REMEDIAL INVESTIGATION REPORT

South Island Apartments Site

1 Osgood Avenue/Center Island,

Town of Green Island, Albany County, New York

BCP Site # C401074

November 2017

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CERTIFICATION

I, Gianna M. Aiezza, certify that I am currently a NYS registered professional engineer and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Gianna M. Aiezza, P.E.
Name

081422
NYS PE License Number

Signature

November 20, 2017
Date

1.0 INTRODUCTION

This Remedial Investigation (RI) Report has been prepared by Envirospec Engineering, PLLC (Envirospec) on behalf of South Island Apartments, LLC (SIA) for the South Island Apartments (Site) located at 1 Osgood Avenue/Center Island in the Town of Green Island (and Village), Albany County, New York (see Figure 1).

SIA is submitting this RI Report under the New York State Brownfield Cleanup Program (BCP) as a Volunteer. SIA intends to remediate the Site for a Restricted Residential end use. The Site will be redeveloped as a mixed housing and commercial use consisting of apartments, retail, and recreation areas.

1.1 General Site Description

The property is located on the southern portion of Starbuck Island in the Town of Green Island. The Site is bounded to the north by the Troy/Green Island Bridge and a commercial property formerly consisting of a car wash and office building and to the south by a commercial property and the Hudson River. The Hudson River is located directly to the east and west of the Site (see Figure 1). The Site is identified on the Albany 2016 Final Tax Map as 33.09 Block 1 Lot 3. According to the tax map, the property comprises approximately 8.9 acres. According to aerial images, land uses in the surrounding area include various commercial and residential uses.

The Site is a former petroleum terminal. The terminal was demolished between 2008 and 2010. According to the Albany County Assessor, the Site is zoned as vacant - industrial.

2.0 SITE HISTORY AND BACKGROUND INFORMATION

According to a 2008 Phase I Environmental Site Assessment (2008 Phase I ESA) conducted by Shifrin & Associates Inc. (Shifrin), the Site was operated as a petroleum terminal since 1918. Available historical maps show a terminal located on the property in 1925. Reportedly during its operation, the Site was improved with sixteen (16) aboveground storage tanks (ASTs), potentially two (2) underground oil-water separator tanks, a truck loading rack, a barge dock, an office building, an electrical shed, storage sheds, brick buildings, earthen dikes, and internal roads. When in service, the terminal loaded and unloaded products that were transported to the Site by barge. Fuels stored at the former terminal included kerosene, low sulfur diesel, ultra-low sulfur diesel, and No. 2 fuel oil. The terminal was not connected to a sewer line; wastewater was discharged to a septic tank and leach field on-Site. According to the NYSDEC Spill Incidents Database, the Site has had thirteen (13) documented petroleum spills, with twelve (12) closed by the NYSDEC and one (1) spill (#8702376) remaining open.

According to the Supplemental Site Investigation in May 2016 conducted by SPEC Engineering (SPEC), the terminal was demolished sometime between 2008 and 2010 although the earthen dikes, at least one (1) underground oil-water separator, and a handful of small, vacant structures remained on the site. There were no other noted uses of this property.

Site surfaces consist largely of compacted gravel with gravel berms. The compacted gravel areas were former secondary containment areas. There are also several small structures, small grassy areas and wooded areas along the banks of the River.

2.1 Site Topography and Drainage

The Site elevation ranges from approximately 5 (at the River) to approximately 30 feet above mean sea level (AMSL) according to the survey completed for the site. Mean high water is at 5.9 feet AMSL. The Site slopes to the east, south and west towards the Hudson River. The banks are steep in most areas. Presumably, site runoff drains to the east or west towards the Hudson River.

2.2 Site Geology and Hydrogeology

The U.S. Department of Agriculture Soil Conservation Service (SCS) soil survey map of the Site describes the general soil type as Urban Land, and is listed as “Not Prime Farmland”.

During the Supplemental Site Investigation in May 2016 conducted by SPEC, test pits were excavated to a depth of approximately 8-10 feet below grade surface (bgs). According to the Investigation Report, soil from test pits consisted primarily of sandy and gravelly fill, with

rounded pebbles to cobbles, broken glass, brick and wood fragments, mussel and clam shells, and lightweight black solid chips throughout. The Investigation Report further states that the Site consists mainly of fill material for at least the top 10 feet, with the presence of slag or cinder ash historical fill present throughput. Based on soil boring logs from the 2006 Site Investigation by Shifrin & Associates Inc. (Shifrin), soil from depth ranges of 0 to approximately 20 feet is a mix of gravel, brick, concrete, and silty material, with some clay layers observed starting at approximately 20 feet bgs.

RI soil borings confirmed the site is fill material to a depth of great than 20 feet bgs. Cross sections developed from borings collected during the RI are included as Drawings C-1, C-2 and C-3.

Based on the New York State Museum Geologic Map of New York, the Site is situated over the Canajoharie Shale Formation. Envirospec could not determine depth to bedrock at the Site from historical records. However, during the 2006 Site Assessment by Shifrin, soil borings were advanced to approximately 30 feet bgs. Furthermore, several groundwater monitoring wells installed prior to the 2006 Site Assessment were found to have depth to bottom of well measurements ranging from 32-38.5 feet bgs.

The Site is located in the Hudson River basin, south of where the Mohawk River and the Hudson River converge. Regional groundwater presumably flows toward the Hudson River. Groundwater flow at the Site was determined to flow west toward the Hudson. Groundwater is tidal and fluctuates with the Hudson River.

2.3 Existing Site Infrastructure

Based on the 2008 Phase I ESA conducted by Shifrin, the Site lies within the water service area of the Village of Green Island, with a supply well located on the northern end of Starbuck Island. Reportedly, wastewater from the terminal was discharged to a septic tank and leach field on-Site.

According to the Supplemental Site Investigation in May 2016 conducted by SPEC, the former petroleum terminal was demolished, although earthen dikes, at least one (1) underground oil-water separator, and a handful of small, vacant structures reportedly remain on the site. A Site Plan is included as Drawing S-1.

2.4 Sensitive Receptors

Area land uses within one half mile of the Site include residential, commercial and industrial uses. Sensitive receptors are not identified on the Site, but are further discussed in the following

sections.

2.4.1 Wetlands and Floodplains

According to the NYSDEC Environmental Resource Mapper (Figure 2) and the USFWS National Wetlands Inventory (Figure 3), there are no state or federal designated wetlands located within the Site boundaries. The Hudson River borders the site to the east and west. Refer to Section 2.4.2 for further discussion on the Hudson River.

Portions of the Site are located in the 100 year flood plain according to the Flood Insurance Rate Map, map number 36001C0202D, effective date 03/16/2015 (Figure 4). The 100 year flood elevation at the Site is approximately 26 ft AMSL.

2.4.2 Hudson River

As previously discussed, the Hudson River is located immediately adjacent to the Site and borders the Site to the east and west. According to the NYSDEC Environmental Resource Mapper, the Hudson River shorelines are known to contain rare plants, rare animals, and significant natural communities.

2.4.3 Residences, Schools, Parks and Water Supply Wells Locations

Residential units are located upgradient within one-tenth mile to the north of the Site on Starbuck Island. Residential units and park areas are noted at locations across the Hudson River to the east, south and west of the Site. The closest residential units and park are within one-tenth mile to the east/southeast of the Site, across the Hudson River. The closest school is located outside a half mile radius of the Site.

As previously referenced, the 2008 Phase I ESA conducted by Shifrin stated that the Site lies within the water service area of the Village of Green Island, with a supply well located on the northern end of Starbuck Island.

3.0 PREVIOUS SITE ASSESSMENTS AND INVESTIGATIONS

Previous investigations encompassing portions of the Site were performed on the BCP Site and are briefly summarized below. Historical sampling results above restricted residential soil cleanup objectives (RRSCOs) are included as Drawing S-2.

3.1 2006 Shifrin Site Investigation

On January 19, 2006, Shifrin submitted a Site Investigations Report to the NYSDEC (2006 SI Report). The 2006 SI Report discussed the December 2005 installation of five (5) new monitoring wells at the Site and the depth to groundwater measurement of seven (7) existing monitoring wells. The installation of these wells included a soil investigation of each soil boring advanced at the Site.

Samples were analyzed for VOCs and SVOCs. The 2006 SI Report indicated concentrations of chrysene in soil samples from two (2) of the soil borings exceeded cleanup criteria detailed by NYSDEC Technical and Administrative Guidance Memorandum No. 4046 (which has since been replaced by CP-51 in 2010).

3.2 2008 Shifrin Phase I ESA

On June 3, 2008, Shifrin prepared a Phase I Environmental Site Assessment Report (2008 Phase I ESA) summarizing available historical records for the Site and Site observations. The Phase I ESA claimed that the facility had been a petroleum terminal for approximately 90 years.

The 2008 Phase I ESA concluded that there was evidence of recognized environmental conditions (RECs) at the Site in connection with releases which had not yet been closed by the NYSDEC. Shifrin recommended that sampling of the monitoring wells and recovery of free product be continued with the requisite reporting to NYSDEC.

3.3 2010 Shifrin Site Assessment

On February 25, 2010, Shifrin issued a Site Assessment letter to the NYSDEC (2010 SA Letter). The 2010 SA Letter discussed the advancement and investigation of eight (8) new soil borings at the Site. According to Shifrin, four (4) were to be advanced near previously advanced S-8, and four (4) were advanced near previously advanced S-17. Samples were collected from the new soil borings and analyzed for VOCs and SVOCs. Some exceedances of TAGM 4046 cleanup objectives were observed, however there were no exceedances of RRSCOs.

Shifrin concluded that additional soil borings were not necessary to further delineate the contaminants on the Site, and that they wished to discuss with the NYSDEC the procedures required to obtain closure of the Site.

3.4 2010 Shifrin Product Removal Letter

On September 21, 2010, Shifrin issued a letter to NYSDEC discussing weekly product recovery from six (6) monitoring wells and provided graphs of product thickness versus time from March 19 to August 26, 2010. Reportedly, many of the recorded thicknesses were either none or trace product, with all wells consistently holding much less than one (1) foot of free product.

Due to the collected data and the low recharge rate of wells, Shifrin recommended that weekly vacuum extraction of product from these wells be discontinued. Shifrin instead recommended using a mobile multi-phase extraction system, as well as continuing to gauge accessible wells on a bi-weekly basis at the Site.

3.5 2014 Shifrin Product Removal Letter

On March 11, 2014, Shifrin issued a letter to the NYSDEC discussing continual efforts to remove residual free product from the facility, which had preceded the purchase of the site by NATCO.

According to Shifrin's review of gauging data from the vacuum extraction event on January 23, 2014, no measurable free product remained in the gauged wells (MW-9, MW-11, MW-15, MW-22, MW-23 and MW-24) following completion of the extraction event. Reportedly, on January 24, the wells were re-gauged, and product thickness had rebounded in MW-11 and MW-22. Shifrin also reported that free product was present in MW-4, MW-8, MW-18, MW-20, and MW-21 on January 24th. Reportedly MW-4, MW-8, MW-18, MW-20, and MW-21 were gauged upon completion of the second day of extraction and had no measurable free product present. Historical measured LNAPL thickness in site monitoring wells is shown on Drawing S-3.

According to the letter, NATCO closed the terminal and removed the aboveground steel tanks and associated piping.

Shifrin stated that high vacuum extraction was an appropriate technology to address the residual product and concluded by proposing to install four (4) more extraction wells in the vicinity of MW-17, MW-22 and MW-24 to reduce the well spacing to within the radius of influence of the extraction system. Though the specific well IDs are not provided in the 2014 letter, it seems to refer to MW-25, MW-26, MW-27, and MW-28, which were installed in the former loading rack

area sometime between the 2014 letter and the 2016 site activities discussed in Section 3.6. Well construction details are not available for these four (4) wells.

3.6 2016 SPEC Supplemental Upper Soils Investigation

SPEC performed a Supplemental Investigation in May 2016. The investigation consisted of excavating twelve (12) test pits across the Site and sampling representative soil (0 to ±10 feet bgs) for laboratory analytical testing.

According to SPEC, analytical testing of soil was based upon the former site use (petroleum storage and distribution) and Site fill materials. Reportedly, the analytical results demonstrated the soil contamination was consistent with detected levels of metals, SVOCs and VOCs which exceeded Unrestricted Use Soil Cleanup Objectives set by NYSDEC in 6 NYCRR Subpart 375-6. SPEC stated that one test pit sample exceeded acceptable Toxicity Characteristic Leaching Procedure (TCLP) levels for lead.

Monitoring well samples from MW-22, MW-23, MW-25, and MW-28 were analyzed for SVOCs and VOCs. Exceedances of Part 703 Groundwater Standards were observed for benzene in MW-22 (23 ppb) and MW-23 (43 ppb). According to the Investigation Report, specific gravity analysis of free phase hydrocarbon material observed in monitoring wells was consistent with No. 2 Fuel Oil (weathered) or No. 4 Fuel Oil.

Soil and groundwater results from the May 2016 investigation are included on Drawing S-4.

3.7 Remedial Investigation

In summer 2017, Envirospec, on behalf of SIA, completed a RI to define the nature and extent of contamination under the BCP. The following items were completed as part of the RI:

- Further Site investigation to define the nature and extent of on-site contamination;
- Sampling of nine (9) existing groundwater monitoring wells (2 sampling events);
- Completion of an on-Site and off-Site qualitative Human Health Exposure Assessment (HHEA);
- Completion of a Fish and Wildlife Resource Impact Analysis (FWIRA).

4.0 RI SCOPE OF WORK

The RI was performed to further delineate the nature and extent of the contamination on-site. The specific goals of the RI are outlined below:

- Advance a series of soil borings across the property for the purpose of developing a soil profile across the property;
- Collect and analyze representative surface and subsurface soil samples to supplement samples collected in previous investigations;
- Collect and analyze bank samples and sediment samples to investigate characterize the banks and sediment at and surrounding the Site;
- Investigate the potential for LNAPL seeps into the Hudson River;
- Collect and analyze soil vapor samples to evaluate whether actions are necessary to address exposures related to soil vapor intrusion;
- Sample existing groundwater wells to assess groundwater impacts from on-Site sources and to better understand Site hydrogeology;
- Collect soil and groundwater data to support the completion of a Qualitative Human Health Exposure Assessment in accordance with DER-10 Section 3.3(c) 4;
- Gather data necessary to develop a FWIRA in accordance with DER-10 Section 3.10(c).

Soil borings were completed in July 2017. Soil vapor sampling, sediment sampling and bank sampling was completed in August 2017. Two rounds of groundwater sampling were completed, with the first in early September and the second in late October 2017. A NYSDEC representative was on site periodically during investigation activities to guide selection of sample locations and to observe progress. The specific work completed during the RI included the following:

- Completion of soil borings at 36 locations across the site with the collection of 104 soil samples at varying depths;
- Collection of bank samples at nine (9) locations at two depths per location;
- Collection of five (5) sediment samples along the western bank;
- Collection of one (1) pore water sample along the western bank to investigate the potential for seepage of LNAPL into the Hudson;
- Collection of eight (8) soil vapor samples and one (1) ambient air sample;
- Two rounds of groundwater sampling at nine (9) existing monitoring wells.

The summary of samples collected during the RI is provided in Table 1 in Section 5.0. Data collected during the RI was used to develop a Conceptual Site Model, provided in Appendix A.

5.0 SUMMARY OF RI ACTIVITIES

The RI consisted of sampling across the Site to further delineate the nature and extent of contamination and to identify potential source areas. The investigation was completed as outlined in the sections below. A summary of samples collected is provided in Table 1.

5.1 Soil Borings

A total of 36 soil borings were completed across the Site (not including offsets) on an approximate 100 foot grid. Borings were relocated as necessary for accessibility and were offset to get enough material for sampling. Borings were completed to groundwater, which was at a maximum of approximately 33 feet bgs. A large portion of the site consists of former secondary containment areas which have of a top layer of crushed stone. Within the former secondary containment areas, two samples were collected from each boring. One sample was collected from the layer immediately below the crushed stone, which was approximately 2 inches to 2 feet bgs. A second sample was collected from the interface with groundwater. Outside of the former secondary containment areas, three (3) samples were collected from each boring, with one sample collected from the surface at 0-2 inches, one sample collected from 2 inches – 2 feet and one sample collected from the interface with groundwater.

Additional samples were collected from soils that looked different or where there was a defined fill layer. Additional samples were also collected from soil with elevated PID readings. All samples were analyzed for metals. At least half of the samples were analyzed for additional parameters as shown in Table 1. Soil boring sampling was conducted in accordance with Section 5.2. Surveyed soil boring locations are shown on Drawing S-5.

5.1.1 Protection of Groundwater Sampling

In order to determine the potential for metals, such as lead and mercury, to impact groundwater, half of the samples collected from the soil borings were analyzed for SPLP metals via EPA SW-846 Method 1312. Samples analyzed for SPLP are shown in Table 1.

5.1.2 Bank Samples

Bank samples were collected along the eastern and western borders of the site along the Hudson. Samples were collected from 0-6 inches bgs and 6 inches-2 feet bgs, as outlined in Table 1.

Samples were collected approximately halfway down the bank, with five (5) bank samples collected along the west shoreline and four (4) bank samples collected along the east shoreline, for a total of nine (9) sample locations. A fifth location could not be collected on the east

shoreline due to access issues. The samples were collected at random locations along the banks, based on discussions with NYSDEC in the field, with two (2) sample locations in the bank adjacent to the former loading rack where LNAPL has been documented.

5.1.3 Sediment Samples

Sediment samples were collected from the western side of the site within the river at low tide. Five (5) sediment samples were collected along the western shoreline of the site. The samples were collected at random locations along the River, based on discussions with NYSDEC in the field, with 2 samples from sediment where potential LNAPL seeps were identified. Samples were collected from 0-6 inches bgs as outlined in Table 1. A pore water sample was also collected from the area of the potential seeps. Sediment samples were not collected along the eastern shoreline given the rocky shoreline and poor accessibility of the sediment.

5.1.4 Soil Vapor Sampling

Soil vapor sampling was completed in accordance with the approved protocol included in the RI Work Plan. Samples were analyzed by Centek Laboratories in Syracuse, NY. Soil vapor samples were collected from eight (8) locations across the site, with two (2) samples being collected along the property line adjacent to the car wash and office building. Locations were approved by NYSDEC. Surveyed sample locations are shown on Drawing S-5.

Table 1
Samples Collected during RI[a]

Medium Sampled	Number of Samples Collected	Analyzed
Surface Soils (0 to 2" bgs)	18	18 – Metals 9 – Full
Shallow Subsurface Soils (0 to 2' bgs or 2" to 2' bgs)	36	36 – Metals 19 – Full
Intermediate Subsurface Soils (varying depths)	13	Dependent on layer sampled
Groundwater Interface Soils (approx. 25 to 30' bgs)	37	36 – Metals 19 - Full

Medium Sampled	Number of Samples Collected	Analyzed
Shallow Bank Soils (0 to 6" bgs)	9	9 - Full
Subsurface Bank Soils (6" to 2' bgs)	9	9 - Full
Sediment (0 to 6" bgs)	5	5 – Full
Pore Water	1	Full
Soil Vapor	8	TO-15 list
Ambient Air	1	TO-15 list
Groundwater	17	17 - Full

[a] = The table does not include duplicate samples. "Full" analyses included metals, VOCs, SVOCs, PCBs, pesticides, TPH, and SPLP.

5.2 Soil Sampling Procedures

Soil borings were completed with 5 foot macro core samplers via Geoprobe©. Each interval was characterized and screened for the presence of VOCs using a photoionization detector (PID). A grab sample was collected from each interval and placed in a ziplock bag for a headspace reading. Upon reaching the completion of each soil boring, field results including PID, visual, and olfactory results were reviewed. A grab sample was collected for VOCs from the interval with the highest reading on the PID or if the layer looked significantly different from other layers that were already sampled. The remainder of that sampling interval was composited for SVOCs, metals, pesticides, and PCBs. If there was no visual contamination and no headspace reading, the originally planned interval was sampled. In areas with poor recovery, the boring was offset by approximately a one (1) foot to obtain the remainder of the samples from the same sampling interval(s). Soil boring logs are provided in Appendix B.

Soil samples were collected using dedicated sampling tools as described in the Sampling and Analysis Plan / Quality Assurance Project Plan (SAP/QAPP) approved as part of the RI Work Plan. Representative soil samples were placed in laboratory provided sample bottles and transported under chain-of-custody command to Pace Analytical Services in Melville, NY. All laboratories used on this project are New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratories.

Envirospec collected samples in accordance with the protocols described in the SAP/QAPP. USEPA and NYSDEC approved sample collection and handling techniques were used during implementation of the investigation.

Samples for chemical analysis were analyzed in accordance with USEPA SW-846 methodology with an equivalent Category B deliverable package to meet the definitive-level data requirements and appropriate method detection limits for comparison to applicable cleanup objectives. A Data Usability Summary Report (DUSR) was completed by a third-party data validation expert in accordance with the SAP/QAPP. The DUSR is discussed in Section 8.0.

Bank samples and sediment samples were collected by hand on the western side of the site. A shovel was used in the bank to get to the proposed sample depths. Bank samples on the eastern side of the site were collected from an excavator bucket, given the inability of personnel to safely access the sampling locations. This sampling approach was approved by NYSDEC in the field.

Quality Assurance/ Quality Control (QA/QC) Measures were followed as discussed in the SAP/QAPP provided in the RI Work Plan. The specific contaminants of concern that investigation samples were analyzed for are shown in Table 1.

5.3 Groundwater Sampling

No additional groundwater monitoring wells were installed as part of the investigation activities. Two groundwater sampling events were completed as part of the RI. During the first sampling event in September 2017, nine (9) existing groundwater monitoring wells (MW-2, MW-3, MW-4, MW-7, MW-10, MW-11, MW-13, MW-14, and UMW-D) were sampled to evaluate current groundwater quality.

A vacuum truck was brought onsite prior to the first sampling event to attempt to extract LNAPL from the impacted wells so that sampling could be completed. Extraction was attempted on a total of eighteen (18) wells. Some were observed to be dry after a very short period of extraction. The more heavily impacted wells, including MW-5 and MW-22, did not show significant decreases in LNAPL thickness after extraction.

It was decided, with NYSDEC approval, to avoid sampling the heavily impacted wells and to focus, instead, on wells MW-4, MW-10, and MW-11. These wells are located in the former loading rack area and showed very thin layers of LNAPL so sampling could be completed beneath the LNAPL layer. Attempts were made to collect a sample from an additional well in the former loading rack area, but the remaining wells could not be sampled either due to the presence of significant LNAPL, lack of flow, or very high turbidity.

A second sampling event was completed at the request of NYSDEC. Eight (8) of the wells sampled during the first event were sampled again in late October 2017. One well (MW-7) could not be resampled due to issues with high turbidity and lack of sufficient recharge of the well. Two attempts were made to sample this well on different days, and both were unsuccessful.

The wells were sampled in accordance with Table 2 below. Groundwater monitoring wells that were sampled and with results above groundwater standards are shown on Drawing R-8.

Table 2
Investigation Groundwater Sampling

Sample Location ID	Analyses Completed
MW-2, MW-3, MW-4, MW-7, MW-10, MW-11, MW-13, MW-14, UMW-D	TCL VOCs by EPA Method 8260, TPH – GRO and DRO TCL SVOCs by EPA Method 8270 PCBs by EPA method 8082 Pesticides by Method 8081 TAL Metals by EPA Method 6010 (total and dissolved) (mercury via EPA Method 7471).

5.3.1 Groundwater Flow Evaluation

Prior to sample collection, static water levels were measured and recorded during the RI activities from existing Site groundwater monitoring wells. Water table level data was collected and used to develop the groundwater elevation contours provided as Drawings C-4 and C-5, which show groundwater elevations at high and low tide, respectively. Product thickness was also measured and documented. Product thicknesses are shown in Drawing R-6.

5.4 Groundwater Sample Collection

For the first sampling event, Envirospec personnel purged the monitoring wells using a peristaltic pump following low-flow purge and sample collection procedures. The wells were sampled using the pump for all analyses except VOCs and TPH-GRO. VOCs and TPH-GRO were collected with a dedicated disposable bailer due to the entrainment of air bubbles in the tubing that was observed using the peristaltic pump and concerns that this could result in loss of volatiles. This sampling method change was made in the field with NYSDEC approval.

For the second sampling event, a submersible pump was used to collect the samples given

concerns about depth limitations of the peristaltic pump. Wells were purged at a higher flowrate (approximately 0.6 L/min) and then flow was decreased for low-flow sample collection. This approach was approved by NYSDEC prior to sampling. As with the first sampling round, VOCs and TPH-GRO were collected with dedicated disposable bailers. The pump tubing also showed a significant entrainment of air bubbles when the submersible pump was used. The pump was decontaminated between sample locations, and a field equipment blank was collected at the completion of the sampling event to determine the effectiveness of the decontamination procedures.

For both events, groundwater samples were placed in pre-cleaned laboratory provided sample bottles, cooled to 4ºC in the field, and transported under chain-of-custody command to Test America. Well sampling logs are included in Appendix C.

5.5 Decontamination and Management of Investigation Derived Waste

The sampling methods and equipment selected for the soil sampling and groundwater sampling limited both the need for decontamination and the volume of waste material to be generated. Personal protective equipment (i.e. nitrile gloves) and disposable sampling equipment (i.e., polyethylene tubing) were placed in plastic garbage bags for disposal as solid waste at the Site.

Drill cuttings were placed back into soil borings and water generated on-Site during the RI was drummed and disposed of off-Site in conformance with applicable waste regulations.

5.6 Survey

Following completion of a sampling location, locations were staked and marked. Following completion of the field work, sampling locations were surveyed for development of a Site map showing the final sampling locations. Final locations are shown on Drawing S-5.

6.0 RESULTS OF INVESTIGATION

The results of the investigation are discussed in the following sections. Field Documentation of the RI including soil boring logs, groundwater sampling logs and photo logs are included in Appendices B, C and D, respectively. Tables with full sampling results are included in Appendix E.

6.1 Soil Boring Samples

Full results from the soil borings completed across the site are provided in Table 13, attached in Appendix E. Surface and subsurface soil data are discussed separately in the following sections.

6.1.1 Surface Soils

Surface soil samples (0 to 2") were collected outside of former containment areas where gravel was not present at the surface. Drawings R-1 and R-3 show exceedances of soil cleanup objectives for metals and SVOCs, respectively. Drawing R-5 shows TPH results for surface soils.

Exceedances of RRSCOs and CSCOs for metals were consistent with historic fill. No source areas of metals were identified in surface soils. Metals with exceedances were lead, copper, mercury, arsenic, and one exceedance for barium. Table 3 summarizes the surface soil results for lead, mercury, and arsenic. The results for all samples are provided in Table 13 included in Appendix E.

Exceedances of RRSCOs for SVOCs were observed for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene (see Table 4). Of the SVOCs analyzed, only benzo(a)pyrene exceeded the CSCO (SB-11, SB-19, SB-32). Benzo(a)pyrene was detected in several samples at similar levels across the site. Although the results exceed the cleanup standard of 1 ppm (residential, commercial and industrial), the results are consistent with a fill material and there was no source area found.

There are no cleanup goals for TPH, although an elevated detection was observed at SB-7 (2850 ppm). No exceedances of RRSCOs were observed for pesticides, PCBs, or VOCs in surface soils.

Table 3.
Exceedances for metals in surface soils

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-5A	SB-6A	SB-8A	SB-11	SB-15A	SB-17A
Lead	400	1000	3900	521	637	1260	456	-	1090
Mercury	0.81	2.8	5.7	2.1	4.5	-	-	3	-

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-19A	SB-20A	SB-22A	SB-24A	SB-26A	SB-32A
Lead	400	1000	3900	1330	-	1150	-	454	1030
Mercury	0.81	2.8	5.7	5.9	6.7	4.6	-	-	-
Arsenic	16	16	16	17.4	19.1	29.9	16.7	-	-

Table 4.
Exceedances for SVOCs in surface soils

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-11A	SB-19A	SB-20A	SB-26A	SB-32A
Benzo(a)anthracene	1	5.6	11	1.43	1.43	-	-	1.69
Benzo(a)pyrene	1	1	1.1	1.66	1.47	-	-	1.74
Benzo(b)fluoranthene	1	5.6	11	2.71	2.3	1.09	1.17	2.49
Indeno(1,2,3-cd)pyrene	0.5	5.6	11	0.683	0.741	-	-	0.884

6.1.2 Subsurface Soil

Subsurface soil samples were collected in shallow soils (generally 2" to 2') and at the groundwater interface (approximately 25' to 30'). Intermediate depth samples were also collected based on PID results and visual observations in the field. Drawings R-2 and R-4 show exceedances of soil cleanup objectives for metals and SVOCs, respectively. Drawing R-5 shows TPH results for subsurface soils.

6.1.2.1 Shallow Subsurface Soil

Exceedances of RRSCOs were detected for metals in shallow (2" to 2') subsurface soils. The metals and levels detected were consistent with those expected in historic fill. Table 5 summarizes shallow subsurface soil results for lead, mercury, and arsenic. There was no evidence of a specific source area of metals in subsurface soils.

Several exceedances of RRSCOs for SVOCs were detected in shallow subsurface soils. SVOC results are summarized in Table 6. Benzo(a)pyrene was detected in several samples at similar

levels across the site. Although the results exceed the cleanup standard of 1 ppm (residential, commercial and industrial), the results are consistent with a fill material and there was no source area found.

Although there are no cleanup standards available for TPH, an elevated detection of 5630 ppm was observed at SB-23. This sample was collected north of the former loading rack along the roadway. It is close to MW-5 where LNAPL was observed at the top of the water table at a thickness of approximately 1.23'. No exceedances of RRSCOs were observed for pesticides, PCBs, or VOCs in shallow subsurface soils.

Table 5.
Exceedances for metals in shallow subsurface soils

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-1BO	SB-2BO	SB-3BO	SB-4BO	SB-5BO	SB-6BO
Lead	400	1000	3900	476	1370	1080	1290	6520	-
Mercury	0.81	2.8	5.7	0.89	5.9	1.5	2.3	2.1	1.6
Arsenic	16	16	16	-	-	20.9	17.9	42.6	-

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-7BO	SB-8B	SB-9B	SB-10B	SB-11B	SB-12BO
Lead	400	1000	3900	1820	1230	-	-	469	2200
Mercury	0.81	2.8	5.7	39.4	8.5	1	2.6	1.1	19.3
Arsenic	16	16	16	23.5	18.3	-	-	-	16

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-13B	SB-14BO	SB-17BO	SB-18O1	SB-19BO	SB-20BO
Lead	400	1000	3900	711	-	524	687	1340	1310
Mercury	0.81	2.8	5.7	2.6	-	1.6	1.1	14.1	25.1
Arsenic	16	16	16	-	16.2	45.1	-	19	19.7

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-21BO	SB-22B	SB-25BO	SB-26BO	SB-29BO	SB-30B
Lead	400	1000	3900	1670	963	1010	751	560	1060
Mercury	0.81	2.8	5.7	0.9	2	-	-	-	1.1
Arsenic	16	16	16	18.8	19.4	16	-	-	-

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-31B	SB-32B	SB-33BO	SB-34BO	SB-36BO
Lead	400	1000	3900	521	-	673	2290	575
Mercury	0.81	2.8	5.7	1.5	0.93	1	11.6	-
Arsenic	16	16	16	17	-	16	20.3	-

Table 6. Exceedances for SVOCs in shallow subsurface soils

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-3	SB-4	SB-8	SB-11
Benzo(a)anthracene	1	5.6	11	1.04	1.83	1.48	-
Benzo(a)pyrene	1	1	1.1	1.37	1.9	1.33	1.1
Benzo(b)fluoranthene	1	5.6	11	3.21	2.77	1.81	1.7
Indeno(1,2,3-cd)pyrene	0.5	5.6	11	0.697	0.795	0.64	-

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-19	SB-20	SB-26	SB-35
Benzo(a)anthracene	1	5.6	11	2.21	1.76	5.84	2.37
Benzo(a)pyrene	1	1	1.1	2.09	1.71	6.09	2.04
Benzo(b)fluoranthene	1	5.6	11	3.22	2.65	9.21	3.21
Benzo(k)fluoranthene	3.9	56	110	-	-	6.31	-
Chrysene	3.9	56	110	-	-	7.21	-
Dibenz(a,h)anthracene	0.33	0.56	1.1	-	-	1.04	-
Indeno(1,2,3-cd)pyrene	0.5	5.6	11	0.735	0.674	3.84	0.697

6.1.2.2 Intermediate Subsurface Soil

Of the five (5) intermediate depth metals samples that were collected, only one showed an exceedance for mercury. This sample was collected from SB-13 at a depth of 7’ to 9’, where mercury was detected at 6.9 ppm. No other RRSCO metal exceedances were detected at this depth interval.

No other RRSCO exceedances were detected in the intermediate subsurface samples. However, some elevated TPH detections were observed, including SB-12 (1210 ppm at 8’ to 10’), SB-3 (6870 ppm at 5’ to 10’), SB-35 (1390 ppm at 5’ to 10’), and SB-9 (3590 ppm at 7’ to 8’).

6.1.2.3 Groundwater Interface Subsurface Soils

Relatively few exceedances were observed in the soils at the groundwater interface, which was at a depth of approximately 25’ to 30’. Two locations showed exceedances of the RRSCO for lead (SB-21 and SB-8), and one location showed an exceedance of the RRSCO for mercury (SB-4). One location showed an exceedance of the CSCO for arsenic (SB-26). Results are shown in Table 7.

Elevated TPH detections were observed at SB-4 (1090 ppm at 25’ to 30’), SB-10 (7490 ppm at 28’ to 30’), SB-11 (5620 ppm at 30’ to 32’), SB-22 (1310 ppm at 25’ to 27’), and SB-23 (7970 ppm at 25’ to 30’) . SB-10 and SB-11 are both located in the former loading rack area, and SB-23 is close to MW-5 where LNAPL impacts were observed, as discussed in Section 6.1.2.1.

No RRSCO exceedances for SVOCs, pesticides, PCBs, or VOCs were observed in the groundwater interface soil samples.

Table 7. Exceedances for SVOCs in groundwater interface subsurface soils

Analyte (ppm)	RRSCO	CSCO	ISCO	SB-4C	SB-8C	SB-21C	SB-26C
Lead	400	1000	3900	-	481	740	-
Mercury	0.81	2.8	5.7	0.95	-	-	-
Arsenic	16	16	16	-	-	-	56.6

6.1.3 SPLP Results

SPLP data was collected to aid in the determination if contaminants were impacting groundwater at the site. SPLP results are an indicator of the potential for metals to mobilize under acidic conditions (such as acid rain) and can be a better determination of the potential for contaminants to mobilize into groundwater than the Toxicity Characteristic Leaching Procedure (TCLP). SPLP results were compared to NYCRR Part 703 Groundwater Standards, as there are no published results for SPLP comparison. It should be noted that these standards are low, and often metals are elevated at background levels above these standards.

For the surface soils, five SPLP exceedances were above groundwater standards for lead (SB-8, SB-17, SB-19, SB-20, and SB-32) and one for mercury (SB-20). Shallow subsurface soils showed 14 exceedances of groundwater standards for lead and 2 for mercury. In intermediate subsurface soils, sample location SB-35 showed an exceedance of the groundwater standard for arsenic based on the SPLP results. This sample was collected from a depth of 5' to 10' and, at 29 ppb, was only slightly above the 25 ppb standard. In the groundwater interface samples, four locations showed exceedances for lead based on the SPLP results (SB-4, SB-8, SB-26, SB-33), though no exceedances of lead were observed in the monitoring well data (see Section 6.5).

For arsenic, only one location showed an exceedance. The arsenic soil concentration (6.7 mg/kg) at this location was significantly below the RRSCO of 16 mg/kg. The SPLP result at this location is not consistent with the non-detect SPLP values measured at other areas of the site with higher arsenic concentrations in soil. Therefore, it is considered to be an anomaly.

For lead and mercury, regression analyses were completed to compare the soil to SPLP concentrations for all soil borings where SPLP samples were collected. For these analyses, non-detects were assumed to be half of the detection limit and J-flagged values were entered as detections. The regression analyses for lead and mercury resulted in R^2 values of 0.4225 and

0.4805, respectively, which indicate that there was no correlation between the soil and SPLP concentrations.

The levels of the exceedances observed were low and were not indicative of contaminants in soil leaching into groundwater. There was no correlation found between metals in soil and SPLP results. Furthermore, groundwater monitoring results showed that contaminants in soil are not contributing to groundwater contamination and there were no source areas of soils found on site during the RI.

SPLP results need to be considered in the context of other subsurface data, such as groundwater data, depth to groundwater, and the buffering capacity of soil at the groundwater interface to determine their significance. The soil at the groundwater interface at this site is predominately clay, which has a naturally high buffering capacity. The depth to groundwater is also significantly deeper than the zone of the subsurface likely to be impacted by acid rain. These factors should be considered when interpreting SPLP results.

6.2 Bank Samples

Bank sample results are provided in Table 13, in Appendix E. Drawings R-9 and R-10 show exceedances of soil cleanup objectives for metals and SVOCs, respectively. Drawing R-11 shows TPH results.

Exceedances in soil for lead, mercury, arsenic, and SVOCs were observed in the bank samples, which is consistent with their prevalence of the fill material across the site. Some exceedances for barium and copper were also observed. One sample (BS-3B) showed a lead concentration of 24,800 mg/kg. This sample was run again at Pace Analytical in Pittsburgh, PA to confirm the data from their lab in Melville, NY. A significantly lower concentration of 612 mg/kg was observed in the sample analyzed in Pittsburgh. Judy Harry, the third party evaluator who completed the DUSR, reviewed this sample at the request of Envirospec. The differences in results were attributed to the non-homogeneous nature of the matrix and not to issues with the laboratories. Bank sample results for surface soils (0” – 6”) are summarized in Tables 8 and 9 below. Bank sample results for subsurface soils (6” – 2’) are summarized in Tables 10 and 11 below.

In general, higher concentrations of metals and SVOCs were detected in the eastern bank samples when compared to samples from the western bank. Elevated TPH results were observed in a few samples on the western bank, specifically BS-5A (4220 ppm, 0 to 6”), BS-8B (4350 ppm, 6” to 2’), and BS-9A (993 ppm, 0 to 6”).

Table 8. Exceedances for metals in surface bank samples

Analyte (ppm)	RRSCO	CSCO	ISCO	BS-1A	BS-2A	BS-3A	BS-4A	BS-5A	BS-6A
Lead	400	1000	3900	802	982	514	-	-	436
Mercury	0.81	2.8	5.7	19	-	1.5	1.8	1	1.3
Arsenic	16	16	16	-	18	-	-	-	-

Table 9. Exceedances for SVOCs in surface bank samples

Analyte (ppm)	RRSCO	CSCO	ISCO	BS-1A	BS-2A	BS-9A
Benzo(a)anthracene	1	5.6	11	5.95	2.1	-
Benzo(a)pyrene	1	1	1.1	5.36	1.91	-
Benzo(b)fluoranthene	1	5.6	11	11.1	3.33	1.22
Chrysene	3.9	56	110	6.04	-	-
Dibenz(a,h)anthracene	0.33	0.56	1.1	0.674	-	-
Indeno(1,2,3-cd)pyrene	0.5	5.6	11	2.34	0.699	-

Table 10. Exceedances for metals in subsurface bank samples

Analyte (ppm)	RRSCO	CSCO	ISCO	BS-1B	BS-2B	BS-3B	BS-4B	BS-5B	BS-6B
Lead	400	1000	3900	989	2300	24800/612[b]	-	-	-
Mercury	0.81	2.8	5.7	1.4	2.8	1.7	1.5	1.7	2.6
Arsenic	16	16	16	-	22.6	-	-	-	-

[b] = Results include data from labs in Melville and Pittsburgh labs. See discussion in Section 6.2.

Table 11. Exceedances for SVOCs in subsurface bank samples

Analyte (ppm)	RRSCO	CSCO	ISCO	BS-1B	BS-2B	BS-3B	BS-6B
Benzo(a)anthracene	1	5.6	11	1.11	7.41	-	2.51
Benzo(a)pyrene	1	1	1.1	1.18	5.43	-	2.35
Benzo(b)fluoranthene	1	5.6	11	1.95	6.64	1.21	3.17
Chrysene	3.9	56	110	-	7.25	-	-
Dibenz(a,h)anthracene	0.33	0.56	1.1	-	0.631	-	-
Indeno(1,2,3-cd)pyrene	0.5	5.6	11	-	2.02	-	1.06

6.3 Sediment Samples

Sediment sample results are provided in Table 13, in Appendix E. Drawings R-9 and R-11 provide comparisons to Sediment Guidance Values (SGVs) for metals and TPH data, respectively. No exceedances of RRSCOs were detected in sediment samples. No exceedances of

SGVs for SVOCs were observed.

Samples that fall within the Class B range of SGVs for a contaminant indicate that additional information would be needed to assess potential impacts to aquatic life. Exceedances of Class C SGVs indicate that the sediment has a high potential to be toxic to aquatic life. However, SGVs are only intended to be used as a starting point for the risk assessment process and should be considered within the context of other data when determining potential impacts to aquatic life (NYSDEC 2014). This is discussed further in Section 7.2.

Only one sediment location (SE-7) showed an exceedance of a Class C SGV of 130 ppm for lead (142 ppm, 0 to 6"). Some sediment samples fell within the Class B SGV ranges for copper, silver, and mercury.

The sediment TPH results ranged from non-detect (at detection limit of 629 ppm) to 3390 ppm. The highest TPH concentration in sediment was observed at SE-6, which was collected near the southwest area of the site.

6.4 Pore Water Sample

The results from the pore water sample collected along the western bank are provided in Table 14, included in Appendix E. No detections of pesticides, PCBs, TPH, or SVOCs were observed. No metals of concern were detected above surface or groundwater standards. Only iron, manganese, and sodium were detected above groundwater standards. VOCs were primarily non-detect, with the exception of a low level detection of acetone.

6.5 Groundwater Samples

The results from the groundwater sampling are provided in Table 15, attached in Appendix E, and a summary is provided in Table 12 below. Drawing R-8 shows exceedances of compounds when compared to NYCRR 703.5 Groundwater Standards. No lead or mercury exceedances were observed in either sampling event.

One monitoring well (MW-10) showed an exceedance of the 25 ppb standard for arsenic (35.5 ppb total, 35.3 ppb dissolved) in the first sampling round. MW-10 is located within the former loading rack area. The second sampling round showed a detection of 22 ppb for arsenic at this well, which does not exceed the standard.

Exceedances for benzene were detected at MW-4 in both sampling rounds and in MW-13 in the second sampling round. An exceedance of isopropylbenzene was detected at MW-10 during the

first sampling round. Detections of benzene and isopropylbenzene in MW-4 and MW-10 are consistent with the presence of LNAPL in wells in the former loading rack area. Although there are no groundwater standards for TPH, there were also detections of TPH-GRO and TPH-DRO in this area.

During the first sampling event, one exceedance was observed for total PCBs at MW-10. A very low level of endrin was also detected at this location (0.0072 ppb), which is above the non-detect groundwater standard for this contaminant. During the second sampling round, exceedances for total PCBs were observed in seven (7) wells. Total PCBs, however, were also detected at a similar level in the field equipment blank. This indicates possible contamination of equipment from the lab. Alternatively, the low levels could be attributed to the quality of the Hudson River, as PCBs were not a contaminant of concern across the site.

Table 12. Exceedances in Groundwater Samples

		MW-2	MW-3	MW-4	
Analyte (ppb)	**Part 703 Groundwater Standard**	**10/2017**	**10/2017**	**9/2017**	**10/2017**
Benzene	1	-	-	6.1	7.9
Endrin	ND	0.002	-	-	0.0046
Total PCB	0.09	0.45	0.3	-	0.13

		MW-10		MW-13	MW-14	UMW-D
Analyte (ppb)	**Part 703 Groundwater Standard**	**9/2017**	**10/2017**	**10/2017**	**10/2017**	**10/2017**
Aldrin	ND	-	0.00086	-	-	-
Arsenic, total	25	35.5	-	-	-	-
Arsenic, dissolved	25	35.3	-	-	-	-
Benzene	1	-	-	1.2	-	-
Endrin	ND	0.0072	-	0.0013	-	-
Isopropylbenzene	5	8.7	-	-	-	-
Phenol	1	-	-	-	-	1.5
Total PCB	0.09	0.85	0.45	0.16	0.45	0.32

6.6 Soil Vapor Samples

The full results from the eight (8) soil vapor samples are provided in Table 16, included in Appendix E. One ambient air sample was also collected so the data could be compared to the subsurface vapor results. Soil vapor sample results were compared to the lowest sub-slab values provided in the published NYSDOH decision matrices, with no exceedances noted for

chlorinated VOCs, as expected. Detections of BTEX were observed at several locations, which is consistent with the historical use of the site. Soil vapor results are shown in Drawing R-7. As discussed in further detail in Section 7.1, mitigation systems will be installed on onsite buildings as a proactive measure.

7.0 QUALITATIVE EXPOSURE ASSESSMENT

As required by the BCP, an on-Site and off-Site qualitative exposure assessment was completed in accordance with DER-10 section 3.3(c)4. The human health qualitative assessment was completed as described in Section 7.1 below. A fish and wildlife impact analysis was completed as described in Section 7.2.

7.1 Human Health Exposure Assessment (HHEA)

The qualitative HHEA evaluated the five (5) elements (DER-10 Appendix 3B) associated with exposure pathways, and described how each of these elements pertains to the Site. The elements addressed include:

- A description of the contaminant source(s) including the location of the contaminant release to the environment (any waste disposal area or point of discharge) or if the original source is unknown, the contaminated environmental medium (soil, indoor or outdoor air, biota, water) at the point of exposure;
- An explanation of the contaminant release and transport mechanisms to the exposed population;
- Identification of all potential exposure point(s) where actual or potential human contact with a contaminated medium may occur;
- Description(s) of the route(s) of exposure (i.e., ingestion, inhalation, dermal absorption); and
- A characterization of the receptor populations who may be exposed to contaminants at a point of exposure.

Given the plan to install an engineered cover of two (2) feet of clean fill across the site and the depth to groundwater of at least 22 feet bgs, potential human exposure risks to contamination at this site would be minimal and limited to potential soil vapor intrusion exposure, which will be addressed through installation of mitigation systems, and potential exposures during onsite ground-intrusive work, which will be addressed through air monitoring and proper training and health and safety procedures.

The full Qualitative Human Health Exposure Assessment is provided in Appendix F.

7.2 Fish and Wildlife Resource Impact Analysis (FWRIA)

Due to the surrounding Hudson River, a FWRIA was completed. The FWRIA was completed in accordance with DER-10 Section 3.10(c) and the DFW&MR Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (1994) guidance document.

Though potentially complete pathways were identified in the FWRIA, there were no source areas of contamination identified at the site during the RI. Levels of metals identified were expected, as the site consists primarily of historical fill material. The final remedy for the site will be an engineered cover system which will eliminate the most probable route of exposure for fish and wildlife. Impacts from source contamination to the Hudson River from the site were not identified, as there were no source areas found. The impacts to the Hudson River are those associated with historical fill and do not require mitigation. Based on these findings, no additional ecological assessment is needed.

The full FWRIA is provided in Appendix G.

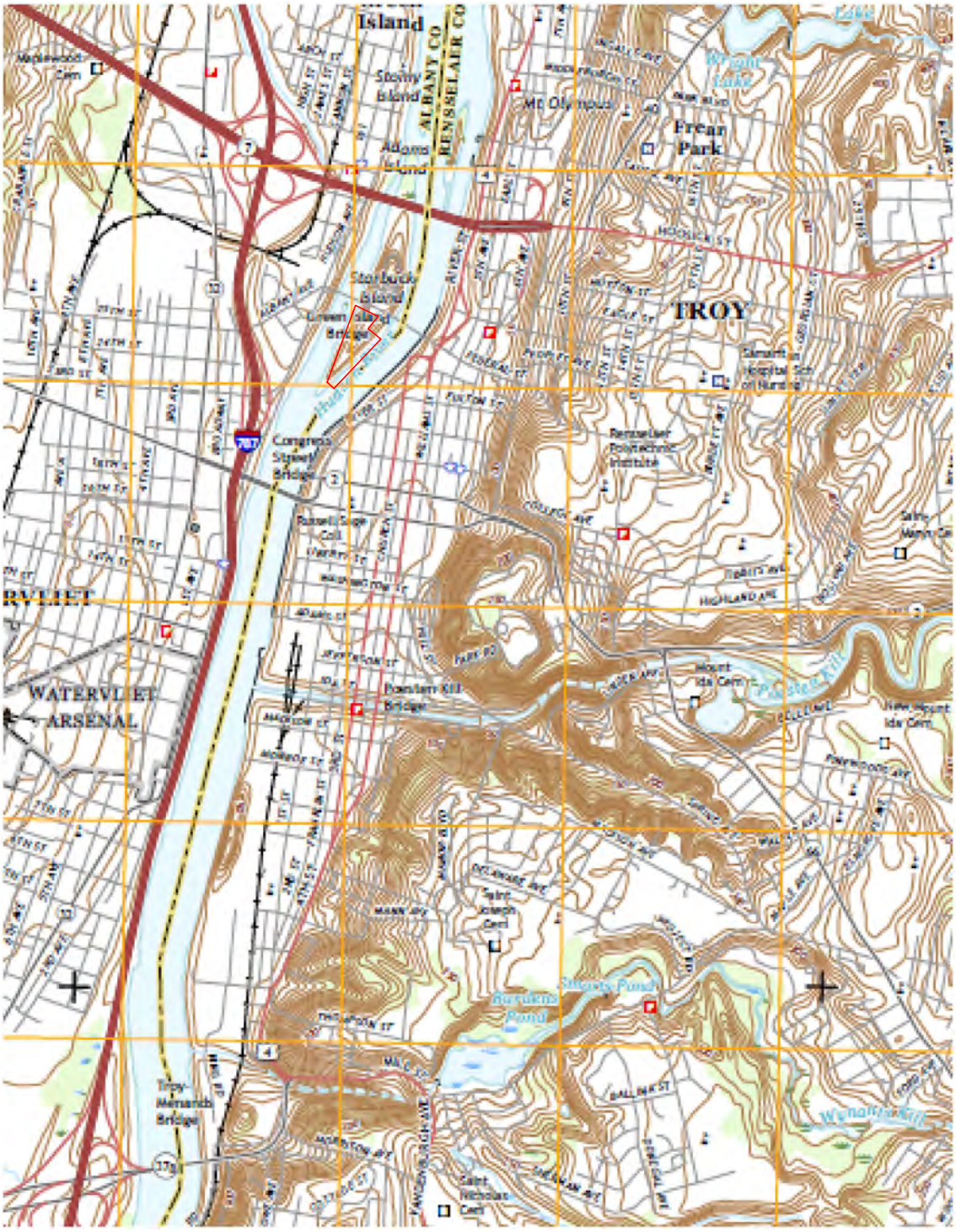
8.0 DATA USABILITY SUMMARY REPORT (DUSR)

The data collected during the RI were reviewed by a third party data validation expert. The results of the DUSR are provided in Appendix H.

9.0 REFERENCES

NYSDEC. 2014. Screening and Assessment of Contaminated Sediment. http://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf

FIGURES



Scale: 1:3,000 ft

APPROXIMATE SITE BOUNDARY

TITLE: FIGURE 1 – SITE LOCATION MAP

LOCATION: 1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NEW YORK

envirospec ENGINEERING, PLLC
349 Northern Blvd., Suite 3
Albany, NY 12204
Phone: 518.453.2203
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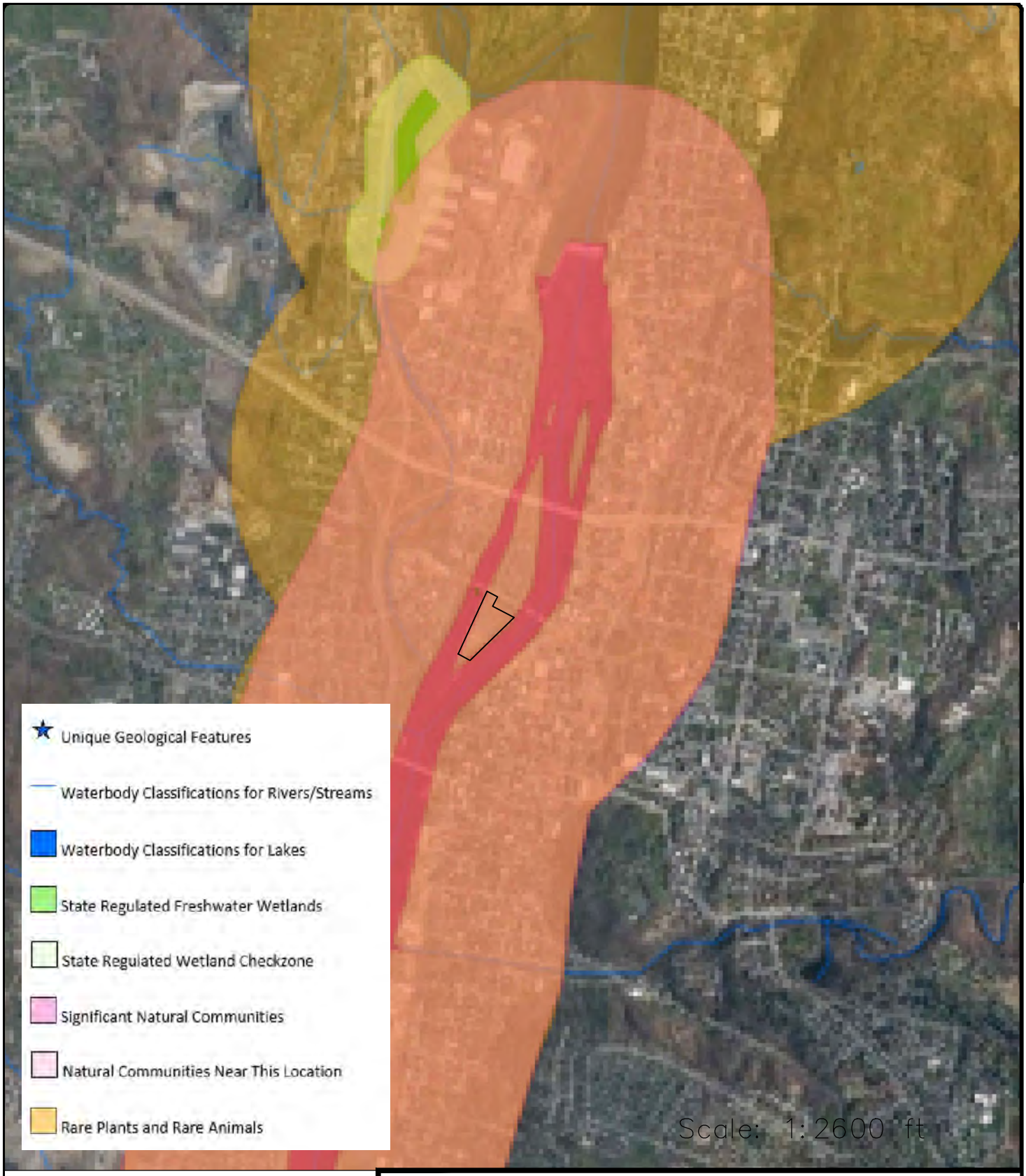

——APPROXIMATE SITE BOUNDARY

TITLE:
FIGURE 2 – NYSDEC ENVIRONMENTAL RESOURCE MAPPER

LOCATION:
1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NEW YORK

envirospec ENGINEERING, PLLC
349 Northern Blvd., Suite 3
Albany, NY 12204
Phone: 518.453.2203
Fax: 518.453.2204
www.envirospeceng.com

APPROXIMATE SITE BOUNDARY

TITLE: FIGURE 3 – USFWS WETLANDS INVENTORY MAP

LOCATION: 1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NEW YORK

envirospec ENGINEERING, PLLC
349 Northern Blvd., Suite 3
Albany, NY 12204
Phone: 518.453.2203
Fax: 518.453.2204
www.envirospeceng.com

Scale: 1:670 ft

APPROXIMATE SITE BOUNDARY

TITLE: FIGURE 4 – FEMA FLOOD INSURANCE RATE MAP
MAP NUMBER 36001C0202D; EFFECTIVE 3/16/15

LOCATION: 1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NEW YORK

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