REPORT OF FIELD INVESTIGATION ACTIVITIES

FORMER HENRIETTA SEWAGE TREATMENT PLANT
100 KARENLEE DRIVE
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

NYSDEC #V00678-8

Prepared for:
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Table of Contents

Table of Contents

ATTACHMENTS

FIGURES

APPENDICES

1 INTRODUCTION

This report provides the findings of Environmental Site Assessments completed to date at the Former Henrietta Sewage Treatment Plant in the Town of Henrietta, New York (Figure 1). The project was completed for the Town of Henrietta to facilitate the re-development of the western portion of the property. All work on the project was performed in accordance with a Voluntary Cleanup Agreement #V00678-8, between the New York State Department of Environmental Conservation (NYSDEC) and the Town of Henrietta.

The Work Plan for the project was designed to evaluate potential environmental conditions relating to previous operations and filling activities at the Site. The plan was based in part on information gathered from previous environmental site assessment reports. The Work Plan for the project was approved by the NYSDEC on February 18, 2004.

1.1 Property Description

The property is approximately 20 acres in size and contains a former digester building, an administration building, a garage, a sewer meter station building, and undeveloped land east of the buildings. The layout of the property is shown on Figure 2. A settling tank, two trickling filters and six sludge drying beds are also located on Site, but have been filled in. A portion of the central area of the Site was used for sludge and other waste disposal east of the developed portion of the property. The inferred limits of past sludge disposal are indicated on Figure 2. Approximately 5 acres of the eastern portion of the property is proposed to be subdivided, and will remain undeveloped under the proposed future use of the Site.

1.2 Surrounding Properties

The Site is bounded on the east by vacant lands owned by the Town of Henrietta; on the west by single family homes on Karenlee Drive; on the north by the State-owned Erie Canal, a seasonal use, navigable waterway; and on the south by the CSX railroad track, Locust Hill Country Club and residential development.

All of the businesses and residences in the area are supplied with public water. There are no municipal supply wells in the immediate vicinity of the property.

1.3 Site History

Prior to 1951, the property was used for agricultural purposes. The Town of Henrietta used the site as a wastewater treatment plant and solid waste disposal facility from 1951 to approximately 1981. In 1981, the Monroe County Department of Pure Waters constructed a sewer force main and pump station on the Site. Effluent formerly treated at the Henrietta plant was diverted to the VanLare Wastewater Treatment Plant.

The Digester Building, trickling filters, aeration chambers, and sludge drying beds were decommissioned by being fully or partially covered with soil in 1981. The Town of Henrietta used the subject property as an operations, maintenance and storage area from

approximately 1980 to 2001. The Henrietta Department of Public Works continued to use the Site as an operations and maintenance center for the disposal of excess soil, gravel, asphalt, brick, wood and other materials from construction and repair projects.

Interviews with staff and site walkovers also indicate that the site was used for disposal of road-killed animals, abandoned motor vehicles, tires, pipe, sewer cleaning hose, sewage sludge, wood, excess asphalt, stone, soil from construction projects, along with construction and demolition debris.

1.4 Review of Previously Completed Environmental Assessments

Our investigation utilized information and data from previous assessments completed by Lu Engineers and Day Environmental, Inc. (Day). Lu's assessments included a Phase I Environmental Site Assessment, a Phase II Environmental Site Assessment and Underground Storage Tank Removal and an Updated Phase I Environmental Site Assessment. Day's assessment was a Supplemental Subsurface Study. These reports are summarized below:

1.4.1 *Phase I Environmental Site Assessment* prepared by Lu Engineers, January 1999

The Phase I ESA prepared by Lu Engineers provided the following Conclusions and Recommendations relative to the condition of the Site's soil and groundwater:

- The plant reportedly received sewage from several local industries prior to the establishment of an industrial pretreatment program. Soil in the vicinity of the former sludge drying beds and in the fill area should be tested for the presence of metals to determine appropriate options for future use of the site.
- The fill area east of the building should be inspected for the presence of non-exempt solid waste materials (plastics, metals, non-inert materials). Several non-exempt materials were observed at the edge of fill near the woods in early December. All piles of scrap metal, metal pipes and other non-exempt materials should be recycled or properly disposed to comply with the recommendation contained in the NYSDEC March 31, 1993 inspection report.

Lu Engineers' Phase I Report can be found in Appendix B-1.

1.4.2 *Phase II Environmental Site Assessment and Underground Storage Tank Removal* prepared by Lu Engineers, January 2002

Based on the findings of the Phase I ESA, a Phase II ESA and Underground Storage Tank Removal was completed in January 2002. The Phase II included the following elements:

- Excavation of Test Pits 1, 2, 3, and 4 at suspected tank locations
- Excavation of Test Pits 5, 6, 7 and 8 in the location of the former sludge drying beds and sludge lagoon.
- Excavation of Test Pits 9-16 in the fill area east of the developed area of the Site to characterize solid waste materials disposed between 1951 and 2001.

- Removal of three underground storage tanks found during the test pit excavations
- Collection and laboratory analysis of 12 soil samples from solid waste disposal area and former sludge drying beds
- Collection and laboratory analysis of 14 soil samples from former underground storage tank locations

Lu Engineers' Phase II report can be found in Appendix B-2.

Based on the information collected as a part of this assessment, the following conclusions were made relative to Recognized Environmental Conditions at the Site:

- Solid Waste Disposal Area and Former Sludge Drying Beds
  - Soil Samples collected during test excavations in these areas did not indicate significant concentrations of hazardous substances or petroleum. Some elevated levels of semi-volatile organic compounds were observed in laboratory results from Test Pits 11, 14, and 16. Elevated levels of chromium were also found in these samples. TCLP analysis showed levels to be below the regulatory limits for hazardous waste. The levels observed are commonly seen in fill materials and would be considered *de minimus* under the current ASTM standard for Environmental Site Assessments.
  - Based on the investigation no further investigation was recommended for these areas.
- Underground Storage Tanks
  - The underground storage tanks at the property have been removed. Samples have been collected to document that soils in the excavation area do not contain petroleum hydrocarbons. Soils excavated from the former tank locations also do not contain petroleum hydrocarbons. Based on the information obtained during the project, the NYSDEC closed the open spill file for the site.

Based on the investigation, no further investigation was recommended for these areas.

1.4.3 *Phase I Environmental Site Assessment* prepared by Lu Engineers, July 2002

This assessment was conducted as an update to a Phase I Environmental Assessment originally completed in January, 1999 by Lu Engineers, and Phase II Environmental Site Assessment completed by Lu Engineers in January, 2002.

Lu Engineers' Phase I report can be found in Appendix B-3.

The July 2002 Phase I ESA provided the following conclusions relative to Recognized Environmental Conditions at the Site:

- The site was formerly used as a sewage treatment plant. Sludge from the facility was disposed in a solid waste landfill on the site from approximately 1955 to 1981. Other construction/demolition type materials were also disposed at this site. Buried

concrete structures that are partially visible at the surface, such as trickling filters and settling beds are located east of the developed portion of the site.

- Four underground storage tanks were removed from the site between 1999 and 2001. All tank pits were excavated and soil samples submitted for analyses pursuant to NYSDEC protocols. No detectable contaminants were found. No residual contamination is present in the soils. Groundwater observed in tank pits in front of the Digester Building showed no sheen or indication of petroleum residue.
- Four soil piles were observed adjacent to the tank pit excavations. These piles did not contain petroleum hydrocarbons.

Relative to *de minimis* conditions at the Site:

- Soil samples collected during test excavations in the former solid waste disposal area and former sludge drying beds did not indicate significant concentrations of hazardous substances or petroleum. Trace amounts of several semi-volatile organic compounds were observed in laboratory results from Test Pits 11, 14, and 16. The levels observed are commonly seen in fill materials and would be considered *de minimis* under the current ASTM standard for Environmental Site Assessments.

1.4.4 *Supplemental Subsurface Study* prepared by Day Environmental, Inc., December, 2002

Day was retained by JSR Ultrasonics, the proposed future site owner, to perform a supplemental subsurface study at the Site. As a preliminary step, JSR Ultrasonics elected to initially further evaluate elevated metals, the presence of VOC's in the fill material and subsurface conditions.

Day completed the following scope of work:

- Collected soil/fill samples from 18 test pits excavated through the fill to depths up to 14.5 feet;
- Observed soil/fill samples collected from the test pits and screened the ambient air space above portions of samples with a photoionization detector (PID);
- Submitted selected soil/fill samples to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory for analytical laboratory testing; and
- Evaluated the data collected and prepared a report summarizing findings.

Day's report can be found in Appendix B-4.

The results of the supplemental subsurface investigation are summarized below:

Four of eleven samples tested for RCRA metals contained concentrations of one or more metals that exceeded recommended soil cleanup objectives.

A summary of Day's laboratory analytical results for collected soil samples is provided in Table 1 below.

Table 1: Summary Total RCRA Metals Test Results

Detected Analytes	Sample and Location				NYSDEC TAGM 4046 Typical Background Ranges (PPM)	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective (PPM)
	TP-A (7')	TP-G (5')	TP-G (9')	TP-P (9')		
Arsenic	5.39	5.16	**9.10**	**10.6**	3-12	7.5 or SB
Barium	154	72.7	**589**	131	15-600	300 or SB
Cadmium	**20.5**	4.11	**46**	2.6	0.1-1	1 or SB (10)[1]
Chromium	**273**	**57.8**	**788**	17.8	1.5-40	10 or SB (50)[2]
Lead	59.3	20.3	253	25.2	200-500[3]	SB
Mercury	**1.92**	ND	**3.78**	**0.267**	0.001-0.2	0.1
Selenium	ND	ND	1.4	ND	0.1-3.9	2 or SB
Silver	**37.5**	**3.04**	**127**	1.61	NA	SB

Note: =Test results are compared to typical background ranges and recommended soil cleanup objectives as referenced in NYSDEC TAGM 4046 dated January 24, 1994.

ND = Not detected at concentrations above reported laboratory detection limit value

NA =Not available

1 =1995 TAGM 4046 "proposed" recommended soil cleanup objective for cadmium of 10ppm

2 =1995 TAGM 4046 "proposed" recommended soil cleanup objective for chromium of 50ppm

3 =Average background level for lead in metropolitan or suburban areas or near highways.

20.5 =Denotes exceedance of recommended soil cleanup objective as referenced in TAGM 4046

TCLP metals were not detected at concentrations above MCLs in the two samples tested; thus, the samples are not considered to be characteristic hazardous waste based on their metal content.

The concentration of the VOC acetone (330 ppb) detected in the sample from TP-A (7') exceeded its recommended soil cleanup objective of 200 ppb. The concentration of the VOC toluene (33,300 ppb) detected in the sample from TP-G (9') exceeded its recommended soil cleanup objective of 1,500 ppb. In addition, concentration of total VOCs (245,144 ppb) detected in the sample from TP-G (9') exceeded the recommended soil cleanup objective of 10,000 ppb.

A summary of Day's laboratory analytical results for collected soil samples is provided in Table 2 below:

Table 2: Summary Detected Volatile Organic Compounds in Parts Per Billion

Detected VOCs	Sample and Location		NYSDEC TAGM 4046 Recommended Soil Cleanup Objective (PPB)
	TP-A(7')	TP-G(9')	
Acetone	**330**	ND	200
2-Butanone	74.7	ND	300
1,2-Dichlorobenxene	16.7	1,870	7,900
1,4-Dichlorobenzene	ND	1,010	8,500
p-Isopropylbenzene	ND	1,190	10,000
Isopropylbenzene	ND	69	2,300
n-Propylbenzene	ND	152	3,700
Sec-Butylbenzene	ND	120	10,000
Toluene	ND	**33,300**	1,500
Total Xylenes	84.8	886	1,200
1,2,4-Trimethylbenzene	ND	1,400	10,000
1,3,5-Trimethylbenzene	ND	557	3,300
Napthalene	ND	1,270	13,000
Total TCL & STARS VOCs	506.2	41,824	NA
Total TICs	ND	203,320	NA
Total TCL, STARS & TIC VOCs	506.2	**245,144**	≤ 10,000

Note: =Test results are compared to typical background ranges and recommended soil cleanup objectives as referenced in NYSDEC TAGM 4046 dated January 24, 1994.

ND = Not detected at concentrations above reported laboratory detection limit value

NA =Not available

1 =1995 TAGM 4046 "proposed" recommended soil cleanup objective for cadmium of 10ppm

2 =1995 TAGM 4046 "proposed" recommended soil cleanup objective for chromium of 50ppm

3 =Average background level for lead in metropolitan or suburban areas or near highways.

20.5 =Denotes exceedance of recommended soil cleanup objective as referenced in TAGM 4046

Figure 2 in Appendix B-4 shows the sampling locations.

1.5 NYSDEC Review

The NYSDEC reviewed these reports and requested that additional investigation be completed in order to evaluate potential concerns in onsite soils and groundwater. The Town of Henrietta entered into a Voluntary Cleanup Agreement with the New York State Department of Environmental Conservation.

2 CURRENT ENVIRONMENTAL SITE ASSESSMENT

The environmental investigation completed to date by Lu Engineers included a review of historical Site information and a comprehensive subsurface investigation. Fieldwork was completed in accordance with the NYSDEC-approved work plan for the Site. If alterations were made in any of the methodologies proposed in the work plan, they were approved by the NYSDEC prior to use. Any significant deviations requiring approval are specified in this section.

2.1 Objectives

The objectives of the investigation were to:

- evaluate the findings of previous Site assessments,
- identify the vertical and horizontal extent of contaminants identified in those assessments, and
- if necessary, design and implement appropriate cleanup alternatives for the property.

2.2 Investigation Activities

Specific field activities completed by Lu Engineers from February 2004 to the present have included:

- Completion of seven soil borings;
- Installation of seven groundwater monitoring wells;
- Collection and analytical testing of seven groundwater samples from the newly installed wells;
- Collection and analytical testing of two subsurface soil samples from the noted borings and wells;
- Collection and analytical testing of eight surface soil samples;
- Completion of an instrument survey to identify sample points and establish groundwater elevation data.

The remainder of this document contains the following information:

- a description of the methodologies used during this investigation (Section 3),
- Site Geology (Section 4),
- Findings of the investigation and a comparison to previous work completed at the Site (Section 5),
- Conclusions (Section 7), and
- Recommendations (Section 8).

3 METHODOLOGIES

This section provides a description of the investigation areas and methodologies used during the project. Supporting documentation, not found in this report (i.e., photographs, field notes, etc.) is available at our office.

3.1 Soil Boring and Groundwater Monitoring Well Installation

Between February 4, 2004 and February 10, 2004, Lu Engineers completed seven soil borings and installed seven groundwater monitoring wells. The work plan specified the completion of eight soil borings with eight completed groundwater monitoring wells. During the drilling of SB1 in the area of the former underground fuel oil tanks, groundwater was not encountered within the estimated depth of less than 25 feet. Based on these findings the second soil boring and that was to be located in this area was eliminated. This was approved by NYSDEC's Mr. Todd Caffoe on February 4, 2004. The completed soil borings and well locations are shown on Figure 2.

Two subsurface soil samples were taken at the site during soil boring operations, one from soil boring 4 and one from soil boring 7. According to the work plan split spoon soil samples were screened using a PID, those exhibiting elevated levels of VOCs were to be sent to the laboratory for analyses. Discolored soils were encountered at SB04 between 4 and 7.5 feet below ground surface, no PID readings were detected but a soil sample was taken and sent to the lab for analysis. Dark brown to black discolored soils were encountered at SB07 between 5 and 8 feet below ground surface, there were no PID readings detected, a soil sample was taken to the lab for analysis.

Analytical results from the subsurface soil samples indicated the presence of metals and PAHs. There were also elevated levels of chromium found at these locations.

Subsurface soil sampling analytical results are discussed in detail in Section 5.

3.2 Surface Soil Samples

On February 11, 2004 eight surface soil samples were collected from the Site. Samples of surface soils were collected from a depth of 0-2 inches below the ground surface at each location. Locations of all surface soil samples are shown on Figure 2.

Soil samples were sent to a NYSDOH ELAP- and ASP-certified laboratory for analysis in accordance with the Site Work Plan. All samples were analyzed in accordance with New York State ASPs for the following parameters:

- Polycyclic Aromatic Hydrocarbons (PAHs)
- RCRA Metals: Cadmium, Chromium, Hexavalent Chromium, Lead, Mercury, Selenium, and Silver
- PCBs

Analytical results from the surface soil samples indicated trace levels of RCRA metals and PAHs throughout most of the Site. None of the levels observed exceeded Eastern US background levels (TAGM 4046).

Surface soil sample analytical results are discussed in detail in Section 5.

3.3 Groundwater Sampling

The project team sampled all of the new wells on February 24 and February 25th, 2004. Water samples were collected from MW1 – MW7 using low flow peristaltic pumps to minimize volatilization and agitation during sampling. The methodology and its purpose are discussed below.

Accurate assessment of contaminant transport (especially metals) in groundwater requires representative groundwater samples (i.e. unaltered as possible from in situ conditions). The process of groundwater sampling can unavoidably alter samples (e.g. turbidity, dissolved gasses, pH, Eh, etc) but such alteration can be minimized by using a low-flow sampling technique as described in an April 1996 EPA guidance document EPA/540/s-95/504 Ground Water Issue - Low-Flow (Minimum Drawdown) Ground-Water Sampling Procedures.

At the former Henrietta Sewage Treatment Plant, where metals were a potential concern, a prime sampling objective was to minimize groundwater turbidity. Research shows that this objective can be accomplished by using the low-flow pumping techniques described above. Groundwater extraction rates at or below natural recharge rates (low-flow pumping/minimum drawdown) help to maintain ambient hydraulic gradients, minimize induced turbidity, and allow collection of representative samples.

All samples collected from the wells had turbidity readings of less than 50 NTUs at the time of sampling.

Prior to sampling, each well was purged removing a minimum of three volumes of standing water. During purging the wells were monitored for temperature, pH, conductivity, and turbidity. Samples of the wells were collected only after these parameters had stabilized (three consecutive similar readings). Written notes from the sampling are included in Appendix D.

Laboratory analytical results from the groundwater sampling did not indicate the presence of volatile or semi-volatile organic compounds, or RCRA metals above laboratory detection limits.

Laboratory analytical results for the groundwater sampling are discussed in detail in Section 5.0.

4 HYDROGEOLOGIC CONDITIONS

4.1 General

This section describes the geologic and hydrogeologic conditions at the Site. The interpretation of the subsurface conditions at the Site is based on information obtained from the following:

- USGS Topographic Maps;

- Test Pit logs from Lu Engineers and Day Environmental reports;
- Groundwater monitoring well construction details and flow mapping;
- An instrument survey completed to locate and provide elevations for wells;
- Periodic on-site water level measurements;

Boring logs are included in Appendix C. Figure 2 shows the location of groundwater monitoring wells.

4.2 Site Geologic Conditions

Overburden soils in investigated areas consist of fill material to an average depth of approximately 10 feet across the eastern portion of the site. The fill is a mixture of sewage sludge, road construction materials and debris such as brick, stone, ash and wood.

A silty sand and gravel lies under the fill. The composition, grain size and distribution of the various materials comprising the native material indicate that these soils are likely glacial outwash and lacustrine deposits that have been disturbed by past Site use.

Groundwater at the Site was typically found at approximately 8-10 feet below ground surface (bgs).

Figures 3 and 4 are geologic cross-sections to facilitate interpretation of subsurface conditions.

Boring logs for the property are located in Appendix C.

4.3 Groundwater Flow

As indicated by groundwater measurements collected during this project, site overburden groundwater has both a northwestward and eastward gradient. An eastward gradient is observed in the eastern portion of the Site, and a northwestward gradient is evident in the western area. This divergent groundwater flow trend is attributed to the fill material located across the eastern portion of the site. Groundwater will typically flow in two directions from the center of the fill area; to the east and to the northwest.

Groundwater from the Site is generally inferred to be flowing toward the Erie Canal. The Erie Canal is drained annually for the winter months. At the time of the groundwater readings were obtained that were used to produce the groundwater contour map (Figure 5), the Canal was drained. Due to the close proximity of the canal to the site the direction of groundwater flow at the site may be altered when the Canal is full.

4.4 Summary of Hydrogeologic Conditions

The geologic data and groundwater level data collected during the project have indicated the following:

- The overburden material underlying the Site consists of fill and interbedded sands, gravels, silts, and clays which typically exhibit a high degree of heterogeneity throughout the Site.

- The depth to groundwater in the uppermost water-bearing zone is approximately 8-10 feet below ground surface. It is noted that the Site groundwater elevations will vary due to seasonal precipitation and the elevation of the Canal.
- Overall groundwater flow in the uppermost water-bearing zone at the Site is generally from the southwest to northeast.

5 LABORATORY ANALYTICAL RESULTS

5.1 General

This section presents the analytical results for all samples collected to date at the Site. All laboratory reports are included in Appendix E and Appendix F. Columbia Analytical Services, a NYSDOH ELAP- and ASP-certified analytical laboratory analyzed all samples collected on the property. NYSDEC Analytical Services Protocols were used on all samples collected.

5.2 Surface Soil Samples

As mentioned previously, surface soil samples were completed at eight locations during the project. From these locations, a total of 11 (3 QA/QC) were sent to the laboratory for analysis. Surface soil sample analytical procedures included PAH's, PCB's, and RCRA metals cadmium, chromium, hexavalent chromium, lead, mercury, selenium, and silver.

Laboratory analytical results did not indicate the presence of PCB's above laboratory detection limits. Some PAHs were detected at levels above NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives. These levels are attributed to fill materials known to be located in this area. Table 3 provides a summary of the PAHs detected in surface soil samples.

Table 3: Summary of Surface Soil Sample PAHs Analytical Results

Compound	Laboratory Values* Surface Soil Sample Location				NYSDEC TAGM**
	SS01	SS03	SS03A	SS04	
Benzo (a) anthracene	**0.44**	**0.93**	**1.0**	**6.81**	0.224 or MDL***
Benzo (a) pyrene	**0.47**	**0.86**	**1.0**	**0.78**	0.061 or MDL***
Benzo (b) Fluoranthene	0.6	1.1	**1.3**	1.0	1.100
Chrysene	**0.52**	**1.0**	**1.2**	**0.77**	0.400

*All values are in mg/kg.
**Represents TAGM 4046 soil cleanup value.
**MDL is method detection limit

Analytical results from surface soil sampling can be found in Appendix E.

5.2.1 Subsurface Soil Samples

According to the Work Plan, split spoon samples were to be screened using a PID, and those exhibiting elevated levels of VOCs were to be sent to the laboratory for analyses. No PID readings were observed while screening split spoon samples but discolored soils were encountered in two locations. SB4 encountered dark brown to black discoloration between 5 feet and 8 feet bgs. SB7 encountered gray to black discolored silt between 4 feet and 7.5 feet bgs. Samples were taken at both of these locations and sent to the laboratory for analysis. Analysis on these soils included PAHs, PCBs, and RCRA metals cadmium, total chromium, hexavalent chromium, lead, selenium, and silver.

A few PAHs were found at levels above the NYSDEC TAGM 4046 recommended soil cleanup values. The levels observed are common with urban fill materials and do not warrant further investigation.

Table 4 provides a summary of the PAHs found in subsurface soil samples.

Table 4: Summary PAHs Subsurface Soils Analytical Results

Compound	Laboratory Values* Sample Location		NYSDEC TAGM**
	SB4(5-8')	SB7 (4-7.5')	
Benzo (A) anthracene	**0.6**	**0.41**	0.224 or MDL
Benzo (A) pyrene	**0.51**	**0.45**	0.061 or MDL
Chrysene	**0.62**	**0.52**	0.4

*All values are in mg/kg.
**Represents TAGM 4046 soil cleanup value
J represents an estimated value.
MDL represents laboratory method detection limit.

RCRA metals chromium and mercury were found at levels above NYSDEC TAGM 4046 recommended soil cleanup values. All of the other detected metals were below recommended soil cleanup values or within acceptable background concentrations.

Table 5 provides a summary of RCRA metals found in subsurface soil samples.

Table 5: Summary RCRA Metals Subsurface Soil Sample Analytical Results

Compound	Laboratory Values* Sample Location		NYSDEC TAGM Eastern USA Background	NYSDEC TAGM**
	SB4 (5-8')	SB7 (4-7.5')		
Chromium	**161**	**370**	1.5-40***	50****
Mercury	**0.39**	**1.3**	0.001-0.2	0.1

*All values are in mg/kg.
**Represents TAGM 4046 soil cleanup value
*** NYS Background levels
**** 1995 "Proposed" Recommended Soil Cleanup Objective

Trace levels of Arochlor-1248 were also found in SB4 (5-8') at a concentration of 1.1 mg/kg.

Analytical results from subsurface soil samples can be found in Appendix E.

5.3 Groundwater Sampling

The project team completed groundwater sampling on the newly installed wells on February 24th and February 25th, 2004. Water samples were analyzed for volatile organic compounds, semi-volatile organic compounds and RCRA metals.

Laboratory analytical results from the groundwater sampling did not indicate the presence of volatile organic compounds above laboratory detection limits. Semi-volatile organic compounds were not observed above method detection limits, with the exception of trace levels of diethylphthalate in MW5-WS01, the level is well below NYSDEC TAGM 4046 Groundwater Standards Criteria. RCRA metals were not observed above method detection limits, with the exception of trace levels of lead detected in MW5-WS01 and MW7-WS01.

Analytical results from groundwater sampling can be found in Appendix F.

6 Qualitative Risk Assessment

Upon evaluating the data for the former Henrietta sewage treatment plant property, it is our opinion that there are essentially no on-site or off-site public health exposure risks. Trace concentrations of metals and PAHs are present in the surface soils over the Site. Some slightly higher concentrations of metals and PAHs are present in subsurface soils located in the former sludge disposal area of the Site.

The primary exposure routes for the metals and PAHs found in soils are inhalation, and ingestion via drinking water. Inhalation is not a risk as these materials are below ground surface and no disturbance is anticipated. Ingestion via drinking water is not a risk as the area is on a public water system. Groundwater analysis from on site wells did not show detectable levels of hazardous substances.

7 Conclusions

The following conclusions are based on the findings of environmental investigations completed to date (Day Environmental and Lu Engineers) at the former Sewage Treatment Plant in Henrietta, New York.

The metals and PAHs present in subsurface soils are attributed to the filling activities at the Site. These materials have not affected groundwater and the future use of the Site will not disturb this portion of the property, therefore no additional investigation or cleanup is recommended.

The PAHs above NYSDEC Recommended Soil Cleanup Objectives present in surface soils located in the former sludge disposal area are attributed to the filling activities that occurred at the Site in the past.

Due to the results of previous TCLP analysis of the soils, the length of time this fill material has been onsite and the recent groundwater analytical results, it is unlikely that groundwater will be impacted either on-site or off-site.

For the purposes of this report, the Site can generally be divided into three areas:

- the developed land west of the approximate former sludge disposal boundary,
- the former sludge disposal area, and
- the undeveloped land east of the approximate former sludge disposal boundary.

It should be noted that these are approximate areas and the specific boundaries were not determined.

8 RECOMMENDATIONS

The goal of the remedy selection process in the voluntary cleanup program is to remediate the Site to a level that is protective of public health and the environment under the conditions of the property's contemplated use[1]. Based on the information generated during this investigation, no additional investigation or cleanup is required or recommended at the Site.

Due to the nature of the subsurface contamination at the Site, a soils management plan is recommended for the Site. The soils management plan will address handling and disposal of onsite fill materials during any future development. The proposed development consists of a slab-on-grade structure located west of the former sludge disposal area with a future slab-on-grade structure located on the western portion of the former sludge disposal area. This development plan is shown in Figure 2. It is also recommended that appropriate engineering controls to mitigate potential contaminant exposure pathways be considered during and after construction of any new buildings.

A deed restriction should be placed on the Site limiting future development to the proposed use of Restricted Industrial/Restricted Commercial excluding day care, child care and medical uses as noted in the Voluntary Cleanup Agreement.

An annual certification should be established to ensure the Site is in compliance with the deed restriction and that the soils management plan is being followed.

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[1] Voluntary Cleanup Program Guide, NYSDEC, Draft May 22, 2002

9 CERTIFICATION

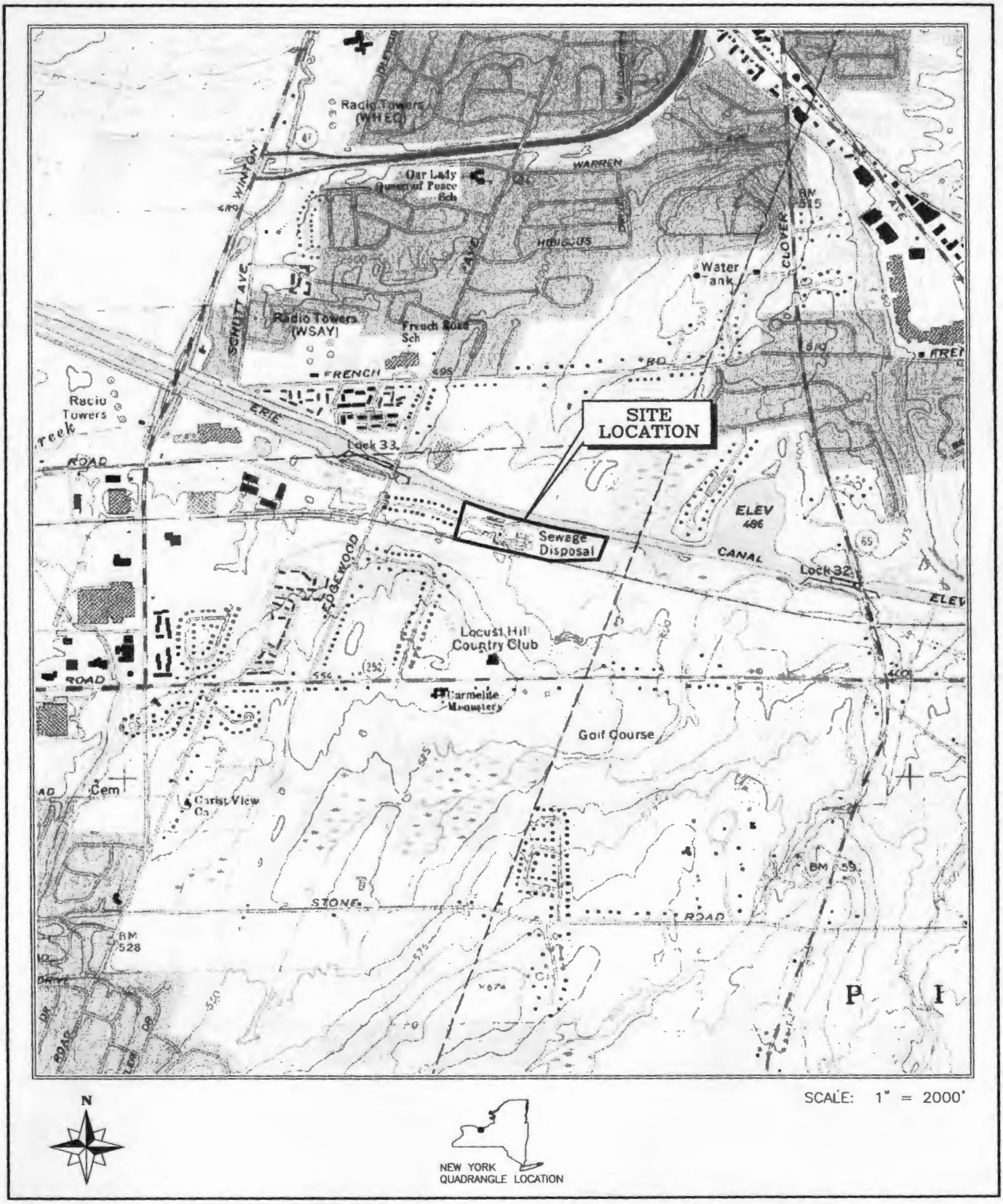
Lu Engineers certifies the accuracy of this report, to the best of our knowledge, based on the information collected as described in the Scope of Work of this assessment. A review of quality control information provided by the laboratory indicates that the data are within acceptable quality limits.

A copy of all information collected during this assessment, including photographs, maps, notes, and other material will be kept on file at the offices of Lu Engineers. This information is available at your request.

Respectfully submitted,

By Steven A. Campbell, CHMM
Project Manager

Attachments



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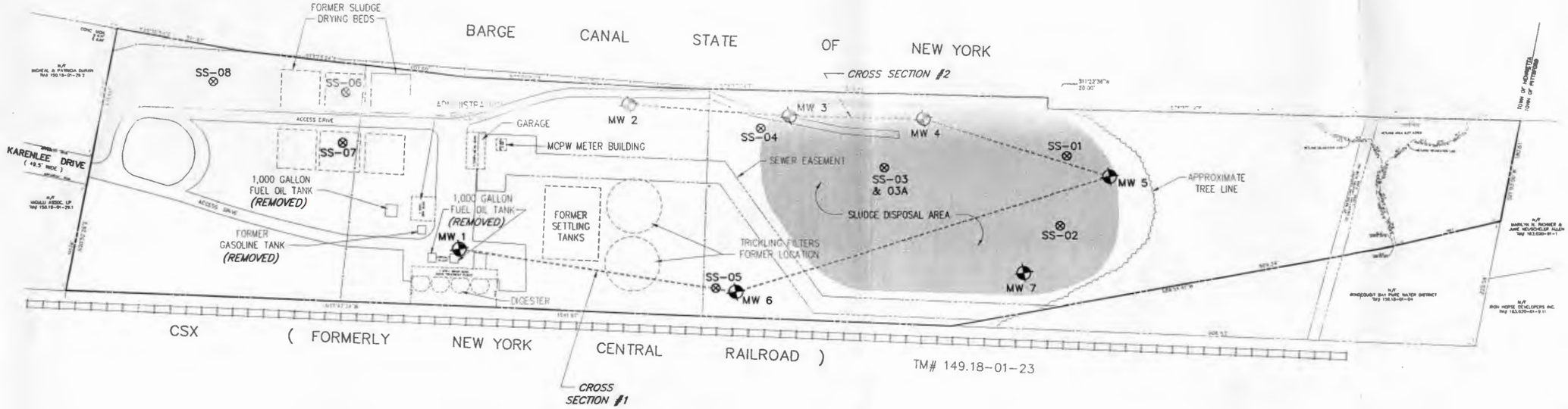
J:\8811-02\SiteLocation_Ph2.dwg

FIGURE 1. SITE LOCATION MAP

FORMER HENRIETTA TREATMENT PLANT
ROCHESTER, NEW YORK

DATE:	JULY 2002
SCALE:	1:24,000
DRAWN BY:	DLS

MAP SOURCE: PITTSFORD QUADRANGLE
NEW YORK – MONROE COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)
1971 – PHOTOREVISED 1978

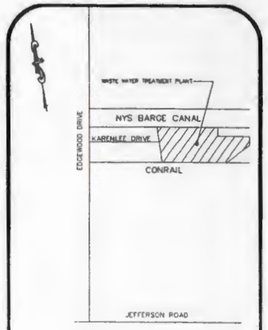


SITE PLAN
SCALE: 1" = 200'

LEGEND

- MONITORING WELLS
- SOIL SAMPLE LOCATIONS
- CROSS SECTIONS
- APPROXIMATE SLUDGE DISPOSAL AREA

0 100 200 300
SCALE



NOT TO SCALE

DATE	REVISIONS	BY

DRAWING ALTERATION

Law, Article 145, Section 7209, Special Provision 2, for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his seal and notation "altered by" followed by his signature and date of such alteration, and a specific description of the alteration.

1/16 WETLAND BEARING & DISTANCE

BY: _____

DATE: _____

LU ENGINEERS
Civil and Environmental

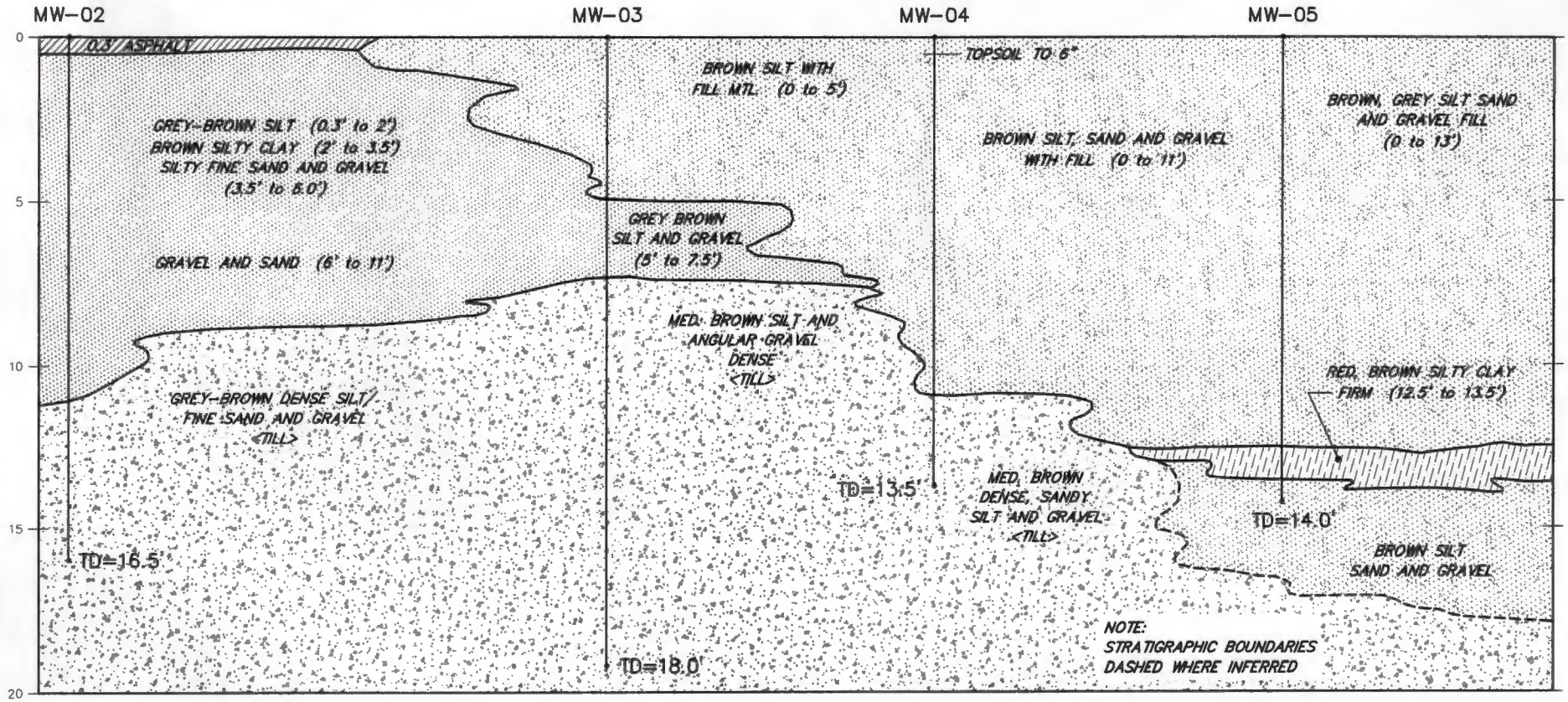
JOSEPH C. LU ENGINEERING AND LAND SURVEYING, P.C.
2230 PENFIELD ROAD
PENFIELD, NY 14526
(585) 377-1450
FAX. (585) 377-1266

PROJECT:
VOLUNTARY CLEANUP PROGRAM
TOWN HENRIETTA, COUNTY OF MONROE, STATE OF NEW YORK

CLIENT:
TOWN OF HENRIETTA

DRAWING TITLE:
FIGURE 2

DESIGNED BY: RM	SCALE: 1"=200'
DRAWN BY: DS	DATE: APRIL 2004
CHECKED BY: RM	PROJECT No. 8811-05
SHEET 2 OF 6	DRAWING No. 2



2.5'

VERTICAL SCALE: 1" = 5'

HORIZONTAL SCALE: 1" = 100'

100'

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FIGURE 3
SOIL CROSS SECTION #1

KARENLEE DRIVE
VOLUNTARY CLEAN-UP PROGRAM
HENRIETTA, NEW YORK

DATE:	APRIL 2004
SCALE:	AS SHOWN
DESIGNED BY:	GLA
DRAWN BY:	DLS

J:\PROJECTS\8800 HENRIETTA\8811-05\CADD\CrossSections.dwg, 4/13/2004 3:09:04 PM, DIANE

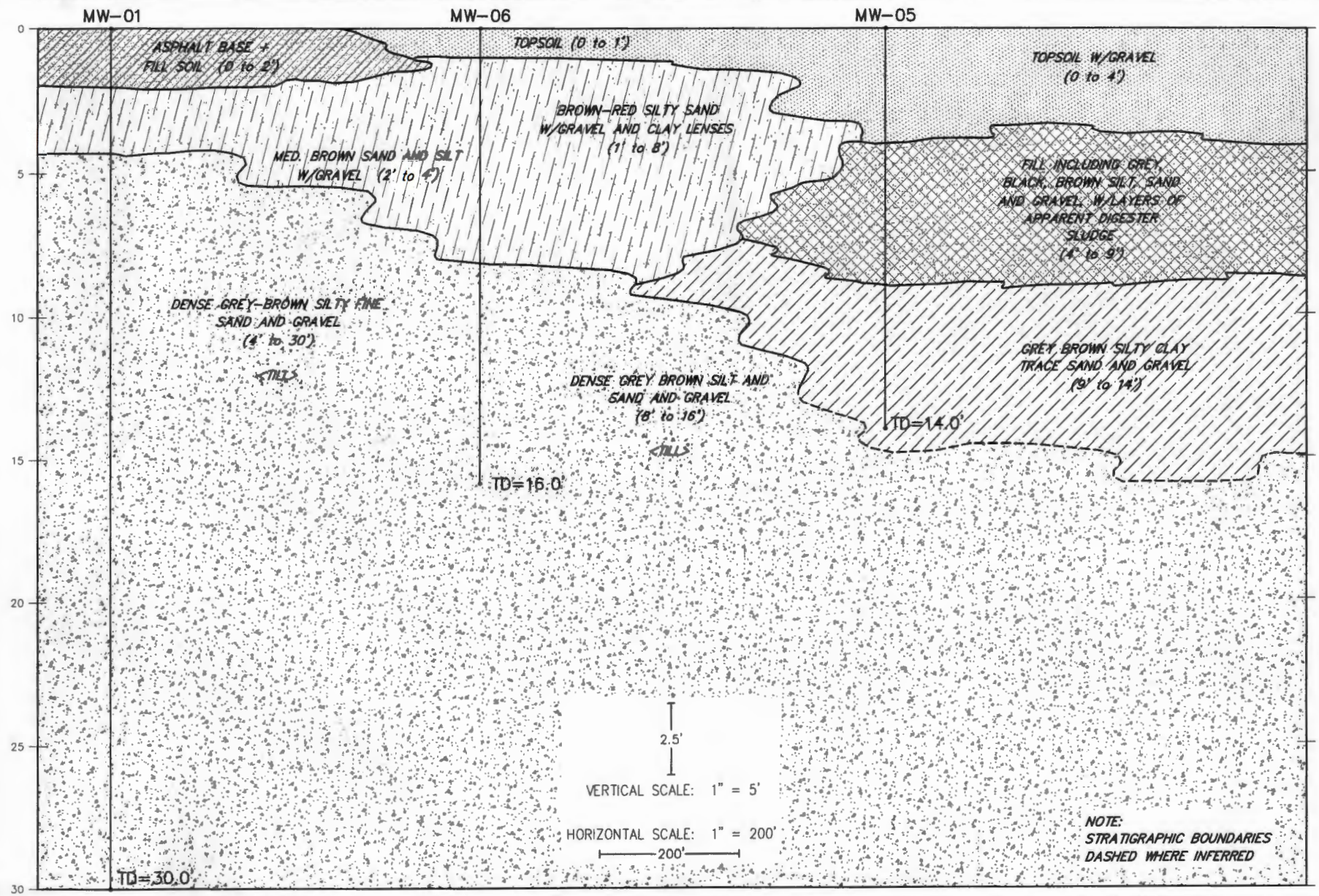

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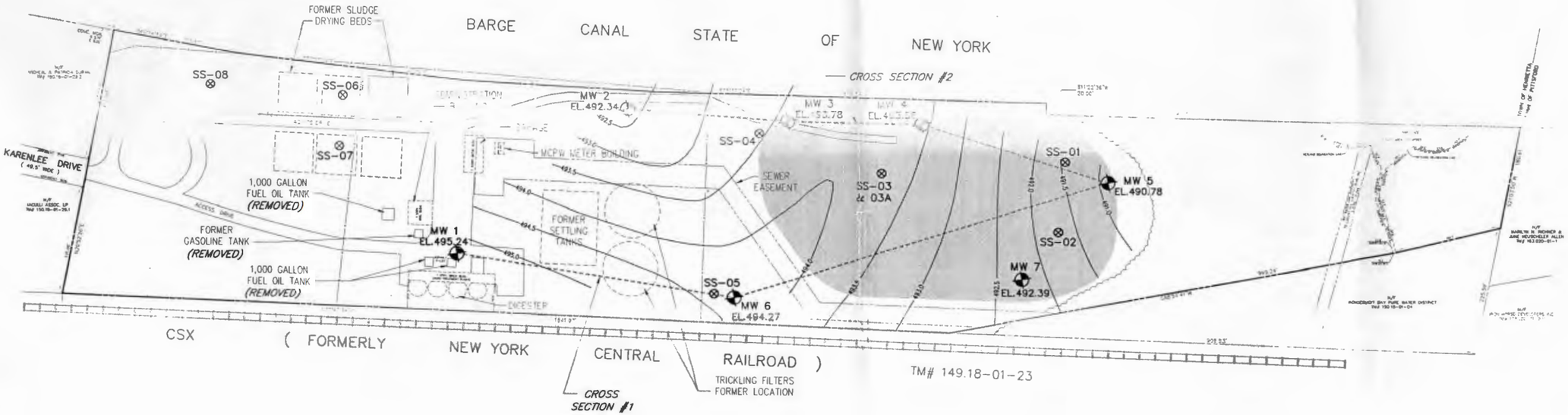
FIGURE 4
SOIL CROSS SECTION #2

KARENLEE DRIVE
VOLUNTARY CLEAN-UP PROGRAM
HENRIETTA, NEW YORK

DATE:	APRIL 2004
SCALE:	AS SHOWN
DESIGNED BY:	GLA
DRAWN BY:	DLS



GROUNDWATER CONTOUR MAP

SCALE: 1" = 200'

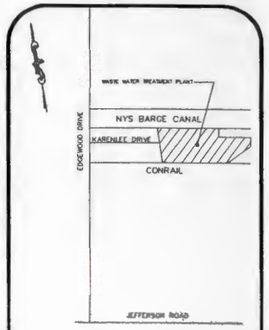
MONITORING WELL	GROUNDWATER ELEVATION (4/7/04)
MW 1	495.24'
MW 2	492.34'
MW 3	493.78'
MW 4	493.56'
MW 5	490.78'
MW 6	494.27'
MW 7	492.39'

LEGEND

- MW 6 EL.494.27 — MONITORING WELLS WITH ELEVATIONS
- 493.5 — GROUNDWATER CONTOURS
- SOIL SAMPLE LOCATIONS
- CROSS SECTIONS
- APPROXIMATE SLUDGE DISPOSAL AREA

0 100 200 300

SCALE



NOT TO SCALE

DATE	REVISIONS	BY

DRAWING ALTERATION

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1/18 NEW LAND BEARING & DISTANCE

BY: _____

DATE: _____

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PROJECT:

VOLUNTARY CLEANUP PROGRAM

TOWN HENRIETTA, COUNTY OF MONROE, STATE OF NEW YORK

CLIENT:

TOWN OF HENRIETTA

DRAWING TITLE:

FIGURE 5

DESIGNED BY: RM	SCALE: 1"=200'
DRAWN BY: DS	DATE: APRIL 2004
CHECKED BY: RM	PROJECT No. 8811-05

ANALYTE	SS-04	GUIDANCE VALUE TAGM 4046
BENZO (A) ANTHROCENE	0.81 ppm	0.224 ppm OR MDL*
BENZO (A) PYRENE	0.78 ppm	0.061 ppm OR MDL*
CHRYSENE	0.77 ppm	0.4 ppm

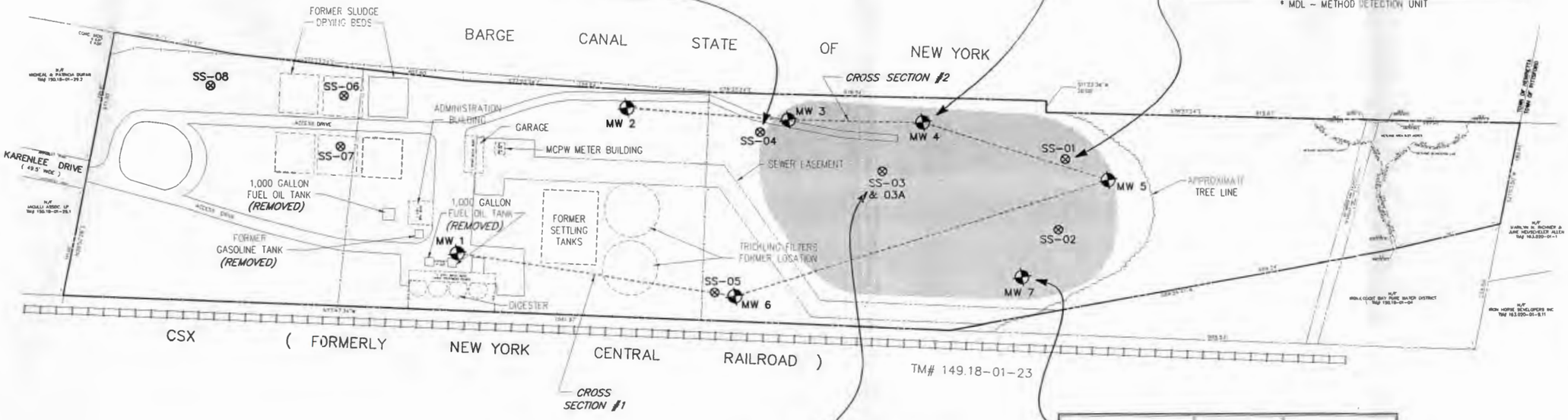
* MDL - METHOD DETECTION UNIT

ANALYTE	SB4 (5-8')	GUIDANCE VALUE TAGM 4046
BENZO (A) ANTHROCENE	0.6 ppm	0.224 ppm OR MDL*
BENZO (A) PYRENE	0.51 ppm	0.061 ppm OR MDL*
CHRYSENE	0.62 ppm	0.4 ppm
CHROMIUM	161 ppm	50 ppm**
MERCURY	0.39 ppm	0.1 ppm

* MDL - METHOD DETECTION UNIT
** 1995 "PROPOSED" RECOMMENDED SOIL CLEAN-UP OBJECTIVE

ANALYTE	SS-01	GUIDANCE VALUE TAGM 4046
BENZO (A) ANTHROCENE	0.44 ppm	0.224 ppm OR MDL*
BENZO (A) PYRENE	0.47 ppm	0.061 ppm OR MDL*
CHRYSENE	0.52 ppm	0.4 ppm

* MDL - METHOD DETECTION UNIT



ANALYTE	SS-03	SS-03A	GUIDANCE VALUE TAGM 4046
BENZO (A) ANTHROCENE	0.93 ppm	1.0 ppm	0.224 ppm OR MDL*
BENZO (A) PYRENE	0.86 ppm	1.0 ppm	0.061 ppm OR MDL*
BENZO (B) FLOURENTHENE	1.1 ppm	1.3 ppm	1.1 ppm
CHRYSENE	1.0 ppm	1.2 ppm	0.4 ppm

* MDL - METHOD DETECTION UNIT

ANALYTE	SB7 (4-7.5')	GUIDANCE VALUE TAGM 4046
BENZO (A) ANTHROCENE	0.41 ppm	0.224 ppm OR MDL*
BENZO (A) PYRENE	0.45 ppm	0.061 ppm OR MDL*
CHRYSENE	0.52 ppm	0.4 ppm
CHROMIUM	370 ppm	50 ppm**
MERCURY	1.3 ppm	0.1 ppm

* MDL - METHOD DETECTION UNIT

LEGEND

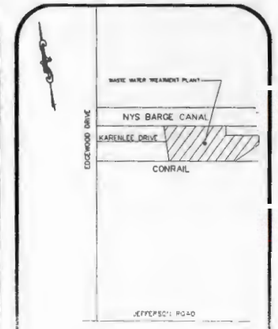
- MONITORING WELLS
- SOIL SAMPLE LOCATIONS
- CROSS SECTIONS
- APPROXIMATE SLUDGE DISPOSAL AREA

SAMPLING RESULTS EXCEEDING TAGM 4046 GUIDANCE VALUES

SCALE: 1" = 200'

0 100 200 300

SCALE



NOT TO SCALE

DATE	REVISIONS	BY

DRAWING ALTERATION

WARNING: It is a violation of the New York State Education Law, Article 145, Section 7209, Special Provision 2, for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his seal and notation "altered by" followed by his signature and date of such alteration, and a specific description of the alteration.

1/10 WETLAND BEARING & DISTANCE

BY: _____

DATE: _____

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PROJECT:

VOLUNTARY CLEANUP PROGRAM

TOWN HENRIETTA, COUNTY OF MONROE, STATE OF NEW YORK

CLIENT:

TOWN OF HENRIETTA

DRAWING TITLE:

FIGURE 6

DESIGNED BY: RM	SCALE: 1"=200'
DRAWN BY: DS	DATE: APRIL 2004
CHECKED BY: RM	PROJECT No. 8811-05
SHEET 6 OF 6	DRAWING No. 6