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REMEDIAL INVESTIGATION REPORT

For

4630 RIVER ROAD SITE

SITE # C915258
4630 RIVER ROAD
TONAWANDA, NEW YORK 14150

Prepared For:

Giuseppe Holdings, LLC
2947 Delaware Ave
Kenmore, NY 14217

Prepared By:

Panamerican Environmental, Inc.
2390 Clinton Street
Buffalo, New York 14227

OCTOBER 2013

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1.0 INTRODUCTION

Giuseppe Holdings, LLC owner of the 4630 River Road Site (Site # C915258) located at 4630 River Road, Tonawanda, New York **(**refer to Figure 1) has entered into a Brownfied Cleanup Program (BCP) Agreement with the NYSDEC under the Voluntary section of the "Brownfield Cleanup Program Act". Giuseppe Holdings, LLC has contracted Panamerican Environmental, Inc. (PEI) to conduct a Remedial Investigation (RI) and prepare an Alternatives Analysis Report (AAR) as required by the BCP Agreement and complete remedial measures as necessary. This document presents a report on the remedial investigation (RI) activities completed in January/February 2013 at the 4630 River Road Site as part of the BCP program.

The RI/AAR program is being completed in accordance with BCP requirements as defined in section 375-3.8 of the NYSDEC 6NYCRR Part 375 Environmental Remediation Program Regulations. It is anticipated that the remedial measure selected will lead to a site remedy that will meet Unrestricted Use status as defined in Part 375-1.8(g)(1)(i); achieve Soil Cleanup Objectives as defined in Part 375-6.8(a); and mitigate any environmental impacted media issues at the site.

All RI activities were carried out in accordance with the requirements of the approved RI work plan *(Work Plan for Remedial Investigation, 4630 River Road Site (Site # C915258), 4630 River Road, Tonawanda, New York, prepared for*: *Giuseppe Holdings, LLC , prepared by: PEI, June 2012)*. The work plan was approved by NYSDEC Region 9 as part of the BCP process.

The contemplated future use of the site includes the construction of 64 apartments with an underground parking deck and marina facilities (refer to Sheet C100 – Master Site Plan).

1.1 Site Background

The subject site is located on River Road in Tonawanda, New York. Located on the south side of the Niagara River the property is roughly across the River from East River Road, Winkler Drive and Staley Road on Grand Island, New York. The subject property is a vacant approximately 3.5-acre parcel. A drainage swale divides the property and runs from River Road to the river through the east-central portion of the parcel. The South Grand Island Bridge is located about 0.4 miles or 726 yards west of the property. Historically, the property contained two separate stormwater retention ponds formerly used by Ashland Petroleum and United Refining Company (URC). The ponds were previously remediated under a NYSDEC Spill (Spill # 9614534) during which all the soils from the ponds bottoms were removed down to the water table. Indication is that the soils were bio-treated and re-used onsite. Previous soil sampling by others indicate that petroleum impacted soil and possibly groundwater exists on the property.

The site is bordered to the east by a public park; to the west by property owned by Ashland Oil & Refining Company/United Refinery and to the south by River Road. Further south is property owned by Noco Energy Corp. /Tonawanda Terminals Corp.

1.2 Previous Investigations

Historical information indicates the following previous investigations/remedial activities have been completed on the property:

- 1997-2001 NYSDEC Spill Report - NYSDEC Spill Report Form for Spill # 9614534 which was a former Spill at the Site related to stormwater retention ponds formerly used by Ashland Petroleum and United Refining Company (URC). The spill report covers the years from 1997 until 2001. The spill report indicates that the ponds active use was discontinued in 1982 when the refinery closed. The last entry in June 2001 in the spill report indicates that analytical results from the downgradient wells were below detection limits and no further action was required. However, the report and letter from NYSDEC dated September 7, 2001 indicates that the spill was given an "inactive" status since low levels of petroleum impacted soils remained.

  According to the Spill Report Form, URC conducted a cleanup of the property consisting of excavating all soils from the pond bottoms down to the apparent water table. Prior to backfilling the excavation, numerous (total of 16) sidewall and bottom soil samples were collected and submitted for laboratory analysis for NYSDEC STARS List volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). A review of the laboratory analytical data (refer to Table 1) indicates that most VOC and all SVOC compounds were not detected above their respective laboratory method detection limits. The chain of custody for these samples indicates that the samples were analyzed by the TCLP method. As such, the results only tell us that some contaminates remained on site following retention pond closure. As a result, direct comparison to Part 375 Soil Cleanup Objectives (SCOs) cannot be made. Also, a note in the spill report suggests that the soil excavated from the ponds was "treated" or "bio-remediated" at the terminal/plant. However, the report does not indicate whether these soils were used as backfill in the former ponds, spread across the site or removed off-site.

  According to the NYSDEC Spill Report, four groundwater monitoring wells were installed on the property. Analytical data from these wells were included in the Spill Report. The spill report suggested that testing results (refer to Table 3) from these wells indicated minimal to no impacts to groundwater and that the NYSDEC did not require any additional groundwater investigation based on these findings.

- 2006 Phase I Environmental Assessment - A Phase I Environmental Site Assessment was prepared by LCS, Inc. dated November 2006 (Phase I). PEI did not have access to the Phase I report and therefore has not included its findings.

- 2010 Phase II Subsurface Investigation (Phase II). A Phase II Environmental Site Assessment (ESA) was prepared by Empire Geo Services, Inc. (SJB) dated May 28, 2010. Twelve (12) soil probes (P-1 through P-12) were advanced using Geoprobe direct push technology (locations provided on Figure 2). Continuous soil samples

were retrieved in each borehole. All the borings, with the exception of one (P-12) were completed west of the drainage ditch which crosses the property. The probes were completed to a depth of 8-12-feet below ground surface (bgs). All samples were monitored in the field using a total organic vapor compound (Total OVC) monitoring instrument using PID technology and were visually and olfactory described. Five of the borings (P-3, P-5, P-6, P-8, and P-12) were described as having creosote, petroleum or tar-like odors and elevated PID (Total VOC) readings. Two other locations (P-7 and P-11) were described as having a strong "paint thinner" odor and elevated PID readings of 2,200-3,200 ppm. Four of the borings (P-1, P-2, P-4 and P-9) were reported to have Total VOC readings of background. Only one sample was collected and analyzed in a laboratory for Target Compound List (TCL) volatile and semi-volatile compounds; from P-11 between 6.8 and 8.0 feet bgs where the paint thinner odor was identified. The SJB Phase II Sample P-11 detected compound concentrations are presented in Table 1 along with a comparison to NYSDEC Part 375 Soil Cleanup Objectives for Unrestricted Site Use.

- 2011 Surface Water and Sediment Sampling. A surface water and sediment sampling program was completed in the drainage swale prior to the point where it runs through the east-central portion of the property. One surface water and one sediment sample were collected from each of three locations along the swale (refer to Figure 2). Samples were analyzed for STARS list petroleum VOCs and SVOCs (refer to Table 2). These samples were collected along the swale at locations from north of River Road and south of the property line prior to its entrance onto the property. No samples were collected in the swale on the property. Sample results indicate a number of semi-volatile compounds were detected. These were all PAH compounds. The report also indicates sheen and "free-phased product were observed. Additionally, absorbent booms were located across the swale near the culverts.

A summary of the results of previous investigations indicate that soil and ground water contain petroleum-based compounds. The results of the one Phase II soil sample indicate that ethylbenzene, m,p-xylene and chrysene were detected above the NYSDEC Part 375 Unrestricted SCOs. The results of the water and sediment samples collected in the drainage swale prior to its entrance on-site indicated the presence of several SVOC PAH related compounds.

2.0 REMEDIAL INVESTIGATION

2.1 Surface and Subsurface Soil Investigation

The primary purpose of the surface/subsurface assessment is to visually inspect and describe near surface and subsurface conditions across a large area and to assess the soil by collecting and analyzing surface and subsurface samples. To accomplish this, the property was marked off in a 50 by 50 feet rough grid. A total of twenty test trenches were advanced between January 31, 2013 and February 1, 2013 across the property. Test

trenches ranged from six – twelve (6 -12) feet in depth, five-six (5 – 6) feet in width and six-ten (6 – 10) feet in length (refer to Figure 2).

A PEI geologist visually examined and logged all test trenches (refer to Appendix A logs). Due to very cold and snowy weather during test trenching, field screening for VOCs using a photoionization detector (PID) was ineffective. Therefore, field real-time volatile organic monitoring and assessment could not be completed. The exact locations of trenches were subject to accessibility and the location of underground utility lines. All trenches were advanced at a minimum distance of 2.5 feet away from marked utilities, where present, to reduce the possibility of accidentally damaging an underground line. All trenches were filled with indigenous soil upon completion in the order in which it was removed. The test trench and sample locations were located by a field GPS unit for plotting on Figure 2. Location coordinates are provided in Table 6.

A total of five surface and five subsurface soil samples were collected from five of the test trenches as indicated on Figure 2. Two samples were obtained from each of the 5 selected test trench locations; one surface sample from 0-2 inches below grade (below the grass/weed cover) and one subsurface soil sample for a total of ten (10) soil samples. Subsurface samples were collected from locations that indicate potential impacts based on visual and olfactory observations. The samples were submitted to Paradigm Laboratory, a NYSDOH ELAP certified laboratory and a full Contract Laboratory Program (CLP). NYSDEC Category B, with full CLP-type analytical data package deliverables was provided.

All ten samples were analyzed for the full Part 375 Brownfields constituent list including: volatile organic compounds (VOCs) plus TICs (subsurface samples only); semi-volatile organic compounds (SVOCs) plus TICs; TAL metals; pesticides; and PCBs.

An additional four (4) samples were collected from locations that indicated potential impacts based on visual and olfactory indication. These samples were grab samples and analyzed for Spills Technology and Remediation Series (STARS) VOC compounds only. As indicated in the RI work plan, the intent of the limited analysis was based on site history and previous assessments which indicate impacts from petroleum related compounds. Therefore the additional samples were focused based on the previous investigation results.

Analytical results are discussed in Section 4.0.

2.2 Groundwater Investigation

A total of four monitoring wells were installed in 1999 as part of the retention pond assessment and remediation (refer to Figure 2). The existing wells were determined by PEI to be functioning and were developed and groundwater samples collected for analysis of the same 375 parameters as the soil samples. The wells were developed and sampled on February 7, 2013. During well development extensive turbidity and sediment was found in the water in each well that could not be removed by development procedures. Since high turbidity usually results in elevate metal compounds in the samples the laboratory was

requested to run both filtered and unfiltered samples for metals.

The samples were submitted to Paradigm Laboratory, a NYSDOH ELAP certified laboratory and a full Contract Laboratory Program (CLP), NYSDEC Category B, with full CLP-type analytical data package deliverables was provided.

All groundwater samples were analyzed for the full Part 375 Brownfields constituent list including: VOCs plus TICs; SVOCs plus TICs; TAL metals; pesticides; and PCBs.

The following are the measured well depths and water levels from existing ground at the time of sampling:

- MW-01 – 12.85 feet to bottom of well – 4.85 feet to standing water
- MW-02 – 19.45 feet to bottom of well – 3.15 feet to standing water
- MW-03 – 18.45 feet to bottom of well – 2.90 feet to standing water
- MW-04 – 10.20 feet to bottom of well – 5.25 feet to standing water

Analytical results are discussed in Section 4.0

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features

The subject property is a vacant approximately 3.5-acre parcel. A drainage swale divides the property and runs from River Road to the Niagara River through the east-central portion of the parcel. Historically, the property contained two separate stormwater retention ponds formerly used by Ashland Petroleum and United Refining Company (URC). The ponds were previously remediated under a NYSDEC Spill (Spill # 9614534) during which all the soils from the ponds bottoms were removed down to the water table. Indication is that the soils were bio-treated and re-used onsite.

A small drainage-low area is also located along the southern border and runs from east (River Road) to the west (Niagara River). The property, in general, is relatively flat and gently slopes from River Road toward the Niagara River to the northwest. The former lagoon areas still have a slight berm along the western side which elevates them slightly from the western portion and the River.

The site is bordered to the east by a public park; to the west by property owned by Ashland Oil & Refining Company/United Refinery and to the south by River Road. The South Grand Island Bridge is located about 0.4 miles or 726 yards west of the property.

3.2 Geology/Hydrogeology

In general, fill material consisting of black and light brown granular fill, including coarse to fine gravel, medium to fine sand and pieces of asphalt, concrete, brick and wood along with miscellaneous materials (i.e., electrical wiring, plastic, etc.). The depth of the fill

material averaged approximately six (6) feet across the site with the greatest depth of eight (8) feet at the North end of the site. Beneath the fill, the native soils typically consisted of wet clay to clayey silt with wet sands and gravel.

Based on measured groundwater depths from the four monitoring wells, groundwater, as expected, flows towards the river from the southeast to the northwest.

3.3 Demography and Land use

The subject site is located on River Road in Tonawanda, New York. Located on the south side of the Niagara River the property is roughly across the River from East River Road, Winkler Drive and Staley Road on Grand Island, New York. The subject property is a vacant approximately 3.5-acre parcel. The site is bordered to the east by a public park; to the west by property owned by Ashland Oil & Refining Company/United Refinery and to the south by River Road. Further south is property owned by Noco Energy Corp. /Tonawanda Terminals Corp. The area has an industrial history with the fore mentioned oil refineries dominating the area.

Historically, the subject property contained two separate stormwater retention ponds formerly used by Ashland Petroleum and United Refining Company (URC). The ponds were subsequently closed as previously discussed in Section 1.1 – Site Background.

4.0 NATURE AND EXTENT OF CONTAMINATION BY MEDIA

4.1 Introduction

This section discusses the results of the RI activities, and in particular the nature and extent of contaminants detected in the media investigated. The assessment is a result of the RI program coupled with the data obtained in previous investigations to provide an overview of the nature and extent of impacts at the property.

All soil and groundwater samples were submitted for analysis to Paradigm Environmental Services, Inc. a New York State certified laboratory. All analytical data from the laboratory was validated by KR Applin & Associates, a certified data validator. Data Usability Summary Reports (DUSR Text Only) for all data is provided in Appendix B. Full reports will be submitted on CD under separate cover.

4.2 Potential Sources

This section discusses potential sources of contamination that have resulted in the impacted soil detected during the RI and previous investigations at the site.

Historically, the property contained two separate stormwater retention ponds formerly used by Ashland Petroleum and United Refining Company (URC). The ponds were previously remediated under a NYSDEC Spill (Spill # 9614534) during which all the soils from the ponds bottoms were removed down to the water table. Indication is that the soils

were bio-treated and re-used onsite. Remaining residual contamination from pond remediation may have contributed to elevated VOCs detected in the soils during this RI and detected in historic sampling to the west of the remediated ponds.

There is historical reference to a xylene pipeline and storage tank just west of the site property line. The off-site pipeline and tank could be a contributing source to odors and elevated xylene compounds detected in test trench and historic boring soil samples along the west and southwest site perimeter.

Another possible source related to impacting site soils could be historic discharges/drainage from the off-site NOCO refinery property south of the River road through the drainage swale running from the NOCO property through the near center of the site to discharge to the Niagara River.

An examination of the groundwater sample analytical results from the four existing wells, suggests that the property is not a source of impacted groundwater. No elevated VOCs or SVOCs were detected in the RI groundwater samples and only two elevated metal compound concentrations (manganese and sodium) above TOGs was detected in the filtered metals samples. It should be noted that historic groundwater samples from the same wells (1999-2000 sampling) indicated several elevated VOCs and SVOCs in two of the wells. These elevated compound concentrations may have dissipated over the 13 year time span between sampling rounds.

The findings of the sampling analytical program are further described below.

4.3 Soil Sampling Analytical Results

All samples were submitted to Paradigm Laboratory, a NYSDOH ELAP certified laboratory and a full Contract Laboratory Program (CLP). NYSDEC Category B, with full CLP-type analytical data package deliverables was provided. Compounds detected from collected soil samples during the RI are summarized in the following table and discussed in detail below:

Table 4 - RI Soil Sample Analytical Results Summary

The following provides a summary of the RI soil sample/analytical program. The data is summarized in a series of tables. Also discussed in this section are the results from historic investigation programs as they relate to the RI results. Compounds detected during historic soil sampling programs are summarized in Table 1 – Historic Soil Sample Analytical Results Summary and Table 2 – Historic Sediment Sample Analytical results Summary

Table's 1 and 4 also provide a comparison of the analytical results with 6 NYCRR Part 375-6.8 Unrestricted Use Soil Cleanup Objectives and Table 2 - a comparison of the sediment sample analytical results with Part 375-6.8(b) Restricted Use SCOs-Protection of Ecological Resources.

A Data Usability Summary Report (DUSR-text only) is provided in Appendix B for the RI data results presented in Table 4.

Elevated concentrations of compounds detected in soil samples from both the RI and historic programs at each sample location are also presented on Figure 2 – Remedial Investigation Location Plan.

4.3.1 RI Surface Soil Samples

A total of five (5) surface soil samples were collected from the following test trench locations: TP-01, TP-08, TP-10, TP-12 and TP-16 (refer to Figure 2). All surface soil samples were analyzed for TCL SVOCs (plus TICs), PCBs, pesticides and TAL metals.

Specific surface soil sample compound concentrations detected as noted in Tables 4 and on Figure 2 are discussed in detail below.

SVOCs

Numerous SVOCs consisting primarily of PAHs were detected in surface soil samples TP-01A, TP-10A and TP-16A. No SVOCs were detected in samples TP-08A or TP-12A. Only sample TP-16A had SVOC (PAHs) compound concentrations that exceeded Part 375 Unrestricted Use soil cleanup objectives (SCOs). These included the following:

Benzo(a)anthracene – 1.6 ppm versus 1ppm SCO
Benzo(a)pyrene – 1.4 ppm versus 1 ppm SCO
Benzo(b)fluoranthene – 1.4 ppm versus 1 ppm SCO
Indeno(1,2,3-cd)pyrene – 1.1 ppm versus 0.5 ppm SCO
Benzo(k)fluoranthene – 1.1 ppm versus 0.8 ppm SCO
Chrysene – 1.7 ppm versus 1 ppm SCO

PCBs

PCB compounds Aroclor 1254 and 1260 were detected in TP-01A (1254 and 1260), TP-08A (1260) and TP-10A (1254 and 1260) at concentrations below Part 375 Unrestricted Use soil cleanup objectives (SCOs). No PCB s were detected in samples TP-12A and TP-16A.

Pesticides

Several pesticide compounds were detected in samples TP-01A, TP-08A, TP-10A and TP-16A. No pesticides were detected in sample TP-12A. Several pesticide compounds exceeded Part 375 Unrestricted Use SCOs in the following surface samples:

TP-01A
4,4-DDT – 0.0084 ppm versus 0.0033 ppm SCO (Lab Analysis indicated tentative analyte identification)

TP-08A
4,4-DDD – 0.0088 versus 0.0033 ppm SCO (Lab Analysis indicated tentative analyte identification)
4,4-DDT – 0.01 versus 0.0033 ppm SCO

TP-10A
4,4-DDD – 0.0056 versus 0.0033 ppm SCO (Lab Analysis indicated tentative analyte identification)
4,4-DDT – 0.01 versus 0.0033 ppm SCO

Metals

Most metals are naturally present in soil and fill materials. Concentrations of metals in soil and fill exhibit considerable variability, both stratigraphically and spatially. This variability is related to the composition of the fill, natural soils' origin, weathering processes that chemically and physically modify soil and, groundwater interactions that modify the geochemistry.

Metal compounds were detected in all of the surface soil samples. Several metal compounds exceeded Part 375 Unrestricted Use SCOs in the following surface samples:

TP-01A
Chromium - 49 ppm versus 1 ppm SCO
Copper – 57 ppm versus 50 ppm SCO
Lead – 190 ppm versus 63 ppm SCO
Nickel – 33 ppm versus 30 ppm SCO
Zinc – 340 ppm versus 109 ppm SCO

TP-08A
Copper – 57 ppm versus 50 ppm SCO
Zinc – 120 ppm versus 109 ppm SCO

TP-10A
Barium – 400 ppm versus 350 ppm SCO
Lead – 98 ppm versus 63 ppm SCO
Zinc – 430 ppm versus 109 ppm SCO

4.3.2 RI Subsurface Soil Samples

A total of nine (9) subsurface soil samples were collected from the following test trench locations: TP-01, TP-04, TP-08, TP-10, TP-11, TP-12, TP-13, TP-16 and TP-20 (refer to Figure 2). Subsurface soil samples from test trenches TP-01, TP-08, TP-10, TP-12 and TP-16 were analyzed for TCL VOCs (plus TICs), SVOCs (plus TICs), PCBs, pesticides and TAL metals. Subsurface samples from TP-04, TP-11, TP-13 and TP-20 were analyzed for STARS VOCs only.

Specific subsurface soil sample compound concentrations detected as noted in Table 4 and on Figure 2 are discussed in detail below.

VOCs

A number of VOCs were detected in the subsurface sample locations with the exception of samples/locations TP-10B, TP-11, and TP-12B. However, of the VOCs detected, only sample TP-16B had VOC concentrations that exceeded Part 375 Unrestricted Use SCOs. These were as follows:

Ethylbenzene – 220 ppm versus 1 ppm SCO
Toluene – 9.5 ppm versus 0.7 ppm SCO
O-Xylene – 290 ppm versus 0.26 ppm SCO
m,p-Xylene – 800 ppm versus 0.26 ppm SCO

It should be noted that, acetone was detected in sample TP-01B slightly above its Unrestricted SCO. However, acetone is common laboratories contaminate and it was also detected in the method blank.

SVOCs

A number of SVOCs were detected in the subsurface sample locations with the exception of samples/locations TP-08B, TP-10B and TP-12B. However, of the SVOCs detected, only sample TP-01B had SVOC concentrations that exceeded Part 375 Unrestricted Use SCOs. These were as follows:

Benzo(a)anthracene – 2.8 ppm versus 1ppm SCO
Benzo(a)pyrene – 2.1 ppm versus 1 ppm SCO
Benzo(b)fluoranthene – 2.4 ppm versus 1 ppm SCO
Indeno(1,2,3-cd)pyrene – 1.6 ppm versus 0.5 ppm SCO
Benzo(k)fluoranthene – 1.5 ppm versus 0.8 ppm SCO
Chrysene – 3.8 ppm versus 1 ppm SCO

PCBs

No PCBs were detected in four of the five subsurface soil samples analyzed for PCBs. One PCB compound (Aroclor 1254) was detected in subsurface soil sample TP-01B at a concentration below Part 375 Unrestricted Use SCOs.

Pesticides

Several pesticide compounds were detected in only one of the subsurface samples (TP-01B). However, only one compound exceeded/equaled Part 375 Unrestricted Use SCOs as follows:

Alpha-BHC -.0.02 ppm versus 0.02 ppm SCO

Metals

Metal compounds were detected in all five subsurface soil samples analyzed for metals. Several metal compounds exceeded Part 375 Unrestricted Use SCOs in the following subsurface samples:

TP-01B
Copper – 55 ppm versus 50 ppm SCO
Lead – 130 ppm versus 63 ppm SCO
Zinc – 400 ppm versus 109 ppm SCO

TP-16B
Arsenic – 14 ppm versus 13 ppm SCO
Lead – 71 ppm versus 63 ppm SCO
Zinc – 150 ppm versus 109 ppm SCO

4.4 Groundwater Sampling Analytical Results

As noted in Section 2.2, during well development extensive turbidity and sediment was found in the groundwater in each well. Since high turbidity usually results in elevate metal compounds in the samples the laboratory was requested to run both filtered and unfiltered samples for metals.

Analytical results (refer to Table 5) for groundwater samples collected from all four wells indicated that no VOCs, SVOCs, PCBs or pesticides were present in any of the samples. However, low levels of SVOC TICs were detected in three of the well samples and low levels of VOC TICs in one of the well samples. As anticipated, a number of metals were detected in both the filtered and unfiltered groundwater samples from each of the four wells. All analytical results were compared to NYSDEC Technical and Operational Guidance Series (TOGs) 1.1.1 GA Groundwater Regulations (refer to Table 5).

The filtered and unfiltered metals analytical results are provided for each sample on Table 5 and filtered samples indicate only two metal compound concentrations exceeded TOGs standards. Manganese exceeded the TOGs standard of 300 ppb in well sample MW-01 (390 ppb), MW-02 (490 ppb) and MW-03 (430 ppb). Sodium exceeded the TOGs standard of 20000 ppb in well samples MW-02 (75000 ppb) and MW-03 (140000 ppb).

5.0 FATE AND TRANSPORT OF CONTAMINATES OF CONCERN

The surface/subsurface soil/fill and groundwater sample analytical results were incorporated with the physical site conditions to evaluate the fate and transport of contaminates of concern (COC) in Site media. COC for the site include VOCs, PAHs and metals. The mechanisms by which the COC can migrate to other areas or media are

briefly outlined below. In all instances, the potential pathways are evaluated in the context of post-remedial conditions. The planned remediation, as discussed in greater detail in Section 8.0, includes the excavation/ removal of all impacted soils from the site for off-site landfill disposal that exceed Part 375 Unrestricted Use SCOs.

5.1 Fugitive Dust

Chemicals present in soil can be released to ambient air as a result of fugitive dust generation. Impacted soil/fill will be excavated/removed and disposed of off-Site as part of the remedial work. Furthermore, the majority of the site will be covered by the new apartment structures, asphalt and concrete pavement/sidewalks, and landscaped areas (Refer to Sheet C100 – Master Site Plan). Non-asphalt/concrete covered areas will be minimal. Based on this site cover there is minimal possibility of dust generation.

The fugitive dust migration pathway is not a relevant pathway because of the new site development and planned remediation to remove all impacted soil that exceeds unrestricted use SCOs.

5.2 Surface Water

The potential for impacted soil particle transport with surface water runoff is low to non-existent. The majority of the Site will be covered by new building structures, paved areas and vegetation. Storm water will be collected on-site by receivers and transported offsite to the Municipal storm water collection system. Therefore, surface water runoff is not considered a relevant migration pathway.

5.3 Volatilization

As noted in Section 4.3.2, several VOCs were detected in subsurface samples at the southwest portion of the site. All of the contaminate sources and impacted soils will be removed from this area during remediation, thereby, eliminating any soil vapor impacts.

Groundwater samples collected from from existing on-site wells during the RI indicated that no VOCs were present in the groundwater.

5.4 Leaching

Leaching refers to chemicals present in soil/fill migrating downward to groundwater as a result of infiltration of precipitation. As noted above no VOCs were detected in RI groundwater samples. Also, no SVOCs, PCBs and pesticides were detected in groundwater samples. Soils remaining above the groundwater table after remediation will meet Unrestricted Use SCOs. As such, the potential for COCs to be leached from the on-site soils is minimal. Furthermore, the majority of the site will be covered by the apartment buildings, paved areas and vegetation which limit infiltration of precipitation to the groundwater.

5.5 Groundwater Transport

Groundwater underlying the Site migrates from basically the southeast to the northwest across the site toward the Niagara River. Chemicals present in groundwater may be transported across the Site via this pathway.

Since the site and surrounding area are serviced by municipal water there are no local receptors, therefore, significant exposure to any chemicals in the groundwater are minimal. All of the impacted soils will be removed from the property. Groundwater monitoring well sample results indicates that no VOCs, SVOCs, PCBs nor pesticides are present in the site groundwater and only two metal compounds (sodium and manganese) were detected in samples that exceeded TOGS groundwater standards.

5.6 Exposure Pathway Summary

Based on the above assessment, the pathway through which site COCs could reach receptors at significant exposure concentrations will have been greatly reduced or completely eliminated by the proposed site remediation.

6.0 QUALITATIVE EXPOSURE ASSESSMENT

6.1 Human Exposure Risks

The proposed site remediation of removing all impacted soils from across the site and the new development will cover the majoriity of the site with new buildings or paved sections. Confirmation soil sampling will be conducted under the remedial measure and new site development to confirm that all impacted soils have been removed to meet Unrestricted Use Part 375 SCOs.

The primary population at risk would be construction workers performing remedial activities. However, PEI and contractor health and safety plans will be in effect (Remedial Action Work Plan stipulation) during all remediation activities to minimize any human exposure.

The RI program noted only two elevated metal compounds in groundwater that exceeded NYSDEC TOGs Guidance. Municipal water supply will be used for all site water requirements of the new development thereby eliminating any future human exposure.

6.2 Ecological Exposure Risks

Under the BCP the site is to be developed to meet Part 375 Unrestricted Use requirements. The site will be covered primarily with: new buildings; surface paved driveways, parking and sidewalk areas; and extensive underground parking (refer to Sheet C100 – Master Site Plan) There will be minimal green space (10 +/- percent) of landscaped areas. The site provides no wildlife habitat or pond/water features.

Surface water runoff from the site will be collected by the City storm water system and does not discharge to any surface water feature.

The DER-10 Appendix 3C Fish and Wildlife resources Impact Analysis (FWRIA) Decision Key is provided in Appendix D. No FWRIA is needed based on the completed decision key process. This determination is based on the following:

- There is no widespread soil contamination since the site will be remediated to Unrestricted Use status. The site does not have a habitat of an endangered, threatened or special concern species present.

Therefore, no unacceptable ecological risks are anticipated under the current or any anticipated future site use scenario.

7.0 SUMMARY AND CONCLUSIONS

7.1 Summary

The RI tasks were completed in accordance with a defined scope of work and approved workplan. The following provides a summary of the site investigation activities at the 4630 River Road site. Assessment activities consisted of the following specific tasks:

- Assessment of surface and subsurface soil/fill materials across the site. A total of twenty (20) test trenches were excavated across the site in an approximate 50 foot by 50 foot grid and a total of five surface soil, five subsurface soil and four select subsurface grab soil samples were collected for analysis.

- Assessment of groundwater conditions by developing and sampling four existing on-site groundwater monitoring wells.

- Performed laboratory analysis on all samples. Analysis included TAL metals, TCL VOCs plus TICs (no surface soil samples), TCL SVOCs plus TICs, PCBs and pesticides. Not all analyses were performed on all samples.

Analytical results are summarized on Table 4 – Soil results and Table 5 – Groundwater results. Figure 2 indicates the locations of all samples and test trenches.

Summary of Results by Medium

Soil Sampling Results

Soil samples were analyzed for TAL metals, TCL VOCs plus TICs, TCL SVOCS plus TICs, PCBs and pesticides. As noted above, not all analyses were performed on all samples. Concentrations of detected compounds in the soil samples are summarized in Table 4 and the analytical results compared to 6NYCRR Part 375-6.8(a) Unrestricted Use SCOs.

Surface soils

A total of five (5) surface soil samples were collected from the following test trench locations: TP-01, TP-08, TP-10, TP-12 and TP-16 (refer to Figure 2). All surface soil samples were analyzed for TCL SVOCs (plus TICs), PCBs, pesticides and TAL metals.

Numerous SVOCs consisting primarily of PAHs were detected in surface soil samples TP-01A, TP-10A and TP-16A. No SVOCs were detected in samples TP-08A or TP-12A. Only sample TP-16A had SVOC (PAHs) concentrations that exceeded Part 375 Unrestricted SCOs. These included the following:

Benzo(a)anthracene – 1.6 ppm versus 1ppm SCO
Benzo(a)pyrene – 1.4 ppm versus 1 ppm SCO
Benzo(b)fluoranthene – 1.4 ppm versus 1 ppm SCO
Indeno(1,2,3-cd)pyrene – 1.1 ppm versus 0.5 ppm SCO
Benzo(k)fluoranthene – 1.1 ppm versus 0.8 ppm SCO
Chrysene – 1.7 ppm versus 1 ppm SCO

Metal compounds were detected in all of the surface soil samples. Several metal compounds exceeded Part 375 Unrestricted Use SCOs in the following surface samples:

TP-01A
Chromium - 49 ppm versus 1 ppm SCO
Copper – 57 ppm versus 50 ppm SCO
Lead – 190 ppm versus 63 ppm SCO
Nickel – 33 ppm versus 30 ppm SCO
Zinc – 340 ppm versus 109 ppm SCO

TP-08A
Copper – 57 ppm versus 50 ppm SCO
Zinc – 120 ppm versus 109 ppm SCO

TP-10A
Barium – 400 ppm versus 350 ppm SCO
Lead – 98 ppm versus 63 ppm SCO
Zinc – 430 ppm versus 109 ppm SCO

PCB compounds Aroclor 1254 and 1260 were detected in TP-01A (1254 and 1260), TP-08A (1260) and TP-10A (1254 and 1260) at concentrations below Part 375 Unrestricted Use soil cleanup objectives (SCOs). No PCB s were detected in samples TP-12A and TP-16A.

Several pesticide compounds were detected in samples TP-01A, TP-08A, TP-10A and TP-16A. No pesticides were detected in sample TP-12A. Several pesticide compounds exceeded Part 375 Unrestricted Use SCOs in the following surface samples:

TP-01A
4,4-DDT – 0.0084 ppm versus 0.0033 ppm SCO (Lab Analysis indicated tentative analyte identification)

TP-08A
4,4-DDD – 0.0088 versus 0.0033 ppm SCO (Lab Analysis indicated tentative analyte identification)
4,4-DDT – 0.01 versus 0.0033 ppm SCO

TP-10A
4,4-DDD – 0.0056 versus 0.0033 ppm SCO (Lab Analysis indicated tentative analyte identification)
4,4-DDT – 0.01 versus 0.0033 ppm SCO

Subsurface Soils

A total of nine (9) subsurface soil samples were collected from the following test trench locations: TP-01, TP-04, TP-08, TP-10, TP-11, TP-12, TP-13, TP-16 and TP-20 (refer to Figure 2). Subsurface soil samples from test trenches TP-01, TP-08, TP-10, TP-12 and TP-16 were analyzed for TCL VOCs (plus TICs), SVOCs (plus TICs), PCBs, pesticides and TAL metals. Subsurface samples from TP-04, TP-11, TP-13 and TP-20 were analyzed for STARS VOCs only.

No VOCs were detected in three of the nine subsurface soil samples (TP-10B, TP-11, and TP-12B). A number of VOCs were detected in all of the other subsurface samples. Only sample TP-16B, however, had the following VOCs detected at concentrations that exceeded Part 375 Unrestricted Use SCOs:

Ethylbenzene – 220 ppm versus 1 ppm SCO
Toluene – 9.5 ppm versus 0.7 ppm SCO
o-Xylene – 290 ppm versus 0.26 ppm SCO
m,p-Xylene – 800 ppm versus 0.26 ppm SCO

It should be noted that, acetone was detected in sample TP-01B slightly above its Unrestricted SCO. However, acetone is common laboratories contaminate and it was also detected in the method blank.

No SVOCs were detected in three of the five subsurface soil samples analyzed for SVOCs (TP-08B, TP-10B and TP-12B). Numerous SVOCs consisting primarily of PAHs were detected in the other two subsurface soil samples analyzed for SVOCs (TP-01B and TP-16B). Only sample TP-01B detected the following PAH compounds with concentrations that exceeded Part 375 Unrestricted Use SCOs:

Benzo(a)anthracene – 2.8 ppm versus 1ppm SCO
Benzo(a)pyrene – 2.1 ppm versus 1 ppm SCO

Benzo(b)fluoranthene – 2.4 ppm versus 1 ppm SCO
Indeno(1,2,3-cd)pyrene – 1.6 ppm versus 0.5 ppm SCO
Benzo(k)fluoranthene – 1.5 ppm versus 0.8 ppm SCO
Chrysene – 3.8 ppm versus 1 ppm SCO

Metal compounds were detected in all five subsurface soil samples analyzed for metals. Several metal compounds exceeded Part 375 Unrestricted Use SCOs in the following subsurface samples:

TP-01B
Copper – 55 ppm versus 50 ppm SCO
Lead – 130 ppm versus 63 ppm SCO
Zinc – 400 ppm versus 109 ppm SCO

TP-16B
Arsenic – 14 ppm versus 13 ppm SCO
Lead – 71 ppm versus 63 ppm SCO
Zinc – 150 ppm versus 109 ppm SCO

Groundwater

Analytical results for groundwater samples collected from all four wells indicated that no VOCs, SVOCs, PCBs or pesticides were present in any of the samples. As anticipated, a number of metals were detected in both the filtered and unfiltered groundwater samples from each of the four wells. All analytical results were compared to NYSDEC Technical and Operational Guidance Series (TOGs) 1.1.1 GA Groundwater Regulations (refer to Table 5).

The filtered and unfiltered metals analytical results are provided for each sample on Table 5 and filtered samples indicate only two metal compound concentrations exceeded TOGs standards. Manganese exceeded the TOGs standard of 300 ppb in well sample MW-01 (390 ppb), MW-02 (490 ppb) and MW-03 (430 ppb). Sodium exceeded the TOGs standard of 20000 ppb in well sample MW-02 (75000 ppb) and MW-03 (140000 ppb).

7.2 Conclusions

The results of the RI indicate that only specific areas on the property – hot spots – were found to have elevated sample results for soils above Part 375 Unrestricted Use SCOs. The soils outside these areas had results below Part 375 Unrestricted SCOs. Remedial actions may be restricted to removal of these hot spots to gain Unrestricted Use status.

Surface and sub-surface soils that indicate impacted areas are denoted on Figure 2. This figure provides a visual indication of impacted soil areas that exhibited elevated concentrations of PAHs, VOCs, pesticides and metals that exceeded Part 375 Unrestricted Use SCOs.

As noted on Figure 2 the impacted soil hot spots are located haphazardly across the site.

The highest impacted area appears to be along the south west perimeter (TP-16 to TP-18 area). Elevated VOC concentrations, particularly Xylene compounds, were detected in the subsurface soils in this area during the RI along with strong odors. The suspected source may be from off-site where, as noted previously, a reported Xylene pipeline and storage tank were located west of the property. Residual contamination from the remediation of the ponds may also be a contributor.

Other impacted soils across the site (particularly PAHs and pesticides) may have resulted from the diverse fill material from unknown sources uncovered during the RI test trenching. Fill material generally consisted of black and light brown granular fill, including coarse to fine gravel, medium to fine sand and pieces of asphalt, concrete, brick and wood along with miscellaneous materials (i.e., electrical wiring, plastic, etc.). The depth of the fill material averaged approximately six (6) feet across the site with the greatest depth of eight (8) feet at the North end of the site.

Another possible source impacting site soils could be from historic discharges/drainage from the off-site NOCO refinery property south of the River road. The swale runs from the NOCO property through the near center of the site to discharge to the Niagara River. Historic surface water and sediment sample results (Table 2 sediments and Table 3 Surface waters) indicate the presence of a number of PAH compounds in both sediments and surface water.

According to Part 375, in order for the site to meet Unrestricted Use status, all impacted soils must be remediated to meet Unrestricted Use SCOs. The proposed remediation is discussed in Section 6.0 below.

No VOCs, SVOCs, PCBs, or Pesticides were detected in any of the groundwater samples. A number of metal compounds were detected in all samples but only two compounds, manganese and sodium, were detected above TOGS groundwater standards in three and two respectively of the sampled wells. Since the site is served by municipal water supply, and groundwater is not planned to be used for the new development, no further action related to groundwater is recommended.

The qualitative exposure assessment indicates that no unacceptable human exposure or ecological risks are anticipated under the current or any anticipated future site use scenario.

8.0 REMEDIAL MEASURE RECOMMENDATION

An alternatives analysis report (AAR) has not yet been completed. However, the remedial alternative that is recommended is excavation to achieve unrestricted use SCOs.

Using the data from this RI and previous assessment programs, an evaluation of the contaminant distribution in the site soils was conducted which indicated areas of impacted soil which exceed Part 375 Unrestricted Use SCOs. An estimate of significant impacted soil areas, primarily impacts at depth, is outlined on Figure 2.

According to Part 375, in order for the site to meet Unrestricted Use status, all impacted soils must be remediated to meet Unrestricted Use SCOs. The recommended remedy for the site includes the excavation/ removal of all impacted soils from the site for off-site landfill disposal. This will be accomplished as part of the new development of the site. The construction of the new apartment building facilities will include removing a majority of the site soils across the site (up to 8 feet in depth) to accommodate subsurface parking below the townhouses. Hot spots of impacted soils remaining below the level of the parking facilities construction and any areas outside the footprint of the new development will be removed to a depth to meet Unrestricted Use status and backfilled with clean fill.

A Remedial Action Work Plan (RAWP) will be developed to describe in detail how the above remediation will be accomplished. The RAWP will include procedures to determine in the field the adequate removal of all impacted soil. Procedures will include screening the excavated soils by visual, olfactory observation and with a Photoionization Detector (PID) for total organic vapors (VOCs) to determine when all impacted soils have been removed. Confirmatory soil samples will be collected at this stage from the excavation bottom and side-walls in accordance with NYSDEC DER-10 guidance.

TABLE 1 - 4630 RIVER ROAD - HISTORICAL SOIL SAMPLE ANALTICAL RESULTS SUMMARY

Sampling Program	SJB (1)	United Refinery Confirmation Samples (2)											NYSDEC
Sample Number	P-11	P-1	P-2	P-3	P-5	P-6	P-7	P-10	P-11	P-12	P-13	P-15	
Sample Date	5/12/2010	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	8/28/1997	PART 375
Sample depth (bgs)	6.8' - 8.0'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Unrestricted
Compounds	ppm	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm (3)	ppm
Volitiles													
Benzene	ND	0.002	0.007	ND	0.001	0.001	0.002	0.005	0.001	ND	0.001	0.002	0.06
Ethylbenzene	**300**	ND	0.028	ND	ND	ND	ND	0.026	ND	ND	ND	ND	1
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12
Toluene	ND	ND	0.016	ND	ND	ND	ND	0.013	ND	ND	ND	ND	0.7
o-Xylene	ND	ND	0.034	ND	ND	ND	ND	0.031	ND	ND	ND	ND	0.26
Xylenes (Total)	ND	ND	0.18	0.007	0.008	0.015	ND	0.17	ND	0.007	ND	ND	0.26
m,p-Xylene	**1080**	ND	0.14	ND	ND	0.011	ND	0.14	ND	ND	ND	ND	0.26
SVOCs													
Benzo(a)anthracene	0.464	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
Chrysene	**1.04**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
Phenanthrene	2.66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100
Pyrene	1.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100

ND - Non-Detect NA - Not Available

Shaded Value - Exceeds Part 375 Restricted Residential SCO

(1) - Data from Empire GEO Services subsidiary of SJB Services Phase II Sursurface Investigation of 4630 River Rd Report dated May 28,2010

(2) - Data from EnSol, Inc. Remedial Action Plan dated February 18, 2011. Samples P-4, P-8, P-9, P-14 and P-16 not shown all ND

(3) - Samples were analyzed by the TCLP method so the results cannot be directly compared to the NYSDEC Part 375 Soil Cleanup Objectives

TABLE 2 - 4630 RIVER ROAD - HISTORICAL SEDIMENT SAMPLE ANALTICAL RESULTS SUMMARY

Sampling Program	EnSol-Ditch Sediment Samples (1)			NYSDEC
Sample Number	**MWT-1-SED**	**MWT-2-SED**	**MWT-3-SED**	
Sample Date	**11/22/2011**	**11/22/2011**	**11/22/2011**	**PART 375**
Sample depth (bgs)	**0.0' - 0.17'**	**0.0' - 0.17'**	**0.0' - 0.17'**	**Ecological Resources (2)**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**
Volitiles				
n-Butylbenzene	ND	0.17	ND	NS
SVOCs				
Acenaphthene	ND	0.74	0.74	20
Anthracene	0.92	2.79	2.79	NS
Benzo(a)anthracene	2.69	4.08	4.08	NS
Benzo(a)pyrene	2.12	2.3	2.3	2.6
Benzo(b)fluoranthene	2.01	2.73	2.73	NS
Benzo(g,h,I)perylene	**1.51**	**1.3**	**1.3**	NS
Benzo(k)fluoranthene	1.78	1.92	1.92	NS
Chrysene	2.82	5.08	0.44	NS
Dibenz(a,h)anthracene	ND	0.54	ND	NS
Fluoranthene	5.95	8.92	ND	NS
Flourene	ND	2.36	0.89	30
Indeno(1,2,3-cd)pyrene	1.13	1.13	ND	NS
Phenanthrene	3.32	9.62	0.57	NS
Pyrene	4.63	7.15	0.68	NS

ND - Non-Detect NS - Not Specified

(1) - Data from EnSol, Inc. Summary of Surface Water and Sediment Sampling dated November 9, 2011

(2) - Part 375 - 6.8(b) Restricted Use SCOs - Protection of Ecological Resources

TABLE 3 - 4630 RIVER ROAD - HISTORICAL GROUNDWATER AND SURFACE WATER SAMPLE ANALTICAL RESULTS SUMMARY													
Samplling Program	**United Refinery Groundwater Samples (1)**							**EnSol-Ditch Surface Water Samples (3)**			**NYSDEC Standard/Guidance**		
Well Number	**HP MW-1**	**HP MW-2**	**HP MW-3**			**HP MW-4**		**MWT-1**	**MWT-2**	**MWT-3**			
Sample Number	**TT-HPMW1**	**TT-HPMW2**	**TT-HPMW3**	**TT-HPMW3**	**(2)**	**TT-HPMW4**	**(2)**	**MWT-1-H2O**	**MWT-2-H2O**	**MWT-3-H2O**	**TOGS H(WS)**	**TOGs E**	**TOGs 1.1.1. GA**
Sample Date	**10/14/1999**	**10/14/1999**	**10/14/1999**	**11/2/2000**	**5/23/2001**	**10/14/1999**	**5/23/2001**	**11/22/2011**	**11/22/2011**	**11/22/2011**	**(a)**	**(b)**	**(c)**
Compounds	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**
Volatiles Organics													
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	1
Ethylbebenzene	ND	ND	**150 (c)**	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	5
Isopropylbenzene	ND	ND	**8.1 (c)**	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	5
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	5
o-Xylene	ND	ND	**410 (c)**	4	ND	ND	ND	ND	ND	ND	N/A	N/A	5
Xylenes (Total)	ND	ND	ND	**28 (c)**	ND	ND	ND	ND	ND	ND	N/A	N/A	5
m,p-Xylene	ND	ND	**890 (c)**	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	5
Methyl tert-butyl Ether	ND	ND	ND	ND	ND	4.5	ND	ND	ND	ND	N/A	N/A	N/A
Semi-Volitile Organics													
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	**132 (a)**	ND	20	N/A	N/A
Chryzene	ND	ND	ND	ND	ND	ND	ND	ND	128	ND	N/A	200	N/A
Flourene	ND	ND	ND	ND	ND	ND	ND	ND	**363 (b)**	ND	N/A	50	N/A
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	**897 (b)**	ND	N/A	50	N/A
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	**210 (b)**	ND	N/A	50	N/A

ND - Non-Detect **N/A - No Standard or Not-Applicable**

Shaded Value - Exceeds Groundwater Standard

(1) - United Refinery analytical Results fron NYSDEC Spill Reports

(2) - Analytical Results from NYSDEC Table 1 4630 River Road Site Analytical Results for Groundwater Samples Collected After Retention Pond Closure

(3) - Data from EnSol, Inc. Summary of Surface Water and Sediment Sampling dated November 9, 2011

TOGS H(WS) - Source of Drinking Water (surface water)

TOGS E - Aesthetic (fresh waters)

TOGS GA - Source of Drinking Water (groundwater)

TABLE 4 - 4630 RIVER ROAD - RI SOIL SAMPLE ANALTICAL RESULTS SUMMARY PAGE 1 of 2																	
Sampling Program	**PEI - REMEDIAL INVESTIGATION (RI) TEST TRENCH SOIL SAMPLING PROGRAM**																
Sample No. (RiRo)	**TP-01A**	**TP-01B**	**TP-04**	**TP-08A**	**TP-08B**	**TP-10A**	**TP-10B**	**TP-11**	**TP-12A**	**TP-12B**	**TP-13**	**TP-16A**	**TP-16B**	**TP-20**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**1/31/2013**	**1/31/2013**	**1/31/2013**	**1/31/2013**	**1/31/2013**	**1/31/2013**	**1/31/2013**	**2/1/2013**	**2/1/2013**	**2/1/2013**	**2/1/2013**	**2/1/2013**	**2/1/2013**	**2/1/2013**	**PART 375**	**PART 375**	**PART 375**
Sample depth (bgs)	**2"**	**7'- 8.5'**	**7'**	**2"**	**4'**	**2"**	**7'- 8'**	**7'- 9'**	**2"**	**3'- 5'**	**6'-8'**	**2"**	**4'- 6'**	**4'-ditch**	**Residential**	**Restrict-Res**	**Unrestricted**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**
Metals															**(a)**	**(b)**	**(c)**
Aluminum	14000	4500	NA	13000	15000	11000	12000	NA	15000	11000	NA	14000	18000	NA	N/A	N/A	N/A
Arsenic	8.7	4.9	NA	6.4	8.4	6	6.8	NA	5.7 J	5.3 J	NA	6.7 J	**14 DJ (c)**	NA	16	16	13
Barium	200	300	NA	92	99	**400 (a)(b)(c)**	110	NA	120	100	NA	140	140	NA	350	400	350
Beryllium	1.1	0.6 J	NA	0.86	1.1	1.2	0.64 J	NA	0.76 J	0.59 J	NA	0.86 J	2.1 DJ	NA	14	72	7.2
Cadmium	1.6	0.83	NA	0.56 J	0.5 J	1.1	0.4 J	NA	0.33 J	ND	NA	0.46 J	0.73 J	NA	2.5	4.3	2.5
Calcium	34000	14000	NA	63000	19000	37000	89000	NA	56000 J	71000 J	NA	41000 J	52000 DJ	NA	N/A	N/A	N/A
Chromium (Tri)	**49 (a)(c)**	19	NA	22	22	22	16	NA	21	16	NA	21	24	NA	36	180	30
Cobalt	6.6	ND	NA	6.7	11	4.4 J	7.7	NA	10	9.2	NA	8.2	8.9 J	NA	N/A	N/A	N/A
Copper	**57 (c)**	**55 (c)**	NA	**57 (c)**	26	41	28	NA	23	19	NA	27	35	NA	270	270	50
Cyanide Total	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA	27	27	27
Iron	28000	13000	NA	20000	25000	16000	24000	NA	24000	21000	NA	23000	22000	NA	N/A	N/A	N/A
Lead	**190 (c)**	**130 (c)**	NA	32	27	**98 (c)**	9.8	NA	12	13	NA	48	**71 (c)**	NA	400	400	63
Magnesium	9800	10000	NA	16000	7700	18000	13000	NA	17000	16000	NA	9200	12000 M	NA	N/A	N/A	N/A
Manganese	1500	270	NA	640	290	570	380	NA	570	560	NA	470	520 M	NA	2000	2000	1600
Mercury	0.04 J	0.01 J	NA	0.01	0.01	0.01 J	0.01 DJ	NA	0.01	0.01	NA	ND	ND	NA	0.81	0.81	0.18
Nickel	**33 (c)**	11	NA	23	26	20	21	NA	23	21	NA	21	25	NA	140	310	30
Selenium	ND	ND	NA	1.3	ND	ND	ND	NA	ND	ND	NA	0.65	ND	NA	36	180	3.9
Potassium	2200	480	NA	2300	2500	1700	2800	NA	4000	1800	NA	2600	2300	NA	N/A	N/A	N/A
Sodium	540	190 J	NA	410	310 J	290 J	310 J	NA	320 J	590 J	NA	240 J	640 DJ	NA	N/A	N/A	N/A
Vanadium	29	6.7	NA	24	33	19	26	NA	32	22	NA	27	26	NA	N/A	N/A	N/A
Zinc	**340 (c)**	**400 (c)**	NA	**120 (c)**	86	**430 (c)**	78	NA	75	63	NA	86	**150 M (c)**	NA	2200	10000	109
PCBS																	
Aroclor 1254	0.07	0.02 J	NA	ND	ND	0.03 J	ND	NA	ND	ND	NA	ND	ND	NA	1	1	0.1
Aroclor 1260	0.05	ND	NA	0.05	ND	0.03 J	ND	NA	ND	ND	NA	ND	ND	NA	1	1	0.1
Pesticides																	
4,4-DDE	0.0031 CJN	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA	1.8	8.9	0.0033
4,4-DDD	ND	ND	NA	**0.0088 CJN(c)**	ND	**0.0056CJN(c)**	ND	NA	ND	ND	NA	0.0024 CJN	ND	NA	2.6	13	0.0033
4,4-DDT	**0.0084 CJN(c)**	ND	NA	**0.01 (c)**	ND	**0.01 (c)**	ND	NA	ND	ND	NA	ND	ND	NA	1.7	7.9	0.0033
beta-BHC	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.01 CJ	ND	NA	0.072	0.36	0.036
delta-BHC	0.0025 CJ	ND	NA	ND	ND	0.0022 CJN	ND	NA	ND	ND	NA	ND	ND	NA	100	100	0.04
Dieldrin	0.0038 CJ	0.0043 CJN	NA	0.0031 CJN	ND	0.0027 CJN	ND	NA	ND	ND	NA	ND	ND	NA	0.039	0.2	0.005
Endrin Aldehyde	2.8 J	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.01 CJN	ND	NA	N/A	NA	NA
alpha-BHC	ND	**0.02 J (c)**	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA	0.097	0.48	0.02
Endrin	ND	0.0037 J	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.0024 J	ND	NA	2.2	11	0.014
Heptachlor Epoxide	ND	0.01 J	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA	N/A	NA	NA
Endosulfan II	ND	ND	NA	0.01 CJN	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA	4.8	24	2.4
Endrin Ketone	ND	ND	NA	0.01 CJN	ND	ND	ND	NA	ND	ND	NA	0.01 CJ	ND	NA	NA	NA	NA
Methoxychlor	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.01 CJN	ND	NA	NA	NA	NA

TABLE 4 - 4630 RIVER ROAD - RI SOIL SAMPLE ANALTICAL RESULTS SUMMARY PAGE 2 of 2

Sampling Program	PEI - REMEDIAL INVESTIGATION (RI) TEST TRENCH SOIL SAMPLING PROGRAM																
Sample No. (RiRo)	TP-01A	TP-01B	TP-04	TP-08A	TP-08B	TP-10A	TP-10B	TP-11	TP-12A	TP-12B	TP-13	TP-16A	TP-16B	TP-20	NYSDEC	NYSDEC	NYSDEC
Sample Date	1/31/2013	1/31/2013	1/31/2013	1/31/2013	1/31/2013	1/31/2013	1/31/2013	2/1/2013	2/1/2013	2/1/2013	2/1/2013	2/1/2013	2/1/2013	2/1/2013	PART 375	PART 375	PART 375
Sample depth (bgs)	2"	7'- 8.5'	7'	2"	4'	2"	7'- 8'	7'- 9'	2"	3'- 5'	6'-8'	2"	4'- 6'	4'-ditch	Residential	Restrict-Res	Unrestricted
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Volitiles															(a)	(b)	(c)
Acetone	NA	**0.19B (c)**	ND	NA	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	100	100	0.05
1,2,4-Trimethylbenzene	NA	ND	0.56 J	NA	ND	NA	ND	ND	NA	ND	0.28	NA	ND	ND	47	52	3.6
1,3,5-Trimethylbenzene	NA	ND	0.29 J	NA	ND	NA	ND	ND	NA	ND	0.06	NA	ND	ND	47	52	8.4
Carbon Disulfide	NA	0.02	ND	NA	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	NA	NA
Cyclohexane	NA	0.12	ND	NA	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	NA	NA
Ethylbenzene	NA	0.07	0.06 J	NA	0.09	NA	ND	ND	NA	ND	0.01 J	NA	**220M(a)(b)(c)**	0.01	30	41	1
Isopropylbenzene	NA	0.02 J	0.05	NA	ND	NA	ND	ND	NA	ND	0.09	NA	8.1	ND	N/A	NA	NA
Naphthalene	NA	ND	1 J	NA	ND	NA	ND	ND	NA	ND	0.03	NA	ND	ND	100	100	12
Mythyl acetate	NA	0.05	ND	NA	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	N/A	NA	NA
Methylcyclohexane	NA	0.47	ND	NA	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	N/A	NA	NA
n-Propylbenzene	NA	ND	0.06 J	NA	ND	NA	ND	ND	NA	ND	0.09	NA	ND	ND	100	100	3.9
p-Isopropylbenzene	NA	ND	0.08	NA	ND	NA	ND	ND	NA	ND	0.02	NA	ND	ND	NA	NA	NA
sec-Butylbenzene	NA	ND	0.06 J	NA	ND	NA	ND	ND	NA	ND	0.02	NA	ND	ND	100	100	11
Toluene	NA	0.02	0.03	NA	0.01	NA	ND	ND	NA	ND	0.01	NA	**9.5 M (c)**	ND	100	100	0.7
o-Xylene	NA	0.3	0.17	NA	0.01	NA	ND	ND	NA	ND	0.02	NA	**290 (a)(b)(c)**	0.03	100	100	0.26
m,p-Xylene	NA	0.09	0.27	NA	0.03	NA	ND	0.01	NA	ND	0.19	NA	**800 (a)(b)(c)**	0.1	100	100	0.26
TICs	NA	22.4	NA	NA	ND	NA	ND	ND	NA	ND	ND	NA	12	ND	N/A	NA	NA
SVOCs																	
1.1 Biphenyl	ND	0.72	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA
2,4-Dimethylphenol	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	2	NA	NA	NA	NA
2-Methylnapthalene	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	1.1	NA	NA	NA	NA
3&4-Methylphenol	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	NA	ND	**0.52 J (c)**	NA	34	100	0.33
Acenaphthene	ND	1.1	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.33 J	ND	NA	100	100	20
Anthracene	ND	2.2	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.48	ND	NA	100	100	100
Benzo(a)anthracene	0.36 J	**2.8 (a)(b)(c)**	NA	ND	ND	0.22 J	ND	NA	ND	ND	NA	**1.6 (a)(b)(c)**	ND	NA	1	1	1
Benzo(a)pyrene	0.37	**2.1 (a)(b)(c)**	NA	ND	ND	0.22 J	ND	NA	ND	ND	NA	**1.4 (a)(b)(c)**	ND	NA	1	1	1
Benzo(b)fluoranthene	0.39	**2.4 (a)(b)(c)**	NA	ND	ND	0.23 J	ND	NA	ND	ND	NA	**1.4 (a)(b)(c)**	ND	NA	1	1	1
Benzo(g,h,I)perylene	0.27 J	1.5	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.75	ND	NA	100	100	100
Benzo(k)fluoranthene	0.3 J	**1.5 (a)(c)**	NA	ND	ND	0.2 J	ND	NA	ND	ND	NA	**1.1 (a)(c)**	ND	NA	1	3.9	0.8
Chrysene	0.4	**3.8 (a)(c)**	NA	ND	ND	0.26 J	ND	NA	ND	ND	NA	**1.7 (a)(c)**	0.75 J	NA	1	3.9	1
Fluoranthene	0.72	5.4	NA	ND	ND	0.36	ND	NA	ND	ND	NA	3	0.49 J	NA	100	100	100
Flourene	ND	2.9	NA	ND	ND	ND	ND	NA	ND	ND	NA	0.19 J	ND	NA	100	100	30
Hexachlorobenzene	ND	ND	NA	ND	ND	0.17 J	ND	NA	ND	ND	NA	ND	ND	NA	0.33	1.2	0.33
Indeno(1,2,3-cd)pyrene	0.31 J	**1.6 (a)(b)(c)**	NA	ND	ND	0.21 J	ND	NA	ND	ND	NA	**1.1 (a)(b)(c)**	ND	NA	0.5	0.5	0.5
Phenanthrene	0.37	8.7	NA	ND	ND	0.17 J	ND	NA	ND	ND	NA	1.6	1.7	NA	100	100	100
Pyrene	0.62	6.7	NA	ND	ND	0.33	ND	NA	ND	ND	NA	2.6	0.91	NA	100	100	100
TICs	2.55	62.5	NA	0.34	0.89	0.39	0.15	NA	ND	ND	NA	30.1	75.4	NA	N/A	NA	NA

All Data has Been Validated

ND - Non-Detect NA - Not Available

Shaded Value - Exceeds Part 375 Restricted Residential SCO

TICs - Tentitively Identified Compounds

"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

C - Calibration acceptability criteria exceeded for this analyte

"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

J - Estimated value-below calibration range N - Analysis indicates tentitive analyte identification

"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.

TABLE 5 - 4630 RIVER ROAD RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY

Sample Number (RiR	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	MW-04	MW-04	NYSDEC
Sample Date	2/7/2013	2/7/2013	2/7/2013	2/7/2013	2/7/2013	2/7/2013	2/7/2013	2/7/2013	TOGs 1.1.1. GA
Compounds	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Metals	**Filtered (1)**	**Unfiltered**	**Filtered (1)**	**Unfiltered**	**Filtered (1)**	**Unfiltered**	**Filtered (1)**	**Unfiltered**	
Aluminum	ND	280000	ND	28000	ND	8500	ND	52000	N/A
Antmony	ND	ND	ND	ND	ND	ND	ND	ND	3
Arsenic	ND	**170**	ND	21	ND	ND	ND	11	25
Barium	86 J	1000	73 J	190	63 J	120	69 J	310	1000
Beryllium	ND	**13**	ND	ND	ND	ND	ND	ND	3
Cadmium	ND	**12**	ND	ND	ND	ND	ND	ND	5
Calcium	120000	730000	210000	300000	200000	220000	80000	100000	N/A
Chromium	19 J	**370**	ND	38	ND	28	ND	**86**	50
Cobalt	ND	250	ND	25 J	ND	ND	ND	ND	N/A
Copper	ND	**580**	ND	65	ND	20 J	ND	83	200
Iron	71 J	**690000**	ND	**49000**	ND	**9100**	ND	**59000**	300
Lead	ND	**340**	ND	**28**	ND	5.8 J	ND	**54**	25
Magnesium	35000	230000	33000	53000	32000	36000	27000	46000	N/A
Manganese	**390**	**8000**	**490**	**1700**	**430**	**560**	71	**600**	300
Mercury	ND	0.5	ND	ND	ND	ND	ND	0.15	0.7
Nickel	ND	**620**	ND	63	ND	ND	ND	65	100
Potassium	1700 J	56000	4100	12000	1600 J	3700	1900 J	16000	N/A
Selenium	ND	**16**	5.3 J	9 J	ND	7.9 J	ND	7.1 J	10
Sodium	13000	18000	**75000**	**78000**	**140000**	**140000**	6700	7100	20000
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Vanadium	ND	550	ND	53	ND	18 J	ND	87	N/A
Zinc	ND	2300	ND	150	ND	35 J	ND	300	N/A
SVOCs									
TICs	10	N/A	30.2	N/A	29	N/A	ND	N/A	N/A
VOCs									
TICs	6.7	N/A	ND	N/A	ND	N/A	ND	N/A	N/A
Pesticides									
Pesticides	ND	N/A	ND	N/A	ND	N/A	ND	N/A	
PCBs									
PCBs	ND	N/A	ND	N/A	ND	N/A	ND	N/A	
Field Parameters									
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	>1000	>1000	>1000	N/A
pH	10.44	10.44	9.55	9.55	10.74	10.74	9.23	9.23	N/A
Dissolved Oxygen	13.87	13.87	4.12	4.12	5	5	8.26	8.26	N/A
Temp (degrees C)	3.6	3.6	4	4	5.69	5.69	3.12	3.12	N/A
Conductivity	0.01	0.01	1.8	1.8	1.83	1.83	0.01	0.01	N/A

All Data has been validated

(1) - Dissolved TAL Metals (ICP) - Results lab filtered due to high groundwater sediment in wells

N/A - Not Applicable ND - Non-detect

TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Shading - Results above NYSDEC Restricted Residential Cleanup Objectives

J - Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.

TABLE 6 - 4630 River Test Pit/Sample Location Coordinates		
Sample Identification	**Coordinates-North American Datum 1983**	
	Latitude	**Longitude**
Test Pits		
TP-01B	43.00166451440	-78.92717493950
TP-02	43.00147564800	-78.92693375090
TP-03	43.00148345830	-78.92718820820
TP-04	43.00147795750	-78.92743350500
TP-05	43.00128241870	-78.92719357720
TP-06	43.00129136870	-78.92770245300
TP-07	43.00110384610	-78.92796490400
TP-08	43.00091443710	-78.92822085280
TP-09	43.00124639640	-78.92745038510
TP-10	43.00118371200	-78.92706841650
TP-11	43.00099234110	-78.92734382770
TP-12	43.00109866130	-78.92747162700
TP-13	43.00109224620	-78.92770393690
TP-14	43.00088643860	-78.92802729170
TP-15	43.00081095240	-78.92810085660
TP-16	43.00070938070	-78.92797827550
TP-16	43.00070938070	-78.92797827550
TP-17	43.00090450550	-78.92772235870
TP-18	43.00061566110	-78.92777915590
TP-19	43.00090619210	-78.92747834090
TP-20	43.00137210140	-78.92756203610
Monitoring Wells		
MW-1	43.00102753620	-78.92799563000
MW-2	43.00076881970	-78.92753858080
MW-3	43.00099444930	-78.92727634250
MW-4	43.00123896620	-78.92770345830

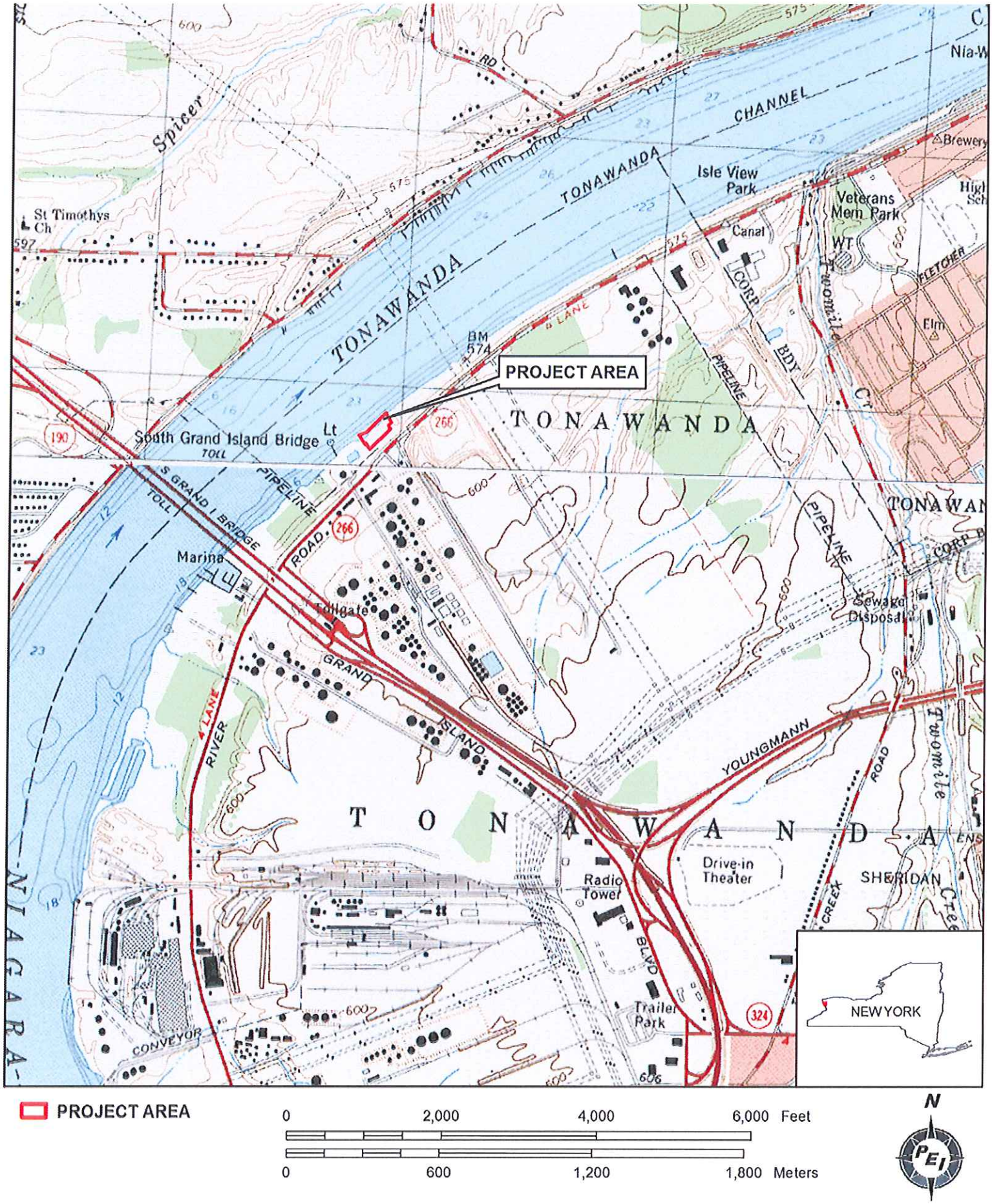


Fig 1: Project location area (USGSTonawanda West Quad. 1980)

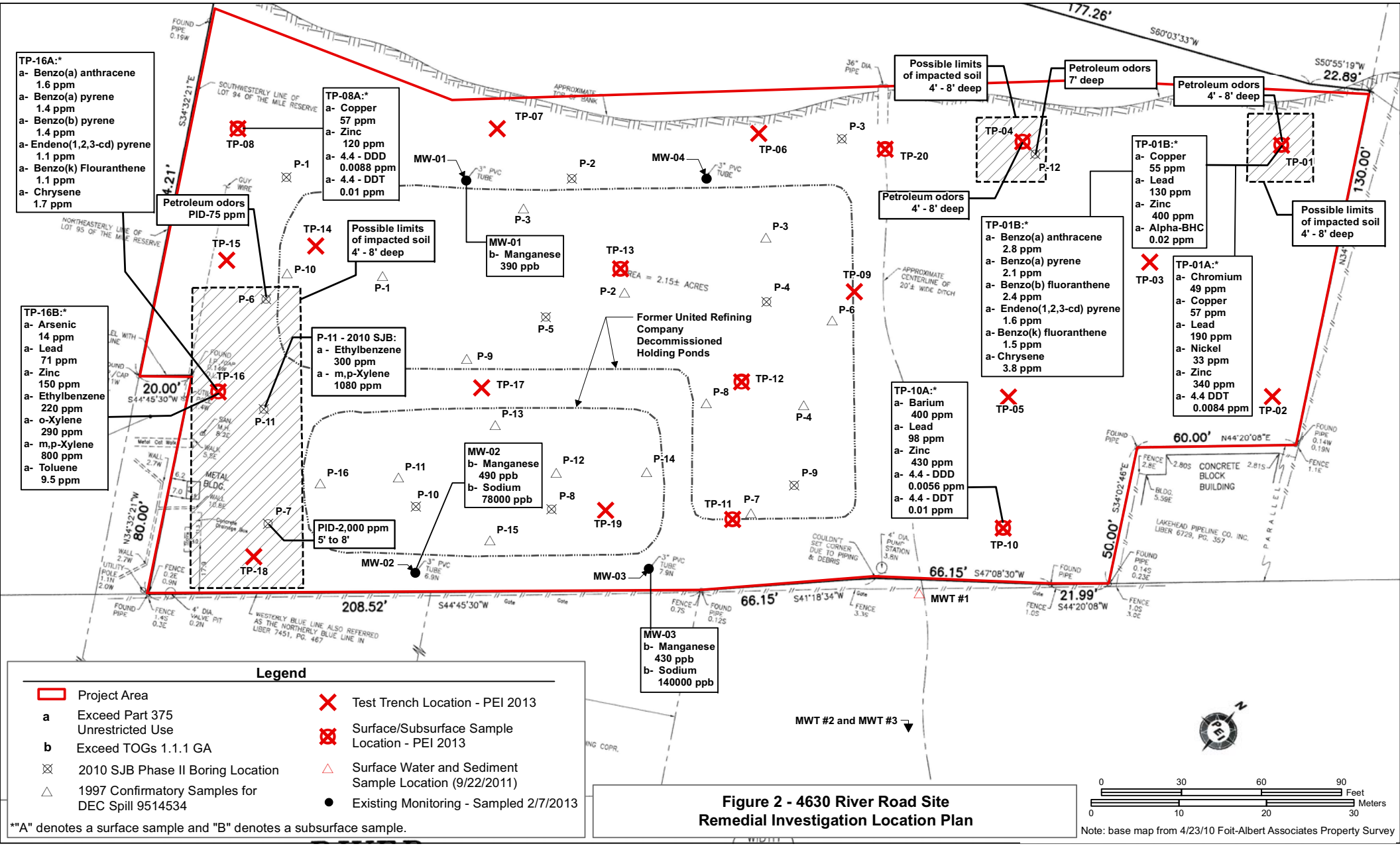
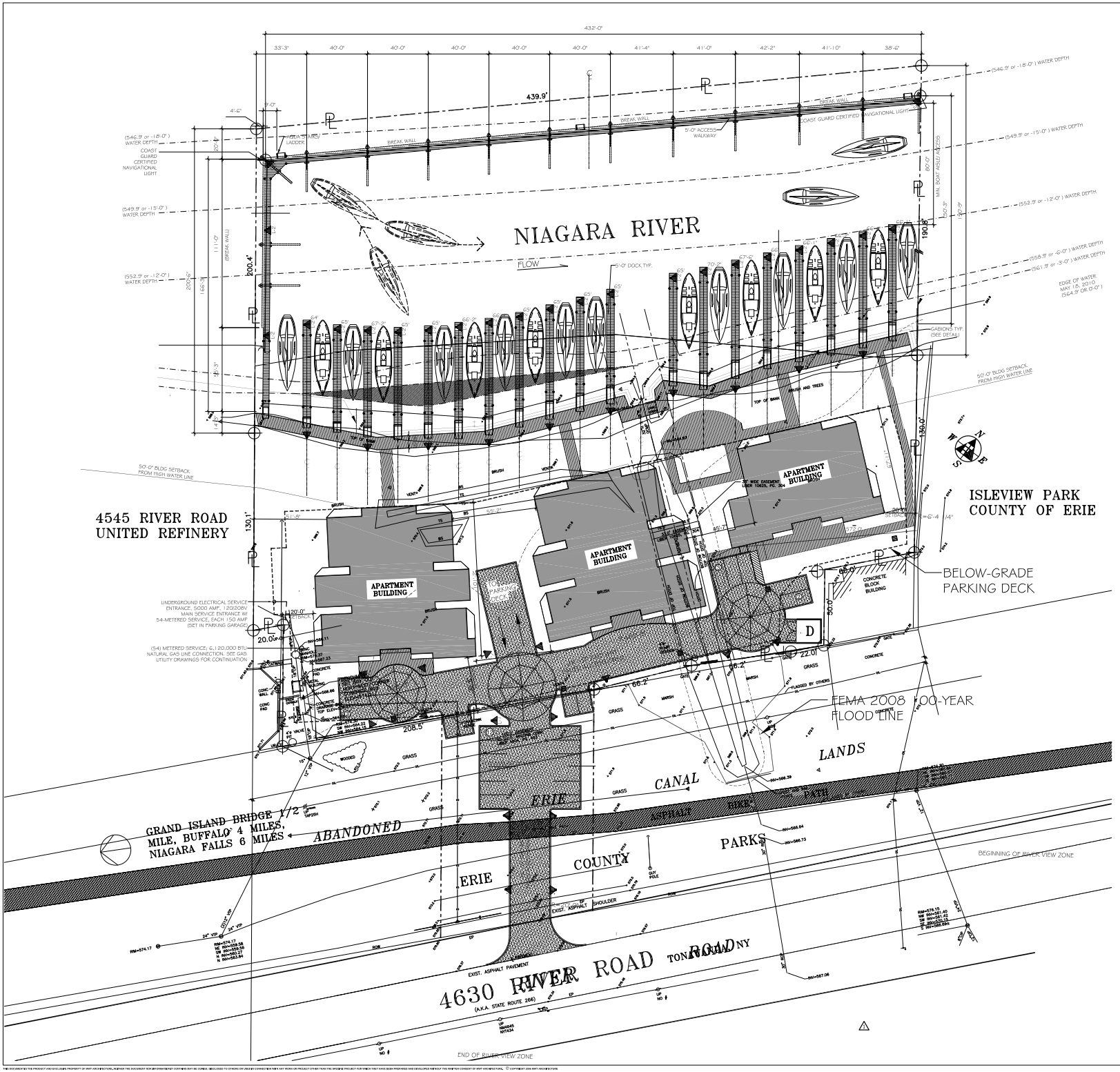


Figure 2 - 4630 River Road Site
Remedial Investigation Location Plan

Note: base map from 4/23/10 Foit-Albert Associates Property Survey



1 MASTER SITE PLAN
1" = 20'-0"

REVISIONS:

AMENDED PLAN

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4630 RIVER ROAD
AMENDED
SITE PLAN
4630 RIVER ROAD
TONAWANDA, NY

PROJECT NO.:1001
DATE: 01/23/13
DRAWN BY: ATK
CHKD. BY: MWT

MASTER SITE PLAN

SHEET C100