BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

September 21, 2009

Mr. Michael Hinton, P.E.
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: RI/AAR/IRM Work Plan Addendum
3807 Highland Avenue Site
Niagara Falls, Niagara County
Brownfield Cleanup Program Site #C932145

Dear Mr. Hinton:

Benchmark Environmental Engineering & Science, PLLC (Benchmark) is providing this letter as an addendum to the recently revised Remedial Investigation/Alternatives Analysis Report/Interim Remedial Measures (RI/AAR/IRM) Work Plan dated September 2009 for the 3807 Highland Avenue Site (Site, see Figures 1A and 2A). That RI/AAR/IRM Work Plan was prepared for a portion of the Site that Globe Metallurgical, Inc. (Globe) is redeveloping, but the Work Plan did not address the western portion of the Site that will be developed by Solsil, Inc. (Solsil).

Globe and Solsil jointly applied and have been accepted into the Brownfield Cleanup Program (BCP) as non-responsible party "volunteers". This addendum, together with the August 2009 RI/AAR/IRM Work Plan, constitute the RI/AAR/IRM Work Plan the for 3807 Highland Avenue BCP Site.

This addendum is intended to supplement the RI Field Activities section (i.e., Section 3.1) of the August 2009 RI/AAR/IRM Work Plan. The other sections of that Work Plan are applicable for the entire BCP Site.

REMEDIAL INVESTIGATION ACTIVITIES

The RI activities will include completion of test pits using a backhoe or similar equipment, completion of soil borings using a direct-push drill rig, collection of sediment samples from within a smoke stack, installation of groundwater monitoring wells and waste characterization sampling of abandoned drums. If initial RI soil and groundwater data indicates that Site contaminants (i.e., volatile organic compounds (VOCs)) may cause a soil vapor concern, Solsil will collect soil gas samples in the affected area(s). Surface and

subsurface soil samples will be collected across the Site from the test pits and/or soil borings. Groundwater samples will be collected from the newly installed monitoring wells. These activities are described in greater detail below. Planned sampling locations are shown on Figure 3A attached. Table 1A is a summary of the sampling and analysis plan.

Soil Investigation

Test Pit Excavations

Excavation of approximately 14 test pits across the property will allow for visual/olfactory/photoionization detector (PID) assessment of subsurface conditions and to obtain subsurface soil/fill samples for chemical characterization. Test pits will be pre-located to allow for clearance of sub-grade infrastructure and utilities. The number and location of test pits may be modified if subgrade features are present in planned sample locations.

In general, test pits will be excavated using a backhoe or mini-excavator from ground surface to approximately 6 to 10 feet below ground surface (fbgs), to the top of bedrock, or to the top of groundwater, whichever is encountered first. Test pit dimensions (i.e., depths and lengths) may vary depending on the vertical and horizontal extent of the soil/fill horizon, depth to groundwater, or encountered impacts (i.e., free-product, elevated PID readings, etc.). Test pit walls and excavated soil/fill will be examined by qualified Benchmark personnel and classified in accordance with the Unified Soil Classification System (USCS). Excavated soil/fill and the test pit atmosphere will be field screened for the presence of VOCs using a field PID as a procedure for ensuring the health and safety of personnel at the Site and to identify potentially impacted soil/fill samples for laboratory analysis. The methodology for field soil/fill screening using a PID is discussed in the project Quality Assurance Project Plan (QAPP), provided under separate cover. Field measurements and observations will be documented in the project notebook by the Benchmark field scientist/engineer.

Subsurface samples will be collected for analysis of USEPA Target Compound List (TCL) semi-volatile organic compounds (SVOCs) and Target Analytes List (TAL) metals using USEPA SW-846 methodology with equivalent Category B deliverables to allow for independent third-party data usability assessment. Additionally, at three test pit locations on the Solsil portion of the Site, subsurface samples will be analyzed for TCL VOCs, polychlorinated biphenyls (PCBs), herbicides and pesticides for Site characterization purposes. However, no VOC samples will be analyzed in the absence of elevated PID reading (i.e., sustained readings greater than 5 ppm).

Soil/fill samples will be collected from the center of the excavator bucket using dedicated stainless steel sampling tools. Representative soil/fill samples will be placed in pre-cleaned laboratory supplied sample bottles, cooled to 4ºC in the field, and transported under chain-of-custody command to Test America Laboratories, Inc. (Test America), located in Amherst,

New York, a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified analytical laboratory. Please refer to Table 1A for a summary of the soil/fill sampling and analysis plan.

Soil Borings

In addition to the test pits, the soil/fill investigation will include completion of eight soil borings in the locations shown on Figure 3A. Two of the soil borings will be completed within the footprint of the factory building. The other six soil borings will be completed for Site characterization purposes and will be converted to groundwater monitoring wells as further described below.

Soil/fill samples will be collected using dedicated stainless steel sampling tools. Representative soil/fill samples will be placed in pre-cleaned laboratory provided sample bottles, cooled to 4ºC in the field, and transported under chain-of-custody command to TestAmerica. Soil/fill samples will be submitted for TCL VOCs, TCL SVOCs, TCL PCBs, and TAL Metals using USEPA SW-846 methodology with equivalent Category B deliverables to allow for independent third-party data usability assessment. However, no VOC samples will be analyzed in the absence of elevated PID reading (i.e., sustained readings greater than 5 ppm). Table 1A summarizes the soil/fill sampling and analysis plan. Figure 3A shows the test pit and soil boring locations.

Surface Soil/Fill Sampling

Up to 14 surface soil/fill samples will be collected across the Solsil portion of the Site. For each surface soil/fill grab sample, a dedicated stainless steel hand trowel or stainless steel spoon will be used to collect a representative aliquot of soil. If an area is vegetated, then the surface soil sample will be collected from 0 to 2 inches below ground surface (bgs) following removal of the sod/vegetation. Representative samples will be collected in the field by qualified Benchmark personnel, scanned for total volatile organic vapors with a PID, and characterized for impacts via visual and/or olfactory observations. Samples will be transferred to laboratory-supplied, pre-cleaned sample containers for analysis of TCL SVOCs, TAL metals and PCBs using USEPA SW-846 methodology with equivalent Category B deliverables to allow for independent third-party data usability assessment. If elevated PID readings (i.e., sustained readings greater than 5 ppm) are observed in any sample, that sample will also be analyzed for TCL VOCs.

Waste Characterization Sampling (Sediment/Drums/Aboveground Storage Tanks)

Sediment within the smoke stack located north of the former factory building, drums and/or aboveground storage tanks (ASTs) not intended for future use at the Site, will be sampled during the RI/IRM for waste characterization purposes to determine proper handling and disposal of these materials. The waste characterization analytical protocols will largely be dictated by disposal facility requirements (the disposal facility has not yet been determined). In general, the solid materials will be analyzed for TCLP VOCs, TCLP SVOCs, TCLP metals, hazardous characterization (ignitability, reactivity, and pH), and total PCBs and liquid

materials will be analyzed for TCL VOCs, TCL SVOCs, Resource Conservation and Recovery Act (RCRA) Metals, TCL PCBs, and ignitability.

Groundwater Investigation

Six groundwater monitoring wells will be installed on-Site at the proposed locations shown on Figure 3A. The new monitoring wells will provide groundwater elevation data as well as groundwater quality data. Monitoring well installation, well development, and groundwater sample collection are discussed in the following sections.

Monitoring Well Installation

Six soil borings will be advanced to facilitate installation of groundwater monitoring wells, as shown on Figure 3A. Each boring location will be advanced at least 10 fbgs into native soils, 5-ft. below the first encountered groundwater table, or a maximum depth of 20 fbgs. A direct-push drill rig capable of advancing hollow-stem augers will be employed to install 2-inch inside diameter (ID) monitoring wells. However, if groundwater is not encountered within 15 fbgs, a monitoring well will not be installed at that location. Recovered soil samples will be described in the field by qualified Benchmark personnel using the USCS, scanned for total volatile organic vapors with a PID and characterized for impacts via visual and/or olfactory observations. As described above, soil samples will be collected and analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, and TAL Metals. However, no VOC samples will be analyzed in the absence of elevated PID reading (i.e., sustained readings greater than 5 ppm). All non-dedicated drilling tools and equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox).

Subsequent to boring completion, a 2-inch ID diameter flush-joint Schedule 40 PVC monitoring well will be installed at the boring locations. Each well will be constructed with a 10-foot flush-joint Schedule 40 PVC, 0.010-inch machine slotted well screen. Each well screen and attached riser will be placed at the bottom of each borehole and a silica sand filter pack (size #0) will be installed from the base of the well to a maximum of 2 feet above the top of the screen. A bentonite chip seal will then be installed and allowed to hydrate sufficiently to mitigate the potential for downhole grout contamination. Cement/bentonite grout will be installed to approximately 1 fbgs. The newly installed monitoring wells will be completed with keyed-alike locks, a lockable J-plug, and an 8-inch diameter steel flush mounted road box anchored within an approximate 2-foot by 2-foot by 1-foot square concrete pad.

Well Development

Upon installation, but not within 24 hours, newly installed monitoring wells will be developed in accordance with Benchmark and NYSDEC protocols. Development of the monitoring wells will be accomplished with dedicated disposable polyethylene bailers via surge and purge methodology. Field parameters including pH, temperature, turbidity, dissolved oxygen and specific conductance will be measured periodically (i.e., every well volume or as necessary) during development. Field measurements will continue until they became relatively stable. Stability will be defined as variation between measurements of approximately 10 percent or less with no overall upward or downward trend in the measurements. A minimum of three well volumes will be evacuated from each monitoring well. Development water from the monitoring wells will be passed through a mobile granular-carbon treatment vessel, and discharged to ground proximate the well being developed.

Groundwater Sample Collection

Prior to sample collection, static water levels will be measured and recorded from all on-Site monitoring wells. Following water level measurement, Benchmark personnel will purge and sample the monitoring wells using either a peristaltic pump with dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures or using a dedicated polyethylene bailer. Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, specific conductance, temperature, turbidity, dissolved oxygen and water level as well as visual and olfactory field observations will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, temperature and dissolved oxygen stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU), or become stable above 50 NTU. Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Upon arrival at each monitoring well, field personnel will visually inspect the monitoring well for defects and/or vandalism. Following location and inspection of each well, the static water level and total depth will be recorded and one standing well volume will be calculated. Wells will be purged and sampled using a peristaltic pump and dedicated pump tubing following low-flow (minimal drawdown) purge and sample collection procedures. However, the pump will not require decontamination because all components are dedicated to each monitoring well. Prior to and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, turbidity, dissolved oxygen and water level as well as visual and olfactory field observations will be recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to Test America for analysis.

Groundwater Sample Analyses
Groundwater samples will be analyzed for TCL plus NYSDEC Spill Technology and Remediation Series (STARS) List VOCs, TCL SVOCs and TAL Metals in accordance with USEPA SW 846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment. Table 1A summarizes the groundwater sampling and analysis plan.

Soil Vapor Assessment

If initial RI soil and groundwater data indicates that VOCs may cause a potential soil vapor intrusion concern, Solsil will complete a vapor intrusion investigation for buildings in the affected area(s) that are not planned to be demolished. To evaluate the potential vapor intrusion into a Site building, at least one sub-slab vapor sample, one indoor air sample and one ambient air (i.e., background) sample will be collected. The sampling will be completed in general conformance with the New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance (October 2006).

At the sub-slab sample location, Benchmark personnel will drill an approximate 3/4-inch diameter hole through the concrete floor (est. 4-6 inches thick) using a hand-held drill. Approximately 6 inches of soil will then be drilled from beneath the hole. An appropriately sized silicone stopper fitted with a ¼-inch hollow Teflon tube will then be inserted into the core hole and sealed using modeling clay. A real time tracer gas will be used to confirm the integrity of the probe seal prior to formal sample collection. Once the seal is determined to be adequate, a Summa canister fitted with an 8-hour regulator will be attached to the opposite end of the Teflon tubing. Three volumes will be purged from the sampling line before initiating Summa canister sampling. Purging will be performed with a vacuum pump or syringe.

Concurrent with the sub-slab and indoor air samples, one outdoor field-located air sample will be collected from a ground level location upwind of the properties, as determined on the day of sub-slab and indoor air sampling activities.

All Summa canister valves will remain closed until the sub-slab boring is complete, purged, and all of the canisters are in their respective positions. The valves will then be opened for the 8-hour collection period. Following sample collection, the Summa canisters will be shipped to an NYSDOH-approved laboratory for analysis of USEPA TCL VOCs in accordance with USEPA Method TO-15.

Project Schedule

Benchmark is prepared to mobilize to the Site to commence the RI/IRM field activities upon NYSDEC approval of the revised RI/AAR/IRM Work Plan and this addendum.

Please contact me if you have any questions or wish to discuss this Work Plan addendum further.

Sincerely,

Michael Lesakowski
Project Manager

C: Stephen Lebowitz, Esq.- Globe/Solsil
Arden Sims, Globe/Solsil
Gilad Amozeg- Solsil
Matthew Greene- Globe/Solsil
Greg Sutton- NYSDEC Region 9
Matthew Forcucci, NYSDOH
File 0193-001-101

TABLES

TABLE 1A

SAMPLING AND ANALYTICAL PROGRAM

REMEDIAL INVESTIGATION/INTERIM REMEDIAL MEASURES WORK PLAN ADDENDUM
3807 Highland Avenue Site
Niagara Falls, New York

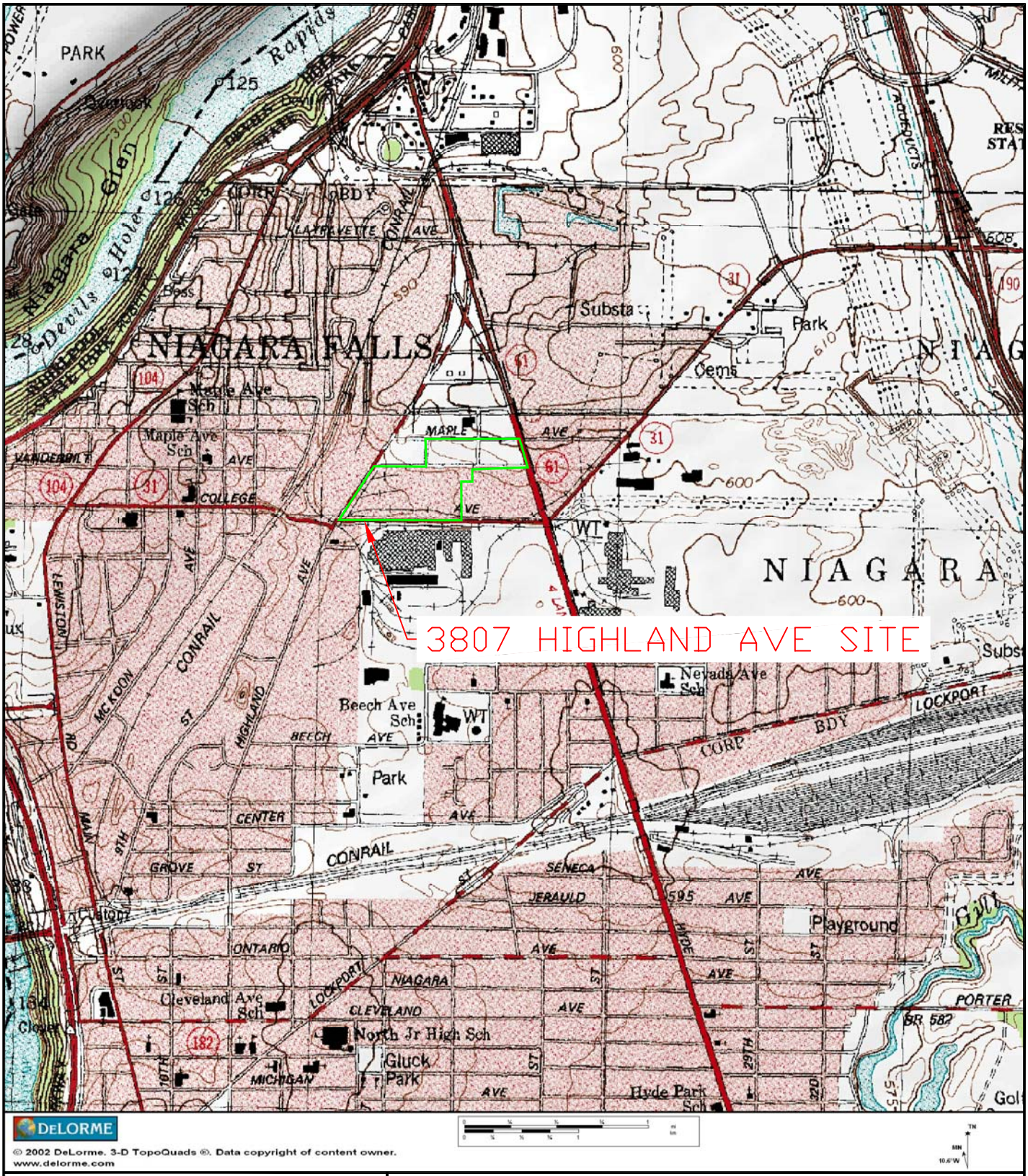
Matrix/Area	Parameter[1]	No. Samples	Estimated Number of QC Samples					Total
			Trip Blank[2]	Matrix Spike[3]	Matrix Spike Duplicate[3]	Equipment Blank[4]	Blind Duplicate[3]	
REMEDIAL INVESTIGATION								
Test Pits- Subsurface Soil/Fill [5]	TCL + STARS VOCs	3						3
	TCL SVOCs	14						14
	TAL Metals	14						14
	PCBs	3						3
	Pesticides	3						3
	Herbicides	3						3
Soil Borings- Subsurface Soil/Fill [6]	TCL + STARS VOCs	6						6
	TCL SVOCs	6						6
	TAL Metals	6						6
	PCBs	6						6
Surface Soil/Fill	TCL SVOCs	14		1	1		1	17
	TAL Metals	14		1	1		1	17
	PCBs	14		1	1		1	17
Sediment/Drum Characterization Sampling [7] (solids)	TCLP VOCs	TBD						0
	TCLP Metals	TBD						0
	Total PCBs	TBD						0
	Hazardous Characterisitcs							
	Ignitability	TBD						0
	Reactivity	TBD						0
	Corrosivity	TBD						0
Drum/Tank Characterization Sampling [7] (liquids)	Flashpoint	TBD						0
	Total PCBs	TBD						0
	RCRA Metals	TBD						0
	TCL VOCs	TBD						0
	TCL SVOCs	TBD						0
Groundwater[8]	TCL + STARS VOCs	6	1					7
	TCL SVOCs	6						6
	TAL Metals	6						6
	Field Parameters[9]	6						6
INTERIM REMEDIAL MEASURES								
Post-Excavation Samples[7]	TCL + STARS VOCs	TBD						0
	TCL SVOCs	TBD						0
	TAL Metals	TBD						0
	PCBs	TBD						0
Soil Characterization Sampling [7]	TCLP VOCs	TBD						0
	TCLP SVOCs	TBD						0
	TCLP Metals	TBD						0
	Total PCBs	TBD						0
	Hazardous Characterisitcs							
	Ignitability	TBD						0
	Reactivity	TBD						0
	Corrosivity	TBD						0

Notes:
1. Analyses will be performed via USEPA SW-846 methodology w/ equivalent Category B deliverables package.
2. Trip blanks will be submitted to the laboratory each day aqueous volatile organic samples are collected.
3. Blind duplicate and MS/MSD samples will be collected at a frequency of 1 per 20 samples collected on the entire BCP Site.
4. Dedicated sampling equipment will be used for groundwater and soil/fill sample collection.
5. Fourteen test-pits will be excavated and one sub-surface soil/fill sample will be collected from each test-pit. Only 3 sample locations require sampling for VOCs, PCBs, pesticides and herbicides.
6. Six soil borings will be completed and one sub-surface soil/fill sample will be collected from each soil boring.
7. TBD= to be determined. Number of samples will be determined in the field.
8. Groundwater samples will not be collected if groundwater is not encountered within 15 ft. below ground surface.
9. Groundwater field parameters include dissolved oxygen, pH, conductance, turbidity and temperature.

FIGURES

F:\CAD\Benchmark\Globe Metallurgical\RI-AAR-IRM WP\Figure 1A; Site Location and Vicinity Map.dwg, 8/28/2009 2:43:28 PM

FIGURE 1A



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PROJECT NO.: 0170-001-102

DATE: AUGUST 2009

DRAFTED BY: JCT

SITE LOCATION AND VICINITY MAP

RI / AAR / IRM WORK PLAN ADDENDUM

3807 HIGHLAND AVENUE SITE

NIAGARA FALLS, NEW YORK

PREPARED FOR

GLOBE METALLURGICAL, INC.

BCP PROPERTY BOUNDARY

SOLSIL AREA

NOT TO SCALE

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
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PROJECT NO.: 0170-001-102

DATE: AUGUST 2009

DRAFTED BY: NTM

SITE PLAN

RI / AAR / IRM WORK PLAN ADDENDUM

3807 HIGHLAND AVENUE SITE

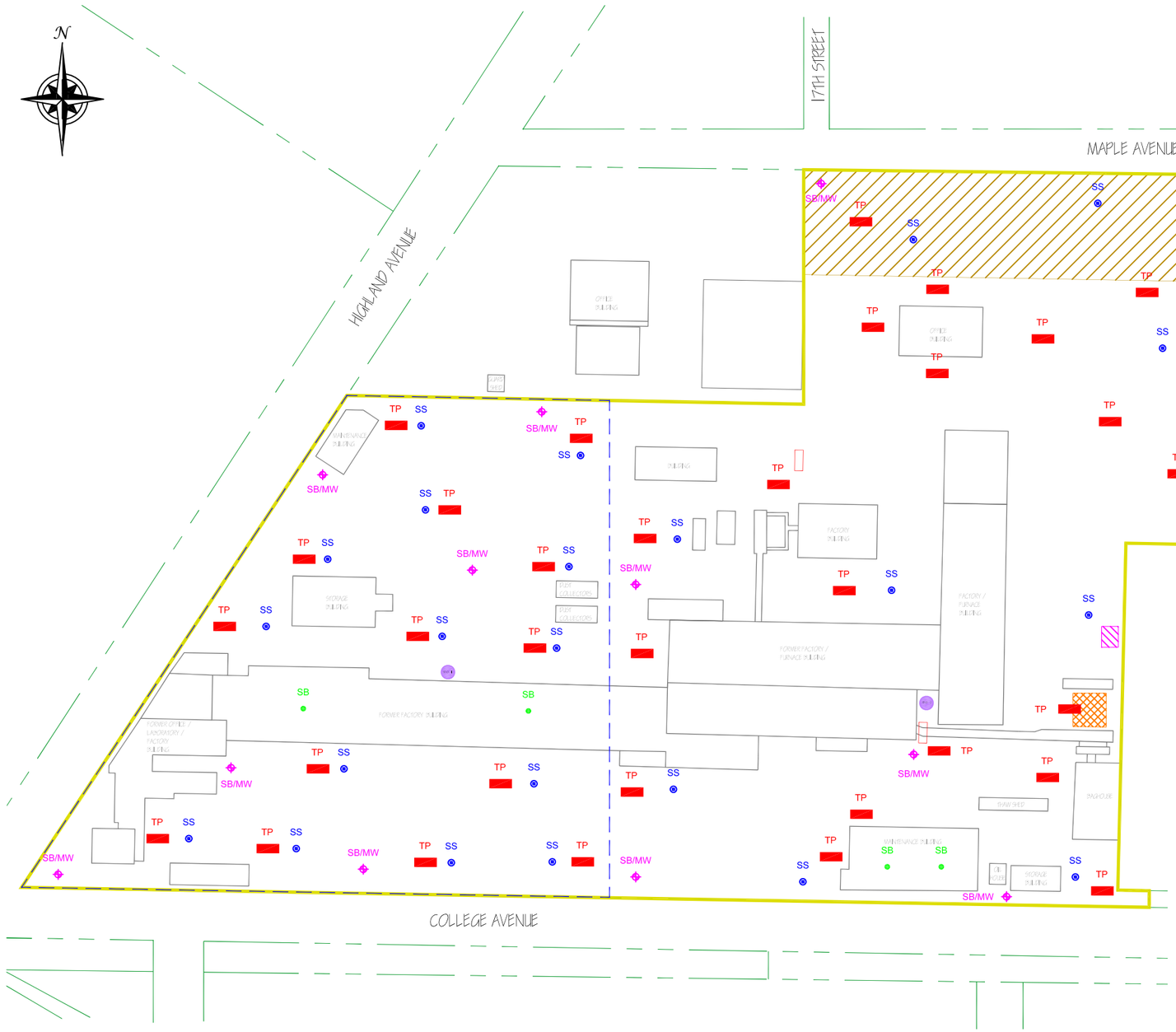
NIAGARA FALLS, NEW YORK

PREPARED FOR

GLOBE METALLURGICAL, INC.

FIGURE 2A

F:\CAD\Benchmark\Globe Metallurgical\RI-AAR-IRM WP\Figure 3A; Sampling Locations (AUG 2009 Addendum).dwg, 9/3/2009 11:38:54 AM



LEGEND:

- PARCEL BOUNDARY
- BCP BOUNDARY
- EXISTING BUILDINGS / STRUCTURES
- SOLSIL AREA
- ABOVEGROUND STORAGE TANKS (AST)
- ELEVATED AREA
- DEBRIS PILE
- STACKS
- TP — PROPOSED TEST PIT LOCATIONS
- SS — PROPOSED SURFACE SOIL SAMPLE LOCATION
- SB/MW — PROPOSED SOIL BORING / MONITORING WELL LOCATIONS
- SB — PROPOSED SOIL BORING LOCATION

150' 0' 150' 300'

SCALE: 1 INCH = 150 FEET
SCALE IN FEET
(approximate)

DATE: AUGUST 2009
DRAFTED BY:NTM

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JOB NO.: 0170-001-102

PLANNED SAMPLING LOCATIONS

RI / AAR / IRM WORK PLAN ADDENDUM

3807 HIGHLAND AVENUE SITE

NIAGARA FALLS, NEW YORK

PREPARED FOR

GLOBE METALLURGICAL, INC.

FIGURE 3A