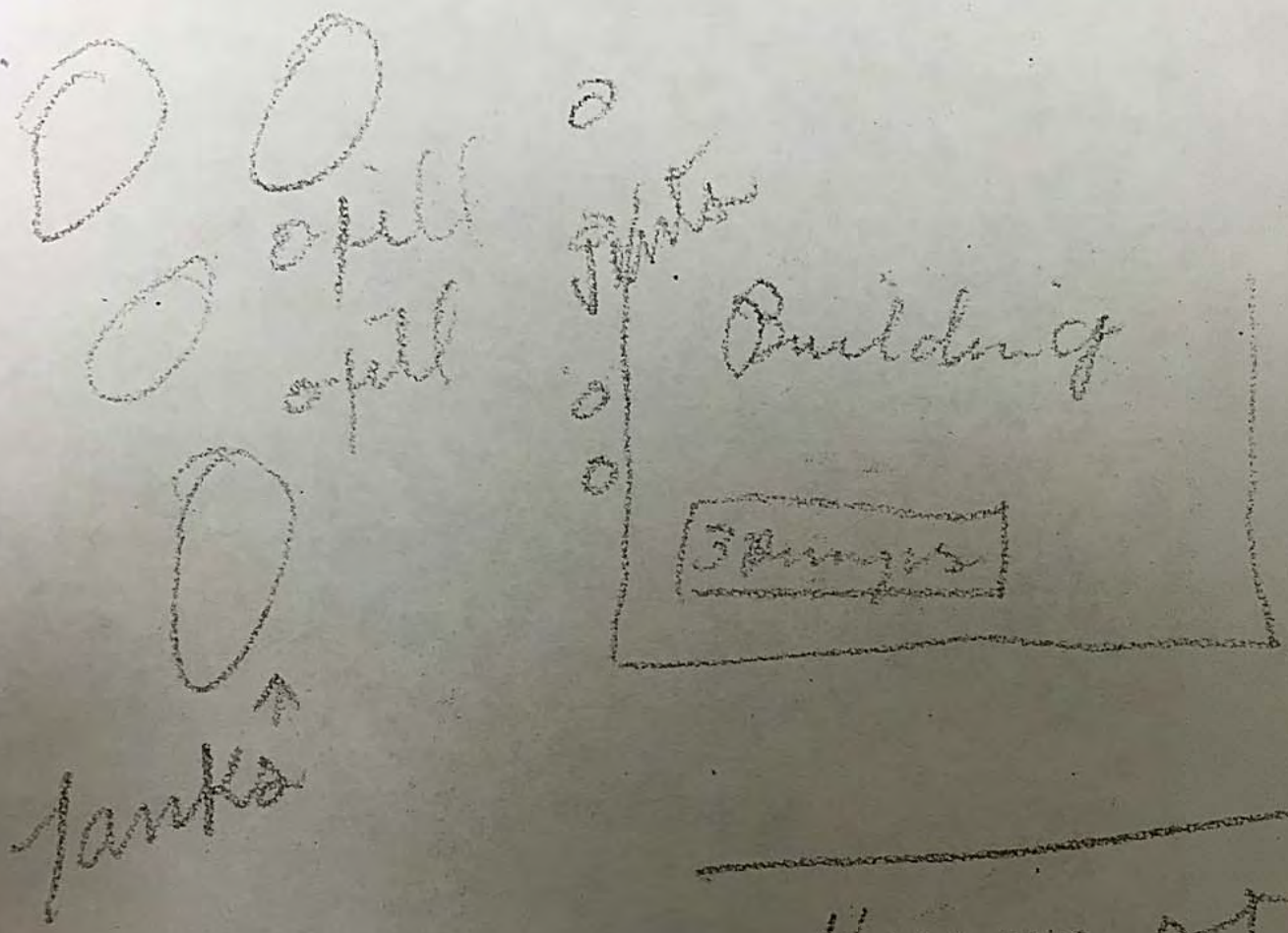
recommend APPROVAL ☒
DISAPPROVAL ☐

Roy B. Farrell TITLE Captain Co. # 13

APPROVED _____ DATE _____
COMMISSIONER OF FIRE

NOTE: INCLUDE REMARKS AND SKETCH OF TANK AND PUMP LOCATION ON OTHER SIDE.

75 W. HURON


Oil spill
Oil spill
Oil spill
Tanks
Building
Pumps
Main Rd

F-11

BUREAU OF FIRE PREVENTION
BUFFALO FIRE DEPARTMENT
2301 City Hall

Date Jan 3 1955

NOTICE OF VIOLATIONS

NAME Huron St. Garage - Mr. Alperin

ADDRESS 75 W. Huron St

Inspection of premises located at 75 W. Huron

reveals a Fire Hazard. You are hereby notified to correct the following conditions on or before July 1 19 55

Provide mechanical ventilation for grease pit 3rd floor.
Provide underground tank for waste oil
Provide explosion proof bulbs for grease pit.

BY ORDER OF
COMMISSIONER OF FIRE

INSPECTED BY:
D. Hennessy, Capt
Eng 9

Flammable Liquid License

F29 (Revised 6/56)

BUFFALO FIRE DEPARTMENT
FLAMMABLE LIQUID ORDINANCE CHAP. XXIX
STORAGE AND USE

APPLICATION INSTALLATION SURVEY [X]

BATTALION 2ND
COMPANY
DATE 7/17 1963

WASTE OIL — TYPE OF LIQUID
1 — CLASS

COMMISSIONER OF FIRE: R. J. ZAHM

LOCATION 73-77 WEST HURON
NAME 75 WEST HURON CORP

CITY PROPERTY (CURB) [ ]
PRIVATE PROPERTY [X]
ZONED USE DISTRICT C-3

PURPOSE OF USE: COMMERCIAL ~~PRIVATE~~
IS LICENSE REQUIRED? YES

APPLICATION NO. _____ Date: _____
CONTRACTOR ELMWOOD TANK CLEANING CORP

PERMIT NO. _____ Date: _____
ADDRESS 400 SCAJAQUADA ST

LOCATION 73-77 West Huron

TANKS:
Number of 1 - REPLACEMENT
Capacity of Each 1000
Capacity Total 1000
Above Ground —
Feet Underground 3
Ft. from Property Line 26'
Ft. from Street Line (Min. 10 ft.) 50'
Ft. from Cellar or Bldg. 20'
U. L. Label Numbers

Public Assemblage Bldg. within 300 ft.? No (Sec. 82)
Less than 50 ft. from RR & docks? (Sec. 16, Chap. LXX) ~~YES~~

VENT PIPE:
Number of 1
Size 1½"
Terminates Outside YES
Ft. above Fill Pipe 12'
Ft. from Bldg. Opening 15'
Weatherproof hood YES
Flame Arrester YES

PUMPS:
Number of Pumps
Ft. from Bldg. Line
Ft. from Street Line (Min. 10 ft.)
U. L. Label Numbers
If inside bldg., are pumps protected as required by Sec. 148?

FILL PIPE:
Size 1½"
Located Outside No
Ft. from Bldg. Opening —
Protected against damage YES

TESTS: (Sec. 91)
APPROVED
DISAPPROVED

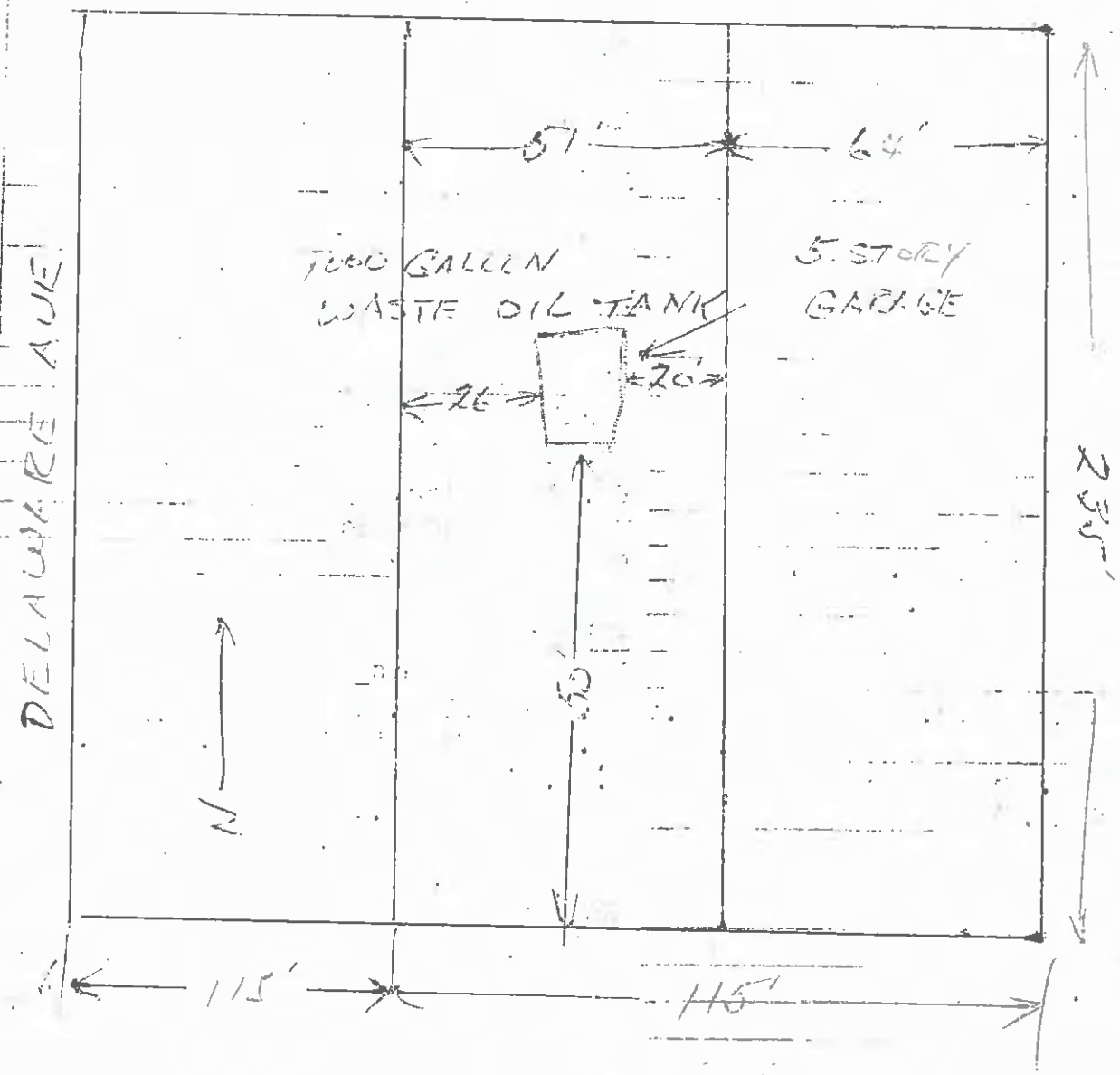
ALL TANKS, PUMPS AND PIPING, WILL BE ✓, ARE ____, ARE NOT ____, INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY ORDINANCE, I THEREFORE, RECOMMEND

APPROVED [X]
~~DISAPPROVED~~ [ ]

Karl Kubicki TITLE 2ND B.C.

APPROVED Robert J. Zahm Jr. DATE 7/17/63
1 Pat E McHale

IMPORTANT: Include Remarks, Sketch of Tank and Pump Location on other side. Forward copy to Bureau of Fire Prevention.


DELAWARE AVE
57'
64'
1000 GALLON
WASTE OIL TANK
5 STORY
GARAGE
26'
20'
N
50'
115'
115'

WEST HURON

F29 (Revised 6/56)

BUFFALO FIRE DEPARTMENT
FLAMMABLE LIQUID ORDINANCE CHAP. XXIX
STORAGE AND USE

APPLICATION [X]
INSTALLATION [X]
SURVEY [ ]

DIESEL — TYPE OF LIQUID
II — CLASS

BATTALION
COMPANY
DATE 9/15 1965

LOCATION 75 W. Huron

COMMISSIONER OF FIRE:

LOCATION 75 W. HURON
NAME HERTZ U DRIVE IT

CITY PROPERTY (CURB) [ ]
PRIVATE PROPERTY [✓]
ZONED USE DISTRICT

PURPOSE OF USE: COMMERCIAL PRIVATE

IS LICENSE REQUIRED? YES

APPLICATION NO. — Date:

CONTRACTOR 1220 TANK & PUMP Co

PERMIT NO. — Date:

ADDRESS 15 LAFAYETTE

TANKS:
Number of 1
Capacity of Each 4000 GAL
Capacity Total 4000 GAL
Above Ground NO
Feet Underground 3'
Ft. from Property Line 10
Ft. from Street Line (Min. 10 ft.) 50+
Ft. from Cellar or Bldg. 25+
U. L. Label Numbers E-59992
Public Assemblage Bldg. within 300 ft.? NO (Sec. 82)
Less than 50 ft. from RR & docks? (Sec. 16, Chap. LXX) NO

VENT PIPE:
Number of 1
Size 2"
Terminates Outside YES
Ft. above Fill Pipe 12'
Ft. from Bldg. Opening
Weatherproof hood YES
Flame Arrester YES

PUMPS:
Number of Pumps 1
Ft. from Bldg. Line 5'
Ft. from Street Line (Min. 10 ft.) 150
U. L. Label Numbers
If inside bldg., are pumps protected as required by Sec. 148?

FILL PIPE:
Size 4"
Located Outside YES
Ft. from Bldg. Opening 20'
Protected against damage YES

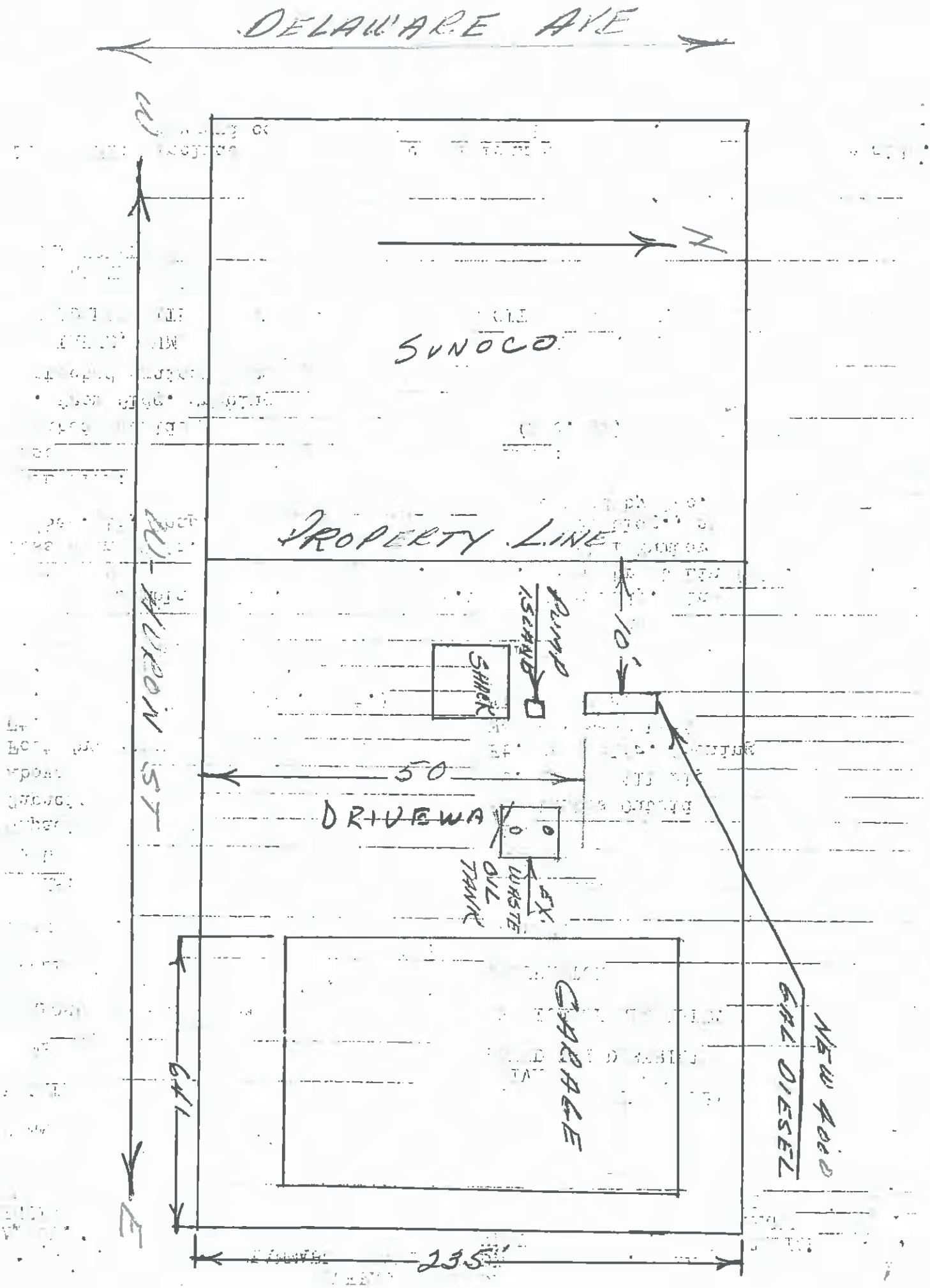
TESTS:
(Sec. 91)
APPROVED Karl Kubek
DISAPPROVED

ALL TANKS, PUMPS AND PIPING, WILL BE ✓, ARE ___, ARE NOT ___, INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY ORDINANCE, I THEREFORE, RECOMMEND

APPROVED [X]
DISAPPROVED [ ]
Marten L Holden TITLE 2nd Batt Chief

APPROVED Karl Kubek DATE Sept. 16, 1965

IMPORTANT: Include Remarks, Sketch of Tank and Pump Location on other side. Forward copy to Bureau of Fire Prevention.


DELAWARE AVE
SUNOCO
PROPERTY LINE
PUMP ISLAND
SHACK
10'
50'
DRIVEWAY
EX. WASTE OIL TANK
GARAGE
64'
235'
NEW 4000 GAL DIESEL
N
E
W
S

F.8

DEPARTMENT OF FIRE

City of Buffalo

INTER DEPARTMENTAL CORRESPONDENCE

TO Chief of Fire Prevention Bureau DATE Aug 18, 1967

SUBJECT Gasoline Tank out of use

FROM Snorkel #1

75 W Huron

75 W. HURON STREET

DEAR SIR:

There is a 1000 gal Gasoline Tank outside of Building (6 stories) Hertz car rental out of use, underground

They did not know about having the Tank Comply with Art V, Par 99 but will Contact Mobile Gas for instructions + Compliance.

This form is for your information and Check on Tanks out of use.

In the past this Company has been very cooperative in every detail.

RESPECTFULLY,

A. W. Wilach Lt

4th.

9-1-67 ON this date we investigated at 45 W. HURON (HURON U-Drive It Corp) (Hertz) to ascertain status of underground out of use gasoline tank. We learn that it is a 500 gallon tank, has been out of use for some time. MR. HARRY SADLER (Asst. Mgr.) states he will call Mobil Oil today to inquire about removing this tank & installing new tank. Ht. Work

ON 9-20-67 Inspection reveals that Mobil Oil is going to replace with new 500 gallon tank.

ON 12-27-67 Interviewed - Mgr. Mr. Settler - states that Socony Oil Co has contracted a local Contractor for Removal of this tank - & told it will be done when contractors schedule allows. Work

Form 29
11/6/67

BUREAU OF FIRE PREVENTION
FLAMMABLE LIQUID ORDINANCE CHAPTER XXIX

STORAGE AND USE OF GASOLINE (TYPE OF LIQUID) I (CLASS)

APPLICATION DATE: 1/23/68 DISTRICT ZONING C-3

NAME HURON ST. GARAGE ADDRESS 75 W. HURON

USE: COMMERCIAL X PRIVATE ___ PROPERTY: CITY ___ PRIVATE X

CONTRACTOR LIZZO ADDRESS 15 LAFAYETTE AVE.

~~APPROVED~~ DISAPPROVED John Powers TITLE Capt.

INSTALLATION DATE:
APPLICATION NO: ___ DATE ___ PERMIT NO: A39695 DATE 1-23-68

TANKS:
Number of 1
Capacity of Each 550
Total Capacity 550
Above Ground NO
Feet Underground 3'
Feet From Property Line ___
Feet From Street Line 35'
Feet From Bldg. or Cellar 10'
U.L. Label Numbers F533455

VENT PIPE:
Number of 1
Size 1"
Terminates Outside Yes
Feet Above Fill Pipe 12'
Feet From Bldg. Opening ___
Weaherproof Hood Yes
Flame Arrester L

PUMPS:
Number of Pumps 1
Feet From Bldg. Line ___
Feet From Street Line ___
U.L. Label Nos. ___
If inside Bldg., are pumps protected as required by Sec. 148 ___

Public Assemblage Bldg. Within 300 Ft. No (Sec. 82)
Less Than 50 Feet From RR & Docks? (Sec. 16, Chap. LIX) No

FILL PIPE:
Size 3" Extended Fill? ___
Located Outside Yes Protected Yes
Feet From Bldg. Opening ___

TESTS: (Sec. 91)
APPROVED 1-10-68
DISAPPROVED ___

ALL TANKS, PUMPS AND PIPING, ARE INSTALLED IN ACCORDANCE WITHIN THE REQUIREMENTS OF THE FLAMMABLE LIQUID ORDINANCE, I THEREFORE, RECOMMEND

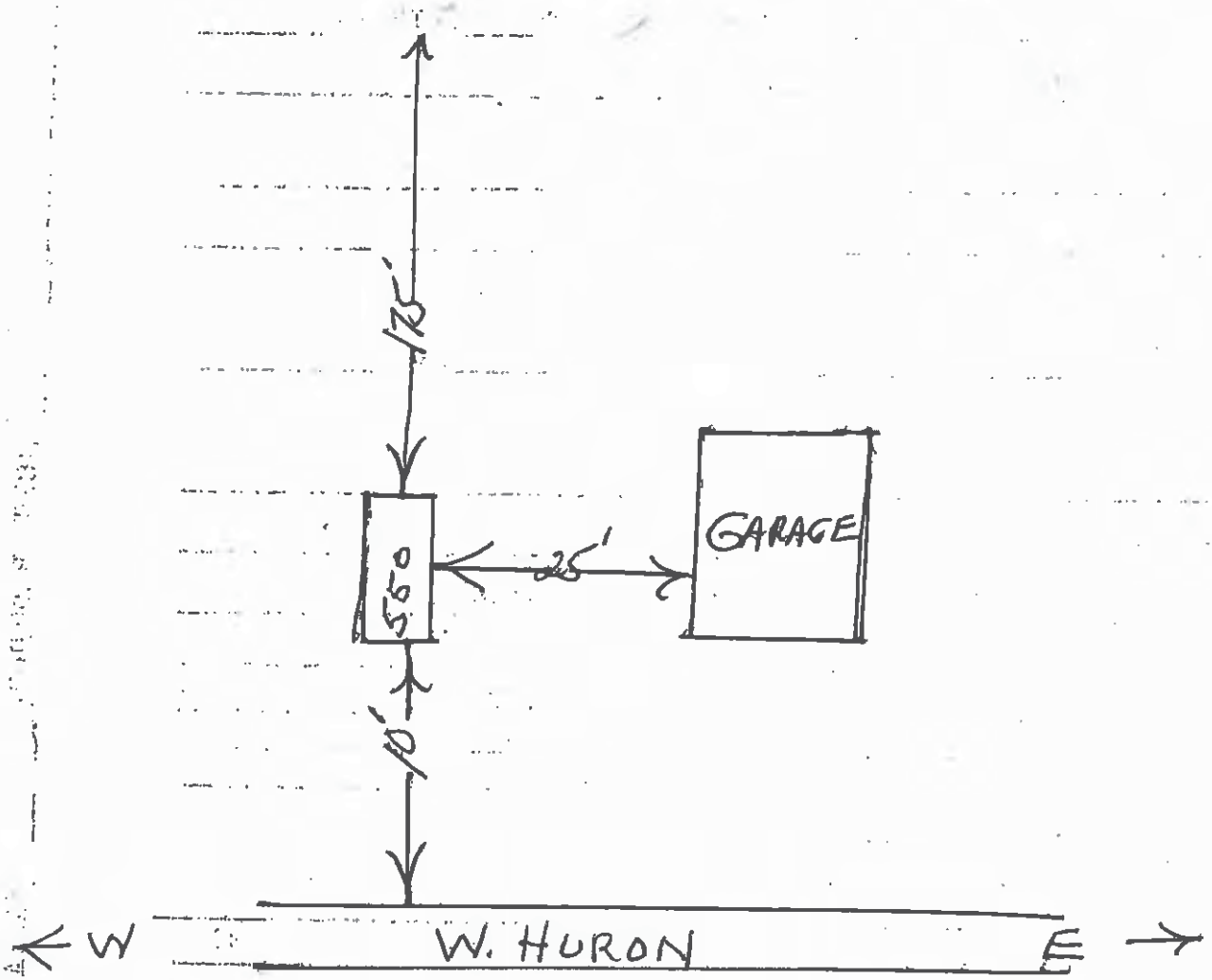
APPROVED Lt. James M. Adams DATE 1-10-68

THE ABOVE LOCATION HAS BEEN INSTALLED FOR THE FOLLOWING SUPPLIER.
NAME Mobil Oil Co. ADDRESS 238 Main St.

IMPORTANT: Include Remarks, Sketch of Pump and Tank Locations On other side, or attach sketch to form. Forward Copy to BUREAU OF FIRE PREVENTION.

REPLACE LEAKER

LOCATION 75 W. HURON LIENSE REQUIRED YES BATTALION 8 COMPANY SNKL-1


175'
550
25'
GARAGE
10'
W
W. HURON
E

Hertz

copy

MAR 11 10 32 AM '74

WEST HURON ST.

HURON "U-DRIVE-IT" CORP.
Hertz System Member
75 W. Huron Street, Buffalo, N.Y. 14202
Telephone: 716 856-2833

March 8, 1974

Mr. Daniel Tattenbaum,
Buffalo Sewer Authority
Engineering Division
1038 City Hall
Buffalo, N. Y. 14202

Dear Mr. Tattenbaum:

Concerning your visit to our premises at 75 W. Huron St. during this week in which you discussed the spillage of diesel fuel with Mr. Sedler, this situation will not occur in the future as our method of obtaining fuel has been altered.

In the meantime we have cleaned up the area in the street in front of our lot and are consulting with various paving companies concerning covering the affected area that might have presented a problem due to this spillage.

Trusting this satisfactorily concludes this matter we remain,

Yours very truly

HURON U-DRIVE-IT CORP.

Alvin Hyman, President

AH:W

WEST HURON ST.

February 6, 1980

Mr. Alvin Hyman
75 West Huron Street
Buffalo, New York 14202

RE: 75 West Huron Street
U-Drive-It Corporation

Dear Mr. Hyman:

Upon inspection of the above-noted premises by Lt. Edward Straub of the Fire Prevention Bureau, evidence was found of two abandoned gasoline tanks -- one (1) 1,000-gallon tank and one (1) 550-gallon tank.

Under Chapter 29, Section 99 of the City ordinances, gasoline tanks which are permanently out-of-use must be removed from the ground and the excavation backfilled to grade level.

Work on gasoline tanks must be done by a licensed contractor. Please notify the Bureau of Fire Prevention 24 hours in advance of removal so that a representative of the Fire Department may be present at that time.

If any further information is desired, please contact the undersigned at 856-4200, Ext. 498 between the hours of 8:30 and 10:00 A.M. or 3:00 and 4:30 P.M., Monday through Friday.

Very truly yours,

Joseph E. Hynes, Chief
BUREAU OF FIRE PREVENTION

Edward Straub, Lieutenant

JEH:ES/mc

BUREAU OF FIRE PREVENTION
FLAMMABLE LIQUID ORDINANCE CHAPTER XXIX

75 WEST HURON ST.

February 29, 1980

RE: 75 West Huron Street
Hertz Rent-A-Car

Spoke with Mr. Ray Duffy who informed me that he will decide very shortly whether he will remove two tanks or have them filled with concrete. The tanks in question are located in a busy driveway and also under at least 10 inches of concrete and blacktop, so this office would consider allowing Mr. Duffy to have them filled with concrete if he so desires.

Lt. Francis J. Schaller
BUREAU OF FIRE PREVENTION

/mc

cc: Lt. Edward Straub

TANKS--Removed, Watered, or Slushed

Location 75 West Huron

Removed X Make sure vent is removed.

Slushed ___ Make sure vent is removed at grade or below.

Watered ___ If it is expected to be watered for 3 years, be sure pump is removed and suction and vent capped.

Number of Tanks 2 Sizes 1(550) 1 (1,000)

Owner of Premises Huron U Drive Street

Present or Former Operator Same

Brand Name of Gasoline Unknown

Owner of Tank Scrap

Address

Contractor Fleischmann Service Corp.

Address 74 Skillen Street

Draw sketch of approximate location on property on reverse side. Also, any other pertinent information.

INSTRUCTIONS BELOW THIS LINE FOR OFFICE USE ONLY.

L. E. Stuart

If station had flammable liquid license, notify the Battalion Chief to have company remove from files. If station is still in business, make note on Form 29 of which tank or tanks have been removed, slushed, or watered and date of same.

PZ:RC
5/28/63

Location 75 WEST HURON

Date OCT. 2, 1980

FORM 188 — DESIGNED FOR USE WITH COMPANION # 771 DU-O-VUE ENVELOPE
JETSETS — NEW ENGLAND BUSINESS SERVICE, INC., TOWNSEND, MASS. 01469

JETSET® Reply

C. A. BATT CONSTRUCTION CORP.
262 Carlton Street
BUFFALO, NEW YORK 14204

Phone 884-2883

DATE 11/12/85

☐ **URGENT**
☐ SOON AS POSSIBLE
☒ NO REPLY NEEDED

FILE NO.

ATTENTION Lt. Russ Knox

SUBJECT Tank Removals at Hertz Rent-A-Car 75 W. Huron St. Buffalo, NY

TO

City of Buffalo Fire Prevention Bureau
City Hall
Buffalo, N.Y. 14202

MESSAGE

Dear Lt. Knox:

Please be advised that Niagara Tank-Pump Division has removed 3- underground petroleum storage tanks at the above location. Tank sizes and contents were as follows: 1- 8000 Gallon (unleaded Gasoline); 1- 4000 Gallon (Diesel Fuel); 1- 1000 Gallon (waste oil). If any additional information is necessary, please call.

SIGNED Steve Cooper

REPLY

DATE OF REPLY

SIGNED

RECIPIENT: WRITE REPLY, RETURN WHITE TO SENDER. KEEP THIS PINK COPY.

CITY OF BUFFALO
BUREAU OF FIRE PREVENTION

321 City Hall
Buffalo, New York 14202
(716)851-5707

Calvin G. Worthy
Commissioner of Fire
Department of Fire
195 Court Street
Buffalo, New York 14202

Robert J. Stasio, Chief
Bureau of Fire Prevention

MEMO TO: Gary Ziolkowski
Director Of Housing

FROM: Chief Robert J. Stasio
Fire Prevention Bureau

DATE: JUNE 10, 2003

SUBJECT: 75 W. Huron Street (Parking Ramp)

On June 10, 2003, the parking ramp at 75 W. Huron St. was inspected by Chief Robert Stasio.

Note the following violations:

1) Sprinkler system is turned off and out of service.

2) Stairway exit on the north end of the ramp is unusable due to disrepair of fire doors, debris inside stairway, and the exit doors to the exterior are locked and barricaded.

3) Stairway exit on south end of the ramp has fire doors propped open.

4) Exit signs throughout the building are missing/not lit.

5) Gasoline is being illegally stored on first floor.

6) Unregistered/junk vehicles stored in basement and upper floors.

The building is dangerous and unsafe.

I am requesting the ramp operation be closed down immediately.

Robert Stasio

RJS/lk
Attachment
cc: Capt. Coyne, Alarm Office
B-56
FILE: 75WestHuran

75 W Huron

Copies of documents regarding:

181-183 Delaware Avenue
Buffalo, New York 14202

On file at:

Buffalo City Hall
Buffalo Fire Department Bureau of Fire Prevention
Room 321
65 Niagara Street
Buffalo, New York 14202

TANKS--Removed, Watered, or Slushed

Location: 183 DECATUR AVE

Removed ___ Make sure vent is removed

Slushed ✓ Make sure vent is removed at grade or below.

Watered ___ If it is expected to be watered for 3 years, be sure pump is removed and suction and vent capped.

Number of tanks 2 Sizes 1500

Owner of Premises _____

Present or Former Operator _____

Brand Name of Gasoline _____

Owner of Tank _____

Address _____

Contractor _____

Address _____

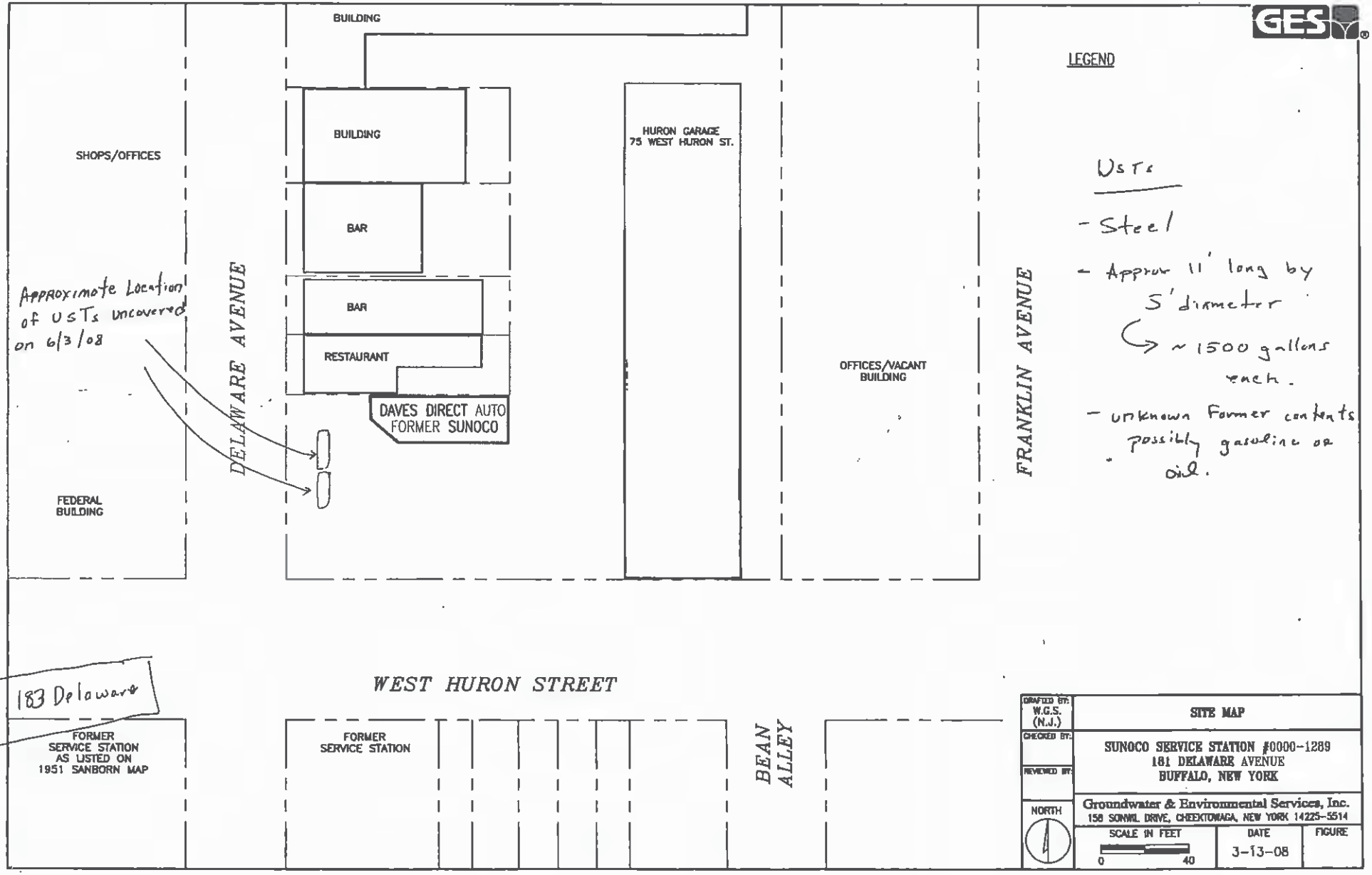
Draw sketch of approximate location on property on reverse side. Also ,any other pertinent information.

Comments:

TANKS WERE found to be filled with slurry. WILL REMAIN buried AS PER DEC REGULATIONS

Location Lt Ken Pytlarski

Date 6-4-08


BUILDING
BUILDING
BAR
BAR
RESTAURANT
DAVES DIRECT AUTO
FORMER SUNOCO
SHOPS/OFFICES
FEDERAL BUILDING
DELAWARE AVENUE
HURON GARAGE
75 WEST HURON ST.
OFFICES/VACANT BUILDING
FRANKLIN AVENUE
Approximate Location of USTs uncovered on 6/3/08
LEGEND
USTs
- Steel
- Approx 11' long by 5' diameter
~ 1500 gallons each.
- unknown Former contents possibly gasoline or oil.
WEST HURON STREET
FORMER SERVICE STATION AS LISTED ON 1951 SANBORN MAP
FORMER SERVICE STATION
BEAN ALLEY
183 Delaware
DRAFTED BY: W.G.S. (N.J.)
CHECKED BY:
REVIEWED BY:
NORTH
SITE MAP
SUNOCO SERVICE STATION #0000-1289
181 DELAWARE AVENUE
BUFFALO, NEW YORK
Groundwater & Environmental Services, Inc.
158 SONWIL DRIVE, CHEEKTOWAGA, NEW YORK 14225-5514
SCALE IN FEET
0
40
DATE
3-13-08
FIGURE

181 DELAWARE AVE

TANKS--Removed, Watered, or Slushed

Location 181 Delaware (at Huron)

Removed ✓ Make sure vent is removed.

Slushed ___ Make sure vent is removed at grade or below.

Watered ___ If it is expected to be watered for 3 years, be sure pump is removed and suction and vent capped.

Number of Tanks 4 Sizes 1-4M · 2-3M - 1-550 W.O.

Owner of Premises Sun oil Co.

Present or Former Operator ___

Brand Name of Gasoline Sun oil Co.

Owner of Tank Sun oil Co.

Address 3755 Riva Rd.

Contractor Clyde Tank & Pump Co.

Address 15 Lafayette ave

Draw sketch of approximate location on property on reverse side. Also, any other pertinent information.

INSTRUCTIONS BELOW THIS LINE FOR OFFICE USE ONLY.

Schaller

If station had flammable liquid license, notify the Battalion Chief to have company remove from files. If station is still in business, make note on Form 29 of which tank or tanks have been removed, slushed, or watered and date of same.

PZ:RC
5/28/63

Location 181 Delaware

Date 3-18-74

4000
3000
3000

APPENDIX B

SOIL/GROUNDWATER DATA

FROM PREVIOUS REPORTS

Table 1
Analytical Testing Program Summary
Parking Garage
75 - 77 West Huron
Buffalo, New York

Location	Date Collected	Depth/ Interval (ft bgs)	VOCs EPA Method 8260 STARS	SVOCs EPA Method 8270 STARS
Subsurface Soil Samples				
B-2	6/24/2003	9.5 to 12	X	X
B-4	6/24/2003	4 to 8	X	X
B-6	2/24/2003	14.5 to 16	X	X
Groundwater Samples				
B-1	6/24/2003	NA	X	X
B-4	6/24/2003	NA	X	X
B-7	6/24/2003	NA	X	X

Notes:
1. NA = not applicable.
2. bgs = below ground surface
3. ft = feet
4. VOCs = Volatile Organic Compounds
5. SVOC = Semi-volatile Organic Compounds

Table 2
Soil Analytical Testing Results Summary
Parking Garage
75 - 77 West Huron
Buffalo, New York

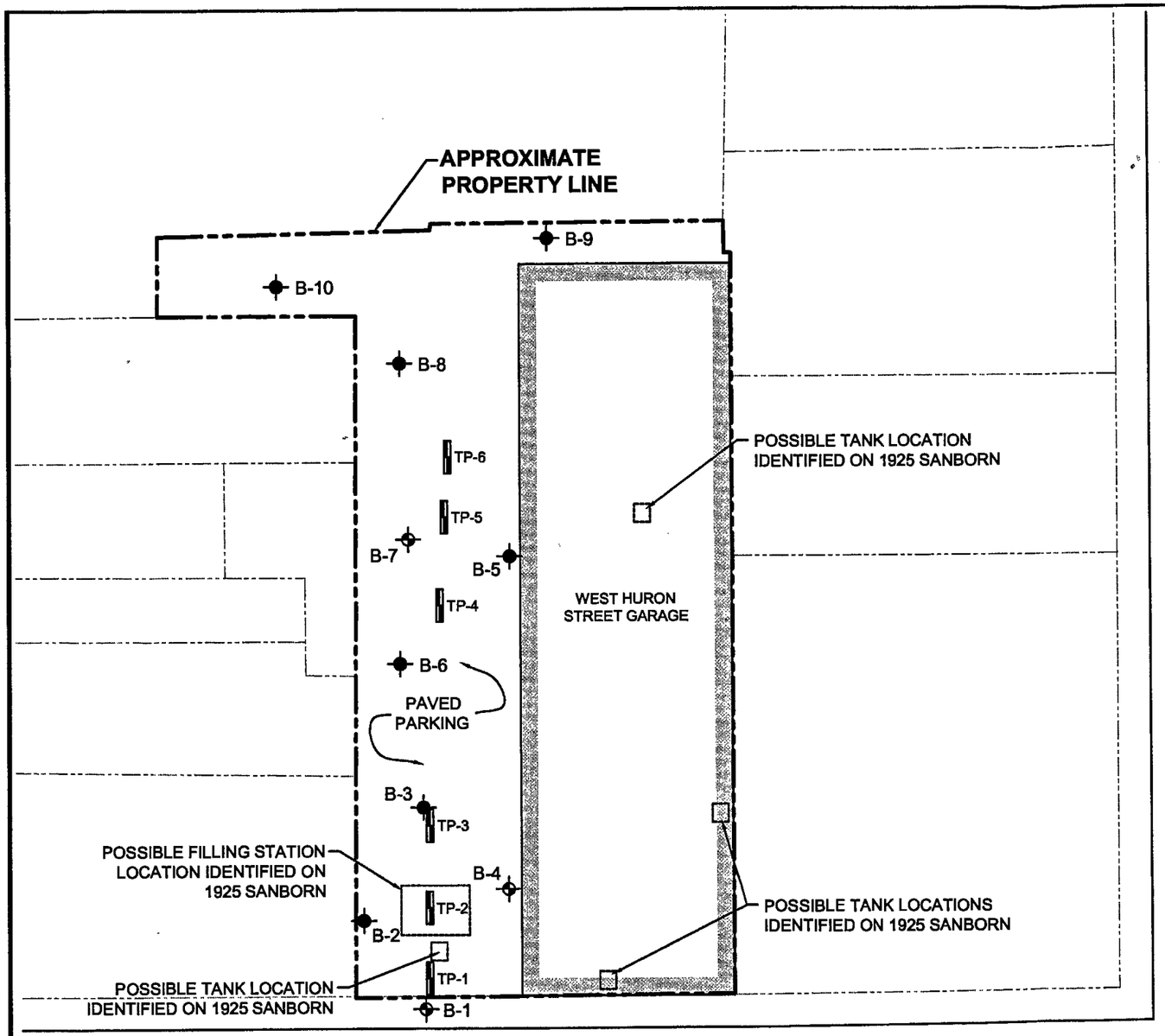
Parameter	NYSDEC TAGM 4046 RSCO	B-2 9.5 to 12 feet bgs	B-4 4 to 8 feet bgs	B-6 14.5 to 16 feet bgs
Volatile Organic Compounds - EPA Method 8260 STARS (ug/kg)				
Toluene	1,500	36,000		950
Ethylbenzene	5,500	20,000		210
m,p-Xylene	1,200	81,000		12,000
o-Xylene	1,200	31,000		660
Isopropylbenzene	5,000	3,900		10,000
n-Propylbenzene	14,000	12,000		34,000
1,3,5-Trimethylbenzene	3,300	22,000		49,000
1,2,4-Trimethylbenzene	13,000	66,000		190,000
sec-Butylbenzene	25,000	1,700		970
p-Isopropyltoluene	11,000	2,000		4,100
n-Butylbenzene	18,000			34,000
Naphthalene	13,000	19,000		
Total VOCs		294,600		335,890
Semi-Volatile Organic Compounds - EPA Method 8270 STARS (ug/kg)				
Naphthalene	13,000	12,000		5,700
2-Methylnaphthalene	36,400	13,000		15,000

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to Attachment C for list of all compounds included in analysis.
2. Analytical testing completed by GZA GeoEnvironmental Laboratory.
3. Recommended Soil cleanup objectives (RSCOs) based on the NYSDEC TAGM 4046 Determination of Soil Cleanup Levels dated January 1994.
4. ug/kg = part per billion (ppb) a
5. Blank indicates compound was not detected.
6. NT = not tested
7. SB = Site Background
8. NV = no value
9. MDL = method detection limit

Table 3
Groundwater Analytical Testing Results Summary
Parking Garage
75 - 77 West Huron
Buffalo, New York

Parameter	Class GA Criteria	B-1	B-4	B-7
Volatile OrganicCompounds - EPA Method 8260 STARS (ug/L)				
Benzene	1	21		
Toluene	5	290	23	
Ethylbenzene	5	400	180	
m&p-Xylene	5	90	860	
o-Xylene	5	120	240	
Isopropylbenzene	5	43	48	
N-propylbenzene	5	75	180	
1,3,5-Trimethylbenzene	5	69	280	
1,2,4-Trimethylbenzene	5	96	1200	
sec-Butylbenzene	5	5	16	
p-Isopropyltoluene	5	8.4	41	
Naphthalene	10	190	200	
Total VOCs		1407	3268	
Semi-Volatile Organic Compounds - EPA Method 8270 STARS (ug/L)				
Naphthalene	10	120	130	
2-Methylnaphthalene	NV	28	300	
Acenaphthene	NV		0.24 J	
Fluorene	NV		1.1 J	
Phenanthrene	NV		1.1 J	

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to Attachment C for list of all compounds included in analysis.
2. Analytical testing completed by GZA GeoEnvironmental Laboratory.
3. NYSDEC Class GA criteria obtained from Division of Water Technical and Operational Guidance Series (TOGS 1.1.1), June 1998.
4. ug/L = part per billion (ppb)
5. NV = no value
6. Blank indicates compound was not detected.
7. J = estimated concentration



LEGEND:

- B-2 — APPROXIMATE LOCATION AND DESIGNATION OF SOIL PROBE DONE BY SLC ENVIRONMENTAL SERVICES, INC. 6/21/03
- B-1 — APPROXIMATE LOCATION AND DESIGNATION OF SOIL PROBE WITH TEMPORARY MICROWELL INSTALLED BY SLC ENVIRONMENTAL SERVICES, INC. 6/21/03
- TP-1 — APPROXIMATE LOCATION AND DESIGNATION OF TEST PIT DONE PREVIOUSLY BY BENCHMARK

NOTES:

1. BASE MAP ADAPTED FROM A SITE MAP PROVIDED BY THE CLIENT AND FIELD OBSERVATIONS.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: DEW

DATE: JULY 2003

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

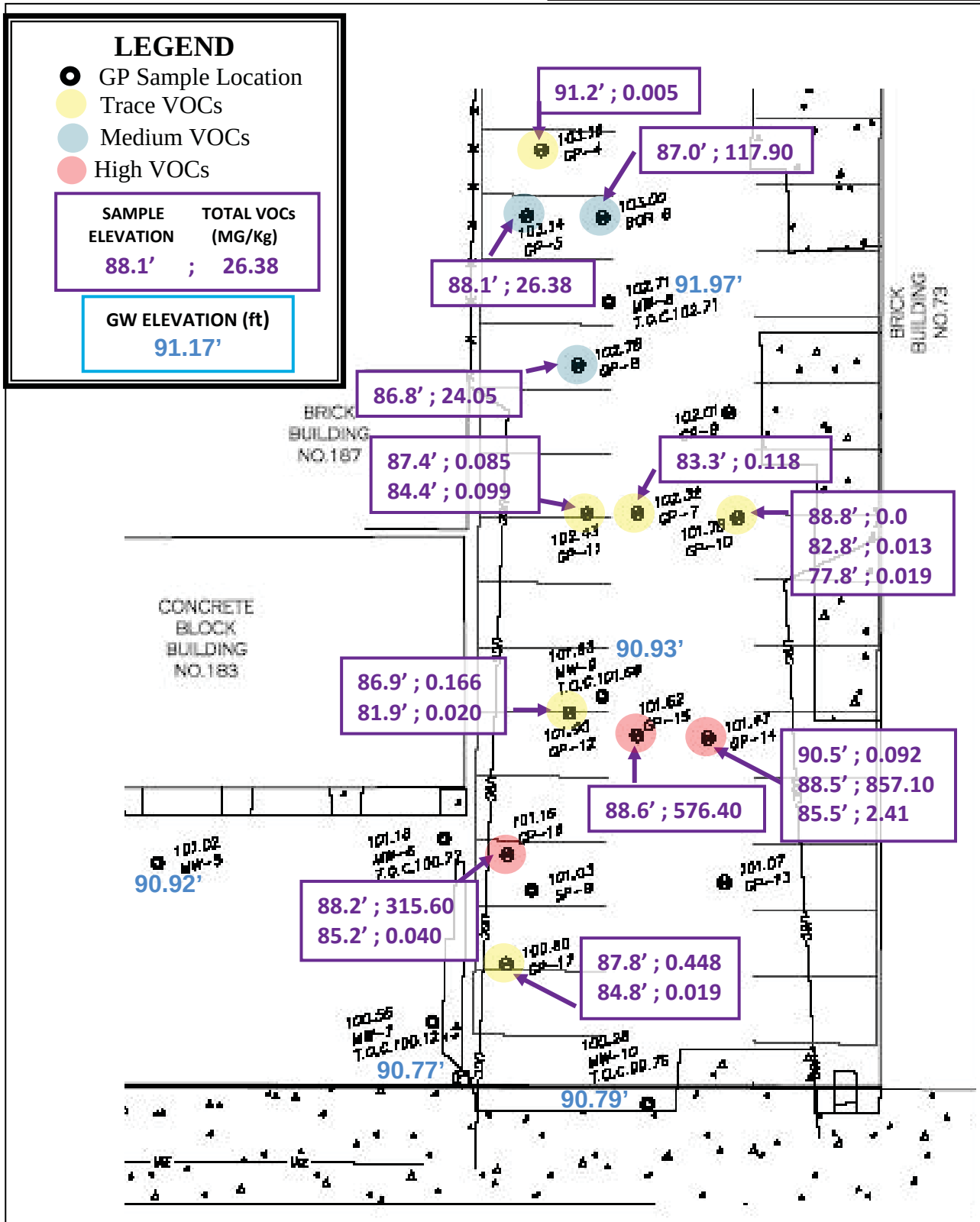
0 20 40 80

KNOER, CRAWFORD, LLP
WEST HURON STREET GARAGE
75-77 WEST HURON STREET
BUFFALO, NEW YORK

PHASE II ENVIRONMENTAL SITE ASSESSMENT
SITE PLAN

PROJECT No.
21.0055760.10

FIGURE No.
2



Note: Soil samples from 8/14&16/12 by IEG; GW level data from 9/8/11 by Sunoco

77 W HURON STREET SOIL VOC CONCENTRATIONS	FIGURE 3 IEG

TABLE 1

77 W. HURON ST. - GEOPROBE SOIL INVESTIGATION

SUMMARY OF SOIL SAMPLING AND ANALYSIS

SAMPLE LOCATION	FIELD OBSERVATIONS				LABORATORY SAMPLES	
	PETROLEUM AT (ft bgs)	PID READINGS (ppm range)	WATER AT (ft bgs)	BOEHOLE DEPTH	STARS VOCs	STARS SVOCs
GP-1	none	0	4'	Refusal at 9'	--	--
GP-2	none	0	5', 12'	16'	7	--
GP-3	none	0	11'	16'	13	--
GP-4	none	0	11'	16'	12	--
GP-5	13' - 18'	0 - 1245	11'	20'	15'	--
GP-6	12' - 20'	0 - 2370	11'	20'	16'	--
GP-7	14' - 20'	0 - 24	11'	20'	19'	--
GP-8	15' - 19'	0 - 1297	11'	20'	16'	16'
GP-9	borehole kept collapsing		7'	8'	--	--
GP-10	14' - 19'	0 - 58	10'	24'	13', 19' & 24'	--
GP-11	none	0	10'	20'	15' & 18'	--
GP-12	12' - 18'	10 - 127	8'	20'	15' & 20'	--
GP-13	none	--	--	Refusal at 4'	--	--
GP-14	10' - 18'	0 - 3024	10'	20'	11', 13' & 16'	13', 16'
GP-15	10' - 19'	0 - 3750	9'	20'	13'	--
GP-16	9' - 19'	0 - 3395	8'	20'	13' & 16'	13'
GP-17	8' - 17'	0 - 114	8'	20'	13' & 16'	13'

TABLE 3
77 W. HURON ST. - GEOPROBE SOIL INVESTIGATION
ANALYYTICAL RESULTS FOR SOIL SAMPLES

SAMPLE ID/ PARAMETER	SCOs - Gasoline CP51-SOIL	GP-1	GP-2-7'	GP-3-13'	GP-4-12'	GP-5-15'	GP-6-16'	GP-7-19'	GP-8-16'	GP-9	GP-10-13'	GP-10-19'	GP-10-24'
SAMPLING DEPTH (VOCs)			*7*	*13*	*12*	*15*	*16*	*19*	*16*		*13*	*19*	*24*
SAMPLING DEPTH (SVOCs)									*16*				
Percent Solids (%)			80.8	87.3	84.3	85.1	84.5	87.2	84		83.5	87.8	82.5
VOLATILE ORGANICS (ug/Kg)													
1,2,4-Trimethylbenzene	3,600		2.0 JB	2.0 JB	1.4 JB		39000	87	2400			4.0 J	3.0 JB
1,3,5-Trimethylbenzene	8,400						1200						
p-Isopropyltoluene	10,000					4800	5700		2900				1.7 J
Benzene	60												
Ethylbenzene	1,000		0.60 J	0.61 J				0.67 J					
Isopropylbenzene	2,300						1000 J	1.8 J	55 J				
m-Xylene & p-Xylene	(in total)		2.6 J	2.6 J	1.7 J			1.1 J				1.2 J	1.9 JB
Naphthalene	12,000							16	120			3.1 J	
n-Butylbenzene	12,000	NA				15000	24000		10000	NA			5.7 J
n-Propylbenzene	3,900					280	40000	10	5200			3.8 J	3.3 J
o-Xylene	(in total)												
sec-Butylbenzene	11,000					6300	7000		3300				1.9 J
tert- Butylbenzene	5,900								77 J				
Toluene	700		1.4 J	1.1 J									
Total Xylenes	260		2.6 J	2.6 J	1.7 J			1.1 J				1.2 J	1.9 JB
TOTAL BTEX			**5**	**4**	**2**	**0**	**0**	**2**	**0**		**0**	**1**	**2**
TOTAL VOCs	1,000		**9**	**9**	**5**	**26,380**	**117,900**	**118**	**24,052**		**0**	**13**	**19**
SEMIVOLATILE ORGANICS (ug/Kg)													
Naphthalene	--	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA

Notes: 1. ND - Not Detected; NA = Not Analyzed
2. Only detected volatile and semivolatile compounds are listed
3. Values exceeding CP51 Soil SCOs for gasoline compounds are highlighted in yellow

TABLE 3
77 W. HURON ST. - GEOPROBE SOIL INVESTIGATION
ANALYYTICAL RESULTS FOR SOIL SAMPLES

SAMPLE ID/ PARAMETER	SCOs - Gasoline CP51-SOIL	GP-11-15'	GP-11-18'	GP-12-15'	GP-12-20'	GP-13	GP-14-11'	GP-14-13'	GP-14-16'	GP-15-13'	GP-16-13'	GP-16-16'	GP-17-13'	GP-17-16'
SAMPLING DEPTH (VOCs)		*15*	*18*	*15*	*20*		*11*	*13*	*16*	*13*	*13*	*16*	*13*	*16*
SAMPLING DEPTH (SVOCs)								*13*	*16*		*13*		*13-Jan*	
Percent Solids (%)		84.7	84.7	87	85.9		82.4	84.6	82.1	84.6	84.8	84.2	84.4	86.8
VOLATILE ORGANICS (ug/Kg)														
1,2,4-Trimethylbenzene	3,600	25 B	69 B	29 B	3.6 JB		26 J	290000	1100	220000	69000	4.8 J	110	2.0 J
1,3,5-Trimethylbenzene	8,400			6.4				81000	300	69000	21000		26	2.9 J
p-Isopropyltoluene	10,000	7.1	1.4 J	1.2 J			31	2200		3600	1600		1.9 J	
Benzene	60													
Ethylbenzene	1,000							26000		6700	19000		12	0.71 J
Isopropylbenzene	2,300		1.2 J				17 J	8700		11000	3500		2.4 J	
m-Xylene & p-Xylene	(in total)	1.6 JB	2.3 JB	3.8 JB	3.6 JB			140000	100 J	74000	69000		55	1.8 J
Naphthalene	12,000		9.9 B	110 B	7.0 B			49000	530	31000	11000	35	140	9.6
n-Butylbenzene	12,000	21	5.3 J	4.9 J	1.4 J	NA		22000	160	23000	7800	0.54 J	5.7 J	
n-Propylbenzene	3,900	20	7.5	3.4 J	1.0 J		18 J	39000	120	29000	9900		10	
o-Xylene	(in total)			1.5 J				26000		9800	11000		13	
sec-Butylbenzene	11,000	8.5						3200		4300	1600			
tert- Butylbenzene	5,900													
Toluene	700										3200		3.7 J	
Total Xylenes	260	1.6 JB	2.3 JB	5.3 JB	3.6 JB			170000	100 J	95000	88000		68	1.8 J
TOTAL BTEX		**2**	**2**	**5**	**4**		**0**	**196,000**	**100**	**101,700**	**110,200**	**0**	**84**	**3**
TOTAL VOCs	1,000	**85**	**99**	**166**	**20**		**92**	**857,100**	**2,410**	**576,400**	**315,600**	**40**	**448**	**19**
SEMIVOLATILE ORGANICS (ug/Kg)														
Naphthalene	--	NA	NA	NA	NA	NA	NA	10000	ND	NA	530 J	NA	66 J	NA

Notes: 1. ND - Not Detected; NA = Not Analyzed
2. Only detected volatile and semivolatile compounds are listed
3. Values exceeding CP51 Soil SCOs for gasoline compounds are highlighted in yellow

ATTACHMENT B-3: SOIL/GW DATA FROM 2004 ENVIRONMENTAL SITE ASSESSMENT REPORT (GES)

Former Sunoco Service Station #0000-1189
181 Delaware Avenue
Buffalo, NY

TABLE 1
Soil Sample Analytical Summary
Volatile Organic Compounds via EPA Method 8021 STARS

parameter	MW-1 15-17	MW-2 12-14	MW-3 16-18	MW-4 14-16	MW-5 14-16	MW-6 14-16	MW-7 14-16	SP-1 14-16	NYSDEC Guidance
date sampled	05/24/04	05/25/04	05/25/04	05/25/04	05/26/04	05/26/04	05/26/04	05/25/04	
benzene	ND<594	ND<591	ND<623	ND<62.3	2,400	ND<1,180	ND<58.7	ND<1,220	60
toluene	ND<594	ND<591	ND<623	913	53,600	8,880	4,780	9,120	1,500
ethylbenzene	2,840	ND<591	17,800	737	157,000	15,400	4,900	54,400	5,500
m,p-xylenes	4,940	ND<1,180	56,200	2,600	459,000	46,500	15,000	192,000	na
o-xylenes	2,200	735	7,250	894	145,000	11,500	5,570	50,200	na
isopropylbenzene	2,150	1,580	3,130	177	18,000	4,190	626	13,500	5,000
n-propylbenzene	5,890	4,820	8,450	535	44,500	11,300	1,730	34,300	14,000
1,3,5-trimethylbenzene	5,370	4,940	16,600	1,410	143,000	22,400	4,300	79,400	3,300
tert-butylbenzene	ND<1,190	ND<1,180	ND<1,250	ND<125	ND<2,490	ND<2,350	ND<117	ND<2,440	na
1,2,4-trimethylbenzene	16,600	10,400	34,300	3,010	256,000	50,700	7,550	152,000	13,000
sec-butylbenzene	2,210	3,180	2,490	282	ND<2,490	4,250	611	7,300	25,000
p-isopropyltoluene	ND<1,190	1,620	1,560	168	20,200	2,880	327	4,800	11,000
n-butylbenzene	11,900	18,200	18,600	1,990	146,000	24,100	4,240	59,000	18,000
naphthalene	2,130	1,560	7,090	1,380	35,000	8,890	1,790	24,300	13,000
Total BTEX	**9,980**	**735**	**81,250**	**5,144**	**817,000**	**82,280**	**30,250**	**305,720**	**none set**
Total Volatile Organic Compounds	**56,230**	**47,035**	**173,470**	**14,096**	**1,479,700**	**210,990**	**51,424**	**680,320**	**10,000**
Methyl-tertiary Butyl-Ether	**ND<5,940**	**ND<5,910**	**ND<6,230**	**ND<623**	**ND<12,500**	**ND<11,800**	**ND<587**	**ND<12,200**	**120**

Notes:

All units expressed as ug/kg (ppb).

ND = Not detected.

* Values from NYSDEC Technical and Administrative Guidance Memorandum 4046 *"Determination of Soil Cleanup Objectives and Cleanup Levels" (1994).*

Former Sunoco Service Station Duns #0000-1189
181 Delaware Avenue
Buffalo, NY

TABLE 2
Soil Sample Analytical Summary
Semi-Volatile Organic Compounds via EPA Method 8270 STARS

parameter	MW-1 15-17	MW-2 12-14	MW-5 14-16	MW-6 14-16	SP-1 14-16	NYSDEC Guidance
date sampled	05/24/04	05/25/04	05/26/04	05/26/04	05/26/04	
anthracene	ND<67	ND<67	ND<335	ND<335	ND<67	60
acenaphthene	ND<67	ND<67	ND<335	ND<335	ND<67	na
acenaphthylene	ND<67	ND<67	ND<335	ND<335	ND<67	na
benzo (a) anthracene	ND<67	ND<67	ND<335	ND<335	ND<67	5,000
benzo (b) fluoranthene	ND<67	ND<67	ND<335	ND<335	ND<67	3,300
benzo (k) fluoranthene	ND<67	ND<67	ND<335	ND<335	ND<67	na
benzo (g,h,i) perylene	ND<67	ND<67	ND<335	ND<335	ND<67	25,000
benzo (a) pyrene	ND<67	ND<67	ND<335	ND<335	ND<67	na
chrysene	ND<67	ND<67	ND<335	ND<335	ND<67	13,000
dibenz (a,h) anthracene	ND<67	ND<67	ND<335	ND<335	ND<67	13,000
fluoranthene	ND<67	ND<67	ND<335	ND<335	ND<67	na
fluorene	ND<67	ND<67	ND<335	ND<335	ND<67	1,500
indeno (1,2,3-cd) pyrene	ND<67	ND<67	ND<335	ND<335	ND<67	11,000
phenanthrene	ND<67	ND<67	ND<335	ND<335	ND<67	5,500
pyrene	ND<67	ND<67	ND<335	ND<335	ND<67	na
naphthalene	182	345	30,400	12,800	14,400	18,000
Total Semi-Volatile Organic Compounds	**182**	**345**	**30,400**	**12,800**	**14,400**	**10,000**

Notes:

All units expressed as ug/kg (ppb).

ND = Not detected.

* Values from NYSDEC Technical and Administrative Guidance Memorandum 4046 *"Determination of Soil Cleanup Objectives and Cleanup Levels" (1994).*

Former Sunoco Service Station Duns #0000-1189
181 Delaware Avenue
Buffalo, NY

TABLE 3
Groundwater Analytical Summary
Volatile Organic Compounds via EPA Method 8021 STARS

parameter	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	SP-1	NYSDEC Guidance Values*
date sampled	06/19/04	06/19/04	06/19/04	06/19/04	06/19/04	06/19/04	06/19/04	06/19/04	
benzene	ND<100	32	ND<100	286	ND<100	ND<100	648	ND<25	60
toluene	148	ND<25	ND<100	4,630	2,940	4,080	3,100	255	1,500
ethylbenzene	583	ND<25	1,530	2,120	2,030	1,750	2,320	458	5,500
m,p-xylenes	2,400	ND<50	6,150	6,440	5,980	5,800	6,840	917	na
o-xylenes	536	ND<25	1,100	2,480	1,890	1,940	3,610	355	na
isopropylbenzene	286	ND<50	ND<200	ND<200	ND<200	ND<200	ND<200	ND<50	5,000
n-propylbenzene	774	ND<50	241	213	228	ND<200	225	76.4	14,000
1,3,5-trimethylbenzene	2,070	123	781	680	713	676	766	163	3,300
tert-butylbenzene	ND<200	ND<50	ND<200	ND<200	ND<200	ND<200	ND<200	ND<50	na
1,2,4-trimethylbenzene	4,290	143	1,850	1,610	1,680	1,510	1,670	379	13,000
sec-butylbenzene	ND<200	ND<50	ND<200	ND<200	ND<200	ND<200	ND<200	ND<50	25,000
p-isopropyltoluene	ND<200	ND<50	ND<200	ND<200	ND<200	ND<200	ND<200	ND<50	11,000
n-butylbenzene	1,480	199	ND<200	210	245	ND<200	216	251	18,000
naphthalene	532	ND<50	747	686	747	439	710	105	13,000
Total BTEX	**3,667**	**32**	**8,780**	**15,956**	**12,840**	**13,570**	**16,518**	**1,985**	**none set**
Total Volatile Organic Compounds	**13,099**	**497**	**12,399**	**19,355**	**16,453**	**16,195**	**20,105**	**2,959**	**10,000**
Methyl-tertiary Butyl-Ether	**ND<1,000**	**ND<250**	**ND<1,000**	**ND<1,000**	**ND<1,000**	**ND<1,000**	**ND<1,000**	**ND<250**	**120**

Notes:

All units expressed as ug/L (ppb).

ND = Not detected.

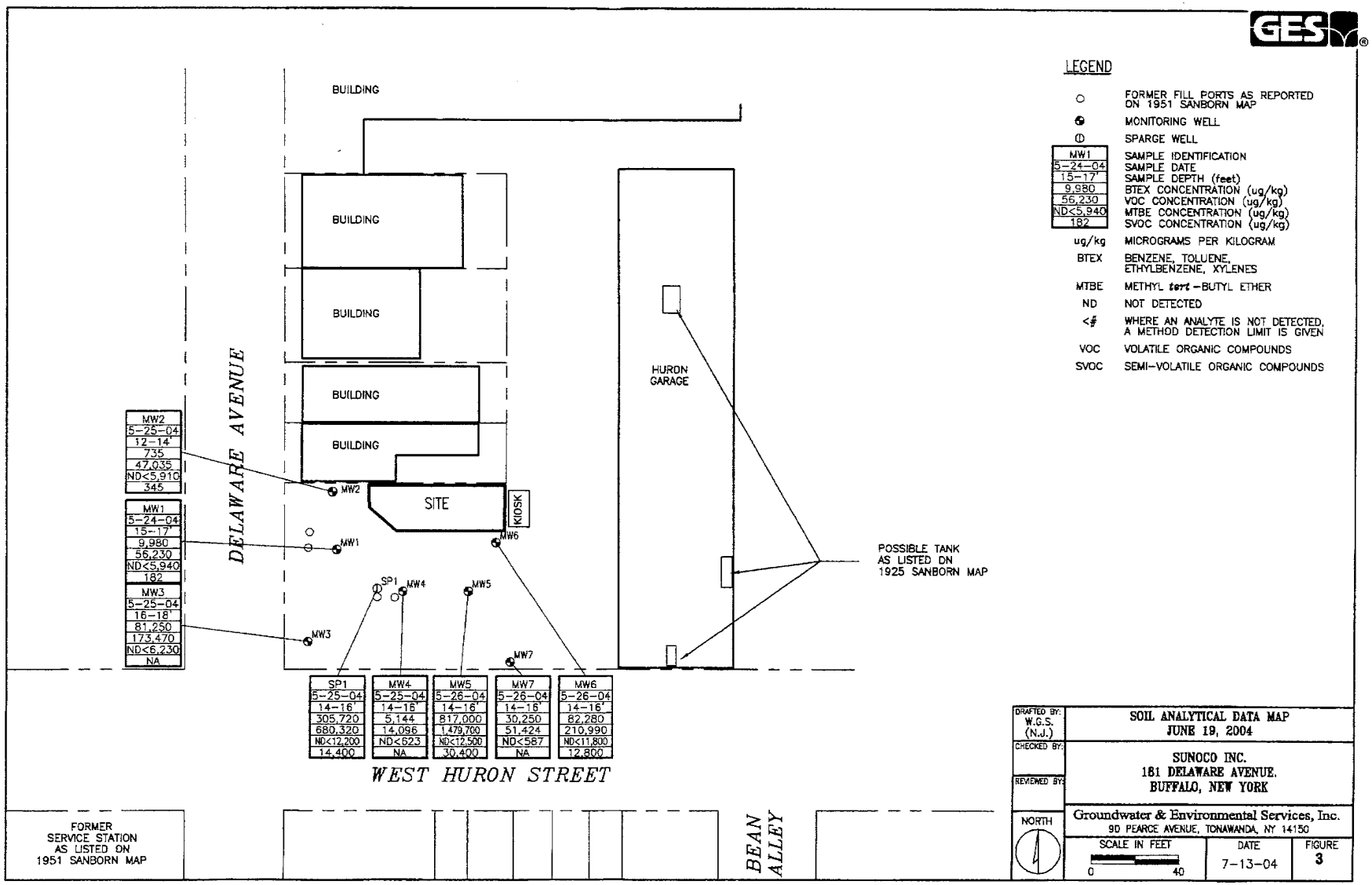
* values from NYSDEC Technical and Administrative Guidance Memorandum 4046 *"Determination of* Soil Cleanup Objectives and Cleanup Levels" (1994)

Former Sunoco Service Station Duns #0000-1189
181 Delaware Avenue
Buffalo, NY

TABLE 4
Groundwater Analytical Summary
Semi-Volatile Organic Compounds via EPA Method 8270 STARS

parameter	MW-1	MW-2	MW-4	MW-6
date sampled	06/19/04	06/19/04	06/19/04	06/19/04
anthracene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
acenaphthene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
acenaphthylene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
benzo (a) anthracene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
benzo (b) fluoranthene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
benzo (k) fluoranthene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
benzo (g,h,i,) perylene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
benzo (a) pyrene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
chrysene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
dibenz (a,h) anthracene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
fluoranthene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
fluorene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
indeno (1,2,3-cd) pyrene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
phenanthrene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
pyrene	ND<2.0	ND<2.0	ND<2.0	ND<2.0
naphthalene	694	11	565	537
Total Volatile Organic Compounds	**694**	**11**	**565**	**537**

Notes:
All units expressed as ug/L (ppb).
ND = Not detected.



LEGEND

- ○ FORMER FILL PORTS AS REPORTED ON 1951 SANBORN MAP
- ◉ MONITORING WELL
- ⊕ SPARGE WELL
- MW1 — SAMPLE IDENTIFICATION
- 5-24-04 — SAMPLE DATE
- 15-17' — SAMPLE DEPTH (feet)
- 9,980 — BTEX CONCENTRATION (ug/kg)
- 56,230 — VOC CONCENTRATION (ug/kg)
- ND<5,940 — MTBE CONCENTRATION (ug/kg)
- 182 — SVOC CONCENTRATION (ug/kg)
- ug/kg — MICROGRAMS PER KILOGRAM
- BTEX — BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
- MTBE — METHYL *tert* – BUTYL ETHER
- ND — NOT DETECTED
- <# — WHERE AN ANALYTE IS NOT DETECTED, A METHOD DETECTION LIMIT IS GIVEN
- VOC — VOLATILE ORGANIC COMPOUNDS
- SVOC — SEMI-VOLATILE ORGANIC COMPOUNDS

DRAFTED BY: W.G.S. (N.J.)	SOIL ANALYTICAL DATA MAP JUNE 19, 2004
CHECKED BY:	SUNOCO INC. 181 DELAWARE AVENUE, BUFFALO, NEW YORK
REVIEWED BY:	Groundwater & Environmental Services, Inc. 90 PEARCE AVENUE, TONAWANDA, NY 14150
SCALE IN FEET: 0 – 40	DATE: 7-13-04
	FIGURE: 3

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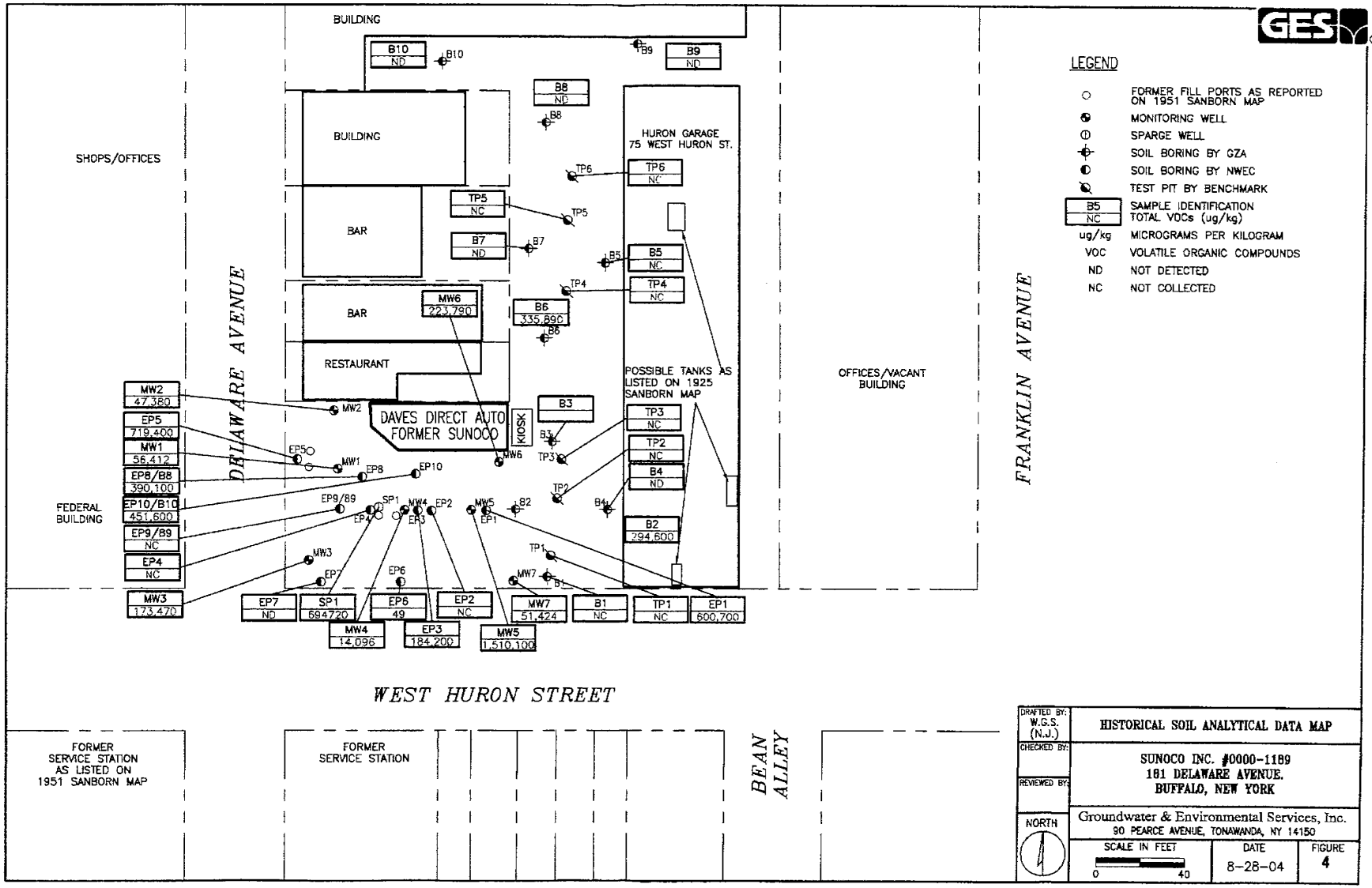
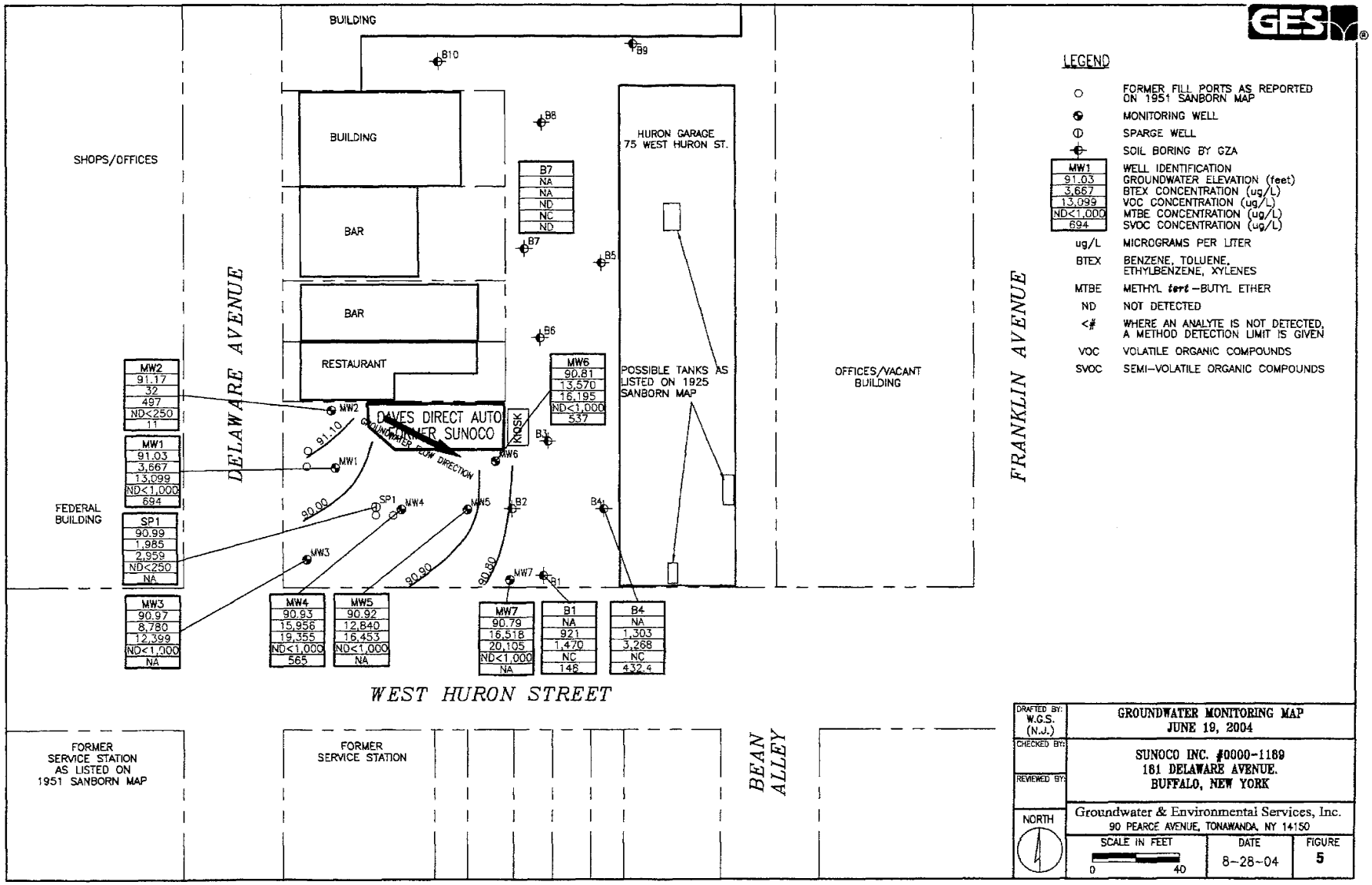

BUILDING
B10
ND
B10
B9
B9
ND
B8
ND
B8
BUILDING
HURON GARAGE
75 WEST HURON ST.
SHOPS/OFFICES
TP6
TP6
NC
TP5
NC
TP5
BAR
B7
ND
B7
B5
B5
NC
TP4
TP4
NC
BAR
MW6
223,790
B6
335,890
B6
RESTAURANT
POSSIBLE TANKS AS
LISTED ON 1925
SANBORN MAP
OFFICES/VACANT
BUILDING
DELAWARE AVENUE
FRANKLIN AVENUE
MW2
47,380
MW2
B3
TP3
NC
EP5
719,400
DAVES DIRECT AUTO
FORMER SUNOCO
KIOSK
B3
TP3
TP2
NC
MW1
56,412
EP5
MW1
MW6
EP8/B8
390,100
EP8
EP10
B4
ND
TP2
FEDERAL
BUILDING
EP10/B10
451,600
EP9/89
SP1
MW4
EP2
MW5
B2
B4
B2
294,600
EP9/89
NC
EP2
EP3
EP1
EP4
NC
MW3
TP1
MW3
EP7
EP6
MW7
B1
MW3
173,470
EP7
ND
SP1
694720
EP6
49
EP2
NC
MW7
51,424
B1
NC
TP1
NC
EP1
600,700
MW4
14,096
EP3
184,200
MW5
1,510,100
WEST HURON STREET
FORMER
SERVICE STATION
AS LISTED ON
1951 SANBORN MAP
FORMER
SERVICE STATION
BEAN
ALLEY
LEGEND
FORMER FILL PORTS AS REPORTED ON 1951 SANBORN MAP
MONITORING WELL
SPARGE WELL
SOIL BORING BY GZA
SOIL BORING BY NWEC
TEST PIT BY BENCHMARK
B5
NC
SAMPLE IDENTIFICATION
TOTAL VOCs (ug/kg)
ug/kg
MICROGRAMS PER KILOGRAM
VOC
VOLATILE ORGANIC COMPOUNDS
ND
NOT DETECTED
NC
NOT COLLECTED
DRAFTED BY:
W.G.S.
(N.J.)
CHECKED BY:
REVIEWED BY:
NORTH
HISTORICAL SOIL ANALYTICAL DATA MAP
SUNOCO INC. #0000-1189
181 DELAWARE AVENUE,
BUFFALO, NEW YORK
Groundwater & Environmental Services, Inc.
90 PEARCE AVENUE, TONAWANDA, NY 14150
SCALE IN FEET
0
40
DATE
8-28-04
FIGURE
4



GES

LEGEND

- ○ FORMER FILL PORTS AS REPORTED ON 1951 SANBORN MAP
- MONITORING WELL
- SPARGE WELL
- SOIL BORING BY GZA

MW1	WELL IDENTIFICATION
91.03	GROUNDWATER ELEVATION (feet)
3,667	BTEX CONCENTRATION (ug/L)
13,099	VOC CONCENTRATION (ug/L)
ND<1,000	MTBE CONCENTRATION (ug/L)
694	SVOC CONCENTRATION (ug/L)

ug/L	MICROGRAMS PER LITER
BTEX	BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
MTBE	METHYL *tert*-BUTYL ETHER
ND	NOT DETECTED
<#	WHERE AN ANALYTE IS NOT DETECTED, A METHOD DETECTION LIMIT IS GIVEN
VOC	VOLATILE ORGANIC COMPOUNDS
SVOC	SEMI-VOLATILE ORGANIC COMPOUNDS

DRAFTED BY: W.G.S. (N.J.)
CHECKED BY:
REVIEWED BY:

GROUNDWATER MONITORING MAP
JUNE 19, 2004

SUNOCO INC. #0000-1169
181 DELAWARE AVENUE.
BUFFALO, NEW YORK

NORTH

Groundwater & Environmental Services, Inc.
90 PEARCE AVENUE, TONAWANDA, NY 14150

SCALE IN FEET	DATE	FIGURE
0 40	8-28-04	5

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
181 Delaware Avenue
Buffalo, New York

ATTACHMENT B-4: GW DATA FROM SUNOCO'S QUARTERLY MONITORING REPORTS (MATRIX)

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (µg/L)
MW1	06/19/2004	8.40	0.00	91.03	ND	148	583	2,936	3,667	ND	
99.43	10/31/2005	8.48	0.00	90.95	ND	12	64	400	476	ND	
	01/30/2006	8.19	0.00	91.24	ND	93	290	2,200	2,583	ND	
4-inch PVC	04/18/2006	8.52	0.00	90.91	ND	140	660	4,500	5,300	66	
Total Depth:	10/02/2006	8.31	0.00	91.12	1.0	180	610	3,900	4,691	ND	
18'	03/13/2007	8.47	0.00	90.96	ND	19	120	940	1,079	ND	
Screen Interval:	06/25/2007	8.68	0.00	90.75	ND	44	210	1,700	1,954	ND	
3-18'	11/30/2007	8.40	0.00	91.03	ND	18	150	660	828	ND	
	02/19/2008	8.41	0.00	91.02	ND	96	230	1,200	1,526	ND	
	05/27/2008	8.63	0.00	90.80	ND	130	220	1,900	2,250	ND	
	08/28/2008	5.50	0.00	93.93	ND	44	220	1,100	1,364	ND	
	11/24/2008	8.34	0.00	91.09	ND	ND	5.8	96.7	102.5	ND	
	02/11/2009	8.28	0.00	91.15	ND	19	102	506	627	ND	
Well removed on 10/26/09, replaced with MW-1R.	05/13/2009	8.33	0.00	91.10	ND	10.3	69.4	343	422.7	ND	
	08/19/2009	7.82	0.00	91.61	ND	15.3	48.1	363	426.4	ND	
MW1R	11/17/2009	8.76	0.00	90.36	ND	ND	165	2,020	2,185	ND	
99.12	02/23/2010	8.61	0.00	90.51	ND	ND	105	923	1,028	ND	
4-inch PVC	05/17/2010	8.55	0.00	90.57	ND	ND	48.3	617	665.3	ND	
Total Depth:	09/22/2010	8.78	0.00	90.34	ND	ND	83.9	671	754.9	ND	
15'	12/07/2010	8.42	0.00	90.70	ND	ND	9.5	184	193.5	ND	
Depth to Screen:	03/16/2011	7.95	0.00	91.17	ND<0.5	ND<0.7	5.0	48	53	ND<0.5	275
4.28'	06/22/2011	8.43	0.00	90.69	ND<0.50	ND<1.0	29.8	176.2	206	ND<1.0	596.5
99.52	09/08/2011	8.45	0.00	91.07	ND<2.5	ND<5.0	9.6	165	174.6	ND<5.0	978.3
100.18	12/01/2011	8.28	0.00	91.90	ND<0.50	ND<1.0	29.5	294	323.5	ND<1.0	1,235.1
	03/26/2012	8.33	0.00	91.85	ND<0.50	ND<1.0	12.2	67.9	80.1	ND<1.0	199.9
	06/25/2012	7.38	0.00	92.80	ND<0.50	ND<1.0	14.2	160.0	174.2	ND<1.0	848.0
	09/11/2012	8.43	0.00	91.75	ND<0.50	ND<1.0	17.6	193	210.6	ND<1.0	1,063.9
	12/13/2012	8.51	0.00	91.67	ND<0.50	ND<1.0	12.6	122	134.6	ND<1.0	459.2
	03/11/2013	8.16	0.00	92.02	ND<0.50	4.4	3.5	63.5	72.0	ND<1.0	240.8
	06/07/2013	7.57	0.00	92.61	ND<0.50	ND<1.0	42.0	139	181	ND<1.0	679.4
	09/16/2013	8.45	0.00	91.73	ND<0.50	ND<1.0	68.3	352	420	ND<1.0	1,680
	12/13/2013	7.88	0.00	92.30	ND<0.50	ND<1.0	1.7	26.3	28.0	ND<1.0	187
	03/24/2014	8.25	0.00	91.93	ND<0.50	ND<1.0	1.2	4.0	5.2	ND<1.0	33.1
	06/09/2014	8.45	0.00	91.73	ND<0.50	ND<1.0	51.6	164	216	ND<1.0	1,060
	09/12/2014	8.61	0.00	91.57	ND<2.5	ND<5.0	128.0	417	545	ND<5.0	1,386
	12/08/2014	**8.46**	**0.00**	**91.72**	**ND<0.50**	**ND<1.0**	**ND<1.0**	**7.6**	**7.6**	**ND<1.0**	**47.0**

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Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (ug/L)
MW2	06/19/2004	8.67	0.00	91.17	32	ND	ND	ND	32	ND	
99.84	10/31/2005	8.74	0.00	91.10	ND	ND	ND	ND	ND	ND	
	01/30/2006	8.46	0.00	91.38	ND	ND	ND	ND	ND	ND	
4-inch PVC	04/18/2006	8.77	0.00	91.07	ND	9.1	ND	7.7	16.8	25	
Total Depth:	10/02/2006	8.60	0.00	91.24	ND	ND	ND	ND	ND	ND	
20'	03/13/2007	8.73	0.00	91.11	ND	ND	ND	ND	ND	ND	
Depth to Screen:	06/25/2007	8.91	0.00	90.93	ND	ND	ND	ND	ND	ND	
7.38'	11/30/2007	8.70	0.00	91.14	ND	ND	ND	ND	ND	ND	
	02/19/2008	8.60	0.00	91.24	ND	ND	ND	5.7	5.7	ND	
	05/27/2008	8.89	0.00	90.95	ND	ND	ND	ND	ND	ND	
	08/28/2008	6.01	0.00	93.83	ND	ND	ND	ND	ND	ND	
	11/24/2008	9.18	0.00	90.66	ND	ND	ND	ND	ND	ND	
	02/11/2009	8.70	0.00	91.14	ND	ND	ND	ND	ND	ND	
	05/13/2009	8.80	0.00	91.04	ND	ND	ND	ND	ND	ND	
	08/19/2009	8.37	0.00	91.47	ND	ND	ND	ND	ND	ND	
	11/17/2009	8.98	0.00	90.86	ND	ND	ND	ND	ND	ND	
	02/23/2010	8.87	0.00	90.97	ND	ND	ND	ND	ND	ND	
	05/17/2010	8.75	0.00	91.09	ND	ND	ND	ND	ND	ND	
	09/22/2010	8.99	0.00	90.85	ND	ND	ND	ND	ND	ND	
	12/07/2010	8.64	0.00	91.20	ND	ND	ND	ND	ND	ND	
	03/16/2011	8.26	0.00	91.58	ND<0.5	ND<0.7	ND<0.8	ND<1.6	ND	ND<0.5	ND
	06/22/2011	8.70	0.00	91.14	ND<0.5	ND<1..0	ND<1.0	ND<1.0	ND	ND<1.0	ND
	09/08/2011	8.71	0.00	91.13	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND	ND<1.0	ND
100.74	12/01/2011	8.70	0.00	92.04	ND<0.5	ND<1.0	ND<1.0	3.0	3	ND<1.0	44
	03/26/2012	8.83	0.00	91.91	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND	ND<1.0	5.9
	06/25/2012	8.91	0.00	91.83	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND	3	ND
	09/11/2012	8.88	0.00	91.86	ND<0.50	ND<1.0	ND<1.0	3.2	3.2	ND<1.0	34.3
	12/13/2012	9.02	0.00	91.72	ND<0.50	ND<1.0	ND<1.0	13.7	13.7	ND<1.0	130.5
	03/11/2013	8.75	0.00	91.99	ND<0.50	2	1	12.9	15.9	ND<1.0	87.4
	06/07/2013	8.52	0.00	92.22	ND<0.50	ND<1.0	ND<1.0	5.1	7.6	ND<1.0	26.8
	09/16/2013	8.94	0.00	91.80	ND<0.50	ND<1.0	ND<1.0	4.5	4.5	ND<1.0	40.3
	12/13/2013	8.89	0.00	91.85	ND<0.50	ND<1.0	ND<1.0	7.1	7.1	ND<1.0	30.6
	03/24/2014	8.75	0.00	91.99	ND<0.50	ND<1.0	ND<1.0	4.1	4.1	ND<1.0	38.3
	06/09/2014	8.86	0.00	91.88	ND<0.50	ND<1.0	ND<1.0	4.0	4.0	ND<1.0	9.0
	09/12/2014	9.10	0.00	91.64	ND<0.50	ND<1.0	ND<1.0	2.3	2.3	ND<1.0	2.3
	12/08/2014	**9.02**	**0.00**	**91.72**	**ND<0.50**	**ND<1.0**	**ND<1.0**	**1.3**	**1.3**	**ND<1.0**	**1.3**

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Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (ug/L)
MW3	06/19/2004	7.81	0.00	90.97	ND	ND	ND	7,250	7,250	ND	
98.78	10/31/2005	NG	0.00	NG	NS	NS	NS	NS	NS	NS	
	01/30/2006	7.63	0.00	91.15	ND	3.9	220	470	693.9	ND	
4-inch PVC	04/18/2006	7.91	0.00	90.87	ND	9.4	750	3,400	4,159	ND	
Total Depth:	10/02/2006	7.75	0.00	91.03	ND	4.4	390	1,500	1,894	ND	
20'	03/13/2007	7.98	0.00	90.80	ND	17	980	4,500	5,497	ND	
Depth to Screen:	06/25/2007	8.18	0.00	90.60	ND	8.6	780	3,100	3,889	ND	
8.06'	11/30/2007	7.86	0.00	90.92	ND	18	1,200	3,400	4,618	ND	
	02/19/2008	7.71	0.00	91.07	ND	ND	36	61	97	ND	
	05/27/2008	8.11	0.00	90.67	ND	ND	13	22	35	ND	
	08/28/2008	7.97	0.00	90.81	29	97	930	6,500	7,556	ND	
	11/24/2008	8.28	0.00	90.50	5.7	5.0	16.1	240	267	ND	
	02/11/2009	7.73	0.00	91.05	ND	12	307	529	848	ND	
	05/13/2009	8.89	0.00	89.89	ND	ND	333	424	757	ND	
	08/19/2009	7.87	0.00	90.91	ND	10.5	1,520	3,330	4,861	ND	
	11/17/2009	8.19	0.00	90.59	ND	9.3	1,070	2,880	3,959	ND	
	02/23/2010	8.01	0.00	90.77	ND	13.2	1,370	4,940	6,323	ND	
	05/17/2010	7.95	0.00	90.83	ND	9.0	1,070	3,690	4,769	ND	
	09/22/2010	8.17	0.00	90.61	ND	6.6	373	978	1,358	ND	
	12/07/2010	7.79	0.00	90.99	ND	28.9	1,480	3,780	5,289	ND	
	03/16/2011	7.28	0.00	91.50	1.0	12.0	1,000	1,340	2,353	ND<1.0	3,806
	06/22/2011	7.80	0.00	90.98	1.2	10.5	786	1,810	2,608	ND<1.0	3,611
	09/08/2011	7.85	0.00	90.93	ND<10	92.7	1,880	7,360	9,333	ND<20	11,291
99.39	12/01/2011	7.29	0.00	92.10	ND<0.50	26.3	831	5,690	6,547	ND<1.0	8,655
	03/26/2012	7.25	0.00	92.14	ND<5.0	27.0	1,010	6,540	7,577	ND<10	9,405
	06/25/2012	7.66	0.00	91.73	ND<5.0	19.8	1,170	6,740	7,930	ND<10	10,711
	09/11/2012	7.71	0.00	91.68	ND<5.0	ND<10	487	3,560	4,047	ND<10	6,068
	12/13/2012	7.82	0.00	91.57	ND<0.50	5.0	670	4,070	4,745	ND<1.0	6,840
	03/11/2003	7.38	0.00	92.01	ND<0.10	ND<0.20	573	3,560	4,133	ND<2.0	5,394
	06/07/2013	7.29	0.00	92.10	ND<2.0	4.3	1,220	3,760	4,984	ND<4.0	7,058
	09/16/2013	NG	0.00	NG	NSI	NSI	NSI	NSI	NSI	NSI	NSI
	12/13/2013	7.87	0.00	91.52	ND<1.0	ND<2.0	244	973	1,217	ND<2.0	2,098
	03/24/2014	7.50	0.00	91.89	ND<0.50	ND<1.0	123	616	739	ND<1.0	1,181
	06/09/2014	NG	0.00	NG	NSI	NSI	NSI	NSI	NSI	NSI	NSI
	09/12/2014	7.81	0.00	91.58	ND<0.50	ND<1.0	124	339	463	ND<1.0	648
	12/08/2014	**7.70**	**0.00**	**91.69**	**ND<0.50**	**1.2**	**244**	**765**	**1,010**	**ND<1.0**	**1,408**

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MW4	06/19/2004	8.47	0.00	90.93	286	4,630	2,120	8,920	15,956	ND	
99.40	10/31/2005	8.52	0.00	90.88	300	1,600	1,100	8,600	11,600	ND	
	01/30/2006	8.31	0.01	91.10	NSP	NSP	NSP	NSP	NSP	NSP	
4-inch PVC	04/18/2006	8.57	0.00	90.83	390	1,900	1,800	7,900	11,990	ND	
Total Depth:	10/02/2006	8.33	0.02	91.09	NSP	NSP	NSP	NSP	NSP	NSP	
20'	03/13/2007	8.39	0.24	91.20	NSP	NSP	NSP	NSP	NSP	NSP	
Depth to Screen:	06/25/2007	9.00	0.31	90.65	NSP	NSP	NSP	NSP	NSP	NSP	
8.63'	11/30/2007	8.23	0.18	91.31	NSP	NSP	NSP	NSP	NSP	NSP	
	02/19/2008	8.43	0.02	90.99	NSP	NSP	NSP	NSP	NSP	NSP	
	05/27/2008	8.61	0.00	90.79	120	1,300	3,300	16,000	20,720	ND	
	08/28/2008	4.73	0.00	94.67	390	2,600	3,100	14,000	20,090	ND	
	11/24/2008	8.90	0.00	90.50	29.4	640	2,540	10,900	14,109	ND	
	02/11/2009	8.40	0.00	91.00	22.5	275	1,820	5,490	7,608	ND	
	05/13/2009	8.58	0.00	90.82	25.6	212	1,920	4,660	6,818	ND	
	08/19/2009	8.57	0.00	90.83	23.9	372	2,280	6,870	9,546	ND	
	11/17/2009	8.96	0.00	90.44	ND	304	1,060	2,650	4,014	ND	
	02/23/2010	8.83	0.00	90.57	ND	277	984	2,860	4,121	ND	
	05/17/2010	8.60	0.00	90.80	7.9	489	1,180	4,010	5,687	ND	
	09/22/2010	8.80	0.00	90.60	7.6	294	1,220	3,550	5,072	ND	
	12/07/2010	8.53	0.00	90.87	34.6	677	1,510	4,030	6,252	ND	
	03/16/2011	8.03	0.00	91.37	35.0	770	2,600	6,400	9,805	ND<3.0	12,895
	06/22/2011	8.46	0.00	90.94	22.7	766	2,280	5,990	9,059	ND<1.0	12,711
99.45	09/08/2011	8.52	0.00	90.88	29.7	764	1,670	4,980	7,444	ND<10	9,404
100.21	12/01/2011	8.37	0.02	91.84	16.1	801	1,280	9,040	11,137	ND<1.0	17,336
	03/26/2012	8.49	0.00	91.72	ND<10	848	839	8,490	10,177	ND<20	14,201
	06/25/2012	8.63	0.00	91.58	ND<10	915	1,280	8,630	10,825	ND<20	14,593
	09/11/2012	7.85	0.00	92.36	ND<5.0	332	666	5,900	6,898	ND<10	10,806
	12/13/2012	8.64	0.00	91.57	ND<0.50	98.5	54.2	4,970	5,123	ND<1.0	11,286
	03/11/2013	8.40	0.00	91.81	ND<0.25	108.0	403.0	5,510	6,021	ND<50	11,695
	06/07/2013	8.19	0.00	92.02	ND<10	54.4	658.0	7,560	8,272	ND<20	11,326
	09/16/2013	8.64	0.00	91.57	ND<0.50	7.7	167	1,140	1,315	ND<1.0	2,015
	12/13/2013	8.49	0.00	91.72	ND<0.50	1.3	7.4	41.9	50.6	ND<1.0	66.7
	03/24/2014	8.45	0.00	91.76	ND<0.50	4.2	65.4	631	701	ND<1.0	1,077
	06/09/2014	8.42	0.00	91.79	ND<0.50	2.7	27.8	342	373	ND<1.0	584
	09/12/2014	8.79	0.00	91.42	ND<0.50	ND<1.0	15.7	236	252	ND<1.0	468
	12/08/2014	**8.69**	**0.00**	**91.52**	**ND<0.50**	**2.7**	**27.4**	**329**	**359**	**ND<1.0**	**646**

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MW5	06/19/2004	8.64	0.00	90.92	ND	2,940	2,030	7,870	12,840	ND	
99.56	10/31/2005	8.72	0.00	90.84	ND	220	390	670	1,280	ND	
	01/30/2006	8.51	0.00	91.05	10	2,100	1,300	4,700	8,110	ND	
4-inch PVC	04/18/2006	8.72	0.00	90.84	ND	1,200	780	2,700	4,680	ND	
Total Depth:	10/02/2006	8.55	0.00	91.01	2.7	810	650	2,200	3,663	ND	
20'	03/13/2007	8.71	0.00	90.85	ND	1,700	950	4,200	6,850	ND	
Depth to Screen:	06/25/2007	9.38	0.00	90.18	ND	1,200	910	3,200	5,310	ND	
8.58'	11/30/2007	8.70	0.00	90.86	ND	780	970	2,400	4,150	ND	
	02/19/2008	8.63	0.00	90.93	ND	870	390	1,100	2,360	ND	
	05/27/2008	8.85	0.00	90.71	ND	1,900	1,400	4,200	7,500	ND	
	08/28/2008	2.62	0.00	96.94	ND	63	61	200	324	ND	
	11/24/2008	9.02	0.00	90.54	ND	27.6	45.8	104	177.4	ND	
	02/11/2009	8.64	0.00	90.92	ND	614	393	918	1,925	ND	
	05/13/2009	8.72	0.00	90.84	ND	885	1,350	3,740	5,975	ND	
	08/19/2009	8.69	0.00	90.87	ND	1,750	1,560	3,970	7,280	ND	
	11/17/2009	9.01	0.00	90.55	ND	2,390	1,360	4,570	8,320	ND	
	02/23/2010	8.90	0.00	90.66	ND	2,300	1,550	5,810	9,660	ND	
	05/17/2010	8.72	0.00	90.84	ND	1,260	1,080	3,840	6,180	ND	
	09/22/2010	8.97	0.00	90.59	ND	1,100	322	944	2,366	ND	
	12/07/2010	8.60	0.00	90.96	ND	1,440	1,250	4,110	6,800	ND	
	03/16/2011	8.19	0.00	91.37	ND<1.0	1,200	1,100	3,280	5,580	ND<1.0	6,722
	06/22/2011	8.63	0.00	90.93	0.9	1,490	1,300	3,930	6,721	ND<1.0	8,421
	09/08/2011	8.64	0.00	90.92	ND<2.5	781	820	1,950	3,551	ND<5.0	4,538
100.32	12/01/2011	8.58	0.00	91.74	0.7	659	833	2,330	3,823	ND<1.0	5,122
	03/26/2012	8.70	0.00	91.62	ND<2.5	556	851	1,860	3,267	ND<5.0	4,154
	06/25/2012	8.80	0.00	91.52	ND<5.0	623	860	2,420	3,903	ND<10	5,051
	09/11/2012	8.71	0.00	91.61	ND<5.0	189	569	1,850	2,608	ND<10	3,731
	12/13/2012	8.82	0.00	91.50	ND<0.50	546	605	1,170	2,321	ND<1.0	2,970
	03/11/2013	8.68	0.00	91.64	ND<0.50	491	535	1,170	2,196	ND<10	2,942
	06/07/2013	8.46	0.00	91.86	ND<2.0	719	1,090	1,460	3,269	ND<4.0	4,532
	09/16/2013	8.83	0.00	91.49	ND<0.50	590	808	1,280	2,678	ND<1.0	3,865
	12/13/2013	8.78	0.00	91.54	ND<2.5	543	944	1,200	2,687	ND<5.0	3,980
	03/24/2014	8.62	0.00	91.70	ND<0.50	55.2	150	135	340	ND<1.0	751
	06/09/2014	8.59	0.00	91.73	ND<0.50	59.7	113	110	283	ND<1.0	394
	09/12/2014	8.85	0.00	91.47	ND<0.50	253	620	675	1,548	ND<1.0	2,337
	12/08/2014	**8.78**	**0.00**	**91.54**	**ND<1.0**	**210**	**638**	**725**	**1,573**	**ND<2.0**	**2,251**

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
181 Delaware Avenue
Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (µg/L)
MW6	06/19/2004	9.19	0.00	90.81	ND	4,080	1,750	7,740	13,570	ND	
100.00	10/31/2005	9.31	0.00	90.69	ND	2,600	1,300	5,800	9,700	ND	
	01/30/2006	9.03	0.00	90.97	ND	4,400	1,200	5,500	11,100	ND	
4-inch PVC	04/18/2006	9.31	0.00	90.69	80	2,400	740	3,500	6,720	18	
Total Depth:	10/02/2006	9.14	0.00	90.86	4.0	4,500	1,300	5,500	11,304	ND	
20'	03/13/2007	9.27	0.00	90.73	ND	3,900	980	4,900	9,780	ND	
Depth to Screen:	06/25/2007	10.47	0.00	89.53	ND	3,500	830	3,800	8,130	ND	
8.68'	11/30/2007	9.23	0.00	90.77	ND	1,200	260	1,700	3,160	ND	
	02/19/2008	9.21	0.00	90.79	ND	1,300	190	980	2,470	ND	
	05/27/2008	9.39	0.00	90.61	ND	1,200	390	2,200	3,790	ND	
	08/28/2008	7.79	0.00	92.21	ND	190	110	360	660	ND	
	11/24/2008	9.55	0.00	90.45	ND	6.0	ND	69.5	75.5	ND	
	02/11/2009	9.22	0.00	90.78	ND	1,110	652	2,340	4,102	ND	
	05/13/2009	9.27	0.00	90.73	ND	2,430	1,460	5,840	9,730	ND	
	08/19/2009	9.24	0.00	90.76	ND	1,930	1,030	3,940	6,900	ND	
	11/17/2009	9.45	0.00	90.55	ND	2,760	1,120	4,900	8,780	ND	
	02/23/2010	9.42	0.00	90.58	ND	3,870	1,720	8,070	13,660	ND	
	05/17/2010	9.21	0.00	90.79	ND	2,020	749	3,570	6,339	ND	
	09/22/2010	9.48	0.00	90.52	ND	1,550	276	1,070	2,896	ND	
	12/07/2010	9.18	0.00	90.82	ND	1,760	764	3,380	5,904	ND	
	03/16/2011	8.81	0.00	91.19	ND<3.0	2,300	850	3,900	7,050	ND<3.0	8,282
	06/22/2011	9.17	0.00	90.83	ND<0.50	1,160	785	3,050	4,995	ND<1.0	6,446
100.03	09/08/2011	9.19	0.00	90.84	ND<2.5	790	593	2,140	3,523	ND<5.0	4,169
100.69	12/01/2011	8.98	0.00	91.71	ND<0.50	912	143	4,360	5,415	ND<1.0	6,592
	03/26/2012	9.10	0.00	91.59	ND<2.5	170	44	3,000	3,214	ND<5.0	3,976
	06/25/2012	9.19	0.00	91.50	ND<5.0	447	62	3,750	4,259	ND<10	5,147
	09/11/2012	9.14	0.00	91.55	ND<5.0	362	28.1	2,410	2,800	ND<10	3,363
	12/13/2012	9.19	0.00	91.50	ND<0.50	395	27.2	3,140	3,562	ND<1.0	4,355
	03/11/2013	9.03	0.00	91.66	ND<0.50	384	18.4	3,330	3,732	ND<10	4,476
	06/07/2013	8.83	0.00	91.86	ND<0.50	40.5	20.4	573	634	ND<1.0	831
	09/16/2013	9.20	0.00	91.49	ND<0.50	34.2	31.7	385	451	ND<1.0	672
	12/13/2013	9.22	0.00	91.47	ND<1.0	52.4	9.6	905	967	ND<2.0	1,151
	03/24/2014	8.74	0.00	91.95	ND<0.50	32.7	2.7	405	440	ND<1.0	509
	06/09/2014	9.10	0.00	91.59	ND<0.50	101.0	14.0	1,560	1,675	ND<1.0	2,017
	09/12/2014	9.32	0.00	91.37	ND<0.50	22.3	6.2	642	671	ND<1.0	872
	12/08/2014	**9.28**	**0.00**	**91.41**	**ND<0.50**	**1.6**	**1.3**	**49.4**	**52.3**	**ND<1.0**	**61.8**

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
181 Delaware Avenue
Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (µg/L)
MW7	06/19/2004	7.98	0.00	90.79	648	3,100	2,320	10,450	16,518	ND	
98.77	10/31/2005	8.11	0.00	90.66	710	2,400	1,300	7,800	12,210	ND	
	01/30/2006	7.85	0.00	90.92	870	4,200	2,500	13,000	20,570	ND	
4-inch PVC	04/18/2006	8.07	0.00	90.70	910	4,800	2,400	13,000	21,110	ND	
Total Depth:	10/02/2006	7.91	0.00	90.86	560	3,900	2,100	9,500	16,060	ND	
20'	03/13/2007	NG-i	0.00	NG-i	NSI	NSI	NSI	NSI	NSI	NSI	
Depth to Screen:	06/25/2007	8.29	0.00	90.48	ND	ND	ND	ND	ND	ND	
8.58'	11/30/2007	8.02	0.00	90.75	160	2,500	1,500	8,700	12,860	ND	
	02/19/2008	8.04	0.00	90.73	200	3,300	1,700	8,300	13,500	ND	
	05/27/2008	8.18	0.00	90.59	22	190	360	1,900	2,472	ND	
	08/28/2008	7.49	0.00	91.28	ND	310	180	610	1,100	ND	
	11/24/2008	8.79	0.00	89.98	48.9	2,130	365	8,350	10,894	ND	
	02/11/2009	8.45	0.00	90.32	36.1	1,070	823	3,650	5,579	ND	
	05/13/2009	8.50	0.00	90.27	71.8	1,450	2,350	10,000	13,872	ND	
	08/19/2009	8.47	0.00	90.30	57.3	1,950	2,590	13,600	18,197	ND	
	11/17/2009	8.76	0.00	90.01	38.1	2,150	1,920	9,010	13,118	ND	
	02/23/2010	NG-i	0.00	NG-i	NSI	NSI	NSI	NSI	NSI	NSI	
	05/17/2010	8.48	0.00	90.29	23.4	2,240	1,960	9,570	13,793	ND	
	09/22/2010	NG-i	0.00	NG-i	NSI	NSI	NSI	NSI	NSI	NSI	
	12/07/2010	8.41	0.00	90.36	18.9	2,820	1,890	9,990	14,719	ND	
	03/16/2011	7.96	0.00	90.81	12	2,200	1,800	9,500	13,512	ND<3.0	15,362
	06/22/2011	8.36	0.00	90.41	11.9	2,290	1,830	9,840	13,972	ND<1.0	16,421
99.17	09/08/2011	8.40	0.00	90.77	51.1	2,930	2,200	10,600	15,781	ND<20	17,569
99.96	12/01/2011	8.32	0.00	91.64	2.2	568	208	10,400	11,178	ND<1.0	13,459
	03/26/2012	8.43	0.00	91.53	ND<5.0	132	60.2	6,740	6,932	ND<10	8,435
	06/25/2012	8.52	0.00	91.44	ND<5.0	60.6	21.8	5,810	5,892	ND<10	7,163
	09/11/2012	8.53	0.00	91.43	ND<5.0	40.1	54.9	2,660	2,755	ND<10	3,669
	12/13/2012	8.65	0.00	91.31	ND<0.50	4.1	20.5	645	669.6	ND<1.0	1,002
	03/11/2013	8.31	0.00	91.65	ND<0.50	2.3	10.0	578	590.3	ND<1.0	951
	06/07/2013	8.17	0.00	91.79	ND<0.50	11.0	14.7	624	649.7	ND<1.0	1,081
	09/16/2013	8.76	0.00	91.20	ND<0.50	6.5	7.9	61.8	76.2	ND<1.0	139.2
	12/13/2013	8.53	0.00	91.43	ND<0.50	4.2	2.9	15.2	22.3	ND<1.0	37.8
	03/24/2014	8.42	0.00	91.54	ND<0.50	ND<1.0	ND<1.0	13.9	13.9	ND<1.0	56.8
	06/09/2014	8.37	0.00	91.59	ND<0.50	9.0	5.6	135	150	ND<1.0	589
	09/12/2014	8.64	0.00	91.32	ND<0.50	7.0	6.6	23	36	ND<1.0	61
	12/08/2014	**8.56**	**0.00**	**91.40**	**ND<0.50**	**ND<1.0**	**ND<1.0**	**2.0**	**2.0**	**ND<1.0**	**7.5**

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
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Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (µg/L)
MW8	06/19/2004	NG	0.00	NG	NS	NS	NS	NS	NS	NS	
101.51	10/31/2005	10.79	0.00	90.72	ND	33	29	300	362	ND	
	01/30/2006	10.61	0.00	90.9	ND	1.3	3.2	130	134.5	ND	
2-inch PVC	04/18/2006	10.81	0.00	90.7	ND	ND	12	67	79	11	
Total Depth:	10/02/2006	10.70	0.00	90.81	ND	ND	4.6	52	56.6	ND	
25'	03/13/2007	10.78	0.00	90.73	ND	ND	ND	5.2	5.2	ND	
Depth to Screen:	06/25/2007	10.91	0.00	90.6	ND	ND	ND	ND	ND	ND	
NA	11/30/2007	10.12	0.00	91.39	ND	ND	ND	ND	ND	ND	
	02/19/2008	10.72	0.00	90.79	ND	ND	ND	ND	ND	ND	
	05/27/2008	9.87	0.00	91.64	ND	ND	ND	ND	ND	ND	
	08/28/2008	10.56	0.00	90.95	ND	ND	ND	ND	ND	ND	
	11/24/2008	11.24	0.00	90.27	ND	ND	ND	ND	ND	ND	
	02/11/2009	10.49	0.00	91.02	ND	ND	ND	ND	ND	ND	
	05/13/2009	11.02	0.00	90.49	ND	ND	ND	ND	ND	ND	
	08/19/2009	10.98	0.00	90.53	ND	ND	ND	ND	ND	ND	
	11/17/2009	11.20	0.00	90.31	ND	ND	ND	ND	ND	ND	
	02/23/2010	11.13	0.00	90.38	ND	ND	ND	5.7	5.7	ND	
	05/17/2010	11.05	0.00	90.46	ND	ND	ND	ND	ND	ND	
	09/22/2010	11.18	0.00	90.33	ND	ND	ND	ND	ND	ND	
	12/07/2010	10.30	0.00	91.21	ND	ND	ND	ND	ND	ND	
	03/16/2011	10.07	0.00	91.44	ND<0.5	ND<1.0	ND<0.8	ND<1.6	ND	ND<0.5	45
	06/22/2011	10.35	0.00	91.16	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND	ND<1.0	16.7
	09/08/2011	10.34	0.00	91.17	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND	ND<1.0	38.7
	12/01/2011	No Access									
	03/26/2012										
	06/25/2012										

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
181 Delaware Avenue
Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (µg/L)
MW9	06/19/2004	NG	0.00	NG	NS	NS	NS	NS	NS	NS	
100.84	10/31/2005	10.16	0.00	90.68	0.74	2.3	5.4	19	27.4	ND	
	01/30/2006	10.00	0.00	90.84	ND	ND	140	390	530	ND	
4-inch PVC	04/18/2006	10.19	0.00	90.65	30	ND	170	990	1,190	ND	
Total Depth:	10/02/2006	10.05	0.00	90.79	ND	ND	100	170	270	ND	
20'	03/13/2007	10.16	0.00	90.68	ND	ND	54	150	204	ND	
Depth to Screen:	06/25/2007	10.33	0.00	90.51	ND	ND	9.9	20	29.9	ND	
NA	11/30/2007	NG	0.00	NG	NS	NS	NS	NS	NS	NS	
	02/19/2008	10.11	0.00	90.73	ND	ND	130	190	320	ND	
	05/27/2008	10.25	0.00	90.59	ND	ND	89	330	419	ND	
	08/28/2008	7.92	0.00	92.92	ND	ND	330	470	800	ND	
	11/24/2008	10.56	0.00	90.28	ND	ND	ND	ND	ND	ND	
	02/11/2009	9.99	0.00	90.85	ND	ND	79.5	17.1	96.6	ND	
	05/13/2009	10.02	0.00	90.82	ND	ND	19.4	77.4	96.8	ND	
	08/19/2009	10.00	0.00	90.84	ND	ND	13.6	104	117.6	ND	
	11/17/2009	10.19	0.00	90.65	ND	ND	22.9	64.1	87.0	ND	
	02/23/2010	10.15	0.00	90.69	ND	ND	24.5	110	134.5	ND	
	05/17/2010	10.03	0.00	90.81	ND	ND	65.3	298	363.3	ND	
	09/22/2010	10.21	0.00	90.63	ND	ND	12.3	55.9	68.2	ND	
	12/07/2010	9.93	0.00	90.91	ND	ND	ND	33.1	33.1	ND	
	03/16/2011	9.58	0.00	91.26	ND<0.5	ND<0.7	1	41	42	ND<0.5	56
	06/22/2011	9.91	0.00	90.93	ND<0.50	ND<1.0	64.6	286	351	ND<1.0	541.6
	09/08/2011	9.91	0.00	90.93	ND<1.0	ND<2.0	82.1	393	475	ND<2.0	1095.8
	12/01/2011	No Access									
	03/26/2012										
	06/25/2012										

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
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Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (ug/L)
MW10	06/19/2004	NG	0.00	NG	NS	NS	NS	NS	NS	NS	
98.87	10/31/2005	8.31	0.00	90.56	27	60	46	160	293	ND	
	01/30/2006	8.03	0.00	90.84	190	60	120	370	740	ND	
4-inch PVC	04/18/2006	8.30	0.00	90.57	45	28	130	470	673	ND	
Total Depth:	10/02/2006	8.11	0.00	90.76	93	26	34	180	333	ND	
18'	03/13/2007	8.26	0.00	90.61	65	7.3	23	28	123.3	ND	
Depth to Screen:	06/25/2007	7.58	0.00	91.29	220	110	130	160	620	ND	
NA	11/30/2007	8.25	0.00	90.62	170	87	200	2,100	2,557	ND	
	02/19/2008	8.18	0.00	90.69	280	45	100	590	1,015	ND	
	05/27/2008	8.40	0.00	90.47	160	20	31	300	511	ND	
	08/28/2008	7.82	0.00	91.05	490	190	350	700	1,730	ND	
	11/24/2008	8.45	0.00	90.42	28.4	27.1	31.5	199	286	ND	
	02/11/2009	8.15	0.00	90.72	74.7	188	800	700	1,763	ND	
	05/13/2009	8.17	0.00	90.7	186	163	1,100	1,060	2,509	ND	
	08/19/2009	8.14	0.00	90.73	285	181	395	941	1,802	ND	
	11/17/2009	8.45	0.00	90.42	131	59.1	242	378	810	ND	
	02/23/2010	8.31	0.00	90.56	82.9	127	298	758	1,266	ND	
	05/17/2010	8.21	0.00	90.66	92.2	197	480	1,090	1,859	ND	
	09/22/2010	8.41	0.00	90.46	17.6	44.3	185	408	654.9	ND	
	12/07/2010	8.09	0.00	90.78	11.4	141	423	1,280	1,855	ND	
	03/16/2011	7.61	0.00	91.26	5	42	94	368	509	ND<0.5	574
	06/22/2011	8.01	0.00	90.86	33.3	68.2	540	651	1,293	ND<1.0	1,512.3
	09/08/2011	8.08	0.00	90.79	70.9	53.7	563	520	1,208	ND<2.0	1,431.8
	12/01/2011	No Access									
	03/26/2012										
	06/25/2012	8.22	0.00	90.65	2.8	26.6	315	329	670.6	ND<1.0	482
99.60	09/11/2012	8.24	0.00	91.36	1.3	51.2	564	449	1,064	ND<1.0	1424
	12/13/2012	8.26	0.00	91.34	0.85	44.1	250	316	611.0	ND<1.0	703
	03/11/2013	8.10	0.00	91.50	ND<0.5	39.1	196	285	520.1	ND<1.0	628
	06/07/2013	7.89	0.00	91.71	ND<.50	33.9	146	250	429.9	ND<1.0	583
	09/16/2013	8.22	0.00	91.38	2.8	179	145	624	951	ND<1.0	1,092
	12/13/2013	8.30	0.00	91.30	2.6	81.1	90.2	381	555	ND<1.0	609
	03/24/2014	8.10	0.00	91.50	0.89	117	112	484	714	ND<1.0	760
	06/09/2014	8.13	0.00	91.47	0.55	51.2	93.8	187	333	ND<1.0	367
	09/12/2014	8.32	0.00	91.28	0.94	12.8	139	177	330	ND<1.0	384
	12/08/2014	**8.28**	**0.00**	**91.32**	**0.58**	**10.5**	**88.7**	**107**	**207**	**ND<1.0**	**241**

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
181 Delaware Avenue
Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (ug/L)
MW11	04/18/2006	8.51	0.00	90.94	540	2,500	2,100	9,800	14,940	ND	
99.45	10/02/2006	8.38	0.00	91.07	340	3,600	2,700	10,000	16,640	ND	
	03/13/2007	8.52	0.00	90.93	200	1,600	1,800	7,500	11,100	ND	
4-inch PVC	06/25/2007	8.73	0.00	90.72	190	1,100	2,400	9,600	13,290	ND	
Total Depth:	11/30/2007	NG	0.00	NG	NS	NS	NS	NS	NS	NS	
19.3	02/19/2008	8.56	0.00	90.89	490	290	1,600	5,200	7,580	ND	
Depth to Screen:	05/27/2008	8.70	0.00	90.75	640	1500	2,400	5,900	10,440	ND	
3.08'	08/28/2008	4.00	0.00	95.45	370	1,400	2,900	11,000	15,670	ND	
	11/24/2008	8.58	0.00	90.87	115	1,020	2,020	11,600	14,755	ND	
	02/11/2009	8.15	0.00	91.3	138	324	1,870	6,480	8,812	ND	
	05/13/2009	8.24	0.00	91.21	134	310	903	2,980	4,327	ND	
	08/19/2009	8.19	0.00	91.26	222	1,090	1,820	7,270	10,402	ND	
	11/17/2009	8.46	0.00	90.99	111	295	521	1,900	2,827	ND	
	02/23/2010	8.32	0.00	91.13	66.9	239	369	2,210	2,885	ND	
	05/17/2010	8.24	0.00	91.21	104	514	834	2,780	4,232	ND	
	09/22/2010	8.60	0.00	90.85	52.8	157	256	891	1,357	ND	
	12/07/2010	8.11	0.00	91.34	133	499	619	2,350	3,601	ND	
	03/16/2011	7.67	0.00	91.78	220	1,100	800	3,210	5,330	ND<1.0	6,901
	06/22/2011	8.12	0.00	91.33	66.1	405	588	3,970	5,029	ND<1.0	6,754
98.94	09/08/2011	8.01	0.00	90.93	10.4	32	50	1,610	1,702	ND<2.0	2,485
99.85	12/01/2011	8.03	0.00	91.82	2.9	13	152	333	500.9	ND<1.0	887.4
	03/26/2012	8.10	0.00	91.75	2.9	8.4	30.4	173	214.7	ND<10	278.3
	06/25/2012	8.29	0.00	91.56	1.1	10.8	67.8	262	341.7	ND<1.0	496.2
	09/11/2012	8.30	0.00	91.55	0.80	7.5	97.1	186	291.7	ND<1.0	494.7
	12/13/2012	8.33	0.00	91.52	ND<0.50	6.3	45.7	152	204	ND<1.0	289.8
	03/11/2013	8.06	0.00	91.79	ND<0.50	3.7	15.5	57	76	ND<1.0	121.0
	06/07/2013	7.87	0.00	91.98	0.95	10.0	39.1	103	153	ND<1.0	207.9
	09/16/2013	8.95	0.00	90.90	ND<0.50	6.2	13.9	71.6	91.7	ND<1.0	238
	12/13/2013	8.33	0.00	91.52	ND<0.50	ND<1.0	ND<1.0	8.9	8.9	ND<1.0	17.3
	03/24/2014	8.04	0.00	91.81	ND<0.50	1.5	ND<1.0	13.7	15.2	ND<1.0	15.2
	06/09/2014	8.18	0.00	91.67	ND<0.50	1.6	1.2	14.7	17.5	ND<1.0	17.5
	09/12/2014	8.39	0.00	91.46	ND<0.50	2.0	20.6	15.5	38.1	ND<1.0	48.4
	12/08/2014	**8.30**	**0.00**	**91.55**	**0.62**	**7.4**	**8.1**	**54.5**	**70.6**	**ND<1.0**	**75.9**

Table 1

Historical Groundwater Data Summary
Former Sunoco Station
181 Delaware Avenue
Buffalo, New York

Well ID# and Casing Elevation (ft)	Date	Depth to Water (ft)	LNAPL Thickness (ft)	GW Elevation (ft)	Benzene (ug/L)	Toluene (ug/L)	EthylBenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)	STARS VOCS (µg/L)
MW12	05/17/2010	8.90	0.00	90.45	ND	2,110	1,370	5,500	8,980	ND	
99.35	09/22/2010	9.10	0.00	90.25	ND	1,460	1,070	4,030	6,560	ND	
4-inch PVC	12/07/2010	8.81	0.00	90.54	ND	2,080	1,340	5,740	9,160	ND	
Total Depth: 20'	03/16/2011	8.34	0.00	91.01	3	1,800	1,200	5,480	8,483	ND<3.0	10,367
Depth to Screen:	06/22/2011	8.78	0.00	90.57	2.3	1,640	1,150	4,780	7,572	ND<1.0	9,546.2
3.83'	09/08/2011	8.81	0.00	90.96	ND<5.0	1,620	1,230	4,270	7,120	ND<10	8,533.8
99.77	12/01/2011	8.83	0.00	91.83	2.1	997	501	3,630	5,130	ND<1.0	6,702.2
100.66	03/26/2012	8.95	0.00	91.71	ND<5.0	817	728	2,470	4,015	ND<10	5,239.3
	06/25/2012	9.08	0.00	91.58	ND<5.0	856	654	3,460	4,970	ND	6,402
	09/11/2012	8.94	0.00	91.72	ND<5.0	935	672	2,760	4,367	ND<10	5,714.2
	12/13/2012	9.19	0.00	91.47	0.71	814	796	2,420	4,031	ND<1.0	5,601.7
	03/11/2013	8.76	0.00	91.90	ND<5.0	715	677	2,350	3,742	ND<10	5,176.4
	06/07/2013	8.73	0.00	91.93	ND<2.5	1,210	1,100	3,760	6,070	ND<5.0	8,051.3
	09/16/2013	9.12	0.00	91.54	0.77	961	766	2,140	3,868	ND<1.0	5,165
	12/13/2013	9.19	0.00	91.47	ND<2.5	427	43.2	2,300	2,770	ND<5.0	3,451
	03/24/2014	8.91	0.00	91.75	ND<2.5	968	157	2,360	3,485	ND<5.0	4,406
	06/09/2014	9.02	0.00	91.64	ND<2.5	718	310	778	1,806	ND<5.0	2,200
	09/12/2014	9.21	0.00	91.45	ND<1.3	898	650	1,400	2,948	ND<2.5	3,807
	12/08/2014	**9.14**	**0.00**	**91.52**	**ND<0.50**	**487**	**378**	**1,110**	**1,975**	**ND<1.0**	**2,666**

Notes:

ND = Compound not detected.

NG = Not gauged.

NS = Not sampled.

NSI = Not sampled, well inaccessible.

NSP = Not sampled due to product.

CNS = Well casing not surveyed

Data from off-site monitoring wells has been removed from the sampling program and these tables but is available on file at METI.

Figure 4

SOIL VOC CONCENTRATIONS

March 2011

FORMER SUNOCO STATION
181 DELAWARE AVENUE
BUFFALO, NY
prepared for
SUNOCO, INC. (R&M)
SYRACUSE, NY

SCALE
1" = 30'

0 30

DRAWN BY	HALP	6/17/11
REVISED BY		
MODIFIED BY		
REVISED BY		

PROJECT NUMBER 10-043

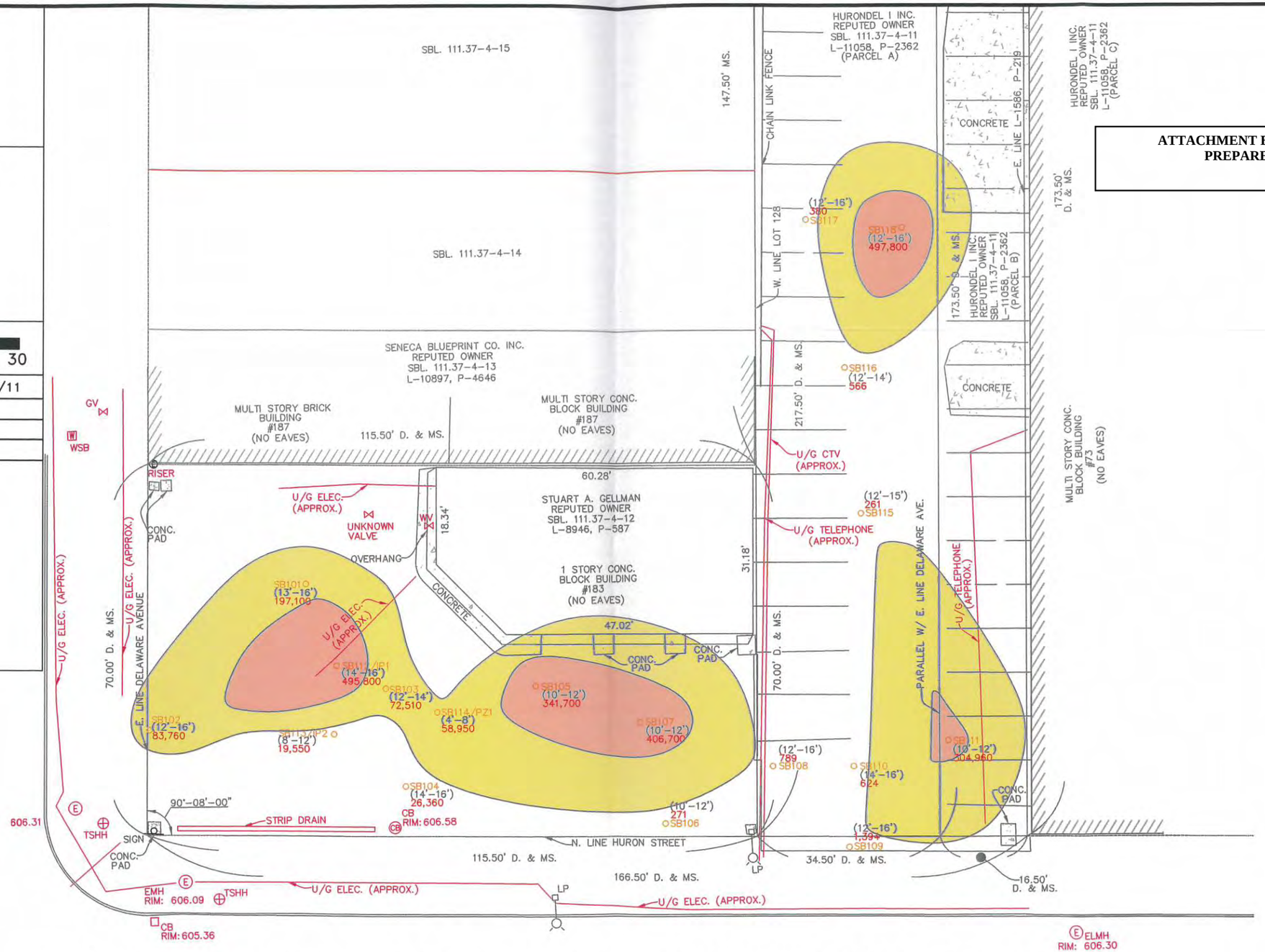
LEGEND

SB103O – Approximate soil boring location
(13'–16') – Soil sample depth
271 – Total VOC concentration (ppb)

– Total VOCs >250,000 ppb

– Total VOCs >50,000 ppb

ND = Not Detected



survey, "Boundary and Topographic Survey, 183 Delaware Avenue, Buffalo, New York", prepared by TVGA Consultants and dated May
Locations of some historical points (denoted TP, B, EP, and SB above) are estimated based on the Site Map provided by
er and Environmental Services, Inc. on February 17, 2011. All elements are provided for reference and should not be used unless
uthorized by Matrix Environmental Technologies Inc.
Soil boring locations are approximate and are based on field ties and partial survey information.

ATTACHMENT B-5: GW PLUME MAPS PREPARED BY MATRIX

MATRIX
Environmental Technologies

Figure 2

GROUNDWATER VOC CONCENTRATIONS

June 22, 2011

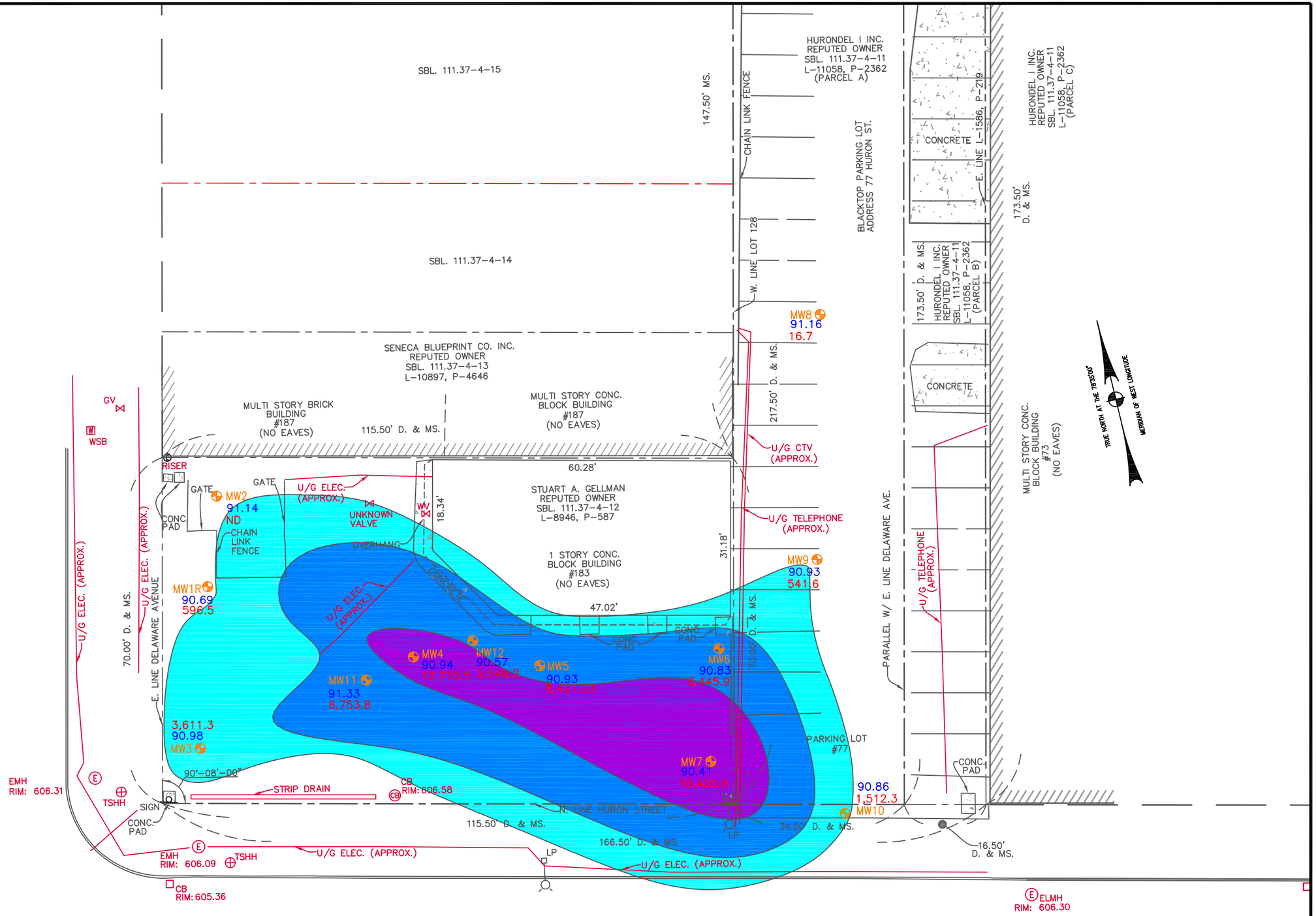
FORMER SUNOCO STATION
181 DELAWARE AVENUE
BUFFALO, NY
prepared for
SUNOCO, INC. (R&M)
SYRACUSE, NY

SCALE 1" = 20'	0 — 20	
DRAWN BY	HALP	2/24/11
REVISED BY		
MODIFIED BY		
REVISED BY	HALP	6/22/11

PROJECT NUMBER 10-043

LEGEND

- MW10 – Monitoring Well (2004–2010)
- 90.99 – Groundwater Elevation
- 13,099 – Total VOC Concentration (ppb)
- – Total VOC >10,000 ppb
- – Total VOC >5,000 ppb
- – Total VOC >1,000 ppb

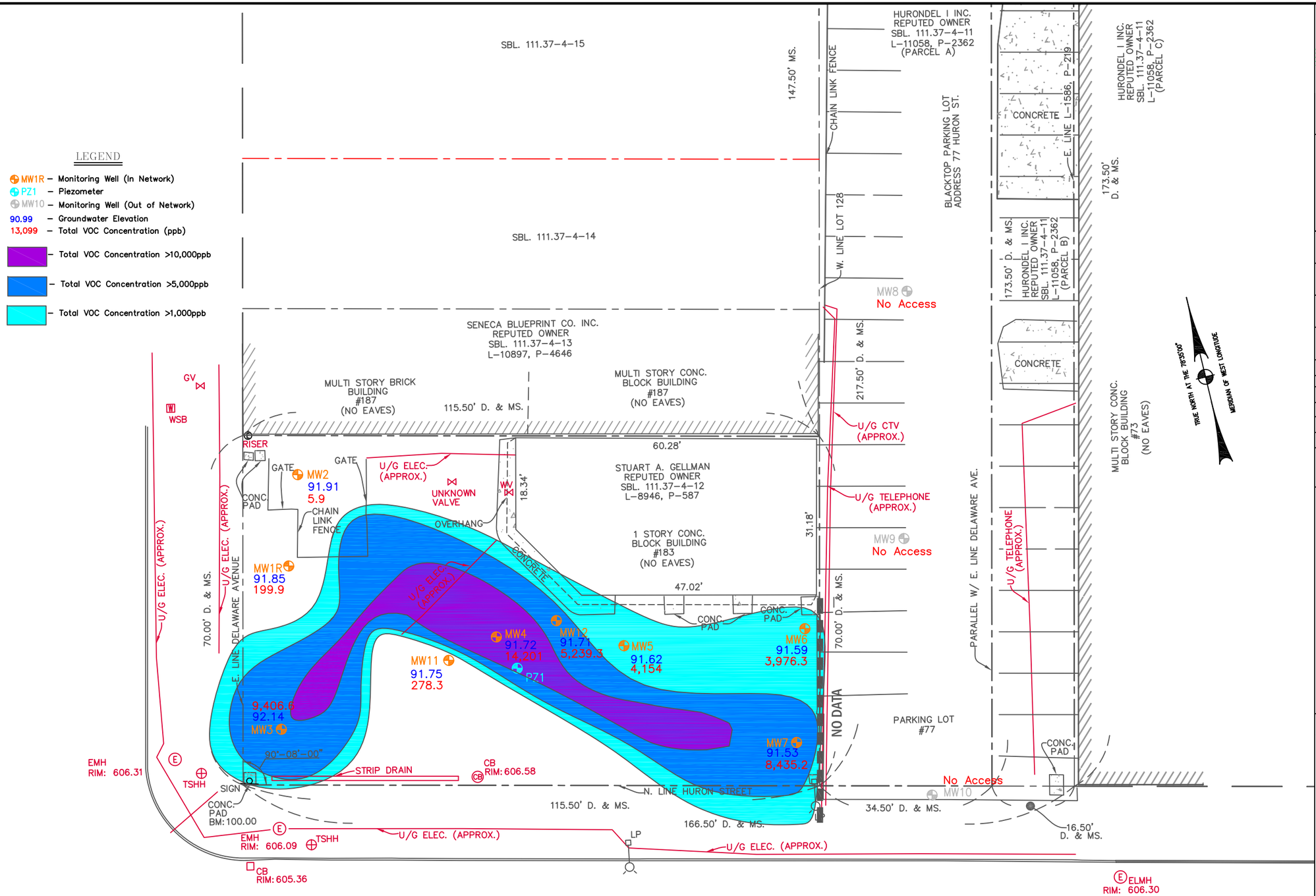


Note: Site survey, "Boundary and Topographic Survey, 183 Delaware Avenue, Buffalo, New York", prepared by TVGA Consultants and dated May 16, 2011. Locations of some historical points (denoted TP, B, EP, and SB above) are estimated based on the Site Map provided by Groundwater and Environmental Services, Inc. on February 17, 2011. All elements are provided for reference and should not be used unless explicitly authorized by Matrix Environmental Technologies Inc.

MATRIX
Environmental Technologies

LEGEND

- MW1R – Monitoring Well (In Network)
- PZ1 – Piezometer
- MW10 – Monitoring Well (Out of Network)
- 90.99 – Groundwater Elevation
- 13,099 – Total VOC Concentration (ppb)
- – Total VOC Concentration >10,000ppb
- – Total VOC Concentration >5,000ppb
- – Total VOC Concentration >1,000ppb



Note: Site survey, "Boundary and Topographic Survey, 183 Delaware Avenue, Buffalo, New York", prepared by TVGA Consultants and dated May 16, 2011. All elements are provided for reference and should not be used unless explicitly authorized by Matrix Environmental Technologies Inc.

PREPARED BY:

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.
3730 California Road
P.O. Box 427
Orchard Park, NY 14127-0427
p:716.662.0745
www.matrixbiotech.com

PREPARED FOR:

SUNOCO, INC. (R&M)
SYRACUSE, NY

PROJECT MGR: SLM

DESIGNED BY: HLP

REVIEWED BY: SLM

DRAWN BY: HLP

REVISION

DATE	BY
2/24/11	HLP
12/20/11	HLP

SCALE IN FEET: 1"=20'

0 20

PROJECT NAME / LOCATION

FORMER SUNOCO STATION
181 DELAWARE AVENUE
BUFFALO, NY

TITLE

GROUNDWATER VOC CONCENTRATIONS

DATE: March 26, 2012

PROJECT NO.: 10-043

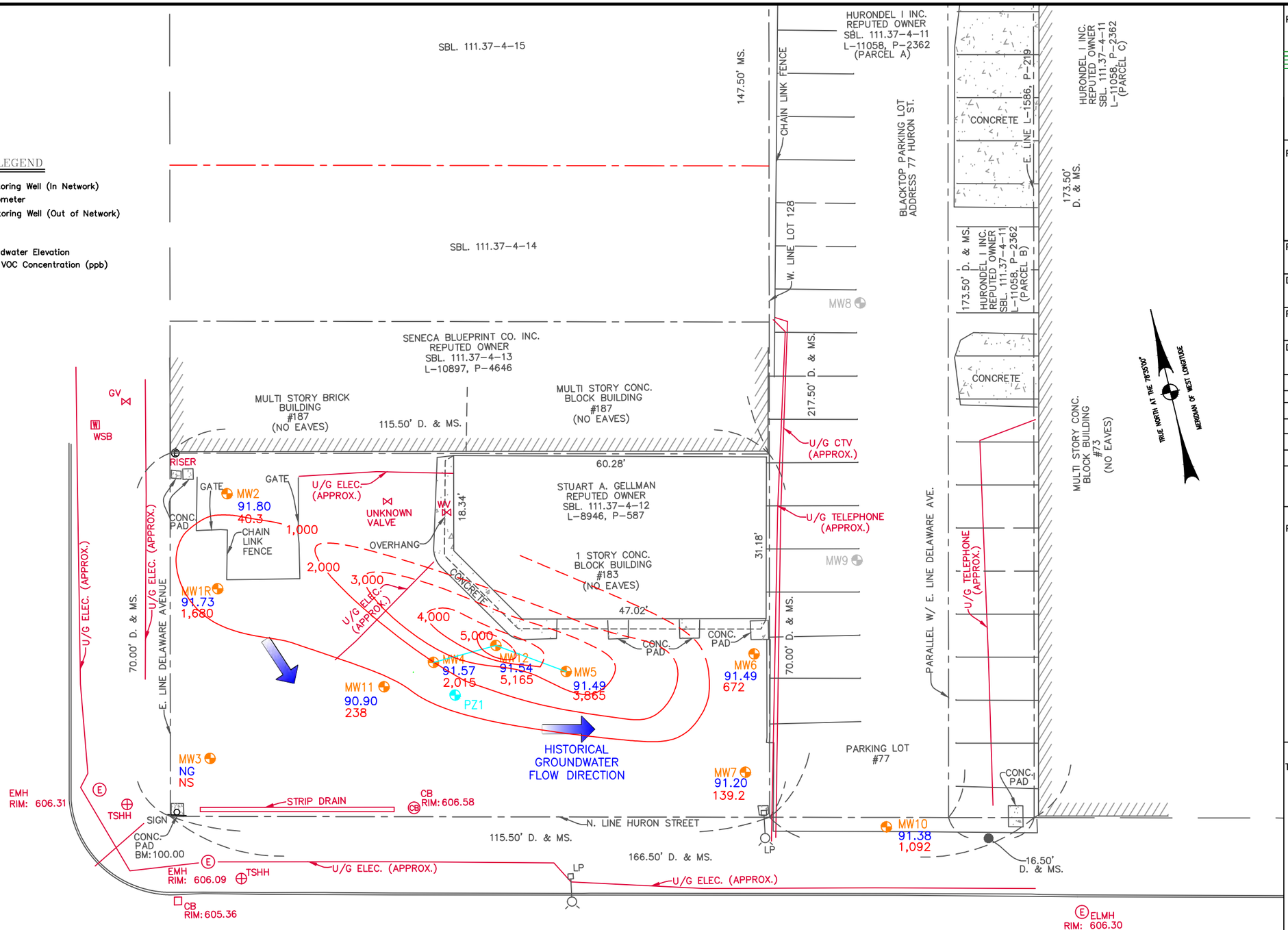
FIGURE: 2

20 years dedicated to a CLEANER ENVIRONMENT 1991-2011

LEGEND

MW1R – Monitoring Well (In Network)
PZ1 – Piezometer
MW10 – Monitoring Well (Out of Network)

90.99 – Groundwater Elevation
13,099 – Total VOC Concentration (ppb)



Note: Site survey, "Boundary and Topographic Survey, 183 Delaware Avenue, Buffalo, New York", prepared by TVGA Consultants and dated May 16, 2011. Unless specifically stated in writing, this drawing and the data presented is proprietary and the sole property of Matrix Environmental Technologies Inc (METI) and is for the expressed use of its client, or their designated representative, for the specific project/location identified on the drawing. All data and locations are for reference only and are not a guarantee of site conditions. This drawing may not be transferred, copied, or altered in any way, other than specified on the drawing, without written permission from METI. Any violation of this declaration will be at the user's risk entirely and without any risk or liability to METI.

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PREPARED FOR:
SUNOCO, INC. (R&M)
SYRACUSE, NY

PROJECT MGR: SLM
DESIGNED BY: HAA
REVIEWED BY: SLM
DRAWN BY: HAA

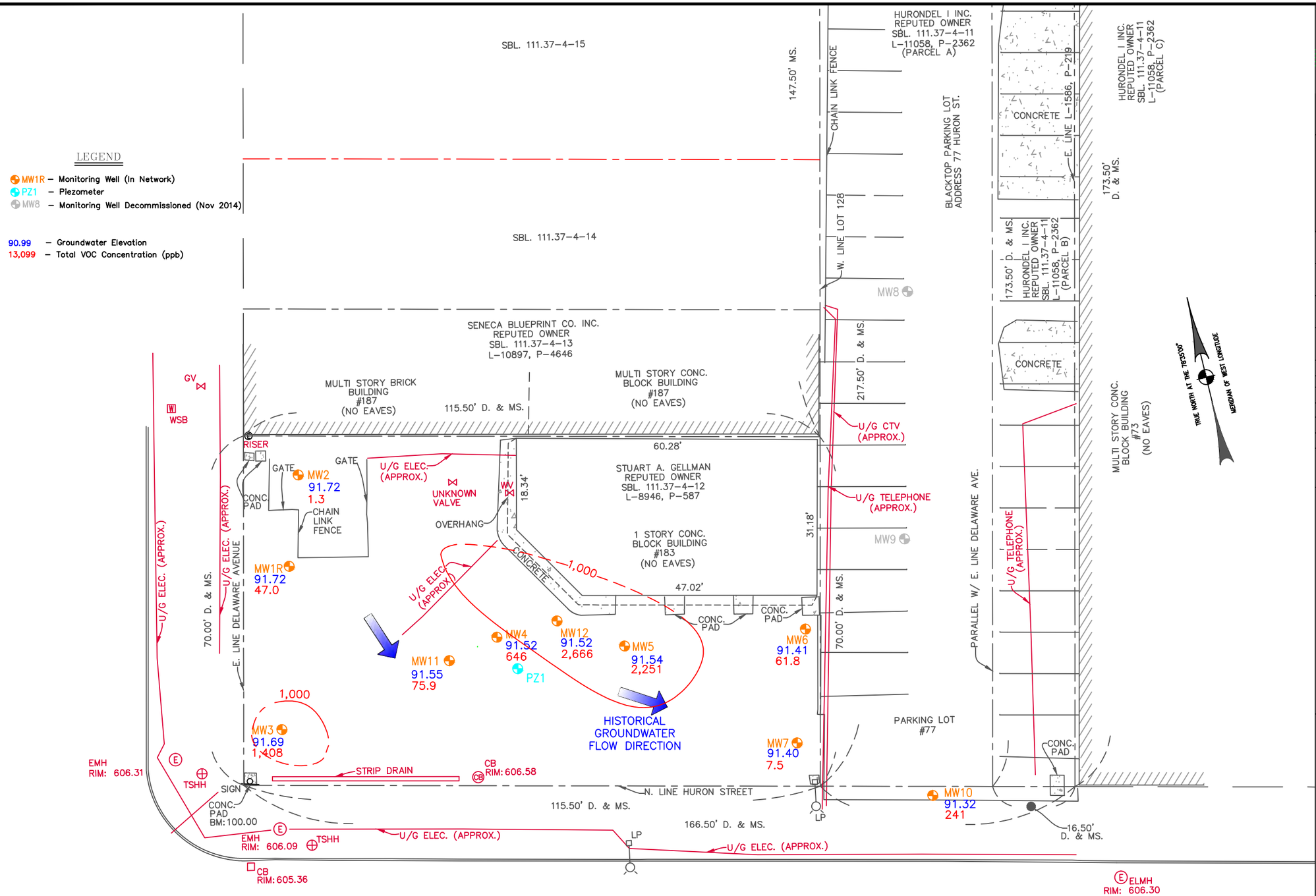
REVISION	
DATE	BY
10/7/13	CMC

SCALE IN FEET: 1"=20'
0 20

PROJECT NAME / LOCATION
FORMER SUNOCO STATION
181 DELAWARE AVENUE
BUFFALO, NY

TITLE
GROUNDWATER VOC CONCENTRATIONS

DATE: September 16, 2013
PROJECT NO.: 10-043
FIGURE: 2



Note: Site survey, "Boundary and Topographic Survey, 183 Delaware Avenue, Buffalo, New York", prepared by TVGA Consultants and dated May 16, 2011. Unless specifically stated in writing, this drawing and the data presented is proprietary and the sole property of Matrix Environmental Technologies Inc (METI) and is for the expressed use of its client, or their designated representative, for the specific project/location identified on the drawing. All data and locations are for reference only and are not a guarantee of site conditions. This drawing may not be transferred, copied, or altered in any way, other than specified on the drawing, without written permission from METI. Any violation of this declaration will be at the user's risk entirely and without any risk or liability to METI.

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PREPARED FOR:
EVERGREEN RESOURCES GROUP, LLC
WILMINGTON, DE

PROJECT MGR: SLM
DESIGNED BY: HAA
REVIEWED BY: SLM
DRAWN BY: HAA

REVISION	
DATE	BY
1/21/15	CMC

SCALE IN FEET: 1"=20'
0 20

PROJECT NAME / LOCATION
FORMER SUNOCO STATION
181 DELAWARE AVENUE
BUFFALO, NY
NYSDEC Spill #11-06834

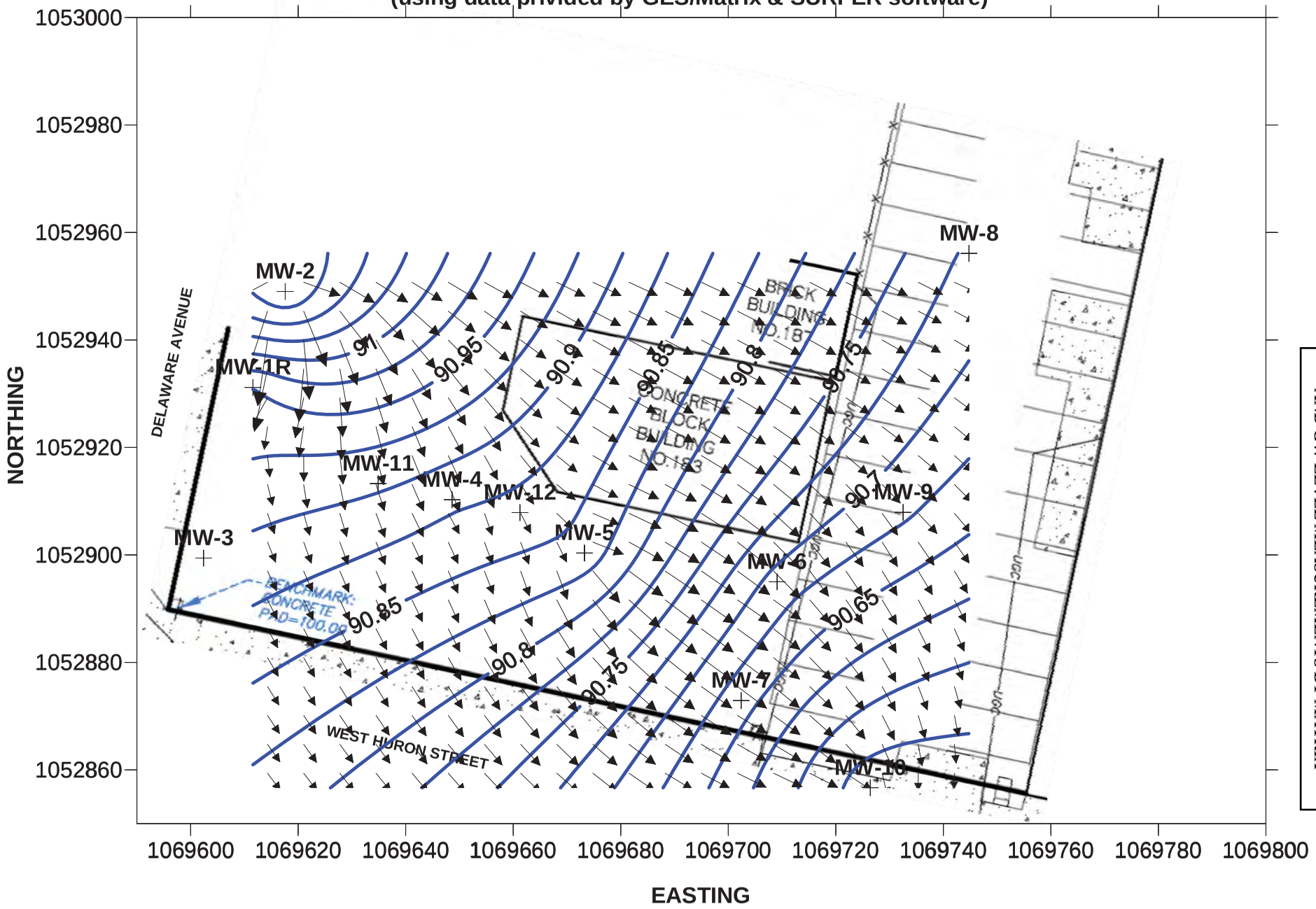
TITLE
GROUNDWATER VOC CONCENTRATIONS

DATE: December 8, 2014
PROJECT NO.: 10-043
FIGURE: 2

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 10/31/2005

(using data privided by GES/Matrix & SURFER software)



ATTACHMENT B-6: GW CONTOUR MAPS
PREPARED BY IEG USING SURFER SOFTWARE
AND GW LEVEL MEASUREMENTS BY MATRIX

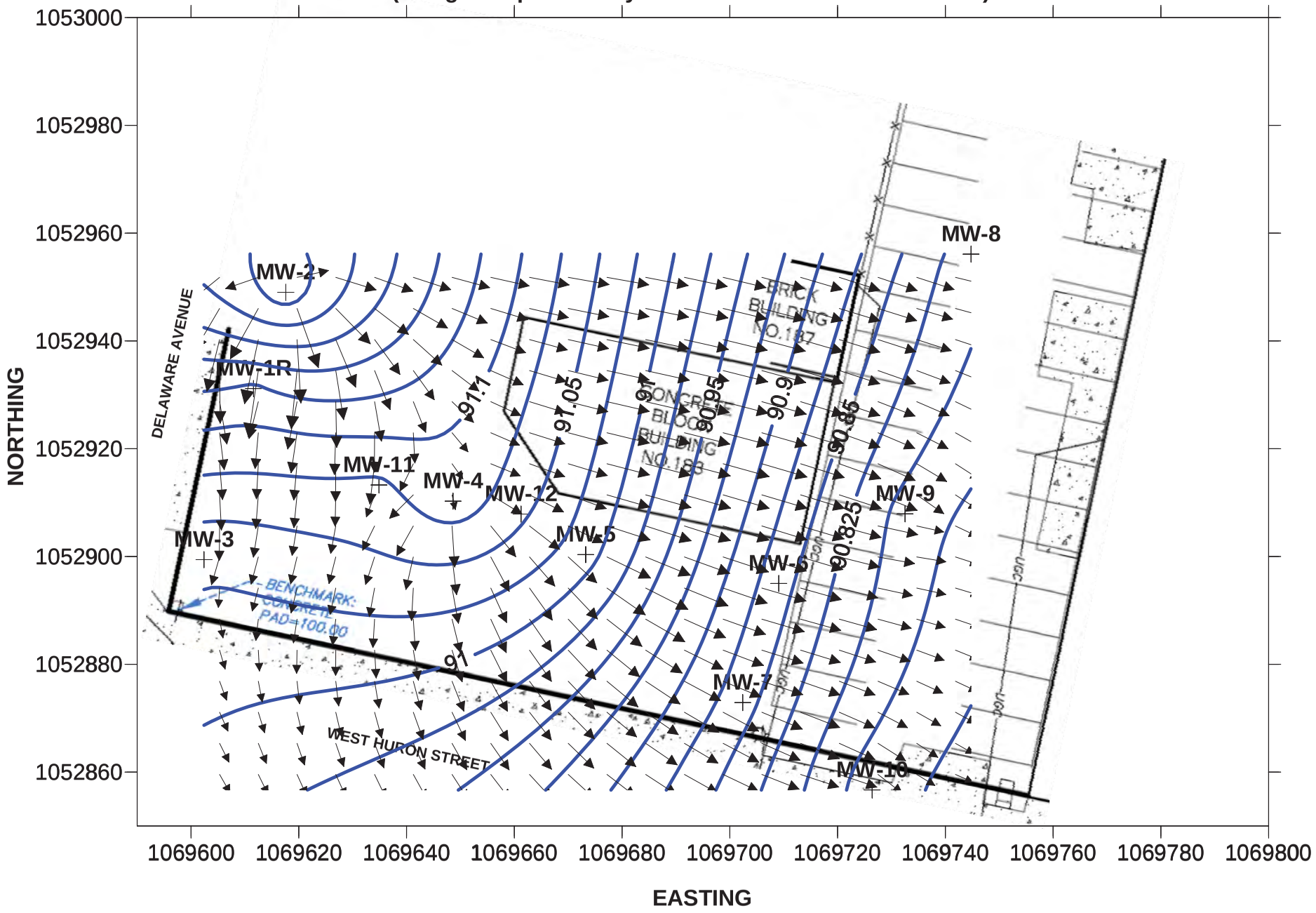
NOTE: No GW levels for MW-11 and MW-12

IEG

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 10/02/2006

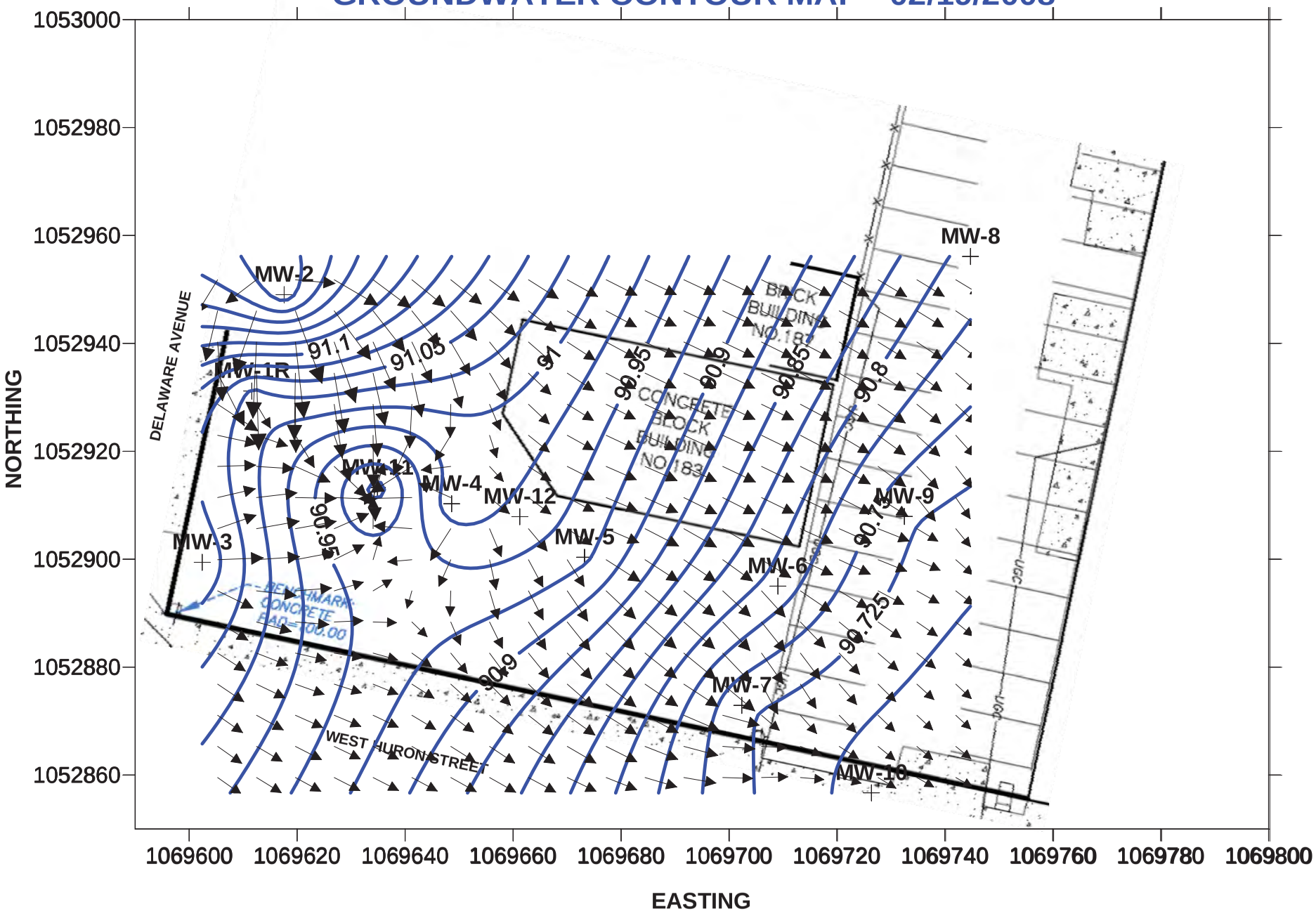
(using data privided by GES/Matrix & SURFER software)



NOTE: GW levels not available for MW-12

181 DELAWARE/77 W. HURON SITES

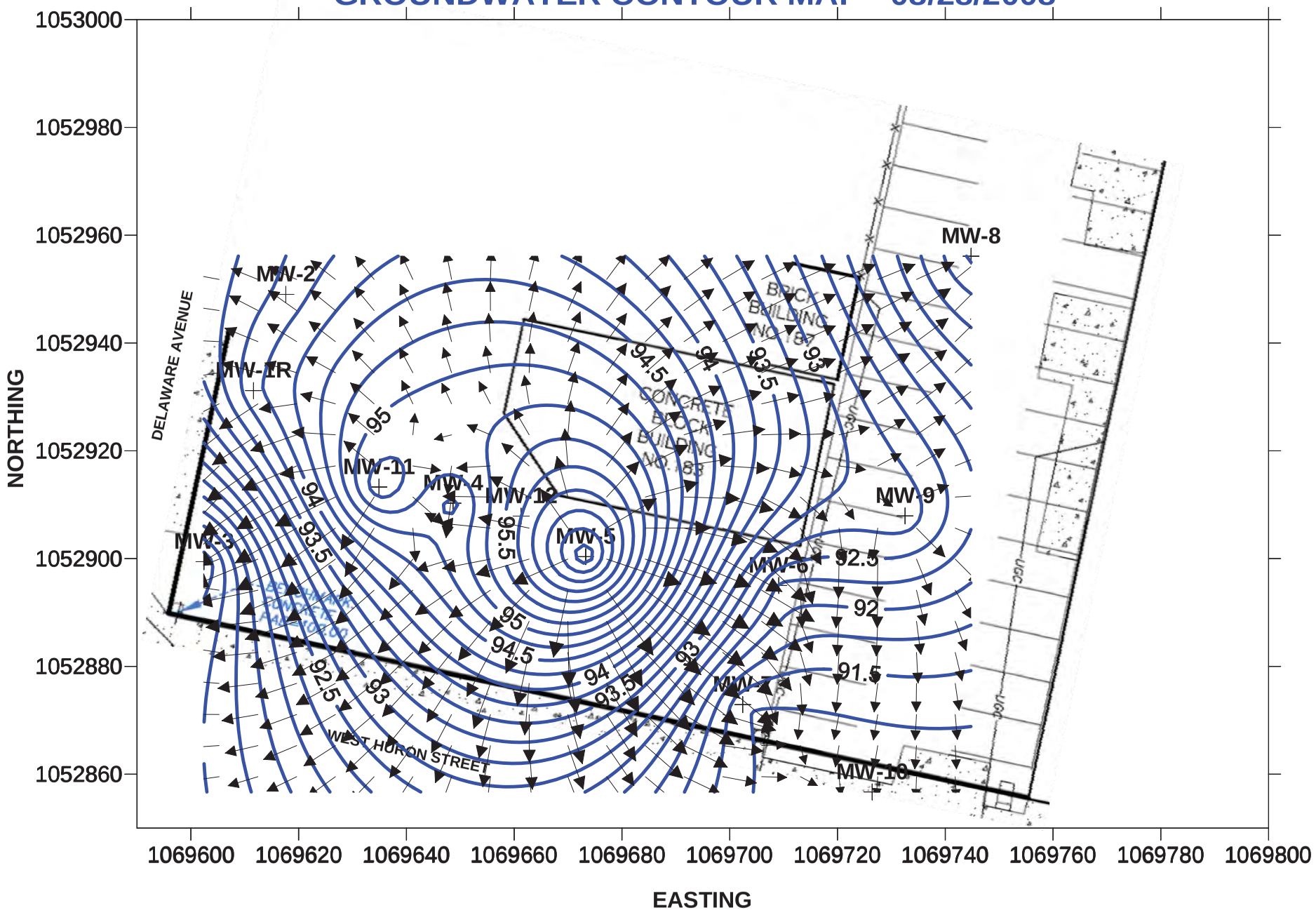
GROUNDWATER CONTOUR MAP - 02/19/2008



NOTE: No GW levels for MW-12

181 DELAWARE/77 W. HURON SITES

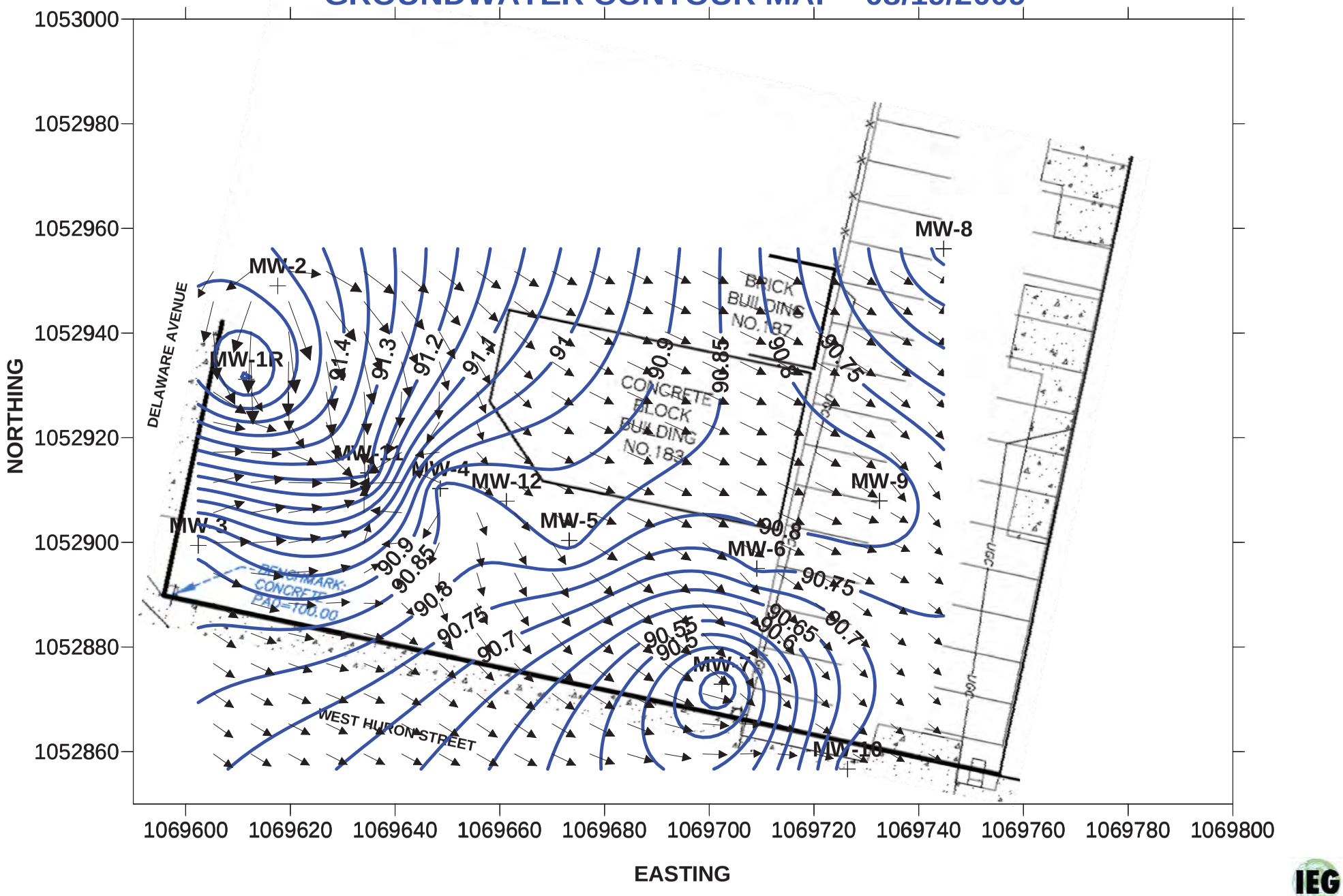
GROUNDWATER CONTOUR MAP - 08/28/2008



NOTE: No GW levels for MW-12

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 08/19/2009

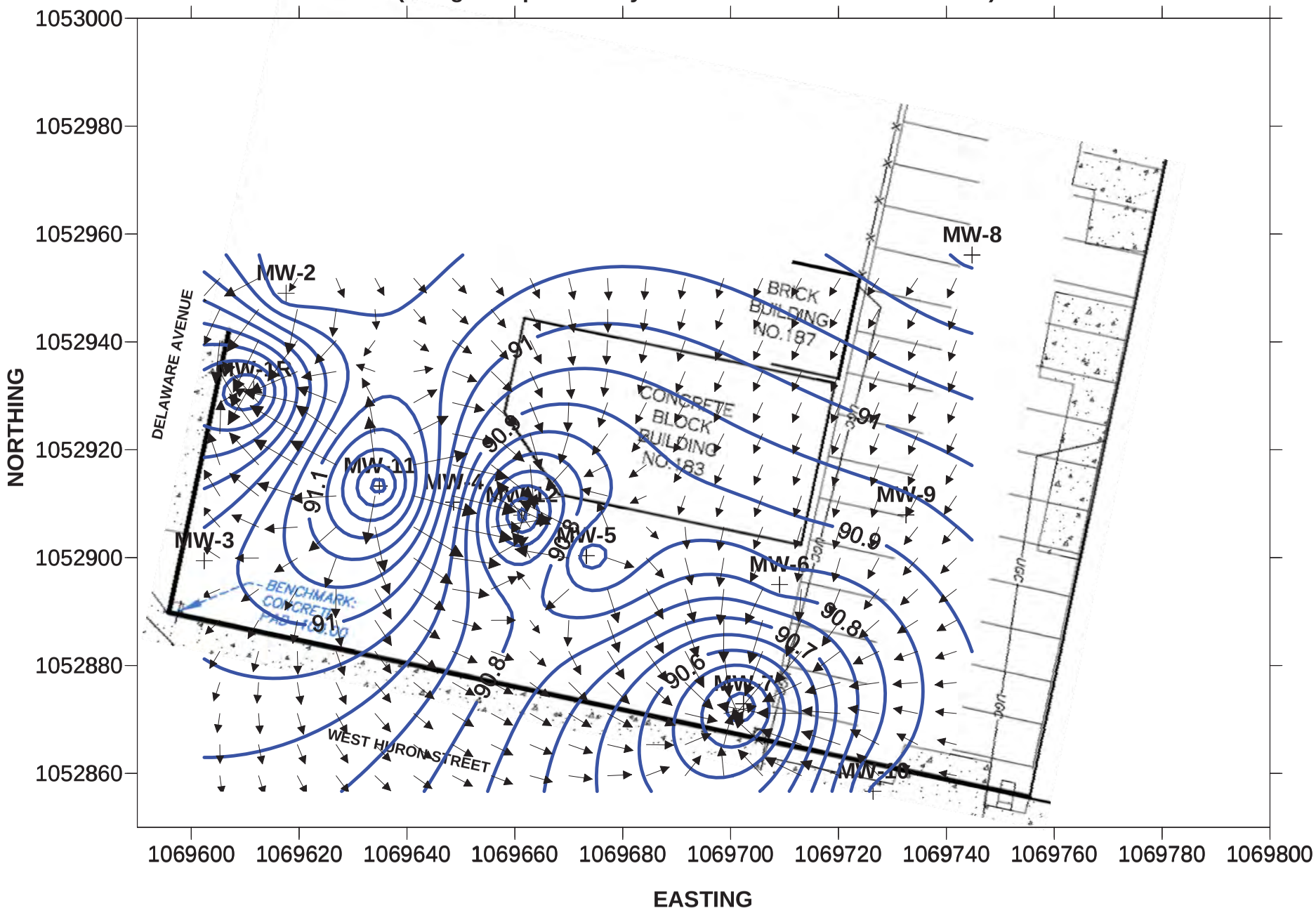


NOTE: No GW levels for MW-12

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 06/22/2011

(using data privided by GES/Matrix & SURFER software)

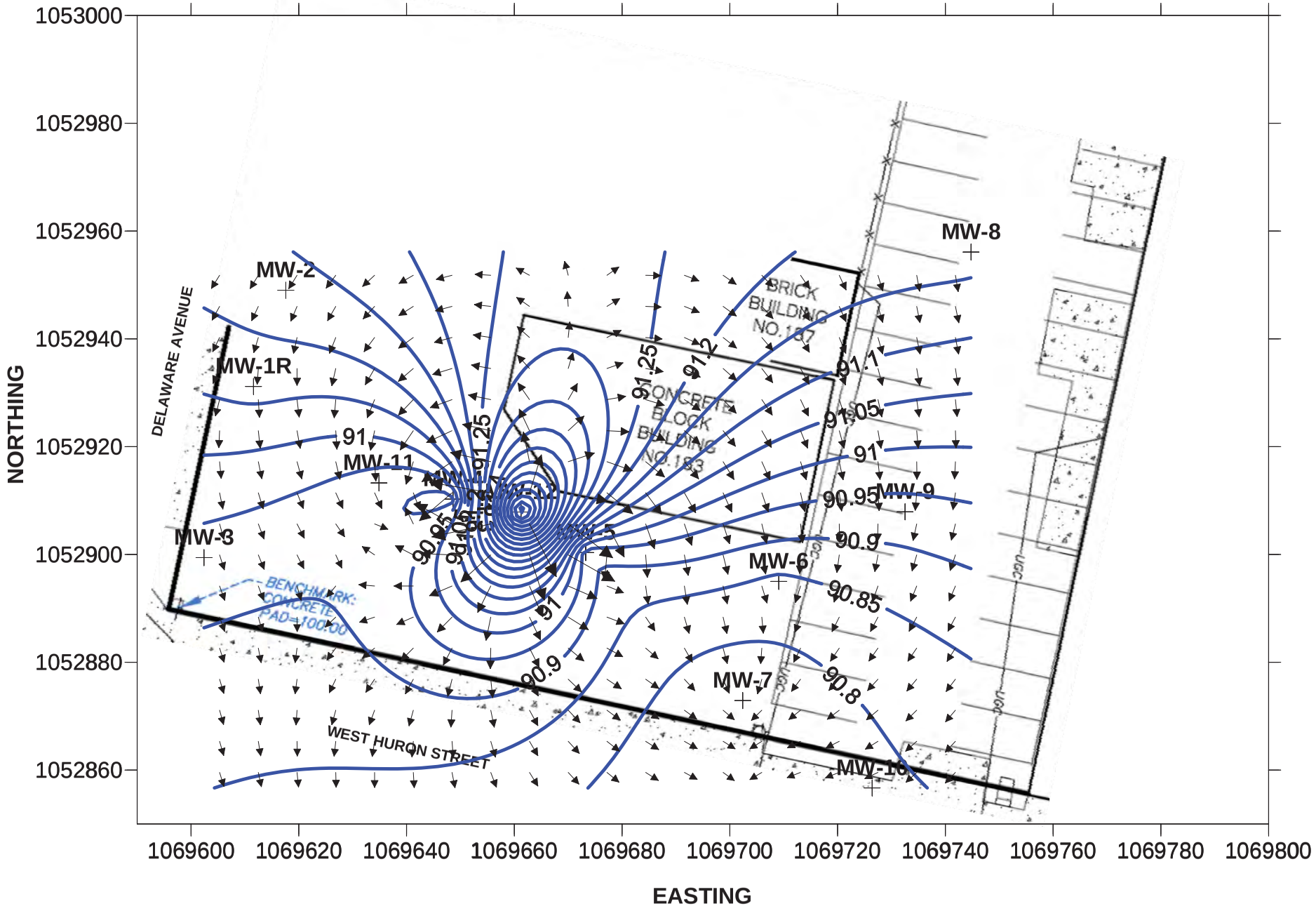


NOTE: GW levels available for all MWs

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 09/08/2011

(using data privided by GES/Matrix & SURFER software)

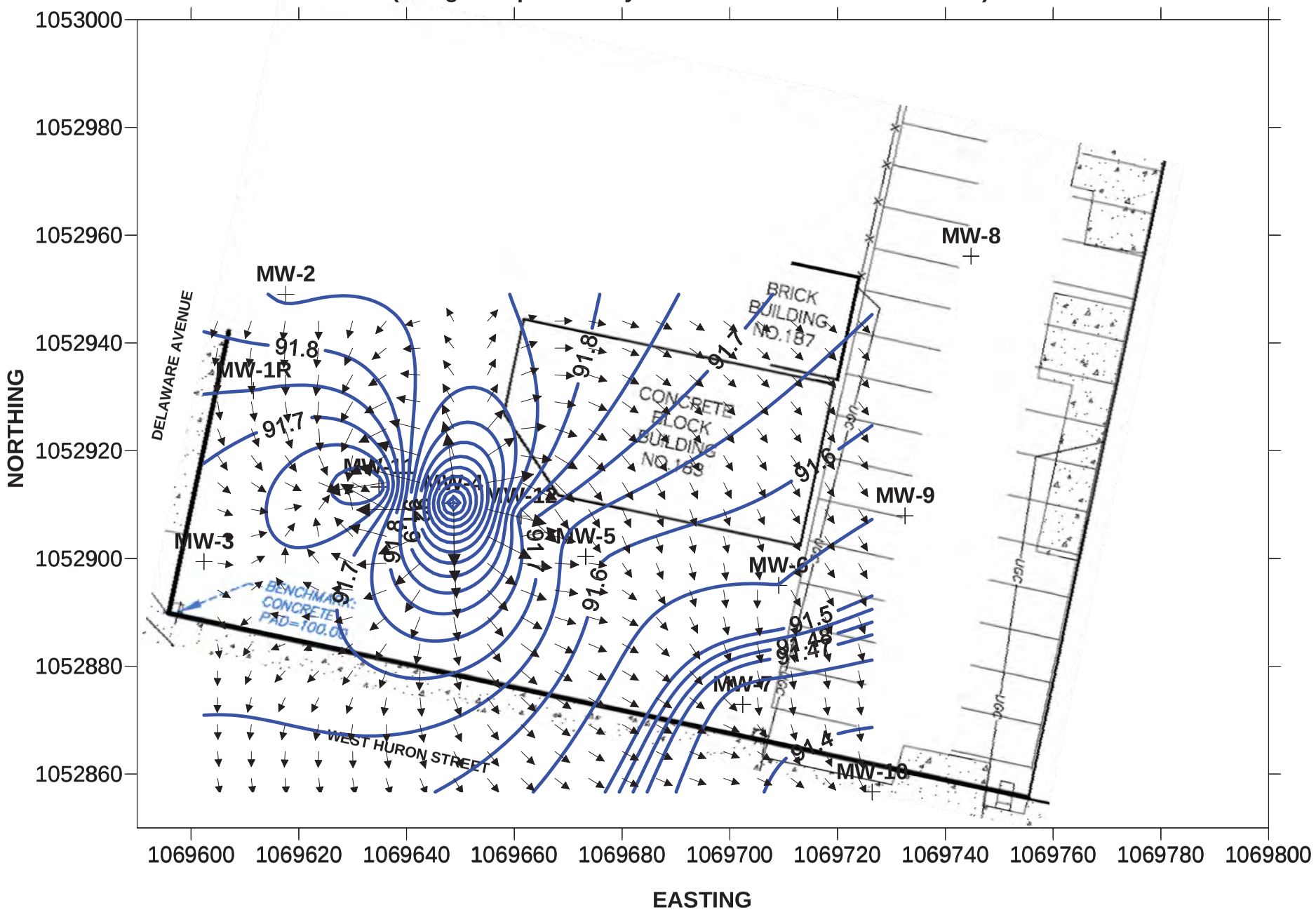


NOTE: GW levels available for all MWs

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 09/11/2012

(using data privided by GES/Matrix & SURFER software)

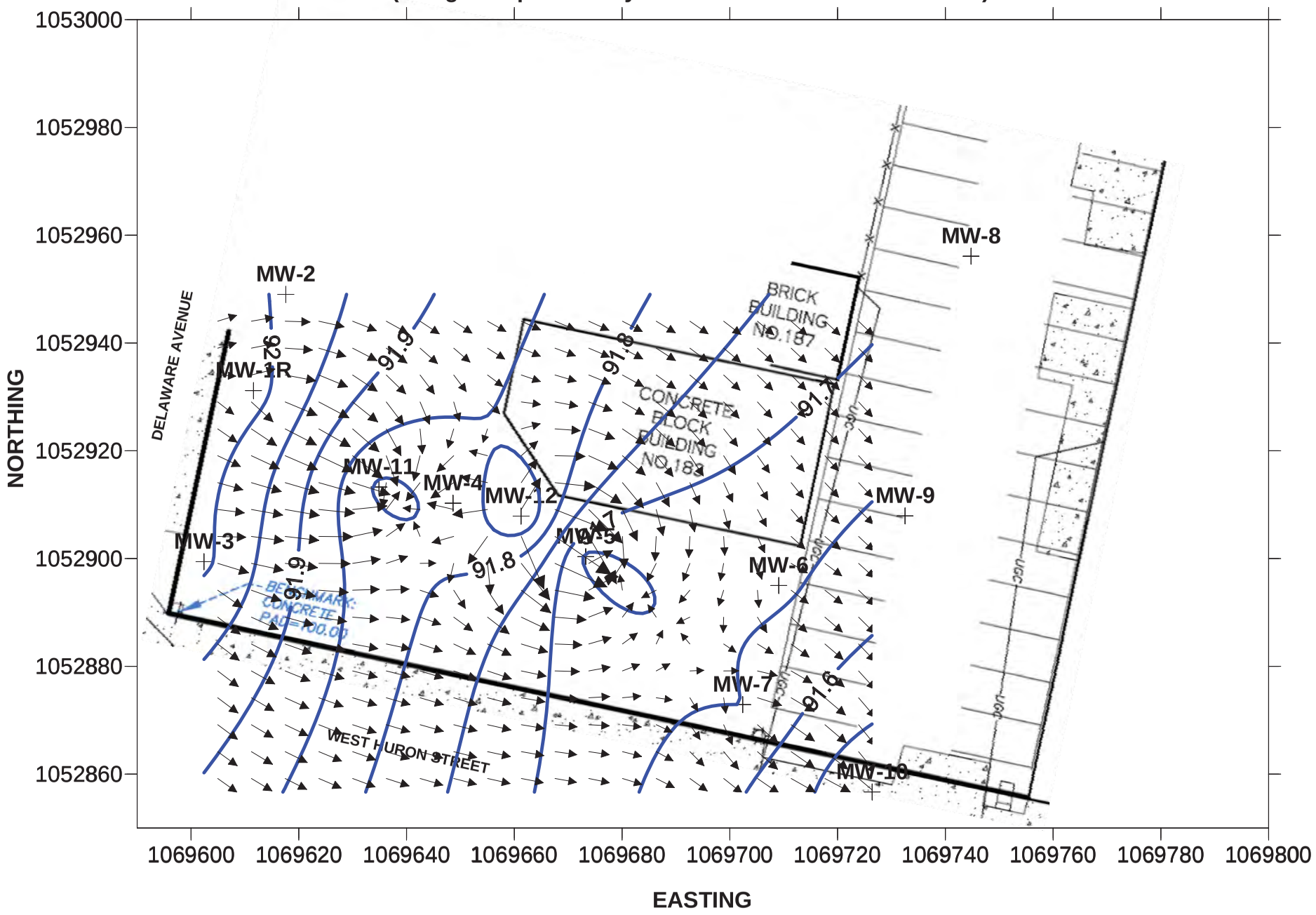


NOTE: GW levels not available for MW8 and MW-9

181 DELAWARE/77 W. HURON SITES

GROUNDWATER CONTOUR MAP - 03/11/2013

(using data privided by GES/Matrix & SURFER software)



NOTE: GW levels not available for MW8 and MW-9

APPENDIX C

APPLICABLE SOIL CLEANUP OBJECTIVES

Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Unrestricted Use
Metals		
Arsenic	7440-38-2	13 [c]
Barium	7440-39-3	350 [c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 [c]
Chromium, hexavalent [e]	18540-29-9	1 [b]
Chromium, trivalent [e]	16065-83-1	30 [c]
Copper	7440-50-8	50
Total Cyanide [e, f]		27
Lead	7439-92-1	63 [c]
Manganese	7439-96-5	1600 [c]
Total Mercury		0.18 [c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9 [c]
Silver	7440-22-4	2
Zinc	7440-66-6	109 [c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex) [f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 [b]
4,4'-DDT	50-29-3	0.0033 [b]
4,4'-DDD	72-54-8	0.0033 [b]
Aldrin	309-00-2	0.005 [c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094
delta-BHC [g]	319-86-8	0.04
Dibenzofuran [f]	132-64-9	7
Dieldrin	60-57-1	0.005 [c]
Endosulfan I [d, f]	959-98-8	2.4
Endosulfan II [d, f]	33213-65-9	2.4
Endosulfan sulfate [d, f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
Semivolatile organic compounds		
Acenaphthene	83-32-9	20
Acenapthylene [f]	208-96-8	100 [a]
Anthracene [f]	120-12-7	100 [a]
Benz(a)anthracene [f]	56-55-3	1 [c]
Benzo(a)pyrene	50-32-8	1 [c]
Benzo(b)fluoranthene [f]	205-99-2	1 [c]
Benzo(g,h,i)perylene [f]	191-24-2	100
Benzo(k)fluoranthene [f]	207-08-9	0.8 [c]
Chrysene [f]	218-01-9	1 [c]

Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Unrestricted Use
Dibenz(a,h)anthracene[f]	53-70-3	0.33 [b]
Fluoranthene [f]	206-44-0	100 [a]
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene [f]	193-39-5	0.5 [c]
m-Cresol [f]	108-39-4	0.33 [b]
Naphthalene [f]	91-20-3	12
o-Cresol [f]	95-48-7	0.33 [b]
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8[b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33[b]
Pyrene[f]	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane [f]	71-55-6	0.68
1,1-Dichloroethane [f]	75-34-3	0.27
1,1-Dichloroethene[f]	75-35-4	0.33
1,2-Dichlorobenzene[f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02[c]
cis -1,2-Dichloroethene [f]	156-59-2	0.25
trans-1,2-Dichloroethene [f]	156-60-5	0.19
1,3-Dichlorobenzene[f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 [b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene [f]	104-51-8	12
Carbon tetrachloride [f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene[f]	100-41-4	1
Hexachlorobenzene [f]	118-74-1	0.33[b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether [f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n - Propylbenzene [f]	103-65-1	3.9
sec-Butylbenzene [f]	135-98-8	11
tert-Butylbenzene[f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene [f]	95-63-6	3.6
1,3,5-Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Unrestricted Use

All soil cleanup objectives (SCOs) are in parts per million (ppm).

Footnotes

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support

[b] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

[c] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the

(b) Restricted use soil cleanup objectives.

Table 1

Supplemental Soil Cleanup Objectives
(ppm)

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
METALS							
Aluminum	7429-90-5					10,000 [a,b]	
Antimony	7440–36-0					12[c]	
Boron	7440-42-8					0.5	
Calcium	7440-70-2					10,000 [a,b]	
Cobalt	7440-48-4	30				20	
Iron	7439-89-6	2,000					
Lithium	7439-93-2					2	
Molybdenum	7439-98-7					2	
Technetium	7440-26-8					0.2	
Thallium	7440-28-0					5 [c]	
Tin	7440-31-5					50	
Uranium	7440-61-1					5	
Vanadium	7440-62-2	100 [a]				39[b]	
PESTICIDES							
Biphenyl	92-52-4					60	
Chlordecone (Kepone)	143-50-0					0.06	
Dibenzofuran	132-64-9						6.2
2,4-D (2,4-Dichloro-phenoxyacetic acid)	94-75-7	100 [a]					0.5
Furan	110-00-9					600	
Gamma Chlordane	5103-74-2	0.54					14
Heptachlor Epoxide	1024-57-3	0.077					0.02
Methoxychlor	72-43-5	100 [a]				1.2	900

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
Parathion	56-38-2	100 [a]					1.2
2,4,5-T	93-76-5	100 [a]					1.9
2,3,7,8-TCDD	1746-01-6					0.000001	
2,3,7,8-TCDF	51207-31-9					0.000001	
SEMIVOLATILE ORGANIC COMPOUNDS							
Aniline	62-53-3	48	100[a]	500[a]	1000[a]		0.33[b]
Bis(2-ethylhexyl) phthalate	117-81-7	50				239	435
Benzoic Acid	65-85-0	100[a]					2.7
Butylbenzyl-phthalate	85-68-7	100 [a]					122
4-Chloroaniline	106-47-8	100 [a]					0.22
Chloroethane	75-00-3						1.9
2-Chlorophenol	95-57-8	100 [a]				0.8	
3-Chloroaniline	108-42-9					20	
3-Chlorophenol	108-43-0					7	
Di-n-butyl-phthalate	84-74-2	100 [a]				0.014	8.1
2,4-Dichlorophenol	120-83-2	100 [a]				20	0.40
3,4-Dichlorophenol	95-77-2					20	
Diethylphthalate	84-66-2	100 [a]				100	7.1
Di-*n*-hexyl-phthalate	84-75-3					0.91	
2,4-Dinitrophenol	51-28-5	100 [a]				20	0.2
Dimethylphthlate	131-11-3	100 [a]				200	27
Di-n-octylphthlate	117-84-0	100 [a]					120
1,2,3,6,7,8-HCDF	57117-44-9					0.00021	
Hexachloro-benzene	118-74-1	0.41					1.4
2,6-Dinitrotoluene	606-20-2	1.03					1.0
Isophorone	78-59-1	100 [a]					4.4

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
2-methyl-naphthalene	91-57-6	0.41					36.4
2-Nitroaniline	88-74-4						0.4
3-Nitroaniline	99-09-2						0.5
Nitrobenzene	98-95-3	3.7	15	69	140	40	0.17[b]
2-Nitrophenol	88-75-5					7	0.3
4-Nitrophenol	100-02-7					7	0.1
Pentachloroaniline	527-20-8					100	
2,3,5,6-Tetrachloroaniline	3481-20-7					20	
2,3,4,5-Tetrachlorophenol	4901-51-3					20	
2,4,5-Trichloroaniline	636-30-6					20	
2,4,5-Trichlorophenol	95-95-4	100 [a]				4	0.1
2,4,6-Trichlorophenol	88-06-2					10	
VOLATILE ORGANIC COMPOUNDS							
2-Butanone	78-93-3	100 [a]					0.3
Carbon Disulfide	75-15-0	100 [a]					2.7
Chloroacetamide	79-07-2					2	
Dibromochloro-methane	124-48-1					10	
2,4-Dichloro aniline	554-00-7					100	
3,4-Dichloroaniline	95-76-1					20	
1,2-Dichloropropane	78-87-5					700	
1,3-Dichloropropane	142-28-9						0.3
2,6-Dinitrotoluene	606-20-2	1.03					0.17[b]
Ethylacetate	141-78-6					48	

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
113 Freon (1,1,2- TFE)	76-13-1	100 [a]					6
isopropylbenzene	98-82-8	100 [a]					2.3
p-isopropyltoluene	99-87-6						10
Hexachlorocyclo-pentadiene	77-47-4					10	
Methanol	67-56-1					6.5	
N-nitrosodiphenyl-amine	86-30-6					20	
Pentachloro-benzene	608-93-5					20	
Pentachloronitro-benzene	82-68-8					10	
Styrene	100-42-5					300	
1,2,3,4-Tetrachlorobenzene	634-66-2					10	
1,1,2,2-Tetrachloroethane	79-34-5	35					0.6
1,1,2,2-Tetrachloroethylene	127-18-4					2	
1,2,3-Trichlorobenzene	87-61-6					20	
1,2,4-Trichlorobenzene	120-82-1					20	3.4
1,2,3-Trichloropropane	96-18-4	80					0.34

[a] SCOs for organic contaminants (volatile organic compounds, semivolatile organic compounds, and pesticides) are capped at 100 ppm for residential use, 500 ppm for commercial use, 1000 ppm for industrial use. SCOs for metals are capped at 10,000 ppm.

[b] Based on rural background study

[c] SCO limited by contract required quantitation limit.

Table 2

Soil Cleanup Levels for Gasoline Contaminated Soils

Contaminant	CAS Registry Number	Soil Cleanup Level (ppm)
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12.0
sec-Butylbenzene	135-98-8	11.0
Ethylbenzene	100-41-4	1.0
Isopropylbenzene	98-82-8	2.3
p-Isopropyltoluene	99-87-6	10.0
Methyl-Tert-Butyl-Ether	1634-04-4	0.93
Naphthalene	91-20-3	12.0
n-Propylbenzene	103-65-1	3.9
Tert-Butylbenzene	98-06-6	5.9
Toluene	108-88-3	0.7
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5-Trimethylbenzene	108-67-8	8.4
Xylene (Mixed)	1330-20-7	0.26

Table 3

Soil Cleanup Levels for Fuel Oil Contaminated Soil

Contaminant	CAS Registry Number	Soil Cleanup Level (ppm)
Acenaphthene	83-32-9	20
Acenaphthylene	208-96-8	100
Anthracene	120-12-7	100
Benz(a)Anthracene	56-55-3	1.0
Dibenzo(a,h)Anthracene	53-70-3	0.33
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12.0
sec-Butylbenzene	135-98-8	11.0
Tert-Butylbenzene	98-06-6	5.9
Chrysene	218-01-9	1.0
Ethylbenzene	100-41-4	1.0
Fluoranthene	206-44-0	100
Benzo(b)Fluoranthene	205-99-2	1.0
Benzo(k)Fluoranthene	207-08-9	0.8
Fluorene	86-73-7	30
Isopropylbenzene	98-82-8	2.3
p-Isopropyltoluene	99-87-6	10.0
Naphthalene	91-20-3	12.0
n-Propylbenzene	103-65-1	3.9
Benzo(g,h,i)Perylene	191-24-2	100
Phenanthrene	85-01-8	100
Pyrene	129-00-0	100
Benzo(a)Pyrene	50-32-8	1.0
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5-Trimethylbenzene	108-67-8	8.4
Toluene	108-88-3	0.7
Xylene (Mixed)	1330-20-7	0.26

Table 4

Recommended Number of Soil Samples for Soil Imported To or Exported From a Site

Contaminant	VOCs[a]	SVOCs, Inorganics & PCBs/Pesticides	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	Each composite sample for analysis is created from 3-5 discrete samples from representative locations in the fill.
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
➢ 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER.[b]		

[a] VOC samples cannot be composited. Discrete samples must be taken to maximize the representativeness of the results.

[b] For example, a 3,000 cubic yard soil pile to be sampled and analyzed for VOCs would require 11 discrete representative samples. The same pile to be sampled for SVOCs would require 4 composite samples with each composite sample consisting of 3-5 discrete samples.

APPENDIX D

SHORING PLAN

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5/5/15

James Jerge
Aria Contracting Corporation
3907 North Buffalo Street
Orchard Park, NY 14127

RE: 73 - 79 W. Huron Street Buffalo, NY

James,

Project Site:

The project consists of a site investigation and interim remedial measure for property at 73 to 79 W. Huron in the City of Buffalo. The site to be excavated consists of an asphalt covered parking lot which sits between singular buildings at 73-75 West Huron running the length of the excavation site. This six story structure known as the "Miller Livery" is supported by a unique engineered hanging system based on drawings reviewed and an open excavation previously done confirming the foundation. A series of buildings and open areas runs the length of the western border of the excavation area.

Scope of Work:

The purpose of the confirmatory testing and investigation is to assure that there is no source for petroleum discharge on the property. This follows on a series of soil borings, groundwater monitoring and ground penetrating radar studies.

The purpose of the interim remedial measure is to excavate contaminated soils exceeding SCO's for Track 2 (residential/commercial use) and/or with visible contamination to the satisfaction of the New York State DEC for purposes of obtaining a certificate of completion under the New York State Brownfield program.

Excavated soils will be backfilled with clean fill meeting DER-10 requirements from off-site sources and or on-site material which has been removed and determined to be appropriate for backfilling. Off-site clay will be used as fill to create a natural barrier for continued groundwater contamination from off-site sources. The clay will also help strengthen the excavation walls as the work proceeds southerly.

The excavation will start on the northern border of the area and progressively move south. Excavated materials designated for off-site disposal will be directly loaded on to waste haulers or stockpiled as necessary only in areas to be further excavated. The excavation will proceed with the asphalt removed and sent to an off-site recycling facility; "urban fill" will be removed to approximately 4 feet BGS; the sand layer below the urban fill to the top of the groundwater table is expected to be clean since the contamination was transported through the water table. That layer will be screened in the field with PID and visually inspected; that material will be stockpiled for use as backfill if possible; contaminated

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soil/sand with elevated PID readings will be excavated and designated for off-site disposal; soil without elevated PID readings but with visible petroleum contamination (i.e. blackened sand) will be removed for off-site disposal to the extent possible without impacting adjacent buildings. Provided no source has been determined on site of any visible petroleum contamination below SCO's, it will be left in place if it is determined in the field that to remove the contamination may cause a hazard to adjacent buildings.

Soil conditions

The soil conditions on site have been characterized through a series of tests commencing and 2003. The soil consists of mostly fine sand. It is believed that excavation may be required to 20-22 ft. bgs in some areas in order to remove contamination which has been spread through groundwater movement. Soil conditions have been confirmed through additional work in April 2015.

Shoring Options:

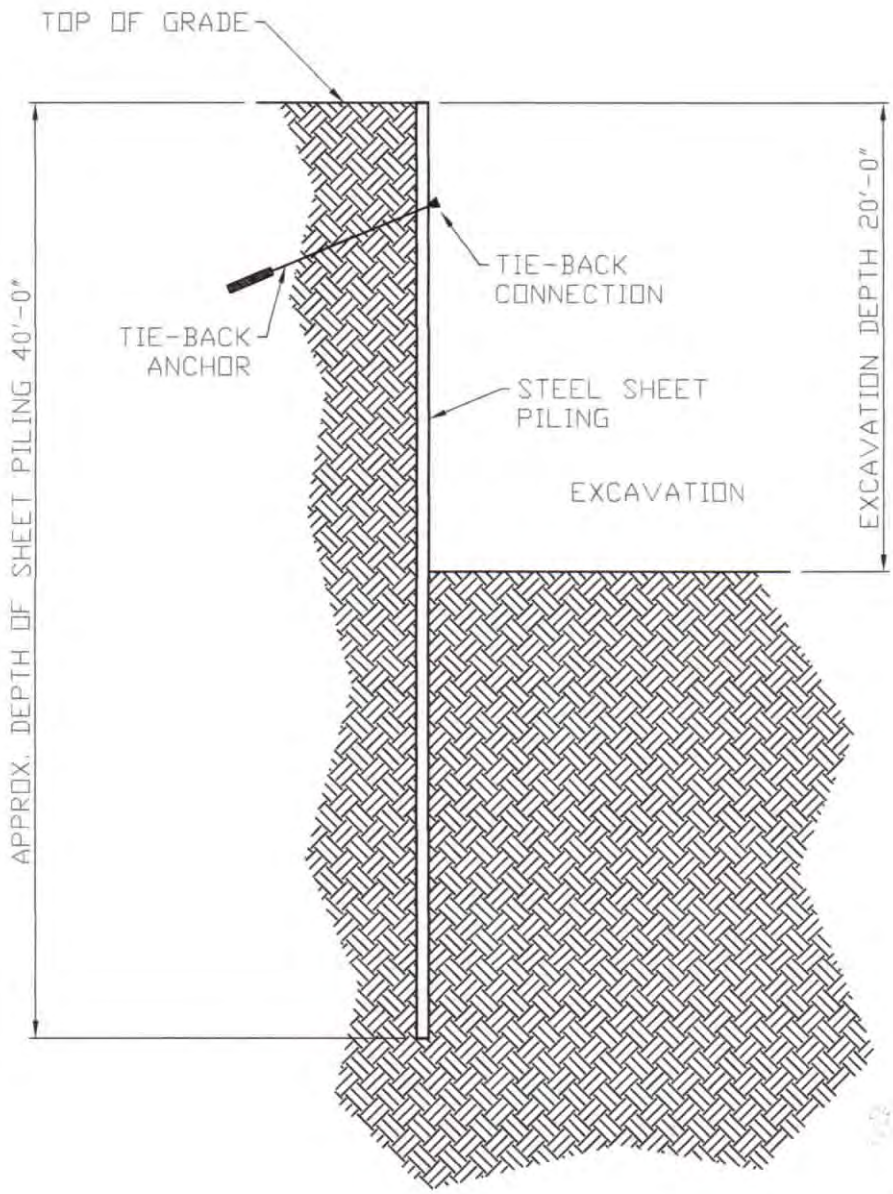
The contractor must monitor the sidewalls of the excavation at all times to confirm the stability as the excavation proceeds. The contractor will proceed to remove any impacted soils as required by the environmental consultant directing the interim remedial measure provided the soils remain stable. In the event that the soils at any portion of the site appear to be unstable then the slope of the excavation in areas of required removal will be maintained at a 1 to 1 slope ratio. If the soils appear to be unstable in areas where the 1 to 1 slope ratio cannot be maintained, it will be necessary to install structured support (see Figure 1 – 3). Type A and Type B Soils are clays with unconfined compressive strengths of 0.5 tsf or greater (OSHA Technical Manual on Trenching and Excavations)

In the event that it is necessary to proceed along the western border to remove sand or soil to the level to meet DEC requirement in an area and to a depth that may cause structural issues to the adjoining property then shoring will be required. Tiebacks will be utilized to maintain structural integrity during excavation if deemed required in the field (See figure 1). Either a lagged sheet pile or a cantilever sheet pile system would provide a watertight seal based on overlapping interconnected steel plates.

Thank you for the opportunity to provide my services.

Sincerely,

Gerald P. Sullivan, P.E.



STATE OF NEW YORK
GERALD P. SULLIVAN
NO. 072185
LICENSED PROFESSIONAL ENGINEER

75-77 WEST HURON BCP CLEANUP
TYPICAL SHORING DESIGN SECTION

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DATE:	APRIL 22, 2015
SCALE:	NOT TO SCALE
PROJ No:	15-106

FIGURE 1-1

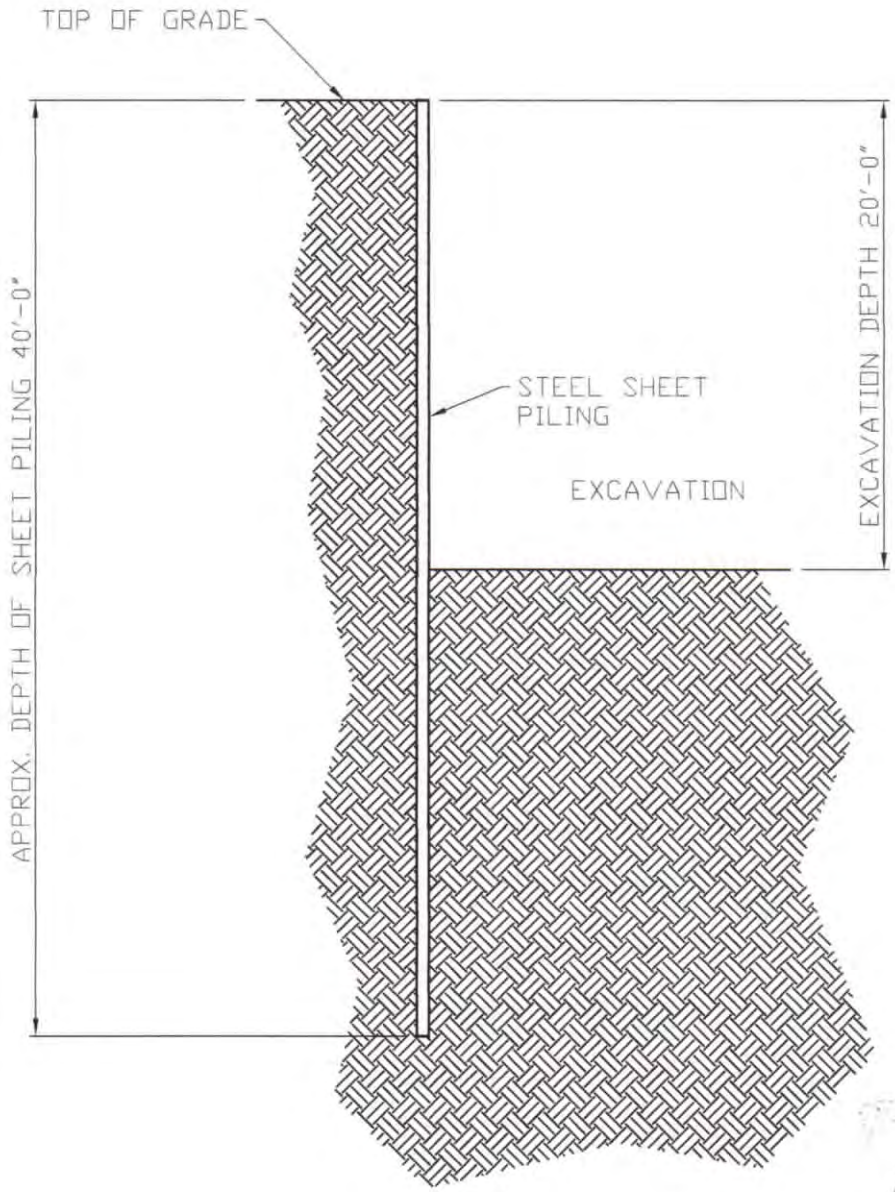

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FIGURE 1-2

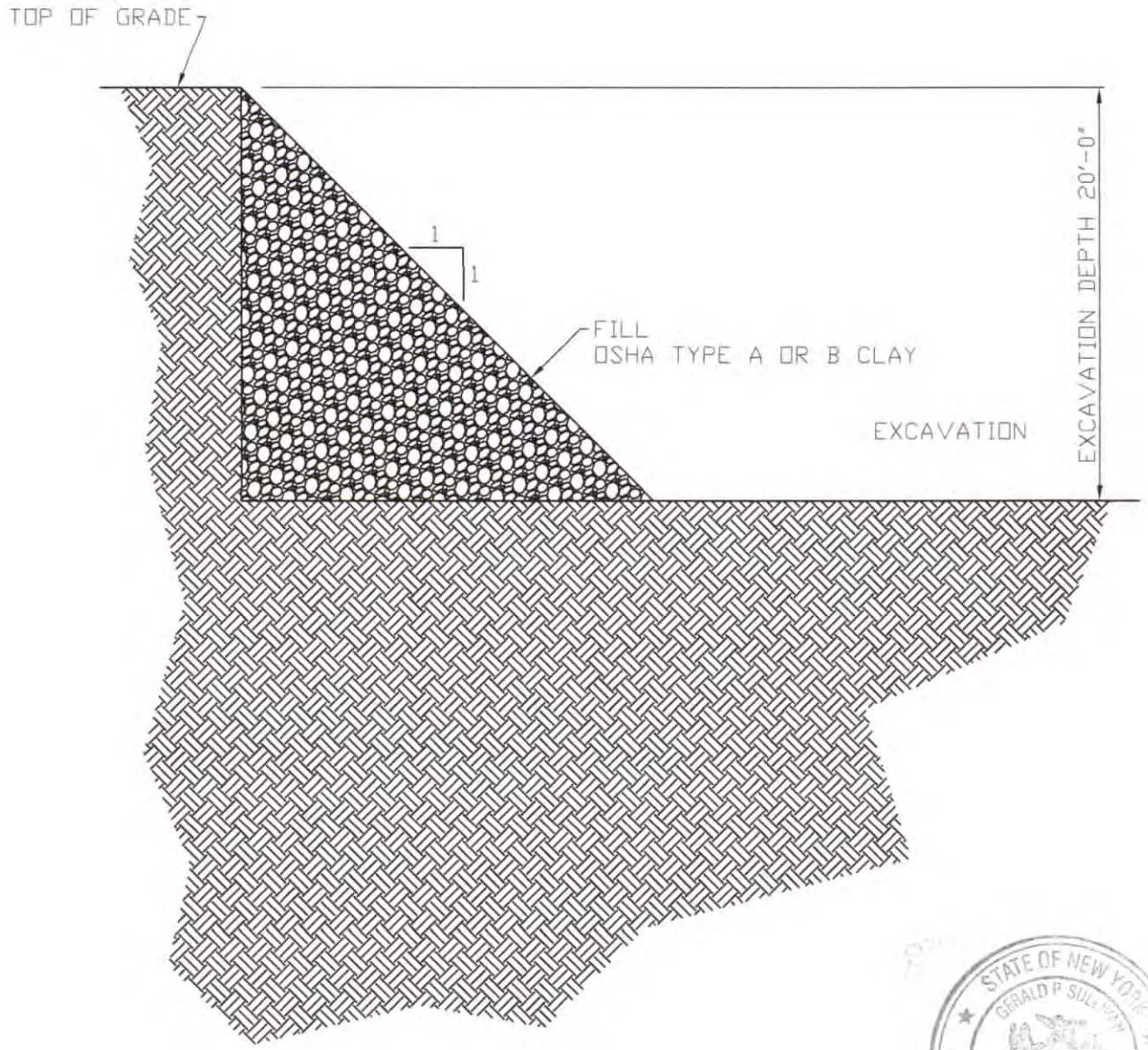

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FIGURE 1-3

APPENDIX E

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

BROWNFIELDS CLEANUP PROGRAM
SITE INVESTIGATION/INTERIM REMEDIAL MEASURE
73-79 W. HURON ST. SITE, BUFFALO, NY
May 2015

1.0 INTRODUCTION

The Site located at 73-79 W. Huron St., Buffalo, NY, is being investigated and remediated by Hurondel I, Inc. under the Brownfields Cleanup Program (BCP). This Quality Assurance Project Plan (QAPP) is prepared as part of the Work Plan (WP) for Site Investigation (SI) and Interim Remedial Measure (IRM) at this Site, and provides specific methods and quality assurance procedures to be followed for the sampling and analysis of environmental media at the site.

The NYSDEC, in association with the NYSDOH, is the oversight agency for approval of work plans, remedy selection, site investigation and remediation, and ensuing reports. Key project personnel are identified in the organization chart included in the Work Plan, along with resumes. The Project Manager will be responsible for ensuring that QA procedures are followed in the field, and will be in direct contact with the analytical laboratory to ensure that the NYSDEC's analytical QA/QC requirements are met.

2.0 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) define the quality of analytical data required to support the SI/IRM. Surficial and subsurface soil, and groundwater are the environmental media to be sampled and analyzed at the site during the course of this SI/IRM. Volatile organics are of primary concern at this site; however other parameters (semivolatile organics, heavy metals, pesticides, PCBs, cyanide and asbestos) are included for completeness.

The proposed sampling and analysis program for the SI is presented in Table 1, including number of samples, analytical parameters and methods, and field QC requirements. A NYSDOH ELAP certified analytical laboratory will be utilized for this project. Sample containers to be provided by the analytical laboratory are listed in Table 2, and will be certified clean by the laboratory.

Project DQOs will follow the definitive data category in Guidance for the Data Quality Objectives Process, EPA QA/G-4 (September 1994). The DQOs are to:

- Assess the nature and extent of contamination in soil, groundwater and building materials across the site;
- Assess if contaminated soils and building materials are hazardous or non-hazardous for off-site disposal; and
- Determine residual contaminant concentrations in post excavation wall and bottom soil samples.

3.0 QA Objectives for Chemical Data Management

Analytical procedures for the media sampled and data deliverables (Category B deliverable) will meet the requirements in the most recent NYSDEC Analytical Services Protocol (ASP). Additional sample containers will be included at the required frequencies for site specific matrix spikes and matrix spike duplicates. The laboratory will cleanup matrix interferences to the extent practicable. Data usability summary reports (DUSRs) will be generated for each phase of sampling at the site. The data quality indicators of precision, accuracy, representativeness, comparability, and completeness will be measured during chemical analysis by the analytical laboratory.

Precision: Precision is a measure of the reproducibility of analytical results. Precision may be affected by the natural variation of the matrix or contamination within that matrix, as well as by errors made in field and/or laboratory handling procedures. Precision will be evaluated using analyses of a laboratory matrix spike/matrix spike duplicate (for organics) and matrix duplicates (for inorganics). Precision will be reported in terms of Relative Percent Difference (RPD) and compared against ASP limits for data acceptability. Precision will also be evaluated by collecting and analyzing field duplicate samples at the required frequency.

Accuracy: Accuracy measures the bias in the analytical measurement, and is the difference between the "observed" or "measured" and "true" values. Factors that can contribute to errors in accuracy include the sampling process, field contamination, preservation, sample handling, sample matrix, sample preparation and analytical techniques. Sampling bias will be evaluated using results from the analysis of equipment rinse blanks and trip blanks that will be collected for each sampling event. Equipment rinse blanks will be collected by passing distilled water over cleaned equipment used in soil sampling. Groundwater samples will be collected with dedicated, pre-cleaned bailers and therefore do not need rinse blanks. The objective of the laboratory is to equal or exceed the accuracy demonstrated for the applied analytical methods on samples of the same matrix. The percent recovery criterion is used to estimate accuracy based on recovery in the matrix spike/matrix spike duplicate and matrix spike blank samples. The spike and spike duplicate, which will give an indication of matrix effects that may be affecting target compounds is also a good gauge of method efficiency.

Representativeness: Representativeness expresses the degree to which sample data accurately and precisely represent the characteristics of a population of samples, a parameter variation at a sampling point, or environmental conditions. Representativeness is a qualitative parameter, dependent upon the proper design of the sampling program. Proper sampling procedures will be implemented with the goal of obtaining representative samples for the media of concern.

Completeness: Completeness is a measure of the amount of valid and therefore useable data obtained from the analytical measuring system compared to the amount that was expected to be obtained under normal conditions. Appropriate QA procedures are maintained by the analytical laboratory to ensure that valid data are obtained and project needs are met. A goal of 90% is required for completeness (or usability) of the analytical data. If this goal is not met, then NYSDEC and project personnel will determine whether

the deviations might cause the data to be rejected.

Comparability: Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. The objective is to produce data with the greatest possible degree of comparability. It is achieved using standard techniques to collect, preserve, store and analyze representative samples and reporting analytical results in relevant and appropriate units. Field documentation will be complete and will support the assessment of comparability. Comparability is limited by other parameters (e.g., precision, accuracy, representativeness, completeness) because only when precision and accuracy are known can data sets be compared with confidence. For data sets to be comparable, contract-required methods and procedures will be explicitly followed.

4.0 SAMPLING LOCATIONS, CUSTODY, HOLDING TIMES, & ANALYSIS

Sampling locations and procedures are discussed in the SI/IRM Work Plan. Procedures for chain of custody, holding times, and laboratory analyses will be in accordance with NYSDEC ASP and the laboratory's internal Quality Assurance Plan. Holding times will begin with validated time of sample receipt (VTSR) at the laboratory. The laboratory will meet the required detection limits for corresponding analytical methods.

5.0 CALIBRATION PROCEDURES AND FREQUENCY

To obtain a high level of precision and accuracy during sample processing, laboratory instruments will be calibrated properly. Analytical support areas and laboratory instrument calibration procedures required to maintain the integrity of standards and reagents are discussed below.

Analytical Support Areas: Primary reference standards and secondary standard solutions will be obtained from National Institute of Standards and Technology (NIST), or other reliable commercial sources to verify the highest purity possible. The preparation and maintenance of standards and reagents will be accomplished according to the methods referenced. The laboratory will monitor the quality of the standards and reagents through well documented procedures.

Analytical balances will be calibrated and maintained in accordance with manufacturer's specifications. The laboratory will check the accuracy of the balances daily and properly document them in bound logbooks.

Refrigerator and freezer temperatures in the laboratory will be monitored and recorded daily to ensure that the quality of standards and reagents is not compromised and the integrity of the analytical samples is maintained. Appropriate acceptance ranges (2°C to 6°C for refrigerators) will be clearly posted on each unit in service.

The laboratory will maintain sufficient water supply for its analytical needs. The water will be analyte-free and of the highest quality to eliminate false-positives. Appropriate documentation of the quality of the water supply will be performed on a regular basis.

Laboratory Instruments: Instrument calibration is required to ensure that the analytical system is operating properly and at adequate sensitivity to meet established quantitation limits. Each instrument for analyses will be calibrated according to specified methods and with standards appropriate to the type of instrument and linear range established within the analytical method. The instrument calibration will be performed prior to the analysis of a batch of samples, and at periodic intervals (continuing calibration) to ensure that the calibration is maintained. Corrective action will be taken if the laboratory cannot meet the method required calibration requirements, and documented within the case narrative accompanying the analytical results.

6.0 INTERNAL QUALITY CONTROL CHECKS

Internal QC checks are required to determine if analytical operations at the laboratory are in control, and to determine the effect the sample matrix may have on analytical data being generated. Two types of internal QC checks are performed - batch QC and matrix-specific QCs. The type and frequency of QC samples will be according to the specified analytical method and project specific requirements. Acceptable criteria and target ranges for these QC samples are included with the analytical method reference.

QC results that vary from acceptable ranges will require appropriate corrective measures, potential application of qualifiers, and/or an assessment of the impact these corrective measures have on the established data quality objectives. Quality control samples including any project- specific QC will be analyzed as discussed below.

Method Blanks: A method blank is laboratory-distilled or deionized water that is carried through the entire analytical procedure. The method blank is used to determine the level of laboratory background contamination. Method blanks will be analyzed at a frequency of one per analytical batch.

Matrix Spike Blank Samples: A matrix spike blank (MSB) sample is laboratory-distilled or deionized water that is spiked (fortified) with all the elements being analyzed for calculation of precision and accuracy to verify that the analysis that is being performed is in control. A MSB is performed for each matrix and organic parameter only.

Matrix Spike Samples: Samples will be designated for matrix spike (MS) and matrix spike duplicate (MSD) at a frequency of one each per 20 samples within a matrix. Aliquots of these samples will be spiked with known concentrations of specific compounds as specified by the methodology. The MS/MSDs will be subjected to the same analytical procedure as the corresponding environmental sample to assess both accuracy and precision of the method. The percent recovery and relative percent difference of the two spiked samples are calculated for evaluation.

Matrix Duplicates: Samples will be designated for matrix (or field) duplicate (MD) at the frequency of one each per 20 samples. Duplicate samples taken from the same location provide for the evaluation of precision in the field as well as the laboratory. Duplicate soil samples will be homogenized (except for volatile organic compounds) prior to filling sample containers in order to be most representative. It is noted that due to interferences, lack of homogeneity, and the nature of some soil samples, analytical results may not

always be reproducible.

Rinse (Equipment) Blanks: Rinse blanks will be generated by passing distilled water or laboratory certified analyte-free water through and over cleaned sampling equipment. A rinse blank is used to indicate potential contamination from ambient air and from sample instruments used to collect and/or transfer samples. The rinse blank will be collected, transported and analyzed in the same manner as site samples. Rinse blanks will not be performed on samples (i.e., groundwater) where dedicated disposable equipment is used.

Trip Blanks: Trip blanks are required when collecting aqueous samples for volatile organics. They consist of a set of sample containers filled at the laboratory with laboratory certified, analyte-free water, and never to be opened in the field. These trip blanks will accompany sample containers provided by the laboratory into the field and back to the laboratory.

6.0 CALCULATION OF DATA QUALITY INDICATORS

Precision: Precision is evaluated using analyses of a field duplicate and/or a laboratory MS/MSD which not only exhibit sampling and analytical precision, but indicate analytical precision through the reproducibility of the analytical results. Precision will be determined through the use of MS/MSD (for organics) and matrix duplicates (for inorganics) analyses. RPD is used to evaluate precision by the following formula:

$$RPD = \frac{(X_1 - X_2)}{[(X_1 + X_2)/2]} \times 100\%$$

where:

X_1 = Measured value of sample or matrix spike
X_2 = Measured value of duplicate or matrix spike duplicate

Accuracy: Accuracy is the degree of difference between measured or calculated value and the value of an analytical parameter. Analytical accuracy is expressed as the percent recovery of a compound or element that has been added to the environmental sample at known concentrations before analysis. Analytical accuracy may be accessed through the use of known and unknown QC samples and spiked samples. Accuracy will be determined from matrix spike, matrix spike duplicate, and matrix spike blank samples, and surrogate compounds added to organic fractions (i.e., volatiles, semivolatiles, PCB). Accuracy will be calculated as follows:

$$Accuracy\ (\%R) = \frac{(X_s - X_u)}{K} \times 100\%$$

where:

X_s - Measured value of the spike sample
X_u - Measured value of the unspiked sample
K - Known amount of spike in the sample

Completeness: Completeness is calculated on a per matrix basis for the project and is calculated as follows:

$$Completeness\ (\%C) = \frac{(X_v - X_n)}{N} \times 100\%$$

where:

X_v - Number of valid measurements
X_n - Number of invalid measurements
N - Number of valid measurements expected to be obtained

7.0 CORRECTIVE ACTIONS

Corrective actions will be taken to resolve problems and restore proper functioning of the analytical system when errors, deficiencies or out-of-control situations occur at the laboratory. Full documentation of the corrective action procedures undertaken to resolve the problems will be included in project records, and summarized in the case narrative.

Incoming Samples: Problems observed during sample receipt will be documented by the laboratory. The Project Manager will be contacted by the laboratory as appropriate for problem resolution. All corrective actions will be properly documented.

Sample Holding Times: If any sample extraction and/or analysis exceeds the method holding time requirement, the Project Manager will be notified for problem resolution. All corrective actions will be properly documented.

Instrument Calibration: Samples will not be analyzed until initial calibrations meet the method requirements. If initial/continuing calibration standards exceed method QC limits, recalibration will be performed and, if necessary, affected samples will be reanalyzed.

Reporting Limits: The laboratory will meet the method required detection limits listed in NYSDEC ASP. If difficulties arise in achieving these limits due to a particular sample matrix, the laboratory will notify project personnel for problem resolution. In order to achieve those detection limits, the laboratory will utilize appropriate cleanup procedures in an attempt to retain the project required detection limits. When a sample requires secondary dilution due to high levels of target analytes, the laboratory will document all initial analyses and secondary dilution results. Secondary dilutions are permitted only to bring target analytes within the linear range of calibration.

Method QC: Method-specified QC samples will meet the requirements of the analytical methods. Failure of method-required QC may result in the possible qualification of affected data. If the laboratory cannot find any errors, the affected sample(s) will be reanalyzed and/or re-extracted/redigested and then reanalyzed within method-required holding times to verify the presence or absence of matrix effects.

Calculation Errors: Analytical results will be reviewed systematically for accuracy prior to submittal. The analytical laboratory will be required to reissue the analytical data report with the corrective actions appropriately documented in the case narrative in the event errors are found during data review.

8.0 DATA REDUCTION, VALIDATION, AND USABILITY

Data Reduction: Analytical data are first generated in raw form at the instrument. The raw data may then be compiled in a graphic or tabular format as specified in the method references. Identification of all analytes will be accomplished with an authentic standard of the analyte traceable to NIST or USEPA sources.

Data Validation: Analytical reports provided by the laboratory will receive a limited data review. The data validation will be limited to a review of all holding times, completeness of all required deliverables, review of all QC results (surrogates, spikes, duplicates), and a 10% check of all samples analyzed to ensure they were analyzed and quantified properly.

Data validation will follow the general guidelines presented in the USEPA Contract Laboratory Program (CLP) Organic Data Review, SOP Nos. HW-6, Revision #11, USEPA Evaluation of Metals Data for the Contract Laboratory Program based on 3/90, SOW, Revision XI. In addition, review of holding times will be in accordance with NYSDEC ASP, 10/95 edition, and review of organic calibration and QC criteria will be in accordance with NYSDEC ASP, 10/95 edition. Where possible, discrepancies will be resolved with the analytical laboratory. A complete analytical data validation is not anticipated. Data that do not meet NYSDEC ASP, 10/95 criteria will be qualified.

TABLE 1
73-79 W. HURON ST. - BCP SITE INVESTIGATION
PROPOSED SAMPLING AND ANALYSIS

ANALYTICAL PARAMETER	ANALYTICAL METHOD	SOIL SAMPLES PARKING LOT/BASEMENT GEOPROBE 18 SUBSURFAC/8 SUBSLAB/24 EXCAVATION/ 16 CONFIRMATORY SAMPLES/6 BACKFILL SAMPLES)				GROUNDWATER SAMPLES (6 MONITORING WELLS/1 BASEMENT SUMP/ 3 IRM EXCAVATION WATER)				SOIL VAPOR SAMPLES (4 SUBSLAB, 1 BASEMENT, 1 AMBIENT)		BUILDING SAMPLES FLOOR/ACM/LEAD PAINT	
		# OF SAMPLES	FIELD DUPLICATE (1 in 20)	MS/MSD (1 in 20)	RINSE BLANK	# OF SAMPLES	FIELD DUPLICATE (1 in 20)	MS/MSD (1 in 20)	TRIP BLANK	# OF SAMPLES	FIELD DUPLICATE (1 in 20)	# OF SAMPLES	FIELD DUPLICATE (1 in 20)
TCL Volatile Organics (VOCs)	8260/ TO-15	72	4	8	4	10	1	2	1	6	1	8	1
TCL Semivolatile Organics (SVOCs)	8270	16	1	2	1	6	--	--	--	--	--	8	1
Pesticides/ PCBs	8081/ 8082	14	1	2	1	3	--	--	--	--	--	4	1
TAL Metals/ Mercury	6010/ 7470	14	1	2	1	3	--	--	--	--	--	4	1
Cyanide	9012	14	1	--	1	3	--	--	--	--	--	4	1
Asbestos	TEM/ 198.6	--	--	--	--	--	--	--	--	--	--	18	--
Lead (Paint)	6010	--	--	--	--	--	--	--	--	--	--	4	--
LANDFILL PARAMETERS (Petroleum: TCLP Benzene, TCLP Lead, TPH, IGNITABILITY, pH)	8260/6010/ 1664/1010/ 9045	6	--	--	--	--	--	--	--	--	--	--	--

TABLE 2

73-79 W. HURON ST. - BCP SITE INVESTIGATION

HOLDING TIMES AND CONTAINERS FOR SAMPLING/ANALYSIS

ANALYTICAL PARAMETER	SAMPLE HOLDING TIMES	SOIL			GROUNDWATER (GW)			SUBSLAB SOIL VAPOR		BUILDING SAMPLES	
		TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample	TOTAL # of CONTAINERS	TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample	TOTAL # of CONTAINERS	TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample	TOTAL # of SAMPLES, incl. QC	CONTAINER TYPE/ # per sample
TCL Volatile Organics (VOCs)	14 days	88	2-OZ GLASS: (x 2 each)	176	14	40-ml GLASS: (x 2 each) HCl preserv.	28	4	SUMMA CANISTER (x1 each)	--	--
TCL Semivolatile Organics (SVOCs)	Soil: 14 days GW: 7 days	20	4-OZ GLASS: (x 1 each)	20	6	1 L-GLASS AMBER (x 2 each) no preserv.	12	--	--	--	--
Pesticides/ PCBs	1 year (laboratory)	18		18	3	1 L-GLASS AMBER (x 2 each) no preserv.	6	--	--	--	--
TAL Metals/ Mercury	Metals: 180 days Hg: 28 days	18	4-OZ GLASS: (x 1 each)	18	3	200-ml PLASTIC (x 1 each) HNO3 preserv.	3	--	--	--	--
Cyanide	14 days	16	4-OZ GLASS: (x 1 each)	16	3	200ml PLASTIC (x 1 each) NaOH preserv.	3	--	--	--	--
Asbestos (ACM)	--	--	--	--	--	--	--	--	--	18	8-oz ziploc bag: (x 1 each)
Lead (Paint)	180 days	--	--	--	--	--	--	--	--	4	8-OZ GLASS: (x 1 each)
LANDFILL PARAMETERS (Petroleum: TCLP Benzene, TCLP Lead, TPH, IGNITABILITY, pH)	varies	6	16-OZ GLASS: (x 2 each)	12	--	--	--	--	--	--	--

APPENDIX F

HEALTH & SAFETY PLAN

HEALTH & SAFETY PLAN

for

73-79 W. Huron St. Site, Buffalo, NY

BROWNFIELDS CLEANUP PROGRAM

SITE INVESTIGATION/INTERIM REMEDIAL MEASURE

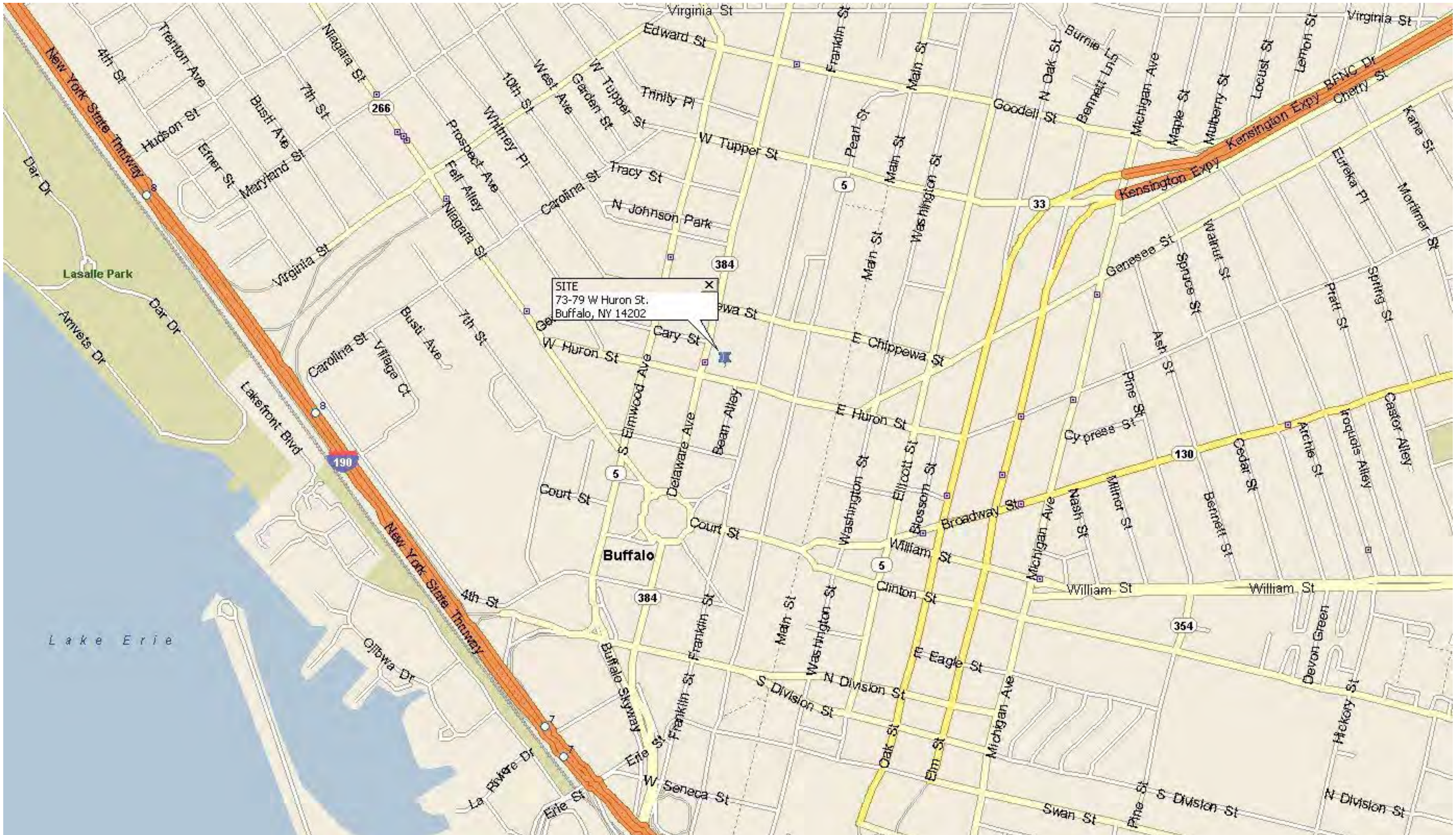
NOVEMBER 2014

PREPARED FOR

Hurondel I, Inc.,
Buffalo, NY

PREPARED BY

IYER ENVIRONMENTAL GROUP, PLLC
44 Rolling Hills Dr., Orchard Park, NY 14127

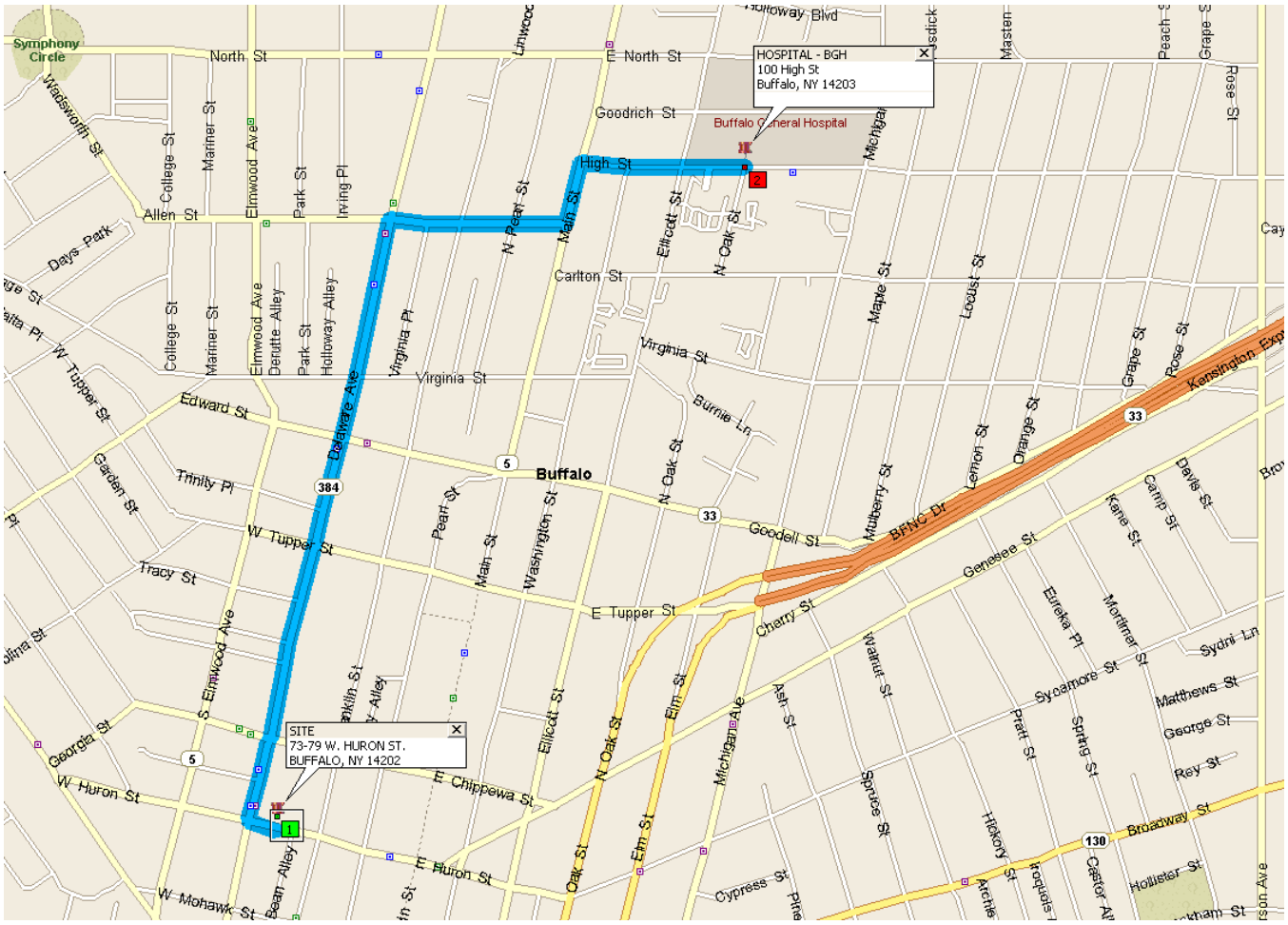


73-79 W HURON ST., BUFFALO, NY

SITE LOCATION MAP

FIGURE 1

IEG



0.0	**1 Depart SITE on W Huron St (West)**	**54 yds**
0.1	Turn RIGHT (North) onto RT-384 [Delaware Ave]	0.7 mi
0.8	Turn RIGHT (East) onto Allen St	0.2 mi
1.0	Turn LEFT (North) onto RT-5 [Main St], then immediate	0.3 mi
1.2	**2 Arrive HOSPITAL - BGH [100 High St, Buffalo, NY**	

73-79 W. HURON ST. SITE – BCP SI/IRM
DIRECTIONS TO HOSPITAL

FIGURE 2

IEG

TABLE 1
EMERGENCY NOTIFICATION TABLE

Agency	Contact	Phone Number
Police Sheriff	Emergency	911
Fire & First Aid	Emergency	911
Ambulance	Emergency	911
Hospital/ Emergency Care Facility	Buffalo General Hospital 100 High Street Buffalo, NY 14203	(716)859-5600
Poison Control Center	---	(800) 336-6997
Chemical Emergency Advise	CHEMTREC	(800) 424-9300
NYS Department of Health	Steven Karpinski NYSDOH Bureau of Env. Exposure Investigation Empire State Plaza Corning Tower Room 1787 Albany, NY 12237	(716) 847-4501
NYS Department of Environmental Conservation, Region 9	David Locey NYDEC DER 270 Michigan Avenue Buffalo, NY 14202	(716) 851-7220 - Work Hrs. (800) 342-9296 - After Hrs.
	Spill Hotline	(800) 457-7362
CONSULTANTS:	Dharma Iyer, PhD, PE, Project Manager Iyer Environmental Group, PLLC	(716) 662-4157/445-9684
DEVELOPER	James Jerge Hurondel I, Inc. 257 Franklin St. Buffalo, NY 14202	(716)853-3400
DIRECTIONS TO HOSPITAL (EMERGENCY ROUTE) *See Figure 2*	FROM THE SITE: Turn right (going west) onto W. Huron St.; Right onto Delaware Ave. (north); Right on to Allen St. (east); Left into Main St. (north); Immediate right onto High St. (east); Emergency Entrance to Buffalo General Hospital is on the left.	

HEALTH & SAFETY PLAN
BROWNFIELDS SITE SI/IRM
73-79 W. Huron St., Buffalo, NY
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HEALTH & SAFETY PLAN
BROWNFIELDS SITE SI/IRM
73-79 W. Huron St., Buffalo, NY
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SECTION 1.0
Project Description

1.0 INTRODUCTION

The health and safety protocols established in this plan are based on site conditions and chemical hazards known, anticipated or suspected to be present from available site data. The following site Health and Safety Plan (HASP) is intended solely for use during the supplemental investigations and interim remedial measure at 73-79 W. Huron St. in Buffalo, NY 14202 (see Figure 1). This Plan may be modified prior to the implementation of the interim remedial measure based on any changes to the proposed remedial action.

All activities and equipment used in association with the referenced supplemental investigation and interim measure will, at a minimum, comply with:

- 29 CFR 1910, General Industry, Occupational Safety and Health (OSHA) Safety and Health Standards;
- 29 CFR 1926, Construction Industry, OSHA Safety and Health Standards;
- 40 CFR 262, Standards Applicable to Generators of Hazardous Waste, Current Edition;
- 40 CFR 178, Shipping Container Specification, Current Edition;
- NIOSH 85-115, NIOSH/OSHA/USCG/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985;
- EPA 9285.1-03, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH, OSHA, USCF, and EPA), 1992;
- "Threshold Limit Values for Chemical and Physical Agents and Biological Exposure Indices," American Conference of Government Industrial Hygienists, Cincinnati, Ohio, Current Edition;
- "Guide to Occupational Exposure Values," American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, Current Edition;
- "Community Air Monitoring Plan," 93118PR00149, NYSDEC;
- NYSDOL 28.876, Article 28, Section 876 of NYS Labor Law (Right-to-Know Law), 1980; and
- Other applicable Federal, State, and Local regulations

1.0 SITE DESCRIPTION AND BACKGROUND

1.2.1 General Location

The property is located at 73-79 W. Huron Street in downtown Buffalo, NY (see site location map on Figure 1). The site is surrounded by a parking lot to the north, W. Huron Street to the south, the Curtiss building to the east, an auto service shop (former Sunoco gas station) to the west.

1.1.2 Site History

The site consists of a rectangular shaped, 0.216 acre parking lot (77-79 W Huron St.) and a rectangular shaped, six-story parking garage (73-75 W. Huron St.) as shown on the aerial photo on Figure 1. The asphalt-paved parking lot is currently being leased by auto drivers for parking spaces. The parking garage is a vacant brick structure with a basement and a 0.34-acre footprint.

For more than a decade, this Site along with the adjacent Sunoco site to the west has been the subject of investigations and remediation related to petroleum contamination of the subsurface soil and groundwater.

1.3 GENERAL SUMMARY OF WORK

a) Soil sampling using a direct push method (Geoprobe), and analysis
b) Groundwater sampling using disposable bailers, and analysis
c) ACM and lead paint sampling inside the building
d) Excavation, stockpiling and off-site disposal of contaminated soils
e) Excavation water pumping, storage, treatment and discharge to sanitary sewer
f) Backfilling of excavated area with clean fill and regrading
g) Long-term OM&M

SECTION 2.0
Hazard Assessment & Risk Analysis

An assessment and analysis of chemical, physical, and biological hazards associated with this project is presented in the subsections that follow. A task-by-task risk analysis of the potential exposure to the identified hazards is provided below and in Table 3 at the end of this section.

TASK	POTENTIAL EXPOSURE RISK
Geoprobe soil sampling	Moderately high
Groundwater sampling	Moderately high
ACM and lead paint sampling	Moderately high
Soil excavation and disposal	Moderately high
Excavation water treatment/discharge	Moderately high
Backfilling and regrading	Low

Anticipated Exposure Risk Definitions:

LOW = Non-Intrusive Work – No Chance of Exposure.

SLIGHT = Non-Intrusive Work, Possible Safety Hazards with Tools - Little to No Chance of Exposure.

MODERATE = Non-Intrusive Work, Possible Safety Hazards with Powered Tools, Heavy Equipment, and/or work near or in water. Possible Exposure to Contaminants.

MODERATELY HIGH = Intrusive Work, Possible Safety Hazards with Equipment – Exposure to Contaminants Possible.

HIGH = Intrusive Work, Possible Safety Hazards with Equipment – Exposure to Contaminants Probable.

2.1 CHEMICAL HAZARDS

The primary chemical hazard substances known or suspected to exist on-site are volatile organic compounds (VOCs) that are associated with past development of this property with industrial fill and use as a warehouse with a filling station. There is also concern about the possible of other hazardous substances that may be related to its past. The hazards associated with these chemical substances are discussed in Table 2 at the end of this section.

The levels of personal protective equipment (PPE) identified in Section 6.0 of this HASP have been assigned by task, known/anticipated chemical toxicity, and potential exposure risks. Action levels for PPE upgrade (see Section 7.0) have been set conservatively to minimize the risk of exposure to field personnel.

2.2 PHYSICAL/GENERAL HAZARDS

The following general, physical, and ergonomic hazards may be associated with this project:

1. **Potential Hazard:** Dermal and inhalation hazards resulting from potential exposure to the chemical compounds identified in Table 2.

   Procedure(s) to Mitigate Hazard: Don PPE identified in Section 6.0 of this HASP. The levels of PPE identified in Section 6.0 of this HASP have been assigned by task, known/anticipated chemical toxicity, and potential exposure risks. Other means of minimizing or eliminating risk of exposure include: practicing contamination prevention including a thorough washing of hands and face when exiting the exclusion zone and prohibiting use of contact lenses during field activities.

2. **Potential Hazard:** Slips, Trips, and Falls.

   Procedure(s) to Mitigate Hazard:
   (1) Exercise extreme caution in all work areas.
   (2) Be sure of footing during equipment access/egress and when moving through the work area.
   (3) Avoid stepping or standing on uneven or unsteady surfaces.
   (4) Clearly delineate open pits, wells, and other fall hazards with orange safety fencing. Securely cover as appropriate.

3. **Potential Hazard:** Exposure to inclement weather.

   Procedure(s) to Mitigate Hazard:
   (1) Follow the procedures for the prevention and/or treatment of heat or cold stress (if ambient air temperatures exceed 70^{o}F or drop below 40^{o}F) described in Section 5.5 of this HASP.
   (2) Adhere to the emergency response procedures provided in Section 10.3 of this HASP.

4. **Potential Hazard:** Housekeeping

   Procedure(s) to Mitigate Hazard:
   (1) Store equipment property.
   (2) Remove rubbish/scrap material from work area.

5. **Potential Hazard:** Vehicle Traffic

   Procedure(s) to Mitigate Hazard: Utilize warning signs and flagman (men) as appropriate to direct traffic away from work area.

6. **Potential Hazard:** Hazardous Material Storage

   Procedure(s) to Mitigate Hazard:
   (1) Segregate flammable/combustible liquid from ignition sources.
   (2) Store in approved containers.
   (3) Keep solvent waste, oily rags, and liquids in fire resistant containers.

7. **Potential Hazard:** Electrical

   Procedure(s) to Mitigate Hazard:
   (1) Utilize approved grounding and bonding procedures.
   (2) Guard and maintain electrical lines/cords.

(3) Tag/remove damaged equipment from service.

8. **Potential Hazard:** Tools

Procedure(s) to Mitigate Hazard:
(1) Tag and remove defective tools from service.
(2) Maintain and inspect per manufacturer's recommendations.
(3) Utilize proper eye protection.

9. **Potential Hazard:** Above and/or Underground Utilities within Work Area(s)

Procedure(s) to Mitigate Hazard:
(1) Obtain a site utility plan or markout and ensure that electrical lines (if any) are not energized.
(2) Call Di-Safe-NY to locate utilities before any intrusive work.

2.3 BIOLOGICAL HAZARDS

Biological hazards which on-site personnel may encounter are considered minimal, but include animal bites or stings, contact with plants, and exposure to microbes.

Animal bites or stings are usually nuisances (localized swelling, itching, and minor pain) that can be handled by first aid treatment. The bites of certain snakes, lizards, and spiders contain sufficient poison to warrant medical attention. There also are diseases that can be transmitted by animal bites which will require professional medical attention. Examples are rabies (mainly from dogs, skunks, raccoons, and foxes), Lyme disease (from ticks [see discussion below]), and encephalitis (from mosquitoes).

The biggest hazard and most common cause of fatalities from animal bites and stings (particularly bees, wasps, and spiders) is a sensitivity reaction. Anaphylactic shock due to stings can lead to severe reactions to the circulatory, respiratory and central nervous system, and it can also result in death. Therefore, workers with known insect allergies must notify the site health and safety officer of his/her condition prior to engaging in remedial operations.

Workers who are bitten by an animal or stung by an insect must immediately notify the site safety and health officer.

Lyme disease is caused by an infectious agent, Borrelia burgdorferi. This agent is a spirochete transmitted to animals or humans via ticks. The early symptoms and signs, with one exception, are non-specific and easily attributed to other illnesses, such as the flu. They include fever, nausea, vomiting, fatigue, headache, photophobia (sensitivity to light), and, in approximately 75 percent of the cases, a rash. Over several days it enlarges, sometimes reaching a diameter of 20 centimeters. The border of the enlarging rash is red, slightly warm, but flat. Often, the center of the rash clears somewhat, so that it looks like an irregular ring. In about half of the persons with a rash, more than one circular eruption is present. The rash termed, erythema migrans, is essentially diagnostic of Lyme disease, and therefore is a very important finding.

Undiagnosed/untreated Lyme disease can lead to severe, sometimes life-threatening medical problems. The principal targets include the skin, the nervous system, the heart, and the joints. Early treatment is highly desirable since, in most cases, it prevents progression of the disease and is a less prolonged, less intense affair.

Preventative measures include protective clothing (see Section 6.0); head/hair protection; and the use of insect repellant containing DEET on all exposed areas and coveralls. Workers should check their bodies thoroughly for ticks and should bathe soon after returning home. Remove any ticks carefully, using a

gentle, firm, tugging motion with fine tweezers. Do not kill the tick before it has been removed. Workers should save the ticks and monitor their bites, checking for a rash and other symptoms (up to about eight weeks after the bite).

Toxic effects from plants are generally due to ingestion. Of more concern to on-site personnel are certain plants, including poison ivy, poison oak, and poison sumac, which produce adverse effects from direct contact. The usual effect is dermatitis inflammation of the skin. The protective clothing and decontamination procedures used for chemicals also reduce the exposure risk from the plant toxins. Cleaning the skin thoroughly with soap and water after contact will reduce the risk.

TABLE 2 : CHEMICAL HAZARD/EXPOSURE DATA SUMMARY
Brownfield Site RI/IRM for 73-79 W. Huron St. Site

Chemical of Concern	Maximum Concentration (If Known)	Potentially Contaminated Media	OSHA PEL/ ACGIH TLV/ NIOSH IDLH	Routes of Exposure	Exposure Symptoms/ Primary Hazards
Petroleum Hydrocarbons Benzene, Xylenes, Toluene, Ethyl benzene	Refer to Phase II Reports	Soil Groundwater	PEL: 1 - 10 ppm TLV: 100 ppm IDLH: 100 ppm	Inhalation Absorption	FLAMMABLE LIQUIDS/FIRE HAZARD May damage the developing fetus. They can irritate the eyes, nose and throat. High levels can cause dizziness, passing out and death. Repeated exposure may damage bone marrow causing low blood cell count. May also damage the eyes, and cause stomach problems. May cause problems with memory and concentration.
Semivolatile organics Naphthalene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, Benzo(g,h,i)perylene benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene	Refer to Phase II Reports	Soil Groundwater	PEL: 0.2 mg/m^3 TLV: 0.2 mg/m^3 IDLH: 80 mg/m^3	Inhalation Ingestion	Seven polynuclear aromatic hydrocarbons in the semivolatile organics group and on the hazardous substance list are suspected/known carcinogens of various degrees. These chemical can cause tumors, and affect the skin, lungs, male reproductive organs, and respiratory tract.
Heavy Metals	Not known at this time	Soil Groundwater	PEL: 5 mg/m^3 TLV: 10 mg/m^3 IDLH: NE	Inhalation Absorption	Heavy metals can affect the skin, eyes, mucous membrane, nasal cavities, lungs liver, kidneys and heart
Polychlorinated Biphenyls (PCBs)	Not known at this time	Soil Groundwater	PEL: 1 mg/m^3 TLV: 1 mg/m^3 IDLH: NE	Absorption	Confirmed carcinogen. Moderately toxic by ingestion. Has skin effect and toxic action on the liver. Some isomers are poisonous by other routes. Symptoms of systemic intoxication are nausea, vomiting, weight loss, edema and abdominal pain.

NOTES:

OSHA PEL = Occupational Safety & Health Administration's Final Rule Limits Permissible Exposure Limit for an 8-hour, time-weighted average (TWA) from CFR 1910.1000, Tables Z-1A, Z-2, and Z-3.

ACGIH TLV = American Conference of Governmental Industrial Hygienists' Threshold Limit Value for an 8-hour, TWA.

NIOSH IDLH = National Institute of Occupational Safety and Health Level Immediately Dangerous to Life and Health.

TABLE 3 : TASK & RISK ANALYSIS TABLE
Brownfield Site SI/IRM for 73-79 W. Huron St.

Task	Sub-Tasks	Activity	Hazard	Protective Measures
Test pit excavation and Soil Borings	Excavation, backfill, field measurements, soil sampling	Use of heavy equipment, power tools, and hand tools	Potential exposure to chemicals and particulates, falls, cuts, injury from falling objects, release of kinetic or stored energy, unstable excavation walls	Engineering controls such as water for particulate control, proper work practices including proper heavy equipment operation and use of PPE.
Monitoring and Sampling	Field measurements, Water, soil sampling	Use of hand tools, direct read instruments or other equipment to gather samples for analysis	Potential chemical exposure	Use of proper techniques and PPE
Decontamination of Equipment and personnel	Cleaning contaminants off equipment and personnel;	Use of power-washer or spray bottles, and hand tools to remove contaminants	Potential chemical exposure, thermal burns	Proper operation of power washer and use of proper PPE
Soil excavation and off-site disposal	Excavation, stockpiling, loading, transportation	Use of heavy equipment, power tools, and hand tools	Potential exposure to chemicals and particulates, falls, cuts, injury from falling objects, release of kinetic or stored energy, unstable excavation walls	Engineering controls such as water for particulate control, proper work practices including proper heavy equipment operation and use of PPE.
Backfill and regrading	Wells, cap, gas probes	Use of heavy equipment, power tools, and hand tools	Potential exposure to particulates, falls, cuts, injury from falling objects, release of kinetic or stored energy, electrical hazards	Engineering controls such as water for particulate control, proper work practices including proper heavy equipment operation and use of PPE.

SECTION 3.0
Project Organization & Personnel Responsibilities

The following IEG managerial personnel are assigned to this project and will assume the job functions listed below:

- **Project Manager (IEG)** - Dharmarajan R. Iyer, Ph.D., PE;
- **Health & Safety Officer** (HSO, IEG) – Fred Smith, Jr., CIH

3.1 PERSONNEL RESPONSIBILITIES

The Project Manager will be responsible for overall administration of the project and will assume corporate QA/QC requirements. In addition, the Project Manager will oversee submittals, negotiating/securing subcontracts; scheduling, personnel management, cost tracking and reporting, etc.

The HSO will be responsible for field implementation of this HASP and for insuring the project team's compliance to the site-specific health and safety protocol established herein. The HSO will be responsible for the following:

> Implementing, enforcing, and monitoring the HASP
> Preconstruction indoctrination and periodic training of all on-site personnel with regard to this safety plan and other safety requirements to be observed during construction including:
  - Potential hazards,
  – Personal hygiene principles,
  – Personal protective equipment (PPE),
  – Respiratory protection equipment usage and fit testing,
  – Emergency procedures dealing with fire and medical situations, and
  – Conduct daily update meetings in regard to health and safety
> Evaluating monitoring data to make field decisions regarding safety and health
> Informing project personnel of NYS Labor Law Section 876 (Right-to-Know Law)
> Maintaining separation of Exclusion Zone (dirty) from the Support Zone (clean)

The HSO will have the authority to:

> Enforce this HASP and stop operations if personnel safety and health may be jeopardized, and
> Effect evacuation of the site if necessary

3.2 SURVEILLANCE & INTERNAL AUDITING RESPONSIBILITIES

The HSO will monitor job-site safety via inspection and review of records. Any safety violations will be corrected and reported to the Project Manager. Safety violations will be immediately corrected, explained to the perpetrator, and reviewed at the next safety meeting. Excessive violations of the site safety rules will be grounds for disciplinary action which could lead to termination or expulsion.

SECTION 4.0
Site Personnel Training Requirements

All personnel assigned to the site will be in compliance with the training requirements of 29 CFR 1910 and 1926 as listed below. Site personnel will have met one of the following requirements prior to the start of activities at the site:

< A 40 hour minimum hazardous materials safety and health course, as stipulated in 29 CFR 1926.65 e(3); and
< An 8 hour minimum refresher course per year after the 40 hour minimum training has occurred (29 CFR 1926.65.e[8]).

On-site managers and supervisors must be in compliance with the additional supervisory training requirements of 29 CFR 1926.65.e(4). Emergency responders must be in compliance with the additional training requirements of 29 CFR 1926.65.e(7). Personnel involved in confined space entry will have completed training in accordance with OSHA requirements.

As stipulated in 29 CFR 1910.120, all IEG and subcontractor personnel assigned to this project also will receive site-specific training in:

- Provisions of OSHA regulations and legislation under OSHA Standards 1910 and 1926;
- Provisions of NYSDOL 28.876;
- Medical monitoring per Section 5.0 of this HASP;
- Hazards of the work place (chemical/physical/biological/ergonomic);
- Standard safety operation procedures (see Attachment B);
- Decontamination procedures;
- Work zones;
- Emergency procedures and contingency plans;
- Respirator equipment training, qualitative fit testing and respirator maintenance;
- Emergency first aid procedures, blood borne pathogen program, and CPR;
- On-site communication procedures;
- Air monitoring techniques and sample taking;
- Hazardous material recognition;
- Importance of "Buddy System";
- Toxicology and basic chemistry;
- Site entry; and
- Use of emergency escape packs.

Copies of applicable training certificates (i.e., 40 hour training records, 8 hour training records, 8 hour supervisor training records, medical monitoring documentation, respirator fit test results, first aid/CPR certificates, asbestos handlers cards, confined space entry training certificates, etc.) for site personnel will be retained by the HSO.

4.1 VISITORS

Only those persons who have (1) completed the same level of training as the workers for the portion of the site they wish to enter, in addition to having received the site orientation currently outlined in this HASP, and (2) signed the Visitor's Entry Log will be permitted to enter established work areas. The HSO will establish, on a case-by-case basis, a safe location from which visitors can observe the site activity of interest.

4.2 SAFETY MEETINGS

Personnel who work on the site are required to attend Pre-Entry Site Briefing as and when it is held. It will include a review of the requirements of this HASP. On-site safety meetings will occur regularly and ***on-site personnel will be required to attend***. Attending personnel must sign an attendance sheet. Any personnel who miss the on-site safety meetings will be required to attend a review by the HSO before he/she will be allowed to work at the discretion of the HSO. Items to be considered at the safety meetings may include, but are not limited to:

- Review of relevant site data that may relate to the potential for worker exposure;
- Delegation of responsibility (i.e., field technicians, equipment operators, emergency backup personnel, competent persons, logistical and support requirements);
- Type and frequency of environmental and personal monitoring to be performed;
- Mobilization of support and decontamination equipment;
- Initial levels of protection required and the anticipated potential for upgrading;
- Decontamination requirements;
- Emergency procedures;
- Functional and interpretive problems that may have been encountered while using monitoring instrumentation, personal protective or other support equipment;
- Personal hygiene;
- Fire prevention;
- Heavy equipment operation; and
- Discussion of on-going and planned work activities.

4.3 EMERGENCY RESPONSE TRAINING

Training in site-specific emergency procedures will be provided by the site health and safety officer before work begins on-site. This training will include, but is not limited to, the following;

- Emergency chain-of-command;
- Communication methods and signals;
- Location of phones and emergency numbers;
- Use of emergency equipment;
- Evacuation and emergency procedures;
- Off-site support;
- Site-specific hazards;
- Decontamination procedures;
- Standard operating procedures; and
- Location and use of first aid equipment.

SECTION 5.0
Medical Surveillance

Medical monitoring is required by OSHA as a means of monitoring worker exposure to certain toxic substances. IEG will implement a Medical Surveillance Program (MSP) for employees engaged in on-site activities which is consistent with the requirements of 29CFR.1926.65(b). All medical records and personnel exposure monitoring data generated from the MSP will be retained per 29 CFR 1910.1020.

A baseline medical surveillance examination will be given not more than one year prior to a 40-Hour OSHA-Trained worker reporting to the job site to work in contaminated areas. Copies of the physician's statement certifying each employee's ability to work at task-specific operations, as well as their suitability for wearing respirators will be maintained by the HSO for review by involved regulatory personnel upon request. The baseline Medical Surveillance Exam will meet the requirements of 29CFR.1926.65 (b).

5.1 EPISODIC EXAMINATIONS

Non-scheduled medical examinations may be required upon acute exposure, at the discretion of the HSO, or upon receipt of a request for a medical examination from any employee with symptoms of exposure to hazardous substances, or following injuries, etc. Episodic examinations will be provided, if required, by that person's direct employer through their Medical Surveillance Program.

5.2 ANNUAL AND/OR TERMINATION EXAMINATIONS

All personnel participating in the medical monitoring program (i.e., those personnel who are 40-Hour, OSHA-Trained) will have annual re-examinations and follow-up examinations upon completion of the work. Biological monitoring for blood lead levels will be conducted as part of these examinations in accordance with 29 CFR 1926.62. Employees will be notified of their blood lead levels within five working days of receipt of biological monitoring results.

The annual and termination exams will be complementary in scope with the baseline exams to the degree sufficient to allow comparison of individual biologic parameters. Additional testing for the purpose to further diagnose occupationally induced or significant abnormalities will be at the discretion of the examining physician.

5.3 AUDIOMETRIC TESTING

In addition to the baseline physical exam, all personnel will receive an annual audiogram. This annual audiogram will be reviewed against the baseline or most current audiogram by a certified audiologist to determine if noise-induced hearing loss has occurred. If a noise-induced hearing loss is noted during the evaluation, the employee will be notified, in writing, within 21 days of the determination. This testing is performed in compliance with 29 CFR 1210.95.

5.4 ABNORMAL MEDICAL SURVEILLANCE RESULTS

In general, whenever any medical test which is of significance yields abnormal results, the test will be repeated. Whenever abnormal results are substantiated, the worker may be restricted or excluded from areas which are potentially contaminated or thought to compromise his/her safety. Employees exhibiting elevated blood lead levels will be removed from exposures. The decision of worker disposition will rest with the examining physician.

5.5 HEAT/COLD STRESS MONITORING

The following program will be implemented when the ambient air temperatures exceed 70°F (heat stress monitoring) or drop below 40°F (cold stress monitoring).

5.5.1 Heat Stress Monitoring

Site personnel who wear protective clothing allow body heat to be accumulated with an elevation of the body temperature. Heat cramps, heat exhaustion, and heat stroke can be experienced, which, if not remedied, can threaten life or health. Therefore, an American Red Cross Standard -First Aid book (current edition) or equivalent will be maintained on site at all times so that the HSO and site personnel will be able to recognize symptoms of heat emergencies and be capable of controlling the problem.

When protective clothing is worn (especially Levels A, B, and C) the suggested guidelines for ambient temperature and maximum wearing time per excursion are:

Ambient Temperature (ºF)	Maximum Wearing Time Per Excursion (Minutes)
Above 90	15
85 to 90	30
80 to 85	60
70 to 80	90
60 to 70	120
50 to 60	180

Monitoring the heart rate is one method of measuring the effectiveness of employees' rest-recovery regime:

- During a 3-minute period, count the pulse rate for the last 30 seconds of the first minute, the last 30 seconds of the second minute, and the last 30 seconds of the third minute.
- Double the count.

If the recovery pulse rate during the last 30 seconds of the first minute is at 110 beats/minute or less and the deceleration between the first, second, and third minutes is at least 10 beats/minute, the work-recovery regime is acceptable. If the employee's rate is above that specified, a longer rest period is required, accompanied by an increased intake of fluids.

In the case of heat cramps or heat exhaustion, "Gatorade" or its equivalent is suggested as part of the treatment regime. The reason for this type of liquid refreshment is that such beverages will return much-needed electrolytes to the system. Without these electrolytes, body systems cannot function properly, thereby increasing the represented health hazard. NOTE: The HSO or HSTs may weigh workers before and after entry to determine if there is excessive loss of fluid.

This liquid refreshment will be stored in a cooler at the edge of the decontamination zone in plastic squeeze bottles. The plastic bottles will be marked with individual's names. Disposable cups with lids and straws may be used in place of the squeeze bottles. Prior to drinking within the decontamination zone, the project personnel will follow the following decontamination procedures:

A. Personnel will wash and rinse their outer gloves and remove them.
B. Personnel will remove their hard hats and respirators and place on table.
C. Personnel will remove their inner gloves and place them on table.
D. Personnel will wash and rinse their face and hands.
E. Personnel will carefully remove their personal bottle or cup from the cooler to ensure that their outer clothes do not touch any bottles, cups, etc. Personnel also must ensure that their hands to not touch their outer clothes.
F. The used bottle or cups will not be returned to the cooler, but will be placed in a receptacle or container to be cleaned or disposed of.
G. Personnel will replace their respirators, hard hats, gloves and tape gloves prior to re-entering the hazardous zone.

When personnel are working in situations where the ambient temperatures and humidity are high-and especially in situations where protection Levels A, B, and C are required the HSO must:

- Assure that all employees drink plenty of fluids ("Gatorade" or its equivalent);
- Assure that frequent breaks are scheduled so overheating does not occur; and
- Revise work schedules, when necessary, to take advantage of the cooler parts of the day (i.e., 5:00 a.m. to 1:00 p.m., and 6:00 p.m. to nightfall).

5.5.2 Cold Stress Monitoring

Whole-body protection will be provided to site personnel that have prolonged exposure to cold air. The right kind of protective clothing will be provided to site personnel to prevent cold stress. The following dry clothing will be provided by IEG as deemed necessary by the HSO:

- Appropriate underclothing (wool or other);
- Outer coats that repel wind and moisture;
- Face, head, and ear coverings;
- Extra pair of socks;
- Insulated safety boots; and
- Glove liners (wool) or wind- and water-repellant gloves.

The HSO will use the equivalent chill temperature when determining the combined cooling effect of wind and low temperatures on exposed skin or when determining clothing insulation requirements.

Site personnel working continuously in the cold are required to warm themselves on a regular basis in the on-site hygiene facility. Warm, sweet drinks will also be provided to site personnel to prevent dehydration. The HSO will follow the work practices and recommendations for cold stress threshold limit values as stated by the latest edition of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices by the American Conference of Governmental Industrial Hygienists or equivalent cold stress prevention methods.

SECTION 6.0
Personal Protective Equipment

Based on an evaluation of potential hazards (see Section 2.0), the following levels of personal protective equipment are assigned for this project.

PLANNED WORK ACTIVITY	PLANNED LEVEL OF PROTECTION	ACTION LEVEL FOR PPE UPGRADE/DOWNGRADE
Soil and groundwater sampling	Modified Level D	Upgrade to Level C if Sustained Readings[A] of 2.5 x Background and 150 μg/m^3 are recorded or if an IDLH Condition is Probable.
Soil Excavation and offsite disposal	Modified Level D	Upgrade to Level C if Sustained Readings[A] of 2.5 x Background and 150 μg/m^3 are recorded or if an IDLH Condition is Probable.
Backfill and regrading	Level D	Upgrade to Level C if Sustained Readings[A] of 2.5 x Background and 150 μg/m^3 are recorded or if an IDLH Condition is Probable.
Decontamination of Equipment & Vehicles	Level D	Upgrade to Level C if Sustained Readings[A] of 2.5 x Background and 150 μg/m^3 are recorded or if an IDLH Condition is Probable.

NOTES:

A. For the purposes of this discussion, a *sustained reading* is defined as a consistent reading on a real-time monitoring instrument which does not vary substantially from a peak or a result which is averaged over a period of time (i.e., 5 minutes). Sustained is called out in order to avoid downgrading PPE based on a single "hit" or "miss" instead of the average concentration present. Unless a chemical has a ceiling value, the TWA and STEL values are averages for exposure over 8-hours or 15 minutes and not single peaks. The values for the above action levels are based on TWA and STEL values.

B The action levels given are based on the potential for exposure to the chemicals listed in the contract documents. These action levels may be changed based on further chemical-specific sampling.

C. The levels of PPE identified have been assigned by task (Table 3), known/anticipated chemical toxicity (Table 2), and potential exposure risks (Table 3). Action levels for PPE upgrade have been set conservatively to minimize the risk of physical injury and/or exposure to field personnel.

D. Respiratory protection will conform to OSHA 1910.134. Personnel assigned to work in the Exclusion Zone or Contamination Reduction Zone must have passed a Respirator Fit Test in accordance with OSHA 3079. Fit tests will be administered by the HSO. Respirators will be maintained and operated per the SOP set forth in Attachment D of this HASP.

E. The HSO will be responsible for determining the need for PPE upgrade or downgrade based on actual conditions encountered in the field.

PPE levels are defined in Table 4 at the end of this section. Project-specific PPE requirements are summarized below.

< The **Level D PPE ensemble** will include work clothing as dictated by weather (sleeved shirts and long pants required); a hard hat; safety glasses; and steel-toe work boots. Hearing and fall protection will be utilized as directed by the HSO or HSTs.

< The **Modified Level D PPE ensemble** will include work clothing as dictated by weather; disposable Tyvek coveralls or equivalent; disposable nitrile (NRC) or neoprene outer gloves (worn over optional inner latex or surgical gloves); a hard hat; safety glasses; steel-toe work boots; and neoprene or butyl rubber overboots. Hearing and fall protection will be utilized as directed by the HSO or HSTs.

< The **Level C PPE ensemble** will include full face air purifying respirator (MSHA/NIOSH approved) with combination organic vapor, acid gas and high efficiency particulate cartridge/filter; Saranax-laminated Tyvek or equivalent coverall; chemical-resistant outer and inner gloves; a hard hat; safety glasses; steel-toe work boots; neoprene or butyl rubber overboots; long cotton underwear (optional); and an escape air mask (readily available). Hearing and fall protection will be utilized as directed by the HSO or HSTs.

< **Level B PPE** will be worn when confined space entry is required (i.e., during tank cleaning). The Level B PPE ensemble will include a positive-pressure SCBA (MSHA/NIOSH approved) or positive-pressure air line respirator with escape bottle for IDLH or potential IDLH atmosphere (MSHA/NIOSH approved); chemical-resistant clothing (Saranax-laminated Tyvek or equivalent coverall); long cotton underwear (optional); outer and inner chemical-resistant gloves; steel-toe work boots; disposable chemical-resistant overboots; and hard hat (face shield optional). Hearing or fall protection will be utilized as directed by the HSO or HSTs.

Taping will be used between suit and gloves, and suit and boots for Levels B, C, and Modified D PPE.

The base levels of protection identified are to be considered preliminary and may change based on air monitoring information collected by the HSO or HSTs during project work. No Changes to the specified levels of protection will be made without the approval of the HSO.

TABLE 4
DESCRIPTION OF PPE LEVELS

LEVEL OF PROTECTION	EQUIPMENT	PROTECTION PROVIDED	SHOULD BE USED WHEN:	LIMITING CRITERIA
A	**Recommended** < Pressure-demand, full-facepiece SCBA or pressure-demand supplied-air respirator with escape SCBA. < Full-encapsulating, chemical-resistant suit. < Inner chemical-resistant gloves. < Chemical-resistant safety boots/shoes. < Two-way radio communications. **Optional** < Cooling Unit. < Coveralls. < Long cotton underwear. < Hard hat. < Disposable gloves and boot covers.	The highest available level of respiratory, skin, and eye protection.	< The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on either: - measured (or potential for) high concentration of atmospheric vapors, gases, or particulates or - site operations and work functions involving a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials that are harmful to skin or capable of being absorbed through the intact skin. < Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible. < Operations must be conducted in confined, poorly ventilated areas until the absence of conditions requiring Level A protection is determined.	< Fully-encapsulating suit material must be compatible with the substances involved.

TABLE 4
DESCRIPTION OF PPE LEVELS

LEVEL OF PROTECTION	EQUIPMENT	PROTECTION PROVIDED	SHOULD BE USED WHEN:	LIMITING CRITERIA
B	**Recommended** < Pressure-demand, full-facepiece SCBA or pressure-demand supplied-air respirator with escape SCBA. < Chemical-resistant clothing (overalls and long-sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical resistant one-piece suit). < Inner and outer chemical-resistant gloves. < Chemical-resistant safety boots/shoes. < Hard hat. < Two-way radio communications. **Optional** < Coveralls. < Disposable boot covers. < Face shield. < Long cotton underwear.	The same level of respiratory protection but less skin protection than Level A. It is the minimum level recommended for initial site entries until the hazards have been further identified.	< The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves atmospheres: - with IDLH concentrations of specific substances that do not represent a sever skin hazard; or - that do not meet the criteria for use of air-purifying respirators. < Atmosphere contains less than 19.5 percent oxygen. < Presence of incompletely identified vapors or gases is indicated by direct-reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the skin.	< Use only when the vapor of gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through the intact skin. < Use only when it is highly unlikely that the work being done will generate either high concentrations of vapors, gases, or particulates or splashes of material that will affect exposed skin.

TABLE 4
DESCRIPTION OF PPE LEVELS

LEVEL OF PROTECTION	EQUIPMENT	PROTECTION PROVIDED	SHOULD BE USED WHEN:	LIMITING CRITERIA
C	**Recommended** < Full-facepiece, air-purifying, canister-equipped respirator. < Chemical-resistant clothing (overalls and long-sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical-resistant one-piece suit). < Inner and outer chemical-resistant gloves. < Chemical-resistant safety boots/shoes. < Hard hat. < Two-way radio communications. **Optional** < Coveralls. < Disposable boot covers. < Face shield. < Escape mask. < Long cotton underwear.	The same level of skin protection as Level B, but a lower level of respiratory protection.	< The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin. < The types of air contaminants have been identified, concentrations measured, and a canister is available that can remove the contaminant. < All criteria for the use of air-purifying respirators are met.	< Atmospheric concentration of chemicals must not exceed IDLH levels. < The atmosphere must contain at least 19.5 percent oxygen.
D	**Recommended** < Coveralls. < Safety boots/shoes. < Safety glasses or chemical splash goggles. < Hard hat. **Optional** < Gloves. < Escape mask. < Face shield.	No respiratory protection. Minimal skin protection.	< The atmosphere contains no known hazard. < Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemical.	< This level should not be worn in the Exclusion Zone. < The atmosphere must contain at least 19.5 percent oxygen.

SECTION 7.0
Air Monitoring Program

7.1 GENERAL

Personnel, work area, and perimeter monitoring strategies have been devised to ensure that the identification of areas for which PPE, engineering, and administrative controls are required. Monitoring and documentation will be conducted as necessary by the HSO or a designated field technician to confirm that the levels of PPE, engineering, and administrative controls are adequate to protect the workers, general public, and environment.

The Project Manager and HSO will ensure that an adequate supply of appropriate monitoring equipment is available prior to commencing work at the site. The instruments will be operated only by persons with appropriate training in the care, calibration, operation, and limitations of the equipment. All instruments will be inspected regularly and field calibrated to determine background concentrations prior to use.

Sampling will be performed and samples will be analyzed using published methodologies that have been validated by OSHA or NIOSH.

Action level contaminant concentrations are based on 50 percent of the OSHA PEL or ACGIH TLV for each contaminant (see Table 2). If air samples indicate that personal exposures are greater than the action levels, then personal protection, engineering, and administrative controls will be reviewed according to the procedures outlined below.

7.2 AIR MONITORING PROCEDURE

The Air Monitoring Plan will include dust control with associated dust, volatile organics and explosives (if needed) monitoring during intrusive activities at the site. Air monitoring will be conducted in accordance with Table 5, the NYSDOH's Generic Community Air Monitoring Plan (included as Appendix A), and as follows:

1. Check and record calibration before and after use each day. All instruments will be calibrated and operated in accordance with manufacturer's specifications. Equipment manuals for all monitoring instruments will be present on-site during all operations.
2. Note weather conditions.
3. Collect and record a background reading on each air monitoring instrument to be used at day's start in an area free of site-generated airborne contaminants. This area will be located upwind of the work area.
4. Prior to initiation of operations, determine and record ambient levels within the contaminated work area(s).
5. Report ambient conditions periodically.
6. Check and record breathing zone levels during remediation and/or abatement activities.
7. Check and record levels at the perimeter of the work zone if elevated concentrations are detected in the worker's breathing zone.
8. Check and record levels following completion of any intrusive work. Monitor one (1) upwind and three (3) downwind locations at the edge of the work zone.
9. Check and record airborne particulate levels periodically. Monitor one (1) upwind and three (3) downwind locations at the edge of the work zone.
10. Check and record daily (pre/post-work) outside exclusion zone ambient air readings. Monitor one (1) upwind and three (3) downwind locations at the edge of the work zone.

TABLE 5
Summary of Air Monitoring Plan* with Action Levels

Instrument	Sampling Location	Monitoring Frequency	Action Level[A]	Response Action[B]
Real Time Monitoring				
Dust Monitors – Respirable Aerosol Monitors (RAMs)	Work zone; Perimeter of Work zone	During soil excavation; backfilling; 1 reading every 15 minutes from each monitoring station	PM_{10} dust standard of 0.15 mg/m^3 above background	Work ceases until mitigated; Enhance dust control measures
Photo-ionization detector (PID) 10.6 eV	Work Zone; Perimeter of Work zone	During sampling; well repair; Soil excavation; Backfilling; 1 reading every 15 minutes from each monitoring station	50% PEL of Measured Contaminants	Work ceases until mitigated Evaluate Need for PPE Upgrade.
Explosimeter/ Oxygen Meter	At Work Zone as Applicable	Any activity which would provide a source of ignition; Periodically during such activity.	<10% LEL >10% LEL to <20% LEL >20% LEL[C] ≤ 19.0% & ≥ 23%	Complete the activity. Complete the activity with continued monitoring. Explosion hazard; evacuate the area; Notify HSO Do not enter. Notify HSO. Ventilate Area

NOTES:

A. The toxicity action levels given above are based on established OSHA PELs for the chemical compounds known and/or anticipated to be present on-site (see Table 2 of this HASP).

B. The HSO is responsible for collecting air monitoring data and notifying site personnel of required response actions (i.e., implementation of engineering controls, upgrade/downgrade to PPE, stop work orders).

SECTION 8.0
Decontamination Procedures

Personnel and equipment decontamination procedures to be employed when exiting contaminated work areas at this project site are detailed in the following subsections.

8.1 PERSONNEL DECONTAMINATION

All personnel will be made aware of any personal habit that may allow contaminants into or onto the body. All personnel will check that regularly worn PPE (e.g., hard hats and liners, eye protection, etc.) is clean and in good condition. Any products for personal consumption or application are prohibited in any work area. Break area(s) will be limited to specific areas where eating, drinking, smoking, etc. and the storage of these materials will be allowed.

No PPE will be removed from a designated work area without proper decontamination or disposal. All personnel leaving the work area will pass through a contamination reduction zone where they will remove their PPE and thoroughly wash/rinse exposed skin with water and biodegradable soap before leaving the project site per the following seven step decontamination SOP.

Step 1: Place equipment and/or samples in area(s) designated in the Equipment Drop-Off Station.

Step 2: Scrape gross contamination from boots and outer gloves, wash using soap in water solution, and rinse with water.

Step 3: Remove tape from around boots and gloves and place in plastic bag or drum provided. Remove overboots and outer gloves and place in plastic bags.

Step 4: Remove respiratory cartridges (if used) and place in plastic bag or drum provided.

Step 5: Remove disposable coveralls and place in plastic bag or drum. Remove boots and store in appropriate location. Remove disposable inner gloves (if worn) and place in plastic bag. Remove hard hat and safety glasses: decontaminate as necessary (wash with sanitizing solution [MSA sanitizing solution or equivalent], rinse with potable water, and allow to dry at the end of each day).

Step 6: Remove respirator (if used) and deposit in plastic bag or drum provided. Avoid touching face with fingers. Respirators will be washed in a sanitizing solution (MSA sanitizer or equivalent), rinsed with potable water, and allowed to air dry at the end of each day.

Step 7: Thoroughly wash/rinse exposed skin with water and biodegradable soap (i.e., trisodium phosphate). Shower and launder personal clothing as soon as possible upon completing daily activities.

Portable decontamination stations (a.k.a., “boot wash” facilities) will be set up in the CRZ adjacent to each hazardous work zone requiring decontamination for personnel. The Boot Wash facilities will be constructed to contain spent wash water, contain a reservoir of clean wash water, a power supply to operate a pump for the wash water, a separate entrance and exit to the decontamination platform with equipment being mobile, allowing easy transport for one hazardous work zone to the next. Personnel will be required to dress down and drum their used PPE in the decontamination area in accordance with the above seven step procedure.

A fixed decontamination trailer equipped with shower facilities will be located in the CRZ near the to the support zone. All personnel will be required to shower before leaving the site.

All materials generated during decontamination will be drummed for disposal in accordance with applicable local, state, and federal regulations.

8.2 EQUIPMENT DECONTAMINATION

Equipment which may have been contaminated during the course of remedial operations will be decontaminated prior to removal from the site. Generally, equipment decontamination will be performed as follows:

1. Conduct gross removal of solids at point of use (i.e., manually scrape off dirt/soil from tires, bucket, etc.).

2. Move to the temporary equipment decontamination pad in the CRZ for decontamination via pressure washing. The self-contained high pressure unit will be capable of heating wash waters to 180ºF and providing a nozzle pressure of 150 psi.

3. Perform complete detergent rinse (if necessary) using an environmentally-safe solvent (MSDSs will be provided for any materials brought on-site and will be maintained in the Contractor's field trailer).

4. Perform a final steam rinse.

The HSO will be responsible for inspecting decontaminated equipment before releasing it from the project site. The HSO will certify in writing that each piece of equipment utilized in the "dirty" area has been properly decontaminated prior to removal from the site.

SECTION 9.0
Site Standard Operating Procedures

Site personnel will observe the following Standard Operating Safety Procedures when working at the site.

1. Ensure that all safety equipment and protective clothing is kept clean and well maintained.
2. Ensure that all prescription eyeglasses in use on this project are safety glasses and are compatible with respirators. No contact lenses will be allowed on site.
3. Ensure that all disposable or reusable gloves worn on the site are approved by the HSO.
4. Change respirator filters during periods of prolonged respirator usage in contaminated areas, upon breakthrough. Respirator filters will always be changed daily.
5. Cover footwear used on site by rubber overboots or booties when entering or working in the Exclusion Zone area or CRZ. Boots or booties will be washed with water and detergents to remove dirt and contaminated sediment before leaving the Exclusion Zone or CRZ.
6. Decontaminate or dispose of all PPE used on site at the end of the work day. The HSO will be responsible for ensuring decontamination of PPE before reuse.
7. Individually assign all respirators and do not interchange them between workers without cleaning and sanitizing. Contractor, Subcontractor, and service personnel unable to pass a fit test as a result of facial hair or facial configuration will not enter or work in an area that requires respiratory protection.
8. Ensure that all project personnel have vision or corrected vision to at least 20/40 in one eye.
9. On-site personnel found to disregard any provision of this HASP may be barred from the project.
10. Do not reuse disposable outerwear such as coveralls, gloves, and boots. Used disposable outerwear will be removed upon leaving the hazardous work zone and will be placed inside disposable containers provided for that purpose. These containers will be stored at the site at the designated staging area and the Contractor will be responsible for proper disposal of these materials at the completion of the project.
11. Immediately replace protective coveralls that become torn or badly soiled.
12. Prohibit eating, drinking, chewing gum or tobacco, and smoking in the Exclusion Zone and CRZ.
13. All personnel will thoroughly cleanse their hands, face, and forearms and other exposed areas prior to eating, smoking, or drinking.
14. Workers who have worked in an Exclusion Zone will shower in the on-site decontamination trailer at the completion of the work day.
15. All personnel will wash their hands, face, and forearms before using toilet facilities.
16. Do not allow alcohol, firearms, or drugs (without prescriptions) on site at any time.
17. All personnel who are on medication should report it to the HSO who will make a determination whether or not the individual will be allowed to work and in what capacity. The HSO may require a letter from the individual's personal physician stating what limitations (if any) the medication may impose on the individual.

SECTION 10.0
Emergency Response & Contingency Plan

The following Emergency Response Plan (ERP) considers and recommends:

- Preventative Measures;
- Personnel training and regular safety meetings conducted to reduce the likelihood of accidents;
- Mitigative measures to limit the scope of any accident; and
- Contingency actions to respond to and remedy the effects of accidents.

10.1 PRE-PLANNING

All work will be coordinated with the owner, IEG, and other involved regulatory personnel. In addition, local police and fire departments, local hospital(s), and local ambulance services will be contacted by the HSO prior to initiation of site operations to inform them of scheduled remedial activities at the site. Arrangements for emergency communication will be made with these organizations prior to initiating on-site operations.

As discussed in Section 5.0 of this HASP, emergency response procedures will be covered as part of each site personnel's training. Training in site-specific emergency procedures will be provided by the site health and safety officer before work begins on-site. This training will include, but is not limited to, the following;

- Emergency chain-of-command;
- Communication methods and signals;
- Location of phones and emergency numbers;
- Use of emergency equipment;
- Evacuation and emergency procedures;
- Off-site support;
- Site-specific hazards;
- Decontamination procedures;
- Standard operating procedures; and
- Location and use of first aid equipment.

10.2 EMERGENCY CHAIN-OF-COMMAND

Personnel will immediately notify the HSO in the event of an emergency using available communications. The HSO will make a rapid assessment of the situation and take appropriate action which (depending upon emergency circumstances) can include notifying the Engineer of the situation; initiating engineering controls (i.e., dust suppression, ventilation, etc.); ordering the suspension of work; ordering evacuation of the work zone; implementing emergency altering and response procedures; requesting emergency medical treatment; and/or administering first aid.

10.3 COMMUNICATION METHODS AND SIGNALS

For emergency situations when two-way radio communication is not available or practical, oral, hand, and semaphore safety signals have been established to protect project personnel. These signals will be made available to personnel for all phases of operation before going on-site. This will ensure quick communication during adverse or emergency situations.

Examples of established signals and their meanings are provided below.

Signal	Indicates
Hand gripping throat	Out of air, can't breath
Wave hands over head from side-to-side	Attention: stand-by for next signal
Swing hand from direction of person receiving signal to directly overhead and through in a circle	Come here
Pointed finger on extended arm	Look in that direction
Grip partner's wrist or both hands around wrist	Leave the area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I'm alright, I understand
Thumbs down	No, negative

Examples of audio signals include:

Signal	Indicates
Short blast of airhorn	Caution or look here
Four (4) blasts of airhorn	Leave the area

Each field team member will be assigned a buddy. Field personnel will watch for hazards or problems his/her buddy might encounter. Buddies will pre-arrange hand signals or other means of emergency signals for communication when respiratory protection or distance makes communication difficult. Communication between buddies must be maintained at all times. Visual contact must be maintained between buddies. Further, buddies must remain in close proximity to each other in order to assist in case of emergencies.

10.4 EVACUATION

Emergency escape routes will be designated by the HSO for use in situations where rapid egress from the Exclusion Zone is required. The locations of these routes will be posted in prominent location(s) on-site (i.e., personnel change trailer, office trailer, break trailer, etc.) and will be reviewed with site personnel during daily tool-box and weekly safety meetings.

An emergency evacuation alarm (i.e., air horn) will be kept on-site at all times. A series of regularly spaced, repeated blasts (four blasts) will be used to signify that all personnel should evacuate the work area. After exiting the work area, personnel will meet at an upwind location designated by the HSO. The emergency alarm will be sounded in the event of any serious problem or emergency on-site which requires the assistance of site personnel or the evacuation of work zone personnel.

In all situations when an on-site emergency results in evacuation of the Exclusion Zone, personnel will not be permitted to reenter until:

- The conditions resulting in the emergency have been corrected;
- The hazards have been reassessed;
- This HASP has been reviewed; and
- Site personnel have been briefed on any changes in the HASP.

10.5 EMERGENCY SERVICES/EMERGENCY VEHICLE ACCESS

Emergency telephone numbers (see Table 1) will be posted at each project site telephone. Directions to the local hospital (see Figure 1) also will be posted at the site.

In the event that emergency services vehicles (police, fire, ambulance) need access to a location which is blocked by the working crew operations, those operations (equipment, materials, etc.) will be immediately moved to allow those vehicles access.

Emergency crews will be briefed as to site conditions and hazards by the HSO. All vehicles and personnel will be decontaminated prior to leaving the site.

10.6 WEATHER-RELATED HAZARD RESPONSE

Threats to site personnel can arise from natural causes (i.e., lightening, high winds, etc.). In the event that severe weather is imminent, the HSO will notify field team members. As the storm approaches, all work will cease, loose objects will be secured, and site personnel will take shelter at pre-arranged locations. After the severe weather event has passed, the HSO will inspect the work area for safety hazards prior to resuming work.

10.7 SPILL CONTROL & CONTINGENCY PLAN

A standard operating procedure for responding to spills associated with planned contract operations is included in Appendix B.

10.8 PERSONAL INJURIES

In the event of personal injuries the following procedures will be enacted.

1. ***Initial alarm and first aid.*** Upon observation of an injury, site employees will quickly get the attention of other nearby workers; immediately act to protect the injured person from a life-threatening situation; render appropriate first aid; and warn unsuspecting persons of the potential hazard.

2. ***Notify the HSO and the Project Engineer.*** Utilizing available personal radio communications or other rapid communication methods, the HSO and the Project Engineer will be notified of the situation, the identity of the injured person, the type of injury, and the project site location.

3. ***Ambulance and hospital services.*** The HSO will immediately assess the situation and, if necessary, notify the designated off-site hospital of the emergency situation.

4. ***Follow-up.*** The HSO will determine why the injury occurred, and will take appropriate steps to prevent a similar recurrence. Events associated with the injury will be recorded in the safety officer's logbook.

An Incident Report Form must be completed by the HSO and submitted to the Project Manager within 24 hours of the injury.

10.8.1 Personnel Injury in the Exclusion Zone

Upon notification of any injury in the Exclusion Zone, the designated emergency signal will be sounded. All site personnel will assemble at a pre-arranged location. A rescue team made up of the HSO and other personnel as needed who have received property training (see Section 4.0) will enter the Exclusion Zone (if required) to remove the injured person to the boundary of the Exclusion Zone. The HSO then will evaluate the nature of the injury. The affected person will be decontaminated as necessary to the extent possible prior to movement to the Support Zone. Appropriate first aid will be initiated (see Section 10.12), and the ambulance and designated medical facility (Table 1) will be contacted if required. No persons will

reenter the Exclusion Zone until the cause of the injury or symptoms of the illness have been determined.

10.8.2 Personnel Injury in the Support Zone

Upon notification of an injury in the Support Zone, the HSO will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue. The appropriate first aid will be initiated (see Section 10.12) and necessary follow-up as stated in above. If the injury increases the risk to others, the designated emergency signal will be sounded and all site personnel will move a prearranged location for further instructions. Activities on site will stop until the added risk is removed or minimized.

10.9 FIRE/EXPLOSION

The following contingency plan will be implemented in the event of a fire at the project site.

1. ***Initial Alarm.*** Upon observation of any on-site fire, personnel must immediately notify the HSO (or his designated on-site representative) and the Project Engineer. No attempt will be made to extinguish the fire prior to sounding the alarm.

2. ***Control and/or extinguish small fires which can be suppressed promptly with available on-site equipment.*** Without risking personal injury, an attempt will be made to control or extinguish small fire(s) utilizing ABC-type fire extinguishers. Water will not be used except on wood or paper fires.

3. ***Notify local fire company.*** The HSO and the Project Engineer (or their designated on-site representatives) will immediately assess the situation and, if deemed necessary, notify the local Fire Department of the location and type of fire or explosion. If required, the HSO and/or the Project Engineer (or their designated on-site representatives) will immediately order the site evacuated if a fire occurs which cannot be controlled with a portable fire extinguisher.

4. ***Follow-up.*** The HSO will determine why the fire or explosion occurred, and will take appropriate steps to prevent a similar recurrence. Events associated with the fire or explosion will be recorded in the safety officer's logbook.

An Incident Report must be completed by the HSO and submitted to Corporate Management and the Project Engineer within 24 hours of the fire/explosion.

10.10 PERSONAL PROTECTIVE EQUIPMENT FAILURE

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy immediately will leave the Exclusion Zone and notify the HSO. Reentry will not be permitted until the equipment has been replaced or repaired, and the affected areas of the person's body have been decontaminated if applicable.

10.11 OTHER EQUIPMENT FAILURE

If any on-site equipment other than PPE (see Section 10.10 above) fails to operate properly, the HSO will be notified. The HSO then will determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents the completion of the Work Plan tasks, all personnel will leave the Exclusion Zone until the situation is evaluated and all appropriate actions taken.

10.12 EMERGENCY EQUIPMENT & ON-SITE FIRST AID

Emergency and first aid equipment to be maintained on-site includes:

- The active work area will be provided with approved, portable emergency eye wash and shower units in accordance with ANSI Standard Z358.1 and minimum rating 2A-10 B:C type

dry chemical fire extinguishers.

- At least one "industrial" first aid kit and stretcher will be provided and maintained fully stocked at an easily accessible, uncontaminated location to be determined on-site by the HSO. Additional first aid kits will be provided in the event active work areas are so isolated or separated as to make use of the one first aid station impractical.

First aid/CPR kit locations will be specifically marked by the HSO and provided with adequate water and other supplies necessary to cleanse and decontaminate burns, wounds, or lesions. First aid stations will be supplied with a buffer solution for testing acid and caustic burns. NOTE: CPR should only be started if the worker is trained in CPR and the victim's heart has stopped beating.

- At least two (2) First Aid Technicians certified by the American Red Cross or other approved agency will be on-site at all times.
- 2A-10 B:C type dry chemical fire extinguishers will be provided at all site locations where flammable materials present a fire risk.
- A minimum of two self-contained breathing apparatus (SCBAs) or lower level of protection as site conditions allow will be maintained in contaminated work areas.

Agencies and medical facilities to be contacted in the event of an on-site emergency are identified in Table 1 of this HASP. The Emergency Response Notification Table also includes the route to the nearest hospital. The table (and corresponding map) will be posted in a prominent location(s) on-site.

If a site worker becomes injured or ill, Red Cross first aid procedures and the blood borne pathogens program provided in this HASP will be followed. First aid or other appropriate initial actions will be provided by the trained first aid responders closest to the incident. NOTE: When protective clothing has been grossly contaminated during an accident/injury, contaminants may be transferred to treatment personnel or the wearer and cause injuries. Unless severe medical problems have occurred simultaneously with splashes, protective clothing should be washed off as rapidly as possible and removed. If the worker is ambulatory or can be moved, he/she will be taken to the personnel decontamination station where decontamination procedures, additional first aid, or preparation for transport to the hospital will be accomplished. In the event that the victim could not be decontaminated, the rescue service provider must be notified of that situation.

If the injury to the worker is chemical in nature, the following first aid procedures are to be instituted:

- ***Eye Exposure:*** If contaminated solids or liquids get into the eyes, wash eyes immediately at the emergency eyewash station using large amounts of water and lifting the lower and upper lids occasionally. Wash for at least 15 minutes. Obtain medical attention.
- ***Skin Exposure:*** If contaminated solids or liquids get on the skin, promptly wash the contaminated skin using soap and water. Obtain medical attention immediately when exposed to concentrated solids or liquids.
- ***Respiratory Exposure:*** Move victim to fresh air at once and begin CPR. Phone 911 to obtain immediate medical attention.
- ***Ingestion Exposure:*** For swallowed contaminants, identify the item swallowed. Follow appropriate procedures and obtain medical attention as soon as possible.

NOTE: Any person transported to the hospital for treatment related to an exposure injury will take with them the appropriate information (see Table 2) about the chemical(s) to which he/she has been exposed. MSDSs for chemicals known or suspected to exist on-site will be maintained in the Contractor's field office by the HSO.

SECTION 11.0
Community Protection Plan

The following Community Protection Plan (CPP) has been developed to outline those steps to be implemented to protect the health and safety of surrounding human population and the environment.

11.1 AIR MONITORING

As part of its Air Monitoring Program (see Section 7.0) and if necessary, IEG will use real-time monitoring and documentation sampling to determine if off-site emissions, as a result of site work, poses a threat to the surrounding community. All readings will be recorded and be available for State (DEC & DOH) personnel to review. The NYSDOH's Generic Community Air Monitoring Plan is included as Appendix A.

11.2 VAPOR EMISSION RESPONSE

If the ambient air concentration of organic vapors exceeds 5 ppm above background in the work area activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities may resume but more frequent intervals of monitoring, as directed by the HSO, will be conducted.

SECTION 12.0
Logs, Reports, & Record Keeping

The following health and safety reports will be prepared and submitted as needed and as indicated below.

Daily Safety Report
Employee Meeting Record
Exclusion Zone Log
Site Log
Confined Space Entry Permit
Air Monitoring Report
Accident/Incident Report
Health & Safety Inspection Report
Spill Report
Equipment Decontamination Verification Form

APPENDIX A

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX B

STANDARD OPERATING PROCEDURE
SPILL CONTROL AND CONTINGENCY PLAN

MATERIAL	Contaminated soils, equipment leakage (fuel, hydraulic fluids)
REGULATIONS	Report spills, particularly petroleum, under the following circumstances: ➢ Spill on impacted land (dirt or gravel areas or parking lot) ➢ Spill on paved surface (asphalt or concrete) if one or more of these conditions are not met: less than 5 gallons; contained and under control; will not reach State's water or land; cleaned up within 2 hours
EXPOSURE	Eyes, skin and inhalation are principle routes of exposure, and can cause irritation of the eyes and respiratory tract
PPE	➢ Gloves, safety shoes (oil resistant), safety glasses, hard hats ➢ Avoid contact with skin, eyes and clothing
CONTROL & CLEANUP	➢ Eliminate source of spill (closing valves, etc.) ➢ Do not wash or flush into surface water or sanitary drain ➢ Immediately contain and control spill (within 2 hours) ➢ Soak up liquid spills with inert absorbents (sand, silica gel) ➢ Scoop up soiled areas into drum for disposal ➢ On water, skim and drum material for off-site disposal ➢ Clean soils that are contaminated may require laboratory analysis: VOAs (Method 8260+TICs) and SVOAs (Method 8270+TICs)
PREVENTION & CONTROL	➢ Service and check equipment for leaks regularly ➢ Keep equipment (with potential to leak) on paved areas ➢ Keep spill cleanup/absorbent materials at hand at all times
NOTIFICATION	Coordinate NYSDEC notification with others to avoid duplication
CONTACT	Dharma Iyer; cell: (716)445-9684; office: (716)662-4157

DECISION TREE
Petroleum/Solvent Spills

APPENDIX G

CITIZEN PARTICIPATION PLAN

New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

73-79 W. HURON ST. SITE

(Site #C915282)

City of Buffalo
Erie County, New York

November 2014

Contents

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Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site=s investigation and cleanup process.

Applicant: **Hurondel I, Inc.**
Site Name: **73-79 W. Huron St. (Site)**
Site Address: **73-79 W. Huron St., Buffalo, NY**
Site County: **Erie County**
Site Number: **C915282**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods. The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site=s investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site=s investigation and cleanup.

The public is encouraged to contact project staff at any time during the site=s investigation and cleanup process with questions, comments, or requests for information.
This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repositories	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report • Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

Soil contamination in this area is associated with historical use of underground petroleum storage tanks. Previous investigations have revealed subsurface contamination with volatile organics. The presence of the volatile organic compounds in the subsurface soil does not present a significant health risk at this time to surrounding properties. These contaminants have the potential to migrate through the groundwater which is being investigated as part of this BCP project. There is a potential for worker exposure through fugitive dust emissions during investigation and remediation activities. Such exposure will be alleviated through dust control measures and a community air monitoring plan.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The site consists of a rectangular shaped, 0.216 acre parking lot (77-79 W Huron St.) and a rectangular shaped, six-story parking garage (73-75 W. Huron St.) as shown on the aerial photo on Figure 1. The asphalt-paved parking lot is currently being leased by auto drivers for parking spaces. The parking garage is a vacant brick structure with a basement and a 0.34-acre footprint.

The garage was originally constructed around 1892-94 as a three bay Romanesque Style commercial building with a flat roof and used by C. W. Miller Livery. It uses a steel frame as structural support, and supporting truss to suspend the remaining floors. It was altered in the 1920s with ramps heavily modified for use of the building as a motor vehicle garage. Hurondel I, Inc. proposes to modify the basement and first floors for interior vehicular parking and the upper floors for mixed commercial/residential use. It has a freight elevator in the northeast corner (see basement layout on Figure 3). The basement has a working sump pump continuously pumping out water from an underground spring.

To the north of this Site is another asphalt parking lot which extends both west and east of 77-79 W. Huron. To the east between the vacant parking garage and N. Franklin St. is the multi-story Curtiss building. To the south is W. Huron Street and across this road is an office building at 80 W Huron St. To the west are five (5) commercial buildings. These include, from north to south, an Event Center (#199 Delaware Ave), an office building (#193), King's Court Restaurant (#189), Delaware Copy and Repo Center (#187), and Dave's Direct Performance Auto Repair shop (#181). The auto repair shop is the site of the former Sunoco Gas Station.

History of Site Use, Investigation, and Cleanup

Over the years, several people entering the vacant parking garage reported the presence of a strong petroleum-like odor. In 2007 VOCs were detected in the air inside the south section of the basement. Between 2004 and 2008, this Site and the adjacent site to the west has been the subject of investigations and remedial actions including air-sparging (AS), soil vapor extraction (SVE), and finally oxygen injection and bioaugmentation that is currently in operation at the 181 Delaware Ave site. A 2011 soil investigation indicated two distinct

soil contamination zones, one in the southern portion of the parking lot, and the other in the center. Hurondel will further investigate the 73-79 W Huron parcels and undertake appropriate remediation under this BCP.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a Aqualitative exposure assessment,@ a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted commercial and/or industrial purposes.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant will conduct an investigation of the site officially called a "site investigation" (SI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a site investigation work plan, which is subject to public comment.

The site investigation has several goals:

1) Determine the nature and extent of on-site contamination, supplementing the results of previous investigations;
2) Establish the groundwater table and obtain other hydrogeological data such as hydraulic conductivity and groundwater flow/velocity;
3) Qualitatively assess exposure pathways and potential risks to human health and the environment; and
4) Evaluate and develop a remedy for soil and groundwater contamination.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a Asignificant threat,@ it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a ACertificate of Completion@ (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a ARemedial Work Plan@. The Remedial Work Plan describes the Applicant=s proposed remedy for addressing contamination related to the site.

When the Applicant submits a proposed Remedial Work Plan for approval, NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of

Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An institutional control is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Mr. David Locey
Project Manager
NYSDEC Region 9
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203-2399
(716)851-7220
Email: jswalia@gw.dec.state.ny.us

Ms. Kristen Davidson
Citizen Participation Specialist
NYSDEC Region 9
Division of Public Affairs & Education
270 Michigan Avenue
Buffalo, NY 14203-2399
(716)851-7220
Email: kxdavids@gw.dec.state.ny.us

New York State Department of Health (NYSDOH):

Mr. Matt Forcucci, Public Health Specialist
NYS Dept. of Health
582 Delaware Avenue
Buffalo, NY 14202
(716)847-4501
Email: beei@health.state.ny.us

Steven Karpinski
NYSDOH - Bureau of Env. Exp. Inv.
Empire State Plaza - Corning Tower Rm 1787
Albany, NY 12237
518-402-7850
BEEI@health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

NYSDEC Region 9 Offices
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203-2399
(716)823-0630
(Mon-Fri, 8:30 AM to 4.45 PM)
(Please call for appointment)

County Library – Central Branch
1 Lafayette Square
Buffalo, NY 14203
(716)858-8900
Mon – Sat: 8:30 – 6:00 pm; Thu: till 8:00 pm
Sun: 12:00 pm – 5:00 pm

(check www.buffalolib.org for hours/holidays)

Appendix B - Site Contact List

1. Federal representative

U. S. Representative Brian Higgins
Erie County Office – Larking at Exchange
726 Exchange Street, Suite 601
Buffalo, NY 14210
Ph: (716)852-3501; Fax: (716)892-3929

2. New York State Senator and Assembly member

Senator Marc Panepinto
Buffalo Office
65 Court Street, Room 213
Buffalo, NY 14202
Ph: (716)854-8705; Fax: (716)854-3051

Assembly member Crystal D. Peoples-Stokes
Buffalo District Office
792 E. Delavan Avenue
Buffalo, NY 14215
(716)897-9714

3. City of Buffalo

Honorable Byron W. Brown
Mayor – City of Buffalo
201 City Hall
Buffalo, NY 14202
(716)852-3300

Honorable Darius G. Pridgen
President, Common Council
City of Buffalo, 1315 City Hall
Buffalo, NY 14202
(716)851-5151

Planning Board
James K. Morrell - Chairman
901 City Hall
Buffalo, NY 14202
(716)851-5082

City of Buffalo Fire Department
Commissioner Garell W. Whitfield, Jr.
195 Court Street
Buffalo, NY 14202
(716)851-5333

4. Erie County

Honorable Mark Poloncarz
Rath Building – 16th Floor
95 Franklin Street
Buffalo, NY 14202
(716)858-8484

Office of the Administrator
Janet Penska
65 Niagara Square
Buffalo, NY 14202
(716)851-5922

Erie County Clerk
Christopher L. Jacobs
92 Franklin Street
Buffalo, NY 14202
(716)858-8785

Department of Health
Commissioner Gale R. Burstein, MD, MPH
95 Franklin Street, 9th Floor
Buffalo, NY 14202
(716)858-7690

Department of Environment & Planning
Commissioner Maria R. Whyte
95 Franklin Street, 10th Floor
Buffalo, NY 14202
(716)858-8390

Department of Emergency Services
Commissioner Daniel J. Neaverth, Jr.
45 Elm Street
Buffalo, NY 14202
(716)858-6578

5. Local News Media

Buffalo News
1 News Plaza
Buffalo, NY 14240
(716)849-4444

ATTN: Environment News Desk
WKBW News Channel 7
7 Broadcast Plaza
Buffalo, NY 14202
(716)845-6100

ATTN: Environment News Desk
WGRZ TV – CH. 2
259 Delaware Avenue
Buffalo, NY 14202
(716)849-2222

ATTN: Environment News Desk
WIVB – CH. 4
2077 Elmwood Avenue
Buffalo, NY 14207
(716)874-4410

6. Public Water Supply/Sewer

Buffalo Water Authority
281 Exchange Street
Buffalo, NY 14204
(716)847-1065

Buffalo Sewer Authority
1038 City Hall
Buffalo, NY 14213
(716)851-4664

7. Persons requested to be on List (to be updated)
Please contact the NYSDEC or NYSDOH if you wish to be on the mailing list

8. School/Day care facilities

None

9. Local Agencies

Community Outreach File
N.Y.S.D.E.C., Region 9
270 Michigan Avenue
Buffalo, NY 14203

Erie Co. Emergency Services
95 Franklin Street
Buffalo, NY 14202

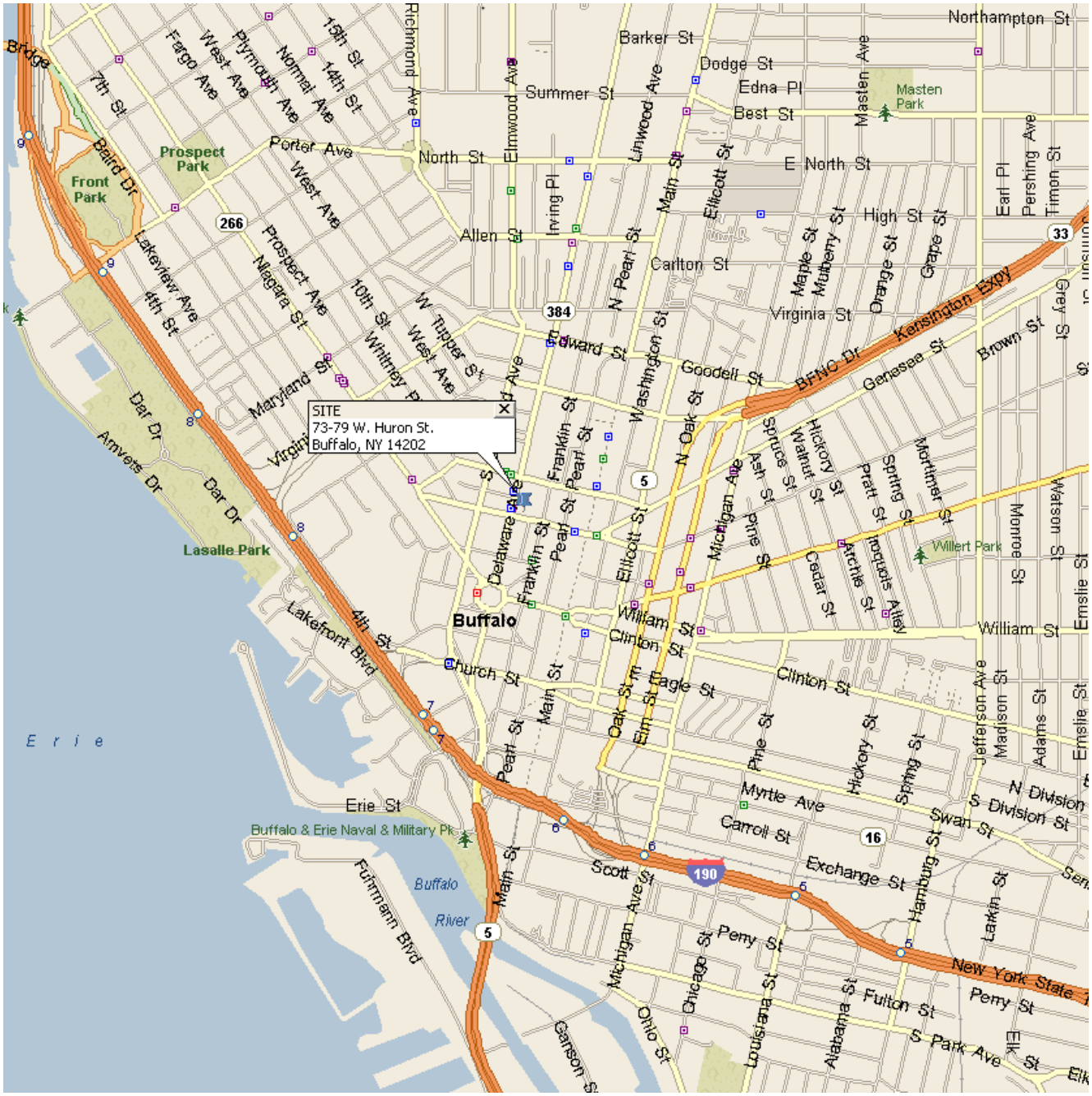
U.S.E.P.A. – Public Information Office
186 Exchange Street
Buffalo, NY 14204

Business First
465 Main Street
Buffalo, NY 14203 – 1793

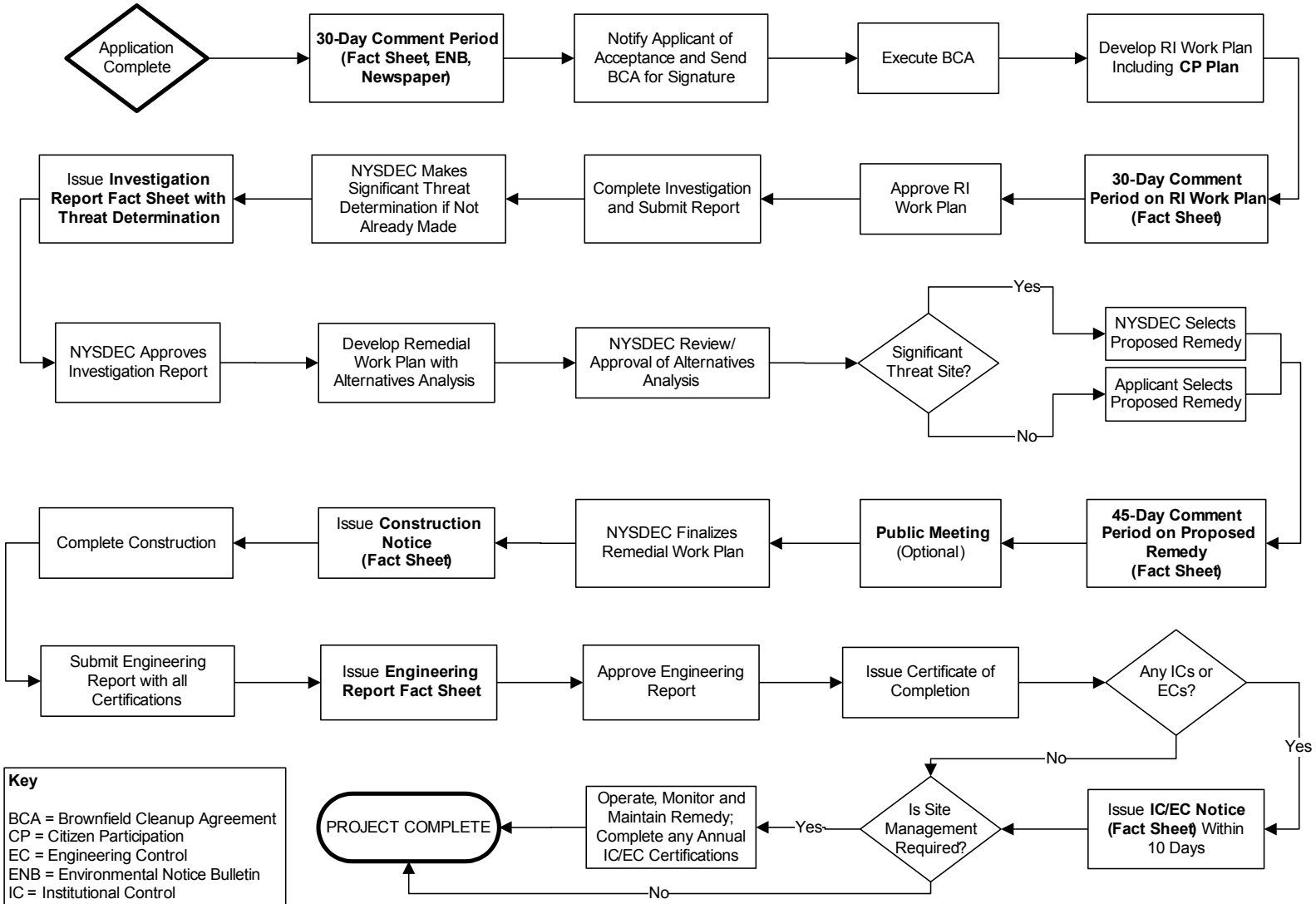
10. Surrounding Properties

Dave's Performance Auto 183 Delaware Avenue	Sidebar 189 Delaware Avenue	Vinal & Vinal, P.C. Attorneys 193 Delaware Avenue
Wallach Attorneys at Law 169 Delaware Avenue	Hawthorne & Vesper, PLLC 197 Delaware Avenue	Barcelona Night Club 199 Delaware Avenue
Allpro Parking 196 Franklin St.	Club 220 220 Franklin St.	Law Offices 80 W. Huron ST.
Domino's Pizza 187 Delaware Avenue		

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Note: CP Activities are in **Bold**

APPENDIX H

RESUMES OF KEY PERSONNEL

IYER ENVIRONMENTAL GROUP, PLLC

DHARMARAJAN R. IYER, Ph.D., PE, CES **President/Project Manager**

Education

Ph.D., Civil/Environmental Engineering, Syracuse University, 1984
M.S., Civil/Environmental Engineering, Syracuse University, 1980
B. S., Chemical Engineering, Indian Institute of Technology, Bombay, 1976
OSHA 40-Hr Health & Safety Training/Annual Refreshers
Mediation Skills Training, Metropolitan Mediation Services, Boston, MA (2000)

Registration

Professional Engineer, New York

Professional Affiliations

American Institute of Chemical Engineers
(Past Chairman/Treasurer, Western NY and Syracuse Sections)
American Water Works Association
Water Pollution Control Federation

Employment History

Principal, Iyer Environmental Group PLLC, Orchard Park, NY (1998 - present)
Senior Project Manager, URS Greiner, Buffalo, NY (1989-1998)
Associate, Malcolm Pirnie, Buffalo, NY (1987-1989)
Sr. Project Engineer, O'Brien & Gere Engineers, Syracuse, NY (1982-1987)

Expertise

Dr. Iyer has over 25 years of hands-on project management and technical experience: Phase I/II and remedial investigations; feasibility studies; design/implementation of bench scale and pilot plant test programs; water/wastewater treatment facilities evaluation/design; technical and economic feasibility evaluations; conceptual/detailed design; construction management/inspection; operation and maintenance of treatment/remedial systems; and development of unique and advanced solutions to waste treatment problems. Also, experienced in human health/ecological risk assessments, mathematical modeling of water/wastewater treatment processes and chemical equilibrium in aqueous systems; NYS-ASP and USEPA-CLP analytical program; laboratory sample tracking and analytical data retrieval systems; and development of statistical models/programs for data evaluation.

Representative Clients

NYSDEC; VAMC; Earth Tech; O'Brien & Gere; Niagara Falls Bridge Commission; USEPA; City of Corning; Town of Amherst; NJDEP; USACOE; U.S. FWS; South Essex Sewerage District; Serafini, Serafini & Darling; Schenectady Chemicals; Chautauqua County IDA; City of Dunkirk; Chemical Process & Supply; Harrison Radiator Divn. of GM; Hercules/Aqualon; American Cyanamid; Canandaigua Wine Co.; DuPont; Harshaw/Filtrol; GE; Goulds Pumps; IBM Corporation; Johnson & Johnson; Moog Automotive; North American Philips Corporation; Norwich Pharmaceuticals; Beveridge & Diamond; Sangamo-Weston Division of Slumberger; US Chrome; and Warner-Lambert.

Environmental Services

Iyer Environmental Group provides a wide spectrum of consulting, engineering and design-build services for water, wastewater, solid waste, hazardous waste and brownfields sites, and the ability to interface effectively with regulatory agencies on the client's behalf,. in a number of areas including but not limited to the following:

- Environmental Compliance/Audits/Assessments/Permits
- Water/Waste Analyses, Compliance Testing and Monitoring
- Water/Wastewater Treatment System Evaluation/Upgrade
- Bench/Pilot Scale Evaluation of Treatment/Remedial Systems
- Solid/Hazardous Waste Site Investigations through Remediation
- Engineering Design and Construction Management/Oversight
- Operations and Maintenance of Remedial/Treatment Systems
- Mediation/Expert Witness/Litigation Support/Cost Apportionment
- Community Relations/Public Meetings

IYER ENVIRONMENTAL GROUP
Dharmarajan R. Iyer, Ph.D., P.E.

REPRESENTATIVE PROJECTS

Hazardous and Solid Wastes

Kingsbury Landfill/Leachate Treatment System , Hudson Falls, NY (*OM&M*)
Dutchess Sanitation/FICA and Kessman Landfills, Region 3, NY (*OM&M*)
Whirlpool Bridge, Niagara Falls, NY (*SI, VCP, RD, RA*)
Haight Farm Superfund Site, Clarendon, NY *{RA; Design-Build, OM&M}*
Salem Acres Superfund Site, Salem, MA *{FS/PDI/RD/RA/CM/Monitoring}*
Santi's Gas Station, East Aurora, NY *{UST Investigation/Site Remediation}*
N. Franklin St. Site, Watkins Glen, NY *{RI/FS/PDI/RD/RA/O&M}*
Busy Bee Disposal Site, Alfred, NY *{RI/FS/Leachate Management}*
Robeson Industries Site, Castile, NY *{PDI/TS/RD/RA/CM/O&M}*
Phase I/Phase II Site Investigations, NY State *{SI}*
Galena Superfund Subsite, Cherokee County, KS *{PDI/RD/CM}*
Pennsylvania Ave/Fountain Ave Landfills, New York, NY *{RD}*
PAS Site, Oswego, NY *{Long-Term Monitoring/Leachate Management}*
Gratwick Park Waste Disposal Site, Buffalo, NY *{RI/FS}*
Frontier Chemical Waste Site, Buffalo, NY *{RI/FS}*
US Chrome Groundwater Remedial Program, Batavia, NY *{Design/Build}*
Groundwater Remedial Program, Batavia, NY *{Design/Build}*
Hazardous Waste Impoundment Cleanup, Maryville, MO *{TS/Design/Build}*
IBM Manufacturing Plant, Endicott, NY *{Groundwater Monitoring}*
Crab Orchard National Wildlife Refuge, Marion, IL *{RI/FS}*
Global Landfill, Old Bridge, NJ *{RI/FS}*
Millcreek Superfund Site, Erie, PA *{PDI/RD}*
Cleve Reber Industrial Waste Landfill, LA *{RD/RA Technical Support}*

Water and Wastewater

VA Medical Center, Bath, NY *{Water Supply Design./Corrosion Control}*
City of Watertown WTP Evaluation/Upgrade, NY *{Pilot Study/Design}*
MCWA WTP Taste/Odor Control, Rochester, NY *{Ozone Pilot Scale Testing}*
City of Rome WTP Evaluation, Rome, NY *{Pilot Scale DAF Testing}*
Kodak WTP Evaluation, Rochester, NY *{Pilot Dual/Multi Media Testing}*
Town of Kirkwood Water Supply *{Air Stripper Addition}*
City of Corning Water Supply *{Air Stripper Addition}*
Allied Chemicals, Solvay, NY *{Coagulant/Bicarbonate Use Study}*
City of Syracuse WWTP, Syracuse, NY *{Evaluation/Phosphate Control}*
Kodak Park Stormwater Tunnel, Rochester, NY *{Groundwater Contamination}*
GE WW Pretreatment, Johnson City, NY *{O&M Support/Water Recyle}*
IBM WWTP Replacement/Recycle, Owego, NY *{Pilot Testing/Design}*
Lockheed Martin WWTP Operations, Owego, NY *{O&M Support}*
Schenectady Chemicals WWTP Upgrade *{SBR/Biological Treatability Study}*
Norwich Pharmaceuticals WWTP, Norwich, NY *{Evaluation/Pilot testing}*
Warner Lambert WWTP, San Juan, PR *{Evaluation/Testing}*
North American Phillips Corp., Bath NY *{Antimony Removal Study}*
Chemical Process Supply, Dunkirk, NY *{New Process WW Treatment Study}*
Hercules/Aqualon WWTP Upgrade, Hopewell, NC *{Evaluation/Pilot Plant Test}*
GM Automotive WWTP, Baltimore, MD *{Evaluation/O&M Support}*
Harrison Radiator WWTP, Lockport, NY *{Evaluation/Full Scale Testing}*
Ford Automotive Parts WWTP, Dayton, OH *{Evaluation/O&M Support}*

PROJECT SUMMARIES – SOLID/HAZARDOUS WASTES

WHIRLPOOL RAPIDS BRIDGE SOIL INVESTIGATION/REMEDIATION
Client: Niagara Falls Bridge Commission, Niagara Falls, NY

Dr. Iyer was responsible for all phases from investigation to remediation and long term O&M, and was instrumental in the successful remediation of this historical Bridge. The soils between the bridge footing and the Niagara River was contaminated with leand and other heavy metals associated with past blasting and paint removal operations. The investigation included soil sampling along an 800' width, topographic and bedrock fracture (using VLF) surveys, groundwater modeling, soil leachability testing, regulatory review and a preliminary environment/human health risk assessment. After completing the environmental assessment report, Dr. Iyer negotiated the remedial action plan with the NYSDEC and followed through with the selection of the remedial contractor and oversight during site remediation. A total of 1,037 tons of soil was excavated and disposed off site at a hazardous waste landfill, and the trail was restored with a much improved landscape. The NYSDEC, NYS Power Authority and the NYS Office of Parks, Recreation & Historical Preservation were immensely satisfied with the end result of this project.

SALEM ACRES SUPERFUND SITE, SALEM, MA {FS/TS/CADS/RD/RA/CM}
Client: South Essex Sewerage District, Salem, MA; Oversight by USEPA, MADEP

Project Manager for pilot scale treatability testing, clean area delineation study, remedial design, construction management/oversight and confirmatory soil sampling during remedial action, and monitoring of groundwater and adjacent wetland sediments/at this site for the five-borough wastewater utility with USEPA Region I/MADEP oversight. The pre- and post-construction monitoring programs included groundwater, wetland sediment and surface water. During this time, Dr. Iyer also provided technical assistance to the District's general counsel in negotiating the terms of the RD/RA consent decree and the apportionment of past investigation costs with the other two PRPs for this site. The site has been successfully remediated and returned to natural conditions. Over 90,000 tons of sludge and soil were excavated and disposed in two solid waste landfills without impacting the wetlands adjacent to the waste disposal lagoon. Wetland sediments were revegitated and returned to natural conditions.

Initially, Dr. Iyer helped bring the Remedial Investigation/Feasibility Study to a closure by developing a low-cost remedial alternative (chemical fixation with off-site disposal) for sludges and soils with high levels of petroleum and other HSL contaminants, and sliced the potential remedial cost by over 50%. Through expedited treatability studies and sludge/soil leachability tests, Dr. Iyer was instrumental in getting an unprecedented Massachusetts DEP approval for the disposal of treated sludges and soils in a lined solid waste landfill, and as a contingency measure, Maine DEP approval for the disposal of untreated sludges. During site remediation, 2000 feet of a 2" waterline along two residential streets leading to the site was replaced with a 6" line. Nearly 70 percent of this waterline was installed in bedrock which required blasting. The proactive approach with the client, agencies and local landfills enabled Dr. Iyer to bring the site remediation to completion at a construction cost of $7.5 million, well below initial estimates based on original quantities. Provided assistance to the SESD in closing out the Construction Contract, getting final certificate of completion by the regulatory agencies, performing the long-term site monitoring and getting the site delisted.

NYSDEC MULTIPLE SITES OM&M, REGION 3, NY
Client: NYSDEC, under subcontract to O'Brien & Gere, Syracuse, NY

IEG was issued a three-year standby contract work assignment for the operations, maintenance and monitoring of two remediated state superfund sites - 17-acre Dutchess Sanitation Landfill (Poughkeepsie, NY) and the 10-acre Kessman Landfill (Putnam, NY). Dutchess was remediated with a NYCRR Part 360 cap, a landfill gas collection/treatment system, and leachate collection system. Kessman had accepted solid and industrial wastes of

unknown types and quantities, and was remediated in 1995 with a Part 360 cap, passive vents and a leachate collection system following the removal of sixty industrial waste drums and contaminated soils, and restoration of the affected wetlands. IEG's services for these two sites include design, implementation and oversight of required repairs/upgrades, and operation, maintenance and monitoring of the landfills. Twenty monitoring wells, wetland sediment and surface water are sampled for field and leachate treatment parameters (for offsite disposal), VOCs, semivolatiles, pesticide/PCBs, metals and petroleum hydrocarbons. Besides pumping leachate from the landfill, IEG also completed a tracer study to assess the hydraulic connection between the landfill and the adjacent wetland.

BUSY BEE DISPOSAL SITE, ALFRED, NY {RI/FS/Leachate Management}
Client: NYSDEC, Albany, NY

Project Manager for an RI/FS at this solid/industrial waste disposal site characterized by several alternating layers of sandstone and shale units underlying the waste material. Chlorinated organics and fuel-related compounds were contaminants of concern at this site. The RI field work included a geophysical survey, an extensive soil gas survey across the site, 17 monitoring wells in multiple clusters (including triplets), 10 landfill piezometers, and on-site/residential well sampling. Cap replacement, fractured bedrock wells for contaminated groundwater collection and interceptor trenches were evaluated in the FS. Dr. Iyer also initiated an active leachate withdrawal and disposal program at the outset of the RI which was instrumental in restricting contaminant migration off-site, and supported the selection of a low-cost, limited action remedy (leachate management and groundwater monitoring) for this disposal site.

GALENA SUPERFUND SUBSITE, CHEROKEE COUNTY, KS {PDI/RD/CM}
Client: USACOE, Kansas City, MO; Oversight: USEPA, Kansas City, KS

Project Manager for pre-design investigations, design and construction oversight of the ROD-specified remedial action at the 800-acre Galena lead and zinc mining subsite, Cherokee County, Kansas. Components of this project for the U.S. Army Corps of Engineers include removal and placement of over one million cubic yards of surficial mining wastes, diversion of surface water, rechannelization of over 5,000 feet along two tributaries, recontouring and vegetation, protection of threatened and endangered species, and groundwater and surface water monitoring. Also developed and implemented a supplemental investigation program using X-ray fluorescence instrumentation for zinc, lead and cadmium in the field, which enabled the development of clearly-defined plans and specifications for competitive bidding. Received the highest praise from USACE, Kansas City District, for completing this project within a very aggressive schedule, and for the receipt of favorable bids without a single amendment during the solicitation period. Through the implementation of cost-saving alternatives for channel reconstruction and the development of a clear and precise set of design documents, the remedial construction was completed at a cost of $8.5 million or 70% below USEPA's original estimate to remediate this site.

PAS site, OSWEGO, NY {Long-Term Monitoring/Leachate Management}
Client: NYSDEC, Albany, NY

Task Manager for post-remediation operations and maintenance of this former solvent processing site in Oswego, New York. Conducted an evaluation for the hydrology within the slurry wall/cap containment system to determine the required leachate collection rate from trenches so as to develop and maintain an inward hydraulic gradient across the site. Developed implemented an O&M Manual for the NYSDEC, hauling over 10,000 gallons month of highly contaminated leachate to an off-site hazardous waste treatment facility, and performing environmental monitoring (surface water, groundwater and wetland sediments) for eight years, until the PRPs assumed responsibility for the long-term O&M.

IYER ENVIRONMENTAL GROUP
Dharmarajan R. Iyer, Ph.D., P.E.

PROJECT SUMMARIES – WATER/WASTEWATER

WATER DISTRIBUTION SYSTEM REPLACEMENT, BATH, NY {Evaluation/Modeling/Design}
Client: VA Medical Center, Bath, NY

Project Manager and environmental engineer for the evaluation of the water supply and distribution system at the 210-acre VAMC. Dr. Iyer is responsible for modeling the entire distribution system using WaterCAD, and for developing a new, and state of the art system to replace the nearly 100-year old distribution pipes currently supplying water to fifty buildings including hospital, dormitaries and administration. Prior to this project, Dr. Iyer also completed a corrosion system evaluation, and developed and installed a chemical feed system to control corrosion in the distribution pipes.

OZONATION PILOT SCALE TESTING, ROCHESTER, NY {Drinking Water Treatment}
Client: Monroe County Water Authority, Rochester, NY

Project Manager for the design, installation and operation of an oxidation/direct filtration pilot plant for taste and odor control in raw water from Lake Ontario. The pilot plant consisted of a 9" diameter, 10' high plexiglass ozonation column, an ozone generator and two parallel dual and multi media filters. Several treated water quality parameters including turbidity, trihalomethane formation potential, particle count and bacterial count were evaluated. Prepared a basis of design and cost estimates for a full-scale, 3,750-lb/day oxidation plant.

WTP UPGRADE, WATERTOWN, NY {Pilot Study/Preliminary Design}
Client: City of Watertown, Watertown, NY

Designed, built and operated a 25 gpm pilot-plant upgrade of the 80-year old water treatment plant. The study and preliminary design contributed to the development of both short-term rehabilitation and long-range treatment programs for the City of Watertown, New York, water supply. The pilot scale unit simulated existing treatment processes including flocculation and sedimentation which occurred in an upgradient section of the river where a dam had been built to provide a large retention time. Also tested were dissolved air flotation, dual and multi-media filtration, and taste and odor control for addition to the plant.

POTABLE SURFACE WATER TREATMENT, ROME, NY {Pilot Scale DAR Testing}

Responsible for the oversight and sampling/analysis for the City of Rome during the operation of a 50 gpm pilot scale dissolved air flotation unit by Krofta Engineering. DAF was being evaluated as a potential treatment process for the a proposed water treatment plant.

APPLICATION/TESTING/DESIGN OF AIR-STRIPPER MODEL
Clients: Several Municipal/Industrial clients

Project Manager responsible for design/evaluation of air-strippers FOR wastewater treatment. Installed/operated a pilot air stripper (12" dia, 10' height) for VOC removal from groundwater used as the source of drinking water by the City of Corning, New York. The pilot plant results became the basis for a 2 MGD air stripper (packed column in a square brick tower) located at the pumping well and piped into the distribution system. Responsible for preliminary design of an air stripper built at a pumping well in the Town of Kirkwood due to chlorinated organics contaminated from an adjacent waste landfill. Also evaluated water supply and treatment requirements for contaminated potable water supplies in the Ellicottville and Franklinville, NY.

INDUSTRIAL WW PRETREATMENT, JOHNSON CITY, NY {O&M Support/Water Recyle}
Client: General Electric, Johnson City, NY

Evaluated several alternatives including chemical precipitation/ reduction and ion-exchange for the removal of heavy metals and other inorganics from electroplating wastewater. Designed a 70 GPM dual ion-exchange system for water reuse that resulted in significant savings in operating costs and decreased the purchase of water. Subsequently provided operational assistance and re-piped the system for maximum resin utilization.

Kodak WTP Evaluation, Rochester, NY {Pilot Dual/Multi Media Testing}
Client: Eastman Kodak, Rochester, NY

Project Manager responsible for the pilot testing of dual and multi-media filters for the treatment of water from Lake Ontario for plant use, including feed to the de-ionization/ultra pure water system.

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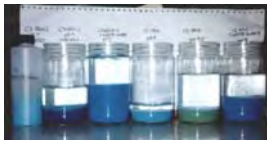
Dharmarajan R. Iyer, Ph.D., P.E.

INDUSTRIAL WWTP REPLACEMENT/OPERATION, OWEGO, NY {Pilot Testing/Design/O&M}
Client: IBM Federal Systems (now Lockheed Martin), Owego, NY/IBM, Armonk, NY



Designed, built and operated two 5 GPM on-site parallel pilot-plant units, one with dual conventional resins for water recycle, and the other a chelating cation-exchange resin for heavy metals removal prior to surface water discharge at a major electronics manufacturing facility. Performed on-site analysis for metals using AA and other parameters during the pilot study. Developed a basis of design and associated capital and operating costs for a 500 GPM dual ion-exchange system, following a technical and economic evaluation of alternatives for the treatment of general rinse waters and other wastes. Other projects at the same facility included an evaluation of operating procedures, chemical usages and a reactor-clarifier tracer study. Provided technical support during design of the new wastewater treatment system.

Industrial WWTP Operation, Arcade, NY {Troubleshooting/Operation}
Motorola, Arcade, NY

Responded to the accidental release of hydrogen cyanide into the plant wastewater which reacted with ferrous sulfate and produced ferrous ferrocyanide across the entire WWTP. Developed chemical feed requirements and treatment strategy using on-site bench scale tests to precipitate the ferrous-ferro cyanide as prussian blue. Implemented the treatment strategy through temporary reconfiguration of the WWTP piping and manual chemical feed and, over two days, successfully removed all ferrous ferro-cyanide in the treatment system.

Organic Industry WWTP Upgrade, Schenectady, NY {Pilot SBR Testing/Design}
Client: Schenectady Chemicals, Schenectady, NY

Project Manager responsible for the pilot scale testing of the sequential batch reactor (SBR) process for the biological treatment of high-strength organic chemical industry wastewater. The pilot scale testing was followed with a preliminary design and cost estimate for the addition of a full scale SBR unit to the WWTP.

Organic Industry WWTP Upgrade, Hopewell, NC {Evaluation/Pilot Plant Testing}
Client: Hercules/Aqualon, Hopewell, NC

Provided technical assistance during nine weeks of pilot plant testing of segregated cellulose derivatives and chemical cotton waste streams, and subsequent design for the expansion of the wastewater treatment system at a large industrial facility in Virginia. Biological treatment processes and secondary clarifier performance were evaluated using pilot scale units at the plant site.

Automotive Industry WWTP Evaluation, Lockport, NY {Evaluation/Full Scale testing}
Client: Harrison Radiator, Lockport, NY

Provided technical assistance during the full scale testing of coagulation/flocculation chemicals for metals precipitation and solids settleability at this automotive parts manufacturing facility in Western NY.

Industrial WWTP Evaluation, Norwich, NY {Evaluation/Pilot Scale Testing}
Client: Norwich Pharmaceuticals, Norwich, NY

Provided process and operational assistance for a pharmaceutical company in Upstate NY to solve problems associated with a two stage biological treatment system and a bank of pressure filters.

Industrial Pre-Treatment Study, Dunkirk, NY {Pilot Testing}
Client: Chemical Process Supply/City of Dunkirk, NY

Managed a feasibility study using four 20-gallon reactors to assess the impact of waste waters from a proposed pigment manufacturing facility on the City's WWTP. Similarly, conducted a pilot plant study and preliminary design of Sequential Batch Reactors for the upgrade of a wastewater treatment system to include biological treatment at a major phenol formaldehyde resin manufacturing facility.

New Inorganic Industry WWTP Study, Bath, NY {Antimony Removal}
Client: North American Phillips Corp., Mahwah, NJ

Conducted chemical equilibrium (MINEQL) modeling and bench scale testing to assess antimony removal as hydroxide and sulfide using inorganic precipitating agents. Developed a technical memorandum and successfully convinced USEPA that pre-treatment standards for antimony needed to be revised and be made specific to this industry.

PUBLICATIONS/PRESENTATIONS

Iyer, D., Iverson, S., and Sanders, S., Galena Mine Waste - Investigations through Remediation, XIV Superfund Conference, Washington, D.C., November 30 - December 3, 1993.

R. Jones, D. VanArnam and D. Iyer, “The Recourse of Closure On-Site,” in Hazardous Waste Site Remediation, The Engineer’s Perspective, O’Brien & Gere Engineers, Inc., 1988

Amend, J. and Iyer, D. R., "Treatment of High-Strength Organic Chemical Industry Wastewater in a Sequencing Batch Reactor", WPCF Fall Convention, Dallas, TX, October 6, 1988.

Iyer, D.R. and Letterman, R.D., "Modeling the Effects of Adsorbed Hydrolyzed Aluminum and Solution Chemistry on Flocculation Kinetics", Environmental Sci. & Tech., Vol. 19, No. 8, 1985.

Letterman, R.D. and Iyer, D.R., "Modeling the Effects of Adsorbed Aluminum Hydrolysis Products and Solution Chemistry on Flocculation Kinetics", 5th International Conference on Surface and Colloid Science & 59th Colloid and Surface Science Symposium, Clarkson University, Potsdam, NY, June 24-28, 1985.

"Chemical Equilibrium Model Used for Hazardous Waste Impoundment Closure", Proceedings, AIChE Diamond Jubilee/Annual Meeting, Washington, D.C., October 30-November 4, 1983.

Iyer, D.R. and Letterman, R.D., "Modeling the Effects of Adsorbed Hydrolyzed Aluminum on the Electrical Double Layer Properties of Aqueous Solutions", International Conference on Advances in Solids Separation, Society of Chemical Industry, University College, London, England, September 19-21, 1983; in Solid-Liquid Separation, Ellis Horwood Publishers, Chichester, England, 1984.

"Predicting the Effect of Hydrolyzing Salts on Flocculation Efficiency Using Computerized Chemical Equilibrium Models", Proceedings, AWWA Annual Conference, Miami, Fl, May 18, 1982.

D.R. Iyer and R.D. Letterman. Chemical Equilibrium Models. Report to Allied Chemical Corporation, Syracuse Research Laboratory, Syracuse, NY, 1980.

S.W. Effler, D.R. Iyer, R.L. Honstein, K.S. Young, G. Lorifice and B. Lingo. Water Quality Analysis of Limestone Creek. Departmental Publication, Department of Civil Engineering, Syracuse University, Syracuse, NY, 1979.

"Modeling Solid-Liquid Separation Processes for Water Treatment", AWWA New York Section Meeting, Liberty, NY, September 12, 1978.

Letterman, R.D. and Iyer, D.R., "Process Model Application in Potable Water Treatment", Proceedings, Conference on Theory, Practice and Process Principles for Physical Separation, AIChE/Engineering Foundation, Pacific Grove, California, October 30-November 4, 1977.

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RICHARD ALLEN, JR. **Technician/Resident Engineer**

Education Environmental Restoration Training Certificate (2004)
Center for Integrated Waste Management, University at Buffalo, Buffalo, NY

Associate in Applied Science: Forestry / Surveying (1977)
Ranger School, Wanakena, NY

Affiliations Air & Waste Management Association
Buffalo Audubon Society
American Canoe Association

Certifications Hazardous Waste Operations – 40 Hr Course
Asbestos Handler Initial Certification – 32 Hr Course
Asbestos Air Sampling Sample Technician – 16 Hr Course

Expertise **Mr. Allen** has a variety of field experience ranging from environmental investigation and remediation projects to nature and wildlife preservation. In the last five years with IEG, Richard has gained valuable experience in the operation and maintenance of treatment systems as well as in construction oversight. Richard also conducts volunteer tours of nature preserves and has extensive knowledge of the outdoors.

PROJECT EXPERIENCE

Iyer Environment Group, PLLC, Orchard Park, NY *(2004 – present)*

WATER/DRAIN LINE DISTRIBUTION SYSTEM REPLACEMENT, BATH, NY {Design/Oversight}
Client: VA Medical Center, Bath, NY

Assisted in a comprehensive survey of the water distribution system and an update to the topographic survey at this 100 year old VAMC campus in the southern tier. Followed up with assisting in the development of design documents, and field oversight as necessary during replacement of 20,000 feet of water mains and associated interconnections to 47 buildings.

Mr. C's CLEANERS SITE REMEDIATION, EAST AURORA, NY {OM&M Services}
Client: Ecology & Environment/NYSDEC, Albany, NY

Currently providing OM&M services at this hazardous waste site where the groundwater was contaminated by dry cleaner operation. Make routine measurements, preventive maintenance, and trouble shoot the treatment system as necessary during alarm conditions signaled by the PLC's autodialer. Periodically, purge the pumping wells, clean the pumps, and pressure wash the air-stripper to maintain the 30 gpm groundwater treatment system operating at maximum efficiency.

WHIRLPOOL RAPIDS BRIDGE, NIAGARA FALLS, NY SOIL REMEDIATION/MONITORING
Client: Niagara Falls Bridge Commission, Niagara Falls, NY

Richard served as the field inspector during remedial activities at the site, overseeing and documenting contractor's work, conducting work zone air quality monitoring, scheduling waste haulers for the landfill, and following up with the compilation of data for a report. He continues with long-term monitoring. Over 1,000 tons of contaminated soil was excavated and disposed off-site at a hazardous waste landfill, and the trail was restored with a much improved landscape.

Rick Allen Enterprises, Clarence, NY (*1994 - 2005*)
Home repair and maintenance, residential landscaping and tree service.

Landtech Services, Inc., Clarence, NY *(1999 – 2003)*
Commercial and highway landscape grading and plantings

U.S. Census Bureau, Clarence, NY *(2000)*
Population census.