

Revised Brownfield Investigation Work Plan

*Celi Drive Site
Town of Dewitt
Onondaga County, New York
Brownfield Program*

Revised December 2009

ERM Project Number 0032572

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ABBREVIATIONS AND ACRONYMS

ASP	Analytical Services Protocol
BGS	Below Ground Surface
BSS	Bridge Street Swale
DUSR	Data Usability Summary Report
ERM	Environmental Resources Management
DGI	Data Gap Investigation
DGIWP	Data Gap Investigation Work Plan
GSP	General Super Plating Co., Inc.
HASP	Health and Safety Plan
mg/kg	milligrams per kilogram (parts per million)
mg/l	milligrams per liter (parts per million)
MSL	Mean Sea Level
ND	Not Detected
NIMO	Niagara Mohawk Utility Corporation
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OCWWTF	Onondaga County Waste Water Treatment Facility
OSHA	Occupational Safety and Health Administration
POTW	Publicly Owned Treatment Works
ppb	parts per billion
ppm	parts per million
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RDA	Roof Drain Area
RDI	Remedial Design Investigation
RSCO	Recommended Soil Cleanup Objective
SVOC	Semivolatile Organic Compound
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TCL	Target Compound List
TOGS	Technical Operations Guidance Series
µg/kg	micrograms per kilogram (parts per billion)
µg/L	micrograms per liter (parts per billion)
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

On 10 May 2005, the New York State Department of Environmental Conservation (NYSDEC) advised General Super Plating Co., Inc. (GSP) that a potential release had occurred at the GSP facility located at 5762 Celi Drive in East Syracuse, New York (GSP Facility) (Figure 1). As requested, GSP collected soil and surface water samples on and off-site. The samples confirmed that a release had occurred and Environmental Resources Management (ERM) was retained to assist GSP with the identification of the source, to direct abatement activities and to investigate the extent of affected media.

A summary of all investigatory and abatement activities performed in response to the release was submitted by ERM to the NYSDEC as part of the Brownfield Application package entitled the "Comprehensive Site Report", dated November 2005.

On 27 March 2008, GSP entered a Brownfield Site Cleanup Agreement with the DEC, assigned Index # B7-0713-06-03 at Celi Drive Site Property (Site No. C734108). The Notice of Agreement is dated 18 April 2008 and is attached in Appendix F.

Site activity to date is sufficient to develop a conceptual model of Site conditions, however, some additional Site investigation is necessary to further evaluate the lateral and vertical extent of affected media in the affected areas, and to provide additional information required to design appropriate remedial actions consistent with Brownfield requirements and prior discussions with NYSDEC representatives.

ERM proposes to complete the investigation and remediation in three phases from up gradient to down gradient as presented in the summary of Areas of Concern (AOC) presented below.

Phase I

AOC 1: Affected soil located beneath the GSP manufacturing building.

Investigate and remediate, as necessary, the affected soil beneath the concrete slab of the GSP industrial facility.

AOC 2: Affected soil located in the swale immediately east of the GSP manufacturing building (GSP Swale)

Investigate and remediate, as necessary, the affected soil in the

GSP Swale.

AOC Site Ground Water: Affected Site Ground water

Investigate and remediate, as necessary, affected ground water identified onsite.

Phase 2

AOC 3: The water and sediment in the buried culvert emanating from the GSP Swale

Investigate and remediate, as necessary, the buried culvert area located immediately north of the GSP Swale to the Bridge Street Swale (BS Swale). The buried culvert directs storm water northward for approximately 750 feet, under Bridge Street and into the BS Swale.

Phase 3

AOC 4: The affected surface water, sediment and soil in the BS Swale.

Investigate and remediate, as necessary, the drainage ditch on Bridge Street. The area to be investigated and remediated terminates at a point east of the BS Swale along the Route I-690 off-ramp and west at a point before an existing gravel roadway.

The remainder of this report summarizes the Site description and history, data gap investigation objectives and scope, and a schedule of proposed activity.

The previous Site investigations, including soil, sediment, surface water and ground water sampling have identified inorganic constituents at concentrations exceeding the NYSDEC 6 NYCRR Part 375 standards (Part 375); the NYSDEC Recommended Soil Cleanup Objectives (RSCOs) as presented in NYSDEC's Technical and Administrative Guidance Memorandum Number 4046 (TAGM-4046), and/or NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values, October 1993 (TOGS 1.1.1). As per discussions with the NYSDEC, and in light of acceptance of the Site into the Brownfield Cleanup Program, Part 375 standards and guidance will be used to assess soil conditions during all future work at the Site. Based on the data collected during these previous Site investigations, chromium (Cr) has been identified as the primary constituent of concern

(COC) at the Site. Additionally, copper (Cu), nickel (Ni), zinc (Zn), and cyanide (Cn-) have also been identified.

Acetone and methylene chloride were detected in five samples collected during previous investigations. Samples that contained acetone and/or methylene chloride were collected by Upstate Laboratories on 18 May 2005 and include two soil and two surface water samples collected within the GSP Swale, and one surface water sample collected in the Bridge Street Swale, identified as:

- “Bridge St. Swale” – surface water sample collected near Bridge Street in the BSS;
- “Drain Point” – surface water sample collected near the roof drain outfall in the GSP Swale;
- “Drain Point (solid)” – soil sample collected near the roof drain outfall in the GSP Swale;
- “Ditch (solid)” – soil sample collected from the GSP Swale.

ERM reviewed results for aqueous samples from the Bridge Street Swale and Drain Point (GSP Swale) and soil samples from the GSP Swale and verified that the values reported by the laboratory were valid. The lab method blank raw data was reviewed and neither acetone nor methylene chloride were present in the volatile method blank including the chromatogram and quantitation report. ERM also reviewed the sample chromatograms, quantitation reports, and spectra. Peaks for acetone and methylene chloride were present in the reference samples. ERM did not identify these compounds in the method blank. Simply because acetone and/or methylene chloride were not detected in the method blank does not indicate they are not lab contaminants. The nature of these compounds has resulted in many cases of cross-contamination that eluded the method blank. Methylene chloride and acetone are common laboratory contaminants and they are not routinely used at GSP. However; it is ERM’s technical opinion that the presence of methylene chloride and acetone can not be attributed to the presence of laboratory contamination. Therefore, as per discussions with the NYSDEC, acetone and methylene chloride will be included on the analyte list for the data gap investigation in the area of the GSP Swale and the Bridge Street swale located in the area south of the Cellular One Building .

Additional samples were collected during the previous investigations, as requested by the NYSDEC, for the “full-suite” of Target Compound List (TCL) and Target Analyte List (TAL), including polychlorinated biphenyl (PCB) and cyanide. No constituents other than the COCs identified above were identified as a concern in the GSP Swale or the BS Swale during

these previous investigations.

As part of GSP's Brownfield cleanup at the Site, GSP intends to implement this Work Plan, evaluate remedial options for the Site, and to preserve the Site for active continued use and future expansion.

1.1 DATA GAP INVESTIGATION APPROACH

The overall objective of the Brownfield Investigation is to complete a Data Gap Investigation to identify the lateral and vertical extent of affected media at concentrations greater than clean-up objectives and evaluate the feasibility of remediating the affected media to appropriate standards, criteria and guidance (SCGs) as specified in the draft Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER 10), and/or applicable regulations.

Investigative activities in this data gap investigation will be conducted from "inside out" to determine the limits of affected media. All samples will be described by a field geologist including the screening of soil samples for VOCs. Soil and water samples will be collected for Cr as well as Cu, Ni, Zn, CN analysis. Additionally acetone and methylene chloride will be included in analysis for the Bridge Street swale location in the area located south of the Cellular One building and in the GSP Swale . If acetone and/or methylene chloride are determined to be a COC, they will be added to the sampling program, as appropriate.

Additional soil borings and ground water monitoring wells will be installed and sampled accordingly.

Results of this investigation and the presentation of interim remedial actions will be presented in an investigative report following completion of each Phase of the work as set forth in this Work Plan and consistent with the Work Schedule attached as Appendix A.

GSP proposes to implement a remedial strategy that seeks to confirm the extent of affected soil and ground water, to remove or stabilize in-place COCs to protect human health and the environment, and to implement passive and active engineering and institutional control measures to ensure protection of human health and the environment and consistent with the industrial use of the property.

The Celi Drive Site is located at 5762 Celi Drive, East Syracuse, Onondaga County, New York as shown on the Site Location Map, Figure 1. The Site consists of an approximately 47,089-square foot (s.f.) building situated on approximately 1.3 acres of land. As evident in Figure 2, the Site is located in a small cluster of industrial and commercial properties east of Erie Boulevard and north of Towpath Road.

The GSP facility houses plating processes, storage areas and a waste water treatment system which discharges to the Onondaga County Waste Water Treatment Facility (OCWWTF) pursuant to an authorized permit. The majority of the operations consist of metal plating on plastic and metal substrates.

Topographic map coverage of the Site and vicinity is provided by the United States Department of Transportation 7.5-minute topographic map for Syracuse East, New York quadrangle, dated 1990 (see Figure 1). The average ground surface elevation of the Site is approximately 420-feet above mean sea level (MSL). The topography of the Site and surrounding area is generally flat with surface water drainage to the north. The areas included in this work plan are shown on the aerial photograph on Figure 3.

Soil in the immediate vicinity of the Site is classified as Urban Land (Ub) in the *Soil Survey of Onondaga County, New York*, produced by the United States Department of Agriculture (USDA) Natural Resources Conservation Service, dated October 1977. Ub consists of large built-up areas that have been so altered or obscured by urban works and structures that identification for the soils is not feasible.

Typical soils in the area of the GSP Swale, located east of the facility, generally consist of black organic rich silt and clay underlain by fill and native glacial silt and clay. A gray, fine to coarse sand with gravel and silt has been identified beneath the clay horizon.

AOC 1

AOC 1 is comprised of the soil beneath the GSP facility as shown on Figure 4. The release occurred from a chrome equalization tank affecting the soil in the sub-slab environment. The soil in this area is completely covered by the concrete slab of the floor of the GSP Facility.

2.2 AOC 2

AOC 2 is located in the GSP Swale, east of the GSP Facility as shown on Figure 5. The GSP Swale was affected by the chromium release, which drained under the building into the Site surface water drainage system.

2.3 AOC SITE GROUND WATER

Previous investigations conducted after the reported release, identified limited areas of affected ground water along the east wall of the GSP Facility proximal to the release zone (Figure 6). Ground water was monitored at 11 locations including the source area. Two down gradient monitoring wells installed as part of the release investigation confirmed that affected ground water is limited to the areas proximal to the release.

2.4 AOC 3

AOC 3 includes the buried culvert pipe that runs from the GSP Swale, immediately east of the GSP facility, to where it empties into the BS Swale (Figure 3). The AOC includes the water and sediment that may have accumulated in the buried piping.

2.5 AOC 4

The buried culvert (AOC 3) discharges to a constructed drainage ditch that flows northward for approximately 1,000-feet from Bridge Street to the Bridge Street exit ramp of Route 690 (Figure 7). There is a relatively shallow and nearly dry easterly extension of the BS Swale along the Route 690 off the ramp that extends to Bridge Street. The westward reach of the swale enters a culvert pipe that travels beneath Route 690 near a gravel driveway.

2.6 CONSTITUENTS OF CONCERN

Extensive investigations, including soil, sediment, surface water and ground water sampling were conducted during the summer of 2005. The investigations have identified Cr as the primary inorganic COC. Other COCs identified include Cu, Ni, Zn and CN⁻.

3.0 *OBJECTIVE, SCOPE, RATIONALE AND PROPOSED REMEDIAL DESIGN*

3.1 *CLEANUP OBJECTIVES*

Generally, onsite and offsite soil cleanup objectives will be consistent with Track 2 clean-up objectives as described in Part 375. As a generic objective suitable for the design of the data gap investigation, the Track 2-Restricted Commercial standards will be used as a guide to estimate areas requiring additional investigation and remediation on off-site areas, and Track 2-Restricted Industrial standards will be used for areas located on property owned by GSP. As previously discussed with the NYSDEC, cleanup objectives for soil in the Bridge Street Swale will be based on Part 375 Restricted Commercial standards, except in unique areas identified by the NYSDEC. Onsite and offsite ground water standards will be the ambient water standards as presented in NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values, October 1993 (TOGS 1.1.1).

Throughout this work plan, various cleanup standards and remediation scenarios are discussed. Selection of actual cleanup standards and remediation scenarios will ultimately be dependent upon discussion and input from the NYSDEC and NYSDOH following review of data generated during the Data Gap Investigation.

3.2 *PHASE 1 - AOC 1, AOC 2, and AOC Site Ground Water*

In order to facilitate the Brownfield Site investigation and remediation from an up gradient to down gradient direction, this investigation will address AOC 1 (the soil beneath the GSP facility), AOC 2 including the soil in the GSP Swale east of the building, and AOC Site Ground Water during Phase 1 activities.

During previous investigations, it was determined that failure of the commercially installed lining of the chrome equalization tank was the source of the release. The release occurred to the sub-slab area of the GSP facility and then moved progressively down gradient to the BS Swale. The most reasonable approach to investigate and clean up the affected media is to conduct Site activity beginning with the affected media at the source area, consecutively working in a down gradient direction to the BS Swale.

3.2.1

PHASE 1 - REMEDIAL DESIGN OPTIONS

AOC 1: A review of all analytical data (soil and ground water) associated with the sub-slab area described in the Comprehensive Site Report indicate Cr and Cu as the primary COCs with Ni, Zn, and Cn- also present. Cr and Cu are present at levels exceeding the Track 2 Restricted Industrial standard in one sample collected from the southeast corner of the building. Ni, Zn, and Cn- are present at levels below the Track 2 Restricted Industrial clean-up objective (see Figure 4) identified in Part 375-3, Table 375-3.8(b). Soil stabilization is the proposed method for remediation of the affected soil located beneath the slab.

AOC 2: AOC 2 encompasses land that is primarily on, but also off the Site. A review of analytical data associated with GSP Swale as described in the Comprehensive Site Report indicates the COCs exceed Part 375 Restricted Industrial SCOs. Additional soil sampling will be implemented to evaluate the appropriate remedial action(s). Some soil excavation and off-site disposal are proposed remedial action for this area. Additional soil sampling will be required in this area to further define the area requiring remediation. Track 2 Restricted Industrial SCOs will be used for AOC 2.

AOC Site Ground Water: Eight temporary and three permanent monitoring wells have been installed at the Site under the direction of the NYSDEC. The wells were installed across the Site in presumed up and down gradient areas to identify ground water quality and flow direction. The wells demonstrate that Site ground water flows in a north/northwest direction across the Site (Figure 6). The results of ground water sampling have been presented in the Comprehensive Site Report and indicate that COC affected ground water is limited to the area proximal to the source.

Additional ground water investigation will be conducted to confirm the apparent lateral extent of affected ground water. Due to the demonstrated and expected immobility of the COC in ground water, ground water and use limitation and monitoring is the proposed remedial action for Site ground water.

3.3

PHASE 2 - AOC 3

AOC 3: AOC 3 is the buried culvert pipe that runs from the GSP Swale north of the GSP facility approximately 750-feet to the north side of Bridge Street. Sampling has been conducted in AOC 3 where the buried culvert pipe empties into the BS Swale. The results indicate that the water, and accumulated sediment in the culvert is affected and will be addressed during the investigation and remediation program.

ERM conducted interviews with Town of Dewitt officials and reviewed construction drawings to determine the construction method of the buried storm water pipe; however, the information was not readily available.

3.3.1 *PHASE 2 - REMEDIAL DESIGN OPTIONS*

High pressure washing, or “hydro-lancing” of the buried culvert is the proposed remedy for ACO 3. The remedial goal of the pressure washing will be to remove all affected surface water and contained sediment for off-site disposal.

3.4 *PHASE 3 - AOC 4*

AOC 4 is the BS Swale beginning where the buried culvert of AOC 3 empties on the north side of Bridge Street, northward along the constructed swale towards the Bridge Street off-ramp of Route 690, east to the termination of the swale, and west along the exit ramp from Bridge Street to a gravel roadway.

Previously presented sediment and soil data in the Comprehensive Site Report indicate that COCs are present at levels exceeding acceptable regulatory levels in the Part 375 regulations. Additional soil and sediment sampling will be conducted in this area to define the vertical and lateral extent of affected media.

3.4.1 *PHASE 3 - REMEDIAL DESIGN OPTIONS*

A review of all analytical data associated with BS Swale as presented in the Comprehensive Site Report indicates that Cr is the primary COC, and to a lesser degree, Cu, Ni, Zn, and CN⁻ are present at levels exceeding acceptable regulatory levels as identified in Part 375.

Additional soil and sediment sampling will be conducted in AOC 4 to evaluate potential remedial action(s) and develop cleanup goals as required under Track 2 standards. Sediment and soil excavation and off-site disposal are the expected remedial action for this area. Additional soil sampling will be conducted in this area to further define the area requiring remediation.

The following investigation and field activities plan is consistent with ongoing discussions and meetings with the NYSDEC, and is designed to fill in “data gaps” required to complete the Site characterization, and assist with the design of remedial action under the Brownfield Cleanup Program.

PHASE 1- AOC 1, AOC 2, and AOC SITE GROUND WATER**AOC 1:****Anticipated Remedial Action**

In-situ stabilization of affected soil beneath the affected portion of the sub-slab is a likely remedial method for this area of concern.

Additional Investigation

As part of the data gap investigation, soil samples from beneath the southeast corner of the building slab will be collected to facilitate a laboratory bench study to evaluate stabilization methods that may be utilized to address metals-affected soil located beneath portions of the slab.

Up to four soil borings will be advanced in the southeast corner of the AOC to further define the vertical and horizontal extent of soil where elevated levels of COCs are present. In addition, soil samples will be collected from these borings and submitted to the laboratory for geophysical and geochemical analyses to evaluate the potential for in-situ stabilization or solidification of the soil located beneath the southeast corner of the building slab.

AOC 2:**Anticipated Remedial Action**

It is anticipated that the GSP Swale will require excavation to a depth of up to 6-feet below grade in some areas (or the ground water table whichever is shallowest). The affected soil will be appropriately containerized and transported for off-site disposal. The anticipated remedy will accomplish the removal of all affected soil above the water table with concentrations greater than the Restricted Industrial SCOs. The excavation will be backfilled with “clean” backfill derived from a commercial offsite source.

Additional Investigation

Twelve additional soil borings will be completed along the GSP Swale area to further delineate the lateral extent of COCs as shown on Figure 5. Each additional boring will be advanced to a total depth of 8-feet below grade. The borings will be advanced directly to 4-feet below grade without sampling, and then continuously sampled to from 4 to 8- feet below grade in two-foot increments. Each two-foot increment will be described and sub-sampled and shipped to the laboratory for analyses of the COCs. Table 1 provides a summary of proposed sampling and analysis.

ERM will sample the surface soil and the first “deep” soil sample (4-feet below grade) of the four borings closest to the roof drain area (RDA) for acetone and methylene chloride analysis by Method-8260b. Samples will be field preserved according to USEPA Method-3035. One duplicate sample of each media will be collected for QA/QC purposes if the sample collection does not fall within a data group of samples collected elsewhere on Site.

Also, as requested, ERM will add two soil borings south of the proposed limit shown on Figure 5 of the Work Plan to evaluate potential upgradient sources. The borings will be evaluated according to the protocol described for the other 12 boring locations. The exact locations will be determined in the field and after discussions with the NYSDEC.

AOC Site Ground Water: Anticipated Remedial Action

The ground water remedial action will include the placement of ground water use limitations and monitoring of selected monitoring wells.

Additional Investigation

Four additional monitoring wells are proposed at the locations presented on Figure 6. These four wells will be developed and sampled along with all existing Site monitoring wells. All the ground water samples at each location will be containerized, labeled and shipped to the laboratory for analysis of the COCs including acetone and methylene chloride analyses by Method-8260b. One duplicate will collected for QA/QC purposes.

4.2

PHASE 2 - AOC 3

AOC 3:

Anticipated Remedial Action

The anticipated remedial action for AOC 3 is the pressure washing, appropriate containerization and off-site disposal of affected water and sediment in the buried culvert pipe. The remedy will accomplish the complete removal of all affected water and sediment.

Additional Sampling

ERM could not determine the construction method of the buried culvert pipe extending from the GSP Swale to the BSS. Therefore, ERM proposes to complete five soil borings (one every 50 feet) adjacent to the buried culvert pipe. The locations will be identified by mapping the location of the buried culvert pipe with a Ground Penetrating Radar (GPR) or probing with a steel rod, if necessary. The soil borings will extend from the ground surface to a depth equivalent to the invert of the buried culvert pipe assumed to be not more than 5-feet below grade. The soil borings will be sampled continuously and described by an ERM geologist. One sample will be collected from the bottom of each core for laboratory analysis for total nickel, copper, cyanide and chromium and species specific analysis for hexavalent chromium. If visually affected media is observed, ERM will continue coring until native material is encountered. An additional sample will be collected from the native material to confirm the depth of affected soil. One duplicate sample will be collected for QA/QC purposes if the sample collection does not fall within a data group of samples collected elsewhere on Site.

4.3

PHASE 3 - AOC 4

Anticipated Remedial Action

Following a review of the additional samples, including the vertical profiles compiled from the sediment coring, affected sediment accumulated in the constructed swale will be stabilized and/or dewatered as necessary, excavated, containerized and disposed off-site. Following the removal of affected sediment, affected soil underlying the sediment will be removed and transported off-site for disposal.

Additional Investigation

Seven sediment cores and 13 additional soil borings will be installed along the BS Swale area to further delineate the extent COCs in soil and develop a vertical profile of affected sediment as shown on Figure 7. The sediment cores will be obtained from the middle of the constructed ditch with a manually operated sediment coring device. The core will extend from the sediment/water interface to the soil immediately below the sediment/soil interface. Samples at each location will be containerized, labeled and shipped to the laboratory for analysis of the COCs.

Additionally, two samples of solid material will be analyzed for acetone and methylene chloride by EPA Method 8260b from the cores collected in the BSS. The samples will be collected from the core locations immediately north of Bridge Street to coordinate with the locations of the earlier samples. Additionally, ERM will collect one aqueous sample of the standing water in the BSS for acetone and methylene chloride analyses by Method 8260b. One duplicate sample of each media will be collected for QA/QC purposes if the sample collection does not fall within a data group of samples collected elsewhere on Site.

The 13 soil borings will be sampled at the near surface (0 to 2-inches) below grade; shallow-subsurface (12 to 14-inches) below grade and at the termination of the boring from 22 to 24-inches below grade. All the samples at each location will be containerized, labeled and shipped to the laboratory for analysis of the COCs.

All intrusive work will be performed in accordance with the Quality Assurance Project Plan (QAPP) and Remedial Action Health and Safety Plan (HASP) as presented in Appendices B and C, respectively. All ERM subcontractors will be advised of ERM's HASP during Site activities. The HASP described, among other things, discusses safety responsibilities, safety equipment and procedures, equipment decontamination, medical surveillance, training, levels of personal and respiratory protection, Site perimeter air monitoring, and emergency response procedures.

Prior to and during Site activities, requirements of the Citizen Participation Plan (Appendix D) will be enacted. All requirements of the NYSDEC Community Air Monitoring Program (CAMP) presented in Appendix E will be followed during Site construction activity.

5.1**SOIL AND SEDIMENT SAMPLING**

All applicable soil and sediment sampling procedures noted in the Site Specific Quality Assurance Project Plan (QAPP) as presented in Appendix B will be followed during collection of soil and sediment samples.

5.2**MONITORING WELL INSTALLATION PROCEDURES**

ERM's drilling subcontractor will file a request through Dig Safely New York for subsurface utility clearance of member companies. ERM will contract with a private utility location service to facilitate the identification, location, and marking of privately owned subsurface utilities, if necessary.

The proposed location of the four new wells is shown on Figure 6. However, actual locations may vary based on subsurface conditions encountered in the field. ERM will discuss well locations with the NYSDEC prior to installation of these wells.

An ERM geologist will oversee the installation of all permanent monitoring wells at the Site. Permanent monitoring wells will be installed in a manner such that the top of the screened interval will be located approximately 2-feet above the top of the water bearing sand and gravel unit with a minimum screen length of 10-feet. This construction will allow for representative sampling of this sand and gravel unit (this geologic unit where metals-affected ground water has been encountered during

previous investigations). All monitoring wells shall be constructed with 2-inch inside diameter, threaded flush joint, Schedule-40 PVC casing and 0.010-inch factory slotted screens. Solvents shall not be used to field weld the Schedule-40 PVC riser piping. Morie #1 sand or equivalent will be used to install a sand filter pack around the screened interval. The sand filter pack will be installed to a height of one foot above the top of each well screen. During the installation of the sand pack, the sand will be tamped down using a weighted tape measure to minimize the potential for bridging, and to ensure the proper placement and thickness of the sand. A 2-foot thick seal of pre-hydrated bentonite chips or bentonite slurry will be installed above each sand filter pack. Once the bentonite seal is in place, the remaining annular space shall be backfilled with cement-bentonite grout. Grout shall be added as required so the top of the grout shall settle at an elevation approximately one foot below ground surface. All wells will be constructed in general accordance to the diagram in Figure 8.

A permanent reference mark will be installed at the top of each well casing to provide a datum for water level measurements. Each well will be fitted with a flush-mounted steel protective casing cemented in place. A locking expansion well cap will be provided for each well. Keyed-alike locks will be installed for each new well and each existing well.

ERM's geologist will measure new well locations in the field using a measuring tape and will record relevant information in the field notebook. Well locations and elevations will be measured and recorded by a New York-licensed surveyor, with a planned horizontal and vertical accuracy of ± 0.1 feet and ± 0.01 feet, respectively.

All newly installed monitoring wells will be developed by suction lift pumping using a peristaltic pump, submersible pumping, or by surging and bailing to facilitate the removal of fine-grained material from the well, restoration of the hydraulic properties of the surrounding geologic formation, and collection of representative ground water samples. Any tubing used during well development shall be dedicated to the respective well. If submersible pumps are used for well development, each pump shall be dedicated to the respective well or shall be thoroughly cleaned between wells. If the surging and bailing technique is used for well development, surging and bailing equipment (i.e. disposable polyethylene bailers) shall be dedicated to each respective well.

ERM will attempt to develop each well to the point that the turbidity of the recovered ground water is less than 50 NTUs. The field parameters pH, conductivity and temperature will also be measured during well

development activities. Development activities will cease when the turbidity has dropped below 50 NTUs and/or field parameters have stabilized as follows for three consecutive readings:

- ± 0.1 for pH;
- temperature ± 0.1 degree C; and
- $\pm 10\%$ for specific conductance (conductivity).

Stabilization may be used to evaluate the effectiveness of well development procedures if there is no significant decrease in turbidity. Well development will not be performed for a period greater than one hour.

5.3 *MONITORING WELL SAMPLE COLLECTION PROCEDURE*

All applicable soil and sediment sampling procedures noted in the Site Specific Quality Assurance Project Plan (QAPP) as presented in Appendix B will be followed during collection of soil and sediment samples.

5.4 *LABORATORY ANALYSES*

Soil/Sediment Sampling: ERM will obtain soil/sediment samples at sample locations previously discussed. Since significant decisions will be made based upon the results of these soil and sediment sample analyses, Analytical Services Protocol (ASP), Category B Deliverables and a Data Usability Summary Report will be prepared to document the Quality Assurance/Quality Control will be performed on the data package. All soil/sediment samples will be collected for parameters listed in Table 1 according to procedures outlined above.

Ground Water Sampling: Following well development, ERM will sample the monitoring well locations. Ground water monitoring wells will be purged a minimum of three well volumes of water prior to sampling. Alternatively, low-flow sampling techniques will be used to ensure that formation water is being collected for laboratory analysis. During well purging (either after each well volume or continuously every 5 minutes during low flow sampling), field parameters including pH, temperature, conductivity, and turbidity will be measured. Because metals are a contaminant of concern at the Site, care will be taken to avoid collecting highly turbid samples (>50 Nephelometric turbidity units (NTUs)).

Since significant decisions will be made based upon the results of the monitoring well sample analyses, Analytical Services Protocol (ASP), Category B Deliverables and a Data Usability Summary Report will be

prepared to document the Quality Assurance/Quality Control will be performed on the data package. All groundwater samples will be collected for parameters listed in Table 1 according to procedures outlined above.

5.5 DATA EVALUATION

Once all the results of field testing and sample analyses have been received, the data will be reviewed, tabulated and mapped. The review will include a Data Usability Analysis. The data will then be used to accurately assess the limits and quantity of affected soil and to determine a feasible Site remediation strategy plan. Ground water data will be evaluated with respect to T.O.G.S. 1.1.1, and soil samples will be initially evaluated with respect to Part 375, Tables 375-6.8(a) and (b).

Consistent with Draft DER 10 requirements, the data will be used to prepare an analysis of remedial alternatives. The data will be sufficient to evaluate remedies according to the following criteria: protection of public health; compliance with SCGs; long-term effectiveness; reduction of toxicity, mobility, or volume; short-term effectiveness; implementability; cost and community acceptance.

A Data Gap Summary Report will be prepared based on all collected data as the results of each Phase of the investigation are completed. Summaries and conclusions will be developed and Interim Remedial Measures (IRMs) will be prepared as each Phase of the investigation proceeds.

Thorough, detailed documentation of project activities is required for the development of an IRM(s) during each Phase of the Data Gap Investigation. ERM will maintain complete documentation of all project activities so that decision processes, actions and results can be recreated as needed. As such, a history of the project will be maintained.

All applicable documentation procedures noted in the Site Specific Quality Assurance Project Plan (QAPP) as presented in Appendix B will be followed during collection of soil, sediment and ground water samples and the installation of monitoring wells.

A Citizens Participation Plan will inform the public of the ongoing investigation and remediation as presented in Appendix E.

ERM plans to initiate the Data Gap activities in the third quarter (October) of 2009. In general, the schedule will allow for a phased approach to the field characterization and data evaluation followed by a phased remedial program evaluation. Construction activities (Phased IRMs) are tentatively scheduled to begin in the second quarter of 2010. The implementation of a Ground Water Monitoring program is tentatively scheduled for the second quarter of 2010. A Site completion Report is tentatively scheduled for the fourth quarter of 2011. Actual projected Site closure is tentatively projected for the second quarter of 2012. The Brownfield Investigation and Remediation Schedule are presented in Appendix A.

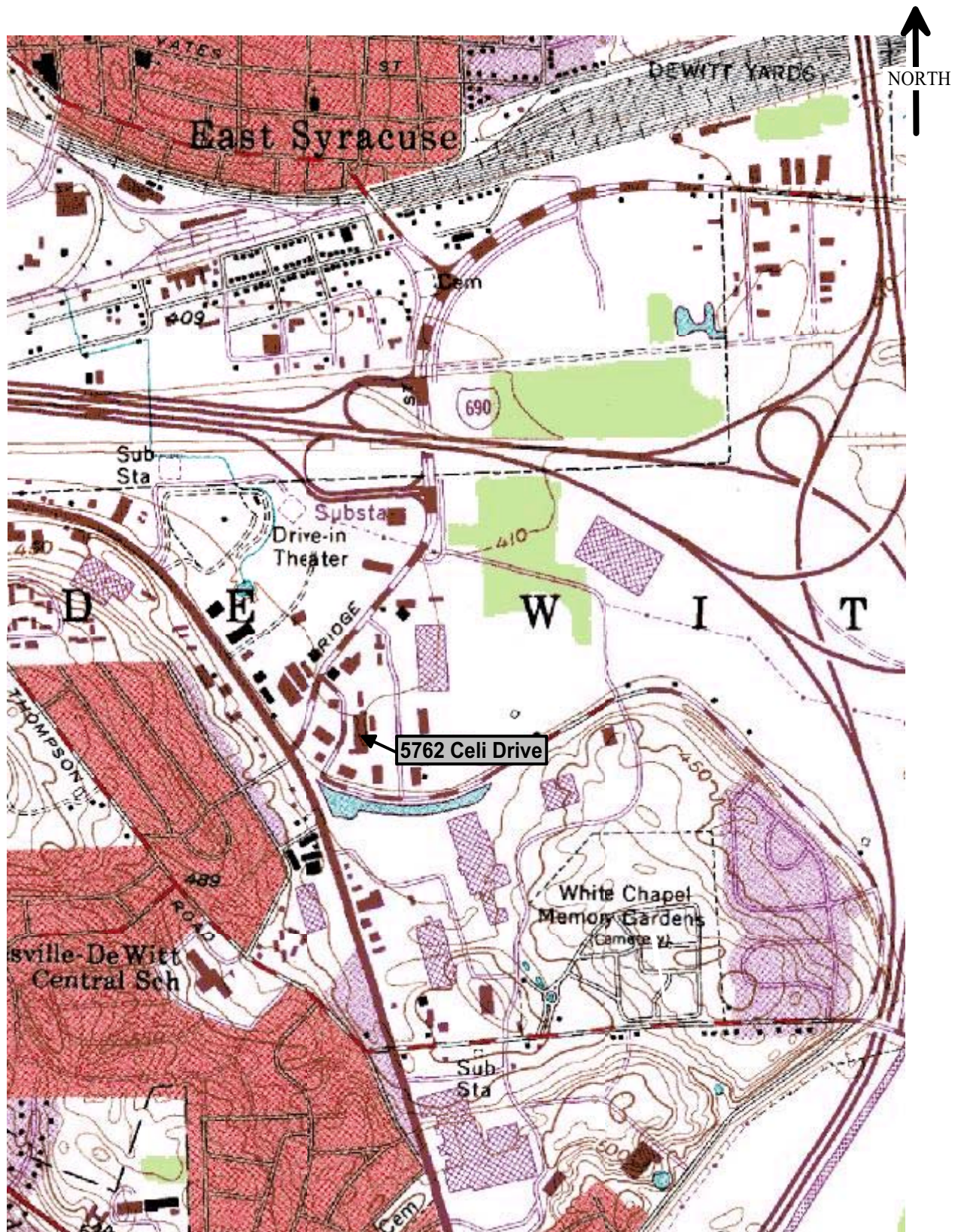
Tables

TABLE 1
SAMPLIGN PLAN SUMMARY
BROWNFIELD CLEANUP PROGRAM - DATA GAP INVESTIGATION
GENERAL SUPER PLATING - EAST SYRACUSE, NEW YORK


AOC	Number of Locations	Number of Samples	Matrix	Sample Depth (ft)	Analytical Parameters	Method	Sampling Method
2	12	24	Soil	4-6 and 6-8	Total Chromium, Nickel, Copper and Zinc	EPA Method 200.7	Soil Boring
					Total Cyanide (TCN)	10-204-00-1-A/SW-846 9012A	
					Hexavalent Chromium	SM3500CrD/7196A	
					Acetone*	SW 8260B	
					Methylene Chloride*	SW 8260B	
Site Ground Water	7	7	Water	Screened Interval	Total Chromium, Nickel, Copper and Zinc	EPA Method 200.7	Low Flow Sampling using peristaltic pumps with Teflon lined polypropylene tubing.
					Total Cyanide (TCN)	10-204-00-1-A/SW-846 9012A	
					Hexavalent Chromium	SM3500CrD/7196A	
					Acetone*	SW 8260B	
					Methylene Chloride*	SW 8260B	
4	6	24	Sediment Cores	Sediment/Water Interface, Sediment, Sediment/Soil Interface and Soil Beneath the Sediment	Total Chromium, Nickel, Copper and Zinc	EPA Method 200.7	Sediment Core
					Total Cyanide (TCN)	10-204-00-1-A/SW-846 9012A	
					Hexavalent Chromium	SM3500CrD/7196A	
					Acetone*	SW 8260B	
					Methylene Chloride*	SW 8260B	
4	11	33	Soil	0 to 2-inches, 12 to 14-inches, and 22 to 24-inches	Total Chromium, Nickel, Copper and Zinc	EPA Method 200.7	Soil Boring
					Total Cyanide (TCN)	10-204-00-1-A/SW-846 9012A	
					Hexavalent Chromium	SM3500CrD/7196A	
					Acetone*	SW 8260B	
					Methylene Chloride*	SW 8260B	

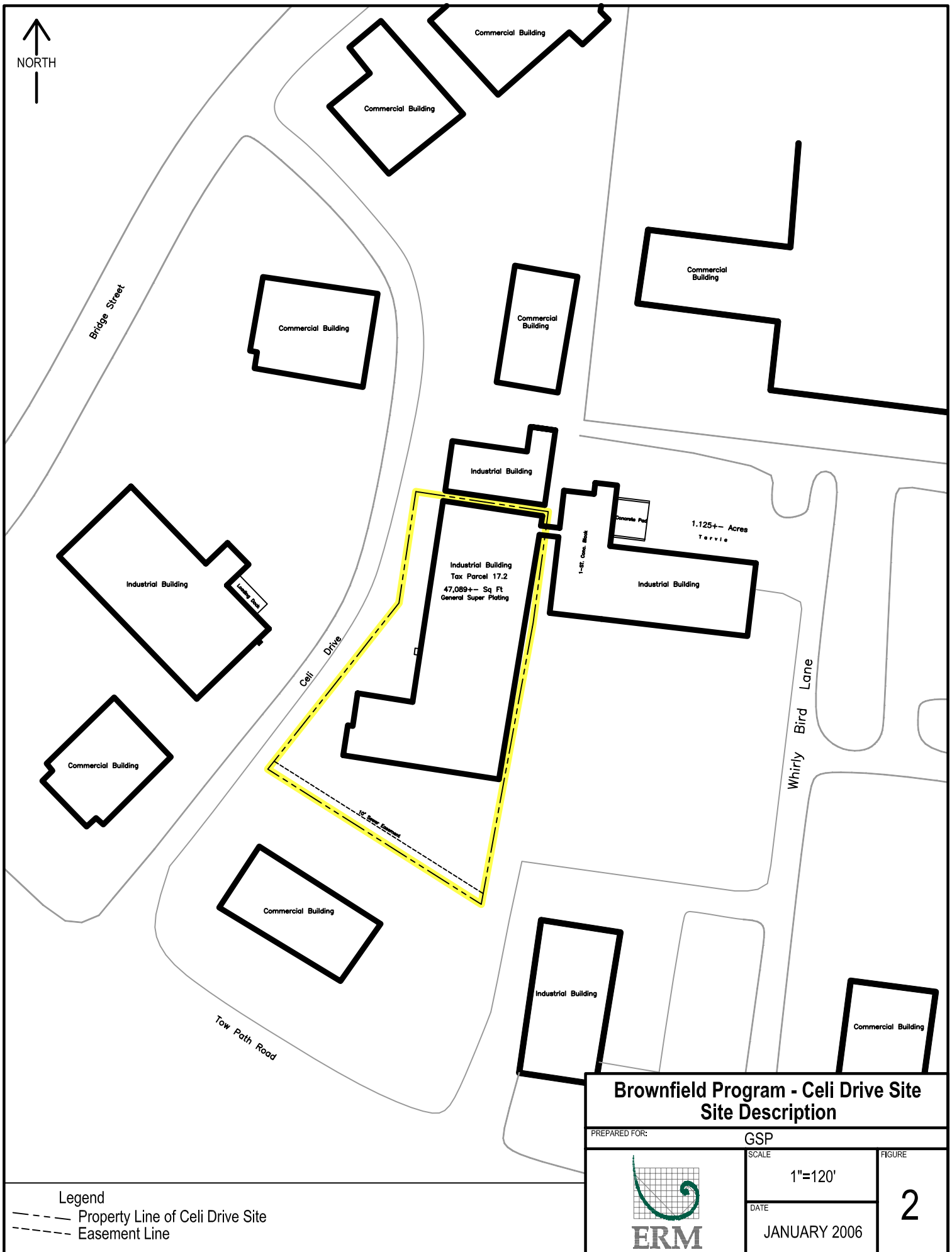
* Acetone and Methylene Chloride will be analyzed in the vGSP Swale and Bridge Street Swale in areas south of the Cellular One building

Figures



Brownfield Program - Celi Drive Site Site Location Map

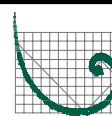
PREPARED FOR:	GSP	
 ERM	SCALE	FIGURE
	1" ~ 2000'	1
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	JANUARY 2006	



Brownfield Program - Celi Drive Site Site Description

PREPARED FOR:

GSP



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1"=120'

DATE

JANUARY 2006

FIGURE

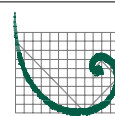
2



Brownfield Program - Celi Drive Site Aerial View of Area

PREPARED FOR:

GSP



ERM

SCALE

1"=250'

DATE

January 2006

FIGURE

3



Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	10.5	57.8	ND	33.8	41.2
12" - 18"	41.5	137	ND	109	671

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	546	132	1.7	969	745
12" - 18"	51.9	51.7	ND	54.3	46.6

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	18	73.1	ND	40.1	39.7
12" - 18"	10.9	56.1	ND	35.7	44

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	10.9	54.1	ND	32.3	37.5
12" - 18"	7.3	63.9	ND	27.6	36.1

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	15.9	61.2	ND	13.4	21.3
12" - 18"	21.5	16	ND	14.1	ND

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	65.5	55.3	ND	78.5	41.6
12" - 18"	34	102	2.82	560	65.7

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	21.2	13	ND	18.7	27.7
12" - 18"	169	11.9	ND	124	29.2

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	19.1	113	1.7	29.3	30.3
12" - 18"	13.7	25.2	ND	16.4	34.1

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	1,300	87,400	ND	5,780	41.8
12" - 18"	9.3	92	ND	1,300	16

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	13	12.7	ND	10.5	ND
12" - 18"	16.4	20.4	ND	19.6	40.5

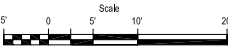
Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	22.9	59.8	ND	18.5	34.4
12" - 18"	338	855	ND	412	52.9

Depth	Cr	Cu	CN ⁻	Ni	ZN
0" - 6"	398	1,260	ND	495	58.6
12" - 18"	24.1	60.7	ND	33.9	31

- Legend
- B-8 ● Sub-Slab Boring Location
- ⊕ Monitoring Well Location


Compound	Industrial Restricted Use Soil Cleanup Objectives (mg/kg)
Chromium III (CR)	6800
Chromium VI (CR)	80
Copper (CU)	10000
Nickel (NI)	10000
Cynide (CN ⁻)	10000
Zinc (ZN)	10000

Note: All Concentrations reported in mg/kg



Brownfield Program - Celi Drive Site
AOC-1 - Sub-Slab Sampling Locations

PREPARED FOR: GSP

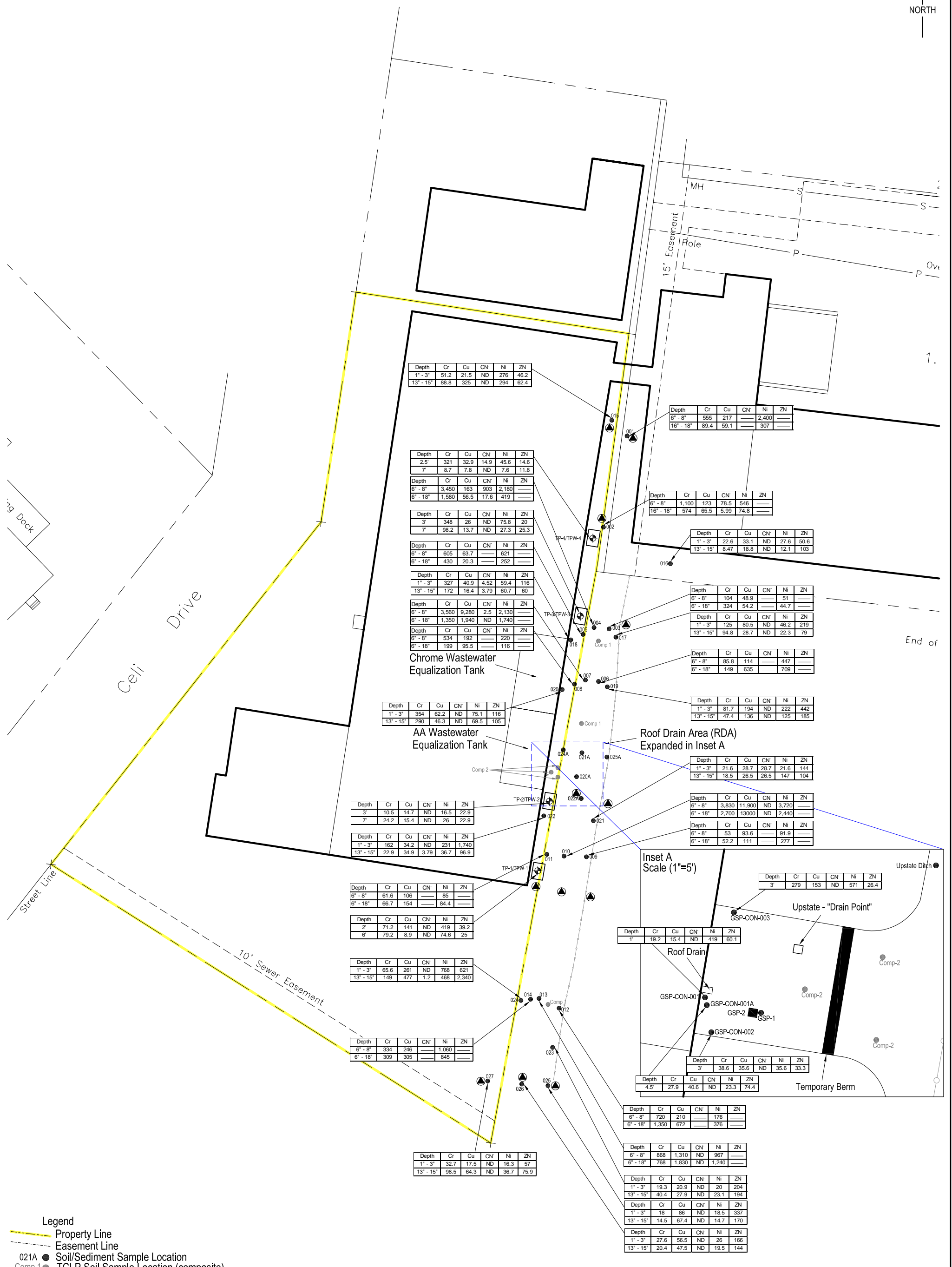


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DATE
JANUARY 2006

FIGURE
4

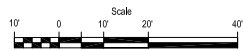
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- Legend**
- Property Line
 - Easement Line
 - 021A ● Soil/Sediment Sample Location
 - Comp 1 ● TCLP Soil Sample Location (composite)
 - ▲ Proposed Boring Locations - All Borings to be Completed at 8 Feet Below Grade
 - Not Analyzed

Compound	Industrial Restricted Use Soil Cleanup Objectives (mg/kg)
Chromium III (CR)	6800
Chromium VI (CR)	80
Copper (CU)	10000
Nickel (NI)	10000
Cynide (CN)	10000
Zinc (ZN)	10000


Note: All Concentrations reported in mg/kg



Brownfield Program - Celi Drive Site
AOC-2 - GSP Swale Sampling Locations

PREPARED FOR:

GSP



SCALE

1=20'

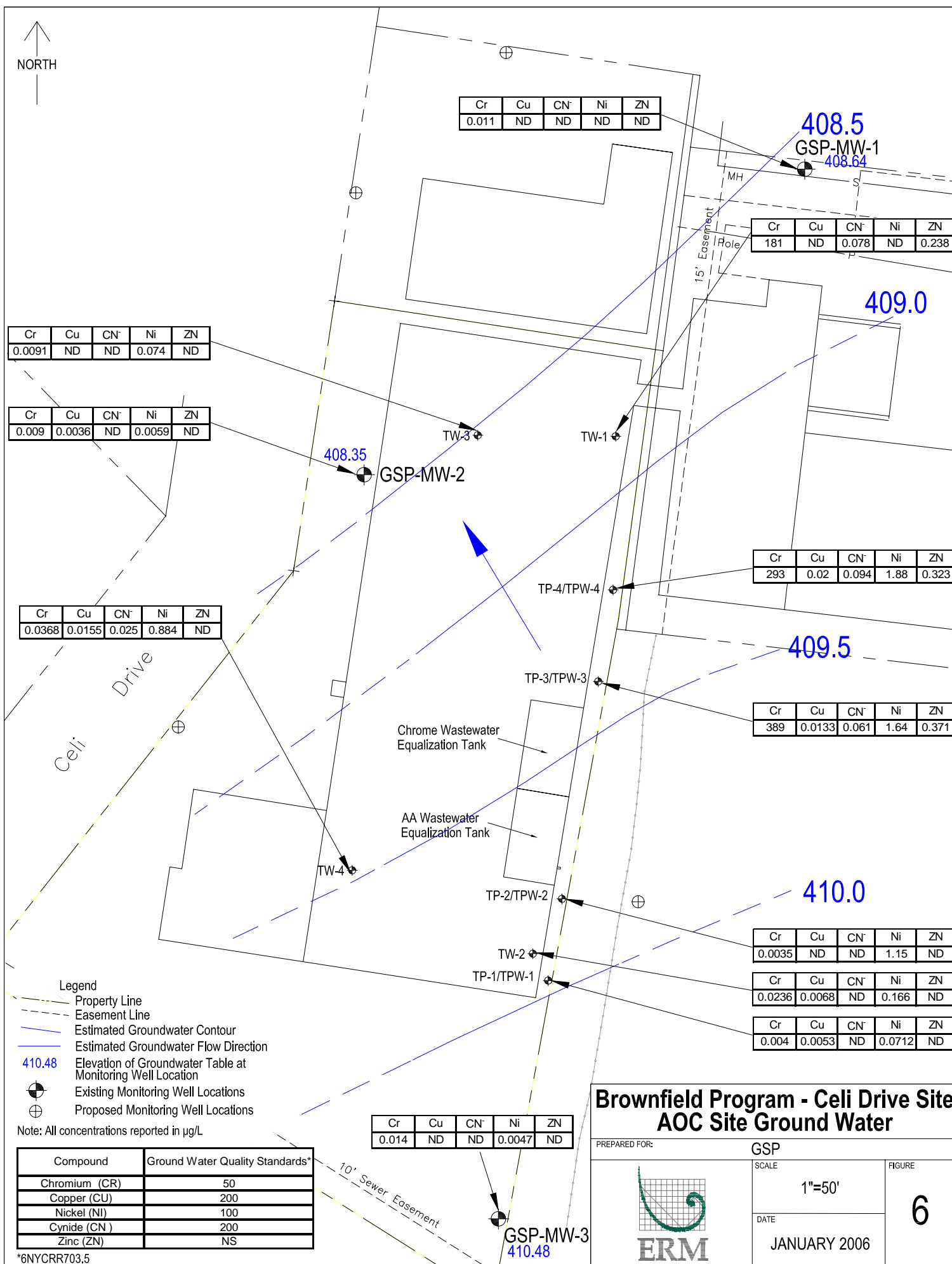
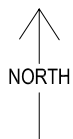
FIGURE

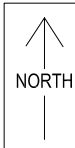
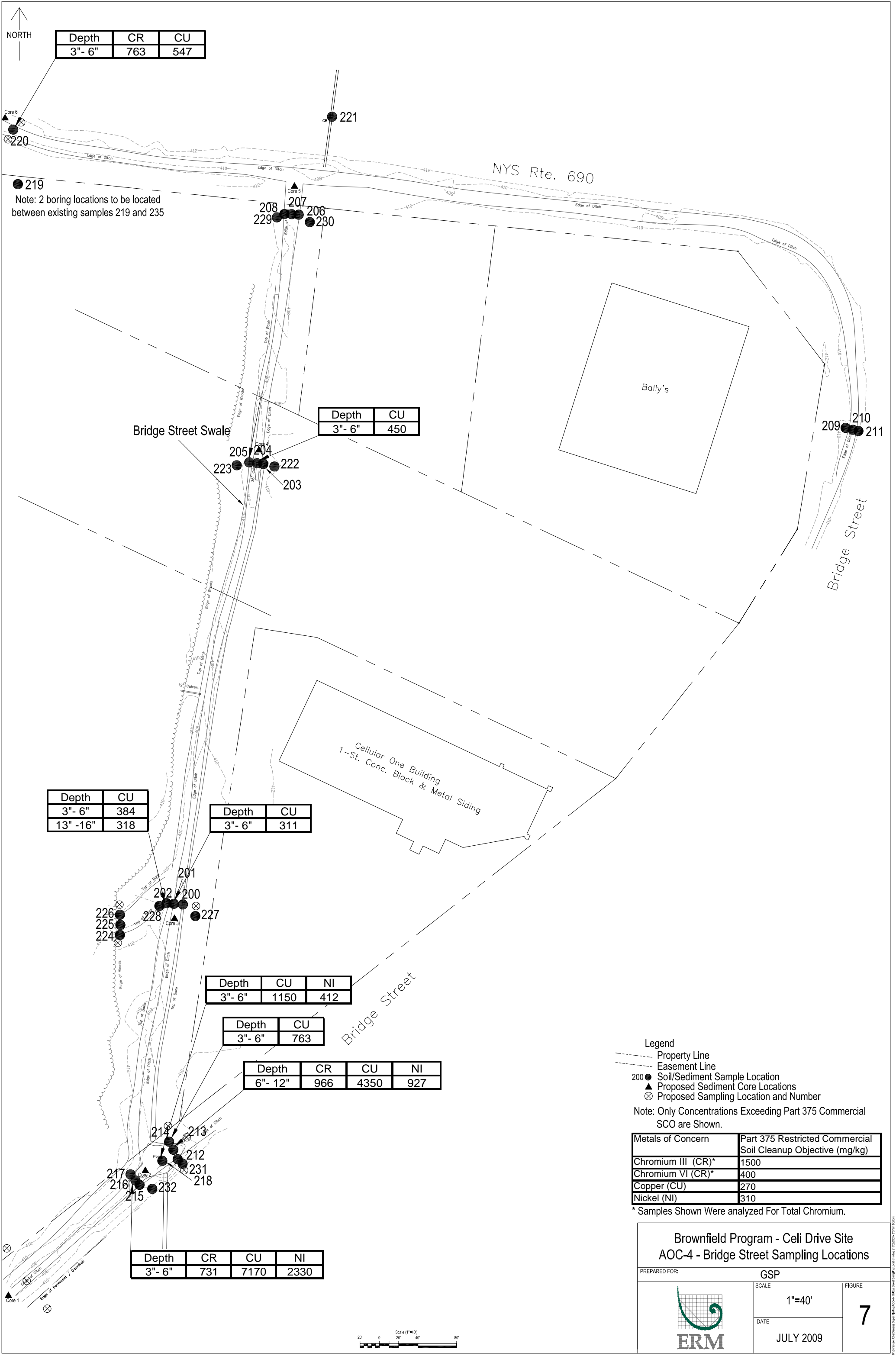
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JANUARY 2006

C:\brownfield\Brownfield\AOC-2\GSP Swale Sampling Locations.dwg 1/10/2006 2:28:00 PM





Core 6

● 219
Note: 2 boring locations to be located between existing samples 219 and 235

Depth	CU
3"- 6"	450

Bridge Street Swale

205 204 222 203 223

Depth	CU
3"- 6"	384
13"- 16"	318

Depth	CU
3"- 6"	311

226 225 224 228 227

Depth	CU	NI
3"- 6"	1150	412

Depth	CU
3"- 6"	763

Depth	CR	CU	NI
6"- 12"	966	4350	927

214 213 212 231 218 217 216 215 232

Depth	CR	CU	NI
3"- 6"	731	7170	2330

Legend

- Property Line
- Easement Line
- 200 ● Soil/Sediment Sample Location
- ▲ Proposed Sediment Core Locations
- ⊗ Proposed Sampling Location and Number

Note: Only Concentrations Exceeding Part 375 Commercial SCO are Shown.

Metals of Concern	Part 375 Restricted Commercial Soil Cleanup Objective (mg/kg)
Chromium III (CR)*	1500
Chromium VI (CR)*	400
Copper (CU)	270
Nickel (NI)	310

* Samples Shown Were analyzed For Total Chromium.

Brownfield Program - Celi Drive Site
AOC-4 - Bridge Street Sampling Locations

PREPARED FOR:

GSP



SCALE

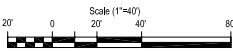
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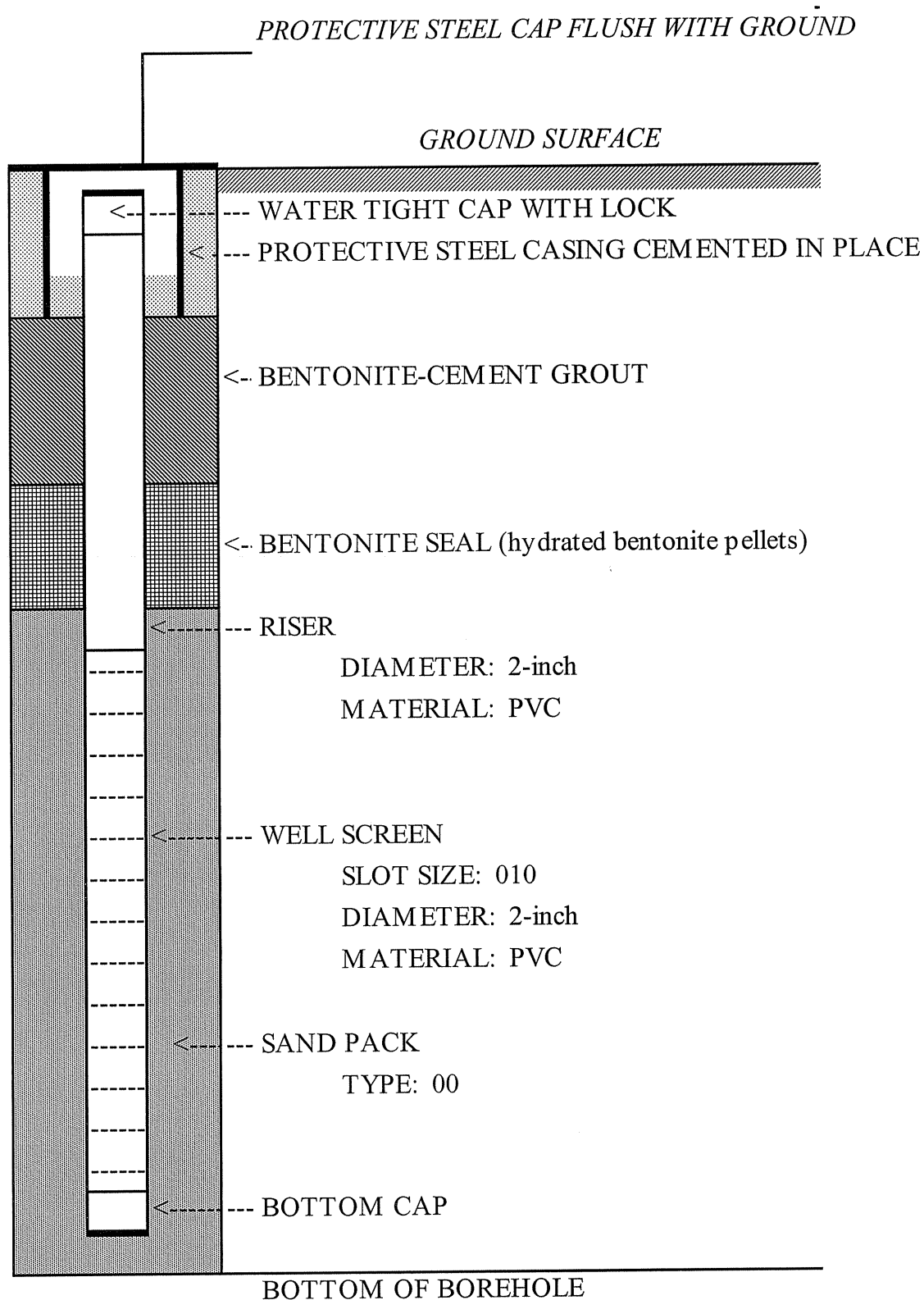
DATE

JULY 2009

FIGURE

7





**Brownfield Program - Celi Drive Site
Monitoring Well Detail**

PREPARED FOR: GENERAL SUPER PLATING CO., INC.



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JANUARY 2006

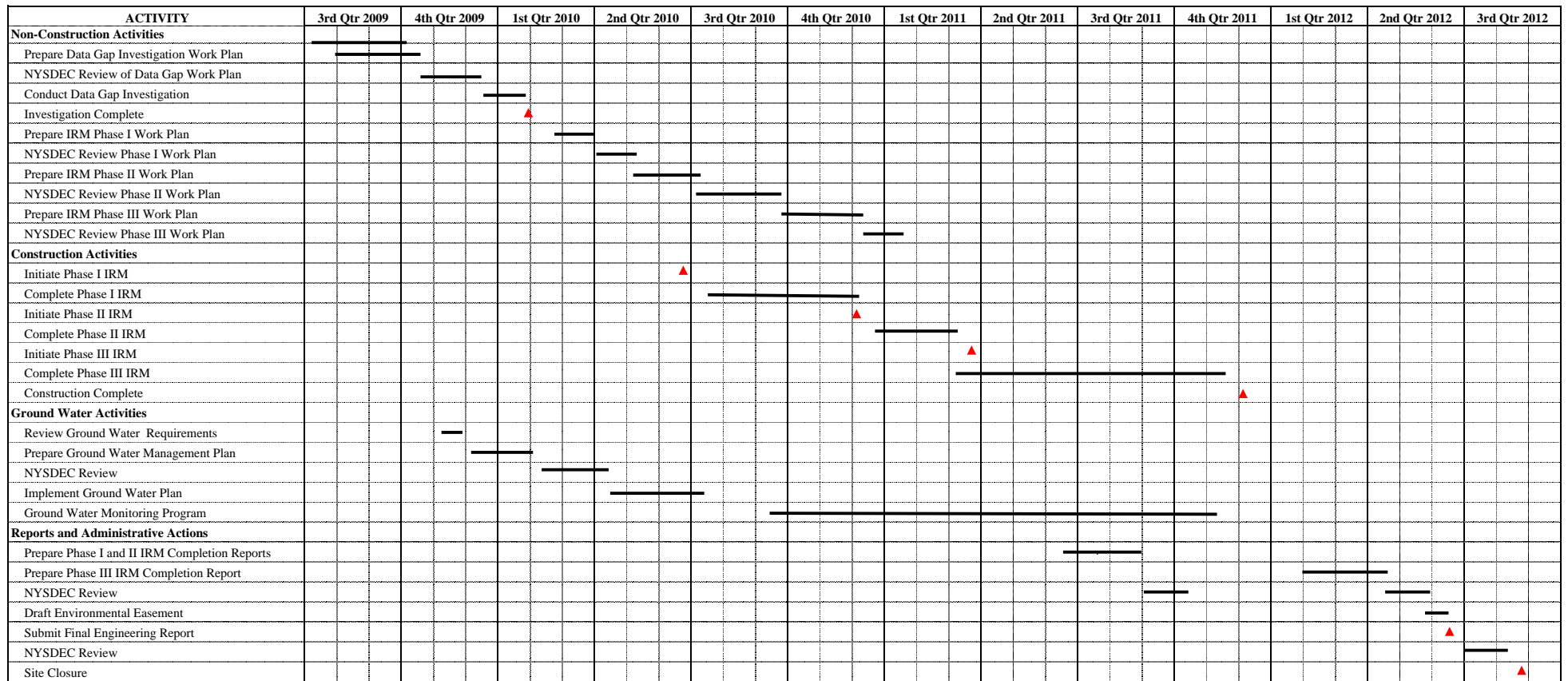
FIGURE

8

Appendix A

Work Schedule

**Brownfield Investigation and Remediation Schedule
Celi Drive Site, Dewitt, NY**



Appendix B

Quality Assurance Project Plan

General Super Plating Co., Inc.

**Site-Specific
Quality Assurance Project Plan**

*Celi Drive Site
Town of Dewitt
Onondaga County, New York
NYSDEC Spill Number 00550288*

June 2009

ERM Project Number 0032572

Environmental Resources Management
5788 Widewaters Parkway
Dewitt, New York 13214
(315) 445-2554

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3.2	FIELD SAMPLING QUALITY OBJECTIVES	3-2
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4.0	QUALITY CONTROL PROCEDURES	4-1
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8.0	SCHEDULE	8-1

TABLES

6-1	<i>Sampling Program</i>	6-3
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APPENDICES

A	<i>General Sampling Procedures</i>
B	<i>Sample Custody Procedures</i>
C	<i>Decontamination Procedures</i>
D	<i>Field Documentation</i>

Remediation activities are planned for General Super Plating Co., Inc. (GSP) at their Facility located at 5762 Celi Drive, East Syracuse, Onondaga County, New York (the Site, Figure 1). The facility consists of approximately 48,000-square feet (s.f.) situated on approximately 1.3-acre of land. This document presents quality assurance/quality control (QA/QC) protocols developed for the remediation phase of the project.

Planned remedial activities are presented separately in the Brownfield Investigation Work Plan (BIWP) dated January 2006. The BIWP will delineate the extent of Site contamination and will specify interim remedial measures (IRMs) to be performed as part of a Brownfield agreement between GSP and the New York State Department of Environmental Conservation (NYSDEC) under the Brownfield Program. IRMs will be implemented at the Site covering the areas of concern (Phases 1, 2 and 3 as identified in the BIWP) that have been identified from previous Site investigations. This Quality Assurance Project Plan (QAPP) presents the project quality objectives and procedures to be utilized in performing the Data Gap Investigation and implementation of the IRM activities and to meet the remedial objectives, reporting requirements, and schedule of the project.

The remedial objectives selected for the Site will be developed in a manner consistent with Track 4 cleanup objectives described in Draft Part 375-3.

3.0 *QUALITY ASSURANCE OBJECTIVES*

3.1 *DATA QUALITY OBJECTIVES*

Data quality objectives (DQOs) are qualitative and quantitative criteria required to support the decision making process. DQOs define the uncertainty in a data set and are expressed in terms of precision, accuracy, representativeness, completeness and comparability (PARCC). The DQOs apply to both characterization and confirmation samples at the Site. These parameters are defined as follows:

- ***Precision:*** a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of standard deviation. Various measure of precision exists depending upon the prescribed similar conditions.
- ***Accuracy:*** the degree of agreement of a measurement (or an average of measurements) with an accepted reference or "true value". Accuracy is one estimate of the bias in a system.
- ***Representativeness:*** expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.
- ***Completeness:*** a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct, normal conditions.
- ***Comparability:*** expresses the confidence with which one data set can be compared to another data set.

It is the responsibility of the field team to collect representative and complete samples. It is the responsibility of the field screening chemist (if applicable) and/or the analytical laboratory to analyze these samples using accepted protocols resulting in data that meet PARCC standards.

The objectives with respect to field sampling and testing activities are to maximize the confidence in the data in terms of PARCC. Internal QC checks in the field may be utilized during this investigation through the use of field duplicates or other methods as presented below.

- **Field Duplicates** - One of every 20 soil samples collected in the field will be accompanied by a blind duplicate sample. The duplicate will be prepared by homogenizing the sample and preparing two identical sample aliquots for analysis (grab samples will be used for VOC analysis). The duplicate sample will be assigned a fictitious sample number which will be recorded in the field notebook. Analysis of duplicate samples will determine the precision of analytical techniques.
- **Trip Blank** - A trip blank consists of analyte-free water sealed in 40-milliliter (ml) fluorocarbon resin-lined septum vials, which will accompany ground water sample containers from the laboratory to the field. Trip blanks will be returned with the field samples back to the laboratory. Trip blanks are analyzed if VOCs are sampled for and are used to evaluate whether cross-contamination of ground water samples occurred during shipment or storage of samples, or if atmospheric contamination has compromised sample containers. Trip blanks are utilized on a frequency of one per day on days when ground water samples are collected for VOC analyses.

Precision will be calculated as relative percent difference (RPD) if there are two analytical points, and percent relative standard deviation (%RSD) if there are more than two analytical points. Through the submission of field QC samples, the distinction may be made between analytical problems, sampling technique considerations, and sample matrix variability. This distinction will be made by the data reviewer based on industry guidelines and professional judgment.

The DQO for completeness of all data to be collected during the investigation is 100%. In the event that 100% data completeness is not obtained due to inaccessibility of sampling points or other field conditions, the effect that the missing data will have on the project objectives will be evaluated. If necessary, corrective action will be

initiated to resolve any data gaps that develop as a result of less than 100% data completeness.

Every effort will be made to obtain valid data for all sampling points, particularly those identified by the Field Team Leader as critical points. In this regard, sampling points identified as critical will be selected for QC sampling (duplicate sample collection) at the frequency specified.

In order to establish a degree of comparability, such that observations and conclusions can be directly compared with all historical data, standardized methods of field analysis, sample collection, holding times, sample preservation and standard units of measurement for data will be used. In addition, field conditions will be documented and considered when evaluating data to determine the effects of sample characteristics on analytical results. Whenever possible, the same sampling team will obtain all samples on consecutive days to reduce inconsistencies which may be caused by technique and time variables.

3.3 *LABORATORY DATA QUALITY OBJECTIVES*

The laboratory will demonstrate analytical precision and accuracy by the analysis of laboratory duplicates and by adherence to accepted manufacture and procedural methodologies. The project laboratory will provide NYSDEC Analytical Services Protocol (ASP) Level B deliverables.

The performance of the laboratory will be evaluated by the Project Manager and Project QA Officer during data reduction. The evaluation will include a review of all deliverables for completeness and accuracy when applicable.

4.0 *QUALITY CONTROL PROCEDURES*

This section presents a general overview of the QA/QC procedures that will be implemented during the investigation. These quality control procedures are to be implemented as follows:

- at the factory for certain manufactured products;
- in the field; and
- in the project laboratory.

4.1 *FIELD ACTIVITIES*

Sampling and analysis will be conducted during or subsequent planned remedial activities and may include the collection of additional investigative samples, confirmation soil samples, ground water samples, process water samples, and soil vapor samples to assess the effectiveness of remedial activities. Field sampling procedures are described in Appendix A of this QAPP. All field and laboratory personnel will handle project samples in a manner that facilitates custody tracking and validity of the samples. Sample custody procedures are presented as Appendix B of this QAPP.

All field measurement and sampling equipment will be cleaned or decontaminated according to procedures presented in Appendix C.

All field activities will be documented in accordance with procedures presented in Appendix D.

Laboratory calibration and frequency for specific analytical methods and pieces of equipment is specified in the United States Environmental Protection Agency (USEPA) SW-846 and the project laboratory's Standard Operating Procedures.

Team members will be familiar with the field calibration, operation, and maintenance of the equipment, and will perform the prescribed field operating procedures outlined in the operation and field manuals accompanying the respective instrument. Field personnel will keep records of all field instruments calibrations and field checks in the field logbooks. Calibration information recorded in field logbooks will include date, time, instrument make and model, a description of specific calibration or field check procedures, and any instrument deviations.

If on-site monitoring equipment should fail, the Field Team Leader will be contacted immediately. Replacement equipment will be provided or the malfunction will be repaired in a timely fashion.

A general summary of the sampling program, analytical methods, preservatives, holding times, containers, and method detection limits is shown in Table 6-1. Soil and ground water samples will be collected for analysis of metals, and occasionally for selected waste characterization parameters (i.e., ignitibility, corrosivity, etc.). In general, laboratory analytical procedures will adhere to USEPA SW-846 methodology, although other methods may be utilized as appropriate. All samples will be analyzed by a New York State Department of Health (NYSDOH)-approved environmental laboratory.

Upon receipt of analytical reports from the laboratory, ERM will evaluate the data packages. A full data validation is not included in the scope of work; however, an evaluation of the data following the Data Usability Summary Report (DUSR) guidelines will be performed. The project laboratory will provide ASP Category B deliverables for all data packages.

The project QA/QC officer will review the data packages and prepare a DUSR in accordance with NYSDEC guidelines. At a minimum, the following information will be evaluated:

- completeness of the data package under NYSDEC ASP Category B;
- chain-of-custody forms;
- date sampled/date analyzed;
- sample temperature at check-in;
- raw data;
- initial and continuing instrument calibrations;
- matrix spikes;
- laboratory duplicate analyses; and
- surrogate recoveries (organics).

Upon completion of this review, the project QA/QC officer will prepare a DUSR. Data reduction will consist of presenting analytical results on summary tables. The DUSR will be prepared according to the guidelines established by NYSDEC's Division of Environmental Remediation Quality Assurance Group and will describe the samples and the analytical parameters, data deficiencies, analytical protocol deviations, and quality control problems and their effect-on the data. The DUSR shall also include recommendations on re-sampling and/or re-analysis, if necessary. All data qualifications will be documented following the NYSDEC ASP 1995 revised guidelines.

Data from laboratory analyses will be used to evaluate potential remedial adjustments and to evaluate the effectiveness of remedial activities.

KEY PROJECT PERSONNEL

ERM will staff this project with persons having expertise in the tasks to be performed and experience in working on NYSDEC sites. Key project personnel expected to be assigned to this project are presented below.

Mr. Ed Hinchey, P.G.. will be the Principal-in-Charge for this project. Mr. Hinchey has a B.S. in Natural Science, a M.S. degree in Environmental Science and an M.A. degree in Geology. He has more than 15 years of diverse experience providing environmental consulting services to private and public sector clients. He has been site manager and technical lead on numerous field investigations at hazardous waste sites throughout the eastern United States. Mr. Hinchey will be responsible for strategic planning and finalizing the Scope of Work, project implementation, and budget and schedule management.

Mr. David W Myers, C.G. will be the project manager and construction manager for this project. Mr. Myers is a certified geologist and has Bachelors degree in geology and over 25 years of professional geologic and construction related experience. He has performed and supervised many field investigation and remediation projects, including projects at USEPA-regulated sites and NYSDEC listed hazardous waste sites. Mr. Myers will be responsible for detailed technical management and overall project management aspects of the project including management of field activities.

Mr. Jim Vener, P.E. will be the engineer of record for this project. Mr. Vener has a Bachelors degree in architectural engineering and a Masters degree in environmental engineering and over 9 years of experience including extensive engineering and remediation experience involving contaminated properties. He will be responsible for detailed engineering aspects of the project, including assistance with project and budget management of engineering-related tasks.

Mr. Robert Sents will be the QA/QC officer for this project. Mr. Sents has a Bachelors degree in geology and three years of professional environmental sampling experience. Mr. Sents will perform periodic field and sampling audits, interface with the analytical laboratory to make requests and resolve problems, interface with the data evaluator, and assist with development of a project-specific Data Usability Summary Report.

The proposed remediation schedule for various phases of the Site remediation program is presented and described in Section 7 of the associated BIWP.

Tables

TABLE 6-1
SAMPLING PROGRAM
CELI DRIVE SITE

Analysis	Analytical Method	Number of Samples			Frequency of Duplicates	Sample Preservative		Sample Container		Holding Time	Method Detection Limit (ppm)*
		Soil	Water	Air		Solid	Aqueous	Solid	Aqueous		
Chromium	EPA 200.7	29	6	0	1:20	4°C	4°C, pH<2 (HNO ₃)	200 grams glass	1 liter glass	6 months	0.001
Copper	EPA 200.7	29	6	0	1:20	4°C	4°C, pH<2 (HNO ₃)	200 grams glass	1 liter glass	6 months	0.001
Nickel	EPA 200.7	29	6	0	1:20	4°C	4°C, pH<2 (HNO ₃)	200 grams glass	1 liter glass	6 months	0.001
Zinc	EPA 200.7	29	6	0	1:20	4°C	4°C, pH<2 (HNO ₃)	200 grams glass	1 liter glass	6 months	0.001
Hexavalent Chromium	SM3500CrD/7196A	29	6	0	1:20	4°C	4°C, pH<2 (HNO ₃)	200 grams glass	1 liter glass	6 months	0.025
Total Cyanide	SW-846 9012A	29	6	0	1:20	4°C	4°C, pH<2 (HNO ₃)	200 grams glass	1 liter glass	6 months	0.01

NOTES:

* - method detection limit is lowest achievable by method, actual detection limit will be dependent upon sample matrix.

Appendix A
General Sampling Procedures

GENERAL SAMPLING PROCEDURES FOR OVERSITE OF REMEDIAL ACTIVITIES

1.0 INTRODUCTION

During the course of the remedial activities, the applicable procedures listed below will be followed for sample collection.

- Wherever possible, samples will be collected first from the location expected to be least contaminated. Samples that are expected to be most contaminated will be collected last.
- Accurate and detailed field notes will be maintained including detailed descriptions of sample collection and handling procedure and sample characteristics.
- Sampling procedures will be performed with the overall intent of collecting representative samples and minimizing sample disturbance.
- Worst-case samples will be selected for analyses based on observations (e.g., staining, odor), organic vapor field screening results, or other methods acceptable to NYSDEC.
- Any borings drilled that will not be used for monitoring wells will be backfilled with drill cuttings in accordance with NYSDEC guidance (TAGM-HWR-89-4032).
- Sample bottles will be labeled with the sample location, identification number, and date and time of sampling prior to being filled with a sample.
- All sample collection, handling and shipping information will be recorded in the field notebook.

2.0 SOIL/SEDIMENT/BENCH TEST SAMPLE COLLECTION PROCEDURES

2.1 Materials

The following materials generally will be available during soil, sediment and bench test sampling activities:

- health and safety equipment (personal protective equipment or PPE; FID or PID, etc.);
- sample retrieval device (concrete cutting machine, split-spoon sampler, hand operated corer, hand auger, trowel);
- stainless steel spatulas, bowls, and/or scoops;
- plastic (polyethylene) sheeting;
- knife;
- sample containers and seals;
- chain-of-custody forms;
- transport container with a cold source (ice or blue ice);
- field book;
- decontamination supplies (detergent, water, hexane, methanol or nitric acid rinses, buckets, brushes, etc.); and
- aluminum foil and sealable plastic storage bags.

2.2 *Sample Collection*

The applicable procedures noted below will be followed during collection of soil, sediment, or bench test samples.

1. Bench Test samples will be obtained by using the concrete cutting machine to cut a 1-foot by 1-foot access thru the floor slab. Upon completion of the concrete cutting, an eight-pound sledgehammer will be used to break the concrete. Upon breakup of the concrete, the concrete fragments will be removed to expose the underlying soils.
2. All subsurface soil samples will be collected using a hand auger or trowel. The hand auger and trowel will be made of stainless steel. Other equipment used during sampling such as bowls and mixing spoons will be made of stainless steel.
3. All soil samples will be screened immediately upon sample retrieval with a calibrated FID or a PID with 11.2 eV or higher lamp. Samples for VOC analysis will be collected directly from the split-spoon or coring device, using a decontaminated stainless steel sampling tool to transfer the soil into appropriate sample containers. All remaining soil samples will then be homogenized using USEPA's coning and quartering method. This method includes removing any debris not considered as part of the sample, thoroughly mixing the sample in the center of a decontaminated stainless steel pan or bowl, then quartering and mixing the

individual sample corners. The entire sample will be rolled to the center of the pan followed by a final mix. Placement into sample containers will be conducted after homogenization. Soil samples will not require preservation except for cooling to 4° Celsius.

4. All samples containers are to be labeled with: 1) site name; 2) ERM project number; 3) boring number; 4) sampled interval; 5) date; 6) time of collection; and 7) initials of sampling personnel.
5. The sample collector will record descriptions of samples as to: 1) percent recovery; 2) structure and degree of sample disturbance; 3) soil type; 4) color; 5) odor; 6) moisture content; 7) texture; 8) grain size, shape, and angularity; 9) density or consistency; and 10) any other observations, particularly relating to waste materials or unnatural materials.
6. Sample containers will be capped immediately after filling and placed into a chilled-cooler containing sufficient ice to cool the media for transport to the project laboratory.
7. All equipment used to collect samples for analysis will be either cleaned before each use or dedicated to a particular sample location after initial cleaning.

3.0

GROUND WATER SAMPLE COLLECTION PROCEDURE

The following procedures will be used for collection of ground water samples.

Well purging and sampling methods will utilize the simplest sampling method that will yield representative ground water samples. ERM expects to use low-flow purging for well sampling at the Site. The well purging method will be consistent with the well development method. A peristaltic pump and low flow sampling techniques will be used to collect ground water samples.

Prior to sampling, all wells will be purged of at least three well casing volumes. Wells with low recovery rates will be evacuated slowly until stable prior to sampling.

3.1 *MATERIALS*

The following materials will generally be available for ground water sampling activities:

- water level indicator (accurate to 0.01 foot);
- new dedicated well tubing;
- peristaltic pump;
- sample bottles and labels;
- chain-of-custody forms;
- thermally-insulated cooler with cold source;
- sample preservative (may be added to bottle by analytical laboratory);
- field book;
- PPE as needed (gloves, etc.);
- decontamination supplies (detergent, water, hexane, methanol or nitric acid rinses, bucket, brushed, etc.).

3.2 *GROUND WATER SAMPLING PROTOCOL*

Ground water sampling protocols to be used at the Site are as follows.

- Sampling will progress from the least-affected well to the most-affected well based on visual and olfactory observations and/or on historical results of sampling and analysis. Samples will be properly preserved, stored on ice and transported under proper chain-of-custody procedures.
- The depth to water in each well will be measured to the nearest 0.01-foot and the volume of water in the well calculated. The volume of water in the well, in gallons, will be calculated by subtracting the measured depth to water from the total depth of the well and multiplying by the appropriate conversion factor for the inside diameter of the well (i.e., 0.163 gallons per linear foot is the conversion factor for a two-inch well).
- Each well will then be purged to remove stagnant water from the screened portion of the well. Purging will be accomplished using low-flow (minimal drawdown)/low-volume purging techniques. Low-flow purging will be conducted using stainless steel bladder pumps with the associated control box(es) equipped with Teflon bladders and dedicated Teflon lined polypropylene tubing.

- The low-volume purging technique will be used to purge three well volumes from the well. Wells with low recovery rates will be evacuated to near dryness once and allowed to recover sufficiently for samples to be collected. All purged water will be contained in 55-gallon steel drums or other appropriate container pending receipt of laboratory analytical results. Purge waters from wells known to be “clean” based on absence of separate-phase product, sheen, or odors and historical laboratory analytical results may be poured on the ground near the well. In no event shall purge water be disposed of in a way that could cause a discharge to storm sewers or surface water.
- All bottles (if required) will be filled to a minimum of 90 percent capacity and then properly preserved (**Note:** if specifically required by NYSDEC, all non-VOC acid-based aqueous sample preservation may be verified by pouring a small amount of the preserved sample over pH paper; submerging pH paper into a sample container will not be permitted).
- Sample containers will be capped immediately after filling and placed into a pre-chilled cooler for transport to the project laboratory under proper chain-of-custody procedures.

Appendix B
Sample Custody Procedures

SAMPLE CUSTODY PROCEDURES

The primary objective of sample custody procedures is to create an accurate written record which can be used to trace the possession and handling of all samples from the moment of their collection, through analysis, until their final disposition. For the purpose of this document, the USEPA Office of Enforcement and Compliance Monitoring, National Enforcement Investigation Center (NEIC) Policies and Procedures (May 1986) definition of custody applies. USEPA states that a sample is under custody if:

1. it is in one's possession, or
2. it is in one's view, after being in one's possession, or
3. it is locked up after being in one's possession, or
4. it is in a designated secure area.

Custody for samples collected during this investigation will be maintained by the Field Team Leader (FTL) or the field personnel collecting the samples. The FTL or field personnel are responsible for documenting each sample transfer and maintaining custody of all samples until they are shipped to the laboratory.

A self-adhesive label will be affixed to each sample container before sample collection. These labels will be covered with clear waterproof tape in order to protect the label from water or solvent attack. The sample label should contain the following information:

- laboratory name;
- sample identification/number;
- sample location;
- sample matrix;
- date and time of collection;
- designation as a grab or composite sample;
- analytical parameter(s);
- preservative; and
- name of sampler.

All sampling containers will be supplied by the project laboratory. The bottles are cleaned by the bottle supplier, in accordance with standard laboratory procedures. Analytical proof of cleanliness can be made available for review on-site if requested. Sample containers will be

enclosed in clear plastic bags and packed with cushioning material (e.g. vermiculite) inside the coolers.

Custody of the sample bottles will be maintained by the FTL. Sample bottles needed for a specific sampling task will then be relinquished by the FTL to the sampling team after the FTL has verified the integrity of the bottles and that the proper bottles have been assigned for the task. ERM will place a sufficient volume of sample in the appropriate laboratory-grade bottles for use as sample containers. All necessary chemical preservatives will then be added to the bottles after sample collection.

The samples collected for analyses will be stored in an insulated cooler for shipment to the laboratory. The samples will be hand-delivered or shipped to the laboratory within 24 hours of sample collection for arrival no later than 48 hours after sample collection. ERM field chain-of-custody records completed at the time of sample collection will be placed inside the cooler for shipment to the laboratory. These record forms will be sealed in a zip-lock type plastic bag to protect them against moisture. Each cooler will contain sufficient ice packs to insure that a 4°C (\pm 2°C) temperature is maintained, and will be packed in a manner to prevent damage to sample containers. Sample coolers will be sealed with nylon strapping tape and the FTL will sign and date a custody seal and place it on the cooler in such a way that any tampering during shipment will be detected. A cooler custody seal is not required for hand deliveries where custody of the sample cooler is maintained by the FTL or sampling technician.

All coolers will be hand-delivered or shipped by an overnight courier according to current United States Department Of Transportation (USDOT) regulations. Upon receiving the samples, the sample custodian at the laboratory will inspect the condition of the samples, compare the information on the sample labels against the field chain-of-custody record, assign a laboratory control number, and log the control number into the computer sample inventory system. The sample custodian will then store the sample in a secure sample storage cooler maintained at 4°C (\pm 2°C) and maintain custody until the sample is assigned to an analyst for analysis. Custody will be maintained until disposal of the analyzed samples.

The sample custodian will note any damaged sample vials, void space within the vials, or discrepancies between the sample label and

information on the field chain-of-custody record when logging the sample. This information will also be communicated to the FTL or field personnel so proper action can be taken. The chain-of-custody form will be signed by both the relinquishing and receiving parties and the reason for transfer indicated each time the sample custody changes.

An internal chain-of-custody form will be used by the laboratory to document sample possession from laboratory sample custodian to analysts and final disposition. All chain-of-custody information will be supplied with the data packages for inclusion in the document control file.

Appendix C
Decontamination Procedures

DECONTAMINATION PROCEDURES

1.0 INTRODUCTION

Decontamination or cleaning of all field investigation and sampling equipment will follow guidelines established in the USEPA Region II CERCLA Quality Assurance Manual, Final Copy, October 1989, and specific decontamination procedures detailed below.

Equipment cleaning areas will generally be established within or adjacent to the specific work area. The equipment cleaning procedures described below include pre-field, field and post-field cleaning of sampling equipment. The equipment consists soil and sediment sampling equipment. The non-disposable equipment will be cleaned after completing each sampling event. All rinse water will be contained and treated on site or sent to an approved disposal facility. Cleaning procedures will be monitored by the project QA/QC officer and QA/QC checks and samples as previously described.

Any solvents and water used in the decontamination process will be contained and collected for characterization and proper disposal if necessary. Solids (e.g., disposable gloves, disposable clothing, and other disposable equipment) resulting from personnel cleaning procedures will be contained for proper disposal. Decontamination procedures will be fully documented in the field notebook.

2.0 SAMPLING EQUIPMENT DECONTAMINATION

Typical sampling equipment cleaning materials may include:

- phosphate-free detergent solution soap;
- potable water (which will be obtained from a treated municipal water source);
- appropriate cleaning solvent (e.g., pesticide-grade hexanes or methanol);
- nitric acid;
- wash basins;
- brushes;
- plastic (typically polyethylene) sheeting;
- aluminum foil;
- large, heavy-duty garbage bags;
- spray bottles;

- zip-lock type bags;
- paper towels/Handiwipes®; and
- non-phthalate (i.e., latex or nitrile) disposable gloves (surgical gloves).
Note: These gloves will also be worn by the sampling team and changed between sample points.

All sampling equipment will be stored in a clean environment and, where appropriate, the equipment will be covered in aluminum foil.

Field decontamination procedures, as described below, will include the establishment of cleaning stations. These stations will be located away from the immediate work area so as not to adversely impact the cleaning procedure, but close enough to the sampling teams to keep equipment handling to a minimum.

A designated area will be established to conduct large scale cleaning. All equipment such as drill rigs will receive an initial cleaning at this location prior to use on-Site. The frequency of subsequent on-Site cleaning will depend on actual equipment use in the collection of environmental samples. All fluids and residues produced from the decontamination procedures will be collected and stored on-Site until analyses can be conducted and a decision regarding final disposition of the materials is made pursuant to state and federal requirements.

All sampling equipment (e.g., hand-operated coring devices, knives, hand-augers, bowls, etc.) will be cleaned before each use. The field sampling equipment cleaning procedure when analyzing for organic constituents is as follows:

1. Phosphate-free detergent solution;
2. potable water rinse;
3. de-ionized water rinse;
4. repeat water rinse two more times (i.e., triple rinse) and allow to air dry if time allows; and
5. Wrap equipment completely with aluminum foil to prevent contact with other materials during storage and/or transport to the sampling location.

The field sampling equipment cleaning procedure when analyzing for inorganic constituents is as follows:

1. phosphate-free detergent solution;

2. potable water rinse;
3. rinse equipment with at least a 10 percent nitric acid solution, ultrapure (carbon steel samplers will be rinsed with a one percent nitric acid solution);
4. potable water rinse;
5. de-ionized water rinse;
6. air dry if time allows (sampling activities will not be held up to allow for air drying); and
7. wrap equipment with aluminum foil to prevent contact with other materials during storage and/or transport to the sampling location.

The initial step (detergent and water wash) removes all visible particulate matter and residual oils and grease (this may be preceded by a steam cleaning to facilitate residuals removal). When analyzing for organic constituents when tools appear heavily contaminated, this may be followed by a potable water rinse to remove the detergent and a rinse sequence of solvent (e.g., hexanes, methanol) and de-ionized water. When analyzing for inorganic constituents the detergent and water wash will be followed by a nitric acid rinse, a potable water rinse, and a de-ionized water rinse.

All heavy equipment (drill rigs, etc.) will be steamed cleaned before entering the study area. All down-hole equipment will be steam-cleaned between uses at each location. Equipment will be scrubbed manually as needed to remove heavy soils prior to steam-cleaning. Clean drilling equipment will be stored in an in-active work area on-site until use.

3.0 *METER AND FILTER DECONTAMINATION*

All meters and probes that are used in the field will be decontaminated between use as follows:

1. detergent/potable water wash; and
2. de-ionized water rinse (triple rinse).

Filtering apparatus will be cleaned prior to each use by washing with a phosphate-free detergent solution, rinsing with potable water, followed by a 10 percent nitric acid solution rinse, a potable water rinse, and a final rinse with deionized water. Following sample collection the used filter will be properly disposed.

Sampling equipment and probes will be decontaminated in an area covered by polyethylene sheeting near the sampling location.

Appendix D
Field Documentation

FIELD DOCUMENTATION

All field data, such as those generated during field measurements, observations, and field instrument calibrations, will be entered directly into a bound field notebook. Each project team member will be responsible for proofing all data transfers made, and the Field Team Leader may proof at least 10 percent of all data transfers.

One or more bound field notebooks will be maintained for the Site; each book will be consecutively numbered. The book(s) will remain with the Site project file.

All entries in the Logbook will be made in ink. Logbook entries will generally include but not be limited to the following:

First Page:

- facility name and number;
- date and time started; and
- personnel on-site.

Subsequent Pages:

- a detailed description of investigative activities including sampling, on-site meetings and any problems encountered along with the duration of these activities;
- documentation of all personnel monitoring results (e.g. PID readings);
- list of all samples obtained and sample appearance (referenced to field logs if necessary);
- list of PPE used and documentation procedure; and
- all other pertinent daily activities.

Each new day will contain:

- date and time started;
- weather;

- personnel on-site;
- activity information; and
- initials of notekeeper.

*Note: When a mistake is made in the log, it will be crossed out with a single ink line and will be initialed and dated.

Special care will be taken in the description and documentation of sampling procedures. Sampling information to be documented in the field notebook and/or associated forms are as follows:

- sample number;
- date and time sample collected;
- source of sample (area, monitoring well number, etc.);
- location of sample - document with a Site sketch and/or written description of the sampling location so that accurate resampling can be conducted if necessary;
- sampling equipment (trowel, split spoon, sediment corer, etc.);
- analysis and QA/QC required;
- chemical preservative used (HCl, HNO₃, H₂SO₄, NaOH, etc.);
- field instrument calibration including date of calibration, standards used and their source, results of calibration and any corrective actions taken;
- field parameters data (pH, temperature, conductivity, etc.);
- field observations - all significant observations will be documented;
- sample condition (color, odor, etc.);
- relevant Site conditions (stressed vegetation, exposure of buried wastes, erosion problems, etc.);

- sample shipping procedure, date, time, destination and if container seals were attached to transport container(s); and
- general comments - any observation or event that occurred that would be relevant to the facility (e.g., weather changes and effect on sampling, conversations with the client, public official or private citizen; and instrument calibration, equipment problems, field changes, etc.).

Figure

Appendix C

Health & Safety Plan

General Super Plating Co., Inc.

**Site Specific
Health and Safety Plan**

*Celi Drive Site
Town of Dewitt
Onondaga County, New York
NYSDEC Spill Number 00550288*

June 2009

ERM Project No. 0032572

Environmental Resources Management, Inc.
5788 Widewaters Parkway
Dewitt, New York 13214
(315) 445-2554

HEALTH AND SAFETY PLAN

APPROVED BY:

ERM, Inc.
Health and Safety Manager
Ernest Sweet, C.I.H.

Date

ERM, Inc.
Principal-In-Charge
Edward Hinchey, P.G.

Date

ERM, Inc.
Project/Site Manager
Kristopher Perritt, CHMM

Date

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INTRODUCTION

ERM will provide Project Oversight Services for General Super Plating Co., Inc. (Owner) for Remediation activities at the General Super Plating Co., Inc. facility at 5762 Celi Drive, East Syracuse, NY (the Site).

This Health and Safety Plan (HASP) summarizes the remedial activities to be performed at the Site and chemicals of concern expected to be present.

The HASP then describes the procedures to be followed in conducting the remedial activities, given the existing data concerning the Site.

SITE DESCRIPTION

The General Super Plating Co., Inc. (GSP) facility is located at 5762 Celi Drive, East Syracuse, Onondaga County, New York (see Figure 1). The Site consists of an industrial buildings with approximately 48,000 square feet situated on approximately 1.3 acres of contiguous land. Paved areas, along with several landscaped lawn areas along the building fronts surround the buildings. According to the Town of Dewitt Department of Planning, the subject property is zoned as a Business/Commercial Area.

Niagara Mohawk Power Company provides electrical and natural gas services to the subject property. The Onondaga County Water Authority provides potable water service to the facility.

PHYSICAL SETTING

Topographic map coverage of the site and vicinity is provided by the U.S. Department of Transportation 7.5-minute topographic map for Syracuse East quadrangle, New York, dated 1990. Based on the U.S. Department of Transportation information, the average ground surface elevation of the site is approximately 420 feet above mean sea level (MSL). The topography of the facility and surrounding area is generally flat. It appears that surface water at the site drains locally to several storm sewer drains and to the swale on the east side of the GSP Facility. In general, it appears that shallow groundwater migration would flow to the north-northeast.

The surface water drainage feature noted by the NYSDEC as affected by the "spill incident" is a swale located adjacent to the east side of the GSP Facility. The swale is above-ground directly behind the southern half of the main facility where the swale then is directed underground through concrete or corrugated piping for approximately 750 to the north towards

Bridge Street. At Bridge Street, the swale flows into a large vault and is then directed through a large corrugated culvert under Bridge Street to a small retention pond adjacent to Bridge Street. At the north end of this retention pond, the swale continues flowing north for approximately 1,000-feet where it enters a New York State Registered wetland area just north of the eastbound exit ramp of I-690 to Bridge Street.

The *Soil Survey of Onondaga County, New York*, produced by the USDA Natural Resources Conservation Service, dated October 1977, classified the soils in the immediate vicinity of the subject facility as Urban Land (Ub). Urban Land consists of large built-up areas that have been so altered or obscured by urban works and structures that identification for the soils is not feasible.

Typical soils in the area of the swale generally consist of typical wetland black organic peat which occasional pockets and piles of man-made fill and/or debris underlain by two to three feet of dense clay. In several areas, fine gray sandy silt is located under the clay. Groundwater typically is located along this clay-silt interface.

Descriptions of the remediation activities to be conducted are presented as follows:

- General preparation of the areas of concern on the site;
- Implementation of soil erosion and storm water controls;
- Construction of an earthen berm of stockpiled clay/soil material to control surface water drainage to swale;
- Removal and containment of water;
- Diversion of surface water;
- Removal of water from areas of the Site for transport, containment and treatment at the GSP wastewater treatment facility or other appropriate facility;
- Removal of existing vegetation;
- Soil excavation, disposal; and
- Excavation backfill;

Work requiring 40-hour certification will be performed by an approved contractor. Remedial activities are scheduled to begin in the 2006 and may last till fall of 2008.

Previous sampling of soil and surface water has identified metals as the primary chemicals of concern. The areas where the chemicals of concern have been identified are described ERM's October 2005 Comprehensive Report and are summarized as the following Areas of Concern (AOC):

- 1) AOC-1 – Affected soil beneath the manufacturing building;
- 2) AOC-2 – Affected soil in the GSP swale;
- 3) AOC Ground Water;
- 4) AOC-3 – Buried culvert; and
- 5) AOC-4 – Affected soil and sediment at the Bridget Street swale.

Chemicals identified in the soil, surface and ground water at the Site, which may be encountered at concentrations that may exceed OHSA Permissible Exposure Levels (PELS) and the New York State Department of Environmental Conservation (NYSDEC) Standards, and Guidance during remedial activities are as follows:

Table 3-1

<u>Metals</u>	ACGIH Threshold Limit Values (TLV)
• Hexavalent Chromium	0.01 mg/m ³
• Total Chromium	0.05 mg/m ³
• Nickel	0.01 mg/m ³
• Copper	0.05 mg/m ³
• Zinc chromate	0.01 mg/m ³
• Cyanide	5.0 mg/m ³

Metals have been identified as the major group of chemicals that may be present in potentially hazardous concentrations at the facilities. Metals may cause health effects due to inhalation but dermal contact may also be of concern. Since some of the remedial activities involve subsurface disturbance for short periods of time, ingestion and the inhalation must be considered as a pathway of concern. These same activities may generate the release of airborne particulate (Dust) containing metals with inhalation again being the pathway of concern.

The maximum concentration of metals encountered during previous site investigations are as follows:

Soil: GSP Swale Area

Total Chromium	3,830 mg/kg
Copper	1,300 mg/kg
Nickel	3,720 mg/kg
Zinc	2,340 mg/kg
Total Cyanide	903 mg/kg

Water: GSP Swale Area

Total Chromium	55 mg/l
Copper	110 mg/l

Nickel	120 mg/l
Zinc	0.68 mg/l
Total Cyanide	Not Detected

Soil: BSS Swale Area

Total Chromium	4,100 mg/kg
Copper	7,200 mg/kg
Nickel	2,330 mg/kg
Zinc	17 mg/kg
Total Cyanide	8 mg/kg

Water: BSS Swale Area

Total Chromium	6.4 mg/l
Copper	23 mg/l
Nickel	12 mg/l
Zinc	0.12 mg/l
Total Cyanide	0.012 mg/l

Table 3-2 lists potential physical hazards that may be encountered during the remedial activities. This list has been compiled based on planned activities and potential site conditions.

TABLE 3-2
PHYSICAL SAFETY CONCERNS

Hazard	Description	Location	Procedures Used to monitor/reduce hazard
Underground Utilities	Electric, gas, sanitary and storm sewer	Throughout	Verify number and location of utilities prior to site operations
Heat Stress	Hot weather activities	Throughout	Protection and monitoring as designated in this HASP
Cold Weather	Frost-bite, Hypothermia	Throughout	Wear appropriate clothing; have warm shelter area available, monitor worker physical conditions.
Heavy Equipment	Excavators, loaders and trucks	Specific areas of operation	Tailgate briefings
Insects	Bees, wasps, spiders ticks	Throughout	Identify if any worker is allergic to insects; bee sting kit
Animals	Ground hogs, rabid raccoons, dogs, cats, and rabbits	Throughout	Do not approach any animal
Plants	Poison ivy, poison sumac, poison oak	Specific areas of operation	Identify and do not touch
Weather	Lightning, heavy rain or snow	Throughout	With lightning; cease all activities with heavy equipment; beware of slippery conditions
Noise	Heavy equipment	Specific areas of operations	Utilize hearing protection
Overhead Electrical Equipment	Overhead powerlines, telephone lines	Specific areas with the operation of heavy equipment	Make sure of clearance before raising tower

4.0 HAZARDS EVALUATION

The scope of work associated with the remedial activities involves but is not limited to soil excavation and backfill, soil sampling, and surface and ground water sampling activities at the Site.

4.1 CHEMICAL HAZARDS

To minimize exposure to site personnel from potential chemicals of concern during remedial activities, standard safety procedures will be followed during work activities.

Potential chemical hazards may include:

- Personnel exposure by inhalation, ingestion, and/or skin absorption of toxic metals, or airborne particulate (dust) containing toxic metals;
- Personnel injury by contact with corrosive or irritating chemical contaminants; and
- Off-site migration of airborne chemicals or dusts.

Personnel in the work zones must observe each other for signs of chemical exposure.

Indications of adverse effects include, but are not limited to:

- changes in complexion and skin color;
- changes in coordination;
- changes in demeanor;
- excessive salivation and preliminary response; and
- changes in speech patterns.

Personnel should also inform their Field Team Leader of non-visible effects of overexposure to chemical materials.

The symptoms may include, but are not limited to:

- headaches;
- dizziness;
- nausea;
- blurred vision;
- cramps; and
- irritation of eyes, skin or respiratory track.

4.1.1 *Site Monitoring for Chemical Hazards*

The primary compounds of concern in the portion of the remedial work areas are metals. Air monitoring and good work practices will be used during intrusive (where site soils are excavated) remedial activities to ensure that appropriate personal protection is used and to minimize potential exposures. Ambient air monitoring equipment to be used during site activities will be selected based on their ability to detect the chemicals of concern.

Airborne particulate concentration levels will be monitored routinely in the breathing zone with an appropriate direct-reading instrument. Minimally, monitoring will be conducted at the initiation of a task. Outdoor ambient air airborne total dust monitoring, in conjunction with field observations, will be used as action level criteria for upgrading or downgrading personal protective equipment and implementing additional precautions or procedures.

The potential risks associated with working in hot weather will also be considered when upgrading levels of protective equipment.

Field monitoring of work activities will be conducted by or under the supervision of the Health and Safety Officer (HSO).

The HSO will properly maintain and calibrate air-monitoring instruments throughout the field activities to ensure their accuracy and reliability.

4.1.1.1 *Total Dust Monitoring*

Monitoring for total dust will be conducted in the breathing zone of site personnel at intervals recommended by the HSO.

Screening for specific metals will not be performed; rather, the action levels will be based on total dust concentration levels assuming the presence of Hexavalent Chromium has a Permissible Exposure Level (PEL) of 0.01 milligrams per cubic meter. The total dust action level assumes that the background level of metals is close to non-detectable:

SUSTAINED Mini Ram READING IN BREATHING ZONE and ABOVE BACKGROUND LEVEL	RECOMMENDED ACTION
< 100 micrograms per M ³	None
100 to 150 micrograms per M ³	Contact Site HSO
150 micrograms per M ³	Suspend Work/Contact Site HSO

In order to prevent unnecessary upgrading or downgrading, when the total dust concentration level in the breathing zone is close to an action level, the zone will be continuously monitored for several minutes to determine whether or not the exceedence is a temporary fluctuation.

4.1.1.2 *Metals Monitoring*

Monitoring for metals will be conducted in the breathing zone of site personnel at intervals recommended by the HSO.

Screening for airborne particulate in the breathing zone that have the potential for containing metals will be accomplished using a real-time particulate dust monitor.

4.1.2 *Outdoor Ambient Air Monitoring Program*

A site outdoor ambient air-monitoring program will be implemented as described below:

- Airborne particulates will also be monitored at various locations along the Site boundary with a portable particulate monitor that have an alarm set at 150 µg/m³.
- If particulate levels, averaged over a period of 15 minutes, are greater than 150 µg/m³ over the particulate levels at the upwind location, then intrusive activities must be stopped and corrective action taken.
- Site readings will be recorded and be available for NYSDEC and NYSDOH personnel to review.

4.1.3 *Chemical Hazard Action Levels*

Based upon the OSHA Permissible Exposure Limits (PELs) for the compounds listed in Table 3-1, action levels have been established for activity cessation and the upgrade or downgrade in the level of personal protective equipment (PPE).

These action levels are guidelines; the HSO will have the ability to adjust PPE requirements as appropriate based on field conditions.

Level D protection shall be used at a minimum for intrusive site activities. The PPE requirements for additional protective equipment will be determined by the HSO based on weather and wind conditions, the particular remedial activity, the length of time in one location, potential for exposure and the action levels. Descriptions of the various levels of personal protection equipment are presented in Section 7.0.

4.2 ***PHYSICAL HAZARDS***

To minimize hazards, standard safety procedures will be followed at all times. The primary physical safety hazards for this project include, but are not limited to:

- common slip, trip, and fall hazards;
- excavation and trenching hazards;
- overhead and buried hazards;
- excavator and loader operation;
- electrical and power equipment;
- vehicular traffic;
- lifting excessive weights;
- sampling hazards;
- excessive noise levels;
- heat and cold stress; and
- other hazards.

4.2.1 ***Common Slip, Trip, Fall Hazards***

Personnel should be aware of common slip, trip, or fall hazards, which are encountered frequently in outdoor project environments. Heightened

awareness and emphasis on good housekeeping are the most effective ways to prevent accidents.

4.2.2 *Overhead and Buried Hazards*

Utility lines, both above and below ground, may pose a safety hazard for site personnel during soil boring or other heavy equipment operations. If overhead utilities have been identified on site as a hazard, the equipment operator must maintain a safe clearance between the lines and the equipment at all times during work operations.

High voltage lines require greater clearance distances.

As a safe work practice, equipment operators will maintain a 20-foot clearance between equipment and power lines or other energized sources unless the source is greater than 350 KV, in which case 29CFR 1910.180(j)(ii) must be applied.

The location of buried utilities lines must be determined prior to the start of work activities. Overhead and buried utility and electrical lines may be a concern during site remedial activities. These concerns will be addressed as part of the daily safety meeting.

4.2.3 *Equipment Operation*

Operation of earthwork equipment such as excavators and loaders present multiple hazards while in operation. Excessive noise, boom raising, lowering and swing, cable and bucket damage and operator error may result in injuries. To minimize potential accidents, the following safety measures will be required for excavators and loaders and associated equipment operations:

- Operators of equipment used on site will be familiar with the requirement for inspection and operation of such equipment.
- The operator will be required to demonstrate proficiency in safe operation the equipment;
- Excavations shall be performed from a stable ground position.
- If unable to locate on level ground, the excavating equipment shall be appropriately checked, blocked, and braced prior to operation;

- Daily inspections of the remediation work areas shall be made by a person competent in equipment operation safety.
- The inspector shall note the safety of the remediation work area and confirm the location of utilities;
- Before any excavation work is performed, the existence and location of utility lines (electric and gas) will be determined by the appropriate contractor or subcontractor.
- This will be done, if possible, by contacting the appropriate utility company and/or client representative to mark the location of the lines.
- If the knowledge is not available, an appropriate device, such as a cable avoiding tool, will be used to locate the services line(s);
- No ignition sources are permitted if the ambient airborne concentration of flammable vapors exceeds 20 percent of the Lower Explosive Limit (LEL) during equipment excavation activities.
- A combustible gas indicator will be used as needed to make this determination in conjunction with constituent-specific LEL percentages;
- Operations must be suspended and the area evacuated if the airborne flammable concentration reaches 20 percent of the LEL in an area of an ignition source, such as an internal combustion engine or an exhaust pipe;
- Combustible gas readings of the general work area will be obtained as required based on the HSO's determination;
- If excavation equipment is located in the vicinity of overhead power lines, a distance of 20-feet must be maintained between the lines and any point on the excavator; and
- Daily inspection of the remedial equipment must be conducted and documented by the operator prior to each day's operation of the equipment.

4.2.4 *Tools - Hand and Power*

Hand and power tools may be utilized as part of this remedial activity.

Hand and power tools used during field activities will conform to the standards set both in OSHA 29CFR-1926.300 - 1926.305.

To minimize the potential for any safety related accidents the following measures will be required:

- Hand and power tools shall be maintained in a safe condition;
- Power operated tools shall be equipped with protective guard when in use;
- Hand-held power tools shall be equipped with a constant pressure switch that will shut off the power when the pressure is released;
- Hand tools shall be kept free of splinters or cracks;
- Electrical power tools shall have double-insulated type grounding;
- Electrical cords are not permitted for hoisting or lowering tools;
- Fuel powered tools shall be stopped while being refueled, serviced or maintained; and,
- When fuel powered tools are used in enclosed spaces the ambient air will be measured for oxygen and toxic gases;

4.2.5 *Vehicular Traffic*

Vehicular traffic in and around the Site may pose a hazard to project personnel. Precaution should be taken when remediation activities make it necessary to work near traveled areas.

4.2.6 *Lifting Excessive Weights*

Personnel should exercise caution when lifting any object that weighs greater than 60 pounds. For objects, which weigh less than 60 pounds, proper lifting technique is essential to minimize the potential for injury. No excessively bulky objects should be lifted without assistance.

4.2.7 *Sampling Hazards*

Oversight activities by ERM will consist of collecting soil, surface and ground water samples for analyses and evaluation and the collection of excavated soil samples for classification, transport and disposal purposes.

The hazards of these operations are primarily associated with the sample collection methods and procedures utilized. Potential hazards which may be encountered are described other sections of the HASP.

4.2.8 *Excessive Noise Levels*

Noise generated by heavy equipment such as excavators may present a hazard during site operations. Excessive noise can physically damage the ear, hinder communications, and startle or annoy the workers.

On-site personnel will wear hearing protection when working near heavy equipment and whenever noise levels have the potential to exceed 85dBA.

4.2.9 *Heat Stress*

Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperatures, humidity, radiant heat exchange, wind, and water vapor pressure (related to humidity).

Physical work contributes to the total heat stress by producing metabolic heat in the body, proportional to the intensity of work. Heavy physical labor can greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke, the latter being a life threatening condition.

Visual observation of personnel for symptoms of heat stress shall commence when the ambient temperature is 80°F (70°F if chemical protective clothing is worn) or above. Frequency of visual observation shall increase as the ambient temperature rises.

Various control measures shall be employed if heat stress becomes a problem. These include:

- Provision of liquids to replace lost body fluids;
- Establishment of a work regimen that allows for rest periods to cool down; and,
- Training workers in the recognition and prevention of heat stress;

Specific steps to implement should ambient air temperatures pose a hazard include:

- Site workers will be encouraged to drink plenty of water throughout the day;
- They will be advised to slightly increase their salt intake by lightly salting their food;
- On-site drinking water will be kept cool (50°-60°F) to encourage personnel to drink frequently;
- A work regimen that will provide adequate rest periods for cooling down will be established as required;
- On-site personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion, and heat cramps;
- Employees should be instructed to monitor themselves and co-workers for signs of heat stress and to take additional breaks as necessary;
- A shaded rest area must be provided. Rest breaks should take place in the shaded rest area;
- Employees shall not be assigned to other tasks during breaks; and
- On-site employees shall be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress disorders.

The signs of heat stress disorders are described below.

Heat Cramps

Heat cramps are caused by work and exercise resulting in periods of heavy sweating and inadequate replacement of electrolyte in body fluids.

Signs and symptoms include muscle spasms and pain in the hands, feet, and abdomen.

Heat Exhaustion

Heat exhaustion occurs from increased stress on various body organs, signs and symptoms include:

- Pale, cool, moist skin;
- Heavy sweating and;

- Dizziness, nausea, and fainting;

Heat Stroke

Heat stroke is the most serious form of heat stress, and should always be treated as a medical emergency. The body's temperature regulation system fails and the body temperature rapidly rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs.

Signs and symptoms of heat stroke include;

- Red, hot, unusually dry skin;
- Lack of, or reduced, perspiration;
- Nausea;
- Dizziness and confusion;
- Strong, rapid pulse and confusion; and,
- Coma;

4.2.10

Cold Stress

Cold and/or wet environmental conditions can place workers at risk of cold related illness. Hypothermia can occur whenever temperatures are below 45°F. It is most common during wet windy conditions, with temperatures between 40° to 30°F.

The principal cause of hypothermia in these conditions is loss of insulating properties of clothing due to moisture, coupled with heat loss due to wind and evaporation of moisture on the skin.

Frostbite, another hazard associated with exposure to the cold, is the freezing of body tissue, which ranges from superficial freezing of surface skin layers to deep freezing of underlying tissue. Frostbite will only occur when ambient temperatures are below 32°F. The risk of frostbite increases as the temperature drops and the wind speed increases.

Most cold-related worker fatalities have resulted from failure to escape from work areas with low environmental temperatures, or from

immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a significant decrease in the temperature of the deep core of the body. Site workers should be protected from exposure to cold so that the temperature of the deep core of the body does not fall below 97°F.

Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness with the threat of fatal consequences. To prevent such occurrence the following measures are recommended. Site workers shall wear warm clothing, such as mittens, heavy socks, etc when the outdoor ambient air temperature is below 45°F. Protective clothing or coveralls may be used to shield employee from the wind; When the air temperature is below 35°F, clothing for warmth, in addition to chemical protective clothing, will be worn by employees.

This will include:

- Insulated suits, such as whole body thermal underwear;
- Wool socks or polypropylene socks to keep moisture off the feet;
- Insulated gloves and boots;
- Insulated head cover such as hard hat winter liner, or knit cap; and,
- Insulated jacket, with wind and water resistant outer layer.

At ambient air temperatures below 35°F the following work practices are recommended:

- If the clothing of an site worker might become wet on the job site, the outer layer of clothing should be water impermeable;
- If a site worker's underclothing becomes wet in any way, they should change into dry clothing immediately;
- If the clothing becomes wet from sweating (and the employee is not comfortable) the employee may finish the task at hand prior to changing into dry clothing;

- Site workers should be provided with a warm (65°F or above) break area;
- Hot liquids such as soups or warm, sweet drinks should be provided in the break area.
- The intake of coffee and tea should be limited, due to their circulatory and diuretic effects;
- The buddy system shall be practiced at all times on site.
- Any site worker observed with severe shivering shall leave the work area immediately; and
- Site workers should be dressed in layers, with thinner lighter clothing next to the body.

4.2.11 *Confined Space*

When workers are required to enter an excavation, pit or culvert that has been determined to be a permit-required confined space, the following Permit-Required Confined Space Entry program shall be implemented and utilized for employee entry into and work in these spaces (see Appendix A).

A Health and Safety Management Team has been developed for the remedial site activities. The following responsibilities will be assigned to designated project personnel for all activities.

The Field Team Leader (FTL) will be ERM Project Manager Mr. David Myers, who will act in a supervisory capacity over the employees who participate in the remedial activities specified in this work plan. The FTL is responsible for ensuring that ERM Health and Safety responsibilities as identified in this document are carried out in conjunction with the work plan. As part of these responsibilities, the FTL will distribute the HASP to the field team personnel and discuss the HASP prior to the start of remedial activities.

Field personnel will sign the Health and Safety Plan Review Record shown on page 5-3 of this section, verifying that they have read and are familiar with the contents of this HASP.

The Health and Safety Officer (HSO) Mr. Michael Nigro, will be responsible for oversight, implementation and compliance of applicable health and safety regulations on-site. The HSO has the following authority and responsibilities:

- responsibility for the field implementation, evaluation, and any necessary field modifications of this HASP;
- responsibility for maintaining adequate supplies of personal protective equipment as well as calibration and maintenance of HASP monitoring instruments;
- authority to suspend field activities due to imminent danger situations;
- responsibility to initiate emergency response activities;
- presentation and documentation of field safety briefings;
- maintain daily log of on-site safety activities; and
- oversight of health and safety practices of GSP and ERM subcontractors.

While at the Site, ERM through the HSO will oversee the health and safety measures followed by site personnel.

Contractors and their sub-contractors will be provided a copy of this HASP and will be informed of health and safety concerns, as well as environmental monitoring data collected during remedial activities.

This information will be shared with the subcontractors to assist them in implementing the appropriate health and safety measures. However, ERM is not responsible for the health and safety of subcontractors or other site or facility personnel that are on site.

HEALTH AND SAFETY PLAN REVIEW RECORD

I have read the Health and Safety Plan for the GSP facility and have been briefed on the nature, level, and degree of exposure likely as a result of participation in this project.

I understand the requirements in the Health and Safety Plan for the Site and this project.

_____	_____
Employee Signature	Date

Printed Name

_____	_____
Field Team Leader Signature	Date

Printed Name

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 PURPOSE/APPROACH

A critical aspect of investigation field crew safety is appropriate personal protective equipment (PPE). PPE refers to the types of footwear, headwear, eyewear, hearing protection, coveralls, gloves and respiratory protection each individual will wear while performing a specific task(s) and exposed to a particular chemical(s) at a given concentration(s).

The levels of PPE are commonly referred to as Level D, Level C and Level B; with Level D requiring the least amount of PPE and Level B the most.

The HSO will decide when it is necessary to upgrade, downgrade or modify the existing level of protection based on field monitoring and action levels described in Section 4.0. The HSO will make entries in the health and safety field book detailing each days PPE, task and if the level of PPE is modified, the reason for each change.

Remediation field activities will be performed as a minimum in Level D.

Each level of PPE requirements may be modified by the HSO as needed. The different levels of PPE and equipment required at each level are described in the following sections and are based on 29 CFR 1910.120.

6.2 LEVEL D PROTECTION

Level D PPE consists of the following:

- Coveralls or a work uniform affording protection for nuisance contamination;
- Chemical resistant gloves at a minimum;
- Steel-toe, steel-shank work boots;
- Safety glasses;
- Hard hat (May be exempt by HSO);

Optional Equipment or as Required by the HSO

- Disposal outer boot;

- Hearing protection;
- Disposable outer chemical coveralls;

6.3 *LEVEL C PROTECTION*

Level C PPE consists of the following:

- Full-face air purifying respirator (APR) equipped with appropriate HEPA filters cartridges (personnel requiring respiratory protection must be "fit-tested" with the respirator model to be used in the field); HEPA filters in combination with VOC cartridges will be available and utilized as warranted by site conditions;
- Powered air purifying respirators may be utilized if specified by the HSO;
- Only with the approval of the HSO can half-mask air purifying respirators be donned;
- Chemical-resistant clothing such as Tyvek®, poly-coated Tyvek® or Saranex®;
- Suits will be hooded and one piece with booties and elastic wrist bands;
- Outer chemical-resistant (recommend nitrile or neoprene) gloves and inner latex surgical gloves;
- Steel-toe, steel-shank work boots with rubber overboots;
- Hard hat (may be exempt by HSO);

Optional Equipment as Required by the HSO

- Escape SCBA;
- Hearing protection;

6.4 *LEVEL B PROTECTION*

Level B PPE consists of the following:

- Self-contained breathing apparatus (SCBA) in a pressure demand mode, or supplied air with escape SCBA in the pressure demand mode;

- Chemical-resistant clothing such as poly-coated Tyvek® or Saranex®. Suits will be hooded and one piece with booties and elastic wrist bands;
- Chemical-resistant (recommend nitrile or neoprene) outer gloves and inner latex surgical gloves (both chemical resistant);
- Steel-toe, steel-shank work boots with rubber overboots;
- Chemical-resistant tape over protective clothing (as necessary);
- Hard hat (may be exempt by HSO);

7.0

SITE OPERATION AREAS AND DECONTAMINATION

Site operation areas will be formally set up for field activities associated with the excavation of soils from the RDA, the GSP-Swale, the BSS-Swale and the interior of the facility. Note: If the HSO identifies any additional areas during remediation activities, which should be covered by this portion of the HASP, the HSO has the authority to implement the required protocols and procedures.

Personal decontamination procedures will be closely adhered to upon entering or leaving work performed in the AOC areas. Section 7.1 describes the three zones used to control site operation areas and Section 7.2 describes decontamination procedures.

7.1

SITE OPERATION AREAS

A three-zone control system will be used during work and excavation activities in the AOC areas. The purpose of the zones is to control the flow of personnel to or from potentially contaminated work areas.

Guidelines for establishing work areas and support zones are as follows:

Exclusion Zone (EZ): Primary exclusion zones will be established around each area being excavated and, at a minimum, this zone will radiate to a distance of 25 feet from the point of operations. Appropriate personal protective equipment must be worn in this zone.

This zone will be separated from the contaminant reduction zone by cones or barrier tape to prevent personnel from entering the exclusion zone boundary without appropriate protective equipment or leaving without proper decontamination.

Contaminant Reduction Zone (CRZ): The CRZ is the transition area between the EZ and the Support Zone (clean area). Personnel and equipment must be decontaminated in the CRZ upon exiting the EZ and before entering the Support Zone. The CRZ will be set up along the perimeter of the EZ at a point upwind of field activities.

Support Zone (SZ): The support zone is considered to be uncontaminated; as such, protective clothing and equipment are not required but should be available for use in emergencies. Equipment and materials are stored and maintained within this zone. Protective clothing is donned in the support zone before entering the contaminant reduction zone.

DECONTAMINATION GUIDELINES

In the situation where work areas are controlled using the three-zone concept, site personnel must exit the EZ through an established CRZ. At a minimum, site personnel leaving the point of operations should wash outer gloves and boots, if applicable. The outer boots shall be first washed and removed and then either stored in an appropriate area or disposed of properly. If worn, personnel shall then remove and dispose of their chemical resistant coveralls with care so that inner clothing does not come in contact with any contaminated surfaces.

After chemical resistant coverall removal, personnel shall remove and clean gloves, inspect the gloves, and discard if damaged. Personnel shall then remove the respirator, when applicable. Respirators shall be disinfected between usages by utilizing sanitization methods.

Potable water, at a minimum, will be present so that site personnel can thoroughly wash hands and face after leaving the point of operations.

Decontamination of equipment used in the AOC areas will be as follows:

1. Heavy Equipment - The excavator and/or front-end loader and associated tools will be steam cleaned upon arrival and at the complete of excavation activities in the SEAOC area.
2. If necessary, equipment will be scrubbed manually to remove heavy soils prior to steam cleaning.
3. Water and soil/sediment generated during decontamination activities will be collected, stored and profiled by ERM for proper disposal.
4. Sampling Equipment (e.g., knives, hand-auger, bowls, and bailers) - Non-disposable sampling equipment will be cleaned before each use by washing with solutions in the following order:
 - phosphate-free detergent wash;
 - potable water rinse;
 - distilled water rinse;
 - air dry;
 - wrap in aluminum foil until use.

The potable water will be obtained from a municipal water source. Heavily contaminated tools may also have to be steam cleaned. After the final rinse with distilled water, equipment will be wrapped in aluminum foil and stored in a clean area until use.

5. Meters and Probes - Meters and probes that are used in the field will be decontaminated between uses by triple-rinsing with distilled water.

7.3

MANAGEMENT OF GENERATED WASTES

Wash and rinse waters, discarded health and safety equipment, and discarded sampling equipment will be segregated by waste stream and managed according to appropriate NYSDEC guidance. Waste generated for disposal will be placed in appropriate drums and containers. These containers will be properly labeled, and stored in a secure area on site while arrangements are made for disposal.

Access to site activities will be limited to authorized personnel, and should be coordinated with the Site owner. Such authorized personnel include GSP, ERM employees, subcontractors, and other personnel as deemed appropriate by the Site owner.

However, access into the established contaminant reduction and exclusion zones will be limited to those authorized personnel with required certifications and wearing appropriate personal protective equipment.

The exclusion zones will be monitored by the HSO to ensure personnel do not enter without proper personal protection equipment.

9.0 ***EMERGENCY RESPONSE***

In the event of an emergency, the FTL will coordinate response activities, unless the HSO is on-site. Appropriate authorities will be notified immediately of the nature and extent of the emergency.

Table 9-1 provides emergency telephone numbers that will be posted within the support zone or any other visible location. Directions to the nearest hospital are also included on Table 9-1.

9.1 ***RESPONSIBILITIES***

The FTL will be responsible for initiating response to emergencies, and will:

1. Notify appropriate individuals, authorities, and health care facilities of the activities and hazards of the field activities.
2. Ensure that the following safety equipment is available at the site: fire extinguisher, eyewash station and first aid supplies.
3. Have working knowledge of safety equipment available at the site.
4. Ensure that a map, which details the most direct route to the nearest hospital, is present with the emergency telephone numbers.
5. For a release incident, determine safe distances and places of refuge.

9.2 ***ACCIDENTS AND INJURIES***

In the event of a safety or health emergency at the Site, appropriate emergency measures will immediately be taken to assist those who have been injured or exposed and to protect others from hazards.

The FTL and HSO will be immediately notified and will respond according to the seriousness of the injury.

9.3 ***SITE COMMUNICATIONS***

Telephones (either temporary landlines or cellular) will be located prior to the start-up of field activities, and will be used as the primary off-site communication network. Radios will be used as needed to provide communication for on-site personnel.

TABLE 9-1

EMERGENCY CONTACTS

ERM Health and Safety Manager:	
Ernest Sweet.....	(315) 445-2554
ERM Project Director:	
Ed Hinchey.....	(315) 445-2554
ERM Project/Site Manager:	
David W. Myers	(518) 461-8936
ERM Site HSO/Construction Oversight	
Michael Nigro	(315) 546-5341
General Super Plating Co., Inc.:	
Tom Gearheart.....	(315) 446-2264
General Super Plating Co., Inc.:	
Woody Southwell.....	(315) 446-2264 x 26
General Super Plating Co., Inc.:	
Jean Jodoin	(315) 247-5298
NYSDEC Project Manager:	
Kevin Kemp	(315) 426-7464
Ambulance (Rural Metro Medical Services)	(315) 471-4141
Hospital (St. Joseph's Hospital)	(315) 448-5111
Fire Dept. (Syracuse Fire Department)	911
Police (City of Syracuse)	911
NYSDEC Spill Hotline.....	1-800-457-7362

Directions to St. Joseph's Hospital:

Go west on Celi Drive to Bridge Street, turn right onto Bridge St and travel for 0.5 miles to entry ramp for I-690 west.

Turn left off of Bridge St onto ramp for I-690 west and travel 0.9 miles on entry ramp.

At exit 16S on I-690 entry ramp, take left ramp to I-690 west and travel 2.9 miles.

On I-690 west, at exit 13, turn right onto off ramp for Townsend St.

At light at Townsend St, turn right onto North Townsend St and travel 0.3 miles to intersection of Townsend St and Union St.

Turn left (west) onto Union Street from Townsend St and travel 120 yards to the intersection of Union St and Prospect Avenue.

St. Joseph's Hospital is directly ahead and located at 301 Prospect Avenue.

A route map will be supplied to applicable field personnel from Celi Drive to St. Joseph's Hospital

The effectiveness of response actions and procedures will be evaluated by the HSO. Improvements will be identified and incorporated into this and future plans.

The following are important safety precautions, which will be enforced during the remedial activities:

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases that probability of hand-to-mouth transfer and possible toxic ingestion of material is prohibited in any area designated as contaminated by the HSO.
2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activity.
3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
4. No facial hair that interferes with the effectiveness of a respirator will be allowed on personnel that must wear a respirator. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges attached to the respirator. Fit testing shall be performed prior to each usage of a respirator to ensure the wearer obtains a proper seal.
5. Even when wearing protective clothing, contact with potentially contaminated surfaces should be avoided whenever possible. One should not walk through puddles, mud, or other discolored surfaces; kneel on ground; lean, sit or place equipment on drums, containers, vehicles, or the ground.
6. Medicine and alcohol can enhance the effect from exposure to certain compounds. Personnel involved in the project will not consume alcoholic beverages during work hours. Personnel using prescription drugs during the project may be precluded from performing specific tasks (e.g. operating heavy equipment) without authorization from a physician.
7. Personnel and equipment in the work areas will be minimized.
8. Procedures for leaving the work area will be planned and implemented prior to going to the site. Work areas and decontamination procedures will be established on the basis of prevailing site conditions.

9. Respirators will be issued for the exclusive use of one worker and will be required to be cleaned and disinfected after each use.
10. Safety gloves and boots shall be taped to the disposable, chemical-protective suits as necessary.
11. Cartridges for air-purifying respirators in use will be changed daily at a minimum.

Appendix A

Excavation, Trenching, Shoring

EXCAVATION, TRENCHING, SHORING

The main concerns of trenching and excavation are ground control and fall prevention. Before an excavation is made, a thorough effort shall be made to determine whether underground utilities (such as sewer, telephone, gas, fuel, water or electrical conductors) or aboveground hazards may be encountered. Underground utility lines shall be properly supported during excavation. Where appropriate, the respective utility companies shall be informed of the proposed Site Work and consulted to receive any additional advice based on their experience. Natural hazards, such as boulders and trees, shall be removed or controlled before excavation begins if there is a potential hazard to workers.

Very specific guidelines exist to protect employees from uncontrolled ground movement during excavation. The guidelines are based on ground type and excavation depth. The walls and faces of all excavations to which employees are exposed shall be guarded by a shoring system or sloping of the ground. All slopes shall be excavated to the degree required in Table P-1, which is based on soil type and the ground's unique ability to slide (see Table P-1). Soil types are based on cohesiveness (exhibiting cohesion). A cohesive soil is one that is hard to break up when dry and exhibits significant cohesion when submerged. Soil types may be defined as:

Stable Rock - natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Type A soil - Soil that has an unconfined compressive strength of 1.5 tons per square foot (tsf). This includes cohesive soils such as clay, silty clay, sandy clay and clay loam. No cohesive soil is Type A if:

- soil is fissured;
- subject to vibration;
- has been previously disturbed;
- part of a sloped, layered system which dips into the excavation on a slope of four horizontal to one vertical; and
- other factors require it to be classified otherwise;

3. Type B Soil - Soil that is a cohesive soil with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf. This includes all soils classified as silt, angular gravel, silt loam, sand loam and all type A soils previously disturbed. Dry rock that is not stable will be considered type B soil. Soil as well as material that is part of a layered system where the layers dip into the excavation on a slope less than four horizontal to one vertical, but only if material is classified as type B.
4. Type C Soil - Soil, which has an unconfined compressive strength of 0.5 tsf or less.

Type C soil includes:

- Granular soils including gravel, sand or loamy sand;
- Submerged soil or soil from which water is freely seeping;
- Submerged rock which is not stable;
- Material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical or steeper;

Each soil and rock deposit shall be classified by a competent person as stable rock or one of the soil types described above.

The Contractor shall ensure that a competent person is assigned to the Site during all excavating activities, i.e., sloping, shoring or working within excavations.

A competent person is defined as one who is capable of identifying existing and predictable hazards, or working conditions, which are unsanitary, hazardous or dangerous to employees, and has authorization to take prompt corrective measures to eliminate them.

The Contractor shall identify the competent person and submit the competent person's qualifications to the FTL.

A competent person shall perform daily inspection of excavations and adjacent areas. Inspections shall be concerned with possible cave in, failure of protective systems, hazardous atmospheres or other hazardous conditions.

Where a competent person finds evidence of such hazards, Contractor employees shall be evacuated from the excavation until the unsafe condition is corrected.

Vibrations from nearby railroad, highway traffic or heavy equipment requires the side of the excavation to be braced to resist the additional force from such loads.

A warning system shall be in place when movable equipment is operated next to an edge of an excavation and the operator does not have clear or direct view of the edge.

Warning systems may be barricades, hand or mechanical signals or stop logs.

No entry into an excavation in which there is accumulated water will be allowed unless adequate precautions are taken.

Safety harness with attached line shall be worn at all times in excavations over four (4) feet.

Precautions include the removal of water by pumps and the diversion of any surface water by berms, dikes, ditches or plastic sheeting.

If excavations are to be performed near a wall or building and may compromise its stability, a registered professional engineer shall evaluate the wall or building and ensure its stability accordingly.

Stability may be achieved by designing a bracing system if necessary.

If bracing is not necessary, the registered professional engineer shall indicate in writing a bracing system is not required.

Excavated material shall be kept at least two feet from the edges of all excavations.

Excavations less than 20 feet in depth occurring in type C soil may be sloped at an angle no greater than 34 degrees measured from the horizontal plane.

Excavations less than 20 feet in depth occurring in type B soil may be sloped 45 degrees measured from the horizontal plane.

Sloping of excavations greater than 20 feet in depth must be approved by a registered professional engineer.

The Contractor may use tabulated data for slope design. The tabulated data must be in written form and shall include identification of the parameters, limits of use, and identify the New York State registered professional engineer (PE) who approved the data.

A copy of the tabulated data identifying the New York State registered PE will remain on-Site during construction activities.

A sloping system designed and approved by a New York State registered PE may be utilized.

The written design must illustrate the magnitude of the slope considered safe based on the project.

A copy of the approved written design must remain on the job Site until final completion.

Shoring systems, support systems, shield systems and other proactive systems may be used providing such systems are approved by the manufacturer, or by a New York State registered PE using the manufacturer's tabulated data.

Deviations from those specifications outlined by the manufacturer or New York State registered PE shall only be made following specific written approval.

If initiated, shoring systems shall be utilized for type B soils at a depth of 5 feet or greater and immediately for type C soils.

Shoring systems shall be designed by a manufacturer, a New York State registered PE or be consistent with Attachment 1 of this Appendix (OSHA Minimum Timber Shoring Requirements).

All shoring systems used at a depth of 20 feet or greater require approval from a New York State registered PE.

In excavations greater than 4 feet in depth, ladders must be located every 25 feet and extend three feet over the surface.

Any excavation activities below the ground water table shall be examined and approved in writing by a New York State registered PE.

TABLE P-1
Maximum Allowable Sloping Requirements*

<u>Type</u>	<u>Maximum Allowable Slope</u>
Stable Rock	Vertical (90°)
Type A	3/4:1 (53°)
Type B	1:1 (45°)
Type C	1-1/2:1 (34°)

* Sloping for excavations greater than twenty feet in depth shall be designed by a New York State registered professional engineer.

Appendix B

Permit-Required Confined Space Entry

CONFINED SPACE PERMIT REQUIRED ENTRY

1.0 *Application*

This policy sets forth the accepted practice for entry into a confined space and establishes the requirements for administering its procedure. This procedure applies to ERM, Inc. (ERM) employees who may be working in a confined space area. ERM personnel are prohibited from entering any confined space as described below without authorization from a qualified member of the ERM Health and Safety group.

2.0 *Purpose*

The intent of this procedure is to provide information and guidance to ensure that a consistent, safe approach is instituted each time a confined space is entered. Confined spaces are those areas that are large enough to enter and perform work, have limited means for entry or exit, and are not designed for continuous occupancy. It is very important that personnel understand their role during confined space entry operations due to the significant and numerous hazards posed by such activities.

3.0 *Authority*

This policy is based on The Occupational Safety and Health Administration's (OSHA) standard (Title 29, Section 1910.146), regulating entry into confined spaces.

The confined space entry permit will be kept in the project file for a period of one year

4.0 *Confined Space Entry*

There are certain characteristics of confined spaces that must be recognized and/or evaluated in order to enter such spaces properly.

General confined space characteristics include:

- Areas that are large enough for an employee to enter and perform an assigned job;
- Has limited or restricted means to enter or exit; and
- Is not designed for continuous occupancy;

The OSHA standard focuses on those confined spaces that require an entry permit due to the hazards posed by the operation. A Permit-Required Confined Space has any of the following, additional characteristics:

- Contains or may contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Is configured in a way that could trap or asphyxiate an entrant; and
- Contains any other recognized serious safety or health hazard;

Some examples of a permit-required confined space may include storm and sanitary sewers, sumps, tanks, or any number of similar spaces.

The determination of general and permit required confined spaces will be made by a qualified member of the ERM Health and Safety group.

If the only hazard posed by a permit-required confined space is an actual or potential hazardous atmosphere, and this hazard can be eliminated by continuous forced air ventilation alone, then this space can be considered to be a low-hazard confined space.

If there are no hazards posed by the confined space, then this space can be considered to be a non-permit confined space.

The standard requires an evaluation of the workplace and identification of permit-required confined spaces. The existence and location of these spaces, and the dangers they pose, must be known to exposed employees.

A qualified ERM Health & Safety Group member must be contacted to determine the appropriate confined space designation and appropriate confined space entry procedures.

5.0 Entry Permit Program

The OSHA standard also requires a written program for entry into permit-required confined spaces. This ERM Confined Space Entry Program, in conjunction with the site-specific Health & Safety Plan, satisfies this requirement. The program includes the following elements:

- Preventing unauthorized entry – such as the use of covers, guardrails, fences, locks, or whatever means are necessary;
- Identifying and evaluating hazards before entry – such as hazardous atmospheres, engulfment hazards, hazardous energy sources, introduction of hazardous chemicals, or hot work;

- Implementing safe entry procedures; and,
- Specifying acceptable entry conditions (for example, carbon monoxide level <35 PPM);

Action levels will be included within the health and safety plan. If there are any questions about these levels or the use of them, the field team leader shall contact a qualified member of the ERM Health & Safety Group.

- Isolating the space (for example, lockout/tagout, line breaking, etc.) ERM personnel shall not be responsible for isolating the space. This is the responsibility of the client;
- It is, however, the responsibility of the ERM field team leader to ensure that the isolation has taken place and that a review of the isolation procedure has been conducted with the client;
- Purging the space to control atmospheric hazards the safest method of space purging is natural ventilation. If this method is not possible, an electrical or gasoline-powered ventilation fan can be used;
- Potentially explosive atmospheres must not be pulled through the ventilation fan unless the fan is designated as explosion-proof;
- Ideally, positive ventilation should be used. This involves fresh air pumped into the space and the contaminated air exhausted out;
- Providing barriers to protect entrants from external hazards the field team leader will ensure that consideration has been given with regard to the entire confined space, not just the entrance;
- The field team leader and/or site safety officer will fully investigate potential hazardous conditions;
- At the entrance, caution tape and/or traffic cones will be placed to prevent unauthorized entry near the entrance;
- If an entrance cover is removed, the opening will be guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening;
- Heavy equipment, such as front-end loaders and trucks will be prohibited from the confined space vicinity;
- In addition to verifying acceptable entry conditions throughout entry (periodic inspections and atmospheric testing), a qualified member of the ERM Health & Safety Group must ensure that the proper equipment is on-site and that the on-site user of the equipment has had the proper training in the use of the equipment;

- The field team leader must ensure that the equipment is in operational condition, that the equipment has been calibrated, and that the equipment is being used correctly;
- Providing necessary equipment for testing and monitoring on-site personnel will have, at a minimum, the following monitoring instrument;
- Oxygen meter;
- Combustible gas indicator;
- Toxic gas monitors for anticipated contaminants in addition to having the piece of equipment on-site, the field team leader will also ensure that appropriate calibration span gas and equipment, and equipment instructions are included; and
- Ventilating - where necessary, ventilation equipment will be used to flush contaminated air out of the space;
- The ventilation equipment will not be used to pull air through the fan unless it has been certified explosion- proof;
- If ventilation equipment is not available and the atmosphere is suspected to be hazardous, supplied air respiratory protection will be used;
- Under no circumstances will entry into a confined space where combustible gases exceed 10% of the lower explosive limit be allowed;

Communicating

The entrant and the attendant must have at least one method of communicating while confined space operations are in progress. Methods of communication include the following:

- Speaking;
- Two-way Radio;
- Hand signals;
- Horn or other audible signals;
- Light signals;
- Life line tugs;
- Written message;

During confined space operations brevity of message is one of the best ways to improve communications. In spoken communication, this is

accomplished by avoiding unnecessary words and by using a standardized set of words and phrases.

The use of two-way radios can cause a frustrating, ineffective communication between the entrant and the attendant.

Some methods that may be helpful include:

- The person called is always followed by the person doing the calling; For example: "Attendant, this is entrant."
- The word "over" can be used at the end of a transmission to denote the end of that transmission. This lets the receiver know when the sender has stopped speaking and is waiting for a reply. This also prevents dual transmission, in which communication breaks down;
- The word "out" can be used to indicate the end of the conversation. This prevents either party from needlessly waiting for additional transmissions;
- Speak slowly, loudly, and clearly. It may seem uncomfortable to speak in such a manner, but the message has a much better probability of being understood;
- Try to reduce the number of words, thereby reducing the probability of the message being misunderstood; For example, the message, "The water level is down as far as we can get it; go ahead and shut down the pump - over," becomes, "Stop pump - over."

Personal Protection

A health and safety plan must be completed for remedial fieldwork.

If the confined space operation is not already a part of the health and safety plan, it must be included as an attachment to the plan, addressing the confined space entry operation.

Within the plan, there will be a list of PPE required. The entrant must be equipped with applicable PPE.

Lighting

Lighting will be either external to the confined space, or configured in such a way as to prevent accidental breakage.

If the atmosphere has the potential to be explosive, the lighting equipment must be explosion-proof.

Ingress/egress

The confined space entrant may enter the space only when given permission by the field team leader.

The field team leader must ensure that the HSO has been contacted for guidance.

If a confined space entry permit is required, the field team leader will ensure that no entry is made until all appropriate checks have been accomplished in accordance with the confined space entry permit.

During egress, the attendant will assist the entrant by preventing airline hoses, wire life lines, electrical chords, and other encumbrances from cluttering the egress route or snagging as the entrant leaves the confined space.

Rescue and Emergencies

Only trained and authorized employees may attempt a rescue which necessitates confined space entry.

The attendant **may not** enter the space to attempt a rescue unless the attendant has been trained and certified in confined space entry rescue, is wearing appropriate personal protective equipment, **and has been properly relieved as attendant.**

ERM has available rescue equipment consisting of a full body harnesses, a tripod, and a winch assembly.

This retrieval equipment, when properly used, is designed to effect a rescue in a vertical confined space.

Because of the serious personal injury that may result with the inappropriate use of this equipment, only trained personnel are authorized to use the rescue equipment.

5.1 *Training and Duties of the Entry Supervisor*

Personnel who authorize entry into permit-required confined spaces, known as "Entry Supervisors," must ensure proper procedures are followed prior to and during confined space operations.

Additionally, these individuals must remain aware of ongoing conditions during operations so that appropriate decisions can be made.

Supervisors must receive training and instruction in their duties and responsibilities regarding confined space entry. The following are assigned duties:

- Ensure entry permit is completed and accurate;
- Ensure proper procedures and equipment are used;
- Monitor conditions during the confined space operations for changes that would affect entrants;
- A change in condition may require the Entry Supervisor to halt operations and remove entrants from the confined space until hazards are controlled;
- Evaluating conditions when entry operations are conducted;
- Testing to determine if acceptable entry conditions exist before entry is authorized;
- Testing to determine if acceptable entry conditions exist throughout the entry;
- Closeout the permit and return the confined space to its intended use;
- Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- The entry supervisor will be designated in the site-specific health and safety plan;

5.2 *Training and Duties of Authorized Entrants*

Entrants must have training and instruction in their duties and responsibilities regarding confined space entry.

The following are assigned duties:

- Identify and evaluate hazards which may be present prior to and during a confined space operation;
- Review the job at hand with each member of the confined space entry team prior to entry;
- Maintain contact and communications with the attendant;
- Use the personal protective equipment provided;

- Maintain awareness of all external barriers required to protect from external hazards, e.g., blanking, blocking, lockout, etc., and the use of those barriers;
- Review entry operations when there is reason to believe existing measures may not protect entrants;
- Obey evacuation orders given by either the attendant, automatic alarm activation, or when self-perceived;
- Entrants will be designated in the site-specific health and safety plan;

5.3 *Training and Duties of Attendants*

Attendants are the critical link between those entering the confined space and those outside the confined space who would provide necessary assistance in the event of an emergency.

Attendants must have training and instruction in their duties and responsibilities regarding confined space entry.

The following are assigned duties:

- Continuously monitor the progress of the confined space operation to ensure the safety of the entrants;
- In the event of an emergency, the attendant must resist the urge to rescue entrant personnel until additional assistance arrives on the scene;
- **Attendants DO NOT enter a confined space and attempt rescue unless additional personnel are on hand and the attendant is trained to do so!;**
- Recognize hazards and take corrective action;
- Order evacuation of the confined space if an uncontrolled hazard develops, either within or outside the space, or upon observing a behavioral effect of hazard exposure among entrants;
- Keep unauthorized personnel away from the permitted confined space work area. Entrants are to be informed of any unauthorized personnel entering the confined space;
- Entrants will be designated in the site-specific health and safety plan;

5.4 *Atmospheric Testing*

Prior to entering any confined space and/or prior to removing any covering (e.g., manhole covers), the confined space atmosphere must be

monitored for combustible gases, oxygen levels, and toxic vapors or gases.

The following is the sequence and acceptable air quality criteria that testing must follow:

- Oxygen content (19.5-23%) for all confined space entry;
- Combustible gas levels below 10%;
- Contaminate concentrations at or below PEL/TLV where compound is known (SCBA are required where compounds are unknown) or where contaminant concentrations exceed the capacity of air purifying respirators;

Those identified confined space areas having the potential for oxygen deficient, combustible, or toxic atmospheres will require that levels be measured and recorded on the Confined Space Entry Permit.

ERM personnel calibrate field-monitoring equipment in accordance with manufacturers' instructions.

The field team leader will ensure that the organic vapor meters has been calibrated within the past 3 weeks and that the combustible gas indicators have been calibrated within the past month.

The Photovac Microtip is cleaned and charged prior to issue.

The field team leader shall ensure that the instrument is calibrated in the field using the appropriate span gas.

Calibration information will be noted, at a minimum, in the field team leader's field book.

6.0 *Personal Protective Equipment and Emergency Equipment*

The supervisor authorizing entry into a confined space (entry supervisor) is responsible to ensure that appropriate personal protective equipment (PPE) is available at the site and that it is used when necessary.

PPE includes:

- respiratory protection;
- protective clothing;
- head protection;
- eye and face protection;

- hearing protection;
- body harnesses and associated retrieval equipment and retrieval lines;

Two major types of respiratory protection equipment are available from ERM; air purifying and air supplying.

Air-purifying respirators include disposable and non-disposable cartridge or filter-type respirators. These units filter out contaminants and allow the user to breathe filtered air.

Air-purifying respirators can be worn in a confined space to filter out contaminants, but only after the atmosphere has been tested and is found to be within the limits of the respirator (i.e., half-face is allowed up to ten times PEL).

Remember the limitations of the air-purifying respirators does not permit them to be worn in an oxygen-deficient atmosphere, to be used if excessive concentrations of toxic gases or vapors are present, to be worn in conditions that are immediately dangerous to life or health or IDLH, and they should not be worn during most rescue operations.

If oxygen deficiency, high concentrations of toxic gases and vapors, or excessive dusts exist in a confined space, supplied-air respirators must be used.

Supplied-air respirators provide the user with a constant supply of breathing air.

Supplied-air respirators available include self-contained Breathing Apparatus (SCBA) and airline respirators equipped with escape bottles.

Supplied-air respirators provide the highest level of respiratory protection for entry

7.0 *CONCLUSION*

Confined space fatalities and injuries are, for the most part, preventable.

The most important step in fatality and injury prevention is hazard recognition.

Remedial field personnel must be able to recognize a confined space entry situation and contact the Site HSO for further instruction.

Since every situation is unique, this confined space policy has not attempted to address every conceivable possibility.

It is imperative, then, that the field team's senior member work closely with the Site HSO to ensure that proper entry procedures are followed.

Project schedules, budget limitations, and worker convenience will never take higher priorities than worker safety.

Failure to comply with the provisions of this confined space entry policy are grounds for immediate dismissal from ERM.

Appendix C
Subsurface Clearance

1.0 SUBSURFACE CLEARANCE

1.1 Introduction

The purpose of subsurface clearance is to prevent injury to workers and damage to subsurface structures during ground disturbance activities. Examples of subsurface structures and types of ground disturbance are provided below.

Subsurface Structures - Examples	Ground Disturbance Activities
Tanks	Drilling
Pipelines	Augering
Water lines	Direct-push drilling
Natural gas lines	Excavation
Electrical lines	Trenching
Fiber optic telecommunication lines	Driven posts, stakes, or poles
Sewers	Grading

This procedure provides guidelines for subsurface clearance activities associated with ground disturbance activities managed by ERM at project sites. Special care should be taken in urban and old industrial areas. All steps taken to ensure safe subsurface activities should be carefully documented. Information about subsurface obstacles provided by third parties should be put in writing. The third party should sign such documentation, which should specify that ERM has the right to rely on it. Do not rely on oral communication.

1.2 Contractual Considerations

The level of ERM's contractual responsibility for subsurface clearance depends on the terms of the relevant contract documents. With the assistance of ERM's Legal Department, clearly define contractual and legal responsibilities associated with ground disturbance before site work begins. If ERM is not working under its standard terms and conditions, ERM should include language such as the following in its contract with the client: *"Prior to any boring, drilling and/or excavation work being commenced by ERM or its subcontractor, Client shall provide the specific location(s) of such work and identification of any underground obstructions or utilities. If Client is unable to provide ERM with specific locations of concealed or underground utilities, installations or other obstacles, Client shall be responsible for, and shall indemnify and defend ERM against, any harm or injury resulting from contact with same."*

When hiring any subcontractor to perform subsurface activities, use ERM's standard form subcontract for drilling services, or, if the subcontractor will be performing other services, the standard form subcontract for professional services and field work. Although ERM has a responsibility to its client to prevent incidents at the worksite,

ERM should never accept contractual liability for the health and safety of any subcontractor.

1.3 ERM Designated Person/ Quality Assurance Role

Regardless of the contractual provisions, ground disturbance activity must be performed safely. ERM's PM will assign a "Designated Person" role. This person will be aware of the subsurface work being performed on the site by any subcontractor hired by ERM.

Where ERM has directly engaged the subcontractor performing subsurface work, the Designated Person should monitor the subcontractor's work and should require that the subcontractor immediately stop work if the subcontractor is engaging in unsafe subsurface clearance conditions or is not conducting the subsurface clearance activities in accordance with the scope of work and health and safety plan.

ERM's Project Manager assumes or may delegate the role of Designated Person to an experienced person for subsurface clearance activity done by ERM or its subcontractor.

The PM will be responsible for following this subsurface clearance guideline and overseeing successful completion of ground disturbance activities associated with the project. The PM or the PM's Designated Person is responsible to coordinate the following tasks:

Designated Person's Responsibilities

- Document, review and approve the results of the preliminary activities that are required prior to ground disturbance activities (see Section 10.1.4)
 - Notify any subcontractors if any preliminary activities are not performed or if there are any unsafe conditions or circumstances
 - Ensure the selection and use of trained and experienced ERM pre-qualified subcontractors.
 - Direct notification, emergency response, and abatement activities in the event that a subsurface structure is encountered or damaged during ground disturbance activities.
-

1.4 Health and Safety Plan

A Health and Safety Plan (HASP) must be developed prior to initiating all field activities. The HASP should include the following information associated with ground disturbance activities:

Health and Safety Plan - Ground Disturbance Requirements

- Define potential issues associated with ground disturbance and underground utilities.
-

- Identify emergency shut-off for underground utilities.
 - List preventative measures to be used to preserve employee and subcontractor health and safety.
 - List emergency response resources with telephone numbers.
 - List client, regulatory, ERM and subcontractor notification information.
-

An evaluation of potential electrical or fire/explosion risks should be part of the overall subsurface clearance task hazard analysis to evaluate whether the use of non-conductive materials and/or non-sparking materials is warranted.

Subsurface work must be stopped if any portion of a tank, line, utility, or other subsurface structure is encountered. The ERM PM must be notified, and the potential damage to the subsurface structure evaluated, prior to continuing subsurface work. If warranted, ERM will notify the client and any necessary emergency response resources as well as taking initial abatement measures such as shutting down the affected underground equipment or utility and/or evacuation of the site.

1.5 Preparation Tasks

The following tasks are to be completed and documented prior to initiating ground disturbance activities.

Ground Disturbance – Preparation Tasks

1. Scope the ground disturbance activity and preliminary ground disturbance locations
 2. Historical site information review.
 3. Site walkover.
 4. Public utility markout.
 5. Private utility markout.
 6. Select final ground disturbance locations, if necessary.
-

1.5.1 Historical Site Information Review

Obtain the most recent as-built drawings and/or site plans (including underground storage tank (UST), product and vent lines) as available. As-built drawings may not accurately depict the locations and depths of improvements and subsurface structures and should not be solely relied upon. Also seek to obtain any other site information such as easements, right-of-ways, historical plot plans, fire insurance plans, tank (dip) charts, previous site investigations, soil surveys, boring logs and aerial photographs, etc. as relevant to the planned ground disturbance activities. Any site-specific excavation and safe work permit requirements must be known and implemented. Where applicable, facility personnel who may have historical site knowledge should be interviewed and participate in the site walkover.

1.5.2 Site Walkover

Conduct visual survey of work area and surrounding areas to look for signs of potential underground utilities. This task by itself may not be sufficient to locate all underground structures, but it does provide information to direct subsequent underground utility searches. Features indicative of subsurface structures and utilities include the following.

Surface Indicators of Underground Structures and Utilities - Examples	
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- | | |
|---|---|
| <ul style="list-style-type: none">• Utility poles with conduit leading into the ground• Area lights and signs• Sewer drains and cleanouts• Cable markers• Utility boxes and enclosures• Utility manholes | <ul style="list-style-type: none">• Remote buildings with no aboveground utilities• Fire hydrants• Sprinkler systems• Water meters• Natural gas meters• Sewer manholes and drop inlets |
| <ul style="list-style-type: none">• Pavement scars• Pipeline markers | <ul style="list-style-type: none">• UST fillports and vent pipes• Steam lines |

1.5.3 Public Utility Markout

All underground utilities must be marked out on the ground disturbance work site. In some cases, such as disturbing ground on an active site, the client's Engineering Department will take responsibility for delineating and marking utilities and infrastructure.

Where available, the public utility locator must be called to mark utilities. A site map with planned work areas should be made available to the public utility locator if possible. Mark the work areas on the ground in advance of contacting the public utility locator if possible. The area should be outlined in white to avoid confusion with the colors used by utility locator. Commonly used utility markout colors are listed below.

Utility Markout Colors	
------------------------	--

Red	Electric
Blue	Water
Yellow	Natural gas

The ERM Designated Person should attempt to meet the utility locator on-site, if possible.

WARNING – Public utility locator markouts are not always reliable and do not typically enter private property. Every effort should be made to confirm the location of utilities identified by the public utility locator and utilities that are not included in the public utility survey.

1.5.4 Private Utility Markout

In some cases, project sites are located in regions that do not have public utility locator services. In addition, the public utility locator normally will not locate and mark utilities outside of the public right-of-way. In these cases, ERM must hire a private utility locator, if reasonably available, to locate and mark utilities on the project site. Only the project PIC or an ERM Partner may approve **NOT** conducting a utility marking.

1.5.5 Selection of Ground Disturbance Locations

After utilities have been located and, if necessary uncovered, the information collected to this point will be used in combination with regulatory requirements and project objectives to select final ground disturbance locations. Ground disturbance locations should also consider the location of overhead obstructions (e.g. power lines, etc.). The selection of ground disturbance locations within a critical zone should be avoided if possible. All ground disturbance locations must be approved by the ERM Designated Person and the client.

Critical Zone Definition

- 10 feet (3 meters) distance from all suspected underground lines.
 - 10 feet (3 meters) distance from the edge of any tank, pump island, pump gallery, manifold, electrical transformer, compressor, production well, loading rack, or other process equipment with associated underground lines.
-

Final critical zone determination must be reviewed with the ERM Designated Person. The ERM Designated Person can waive the critical zone designation of a planned ground disturbance area if the lines of concern can be de-energized via a formal lock-out/tag-out program, and/or if impacted do not present a safety, environmental, or operational concern (either on-site or off-site). Even if the critical zone definition is waived, **ground disturbance should not occur less than 3 feet (one meter) from the utility.**

1.6 Ground Disturbance - Drilling

On-site ground disturbance can proceed after the subsurface clearance preparation tasks have been completed. The ground disturbance includes the following tasks:

Ground Disturbance Tasks

1. Explanation of subsurface clearance procedures to on-site

Ground Disturbance Tasks

- personnel.
 - 2. Expose subsurface utilities (if required).
 - 3. Subsurface clearance for ground disturbance.
-

1.6.1 Explanation of Subsurface Clearance Procedures to On-Site Personnel

All ERM personnel and subcontractors involved in ground disturbance activities must review the subsurface clearance procedures that will be used prior to initiating work on-site.

1.6.2 Expose Subsurface Utilities

In some cases it will be necessary to uncover one or more utility lines to verify location, line size, and alignment. Examples of situations where underground utilities will need to be uncovered are listed below.

When to Expose Underground Utilities - Examples

- The lines could not be located by a pipeline locator.
 - The client requires that utility lines are uncovered.
 - Contractors are required by their insurance companies and/or company policies to physically locate and expose underground utilities before conducting intrusive work; especially for fiber optic lines, high voltage electric lines, and natural gas mains.
 - There are particularly hazardous utilities involved (high voltage, flammable/corrosive liquids, LPG, utilities that are particularly critical to existing facility operations).
 - Ground disturbance is being done in a limited space where precision of line avoidance is required.
-

Procedure For Exposing Underground Utilities

- Cautiously probe at least 2 feet. If probing can not be performed, identify the location utilizing other methods, such as hydrovac, compressed air excavation, or hand digging.
 - After probing at least 2 feet, remove 1 foot of soil mechanically and probe for the exact location. Repeat the process until the utility or infrastructure has been located.
 - Dig down beside the utility until it can be exposed by hand to determine its orientation. Do not dig within 2 feet of the utility by mechanical means.
-

1.6.3 Subsurface Clearance for Ground Disturbance

All ground disturbance points must be physically cleared for obstructions as part of the ground disturbance activity to ensure that there are no underground utilities or

infrastructure at each ground disturbance location. There are situations when clearance of the specific ground disturbance point may be waived by the ERM Designated Person. Examples include work on undeveloped land and disturbance of backfill materials in a previously excavated ground disturbance location (e.g. a former UST basin).

Ground disturbance activities should be planned such that ground disturbance activities farthest from any suspected underground features are completed first. This is done to determine the natural subsurface conditions and to allow on-site personnel to recognize fill material indicative of underground infrastructure if encountered.

Minimum Depth of Subsurface Clearance Required

Non-critical zone area	4 feet (1.3 m) or below frost line
Critical zone	7 feet (2.3 meters)

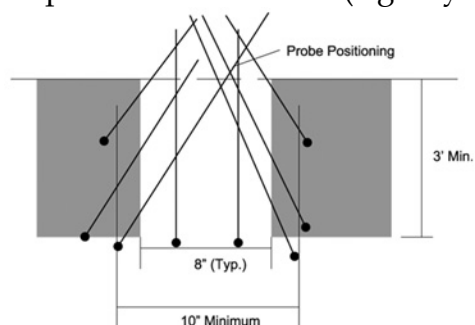
Subsurface Clearance Procedures Based on Planned Subsurface Ground Disturbance Activities:

The ground disturbance location to be delineated must exceed the diameter of the largest tool (e.g. drilling auger, direct-push sampler, and ream) to be advanced and sufficiently large to allow any obstructions encountered to be inspected visually. The diagram below, for example, demonstrates the need to clear 10" diameter for using an 8" diameter tool.

Subsurface Clearance Procedure

1. Remove pavement – recommended pavement cuts:
 - Monitor Wells: 2ft x 2 ft (60 cm x 60 cm).
 - Direct-push or hand auger samplers: 8 in. x 8 in. (20 cm x 20 cm).
 - 2a. Probing and hand excavation to 4 feet below grade for **non-critical** zone areas.
 - 2b. Probing and hand excavation to 7 feet below grade for **critical zone** areas.
-

Probing involves the use of a blunt non-conductive rod to probe ahead of and around the subsurface clearance excavation for obstructions as shown below. Probing may not be practical in hard soil (e.g. dry clay) and becomes less effective with depth.



Subsurface Clearance Methods

Approved subsurface clearance methods include:

Subsurface Clearance Methods	
Hand digging	Performed using a shovel. A post-hole digger should not be used to loosen soil in the excavation.
Hand augering	The auger is to be turned slowly and not forced through the soil. Non-conductive or insulated augers are recommended if electrical utilities are an issue.
Compressed air excavation	Soil should be broken up with an air lance and simultaneously vacuumed to remove loose soils.
Pressurized water excavation	Alternatively a low volume/high pressure water lance may be used to break-up cohesive/dense soils while vacuuming. Current test/experience indicates that water lances operating at pressures below 5,000 psi and at rates below 12 gpm are unlikely to damage typical fiberglass/metal lines/tanks and utilities.
Other methods	Must be approved by the ERM Designated Person

The following warning signs may indicate the presence of a subsurface structure:

Subsurface Clearance Warning Signs
<ul style="list-style-type: none">• Warning Tape (typically indicative of underground services)• Pea Gravel/Sand/Non-indigenous Material (typically indicative of tanks or lines)• Red Concrete (typically indicative of electrical duct banks)• The abrupt absence of soil recovery in the hand auger. This could indicate pea gravel or sand that has spilled out of the auger. Except in areas where native soil conditions typically result in poor hand auger recoveries• Any unexpected departure from the native soil or backfill conditions as established in other on-site digging• If any of the above warning signs or a suspicious condition is encountered, work in this area should immediately stop and the PM should be contacted.

1.7 Ground Disturbance - Trenching

Outside of critical zones, site-specific conditions will determine the appropriate course of action. Subsurface clearance requirements must be reviewed with the ERM Designated Person prior to start of ground disturbance activities.

Appropriate subsurface clearance methods should be conducted along the length and width of the excavation at a frequency sufficient to ensure adequate precautions have been applied to the entire work area. The frequency and density of investigation should be based on site knowledge, potential hazards, and risks of the site/work area and surrounding locations (e.g. proximity to residential areas, areas of public assembly, etc.).

Whenever subsurface structures are exposed, work in the area must cease until precautions (e.g. flags, cross-bracing, stakes, etc.) are taken to ensure that the integrity of those structures is maintained during the trenching/excavation and subsequent backfilling activities.

A minimum 2-foot buffer zone must be maintained around exposed lines. No mechanical equipment may be used to excavate the buffer zone.

A Subsurface Clearance Procedure Checklist, when applicable, will be supplied to field personnel.

Figures

Appendix D

Citizens Participation Plan

Citizen Participation Plan

Town of Dewitt Onondaga County, New York Brownfield Program

January 2009

ERM Project Number 0032572
Site Number C734108

Prepared for:
*General Super Plating Co., Inc.
5762 Celi Drive
Dewitt, NY 13214*

Prepared By:
Environmental Resources Management
5788 Widewaters Parkway
DeWitt, New York 13214

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* * * * *

Note: *The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the Site's remedial process.*

Applicant: **General Super Plating Co. Inc.**
Site Name: **5762 Celi Drive**
Site Address: **5762 Celi Drive – East Syracuse**
Site County: **Onondoga, NY**
Site Number: **C734108**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) is designed to encourage the private sector to investigate, remediate (clean up) and redevelop Brownfields. A Brownfield is any real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant. A Brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A Brownfield can pose environmental, legal and financial burdens on a community. If the Brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants accepted into the BCP as they conduct Brownfield Site remedial activities. The BCP contains strict investigation and remediation (cleanup) requirements, ensuring that cleanups protect public health and the environment based on the intended use of the Brownfield Site. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use. For more information about the BCP, go online at:
www.dec.ny.gov/chemical/brownfields.html

2. Remedial Process

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Volunteer. The Applicant in its Application proposes that the Site will be used for restricted Industrial/Commercial purposes.

To achieve this goal, the Applicant will conduct remedial activities at the Site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement describes the responsibilities of each party in conducting a remedial program at the Site.

The Applicant will conduct an investigation of the Site with the NYSDEC oversight, with the following goals:

- 1) Define the nature and extent of contamination in soil, surface water, groundwater and any other impacted sources;
- 2) Identify the source(s) of the contamination;
- 3) Assess the impact of the contamination on public health and/or the environment; and
- 4) Provide information to support the development of a Work Plan to address the contamination, or to support a conclusion that the contamination does not need to be addressed.

The Applicant will prepare a Report after it completes the investigation. This report will summarize the results of the investigation and will include the Applicant's recommendation of whether remediation (cleanup) is needed to address Site-related contamination. The Report is subject to review and approval by NYSDEC. Before the Report is approved, a fact sheet that describes the Report will be sent to the Site's contact list.

NYSDEC determines whether the Site poses a significant threat to public health and/or the environment. If NYSDEC determines that the Site is a "significant threat," a qualifying community group may apply for a TAG (Technical Assistance Grant). The purpose of a TAG is to provide funds to the qualifying community group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the Site and the development/implementation of a remedy.

For more information about the TAG Program and the availability of TAGs, go online at:

www.dec.ny.gov/chemical/brownfields.html

After NYSDEC approves the Report, the Applicant will be able to develop a Work Plan. The Work Plan describes how the Applicant will address the contamination related to the Site.

The public will have the opportunity to review and comment on the remediation (cleanup) proposal. The Site contact list will be sent a fact sheet that describes the Work Plan and announces a 45-day public comment period. NYSDEC will factor this input into its decision to approve, reject, or modify the Work Plan.

Approval of the Remedial Work Plan by NYSDEC will allow the Applicant to design and construct the alternative selected to remediate (clean up) the Site. The

Site contact list would receive notification before the start of Site clean-up. When the Applicant completes remedial activities, it will prepare another Report that certifies that remediation (cleanup) activities have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the remediation is protective of public health and the environment for the intended use for the Site. The Site contact list will receive a fact sheet that announces the completion of remedial activities and the review of the Report.

NYSDEC will then issue the Applicant a Certificate of Completion. This Certificate states that remediation (cleanup) goals have been achieved, and relieves the Applicant from future liability, subject to statutory conditions. If the Applicant used institutional controls or engineering controls to achieve remedial objectives, the Site contact list will receive a fact sheet discussing such controls.

An institutional control is a non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of Site management at or pertaining to a Brownfield Site. An example of an institutional control is an environmental easement.

An engineering control is a physical barrier or methods employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Examples include caps and vapor barriers.

Site management will be conducted by the Applicant as required with appropriate NYSDEC oversight.

Activities required to be conducted to inform and involve the public during the Site's remedial process are introduced in Section 5 and identified in the chart in Appendix C.

3. Citizen Participation Activities

Citizen Participation activities that have already occurred and are planned during the investigation and remediation of the Site under the Brownfield Clean-Up Plan are included in Appendix C: Summary of Citizen Participation Activities. NYSDEC will ensure that these CP activities are conducted, with appropriate assistance from the Applicant.

All CP activities seek to provide the public with significant information about Site findings and planned remedial activities, and some activities announce comment periods and request public input about important draft documents such as the Proposed Remedial Work Plan.

The CP Plan for the Site may be revised based on changes in the Site's remedial program or major issues of public concern.

All written materials developed for the public will be reviewed and approved by NYSDEC for clarity and accuracy before they are distributed.

4. Citizen Participation Plan Overview

A Citizen Participation (CP) Plan provides members of the affected and interested public with information about how NYSDEC will inform and involve them during the investigation and remediation (cleanup) of a Site under the BCP.

This CP Plan has been developed for the Site under the BCP. Appendix D contains a map locating the Site. NYSDEC is committed to informing and involving the public concerning the investigation and remediation (cleanup) of the Site. This CP Plan describes the public information and involvement program that will be carried out with assistance from the Applicant.

Appendix A of this CP Plan identifies NYSDEC project contact(s) to whom the public may address questions or request information about the Site's remedial program. The locations of the Site's document repositories also are identified in Appendix A. The document repositories provide convenient access to important project documents for public review and comment.

Appendix B contains the Brownfield Site contact list. This list has been developed to keep the community informed about, and involved in, the Site's investigation and remediation process. The Brownfield Site contact list includes, at a minimum:

- chief executive officer and planning board of each county, city, town and village in which the Site is located;
- residents on and/or adjacent to the Site;
- the public water supplier which services the area in which the Site is located;
- any person who has requested to be placed on the Site contact list;
- the administrator of any school or day care facility located on and/or adjacent to the Site for purposes of posting and/or dissemination at the facility;

- document repositories and their contacts.

The Brownfield Site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project, including notifications of upcoming remedial activities at the Site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The Brownfield Site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the Site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A.

Appendix C identifies the CP activities that have been and will be conducted during the Site's remedial program.

The CP activities are designed to achieve the following objectives:

- Help the interested and affected public to understand contamination issues related to a Brownfield Site, and the nature and progress of an Applicant's efforts, under State oversight, to investigate and, if appropriate, remediate (clean up) a Brownfield Site.
- Ensure open communication between the public and project staff throughout a Brownfield Site's remedial process.
- Create opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a Brownfield Site's investigation and remediation (cleanup).

This CP Plan may be revised due to changes in major issues of public concern or in the nature and scope of remedial activities. Modifications may include additions to the Site contact list, updates to major issues of concern to the public, and changes in planned citizen participation activities. The public is encouraged to discuss its ideas and suggestions about the citizen participation program with the project contact(s) listed in Appendix A.

5. Site Information

Site Description

The General Super Plating Co. Inc. (GSP) Facility is located at 5762 Celi Drive, East Syracuse, Onondaga County, New York (the Site, Figure 1- Appendix D). The site

contains a 28,500-square feet (s.f.) building situated on approximately 1-acre of land (Figure 2 – Appendix D). The Site is located in a small cluster of industrial and commercial properties east of Erie Boulevard and north of the former Barge Terminal of the Erie Canal. A former Niagara Mohawk Power Corporation is located due east and a former Agway facility was located due west of the Site.

The building houses plating processes, storage areas and a wastewater treatment system which discharges to the Onondaga County Wastewater Treatment Facility (Onondaga County Department of Water Environmental Protection (WEP) pursuant to an authorized permit. The majority of the operations consist of chrome, nickel and copper plating on plastic and metal.

The Syracuse East quadrangle 7.5-minute topographic map includes/covers this site. The average ground surface elevation of the site is approximately 420 feet above mean sea level (MSL). The topography of the facility and surrounding area is generally flat with surface water drainage to the north.

Surface water, including roof drainage, drains to a storm sewer swale located on the east side of the facility (GSP-Swale). Surface water in the GSP-Swale drains to an underground culvert located directly behind the facility. It is directed northward for approximately 750-feet where it empties into a swale located on the north side of Bridge Street, the Bridge Street Swale (BSS). Flow appears to continue to the north through the BSS for approximately 1,000-feet before heading west at the Bridge Street exit ramp of State Route 690.

Site History

The Site is currently owned by GSP. The current primary use for the Site is mostly manufacturing with some administrative offices. Most operational areas of the Site are paved with either concrete or asphalt. The Site also contains gravelly surfaces and grassy areas.

Environmental History

An American Society for Testing Materials Phase I report was not prepared as part of GSP's Brownfield Application. Environmental Status Reports were prepared and submitted by Environmental Resources Management (ERM) in behalf of GSP to the NYSDEC on June 23 and August 1, 2005. In addition, a Comprehensive Report prepared by ERM and dated November 2005 was provided to the NYSDEC by ERM.

In November 2005, GSP submitted an application to the New York State Brownfield program as a participant. GSP received approval of the application on January 14, 2008. ERM prepared this CP Plan and will also prepare/revise a draft work plan for the Site.

Site activity to date is sufficient to develop a conceptual model of Site conditions, however, some additional Site investigation (to be presented in the RIWP) is necessary to further evaluate the lateral and vertical extent of affected media in the affected areas, and to provide additional information required to design appropriate remedial actions consistent with Brownfield requirements and prior discussions with NYSDEC representatives.

Due to geographic location and proximity of the source area up gradient of the affected areas, ERM proposes to complete the investigation and remediation in three phases from up gradient to down gradient as presented in the summary of Areas of Concern (AOC) presented below.

Phase 1

Areas of Concern 1: Affected soil located beneath the GSP manufacturing building.

Investigate and remediate, as necessary, the affected soil beneath the concrete slab of the GSP industrial facility.

Areas of Concern 2: Affected soil located in the swale immediately east of the GSP manufacturing building (GSP Swale)

Investigate and remediate, as necessary, the affected soil in the GSP Swale.

Areas of Concern Site Ground Water: Affected Site Ground water.

Investigate and remediate, as necessary, affected ground water identified onsite.

Phase 2

Areas of Concern 3: The water and sediment in the buried culvert emanating from the GSP Swale.

Investigate and remediate, as necessary, the buried culvert area located immediately north of the GSP Swale to the Bridge Street Swale (BS Swale). The buried culvert directs storm water northward for approximately 750 feet, under Bridge Street and into the BS Swale.

Phase 3

Areas of Concern 4: The affected surface water, sediment and soil in the BS Swale.

Investigate and remediate, as necessary, the drainage ditch on Bridge Street. The area to be investigated and remediated terminates at a point east of the BS Swale along the Route #690 off ramp and west at a point before an existing gravel roadway.

The previous Site investigations, including soil, sediment, surface water and ground water sampling have identified inorganic constituents at concentrations exceeding the standards; Based on the data collected during these previous Site investigations, chromium (Cr) has been identified as the primary constituent of concern (COC) at the Site. Additionally, copper (Cu); nickel (Ni), zinc (Zn), and cyanide (Cn) have also been identified.

Additional samples were collected during the previous investigations, as requested by the NYSDEC. No constituents other than the inorganic COCs identified above were identified as a concern in the GSP Swale or the BS Swale during these previous investigations.

As part of GSP's Brownfield cleanup at the Site, GSP intends to implement the Remedial Investigation Workplan, evaluate remedial options for the Site, and to preserve the Site for active continued use and future expansion.

6. Major Issue of Public Concern

There are no major issues of public concern as they relate to the Site. Major issues of public concern may be identified during the Site's remedial process if they arise.

Appendix A – Project Contacts and Document Repositories

Project Contacts

For information about the Site's remedial program, the public may contact the following NYSDEC project contacts:

Mr. Chris Mannes

Project Manager

NYSDEC – Region 7

Division of Environmental Remediation

615 Erie Blvd. West

Syracuse, New York 13204-2400

(315) 426-7400

Hours of Operation: **Monday through Friday 8:30a.m.-5:00p.m.**



Sources of Information on the Project

The sites listed below have the reports, fact sheets and other information regarding Site clean-up.

Ms. Susan Reckhow, Director

Dewitt Community Library

3649 Erie Boulevard East

Shoppingtown Mall

Dewitt, NY 13214

Phone: (315) 446-3578

Monday: 10:00am – 9:00pm

Tuesday: 10:00pm – 9:00pm

Wednesday: 10:00pm – 9:00pm

Thursday: 10:00pm – 9:00pm

Friday: 10:00am – 5:00pm

Saturday: 10:00am – 5:00pm

Sunday: 1:00pm – 5:00pm

NYSDEC Region 7 Office

Second Floor

615 Erie Blvd. West

Syracuse, New York 13204-2400

Phone: (315) 426-7403

Hours: by appointment only: Contact: Ms. Diane Carlton or Ms. Stephanie Harrington
Monday through Friday: 8:30 AM to 4:45 PM

NYS Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Program Management
625 Broadway, 12th Floor.
Albany, NY 12233-7017
Mon.-Fri. 8:30 am-4:45pm
By appointment only
(518) 402-9621

Appendix B – Brownfield Site Contact List

County Executive, Onondaga County

Joanne M. Mahoney, County Executive

14th Floor

John H. Mulroy Civic Center

411 Montgomery Street

Syracuse, NY 13202

315-435-3516

E-mail: [www : on.gov.net](http://www.on.gov.net)

Planning Agency, Onondaga County

Don Jordan, Director

11th Floor

John H. Mulroy Civic Center

411 Montgomery Street

Syracuse, NY 13202

315-435-2611

Email: [www: on.gov.net](http://www.on.gov.net)

Town of Dewitt – Town Supervisor

Edward Michalenko, Supervisor

5400 Butternut Dr.

East Syracuse, NY 13057-8509

315-446-3428

Town of Dewitt –Department of Building, Planning and Zoning

Richard T. Robb, Commissioner

5400 Butternut Drive

East Syracuse, NY 13057

315-446-3768

Local News Media

WSYR

5904 Bridge Street

East Syracuse, NY 13057

(315)446-999

WTVH

980 James Street
Syracuse, NY 13203
(315) 425-5555

WSTM

1030 James Street
Syracuse, NY 13203

WXXE Radio

826 Euclid Avenue
Syracuse, New York
(315) 234-2000

WBBS

Bridgewater Place
500 Plum Street, Suite 100
Syracuse, NY 13204
(315) 472-9797

The Post Standard

5795 Widewaters Parkway
Dewitt, NY 13214
(315) 251-1810

Occupants and Owner of the Site

Site Owner

General Super Plating Co. Inc.
5762 Celi Drive
East Syracuse, New York 13057

Properties Adjacent to the Site

North	Syracuse Artist Pianos 5780 Celi Drive East Syracuse, NY 13057 315-446-5660
South	G&G Fitness Syracuse 6511 Towpath Road East Syracuse, NY 13057 315-449-1538
East	6601 Towpath Road Co. LLC 5786 Widewaters Parkway Dewitt, NY 13214
West	Property owned by GSP

Administrator of school or day care located on or near the Site

Not Applicable

The Public Water Supplier of the Site area

Onondaga County Department of Water Environmental Protection

Randy R. Ott, P.E. Commissioner
650 Hiawatha Blvd.
Syracuse, New York 13204
Phone: (315) 435-6820

Appendix C – Identification of Citizen Participation Activities

Required Citizen Participation Activity	CP activity(ies) occur at this point	Date Completed
After Execution of Brownfield Site Cleanup Agreement:		
• Prepare citizen participation (CP) plan	Draft CP Plan must be submitted within 20 days of entering Brownfield Site Cleanup Agreement. CP Plan must be approved by NYSDEC before distribution	Draft submitted DRAFT 22 April 2008 - Final May 7, 2008
Work Plan Submittal:		
• Prepare Work Plan	Draft work plan must be submitted within 30 days of entering Brownfield Site Cleanup Agreement. The work plan must be approved by NYSDEC before distribution	Draft submitted January 2006 Comments to be reviewed and re-submitted June 1, 2008
After Work Plan Completion:		
• Mail fact sheet to Brownfield Site Contact List (BSCL) describing pertinent portions of the work plan.	Before NYSDEC approves work plan.	TBD
After Work Plan Approved:		
• Mail fact sheet to public about initiation of field work and anticipated period to complete work.	Prior to field investigation.	TBD
Initiate Field Work Based on Work Plan:		
Not Applicable.	Not Applicable.	TBD
Prepare Investigation Report:		
Prepare report presenting results of findings and proposed remedial measure(s) recommended.	Report must be approved by NYSDEC before distribution.	TBD
Prepare Work Plan:		
• Mail fact sheet to public about proposed work plan and announcing 45-day comment period	Before NYSDEC approves work plan. 45-day comment period begins/ends as per dates identified in fact sheet. Public	TBD TBD

Required Citizen Participation Activity	CP activity(ies) occur at this point	Date Completed
<ul style="list-style-type: none"> Public meeting by NYSDEC about proposed work plan (if requested by public) 	meeting would be held within the 45-day comment period.	
After Approval of Work Plan:		
<ul style="list-style-type: none"> Mail fact sheet to public summarizing upcoming construction 	Before the start of construction.	TBD
After Remedial Action Completed:		
<ul style="list-style-type: none"> Mail fact sheet to public announcing that construction has been completed Mail fact sheet to public announcing issuance of Certificate of Completion (COC) 	At the time NYSDEC approves Final Engineering Report. These two fact sheets should be combined when possible if there is not a delay in issuance of COC.	TBD TBD

Appendix E

Community Air Monitoring Program

Community Air Monitoring Plan

***Celi Drive Site
Town of Dewitt
Onondaga County, New York
Brownfield Program***

January 2009

ERM Project Number 0032572
Site Number C734108

Prepared for:
***General Super Plating Co., Inc.
5762 Celi Drive
Dewitt, NY 13214***

Prepared By:
Environmental Resources Management
5788 Widewaters Parkway
DeWitt, New York 13214

COMMUNITY AIR MONITORING PLAN
Celi Drive Site, Town of Dewitt, New York

NYSDEC Brownfield Site #C734108

A Community Air Monitoring Plan (CAMP) involves real-time monitoring for volatile organic compounds (VOCs) and particulate matter (i.e., dust) at the downwind perimeter of each designated work area when intrusive activities are in progress. Intrusive activities include soil or waste excavation, staging, or handling; test pitting or trenching; and/or the installation of soil borings or monitoring wells. The CAMP provides a measure of protection for on-Site workers and the downwind community (i.e., off-Site receptors including residences, parks, businesses, etc.) not directly involved with the subject work activities. Routine monitoring is required to evaluate concentrations and corrective action and/or work stoppage may be required to abate emissions detected at concentrations above specified action levels. Routine data collected during implementation of the CAMP may also help document that work activities did not spread compounds of potential concern off-Site through the air. Reliance on the procedures and action levels described in this CAMP should not preclude simple, common sense measures to keep metals, VOCs, dust, and odors at a minimum around work areas.

COMMUNITY AIR MONITORING PLAN

Compounds of potential concern include several metals and cyanide, and particulate matter (i.e., dust). Transient VOC concentrations that may be associated with laboratory procedures have been identified during previous Site investigations. Although VOCs are not considered a compound of concern at the Site, this CAMP will include VOC monitoring as a prudent precaution. VOC concentrations in air will be measured using a calibrated photoionization detector (PID). Particulate matter concentrations will be measured using a calibrated electronic aerosol monitor.

Relevant weather conditions including wind direction, speed, humidity, temperature, and precipitation will be measured and recorded prior to the initiation of subsurface intrusive activities. Background readings of VOCs and particulate matter will be collected at a minimum of five locations on Site prior to the initiation of IRM field work on each day that subsurface intrusive work will be performed. Additional background measurements may be collected if weather conditions change significantly.

Continuous monitoring for VOCs and particulate matter will be performed downwind of the work area during subsurface intrusive activities. Periodic

monitoring for VOCs will be performed during non-intrusive activities if requested by an NYSDEC and/or NYSDOH on-Site representative. Non-intrusive activities include any work activity that does not disturb the subsurface or staged soil piles, including routine Site visits, collection of ground water samples from Site wells, installation of remedial equipment, surveying, etc. Periodic monitoring will consist of collecting one reading downwind of the work area at the following intervals:

- upon arrival at a sample location or other work activity location;
- during performance of the relevant work activity;
- during the opening of a well cap (if applicable);
- during well baling or purging procedures (if applicable); and
- prior to leaving a sample location or other work activity location.

VOC RESPONSE LEVELS AND CORRECTIVE ACTIONS

VOCs will be monitored at the downwind perimeter of the immediate IRM work area on a continuous basis during intrusive activities. Upwind concentrations will be measured at the start of each workday, during the work activity, and at the end of each work day to establish background conditions. Monitoring equipment that does not require factory calibration will be calibrated at least once a day. Calibration may be performed more frequently if Site conditions or instrument operating conditions are highly variable. The monitoring 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 VOCs at the downwind perimeter of the work area exceeds five parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total VOC concentration readily decreases (per instantaneous readings) below five ppm over background, work activities can resume with continued monitoring.
- If total VOC concentrations at the downwind perimeter of the work area persists at concentrations greater than five ppm over background but less than 25 ppm, work activities will be halted, the source of the VOCs identified, corrective action will be taken to abate emissions (if the source is related to IRM activities), and monitoring will be continued. After these steps, work activities will resume provided that the total VOC concentration 200 feet downwind of the work area, or half the distance to the nearest potential receptor, whichever is less (but in no case less than 20 feet), is below five ppm above background for the 15-minute average.

- If the total VOC concentration is greater than 25 ppm above background at the perimeter of the work area, intrusive work activities will be halted and the source of the VOCs will be identified. Work will resume when additional continuous monitoring demonstrates that VOC concentrations have dropped below 25 ppm for a minimum of one-half hour, and the total VOC concentration 200 feet downwind of the work area, or half the distance to the nearest potential receptor, whichever is less (but in no case less than 20 feet), is below five ppm above background for the 15-minute average.

All 15-minute readings will be recorded and will be available for review by NYSDEC and/or NYSDOH personnel. Instantaneous VOC readings (if any) used for decision purposes will also be recorded.

PARTICULATE MATTER RESPONSE LEVELS AND CORRECTIVE ACTIONS

Fugitive dust migration from the work area will be visually assessed during intrusive activities. Particulate concentrations will be monitored continuously at the downwind perimeter of the work area during intrusive activities. Particulate monitoring will be performed using real-time electronic aerosol 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 for comparison to the airborne particulate action levels referenced below. The monitoring equipment will be equipped with an audible alarm to indicate an exceedance of a specified action level.

- If the downwind PM-10 concentration is 100 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) greater than background for the 15-minute period, or if airborne dust is observed leaving the work area, dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 concentration does not exceed $150 \mu\text{g}/\text{m}^3$ above background and provided that significant visible dust is not migrating from the work area.
- If downwind PM-10 concentrations are greater than $150 \mu\text{g}/\text{m}^3$ above background, intrusive activities will be stopped and a re-evaluation of the intrusive activities will be initiated. Work can resume provided that dust suppression measures and/or other engineering controls are successful in reducing the downwind PM-10 concentration to within $150 \text{ mcg}/\text{m}^3$ of background and in preventing significant visible dust migration.

All 15-minute readings will be recorded and will be available for review by NYSDEC and/or NYSDOH personnel. Instantaneous readings (if any) used for decision purposes will also be recorded.

Appendix F

Brownfield Cleanup Notice of Agreement

NOTICE OF AGREEMENT

This Notice is made as of the 18th day of April, 2008 by General Super Plating Co. Inc., owners of the remedial site (the "Owner") regarding a parcel of real property located at 5762 Celi Drive, in East Syracuse, Onondaga County, New York bearing Tax Map Number 053-02-17.2 (the "Property"); and

WHEREAS, a Brownfield Site Cleanup Agreement was entered into with the Department of Environmental Conservation, Index # B7-0713-06-03 concerning contamination which is or may be present on the Celi Drive Site Property (Site No. C734108), which Agreement was executed on behalf of the Department on March 27, 2008; and

WHEREAS, Owner hereby causes the filing of a Notice of the Agreement with the Onondaga County Clerk in accordance with 6 NYCRR §375-1.5 (a).

NOW, THEREFORE, Owner, for itself and for its successors and assigns, declares that this Notice of the Agreement is hereby given to all parties who may acquire any interest in the Property; and

IN WITNESS WHEREOF, Owner has executed this Notice of Agreement by its duly authorized representative.

GENERAL SUPER PLATING CO., INC.

Dated: April 18, 2008

By: William Southwell
William Southwell, President

STATE OF NEW YORK)
COUNTY OF ONONDAGA) ss.:

On the 18th day of April in the year 2008 before me, the undersigned, a Notary Public in and for said State, personally appeared William Southwell, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Doreen A. Simmons
Notary Public

DOREEN A. SIMMONS
Notary Public, State of New York
Qualified in Onon. Co., No. 4608342
My Commission Expires March 30, 09