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Interim Remedial Measure Work Plan
NYSDEC Site #932054

Former Nash Road Landfill
Wheatfield, New York

Prepared for: Glenn Springs Holdings, Inc.

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August 2014 • 085121 • Report No. 2

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Section 1.0 Introduction

This Work Plan (WP) outlines the Interim Remedial Measure (IRM) selected to address the presence of soils impacted by industrial waste located in the northeast portion of the Nash Road Landfill.

1.1 Site Description

The Nash Road Landfill (Site) is located in the Town of Wheatfield in Niagara County, New York. It is situated immediately north of the City of North Tonawanda city limits and east of Nash Road. A Site location plan is presented on Figure 1.1. An aerial photograph of the Site and its surrounding area is presented as Figure 1.2.

The Site is a rectangular-shaped property encompassing approximately 20 acres. The Site is wooded with mature trees and heavy brush and contains areas of seasonally-influenced ponded water. Current access to the Site is not provided by any immediately identifiable means; however, historic access to the Site for disposal activities occurred along a haul road that was constructed from Nash Road, located west of the Site. The Site is bordered to the north by the Holy Infant Shrine, to the east by a cemetery and a property that contains a motel and livery service, to the south by utility right-of-ways (overhead electric and underground natural gas and brine pipelines) and residences, and to the west by undeveloped land and Nash Road. Figures 1.2, 1.3, and 1.4 show the existing Site conditions, and Figure 1.2 outlines the general Work Area. The Work Area includes all areas that could be potentially impacted by the remedial activities and the access route.

The Nash Road Landfill was operated by the Niagara Sanitation Company between 1964 and 1968 for disposal of municipal and industrial wastes. New York State Department of Environmental Conservation (NYSDEC) records show that the Site was used for the disposal of industrial and municipal wastes by the Niagara Falls Air Force Base, Bell Aerospace, Carborundum Corporation, Frontier Chemical, Graphite Specialties, Continental Can, and Grief Brothers, as well as local municipalities. The Site was assigned NYSDEC Site No. 932054.

Historical records also indicate that the New York State Department of Transportation (NYSDOT) utilized the Site for the disposal of approximately 1,600 cubic yards of material excavated during a sewer relocation project along Frontier Avenue in Niagara Falls, New York, as part of the LaSalle Expressway construction in 1968. The historical records indicate that the 1,600 cubic yards of excavated materials disposed at the Site potentially contained as much as 1,000 cubic yards of industrial wastes associated with the Love Canal Landfill. According to the available documents, the excavated materials were placed into a trench at the northeast end of the Site that was excavated into underlying clay and then covered with soil. Waste disposal activities at the Site ended in 1968.

1.2 Historical Site Investigations

The following Site investigations were conducted at the Site:

- A Phase II Investigation conducted by Engineering-Science (ES) and reported on July 1, 1985 (ES, 1985)
- A Supplemental Phase II Investigation conducted by ES and reported in September 1989 (ES, 1989)
- A Supplemental Site Characterization conducted by Groundwater & Environmental Services, Inc. (GES) and reported on November 12, 2013 (GES, 2013)
- A Supplemental Site Characterization conducted by GES and reported on May 2014 (GES, 2014)

The investigations involved a series of data collection events that were conducted to characterize surface water, groundwater, surface soils, sediments, and subsurface soils at the Site. While the 1985 Phase II investigation was conducted across the Site, the investigations performed in 1989 and 2013 focused on the northeast portion of the Site where the industrial waste disposed of by the NYSDOT during the Frontier Avenue construction project were placed. Locations of soil borings, monitoring wells, and other samples collected during the investigations are shown on Figure 1.3. A copy of the Supplemental Site Characterization Report (GES, 2013) is provided in Appendix A.

The Site investigations indicated the presence of a dark non-aqueous phase liquid (NAPL) as well as contaminated soil and groundwater in the area where the industrial wastes were placed. Several of the chemicals identified during the investigations appear to be consistent with chemicals that are present in the industrial waste contained in the Love Canal landfill. The concentrations of these chemicals are greatly reduced or not detected at the perimeter of area where the soil from the NYSDOT's Frontier Avenue construction project were supposedly placed, thereby indicating the impacts from the waste soils to the Site are limited to the general area where the wastes were reported to have been placed.

1.3 Site Geology and Hydrogeology

As described in the Supplemental Site Characterization Report (GES, 2013), the Site geology consists of five lithological units over dolostone bedrock. The units, in order of their depth below grade, consist of:

- Fill
- A shallow upper sand lens
- A clay layer
- A lower sand lens
- Glacial till overlying the bedrock

The Site hydrogeology consists of three water bearing zones:

- A shallow zone located in the fill and shallow sand lens, likely containing perched groundwater
- An intermediate zone located in the lower sand lens
- A deeper zone located within the glacial till

More detailed descriptions of the geology identified during the investigations are provided in the GES Supplemental Site Characterization Report attached in Appendix A.

In general, the industrial wastes in the area of interest are located within 10 to 12 feet of the existing ground surface, on top of the clay layer, and within the shallow water bearing zone.

1.4 Purpose and Scope of the IRM

The purpose of the IRM WP described herein is to remove the industrial wastes suspected of being associated with road construction activities completed by the NYSDOT during the construction of the LaSalle Expressway along the former Love Canal landfill. The investigations performed at the Site indicate that the current environmental impacts are limited to the general area where the industrial wastes were originally placed. As such, the proposed IRM will prevent potential impacts to human health and the environment from occurring in the future through the removal of this waste from the site. The goal of this remedy is to remove the waste to the extent that the remaining soil meets the commercial soil cleanup objectives (SCOs) as defined in 6 NYCRR Part 375-6.8(a).

This WP presents the scope of work for the IRM that will be implemented to remove the impacted soil wastes from the Site and restore the disturbed portion of the Site to comparable pre-excavation conditions. The work activities associated with the IRM, at a minimum, include project management, health and safety coordination and monitoring, permitting, contractor procurement and oversight, Site preparation, excavation, dewatering, transportation and disposal of waste and wastewater, backfilling, and Site restoration. Any modifications or

deviations to the approved WP will be presented to NYSDEC for review and approval prior to implementation.

Section 2.0 Project Management

2.1 Project Organization

The project management team will consist of representatives from Glenn Springs Holdings, Inc. (GSH), Conestoga-Rovers & Associates (CRA), and CRA subcontractors working with the NYSDEC and the community to ensure the safe and successful implementation of the IRM. The organizational chart for the project is presented on Figure 2.1 and includes the following project team members:

- **GSH Project Manager -** Mr. Clint Babcock will be responsible for the overall project direction and project coordination with NYSDEC representatives
- **CRA Project Manager** – Mr. Dennis Hoyt will be the Engineer and Project Manager responsible for the engineering, design, and implementation of the IRM and coordination of the overall health and safety components of the project
- **CRA Professional Engineer** – Mr. Robert Adams will be the Professional Engineer for the project
- **CRA Regional Safety Manager** – Mr. Craig Gebhardt will be responsible for overall health and safety for the project
- **CRA Construction Manager** – To Be Determined (TBD): this person will be responsible for ensuring that the field work is performed in accordance with the approved work plans and project specifications
- **Remedial Contractor** – TBD: the remedial contractor will be responsible for implementing the field portion of the IRM
- **CRA and Remedial Contractor Site Safety Officer –** TBD: the CRA Site Safety Officer will be responsible for the day-to-day health and safety at the work site as well as implementing the community air monitoring program
- **Waste Transportation and Disposal Contractor** – TBD: this entity will be responsible for the transportation and disposal of the excavated waste and wastewater
- **Analytical Laboratory** – TBD: the analytical laboratory will be NYSDOH-Environmental Laboratory Approval Program (ELAP) certified and will be responsible for analyzing all environmental samples collected during the IRM

2.2 Community Relations

A Citizen Participation Plan (CPP) has been prepared for the Site. The CPP, provided as Appendix B, presents the planned citizen participation activities for the project and the NYSDEC and New York State Department of Health (NYSDOH) personnel that concerned citizens can contact with any questions or concerns. The CPP also includes a section of Frequently Asked Questions (FAQs) with answers.

2.3 Health and Safety

A Site-specific Health and Safety Plan (HASP) applicable to the IRM work activities is attached as Appendix C. The HASP has been developed to help ensure that work activities are performed safely and in accordance with applicable regulatory requirements. The HASP will also help to ensure that Site personnel, the general public, and the environment are protected from exposure to Site-related materials during implementation of the IRM. Specifically, the HASP includes a Community Air Monitoring Plan (CAMP) prepared in accordance with the NYSDOH generic community air monitoring plan for chemical and particulate monitoring.

The HASP will be reviewed and updated regularly during the project to address any new work activities as well as changing Site conditions.

CRA personnel working at the Site will be required to comply with the requirements of the attached CRA HASP. The Remedial Contractor and other subcontractors will be required to develop, implement, and maintain their own Site-specific HASP for the activities they will perform at the Site. The contractors' HASPs will be required to meet at a minimum, the requirements and components outlined in the CRA HASP.

The HASP will define the various contamination control zones that will be maintained to prevent the spread of contamination and to prevent unauthorized people from entering impacted areas. These areas will include an Exclusion Zone (EZ), a Contaminant Reduction Zone (CRZ), and a Support Zone (SZ). The EZ is the specific area where excavation activities will be conducted. The EZ will be bounded by sheet pile cutoff walls, as described in Section 5.1 and presented on Figure 4.2. The CRZ is a transition area and will be established to perform decontamination of personnel and equipment and to provide a buffer zone around the EZ. The CRZ will include a decontamination facility as presented on Figure 4.2. The CRZ will be demarcated by snow fencing to allow for the area to be changed in response to work activities and the footprint of the excavation area. The SZ is a clean area outside of the CRZ located to prevent project personnel from exposure to impacted materials. The SZ will be located south of the EZ, and will include the access road and project trailers.

2.4 Project Schedule

A proposed schedule for the project is presented on Figure 2.2. The schedule is based on the following assumptions:

- The IRM WP will be approved quickly by NYSDEC to allow the field construction work to be competitively bid and awarded to a remedial contractor by September 2014. This will allow the excavation and backfill work to be completed before the end of 2014.
- The United States Army Corp of Engineers (USACE) Jurisdictional Determination (JD) and Nationwide Permit 38 (NP-38) and the New York State Department of Environmental Conservation Section 401 Individual Water Quality Certification (WCS), if required, can be obtained on or before September/October 2014.
- Approximately 1,600 cubic yards of industrial waste will be removed from the Site for disposal at an approved permitted landfill or destroyed at a permitted incinerator.

Section 3.0 Pre-Mobilization Tasks

3.1 Wetlands Delineation and Permit

Wetlands Delineation

Certain areas of the Site are shown on the United States Fish and Wildlife Service (USFWS) National Wetland Inventory Map (NWI Map) as Freshwater Forested/Shrub Wetland. These areas are shown on Figures 1.3 and 1.4. The NWI Maps are not necessarily reliable for delineating the extent of wetlands or for determining whether they are Federal jurisdictional wetlands. As such, an investigation will be performed to delineate the wetland and obtain a JD from the USACE.

CRA personnel trained in the delineation of wetlands will delineate the extent of wetlands and other water bodies within the Work Area on the Nash Road Landfill Site. Wetlands will be delineated in accordance with USACE 1987 *Wetland Delineation Manual* and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region* (Version 2.0) methods. In accordance with these methods, wetlands will be delineated on the Site based on three parameters: the dominance of hydrophytic vegetation, the presence of hydric soil, and the positive evidence of wetland hydrology. Wetland and water body boundaries will be marked in the field with numbered surveyor's ribbon and/or stick flags. The locations of the wetland flags will be surveyed and added to the existing base map of the Site.

A Wetland Delineation Report will be prepared documenting the methodology and results of the wetlands investigation. The delineation report will include descriptions of the area to be remediated including wetland and upland areas. Formal documentation will be collected at data points along transects using the Wetland Determination Data Form provided in the USACE Regional Supplement. Color photographs will also be taken as documentation for the wetland delineation.

An application to the USACE, Buffalo District, will be prepared for a JD to verify the wetland boundaries and to determine if the wetlands are jurisdictional wetlands under Section 404 of the Clean Water Act.

The JD application will include the JD request forms, and CRA will accompany the USACE on their field inspection of the delineated wetland boundaries if required.

Permitting

In order to achieve the remedial goals established for the Site, a USACE NP-38 and a NYSDEC Section 401 Individual WQC may be required. If required, a joint application to the USACE and NYSDEC will be prepared for the IRM outlined in this WP. The joint application will include the following components:

- Nationwide Permit Application Checklist
- Project Location and Description
- Wetland Delineation Report
- Written Statement describing measures to avoid impacts to aquatic resources, avoid/minimize discharge to wetlands or waters of the United States, compensation for impacts to wetlands or waters of the United States (if required), and compliance with applicable nationwide permit general and regional conditions
- Agency coordination (USFWS, NYSDEC, State Historic Preservation Office [SHPO], etc.)
- Copies of previous Federal or State approvals or permits (if any)
- Copies of Site Plans (existing conditions plan, remediation plans, etc.)
- A request for an Individual Section 401 Individual WQC from the NYSDEC. CRA will coordinate with the NYSDEC to obtain the Section 401 WQC for the project
- Documentation that the project is being conducted under an approved RA WP
- Mitigation Plan (if required)

3.2 Property and Topographic Survey

A property boundary survey will be performed to locate and stake the access roadway and the eastern property line of the landfill to ensure that work activities at the Site do not encroach upon adjacent private properties as well as to define the property for the wetland delineation.

A topographic field survey will be performed upon completion of grubbing and clearing activities to develop a Site topographical survey. The topographical survey will determine ground surface elevations on the Site within the Work Area, with focus on wetland areas within the excavation zone and areas where existing soil cover will be graded or otherwise altered to accommodate IRM activities. The survey will be conducted upon completion of clearing and grubbing activities, which are discussed in Section 4.2. The data will be used to determine preexisting lines and grades for Site restoration purposes.

3.3 Stormwater Construction Permit

The project will be subject to the NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction GP-0-10-001 (Construction General Permit). This permit is in force during field activities and for some period of time after field activities are complete, until the requirements of the permit have been fully met and the permittee has submitted a Notice of Termination (NOT).

The initial step in obtaining coverage under the Construction General Permit is the preparation of a Construction Stormwater Pollution Prevention Plan (Construction SWPPP). The Construction SWPPP will be prepared by CRA and will include the stormwater management practices to be followed during field activities, including practices consistent with the New York State Standards and Specifications for Erosion and Sediment Control.

Upon completion of the Construction SWPPP, a Notice of Intent (NOI) to discharge stormwater will be prepared and submitted to the NYSDEC and the Town of Wheatfield engineer for approval. Once the Construction SWPPP is in place and the NOI has been submitted, permit coverage is effective within 5 days of the NYSDEC's receipt of the NOI.

3.4 Contractor Procurement

Upon NYSDEC approval of the IRM WP, GSH will procure the services of the following contractors to assist with the implementation of the IRM:

- Remedial construction contractor
- Waste transportation and disposal contractor
- Analytical laboratory

If necessary, other contractors may be contracted to perform miscellaneous services associated with the IRM. All contractors will be qualified and experienced in the work they are contracted to perform.

Section 4.0 Site Preparation Tasks

4.1 Utility Locates

A private utility locator will be hired to identify and mark out utilities within the property. The 2013 GES Supplemental Site Characterization Report identifies the presence of a natural gas line and overhead electric lines along the southern end of the Site, in addition to a "brine line" in the report narrative. The presence and locations of these utilities will be confirmed and marked along with any other utilities that may exist on the property. The approximate locations of the natural gas line and the overhead electric lines as reported by GES are indicated on Figures 1.3 and 1.4. The brine line is purportedly located along the southern property line and within the overhead electric lines right-of-way (ROW).

4.2 Clearing and Grubbing

The Site is relatively overgrown with trees and vegetation and will require clearing and grubbing in those areas associated with the access road and the area to be excavated. Mulched vegetation will be placed as biomass and spread across available areas outside the operations and access road areas. Mulch could also be used as a cover to reestablish vegetative growth on the excavation areas after remediation has been completed.

4.3 Fencing

An 8-foot high temporary chain link fence will be installed along the perimeter of the entire Work Area as a means of Site control, public safety, and to discourage trespassers since the Site has been historically documented as being frequented by local residents for recreational purposes. The fence will be installed as shown on Figures 4.1 and 4.2. A locking gate will be installed at the entrance. The gate will be locked when the Site is unattended. Additionally, the area subjected to excavation activities, located within the perimeter chain link fence, will be completely enclosed using a temporary snow fence. The temporary fence will remain in place and will be secured at the end of each day.

Signs will be placed on the temporary chain link fence along Nash Road, along any fence line areas where the fence intersects a foot trail or recreational vehicle trail. The sign placement or spacing will not exceed 100 feet. The signs will also be placed on all snow fences. The signs will bear the legend "Keep Out - Authorized Personal Only." These signs will be legible from at least a distance of 50 feet and will be visible from all approaches to the excavation area.

Any changes to the proposed fencing plan will be discussed with the NYSDEC. The fencing and signage will be inspected at the beginning of each workday, and any necessary repairs will be performed immediately.

4.4 Monitoring Well Decommissioning

Groundwater monitoring wells are located within the operations and excavation areas. Depending on location and depth, the monitoring wells will either be decommissioned in accordance with NYSDEC CP-43/Groundwater Monitoring Well Decommissioning Policy (November 2009) or removed during excavation.

Table 4.1 provides information regarding the monitoring wells located in the operations area. The locations of the monitoring wells are presented on Figure 4.2. Monitoring wells located within the excavation area and less than 15 feet deep will be removed during the excavation work. These include OW-11, OW-22, OW-23, and OW-25. Monitoring wells deeper than 15 feet will be decommissioned prior to excavation. These include OW-12 and OW-24. Monitoring well OW-3 (located within the SZ) is 55 feet deep. Measures will be taken to protect monitoring well OW-3 from damage. Monitoring wells that are decommissioned or removed as part of the IRM will not be replaced as part of the project.

4.5 Access Roads

Access roads and the operations area will be constructed on Site in the locations shown on Figures 4.1 and 4.2 and as required during excavation activities to allow for vehicle access into the Site and to the support and material loading areas. The access roads are intended to provide a stable base for heavy machinery operation and will be constructed of compacted #2 size run of crusher stone and/or crushed recycled asphalt to reduce the potential for dust generation. A typical access road construction detail is provided as Figure 4.3.

As shown on Figures 4.1 and 4.2, a 24-inch natural gas line owned by Iroquois Gas Corporation (Iroquois) intersects the proposed access road west of the SZ. CRA will coordinate with Iroquois regarding vehicles crossing over the gas line. CRA recommends installing a temporary bridge with a span ranging between 40 to 60 feet and a 45-ton capacity over the natural gas line where the access road intersects the gas line.

Signage will be posted on access roads indicating a maximum speed of 10 miles per hour (mph). This speed limit shall be strictly enforced for all personnel entering and leaving the Site.

The access roads will be inspected daily and maintained and repaired immediately.

4.6 Vehicle and Equipment Decontamination Facility

A vehicle and equipment decontamination facility will be constructed at a location practical to the excavation area. The decontamination facility will be constructed in a manner to collect and contain all wash water. All wash water will be collected and pumped from the decontamination facility to on-Site temporary wastewater storage tank(s) for pretreatment through activated carbon prior to disposal off Site.

The decontamination facility will be inspected daily and maintained and repaired immediately.

4.7 Personnel Support and Hygiene Facilities

At the commencement of the project, all personnel support and hygiene facilities as specified in the HASP will be mobilized to the Site. Facilities to be established at the Site should include at a minimum the following:

i) Personnel hygiene facility/emergency medical facility

ii) Administrative/break trailer

iii) Storage container(s) for personnel equipment

iv) Potable water tanks

v) Separate tanks for wastewater

The above facilities will be located on Site in the approximate locations indicated on Figure 4.2.

Additionally, a temporary personnel decontamination facility will be installed on the Site and will be located within the CRZ. The CRZ will be located along the south end of the EZ, acting as a border between the EZ and the SZ. The proposed layout of the decontamination facility in relation to the EZ and the SZ is presented on Figure 4.2. Appropriate signage will be placed at the entrance to the CRZ to identify personal protective equipment (PPE) requirements prior to personnel entering the EZ from the CRZ. The CRZ will be equipped with all PPE and wash station equipment required to satisfy the requirements of the HASP related to personnel decontamination requirements.

Personnel support and hygiene facilities will be inspected daily and maintained and repaired immediately.

4.8 Construction Utilities

Construction utilities will be provided with the use of portable diesel-fueled generators. Electricity will be provided to the Site operations trailer, the CRZ (personnel decontamination facility), and to other temporary or mobile equipment (e.g., portable spraying equipment, emergency lighting). Generators will be staged and used within the SZ and oriented as practical to ensure diesel exhaust is not upwind of active personnel areas.

Telephone communication will be restricted to the use of mobile phones. Internet service will not be available unless individual laptop users provide their own wireless broadband modems (air cards).

Potable water will be provided in portable containers (water bottles for personal consumption, larger containers, and manual dispensing units for personnel washing and decontamination).

Construction utilities will be inspected daily and maintained and repaired immediately. All construction utilities (generators, potable water, etc.) will be staged within the temporary fencing as described in Section 4.3. The fencing will be kept locked at all times when the Site is unattended.

Section 5.0 IRM Tasks

5.1 Installation of Sheet Pile Cutoff Walls

Prior to initiation of subsequent IRM tasks (dewatering of excavation area, excavation of waste, etc.), the excavation area will be isolated with the installation of sheet pile cutoff walls. The purpose of the sheet pile cutoff walls is to encompass the excavation area to prevent groundwater infiltration and allow for dewatering of the excavation area without further intrusion of groundwater or surface waters. Dewatering of the excavation is described in Section 5.2. The locations of the sheet pile cutoff walls are based on the extent of suspected waste material determined by historic investigation activities on the Site.

The approximate locations for the sheet pile cutoff walls are shown on Figures 4.1 and 4.2. The sheet pile walls will be installed outside the suspected waste disposal area with an additional buffer area to allow for adequate excavation, sidewall shoring, sloping, or benching in accordance with Occupational Safety and Health Administration (OSHA) trenching requirements

(Section 5.3). The dimensions of the sheet pile cutoff wall area are estimated to be approximately 186 feet by 220 feet or approximately 812 linear feet.

The entire area within the sheet pile enclosure will be considered to be the EZ. All personnel and equipment entering, exiting, and working within this area are subject to the procedures for operating within the EZ as outlined in the HASP.

Sheet piles will be installed in sections using heavy equipment (i.e., tracked hydraulic excavator) with a vibratory pile drive hammer or air pile hammer attachment, or equivalent. Stratigraphy logs indicate the confining native clay is approximately 10 to 15 feet below ground surface in the area of historic boreholes SB-B, SB-H, SB-J, and SB-M, which are located near the northeast corner of the excavation area. Sheet piles will be constructed of a steel, composite, or equivalent material and installed to a maximum depth of 15 feet below ground surface, plus an additional 4 feet to "key" into the native clay layer that exists below the fill material (total depth below ground surface is approximately 19 feet). The sheet piling will extend approximately 4 feet above ground surface as a barrier to surface water intrusion. The joints of the sheet pile will be fitted with a watertight gasket to prevent water infiltration.

Any accumulation of water within the EZ encompassed by the sheet pile cutoff walls will be subject to collection, characterization, storage, and disposal in accordance with Section 7.3.

Following completion of the IRM tasks and during the facilities removal phase (Section 7.5), the sheet pile cutoff walls will be extracted and removed from the Site.

5.2 Dewatering of Excavation Area

Following installation of the sheet pile cutoff walls (Section 5.1), the contained EZ will be dewatered to ensure that soils and waste material to be excavated are as dry as possible before loading into containers or onto transport trucks This will eliminate secondary material handling processes such as stockpiling and the addition of amendments (i.e., application of fly ash) to remove excess moisture, minimize the potential for leakage during transport, and reduce the total weight of waste to be disposed.

Stratigraphy logs indicate the confining native clay is approximately 10 to 15 feet below ground surface in the area of historic boreholes SB-B, SB-H, SB-J, and SB-M, which are located near the northeast corner of the excavation area. Based on existing information, it appears that this is the area where the confining layer is the deepest within the excavation area. It is anticipated that groundwater within the contained EZ will drain to this point once groundwater extraction is initiated.

Groundwater depths were collected during the 2013 GES Supplemental Site Characterization activities. Based on the 2013 GES report (presented in Appendix A), the depth to groundwater ranges from 2.17 feet below top of well casing (ft BTOC) to 7.23 ft BTOC at 11 monitoring wells, with groundwater elevation ranging from 97.13 feet to 97.69 feet.

To initiate dewatering, existing wells will be utilized to pump out groundwater. If necessary, a drawdown well will be installed within the sheet pile cutoff walls near the northeast corner of the area, and the well will be utilized to pump out groundwater. Groundwater will be pumped directly to on-Site temporary fractionation (frac) tanks for management at a later date (refer to Section 7.3 for management).

Additional drawdown wells and pumping systems may be required to maximize dewatering of the excavation area and expedite the work schedule.

Soils excavated during well installation may require temporary stockpiling within the EZ if the material is sufficiently saturated that it cannot be directly loaded into a container for off-Site transport and disposal. Stockpiled materials will be covered, and environmental controls as discussed in Section 6.3 will be implemented as necessary.

5.3 Excavation of Wastes

The excavation will be conducted within the excavation limits shown on Figure 4.1. The excavation limits shown are based on the suspected location of waste material determined by historic investigation activities on the Site. The estimated dimensions of the excavation area are 120 feet by 90 feet.

Excavation equipment will be rated to safely excavate to a minimum depth of 20 feet. All excavations will be completed in accordance with OSHA trenching requirements, 29 CFR Part 1826. Excavated material will either be directly loaded into transport containers or managed within the EZ for dewatering or until transport containers are available. The containers will be inspected before use. Containers will be lined as appropriate and covered as appropriate before leaving Site. Stockpiled waste material will be covered with either clean soil or a weatherproof liner during periods of work stoppage, during precipitation events, and at the end of each day. The cover will minimize the releases of nuisance vapors or particulates as well as preventing precipitation from contacting the soils. Additional environmental controls, presented in Section 6.3, will be implemented as necessary.

The vertical extent of excavation will be the top of native clay. Once the native clay layer is reached, an additional 0.5-foot layer of clay will be stripped from the base of the excavation for disposal to ensure satisfactory removal of impacted materials.

The horizontal extent of the excavation will be based on visual observations. Soils will be observed for visual characteristics separate and distinct from the surrounding soil and fill material ("visually contaminated"). The excavation will continue until all visually contaminated soils have been removed. CRA field personnel will also employ the use of a photoionization detector (PID) with a 10.7 eV lamp to screen the remaining soils in the excavation to establish a "clean zone". Visual observations and PID screening results will be used to determine the horizontal extent of the excavation.

5.3.1 Confirmatory Sampling

Once visually contaminated soils have been removed, both confirmatory field and laboratory soil samples will be collected from the side walls and bottom of the excavation in accordance with DER-10 5.4(b)(5). Confirmatory field screening samples will be collected and delivered to CRA's Niagara Falls Innovative Technology Group's laboratory for expedited analysis (24-48 hours) following USEPA Methods 8260 and 8080. CRA's laboratory, although not NYSDOH-ELAP certified, will provide qualitative and quantitative results within 24 hours to assist in determining whether cleanup criteria have been met and excavation activities can cease in the area from which the sample was collected. In addition, all confirmation samples will be submitted to a NYSDOH-ELAP certified laboratory for confirmation analysis and correlation with field screening results.

One sample from the bottom of each sidewall for every 30 linear feet of sidewall and one sample from the bottom of the excavation for every 900 square feet of bottom area will be collected. The excavation is expected to have 420 linear feet of perimeter sidewalls (120 feet by 90 feet), resulting in a total of 14 expected sidewall samples. The excavation is also expected to have 10,800 square feet of excavation floor, resulting in a total of 12 expected floor samples. The CRA engineer will be responsible for the collection and shipment of samples. The samples will be analyzed for priority pollutant list volatile organic compounds (VOCs) and pesticides. Samples will be collected using the excavator bucket to retrieve soil from the sidewalls and bottom of the excavation. The bucket will be decontaminated before sample collection.

A unique sample numbering system will be used to identify each collected sample. This system will provide a tracking number to allow retrieval and cross-referencing of sample information. The sample numbering system to be used is described as follows:

Example: SO-85121-mmddyy-XXX

Where:	SO:	Designates Sample Type (SO = Soil)
	85121:	CRA Project Number
	mmddyy:	Date of Collection (e.g., 08/04/14)
	XXX:	Unique Sample Number

Quality control (QC) samples will also be numbered with a unique sample number.

Samples will be placed on ice or cooler packs in laboratory supplied coolers immediately after collection and labeling. Samples will be delivered to the laboratory by courier under approved chain of custody.

The results of the confirmatory soil samples will be compared to the Protection of Public Health - Commercial Cleanup Standards listed in Table 375-6.8(b) of the NYSDEC Environmental Remediation Policy 6NYCRR Part 375. The sidewalls and floor of the excavation will be considered complete if the confirmatory sample results meet the commercial criteria.

A Quality Assurance Project Plan (QAPP) has been prepared for the project and is attached as Appendix D.

5.4 Waste Transportation and Disposal

The CRA engineer is responsible for the coordination and oversight of all waste disposal activities. All soil waste material and PPE will be managed as hazardous waste. All general Site refuse and miscellaneous debris will be managed as general Site waste.

All waste will be properly manifested and transport units/trucks will be labeled and/or placarded prior to leaving the Site. Only transporters which are licensed by USEPA, DOT, and the State of New York will be used for the transport of waste materials. If waste soil materials are to be transported to facilities outside of the State of New York, transporters will be required to be licensed in the appropriate State(s) as well as comply with other applicable Federal laws including DOT requirements.

All transportation routes to off-Site facilities will be predetermined prior to commencing off-Site transport of waste materials. A primary and secondary route to each facility will be identified. The access road exits to the west of the Site onto Nash Road. As Nash Road is not a truck route, all truck traffic will have to turn north onto Nash Road and travel along Niagara Falls Boulevard.

All liquid waste (e.g., collected groundwater, stormwater, decontamination water) will be transported off Site as described in Section 7.3. All liquid wastes will be placed in a series of two or three frac tanks for on-Site storage prior to being transported off Site.

Section 6.0 Operational Controls

6.1 Site Security

As discussed in Section 4.3, access to the Site will be controlled by an 8-foot tall chain link fence with a locking gate at the entrance to the Site and the operations. The location of the fencing and gate are provided on Figures 4.1 and 4.2. The gate will be kept locked at all times when the Site is unattended. Also, areas which are subject to excavation activities will be completely enclosed using a temporary snow fence (i.e., around the perimeter of the sheet pile cutoff walls). Signs will be posted on the snow fence around the areas bearing the legend "Authorized Personnel Only," or equivalent.

Additional security measures to be implemented include the following:

i) Limit vehicular access to the Site to authorized vehicles and personnel only.

ii) Provide initial screening of all Site personnel and visitors.

iii) Maintain a security log in which documentation is provided of all Site personnel, visitors and deliveries, and any security incidents. This log will include the date, name, address, company, time in, and time out for each employee and visitor. If unauthorized personnel are observed on Site and refuse to vacate the premises, appropriate law enforcement officials will be contacted for appropriate legal actions.

iv) All visitors will be required to complete a Site orientation and safety training in accordance with the HASP prior to gaining access to the secured areas of the Site (e.g., excavation, staging, decon area).

6.2 Vehicle and Equipment Decontamination

Decontamination will be required for all vehicles and equipment leaving the EZ.

All transport trucks are to be loaded within the EZ. Any material spilled during loading will be cleaned up and placed in the disposal equipment. The tires, undercarriage, sides, or any surface of the truck exposed to waste material will be sprayed with pressurized potable water to remove bulk material at the decontamination facility. Any waste material adhered to the truck will be removed by Site personnel manually with high-pressure water. All personnel

involved in manual decontamination of trucks must adhere to the PPE requirements prescribed in their HASP. Wastewater will be collected within the decontamination facility sump and pumped directly to temporary on-Site frac tanks for pretreatment and disposal at a later time.

Following decontamination, vehicles and equipment will be inspected by the CRA Construction Manager to ensure all material is sufficiently removed from the vehicles prior to leaving the Site.

6.3 Environmental Controls

6.3.1 Surface Water Controls

During excavation activities, all equipment necessary to maintain the excavations and the EZ free from water will be available on Site. All water collected will be transferred to the temporary on-Site frac tank(s) by the Contractor and managed in accordance with Section 7.3.

Precipitation will be prevented from infiltrating or from directly running off any stockpiled waste materials within the EZ. Stockpiles will be covered either with clean soil or with an impermeable liner during periods of work stoppage including the end of each working day. The liner will be anchored to prevent it from being blown off in the case of a storm.

Any accumulated liquids within the excavation area will be collected and transferred to the waste water tank(s).

6.3.2 Dust Control

Dust control measures will be implemented by the Contractor as required to prevent the generation of dust during excavation and handling operations. The water to be used for dust control will be potable water. Dust control measures will consist of watering down access roads on Site and/or spraying water over areas being excavated. The use of water in the excavation must be limited to ensure that the excavated material is transportable. Additionally, a dust monitoring program will be implemented as described in the HASP and CAMP (see Appendix C).

6.3.3 Odor Control

An odor suppression product such as foam or solution will be provided by the Contractor and made available on the Site to be used on open excavation and waste soil stockpile areas as necessary. All odor suppression products must be approved by CRA and the NYSDEC prior to their use. Odor control methods will be employed anytime there is an exceedance of the VOC

action levels specified in the CAMP (see Appendix C) at the perimeter of the Site or if there are complaints from neighboring residents.

6.3.4 Sediment and Erosion Control

Sediment migration may occur within two general areas; the EZ and the surrounding operations areas. Sediment migration within the EZ will be confined within the sheet pile cutoff walls. Any accumulated sediment will be returned to the excavation area or loaded directly onto transport trucks for off-Site disposal.

Details regarding the requirements for stormwater and sediment control will be provided in the Site SWPPP that will be prepared by CRA for coverage under the Construction General permit discussed in Section 3.3. All sediment and erosion control methods employed will be inspected and maintained daily and repaired as needed.

Section 7.0 Project Closeout and Site Restoration Tasks

7.1 Surficial Cleanup of Access Roads

The surface of the access road which may have been impacted by tracking of soil or waste materials will be removed by the Contractor. The surficial cleanup will be performed after all excavated waste soil materials have been removed from the excavation. A nominal layer of 6 inches of material will be removed from potentially impacted areas of the access road. The stripped material will be placed with any remaining excavated materials for collection and off-Site disposal.

7.2 Equipment Decontamination

A final decontamination of all equipment will be performed by the Contractor at the decontamination facility. Each piece of equipment will be visually inspected by the CRA Construction Manager after decontamination prior to removal from the Site.

7.3 Wastewater Removal and Disposal

All wastewaters (collected groundwater, stormwater, and decontamination waters) will be stored in a series of two or three frac tanks for onsite storage. The stored wastewaters will be transferred to tankers and transported to GSH's North Tonawanda Durez facility (Durez NT) for pretreatment through a temporary mobile activated carbon treatment system. The pretreated wastewaters will then be discharged to the Durez NT activated carbon treatment system for final treatment. The treated wastewaters will be discharged to the storm sewer in conformance with the facility's SPDES permits. Treatment and discharge of Site water through

the Durez NT treatment system will require approval by the NYSDEC Division of Water (DOW). The request will be submitted under separate cover.

As stated in Section 5.4, the section of Nash Road from the Site access road south to Walck Road is not a truck route. All tankers hauling wastewater must turn north on Nash Road, then turn right onto Niagara Falls Boulevard, then turn right onto Erie Avenue, then turn right onto Walck Road to arrive at the Durez NT facility.

At the completion of the project, the interior of the wastewater storage tanks will be decontaminated with a high-pressure steam wash. No surfactants will be utilized during decontamination procedures. Decontamination wastewater will be transferred to tankers and transported to GSH's Durez NT facility for treatment.

7.4 Backfilling of Excavated Area

The excavations will be backfilled at the completion of the excavation activities with DER-10 compliant fill. Fill material will meet the requirements of 6NYCRR 375-6.7(d) and the requirements for backfill material as stipulated in DER-10 Section 5.4(e). The requirements for the fill material include the following:

- The fill must be comprised of soil or other unregulated material as set for in 6NYCRR Part 360
- The fill must not exceed the lower of the protection of groundwater or the protection of public health objectives for the Site, as set in 6NYCRR 375-6.8(b)
- The fill must also be compared to the protection of ecological resources soil cleanup objective
- Analytical data or documentation of the origin and composition for the fill material must be provided

The fill material will be placed in lifts no greater than 24 inches and compacted either with a mechanical hand tamper or vibratory roller in order to minimize subsidence at a later date.

7.5 Site Restoration

Site restoration activities will commence immediately following completion of excavation activities. Excavation activities will be deemed complete once all target waste material has been excavated from the area and transported off Site for disposal.

Restoration activities will include the following components:

- Backfill of excavation area with soil material from an approved source
- Removal of sheet pile cutoff walls
- Removal of vehicle decontamination area materials
- Management and removal of non-impacted access road and grading materials
- Removal of fencing and sediment/erosion controls
- Reestablishment of pre-construction grades and elevations
- Reestablishment of vegetation (grass)

Decontamination area surface materials and liner will be collected and transported off Site for disposal under the same protocols as waste materials. Non-impacted access road and grading materials may be considered for reuse (recycling) on-Site by the property owner or for grading purposes at Durez NT. Materials considered for reuse at an off-Site location must demonstrate compliance in accordance with DER-10 Section 5.4(e).

Site grades and elevation data collected during the Site preparation phase (see Section 3.2) will be used to establish preconstruction conditions and determine backfill and soil cover requirements. In addition, reestablishment of vegetation (i.e., suitable wetland habitat) and seasonal aquatic habitat will be reestablished in areas identified as wetlands under the USFWS Wetlands Inventory to satisfy permitting requirements.

7.6 Demobilization

Following completion of the Site restoration activities, all construction equipment and facilities will be removed and demobilized from the Site.

7.7 Reporting

After completion of the work, a Construction Completion Report (CCR) will be prepared, stamped by a PE, and submitted to the NYSDEC. The report will be prepared in general accordance with Section 5.8 of DER-10 and will include:

A. A summary of the selected remedy
B. A summary of all remedial actions completed, including:

i) A description of any problems encountered and how they were resolved

ii) Identification of any variances from the WP

iii) An inventory of quantities and types of materials removed and their ultimate disposal, including copies of waste disposal manifests

C. A list of remediation standards applied to the remedial actions

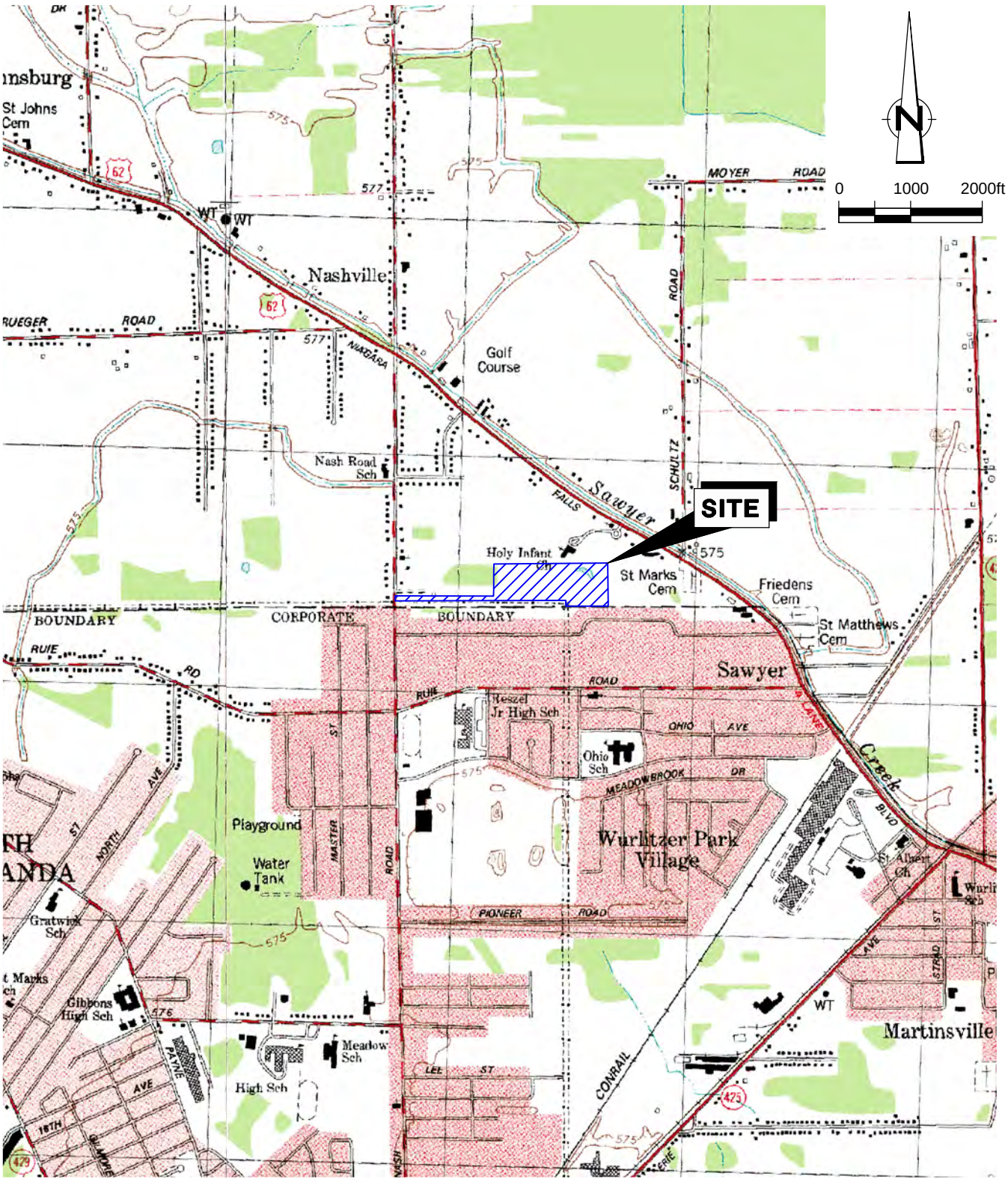
D. A compilation of any analytical data collected

E. Air monitoring records and air sampling results

F. A description of Site restoration activities

G. A detailed description of source and quality fill

H. Drawings showing post-construction Site conditions



SOURCE: USGS 7.5 MINUTE SERIES, TOPO QUAD: TONAWANDA WEST, NY 1980
TONAWANDA EAST, NY 1980

figure 1.1

SITE LOCATION PLAN
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

CRA

PARCEL INFORMATION FROM NYS GIS CLEARINGHOUSE; IMAGERY FROM USGS

figure 1.2

PROPOSED WORK AREA

AERIAL PHOTOGRAPH OF SITE AND WORK AREA
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

CRA

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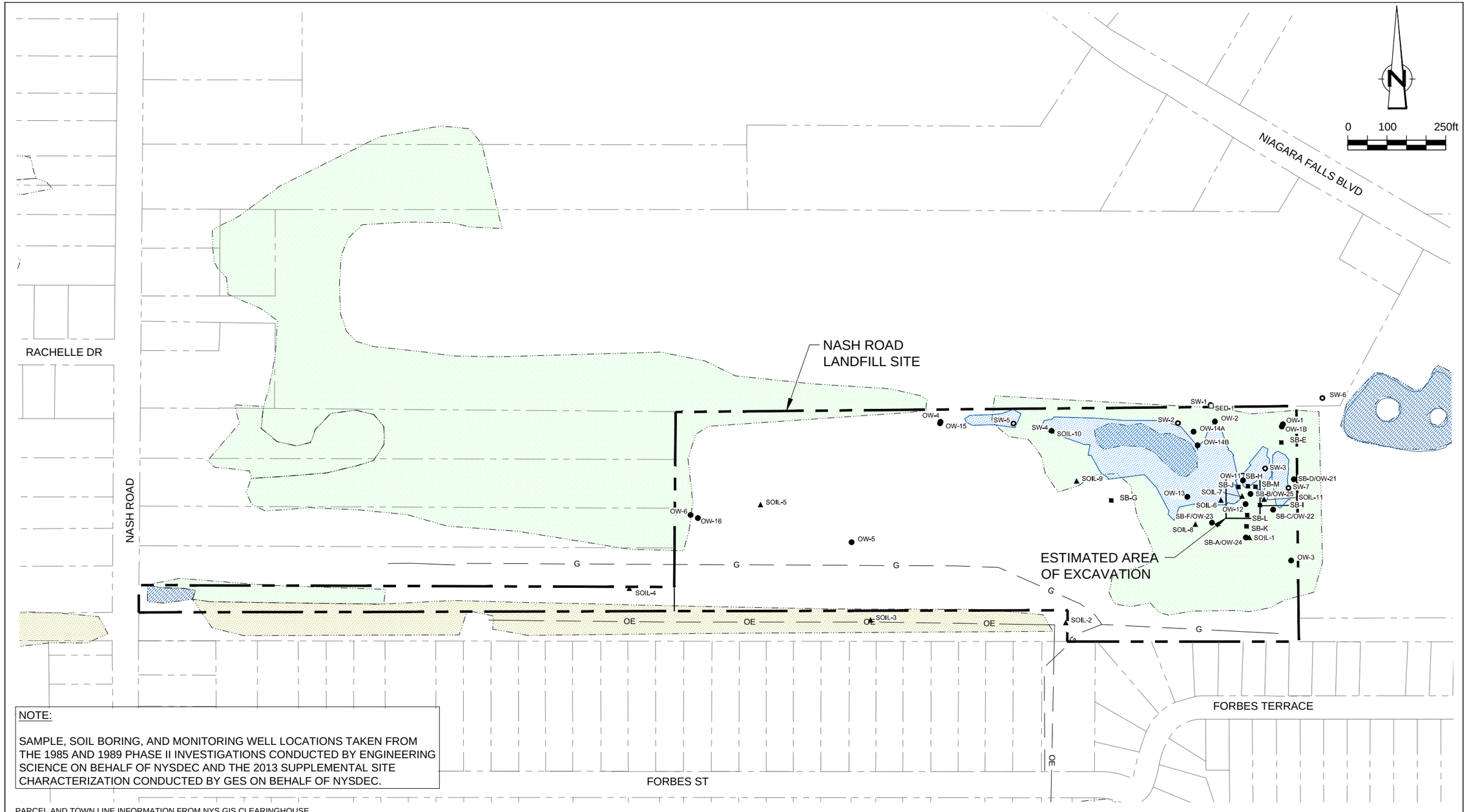

NOTE:

SAMPLE, SOIL BORING, AND MONITORING WELL LOCATIONS TAKEN FROM THE 1985 AND 1989 PHASE II INVESTIGATIONS CONDUCTED BY ENGINEERING SCIENCE ON BEHALF OF NYSDEC AND THE 2013 SUPPLEMENTAL SITE CHARACTERIZATION CONDUCTED BY GES ON BEHALF OF NYSDEC.

PARCEL AND TOWN LINE INFORMATION FROM NYS GIS CLEARINGHOUSE

LEGEND:

- PROPERTY LINES
- G — EXISTING GAS MAIN
- OE — EXISTING OVERHEAD ELECTRIC
- SEASONAL PONDS
- FRESHWATER EMERGENT WETLAND*
- FRESHWATER POND*
- FRESHWATER FORESTED/SHRUB WETLAND*
- □ SED-1 — SEDIMENT SAMPLE LOCATION
- ○ SW-2 — SURFACE WATER SAMPLE LOCATION
- ● OW-14B — MONITORING WELL
- ▲ SOIL-7 — SURFACE SOIL SAMPLE LOCATION
- ■ SB-E — SOIL BORING LOCATION

* INFORMATION FROM U. S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY MAP

figure 1.3

EXISTING SITE CONDITIONS
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

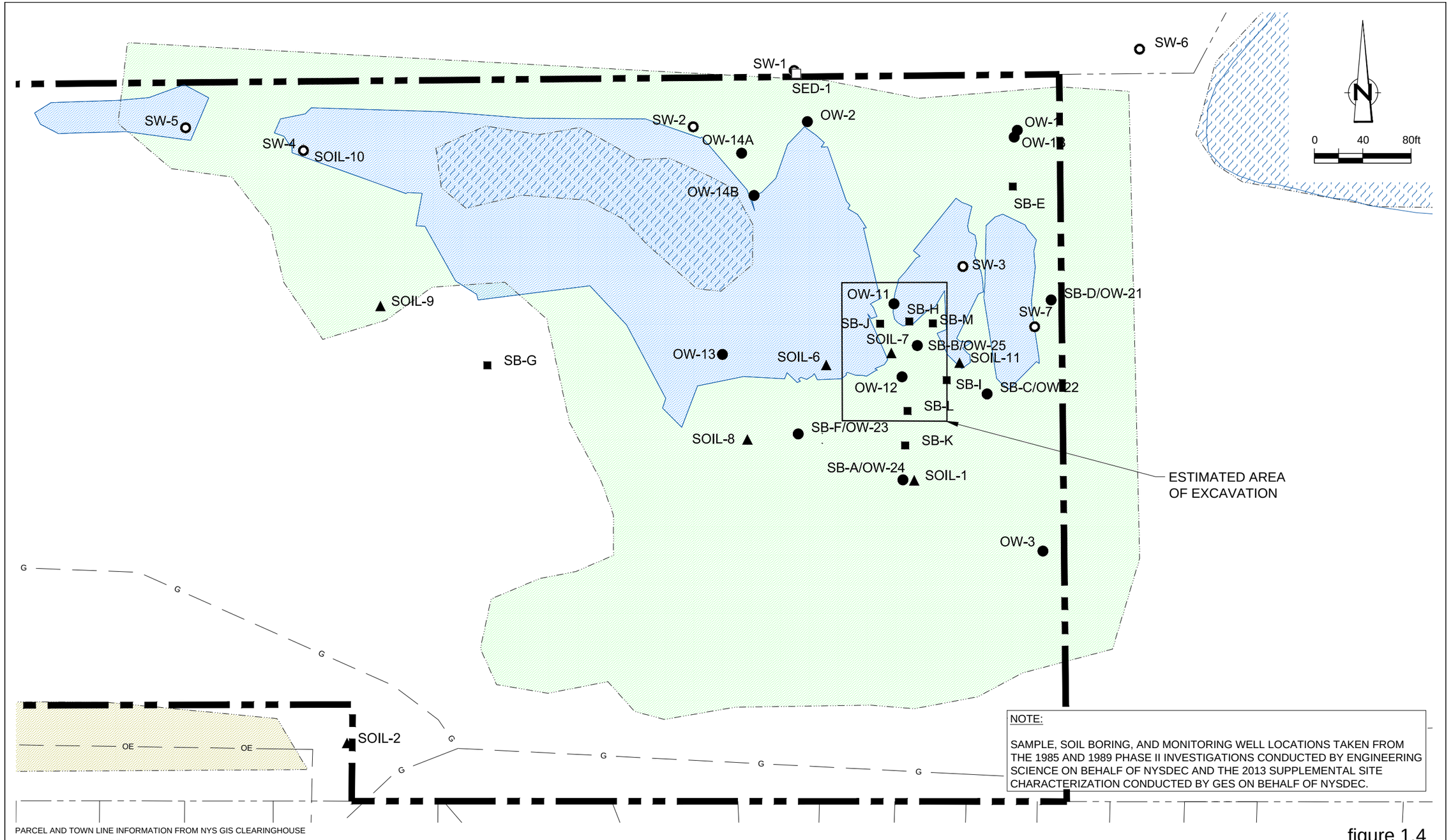

figure 1.4

EXISTING CONDITIONS AT WORK AREA
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

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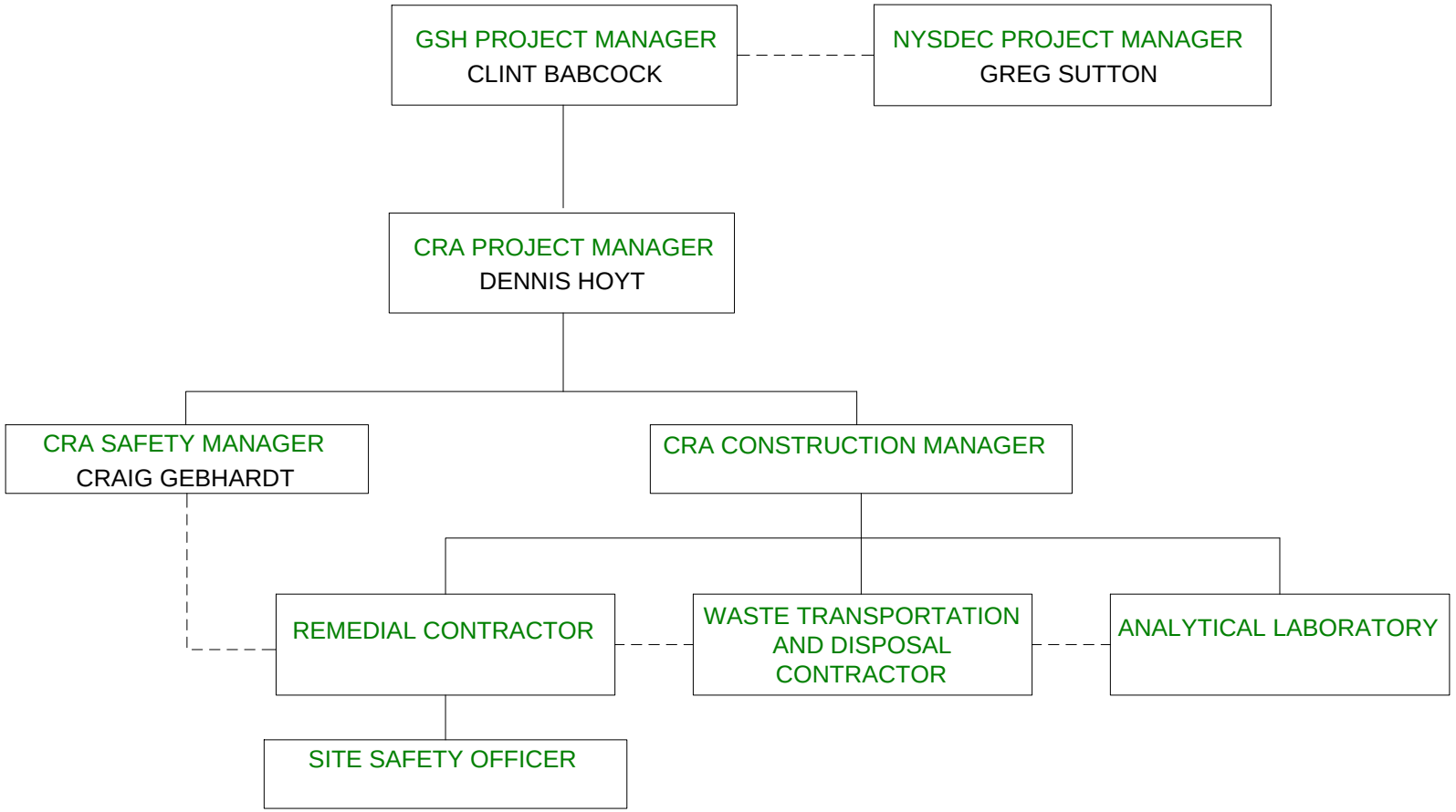
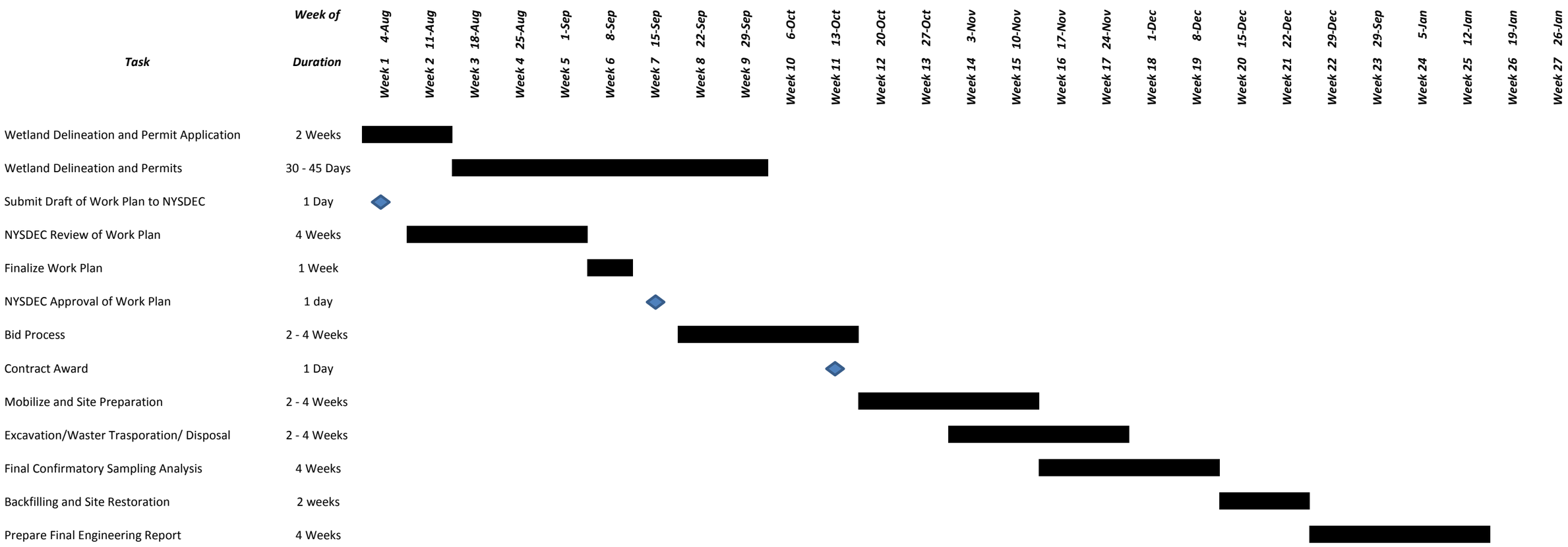


figure 2.1

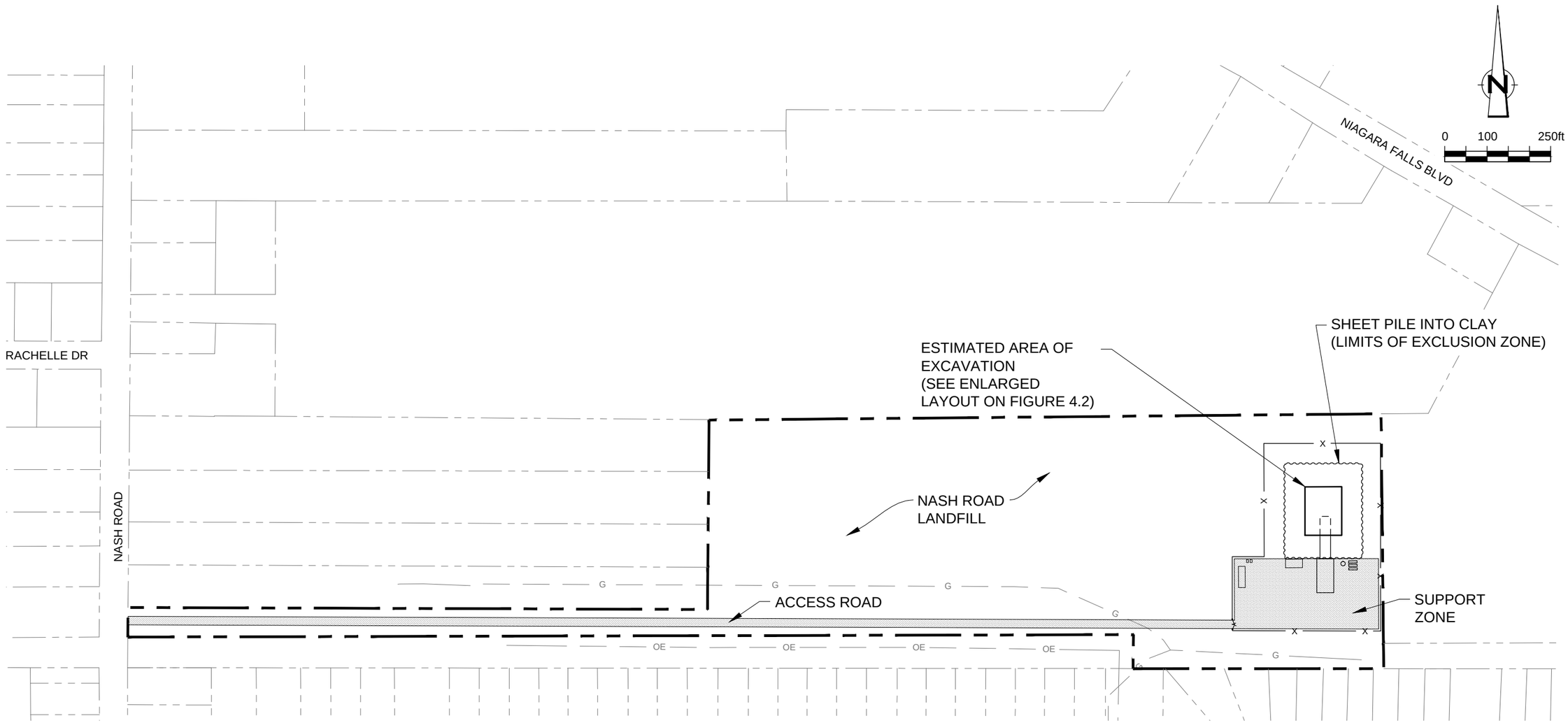
PROJECT ORGANIZATION CHART
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

FIGURE 2.2

PROPOSED PROJECT SCHEDULE
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD SANITARY LANDFILL SITE
WHEATFIELD, NEW YORK



Note: Citizen Participation activities will be based on the actual dates of work plan submission and the level of interest by interested parties. The need for public meetings and comments periods will affect the schedule.



PARCEL AND TOWN LINE INFORMATION FROM NYS GIS CLEARINGHOUSE

LEGEND:

EXISTING FEATURES

- PROPERTY LINES
- G — EXISTING GAS MAIN
- OE — EXISTING OVERHEAD ELECTRIC

figure 4.1

CONCEPTUAL SITE PLAN
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

CRA

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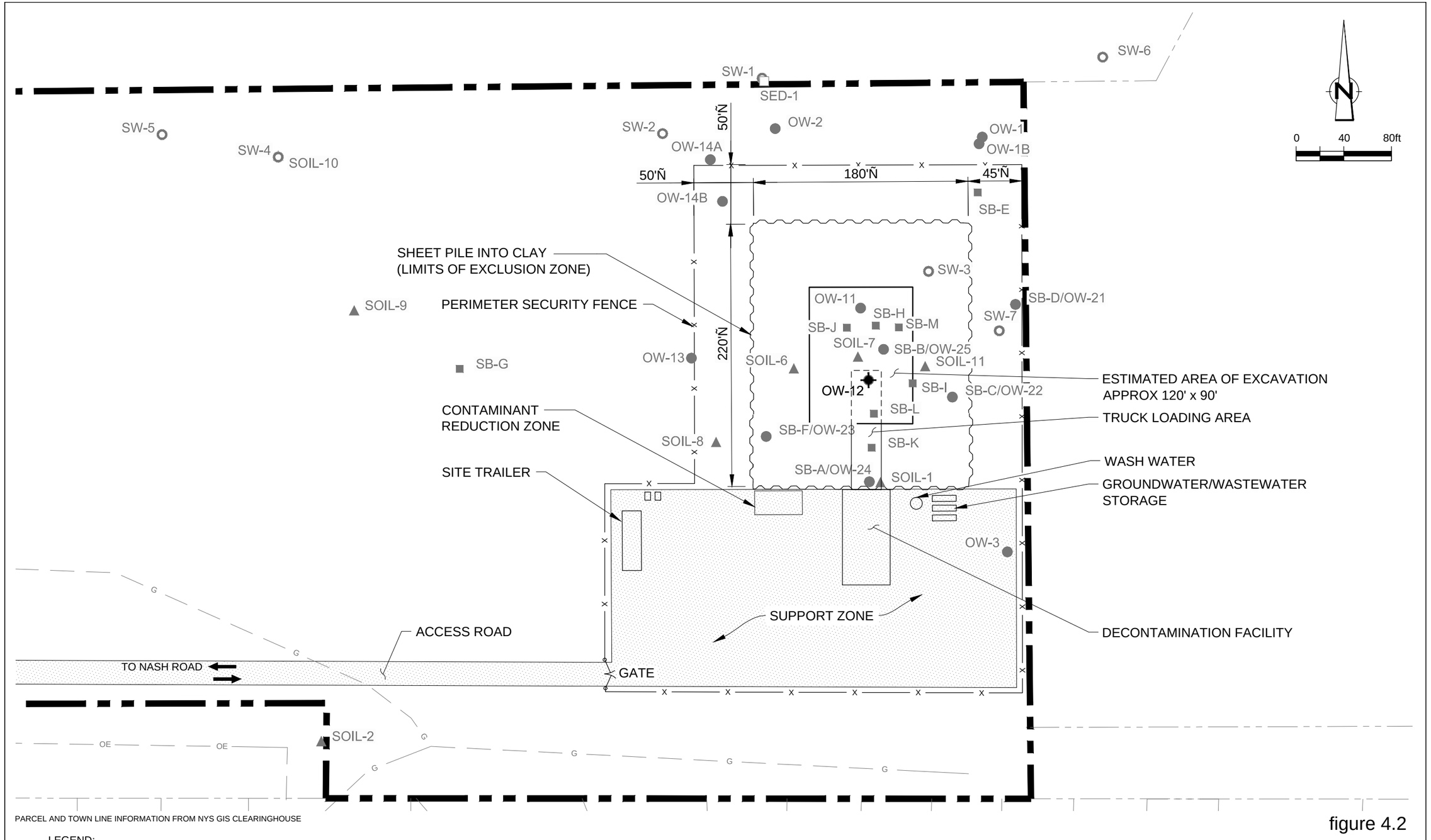


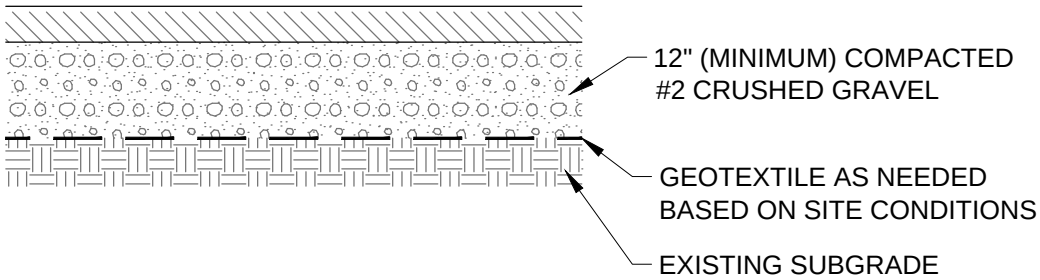
PARCEL AND TOWN LINE INFORMATION FROM NYS GIS CLEARINGHOUSE

LEGEND:

- SED-1 SEDIMENT SAMPLE LOCATION
- SW-2 SURFACE WATER SAMPLE LOCATION
- OW-14B MONTIORING WELL
- SOIL-7 SURFACE SOIL SAMPLE LOCATION
- SB-E SOIL BORING LOCATION
- PROPERTY LINES
- G EXISTING GAS MAIN
- OE EXISTING OVERHEAD ELECTRIC
- OW-12 WELL TO BE DECOMMISSIONED

figure 4.2

CONCEPTUAL WORK AREA LAYOUT
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York



DETAIL

SCALE: 3/4" = 1'-0"

figure 4.3

TYPICAL ACCESS ROAD/SUPPORT ZONE ROAD DETAIL
INTERIM REMEDIAL MEASURE WORK PLAN
NASH ROAD LANDFILL
Wheatfield, New York

TABLE 4.1

EXISTING MONITORING WELL DETAILS
REMEDIAL ACTION WORK PLAN
NASH ROAD LANDFILL
WHEATFIELD, NEW YORK

Monitoring Well ID	*Location*	*Screened Interval* **(ft bgs)**	*Status*
OW-3	Support Zone	45 - 55	To be Protected
OW-11	Excavation Area	7 - 9	Remove during Excavation
OW-12	Excavation Area	29.5 - 32.5	Decommission per NYSDEC CP-43
OW-22	Inside Sheet Piling	3 - 8	Remove during Excavation
OW-23	Inside Sheet Piling	3 - 8	Remove during Excavation
OW-24 (1)	Support Zone	5 - 10	Decommission per NYSDEC CP-43
OW-25	Excavation Area	7 - 12	Remove during Excavation

Notes:

(1)	OW-24 is not located in an excavation area; however, it is adjacent to the proposed location of the sheet piling
ft bgs	Feet below ground surface
NYSDEC CP-43	New York State Department of Environmental Conservation Groundwater Monitoring Well Decommissioning Policy