Site Investigation Work Plan

Maider Road Brownfield Project Town of Clay, New York

C&S COMPANIES

ENGINEERS
DESIGN BUILD
TECHNICAL RESOURCES
OPERATIONS

July 2003

SCOPE OF WORK

BROWNFIELD SITE INVESTIGATION

Maider Road Site

Town of Clay, New York

Prepared by

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July 2003

MAIDER ROAD - TOWN OF CLAY BROWNFIELD PROJECT

SITE INVESTIGATION AND INTERIM REMEDIAL MEASURE WORK PLAN

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SECTION 1: INTRODUCTION

1.1 General

This work plan identifies activities and tasks associated with a Site Investigation (SI) and Tank Removal to be conducted at the Maider Road Brownfield site, located on Maider Road in the Town of Clay, New York. Figure 1 shows the location of the facility. This work plan addresses elements, as appropriate, established within the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation Program Policy DER-97-4058 and other applicable guidance. C&S Engineers, Inc. (C&S) has developed this work plan based on the results of a limited sampling and analysis at the site and on requests and comments from the NYSDEC.

1.2 Site Description

The Maider Road site is a 66-acre parcel generally located East of the confluence of the Seneca and Oneida Rivers and in the area know as Three Rivers. Most of the site is south of Maider Road (which runs parallel to the Oneida River). A small section of the site is between Maider Road and the River; this section includes portions of what was formerly a dock for unloading barges.

For the purposes of this Site Investigation, the 66-acre study area has been divided into the two sub-areas described below. Figure 2 provides an aerial photograph of the site with the delineation of the two study areas.

West Area - This approximately nine-acre area was the site of the former Cibro bulk petroleum and asphalt terminal. This area was utilized from the 1920's until the early 1990's for the bulk storage of fuel oil and asphalt. Presently the following tanks are known to be on site:

Tank ID	Description
Tank No. 5	1,050,000 gallon steel AST, contained asphalt
Tank No. 6	1,050,000 gallon steel AST, contained asphalt
Tank No. 7	1,050,000 gallon steel AST, contained asphalt
Tank No. 8	1,050,000 gallon steel AST, contained asphalt
Tank No. 9	21,000 gallon steel AST on rack, contained asphalt

Tank No. 10	21,000 gallon steel AST on rack, contained asphalt
Boiler House A	1,000 gallon (est.) steel horizontal AST – unknown usage
Boiler House B	5,000 - 6,000 gallon (est.) horizontal steel AST – unknown usage
Boiler House C	8,000 - 9,000 gallon (est.) rectangular steel AST – unknown usage
Boiler House D	UST - reportedly 3, 000 gallon fuel oil

Information on Tanks 5-10 from NYSDEC tank database

In addition, previously removed aboveground tanks included the following

Tank ID	**Description**
Tank No. 1	840,000 gallon steel AST, contained fuel oil
Tank No. 2	2,310,000 gallon steel AST, contained fuel oil
Tank No. 3	2,310,000 gallon steel AST, contained fuel oil
Tank No. 4	5,250,000 gallon steel AST, contained fuel oil
Tank No. 11	14,000 gallon horizontal steel AST on rack, unknown usage

East StudyArea - An area of approximately 57 acres that is largely wooded (See Figure 2). Based on inspections of historical aerial photography, the only indications of past industrial usage are a small railcar loading/unloading area and an associated abandoned railway siding for the former terminal. Another former petroleum products distribution facility is located across Maider Road to the north of the East Study Area. The initial SI activity will be reconnaissance of this area via a walkover, during which areas of potential environmental concern will be identified (if present) and located using a hand-held GPS unit. Any such area of potential concern will be mapped using the GPS coordinates and potential routes of access will be assessed with regard to the feasibility of test-pitting or soil boring during subsequent site activities.

SECTION 2: SCOPE OF WORK

2.1 Introduction

During 2001, a limited sampling and analysis program was conducted in the West Study Area to identify potential contamination and parameters of environmental concern. As indicated in the

subsequent Letter Report (January 21, 2001, see Appendix D), the presence of contamination was identified in a number of areas. Due to the focused nature of the previous investigation, the extent of contamination within discrete areas was not defined to the levels necessary to provide recommendations or designs for applicable remedial actions. Consistent with the NYSDEC requirements for Brownfield site investigations, this work plan was developed to better define the nature and extent of contamination at the site. Figure 3 shows the key structures and locations of the West Study Area

2.2 Borings and Monitoring Well Installations

During previous activities conducted by others, five groundwater monitoring wells (MW-1 to MW-5) have been installed at the site. These five existing monitoring wells have been inspected and found to be functional. During this SI, five additional wells will be installed. Two of the new wells will be installed in the West Study Area (see Figure 3) to better define the groundwater conditions in the area of the former facility operations. One of the West Study Area monitoring wells will be located upgradient of a residence where a suspected site-related discharge was previously reported, and one will be located near former Tank No.3 in the central portion of the West Study Area. Two monitoring wells will be installed in the East Study Area to confirm that the groundwater in that area has not been impacted by on-site or off-site operations. One of the East Study Area monitoring wells will be located near the former railcar loading/unloading and old railroad siding area. Another East Study Area monitoring well will be located along the northern property boundary proximate to the former petroleum products distribution facility (see Figure 3). The location of the fifth monitoring well will be based upon observations made during site activities, and determined via consultation with the NYSDEC on-site representative.

Subsurface borings to be completed for purposes of monitoring well installation will entail the use of continuous split spoon sampling consistent with ASTM D-1586-84. Borings will be advanced using a hollow-stem auger without the use of air or drilling fluids. The Modified Burmeister geologic logging method will be used for describing soil samples. Split spoons will be cleaned between samples and downhole apparatus/tools will be cleaned between borings. Split spoon soil samples

will be field screened for the presence of volatile organic compounds, using a Thermo-Environmental photoionization detector (PID) or equivalent. A minimum of one soil sample from each of the five borings will be submitted for laboratory analysis for the Superfund Target Compound List (TCL) of parameters. Additional samples will be collected if deemed necessary to delineate the horizontal or vertical extent of any observed or suspected contamination. Analysis for the TCL parameters will be consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

When it is determined that a boring has reached an appropriate depth for well screening that will straddle the water table within the shallow aquifer, monitoring wells will be installed. Monitoring wells will be constructed of two-inch diameter PVC tri-lock jointed screen and riser. The monitoring wells will incorporate a 10-foot screen section to monitor the shallow groundwater zone. Screen slot size will be 0.01 inches (ten slot). Sand incorporated within the sand-pack will consist of "0" size sand. The sand-pack will extend a minimum of one foot below and two feet above the well screen. A bentonite seal, at least two feet in thickness, will be placed following the installation of the sand pack. The bentonite seal will serve to minimize the potential downward communication (or short-circuiting) of infiltrating surface waters/runoff or leachate to the local shallow groundwater regime. The balance of the hole will be backfilled with a cement/bentonite grout. The placement of annular material will be coordinated with the withdrawal of augers to minimize caving around the well screen and riser pipe. The monitoring wells will be completed with the installation of protective steel casings and locking covers.

Each new monitoring well will be surveyed to establish the horizontal location and elevation of the measuring point. Elevations will be referenced to the New York State Plane Coordinate System for horizontal control and National Geodetic Vertical Datum for vertical control. The elevations of each measuring point will be determined and water levels measured upon completion of well development to identify local groundwater contours and flow directions.

During the completion of subsurface drilling tasks, drill cuttings will be visually inspected, screened

with a PID, and placed on the ground in the vicinty of each borehole.

2.3 SI Well Development and Groundwater Sampling

The new and existing monitoring wells will be developed utilizing overpumping or a combination of surge block and overpumping depending on the well depth and rate of recovery. Where possible, development will continue until such time as the water withdrawn from the well has a turbidity of 50 nephelometric turbidity units (NTUs) or less over three successive measurements. Measurements will be made for each five gallons of water removed from the well. During the development process, pH, conductivity, and temperature will also be measured and recorded. If the 50 NTU development criterion cannot be met, the well will be deemed properly developed when the value of each of these parameters stabilizes to within ten percent over three successive measurements. Development water generated from the monitoring wells will be discharged in the vicinity of the well. Groundwater samples will be collected from the new and existing wells and submitted for laboratory analysis for the Superfund TCL parameters. Analysis for the TCL parameters will be consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

2.4 SI Test Pit Investigation

A series of test trenches will be completed within the exterior area (outside buildings and existing tank footprints) of the West Study Area. In addition, three test trenches will be excavated in the East Study Area. The trenching will be conducted utilizing a rubber wheeled backhoe or track excavator. The purpose of the test trenches is to identify the presence of potentially existing underground storage tanks (USTs), subsurface pipelines, and/or general evidence of contaminant releases within the area. To that purpose, test pits will be installed adjacent to known asphalt and fuel oil storage and conveyance structures and facilities and will be concentrated in the following four areas of concern:

- Boundary between the West Study Area and residences to the north;
- A suspected gasoline spill area near the former garage;
- The former boiler house area; and
- Within the perimeter of former storage tanks.

The test pitting effort shall include four test pits in the former barge unloading area between Maider Road and the Oneida River (see Figure 3) and three to five test pits in the railcar loading/unloading area (Figure 2). Considering the size and topography of the area, it is estimated that approximately 25 to 30 test pits could be completed over a four-day field effort.

During the completion of test trench excavations, soil samples will be routinely collected for physical inspection and total organic vapor screening utilizing a photoionization detector. In the event that evidence of a previous release, soil staining, petroleum residue, or elevated volatile organic vapors are identified within the soil of a specific excavation, separate samples of the soil will be collected. Additional test pits or trenches would then be installed in the area where the suspected previous release is suspected, and additional samples collected in an attempt to define the extent of the previous release. Samples of apparent native soils as well as imported fill materials would be collected to assess characteristics of both of these media. It is estimated that a total of 25 subsurface soil samples will be collected for analysis. Samples will be analyzed for the Superfund TCL list of parameters. Analysis for the TCL parameters will be consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

2.5 Surface Soils

Surface soil samples will be collected from ten locations in the East Study Area. Specific sample locations will be based upon the detailed site reconnaissance of the area (see Section 1.2). The surface soil samples may be collected during the reconnaissance of the area or during subsequent activities. Samples will be collected from 0 to 6 inches below land surface. Samples will be analyzed for the Superfund TCL list of parameters. Analysis will be consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

2.6 Sediment Sampling

Sediment samples will be collected from the Oneida River sediments in the former barge unloading areas adjacent to the West Study Area. The purpose of the sediment sampling is to determine

whether any impacted materials exist in the areas where asphalt and fuel oil were previously loaded and unloaded from barges. A minimum of five sediment samples (including QA/QC samples) will be collected utilizing a Shelby tube or sediment sampling auger. Sediment sample locations, depths below the water surface, and the sediment depth removed will be recorded, and each sample will be visually inspected and the description logged prior to preparation of discrete samples for laboratory analysis. Sediment samples will be submitted for laboratory analysis of TCL Superfund parameters consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

2.7 Other Materials

Samples of other solid or liquid materials may be collected from up to 12 locations in the West and East Study Areas. Collection of samples will be made at the discretion of the field crew and NYSDEC representative at the time that site reconnaissance or sampling activities are being conducted. These discretionary samples are included to identify and quantify any such materials encountered. Samples will be analyzed for the Superfund TCL list of parameters. Analysis will be consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

In addition, up to six samples will be collected for asbestos analysis if suspicious materials are encountered during field activities. Samples will be submitted to an approved asbestos testing laboratory for confirmation of the presence / absence of asbestos.

2.7 Sample Analyses

Sample analysis will be conducted by an Analytical Services Protocol certified laboratory. Sample analysis will be as shown in Table 1.

2.8 Data Validation / Data Usability

A Data Usability Summary Report (DUSR) will prepared by Data Validation Services (120 Cobble Creek Road, P.O. Box 208, North Creek, NY 12853). The DUSR will be prepared consistent with the NYSDEC's *Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports* (see Appendix E).

2.9 Subcontractor Procurement and Administration

For the SSI services to be subcontracted, C&S will request proposals from qualified subcontractors, or, for professional services, to subconsultants. All subcontracts valued at over $5,000 will be submitted to the NYSDEC. For services which are not biddable, or for which the low bid is not selected, a justification will be provided to the NYSDEC prior to the start of the subcontracted work. A copy of all subcontracts will be submitted to NYSDEC when they are executed. The procedure to be followed for the procurement of subcontractors and subconsultants will be consistent with the procedures set forth in NYSDEC's TAGM 4058 (Environmental Restoration Projects (Brownfields)) (Section 10.2), as follows.

a. Unit price subcontracts over $10,000 will have five responsive bids/quotes with at least three in writing for each subcontract.
b. Subcontracts estimated to be between $5,000 and $10,000 will have three written responsive quotes for each subcontract.
c. For subcontracts less than $5,000, written quotes are not required but the cost will be evaluated for reasonableness (i.e., comparison to a previous engineering estimate, lowest of three phone quotes, or comparison to similar recent subcontracted work).
d. Subconsultant contracts under $25,000 may be unit price or fixed price (lump sum) provided the scope of work can be well defined and three written, responsive quotes are obtained. Subconsultant contracts which are over $25,000 must or under $25,000 may be cost plus fixed fee type contracts.
e. Subcontracts will include the following:
    i. By reference or by attachment and incorporation, all applicable requirements of the prime contract will be made a part of the subcontract. The subcontract will state that all applicable federal and State laws apply.
    ii. If the subcontract is for unit price work (well driller, laboratory analysis), a unit price list will be included as an attachment to the subcontract.
f. Each subcontract will include:
    i. signatories to the agreement (both the prime and sub must sign);
    ii. a specified dollar amount;

iii. a detailed scope of work with the property and project identified; and

iv. a time frame for performance.

g. The subcontract will not be a cost-plus-percentage-of-cost or a percentage-of-construction-cost type of agreement.

All contracts with subcontractors or subconsultants will include the mandatory contract clauses outlined in Attachment 2 to NYSDEC TAGM 4058 (Environmental Restoration Projects (Brownfields)), which include:

- Non-discrimination requirements;
- Wage and hour provisions;
- Record-keeping requirements;
- Conflict of interest disclosure; and
- Affirmative action provisions.

2.10 Qualitative Exposure Assessment

C&S proposes to complete a qualitative exposure assessment to assess potential site impacts on human health. To perform this assessment, data collected during the sampling and analysis tasks above will be evaluated whether a site poses an existing or potential health risk to receptors in the community. In conducting the assessment, contaminant data will be evaluated based on consideration of the following factors:

- Concentrations of contaminants in samples collected during the SI
- Field data quality, laboratory data quality, and sampling design
- Comparison of contaminant concentrations with background levels (where available) and values from NYSDEC guidance documents
- Presence of exposure pathways to community receptors

2.11 Report Preparation

Upon completion of the previously mentioned tasks, C&S will prepare a Draft SSI Report that will follow the general format for SI and RA Reports set forth in Attachment 1 to the NYSDEC TAGM 4058 (Environmental Restoration Projects (Brownfields)), and will include:

- Site background

- Field observations and analytical results from the SI activities
- Summaries of site physical characteristics, the nature and extent of contamination, and contaminant fate and transport
- The qualitative exposure assessment
- The identification and development of remedial alternatives for the site
- Individual and comparative analyses of the remedial alternatives

Upon completion of the Draft SI Report, a meeting with Town and NYSDEC personnel will be held to discuss the cumulative results of the SI as well as recommended preliminary remedial action measures. After completion of the SI Report, a remedial alternative evaluation and report will be completed.

2.12 Tank Demolition and Removal

The Technical Specification for the proposed tank demolition and removal (see Appendix C) sets forth the contractor requirements for the demolition and disposal of the tanks listed in Section 1.2 above. In addition, the Technical Specification includes characterizing, containerizing, transporting, and properly disposing of liquid and solid materials that are present in tanks at the site. This document will be combined with general requirements, bidding, and contract requirements used prior to its issuance to prospective contractors.

2.13 Administration and Meetings

It is anticipated that two project meetings with Town and NYSDEC personnel will occur prior to and during the project, while one public meeting or informational session will be occur after completion of the project.

2.14 Citizen Participation Plan

The Citizen Participation (CP) Plan for the Maider Road Brownfield Project is provided as Appendix F. This CP Plan is consistent with the requirements of 6NYCRR Part 375 and the applicable guidance set forth in the NYSDEC DER "Municipal Assistance for Environmental Restoration Projects ("Brownfields") Program Procedures Handbook", dated December 1997.

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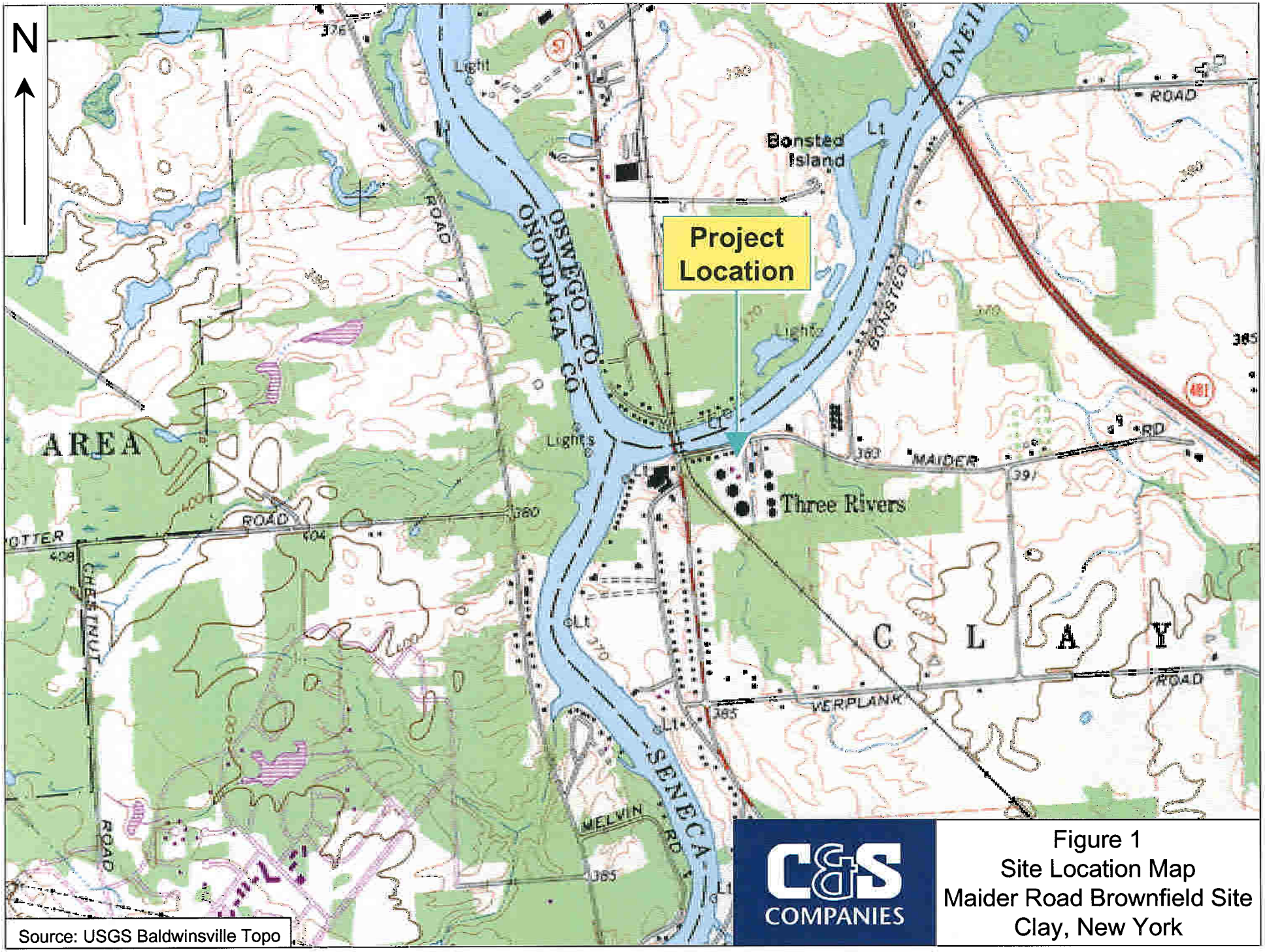
FIGURES



Source: USGS Baldwinsville Topo

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Figure 1
Site Location Map
Maider Road Brownfield Site
Clay, New York

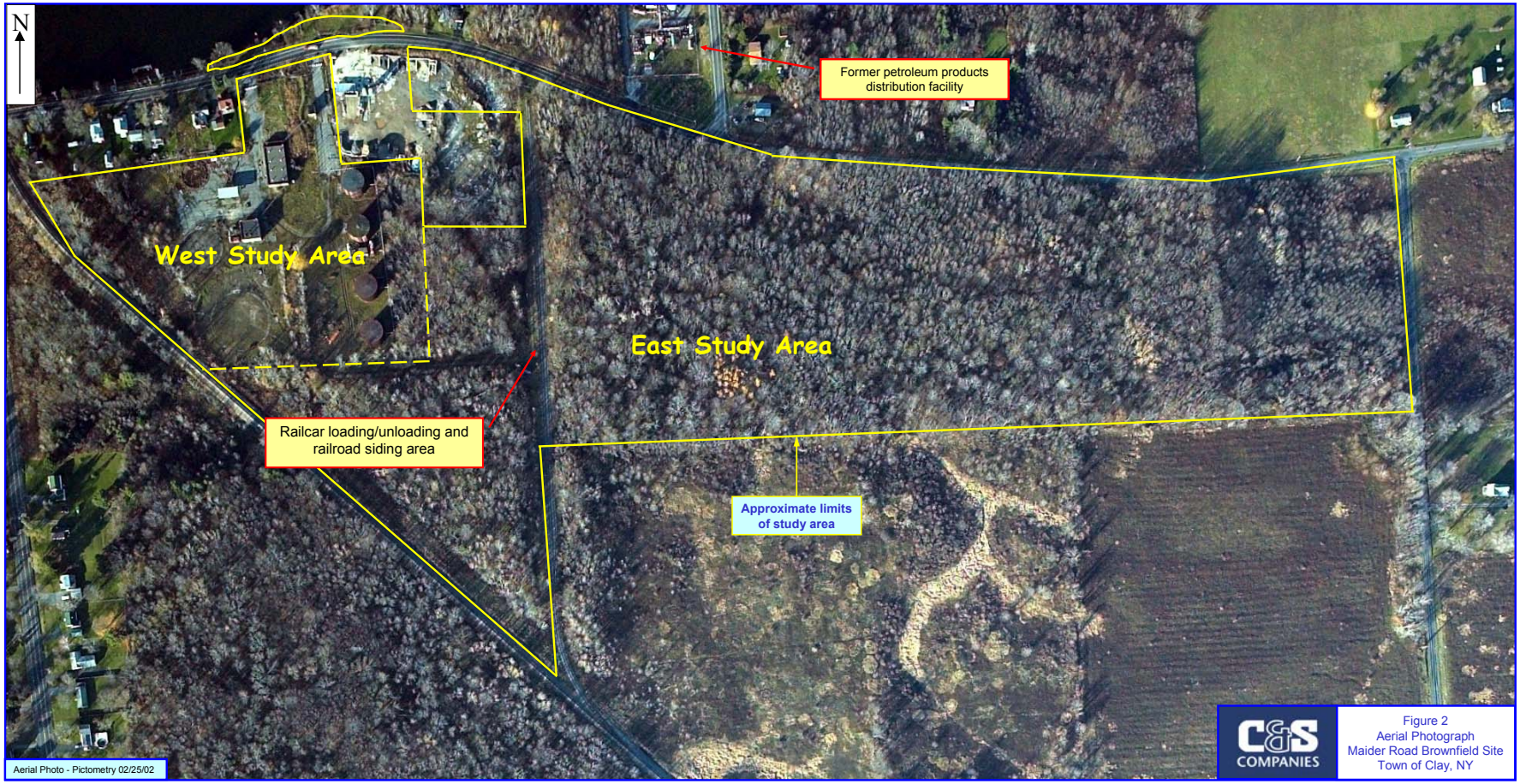

Figure 2
Aerial Photograph
Maider Road Brownfield Site
Town of Clay, NY

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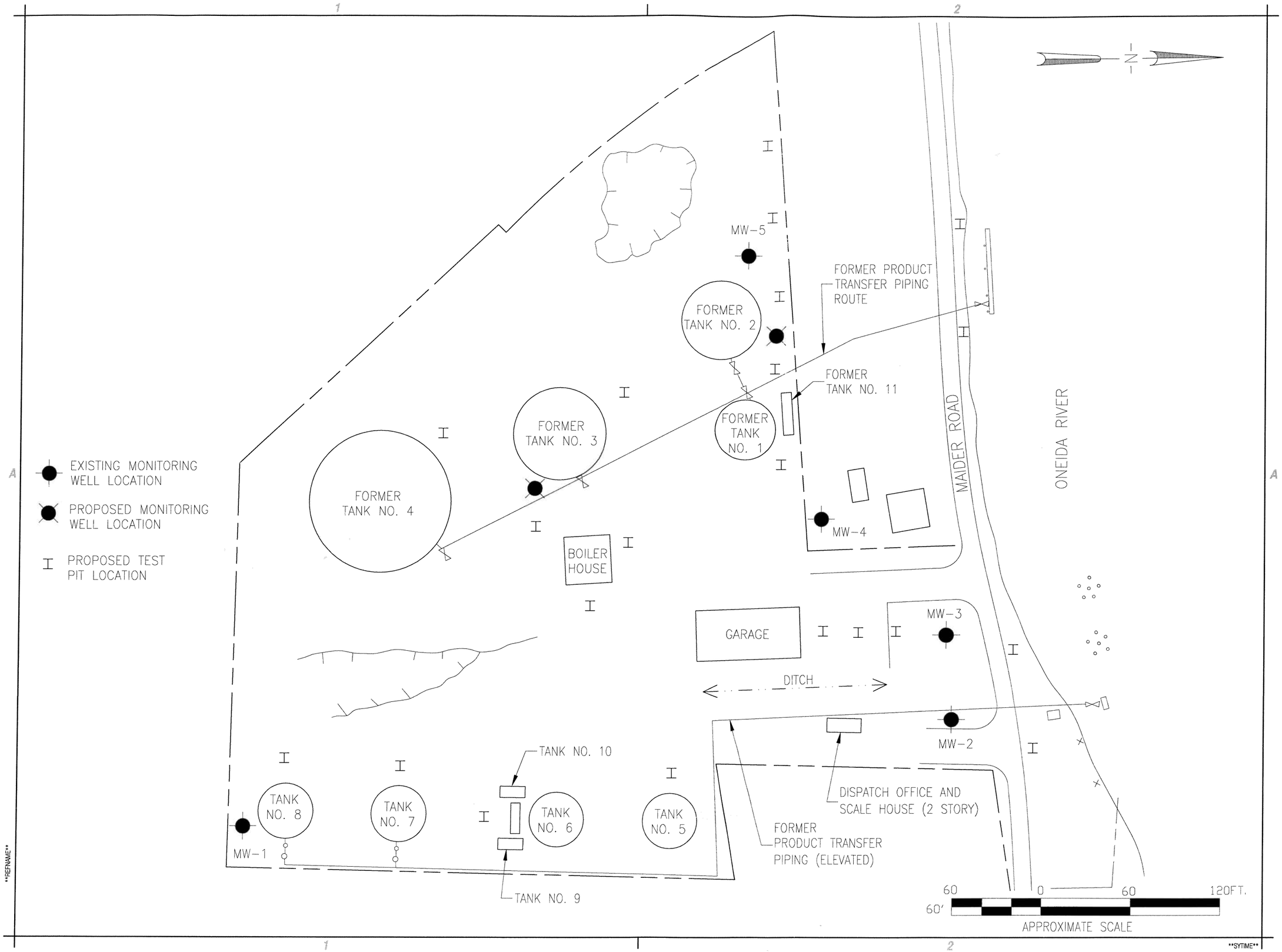

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BROWNFIELD SITE INVESTIGATION WORK PLAN MAIDER ROAD SITE TOWN OF CLAY, NEW YORK

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO:	195.690.001
DATE:	NOVEMBER, 2001
SCALE:	1" = 60'
DRAWN BY:	BBB
DESIGNED BY:	
CHECKED BY:	

WEST STUDY AREA

FIGURE 3

TABLES

Table 1
Sampling and Analysis Matrix
Maider Road Brownfield Project

Matrix	Parcel	No. of Samples	Locations / Sample ID	QA/QC samples [2]	Parameters [1]
Groundwater	West Study Area	5	MW - 1-5 (existing)	1 DUP, 1 MS, 1 MSD, 1 TB	TCL, MIS (Note 4)
		2	MW - 6-7 (proposed)		
	East Study Area	3	MW - 8, 9, 10 (proposed)		
Surface soil	East Study Area	10	SU - 1-10	1 MS, 1 MSD	TCL
Subsurface Soil (trenches)	West Study Area	22	SS - 1-22	1 MS, 1 MSD	TCL
	East Study Area	3	SS - 23-25	included with above	TCL, Asbestos
Subsurface soil (borings)	West Study Area	2	BR - 6, 7	1 MS, 1 MSD	TCL
	East Study Area	3	BR - 8, 9, 10	included with above	TCL
River sediment	River	5	RS-1, 2, 3, 4	1 MS, 1 MSD	TCL
Buildings & misc. materials	Buildings	12	BD - 1-12	1 MS, 1 MSD	TCL
	Misc. materials	6	MS - 1-6	-	Asbestos

Notes:
1. TCL = TCL volatiles,TCL semivolatiles, TCL pesticides/Aroclors, TCL inorganics, TOC = total organic carbon, MIS = Misc. parameters (e.g., pH, conductivity, hardness).
2. DUP = duplicate sample, MS = matrix spike, MSD = matrix spike duplicate, TB = trip blank (for VOA only)
3. All analyses in accordance with NYSDEC ASP 2000 version
4. For inorganic analysis, filtered and unfiltered samples will be submitted to the laboratory.

APPENDIX A

Sampling and Analysis Plan

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Attachments

SAMPLING AND ANALYSIS PLAN

SECTION 1 INTRODUCTION

This Sampling and Analysis Plan (SAP) includes identification of sampling locations and media, method of collection, handling, preservation, and the protocol used for sample analysis. Environmental media to be sampled include groundwater, subsurface soil, surface soil, river sediment, and waste/fill as shown in Table 1. The data will be utilized to form conclusions as to the presence of contaminants that may be originating from operations formerly located at the site.

SECTION 2 QUALITY ASSURANCE PROJECT PLAN

2.1 Project Organization

The SAP will utilize the project organization identified below:

Project Manager	Thomas A. Barba
Project Geologist	John Holmquist
QA/QC Officer	Christen M. Craig
Laboratory Coordinator	Christen M. Craig
Field Investigations	John Holmquist

2.2 Data Quality Objectives and Forms

Data Quality Objectives (DQOs) describe the desired quality of data necessary to meet the objectives of the sampling program. The DQOs for the site-sampling program were formulated during the scoping effort and developed as part of this Sampling and Analysis Plan. DQO Forms have been completed for each type of sampling media and are located in Attachment A. The general steps followed in preparation of the DQOs were as follows:

- Identification of the media to be sampled
- Identification of the data uses
- Identification of the data types
- Identification of the data quality needs
- Identification of the data quantity needs
- Identification the sampling and analysis procedure

2.3 Sampling Procedures

Sampling objectives, locations, and procedures have been included as the Field Sampling Plan (Section 3) in this Sampling and Analysis Plan. Items including field measurement techniques, general field decontamination, and sample management have also been included within the Field Sampling Plan.

2.4 Laboratory Coordination

Chemical analyses will be completed by a laboratory approved by the New York State Department of Health (NYSDOH) and New York State Department of Environmental Conservation (NYSDEC) to complete analytical work as specified in this work plan. The laboratory will be NYSDOH certified under the Environmental Laboratory Approval Program and will be required to remain certified as such throughout the project. The project QA/QC Officer will be responsible for project related laboratory coordination.

2.5 Analytical Methodologies

Sampling and analysis will be conducted as shown in Table 1 of the work plan. All methods will be in accordance with the NYSDEC Analytical Services Program (ASP), June 2000 version. Analytical reporting will be consistent with Category B requirements.

2.6 Analytical Quality Control

Analytical quality control will be consistent with the methodology and requirements listed in the NYSDEC ASP. The following holding times calculated from the verified time of sample receipt (VTSR) will be required from the contracted analytical laboratory, regardless of sample matrix:

Parameter	Task	Holding Time
VOCs	Analysis	7 days from VTSR (unpreserved)
		10 dayes (preserved)
Semivolatiles	Extraction	5 days from VTSR
	Analysis	40 days from VTSR
Pesticides/PCBs	Extraction	5 days from VTSR
	Analysis	40 days from VTSR
Mercury	Analysis	26 days from VTSR
Cyanide	Analysis	12 days from VTSR
Metals	Analysis	180 days from VTSR

2.7 Reportables and Deliverables

Analytical data that will be subjected to independent data validation (i.e., TCL parameters) will be presented in NYSDEC ASP 2000 Category B reportables/deliverables format.

2.8 Data Validation and Usability

Analytical data will be subjected to data validation. The data validator will be acceptable to the NYSDEC and will be required to meet the qualification criteria issued by the NYSDEC. Requirements stated in this QA/QC plan will ensure that sufficient information is available to assess data validity. This information includes, at a minimum, the following:

- Sampling data including date, matrix, sample type, location, and method of sample retrieval;
- Identification of sampling personnel;
- Field sample preparation;
- Laboratory sample preparation;
- Laboratory analytical methods;
- Laboratory detection limits;
- Laboratory analytical reports; and
- Laboratory QA/QC documentation.

The data validator will utilize the above information and review the laboratory analytical reports to certify conformance with approved analytical methodology, QA/QC documentation, and reporting requirements consistent with the data validation guidance issued by the NYSDEC. Consistent with NYSDEC requirements, data validation will be performed by a third party independent of the analytical laboratory. Upon receipt of the completed and validated data, it will be the responsibility of the project QA/QC officer to determine the data usability and acceptability.

SECTION 3 FIELD SAMPLING PLAN

3.1 Sampling Objectives

The number and types of samples to be collected for the Maider Road SI are shown in Table 1 of the Site Investigation work plan. Field sampling at the site will be designed to obtain representative samples of environmental media at the site. The field sampling plan will

specifically address the groundwater quality upgradient and downgradient of the site, surface and subsurface soil contamination, and river sediment.

For the purposes of this Site Investigation, the 66-acre study area has been divided into the two sub-areas noted below. Figure 2 of the work plan provides an aerial photograph of the site with the delineation of the two study areas.

- West Area - This approximately nine-acre area was the site of the former Cibro bulk petroleum and asphalt terminal.
- East Area - An area of approximately 57 acres that is largely wooded and has no indication of industrial usage other than a small railcar loading/unloading area for the former terminal.

3.2 Sampling Locations

3.2.1 Groundwater Sampling

Ten groundwater samples, one from each monitoring well, will be collected as described in Section 2 of the work plan.

3.2.2 Subsurface Soil Sampling

Test pits will be excavated in an effort to characterize potential site contaminants within the waste/fill. During the completion of this investigation, a minimum of one soil/waste sample will be collected from each test pit for analysis. The samples collected will be either a grab sample collected at a discrete location within the test pit or a composite sample collected within a general area of the test pit. The final number and location of the test pit samples will be determined in the field at the time of excavation.

3.2.3 River Sediment Sampling

Sediment sampling will be conducted in the River in the areas of the two former barge docks to identify potential impacts to sediment. Sediment samples will be collected by hand in the top 0 - 6 inches of sediment.

3.2.4 Surface Soil Sampling

Surface soil samples will be collected from ten locations in the west study area. Samples will be collected prior to any other site investigation sampling activity. Samples will be collected from 0 to 2 inches below land surface.

3.2.6 QA/QC samples

Trip blanks will accompany each shipment of aqueous samples for VOC analysis. Trip blanks are not necessary for soil samples. If several samples are collected for VOC analysis on any one day, all VOC samples will be packed in the same cooler with the trip blank. All collected trip blanks will be analyzed according to NYSDEC ASP 2000. As shown in Table 1 of the work plan, matrix spike and matrix spike duplicate samples will be collected for both aqueous and solid matrices.

3.3 Sampling Procedures

3.3.1 Preparation for Sampling

The sample collection technique is of prime importance to assure the integrity of the collected sample. The following techniques include provisions so that:

- A representative sample is obtained;
- Potential contamination of the sample is minimized;
- The sample is properly preserved; and
- An acceptable Chain-of-Custody record is maintained.

The QA/QC sampling component of the Plan includes:

- Incorporation of accepted sampling techniques referenced in the sampling plan;
- Procedures for documenting any field actions contrary to the QA/QC Plan;
- Documentation of all preliminary activities such as equipment check-out, calibrations, and container storage and preparation;
- Documentation of field measurement quality control data (quality control procedures for such measurements shall be equivalent to corresponding QC procedures);
- Documentation of field activities;

- Documentation of post-field activities including sample shipment and receipt, field team debriefing, and equipment check-in;
- Generation of quality control samples including duplicate samples, field blanks, equipment blanks, and trip blanks; and
- The use of these samples in the context of data evaluation with details of the methods employed (including statistical methods) and of the criteria upon which the information generated will be judged.

The personnel responsible for sample collection will be familiar with standard sampling procedures and follow the appropriate protocol. Auditable files, including the appropriate data sheets, sampling schedules, and custody forms, for every sampling event at each location will be available upon completion for review. Field records will be maintained in bound notebooks to document daily instrument calibration, locations sampled, field observations, and weather conditions. Each page will be dated and signed by the sampler. The following is a list of general equipment that might be on hand for sampling events. Special equipment for each sampling event is presented in the section describing that specific sampling event.

- Field Data Sheets
- Chain-of-Custody forms
- Engineers tape and folding ruler with 0.01 foot intervals
- Field Record Sheets
- gloves
- Face-safety shield
- Tyvek coveralls
- Respirators
- Photoionization detector
- Biodegradable phosphate free detergent
- Coolers (with ice)
- 55 gallon drums
- Sample bottles
- Aluminum foil
- Duct and filament tape
- Tap water
- Distilled water
- Laboratory grade methanol and hexane
- 5 gallon wash buckets
- Decontamination cloths
- Large disposal containers
- Large plastic sheets

3.3.2 Groundwater Sample Collection

Groundwater samples will be collected using dedicated PVC bailers following evacuation of three well volumes or complete purging of the well. All other related sampling equipment will be properly decontaminated in the field. The following equipment will be required for sampling of monitoring wells in addition to the general sampling equipment list:

- Well Data Sheets
- Dedicated or disposable HDPE bailers
- Electronic water level indicator
- Conductivity meter with calibration standards
- pH meter (portable)
- Thermometer
- Sample preservatives
- Protective gloves
- pH paper
- Redox meter
- Dissolved oxygen meter

The following activities will be completed before going into the field before the start of sampling:

1. Fill out appropriate section on Well Data Sheet for the wells to be sampled;
2. Obtain the sampling schedule for each well to be sampled;
3. Calibrate the Photoionization Detector (PID) with the calibration gas;
4. Calibrate the conductivity meter prior to each day's sampling;
5. Calibrate the pH meter with standard buffer solutions of pH 4, 7, and 10. The meter is calibrated again at each well site using only the buffer solution of pH 7;
6. Determine the amount of sampling to be done for the day and prepare the necessary number of cooler(s);
7. Each well to be sampled will have designated cooler(s) containing the pre-labeled, certified clean, sample bottles. The groundwater samples will be placed in the cooler labeled for the well from which they were taken. The bottle shall be labeled with large distinguishable letters, so that the groundwater samples will be placed in the proper cooler; and

8. Select the appropriate sample bottles for the day's sampling. The bottles shall be pre-marked with a sample parameter and preservatives. Reusable glass bottles will have been cleaned and prepared at the laboratory. The bottles for the various parameters to be analyzed from each well location will then be placed in a cooler.

The following steps describe the sample collection of groundwater:

1. Unlock and remove the well cap;
2. Test the air at the wellhead with the calibrated PID. If the gases from the well have caused the local outside air to read organics greater than 5 ppm, stop work and refer to the Health and Safety Plan. Record the reading on the Well Data Sheet;
3. Calibrate the pH meter with standard buffer solution of pH 7. Rinse probes and sample cups carefully with distilled water before and after use;
4. Record the standard solutions used to calibrate, the date, and the time on the Well Data Sheets;
5. In order to obtain a representative sample of the formation water, the well must be purged of the static water within the well. To determine the amount of water necessary to purge, find the liquid column height in the well. The water to be purged is equal to three well volumes.
6. Attach the polypropylene rope to the sample bailer. A different dedicated rope will be used for each well.
7. Purge the well; lower bailer slowly into the well until it is below the water surface. The development waters generated from the monitoring wells will be collected in drums and then later discharged in the trench excavation prior to the trench being backfilled.
8. During purging: Periodically rinse and fill a sample cup with purged water. Insert calibrated pH, conductivity, and temperature probes in cup. Read the initial pH, conductivity, and temperature and record each measurement in the field logbook. The well is ready to sample when the evacuation volume has been removed and the above parameters have stabilized for three successive measurements. Record

the amount of water purged, the final pH, conductivity, and temperature readings in the field logbook and on the Well Data Sheet.

9. If the well goes dry during bailing, allow for full recovery (measure the water level) and then sample. If recovery takes over 20 minutes proceed to next well but return to sample within 24 hours.
10. Fill the appropriate sample bottles according to the sampling schedule for each well. While filling the sample bottles, record the well number, type, volume of container, and the preservatives used on the Ground Water Sampling Analyses form.
11. Commence sample collection with the following sample collection order: VOCs, Semivolatiles, PCBs/Pesticides, cyanide, mercury, metals, and the geochemical parameters. If the well should go dry during sampling and the well needs to be re-sampled the next day, the second attempt to sample the well will proceed in the following order: VOCs, metals, Semivolatiles, PCBs/Pesticides, cyanide, mercury, and the geochemical parameters.
12. The preservatives for the various sampling parameters were previously added to the clean sample bottles by the laboratory. Some parameters may require additional special handling. Volatile organics analyses samples must be free of air bubbles. When a bubble-free sample has been obtained, it must be immediately chilled. All samples collected for metals analysis will be preserved with nitric acid to a pH less than 2.
13. Collect the duplicates, matrix spike duplicates, trip blanks, and rinse water samples (if applicable). Take samples according to the sampling schedule presented in the Work Plan. Duplicate samples will include the field splitting of at least one groundwater sample for each sampling visit. This may require the extraction of twice the amount of water needed for duplication purposes. Trip blanks, field blanks, and duplicate samples shall be collected at least once with each field batch, with a minimum of once for every twenty samples.
14. Record all pertinent information in the field logbook and on the Well Data Sheet (include color, odor, sediment content of sample, etc.). Any situations at the site

that have the potential to interfere with the analytical results should also be recorded here.

15. Lock well, inspect well site, and note any maintenance required.
16. Dispose of potentially contaminated materials in the designated container for contaminated solids.

3.3.3 Drainage Ditch Surface Water and Sediment Sampling

Drainage ditch sediment samples will be collected directly, without the use of an intermediate sampler. After collection of each sediment sample into the dedicated, certified clean jar, the suspended sediment will be allowed to settle and any overlying water will be decanted from the sample collection jar. With the exception of VOCs, surface water samples will be acquired using dedicated, certified clean, disposable, glass-quart sampling containers for distribution to parameter specific containers. This approach will eliminate the need for collection of field (equipment) blanks. Each sample container will be appropriately labeled and transported to the contracted laboratory in appropriate coolers. The following equipment will be required for the sampling of stream water and sediment, in addition to the general sampling equipment list:

- Waders, life jacket, and safety line (if necessary);
- Wide-mouth intermediate, certified clean, disposable, glass jar to be used as an interim sampling container;
- Conductivity meter;
- Portable pH meter; and
- Dissolved oxygen meter.

The following activities will be completed prior to field sampling:

- Fill out appropriate section on Surface Water/Sediment Data Sheet for the sites to be sampled;
- Determine the amount of sampling to be done for the day and prepare the necessary number of coolers;
- Select the appropriate sample bottles for the day's sampling. The bottles will be pre-marked with a sample parameter and, if necessary, preservatives added prior to entering the field; and

Surface waters will be collected prior to sediment samples in a downstream to upstream sequence to minimize turbulence. The sampler will submerge the vials into the water at the midpoint, rinse, and evacuate the vials, and then fill the vials with the sample, with minimum turbulence. The sample vials will then be capped immediately after filling to prevent the loss of VOCs. Duplicate samples will include the field splitting of at least one surface water sample during each sampling visit. This may require the collection of twice the amount of water needed for duplication purposes. The creation of duplicates and matrix spike duplicates shall be performed at least once with each field batch with a minimum of one for each twenty samples. Field measurements, such as pH, specific conductance, dissolved oxygen, and temperature will be performed at both upgradient and downgradient sampling locations.

Techniques and equipment for sediment sampling will vary depending on field conditions and the depth of sediment. When sampling shallow sediment (e.g., where sediment is underlain by rock or gravel), the sampler will submerge the sediment-sampling container beneath the water and into the sediment and then fill the container with the uppermost sediment sample, with minimal turbulence. For deeper sediment, a clear tube will be manually advanced to remove a core-like sample of the sediment. The field technician will then place a subsample of the sediment into the appropriate analysis specific container for analysis. Samples will be collected from the first 0 to 6 inches of sediment.

3.3.4 Waste/Fill Sample Collection

Waste/fill samples will be collected during completion of the test trench excavation to identify potential contaminants existing within the fill area. Selection of samples will be based on visual examination and PID scanning for volatile organics. These samples will likely consist of solids and would include fill material or stained/discolored soil in the immediate vicinity of fill material where a test trench is completed. During the test trench excavation, any areas of additional leachate staining will be noted and mapped in the SI report. The locations sampled will be clearly identified on relevant field maps and Chain-of-Custody documents

Waste samples will be collected using stainless steel spoons or an intermediate, disposable, certified clean, glass-pint sampling container, depending upon the consistency of the media. Parameter specific sample containers will then be filled, capped with a minimum amount of head-space, and placed within specific sample coolers for delivery to the laboratory. Samples will be logged within the appropriate sampler's field book and chain-of-custody sheet. Prior to sampling, the following activities will be completed:

- Field identify and stake the tentative locations of planned test trench excavations;
- Calibrate Photoionization Detector (if used for screening); and
- Collect, label, and organize appropriate disposable trowels, spoons, and sample containers.

The following activities will be completed during the waste mass media sampling process:

- Collect appropriate waste mass media sample from field determined locations using pre-cleaned stainless steel spoons or disposable, certified clean, intermediate sampling container;
- Transfer each sample to the appropriately labeled container noting observed characteristics on field data sheet;
- Analyze a subsample of each sample for organic vapors using a PID;
- Cap container and complete proper chain-of-custody sheets and field data sheet; and
- Transport containers and chain-of-custody sheets to laboratory.

3.3.5 Surface Soil Samples

Surface soil samples will be collected prior to any other sample collection activities at the site. Samples will be collected from 0 to 2 inches below land surface. Sample locations shown on Figure 2 are approximate; final sample locations will be selected in the field by the NYSDEC and the Respondents' representative. Where possible, samples will be collected in areas that field conditions indicate may be contaminated (i.e., little or no vegetative growth, stained soils, odors). Samples will be collected using stainless steel spoons and placed in certified clean glass sampling containers. Containers will be placed in coolers for transport to the laboratory. Samples will be logged within the appropriate

sampler's field book and chain-of-custody sheets. Prior to sampling, the following activities will be completed:

- Field identify and stake the tentative locations of planned surface soil location;
- Calibrate Photoionization Detector (if used for screening); and
- Collect, label, and organize appropriate disposable trowels, spoons, and sample containers.

The following activities will be completed during the waste mass media sampling process:

- Collect appropriate soil sample using pre-cleaned stainless steel spoons;
- Transfer each sample to the appropriately labeled container noting observed characteristics on field data sheet;
- Cap container and complete proper chain-of-custody sheets and field data sheet; and
- Transport containers and chain-of-custody sheets to laboratory.

3.3.6 Background Samples

Surface water, sediment, and groundwater background samples have been incorporated within the respective matrix sampling plan as upstream and upgradient samples.

3.3.7 QA/QC Samples

- Field Duplicates

  Duplicate samples will be obtained from each of the following environmental media sampling points to assess the replicatability of the sampling procedures:

Groundwater	(downgradient well)
Surface Water	(downstream sample)

- Matrix Spike and Matrix Spike Duplicates

  Additional samples from each of the following environmental sampling media will be collected as matrix spike and matrix spike duplicates (MS/MSD):

Groundwater	(downgradient well)
Stream sediment	(downstream)

Subsurface soil - trench	(fill area)
Surface soil	(fill area; random)

Note that since a minimum of one test trench sample will be taken, it is possible that the MS/MSD sample will be at a non-random location.

- Trip Blanks

  Separate trip blanks will be carried into the field on each of the sampling days. The trip blank vials will be prepared by the contracted laboratory and handled in the field similar to the other sampling containers with the exception that the vials will not be opened.

- Rinse Water samples

  In cases where sampling equipment is field cleaned, a rinse water sample will be collected for analysis.

3.4 Field Measurement Techniques

3.4.1 Water Level Measurement

Water elevations will be taken on all monitoring wells prior to purging and sampling. All measurements will be taken within a 24-hour period to obtain consistent elevations and recorded on well data sheets. The procedure for measuring water levels in the monitoring wells is:

- Unlock and remove well cap;
- Test the atmosphere of the well with the calibrated PID. If the gases from the well have caused the outside air to read organics greater than 5 ppm, work will be stopped and samplers will refer to the Health and Safety Plan.
- Measure water level to nearest 0.01 foot with a water level indicator (electronic).
- Water level indicators will be decontaminated before moving to the next well. The tape and cable are decontaminated by washing in a bucket of distilled water - biodegradable phosphate free-detergent solution, followed by a rinse with distilled water.

3.4.2 pH Measurement

The pH will be determined using a portable pH meter, 100 ml disposable beakers, and pH calibration standards. The pH meter will be calibrated to within 0.05 pH units of the reference standard. Sample pH will be recorded to the nearest 0.05 pH units and readings will be repeated so that meter readings do not fluctuate more than 0.03 pH units. Upon completion of pH measurements the probe will be washed, rinsed, and re-calibrated.

- *Temperature Measurement* - A field thermometer will be pre-calibrated.
- *Specific Conductance Measurement* - A specific conductance meter will be field calibrated daily, using a 1M KCl reference solution, to 1413 μmhos/cm at 25 degrees centigrade. Sample aliquots for specific conductance and temperature will be obtained directly from the sampling point in 100 ml disposable beakers.
- *Combustible Gas Indicator (CGI), Photoionization Detector (PID) and Organic Vapor Analyzer (OVA)* - The CGI, PID, and OVA will be calibrated daily (and more often as required by the manufacturer's data) prior to use in the field, using calibration test gases.

3.5 General Decontamination

The following procedures will be performed for the decontamination of exploration equipment, sampling equipment, and personnel after each drilling/sampling event:

- *Drill rig and backhoe* - The drill rig and backhoe will be steam cleaned prior to their entrance and exit of the site. Greases and oils will not be used on any down hole equipment during drilling or exploration activities.
- *Exploration equipment* - To avoid cross contamination, use of a PID meter and cleaning between each sampling site will be employed on backhoe arms, buckets, hollow stem augers, casing drill rods, and appurtenant equipment.
- *Split spoon sampler* - The split spoon sampler will be scrubbed, cleaned, and put through a series of rinses between each sampling event. A number of split spoon samplers will be used so that one can be utilized for sampling while the others are being cleaned.

- *Reusable equipment* - The following steps will be employed to decontaminate reusable equipment:
  - Rinse equipment of soil or foreign material with potable water;
  - Immerse and scrub equipment with bio-degradable phosphate-free detergent and potable water;
  - Immerse and scrub in a potable water rinse without detergent;
  - Immerse and scrub in deionized/distilled water;
  - Saturate by spraying or immersion in laboratory-grade hexane;
  - Air dry and wrap cleaned equipment in foil to carry to next monitoring site to prevent contamination of equipment during transfer; and
  - The decontamination wash and rinse water will not be considered hazardous unless visual inspection or monitoring by the PID and other equipment indicate that contaminants may be present. The rinse waters can be discharged on-site if they are not contaminated. If contaminants are expected to be present, the rinse water waters should be placed in 55-gallon drums and stored on-site.
- *Disposable equipment* - The following steps will be employed to decontaminate disposable equipment:
  - Rinse with potable water;
  - Remove all standing liquid from the piece of equipment;
  - Dispose of the equipment in a dedicated container for contaminated solids; and
- *Sample containers* - upon filling and capping sample bottles, the outside of the bottle will be wiped off with a clean paper towel. These towels will be disposed of in a dedicated container for contaminated solids.
- *Personnel decontamination* - The following procedures will be used to decontaminate sampling personnel.
  - After each sampling event plastic gloves will be disposed of in a dedicated container for contaminated solids;

- At the end of each sampling day, Tyvek™ coveralls will be disposed of in a dedicated container for contaminated solids;
- Boots will be rinsed off with water to remove mud, clay, or any other contaminants; and
- Personnel will be required to follow procedures outlined in the Health and Safety Plan.

3.6 Sample Management Plan

3.6.1 Sample Management

The Sample Management Plan provides procedures to document and track samples and results obtained during this work effort. A series of pre-printed forms with the appropriate information serves as a vehicle for documentation and tracking. In order to accomplish this task, the documentation materials will include sample labels, sample characterization and Chain-of-Custody sheets, daily field reports, and a sample log.

- *Sample Label* - A sample label will be completed for each sample obtained and will be affixed to the sample container. The label is configured in a way to address various types of mediums. Information on the label includes, at a minimum, the following:

client name	location	sample description
sample number	date & time	grab/composite sample
notes	sampler's name.	

- *Sample Characterization & Chain-of-Custody Sheet* - All pertinent field information will be entered onto the sample characterization and chain-of-custody sheets including:

client name	sample ID	sample description
location of sample	sampling method	number of containers
container type	analysis required	preservation

The monitoring well form has space allotted for entering information regarding the well including depth to water, well volume, sample pH, temperature, color, etc. The Chain-of-Custody section of the form will document the sample's pathway of sample shipment that will include names of persons delivering/receiving, dates, and times. The reverse side of this form will be used by the laboratory to document analysis performed on the samples. Copies of the completed forms will be retained by the Engineer and the analytical laboratory. The original sample characterization and Chain-of-Custody sheets will be submitted in the SI report along with the laboratory results.

- *Daily Field Reports* - Daily activities will be recorded on the Inspection Report form. The purpose of this form will be to summarize the work performed on the site each day. The completed forms will be submitted to the Project Manager on a daily basis for short-term site activity and on a weekly basis for site activities of a longer duration.
- *Sample Log* - The sample log will be utilized to track each individual sample obtained at the site. The upper portion, "Field Identification" will be completed the day the sample is taken. The form will accompany the sample characterization and Chain-of-Custody form to the laboratory. Personnel at the laboratory will complete the middle section of this form and return it to the Engineer, who will use the document to track incoming results. The bottom of the sheet has space allocated to enter "Recommended Actions" based on laboratory results.

3.6.2 Sample Designation

Each sample will have an unique sample code that will indicate the sample media and the sample location. The following codes will be used in the sample designation:

Sample Media	Code (example)
Groundwater	MW-1
River Sediment	LS-1
Surface Soil	SS-1
Subsurface Soil	SU-1
Boring Soil	BR-1
Background Samples	BG-1
Field Blank	FB-1

Field Duplicates	FD-1
Matrix Spike Duplicate	MSD-1
Trip Blanks	TB-1

3.6.3 Sample Handling

Each collected sample will be dispensed into the appropriate sample containers for the type of analysis to be performed. Appropriate sample preservatives will be added to the sample containers by the contracted analytical laboratory prior to the delivery into the field, except in cases where the sample preservative must be added after sample collection. All samples that require cool storage will be immediately placed in coolers with appropriate packaging materials so as to protect the breakage of sample containers during shipment. The sample coolers will be filled with cubed ice (no "Blue Ice") prior to leaving the sample collection location. In the instance that a local analytical laboratory is contracted, the samples will be hand delivered to the laboratory each sampling day. The chain-of-custody forms will be signed by the laboratory personnel picking up the samples and placed within the coolers. In the instance that an analytical laboratory is contracted which is not based locally and a common carrier is used for sample shipment, the chain-of-custody forms will be signed by the sampler and the carrier personnel and placed inside of the coolers. Careful packaging techniques will be used to prevent sample containers from breakage during shipment. Materials such as cardboard, foam wrap, or Styrofoam may be used as packaging materials. All samples will be delivered to the contracted analytical laboratory on the day they were collected and will be received by the laboratory within 24 hours of sample collection. The samples will be collected with sufficient time allowed at the end of the day for the analytical laboratory to properly process the sample chain-of-custody forms.

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DATA QUALITY OBJECTIVES FORM

Site Name/Location/Project:
Maider Road Brownfield Site / Town of Clay, New York / Site Investigation

Sampling Objectives:
Characterize groundwater quality at the site.

Sampled Media
✓groundwater ___surface water ___sediment
___wetland water ___wetland sediment ___waste material

Date Use
✓site characterization ✓exposure assessment ___health and safety
___monitoring ___evaluate remediation alternatives

Data Types **Parameters**
TCL: ✓PCB/Pest ✓VOCs ✓Semi-VOCs ✓Metals ✓Cyanide
Field Parameters: ✓pH ✓Sp.Cond. ✓Turb ✓Temp. ✓Eh
Misc. Parameters: ___TOC ✓Hardness ___Cr^{+6}

Level of Analysis
___Level I: Field Screening
___Level II: Field Analysis
___Level III: ASP Analytical Methods (Samples will be analyzed in accordance with NYSDEC-ASP 1995 Category B)
✓Level IV: ASP Reportables/Deliverables (NYSDEC-ASP 1995 Category B Reportables/Deliverables documentation to be provided)

Sampling Procedures
Sampling procedures are described within the Sampling and Analysis Plan (SAP).

Data Quality Factors
Quantitation Limits (CRQLs).

QA/QC Samples
✓Duplicate ✓Matrix Spike ✓Matrix Spike Duplicate
✓Field Blank ✓Trip Blank

DATA QUALITY OBJECTIVES FORM

Site Name/Location/Project:

Maider Road Brownfield Site / Town of Clay, New York / Site Investigation

Sampling Objectives:

Characterize surface and subsurface soil quality at the site.

Sampled Media

___groundwater ___surface water ___sediment _✓_surface soil
___wetland water ___wetland sediment _✓_subsurface soil

Date Use

_✓_site characterization _✓_exposure assessment ___health and safety
___monitoring ___evaluate remediation alternatives

Data Types	**Parameters**				
TCL:	_✓_ PCB/Pest	_✓_ VOCs	_✓_ Semi-VOCs	_✓_ Metals	_✓_ Cyanide
Field Parameters:	___pH	___Sp.Cond.	___Turb	___Temp.	___Eh
Misc. Parameters:	___TOC	___Hardness	___Cr^{+6}		

Level of Analysis

___Level I: Field Screening
___Level II: Field Analysis
___Level III: ASP Analytical Methods (Samples will be analyzed in accordance with NYSDEC-ASP 1995 Category B)
_✓_Level IV: ASP Reportables/Deliverables (NYSDEC-ASP 1995 Category B Reportables/Deliverables documentation to be provided)

Sampling Procedures

Sampling procedures are described within the Sampling and Analysis Plan (SAP).

Data Quality Factors

Quantitation Limits (CRQLs).

QA/QC Samples

_✓_ Duplicate _✓_ Matrix Spike _✓_ Matrix Spike Duplicate
___Field Blank ___Trip Blank

DATA QUALITY OBJECTIVES FORM

Site Name/Location/Project:
Maider Road Brownfield Site / Town of Clay, New York / Site Investigation

Sampling Objectives:
Characterize river sediment quality at the site.

Sampled Media
___groundwater ___surface water _✓_sediment
___wetland water ___wetland sediment ___waste material

Date Use
_✓_site characterization _✓_exposure assessment ___health and safety
___monitoring ___evaluate remediation alternatives

Data Types **Parameters**
TCL: _✓_PCB/Pest _✓_VOCs _✓_Semi-VOCs _✓_Metals _✓_Cyanide

Field Parameters: ___pH ___Sp.Cond. ___Turb ___Temp. __Eh

Misc. Parameters: _✓_TOC ___Hardness ___Cr^{+6}

Level of Analysis
___Level I: Field Screening
___Level II: Field Analysis
___Level III: ASP Analytical Methods (Samples will be analyzed in accordance with NYSDEC-ASP 1995 Category B)
_✓_Level IV: ASP Reportables/Deliverables (NYSDEC-ASP 1995 Category B Reportables/Deliverables documentation to be provided)

Sampling Procedures
Sampling procedures are described within the Sampling and Analysis Plan (SAP).

Data Quality Factors
Quantitation Limits (CRQLs).

QA/QC Samples
_✓_Duplicate _✓_Matrix Spike _✓_Matrix Spike Duplicate
___Field Blank ___Trip Blank

DATA QUALITY OBJECTIVES FORM

Site Name/Location/Project:

Maider Road Brownfield Site / Town of Clay, New York / Site Investigation

Sampling Objectives:

Characterize building and miscellaneous material contamination at the site.

Sampled Media

___groundwater ___surface water ___sediment
___wetland water ___wetland sediment _✓_waste material

Date Use

_✓_site characterization _✓_exposure assessment ___health and safety
___monitoring ___evaluate remediation alternatives

Data Types **Parameters**

TCL: _✓_PCB/Pest _✓_VOCs _✓_Semi-VOCs _✓_Metals _✓_Cyanide

Field Parameters: ___pH ___Sp.Cond. ___Turb ___Temp. __Eh

Misc. Parameters: ___TOC ___Hardness ___Cr^{+6}

Level of Analysis

___Level I: Field Screening
___Level II: Field Analysis
___Level III: ASP Analytical Methods (Samples will be analyzed in accordance with NYSDEC-ASP 1995 Category B)
_✓_Level IV: ASP Reportables/Deliverables (NYSDEC-ASP 1995 Category B Reportables/Deliverables documentation to be provided)

Sampling Procedures

Sampling procedures are described within the Sampling and Analysis Plan (SAP).

Data Quality Factors

Quantitation Limits (CRQLs).

QA/QC Samples

_✓_Duplicate _✓_Matrix Spike _✓_Matrix Spike Duplicate
___Field Blank ___Trip Blank

APPENDIX B

Health and Safety Plan

C&S COMPANIES

Table of Contents

FIGURES

APPENDICES

SECTION 1 - GENERAL INFORMATION

The Health and Safety Plan (HASP) described in this document addresses health and safety considerations for the activities that personnel employed by C&S Engineers, Inc.(C&S) may be expected to engage in during Site Investigation (SI) and Tank Removal at the Maider Road Brownfields site, located on Maider Road, in the Town of Clay, New York. This HASP will be implemented by the C&S Health and Safety Officer (HSO) during site work. Please note that site workers not employed by C&S, including a demolition subcontractor responsible for tank removal, are responsible for developing a HASP for their personnel.

Compliance with this HASP is required of all C&S personnel who enter this site. The content of a HASP may change or undergo revision based upon additional information made available to health, safety, and training (H&S) committee, monitoring results or changes in the technical scope of work. Any changes proposed must be reviewed by the H&S committee. This HASP was written specifically for those employees of C&S Engineers, Inc., and is not intended for use by others.

Responsibilities

Project Manager:	Thomas A. Barba (C&S Engineers, Inc.) Work Phone: (315) 455-2000
Site Health and Safety Officer:	Rory Woodmansee (C&S Engineers, Inc.) Work Phone: (315) 455-2000
Emergency Coordinator:	Rory Woodmansee (C&S Engineers, Inc.) Work Phone: (315) 455-2000

Emergency Phone Numbers

Fire Department: 911

Ambulance: 911

Police: 911

Hospital: 464-5611 University Hospital Emergency
Hospital Route Included as Figure 1
Poison Control Center: 1-800-252-5655 or 476-4766 (Syracuse)
Oil Spills and Hazardous Material Spills: 1-800-457-7362

SECTION 2 - HEALTH AND SAFETY PERSONNEL

2.1 Health and Safety Personnel Designations

The following information briefly describes the health and safety designations and general responsibilities that may be employed for the Site Investigation and Tank Removal Project.

2.2 Project Manager (PM)

The PM is responsible for the overall project including the implementation of the HASP. Specifically, this includes allocating adequate manpower, equipment, and time resources to conduct site activities safely.

2.3 Health and Safety Officer (HSO)

The HSO is the person on-site responsible for assuring that personnel under direction comply with the requirements of the HASP and that personnel protective equipment needed for site work is available.

2.4 Emergency Coordinator

The Emergency Coordinator is responsible for implementation of the Emergency Plan as presented in Section XIII of this HASP, establishment and supervision of the emergency response team, and conducting training programs for personnel assigned duties on the emergency response team.

SECTION 3 - PERTINENT SITE INFORMATION

3.1 Site Location and General History

The Maider Road site is a 66-acre parcel generally located east of the confluence of the Oneida and

Seneca Rivers, and in the area known as Three Rivers. Most of the site is south of Maider Road (which runs parallel to the Oneida River). A small section of the site is between Maider Road and the Oneida River; this section includes portions of what was formerly a dock for unloading barges.

For the purposes of the Site Investigation, the 66-acre study area has been divided into the two sub-areas described below. Figure 2 in the Work Plan provides an aerial photograph of the site with the delineation of the two study areas.

West Area - This approximately nine-acre area was the site of the former Cibro bulk petroleum and asphalt terminal. This area was utilized from the 1920's until the early 1990's for the bulk storage of fuel oil and asphalt. Presently the following tanks are known to be on site:

Tank ID	Description
Tank No. 5	1,050,000 gallon steel AST, contained asphalt
Tank No. 6	1,050,000 gallon steel AST, contained asphalt
Tank No. 7	1,050,000 gallon steel AST, contained asphalt
Tank No. 8	1,050,000 gallon steel AST, contained asphalt
Tank No. 9	21,000 gallon steel AST on rack, contained asphalt
Tank No. 10	21,000 gallon steel AST on rack, contained asphalt
Boiler House A	1,000 gallon (est.) steel horizontal AST – unknown usage
Boiler House B	5,000 - 6,000 gallon (est.) horizontal steel AST – unknown usage
Boiler House C	8,000 - 9,000 gallon (est.) rectangular steel AST – unknown usage
Boiler House D	UST - reportedly 3, 000 gallon fuel oil

Information on Tanks 5-10 from NYSDEC tank database

In addition, previously removed aboveground tanks included the following:

Tank ID	Description
Tank No. 1	840,000 gallon steel AST, contained fuel oil
Tank No. 2	2,310,000 gallon steel AST, contained fuel oil
Tank No. 3	2,310,000 gallon steel AST, contained fuel oil
Tank No. 4	5,250,000 gallon steel AST, contained fuel oil

Tank No. 11	14,000 gallon horizontal steel AST on rack, unknown usage

East Area - An area of approximately 57 acres that is largely wooded and has no indication of industrial usage other than a small railcar loading/unloading area for the former terminal. A portion of the East Study Area also includes an abandoned railroad siding.

3.2 Site Investigations

During 2001, a limited sampling and analysis program was conducted in the West Study Area to identify potential contamination and parameters of environmental concern. As indicated in the subsequent Letter Report (January 21, 2002 - Appendix A), the presence of contamination was identified in a number of areas. Due to the focused nature of the previous investigation, the extent of contamination within discrete areas was not defined to the levels necessary to provide recommendations or designs for applicable remedial actions.

Consistent with the NYSDEC requirements for Brownfield site investigations, the work plan dated February 2003, was developed to better define the nature and extent of contamination at the site. Figure 3 in the work plan shows the key structures and locations of the West Study Area. During previous investigations by others, five groundwater monitoring wells (MW-1 to MW-5) were installed at the site. During this SI, five additional monitoring wells will be installed. Two of the new monitoring wells will be installed in the West Study Area to better define the groundwater conditions in the area of the former facility operations. Three monitoring wells will be installed in the East Study area to confirm that the groundwater in that area has not been impacted by on-site or off-site operations.

Subsurface borings to be completed for purposes of monitoring well installation will entail the use of continuous split spoon sampling consistent with ASTM D-1586-84. Borings will be advanced using a hollow-stem auger without the use of air or drilling fluids. The Modified Burmeister geologic logging method will be used for describing soil samples. Split spoons will be cleaned between samples and downhole apparatus/tools will be cleaned between borings. Split spoon soil samples will be field screened for the presence of volatile organic compounds, using a Thermo-

Environmental photoionization detector (PID) or equivalent. One soil sample from each of the nine borings will be submitted for laboratory analysis for the Superfund Target Compound List (TCL) of parameters. Analysis for the TCL parameters will be consistent with the June 2000 version of the NYSDEC Analytical Services Protocol.

When it is determined that a boring has reached an appropriate depth for well screening within the shallow aquifer, monitoring wells will be installed. Monitoring wells will be constructed of two-inch diameter PVC tri-lock jointed screen and riser. The monitoring wells will incorporate a 10-foot screen section to monitor the shallow groundwater zone. Screen slot size will be 0.01 inches (ten slot). Sand incorporated within the sand-pack will consist of "0" size sand. The sand-pack will extend a minimum of one foot below and two feet above the well screen. A bentonite seal, at least two feet in thickness, will be placed following the installation of the sand pack. The bentonite seal will serve to minimize the potential downward communication (or short-circuiting) of infiltrating surface waters/runoff to the local shallow groundwater regime. The balance of the hole will be backfilled with a cement/bentonite grout. The placement of annular material will be coordinated with the withdrawal of augers to minimize caving around the well screen and riser pipe. The monitoring wells will be completed with the installation of protective steel casings and locking covers.

Each new monitoring well will be surveyed to establish the horizontal location and elevation of the measuring point. Elevations will be referenced to the New York State Plane Coordinate System for horizontal control and National Geodetic Vertical Datum for vertical control. The elevations of each measuring point will be determined and water levels measured upon completion of well development to identify local groundwater contours and flow directions. During the completion of subsurface drilling tasks, drill cuttings will be visually inspected, screened with a PID, and placed on the ground in the vicinity of each borehole.

3.3 Physical Setting

The Maider Road site is a 66-acre parcel generally located east of the confluence of the Oneida and Seneca Rivers, and in the area known as Three Rivers. Most of the site is south of Maider Road

(which runs parallel to the Oneida River). A small section of the site is between Maider Road and the Oneida River; this section includes portions of what was formerly a dock for unloading barges. Both the Oneida and Seneca Rivers in the area of the site are part of the New York State Barge Canal System.

Ground surface elevations at the site range from approximately 370 feet above mean sea level (AMSL) along the river to approximately 385 feet AMSL further south of the Oneida River. Consistent with observations of general fill cover within the previously developed areas at the site, The United States Soil Conservation Service's *Soil Survey of Onondaga County, New York* indicates that soils in those areas are classified us Urban Land, which consists of areas so altered or obscured by urban works that identification of the soils is not feasible. Adjoining areas, not associated with past fill practices, are characterized as Collamer silt loams and Niagara silt loams, both associated with glacial lake deposit origins. Overburden groundwater at the site flows generally to the north, towards the Oneida River.

SECTION 4 - HAZARD ASSESSMENT AND HAZARD COMMUNICATION

4.1 Hazard Assessment

The most likely routes of exposure during Site Investigation activities include skin adsorption and inhalation due to exposure to wastes or waste-residues which may be present within a Building interior or below grade outside a Building exterior. The chemical hazards which may be associated with site activities were determined through examination of historical remediation efforts completed at the site and from the results of limited sampling conducted by C&S in 2001.

Physical hazards must also be recognized. The ground surface may be littered with sharp objects such as scrap metal and glass, and the possibility of tripping or falling exists in most areas. During warm weather, contacts with vectors such as bees or wasps are also a concern. It is assumed that site workers have the potential to be exposed to concentrations of hazardous substances.

It is difficult to draw a correlation between the concentrations of contaminants found in one media and the potential for exposure to these contaminants to site workers. However, their presence may indicate that some potential for exposure to these compounds exist, and the requirements for protective measures and monitoring of exposure is based on this potential.

Pertinent information regarding typical compounds which may be constituents of the tanks previously identified at the site is discussed below.

Benzene, CAS number 71-43-2 Benzene in its pure form is a colorless liquid with an aromatic odor. It is flammable and highly toxic. It is not expected that benzene will be present in a pure form but rather in low concentrations in the parts per billion range. Benzene is classified as a potential human carcinogen by the American Conference of Governmental Hygienists (ACGIH). Exposure occurs primarily by inhalation and by skin absorption to a lesser degree. The federal Occupational Safety and Health Administration (OSHA) regulates worker exposure to benzene. Employers must assure that no employee is exposed to an airborne concentration of benzene in excess of one part of benzene per million parts of air (1 ppm) as an 8-hour time weighted average (TWA). In addition, no employee shall be exposed to an airborne concentration of benzene in excess of five (5) ppm as averaged over any 15 minute period. This limit is referred to as the Short-term Exposure Limit (STEL).

Toluene, CAS number 108-88-3 Toluene is a colorless liquid with an odor similar to benzene. It is flammable with explosive limits in air of 1.27 - 7%. It is toxic by inhalation, ingestion and skin absorption. Exposure to high concentrations in air cause central nervous system depression. It is expected that if toluene is present, it will be in low concentrations in the parts per billion range. OSHA limits airborne exposure to 100 ppm as an eight hour TWA and to 150 ppm as a STEL. The ACGIH recommends that exposure be limited to 50 ppm as an eight-hour TWA.

Methylene Chloride, CAS number 75-09-2 (synonym: dichloromethane) Methylene Chloride is a colorless, volatile liquid with a penetrating ether-like odor. It is an eye, skin, and respiratory tract

irritant. It is also a mild central nervous system depressant with exposure generally occurring through inhalation. Methylene chloride is a suspected human carcinogen. OSHA has proposed to limit exposure to 25 ppm as an eight-hour TWA, and to 125 ppm as a STEL. If methylene chloride is present, the airborne concentrations are expected to be very low or not detectable.

Trichloroethene, CAS number 79-01-6 (synonym: Trichloroethylene) Trichloroethene is a nonflammable mobile gas with a characteristic odor resembling that of chloroform. Moderate exposure can cause symptoms similar to alcohol inebriation. High concentrations of Trichloroethene can cause a narcotic effect. Trichloroethane has been found to induce hepocellular carcinomas. Heavy exposure has also been found to cause death by ventricular fibrillation.

1,2-Dichloroethane, CAS number 107-06-2 (synonym: Ethylene Dichloride) 1,2-Dichloroethane has a characteristic pleasant odor and a sweet taste. Vapors of 1,2-Dichloroethane have been found to be irritating to the lungs and eyes and may disturb balance cause abdominal cramping. This substance has been listed as a carcinogen by the USEPA.

Acetone, CAS number 67-64-1 (synonym - dimethylketone; 2-propanone). Acetone is a colorless volatile liquid with a pungent odor and sweetish taste. Acetone is extremely flammable and is considered a fire risk and is generally characterized by low to moderate toxicity by ingestion and inhalation. Prolonged or repeated topical use may cause dryness. Inhalation may produce headache, fatigue, excitement, bronchial irritation, and in large amounts narcosis.

2-Butanone, CAS number 78-93-1 (synonym - methyl ethyl ketone)**.** 2-Butanone is a colorless liquid with an acetone-like odor and is a narcotic by inhalation. 2-Butanone should be considered a fire risk.

Tetrachloroethene, CAS 127-18-4 (synonym: Tetrachloroethylene) Tetrachlorethene is a colorless nonflammable liquid with an ethereal odor. In high concentrations tetrachlorethene can have a narcotic effect and can cause a defatting effect on the skin leading to dermatitis.

PCB (Aroclor), PCBs are highly toxic colorless liquids. PCBs induce toxic effects in humans including chloracne, pigmentation of skin and nails, excessive eye discharge, swelling of eyelids, distinctive hair follicles, and gastrointestinal disturbances. PCB's have been listed as carcinogens by the USEPA and may also cause liver damage.

SECTION 5 - TRAINING

5.1 Basic Taining

Completion of the 40-hour Health and Safety Training for Hazardous Waste Operations and three days on the job training under the supervision of a qualified person is required for all employees who will perform work in areas where the potential for a toxic exposure exists.

5.2 Advanced Training

Advanced training, as necessary, will be provided to any personnel who will be expected to perform site work utilizing Level A protection or other specialized operation to be undertaken at the site.

5.3 Site-Specific Training

Training will be provided that specifically addresses the activities, procedures, monitoring, and equipment for the site operations prior to going on site. Training will include familiarization with site and facility layout, known and potential hazards, and emergency services at the site, and details all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity.

5.4 Safety Briefings

C&S project personnel will be given briefings by the HSO on a daily basis, or as needed to further assist site personnel in conducting their activities safely. Pertinent information will be provided when new operations are to be conducted. Changes in work practices must be implemented due to

new information made available, or if site or environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices. When conformance with these practices is not being followed, or if deficiencies are identified during safety audits, the project manager will be notified.

5.5 First Aid and CPR

The HSO will identify those individuals requiring this training in order to oversee emergency treatment if so required during field activities. It is expected that a selected number of field workers will have First Aid training and some members of the field team will have CPR training. These courses will be consistent with the requirements of the American Red Cross Association.

SECTION 6 - ZONES

6.1 Site Zones

Three types of site activity zones are identified for the Remedial Investigation activities, including the Work Zone, Contamination Reduction Zone, and the Support Zone.

- *Work Zone (Exclusion Zone)* The Work Zone is (are) the area(s) where contamination is known to be or likely to be present or area(s) where activity is being conducted which has the potential to cause harm. The Work Zone will be any area in the general vicinity of active site work or intrusive activities. It is anticipated that the location of the Work Zone will change as various investigating activities change. No one may enter the Work Zone without the necessary protective equipment and without permission from the HSO.
- *Contamination Reduction Zone* The area within the Contamination Reduction Zone is defined as the Contamination Reduction Corridor, or CRC. The CRC controls access into and out of the work zone. In this area, personal and equipment decontamination will be conducted.
- *Support Zone* The support area is considered the uncontaminated area. This area may include the C&S trailer command post or pre-work area that will provide for communications and emergency response. Appropriate safety and support equipment also will be located in this zone.

SECTION 7 - PERSONAL PROTECTIVE EQUIPMENT

7.1 General

The level of protection to be worn by field personnel will be defined and controlled by the HSO. Depending upon the type and levels of waste material present at the site, varying degrees of protective equipment will be needed. If the possible hazards are unknown, a reasonable level of protection will be taken until sampling and monitoring results can ascertain potential risks. The levels of protection listed below are based on USEPA Guidelines. A list of the appropriate clothing for each level is also provided.

Level A protection must be worn when a reasonable determination has been made that the highest available level of respiratory, skin, eye, and mucous membrane protection is needed. It should be noted that while Level A provides maximum available protection, it does not protect against all possible hazards. Consideration of the heat stress that can arise from wearing Level A protection should also enter into the decision making process. Level A protection includes:

- Open Circuit, pressure-demand SCBA
- Totally encapsulated chemical resistant suit
- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective

Level B protection must be used when the highest level of respiratory protection is needed, but hazardous material exposure to the few unprotected areas of the body (i.e., the back of the neck) is unlikely. Level B protection includes:

- Open circuit, pressure-demand SCBA or pressure airline with escape air bottle
- Chemical protective clothing:

- Overalls and long sleeved jacket; disposal chemical resistant coveralls; coveralls; one or two piece chemical splash suit with hood
- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective

Level C: must be used when the required level of respiratory protection is known, or reasonably assumed to be, not greater than the level of protection afforded by air purifying respirators; and hazardous materials exposure to the few unprotected areas of the body (i.e., the back of the neck) is unlikely. Level C protection includes:

- Full or half face air-purifying respirator
- Chemical protective clothing:
- Overalls and long-sleeve jacket; disposable chemical resistant coveralls; coveralls; one or two piece chemical splash suit
- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective

Level D is the basic work uniform. It cannot be worn on any site where respiratory or skin hazards exist. Level D protection includes:

- Safety boots/shoes
- Safety glasses
- Hard Hat with optional face shield

Note that the use of SCBA and airline equipment is contingent upon the user receiving special training in the proper use and maintenance of such equipment.

7.2 Personal Protective Equipment - Specific

Level D with some modification will be required when working in the work zone on this site. In addition to the basic work uniform specified by Level D protection, chemical protective gloves with a surgical type inner liner will be required when contact with soil, groundwater, and tank materials is likely. An upgrade to a higher level (Level C) of protection may occur if determined necessary by the HSO.

SECTION 8 - MONITORING PROCEDURES

8.1 Monitoring During Site Operations

All site environmental monitoring should be accompanied by meteorological monitoring of appropriate climatic conditions.

- *Drilling Operations (Monitoring Well Installation and Subsurface Borings)* - Monitoring will be performed by the HSO or drilling observer during the conduct of work. A PID will be utilized to monitor the breathing zone, the borehole, and geological samples upon their retrieval. Drill cuttings will also be monitored. A combustible gas indicator (CGI) with oxygen alarm may also be used to monitor the borehole for the presence of combustible gases. Similar monitoring of fluids produced during well development will also be conducted.
- *Test Pit Excavations/Test Trenches* - Monitoring will be performed during excavation and sampling operations when C&S personnel are within the work zone. A PID will be utilized to monitor the breathing zone, the excavated area, and material taken from the excavation. Monitoring of the breathing zone with a CGI and oxygen meter will be conducted.
- *Boiler House Interior Investigations* - Monitoring will be performed during reconnaissance and investigation activities within the Boiler House Interior. A PID will be utilized to monitor the breathing zone within Interior areas. Monitoring of the breathing zone with a CGI and oxygen meter will be conducted when applicable for confined space entry.
- *Other Media Sampling* - Monitoring will be performed during sampling operations when C&S personnel are within the work zone. A PID will be utilized to monitor the breathing zone, the

sampling area, and material taken from the sample location. Monitoring of the breathing zone with a CGI and oxygen meter will be conducted where applicable for confined space entry.

8.2 Action Levels

If readings on the PID exceed 10 ppm for more than fifteen minutes consecutively, then personal protective equipment should be upgraded to Level C. The air-purifying respirator used with Level C protective equipment must be equipped with organic vapor cartridges. If readings on the explosive gas meter are within a range of 10% - 25% of the LEL then continuous monitoring will be implemented. Readings above 25% of the LEL indicate the potential for an explosive condition. Sources of ignition should be removed and the site should be evacuated.

8.3 Personnel Monitoring Procedures

Personal monitoring shall be performed as a contingency measure in the event that VOC concentrations are consistently above the 10 ppm action level as detected by the CGI and/or PID. If the concentration of VOCs is above this action level, then amendments to the HASP must be made before work can continue at the site.

8.4 Medical Surveillance Procedures for Evidence of Personal Exposure

All C&S Engineers Inc. personnel who will be performing field work at the Site must be medically qualified. Additional medical testing may be required by the HSO in consultation with the company physician if an overt exposure or accident occurs, or if other site conditions warrant further medical surveillance.

8.5 Heat Stress Monitoring

It is anticipated that heat stress may be a concern. Guidance relating to heat stress control is presented in Appendix C of this HASP.

SECTION 9 - COMMUNICATIONS

A telephone will be located within vehicles utilized by C&S conducting investigation efforts at the site for communication with emergency support services/facilities. Guidance relating to site communications which may be implemented depending on conditions and circumstances is presented in Appendix D of this HASP.

SECTION 10 - SAFETY CONSIDERATIONS FOR SITE OPERATIONS

10.1 General

Standard safe work practices that will be followed include:

- Do not climb over/under drums, or other obstacles.
- Do not enter the work zone alone.
- Practice contamination avoidance, on and off-site.
- Plan activities ahead of time, use caution when conducting concurrently running activities.
- No eating, drinking, chewing or smoking is permitted in work zones.
- Due to the unknown nature of waste placement at the site, extreme caution should be practiced during excavation activities.
- Apply immediate first aid to any and all cuts, scratches, abrasions, etc.
- Be alert to your own physical condition. Watch your buddy for signs of fatigue, exposure, etc.
- A work/rest regimen will be initiated when ambient temperatures and protective clothing create a potential heat stress situation.
- No work will be conducted without adequate natural light or without appropriate supervision.
- Task safety briefings will be held prior to onset of task work.
- Ignition of flammable liquids within or through improvised heating devices (barrels, etc.) or space heaters is forbidden.

- Entry into areas of spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment is prohibited.
- Any injury or unusual health effect must be reported to the site health and safety officer.
- Prevent splashing or spilling of potentially contaminated materials.
- Use of contact lenses is prohibited while on site.
- Beards and other facial hair that would impair the effectiveness of respiratory protection are prohibited.
- Field crew members should be familiar with the physical characteristics of investigations, including:
  - Wind direction in relation to potential sources
  - Accessibility to co-workers, equipment, and vehicles
  - Communication
  - Hot Zones (areas of known or suspected contamination)
  - Site Access
  - Nearest water sources
- The number of personnel and equipment in potentially contaminated areas should be minimized consistent with site operations.

10.2 Field Operations

Intrusive Operations

An HSO or designee will be present on-site during all intrusive work, e.g., drilling operations, excavations, trenching, and will provide monitoring to oversee that appropriate levels of protection and safety procedures are utilized by C&S Engineers, Inc., personnel. The use of salamanders or other equipment with an open flame is prohibited and the use of protective clothing especially hard hats and boots, will be required during drilling or other heavy equipment operations. All contaminated equipment, e.g., augers, split spoons, drill pipe, backhoe, bucket, etc., will be placed on liner material when not in use, or when awaiting and during steam cleaning. Communications will be maintained at all times.

Excavation Trenching

Guidance relating to safe work practices for C&S Engineers, Inc., employees regarding excavating/trenching operation is presented in Appendix E of this HASP.

SECTION 11 - DECONTAMINATION PROCEDURES

Decontamination involves physically removing contaminants and/or converting them chemically into innocuous substances. Only general guidance can be given on methods and techniques for decontamination. Decontamination procedures are designed to:

- Remove contaminant(s).
- Avoid spreading the contamination from the work zone.
- Avoid exposing unprotected personnel outside of the work zone to contaminants.

Contamination avoidance is the first and best method for preventing spread of contamination from a hazardous site. Each person involved in site operations must practice the basic methods of contamination avoidance listed below. Additional precautions may be required in the HASP.

- Know the limitations of all protective equipment being used.
- Do not enter a contaminated area unless it is necessary to carry out a specific objective.
- When in a contaminated area, avoid touching anything unnecessarily.
- Walk around pools of liquids, discolored areas, or any area that shows evidence of possible contamination.

- Walk upwind of contamination, if possible.
- Do not sit or lean against anything in a contaminated area. If you must kneel (e.g., to take samples), use a plastic ground sheet.
- If at all possible, do not set sampling equipment directly on contaminated areas. Place equipment on a protective cover such as a ground cloth.
- Use the proper tools necessary to safely conduct the work.

Specific methods that may reduce the chance of contamination are:

- Use of remote sampling techniques.
- Opening containers by non-manual means.
- Bagging monitoring instruments.
- Use of drum grapplers.
- Watering down dusty areas.

Equipment that will need to be decontaminated includes tools, monitoring equipment, and personal protective equipment. Items to be decontaminated will be brushed off, rinsed, and dropped into a plastic container supplied for that purpose. They will then be washed with a detergent solution and rinsed with clean water. Monitoring instruments will be wrapped in plastic bags prior to entering the field in order to reduce the potential for contamination. Instrumentation that is contaminated during field operations will be carefully wiped down. Heavy equipment, if utilized for operations where it may be contaminated, will have prescribed decontamination procedures to prevent hazardous materials from potentially leaving the site. The on-site contractor will be responsible for decontaminating all construction equipment prior to demobilization.

SECTION 12 - DISPOSAL PROCEDURES

All discarded materials, waste materials, or other objects shall be handled in such a way as to reduce or eliminate the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left on-site. All potentially contaminated materials, e.g., clothing, gloves, etc., will be bagged or drummed as necessary and segregated for proper disposal. All contaminated waste materials shall

be disposed of as required by the provisions included in the contract and consistent with regulatory provisions. All non-contaminated materials shall be collected and bagged for appropriate disposal.

SECTION 13 - EMERGENCY PLAN

As a result of the hazards at the site, and the conditions under which operations are conducted, there is the possibility of emergency situations. This section has established procedures for the implementation of an emergency plan.

13.1 Emergency Coordinator

Name	Telephone No.
Rory Woodmansee	(315)-455-2000

The Site Emergency Coordinator shall implement the emergency plan whenever conditions at the site warrant such action. The Site Emergency Coordinator will be responsible for assuring the evacuation, emergency treatment, emergency transport of site personnel as necessary, and notification of emergency response units (refer to phone listing in the beginning of this HASP) and the appropriate management staff.

13.2 Evacuation

In the event of an emergency situation, such as fire, explosion, significant release of toxic gases, etc., all personnel will evacuate and assemble in a designated assembly area (most likely the project trailer). The Emergency Coordinator will have authority to contact outside services as required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The Emergency Coordinator must see that access for emergency equipment is provided and that all ignition sources have been shut down once the alarm has been sounded. Once the safety of all personnel is established, the Fire Department and other emergency response groups will be notified by telephone of the emergency.

13.3 Potential or Actual Fire or Explosion

Immediately evacuate the site and notify local fire and police departments, and other appropriate emergency response groups, if LEL values are above 25% in the work zone or if an actual fire or explosion has taken place.

13.4 Environmental Incident (spread or release of contamination)

Control or stop the spread of contamination if possible. Notify the Emergency Coordinator and the Project Manager. Other response groups will be notified as appropriate.

13.5 Personnel Injury

Emergency first aid shall be applied on-site as necessary. Then, decontaminate (en route if necessary) and transport the individual to nearest medical facility if needed. The ambulance/rescue squad shall be contacted for transport as necessary in an emergency. The directions to the hospital and a map are found in Figure 1.

13.6 Personnel Exposure

Skin Contact	Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then provide appropriate medical attention. Eyes should be thoroughly rinsed with water for at least 15 minutes.
Inhalation	Move to fresh air and/or, if necessary, decontaminate and transport to emergency medial facility.
Ingestion	Decontaminate and transport to emergency medical facility.
Puncture Wound	Decontaminate, if possible, and transport to emergency medical facility. HSC will provide medical data sheets to medical personnel as requested.

13.7 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work can continue without compromise to the health and safety of C&S field workers.

13.8 Incident Investigation and Reporting

In the event of an incident, procedures discussed in the C&S incident investigation and reporting policy, which is presented in Appendix F of this HASP, shall be followed.

SECTION 14 - COMMUNITY RELATIONS AND HEALTH & SAFETY PLAN

14.1 Community Relations

Community relations may be a sensitive matter. All C&S employees should be aware of issues associated with this specific site. Conversations with community members not involved in activities at the site should be limited. Conversations between site workers off the site, in restaurants, etc., should not include discussions of the potential hazards on the site nor should negative statements be made regarding the site.

14.2 Community Health and Safety Plan

Site Access

In general, the majority of active and/or intrusive efforts to be completed as part of the Site Investigation will occur within the area described as the *West Area.* During completion of the Site Investigation efforts, site access will be limited only to those personnel (field sampling technicians, geologists, engineers, and subcontractors) who are scheduled to be involved with the site investigation. Site access restrictions will be achieved by means of signage placed at site access points. Furthermore, when C&S personnel are present and unauthorized individuals may attempt to access to the site, the C&S personnel will encounter and inform such individuals of the restricted nature of the site.

Community Health and Safety Monitoring

As part of the Site Investigation, three general types of efforts are scheduled:

- Non-intrusive reconnaissance tasks,
- Sampling or monitoring tasks (monitoring point sampling), and
- Intrusive tasks (test trenching, subsurface borings, monitoring point/well installation).

During completion of general reconnaissance and sampling or monitoring tasks, potential for health and safety risks to off-site landowners or the local community are not anticipated. During completion of intrusive efforts at the site, health and safety monitoring efforts will be conducted

immediately adjacent to the area or areas in which intrusive efforts are being completed, as described in Section 8. Since the air pathway is the most likely avenue for the release of potential contaminants to the atmosphere at or near the site, in addition to limiting public or community access to the areas in which intrusive efforts are completed, further measures to protect the health and safety of the surrounding community are provided below.

Community Air Monitoring Plan

During completion of SI activities, efforts will be taken to complete field work in a manner which will minimize the creation of airborne dust or particulates. Under dry conditions, work areas may be wetted to control dust. During periods of extreme wind or rain, intrusive field work may be halted until such time as the potential for creating airborne dust or particulate matter is limited. Periodic monitoring following the guidelines of the NYSDOH's Generic Community Air Monitoring Plan (see Appendix G) will be implemented during all non-intrusive SI activities, including surface soil and sediment sampling, and collection of groundwater samples from existing monitoring wells.

During completion of SI intrusive activities (test pit installation and soil borings), a community air monitoring plan meeting the requirements of the NYSDOH's Generic Community Air Monitoring Plan (see Appendix G) will be implemented for the duration of intrusive activities. These additional air monitoring activities will include establishment of background conditions, continuous monitoring for volatile organic compounds and particulates at the downwind work area (exclusion zone) perimeter, recording of monitoring data, and institution and documentation of Response Levels and appropriate actions in accordance with NYSDOH guidance.

SECTION 15 - AUTHORIZATIONS

C&S personnel authorized to enter the Site while operations are being conducted must be approved by the HSO. Authorization will involve completion of appropriate training courses, medical examination requirements, and review and sign-off of this HASP. No C&S personnel should enter

the work zone alone. Each C&S employee should check in with the HSO or Project Manager prior to entering the work zones.

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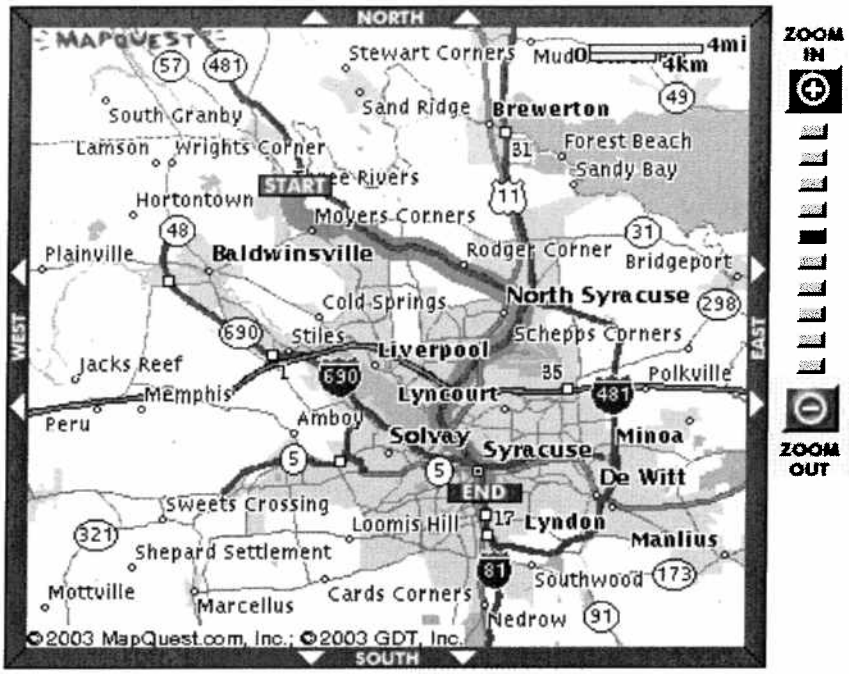
HASP FIGURE 1

Route to the Hospital

C&S COMPANIES

ROUTE OVERVIEW:

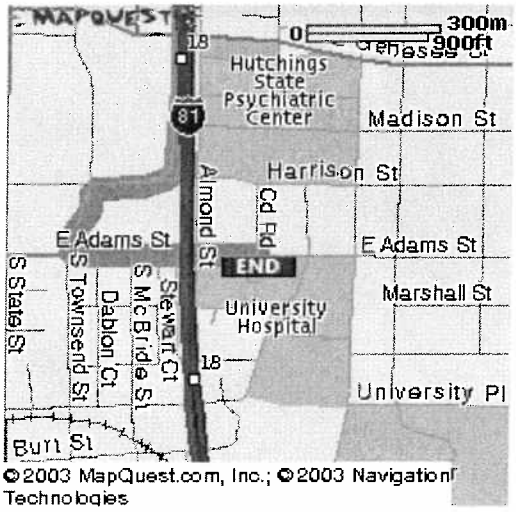


CLICKING ON MAP WILL: ○ Zoom In ◉ Re-center

Map Legend NAVTECH ON BOARD

DESTINATION:

750 E Adams St
Syracuse, NY
13210-2306 US



Re-display Directions with:

◉ Overview Map with Text ○ Text Only ○ Turn-by-Turn Maps with Text

RE-DISPLAY ROUTE

MAPQUEST.

Home Help

MAPS | DRIVING DIRECTIONS | ROAD TRIP PLANNER

driving directions

- **North America**
- **Europe**
- **Saved Routes**

What's Nearby

Search 2 miles for:

- BORDERS
- 
- 

Search

Orbitz Travel Deals

- **Flights:** Find low fares to the Syracuse area!
- **Rental Cars:** Find special offers on rental prices in your destination!
- **Lodging:** Save up to 70% on Orbitz Savers nationwide. Search Syracuse, NY!

ORBITZ

Yellow Pages

Search **Syracuse** for:

Auto repair

Search

FROM:

[3382-3455] Maider Rd
Clay, NY
13041 US

TO:

750 E Adams St
Syracuse, NY
13210-2306 US

Total Distance: 19.11 miles

Total Estimated Time: 24 minutes

E-mail Route:

user@email.com Go Or, Send to a PCS Phone Sprint.

PRINT ROUTE | SAVE ROUTE | REVERSE ROUTE | DOWNLOAD TO PDA

FASTEST ROUTE | SHORTEST ROUTE | AVOID HIGHWAYS

DIRECTIONS	DISTANCE
1: Start out going West on MAIDER RD/CR-160 toward CR-57/OSWEGO RD.	0.16 miles
2: Turn LEFT onto CR-57/OSWEGO RD.	1.72 miles
3: Turn LEFT onto NY-31.	1.49 miles
4: Turn RIGHT onto SOULE RD/CR-96.	0.18 miles
5: Merge onto NY-481 S via the ramp- on the left.	6.64 miles
6: Merge onto I-81 S via exit number 9S toward SYRACUSE.	8.27 miles
7: Take the HARRISON ST exit- exit number 18- toward ADAMS ST.	0.21 miles
8: Turn SLIGHT RIGHT onto HARRISON ST.	0.07 miles
9: Turn LEFT onto S TOWNSEND ST.	0.11 miles
10: Turn LEFT onto E ADAMS ST.	0.26 miles

Total Estimated Time: 24 minutes **Total Distance:** 19.11 miles

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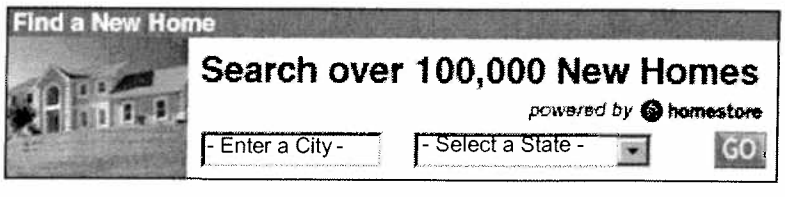

HASP APPENDIX A

January 21, 2002 Letter Report (text only)

C&S COMPANIES

C&S COMPANIES
ENGINEERS
DESIGN BUILD
TECHNICAL RESOURCES
OPERATIONS

C&S Engineers, Inc.
Syracuse Hancock International Airport
Syracuse, NY 13212
phone 315-455-2000
fax 315-455-9667
www.cscos.com

January 21, 2002

Mr. Patrick DiDomenico, Supervisor
Town of Clay
Town Hall
4483 Route 31
Clay, New York 13041-8760

Re: Former CIBRO Facility
Preliminary Site Investigation

File: 195.690.001

Dear Mr. DiDomenico:

This letter provides the results of preliminary site investigation activities conducted by C&S Engineers, Inc. (C&S) for the former CIBRO facility, located on Maider Road in the Town of Clay. These activities were conducted to provide the Town of Clay with preliminary data to assess the extent of potential environmental impacts associated with the past use of the site by CIBRO. Our preliminary investigation focused on the approximately 9.5 acre portion of the 63 acre site where asphalt and fuel oil commerce were formerly conducted, and included:

- Research into the regulatory history of the property – C&S submitted requests for information under the Freedom of Information Law (FOIL) to the Onondaga County and New York State Departments of Health, and to several offices within the NYSDEC. After receiving response from these agencies, C&S visited the offices and reviewed the available files regarding the CIBRO site.

- Site Reconnaissance – C&S engineers and scientists studied aerial photos and visited the site to identify the locations of existing and past site features and to identify areas of potential environmental concern.

- Test Pitting and Media Sampling – A C&S geologist and engineer were on site for excavation of a series of test pits and collected representative soil, groundwater, and surface water samples to facilitate preparation of a preliminary scope of work and cost estimate for remediating the site.

To complement a preliminary estimate of likely costs for soil and water remediation at the site, we solicited the help of Sabre Demolition Corporation (Sabre) of Baldwinsville,

New York. Sabre visited the site and prepared an estimate of likely costs for demolishing structures (buildings, tanks, drainage structures, pavements, etc.) at the site.

FOIL Requests for Site Information

Pursuant to a site-specific request from C&S, NYSDEC Office of Spill Prevention and Control, NYSDEC Office of Enforcement, and NYSDOH provided files regarding the CIBRO site. The files provided an indication of the regulatory background of the site, with the following points of interest or concern:

- Between 5/87 and 10/99, at least seven spills were reported to the NYSDEC for the site: three for unknown petroleum releases; two tank test failures; one tank failure; and one for petroleum on the ground. All were closed except for #9502212 for which there was a recommendation for a $25,000 fine and no closure. In a July 14, 1997 letter, DEC Acting General Counsel recommended this spill be prosecuted to recover funds.
- There was a proceeding associated with claims of a neighbor, Mr. Harold Zender, who claimed his basement was impacted by discharges from CIBRO. NYSDEC and CIBRO's engineer collected split samples of a liquid in Zender's basement. Low levels of SVOCs were detected. NYSDOH concluded that there was not sufficient evidence of contamination to require relocation of Zenders.
- During investigation of Spill # 9502212, discussed above, DEC and DOH observed asbestos pipe insulation being unsafely handled and potentially released to the environment by a CIBRO site contractor. Burning petroleum product was also observed at the site.
- NYSDOH conducted indoor air quality sampling in the Louis Badore home (neighbor) in 1995 after Badore complained about emissions from the site. Results showed low levels of "Chrysotile" (asbestos) detected in one inside and two outside air samples and in one inside and two outside wipe samples.

Site Reconnaissance

C&S utilized several site visits to identify areas of interest or concern where test pitting might provide useful observations and data. The existing monitoring wells were located, the approximate positions of previously existing structures were determined and a photo log was compiled. To assist in this effort, several aerial photos showing the site in the past, as well as the boring logs for the site monitoring wells, were reviewed.

C&S COMPANIES

Test Pitting and Media Sampling

The Town of Clay provided a backhoe and operator for one day of test-pitting at the site. On October 25, 2001, eighteen test pits were excavated. A C&S geologist coordinated the test pitting, observing:

- Surface conditions indicative of past asphalt or fuel oil releases;
- Soil types and thicknesses, including imported fill materials; and
- The presence or absence of odors or staining that might indicate obvious or suspected contamination.

C&S screened the headspace of representative samples with a photoionization detector (PID) for the presence of volatile vapors. Based on this screening, and the objective of gaining a typical chemical profile for a variety of conditions observed, C&S selected and prepared samples for laboratory analysis (Table 1).

Along with the above soil investigation, C&S located, inspected and gauged the five site groundwater monitoring wells. Groundwater samples were collected from the two downgradient wells closest to the neighboring residential properties (MW-4 and MW-5). Two surface water samples were collected to provide data relevant to the potential need for including groundwater or surface water treatment as elements of a future remediation scenario.

Soil and water samples were submitted to Life Science Laboratories for analysis of TCL volatile and semivolatile organic compounds (VOCs and SVOCs), PCBs, and the eight RCRA metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury).

Table 1 provides a summary of the laboratory samples collected. Tables 2 and 3 provide summaries of the laboratory results for detected constituents in the samples. Attachment A provides the complete laboratory data reports for the samples.

Site Characterization and Interpretation of Analytical Results

Evidence of surface contamination by asphalt and fuel oil at the site is widespread. Soil samples for laboratory analysis were collected from native soils (described as MEDIUM SAND and SILT) which are generally overlain at the site by one to as many as five feet, of imported granular fill materials. On the asphalt tank (eastern) side of the property, little evidence of contamination was observed in the soils beneath the granular fill. Three areas of observed impacts in soils beneath the granular fill were observed in the central and northern site areas:

- Obvious fuel oil impacts were observed within the soils at test pit TP-6, located west of the boiler house. Based on this observation, test pits TP-7, TP-8A, and TP-8B

were advanced in areas around TP-6, and the impacts were not observed in soils beneath the granular fill at those locations;

- Obvious fuel oil impacts were observed within the soils at test pit TP-9, located north of previously existing Fuel Oil Tank #2. Test pits TP-10 and TP-11 were advanced in areas around TP-9, and the impacts were not observed in the soils beneath the granular fill at those locations; and
- An extensive area of obvious gasoline contamination was observed in the grassy area north of the Garage. In this area, test pits TP-13, TP-14, TP-15, and TP-16 all exhibited elevated PID readings and gasoline-like odors at depths from just beneath the ground surface to five feet (assumed to be approximately the level of groundwater). Soil sample TP-16 was collected to represent the soils in this area. Surface water sample SW-2 was collected from the former pump house located in the drainage swale just east of the suspected gasoline-impacted materials.

Based on site observations and analytical results, except for the gasoline-related release, the majority of the obviously contaminated materials at the site are within the granular fill materials which cover the surface of the site to a depth of one to two feet.

There were no PCBs detected in the soil and water samples collected during this preliminary excavation. The concentrations of the eight RCRA metals were generally consistent with typical background levels and did not indicate additional areas requiring remediation or additional remedial measures required based on these parameters. In addition, the data generated during this investigation do not indicate significant groundwater or surface water impacts at the site.

Projected Remedial Scope and Estimated Costs for Remedial Actions

For estimating the potential cost for remediating the site for future use within a park, two scenarios were investigated:

- Remediation Scenario Number 1 would remove only visibly or olfactorily contaminated granular fill and native subsurface soils. Remaining granular fill materials would be re-used on–site in an area (such as a parking lot), where future contact with these materials would be limited. This scenario assumes 50% disposal and 50% re-use of granular fills, and that native soils over approximately 10% of the site will require excavation and off-site disposal to a depth of approximately 5 feet below the ground surface (assumed to be the dry season water table).

- Remediation Scenario Number 2 would remove all granular fill materials and assumes a more stringent clean-up objective leading to removal of a greater amount of native subsurface soils. This scenario assumes that the entire site would be used for areas where future contact with the soils would be likely (picnic areas,

playgrounds, etc.). Scenario Number 2 assumes excavation and disposal of 100% of the granular fills. This scenario assumes that native soils over approximately 20% of the site will require excavation and off-site disposal to a depth of approximately 5 feet below the ground surface (assumed to be the dry season water table).

Both of the above scenarios include excavation of "hot spots" as well as some expected excavation along the abandoned pipeline to the railroad spur (not investigated during these activities), and the gasoline release area discovered during this investigation. The scenarios differ in the "safety factor" required, based on the expected future uses of the 9.5 acre portion of this 63-acre site, where past commerce of asphalt and fuel oil occurred.

Table 4 provides the C&S estimate of probable costs of soil remediation and demolition of site structures under the two scenarios described above. Costs are included for administering these remediation scenarios under the New York State Brownfield Program. Table 4 also includes a statement of the assumptions used in preparing this cost estimate.

The current New York State Brownfield Program provides 75% cost sharing for eligible costs associated with investigation and remediation of an eligible site. The local share would be 25% of eligible costs as well as all ineligible costs. Attachment B provides a copy of NYSDEC's July 1997 ***Questions and Answers Booklet*** for environmental restoration projects under the Brownfield program. Page 5 of this booklet includes a discussion of the types of costs that are not eligible for State reimbursement. Attachment C provides a summary of proposed amendments to the program. Among other changes, these amendments would alter the cost sharing percentages to 90% State and 10% local, as well as allow for other grant funding to offset the local cost.

We appreciate the opportunity to assist the Town of Clay with this site. Please contact the undersigned at (315) 455-2000 if you have any questions or require additional information.

Sincerely,

C&S ENGINEERS, INC.

Robert M. Palladine, P.E.
Environmental Service Group Manager

Doug Wickman, P.E.
Engineering Manager

cc: Clay Town Board (7 copies)

HASP APPENDIX B

AVAILABLE ANALYTICAL DATA

C&S COMPANIES

TABLE 1
CIBRO FACILITY – TOWN OF CLAY
PRELIMINARY SITE INVESTIGATION

SUMMARY OF LABORATORY SAMPLE LOCATIONS

SAMPLE I.D.	MEDIA	SAMPLE LOCATION AND DESCRIPTION
SW-1	Surface Water	Surface water collected within truck scales (approximately 20,000 gallons)
SW-2	Surface Water	Surface water collected from the former pump house located in swale east of gasoline-impacted area
MW-4	Groundwater	Groundwater from downgradient well between site and river
MW-5	Groundwater	Groundwater from downgradient well between site and residences
TP-1,2,3	Soil	Composite soil sample from three test pits in asphalt tank area (no observed impacts)
TP-5	Soil	Soil from between former Fuel Oil Tanks 3 and 4 (no observed impacts)
TP-6	Soil	Soils near suspected fuel oil impacted area west of the boiler house (minimal observed impacts)
TP-10	Soil	Soils near suspected fuel oil impacted area north of former Fuel Oil Tank 2 (minimal observed impacts)
TP-16	Soil	Soils from suspected gasoline impacted area north of garage (sample exhibited gross impacts)
TP-18	Soil	Soils from northwest of former Fuel Oil Tank 1 (no observed impacts)

Notes: Impacted surface materials noted over much of site. Soil samples were collected from native soils beneath one to as many as five feet of imported granular fills.

Table 2
CIBRO FACILITY, Town of Clay
Preliminary Site Investigation
Summary of Laboratory Analytical Data - Soil
Page 1 of 2

Sample I.D. / Date Sampled	TP-1,2,3 10/25/01	TP-5 10/25/01	TP-6 10/25/01	TP-10 10/25/01	TP-16 10/25/01	TP-18 10/25/01	TAGM 4046 Recommended Soil Cleanup Objective (ppm)
Parameter	**Sample Concentration (mg/kg or ppm)**						
RCRA Metals Totals:							
Arsenic	<8	<8	4.5	4.9	4.7	3.9	7.5 or SB
Barium	38	21	26	39	56	38	300 or SB
Cadmium	0.83	1.1	0.96	1	1	<0.8	1.0 or SB
Chromium	7.8	7.6	6.1	9.5	9	6.9	10.0 or SB
Lead	12	17	8.1	6.2	39	5.2	SB*
EPA 8270 TCA Semi-Volatiles:							
Acenaphthene	<0.2	<0.2	0.21	<0.2	<2	<0.2	50.0
Di-n-butylphthalate	<0.2	<0.2	<0.2	<0.2	<2	<0.2	8.1
Fluorene	<0.2	<0.2	0.49	<0.2	<2	<0.2	50.0
2-Methylnaphthalene	<0.2	<0.2	<0.2	<0.2	18	<0.2	36.4
Naphthalene	<0.2	<0.2	<0.2	<0.2	29	<0.2	13.0
Phenanthrene	<0.2	<0.2	0.82	<0.2	<2	<0.2	50.0

1. Detections exceeding Recommended Soil Cleanup Objective from NYSDEC TAGM 4046 are shaded
2. SB = site background

* Background levels for lead differ widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan areas or near highways are much higher and typically range from 200 -500 ppm.

Table 2
CIBRO FACILITY, Town of Clay
Preliminary Site Investigation
Summary of Laboratory Analytical Data - Soil

Sample I.D. / Date Sampled	TP-1,2,3 10/25/01	TP-5 10/25/01	TP-6 10/25/01	TP-10 10/25/01	TP-16 10/25/01	TP-18 10/25/01	TAGM 4046 Recommended Soil Cleanup Objective (ppb)
Parameter	**Sample Concentration (ug/kg or ppb)**						
EPA 8021A Volatiles:							
Benzene	<5	<5	<20	<5	84,000	<5	60
n-Butylbenzene	<5	<5	<20	<5	27,000	<5	18,000
sec-Butylbenzene	<5	<5	87	<5	10,000	<5	25,000
Ethyl benzene	<5	<5	<20	<5	280,000	<5	5,500
Isopropylbenzene (Cumene)	<5	<5	<20	<5	26,000	<5	NA
4-Isopropyl toluene (Cymene)	<5	<5	<20	<5	9,300	<5	10,000
Naphthalene	<5	<5	25	<5	93,000	<5	13,000
n-Propylbenzene	<5	<5	<20	<5	75,000	<5	14,000
Toluene	<5	<5	<20	<5	360,000	<5	1,500
1,2,4-Trimethylbenzene	<5	<5	<20	<5	520,000	<5	13,000
1,3,5-Trimethylbenzene	<5	<5	<20	<5	250,000	<5	3,300
Xylenes (total)	<5	<5	<20	<5	1,200,000	<5	1,200
MTBE	<5	<5	<20	<5	4,500	<5	120

1. Detections exceeding Recommended Soil Cleanup Objective from NYSDEC TAGM 4046 are shaded

Table 3
CIBRO FACILITY, Town of Clay
Preliminary Site Investigation
Summary of Laboratory Analytical Data - Surface Water and Groundwater

Sample I.D. *Date Sampled*	**SW-1** *10/25/01*	**SW-2** *10/25/01*	**MW-4** *10/25/01*	**MW-5** *10/25/01*	**Class GA Groundwater Standards/Guidance (ug/l or ppb)**
Parameter	**Sample Concentration (ug/l or ppb)**				
RCRA Metals Totals:					
Arsenic	<10	52	<10	<10	25.0
EPA 8021A Volatiles:					
Xylenes (Total)	NT	1.6	<2	<2	5.0
EPA 8270 TCA Semi-Volatiles:					
Di-n-butylphthalate	<50	<5	5.5	6.5	50.0

1. Detections exceeding NYSDEC surface water or groundwater standards are shaded
2. NT = Not tested

HASP APPENDIX C

GUIDANCE ON HEAT STRESS

C&S COMPANIES

C&S Engineers, Inc.

Health & Safety Guideline #15

Heat Stress Control

Table of Contents

C&S ENGINEERS, INC.
HEAT STRESS CONTROL

1.0 PURPOSE
To establish procedures for the implementation and operation of a heat stress prevention, evaluation, and response program.

2.0 SCOPE
Applies to all activity where employees may be exposed to environments exceeding 71 degrees Fahrenheit (WBGT) performing Levels C and B work, and environments exceeding 77 degrees Fahrenheit (WBGT) for Level D work.

3.0 DEFINITIONS
Acclimatization — Acclimatization is the process of the body becoming accustomed to extremes in temperature.

ACGIH TLV 1997 — Heat Stress Threshold Limit Values (TLVs) are intended to protect workers from the severest effects of heat stress and heat injury and to describe exposures to hot working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects. The TLV objective is to prevent the deep body core temperature from exceeding 38°C (100.4°F).

Wet-Bulb Globe Temperature (WBGT) — This is the simplest and most suitable technique to measure the environmental factors associated with heat stress. The value is calculated by using the equations shown in Appendix A.

Work/Rest Regimen — This is a ratio of time spent working versus time spent resting. The ratio applies to one (1) hour periods. For example, a work/rest regiment of 75% work, 25% rest corresponds to 45 minutes work, 15 minutes rest each hour.

4.0 RESPONSIBILITIES
Employees — All employees must be alert to signs of development of symptoms of heat stress in themselves and in those working with them. They must also be aware of emergency corrective action.

Health and Safety Coordinator (HSC) — The HSC is responsible for establishing and enforcing the work/rest regimen to control heat stress.

5.0 GUIDELINES

Acclimatization to heat involves a series of physiological and psychological adjustments that occur in an individual during his/her first week of exposure to hot environmental conditions. The work-rest regimen in this procedure is valid for acclimated workers who are physically fit.

5.1 Effects of Heat Stress

Hot weather can cause physical discomfort, loss of efficiency, and personal injury. Wearing personal protective equipment puts a worker at considerable risk of developing heat stress because protective clothing decreases natural body ventilation. Heat stress is probably one of the most common (and potentially serious) illnesses at hazardous waste sites. Regular monitoring and preventive measures are essential to the health and safety of personnel conducting field work.

Early symptoms of heat stress may include fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement. If not recognized or treated, heat stress may be serious, even fatal.

Heat-related problems include:

1. **Heat Rash** — caused by continuous exposure to hot and humid air and aggravation of the skin by chafing clothes. As well as being a nuisance, this decreases the ability to tolerate heat.

2. **Heat Cramps** — caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.

3. **Heat Exhaustion** — caused by increased stress on various organs to meet increased demands for body cooling. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; fatigue.

4. **Heat Stroke** — the most severe form of heat stress. Heat stroke is considered an Immediately Dangerous to Life or Health (IDLH) condition and as such must be treated as an emergency. Any person suffering from heat stroke must be cooled down immediately and brought to a hospital. Decontamination procedures should not be implemented. Signs and symptoms are: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

   It is important to note that individuals vary in their susceptibility and their reactions to heat-related conditions. Factors that may predispose someone to a heat condition include:

   - Lack of physical fitness
   - Lack of acclimatization
   - Age
   - Dehydration
   - Obesity
   - Alcohol and drug use
   - Infection
   - Sunburn
   - Diarrhea
   - Chronic disease

5.2 First Aid/Medical Treatment

The following first aid and medical treatments are recommended. First aid training is recommended.

1. **Heat Rash** — Apply mild drying lotions and use cool, dry sleeping quarters to allow skin to dry between heat exposures.
2. **Heat Cramps** — Administer commercially-available electrolyte-balanced liquids. Seek medical attention if serious.
3. **Heat Exhaustion** — Remove to cooler environment; rest in reclining position. Drink plenty of fluids.
4. **Heat Stroke** — Immediate and rapid cooling by immersion in chilled water with massage, or wrapping in wet sheet and fanning. These steps are to be taken while waiting for emergency response to arrive, or while transporting the victim to an emergency medical facility. This is a **life-threatening** situation.

5.3 Heat Stress Prevention

One or more of the following will help prevent or reduce heat stress:

1. Drinking water shall be available to employees to encourage frequent small drinks (i.e., one cup every 15-20 minutes {about 150 ml or 1/4 pint}). The water shall be kept reasonably cool (55-60°F) and shall be placed outside the contaminated areas. Employees shall be encouraged to salt their foods and maintain well-balanced diets. If employees are unacclimatized, a commercially available product such as Gatorade or Exceed may be used for electrolyte replacement.
2. Cooling devices may be used to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency.
3. Long cotton underwear should be worn. It acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
4. Provide air-conditioned shelter or shaded areas to protect employees during rest periods.
5. Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
6. Conduct operations in the early morning or evening.
7. Rotate shifts of workers.
8. Add additional employees to work teams.
9. Mandate work slowdowns.
10. Good hygienic standards must be maintained by frequent change of clothing and daily showering. Clothing should be permitted to dry during rest periods.

11. Employees shall be instructed in hot weather procedures. The training program shall include, as a minimum, instruction in:

    a. Proper cooling procedures and appropriate first aid treatment.

    b. Proper clothing practices.

    c. Proper eating and drinking habits.

    d. Recognition of impending heat exhaustion.

    e. Recognition of signs and symptoms of impending heat stroke.

    f. Safe work practices.

5.4 Heat Stress Monitoring

Specific procedures will be established by the HSC and/or in the site specific HASP. Appendices A and B discuss the use of WBGT values.

5.5 Work/Rest Regimen

A work/rest regimen will be established for field work where personnel may be exposed to environments exceeding 77 degrees Fahrenheit (WBGT) for Level D work and environments exceeding 71 degrees Fahrenheit (WBGT) for Levels C and B work. The American Conference of Governmental Industrial Hygienists' TLV Heat Stress Threshold Limit Values will be used as a guideline.

If any heat stress symptoms are identified by the employee or buddy, the HSC should be notified immediately and all work activity should cease until the situation is corrected.

5.6 Biological Monitoring

Always monitor signs and symptoms of heat-stressed employees. When WBGT-TLV criteria are exceeded or water vapor impermeable clothing is worn, discontinue any environmentally-induced or activity-induced heat stress for a person when:

- Sustained heart rate is greater than 160 beats per minute for those under age 35; 140 beats for 35 years of age and older.
- Deep body temperature is more than 100°F.
- Blood pressure falls more than 40 torr in about 3.5 minutes.
- There are complaints of sudden and severe fatigue, nausea, dizziness, lightheadedness, or fainting.
- There are periods of inexplicable irritability, malaise, or flu-like symptoms.
- Sweating stops and the skin becomes hot and dry.
- Daily urinary sodium ion excretion is less than 50 mmoles.

6.0 REFERENCES

ACGIH TLV Booklet, 1997

7.0 ATTACHMENTS

TABLE 1 — Permissible Heat Exposure Threshold Limit Values

APPENDIX A — Wet-Bulb Globe Temperature Index

APPENDIX B — Manual Measurement of WBGT Factors

TABLE 1

PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES

INTENDED CHANGES LISTED

(values are given in °F WBGT)

	WORK LOAD		
Work/Rest Regimen	**Light**	**Moderate**	**Heavy**
Continuous Work	86	80	77
75% Work 25% Rest, Each Hour	87	82.5	79
50% Work 50% Rest, Each Hour	89	85	82.5
25% Work 75% Rest, Each Hour	89.5	88	86

Water vapor impermeable or thermally insulating clothing, encapsulating suits, and similar convective and evaporative barriers can severely restrict heat loss and produce life-threatening heat strain, even when the ambient air temperature, radiant heat, and humidity are low. Whenever employees wear such restrictive clothing, it is essential that extra caution be exercised. Project managers and supervisors must evaluate heat stress conditions at each job site, taking into account specific job activities, protective clothing being used, and WBGT readings.

APPENDIX A

WET-BULB GLOBE TEMPERATURE INDEX

A baseline work-rest regimen is selected using the WBGT procedure. The WBGT in conjunction with the work load required to perform each task is used to determine work-rest regimen. **Light** work examples include such tasks as sitting or standing to control machines or performing light hand or arm work. **Moderate** work includes walking about in coated coveralls and respirators doing moderate lifting and pushing. **Heavy** work corresponds to pick and shovel-type work or the use of full body protective clothing. *It must be assumed that any activity involving this type of clothing will be considered heavy work.*

In order to determine the WBGT the following equations are used:

- Outdoors with solar load:
  WBGT = 0.7 NWB + 0.2 GT + 0.1 DB

- Indoors or outdoors with no solar load:
  WBGT = 0.7 NWB + 0.3 GT

  NWB = Natural Wet-Bulb Temperature
  DB = Dry-Bulb Temperature
  GT = Globe Thermometer Temperature

The factors involved in the above equations can be measured using a direct reading instrument or manually measuring each factor.

- An example of a direct-reading heat stress monitor is the Reuter-Stokes Wibget No. RSS-214 heat stress monitor.

- Measurement of the individual factors requires the following equipment:
  - ~ Dry-bulb thermometer
  - ~ Natural wet-bulb thermometer
  - ~ Globe thermometer
  - ~ Stand

APPENDIX B

MANUAL MEASUREMENT OF WBGT FACTORS

The range of the dry and the natural wet-bulb thermometers shall be -5°C to 50°C with an accuracy of 0.5° C. The dry-bulb thermometer must be shielded from the sun and the other radiant surfaces of the environment without restricting the airflow around the bulb. The wick of the natural wet-bulb thermometer shall be kept wet with distilled water for at least 1/2 hour before the temperature reading is made. It is not enough to immerse the other end of the wick into a reservoir of distilled water and wait until the whole wick becomes wet by capillary action. The wick shall be wetted by direct application of water from a syringe 1/2 hour before each reading. The wick shall extend over the bulb of the thermometer, covering the stem about one additional bulb length. The wick should always be clean and new wicks shall be washed before using.

A globe thermometer, consisting of a 15 cm (6-inch) diameter hollow copper sphere painted on the outside with a matted black finish or equivalent, shall be used. The bulb or sensor of a thermometer (range -5°C to 100 C with an accuracy of 0.5°C) must be fixed in the center of the sphere. The globe thermometer shall be exposed at least 25 minutes before it is read.

A stand shall be used to suspend the three thermometers so that they do not restrict free airflow around the bulbs.

It is permissible to use any other type of temperature sensor that gives a reading identical to that of a mercury thermometer under the same conditions.

The thermometers must be placed so that the readings are representative of the condition where the employees work or rest, respectively. All readings shall be recorded on the site log.

In many cases WBGT is the simplest and most suitable technique to measure heat. However, this system is only valid for light summer clothing. When special personal protective clothing is required for performing a particular job, the worker's heat tolerance is reduced and the permissible heat exposure limits are not applicable because this clothing is heavier, impedes sweat evaporation, and/or has higher insulation value.

HASP APPENDIX D

GUIDANCE ON SITE COMMUNICATIONS

C&S COMPANIES

C&S ENGINEERS, INC.
HEALTH & SAFETY GUIDELINE #13
SITE COMMUNICATIONS

TABLE OF CONTENTS

C&S ENGINEERS, INC.
SITE COMMUNICATIONS

1.0 PURPOSE

This guideline contains information and requirements necessary to make sure field activities are conducted with adequate provision for communications among field personnel and to emergency agencies.

2.0 SCOPE

The guideline applies to all field activities conducted by C&S. Additional provisions for communications will be addressed in each Site-Specific Health and Safety Plan (HASP), as needed. Field communications must be provided not only to make sure field personnel can communicate with one another, but also to contact off-site technical and emergency assistance.

3.0 DEFINITIONS

None

4.0 RESPONSIBILITIES

Employees — All employees are responsible for knowing and using the specified communications to make sure fieldwork is safely completed and/or to respond to emergencies.

Health and Safety Coordinator (HSC) — The HSC is responsible for determining the proper methods of communication required at a particular site; for training site personnel in the use of these communications; and for providing and maintaining the communications as specified.

5.0 GUIDELINES

5.1 On-Site Communications

Each person shall be able to communicate with other personnel at all times. This communication may be via sound (air horn), electronic (two-way radio, bullhorn, etc.), or visual means.

A set of hand signals shall be designated and agreed upon by all personnel at each site activity, for use in case electronic communications fail. The site-specific training shall include explanation of the following standard hand signals:

Signal	Meaning
Hand gripping throat	Out of air; can't breath
Grip partner's wrist or place both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK; I'm all right; I understand
Thumbs down	No; negative

Whichever communication system is selected as a primary system, a backup system must be provided. For example, hand signals may be used as a backup if radio communications fail. All internal systems should be:

- Clearly understood by all personnel
- Checked and practiced daily
- Intrinsically safe (spark-free)

A special set of emergency signals should be set up. These should be:

- Different from ordinary signals
- Brief and exact
- Limited in number so that they are easily remembered

When designing and practicing communication systems, remember that:

- Background noise on site will interfere with talking and listening
- Wearing personal protective equipment will impede hearing and limit vision (i.e., the ability to recognize hand and body signals)
- Inexperienced radio users may need practice in speaking clearly

5.2 Off-Site Communications

Every field task shall provide for off-site communications to be able to contact local emergency agencies. Acceptable methods include mobile telephone, radio (CB, other) on a frequency monitored by emergency agencies; on-site telephone (portable or land-line); or a phone (booth or private home) within one-mile of the site. Where a private home phone is to be used, personnel shall make sure access to the home is guaranteed by the owner. Explicit directions and a map shall be prominently displayed. Adequate change shall be conveniently provided where a phone booth is specified for off-site communications.

6.0 REFERENCES

None

7.0 ATTACHMENTS

None

HASP APPENDIX E

GUIDANCE ON EXCAVATION/TRENCHING OPERATIONS

C&S COMPANIES

C&S ENGINEERS, INC.
HEALTH & SAFETY GUIDELINE #14
EXCAVATION/TRENCHING OPERATIONS

TABLE OF CONTENTS

C&S ENGINEERS, INC.
EXCAVATION/TRENCHING OPERATIONS

1.0 PURPOSE
To establish safe operating procedures for excavation/trenching operations at C&S work sites.

2.0 SCOPE
Applies to all C&S activity where excavation or trenching operations take place.

3.0 DEFINITIONS
Excavation — Any manmade cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth conditions by reasons of the excavation.

Trench — A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet.

4.0 RESPONSIBILITY
Employees — All employees must understand and follow the procedures outlined in this guideline during all excavation and trenching operations.

Health and Safety Coordinator (HSC) - The HSC is responsible for ensuring that these procedures are implemented at each work site.

5.0 GUIDELINES
5.1 Hazards Associated With Excavation/Trenching
The principal hazards associated with excavation/trenching are:

- Suffocation, crushing, or other injury from falling material.
- Damage/failure of installed underground services and consequent hazards.
- Tripping, slipping, or falling.
- Possibility of explosive, flammable, toxic, or oxygen-deficient atmosphere in excavation.

5.2 Procedures Prior to Excavation
1. Underground utilities

- Determine the presence and location of any underground chemical or utility pipes, electrical, telephone, or instrument wire or cables.
- Identify the location of underground services by stakes or markers.
- De-energize or isolate underground services during excavation. If not possible, or if location is not definite, method of excavation shall be established to minimize hazards by such means as:
  1) Use of hand tools in area of underground services.
  2) Insulating personnel and equipment from possible electrical contact.
  3) Use of tools or equipment that will reduce possibility of damage to underground services and hazard to worker.

2. Identify Excavation Area — Areas to be excavated shall be identified and segregated by means of barricades, ropes, and/or signs to prevent access of unauthorized personnel and equipment. Suitable means shall be provided to make barriers visible at all times.

3. Surface Water Provide means of diverting surface water from excavation.

4. Shoring/Bracing — Shoring or bracing that may be required for installed equipment adjacent to the excavation shall be designed by a competent person.

5. Structural Ramps — Structural ramps that are used solely by employees as a means of access to or egress from the excavation shall be designed by a competent person.

5.3 Procedures For Doing The Excavation

1. **Determine the need for shoring/sloping** — the type of soil will establish the need for shoring, slope of the excavation, support systems, and equipment to be used. The soil condition may change as the excavation proceeds. Appendices A, B, C, D, E, and F of the OSHA Excavation Regulation, 29 CFR 1926 Subpart P (Attachment 1), are to be used in defining shoring and sloping requirements.

2. **Mobile equipment** — For safe use of mobile industrial equipment in or near the excavation, the load carrying capacity of soil shall be established and suitable protection against collapse of soil provided by the use of mats, barricades, restricting the location of equipment, or shoring.

3. Excavated material (spoil) shall be stored at least two (2) feet from the edge of the excavation.

4. All trench (vertical sides) excavations greater than five (5) feet deep shall be shored.

5. Ladders or other means of access to or egress from excavations shall be provided at a maximum spacing of:

   1) 100 feet on the perimeter of open excavations, and

2) 25 feet for trench excavations greater than four (4) feet in depth.

6. The excavation shall be inspected daily for changes in conditions, including the presence of ground water, change in soil condition, or effects of weather such as rain or freeze. A safe means of continuing the work shall be established based on changes in condition.

7. Appropriate monitoring for gas, toxic, or flammable materials will be conducted to establish the need for respiratory equipment, ventilation, or other measures required to continue the excavation safely.

8. Adequate means of dewatering the excavation shall be provided as required.

9. A signal person shall be provided to direct powered equipment if working in the excavation with other personnel.

10. A signal person shall be provided when backfilling excavations to direct powered equipment working in the excavation with other personnel.

11. Warning vests will be worn when employees are exposed to public vehicular traffic.

12. Employees shall stand away from vehicles being loaded or unloaded, and shall not be permitted underneath loads handled by lifting or dragging equipment.

13. Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available if hazardous atmospheric conditions exist or may be expected to develop. The specifics will be determined by the HSC/HSM.

14. Walkways or bridges with standard guardrail shall be provided where employees or equipment are required or permitted to cross over excavations.

5.4 Entering the Excavation

No C&S Engineers employee shall enter an excavation which fails to meet the requirements of Section 5.3 of this guideline.

6.0 REFERENCES

29 CFR 1926, Subpart P - Excavations

7.0 ATTACHMENTS

None

HASP APPENDIX F

GUIDANCE ON INCIDENT INVESTIGATION AND REPORTING

C&S COMPANIES

C&S ENGINEERS, INC.
HEALTH & SAFETY GUIDELINE #2
INCIDENT INVESTIGATION & REPORTING

TABLE OF CONTENTS

C&S ENGINEERS, INC.
INCIDENT INVESTIGATION AND REPORTING

1.0 PURPOSE

To prevent the occurrence or reoccurrence of accidents on C&S Engineers work sites and to establish a procedure for investigation and reporting of incidents occurring in, or related to C&S Engineers' work activities.

2.0 SCOPE

Applies to all incidents related to C&S Engineers' work activities.

3.0 DEFINITIONS

Accident - An undesired event resulting in personal injury and/or property damage, and/or equipment failure.

Fatality - An injury resulting in death of the individual.

Incident - Any occurrence which results in, or could potentially result in, the need for medical care or property damage. Such incidents shall include lost time accidents or illness, medical treatment cases, unplanned exposure to toxic materials or any other significant occurrence resulting in property damage or in "near misses."

Incidence Rate - the number of injuries, illnesses, or lost workdays related to a common exposure base of 100 full-time workers. The rate is calculated as:

$$N/EH \times 200,000$$

N = number of injuries and illnesses or lost workday cases; EH = total hours worked by all associates during calendar year. 200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

Injury - An injury such as a cut, fracture, sprain, amputation, etc. which results from a work accident or from a single instantaneous event in the work environment.

Lost Workday Case - A lost workday case occurs when an injured or ill employee experiences days away from work beginning with the next scheduled work day. Lost workday cases do not occur unless the employee is effected beyond the day of injury or onset of illness.

Recordable Illness - An illness that results from the course of employment and must be entered on the OSHA 200 Log and Summary of Occupational Injuries and Illnesses. These illnesses require medical treatment and evaluation of work related injury. For example, dermatitis, bronchitis, irritation of eyes, nose, and throat can result from work and non-work related incidents.

Recordable Injury - An injury that results from the course of employment must be entered on the OSHA 200 Log and Summary of Occupational Injuries and Illnesses (the "OSHA 200 Log"). These injuries require medical treatment; may involve loss of consciousness; may result in restriction of work or motion or transfer to another job; or result in a fatality.

Near Miss - An incident which, if occurring at a different time or in a different personnel or equipment configuration, would have resulted in an incident.

4.0 RESPONSIBILITIES

Employees - It shall be the responsibility of all C&S Engineers employees to report all incidents as soon as possible to the HSC, regardless of the severity.

Human Resources - Has overall responsibility for maintaining accident/incident reporting and investigations according to current regulations and recording injuries/illness on the OSHA 200 Log.

Health and Safety Coordinator (HSC) - It is the responsibility of the HSC to investigate and prepare an appropriate report of all accidents, illnesses, and incidents occurring on or related to C&S work. The HSC shall complete Attachment A within 24 hours of the incident occurrence.

Health and Safety Manager (HSM) - It is the responsibility of the HSM to investigate and prepare an appropriate report of all lost time injuries and illnesses and significant incidents occurring on C&S's property or related to C&S work. The HSM shall maintain the OSHA 200 Log.

Project Managers (PM) - It shall be the PM's responsibility to promptly correct any deficiencies in personnel, training, actions, or any site or equipment deficiencies that were determined to cause or contribute to the incident investigated.

5.0 GUIDELINES

5.1 Incident Investigation

The HSC will immediately investigate the circumstances surrounding the incident and will make recommendations to prevent reoccurrence. The HSM shall be immediately notified by telephone if a serious accident/incident occurs. The incident shall be evaluated to determine whether it is OSHA recordable. If the incident is determined to be OSHA 200 recordable, it shall be entered on the OSHA 200 Log.

The following minimum information should be gathered in an accident investigation.

- Where and when the accident occurred
- Who and what were involved, operating personnel and witnesses
- How the accident or illness exposure occurred
- List of objects or substances involved
- The nature of the injury or illness and the part(s) of the body affected
- Discussion of the causes, and recommendations for prevention of recurrence.

5.2 Incident Report

The completed incident report must be completed by the HSC within 24 hours of the incident and distributed to the PM, HSM, and Human Resources. This form shall be maintained by Human Resources for at least five years for all OSHA recordable cases. This form serves as an equivalent to the OSHA 101 Supplementary Record of Occupational Injuries and Illnesses.

5.3 Incident Follow-up Report

The Incident Follow-up Report (Attachment B) shall be distributed with the Incident Report within one week of the incident. Delay in filing this report shall be explained in a brief memorandum.

5.4 Reporting of Fatalities or Multiple Hospitalization Accidents

Fatalities or accidents resulting in the hospitalization of five or more employees must be reported to OSHA verbally or in writing within 48 hours. The report must contain: 1) circumstances surrounding the accident(s); 2) the number of fatalities; and 3) the extent of any injuries.

5.5 OSHA 200 Summary Form

Recordable cases must be entered on the log within six workdays of receipt of the information that a recordable case has occurred. The OSHA log must be kept updated to within 45 calendar days.

OSHA 200 forms must be updated during the 5 year retention period, if there is a change in the extent or outcome of an injury or illness which affects an entry on a log. If a change is necessary, the original entry should be lined out and a corrected entry made on that log. New entries should be made for previously unrecorded cases that are discovered or for cases that initially weren't recorded but were found to be recordable after the end of the year. Log totals should also be modified to reflect these changes.

5.5.1 Posting

The log must be summarized at the end of the calendar year and the summary must be posted from February 1 through March 1.

5.6 OSHA 200S

Facilities selected by the Bureau of Labor Statistics (BLS) to participate in surveys of occupational injuries and illnesses will receive the OSHA 200S. The data from the annual summary on the OSHA 200 Log should be transferred to the OSHA 200S, other requested information provided and the form returned as instructed by the BLS.

5.7 Access to OSHA Records

All OSHA records (accident reporting forms and OSHA 200 log) shall be available for inspection and copying by authorized federal and state government officials.

Employees, former employees, and their representatives must be given access for inspection and copying to only the log, OSHA 200 Log, for the establishment in which the employee currently works or formerly worked.

6.0 REFERENCES

29 CFR Part 1904

7.0 ATTACHMENTS

Attachment A - Incident Investigation Form

Attachment B – Incident follow-up report

Attachment C – Establishing Recordability

ATTACHMENT A

INCIDENT INVESTIGATION FORM

Accident investigation should include:

Location

Time of Day

Accident Type

Victim

Nature of Injury

Released Injury

Hazardous Material

Unsafe Acts

Unsafe Conditions

Policies, Decisions

Personal Factors

Environmental Factors

ATTACHMENT B

INCIDENT FOLLOW-UP REPORT

Date _____

Date of Incident: _____

Site: _____

Brief description of incident: _____

_____

Outcome of incident: _____

_____

_____

_____

_____

_____

Physician's recommendations: _____

_____

_____

_____

Date the injured employee returned to work:_____

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

ATTACHMENT C

ESTABLISHING RECORDABILITY

1. Deciding whether to record a case and how to classify the case.

   Determine whether a fatality, injury or illness is recordable.

   A fatality is recordable if:
   - results from employment

   An injury is recordable if:
   - results from employment and
   - it requires medical treatment beyond first aid or
   - results in restricted work activity or
   - results in lost work day

   An illness is recordable if
   - it results from employment

2. **Definition of "Resulting from Employment"**
   Resulting from employment is when the injury or illness results from an event or exposure in the work environment. The work environment is primarily composed of: 1) The employer's premises, and 2) other locations where associates are engaged in work-related activities or are present as a condition of their employment.

   The employer's premises include company rest rooms, hallways, and cafeterias. Injuries occurring in these places are generally considered work related.

   The employer's premises EXCLUDES employer controlled ball fields, tennis courts, golf courses, parks, swimming pools, gyms, and other similar recreational facilities used by associates on a voluntary basis for their own benefit, primarily during off work hours.

   Company parking facilities are generally not considered part of the employer's premises for OSHA recordkeeping purposes. Therefore, injuries to associates on these parking lots are not presumed to be work related, and are not recordable unless the associate was engaged in some work related activity.

Associates who travel on company business are considered to be engaged in work related activities all the time they spend in the interest of the company. This includes travel to and from customer contacts, and entertaining or being entertained for purpose of promoting or discussing business. Incidents occurring during normal living activities (eating, sleeping, recreation) or if the associate deviates from a reasonably direct route of travel are not considered OSHA recordable.

3. **Distinction between Medical Treatment and First Aid.**

First aid is defined as any one-time treatment, and any follow up visit for the purpose of observation, of minor scratches, cuts, burns, splinters, etc., which do not ordinarily require medical care. Such one time treatment, and follow up visit for the purpose of observation, is considered first aid even though provided by a physician or registered professional personnel.

Injuries are not minor if

a) They must be treated only by a physician or licensed medical personnel;

b) They impair bodily function (i.e. normal use of senses, limbs, etc.)

c) They result in damage to physical structure of a non superficial nature (fractures)

d) They involve complications requiring follow up medical treatment.

APPENDIX C

Technical Specifications
for Tank Demolition and Removal

C&S COMPANIES

SECTION 02115

STORAGE TANK DEMOLITION AND REMOVAL

PART 1 GENERAL

1.1 SUMMARY

A. Section includes demolition and removal from the site of aboveground and underground storage tanks, aboveground and accessible underground piping, and aboveground piping supports. Tanks to be demolished and removed from the site are identified on attached Figure 1 and are described below.

Tank ID	Description
Tank No. 5	1,050,000 gallon steel AST, contained asphalt
Tank No. 6	1,050,000 gallon steel AST, contained asphalt
Tank No. 7	1,050,000 gallon steel AST, contained asphalt
Tank No. 8	1,050,000 gallon steel AST, contained asphalt
Tank No. 9	21,000 gallon steel AST on rack, contained asphalt
Tank No. 10	21,000 gallon steel AST on rack, contained asphalt
Boiler House A	1,000 gallon (est.) steel horizontal AST – unknown usage
Boiler House B	5,000 - 6,000 gallon (est.) horizontal steel AST – unknown usage
Boiler House C	8,000 - 9,000 gallon (est.) rectangular steel AST – unknown usage
Boiler House D	UST - reportedly 3, 000 gallon fuel oil

B. Lump Sum Project Cost Includes:

1. Preparation and submittal of project submittals.

2. Demolition, removal from the site, and proper disposal of aboveground and underground storage tanks, aboveground and accessible underground piping, and aboveground piping supports, as indicated in this Section.

3. Laboratory analytical costs required by disposal facilities for proper dispensation of waste materials.

4. All equipment, supplies, and direct expenses required for completion of the work, including wash water and rinse water.

C. Unit Price Cost Items Consist Of:

1. Disposal of sludges or product residuals from tank interiors:

a. Basis of Measurement: Gallons of liquid or tons of solid materials.

b. Basis of Payment: By gallon (liquids) or ton (solids).

Volumes of liquid tank residuals will be reduced for the quantities of clean wash water or rinse water utilized by the Contractor, if that wash water or rinse water is mixed with the liquids being disposed.

2. Removal and Disposal of Contaminated Soil Associated with the UST (Boilerhouse D)
   a. Basis of Measurement: Tons of contaminated soil identified by the Engineer for removal and disposal.
   b. Basis of Payment: Includes removal, disposal, transportation and replacement of contaminated soil with clean fill.

1.2 REFERENCES

A. American Petroleum Institute Publications:

1. API 1604 - Removal and Disposal of Used Underground Petroleum Storage Tanks.

B. National Fire Protection Association:

1. NFPA 241- Safeguarding Construction, Alteration and Demolition Operations.

1.3 SUBMITTALS

A. Certificates: Submit certificates demonstrating that each of the on-site employees of the tank removal company possesses current training for Health and Safety at Hazardous Waste Operations in accordance with 29 CFR 1910.120.

B. Storm Water Pollution Prevention Plan (SWPP) and Health and Safety Plan (HASP) meeting the minimum regulatory requirements for these documents.

C. Disposal Records: Submit documentation satisfactory to Owner, attesting to final and legal disposal of waste materials removed from site.
   1. Tank contents.
   2. Tank sludge.
   3. Tank flush and wash water.
   4. Contaminated soil.
   5. Tank materials.
   6. Piping and piping supports.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of tank removal, capped piping, and electrical services.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with the following:
   1. United States Environmental Protection Agency.
   2. New York State Department of Environmental Conservation.
   3. Occupational Safety and Health Association

B. Perform Work in accordance with New York State Public Work's standard.

1.6 QUALIFICATIONS

A. Tank Removal Company: Company specializing in performing work of this section with minimum three years documented experience.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Comply with local, state, and federal regulations applicable to the work of the Contract.

B. Prevent surface runoff from entering excavations.

C. Prevent erosion of soil stockpiles to prevent spreading contamination.

1.8 COORDINATION

A. Coordinate tank removal work with Owner or his on-site representative.

PART 2 PRODUCTS

2.1 BACKFILL AND COVER MATERIALS

A. Soil Backfill: Subsoil with no rocks over 6 inches in diameter, frozen earth or foreign matter.

2.2 ACCESSORIES

A. Plastic: Provide and apply plastic sheeting of a minimum 9-mil thickness to cover any soil stockpile that will remain in place overnight or for any extended period.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify location of underground tank to be removed.

3.2 PREPARATION

A. Notify regulating agencies regarding tank removal activities.

B. Obtain licenses, permits, and inspections required for tank removal and disposal.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Mark location of utilities.

3.3 UST EXCAVATION

A. Remove cover over tank including concrete, macadam, and soil, as needed to facilitate tank removal.

B. Stockpile removed soil.

C. Stockpile soil exhibiting potential contamination, separate from uncontaminated soil.

D. Store contaminated soil on plastic and cover with plastic until soil testing and analysis is complete.

3.4 STORAGE TANK DECOMMISSIONING AND REMOVAL

A. Pump out product residuals and sludge into storage tanks or tanker transport in accordance with regulatory agency requirements.

B. Remove tank fixtures. Maintain vent line until tank is purged.

C. Carefully drain piping completely into tank to avoid spillage to excavation area. Disconnect product piping from tank.

D. Remove piping runs.

E. Purge tank of flammable vapors in accordance with API 1604.

F. After purging tanks, remove sludge or product residuals and legally dispose.

G. Remove tanks and accessories and legally dispose. Tanks may be cut or crushed to facilitate removal and disposal.

H. For UST: Provide imported soil backfill materials to replace contaminated soil and to complete backfilling.

3.5 WASTE DISPOSAL

A. Collect waste from construction area daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris.

B. Remove debris, rubbish, and other materials resulting from tank removal operations. Transport and legally dispose off-site.
   1. When hazardous materials are encountered during tank removal operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
   2. Burning of removed materials is not permitted on project site.
   3. Properly ventilate storage tanks to abate explosion possibility during disposal handling.
   4. Pay for required weighing and measuring fees and charges to legally dispose waste materials off-site.

C. Remove contaminated soil, as identified by the Engineer, and legally dispose off-site.

D. Stockpile uncontaminated subsoil in area designated on site and protect from erosion.

3.6 FIELD QUALITY CONTROL

Visually inspect soil for possible contamination. Inform Engineer if possible contamination is discovered. Collection and analysis of soil samples to determine soil to be removed as contaminated is the responsibility of the Engineer.

END OF SECTION

APPENDIX D

Letter Report on Previous Site Sampling and Analysis

C&S COMPANIES

C&S COMPANIES
ENGINEERS
DESIGN BUILD
TECHNICAL RESOURCES
OPERATIONS

C&S Engineers, Inc.
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January 21, 2002

Mr. Patrick DiDomenico, Supervisor
Town of Clay
Town Hall
4483 Route 31
Clay, New York 13041-8760

Re: Former CIBRO Facility
Preliminary Site Investigation

File: 195.690.001

Dear Mr. DiDomenico:

This letter provides the results of preliminary site investigation activities conducted by C&S Engineers, Inc. (C&S) for the former CIBRO facility, located on Maider Road in the Town of Clay. These activities were conducted to provide the Town of Clay with preliminary data to assess the extent of potential environmental impacts associated with the past use of the site by CIBRO. Our preliminary investigation focused on the approximately 9.5 acre portion of the 63 acre site where asphalt and fuel oil commerce were formerly conducted, and included:

- Research into the regulatory history of the property – C&S submitted requests for information under the Freedom of Information Law (FOIL) to the Onondaga County and New York State Departments of Health, and to several offices within the NYSDEC. After receiving response from these agencies, C&S visited the offices and reviewed the available files regarding the CIBRO site.

- Site Reconnaissance – C&S engineers and scientists studied aerial photos and visited the site to identify the locations of existing and past site features and to identify areas of potential environmental concern.

- Test Pitting and Media Sampling – A C&S geologist and engineer were on site for excavation of a series of test pits and collected representative soil, groundwater, and surface water samples to facilitate preparation of a preliminary scope of work and cost estimate for remediating the site.

To complement a preliminary estimate of likely costs for soil and water remediation at the site, we solicited the help of Sabre Demolition Corporation (Sabre) of Baldwinsville,

New York. Sabre visited the site and prepared an estimate of likely costs for demolishing structures (buildings, tanks, drainage structures, pavements, etc.) at the site.

FOIL Requests for Site Information

Pursuant to a site-specific request from C&S, NYSDEC Office of Spill Prevention and Control, NYSDEC Office of Enforcement, and NYSDOH provided files regarding the CIBRO site. The files provided an indication of the regulatory background of the site, with the following points of interest or concern:

- Between 5/87 and 10/99, at least seven spills were reported to the NYSDEC for the site: three for unknown petroleum releases; two tank test failures; one tank failure; and one for petroleum on the ground. All were closed except for #9502212 for which there was a recommendation for a $25,000 fine and no closure. In a July 14, 1997 letter, DEC Acting General Counsel recommended this spill be prosecuted to recover funds.
- There was a proceeding associated with claims of a neighbor, Mr. Harold Zender, who claimed his basement was impacted by discharges from CIBRO. NYSDEC and CIBRO's engineer collected split samples of a liquid in Zender's basement. Low levels of SVOCs were detected. NYSDOH concluded that there was not sufficient evidence of contamination to require relocation of Zenders.
- During investigation of Spill # 9502212, discussed above, DEC and DOH observed asbestos pipe insulation being unsafely handled and potentially released to the environment by a CIBRO site contractor. Burning petroleum product was also observed at the site.
- NYSDOH conducted indoor air quality sampling in the Louis Badore home (neighbor) in 1995 after Badore complained about emissions from the site. Results showed low levels of "Chrysotile" (asbestos) detected in one inside and two outside air samples and in one inside and two outside wipe samples.

Site Reconnaissance

C&S utilized several site visits to identify areas of interest or concern where test pitting might provide useful observations and data. The existing monitoring wells were located, the approximate positions of previously existing structures were determined and a photo log was compiled. To assist in this effort, several aerial photos showing the site in the past, as well as the boring logs for the site monitoring wells, were reviewed.

C&S COMPANIES

Test Pitting and Media Sampling

The Town of Clay provided a backhoe and operator for one day of test-pitting at the site. On October 25, 2001, eighteen test pits were excavated. A C&S geologist coordinated the test pitting, observing:

- Surface conditions indicative of past asphalt or fuel oil releases;
- Soil types and thicknesses, including imported fill materials; and
- The presence or absence of odors or staining that might indicate obvious or suspected contamination.

C&S screened the headspace of representative samples with a photoionization detector (PID) for the presence of volatile vapors. Based on this screening, and the objective of gaining a typical chemical profile for a variety of conditions observed, C&S selected and prepared samples for laboratory analysis (Table 1).

Along with the above soil investigation, C&S located, inspected and gauged the five site groundwater monitoring wells. Groundwater samples were collected from the two downgradient wells closest to the neighboring residential properties (MW-4 and MW-5). Two surface water samples were collected to provide data relevant to the potential need for including groundwater or surface water treatment as elements of a future remediation scenario.

Soil and water samples were submitted to Life Science Laboratories for analysis of TCL volatile and semivolatile organic compounds (VOCs and SVOCs), PCBs, and the eight RCRA metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury).

Table 1 provides a summary of the laboratory samples collected. Tables 2 and 3 provide summaries of the laboratory results for detected constituents in the samples. Attachment A provides the complete laboratory data reports for the samples.

Site Characterization and Interpretation of Analytical Results

Evidence of surface contamination by asphalt and fuel oil at the site is widespread. Soil samples for laboratory analysis were collected from native soils (described as MEDIUM SAND and SILT) which are generally overlain at the site by one to as many as five feet, of imported granular fill materials. On the asphalt tank (eastern) side of the property, little evidence of contamination was observed in the soils beneath the granular fill. Three areas of observed impacts in soils beneath the granular fill were observed in the central and northern site areas:

- Obvious fuel oil impacts were observed within the soils at test pit TP-6, located west of the boiler house. Based on this observation, test pits TP-7, TP-8A, and TP-8B

were advanced in areas around TP-6, and the impacts were not observed in soils beneath the granular fill at those locations;

- Obvious fuel oil impacts were observed within the soils at test pit TP-9, located north of previously existing Fuel Oil Tank #2. Test pits TP-10 and TP-11 were advanced in areas around TP-9, and the impacts were not observed in the soils beneath the granular fill at those locations; and
- An extensive area of obvious gasoline contamination was observed in the grassy area north of the Garage. In this area, test pits TP-13, TP-14, TP-15, and TP-16 all exhibited elevated PID readings and gasoline-like odors at depths from just beneath the ground surface to five feet (assumed to be approximately the level of groundwater). Soil sample TP-16 was collected to represent the soils in this area. Surface water sample SW-2 was collected from the former pump house located in the drainage swale just east of the suspected gasoline-impacted materials.

Based on site observations and analytical results, except for the gasoline-related release, the majority of the obviously contaminated materials at the site are within the granular fill materials which cover the surface of the site to a depth of one to two feet.

There were no PCBs detected in the soil and water samples collected during this preliminary excavation. The concentrations of the eight RCRA metals were generally consistent with typical background levels and did not indicate additional areas requiring remediation or additional remedial measures required based on these parameters. In addition, the data generated during this investigation do not indicate significant groundwater or surface water impacts at the site.

Projected Remedial Scope and Estimated Costs for Remedial Actions

For estimating the potential cost for remediating the site for future use within a park, two scenarios were investigated:

- Remediation Scenario Number 1 would remove only visibly or olfactorily contaminated granular fill and native subsurface soils. Remaining granular fill materials would be re-used on–site in an area (such as a parking lot), where future contact with these materials would be limited. This scenario assumes 50% disposal and 50% re-use of granular fills, and that native soils over approximately 10% of the site will require excavation and off-site disposal to a depth of approximately 5 feet below the ground surface (assumed to be the dry season water table).

- Remediation Scenario Number 2 would remove all granular fill materials and assumes a more stringent clean-up objective leading to removal of a greater amount of native subsurface soils. This scenario assumes that the entire site would be used for areas where future contact with the soils would be likely (picnic areas,

playgrounds, etc.). Scenario Number 2 assumes excavation and disposal of 100% of the granular fills. This scenario assumes that native soils over approximately 20% of the site will require excavation and off-site disposal to a depth of approximately 5 feet below the ground surface (assumed to be the dry season water table).

Both of the above scenarios include excavation of "hot spots" as well as some expected excavation along the abandoned pipeline to the railroad spur (not investigated during these activities), and the gasoline release area discovered during this investigation. The scenarios differ in the "safety factor" required, based on the expected future uses of the 9.5 acre portion of this 63-acre site, where past commerce of asphalt and fuel oil occurred.

Table 4 provides the C&S estimate of probable costs of soil remediation and demolition of site structures under the two scenarios described above. Costs are included for administering these remediation scenarios under the New York State Brownfield Program. Table 4 also includes a statement of the assumptions used in preparing this cost estimate.

The current New York State Brownfield Program provides 75% cost sharing for eligible costs associated with investigation and remediation of an eligible site. The local share would be 25% of eligible costs as well as all ineligible costs. Attachment B provides a copy of NYSDEC's July 1997 ***Questions and Answers Booklet*** for environmental restoration projects under the Brownfield program. Page 5 of this booklet includes a discussion of the types of costs that are not eligible for State reimbursement. Attachment C provides a summary of proposed amendments to the program. Among other changes, these amendments would alter the cost sharing percentages to 90% State and 10% local, as well as allow for other grant funding to offset the local cost.

We appreciate the opportunity to assist the Town of Clay with this site. Please contact the undersigned at (315) 455-2000 if you have any questions or require additional information.

Sincerely,

C&S ENGINEERS, INC.

Robert M. Palladine, P.E.
Environmental Service Group Manager

Doug Wickman, P.E.
Engineering Manager

cc: Clay Town Board (7 copies)

TABLE 1
CIBRO FACILITY – TOWN OF CLAY
PRELIMINARY SITE INVESTIGATION

SUMMARY OF LABORATORY SAMPLE LOCATIONS

SAMPLE I.D.	MEDIA	SAMPLE LOCATION AND DESCRIPTION
SW-1	Surface Water	Surface water collected within truck scales (approximately 20,000 gallons)
SW-2	Surface Water	Surface water collected from the former pump house located in swale east of gasoline-impacted area
MW-4	Groundwater	Groundwater from downgradient well between site and river
MW-5	Groundwater	Groundwater from downgradient well between site and residences
TP-1,2,3	Soil	Composite soil sample from three test pits in asphalt tank area (no observed impacts)
TP-5	Soil	Soil from between former Fuel Oil Tanks 3 and 4 (no observed impacts)
TP-6	Soil	Soils near suspected fuel oil impacted area west of the boiler house (minimal observed impacts)
TP-10	Soil	Soils near suspected fuel oil impacted area north of former Fuel Oil Tank 2 (minimal observed impacts)
TP-16	Soil	Soils from suspected gasoline impacted area north of garage (sample exhibited gross impacts)
TP-18	Soil	Soils from northwest of former Fuel Oil Tank 1 (no observed impacts)

Notes: Impacted surface materials noted over much of site. Soil samples were collected from native soils beneath one to as many as five feet of imported granular fills.

Table 2
CIBRO FACILITY, Town of Clay
Preliminary Site Investigation
Summary of Laboratory Analytical Data - Soil
Page 1 of 2

Sample I.D.	TP-1,2,3	TP-5	TP-6	TP-10	TP-16	TP-18	TAGM 4046 Recommended Soil Cleanup Objective (ppm)
Date Sampled	*10/25/01*	*10/25/01*	*10/25/01*	*10/25/01*	*10/25/01*	*10/25/01*	
Parameter	**Sample Concentration (mg/kg or ppm)**						
RCRA Metals Totals:							
Arsenic	<8	<8	4.5	4.9	4.7	3.9	7.5 or SB
Barium	38	21	26	39	56	38	300 or SB
Cadmium	0.83	1.1	0.96	1	1	<0.8	1.0 or SB
Chromium	7.8	7.6	6.1	9.5	9	6.9	10.0 or SB
Lead	12	17	8.1	6.2	39	5.2	SB*
EPA 8270 TCA Semi-Volatiles:							
Acenaphthene	<0.2	<0.2	0.21	<0.2	<2	<0.2	50.0
Di-n-butylphthalate	<0.2	<0.2	<0.2	<0.2	<2	<0.2	8.1
Fluorene	<0.2	<0.2	0.49	<0.2	<2	<0.2	50.0
2-Methylnaphthalene	<0.2	<0.2	<0.2	<0.2	18	<0.2	36.4
Naphthalene	<0.2	<0.2	<0.2	<0.2	29	<0.2	13.0
Phenanthrene	<0.2	<0.2	0.82	<0.2	<2	<0.2	50.0

1. Detections exceeding Recommended Soil Cleanup Objective from NYSDEC TAGM 4046 are shaded
2. SB = site background

* Background levels for lead differ widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan areas or near highways are much higher and typically range from 200 -500 ppm.

Table 2
CIBRO FACILITY, Town of Clay
Preliminary Site Investigation
Summary of Laboratory Analytical Data - Soil

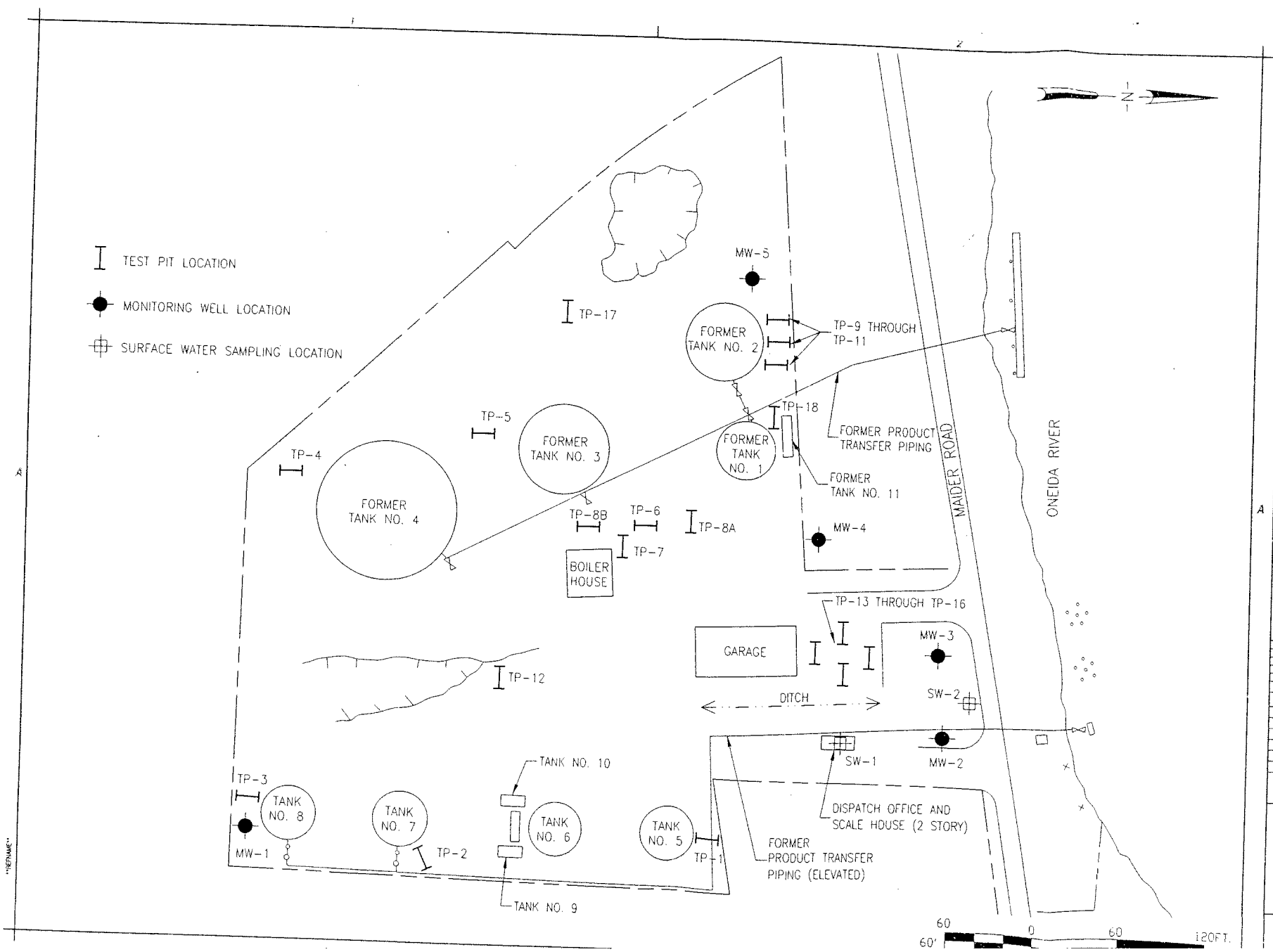
Sample I.D. / *Date Sampled*	TP-1,2,3 *10/25/01*	TP-5 *10/25/01*	TP-6 *10/25/01*	TP-10 *10/25/01*	TP-16 *10/25/01*	TP-18 *10/25/01*	TAGM 4046 Recommended Soil Cleanup Objective (ppb)
Parameter	**Sample Concentration (ug/kg or ppb)**						
EPA 8021A Volatiles:							
Benzene	<5	<5	<20	<5	84,000	<5	60
n-Butylbenzene	<5	<5	<20	<5	27,000	<5	18,000
sec-Butylbenzene	<5	<5	87	<5	10,000	<5	25,000
Ethyl benzene	<5	<5	<20	<5	280,000	<5	5,500
Isopropylbenzene (Cumene)	<5	<5	<20	<5	26,000	<5	NA
4-Isopropyl toluene (Cymene)	<5	<5	<20	<5	9,300	<5	10,000
Naphthalene	<5	<5	25	<5	93,000	<5	13,000
n-Propylbenzene	<5	<5	<20	<5	75,000	<5	14,000
Toluene	<5	<5	<20	<5	360,000	<5	1,500
1,2,4-Trimethylbenzene	<5	<5	<20	<5	520,000	<5	13,000
1,3,5-Trimethylbenzene	<5	<5	<20	<5	250,000	<5	3,300
Xylenes (total)	<5	<5	<20	<5	1,200,000	<5	1,200
MTBE	<5	<5	<20	<5	4,500	<5	120

1. Detections exceeding Recommended Soil Cleanup Objective from NYSDEC TAGM 4046 are shaded

Table 3
CIBRO FACILITY, Town of Clay
Preliminary Site Investigation
Summary of Laboratory Analytical Data - Surface Water and Groundwater

Sample I.D. *Date Sampled*	**SW-1** *10/25/01*	**SW-2** *10/25/01*	**MW-4** *10/25/01*	**MW-5** *10/25/01*	**Class GA Groundwater Standards/Guidance (ug/l or ppb)**
Parameter	**Sample Concentration (ug/l or ppb)**				
RCRA Metals Totals:					
Arsenic	<10	52	<10	<10	25.0
EPA 8021A Volatiles:					
Xylenes (Total)	NT	1.6	<2	<2	5.0
EPA 8270 TCA Semi-Volatiles:					
Di-n-butylphthalate	<50	<5	5.5	6.5	50.0

1. Detections exceeding NYSDEC surface water or groundwater standards are shaded
2. NT = Not tested



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Syracuse, New York 13212
Phone 315-455-2000
Fax 315-455-9667
www.cscos.com

CIBRO THREE RIVERS BULK TERMINAL
CLAY, NEW YORK

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO:	195.660.001
DATE:	NOVEMBER, 2001
SCALE:	1" = 60'
DRAWN BY:	BBB
DESIGNED BY:	
CHECKED BY:	

APPENDIX E

NYSDEC's Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports

C&S COMPANIES

Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)

I. General Discussion

A. Data Quality Assurance/Quality Control: A separate Quality Assurance Project Plan (QAPjP) is not required when the following quality assurance points are included in the Work Plan:

1. Project description and project goals - Include the site environmental history and project goals.

2. Project organization - Include designation of the Project Manager, Quality Assurance Officer and Field Analyst, if field analysis is planned. These resumes must be included as a Work Plan Appendix.

3. Sampling procedure and equipment decontamination procedures - Include a sampling chart that specifies the sample matrix, number of samples, analysis methods and data reporting level. EPA or Department Analytical Services Protocol (ASP) methods are acceptable. Also include a site map that shows proposed sampling sites and previous sampling locations and results.

4. Proposed laboratory - The proposed laboratory must be identified in the Work Plan and it must be NYSDOH ELAP-certified for the planned laboratory analyses. Ten (10) percent of field screening analyses are to be confirmed by an ELAP certified laboratory. In most cases, the investigation and cleanup confirmation sample analysis reporting level will be DEC ASP Category B deliverables in order to fully evaluate and document the project. This reporting level gives the necessary documentation that will be reviewed to evaluate the usability of the data. It also gives calibration data needed to verify "not-detected" analytes that are possible compounds of concern, as indicated by site history or previous screening level data. Detection limits must be low enough to be compared to applicable standards.

   When Category B deliverables are required, the laboratory must be NYSDOH ELAP CLP-certified, since the CLP certification program evaluates the proficiency of the laboratory in the quality control parameters required by the analytical methods and the reporting format for the Category B deliverables package. For sites where the Department already has valid and usable investigative data verified by Category B deliverables, intermediate samples (SPDES, interim remedial measures, construction, and operation and maintenance samples) usually only require a standard, one page analysis report done by an ELAP-certified laboratory.

5. Standard Operating Procedures (SOPs) - Include SOPs for well construction, sample collection, decontamination procedures, field instruments and field screening methods.

6. Data validation - While not required, the data should be evaluated according to the Division of Environmental Remediation (DER) Data Usability Summary Report (DUSR) guidelines.

II. Data Usability Summary Reports

A. Background: The Data Usability Summary Report (DUSR) provides a thorough evaluation of analytical data without the costly and time consuming process of third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use.
The development of the DUSR must be carried out by an experienced environmental scientist, such as the project Quality Assurance Officer, who is fully capable of conducting a full data validation. Furthermore, the DUSR is developed from a full New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC ASP) Category B or a United States Environmental Protection Agency Contract Laboratory Protocol (USEPA CLP) deliverables package.

B. Review: If the DUSR and the data deliverables package indicates significant problems with some or all of the data in the package, the data should be either rejected or validated to determine if it can be used. This decision will be based upon several factors and should be made with advice from a qualified person in the Department's Quality Assurance Unit. In some cases, the data may be usable for screening purposes only.

C. Personnel Requirements: The Environmental Scientist preparing the DUSR must hold a Bachelors Degree in a relevant natural or physical science or field of engineering and must submit a resume to the Division's Quality Assurance Unit documenting experience in environmental sampling, analysis and data review.

D. Preparation of a DUSR: The DUSR is developed by reviewing and evaluating the analytical data package. During the course of this review the following questions must be asked and answered:

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

2. Have all holding times been met?

3. Do all the QC data (i.e., blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data) fall within the protocol required limits and specifications?

4. Have all of the data been generated using established and agreed upon analytical protocols?

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

6. Have the correct data qualifiers been used?

Evaluation of NYSDEC ASP Matrix Spike Blank (MSB) data - If the MSB recovery is less than the ASP criteria, the positive results should be qualified as J, estimated biased low. If the MSB recovery is less than the ASP criteria, but greater than 10%, the nondetects should be qualified J, biased low. If the MSB recovery is less than 10%, the nondetect data must be rejected.

Any Quality Control exceedances must be numerically specified in the DUSR and the corresponding QC summary sheet from the data package should be attached to the DUSR.

All data that would be rejected by the EPA Region 2 Data Validation Guidelines must also be rejected in the DUSR.

Once the data package has been reviewed and the questions given above have been answered, the DUSR proceeds to describe the samples and the analytical parameters. Data deficiencies, analytical protocol deviations, and quality control problems are identified and their effect on the data is discussed. The DUSR shall also include recommendations on resampling and/or reanalysis. All data qualifications must be documented following the latest NYSDEC ASP guidelines.

E. Questions: Contact the Department's Division of Environmental Remediation Quality Assurance Group with any questions on the preparation of a DUSR.

III. Quality Assurance Officer Guidelines

A. QAO Description and Requirements

1. The Quality Assurance Officer (QAO) is an employee of the same consulting firm generating the work plan and acts in conjunction with the project manager to develop a site-specific quality assurance plan. The QAO must not have another position on the project, such as a project or task manager, that involves project productivity or profitability as a job performance criteria.

2. The Environmental Scientist preparing the DUSR must hold a Bachelors Degree in a relevant natural or physical science or field of engineering and must submit a resume documenting experience in environmental sampling, analysis and data review.

3. The QAO must be proficient in analytical methodology, data interpretation and validation, the development of sampling plans, quality control procedures, and auditing techniques.

4. The QAO will assist the project manager in the development of the sampling and analytical portion of the Quality Assurance Project Plan. The QAO or his/her designee shall conduct periodic field and sampling audits, interface with the analytical laboratory to make requests and resolve problems, interface with the data validator, and develop a project specific data usability report. Because on-site work may be necessary, verification of completion of the 40-hour OSHA safety training course and 8-hour refresher is required.

Appendix F

Citizen Participation Plan

C&S COMPANIES

CITITZEN PARTICIPATION PLAN

FOR

BROWNFIELD SITE INVESTIGATION

Maider Road Brownfield Site
Town of Clay, New York

Prepared by

C&S COMPANIES
ENGINEERS
DESIGN BUILD
TECHNICAL RESOURCES
OPERATIONS

C&S Engineers, Inc.
499 Colonel Eileen Collins Boulevard
Syracuse, New York 13212

July 2003

TOWN OF CLAY, NEW YORK

MAIDER ROAD BROWNFIELD PROJECT

CITIZEN PARTICIPATION PLAN

Table of Contents

Figures

Attachments

SECTION 1: INTRODUCTION

1.1 General

This Citizen Participation (CP) Plan sets forth activities and a schedule for citizen notifications and participation associated with a Site Investigation (SI) and subsequent Remedial Actions (RAs) to be conducted at the Maider Road Brownfield site, located in the Town of Clay, New York. Figure 1 shows the location of the Maider Road Brownfields Project, which was formerly the Cibro bulk petroleum and asphalt distribution facility. This CP Plan addresses elements, as appropriate, established within the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation Program Policy DER-97-4058 and other applicable guidance. C&S Engineers, Inc. (C&S) has developed this CP Plan based on the results of limited previous investigations at the site and on requests and comments from the NYSDEC.

1.2 Site Description

Figure 1 illustrates the environs of the Maider Road Brownfield site, which is a 66-acre parcel generally located East of the confluence of the Seneca and Oneida Rivers (which together form the Oswego River), in the area known as Three Rivers. Most of the site is south of Maider Road (which runs parallel to the Oneida River). A small section of the site is between Maider Road and the River; this section includes portions of what were formerly docks for unloading barges.

For the purposes of the Site Investigation and this CP Plan, the 66-acre study area has been divided into the two sub-areas described below. Figure 2 provides an aerial photograph of the site with the delineation of the two study areas.

West Area - This approximately nine-acre area was the site of the former Cibro bulk petroleum and asphalt terminal (see Figure 3). This area was utilized from the 1920's until the early 1990's for the bulk storage and transfer of fuel oil and asphalt. Concurrent with the Brownfields Site Investigation,

an Interim Remedial Measure will be implemented by the Town of Clay, during which the remaining tanks and structures in the West Study Area will be demolished and disposed. Presently the following tanks are known to be on site:

Tank ID	Description
Tank No. 5	1,050,000 gallon steel AST, contained asphalt
Tank No. 6	1,050,000 gallon steel AST, contained asphalt
Tank No. 7	1,050,000 gallon steel AST, contained asphalt
Tank No. 8	1,050,000 gallon steel AST, contained asphalt
Tank No. 9	21,000 gallon steel AST on rack, contained asphalt
Tank No. 10	21,000 gallon steel AST on rack, contained asphalt
Boiler House A	1,000 gallon (est.) steel horizontal AST – unknown usage
Boiler House B	5,000 - 6,000 gallon (est.) horizontal steel AST – unknown usage
Boiler House C	8,000 - 9,000 gallon (est.) rectangular steel AST – unknown usage
Boiler House D	UST - reportedly 3, 000 gallon fuel oil

Information on Tanks 5-10 from NYSDEC tank database

In addition, previously removed aboveground tanks included the following

Tank ID	Description
Tank No. 1	840,000 gallon steel AST, contained fuel oil
Tank No. 2	2,310,000 gallon steel AST, contained fuel oil
Tank No. 3	2,310,000 gallon steel AST, contained fuel oil
Tank No. 4	5,250,000 gallon steel AST, contained fuel oil
Tank No. 11	14,000 gallon horizontal steel AST on rack, unknown usage

East StudyArea - An area of approximately 57 acres that is largely wooded (See Figure 2). Based on inspections of historical aerial photography, the only indications of past industrial usage are a small railcar loading/unloading area and an associated abandoned railway siding for the former terminal. Another former petroleum products distribution facility is located across Maider Road to the north of the East Study Area. During the SI, this area will be investigated and mapped via a

walkover, during which areas of potential environmental concern will be identified (if present) and located using a hand-held GPS unit. Any such area of potential concern will be mapped using the GPS coordinates and potential routes of access will be assessed with regard to the feasibility of test-pitting or soil boring during subsequent site activities.

1.3 Schedule

This Section provides the anticipated schedule for the Site Investigation program, including.

Action	Scheduled Date
Submit Draft SI Workplan	Submitted May 29, 2003
NYSDEC Comments on Draft SI Workplan	Completed June 23, 2003
Submit Revised SI Workplan	August 1, 2003
NYSDEC Approval of Workplan	Dependent on NYSDEC/NYSDOH Review
Complete Subcontractor Procurement	Within 21 days of Workplan approval
Commence Field Work	Within 14 days of bid receipt from subcontractors (weather permitting)
Complete Field Work	Within 3 weeks of commencing
Submit SI Report	Within 30 days of receipt of validated data package

Following acceptance by NYSDEC of the SI Report, the Town of Clay will prepare a Proposed Remedial Action Plan (PRAP) which, following NYSDEC approval, will be incorporated into a Record of Decision (ROD), a legal document sanctioning and controlling the remedial project. The Citizen Participation activities that will be conducted throughout the project are set forth in Section 2 of this CP Plan.

1.4 Document Repository

Documents to be made available for public inspection and comment will be placed at the North Syracuse branch of the Onondaga County Public Library System, as well as at the NYSDEC Region 7 offices at 615 Erie Boulevard West in the City of Syracuse, New York. Documents will be placed

in the repositories no less than 15 days prior to any meeting at which the document will be presented or discussed.

1.5 Affected and Interested Parties

A preliminary list of the individuals and organizations that may be affected by, or interested in, the activities associated with the site investigation or subsequent site remedial actions, is provided as Attachment 1.

Each individual or organization on the list will be informed via direct mailing of the availability of project documents and of comment periods or public meetings during which public input will be accepted. Any individual or organization wishing to be added to the list should provide their name, address, and the nature of their interest in the project to:

Rory Woodmansee, Project Engineer
C&S Engineers, Inc.
499 Colonel Eilleen Collins Boulevard
North Syracuse, NY 13212

The local news media to be utilized for disseminating information and posting notices associated with the project will be the Syracuse Post Standard, which is the media outlet used by the Town of Clay for all official notices.

1.6 Principal Contacts

The following table provides a list of individuals from Town of Clay and NYSDEC Central and Regional offices who will serve as their respective agencies' contacts for the purposes of CP activities.

Name	Address	Title
Mark J. Rupprecht	Town of Clay 4401 State Route 31 Clay, NY 13041 - 8707	Town Supervisor
Douglas Wickman		Town Engineer
Carl S. Cuipylo	NYSDEC – Region 7 DER 615 Erie Boulevard West Syracuse, NY 13204-2400	Engineering Geologist
James Burke		Environmental Engineer

1.7 Significant Issues

This Section discusses the issues associated with this project that may be anticipated to be of significant interest to the community, the Town of Clay, or the NYSDEC. These issues, which are the focus of the Site Investigation and development of remedial action alternatives, include:

- The potential for off-site impacts to soil or river sediments resulting from past releases of petroleum-related constituents associated with site activities;
- Potential impacts to surface water or groundwater leaving the site;
- Potential on-site impacts from off-site industrial activity or on-site non-regulated waste disposal;
- Potential impacts resulting from the past use and possible improper handling of asbestos-containing materials;
- Alternative future uses for the site and the degree of remediation (and associated costs) required to accommodate the alternative potential future uses.

SECTION 2: CITIZEN PARTICIPATION ACTIVITIES

2.1 Required Citizen Participation Activities

This Section reviews the minimum CP activities associated with Brownfields projects, as set forth in NYSDEC TAGM #4058, and the associated schedules for submittals and notices to affected and interested parties, based on NYSDEC guidelines. The following are required CP activities for all

projects:

i. announce through a mailing to the project's contact list and through local news media the availability of the SI/RAR work plan which provides a brief analysis of the proposed investigation field work;

ii. announce through a mailing to the project's contact list and through local news media the availability of the PRAP, a brief summary of the proposed cleanup, and a 45 day period for the submission of written comments;

iii. administer 45 day public comment period before the remedial alternative is selected to obtain the public's views of the PRAP;

iv. prepare a Responsiveness Summary which addresses public comments about the PRAP;

v. notify the public of the availability of the Record of Decision (ROD) when it is finalized.

2.2 Additional Citizen Participation Activities

This Section discusses additional citizen participation activities that may be anticipated, beyond the required activities listed in the previous Section. NYSDEC guidance states that project complexity or particularly important issues associated with the project should be analyzed to assess whether optional CP activities may be appropriate.

The additional CP activities that are anticipated for the Maider Road Brownfields Project include:

- Preparation and distribution of a Project Fact Sheet to inform affected and interested parties of the progress of activities associated with the site. It is anticipated that the fact sheet would be distributed during the 45-day comment period after completion of the PRAP, and would provide details regarding the proposed remedial alternative and the anticipated schedule of future site activities; and

- If deemed appropriate based on interest of the public, a public meeting may be held, during which a detailed presentation of the selected site remedy would be made and verbal comments by the public would be accepted.

ATTACHMENT 1

List of Affected and Interested Parties

Name/Organization	Address
Residential and Commercial Neighbors	
[redacted]	3498 Bonstead Road Clay, NY 13041
Atlantic Refining and Marketing	1801 Market Street Philadelphia, PA 19103
[redacted]	3523 Maider Road Clay, NY 13041
[redacted]	Sparks, GA 31647
[redacted]	67 Shady Elm Drive Phoenix, NY 13135
[redacted]	8987 River Road Phoenix, NY 13135
[redacted]	3443 Maider Road Clay, NY 13041
[redacted]	2539 Warners Road Warners, NY 13164
[redacted]	3494 Bonstead Road Clay, NY 13041
Northern Ready Mix	32 Silk Road Fulton, NY 13069

Name/Organization	Address
[redacted]	3410 Maider Road Clay, NY 13041
	3404 Maider Road Clay, NY 13041
	3400 Maider Road Clay, NY 13041
	3403 Verplank Road Clay, NY 13041
	3439 Verplank Road Clay, NY 13041
	8830 Oswego Road Clay, NY 13041
	8822 Oswego Road Clay, NY 13041
	8816 Oswego Road Clay, NY 13041
	8810 Oswego Road Clay, NY 13041
	8804 Oswego Road Clay, NY 13041
	8798 Oswego Road Clay, NY 13041
	8790 Oswego Road Clay, NY 13041
	8782 Oswego Road Clay, NY 13041

Name/Organization	Address
[redacted]	8776 Oswego Road Clay, NY 13041
	8772 Oswego Road Clay, NY 13041
	3417 Verplank Road Clay, NY 13041
	8766 Oswego Road Clay, NY 13041
	3415 Verplank Road Clay, NY 13041
	3461 Verplank Road Clay, NY 13041
	8750 Oswego Road Clay, NY 13041
	3435 Verplank Road Clay, NY 13041
	3419 Verplank Road Clay, NY 13041
	3396 Maider Road Clay, NY 13041
	3392 Maider Road Clay, NY 13041
	110 Beechwood Ave. Norwich, NY 13815
	8838 Oswego Road Clay, NY 13041

Name/Organization	Address
[redacted]	6954 Old Quarry Road Fayetteville, NY 13207
	3605 Maider Road Clay, NY 13041
	3670 Maider Road Clay, NY 13041
Government and Non-Government Individuals and Organizations	
Sandra Baker/ Onondaga County Legislature	20 Sunset Terrace Baldwinsville, NY 13027
Bernard Kraft/ Onondaga County Legislature	49 Bayberry Circle Liverpool, NY 13090
Jon Edinger/NYSDOT Region 3	336 East Washington Street Syracuse, NY 13202
Kevin Millington/NY Dept. of State, Div. Of Coastal Resources	41 State Street Albany, NY 12231
Jeff Brown/NYS Assembly	210 S. Main Street, Room 200 North Syracuse, NY 13212
Karen Kiney/Syracuse-Onondaga County Planning Agency	421 Montgomery Street, 1100 Civic Center Syracuse, NY 13202
David Bollar/CNY Regional Planning and Development Board	126 N. Salina Street, Suite 200 Syracuse, NY 13202
Benjamin Manlon, III /CNY Regional Planning and Development Board	126 N. Salina Street, Suite 200 Syracuse, NY 13202
Sharon Leighton / NYS Canal Corporation	200 Southern Blvd., PO Box 189 Albany, NY 12201

Name/Organization	Address
Don Western, Onondaga County Industrial Development Agency	421 Montgomery Street, 14th Floor Syracuse, NY 13202
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Mary Rowlands/ Syracuse Metropolitan Transportation Council	126 N. Salina St., Suite 130 Syracuse, NY 13202
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