NEW YORK STATE SUPERFUND CONTRACT
IMMEDIATE INVESTIGATION WORK ASSIGNMENT

VOLUME I
REPORT
AND APPENDICES A-B

Atlas Graphics
Site No. 1-30-043B
Work Assignment No. D002676-20
DATE: March 1999

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233
John Cahill, *Commissioner*

Division of Environmental Remediation
Michael J. O'Toole, *Director*

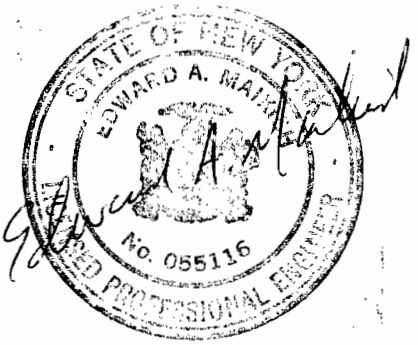
By:
Lawler, Matusky & Skelly Engineers LLP

ATLAS GRAPHICS (Site I.D. No. 1-30-043B)
IMMEDIATE INVESTIGATION WORK ASSIGNMENT
(IIWA)

TOWN OF NORTH HEMPSTEAD, NASSAU COUNTY

Work Assignment No. D002676-20

IIWA Report



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March 1999

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ATLAS GRAPHICS SITE
IIWA REPORT
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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW AND OBJECTIVES OF THE IIWA

The New Cassel Industrial Area (NCIA) is located in the unincorporated village of Westbury in the Town of North Hempstead, Nassau County, New York (Figure 1-1). Approximately 200 industrial or commercial businesses occupy this 170-acre site (Figure 1-2). Due to extensive halogenated volatile organic contamination of groundwater beneath the site, the New York State Department of Environmental Conservation (NYSDEC) classified the entire industrial area as a hazardous waste site in 1988. Based on the results of a Site Investigation (SI) and Preliminary Site Assessment (PSA) conducted by Lawler, Matusky & Skelly Engineers LLP (LMS) the individual facilities responsible for the contamination were identified as Class 2 sites on the New York State Registry of Inactive Hazardous Waste Disposal Sites. The Atlas Graphics Site was identified as one of these facilities.

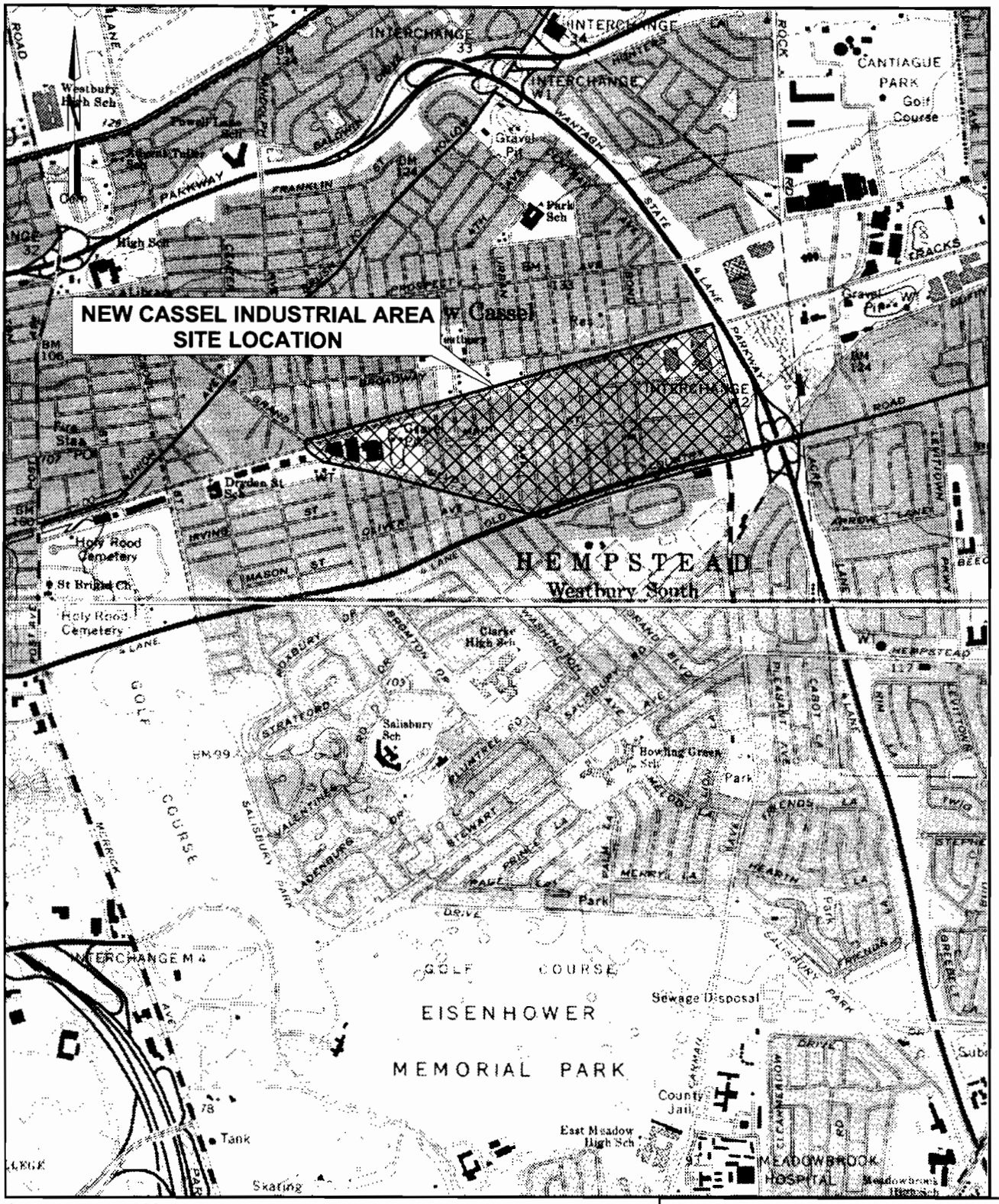
The objectives of the Immediate Investigation Work Assignment (IIWA) at the Atlas Graphic site were to locate the source of the contaminants in on-site soils and determine the nature and extent of the groundwater contamination plume under the site.

1.2 SITE LOCATION AND DESCRIPTION

The Atlas Graphics Site, (NYSDEC Site No. 1-30-143B on the New York State Registry of Inactive Hazardous Waste Sites) is located at 567 Main Street in the New Cassel Industrial Area (NCIA), Town of North Hempstead, Nassau County, New York (Figure 1-2). The site is comprised of approximately 8000 square feet which is bounded by a Swalm Avenue to the west, commercial buildings and parking lots to the north and east, and Main Street to the south. The property is currently a active printing and graphics operation which occupies the small two story commercial building on the site.

1.3 SITE BACKGROUND

Historic records of the Atlas Graphics site indicate the site was developed prior to 1971. Past occupants of the site include a construction company, a heating company, a development association, and a mill/mill supply company. Atlas Graphics began operations at the site in 1977 and have operated continuously since that time. Chemical usage records indicate that Atlas Graphics used 312 gallons of trichloroethylene (TCE) each year for degreasing purposes. The



0 2000 ft

SCALE
1 in. = 2000 ft

Map source:

USGS 7.5-minute quadrangle series,
Freeport, NY, 1969, photorevised 1979,
Hicksville, NY, 1967, photorevised 1979.

Figure 1-1

New Cassel Industrial Area Site Location

ATLAS GRAPHICS
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043 B

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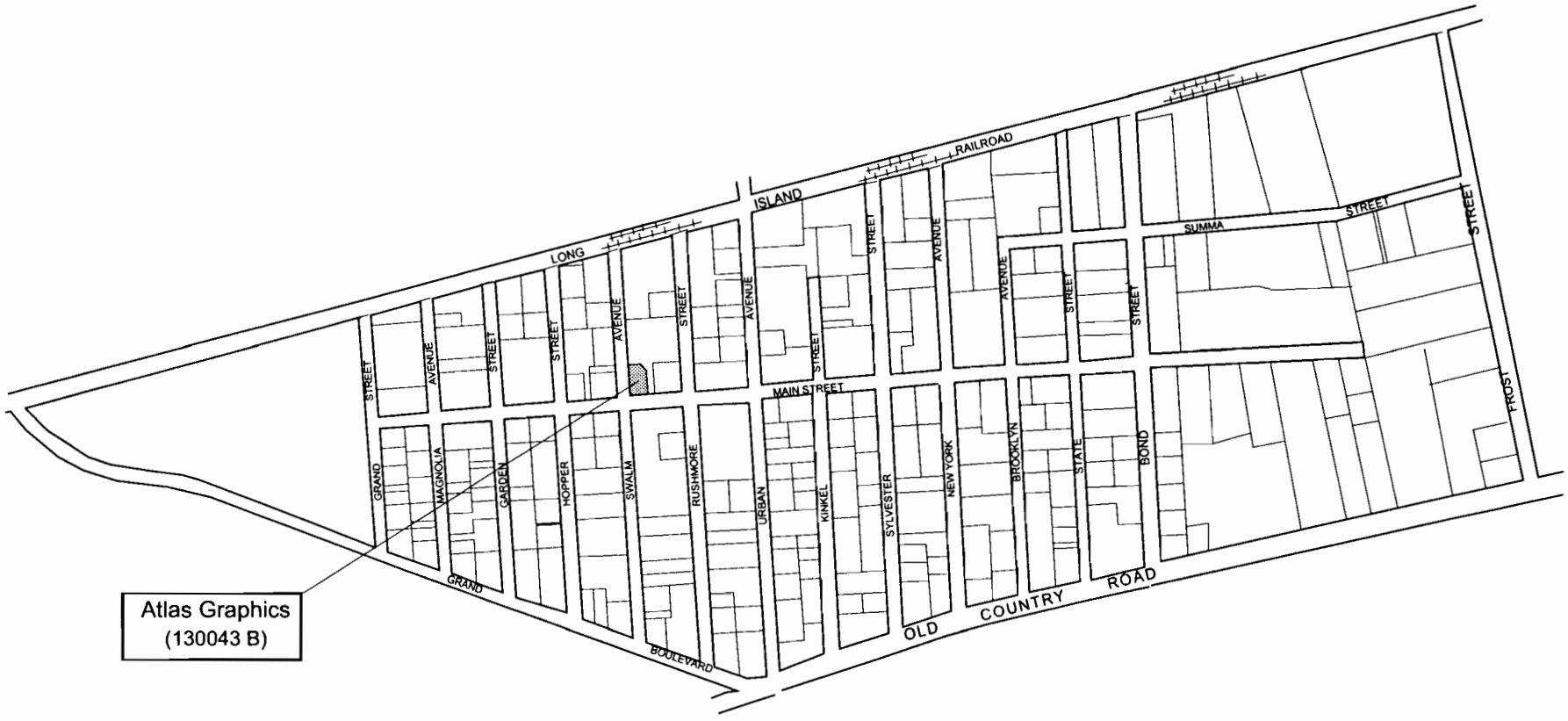


Figure 1-2

Atlas Graphics
Site Location

ATLAS GRAPHICS
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

wastewater from this operation was discharged directly into a cesspool off the southwest corner of the building. The cesspool reportedly received both the industrial wastewater and the sanitary discharge. Investigations conducted by the Nassau County Health Department (NCDOH) indicated that the cesspool was heavily contaminated with TCE. In 1978 a sample collected by NCDOH showed 4,500 µg/kg TCE and 100 µg/kg of 1,1,1-trichloroethane (1,1,1-TCA), an additional sample collected in 1980 contained 318,760 µg/kg of TCE. The industrial discharges to the cesspool resulted in a SPDES violation which was corrected by equipment changes at the facility. The Atlas Graphics facility was eventually connected to the county sewer system in November 1980. Records pertaining to the cleaning and abandonment of the cesspool when the facility was connected to the county sewer were not located. It is not know if the cesspool was cleaned and removed or if any hazardous wastes were removed from the site at that time.

Previous investigations in the vicinity of the Atlas Graphics site include the SI and PSA conducted by LMS in 1994 to 1997. The records search conducted during the SI revealed the past discharge history and sampling data for the site. Concentrations of tetrachloroethylene (PCE) related contaminants were found to significantly higher in a geoprobe point (GP-20) located downgradient of the Atlas Graphics site than upgradient concentrations. Although significant concentrations were measured in GP-20 the contamination could not be entirely attributed to the Atlas Graphics site since GP-20 was also in the immediate vicinity of IMC Magnetics. This site is also a Class 2 site which is located directly across Main Street south of the Atlas Graphics site. Past records and sampling data indicated IMC used and disposed of wastes with similar compounds as those used by Atlas Graphics. The sampling data and the documented disposal of hazardous wastes resulted in a Class 2 status on the New York State Registry of Inactive Hazardous Waste Disposal Sites for the Atlas Graphics site. At that time the contribution of the Altas Graphics site to the known groundwater contamination problem in the area could not be resolved due to the presence of IMC Magnetics.

Prior to beginning the IIWA sampling a site reconnaissance of the site was conducted by LMS and NYSDEC representatives. The site reconnaissance verified that site conditions had not changed since the initial site investigation. During the site reconnaissance sampling locations were selected and the location of any subsurface utilities noted. The original scope of work for the sampling efforts included a number of soil and groundwater probes. This was latter modified to include the installation of several hydropunches and a single test pit due to difficult subsurface conditions. A full description of the field investigation procedures are found in Chapter 2.

CHAPTER 2

FIELD INVESTIGATION PROCEDURES

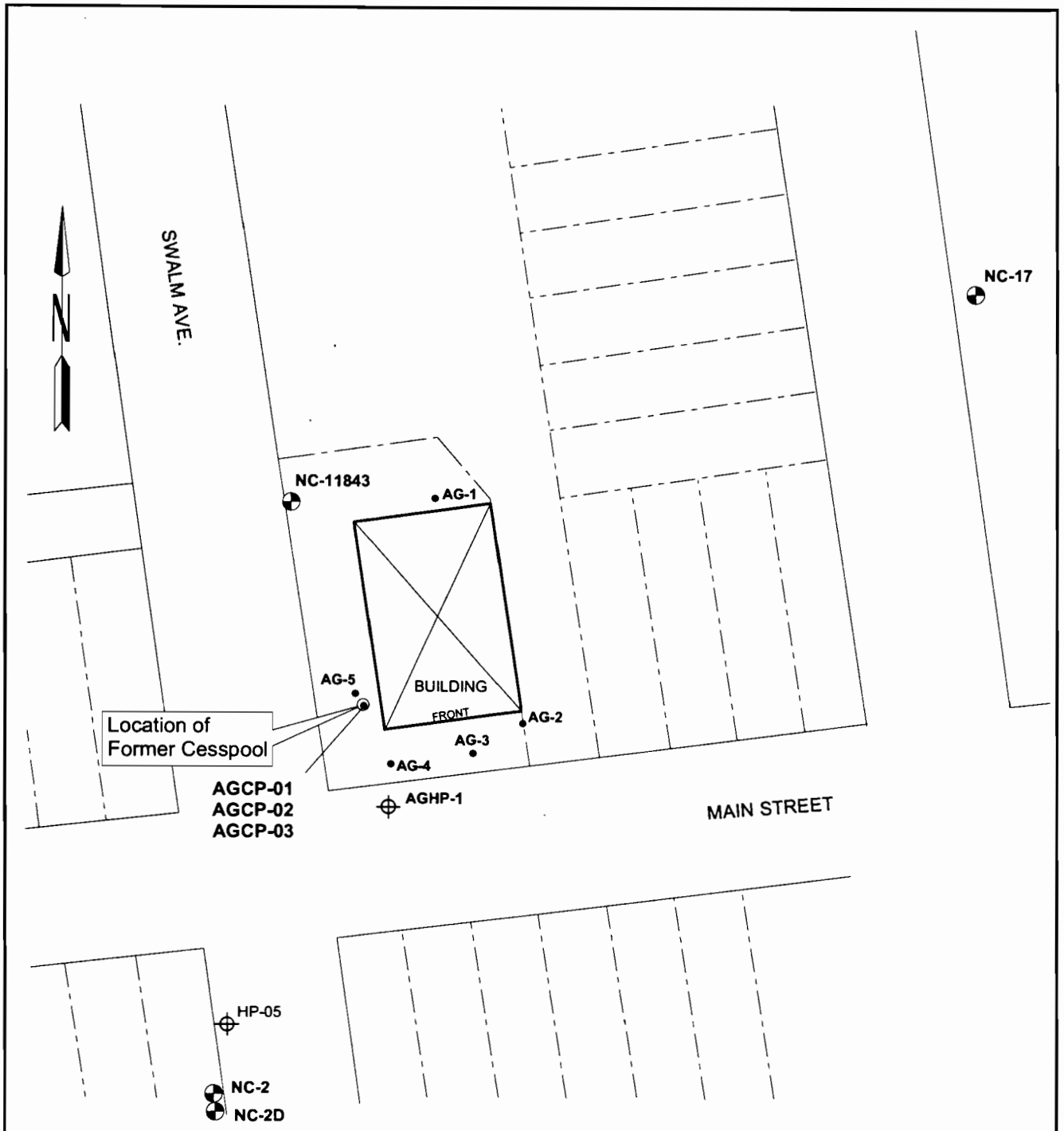
2.1 SOIL AND GROUNDWATER PROBES

A total of 5 (AG-01 to AG-05) soil and groundwater probe sample locations were completed during the IIWA (Figure 2-1). Each of the soil and groundwater probe samples were advanced using a truck mounted probe unit utilizing a direct push hydraulic hammer system.

Soil samples were taken with a sampling tube which was fitted with a dedicated disposable acetate liner. Soil samples were examined and described on a boring log, noting the following characteristics: moisture content, lithology, color, texture, and evidence of contamination (odor, staining, sheen, organic vapor readings, and other sample-specific notations). Depth, rate of penetration, and sample recovery were also noted on the same log. The soil samples were scanned with a photoionization detector (PID) immediately upon the opening the acetate liner in order to detect the presence of any volatile organic compounds (VOCs). Probe boring logs and the field notes can be found in Appendix A.

The groundwater probe screen sampler is constructed of a tightly wound coil of stainless steel enclosed in a steel sheath. The groundwater screen sampler enables samples to be collected from discrete 4-ft intervals. When the screen sampler reached the desired depth, the probe rods and the screen sheath were raised four feet, exposing the screen. A dedicated length of polyethylene tubing fitted with a check valve was then inserted through the probe rods to the screen. By manually surging the tubing, water was drawn to the surface. The tubing was then surged until at least three times the volume of water in the probe rods was purged to insure that the groundwater sample was from the correct interval. The sample was then collected by transferring it directly to the sample containers. Once the deepest sample was obtained, the entire assembly was raised to the next sampling interval above. A new length of dedicated tubing, fitted with a check valve, was then inserted through the probe rods and the process repeated. After the sample was collected, the entire assembly was raised to the shallow interval and the entire process repeated.

Groundwater and soil probe samples were transferred to laboratory-cleaned glass jars and labeled with the appropriate sample location, interval, date, time, sampler, and required analyses. Each of the samples were shipped by overnight carrier to the NYSDEC contract



LEGEND

- Existing monitoring well locations
- **AG-#** • Geoprobe sampling locations (Soil probes -SP, groundwater -GW)
- **AGHP-01** *and* **HP-05** ⊕ Hydropunch sample locations
- **AGCP-0#** Geoprobe soil samples within the former cesspool
- **NOTE:** Locations are approximate

0 10 ft 50 ft
APPROXIMATE SCALE IN FEET

\650\NEWCAS\ATLAS.ds4

Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Probe, Hydropunch, and Monitoring Well Locations** New Cassell Industrial Area • Atlas Graphics Property NYSDEC I.D. No. 130043	**Figure 2-1**

laboratory for analysis of VOC's. Specific information on the analytical methods and protocols are found in Section 2.5.

2.2 TEST PIT INSTALLATION

A single test pit was constructed at the Atlas site to assist in placement of additional soil probe sampling locations. Delta Well & Pump Inc. (Delta), of Ronkonkoma, New York, was subcontracted to complete the test pit at the site. Delta used a tire mounted backhoe to complete the test pit under direct supervised of a LMS geologist. The test pit was located to uncover the precise location of the former leachpool located off the south west corner of the building. Once the pool was located several soil probes were completed in the test pit using the procedures found in Section 2.1.

Once the test pit was completed the excavated soils were returned to the test pit and a hot patch placed over the excavated area. The asphalt removed form the test pit location was disposed of at an off-site location.

2.3 HYDROPUNCH GROUNDWATER SAMPLING

Groundwater samples were collected using the hydropunch sampling equipment at 2 locations (Figure 3-3). The hydropunches were conducted during two mobilizations on 22 September 1997 and 24 February 1998. The second mobilization was required since this hydropunch was placed within the town roadway and required a roadway lane closure. Hydropunch groundwater samples were collected from the water table (~60-ft), 70 ft, and 80 ft below the ground surface. The hydropunch sampling resulted in a total of 6 samples.

Delta was also subcontracted to complete the hydropunches at the site using a truck-mounted drill rig. Each of the hydropunch's were completed using 4.25-in. hollow-stem augers (HSA). All drilling and sampling activities were supervised by an LMS geologist. Soil sampling was conducted according to the standard penetration test method ASTM 1586-D. This procedure involves sampling the overburden in 2-ft intervals with a 2-ft-long, 2-in. O.D. split-spoon sampler driven by a 140-lb hammer falling 30 in. Soil samples were examined and described on a boring log, noting the following characteristics: moisture content, lithology, color, texture, and evidence of contamination (odor, staining, sheen, organic vapor readings, and other sample-specific notations). Depth, blow counts, and sample recovery were also noted on the same log. The soil samples were scanned with a photoionization detector (PID)

immediately upon the opening of the split-spoon sampler in order to detect the presence of any volatile organic compounds (VOCs).

At each of the hydropunch sampling depths, the drilling rods were removed from the boring and a steam-cleaned hydropunch tool was attached to the rods. The rods were then lowered back into the boring and the hydropunch driven to the desired sampling depth. Once the hydropunch tool had been driven to the desired depth, it was retracted several inches to expose the sample port. The hydropunch tool was then allowed to fill with the groundwater sample. Once the hydropunch tool was filled, it was returned to the surface.

Hydropunch groundwater samples were then transferred to laboratory-cleaned glass jars and labeled with the appropriate sample location, interval, date, time, sampler, and required analyses. Each of these groundwater samples were shipped by overnight carrier to the NYSDEC contract laboratory for analysis. Specific information on the analytical methods and protocols are found in Section 2.5

Once completed, the hydropunch boreholes were grouted to the ground surface and a concrete or blacktop patched was then placed over the borehole. All investigation derived wastes (IDW) including drilling cuttings and fluids were containerized in a neat and orderly fashion and transported to a staging area for later disposal. Analytical data from the drilling cuttings indicated that the soils were uncontaminated drilling cuttings and were disposed of accordingly. All drilling and hydropunch sampling equipment that came into contact with potentially contaminated soil, groundwater, or dust was decontaminated before being removed from the site and between each sample location.

2.4 EXISTING MONITORING WELL SAMPLING

A total of 4 existing monitoring wells (NC-2, NC-2d, N-11843, and NC-17) in the vicinity of the Atlas site were sampled. Based on the SWL and the total depth of the well, the volume of water in the well was calculated. All of the wells were then purged until three well volumes were removed. If a well did not produce sufficient water to allow three well volumes to be purged, it was purged dry. Monitoring well sampling logs can be found in Appendix B.

During the purging process, turbidity, temperature, pH, and conductance were measured at routine intervals to track the purging process and provide sampling chemistries. All samples were collected from the top of the water column using new, dedicated Teflon bailers and rope. Sample chemistries, including temperature, turbidity, pH, and specific conductance,

were taken when sufficient volume of water was available. Hydropunch groundwater samples were then transferred to laboratory-cleaned glass jars and labeled with the appropriate sample location, interval, date, time, sampler, and required analyses. Each of these groundwater samples from the existing monitoring wells were shipped by overnight carrier to the NYSDEC contract laboratory for analysis. Specific information on the analytical methods and protocols are found in Section 2.5.

2.5 SOIL AND GROUNDWATER ANALYTICAL PROCEDURES

Each of the soil and groundwater samples were submitted to a New York State Department of Health (NYSDOH) certified laboratory for the analysis of TCL VOCs using CLP Methods 95-1. A subset of the samples were also analyzed for TAL metals using. A summary of the analysis which were completed and the analytical procedures are found on Table 2-1. For QA/QC purposes, each sample shipment containing groundwater samples included a trip blank. During the soil and groundwater sampling dedicated sampling equipment was used which eliminated the need to collect equipment blanks.

CHAPTER 3

SOIL AND GROUNDWATER ANALYTICAL RESULTS

3.1 SOIL PROBE RESULTS

Sampling data from the LMS contract laboratory was received directly by LMS. The remaining data packages were supplied to LMS through the NYSDEC once the data was received and reviewed by the NYSDEC project manager. The soil probe results include the analysis of Samples from 8 locations, the results are summarized on Table 3-1.

No target compounds were detected at the quantitation limit in AGSP-01 at each of the ten depths which were sampled and analyzed. The single soil sample at AGSP-02 also did not contain any target compounds. No target compounds were detected at the quantitation limit in AGSP-03 at each of the five depths (5-7 ft, 10-12 ft, 22-24 ft, 30-32 ft, and 40-42 ft) which were sampled and analyzed (Table 3-1). No target compounds were also detected at the quantitation limit in AGSP-04 at each of the three depths (20-22 ft, 30-32 ft, and 40-42 ft) which were sampled and analyzed (Table 3-1). Traces of methylene chloride were found in many of the samples, the presence of methylene chloride is a result of laboratory contamination.

A total of seven soil samples were collected at AGSP-05 the results of the VOC analysis are shown on Table 3-1. No target compounds in excess of the NYSDEC recommended soil cleanup objective were detected in the samples with the exception of acetone at .43 mg/kg in the 20-22 ft sample. In addition to acetone TCE was detected at .042 mg/kg in AGSP-05 (5-7 ft) and at .11 mg/kg in the 20-22 ft sample. AGSP-05 was located adjacent to the former cesspool location and the presence of target compounds in the soil in this area suggest a nearby source area. This is supported by the high concentrations in the groundwater which were found in this area (AGGP-05). On reviewing the data found in this area three additional soil probes through the former cesspool (AGCP-01 to AGCP-03) were added to the investigation to collect additional soil samples for VOC analysis. A single soil sample from AGSP-05 (17 to 19 ft) was collected for SVOC analysis, no SVOC's in excess of the NYSDEC recommended soil cleanup objective were detected (Table 3-1).

Three additional probes (AGCP-01, AGCP-02, and AGCP-03) were completed inside of the test pit which was constructed to located the exact position of the former cesspool. At AGCP-01 soil probe samples were collected at 8-12 ft, 12-16 ft, and 16-20 ft bgs. The analytical data for these soil probe samples did not indicate the presence of any target compounds above the quantitation limit (Table 3-1). At AGCP-02 soil probe samples were also collected at 8-12 ft, 12-16 ft, and 16-

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	AGSP-01 B60201 (5-7ft)	AGSP-01 B60202 (10-12ft)	AGSP-01 B60203 (15-17ft)	AGSP-01 B60204 (20-22ft)	AGSP-01 B60205 (25-27ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (a)
VOLATILE ORGANICS (mg/kg)						
Chloromethane	ND	ND	ND	ND	ND	1.9
Methylene chloride	ND	ND	ND	ND	0.001 j	0.1
Acetone	ND	ND	ND	ND	ND	0.2
2-Butanone	ND	ND	ND	ND	ND	0.3
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.8
Trichloroethylene	ND	ND	ND	ND	ND	0.7
2-Hexanone	ND	ND	ND	ND	ND	N/A
Tetrachloroethylene	ND	ND	ND	ND	ND	1.4
Toluene	ND	ND	ND	ND	ND	1.5

(a) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

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11/11/98

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	AGSP-01 B60206 (30-32ft)	AGSP-01 B60207 (35-37ft)	AGSP-01 B60208 (40-42ft)	AGSP-01 B60209 (45-47ft)	AGSP-02 B60210 (10-12ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (a)
VOLATILE ORGANICS (mg/kg)						
Chloromethane	ND	ND	ND	ND	ND	1.9
Methylene chloride	ND	ND	ND	ND	ND	0.1
Acetone	ND	ND	ND	ND	ND	0.2
2-Butanone	ND	ND	ND	ND	ND	0.3
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.8
Trichloroethylene	ND	ND	ND	ND	ND	0.7
2-Hexanone	ND	ND	ND	ND	ND	N/A
Tetrachloroethylene	ND	ND	ND	ND	ND	1.4
Toluene	ND	ND	ND	ND	ND	1.5

(a) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
DL - Diluted sample analysis.

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # NYSDEC Sample Designation DEPTH	AGSP-03 B60231 (5-7ft)	AGSP-03 B60232 (10-12ft)	AGSP-03 B60233 (22-24ft)	AGSP-03 B60234 (30-32ft)	AGSP-03 B60236 (40-42ft)	AGSP-04 B60250 (20-22ft)	AGSP-04 B60251 (30-32ft)	AGSP-04 B60252 (40-32ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
VOLATILE ORGANICS(mg/kg)									
Methylene chloride	0.002 j b	ND	ND	ND	ND	ND	ND	0.002 j b	5
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	50
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	N/A
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	5
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	5
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	50
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	5

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
b - Found in associated blanks.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # NYSDEC Sample Designation DEPTH	AGSP-05 B60211 (5-7 ft)	AGSP-05 B60211 (10-12 ft)	AGSP-05 B60213 (15--17 ft)	AGSP-05 B60214 (17-19 ft)	AGSP-05 B60215 (20-22 ft)	AGSP-05 B60216 (25-27 ft)	AGSP-05 B60217 (30-32 ft)	AGSP-05 B60218 (35-37 ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
VOLATILE ORGANICS(mg/kg)									
Methylene chloride	0.001 j	ND	ND	♦	ND	ND	ND	0.002 j b	5
Acetone	ND	ND	0.005 j	♦	.430 d	0.008 j	0.003 j	0.009 j b	50
2-Butanone	ND	ND	ND	♦	0.008 j	ND	ND	ND	N/A
1,1,1-Trichloroethane	0.001 j	ND	ND	♦	0.002 j	ND	ND	ND	5
Trichloroethylene	.042 d	ND	0.002 j	♦	0.110	ND	ND	ND	5
2-Hexanone	ND	ND	ND	♦	0.002 j	ND	ND	ND	50
Tetrachloroethylene	0.002 j	ND	ND	♦	ND	ND	ND	ND	5
Toluene	ND	ND	ND	♦	0.006 j	ND	ND	ND	5

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
♦ - Not analyzed.
b - Found in associated blanks.
d - Concentration recovered from a 5:1 diluted sample.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	TOTAL AGSP-03 B60240 (10-12ft)	TOTAL AGSP-05 B60219 (35-37ft)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
TAL METALS (mg/kg)				
Aluminum	1,340	394	33,000	SB
Antimony	ND N	ND	0.6 - 10 (n)	SB
Arsenic	ND N	0.95 B	3.0 - 12.0 æ	7.5 or SB
Barium	5.8 B	1.5 B	15 - 600	300 or SB
Beryllium	0.11 B	0.17 B	0 - 1.75	0.16 or SB
Cadmium	ND N	0.12 B	0.1 - 1.0	1 or SB
Calcium	169 B	73.5 B	130 - 35,000 æ	SB
Chromium	17.6 N R	7.3 R	1.5 - 40.0 æ	10 or SB
Cobalt	0.97 B	0.33 B	2.5 - 60.0 æ	30 or SB
Copper	3.1 B	1.6 B	1.0 - 50.0	25 or SB
Iron	3,590 R	1,800 R	2,000 - 550,000	2,000 or SB
Lead	1.3	1.5	4.0 - 61 or 200 - 500*	SB*
Magnesium	349 B	48.8 B	100 - 5,000	SB
Manganese	36.1	3.5	50 - 5,000	SB
Mercury	ND N	0.06 B	0.001 - 0.2	0.1
Nickel	2.7 B	3.9 B	0.5 - 25	13 or SB
Potassium	230 B	40.7 B	8,500 - 43,000 æ	SB
Selenium	ND N	ND	0.1 - 3.9	2 or SB
Silver	ND N	1.3 B	0.1 - 5.0 (n)	SB
Sodium	38.3 B	30.5 B	6,000 - 8,000	SB
Thallium	0.31 B	0.49 B	0.1 - 0.8 (q)	SB
Vanadium	4.6 B	2.1 B	1.0 - 300	150 or SB
Zinc	ND N	3.8 B	9.0 - 50	20 or SB
Cyanide	ND	ND	N/A	**

* - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm in metropolitan or suburban areas or near highways.

** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.

æ - New York State background concentration.

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.

(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.

(q) - Bowan, H.J., Environmental Chemistry of the Elements.

B - Value is less than the contract-required detection limit but greater than the instrument detection limit.

N - Spiked sample recovery is not within control limits.

R - Duplicate analysis not within control limits.

N/A - Not available.

SB - Site background

ND - Not detected at analytical detection limit.

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	AGSP-05 B60214 (17-19ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
SEMIVOLATILE ORGANICS (mg/kg)		
Phenanthrene	0.055 j	50
Fluoranthene	0.110 j	50
Pyrene	0.110 j	50
Benzo(a)anthracene	0.058 j	0.002
Chrysene	0.099 j	0.002
bis(2-Ethylhexyl)phthalate	0.400	4
Benzo(b)fluoranthene	0.064 j	0.002
Benzo(k)fluoranthene	0.069 j	0.002
Benzo(a)pyrene	0.055 j	0.002
Indeno(1,2,3-c,d)pyrene	0.049 j	0.002
Benzo(g,h,i)perylene	0.069 j	N/A

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
j - Estimated concentration; compound present below quantitation limit.
N/ - Not available.

SOIL PROBE SAMPLING RESULTS

Atlas Graphics

PARAMETER	AGCP-01 (8-12ft)	AGCP-01 (12-16ft)	AGCP-01 (16-20ft)	AGCP-02 (8-12ft)	AGCP-02 (12-16ft)	AGCP-02 (16-20ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
VOLATILE ORGANICS (mg/kg)							
Methylene chloride	0.002 j b	0.002 j b	0.002 j b	0.002 j b	0.002 j b	0.002 j b	0.1
Acetone	ND	ND	ND	ND	ND	ND	0.2
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND.	0.8
Trichloroethylene	ND	ND	ND	0.930 e	0.015	ND	0.7
2-Hexanone	ND	ND	ND	ND	ND	ND	N/A
Tetrachloroethylene	ND	ND	ND	0.016	0.002 j	ND	N/A
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	0.6
Toluene	ND	ND	ND	0.160	0.004 j	ND	1.5
Ethylbenzene	ND	ND	ND	0.008 j	ND	ND	5.5
Xylene (total)	ND	ND	ND	0.028	ND	0.008 j	1.2

PARAMETER	AGCP-03 (4-8ft)	AGCP-03 (8-12ft)	AGCP-03 (12-16ft)	AGCP-03 DL (12-16ft)	AGCP-03 (16-20ft)	GCP-02 (8-12ft)D	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
VOLATILE ORGANICS (mg/kg)							
Methylene chloride	0.002 j b	0.002 j b	0.003 j b	ND	0.002 j b	0.024 j b	0.1
Acetone	ND	ND	ND	ND	ND	ND	0.2
1,1,1-Trichloroethane	ND	ND	0.006 j	ND	ND	ND	0.8
Trichloroethylene	0.009 j	ND	1.100 e	7.600	0.065	2.300	0.7
2-Hexanone	0.005 j	ND	ND	ND	ND	ND	N/A
Tetrachloroethylene	ND	ND	0.008 j	ND	0.016	0.068 j	N/A
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	0.6
Toluene	ND	ND	0.540 e	4.900	0.026	0.530	1.5
Ethylbenzene	0.003 j	ND	0.005 j	ND	ND	ND	5.5
Xylene (total)	0.006 j	0.006 j	0.017	ND	ND	ND	1.2

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
b - Found in associated blanks.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
N/ - Not available.
N - Not detected at analytical detection limit.

20 ft bgs. The analytical data for these soil probe samples did not indicate the presence of any target compounds in the 16-20 ft sample at AGCP-02 (Table 3-1). The concentration of TCE exceeded the recommended cleanup objective in the 8-12 ft soil probe sample with a concentration of 2.3 mg/kg. The recommended cleanup objective for TCE is .7 mg/kg. Only trace levels of TCE (.015 mg/kg) were found in the 12-16 ft soil probe sample. At AGCP-03 soil probe samples were collected at 4-8 ft, 8-12 ft, and 12-16 ft bgs. The analytical data for these soil probe samples did not indicate the presence of any target compounds above the quantitation limit in the 4-8 ft sample and the 8-12 ft sample (Table 3-1). The concentration of TCE exceeded the recommended cleanup objective in the 12-16 ft soil probe sample with a concentration of 7.6 mg/kg. Trace levels of TCE (.009 mg/kg), PCE (.005 mg/kg), ethylbenzene (.003 mg/kg), and xylene (.006 mg/kg) were also found in the 4-8 ft soil probe sample.

Soil samples for TAL metals analysis were collected at two locations (AGSP-03 [35-37 ft] and AGSP-03 [10-12 ft]) (Table 3-1). No metals were detected at concentrations which exceed the recommended soil cleanup objective or the anticipated site background concentrations in an industrialized area. All of the measured soil concentrations were within the eastern background soil concentrations.

3.2 GROUNDWATER PROBE RESULTS

A total of groundwater probe samples were collected from AGGW-01, AGGW-03, and AGGW-05, the results are summarized on Table 3-2. Groundwater probe samples were not collected at AGGW-02 and AGGW-04 due to refusals above the watertable. Several attempts to reach the other groundwater sampling depths at these locations also resulted in shallow refusal and after discussions with the NYSDEC project manager these locations were abandoned.

The results of AGGW-01 indicate concentrations of VOCs in excess of NYSDEC class GA groundwater standards at the shallow depth (56-60 ft). A groundwater probe sample was not taken at the intermediate depth (66-70 ft) since this zone appeared dry. Target compounds above the quantitation limit were not detected in the deep sample (76-80 ft). The primary target compound which was detected in the 56-60 ft sample was PCE (10µg/l). Other compounds found above the Class GA groundwater standards included acetone (150 µg/l), and benzene (2 µg/l). Trace levels of 1,2-DCE (10 µg/l), 2-butone (40 µg/l), TCE (4 µg/l), toluene (3 µg/l), xylene (2 µg/l), 4-methyl-2-pentanone (9 µg/l), 2-hexanone (5 µg/l), and styrene (1 µg/l).

The results of AGGW-03 indicate concentrations of VOCs in excess of NYSDEC class GA groundwater standards at all three of the depths sampled (56-60, 66-70 ft and 76-80 ft). The primary target compound which was detected is TCE and concentrations are highest at the shallow

GROUNDWATER PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	AGGW-01 B60230 (56-60ft)	AGGW-01 B60235 (76-80ft)	AGGW-03 B60239 (56-60ft)	AGGW-03 B60238 (66-70ft)	AGGW-03 B60237 (76-80ft)	TRIP BLANK	NYSDEC CLASS GA STANDARDS (a)
VOLATILE ORGANICS (µg/l)							
Methylene chloride	ND	ND	ND	ND	ND	1 j b	5
Acetone	150	ND	16	ND	ND	ND	50
1,1-Dichloroethylene	ND	ND	2 j	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	5
1,2-Dichloroethylene (total)	10	ND	10	3 j	ND	ND	N/A
1,2-Dichloroethane	ND	ND	8 j	ND	ND	ND	0.6
2-Butanone	40	ND	ND	ND	ND	ND	N/A
1,1,1-Trichloroethane	ND	ND	47	1 j	ND	ND	5
Trichloroethylene	4 j	ND	310 e	16	ND	ND	5
1,1,2-Trichloroethane	ND	ND	3 j	ND	ND	ND	5
Tetrachloroethylene	10	ND	30	6 j	40	ND	5
Toluene	3 j	ND	ND	ND	3 j	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	5
Xylene (total)	2	ND	ND	ND	ND	ND	N/A
Benzene	2 j	ND	ND	ND	ND	ND	0.7
4-Methyl-2-pentanone	9 j	ND	ND	ND	ND	ND	N/A
2-Hexanone	5 j	ND	ND	ND	ND	ND	50
Styrene	1 j	ND	ND	ND	ND	ND	5

(a) - NYSDEC Division Division of Water Technical and Operational Guidance Series (1.1.1) June 1998
♦ - Not analyzed.
d - Concentration recovered from diluted sample.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

GROUNDWATER PROBE SAMPLING RESULTS

Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	AGGW-05 B60220 (76-80 ft)	AGGW-05 B60221 (66-70 ft)	AGGW-05 B60222 (56-60 ft)	NYSDEC CLASS GA STANDARDS (a)
	[DL 25:1]	[DL 5:1]	[DL 5:1]	
VOLATILE ORGANICS (µg/l)				
Methylene chloride	1 j	1 j	ND	5
Acetone	440 e	130	92	50
1,1-Dichloroethene	1 j	ND	2 j	5
1,1-Dichloroethane	ND	ND	5 j	5
1,2-Dichloroethylene (total)	ND	4 j	13	N/A
1,2-Dichloroethane	ND	ND	3 j	8
2-Butanone	9 j	ND	ND	N/A
1,1,1-Trichloroethane	82	17	160	5
Trichloroethylene	3900 d	550 d	710 d	5
Benzene	ND	ND	ND	0.7
4-Methyl-2-pentanone	ND	ND	ND	N/A
2-Hexanone	ND	ND	ND	50
Tetrachloroethylene	56	17	15	5
Toluene	320 d	37	10	5
Ethylbenzene	1 j	ND	ND	5
Styrene	ND	ND	ND	5
Xylene (total)	4 j	ND	ND	N/A

(a) - NYSDEC Division Division of Water Technical and Operational Guidance Series (1.1.1) June 1998
d - Concentration recovered from diluted sample.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

GROUNDWATER PROBE SAMPLING RESULTS

Atlas Graphics

	TOTAL AGSP-05 B60223 (56-60ft)	DISSOLVED AGSP-05 B223AX (56-60ft)	TOTAL AGSP-05 B60224 (66-70ft)	DISSOLVED AGSP-05 B224AX (66-70ft)	NYSDEC CLASS GA STANDARDS
TAL METALS (µg/l)					
Aluminum	2111000	ND	68200	ND	NS
Antimony	ND N	ND	6.0 B N	ND	3.0
Arsenic	1500	ND	222	ND	25
Barium	852	28.7 B	356	41.4 B	1,000
Beryllium	18.9	0.20 B	4.8 B	0.27 B	3.0 GV
Cadmium	ND	ND	ND	0.63 B	5.0
Calcium	44700 B	17400	48900	43900	NS
Chromium	4710 N	ND	612 N	ND	50
Cobalt	73.1	6.0 B	33.7 B	7.7 B	NS
Copper	1490	1.5 B E	273	1.1 B E	200
Iron	2550000	4550	313000	10700	300 (m)
Lead	438 E	ND	75.5 E	ND	25
Magnesium	50400 B	17000	22900	19000	35,000 GV
Manganese	6370	407	1550	402	300 (m)
Mercury	3.4	ND	0.52	ND	0.7
Nickel	447	26.6 B	161	30.6 B	100
Potassium	89200	66100	19700	12300	NS
Selenium	34.4 B	ND	9.4 B	ND	10
Silver	2740	ND	281	ND	50
Sodium	44000	34000	33100	31400	20,000
Thallium	105 B	3.3 B	13.6 B	4.0 B	0.5 GV
Vanadium	1730	ND	304	1.7 B	NS
Zinc	15900	557	4450	1250	2,000 GV
Cyanide	N/A	N/A	N/A	N/A	200

(m) - Iron and manganese not to exceed 500 µg/l.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
N - Spiked sample recovery is not within control limits.
R - Duplicate analysis not within control limits.
N/A - Not available.
GV - Guidance value.
ND - Not detected at analytical detection limit.

depth (76-80 ft) (Table 3-2). Target compounds found at the shallow depth (56-60 ft) in excess of the Class GA groundwater standards include 1,1-DCE (2 µg/l), 1,1-DCA (8 µg/l), 1,1,1-TCA (47 µg/l), TCE (310 µg/l), and PCE (30 µg/l). Other compounds found at the shallow depth include acetone (16 µg/l) and 1,1,2-TCA (3 µg/l). Target compounds found at the intermediate depth (66-70 ft) in excess of the Class GA groundwater standards include TCE (16 µg/l), and PCE (6 µg/l). Other compounds found at the intermediate depth include 1,1,1-TCA (1 µg/l), and 1,2-DCE (3 µg/l). The only target compound found at the deepest depth (76-80 ft) in excess of the Class GA groundwater standards was PCE (40 µg/l). Toluene (3 µg/l) was also detected at the deepest depth. The only trend noted in the data from the AGGW-03 is a decreasing concentration of TCE with depth. The presence of high concentrations of TCE at the shallow depth suggest an on-site source of TCE. However, similar concentrations of TCE were noted in the upgradient sampling point (NC-17).

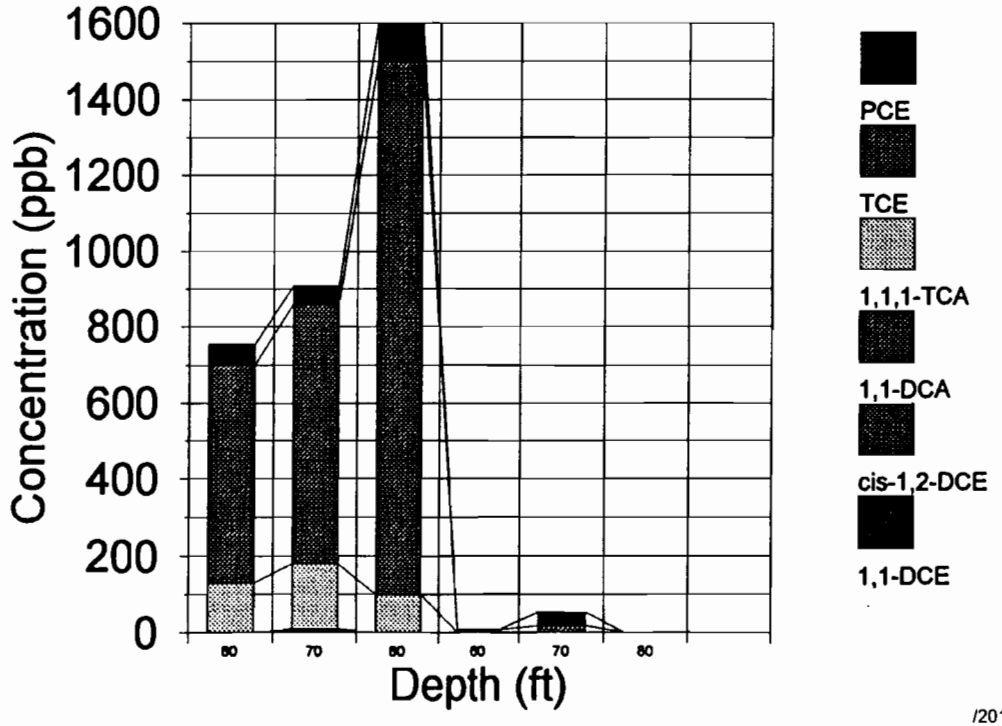
The results of AGGW-05 indicate concentrations of VOCs in excess of NYSDEC class GA groundwater standards at all three of the depths sampled (56-60, 66-70 ft and 76-80 ft). The primary target compound which was detected was TCE and concentrations are highest at the deepest depth (76-80 ft) (Table 3-2). Total VOCs at the two shallow depths (56-60 ft and 66-70 ft) were 1010 µg/l and 756 µg/l, respectively. At the deepest depth (76-80 ft) total VOCs were 4819 µg/l including 3900 µg/l of TCE. This geoprobe was located on the Atlas Graphics site just north of the former cesspool location. The presence of high levels of TCE in the vicinity of the former cesspool suggests that the past disposal of TCE into the cesspool has affected the groundwater quality in this area.

3.3 HYDROPUNCH GROUNDWATER SAMPLING RESULTS

The results of AGHP-01 indicate concentrations of VOCs in excess of NYSDEC class GA groundwater standards at 60, and 70 ft below the ground surface (Figure 3-1). No target compounds were detected at the deepest sampling depth (80 ft). At the 60 ft depth 8 µg/l PCE was detected, total VOC's at the 70 ft depth were 53 µg/l including 18 µg/l TCE and 35 µg/l PCE. This hydropunch was located along the north side of Main Street just south (downgradient) of the former cesspool on the Atlas site. The source of this groundwater contamination cannot be entirely attributed to the Atlas site since the upgradient groundwater contaminant concentrations are similar to those found in AGHP-01.

The results of HP-05 indicate concentrations of VOCs in excess of NYSDEC class GA groundwater standards at 60, 70, and 80 ft below the ground surface (Figure 3-1). The primary target compounds are 1,1-DCE, 1,1- DCA, 1,1,1-TCA, TCE, PCE and Toulene. The concentrations reach a peak concentration at 80 ft (Figure 3-1). The trend of the concentrations

Hydropunch:	HP-05	9/22/97		AGHP-01	2/24/98		
Depth	60	70	80	60	70	80	TB
1,1-DCE	0	4.9	0	0	0	0	0
cis-1,2-DCE	0	0	0	0	0	0	0
1,1-DCA	0	4.6	0	0	0	0	0
1,1,1-TCA	130	170	100	0	0	0	0
TCE	570	680	1400	8	18	0	0
PCE	53	48	99	0	35	0	0
Toulene	0	0	39				
Total VOC's	**753**	**907.5**	**1599**	**8**	**53**	**0**	**0**



/201DATA.dsf

Figure 3-1

Hydropunch Results

ATLAS GRAPHICS SITE
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

with depth below 80 ft is not known as sampling was stopped at 80 ft. Total VOCs peaked at 80 ft where 1599 µg/l was detected including 100 µg/l 1,1,1-TCA, 1400 µg/l TCE, 99 µg/l PCE, and 39 µg/l Toulene. Total VOCs at 70 ft where 907.5 µg/l including 4.9 µg/l 1,1-DCE, 4.6 µg/l 1,1-DCA, 170 µg/l 1,1,1 TCA, 680 µg/l TCE, and 48 µg/l PCE. Total VOCs at 60 ft where 753 µg/l including 130 µg/l 1,1,1 TCA, 570 µg/l TCE, and 53 µg/l PCE. This hydropunch was located along the west side of Swalm Avenue (Figure 3-1). This location is in a downgradient position of the former cesspool at the Atlas site. However, this sampling location is located immediately west of the IMC Magnetics site. Investigations at this site have shown that this site is heavily contaminated with target compounds as a result of past activities at this site. It is believed that most of the contamination detected in the HP-05 groundwater samples can be attributed to the IMC Magnetics site.

3.4 MONITORING WELL SAMPLING RESULTS

A total of four existing monitoring wells were sampled during the IIWA field sampling. The wells included NC-17, NC-2, NC-2D, and NC-11843. The analytical results for these groundwater samples are found in Table 3-3

The results from the NC-2 and NC-2D well pair showed concentrations of VOCs in excess of NYSDEC class GA groundwater standards in both wells (Table 3-3). NC-2 is the shallow watertable well completed to a total depth of approximately 122 ft. Target compounds detected in excess of NYSDEC class GA groundwater standards in this well include 1,2-DCE (24 µg/l), TCE (290 µg/l), and PCE (510 µg/l). NC-2D is the deeper well in this well pair with a total depth of approximately 122 ft. Target compounds detected in excess of NYSDEC class GA groundwater standards in this well include 1,2-DCA (7 µg/l), 1,1,1-TCA (29 µg/l), TCE (81 µg/l), and PCE (160 µg/l). The contamination in this area appears to be associated with the plume of TCE/PCE contamination which appears to originate from the Former IMC Magnetics site which is located just east of the NC-2 well pair. The maximum downgradient extent of this contamination is unknown.

The results from N-11843 also showed concentrations of VOCs in excess of NYSDEC class GA groundwater standards (Table 3-3). Target compounds detected in excess of NYSDEC class GA groundwater standards in this well include 1,2-DCE (7 µg/l), TCE (19 µg/l), and PCE (20 µg/l). This well is located approximately 22 ft from the center line of Swalm Street in the northwest corner of the Atlas property. It is in a upgradient position of the Atlas cesspool and the NC-2 well pair and is completed to a total depth of 59 ft. NC-17 has a total depth of approximately 64 ft. TCE (81 µg/l) was the only target compound detected in excess of NYSDEC class GA groundwater standards (Table 3-3). Trace levels of 1,2-DCE, and PCE were also detected in NC-17.

TABLE 3-3

DRAFT
11/11/98

MONITORING WELL SAMPLING RESULTS
Atlas Graphics

LMS Sample # / NYSDEC Sample Designation	NC-2D B60226	NC-2 B60227	N-11843 B60228	NC-17 B60229	TRIP BLANK	NYSDEC CLASS GA STANDARDS(a)
VOLATILE ORGANICS (µg/l)						
Methylene chloride	ND	ND	ND	ND	1 j b	5
Acetone	ND	ND	ND	10 j	ND	50
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	2 j	ND	ND	ND	5
1,2-Dichloroethylene (total)	ND	24	7 j	3 j	ND	N/A
1,2-Dichloroethane	7 j	ND	ND	ND	ND	0.8
2-Butanone	ND	ND	ND	ND	ND	N/A
1,1,1-Trichloroethane	29	100	3 j	ND	ND	5
Trichloroethylene	81	290 d	19	5 j	ND	5
Benzene	ND	ND	ND	ND	ND	0.7
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	N/A
2-Hexanone	ND	ND	ND	ND	ND	50
Tetrachloroethylene	160	510 d	20	41	ND	5
Toluene	3 j	2 j	2 j	3 j	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Styrene	ND	ND	ND	ND	ND	5
Xylene (total)	ND	ND	ND	ND	ND	N/A

(a) - NYSDEC Division Division of Water Technical and Operational Guidance Series (1.1.1) June 1998
d - Concentration recovered from diluted 5:1 sample.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not available.
ND - Not detected at analytical detection limit.

CHAPTER 4

CONCLUSIONS

This chapter presents the conclusions of the IIWA sampling and analysis at the Atlas Graphics Site, (NYSDEC Site No. 1-30-143B on the New York State Registry of Inactive Hazardous Waste Sites) is located at 567 Main Street in the New Cassel Industrial Area (NCIA), Town of North Hempstead, Nassau County, New York. Several of the soil samples collected during this investigation confirmed that hazardous wastes were disposed of on the site or are present on the site. The source area of this contamination appears to be isolated to the former cesspool location off the south west corner of the building.

The contamination appears to be the result of past disposal practices at the site. It is believed that wastes associated with the on-site graphics facility were disposed of in the on-site cesspool sometime between 1977 and 1980. Chemical usage records indicate that Atlas Graphics used 312 gallons of TCE each year for degreasing purposes. NCDOH indicated that the cesspool was heavily contaminated with TCE. In 1978 a sample collected by NCDOH showed 4,500 µg/l TCE and 100 µg/l of 1,1,1-TCA, an additional sample collected in 1980 contained 318,760 µg/l of TCE. The industrial discharges to the cesspool resulted in a SPDES violation which was corrected by equipment changes at the facility. The Atlas Graphics facility was eventually connected to the county sewer system in November 1980. Records pertaining to the cleaning and abandonment of the cesspool when the facility was connected to the county sewer were not located. It is not know if the cesspool was cleaned and removed or if any hazardous wastes were removed from the site at that time.

The groundwater probe, hydropunch groundwater samples, and the monitoring well groundwater samples were analyzed for the site to determine upgradient and downgradient contaminant concentrations. The upgradient groundwater sampling points included NC-17, AGGW-01, and NC-11843. The noted concentrations in the three upgradient points are significantly less than the downgradient groundwater sampling points (AGGW-03, AGGW-05, HP-01, HP-05, and NC-2 well cluster). The AGGW-05 was the closest groundwater sampling point to the former cesspool location which received the TCE contaminated wastewater. This sampling point showed the highest concentrations measured during this investigation. At AGGW-05 the concentrations of TCE were 710 µg/l in the 56-60 ft sample, 550 µg/l in the 66-70 ft sample, and 3900 µg/l in the 76-80 ft sample. The concentrations appear to be increasing with depth and the concentrations below 80 feet are not known as deeper sampling was not conducted. The vertical distribution of TCE suggests that the main body of contamination has migrated downward from the watertable.

The overall nature and extent of the groundwater contamination associated with the Atlas site is difficult to determine since the Atlas site is directly upgradient of the Former IMC Magnetics site located south of the Atlas site on Main Street. Past investigations at this facility indicate that the soils and groundwaters at this site were heavily contaminated with similar contaminants as those used at the Atlas site. It is likely that the large contaminant concentrations found in HP-05, NC-2 and NC-2D are the result of past disposal practices at IMC Magnetics.

APPENDIX A

Probe Boring Logs and Field Notes

SUBSURFACE EXPLORATION BORING LOG

BORING ID: AG-1

Project: Atlas Graphics IIWA

Page 1 of 1

Client: NYSDEC
Site Location: New Cassel, NY
Boring Location: NE corner of building
Drilling Co: Zebra Environmental
Drill Method: Direct push soil probe
Geologist: Perry Young

LMS Job No.: 650-201
LMS Disk No.: HS11246
Date Begin/End: 1/21/97
Total Depth: 47
Depth to Water:
NYSDEC Site No.: 1-30-043B

DEPTH (FT)	SAMPLER	RECOVERY	PID	FID	LITHOLOGY	Geologic Description (and = 35 - 50%; some = 20 - 35%; little = 10 - 20%; trace = 0 - 10%; f = fine; m = medium; c = coarse)	Remarks
2							
4							
6	LB	1.6		8 10 5		5-7 Orange medium and coarse quartz sand.	CLP VOA (5-7)
8							
10	LB	1.8		1 1 2		10-12 Brown-orange medium and coarse quartz sand, loose.	CLP VOA (10-12)
12							
14							
16	LB	1.8		7 7 5		15-17 Tan medium quartz sand, little to some coarse sand, loose.	CLP VOA (15-17)
18							
20	LB	1.4		3 3.5 3		20-22 Tan medium quartz sand, little to some coarse sand, loose.	CLP VOA (20-22)
22							
24							
26	LB	1.5		3 5 4		25-27 Tan medium and coarse quartz sand, loose.	CLP VOA (25-27)
28							
30	LB	1.8		2 5 4		30-32 Tan-brown medium quartz sand.	CLP VOA (30-32)
32							
34							
36	LB	1.7		3 0 1		35-37 Tan medium quartz sand.	CLP VOA (35-37)
38							
40	LB	2.0		3 2 2		40-42 Tan medium quartz sand, little fine sand.	CLP VOA (40-42)
42							
44							
46	LB	2.0		1 1 0		45-47 Tan medium quartz sand, little fine sand.	CLP VOA (45-47)
48						END OF BORING - REFUSAL AT 47 FT.	

SUBSURFACE EXPLORATION BORING LOG

BORING ID: AG-2

Project: Atlas Graphics IIWA

Client: NYSDEC
Site Location: New Cassel, NY
Boring Location: SE corner of building
Drilling Co: Zebra Environmental
Drill Method: Direct push soil probe
Geologist: Perry Young

LMS Job No.: 650-201
LMS Disk No.: HS11246
Date Begin/End: 1/21/97
Total Depth: 12
Depth to Water:
NYSDEC Site No.: 1-30-043B

DEPTH (FT)	SAMPLER	RECOVERY	PID	FID	LITHOLOGY	Geologic Description	Remarks
						and = 35 - 50% f = fine some = 20 - 35% m = medium little = 10 - 20% c = coarse trace = 0 - 10%	
10	LB	2.0		2 1 2		10-12 Tan-brown medium and coarse quartz sand, loose. END OF BORING - REFUSAL AT 12 FT.	CLP VOA (10-12)

SUBSURFACE EXPLORATION BORING LOG

BORING ID: AG-3

Project: Atlas Graphics IIWA

Client: NYSDEC
Site Location: New Cassel, NY
Boring Location: In front of building
Drilling Co: Zebra Environmental
Drill Method: Direct push soil probe
Geologist: Perry Young

LMS Job No.: 650-201
LMS Disk No.: HS11246
Date Begin/End: 1/23/97
Total Depth: 42
Depth to Water:
NYSDEC Site No.: 1-30-043B

Geologic Description

and = 35 - 50% f = fine
some = 20 - 35% m = medium
little = 10 - 20% c = coarse
trace = 0 - 10%

DEPTH (FT)	SAMPLER	RECOVERY	PID	FID	LITHOLOGY	Geologic Description	Remarks
2-4							
6	LB	1.7		1 3 1		5-7 Orange medium and coarse quartz sand.	CLP VOA (5-7)
8							
10	LB	1.2		4 2		10-12 Brown-orange medium and coarse quartz sand.	CLP VOA (10-12)
12-18							
20	LB	0.0				20-22 No recovery.	
22	LB	1.0		1 1 5		22-24 Tan medium and coarse quartz sand.	CLP VOA (22-24)
24-28							
30	LB	0.8		12 12		30-32 Brown-red medium quartz sand, trace coarse sand.	CLP VOA (30-32)
32-38							
40	LB					40-42 Orange-tan medium quartz sand.	CLP VOA (40-42)
42						END OF BORING - REFUSAL AT 42 FT.	
44							

SUBSURFACE EXPLORATION BORING LOG

BORING ID: AG-4

Project: Atlas Graphics IIWA

Client: NYSDEC
Site Location: New Cassel, NY
Boring Location: SW corner of building
Drilling Co: Zebra Environmental
Drill Method: Direct push soil probe
Geologist: Perry Young

LMS Job No.: 650-201
LMS Disk No.: HS11246
Date Begin/End: 1/24/97
Total Depth: 42
Depth to Water:
NYSDEC Site No.: 1-30-043B

DEPTH (FT)	SAMPLER	RECOVERY	PID	FID	LITHOLOGY	Geologic Description (and = 35 - 50%; some = 20 - 35%; little = 10 - 20%; trace = 0 - 10%; f = fine; m = medium; c = coarse)	Remarks
2							
4							
6	LB	1.9		1 0 0		5-7 Tan medium and coarse quartz sand, loose.	CLP VOA (5-7)
8	LB	1.8		20 15		7-9 Tan medium and coarse quartz sand, loose.	CLP metals (7-9)
10	LB	1.6		0 0		10-12 Tan medium and coarse quartz sand, loose.	CLP VOA (10-12)
12				1			
14							
16							
18							
20	LB	0.8		0 1		20-22 Tan medium and coarse quartz sand, trace pebbles, loose.	CLP VOA (20-22)
22							
24							
26							
28							
30	LB	0.9		0 0		30-32 Tan medium quartz sand, trace coarse sand, loose.	CLP VOA (30-32)
32							
34							
36							
38							
40	LB	1.2		5 6		40-42 Tan medium quartz sand.	CLP VOA (40-42)
42						END OF BORING - REFUSAL AT 42 FT.	
44							

SUBSURFACE EXPLORATION BORING LOG

BORING ID: AG-5

Project: Atlas Graphics IIWA

Client: NYSDEC
Site Location: New Cassel, NY
Boring Location: West of bldg, thru frm cesspool
Drilling Co: Zebra Environmental
Drill Method: Direct push soil probe
Geologist: Perry Young

LMS Job No.: 650-201
LMS Disk No.: HS11246
Date Begin/End: 1/22/97
Total Depth: 37
Depth to Water:
NYSDEC Site No.: 1-30-043B

Geologic Description

and = 35 - 50%
some = 20 - 35%
little = 10 - 20%
trace = 0 - 10%
f = fine
m = medium
c = coarse

DEPTH (FT)	SAMPLER	RECOVERY	PID	FID	LITHOLOGY	Geologic Description	Remarks
2							
4							
				5			
6	LB	0.7		2		5-7 Brown medium and coarse quartz sand, loose.	CLP VOA (5-7)
8							
10				2			
	LB	1.2		5		10-12 Brown medium and coarse quartz sand, loose.	CLP VOA (10-12)
12				2			
14							
				4			
16	LB	1.0		5		15-17 Orange-tan medium and coarse quartz sand, little pebbles.	CLP VOA (15-17)
				0			
18	LB	1.1		3		17-19 Dark orange-brown medium and coarse quartz sand. Presumed bottom depth of former cesspool.	CLP metals (17-19)
20							
	LB	0.6		30		20-22 Tan medium quartz sand, some coarse sand, little to trace fine sand.	CLP VOA (20-22)
22							
24							
				1			
26	LB	1.4		1		25-27 Orange-tan medium quartz sand, some fine sand, trace coarse sand.	CLP VOA (25-27)
				3			
28							
30				1			
	LB	1.5		1		30-32 Tan medium and fine quartz sand.	CLP VOA (30-32)
32				10			
34							
				2			
36	LB	1.2		6		35-37 Tan fine quartz sand, some medium sand.	CLP VOA (35-37)
				10			
38						END OF BORING - REFUSAL AT 37 FT.	

ATLAS GRAPHICS IIWA — 21 JAN 1997 — 30° CLEAR — TUES.

0715 PY LEAVES HOTEL TO PICK UP BOTTLES AT H2M

0745 PICK UP BOTTLES AT H2M

0815 ARRIVE ON SITE. GAS, ELEC. & WATER MARKOUTS ARE VISIBLE ON THE WEST SIDE OF THE PROPERTY ALONG SWALM AVE. INDENTATIONS IN PAVEMENT BEHIND BUILDING (NW CORNER) INDICATE POSSIBLE DRUM STAGING AREA.

0930 JEFF FROM ANSON ARRIVES. ANSON IS ATLAS GR. CONSULTANT. HERE TO OBSERVE

1000 ZEBRA ARRIVES. JOHN, MANNY.

1015 ZEBRA SET UP ON 1ST HOLE. BEGIN SOIL SAMPLING EVERY 5' TO ?.. (AGSP-1)

1130 JEFF & I UNCOVERED NC11843 - 2" Ø WELL UNDER "WATER" COVER.

1200 ZEBRA OFF-SITE FOR LUNCH.

1250 ZEBRA RETURNS, CONTINUE @ AGSP-1

1450 AGSP-1 - REFUSAL AT 45'
NO GW. TAKEN YET. SAMPLED

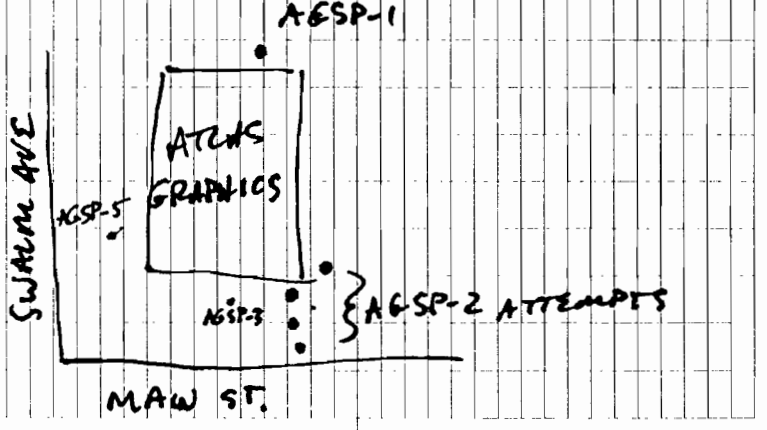
1500 SOIL @ 5' INTERVALS.

1500 CALL MIKE L. TOLD HIM JOE JONES HASN'T ARRIVED, REFUSAL @ 45'!

1505 JOE JONES ARRIVES ON SITE. (NYSDEC)
WE MOB ZEBRA TO AGSP-2 ON SE CORNER ON BUILDING. WE WILL SAMPLE SOIL @ 10' INTERVALS HERE AND RETURN TO SAMPLE GW AT AGSP-1 ~~AT~~ ANOTHER DAY. JOE JONES CONCURS PLAN.

1530 JEFF (ANSON) LEAVES SITE. MAY RETURN TOMORROW. HE TOOK SPLIT SAMPLES OF AGSP-1

1630 ZEBRA GOT 10-12' SOIL SAMPLE, WAS REFUSED ~14' (AGSP-2) MOVED 3', REFUSAL 4-10'. WE WILL SAMPLE THROUGH CESSPOOL TOMORROW, WHERE PREVIOUS REPORT (ANSON) INDICATES THAT ITS POSSIBLE TO REACH 50' (AT LEAST) WITH THE GEOPROBE.



22-JAN - WED.

ATLAS GRAPHICS 30° OVERCAST

0800 PY ON-SITE

0815 ZEBRA ON-SITE (JOHN, MANNY) MOVE TO CESS POOL AREA, WILL SAMPLE SOIL @ 5' INT. TO ?

1000 JEFF BOHLEN (ANSON) ON-SITE.

1045 NYSDEC DELIVERS MORE SAMPLE BOTTLES

JOE JONES LEAVES SITE w/ OTHER NYSDEC REPS - THEY WILL BE NEARBY (TISCHCON - NY AVE.)

1130 JEFF B OFF-SITE

1150 ZEBRA IS STOPPED @ 37' AT AGSP-5. WILL MOVE OFF HOLE ~3' & TRY TO PUSH WATER SAMPLER DEEPER.

PY CHECKED SWL IN NC 11843 - 55' BGS.

1230 JEFF B ON-SITE.

1235 ZEBRA IS AT 66'. ONLY HAVE ENOUGH RODS TO GET TO 72'. THEY WILL GO TO PLAINVIEW & GET MORE RODS FROM ANOTHER CREW TO ATTEMPT TO SAMPLE GW @ 80'.

1645 JOE JONES (NYSDEC) OFF-SITE. HE TOOK SOIL SAMPLES. WILL DROP OFF AT H2M TOMORROW (1-22-97) MORNING, AND WILL PICK UP MORE SOIL VOA JARS.

1650 ZEBRA OFF SITE

1700 PY OFF-SITE.

23 JAN - TH ATLAS GRAPHICS 45° & CLEAR

0930 PY ON-SITE J.T. ON-SITE
ZEBRA ON-SITE, BEGINS AGGW-1
JT, PY RECON WELLS SET UP A. NC-2, NC-2D ACROSS STREET AT SW CORNER OF SWALM & MAIN. PURGING, SETTING UP GRUNDFOS.
JEFF B. ON SITE

1145 ZEBRA AT 80' COLLECTED VOA 76-80

1230 NO GW @ 66-70
ZEBRA TAKES LUNCH

1315 STILL NO GW 66-70
MOVING UP 10' TO 56-60
80 GAL PURGED FROM NC-2D

1330 COLLECTED 56-60 AGGW-1
SCREEN JAMMED IN SAMPLER.
JEFF B LEAVES.

1420 NC-2D PURGED. JOE JONES & JT SAMPLING.

1430 ADVANCING AGBP-3 IN FRONT OF BUILDING.

1245 ZEBRA OFFSITE.

1345 ZEBRA ON-SITE, PREPARING TO CONTINUE AGGW-5
SEE PROBE LOGS.

1400 JEFF B. OFF SITE

1410 ZEBRA OFF SITE.

1415 JOE JONES & I WILL FILTER GW SAMPLES, PACK UP.
WILL RETURN TO ATTEMPT GW SAMPLE AT AG-1 TOMORROW.

1645 PY OFF-SITE
JEFF B TOOK SPLITS OF SOIL (32-35') & GW-METALS & VOA.

1530 NC2, NC2D SAMPLED.
MOVING TO N-11843

1610 JT TO NC-17, BEGINS
PURGING.

1630 N-11842 - 76AL PURGED OUT OF 15
NC-17 - 4GAL PURGED OUT OF 15
ZEBRA OFF SITE.

1715 SAMPLED NC-17

1825 SAMPLED ~~[illegible]~~ N-11843

~~[illegible]~~ 1740 JT, JOE JONES OFF-SITE
1845 PY OFF-SITE

24. JAN FRI

25°
OVERCAST

0750 PY ON-SITE
~~[illegible]~~
0800 ZEBRA (STEVE) ON-SITE
0820 ZEBRA (JOHN) ON-SITE
0830 CONTINUING AGSP-3
1100 REFUSAL @ 42'
SHAWN (ZEBRA) ON-SITE.
THEY NEED GEOPROBE ON
ANOTHER SITE TO RETRIEVE
STUCK RODS. WILL RETURN
IN 1 HR. ZEBRA OFF SITE.
1300 ZEBRA BACK ON-SITE.
1400 AGGW-3 ADVANCED TO 80'

1500 MOB TO AGSP-4
REFUSED 2X ~ 9'
ADV A TO 12' TODAY. WILL
RETURN MON.

1615 ZEBRA OFF SITE.
JOE JONES OFF SITE.

1625 P4 OFF SITE

1800 P4 @ NYACK - DEBRIEF

1830 END DAY.

27-JAN

0630 P4 @ NYACK

0800 P4 ON-SITE
ZEBRA ON-SITE.
MOVING TO AGSP-4 TO ~~BEGIN~~
CONTINUE BORING.
REFUSAL 45' (SOIL)
REFUSAL 42' JUST OFF HOLE.
REFUSAL IN STREET 4X:
5', 5', 7', 22'

1130-1200 LUNCH - HOLES IN ASPHALT PATCHED.

1230 MOVING TO STREET IN
FRONT OF AGSP-2 TO
ATTEMPT GW SAMPLING.
REFUSAL: 4X
9', 4', 9', 9'

1400 CALLED MIKE L. ZEBRA HAS 2
MORE EXPENDABLE POINTS. MIKE
WILL CALL JOE JONES (NYSDEC)
TO SEE IF HE NEEDS MORE GW DATA.

1415 CALL MIKE L BACK. JOE JONES
IS NOT IN WE WILL DRIVE
LAST 2 ~~GW~~ POINTS & CALL BACK.

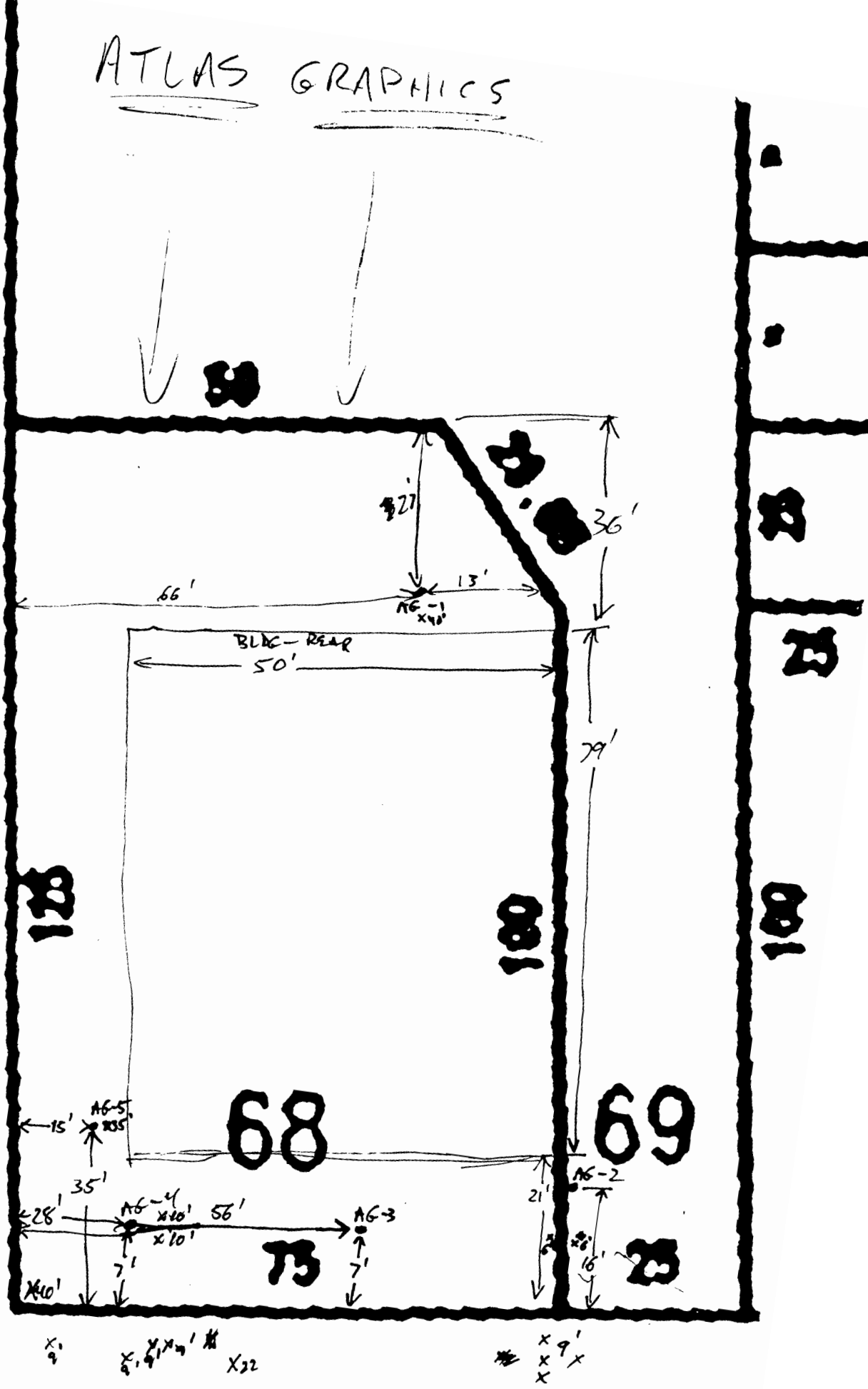
1530 ZEBRA OFFSITE.
SPOKE TO JOE JONES (WYSDEC).
WE DECIDED THAT WE WILL
NOT RETURN WITH ZEBRA. WE
WILL DISCUSS HYDROPUNCH OR
WELL DRILLING WITH MIKE
AND RETURN AT A LATER DATE.

1600 PY & OFFSITE TO GET CAMERA.

1630 LEFT SITE TO HOME

B60250 – AGSP-4 (20-22)
B60251 – AGSP-4 (30-32)
B60252 – AGSP-4 (40-42)

ATLAS GRAPHICS



SWAIM AVE

MAIN ST.

ZEBRA

Lawler, Matusky & Skelly Engineers
One Blue Hill Plaza
P. O. Box 1509
Pearl River, New York 10965

January 29, 1997

Attention: Mr. Michael Lehtinen

RE: Project Summary, Geoprobe Sampling Services
Atlas Graphics
567 Main Street, New Cassel, New York
Work Performed on January 21 through 24, and 27, 1997

Dear Mr. Lehtinen:

Following is a summary of site activities performed by ZEBRA Environmental at the Atlas Graphics site located in New Cassel, New York. The work was performed on January 21 through 24, and 27, 1997.

PROJECT PERSONNEL ON SITE:
Mr. Perry Young, Lawler, Matusky & Skelly
Mr. John Mutuski, ZEBRA Environmental
Mr. Emanuel Poulos, ZEBRA Environmental
Mr. Stephen Salembier, ZEBRA Environmental
Mr. Brian Hoashi, ZEBRA Environmental

ZEBRA mobilized a fully equipped truck-mounted Geoprobe unit to the project site on January 21, 1997. ZEBRA personnel met Mr. Perry Young of Lawler, Matusky & Skelly at approximately 9:30 AM and walked the site with Mr. Young noting utilities and anticipated location of sampling points.

The project involved collecting soil and groundwater samples from twelve (12) points identified by Mr. Young. The location of the points was recorded on a site plan by Mr. Young.

To penetrate the surface pavement, a rotary carbide tipped concrete drill bit was utilized with the probe unit.

At each of the sampling points, ZEBRA's truck-mounted Geoprobe unit was positioned over the point and a blind probe was driven to a depth above the desired sampling elevation in order to clear obstructions and/or debris. Subsequent to opening a probe hole or drilling a hole in the pavement (if required), a clean Large Bore (LB) sampler was driven to the desired sampling depth and a soil core measuring approximately 22" long by 1 1/16" in diameter was collected. The LB sampler remains completely closed while it is being driven to depth and is opened by releasing a stop pin from the surface. Removal of the stop pin allows the piston to retract into the sample tube as it is displaced by the soil core. Each of the samplers used was fitted with a new acetate liner prior to use. The acetate liner assists in the removal of the soil sample from the tube and helps insure sample integrity.

ZEBRA ENVIRONMENTAL CORP.
200 ROGER AVENUE, INWOOD, NY 11096 • (516) 371-2020 FAX: (516) 371-4422

To collect groundwater samples, a clean Geoprobe Screen Point 15 groundwater sampler (SP15) was used. The SP15 is a 1.5" (38 mm) O.S. X 52" (1321 mm) overall length sampler and within the protective sheath, the SP15 has a 41" (1041 mm) screen. The screen consists of a slotted screen of .004" (0.1 mm) which is exposed as the sampler is retracted. Once the sampler is driven to its desired depth, chase rods are inserted down the inside of the probe rods. As the probe rods are retracted ≈4', the chase rods allow the screen to be exposed by holding the chase rods in place. The design of the SP15 sampler allows the stainless steel screen to remain retracted within the protective sheath until it is driven to the desired sampling depth. The screen is held in place by a sacrificial point fitted with a watertight "O" ring seal. Once the chase rods are used to expose the screen, the sacrificial point is lost. After the screen had been exposed, an unused, clean section of ⅜" polyethylene tubing was fitted with a stainless steel bottom check valve and inserted down the probe rod to the desired sampling depth. The poly tubing was oscillated up and down to drive a column of water to the surface.

A copy of the Field Sampling Log recorded on site has been transcribed below:

ZEBRA PT#/SAMPLE#	TYPE	DESCRIPTION
January 21, 1997		
1/1	Soil-LB	Collected sample @ 5-7' BG.
1/2	Soil-LB	Collected sample @ 10-12' BG.
1/3	Soil-LB	Collected sample @ 15-17' BG.
1/4	Soil-LB	Collected sample @ 20-22' BG.
1/5	Soil-LB	Collected sample @ 25-27' BG.
1/6	Soil-LB	Collected sample @ 30-32' BG.
1/7	Soil-LB	Collected sample @ 35-37' BG.
1/8	Soil-LB	Collected sample @ 40-42' BG.
1/9	Soil-LB	Collected sample @ 45-47' BG.
	Soil-LB	Attempted to sample @ 50-52' BG (did not grab, refusal @ 48' BG).
2/1	Soil-LB	Collected sample @ 10-12' BG.
3/1	Soil-LB	Refusal @ 5.5' BG.
4/1	Soil-LB	Refusal @ 5.5' BG.
5/1	Soil-LB	Refusal @ 5.5' BG.
January 22, 1997		
1/1	Soil-LB	Collected sample @ 5-7' BG.
1/2	Soil-LB	Collected sample @ 10-12' BG.
1/3	Soil-LB	Collected sample @ 15-17' BG.
1/4	Soil-LB	Collected sample @ 17-19' BG.
1/5	Soil-LB	Collected sample @ 20-22' BG.

ZEBRA PT#/SAMPLE#	TYPE	DESCRIPTION
January 22, 1997, cont'd.		
1/6	Soil-LB	Collected sample @ 25-27' BG.
1/7	Soil-LB	Collected sample @ 30-32' BG.
1/8	Soil-LB	Collected sample @ 35-37' BG. Refusal @ 37' BG.
1/9	GW-SP15	Collected sample @ 76-80' BG.
1/10	GW-SP15	Collected sample @ 66-70' BG.
1/11	GW-SP15	Collected sample @ 56-60' BG.
January 23, 1997		
1/1	GW-SP15	Collected sample @ 76-80' BG.
1/2	GW-SP15	Collected sample @ 66-70' BG, no water encountered.
1/3	GW-SP15	Collected sample @ 56-60' BG.
2/1	Soil-LB	Collected sample @ 5-7' BG.
2/2	Soil-LB	Collected sample @ 10-12' BG.
2/	Soil-LB	Collected sample @ 20-22' BG, not sufficient recovery.
2/3	Soil-LB	Collected sample @ 22-24' BG.
2/4	Soil-LB	Collected sample @ 30-32' BG.
January 24, 1997		
1/1	GW-SP15	Collected sample @ 76-80' BG.
1/2	GW-SP15	Collected sample @ 66-70' BG.
1/3	GW-SP15	Collected sample @ 56-60' BG.
2/1	Soil-LB	Collected sample @ 5-7' BG.
2/2	Soil-LB	Collected sample @ 7-9' BG.
2/3	Soil-LB	Collected sample @ 10-12' BG.
January 27, 1997		
1/1	Soil-LB	Collected sample @ 20-22' BG.
1/2	Soil-LB	Collected sample @ 30-32' BG.
1/3	Soil-LB	Collected sample @ 40-42' BG.
1/4	GW-SP15	Refusal @ 44' BG.
1/5	GW-SP15	Refusal @ 42' BG.

ZEBRA PT#/SAMPLE#	TYPE	DESCRIPTION
January 27, 1997, cont'd.		
2/1	GW-SP15	Refusal @ 4' BG.
2/2	GW-SP15	Refusal @ 4' BG.
2/3	GW-SP15	Refusal @ 9' BG.
2/4	GW-SP15	Refusal @ 22' BG.
3/1	GW-SP15	Refusal @ 9' BG.
3/2	GW-SP15	Refusal @ 9' BG.
3/3	GW-SP15	Refusal @ 4' BG.
3/4	GW-SP15	Refusal @ 8' BG.
4/1	GW-SP15	Refusal @ 9' BG.
5/1	GW-SP15	Refusal @ 40' BG.

A total of twenty-eight (28) soil samples and eight (8) groundwater samples were collected by ZEBRA during the five (5) days on site.

All sampling tools and probe rods were washed with Alconox and steam cleaned back at ZEBRA's office each night.

All samples were left in the custody of Mr. Young and all drilled holes were sealed with asphalt prior to leaving the site.

ZEBRA appreciates the opportunity to provide these services and looks forward to working with Lawler, Matusky & Skelly in the future. Should there be any questions regarding this project or our other services, please do not hesitate to call.

Sincerely yours,

John Mutuski

John Mutuski
ZEBRA Environmental Corp.

JM:bal

cc: Alex Nadolishny

APPENDIX B

Monitoring Well Sampling Logs

WELL SAMPLING LOG

Date: 1-23-97
Crew: JT / PY
Job No: 650-201
Project: ATLAS GRAPHICS IIWA
Project Site: New Cassel

Well ID No: N-11843 (B-60228)
Well Condition: Poor
Well Depth/Diameter: ~ 59 ft / 2 in
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 52.38
Water Column; Ht/Vol: 6.12 / 5.5
Purge Est: 16.5
Purge Date/Time(s): 1-23-97 / 1600
Purge Method: Teflon bailer
Depth(s): Top of column
Rates (gpm): 0.25
Purged Volume: 15 gal
DTW After Purging: 53.44

Yield Rate: L-M-(H)

Purge Observations: Large amounts of fine sand (up to ½ bailer) coming up in bailer each withdrawal.

METERS USED

Temp: DEC - 560
pH: 393
Cond: DEC - 560
Turb: NYSDEC
S/N 19834

DTW Before Sampling: 53.44
Sample Date/Time(s): 1-23-97 / 1525
Sampling Method: Teflon disp bailer
Sampling Depth(s): Top of Column
DTW After Sampling: 53.44
Sampling Observations: wtr. cloudy
Chain-of-Custody No(s): Samples retrieved by DEC
Analytical Lab(s):

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	12.8	down	340	200+
End	13.0	↓	323	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC		< 4°	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
0	13.7	8	371	200+
5	13.2	7.2	291	200+
10	13.8	Meter down ↓	296	200+
15	2.2		340	200+

Comments:

Air Temp: ~ 35°
Weather Conditions: Clear

Crew Chief Signature: [signature] Date: 1-23-97

WELL SAMPLING LOG

Date: 1-23-97
Crew: JT / PK
Job No: 650 201
Project: ATLAS GRAPHICS IRWA
Project Site: New Cassel

Well ID No: NC-17 (B-60229)
Well Condition: Good
Well Depth/Diameter: ~61' / 2"
Well Casing Type: PVC - SCH 40
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 53.23
Water Column; Ht/Vol: 8 ft / 7.1
Purge Est: 21.3
Purge Date/Time(s): 1-23-97 / 1600
Purge Method: Teflon Bailer
Depth(s): Top of Column
Rates (gpm): 0.25 gpm
Purged Volume: 15 gal
DTW After Purging: 53.23

Yield Rate: L-M-(H)
Purge Observations: water very cloudy very color.

METERS USED

Temp: DEC-860
pH: 303
Cond: DEC 860
Turb: NYSDEC
S/N 17834

DTW Before Sampling: 53.24
Sample Date/Time(s): 1-23-97 / 1715
Sampling Method: Teflon disp. bailer
Sampling Depth(s): Top of column
DTW After Sampling: 53.23
Sampling Observations: water cloudy
Chain-of-Custody No(s): Samples retained by DEC
Analytical Lab(s):

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	12.2	Down	576	200+
End	12.0	↓	563	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC		<4°	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
0	12.6	Down	453	200+
7.5	13.0	↓	536	200+
15	12.2	↓	576	200+

Comments:

Air Temp: 35°
Weather Conditions: Clear

Crew Chief Signature: [signature] Date: 1-23-97

WELL SAMPLING LOG

Date: 1-23-97
Crew: JT / PY
Job No: 650-201
Project: ATLAS GRAPHICS IRWA
Project Site: New Cassel

Well ID No: NC-2 (B-60227)
Well Condition: poor
Well Depth/Diameter: ~54 ft / 2 in
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 52.78
Water Column; Ht/Vol: 1 ft / 0.9 gal
Purge Est: 3.7
Purge Date/Time(s): 1-23-97 / 1000
Purge Method: Teflon bailer
Depth(s): Total column
Rates (gpm): 0.25 gpm
Purged Volume: 6 gal
DTW After Purging: 53.00

Yield Rate: L-M-H
Purge Observations: Lots of fine sand in bailer (2-3 in) per withdrawal

METERS USED

Temp: DEC-560
pH: 303
Cond: DEC-560
Turb: NYSDEC
6/N 19834

DTW Before Sampling: 53.00
Sample Date/Time(s): 1-23-97 / 1500
Sampling Method: Disp. teflon bailer
Sampling Depth(s): Total column
DTW After Sampling: 53.00
Sampling Observations: water cloudy
Chain-of-Custody No(s): samples retained by NYSDEC
Analytical Lab(s):

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	14.5	6.7	605	200+
End	14.3	6.6	621	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC		<4°	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
0	16.3	8.4	694	200+
.5	15.3	6.4	663	200+
3	15.8	6.6	643	200+
4.5	16.0	6.0	615	200+
6	15.2	6.6	609	200+

Comments:

Air Temp: 40
Weather Conditions: clear

Crew Chief Signature: [signature] Date: 1-23-97

WELL SAMPLING LOG

Date: 1-23-97
Crew: JT / PY
Job No: 650-201
Project: ATLAS GRAPHICS IIWA
Project Site: New Cassel

Well ID No: NC MW-20 (B-60226)
Well Condition: fair
Well Depth/Diameter: ~122 ft / 4 in
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 52.74
Water Column; Ht/Vol: 70 ft / 52.4
Purge Est: 157 gal

Purge Date/Time(s): 1-23-97 / .000
Purge Method: Grunfos pump
Depth(s): bottom of column
Rates (gpm): ~5 gpm
Purged Volume: 200 gal.
DTW After Purging: 52.75

Yield Rate: L-M-H

Purge Observations: Purge in 40 gal. increments and shut off pump to dispose of water.

METERS USED

Temp: DEC - 560
pH: 303
Cond: DEC 560
Turb: NYSDEC
S/N 19834

DTW Before Sampling: 52.75
Sample Date/Time(s): 1-23-97 / 1435
Sampling Method: Teflon Bailer
Sampling Depth(s): Bottom of column
DTW After Sampling: 53.00
Sampling Observations: Water slightly turb.
Chain-of-Custody No(s): samples retrieved by NYSDEC
Analytical Lab(s):

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	14.7	7.6	121	25
End	14.9	6.0	129	30

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC		<4°	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
20	14.7	5.7	830	6
40	14.6	5.7	832	3
60	15.0	6.0	846	0.2
80	14.7	6.7	825	0.2
100	14.2	6.6	846	0.2
120	14.6	6.4	857	0.7
140	14.5	6.2	851	0.1
160	15.0	6.2	849	0.1
180	14.2	5.7	845	0.1
200	14.4	5.8	825	0.1

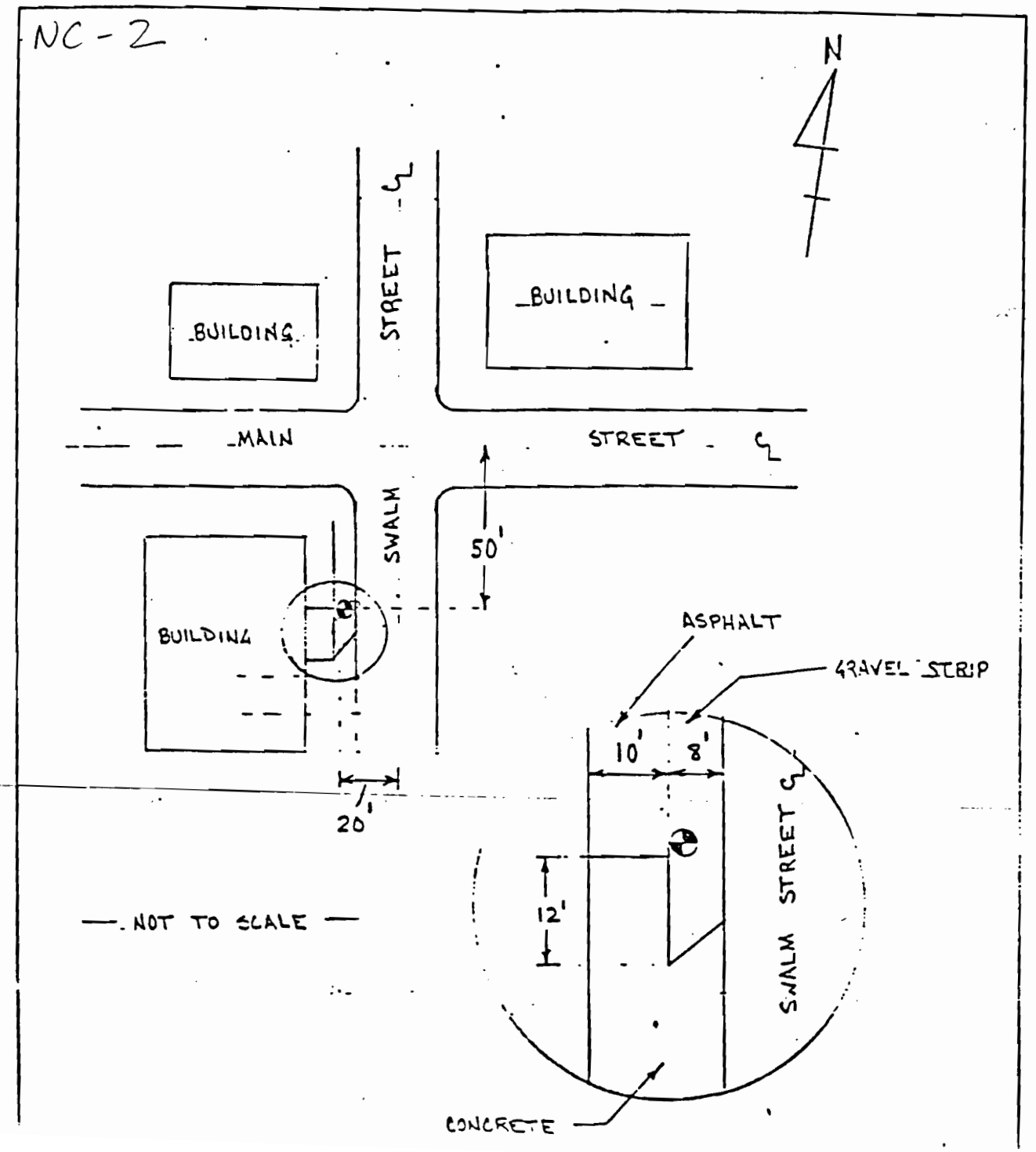
Comments:

Air Temp: 45°
Weather Conditions: Clear

Crew Chief Signature: [signature] Date: 1-23-97

DEPARTMENT OF HEALTH
Bureau of Public Water Supply
Nassau County, New York

NASSAU COUNTY WELL NO: NC-2s
LOCATION: New Cassel
N.Y. STATE NO: 10319
INSTALLED: 10/3/84
TOTAL DEPTH: 57'
MEAS. POINT: Top of Casing
DIAMETER: 2" Schedule 80 PVC
ELEV. MEAS. PT: 121.35
APPROX. DEPTH TO WATER: 42'
DRILLER: Moretrench American Corp.



DEPARTMENT OF HEALTH
Bureau of Public Water Supply
Nassau County, New York

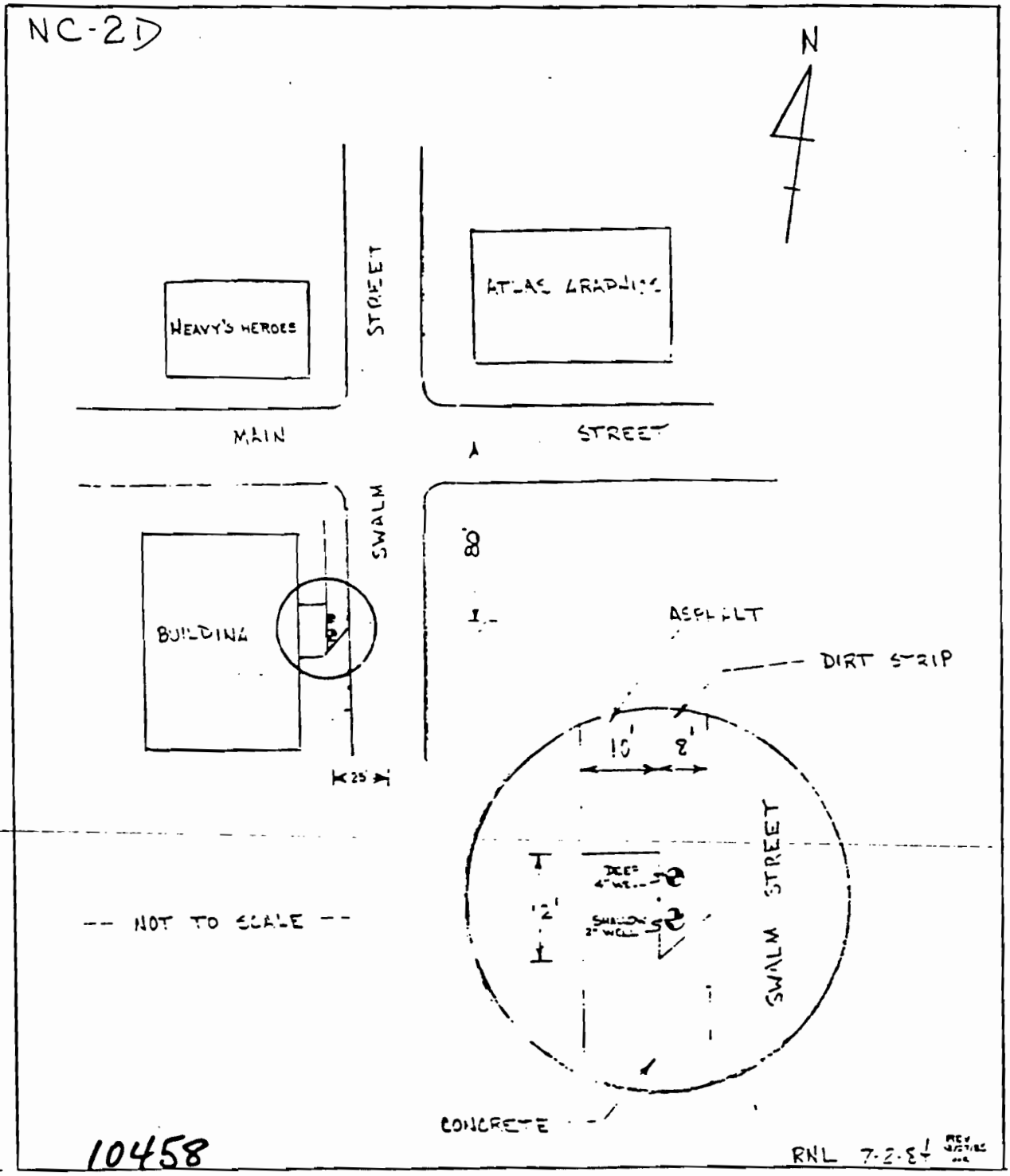
NASSAU COUNTY WELL No: NC-2d LOCATION: New Cassel

N.Y. STATE No: 10458 INSTALLED: 11/18/85

TOTAL DEPTH: 120' MEAS. POINT: Top of Casing

DIAMETER: 4" Schedule 80 PVC ELEV. MEAS. PT: 121.09

APPROX. DEPTH TO WATER: 48 DRILLER: Moretrench American Corp.



DEPARTMENT OF HEALTH
Bureau of Public Water Supply
Nassau County, New York

NASSAU COUNTY WELL No: NC-17 LOCATION: New Cassel

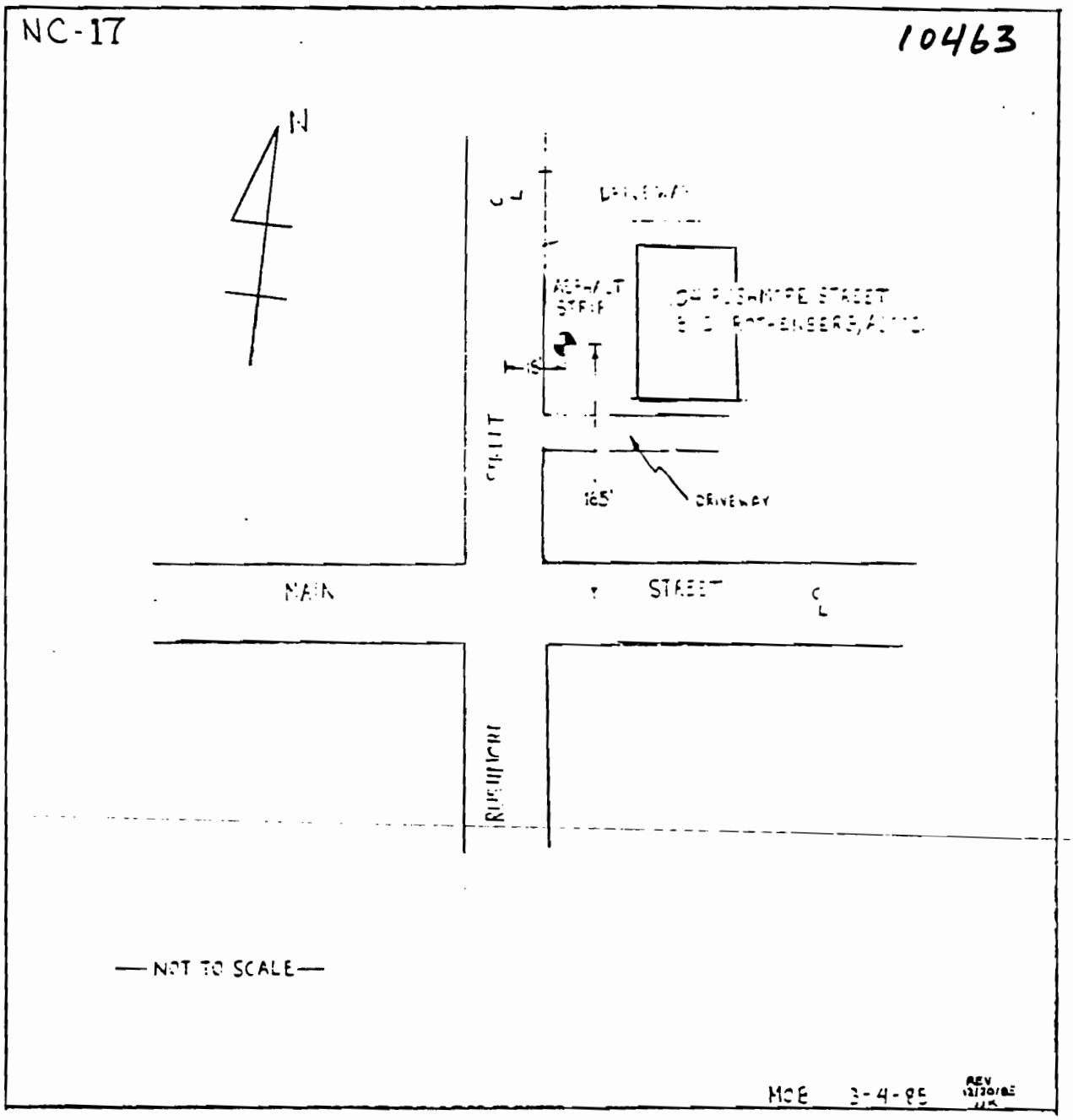
N.Y. STATE No: 10463 INSTALLED: 8/30/85

TOTAL DEPTH: 64' MEAS. POINT: Top of Casing

DIAMETER: 2" Schedule 80 PVC ELEV. MEAS. PT: 122.12

APPROX. DEPTH TO WATER: 48 DRILLER: Moretrench American Corp.

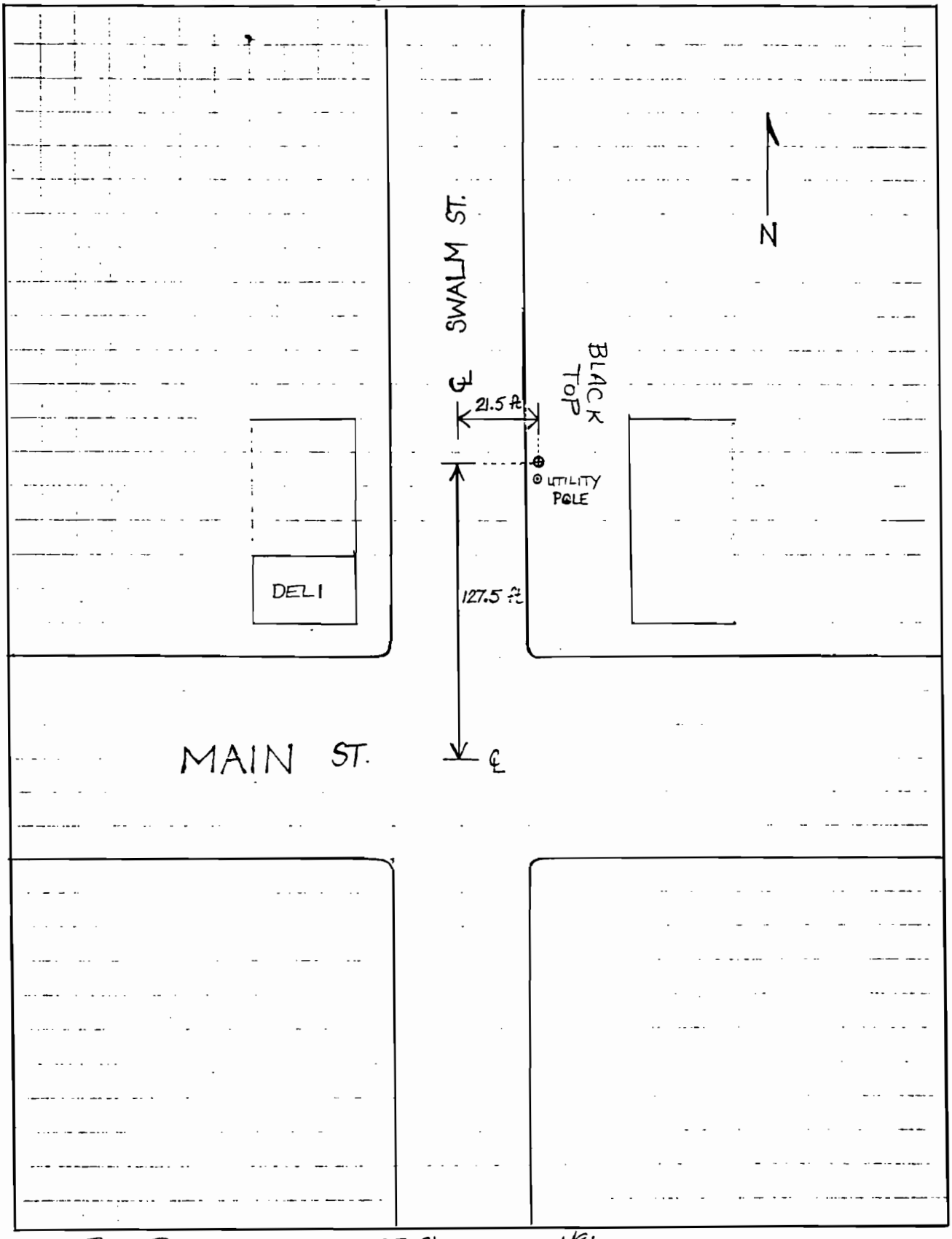
NC-17 10463



UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File N-11843

LAT 40° 45' 24" LONG 73° 33' 55"



Sheet No. 3 of 3 Sheets. Prepared by T. Chu Date 1/91 Checked by ..... Date .....

GPO: 1980 OF 320-636

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NASSAU
County

N-11843
Well No.

COMPLETION REPORT – LONG ISLAND WELL

OWNER
U.S. GEOLOGICAL SURVEY

ADDRESS
~~5 AERIAL WAY~~
SYOSSET, NEW YORK 11791

LOCATION OF WELL
21.5 E/O CL SWALM ST., 127.5 N/O CL MAIN ST.

DEPTH OF WELL BELOW SURFACE	DEPTH TO GROUND WATER FROM SURFACE
60 ft.	APPROX. 46 ft.

CASINGS

DIAMETER	2 in.	in.	in.	in.
LENGTH	50 ft.	ft.	ft.	ft.

SEALING

CASINGS REMOVED

SCREENS

MAKE

OPENINGS .01

DIAMETER	2 in.	SUMP 2 in.	in.	in.
LENGTH	5 ft.	SUMP 5 ft.	ft.	ft.

DEPTH TO TOP FROM TOP OF CASING

PUMPING TEST

DATE

TEST OR PERMANENT PUMP?

DURATION OF TEST: days / hours

MAXIMUM DISCHARGE: gallons per min.

STATIC LEVEL PRIOR TO TEST: ft. / in. below top of casing

LEVEL DURING MAXIMUM PUMPING: ft. / in. below top of casing

MAXIMUM DRAWDOWN: ft.

Approximate time of return to normal level after cessation of pumping: hrs. / min.

PUMP INSTALLED

TYPE	MAKE	MODEL NO.
MOTIVE POWER	MAKE	H.P.

CAPACITY: g.p.m. against ft. of discharge head

NUMBER BOWLS OR STAGES: ft. of total head

DROP LINE	SUCTION LINE
DIAMETER: in.	DIAMETER: in.
LENGTH: ft.	LENGTH: ft.

METHOD OF DRILLING
☐ rotary ☐ cable tool ☒ other AUGER

USE OF WATER

WORK STARTED 11/29/90

COMPLETED 11/29/90

DATE	DRILLER	LICENSE NO.
	U.S. GEOLOGICAL SURVEY	

*NOTE: Show log of well - materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports. Pages 5 - 7.

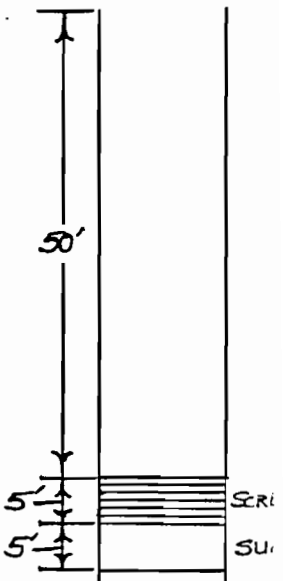
* LOG

Ground Surface

El. _____ ft. abov

A
V

TOP OF WELL



ORIGINAL – Environmental Conservation Copy

DEPARTMENT OF HEALTH
Bureau of Public Water Supply
Nassau County, New York

NASSAU COUNTY WELL No: NC-24 LOCATION: New Cassel

N.Y. STATE No: 10470 INSTALLED: 9/03/85

TOTAL DEPTH: 65' MEAS. POINT: Top of Casing

DIAMETER: 2" Schedule 80 PVC ELEV. MEAS. PT: 119.99

APPROX. DEPTH TO WATER: 46 DRILLER: Moretrench American Corp.