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Streamlined Site Characterization & Closure

December 2, 2019

Mr. Adam T. Morgan
Project Manager/Assistant Engineer
New York State Department of Environmental Conservation
Division of Environmental Remediation - Region 8
6274 East Avon-Lima Road
Avon, New York 14414

RE: Final Supplemental On-Site Remedial Investigation Activities at Carlson Park in Rochester, NY. NYSDEC BCP Site ID# C828199.

Dear Adam:

This work plan addendum letter is intended to provide a description of the final Remedial Investigation (RI) activities to be conducted at the Carlson Park Site (Site), currently under the Brownfield Cleanup Program (BCP). Completion of the RI activities described herein was requested by the New York State Departments of Environmental Conservation (NYSDEC) and/or Health (NYSDOH), prior to the preparation of a comprehensive Remedial Investigation Report (RIR) for the on-Site RI activities. This work plan addendum letter is considered to be an attachment to the original Voluntary Cleanup Program Remedial Investigation Work Plan for Carlson Park, dated October 2004 (RI Work Plan), and the Supplemental Work Plan for Initial Bedrock Evaluation Activities dated February 28, 2010 (Supplemental Work Plan), and other related subsequent supplemental work plan addendum letters that have been prepared.

The final supplemental RI activities to be conducted for the Site as addressed in this work plan addendum letter will consist of the following three activities:

- Open Landscaped Area Soil Sampling;
- High Resolution Oil Delineation; and
- Soil Evaluation for Emerging Contaminants.

The proposed scope for these supplemental RI activities has been previously discussed and agreed upon with representatives of the NYSDEC and NYSDOH. A Community Air Monitoring Program (CAMP) as defined in DER-10 will be implemented for all ground intrusive activities. The remainder of this letter provides a description and the rational/approach for the proposed soil sampling and direct-sensing procedures to be utilized, and the analytical methods to be employed.

Description/Rational/Approach/Procedures for Proposed Final Supplemental RI Activities:

Open Landscaped Area Soil Sampling.

Open landscaped areas are considered locations that are not covered by buildings, roadways, driveways, parking areas, or any other covered surfaces. These types of areas that have not previously been identified as Areas of Concern (AOCs) and are typified by manicured grass or other landscaping, are referred to as "Unremarkable Soil Areas" (USAs). At the Carlson Park Site, there are a total of approximately 4.4 acres of USAs to be evaluated as part of this program. The primary rational for sampling/analyzing soil from these areas is to evaluate the potential for direct contact with such unremarkable soil.

For the purpose of this soil evaluation activity, the USAs have been divided into six areas, defined as USA-1 through USA-6. Figure 1 depicts the locations, configuration, and size of these six USAs. A total of 25 locations have been identified from which to collect soil samples within the six USAs as part of this program. The approximate locations of these soil sampling activities are also depicted on Figure 1. The number of sampling locations identified in each USA is dependent upon the size of the USA. A summary of the various soil sampling locations, their distribution across the Site, and the number of soil samples to be submitted to undergo chemical analysis as part of this task are as follows:

Area	No. of Soil Sample Collection Locations	No. of Depth-Discrete Composite Samples	No. of Depth-Discrete Grab Sample locations/Samples
USA-1	5	2	2/4
USA-2	4	2	1/2
USA-3	5	2	3/6
USA-4	3	2	2/4
USA-5	3	2	1/2
USA-6	5	2	3/6
Total	25	12	12/24

Two different types of soil samples will be conducted at these locations. These will include "composite" soil samples and "grab" soil samples. Composite soil samples will be collected from two depth-discrete intervals below the grass roots as follows: 0-2 inches and 2-12 inches. The composite samples will be made up of soils collected from each of the soil sampling locations situated within each USA. For example, at USA-1, two depth-discrete composite soil samples will be collected from the five soil sampling locations situated in that USA such that there will be one composite sample representing the 0-2 inch depth interval, and one composite sample representing the 2-12 inch interval. A total of 12 depth-discrete composite soil samples (i.e., two from each of the six USAs), will be submitted to the lab to

undergo Semi-Volatile Organic Compounds (SVOCs), Target Analyte List (TAL) Metals, and PCBs/Pesticides analysis. SVOC analysis will be conducted in accordance with USEPA SW-846 Method 8270C. Twenty-Two (22) of the 23 TAL metals will be analyzed in accordance with USEPA Method 6010, while mercury will be analyzed in accordance with USEPA Method 7470. PCBs and Pesticide analysis will be conducted in accordance with USEPA SW-846 Methods 8081/8082.

Grab soil samples will be collected to undergo Volatile Organic Compound (VOC) analysis in accordance with USEPA SW-846 Method 8260C. Two depth-discrete soil grab samples will be collected from each of 12 locations distributed throughout the six USAs. These 12 grab soil sampling locations are depicted on Figure 1. For example, at USA-1, a total of two depth-discrete soil samples will be collected at each of the two grab sampling locations, resulting in four grab soil samples to be submitted to the lab to undergo VOC analysis. These depth-discrete soil samples will be collected from depths of 2-6 inches and 6-12 inches below the grass roots at each soil grab sampling location. Accordingly, a total of 24 depth-discrete soil grab samples will be submitted to the lab to undergo VOC analysis.

All composite and/or grab soil samples to be collected as part of this program will be collected in a similar manner as was previously done as part of past RI activities at this site, and as described in previous work plans and/or associated work plan addendum letters. Either hand-held bucket augers or direct-push macro-core samplers with acetate liners will be used to collect soil samples. Composite samples will be mixed in dedicated stainless-steel bowls before being placed in laboratory-supplied glassware. Grab soil samples will be collected directly into encore samplers to be provided by the laboratory.

<u>High Resolution Oil Delineation.</u>

In November 2005, as part of early On-Site RI activities, a total of 12 soil borings were advanced in a small area situated between Buildings 5 and 14 (see Figure 2). For spatial referencing purposes, this area is also depicted on Figure 1. These boring were conducted because an indication of oil had been observed to be present at this location during earlier groundwater grab sampling activities. The purpose of these borings was to estimate the lateral extent of oil observed to be present above the water table. This exercise was completed with the use of visual and/or olfactory observations made within the soil cores. No samples were submitted to undergo chemical analysis at that time, and the specific type of oil present is unknown. The indication of oil was identified to be present at depths of about four to six feet below ground.

The proposed oil delineation investigation is intended to assess whether there is currently oil present in the subsurface, and if found to be present, to define the lateral and vertical extent of this oil in the subsurface (including any smear zones). The method proposed to achieve this high resolution delineation is a direct-sensing technology known as the Optical Image Profiler (OIP). The OIP allows enhanced in-situ detection of free and/or residual product, particularly petroleum hydrocarbon fuels and oil containing polycyclic aromatic hydrocarbons (PAHs). The OIP can be used in both saturated and unsaturated geologic materials, and only detects non-aqueous phase liquid (NAPL) hydrocarbons. The ability of the OIP to distinguish between NAPL and dissolved or diffused phase concentrations makes this technology extremely useful in identifying potential subsurface NAPL source zones.

The OIP probe includes a downhole complementary metal oxide semiconductor (CMOS) camera focused at a sapphire window that acts as a rugged interface between the probe cavity and the subsurface geologic matrix. A light-emitting diode (LED) positioned above the camera directs monochromatic ultraviolet (UV) light through the probe-mounted protective 13mm diameter sapphire window at a wavelength of 265 nanometers (nm). This UV light causes PAH components of the NAPL to fluoresce. Images are captured by the CMOS camera at a rate of 30 frames per second (fps) and analyzed for fluorescence. The reported value is a percent area of the captured image that displays fluorescence with a resolution of 0.05 vertical feet (i.e., 20 readings per foot). A visible light LED is positioned below the camera and can also be directed at the subsurface geologic material through the sapphire window at any point during the logging process. This can allow a visible light image of the soil conditions to be obtained.

The OIP probe is also fitted with Electrical Conductivity (EC) sensors. The EC component of the tool string consists of an electric dipole near the lead-end of the probe. The dipole sends a current into the soil formation which is measured along with the voltage that results. The conductivity is a ratio of current to voltage times a constant and is read in milli-Siemens per meter (mS/m). Because fine-grained soils have more surface area through which to conduct electricity, EC is effectively a measurement of the *predominant* soil grain-size and can be used to help identify lithologic changes in the subsurface. It is important to note that EC reads the grain-size which is present at the greatest percentage. In general, coarse-grained soils such as gravel and coarse sands have the lowest values (typically 0-20 mS/m) and clay has the greatest values (typically greater than 80 mS/m).

A field laptop with Direct Image Acquisition software will be used to log all OIP data. Continuously viewed output during OIP/EC logging includes: electrical conductivity, push-rate, percent fluorescence, camera frame rate, and optical power.

Strict QA/QC procedures as outlined in Geoprobe®'s Direct Image guidelines will be followed with respect to the field operation of the OIP and EC. A response test will be conducted before and after logging at each OIP location. The response test is an important quality control measure as it tests the integrity of the complete system. This test is performed by placing a known fluorescent NAPL (e.g., diesel fuel, motor oil, etc.) contained in a cuvette over the sapphire window and capturing the fluorescence. In order to check the EC dipole, an EC dipole tester configured with high and low EC materials on either end will be applied across the EC dipole and the isolated steel body of the probe. If the EC response is within +/- 5% of the target value, the EC test is passed. If either the high or low EC test fails, corrective action (typically opening the probe and reconnecting the EC wires) must be taken.

A dynamic evaluation approach is proposed for the implementation of this OIP/EC program. Figure 2 portrays a general grid pattern for the initial use of this technology. Actual locations will be determined/modified in the field based upon real-time results obtained. This high resolution delineation program will continue until the NAPL zone is sufficiently defined both laterally and vertically within exterior accessible locations. At the conclusion of the OIP/EC program, a determination will made if a "worst case" sub-surface location can be identified based on OIP signal strength and/or thickness. A soil sample will be collected from an appropriate "worst case" interval as part of this program to undergo chemical analysis to help identify the specific type of oil that is present.

Soil Evaluation for Emerging Contaminants.

At NYSDEC's request, soil sampling will be included in this program to supplement the Emerging Contaminant evaluation program previously prepared to evaluate the possible presence of Emerging Contaminants in groundwater at the Carlson Park Site, as presented in a work plan addendum letter dated 9/28/18.

As was the case with respect to groundwater, 100 Carlson Road LLC is not currently aware of any information to suggest the presence of emerging contaminants in soil at the Site. This request represents a statewide initiative being undertaken by the NYSDEC to help determine the potential presence of 1,4-dioxane and per-and polyfluoroalkyl substances (PFAS) at all remedial sites in New York. Such initiative is intended to help develop a comprehensive statewide database of emerging contaminant data.

In order to address the NYSDEC request to conduct Emerging Contaminant soil sampling at the Site, it is proposed that a total of six (6) soil samples will be collected and sent to an Environmental Laboratory Approval Program (ELAP) certified laboratory to undergo 1,4-dioxane and PFAS analysis. A single soil grab sample will be collected from each of the six

USAs. The specific sampling locations will be determined in the field. All soil samples to be analyzed as part of this task will be collected from a depth of 2 to 6 inches below ground. Soil sample collection procedures will be similar to those described above for metals, SVOCs, and PCBs/Pesticides (without the compositing component).

Due to very low analytical reporting limits required for groundwater samples analyzed for PFAS analytes, a variety of special considerations intended to prevent the possibility of artificially impacting groundwater samples with materials potentially containing PFAS has been established. As a precautionary measure, similar special considerations will also be followed when collecting these soil samples to undergo PFAS analysis. These precautions include avoiding the use of a variety of materials and clothing. Examples of items to avoid using during and around the sampling for PFAS include: waterproofed materials/Gore-Tex, fabric softener, Teflon, food or drink packaging materials, etc. Examples of items acceptable for use during PFAS sampling include: Aluminum clipboards in lieu of plastic, nitrile gloves, etc. A more comprehensive list of materials to be avoided or considered acceptable for use during PFAS sampling is summarized on a table entitled: "PFC Sampling – Prohibited and Acceptable Items". This summary table was included with the Emerging Contaminant groundwater sampling work plan addendum letter dated 9/28/18, and is incorporated herein by reference.

In addition to the unique procedures and precautions referenced above, other standard soil sampling protocols, as described in previous work plans, will be incorporated. For example, all soil samples collected to undergo emerging contaminant analysis will be stored in ice from the time they are collected until they are delivered to the analytical laboratory. Chain-of-custody forms will accompany all samples sent to the lab, and standard field QA/QC samples will be included.

Soil samples to be analyzed for the presence of 1,4-dioxane will be done in accordance with USEPA SW-846 Method 8270. The analytical laboratory will utilize a Single/Selective Ion Monitoring (SIM) mode if needed to achieve a reporting limit less than 100 ug/kg for 1,4-dioxane in soil. Soil samples to be analyzed for the presence of PFAS analytes will be done in accordance with modified USEPA SW-846 Method 537 using isotope dilution. The target method detection limits for these PFAS analytes in soil is 0.2 to 0.5 ug/kg, with associated reporting limits of 1.0 ug/kg for 19 of the 21 PFAS analytes, and up to 2.5 ug/kg for two of the PFAS analytes (i.e., CAS Nos: 2355-31-9 and 2991-50-6). The specific 21 PFAS analytes to be included in this program are listed in the NYSDEC June 2019 guidance entitled: "Sampling for 1,4-Dioxane and Per- and Polyflouroalkyl Substances (PFAS) Under DEC's Part 375 Remedial Programs", and is incorporated herein by reference.

All soil samples collected to undergo this emerging contaminant analysis will be placed in laboratory-supplied bottles. The laboratory will provide full Category B deliverables in EQuIS format. QA/QC samples consisting of a field equipment blank, and a trip blank, will be included with the sampling event. In addition, any other site-specific QA/QC samples will be collected as may be required by the lab. Final analytical results will be validated and a Data Usability Summary Report (DUSR) will be prepared.

Schedule

100 Carlson Road, LLC will schedule the subject field sampling activities once final approval of this work plan addendum is provided by NYSDEC. Weather permitting, an attempt will be made to complete the subject field work during this calendar year prior to the onset of severe winter conditions. If that can not be accomplished, then this work will most likely be scheduled for the Spring of 2020. Accordingly, NYSDEC will be notified when the actual field sampling schedule can be determined.

It is estimated that approximately one week will be required to complete the subject soil sampling and direct-sensing activities. Once the final analytical results are provided by the laboratory and the DUSR has been completed, the findings of this soil evaluation program will be included with the following monthly Site progress report. NYSDEC will be informed when preliminary analytical results are received from the lab, and when the DUSR is completed.

As stated above, the supplemental RI activities presented in this Work Plan addendum letter are intended to represent the final on-site RI field activities to be conducted prior to the preparation of a draft RIR. Accordingly, 100 Carlson Road LLC anticipates submitting a draft RIR for Agency review within eight months of receiving authorization to proceed with this program.

Please feel free to contact us at (908) 625-3192 or (908) 256-2710, respectively, if you have any questions or comments concerning this matter, or if you require any additional information.

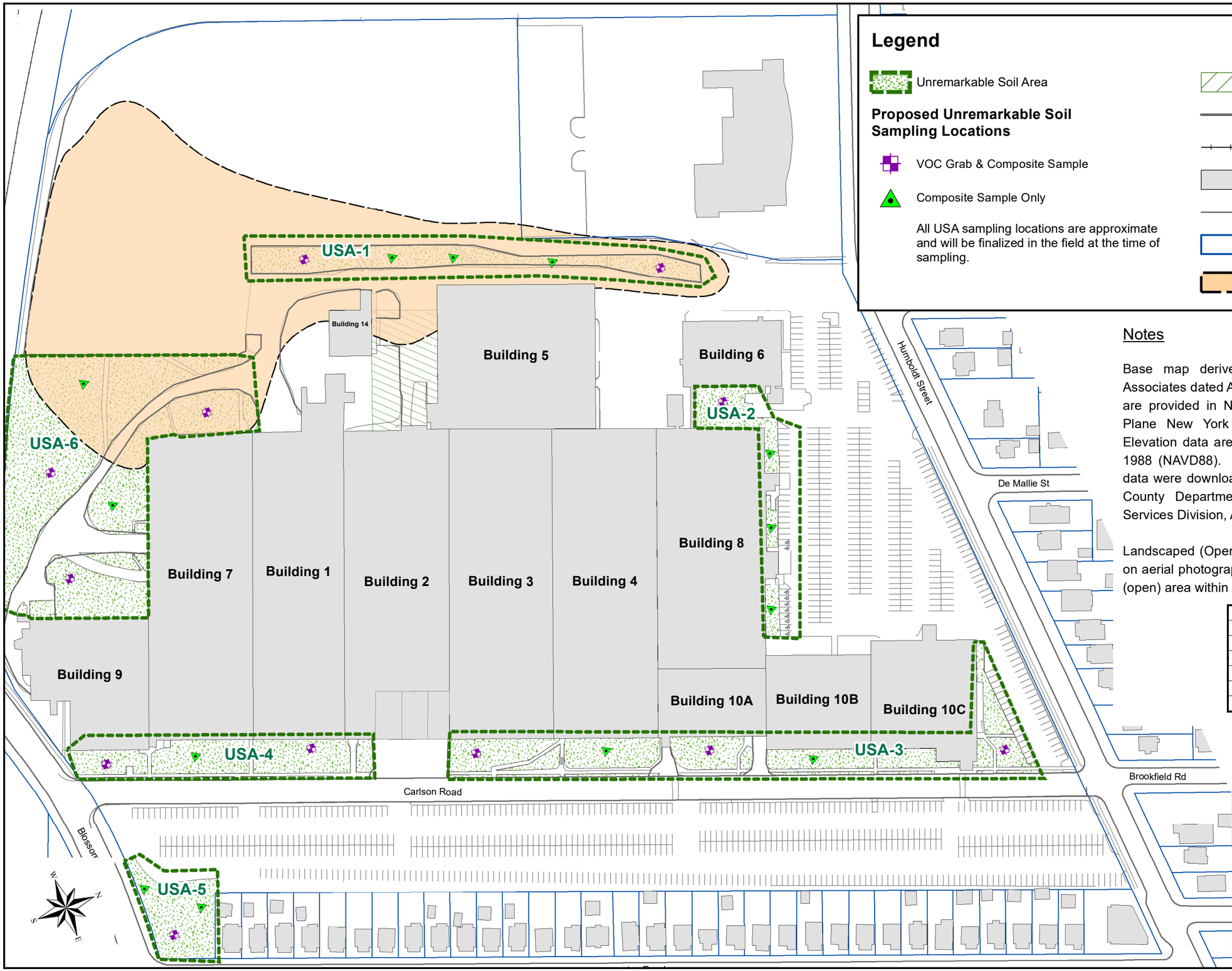
Sincerely,
S2C2 Inc.

Steven B. Gelb
Project Manager

Jason C. Ruf, P.G. (NYS License No. 000526)
Project Geologist & Database/3DVA Manager

I Jason C. Ruf, P.G. certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this work plan 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).

CC: Jim Goff
Frank Sowers (NYSDEC)
Angela Martin (NYSDOH)



Legend

- Unremarkable Soil Area
- **Proposed Unremarkable Soil Sampling Locations**
  - VOC Grab & Composite Sample
  - Composite Sample Only

All USA sampling locations are approximate and will be finalized in the field at the time of sampling.

- Oil Investigation
- Roads
- Railroad
- Buildings
- Curb
- Property Boundary
- Previously Estimated Extent of Subsurface Ash Layer

Notes

Base map derived from AutoCad file provided by Passero Associates dated April 17, 2017. Northing and easting coordinates are provided in North American Datum of 1983 (NAD83) State Plane New York West projected coordinate system in feet. Elevation data are provided in North American Vertical Datum of 1988 (NAVD88). Parcel boundaries and off-site building survey data were downloaded from the Monroe County GIS CD (Monroe County Department of Environmental Services, Monroe GIS Services Division, August 2010).

Landscaped (Open) Areas were digitized in ESRI's ArcGIS based on aerial photographs and Site survey data. The total landscaped (open) area within the six USAs is as follows:

USA Area	Area (acres)
1	0.48
2	0.25
3	0.87
4	0.5
5	0.3
6	1.96

0 40 80 160 240 320 Feet

Location of Unremarkable Soil Areas (USA) and Proposed USA Sampling Locations

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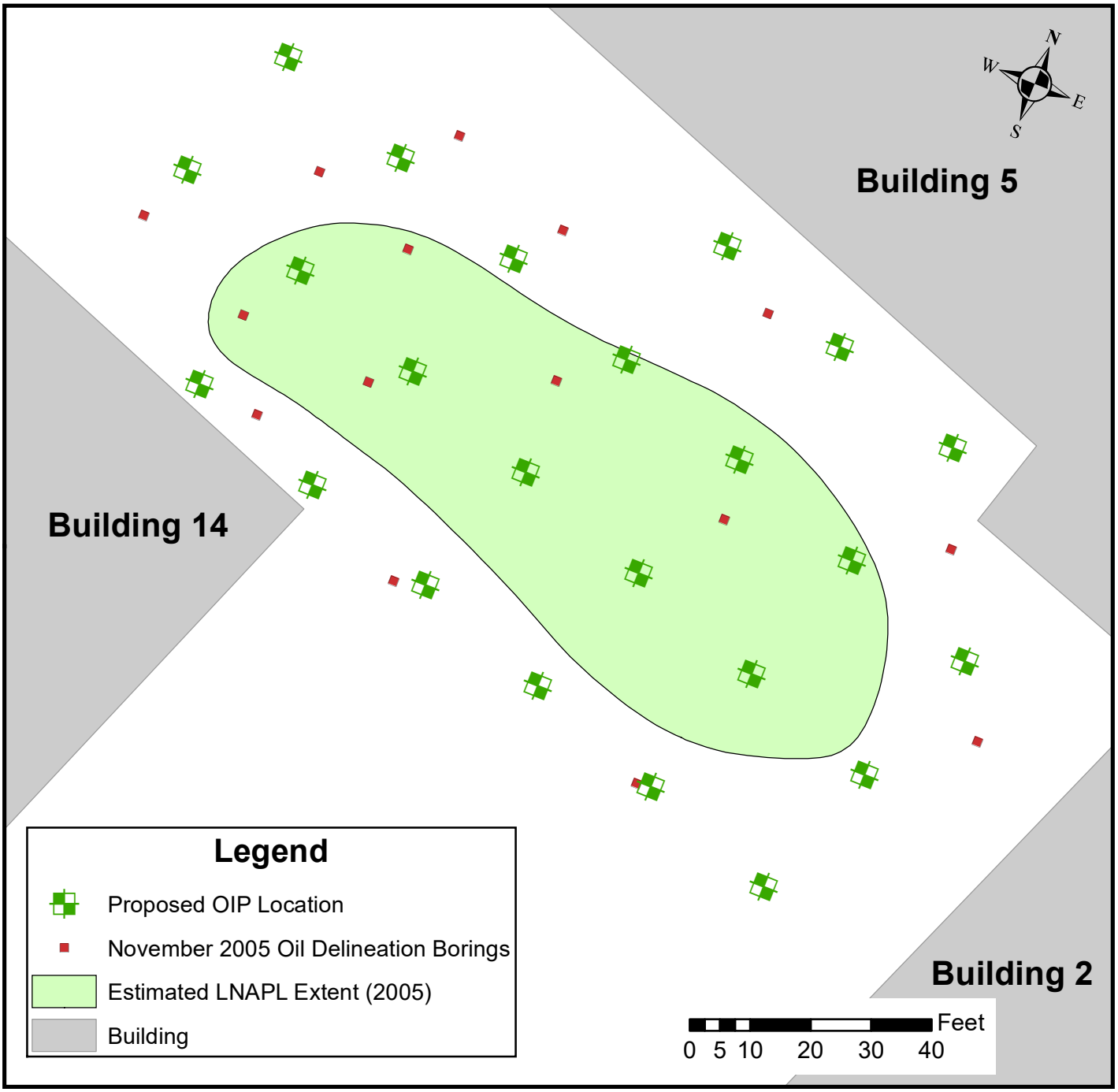

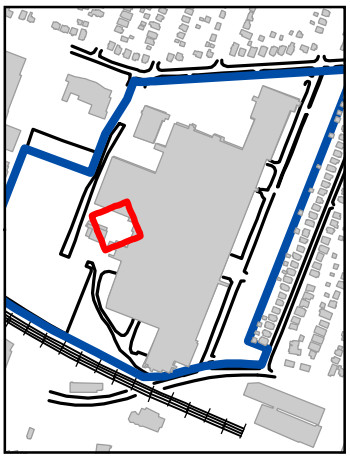

Notes: All proposed locations are approximate. Actual locations will be determined in the field.

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Proposed Oil Delineation Locations Using OIP

Carlson Park
Rochester, New York

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	DATE: 10/17/19	DRAWN BY: JCR	SHEET: Figure 2

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