SITE CHARACTERIZATION WORK PLAN

City of Corning Fire Department

Corning, Steuben County, New York

Prepared for:

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DECEMBER 2022

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ACRONYMS

AHA	Activity Hazard Analysis
bgs	below ground surface
CAMP	Community Air Monitoring Plan
CNG	Corning Natural Gas
DI	deionized
DPT	Direct Push Technology
EM	electromagnetic induction
FAP	Field Activities Plan
GPR	ground-penetrating radar
GPS	global positioning system
HSA	hollow-stem auger
HDPE	high-density polyethylene
IDW	investigation-derived waste
MCL	Minimum Contaminant Levels
MHWL	mean high-water line
MHWM	mean high-water mark
MS/MSD	matrix spike/matrix spike duplicate
NAD 83	North American Datum of 1983
NAVD 88	North American Vertical Datum of 1988
NTUs	nephelometric turbidity units
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PET	polyethylene terephthalate
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
PPE	personal protective equipment
PSHEP	Project Safety, Health, and Environmental Plan
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RF	radio frequency
SSC	State Sanitary Code
SCOs	Soil Cleanup Objectives
SGVs	Sediment Guidance Values
SSHEP	Subcontractor Safety, Health, and Environment Plan
SVOCs	semivolatile organic compounds
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
VOCs	volatile organic compounds
USEPA	United States Environmental Protection Agency

SECTION 1 PROJECT OBJECTIVES AND BACKGROUND

1.1 Project Objectives

New York State Department of Environmental Conservation (NYSDEC), along with the New York State Department of Health (NYSDOH), have been overseeing the investigation and implementation of remedial activities associated with past disposal of waste materials from pre-cursor companies of Corning Incorporated.

Parsons proposes to assist NYSDEC with the site characterization efforts at the City of Corning Fire Department site to:

- Investigate potential impacts from target fill material containing ash, glass, and/or brick (glass manufacturing-related waste).
- Investigate potential presence and location of contaminants in surface and subsurface soils, and sediment.
- Determine whether groundwater is being impacted.

The primary contaminants of concern, based on previous disposal of ash, glass, and/or brick, have been identified as arsenic, cadmium, lead, and semivolatile organic compounds (SVOCs). Investigations of neighboring properties are not included in this scope.

Tasks are further defined in subsequent sections, and include:

- Installation of soil borings
- Collection of surface and subsurface soil samples
- Installation of groundwater monitoring wells
- Collection of surface water samples from the Chemung River
- Collection of groundwater samples
- Performance of a survey/inspection to refine the mean high-water level
- Collection of sediment samples from below the mean high-water level
- Submittal of a final summary report

Tasks proposed in this work plan will be implemented in a manner meeting the substantive requirements of the New York State Flood Control Land Use Permit, as summarized in **Attachment 1**, and all borings will be drilled a minimum of 15 feet from the USACE levee..

1.2 Project Background

The City of Corning Fire Department (CCFD) site is an approximately 8.68-acre property located in the City of Corning. It consists of portions of three tax parcels and is bounded by Corning Boulevard and Guthrie Medical Center property to the north, the New York State flood control land, and the Chemung River to the south, residential and Memorial Stadium to the east, and Center Way and the Corning Family YMCA to the west. The site property includes one fire station building, asphalt pavement driveway and parking lots, and lawn areas. The city of Corning Municipal Water Supply Well #9 and an associated building is located on the southeast portion of this site. The NYSDEC site number is #851050 and a site location map is shown on **Figure 1**.

The area is underlain by alluvial silts and fine sands. Site soils are likely derived from post-glacial flood-plain deposits that are expected to exhibit relatively low permeability. Groundwater likely exists within overburden sands. An assessment of local topography and proximity of the site to the Chemung River indicates groundwater will be within the top 20-feet and flows in a southeasterly direction.

Overburden soils in the vicinity of the site are likely underlain by Upper Devonian shale or siltstone. Bedrock depth at the site is unconfirmed but based on published information it is likely more than 80 feet below ground surface. The bedrock is overlain by alluvial silts and fine sand derived from post-glacial flood plain deposits, generally exhibiting relatively low permeability.

SECTION 2 HEALTH AND SAFETY

A *Project Safety, Health, and Environmental Plan* (PSHEP; Parsons 2020a) has been prepared for the investigation activities. All personnel and subcontractors working on the project are required to follow this plan for the work covered in this work plan. Copies of the PSHEP will be maintained at the support zone.

Prior to the start of work, the subcontractors and call out contractors shall submit a Subcontractor Safety, Health, and Environmental Plan (SSHEP) along with specific Activity Hazard Analyses (AHAs) for tasks to be performed under this work plan. Work cannot commence until SSHEP and AHAs are reviewed, and comments have been addressed. Copies of the SSHEP and AHAs will be maintained at the support zone.

The NYSDOH generic Community Air Monitoring Plan (CAMP) (NYSDEC, 2010) will be implemented for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the upwind and downwind perimeter of each designated work area during invasive activities on-site (see Attachment 2). These readings will be provided on a weekly basis with all exceedances reported to NYSDEC and NYSDOH the same day (or next business day if after hours) along with the following:

- the reason for the exceedance
- what was done to correct the exceedance
- if the correction was effective

SECTION 3 QUALITY CONTROL

3.1 Field Activities

Field activities will be conducted in accordance with the following documents, prepared by Parsons for the NYSDEC program:

- PSHEP (2020a)
- generic Quality Assurance Project Plan (QAPP; 2020b)
- Field Activities Plan (FAP; 2020c)

Site-specific elements and specific AHAs for soil borings, surface soil sampling, and monitoring well installation will be added to the PSHEP, as needed.

All proposed sample locations will be discussed with representatives of NYSDEC prior to implementation of this scope. Investigation/sample location may be modified with concurrence from NYSDEC.

3.2 Emerging Contaminants

Sampling will also be conducted for emerging contaminants as part of this investigation in general accordance with the applicable guidance documents, such as the NYSDEC *Guidelines for Sampling and Analysis of PFAS* (NYSDEC, 2021) and United States Environmental Protection Agency (USEPA) Draft Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS (USEPA, 2021). One of these contaminants is per- and polyfluoroalkyl substances (PFAS) compounds. PFAS can be found in many standard environmental sampling materials, including fluoropolymer bailer/tubing, some decontamination solutions, and pump bladders/valves. Two of the principal target analytes – perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) – have been broadly utilized in the production of various everyday items such as: waterproof/stain-resistant clothing, non-stick cookware, and many commonly used plastics.

Another of the target analytes is 1,4-dioxane. This compound has been used in many products including the manufacturing of pharmaceuticals, personal care products, polyethylene terephthalate (PET) plastic, paint strippers, dyes, greases, varnishes, and waxes.

The field activities and methods in the FAP include steps to prevent cross-contamination, and to avoid the introduction of external contaminant sources. These steps include, but are not limited to:

- use of sampling materials, tools, and personal protective equipment (PPE) that are known to be free of emerging contaminants
- use of compatible apparel
- hygiene considerations
- sample management considerations
- quality assurance/quality control (QA/QC) procedures
- use of source water and decontamination solutions that are demonstrated to be free of emerging contaminants

SECTION 4 SURVEYS, INVESTIGATIONS, ENVIRONMENTAL SAMPLING, AND IMPLEMENTATION

Parsons' approach to the site characterization is described in the following sections. Each portion of the investigation work will follow NYSDEC guidelines outlined in Division of Environmental Remediation (DER)-10 Technical Guidance document (NYSDEC 2010).

The overall program consists of:

1. Geophysical investigation (utility mapping)
2. Site survey of utilities and as-built investigation coordinates for soil borings
3. Mean high-water line (MHWL) determination
4. Surface water samples collected from the Chemung River and any observed outfalls
5. Subsurface investigation soil borings and test pits
6. Installation and sampling of groundwater monitoring wells
7. Collection of Sediment Samples

4.1 Field Preparation

4.1.1 Geophysical Investigation

A geophysical investigation will initially be performed at the site to locate subsurface utilities and/or subsurface anomalies at 17 soil boring locations, 4 test pit locations, and up to 6 sediment locations, which are shown in conjunction with site features on **Figure 1**.

Prior to initiation of site activities, Dig Safely NY will be contacted to locate utility lines that enter and/or cross the property. The geophysical survey will be conducted to detect buried structures and subsurface utilities within the specified locations, and/or to trace a particular utility line or system. The geophysical surveyor will apply the appropriate surface geophysical method(s) to search for utilities and/or buried obstructions. Geophysical technologies may include but not be limited to ground-penetrating radar (GPR), radio frequency (RF), and electromagnetic induction (EM). These techniques will be used to locate subsurface utility lines or subsurface features within a 10-foot radius of each proposed intrusive activity. Specific features may include subsurface utilities, subsurface anomalies, large voids, former subsurface structures, abandoned utilities, and former utility trenches. Based on an interpretation of data, the geophysical surveyor will mark the targets on the ground surface, for subsequent survey performed by others after the boring work and well installations are completed. Paint and flagging shall be used for marking of lines, showing any underground site utilities or obstructions.

Prior to intrusive work, Parsons will follow their *Subsurface Soil Disturbance Protocol* (see **Attachment 3**). Dig Safely New York will be called again prior to drilling activities. A geophysical utility locator will investigate and clear all boring locations for underground obstructions and utilities prior to drilling activities.

4.1.2 Site Layout and Proposed Boring Locations

The site characterization efforts will include the following proposed field sampling activities:

Matrix	Approach	Number of Locations	Purpose
SOIL			
	Test Pits	5	Soil characterization, sample collection, laboratory analyses
	Soil Borings	20	Soil characterization, sample collection, laboratory analyses
	Surface Soils	10	Soil characterization, sample collection, laboratory analyses
SEDIMENT			
	Sediment Cores	6	Sediment characterization, sample collection, laboratory analyses
SURFACE WATER			
	Near shore	3	Sample collection, laboratory analyses
	Outfall	1	Sample collection, laboratory analyses
GROUNDWATER			
	Monitoring Wells	3	Water table depth, sample collection, laboratory analyses

The site layout with proposed sampling locations is shown in **Figure 2**.

Initially, the proposed sampling locations will be roughly located with a handheld global positioning system (GPS) and will take into account surface and overhead features that may affect execution of field investigation activities. Following completion of the field investigation activities, a licensed professional land surveyor registered to practice in the State of New York will collect as-built data from the sample locations (as described in **Section 4.5 Site Survey**).

4.2 Soil Investigation

Soil characterization activities at the site consist of up to 20 soil borings, 5 test pits, and collection of samples from each of these locations. The proposed locations for each test pit and soil boring are shown on **Figure 2**. These proposed locations will be marked out during the site survey and will be verified following installation (**Section 4.5 Site Survey**).

Prior to intrusive work Dig Safely NY will be notified and a geophysical investigation will be conducted to identify underground utilities or buried obstructions at each proposed test pit or boring location (as described in **Section 4.1.1 Geophysical Investigation**).

4.2.1 Test Pits

Five test trenches are proposed for excavation. The locations of proposed test pits were selected to visually assess and characterize subsurface soils at the site. The proposed locations for each test trench are shown on **Figure 2** and are denoted as CFD-TP-01 through CFD-TP-05. The proposed test trench locations will be marked out during the site survey and will be verified following excavation (**Section 4.5 Site Survey**).

4.2.1.1 Installation

Test trenches will be excavated to the following dimensions:

- Up to 25 feet long
- 2 feet wide
- 8 feet deep

Test trench dimensions may be modified in the field following discussion with the project manager and in concurrence with NYSDEC.

Test trenches will be installed using excavation equipment capable of reaching the maximum proposed depth. Track mats should be considered prior to accessing the proposed trench locations to minimize potential disturbances to ground surfaces at the site. During excavation, the operator will excavate thin layers of soil, and will be mindful of the potential to encounter any previously unidentified buried materials, containers, utilities, or a combination thereof. If the trench walls begin caving in, the sidewall may be cut back to prevent caving.

Excavated soils will be collected and logged from each test trench. Following excavation, field personnel should sketch both walls of the test trench, log the lithology of the side walls, and collect the requisite samples, as discussed in **Section 4.2.1.2 Sampling**. Soils will be visually classified using the Burmister (1970) and USCS (ASTM International 2018) soil classification systems. Soil descriptions will be recorded in the field notes or test pit log. Any non-native material present in the excavated soils will be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material containing ash, brick and/or glass will be noted in the field logs. Photographs of recovered soils and any fill material containing ash, brick, and/or glass will be taken to provide in the final report. Excavated soils will also be screened for the presence of VOCs with a photoionization detector (PID) and readings will be recorded on the boring log and/or field book. The field crew should photograph the entirety of the test trench and surrounding site conditions.

Once the test trenches have been excavated to their total depth, approximately 8 feet bgs, and all requisite samples have been collected, the trenches will be backfilled using excavated material. All test trenches should be backfilled the same day as the excavation, or as soon thereafter as practical. Backfill should be placed in the bottom of the trench in one-foot lifts and compacted using the equipment bucket. If ABG-containing material is encountered, care will be taken to ensure ABG is not left accessible on the ground surface.

Excavating equipment will be decontaminated between trenches at the decontamination area using a high-pressure steam wash.

Grossly contaminated soils and decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.2.1.2 Sampling

Up to six soil samples will be collected from each test trench. At a minimum, two of these soil samples will be collected and submitted for laboratory analysis based on the following criteria:

- If target fill material is encountered one sample will be collected from the target fill material itself, and another from the material directly below the fill layer.
- If target fill material is not encountered, one soil sample will be collected from the interval exhibiting the highest PID reading, or other evidence of impacts (staining or odors), or from the interval directly above the water table (if encountered). If the water table is not encountered, a sample should be collected from the bottom of the test trench.

Soil samples will be analyzed for the compounds listed in **Table 1**. Each sample will be analyzed for metals, Toxicity Characteristic Leaching Procedure (TCLP) metals, SVOCs, and 1,4-dioxane. The remaining parameters will be analyzed on 20 percent of the samples collected at locations based on field observations. Except for soils that will be analyzed for VOCs, each soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

[redacted]

For QA/QC purposes, duplicate samples, equipment blanks and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for Target Compound List (TCL) VOCs.

Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006).

4.2.2 Soil Borings

4.2.2.1 Installation

17 shallow soil borings, 3 deeper soil borings, and collection of soil samples from each boring are proposed for the site. The proposed locations are shown on **Figure 2**. The proposed sampling locations will be located in the field via hand-held GPS, and as-built locations will be verified following boring installation (**Section 4.5 Site Survey**).

Prior to intrusive work Dig Safe NY will be notified and a geophysical investigation will be conducted to identify underground utilities or buried obstructions at each proposed boring location as described in **Section 4.1.1 Geophysical Investigation**.

Soil borings will be advanced using the following methods depending on the location and objective of the sample location:

- Direct Push Technology (DPT) with MacroCore sampler, or equivalent
- Hollow-stem augers (HSA) with continuous sampling via split-spoon or MacroCore samplers

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants, into the samples. MacroCore samplers will be equipped with PFAS-free acetate liners. All necessary equipment, material, and supplies will be provided by the drilling subcontractor and will be compatible for collection of emerging contaminant samples (e.g., PFAS-free).

Soil cores will be collected and logged continuously until borings are terminated. Soils will be visually classified using the Burmister (1970) and USCS (ASTM International 2018) soil classification systems. Soil descriptions will be recorded in the field notes or soil boring log form. Any non-native material present in the soil core will be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material containing ash, brick and/or glass will be noted in the field logs. Photographs of recovered soils and any fill material containing ash, brick, and/or glass will be taken to provide in the final report. Each soil core will also be screened for the presence of VOCs with a photoionization detector (PID) and readings will be recorded on the boring log and/or field book.

Sampling equipment will be decontaminated between pushes and soil boring locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse. All “down hole” drilling equipment will be decontaminated inside the decontamination pad, using a high-pressure steam wash.

Drill cuttings and decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

4.2.2.2 Sampling

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants, into the samples. Macro-Core samplers will be

equipped with PFAS-free acetate liners. All necessary equipment, material, and supplies will be provided by the drilling subcontractor and will be compatible for collection of emerging contaminant samples (e.g., PFAS-free).

For QA/QC purposes, duplicate samples, equipment blanks and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for Target Compound List (TCL) VOCs.

Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006).

4.2.2.2.1 Direct Push Tooling (DPT) Soil Borings

17 soil borings, CFD-SB-04 through CFD-SB-20, are proposed for installation via DPT with MacroCore sampler to 15 feet bgs or deeper as needed to reach native material. The locations of proposed shallow soil borings were selected to provide adequate distribution and coverage across the site property, with a focus on garden bed areas

Soil samples will be collected from the following intervals and submitted for laboratory analysis.

- 0 – 6 inches (exclusive of sod/grass layer)
- 6 – 12 inches
- 12 – 24 inches
- Bottom interval of the boring

In addition to the intervals above, two additional soil samples will be collected and submitted for laboratory analysis based on the following criteria:

- If target fill material is encountered one sample will be collected from the target fill material itself, and another from the material directly below the fill layer.
- If target fill material is not encountered, one sample will be collected from the highest PID reading, or other evidence of impacts (e.g., staining or odor), and another sample collected from the interval directly above the water table.

The proposed installation method for these soil borings is a Geoprobe DPT rig, or equivalent.

As shown on **Table 1**, all samples will be analyzed for total and TCLP metals (including mercury) and SVOCs. The remaining parameters will be analyzed on 20 percent of the samples collected at locations based on field observations. Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006). Except for soils that will be analyzed for VOCs, each soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

Archive samples will be collected if target fill material/waste glass is encountered, as described in **Attachment 4**.

Upon completion, each shallow soil boring will be grouted from total depth to surface. After grouting is complete, the surface and surrounding area will be restored to conditions prior to intrusive activities. Track mats may be used to access the boring locations and minimize ground disturbances.

4.2.2.2.2 Hollow-Stem Auger (HSA) Soil Borings

Three soil borings (CFD-SB-01 through CFD-SB-03) will be installed via HSA and continuously sampled via split-spoon or MacroCore sampler. These deeper soil borings will be advanced into the first water-bearing zone that is considered acceptable for groundwater sample collection, which is presumed to be within 25 feet of ground surface.

Soil samples will be collected from the following intervals and submitted for laboratory analysis:

- 0 – 2 inches (exclusive of sod/grass layer)
- 6 – 12 inches
- 12 – 24 inches
- Bottom interval of the boring

In addition to the intervals above, two additional soil samples will be collected and submitted for laboratory analysis based on the following criteria:

- If target fill material is encountered one sample will be collected from the target fill material itself, and another from the material directly below the fill layer.
- If target fill material is not encountered, one sample will be collected from the highest PID reading, or other evidence of impacts (e.g., staining or odor), and another sample collected from the interval directly above the water table.

As shown on **Table 1**, all samples will be analyzed for total and Toxicity Characteristic Leaching Procedure (TCLP) metals (including mercury) and SVOCs. The remaining parameters will be analyzed on 20 percent of the samples collected at locations based on field observations. Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006). Except for soils that will be analyzed for VOCs, each soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

As noted in sections **4.2 Soil Investigation**, archive samples will be collected in the event that target fill material/waste glass is encountered, as described in **Attachment 3**.

Once the deeper soil borings have been advanced to their total depth, approximately eight feet below the observed water table, monitoring wells will be constructed in accordance with **Section 0 Groundwater investigation activities** at the site consist of installing three monitoring wells within the deeper borings described above. The proposed well locations are shown on **Figure 2.** The location, ground surface elevation, and top of casing elevation will be measured and recorded during the as-built survey (**Section 4.5 Site Survey**).

Monitoring Well Installation. The ground surface around the well and surrounding area will be restored to conditions prior to intrusive activities. Track mats may be used to access the boring locations and minimize ground disturbances.

4.2.3 Surface Soil Sampling

Surface soil samples will be collected at 10 locations using hand methods. Surface soil samples will be collected from 0 to 2 inches, excluding surficial sod or grass layers. Locations were selected based on review of background information and even distribution across the site. Locations may be adjusted in the field based on real-time observations. Any adjustments with be discussed with NYSDEC prior to any changes. Locations re shown on **Figure 2**.

As shown on **Table 1**, all surface soil samples will be analyzed for total and TCLP metals (including mercury) and SVOCs. The remaining parameters will be analyzed on 20 percent of the samples collected at locations based on field observations. Results from the analytical sampling will be compared to Part 375 *Soil Cleanup Objectives* (SCOs; NYSDEC 2006). Except for soils that will be analyzed for VOCs, each surface soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

[redacted]

Care will be taken to preserve the grass or sod overlying the target interval during sample collection. The sampler will regrade the sample area by hand, as needed, and replace the surficial layer of grass or sod following sampling.

4.3 Sediment and Surface Water Investigation

Six sediment sampling locations are proposed throughout the area of the site which falls below the mean high-water line (MHWL) of the Chemung River. The process to determine the MHWL is outlined in **Section 4.3.1**. Sediment coring and sampling are discussed in **Section 4.3.2** and **Section 4.3.3**, respectively.

Additionally, three surface water samples and one water sample from an outfall will be collected from locations as described in **Section 4.3.4**.[redacted]

4.3.1 MHWL Determination

An estimated MHWL of 922 feet above the North American Vertical Datum of 1988 (NAVD88) was established for this work plan based on historical hydrological data from the nearest USGS gaging station 01529950, which is located at 42.1464, -77.0575 in Corning, New York. Peak streamflow hydrologic data (USGS 2021) from water years 2001 through 2021 were used to calculate a mean gage height of 23 feet and mean discharge of 30,305 cubic feet per second (cfs), as shown in **Table 2**. The gage height was summed with the established gage datum of 899.46 feet and rounded to the nearest foot to yield the estimated MHWL of 922 feet.

A biological survey of vegetative and physical site characteristics will be performed prior to sediment sampling to refine the demarcation between terrestrial and aquatic habitat, consistent with New York state regulations and in consultation with NYSDEC to determine the final mean high-water elevation. The MHWL and sediment sampling locations will be revised once the surveys are completed, but prior to sample collection. NYSDEC will be consulted on the final MHWL. The MHWL determination will be performed consistent with the Standard Operating Procedure for Determining the Mean High-Water Mark at the City of Corning Fire Department, which is included as **Attachment 5**.

The final number of sediment samples will be determined based on Balduck's method for calculating the minimum number of samples that should be collected to characterize a contaminated sediment site.

$$N = (Df)\cdot(30)\cdot\left((W)\cdot(L)\cdot\left(\frac{1}{1.2x10^{6}}\right)\right)^{0.33}$$

Where:

N = the total number of coring (sampling) stations

D*f* = a dredge factor consisting of a multiplier (unitless) from 0.5 to 3 based on the site's dredging, environmental or pollutant history and other case specific factors

W = the width (in yards) of a single contaminated sediment area or the widest contaminated sediment area where there are multiple areas to be evaluated

L = the length (in yards) of a single contaminated sediment area or the sum of the lengths of the parts of a combined area being evaluated

Balduck's equation will be solved using a width and length based on the final MHWL, and by applying a dredge factor of one. The dredge factor for the site was established using criteria in Technical and Operational Guidance Series (T.O.G.S) 5.1.9 *In-Water and Riparian Management of Sediment and Dredged Material,* which states that a dredge factor of one may be applied at sites with no previous sediment data and no suspected likelihood of appreciable contamination (NYSDEC, 2004). If impacts are observed in sediment sample analytical results collected during the implementation of this work plan, a higher dredge factor may be considered for follow-up sediment investigations.

Six sediment samples have been proposed along the shore of the Chemung River based on initial MHWL estimates. Additional sediment locations may be sampled based upon the completion of the MHWM survey and associated MHWL calculations. Sediment sampling locations will be staked-out in the field following the biological survey to ensure that they are collected below the MHWL.

4.3.2 Sediment Coring

Sediment samples are proposed at six locations (CFD-SED-01 through CFD-SED-06) as shown on **Figure 2**, adjacent to the Chemung River based on the 20-year high flow elevation of 922 feet. As discussed in the above section, additional sediment locations may be sampled based upon the completion of the MHWM survey and associated MHWL calculations. Sediment sampling locations will be staked-out in the field following the biological survey during low river stage to ensure sediment samples are collected below the MHWL and from within, or immediately adjacent to, the riverbed.

Sediment cores will be collected and logged continuously until corings are terminated. Sediment will be visually classified using the Burmister (1970) and USCS (ASTM International 2018) soil classification systems. Descriptions will be recorded in the field notes or soil boring log form. Any non-native material present in the sediment core will be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material greater than 1-inch-thick containing ash, brick and/or glass will be noted in the field logs. Photographs of recovered sediment and any fill material containing ash, brick, and/or glass will be taken to provide in the final report. Each sediment core will also be screened for the presence of VOCs with a PID as previously noted and readings will be recorded on the boring log and/or field book.

Sampling equipment will be decontaminated between pushes and sediment sample locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse. All "down hole" drilling equipment will be decontaminated inside the decontamination pad, using a high-pressure steam wash. Drill cuttings and decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal.

Upon completion, each sediment coring location will be grouted from total depth to surface. After grouting is complete, the surface and surrounding area will be restored to previous conditions.

4.3.3 Sediment Sampling

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants into the samples. MacroCore samplers will be equipped with PFAS-free acetate liners. All necessary equipment, material, and supplies will be provided by the

drilling subcontractor and will be compatible with the collection of emergent contaminant samples (e.g., PFAS-free).

Sediment samples will be collected using a slide-hammer, or equivalent, with MacroCore sampler. The sampler will be advanced to two feet bgs and samples will be collected from the following intervals:

- 0 – 6 inches
- 6 – 12 inches
- 12 – 24 inches

As shown on **Table 1**, all samples will be analyzed for total and TCLP metals (including mercury) and SVOCs. The remaining parameters will be analyzed on 20 percent of the samples collected based on field observations. Except for sediments that will be analyzed for VOCs, each sediment sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-provided bottles.

Archive samples will be collected if target fill material/waste glass is encountered, as described in **Attachment 3**.

For QA/QC purposes, duplicate samples, equipment blanks and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for Target Compound List (TCL) VOCs.

Results from the analytical sampling will be compared to Class A Sediment Guidance Values (SGVs; NYSDEC 2014).

4.3.4 Surface Water Sampling

Surface water samples will be collected from six locations and one outfall, as shown on **Figure 2**. Surface water locations were selected to:

- Evaluate ambient water quality upstream of the city of Corning (SW-01)
- Evaluate surface water quality in the vicinity of the World Kitchen outfalls (SW-02, SW-03, and SW-05)
- Evaluate surface water quality at an approximate mid-point, located at the Chemung River bend (SW-04)
- Evaluate surface water quality immediately downstream of the site (SW-06)

Surface water samples will be collected from the shoreline, using a dipper bucket and extendable pole. Surface water samples will be analyzed as shown in **Table 1**. All samples will be filtered by the laboratory to report both dissolved and total analyte concentrations. Laboratory analytical results will be compared to Class GA NYSDEC Ambient Water Quality Standards presented in T.O.G.S 1.1.1 (NYSDEC, 1998). Emergent contaminant analytical results (PFAS and 1,4 Dioxane) will be compared to NYSDOH Minimum Contaminant Levels (MCLs) as presented in the New York State Sanitary Code (SSC) 10 NYCRR Part 5 (NYSDOH 2018).

4.4 Groundwater Investigation

Groundwater investigation activities at the site consist of installing three monitoring wells within the deeper borings described above. The proposed well locations are shown on **Figure 2**. The location, ground surface elevation, and top of casing elevation will be measured and recorded during the as-built survey (**Section 4.5 Site Survey**).

4.4.1 Monitoring Well Installation

Monitoring wells will be installed at CFD-SB-01 through CFD-SB-03. Each monitoring well will be constructed with 2-inch-diameter schedule 40 polyvinyl chloride (PVC) riser threaded with 10 feet of 2-inch-diameter schedule 40 PVC 0.010-slot screen. The screened interval should extend approximately 10 feet below the water table. Groundwater depth is estimated to be within the top 25 feet bgs.

The annular space surrounding the well will be backfilled with clean sand from 6 inches below the bottom of the screen to 2 feet above the top of screen. A bentonite seal will be installed above the sand pack and either allowed to hydrate (in saturated conditions) or hydrated using potable water (in unsaturated conditions). Each well will be grouted from the top of bentonite to grade using a Portland cement and bentonite slurry grout. Each well will be completed with a flush-mount or stick-up protective cover set within a 2-foot-diameter concrete apron, whichever is more conducive to site conditions.

As noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent the introduction of emerging contaminants into the completed monitoring wells. Downhole drilling equipment will be decontaminated between wells as previously noted and the area around the wells (including access routes) will be restored to previous conditions.

All necessary equipment, material, and supplies used to advance the sampler, purge groundwater, and collect groundwater samples will be compatible with emergent contaminant sampling (e.g., PFAS-free).

4.4.2 Monitoring Well Development

Each new monitoring well will be developed to remove drilling fluid used during boring advancement, as well as any fine-grained material that may have settled in and around the well screen during well construction. Well development will be performed a minimum of 24 hours after grout has been installed to provide sufficient time for the grout to cure.

Well development activities will consist of purging water until one of the following two criteria are met:

1. Water quality parameters have stabilized for three successive measurements and purge water turbidity drops below 50 nephelometric turbidity units (NTUs).

A maximum of 10 well volumes have been removed.

Well development may be performed using a stainless steel or PVC bailer, as well as a water pump paired with high-density polyethylene (HDPE) tubing and surge block. If the well goes dry during development, bailing or pumping will pause until 80 percent of the initial water level has recharged, at which point pumping or bailing will resume. The well will be considered developed once this process has been repeated, and the well has been pumped dry three times.

Development water will be temporarily contained using new 55-gallon steel drums, which will be staged on-site at a central investigation-derived waste (IDW) accumulation area (refer to **Section 4.6 Waste Handling**). The drilling subcontractor will provide drums of sufficient number and quality to containerize well development water, and will provide the equipment, personnel, and materials necessary to transport IDW from the investigation location to the central IDW accumulation area. Parsons will be responsible for collecting waste characterization samples and coordinating subsequent disposal.

4.4.3 Monitoring Well Sampling

One round of groundwater sampling will be conducted at each of newly installed monitoring wells using low-flow sampling techniques. Prior to sampling, the water level in each boring will be measured and recorded to the nearest 0.01-foot using a PFAS-free electronic water level meter. Well sampling will commence once water quality parameters are stable for three consecutive readings. The stabilization guidelines are as follows:

- Temperature ± 10% of measurement
- pH ± 0.1 pH units
- Specific conductance ± 3% of measurement
- Redox ± 10 mV
- Dissolved oxygen ± 10% of measurement
- Turbidity ± 10% of measurement, or under 10 NTUs

Dedicated and disposable groundwater sampling equipment (e.g., tubing) will be used for sample collection. Any non-dedicated or non-disposable equipment (e.g., water level meter) will be decontaminated between samples by washing equipment with phosphate-free solution followed by a PFAS-free distilled water rinse. Purge water and decontamination water will be transferred to drums for characterization and disposal.

Groundwater samples will be analyzed as shown in **Table 1**. Laboratory analytical results will be compared to NYSDEC Class GA Ambient Water Quality Standards presented in *Technical and Operational Guidance Series 1.1.1* (NYSDEC, 1998). Emergent contaminant analytical results (PFAS and 1,4-dioxane) will be compared to NYSDOH Minimum Contaminant Levels (MCLs) as presented in the *New York State Sanitary Code* (SSC) 10 NYCRR Part 5. For QA/QC purposes, duplicate samples, equipment blanks and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed at a rate of one for every 20 field samples. Trip blanks will also be included in sample coolers containing field samples for VOC analyses; these trip blanks will be analyzed for Target Compound List (TCL) VOCs.

As previously noted in **Section 3.2 Emerging Contaminants**, care will be taken to prevent cross contamination of samples, especially introduction of emerging contaminants into the samples. Any non-dedicated well sampling equipment will be decontaminated between well locations.

4.5 Site Survey

Following the completion of investigation activities, a licensed professional land surveyor registered to practice in the State of New York will collect as-built data from the sample locations.

The following as-built data will be collected for soil borings:

- Northing
- Easting
- Ground surface elevation

The following as-built data will be collected for monitoring wells:

- Northing
- Easting
- Ground surface elevation
- Top of riser elevation
- Top of flush-mount or stick-up protective cover elevation

Horizontal survey data will be based on the North American Datum of 1983 (NAD 83) New York State Plane (Central Zone) coordinate system (in feet). Elevations will be based on the North American Vertical Datum of 1988 (NAVD 88).

4.6 Waste Handling

Investigation-derived waste (IDW), including excess soils/sediments from sample locations, decontamination rinsates, purge water, and other used materials (such as PPE, acetate Geoprobe liners, poly sheeting, etc.) will be placed in Department of Transportation-approved 55-gallon 17-H type drums. The IDW will be classified as hazardous or non-hazardous based on characterization results and will be disposed of in accordance with applicable NYSDEC regulations. Appropriate equipment capable of handling and/or moving IDW stored to the designated waste storage area will be used, and IDW drums will be stored in an area lined with polyurethane sheeting for secondary containment.

SECTION 5 REPORT PREPARATION

Data obtained during the field investigations identified in this scope of work will be validated, evaluated, and summarized. A Site Characterization Report will then be prepared following completion of the investigation and receipt of analytical data. This report will document investigation activities specified in this work plan.

Chemical analytical results for soil and groundwater will be compared to 6 NYCRR Part 375 (NYSDEC, 2006) guidelines for various potential future land uses and State of New York Class GA water quality standards, respectively.

Chemical analytical results for sediment will be compared to Class A sediment guidance values (NYSDEC, 2014).

The document will include Category B data validation, and an evaluation of data for reclassification/delisting, or continuation of next steps of the site characterization.

SECTION 6 SCHEDULE

Following approval of this Work Plan by NYSDEC, the schedule shown below will be implemented. The work scope described herein is assumed to be completed during Spring of 2023.

Task Name	Start	Finish
Utility Demarcation and Sample Location Mark-Out	Week 1	Week 1
MHWL Delineation	Week 1	Week 1
Geophysical Investigation	Week 1	Week 1
Drilling Mobilization	Week 2	Week 2
Drilling/Soil Sampling/Well Installation	Week 2	Week 5
Sediment Sampling	Week 4	Week 5
Well Development/Groundwater Sampling/Surface Water Sampling	Week 5	Week 6
As-built Coordinates and Elevations Survey	Week 6	Week 6
Data Management and Reporting Tasks	2 months after completion of field activities	

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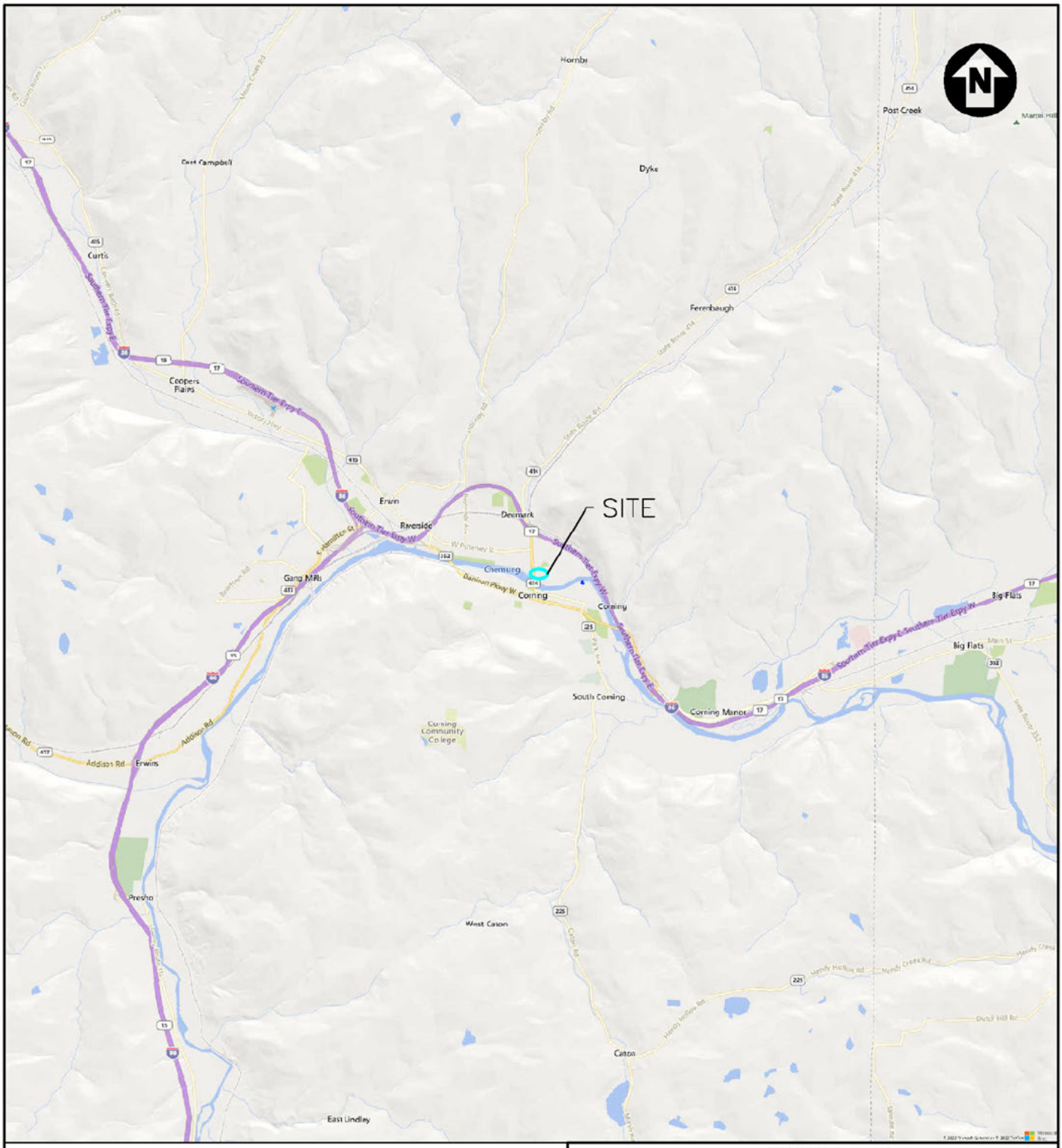
FIGURES



10,000 5,000 0 10,000

SCALE: 1"=10,000'

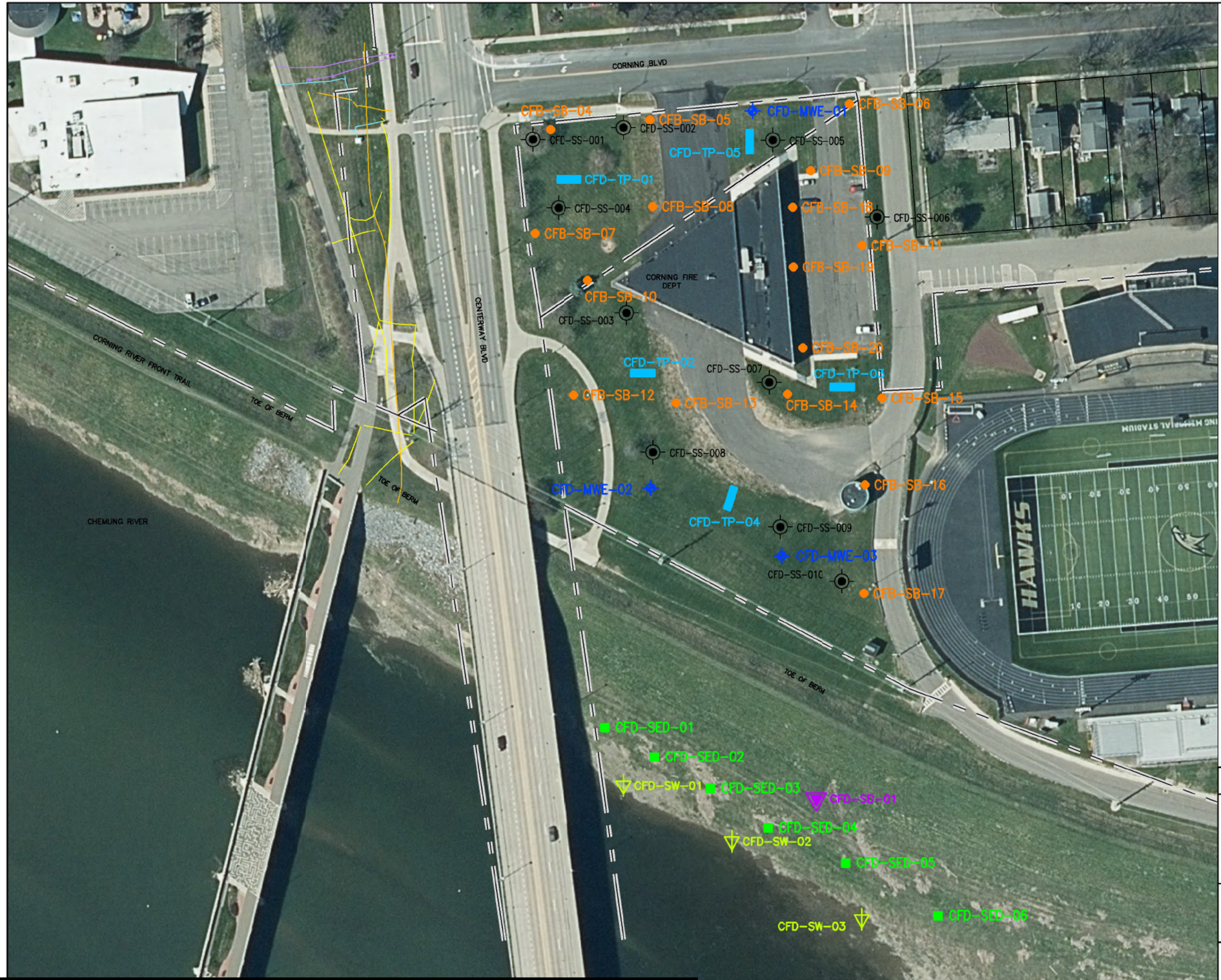
FIGURE 2

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

CITY OF CORNING FIRE DEPARTMENT

SITE LOCATION MAP

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 • 315-451-9560



LEGEND:

- PROPOSED SOIL BORING
- PROPOSED MONITORING WELL
- PROPOSED TEST PIT
- PROPOSED SEDIMENT SAMPLE
- PROPOSED SURFACE WATER SAMPLE
- PROPOSED STORM DRAIN SAMPLE
- PROPOSED SURFACE SOILS SAMPLE
- APPROXIMATE PROPERTY BOUNDARY

NOTE:

1. All sample locations will be a minimum of 15' away from the toe of berm.

100 50 0 100 200

SCALE: 1"=100'

FIGURE 2

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

CITY OF CORNING FIRE DEPARTMENT

PROPOSED SAMPLE LOCATIONS

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 • 315-451-9560

TABLES

TABLE 1
ANALYTICAL DATA SUMMARY FOR SITE CHARACTERIZATION
CITY OF CORNING FIRE DEPARTMENT, CORNING NEW YORK

Task	Sample Type	Analysis	Method	Turn-Around-Time	Samples	QA/QC Samples						Total
						Duplicate	Equipment Blank	Trip Blank	Field Blank	MS	MSD	
Test Pit Sampling [1,3,5]	Soil	Metals	SW6010D/SW7471B	Standard	30	2	1	0	0	2	2	**37**
	Soil	TCLP Metals	SW6010C/SW7470A	Standard	30	2	1	0	0	2	2	**37**
	Soil	SVOCs +1,4-Dioxane	SW8270D	Standard	30	2	1	0	0	2	2	**37**
	Soil	Cyanide	SW9012B	Standard	6	1	1	0	0	1	1	**10**
	Soil	VOCs	SW8260C	Standard	6	1	1	0	0	1	1	**10**
	Soil	Pesticides	SW8081B	Standard	6	1	1	0	0	1	1	**10**
	Soil	PCBs + Total	SW8082A	Standard	6	1	1	0	0	1	1	**10**
	Soil	Herbicides	SW8151A	Standard	6	1	1	0	0	1	1	**10**
	Soil	TPH	EPA 1664 (SGT HEM)	Standard	6	1	1	0	0	1	1	**10**
	Soil	PFAS	Method 1633	Standard	6	1	1	0	0	1	1	**10**
Soil Boring Sampling [1,3,5]	Soil	Metals	SW6010D/SW7471B	Standard	120	6	1	0	0	6	6	**139**
	Soil	TCLP Metals	SW6010C/SW7470A	Standard	120	6	1	0	0	6	6	**139**
	Soil	SVOCs+1,4-Dioxane	SW8270D	Standard	120	6	1	0	0	6	6	**139**
	Soil	Cyanide	SW9012B	Standard	24	2	1	0	0	2	2	**31**
	Soil	VOCs	SW8260C	Standard	24	2	1	0	0	2	2	**31**
	Soil	Pesticides	SW8081B	Standard	24	2	1	0	0	2	2	**31**
	Soil	PCBs + Total	SW8082A	Standard	24	2	1	0	0	2	2	**31**
	Soil	Herbicides	SW8151A	Standard	24	2	1	0	0	2	2	**31**
	Soil	TPH	EPA 1664 (SGT HEM)	Standard	24	2	1	0	0	2	2	**31**
	Soil	PFAS	Method 1633	Standard	24	2	1	0	0	2	2	**31**
Surface Soil Sampling [1,5]	Soil	Metals	SW6010D/SW7471B	Standard	10	1	1	0	0	1	1	**14**
	Soil	TCLP Metals	SW6010C/SW7470A	Standard	10	1	1	0	0	1	1	**14**
	Soil	SVOCs+1,4-Dioxane	SW8270D	Standard	10	1	1	0	0	1	1	**14**
	Soil	Cyanide	SW9012B	Standard	2	1	1	0	0	1	1	**6**
	Soil	VOCs	SW8260C	Standard	2	1	1	0	0	1	1	**6**
	Soil	Pesticides	SW8081B	Standard	2	1	1	0	0	1	1	**6**
	Soil	PCBs + Total	SW8082A	Standard	2	1	1	0	0	1	1	**6**
	Soil	Herbicides	SW8151A	Standard	2	1	1	0	0	1	1	**6**
	Soil	TPH	EPA 1664 (SGT HEM)	Standard	2	1	1	0	0	1	1	**6**
	Soil	PFAS	Method 1633	Standard	2	1	1	0	0	1	1	**6**
Sediment Soil Sampling [2,3,5]	Sediment	Metals	SW6010D/SW7471B	Standard	18	1	1	0	0	1	1	**22**
	Sediment	TCLP Metals	SW6010C/SW7470A	Standard	18	1	1	0	0	1	1	**22**
	Sediment	SVOCs + 1,4-Dioxane	SW8270D	Standard	18	1	1	0	0	1	1	**22**
	Sediment	TOC	Lloyd Khan	Standard	18	1	1	0	0	1	1	**22**
	Sediment	Cyanide	SW9012B	Standard	4	1	1	0	0	1	1	**8**
	Sediment	VOCs	SW8260C	Standard	4	1	1	0	0	1	1	**8**
	Sediment	Pesticides	SW8081B	Standard	4	1	1	0	0	1	1	**8**
	Sediment	PCBs + Total	SW8082A	Standard	4	1	1	0	0	1	1	**8**
	Sediment	Herbicides	SW8151A	Standard	4	1	1	0	0	1	1	**8**
	Sediment	TPH	EPA 1664 (SGT HEM)	Standard	4	1	1	0	0	1	1	**8**
	Sediment	PFAS	Modified EPA 537.1	Standard	4	1	1	0	0	1	1	**8**
	Sediment	Total Organic Carbon	Lloyd Kahn	Standard	4	1	1	0	0	1	1	**8**

TABLE 1
ANALYTICAL DATA SUMMARY FOR SITE CHARACTERIZATION
CITY OF CORNING FIRE DEPARTMENT, CORNING NEW YORK

Task	Sample Type	Analysis	Method	Turn-Around-Time	Samples	QA/QC Samples						Total
						Duplicate	Equipment Blank	Trip Blank	Field Blank	MS	MSD	
Surface Water Sampling[4]	Groundwater	VOCs	SW8260C	Standard	4	1	1	1	1	1	1	10
	Groundwater	SVOCs + 1,4-Dioxane	SW8270D/SW8270D SIM	Standard	4	1	1	0	1	1	1	9
	Groundwater	Pesticides	SW8081A	Standard	4	1	1	0	1	1	1	9
	Groundwater	PCBs + Total	SW8082A	Standard	4	1	1	0	1	1	1	9
	Groundwater	Herbicides	SW8151A	Standard	4	1	1	0	1	1	1	9
	Groundwater	Metals	SW6010D/SW7470A	Standard	4	1	1	0	1	1	1	9
	Groundwater	TPH	EPA 1664 (SGT HEM)	Standard	4	1	1	0	1	1	1	9
	Groundwater	PFAS	Method 1633	Standard	4	1	1	0	1	1	1	9
Groundwater Sampling[4]	Groundwater	VOCs	SW8260C	Standard	3	1	1	1	1	1	1	9
	Groundwater	SVOCs + 1,4-Dioxane	SW8270D/SW8270D SIM	Standard	3	1	1	0	1	1	1	8
	Groundwater	Pesticides	SW8081A	Standard	3	1	1	0	1	1	1	8
	Groundwater	PCBs + Total	SW8082A	Standard	3	1	1	0	1	1	1	8
	Groundwater	Herbicides	SW8151A	Standard	3	1	1	0	1	1	1	8
	Groundwater	Metals	SW6010D/SW7470A	Standard	3	1	1	0	1	1	1	8
	Groundwater	TPH	EPA 1664 (SGT HEM)	Standard	3	1	1	0	1	1	1	8
	Groundwater	PFAS	Method 1633	Standard	3	1	1	0	1	1	1	8
Waste Characterization Sampling	Soil	TCLP	SW1311	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Volatiles	SW8260C	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Semivolatiles	SW8270D	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Pesticides	SW8081B	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Herbicides	SW8151A	Standard	1	0	0	0	0	0	0	1
	Soil	TCLP Metals	SW6010C/SW7470A	Standard	1	0	0	0	0	0	0	1
	Soil	PCBs + Total	SW8082A	Standard	1	0	0	0	0	0	0	1
	Soil	Corrosivity	SW9045	Standard	1	0	0	0	0	0	0	1
	Soil	Ignitability	SW1030	Standard	1	0	0	0	0	0	0	1
	Soil	Reactivity (Cyanide and Sulfide)	SW7.3.3.2/SW7.3.4.2	Standard	1	0	0	0	0	0	0	1
	Water	VOCs	SW8260C	Standard	1	0	0	0	0	0	0	1
	Water	SVOCs	SW8270D	Standard	1	0	0	0	0	0	0	1
	Water	Pesticides	SW8081B	Standard	1	0	0	0	0	0	0	1
	Water	Herbicides	SW8151A	Standard	1	0	0	0	0	0	0	1
	Water	Total Cyanide	SW9012B	Standard	1	0	0	0	0	0	0	1
	Water	PCBs + Total	SW8082A	Standard	1	0	0	0	0	0	0	1
	Water	Metals	SW6010D/SW7470A	Standard	1	0	0	0	0	0	0	1
	Water	Corrosivity (pH)	SW9040	Standard	1	0	0	0	0	0	0	1
	Water	Flashpoint	SW1010	Standard	1	0	0	0	0	0	0	1
	Water	Reactivity (Cyanide and Sulfide)	SW7.3.3.2/SW7.3.4.2	Standard	1	0	0	0	0	0	0	1

NOTES:
1. NYCRR Subpart 375 Compounds
2. NYSDEC Screening and Assessment of Contaminated Sediment
3. An additional soil sample will be collected from native materials directly under any ash/brick/glass layer encountered
4. NYSDEC Ambient Water Quality Standard TOGS 1.1.1
5. Analysis of Cyanide, Hexavalent & Trivalent Chromium, VOCs, Pesticides, PCBS + Total, Herbicides, TPH, PFAS, and Organic Carbon(sediment only) will be submitted for 20% of samples.

U.S. Geological Survey
Gage Station 01529950

Table 2
Chemung River Peak Streamflow Data
(4/09/2001 - 8/19/2021)

Chemung River
Corning, NY

Water Year	Measurement Date	Peak Discharge (cfs)	Gage Height (ft)	Water Elevation (ft amsl)
2001	4/9/2001	28,300	22.86	922.32
2002	5/14/2002	18,000	21.08	920.54
2003	7/22/2003	40,000	24.49	923.95
2004	9/18/2004	42,200	24.77	924.23
2005	4/2/2005	37,300	24.09	923.55
2006	11/30/2005	38,000	24.17	923.63
2007	3/15/2007	40,300	24.47	923.93
2008	2/6/2008	35,200	23.80	923.26
2009	3/9/2009	23,800	22.07	921.53
2010	1/25/2010	32,400	23.40	922.86
2011	4/28/2011	34,000	23.63	923.09
2012	10/20/2011	16,400	20.68	920.14
2013	1/31/2013	25,300	22.31	921.77
2014	5/16/2014	39,300	24.34	923.8
2015	4/8/2015	17,700	20.94	920.4
2016	2/25/2016	23,400	22.00	921.46
2017	5/6/2017	24,100	22.12	921.58
2018	4/16/2018	21,500	21.67	921.13
2019	12/22/2018	30,400	23.12	922.58
2020	5/1/2020	26,000	22.43	921.89
2021	8/19/2021	42,800	24.79	924.25
Mean Peak Streamflow		30,305	23	922

Notes:

1. The values in this table were selected from the "Peak Streamflow" dataset of USGS Station 01529950, Chemung River at Corning New York site (https://waterdata.usgs.gov/nwis/inventory?site_no=01529950)
2. Gage datum is 899.46 ft above mean sea level (amsl), North American Vertical Datum of 1988 (NAVD88)
3. As noted in the USGS peak streamflow data set, the discharge values listed above were affected by regularion or diversion

ATTACHMENT 1 SUBSTANTIVE REQUIREMENTS OF FLOOD CONTROL LAND USE PERMIT

MEMORANDUM

To: NYS Department of Environmental Conservation Date: August 8, 2022

From: Sara M. Weishaupt, Parsons

Subject: City of Corning Fire Department Site Substantive Requirements of the Flood Control Land Use (FCLU) Permit

---

Introduction

Parsons is assisting NYSDEC with Site Characterization (SC) efforts at the City of Corning Fire Department (CCFD) site. Field tasks associated with the SC include:

- Installation of soil borings
- Collection of surface and subsurface soil samples
- Performance of a survey/inspection to establish a site-specific mean high-water line (MHWL)
- Collection of sediment samples from below the MHWL
- Collection of surface water samples from the Chemung River
- Advancement of a discrete groundwater sampler and collection of groundwater samples

SC activities will comply with substantive technical requirements of the FCLU permit application, as described in the following section.

Technical Requirements

SC activities at the CCFD Site will comply with the following substantive technical requirements:

- SC activities will not be performed in a manner that is detrimental to the flood control works. There are not anticipated to be any reductions in the structural integrity or level of protection provided by the flood control project, during or after SC activities, resulting from SC activities.
- Ground within 15 feet of the footprint of the flood control berm will not be disturbed, as shown on Figure 2 of the SC Work Plan. Supplies, equipment, and materials will not be stored on the berm.
- Equipment, including the drilling rig, will not be stored on the river side of the flood control berm.
- Impacts to the ground surface from the drill rig will be minimized by utilizing existing roadways and covering the ground surface with track mats when existing roadways cannot be utilized. If existing roadways are utilized to track to investigation locations, roadways will be kept open for vehicle passage. Vehicles will not be driven on the levee.
- Best management practices will be employed to prevent soil erosion. Measures to prevent erosion and/or sedimentation will be implemented at all stages of SC work.
- Precautions will be taken to avoid pollutants entering the Chemung River, either directly or from areas where pollutants would be carried to the river by storm runoff. A spill kit will be onsite and available at all times and any petroleum spills will be immediately cleaned up and properly disposed of per NYSDEC regulations.
- The water level of the Chemung River will be monitored using data from the nearby United States Geological Survey (USGS) gauging station.
- If monitoring of the Chemung River water level indicates high water conditions, emergency procedures will be implemented. Emergency procedures include modification of drilling work during wet weather/high water conditions

to exclude the use of a track-mounted drill rig. Instead, non-mechanized methods such as a slide hammer will be used to install soil borings during wet weather/high water conditions.

- While steps will be taken to minimize impacts to the ground surface from drilling activities, damage to the ground surface may occur. After the completion of SC activities, restoration will be performed to return the site to pre-characterization conditions. Restoration items include:
  - Grouting of soil borings to the ground surface and restoration of the surface and surrounding areas to pre-work conditions.
  - Replacement of disturbed rip-rap and adjacent areas free from soil, vegetation, and other debris.
  - Restoration of grass areas to establish a vigorous sod ground covering including the following components:
    - 4 to 6 inches of good quality topsoil that will be ASTM D 5268 and have the following characteristics: pH of 5.5 to 7 and >2% organic material content. Topsoil may be imported or manufactured topsoil from offsite sources and will be clean of roots, stones, clay lumps, debris, and other characteristics that would preclude plant growth.
    - Grass seed consisting of one of the following: Kentucky Blue Grass @ 1 ½ pounds per 1000 square feet, Creeping Red Fescue @ 1½ pounds per 1000 square feet, or Perennial Rye Grass @ 1 ½ pounds per 1000 square feet.
    - Fertilizer with the following specifications: 5-10-5 @ 15 pounds per 1000 square feet.
    - Mulch consisting of straw or timothy hay @ 100 pounds per 1000 square feet.
  - Restoration of grass areas will include raking to remove stones that may inhibit mowing.
  - Restored grass areas will be maintained for one year after the completion of SC work to establish turf meeting the following requirements: A healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5 by 5 inches. If grass does not germinate properly, the area will be reseeded and mulched again.
  - Restoration of flood control boundary markers
  - Removal of all materials and debris
- At least seven days prior to commencement of the permitted work and immediately upon its completion, written notice will be given to the Regional Flood Control Engineer/Manager.
- At least two weeks prior to SC work, the following will be submitted to the Regional Flood Control Engineer/Manager:
  - A progress schedule showing proposed dates for starting and completing major activities of the SC work
  - An emergency contact roster of key personnel involved with the SC work
  - Photographs showing all aspects of the project work area from at least four directions. Photographs will be taken in the same location following completion of the SC work.
- "As-built" drawings of SC investigation locations will be generated after the completion of work as part of the SC Report.

ATTACHMENT 2 NYSDOH GENERIC CAMP

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

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

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

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

ATTACHMENT 3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION TAGM 4031 – FUGITIVE DUST SUPPRESSION AND PARTICULATE MONITORING PROGRAM AT INACTIVE HAZARDOUS WASTE SITES

TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM #4031

FUGITIVE DUST SUPPRESSION AND PARTICULATE MONITORING PROGRAM AT INACTIVE HAZARDOUS WASTE SITES

TO: Regional Hazardous Waste Remediation Engrs., Bur. Directors & Section Chiefs

FROM: Michael J. O'Toole, Jr., Director, Division of Hazardous Waste Remediation

SUBJECT: DIVISION TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM -- FUGITIVE DUST SUPRESSION AND PARTICULATE MONITORING PROGRAM AT INACTIVE HAZARDOUS WASTE SITES

DATE: Oct 27, 1989

Michael J. O'Toole, Jr. (signed)

1. Introduction

Fugitive dust suppression, particulate monitoring, and subsequent action levels for such must be used and applied consistently during remedial activities at hazardous waste sites. This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2. Background

Fugitive dust is particulate matter--a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles, liquid droplets or solids, over a wide range of sizes--which becomes airborne and contributes to air quality as a nuisance and threat to human health and the environment.

On July 1, 1987, the United States Environmental Protection Agency (USEPA) revised the ambient air quality standard for particulates so as to reflect direct impact on human health by setting the standard for particulate matter less than ten microns in diameter (PM_{10}); this involves fugitive dust whether contaminated or not. Based upon an examination of air quality composition, respiratory tract deposition, and health effects, PM_{10} is considered conservative for the primary standard--that requisite to protect public health with an adequate margin of safety. The primary standards are 150 ug/m^3 over a 24-hour averaging time and 50 ug/m^3 over an annual averaging time. Both of these standards are to be averaged arithmetically.

There exists real-time monitoring equipment available to measure PM_{10} and capable of integrating over a period of six seconds to ten hours. Combined with an adequate fugitive dust suppression program, such equipment will aid in preventing the off-site migration of contaminated soil. It will also protect both on-site personnel from exposure to high levels of dust and the public around the site from any exposure to any dust. While specifically intended for the protection of on-site personnel as well as the public, this program is not meant to replace long-term monitoring which may be required given the contaminants inherent to the site and its air quality.

3. Guidance

A program for suppressing fugitive dust and monitoring particulate matter at hazardous waste sites can be developed without placing an undue burden on remedial activities while still being protective of health and environment. Since the responsibility for implementing this program ultimately will fall on the party performing the work, these procedures must be incorporated into appropriate work plans. The following fugitive dust suppression and particulate monitoring program will be employed at hazardous waste sites during construction and other activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Such activities shall also include the excavation, grading, or placement of clean fill, and control measures therefore should be considered.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM_{10}) with the following minimum performance standards:

   Object to be measured: Dust, Mists, Aerosols
   Size range: <0.1 to 10 microns
   Sensitivity: 0.001 mg/m^3
   Range: 0.001 to 10 mg/m^3
   Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust

   Operating Conditions:
   Temperature: 0 to 40°C
   Humidity: 10 to 99% Relative Humidity

   Power: Battery operated with a minimum capacity of eight hours continuous operation

   Automatic alarms are suggested.

   Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. Consequently, instrumentation

shall require necessary averaging hardware to accomplish this task; the P-5 Digital Dust Indicator as manufactured by MDA Scientific, Inc. or similar is appropriate.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the entity operating the equipment to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m^3 over the integrated period not to exceed 15 minutes. While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m^3, the upwind background level must be measured immediately using the same portable monitor. If the working site particulate measurement is greater than 100 ug/m^3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see Paragraph 7). Should the action level of 150 ug/m^3 be exceeded, the Division of Air Resources must be notified in writing within five working days; the notification shall include a description of the control measures implemented to prevent further exceedences.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM_{10} at or above the action level. Since this situation has the potential to migrate contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

    1. Applying water on haul roads.
    2. Wetting equipment and excavation faces.
    3. Spraying water on buckets during excavation and dumping.
    4. Hauling materials in properly tarped or watertight containers.
    5. Restricting vehicle speeds to 10 mph.
    6. Covering excavated areas and material after excavation activity ceases.
    7. Reducing the excavation size and/or number of excavations.

Experience has shown that utilizing the above-mentioned dust suppression techniques, within reason as not to create excess water which would result in

unacceptable wet conditions, the chance of exceeding the 150 ug/m^3 action level at hazardous waste site remediations is remote. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. If the dust suppression techniques being utilized at the site do not lower particulates to an acceptable level (that is, below 150 ug/m^3 and no visible dust), work must be suspended until appropriate corrective measures are approved to remedy the situation. Also, the evaluation of weather conditions will be necessary for proper fugitive dust control--when extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended.

There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require appropriate toxics monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

ATTACHMENT 3 PARSONS SUBSURFACE SOIL DISTURBANCE PROTOCOL

PARSONS ENVIRONMENT & INFRASTRUCTURE GROUP
MANDATORY SUBSURFACE SOIL DISTURBANCE PROTOCOL

1. INTRODUCTION

Intrusive investigation or excavation of the subsurface in areas developed for commercial, industrial or residential use exposes Parsons to the risk of causing damage to underground utilities and structures on a daily basis.

The potential consequences of causing damage to an underground utility or structure include, but are not limited to the following:

- Injury or loss of life
- Financial responsibility for repair, lost time, and/or loss of service
- Loss of client
- Federal investigation of job site work practices
- Litigation (third party lawsuits)

The mandatory protocol and checklists provided herein are intended as tools to aid in the management of risk, and ensure that a responsible standard is consistently applied at project sites where intrusion of the subsurface will occur.

2. PURPOSE

The purpose of this mandatory protocol is the prevention of potential injury and/or loss of life; and damage to subsurface utilities and structures. Parsons' staff will identify and evaluate the hazards associated with underground utilities and other structures prior to conducting any intrusive subsurface operation including but not limited to drilling/boring, test pitting, excavation and other subsurface intrusive activities.

3. SCOPE

Parsons' staff will employ sound investigative and work practices, and will use appropriate measures to avoid damage to subsurface utilities and structures. Furthermore, Parsons requires that these procedures be implemented by all of Parsons' employees and subcontractors, as appropriate. Subcontractors will have a copy of the procedures set forth in Section 6 of this document as an appendix to their contracts.

4. POLICY

Parsons' policy requires that the project manager follow all local, state, and federal laws applying to intrusive subsurface work (i.e. obtain permits, inform agencies, obtain utility clearances, etc). The project manager shall review, as available, all current and historical site drawings and plans from the client, facility owner or tenant, utility providers, municipal government offices (i.e. city engineer or building department) and third parties as appropriate.

The Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork **(Attachment A)** shall be completed prior to initiating fieldwork. Note: *The checklist includes a site visit as a requisite to meet with knowledgeable staff as appropriate (current or former site/owner personnel, utility representatives, municipal representatives, etc.), and review site conditions and features relative to the proposed locations for intrusive work. The checklist should be turned in to the Parsons Project Manager and a copy placed in the project file.*

The procedure described under Section 6 of this document is mandatory at all sites where any intrusive subsurface activities will take place, including but not limited to drilling, augering, boring, excavating, test pitting, trenching or direct push (Geoprobe) technology.

Variance from the Subsurface Soil Disturbance Protocol is allowed only with the written approval from the appropriate Parsons' Program Manager or Sector Leader and the completion of the Utility Clearance Variance Request Form (Attachment B). GBU, Division or Project Safety personnel should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action. Copies of all variances will be maintained in the project files.

The Project Manager is encouraged to find locations that are acceptable to the project team to perform intrusive subsurface work that are not within right-of-ways, streets, highways, or near municipal or third party-owned utility corridors. When it is necessary to conduct work within these areas, the Project Manager should obtain approval from either the Program Manager or Sector Leader and submit the existing work plan to the GBU or Division Safety Manager for review.

5. RESPONSIBILITY

It is the responsibility of the Project Manager to ensure that the Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork and Utility Clearance Variance Request form are followed. If a variance is sought, it is the responsibility of the Project manager to gain written approval of the appropriate Parsons' Program Manager or Sector Leader.

6. PROCEDURE: SUBSURFACE SOIL DISTURBANCE PROTOCOL

The Parsons' Project Manager will be responsible for fulfilling the objectives of this protocol by ensuring that the procedures are carried out by Parsons' employees, subcontractors, and any other person acting on behalf of Parsons. The Parsons' Project Manager will ensure that all individuals working on drilling and other subsurface exploration projects are adequately trained and supervised. Parsons will practice sound investigation and work practices and employ

all necessary measures to avoid damage to subsurface systems and structures. The Parsons' Program Manager or Sector Leader will be contacted and advised in advance of beginning field work in the event that a variance to this protocol is requested by the Parsons' Project Manager or designee. The following tasks/subtasks will be completed at every site and documented on the checklist.

6.1 PRE-INVESTIGATION TASKS

The objective of these tasks is to gather all relevant information about the site to assist in identifying exploration locations and obtaining necessary permits. Please note that in some instances the following information will be obtained or gathered by a subcontractor, which meets this objective.

6.1.1 Obtain Site Plans

Obtain as-built drawings and/or existing site plans as available. NOTE: As-built drawings may not accurately depict the locations of improvements and subsurface features and should therefore not be solely relied upon to determine acceptable locations for intrusive subsurface activities.

6.1.2 Obtain Permits

The project staff will observe all local, state, and federal laws, obtain all necessary permits and utility clearances, and secure site access permission. NOTE: Some permits/clearances require this step to be completed after the exploration locations have been identified and marked in the field. If this is required, proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.1.3 Utility Mark-outs

Parsons' project staff will request a utility mark-out through the local utility locating one-call system for the work site, and document a reasonable degree of effort to locate all main electrical, gas, telephone and all other subsurface utilities. The Parsons' Project Manager must be notified of the status of locating underground utilities before field work progresses. If locating utilities becomes problematic, the Parsons' Project Manager should update the client and discuss potential alternative methods for locating or reducing risk of damage to underground utilities/structures for consideration (i.e. subcontract a private locating service, re-evaluate risk/reward of specific locations or utilize intrusive non-destructive methods as described in Section 6.5.6). Site plans will be updated as appropriate to include utility mark-out information. On third party sites, close coordination with the site owner's representatives for mark-outs, review of as-builts, and other information reviews should be conducted prior to work. NOTE: Some utilities require the exploration locations to be identified and marked in the field prior to performing mark-outs. If this is required proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.2 SITE VISIT

A site visit is required to compare the site plan to actual conditions, document all findings, and update the site plan. Parsons will obtain information needed to prepare a vicinity map of the area that may include significant neighboring addresses, land use, surface water bodies, and other natural as well as manmade features of note, as appropriate. The site visit should be scheduled concurrent with, or soon after the utility mark-out. The inspection should include the following activities at a minimum.

6.2.1 Utilities

Note the location of all utility mark-outs and aboveground utilities:

- Area lights
- Phones
- Drain lines
- Overhead lines
- Fire hydrants
- Fiber optic cable signage
- Catch basins
- Manholes
- Junction boxes
- Natural gas
- Other utilities
- Observe paving scars such as areas of new pavement or saw cuts

6.2.2 Plant/Property Systems

If possible, speak with someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.). For UST systems:

- Inspect for the presence of a dispenser pan and, if possible, determine whether product piping is rigid or flexible.
- Visually inspect the location of the tank field, observation wells (if present), dispensers and vent stack(s).

- Note the orientation, arrangement, location, sizes, etc. of the tanks and manholes. Estimate the burial depth of the tank field.

- Observe paving scars (i.e. fresh asphalt/concrete patches, scored asphalt/concrete). Note that this may not indicate location of product piping.

6.2.3 Existing Remediation Systems

Visually inspect the location of aboveground components. Note the locations of well manholes, sparge points, etc.

6.2.4 Safety

For UST systems, note the location of the emergency shut off switch and become familiar with its use.

6.3 SELECTION OF DRILLING/TEST PIT LOCATIONS

6.3.1 Critical Zones

Establish pre-drilling critical zones appropriate to the project site. These are zones where no drilling (if possible and if client concurs) will be conducted. As an example, the following critical zones could be applied at a UST site:

- 10ft (3m) distance from the furthest edge of any operating tank

- 10ft (3m) distance surrounding operating dispenser islands

- At active service station sites, the entire area between the tank field and the dispenser islands.

- The zone between 0 and 5-feet of utility markings

6.3.2 Select Drilling Locations

The information collected to this point will be utilized in combination with regulatory requirements and investigation objectives to select drilling locations. It is recommended that alternate drilling locations be selected in case additional explorations are required or obstructions are encountered. The effort to investigate a specific proposed drilling location should be to clear a minimum five-foot radius circle around the location.

6.3.3 Review Selected Locations with the Client

At a minimum, offer to review the selected and alternate drilling locations with the client's project manager or designated representative. When completing Geoprobe^{tm} (or similar) investigations in which some boring locations are not selected in advance, but partially

determined in the field based on field screening results, the client should approve the areas in which work will be performed. Do not proceed with the investigation until the plan has been discussed with the client, and approval to proceed has been granted. If relocation of a boring outside approved limits is necessary at any time and for any reason, contact the client prior to proceeding. CLIENT APPROVAL MUST BE DOCUMENTED. Verbal approval is acceptable if followed with written approval. Documentation may include a notation in the field book, email or written correspondence.

6.4. REQUIRED NOTIFICATIONS

Affected parties must be notified at least 48-hours (longer if possible) in advance of planned intrusive fieldwork. An exception would be in the event of an emergency response situation. Parsons' staff will avoid scheduling conflicts with facility activities at the site. The Parsons' Project Manager or designee will notify the following persons as applicable:

- The oversight regulatory agency (includes local fire, police and municipal contacts as appropriate).
- Property owner for private properties. This should include neighboring third party property owners if a potential exists for causing inconvenience as a result of the scheduled fieldwork.
- Client specific notifications as appropriate (i.e. facility maintenance, retail and/or real estate managers as appropriate)

6.5. ON-SITE SUBSURFACE ACTIVITIES

6.5.1 Safety

A Project Safety, Health and Environmental Plan (PSHEP) must be available on site at all times and all Parsons' staff, contractors and subcontractors must be familiar with it. Parsons' employees are to acknowledge their review of the PSHEP by signing the signature form contained within the PSHEP. The Parsons' field team leader is tasked with conducting a tailgate meeting at the start of each day to review project specific health and safety items with staff and subcontractors. Subcontractors, however, are responsible for their own health and safety. All work areas shall be secured with safety cones, safety tape, construction fence, barricades, or signs as appropriate.

A copy of this entire subsurface activity protocol and completed checklist must be appended to the health and safety plan.

6.5.2 Supervision

A Parsons' on-site representative will be responsible for overseeing subsurface activities. This representative will ensure that the work is performed with due caution and will be alert for warning signs that could indicate the presence of underground tanks, lines, or other subsurface structures.

6.5.3 Warning Signs

The following warning signs may indicate the presence of a subsurface structure such as tanks or lines:

- Pea Gravel/Sand/Non-indigenous Material.
- The absence of soil recovery in the hand auger. This could indicate pea gravel that has spilled out of the auger.
- Any unexpected departure from the native soil or groundwater conditions as established in other on-site digging.
- Obstructions encountered

If any of the above warning signs or a suspicious condition is encountered, intrusive subsurface activities in this area should immediately cease and the Parsons' Project Manager shall be contacted.

6.5.4 Drill Boring Sequence

If possible, the boring sequence should be planned such that the boring furthest from any suspected underground improvements is carried out first. This is done to determine the natural subsurface conditions and to allow the field geologist/scientist to recognize native versus fill conditions. Also, least impacted locations should be done first if possible to prevent possible cross contamination.

6.5.5 Surface Removal for Paved Areas

Sufficient paving or surface improvement should be removed to allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools. Drilling in an area of high risk may warrant a larger pavement opening.

- Monitoring Well Installations: 2-ft x 2-ft (60cm x 60cm) minimum removal is suggested (assumes for example: 6.25-inch hollow stem auger (HSA) or smaller).
- Soil Borings: 8-inch (20cm) diameter minimum removal is suggested (assumes for example: 3.25-inch HAS or smaller).
- Direct Push Samplers: 4 to 6 inch (10 to 15 cm) diameter minimum removal is suggested (assumes for example: 2-inch diameter sample tube).

The technique used should not pose a threat to subsurface structures. Final completion for holes in pavement shall be neatly saw-cut or cored unless otherwise directed by the client.

6.5.6 Clearing the Subsurface for Utilities and Other Structures

Parsons' staff must ensure that no subsurface utilities, structures, or improvements exist where intrusive subsurface activities will occur. Locations will be cleared using results of historical data research and with geophysical methods (see below for details) at a zone 5 feet in radius around the proposed location. Staff (or personnel supervised by Parsons) will also utilize intrusive, non-destructive procedures such as hand digging to a depth of 5 feet and a diameter or width equivalent to the outside dimensions of the auger to investigate the boring location.

The method used to delineate the subsurface should be compatible with the inherent risk associated with the type of facility/property and the location of the drilling. Proactive investigative methods to clear specific drilling locations will include the following non-invasive and invasive non-destructive methods:

Non-Invasive Geophysical Remote Sensing: Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work. Survey an area around the location to a distance of 5 feet using geophysical methods to identify potential subsurface utilities or facilities. Move the borehole location, if necessary, within the cleared circle to avoid an object identified by the geophysical instrument. Examples of geophysical methods are provided below:

- Electromagnetic and radio frequency;
- Ferrous metal or magnetic locators;
- Ground probing radar (GPR).

Important note: A combination of two or more non-invasive instruments may be required to properly clear a subsurface area. For example, a ferrous metal detector may not detect metals pipes embedded in concrete duct banks, PVC pipes, FRP pipes, or other non-ferrous materials.

Intrusive Non-Destructive Procedures: Delineate the subsurface at the borehole location by probing or digging. Several acceptable methods are discussed below. In some cases, these intrusive procedures may not be practical due to the subsurface conditions or requirements of the explorations.

- Vacuum/Air Knife Digging: Vacuum digging has proven to be a very effective and safe means of digging and is recommended instead of probing and digging with hand tools.
- Probing: The probe should have a blunt or rounded tip and should be advanced by hand in a triangular pattern around the bore location without excessive force.
- Hand Digging: Should be performed with a small hand garden spade.

- Hand Augering: The auger is to be turned slowly and not forced through the soil. It is recommended that an auger without sharp points (some augers have rounded edges) be used.

- Post Hole Digging: Can be used for soil removal only in soil that has been probed and cannot be used to advance the hole beyond the depth or width of probing.

The area to be cleared for underground utilities or structures for augering shall exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and sufficiently large to allow for visual inspection of any obstructions encountered. The first 1 - 2ft (0.3 - 0.6m) can be cleared by hand digging to remove the soil. Slowly and carefully probe (i.e. triangular pattern), vacuum, or hand auger throughout the area to be cleared to ensure that no obstructions exist anywhere near the potential path of the drill auger or push type sampler. The soil in the area to be cleared shall be fully removed during this step. If probing is utilized, then alternate probing with soil removal as necessary, until the first 5-ft (1.5m) has been delineated.

6.5.7 Refusal

Where natural subsurface conditions (e.g. cobbles/rocks, fill material, and/or bedrock) may prevent adequate probing and augering, a practical and sensible evaluation by the Parsons' Project Manager will be the basis for determining if continuation of probing and augering is feasible. In all cases Parsons must employ all means necessary to prevent damaging subsurface utilities, product lines, tanks, or other structures. **When conventional means of probing and augering cannot be utilized, the Parsons' field representative believes that additional probing/augering is not feasible, or if the probing/augering poses additional hazard to personnel because of the physical demands of performing the task, work in that specific area will cease**. The Parsons' Project Manager will contact the client's project manager or designee to discuss alternatives. If Parsons' staff suspects, based on past information or boring logs, that hand augering is infeasible, then alternatives such as vacuum clearing or non-invasive procedures should be evaluated in advance.

6.5.8 Event Notification

If any portion of a tank, pipe, utility or other subsurface structure is encountered, or if there is any doubt it has been encountered, the work is to cease in that area and the Parsons' Project Manager notified immediately. If there is reason to believe that the structure has been damaged, if applicable, the emergency shut-off switch should be activated (if applicable) and the appropriate municipality and client notified immediately. The Parsons' Project Manager and/or client will decide if additional uncovering by hand is required. If it is confirmed that a UST system has been encountered, a tightness test(s) should be considered. Under no circumstances is the area to be backfilled without notifying the Parsons' Project Manager, unless risk of personal injury or damage warrants a temporary backfilling.

In case of refusal or if an unknown subsurface object is encountered during intrusive subsurface activities, then the following specified resolution process must take place.

- Additional and deliberately careful excavation by hand will be conducted in an attempt to define the cause of refusal or identify the subsurface object.

    a. If the cause CAN be readily and correctly defined as not destructive or hazardous, the field task manager should call the PM to discuss the situation.

    b. If the cause CAN be readily and correctly defined as potentially destructive or hazardous, the field task manager should call the PM to discuss the situation. The specific location must be re-evaluated.

    c. If the cause CANNOT be readily and correctly defined, the field task manager should call the PM to discuss the situation. The specific location must be re-evaluated.

- In case "a," drilling may proceed ONLY after consultation with the PM.

- In cases "b" and "c," drilling MUST STOP so that location re-evaluation can take place. The client, the utility owner (if applicable) and if required, the appropriate regulatory agency, must be advised of the situation and consulted to determine if (1) the location is necessary, which may require additional effort to clear a new location, or (2) the location is not necessary, and can be deleted from the program.

6.5.9 Scheduling

Since clearing locations for augering, drilling, excavation and similar intrusive field work can be time consuming, it may be appropriate to perform the surface removal subsurface delineation prior to the arrival of subcontractors and their equipment on site. If these activities are conducted prior to the actual day of intrusive field work, then the cleared locations must be adequately covered with plates and/or backfilled, or barricaded to protect pedestrians and other surface traffic. Care must be taken to prevent settlement of the material used to cover the holes.

ATTACHMENT A

PRE-DRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELD WORK

PREDRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELDWORK

Site Name: _____ **Job Number:** _____
Site Phone Number: _____
Site Address: _____ **County:** _____
Client Proj. Mgr.: _____ **Phone:** _____
Site Manager Contacted Date: _____ **By:** _____
Site Drawings (yes / no / NA) _____ (please attach) **Historical Drawings (yes / no / NA)** _____
Third Party Construction/Redevelopment Plans (Yes/No/NA)

***ATTACH SITE FIGURE WITH PROPOSED BORING LOCATIONS

Subcontractor's (drillers, concrete, etc…) **Company** _____
Subcontractor's Contact Person _____ **Phone** _____
Meeting / Start Date _____ **Time** _____

1) **Health and Safety Signoff Form Completed? (Yes/No)** **Date** _____

2) **Utility Protection Services (Minimum 48 Hrs. Advance Notice, State Specific Notification Period Supercedes)**
Called: Date _____ **Time** _____ **Initials** _____
Reference # _____
Proposed Drilling Locations Premarked for Locating Service. **Y / N**

3) **Private or In-House Utility Locating Service Performed?** **Y / N** _____
Called: Date _____ **Time** _____ **Initials** _____
Name of Locating Service: _____
Telephone #/ contact: _____
Name of Supplier Locating Technician: _____
Type of sensing equipment used: _____
Proposed Drilling Locations Premarked **Y / N**

4) **Other Potential Underground Structures**
Name of City Engineer/Utility Representative: _____
Telephone #: _____
Date Notified _____ **Maps:** **Y / N**
Cleared: **Y / N**

5) **COMPLETED SITE WALKOVER W/ SITE MANAGER/DESIGNEE OR OWNER/TENANT REP.** **Y / N**
Name of Site Manager: _____
Name of Property Owner/Tenant Representative: _____
Cleared: **Yes / No**
Building Utility Service Line Connections Identified: **Y / N**
(Hand sketch on site map w/proposed boring locations and most likely utility trench locations)

6) **Utility Inventory:** **Y / N**

Utility	Name	Depth (ft) (If Available)	Phone	Notified - Date	Marked
Above Ground Services					
Electric		NA		Y / N	Y / N
Telephone		NA		Y / N	Y / N
Cable		NA		Y / N	Y / N
Overhead Supports		NA		Y / N	Y / N
Traffic light cables		NA		Y / N	Y / N

PREDRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELDWORK

6) Utility Inventory Continued:

Below Ground Services:

Electric				Y / N		Y / N
Telephone				Y / N		Y / N
Cable				Y / N		Y / N
Gas				Y / N		Y / N
Water				Y / N		Y / N
UST System				Y / N		Y / N
Storm				Y / N		Y / N
Sanitary				Y / N		Y / N
Steam				Y / N		Y / N
Pipeline Companies				Y / N		Y / N

Other:

				Y / N		Y / N
				Y / N		Y / N
				Y / N		Y / N

7) Site-Specific Emergency Contingency Plan Incorporated in Health & Safety Plan Y / N

8) Drilling Locations Approved by Client Project Manager Named Above? Y / N

9) Signature of Parsons' Project Mgr. (required to begin fieldwork):

Name of Project Manager	**Signature of Project Manager**
Name of Parsons Field Personnel	**Signature of Field Personnel**

(This document to be included with the site H&S Plan and should be available upon request.)

ADDITIONAL COMMENTS / NOTES:

ATTACHMENT B
UTILITY CLEARANCE VARIANCE REQUEST FORM

PARSONS

UTILITY CLEARANCE VARIANCE REQUEST

To: Enter Parsons Manager (Program, Sector or Operations)

From:

Client Company Name:

Site/Project Name:

Date of Request:

Work Start Date:

The purpose of this document is to request a variance from one or more of the PE&I Mandatory Subsurface Soil Disturbance Protocol requirements. The purpose of the mandatory protocol is to prevent potential injury and/or loss of life; and damage to subsurface utilities and structures during any soil disturbance. Any waiver of these requirements should be carefully evaluated.

Variance from the Subsurface Soil Disturbance Protocol is allowed only with the written approval of the appropriate Parsons' Program/Sector/Operations Manager. GBU/Divisional/Program safety resources should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action.

Brief Project Description

Insert a brief background and description of the intrusive activities, which are the reason(s) for requesting a variance.

Utility Clearance Requirements

Step No.	Requirement	Step Completed[1]
Prep-1	Obtain as-built drawings and/or existing site plans if available and review for on-site utilities.	☐ Yes ☐ No

[1]Any "No" response must include the rationale for not completing the step at the end of the Variance Request form.

Step No.	Requirement	Step Completed[1]
Prep-2	Utility mark-out requested through the nationwide utility locating one-call system (www.call811.com) for the work site.	☐ Yes ☐ No
Prep-3	Review the Subsurface Soil Disturbance protocol with all PE&I technical staff that will potentially be involved in projects that include subsurface investigation.	☐ Yes ☐ No
Pre Mob-1	Notify affected parties at least 48-hours (longer if possible) in advance of planned intrusive fieldwork.	☐ Yes ☐ No
Pre Mob-2	Prepare a Project Safety, Health and Environmental Plan (PSHEP) that includes a copy of the Subsurface Soil Disturbance protocol.	☐ Yes ☐ No
Pre Mob-3	Select a competent Parsons' on-site representative to oversee all surface removal, hand augering/digging, drilling, and test pitting.	☐ Yes ☐ No
Site [2] Visit-1	Perform a site visit and identify indications of underground utilities. Indications could include [3]: ➢ Area lights ➢ Phones ➢ Drain lines ➢ Overhead lines ➢ Fire hydrants ➢ Fiber optic cable signage ➢ Catch basins ➢ Manholes ➢ Junction boxes ➢ Natural gas	☐ Yes ☐ No

[1] Any "No" response must include the rationale for not completing the step at the end of the Variance Request form.

[2] Site visit activities must be included with mobilization activities if a Site visit is not performed prior to mobilization for the field work.

[3] Note that list is not all inclusive.

Step No.	Requirement	Step Completed[1]
	➢ Observe paving scars such as areas of new pavement or saw cuts	
Site Visit-2	Prepare a vicinity map of the proposed work area to include significant features and utilities. The site visit should be scheduled concurrent with, or soon after the utility mark-out.	☐ Yes ☐ No
Site Visit-3	Interview someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.).	☐ Yes ☐ No
Site Visit-4	Establish pre-drilling critical zones appropriate to the project site	☐ Yes ☐ No
Site Visit-4	Review Selected Locations with the Client	☐ Yes ☐ No
Field Work-1	Review site utility maps against each proposed work activity. Check for legibility, accuracy, and scale while walking areas of concern. Evaluate the work area for any items in Site Visit-1 that may have been missed.	☐ Yes ☐ No
Field Work-2	Obtain all necessary permits and utility from the facility.	☐ Yes ☐ No
Field Work-3	Remove any surface paving or surface cover allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools.	☐ Yes ☐ No
Field Work-4	Non-Invasive Clearing: Clear a minimum of a five foot radius for each proposed intrusive activity. Locations will be cleared using results of historical data research and with geophysical methods. Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work.	☐ Yes ☐ No
Field Work-5	Invasive Clearing: Delineate the subsurface at the borehole location by probing or digging. Dimensions of the intrusive method must exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and	☐ Yes ☐ No

Step No.	Requirement	Step Completed[1]
	sufficiently large to allow for visual inspection of any obstructions encountered. Approved methods could include the following: ➢ Vacuum Extraction (Air Knifing, SoftDig®) ➢ Probing ➢ Hand Digging ➢ Hand Augering ➢ Post Hole Digging	

Rationale

Below, identify the step or steps the variance is being requested for and an explanation of why the waiver is necessary and/or justified.

Step No.	Rationale for Variance Request

Approvals

	Name	**Date**
Parsons Manager (Program, Sector, or Operations)		

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]

[redacted]

[redacted] ed [redacted]

[redacted]

[redacted]

- [redacted]
- [redacted] number;

[redacted]

Submitted to:

Chain Of Custody / Analysis Request

AESI Ref:

COC # :

Lab Use Only

Lab Proj #

Lab ID

Job No.

Privileged & Confidential

EDD To:

Site Name:

Location of Site:

Client Contact: (name, co., address)

Sampler:

P O #

Analysis Turnaround Time:

Standard -

2 weeks -

1 week -

Next Day -

Hardcopy Report To:

Invoice To:

Preservative

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	MS/MSD	Field Filtered Sample ?	Units	0	0	2												
	Sample Identification																												
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

Special Instructions:
Samples will be held at the Parsons field office following sample collection, and may be submitted under chain of custody for analytical testing at a later date.

Notes:

Sample Collected/Held by	Company			Company		Condition	Custody Seals Intact
	Date/Time			Date/Time		Cooler Temp.	
Transferred to Archived by	Company			Company		Condition	Custody Seals Intact
	Date/Time			Date/Time		Cooler Temp.	

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):

ATTACHMENT 5 STANDARD OPERATING PROCEDURE FOR DETERMINING THE MEAN HIGH-WATER MARK

STANDARD OPERATING PROCEDURE FOR DETERMINING THE MEAN HIGH-WATER MARK AT CITY OF CORNING FIRE DEPARTMENT

CORNING, STEUBEN COUNTY, NEW YORK

Prepared For:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway 12th Floor
Albany, New York 12233 – 7012

Prepared By:

301 Plainfield Road
Suite 350
Syracuse, New York 13212

OCTOBER 2022

STANDARD OPERATING PROCEDURE FOR DETERMINING THE MEAN HIGH-WATER LINE AT CITY OF CORNING FIRE DEPARTMENT

1.0 Introduction

This procedure specifies an approach for confirming or refining the mean high-water mark, (MHWM) at City of Corning Fire Department in Corning, New York. New York State Regulation 6 CRR-NY 608.1(r) states that the MHWM "distinguishes between predominantly aquatic and predominantly terrestrial habitat." The regulation also states that this distinction is to be made considering the following information:

1. Available hydrologic data
2. Vegetative characteristics
3. Physical characteristics
4. Other information or methods appropriate for the surrounding area

This procedure provides a means for differentiating between soil and sediment areas within the Site for sediment sampling and site characterization purposes in accordance with 6 NYCRR Part 608.1

2.0 Surface Water Hydrology and the MHWL

The Site lies within the Chemung River catchment, which is part of the larger Susquehanna River regional watershed. The Chemung River originates upstream of Corning, at the confluence of the Tioga and Cohocton rivers and flows east adjacent of the Site. The Chemung River is a tributary of the Susquehanna River, is approximately 46.4 miles (74.7 km) in length, and has a drainage area of approximately 2,006 square miles. The Chemung River is formed near Painted Post in Steuben County, just west of Corning by the confluence of the Tioga and Cohocton rivers.

As part of the Susquehanna River watershed, the flow in the Chemung River is monitored at the Corning USGS gaging station number 01529950, which is situated at 42.1464, -77.0575. Over a 20-year period of monitoring, average daily flows range from a minimum of 115 cubic feet per second (cfs) on July 24, 2016 to 35,800 cfs on October 30, 2021.

A hydrologically-derived site-specific mean high-water line, or level, (MHWL) was calculated by taking the mean of annual peak streamflow data from USGS gaging station 01529950. Gaging data from water years 2001 through 2021 were used to establish a mean gage height of 23 feet above the gage datum, which has an established elevation of 899.46 feet above North American Vertical Datum of 1988 (NAVD88). This results in a mean peak streamflow elevation, or MHWL, of 922 feet above NAVD88. The referenced data and calculated values are presented in Table 2 of the *City of Corning Fire Department Site Characterization Work Plan*.

3.0 Mean High-Water Mark Survey

An on-site survey will be performed to confirm or refine the hydrologically-derived, or baseline, MHWL calculated in Section 2.0. The goal of the MHWM survey is to distinguish between predominantly terrestrial and predominantly aquatic habitats for the purpose of determining the areal extent of sediment areas at the Site. Vegetative and physical evidence may be used to adjust the MHWL up or down as needed. The baseline MHWL will form the lowest acceptable elevation, with observations from the MHWM survey being applied to raise the MHWL, if necessary.

The on-site MHWM survey will consist of a visual inspection of survey plots situated along the staked-out baseline MHWL elevation of 922 feet above NAVD88. Any observations of vegetative characteristics, physical characteristics, or both that indicate the transition from terrestrial to aquatic habitat is located above the survey baseline elevation will be staked-out in the field and surveyed via GPS. These staked-out points will be used to refine the baseline MHWL and establish a site-specific MHWL elevation.

3.1 TECHNICAL BASIS

The MHWM survey will be performed to evaluate terrestrial and aquatic vegetation consistent with 6 NYCRR 608.1(r), and as described in Section 3.2, to confirm or refine the MHWL. Along with recording observations of physical characteristics of the shoreline, an evaluation of vegetative cover will be used to distinguish conditions most representative of Site soil present in terrestrial habitat, versus sediment present in aquatic habitat.

The goal of the survey is to distinguish between "soil" and "sediment" for the purpose of confirming or refining a site-specific MHWL. This MHWL will be used to establish a boundary condition for the areal extent of sediment at the site, which will then be used to calculate the appropriate number of sediment samples required to for site characterization.

The survey approach is designed to identify habitat conditions that may have the potential to sustain aquatic habitat as a means of distinguishing between soil and sediment areas. While areas containing water during periodic inundation may support certain benthic species for short durations, sustained maintenance of established and diverse benthic communities requires the consistent presence of aquatic habitat (i.e., regular presence of water). Many benthic organisms are sessile (e.g., bivalves) or largely limited in mobility (e.g., larval arthropods, gastropods, aquatic oligochaetes). In order to survive and reproduce on a long-term basis (e.g., year after year), benthic species in these communities require the continual presence of water. The biological survey approach therefore considers the presence of aquatic vegetation requiring the continual presence of water as a surrogate for aquatic habitat conditions required for maintaining benthic communities.

3.2 METHODS

The survey includes the identification of plant communities using the vegetation classification methods described in NYSDEC's Freshwater Wetlands Delineation Manual (referred to as "Manual") (NYSDEC 1995). While use of the vegetation classification methods from the Manual is proposed, this survey is not intended as a wetland delineation. The plant types listed below are used as defined in the U.S. Army Corps of Engineers (USACE) National Wetlands Plant List (USACE, 2012).

The survey will be performed when the Chemung River stage is below 20 feet, as read on the USGS gage referenced above, such that water level is not prohibitive of completion of the survey. The biological components of the survey will be performed by a qualified Parsons field biologist, who may be accompanied by NYSDEC in the interest of reaching consensus of survey results in the field.

The following steps will be followed when performing a MHWM survey:

1. First, the baseline MHWL will be mapped by obtaining GPS coordinates along the line for use as waypoints. This boundary and will be uploaded to a hand-held GPS unit with sub-meter accuracy for use in the field.
2. Using the hand-held GPS units, a qualified field biologist will flag the baseline MHWL along the site at 922 feet above NAVD88.
3. Due to regular maintenance, mowing, and seeding vegetative communities will likely not be a reliable indicator of MHWM at the Site. However, if the qualified field biologist encounters communities with substantial facultative wet (FACW) species present, or observes a transition from FACW to facultative upland (FACU) species above the baseline MHWL, the MHWL will be adjusted upward to include these areas.
4. If the distinction between sediment and soil based purely on vegetation types is inconclusive the field biologist will consider physical characteristics such as:
    a) The presence of a clear, natural line impressed on the bank, or shelving
    b) Changes in the character of soil,
    c) The presence of litter and debris,
    d) Destruction of terrestrial vegetation

The refined MHWL will be finalized at the completion of the MHWM survey, and a report of findings submitted for concurrence from the NYSDEC. An appendix to the City of Corning Fire Department Site Characterization Report will include the supporting information to the finalization of the MHWL, including field notes and photographs.

4.0 References

NYSDEC. 2014. Screening and Assessment of Contaminated Sediment. Division of Fish, Wildlife and Marine Resources, Bureau of Habitat. June 24. http://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf

NYSDEC. 2010. DER-10 / Technical Guidance for Site Investigation and Remediation. DEC Program Policy. New York State Department of Environmental Conservation, Division of Environmental Remediation. Issued May 3, 2010. Errata issued November 7, 2017.

NYSDEC. 1995. Freshwater Wetlands Delineation Manual. July.
http://www.dec.ny.gov/docs/wildlife_pdf/wdelman.pdf

USACE. 2012. National Wetland Plant List – Fact Sheet. Headquarters – Regulatory Community of Practice.
https://www.lrl.usace.army.mil/Portals/64/docs/regulatory/Wetlands/WetlandPlantListFactSheet.pdf

USGS. 1995. Field Methods for Vegetation Mapping. USGS/NPS Vegetation Mapping Program. December.
https://www1.usgs.gov/vip/standards/fieldmethodsrpt.pdf

USGS. 2018. USGS 01529950 Chemung River at Corning, NY. Provisional data subject to revision. Available at: https://waterdata.usgs.gov/nwis/uv?site_no=01529950 U.S. Geological Survey, National Water Information System.