A MEMBER OF THE ENVIRONMENTAL RESOURCES MANAGEMENT GROUP

CURRENT CONDITIONS REPORT

General Electric Service Center
175 Milens Road
Tonawanda, New York

July 31, 1996

ERM-NORTHEAST
Centerpointe Corporate Park
325 Essjay Road Suite 110
Williamsville, New York 14221

ERM

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DESCRIPTION OF CURRENT CONDITIONS

1.0 *PURPOSE*

In December 1988, General Electric Company (GE) submitted the *Report on RCRA Facility Assessment Sampling Visit at GE Buffalo Service Center* (Lawler Matusky and Skelly (LMS) 1988) to the New York State Department of Environmental Conservation (NYSDEC). The report documented releases of PCBs and volatile organic compounds (VOCs) to the soil).

Based in part on that report, previous environmental investigation reports, and NYSDEC inspections, NYSDEC issued a Part 373 Permit for the GE Tonawanda facility on Milens Road in Tonawanda, New York which includes requirements to conduct Corrective Measures Studies of the following 8 solid waste management units (SWMUs) and/or areas of concern (AOC) at the GE Buffalo Service Center:

- RCRA Hazardous Waste Storage Area
- PCB Storage Area
- PCB Work Area
- Oil/Water Separators
- Rail Spur
- Floor Drains
- Sewers and
- Rinse Water Tank

This report has been prepared to satisfy the requirements of Module III, E5(c) and Appendix III-B of the issued Part 373 Permit requiring the preparation of a Description of Current Conditions Report. This report contains information on the facility and background of each of the units and the receptors for potential releases from the facility, should they occur.

2.0 *FACILITY BACKGROUND*

2.1 *OVERVIEW*

As shown in Drawing 1, the site and surrounding land are used for industrial purposes and Youngman Expressway (Route I-290), a limited access highway. The drawing also presents the on-site locations for access control (fencing), buildings, access and internal roads, storm and sanitary sewers, and fire control facilities (hydrants). GE's property encompasses 5.3 acres and includes the 69,000 square foot Service Center building. This building is a one-story, on-slab construction, built by GE in 1968 and expanded in 1972 and 1978. The 1950 USGS quadrangle map for this site indicates that it was formerly part of Bell Airport, which no longer exists.

The GE Buffalo service shop repairs industrial equipment, including electric motors, transformers, turbines, pumps, and compressors. During these operations, the facility generates on-site hazardous wastes as defined in applicable state and Federal RCRA regulations. The facility also receives PCB liquids, solids, and articles (waste numbers B001-B007 - NYSDEC hazardous waste numbers identified in 6 NYCRR 371.4) from customers and other GE repair facilities for storage prior to shipment off-site for disposal at Toxic Substance Control Act (TSCA) permitted facilities.

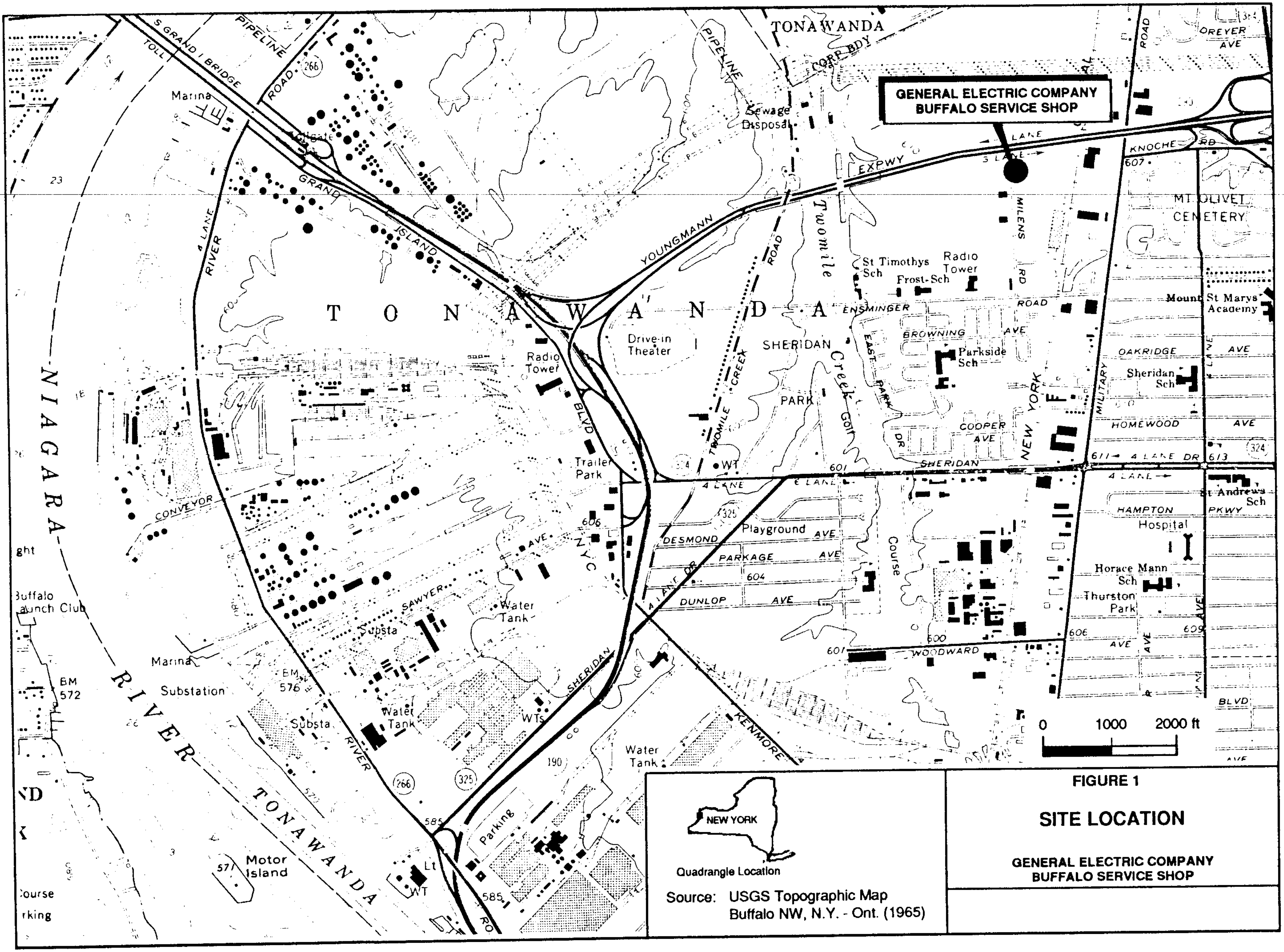
Trucks are loaded and unloaded inside the south side of the building and in the RCRA Container Storage Area (CSA) on the east side, described in Section 3.2 below. Trucks are also loaded and unloaded at the railroad entrance to the northeast corner of the building.

The site is served by separate storm and sanitary sewers. There are no separate process sewers. There are also no production, withdrawal, or injection wells. There is one piezometer located on-site, as described in Section 4.

Drawing 2 depicts the drainage patterns over the site. Drawing 3 indicates the locations of all known past and present exterior solid or hazardous waste storage areas. There has been no treatment or disposal of hazardous or solid wastes at this location. There have been no reportable spills at the facility. However, past sampling has shown that some hazardous wastes/constituents have been released to the environment. PCBs are present in surficial soils at several locations on the GE property. An apparent leak from an underground PCB-contaminated rinse water tank (or its piping/fittings) was discovered when the tank was excavated in 1986. Additionally, VOCs were measured in the soils near the RCRA CSA.

2.2 *PHYSIOGRAPHY*

The facility is located at 175 Milens Road in the City of Tonawanda, Erie County, New York. The regional setting for the facility, as shown in Figure 1-1, is derived from the 1965 Buffalo, NW, New York-Ontario USGS topographic quadrangle map. The nearest surface water body is Two Mile Creek, approximately 3,000 feet west of the facility. The Tonawanda Branch of the Niagara River is approximately 2.5 miles west of the site. The site is not within the FEMA 100-year floodplain of this river. The regional topographic relief is shown on Drawing 1 with 10-ft contour intervals. The local relief is depicted with 1-ft contours on Drawing 2. The average elevation of the site is shown on these diagrams to be approximately 610 feet above mean sea level (MSL).



Source: USGS Topographic Map
Buffalo NW, N.Y. - Ont. (1965)

FIGURE 1

SITE LOCATION

GENERAL ELECTRIC COMPANY
BUFFALO SERVICE SHOP

2.3 *GEOLOGY*

The site lies within the Erie-Ontario Lake Plain Province, a region that has minor relief except in the immediate vicinity of the major drainageways. The flat topography and the relatively homogeneous fine-grained texture of the overburden sediments indicate that the site lies within an ancient glaciolacustrine depositional system.

2.3.1 *Surficial Soils*

According to the Soil Survey of Erie County, New York (Soil Conservation Service [SCS] 1978), weathering of the glaciolacustrine sediments deposited in the Tonawanda area formed various soil types, including the Schoharie and Odessa silt loams. These soils are flatly bedded, moderately well drained, and are reported to have the characteristics of moderate to high water capacity and slow to medium runoff. The SCS notes that from March through May the Schoharie soil usually exhibits a perches seasonal high water table - a result of water "ponding" on top of the underlying low-permeability glaciolacustrine sediments above the true water table surface. However, existing boring logs suggest that these soils are only present in limited areas, within the uppermost 1-2 feet of overburden on site.

2.3.2 *Overburden*

Borings advanced through the site's overburden sediments have revealed that they are relatively homogeneous in composition. These sediments are interpreted to be of glaciolacustrine origin, and to consist of a matrix of brown, dense, argillaceous silt and clay interbedded with both coarser lenses of fine sand/gravel and finer beds of gray silt/clay. Split spoon samples of this material showed the varved layering and fine-scale flaser-to-lenticular bedding that are indicative of glaciolacustrine sediments. Deeper, geotechnical foundation test borings conducted by Anderson Drilling Company in 1976 show these sediments to be moderately dense to very dense from ground surface to approximately 15 to 20 feet below ground surface (BGS), with blow counts ranging from 18-to-40 per 6 inches of penetration. This zone of dense sediments is described as dry to damp, compact brown clayey-silt with little fine sand, trace fine gravel, and lenses of gray silt. Beneath this zone, the blow counts drop to between 8 and 24 per 6 inches of penetration, and the sediment is described as moist, "firm" silty-clay (or silt and clay), with little fine sand and scattered (trance) fine gravel. Groundwater was encountered in three of Anderson's borings, TB-4 (22.4 feet BGS/≈589.6 foot elevation-south side of building adjacent to truck bay), TB-5 (26.0 feet BGS/≈586.5 foot elevation-southwest corner of 1978 extension) and TB-9 (23.8 feet BGS/≈588.8 foot elevation-inside north portion of 1978 extension). Test borings advanced prior to the construction of the original building in 1968 suggest a similar water table gradient. However, these borings were advanced for structural design purposes, and the water levels observed in the clay overburden may not represent or reflect equilibrium conditions. TB-5 was advanced 56.5 feet BGS without encountering bedrock and TB-9 was advanced 41.5 feet BGS, also without reaching bedrock.

As discussed above, information on the overburden sediments obtained from both the structural test boring logs and those prepared by LMS are consistent with their description as glaciolacustrine. The layers observed by LMS are indicative of the unique annual sedimentation cycle of glacial lakes, which is related to the seasonal variation of glacial meltwater/ sediment supply.

According to unpublished USGS data, borings conducted by the New York State Department of Transportation (NYSDOT) in the general area suggest that the bedrock surface beneath the site is approximately 60-70 feet BGS. However, as no test borings have been advanced to bedrock at this site, the precise depth to bedrock is not known. In addition, the character of the unconsolidated deposits immediately overlying the bedrock surface is not known.

2.3.3 *Bedrock*

The overburden is underlain by late Silurian age Salina group bedrock of the Camillus, Syracuse, and Vernon Formations (Rickard & Fisher, 1970). These bedrock units are among the oldest in Erie County, and consist of shales, dolostones, gypsum, and salt. The bedrock is generally undeformed, and has a regional dip of less than one degree. As previously mentioned, NYSDOT borings in the general area suggest that the depth to bedrock in the vicinity of the GE site is probably 60-70 feet BGS. According to unpublished USGS seismic data, the site is positioned approximately 3,000 feet east of a bedrock trough that is aligned near north-to-south. Two Mile Creek flows along the apparent trend of this trough, just east of the inferred position of its axis. Bedrock occurs at a depth of approximately 95 feet BGS at the inferred location of the axis of this trough. The trough passes beneath the intersection of Youngman Expressway and Grand Island Boulevard, where the depth to bedrock rises to about 60-70 feet BGS.

2.3.4 *Hydrogeology*

Federal and state agencies have not yet completed hydrogeologic studies of the Tonawanda area, but based on the configuration of the bedrock (especially with respect to the location of the bedrock trough and Two Mile Creek) and the location of the Niagara River, the regional groundwater flow pattern is expected to be toward the west-northwest. The depth to groundwater was observed in the Anderson Drilling Co. test borings TB-4 (22.4 feet BGS/≈589.6 foot elevation), TB-5 (26.0 feet BGS/≈586.5 foot. elevation), and TB-9 (23.8 feet BGS/≈588.8 foot elevation). However, monitoring wells or piezometers are needed to confirm this in the absence of sufficient groundwater flow data.

Based on information from the existing test borings described above, it has been inferred (LMS 1991) that the following hydrogeologic-stratigraphic zones in terms of increasing depth exist beneath the site: (1) Unsaturated Zone - approximately 0-15 feet BGS, characterized by dry, moderate to very dense, compact glaciolacustrine sediments; (2) Tension-Saturated Zone (i.e., the "capillary fringe") - approximately 15-22 feet BGS, characterized by damp to moist, loose to moderately dense glaciolacustrine sediments (degree of saturation increasing with depth); (3) Saturated Overburden - water table conditions at 22-25 feet BGS, dipping west-northwest, within loose to moderately dense glaciolacustrine sediments; (4) Saturated Bedrock - 60-70 feet BGS, unknown conditions of flow/confinement. It should be noted that the relatively thick tension-saturated zone inferred from the test boring logs is a direct function of the fine-grained nature of the material; slight changes in the moisture content (i.e., the degree of saturation) could cause significant fluctuations in both the thickness of the capillary fringe and the estimated position of the water table.

Glaciolacustrine silt and clay deposits typically exhibit intragranular hydraulic conductivities (K) of between 10^{-6} and 10^{-10} cm/s; in fact, these deposits are among the most common and effective aquitards in the northeast (Freeze & Cherry 1979). The bulk K of the overburden may be more in the range of 10^{-6} to 10^{-8} cm/s. In comparison, values of K for weathered bedrock of the type described could range from 10^{-4} to 10^{-6} cm/s or higher, depending on the degree of fracturing/jointing and the presence of solution cavities (e.g., within the dolostone and gypsum beds).

Protection from precipitation is provided by a galvanized metal roof and fiberglass sidewalls. The roof and siding were installed in 1986. Security is provided by a locking fence surrounding three sides of the area, with the building wall on the fourth side. The maximum capacity is 36 drums.

This unit is inspected weekly for signs of leaks or deterioration. To prevent structural failure, drums are not stacked on top of each other, and proper aisle space is provided for inspection purposes. Containers are kept closed during storage and are stored 50 ft from the facility's property line. NYSDEC reports that the average residence time for the wastes is six to nine months (NYSDEC 1987). This area has no stained surfaces due to leaks. There are no visible cracks.

The unit currently stores wastes with EPA Hazardous Waste Numbers D001, D002, D006, D007, D008, and F001. In the past, D004, D005, D009, D010, D011, and F003 wastes were stored in this unit. Constituents of the hazardous waste stored in this area included arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons, xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol.

3.3 *PCB CSA*

The PCB CSA was used to store 55-gallon steel drums containing PCB materials between 1978 and 1994. This unit has separate secured access only from the exterior of the facility and was used to store PCB items before they are shipped to qualified disposal sites. The PCB CSA was located in a room in the southeast corner of the building. It consisted of a

21.5 feet by 24.5 feet area located on a 6-inch-thick concrete floor. Secondary containment in this room is provided by a 16-inch high by 9-inch wide concrete curb that can hold 4,918 gallons. A sump, approximately 3 feet by 3 feet, is located north of this unit just outside the curbing. The maximum capacity for this PCB CSA was 75 drums. During the use of this room for PCB storage, the unit was inspected weekly for signs of leaks or deterioration.

The PCB CSA was removed from used in 1994 and closure activities for the room were performed at that time. The unit had been used for storage of wastes with NYSDEC Hazardous Waste Numbers B001, B002, B003, B004, B005, B006, and B007, consisting of PCB-contaminated solids, liquids, and articles. Average residence time of the wastes was one month.

3.4 *RINSE WATER TANK*

The rinse water tank was installed in June 1977 to hold PCB-contaminated wash water from the trench drain and sink in the PCB work area. This tank was excavated and removed in 1986. This tank was a 2,000-gal., carbon steel underground storage tank (UST) located 4 ft below grade. The vessel had a manhole for access and was surrounded by pea gravel backfill. The tank was anchored to a concrete ballast pad with tie-down straps. The tank had a cutoff valve, but no secondary containment.

The tank was used for 5.5 years, during which level tests were performed annually. The average residence time of the wastes in this UST was one year. In May 1983 the tank contents were removed and disposed of as PCB liquid. In December 1983 decontamination was completed when the interior of the vessel was rinsed with diesel fuel; the rinse oil was disposed of off-site. In accordance with a closure plan (GE 1986a; amended GE 1986b) approved by NYSDEC, the tank was excavated and removed on 14 October 1986, at which time a potential leak was observed.

3.5 *PCB WORK AREA*

The GE Service Center has operated a PCB Work Area since 1978. This area is used to store PCB-containing items, including those that are received at the facility, under repair, used in the repair process (e.g., hoses, tanks), and those stored before they are shipped for off-site disposal. The existing dike area measures 17.5 feet by 68.5 feet on the 6-inch-thick concrete floor.

Secondary containment is currently provided by a 9-inch-high by 9-inch-wide concrete curb that can hold 6,720 gallons. A floor trench and sink in this area drained into the former rinse water tank until 1983.

The PCB Work Area had previously encompassed an area of 2,886 square feet, 51 feet long and 17 to 22.5 feet wide, which included the current PCB Work Area. In 1994, closure activities were conducted along the northern portion, as approved by the NYSDEC, to remove the area from service as a PCB Work Area.

The area is inspected weekly for signs of leaks or deterioration. The unit stores wastes having NYSDEC Hazardous Waste Numbers B001-B007.

Three 275-gal portable tanks had been kept in the PCB Work Area. These tanks were removed during the partial closure activities for this area, as described above, and sent off-site for disposal as PCB solid waste. The tanks were constructed in 1978 and were used to temporarily store PCB waste oil during repairs (Waste Number B001). The tanks were oval-shaped and are constructed of welded, 14 gauge low-carbon steel with the dimensions 44 inch x 27 inch x 60 inches. These tanks had been inspected weekly for signs of leaks or deterioration. The top-filling openings of these tanks had been plugged when not in use.

3.6 *OIL/WATER SEPARATORS*

There are two oil/water separator below grade next to the facility's outer wall. The older oil/water separator has concrete covers. The newer oil/water separator has manhole covers. These units separate oil from the wastewater coming from floor drains and steam booths. Water is discharged from this unit to the publicly owned treatment works (POTW) via sanitary sewer. The depth of the oil layer is checked with a stick. The separated oil is held in the unit and emptied by a scavenger.

3.7 *FLOOR DRAINS AND SEWERS*

Separate stormwater and sanitary sewers service this facility. The original sewers were installed when the building was constructed in 1969. In 1978 some of the original sewers were abandoned and additional sewers were installed. It is believed that the local storm sewer system ultimately discharges to Two Mile Creek. There are three stormwater inlets that drain to the stormwater sewer from the outside ground surface: one west, one south, and one southwest of the building. In addition, both roof drains and the truck bay trench discharge to the storm sewer.

One floor drain located just west of the truck bay along the south wall of the building discharges to the new oil/water separator. The rest rooms and two oil/water separators discharge to the sanitary sewer. The sanitary sewer is tested quarterly for PCBs in accordance with GE's pretreatment program for discharge to the Town of Tonawanda POTW.

3.8 *RAIL SPUR*

The Rail Spur is a transfer/handling area, not a process or storage area. Because previous testing indicated that PCBs were present in the rail bed soil, NYSDEC identified the spur as a SWMU (NYSDEC 1989).

The Rail Spur is a 140 ft by 60 ft area with two tracks at the northeast corner of the building, and has been used since 1969. The area between the tracks and the part of the road adjacent to them is paved. Two bays in the building are used to load and unload electrical equipment on flatbeds that are stored on the Rail Spur until pickup.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 PREVIOUS WORK

Two rounds of environmental sampling were conducted at the site from 14 to 16 October 1986 and 8 September 1988. The 1986 sampling was conducted to comply with the closure plan for the former rinse water tank and to provide quantitative environmental data on selected units and areas of the facility (LMS 1987a). GE personnel collected supplementary soil samples on 4 April 1987 to support the development of their PCB clean-up plan for the site (LMS 1987b). LMS' 1988 sampling was performed as part of the RCRA Facility Assessment required by NYSDEC (LMS 1988a). Tables 1 through 6 summarize the analytical data presented in those reports. The cumulative results from these previous sampling programs are described in Sections 4.1.1 through 4.1.9 for each SWMU.

4.1.1 *Environmental Study at Buffalo Service Shop (LMS 1987a)*

This report documented the field activities and analytical results of soil and water sampling conducted by LMS at the GE facility in October 1986. From 14 to 15 October 1986, LMS observed the advancement of 12 borings to depths of 6-26 ft in the vicinity of four different SWMUs. One of the borings (B-10) in the rinse water tank area was completed as a shallow observation well. Split-spoon soil samples were obtained from these borings at discrete 2-ft depth intervals; subsequently, subsamples were taken from these split spoons and submitted for PCB and Petroleum Hydrocarbons (PHC) analyses (Table 1). Samples from borings B1 through B5 were analyzed for PHC/PCB content by Chyun Laboratories; samples from borings B6-B11 were analyzed by Recra Environmental for PCBs only. The 4-6 ft split-spoon sample from B11 was split and sent to

TABLE 1

ANALYTICAL SUMMARY FOR BORINGS
(1986 and 1987)

BORING NO.	LOCATION	CONCENTRATION (mg/kg) SAMPLE DEPTH (ft) 0-2 PCB	0-2 PHC	2-4 PCB	2-4 PHC	4-6 PCB	4-6 PHC	6-8 PCB	6-8 PHC	8-10 PCB	8-10 PHC	10-12 PCB	10-12 PHC
B1	Old OWS - north side	2.3	670	1.6	10	LT 0.5	14	ND 0.5	ND 5	ND 0.5	ND 5	-	-
B2	Old OWS - south side	-	-	-	-	-	-	-	-	-	-	-	-
B3	AGOTC	-	-	1.7	40800	ND 0.5	27	ND	33	-	-	-	-
B4	New OWS - east side	-	-	-	-	LT 0.5	17	1.4	71	ND 0.5	28	2.3	140
B5	New OWS - west side	ND 0.5	5100	ND 0.5	410	ND 0.5	2100	ND 0.5	8	ND 0.5	ND 5	ND 0.5[a]	ND 5
B6	RWTEP - east side	5.6[c]	-	34[c]	-	-	-	-	-	-	-	ND 0.5[a]	-
B7	RWTEP - south side	36[c]	-	-	-	-	-	-	-	-	-	ND 0.5[a]	-
B8	RWTEP - west side	14[c]	-	16[c]		-	-	-	-	-	-	ND 0.5[a]	-
B9	RWTEP - west side	-	-	-	-	-	-	-	-	-	-	-	-
B10	RWTEP - north side	0.2[c]	-	2.4[c]	-	-	-	-	-	-	-	ND 0.5[a]	-
B11	RWTEP - center	-	-	-	-	26[b]	310	-	-	0.19[a]	-	-	-
B12	RWTEP - north side	-	-	-	-	-	-	-	-	-	-	-	-

OWS = Oil/Water separator.
RWTEP = Rinse water tank excavation pit.
AGOTC = Above-grade oil tanks containment.
\- = No analysis.
ND = Not detected at detection limit noted.
LT 0.5 = Trace level detected below quantification limit (PCBs only).
All analyses by Chyun Associates (CA) except as noted. All CA PCB results reported as total PCBs.
[a] Analysis by Recra Environmental.
[b] 380 mg/kg split with Recra Environmental.
[c] Analysis by Compuchem (1987). Only Aroclor-1260 present.
NOTE: B4 samples collected at 4.5 - 6.5 ft, 6.5-8.5 ft, etc.
B11 8-10 ft sample actually collected at 9-10.5 ft.
B1-B5 soil samples collected on 14 October 1986.
B6-B12 soil samples collected on 15 October 1986.

(From "Work Plan for RCRA Facility Investigation at Buffalo Service Center", Lawler, Matusky & Skelly Engineers, 1991.)

TABLE 2

ANALYTICAL SUMMARY FOR PHC AND PCBs IN SURFICIAL SOIL SAMPLES
(1986 and 1987)

	LOCATION	CONCENTRATION (mg/kg) PCB	PHC
S1	Truck bay floor	160	5,600
S2	Truck bay trench	51	1,200
S3	Swale - west side of building	ND	17
S4	Old OWS south side	3.3	53
S5	Old OWS southeast side	6.1	17
S6	Old OWS northeast side	17	28
S7	Old OWS north side	8.1	460
S8	East doorway exterior	120	11,100
S9	East doorway exterior	370	760
S10	RR track area	16	920
S11	RR track area	51	2,890
S12	RR track area	7.5	640
S13	East fence	2.0	26
S14	East fence	4.5	120
S15	North side of building	ND	15
S16	Above-ground oil tanks containment	-	80,100
S17*	RCRA storage area	-	-
S18*	RCRA storage area	-	-
S19*	RCRA storage area	-	-
S3-GE	Between RWTEP and east face of building	24	-
S16-GE	5 ft from northeast corner of RWTEP	44	-
S20-GE	0-6 in., east face of building, 40 ft north of RWTEP	52	-
S21-GE	Same location as S20-GE; 1.5-1.8 ft depth	2.2	-
S22-GE	10 ft north of northeast corner of RWTEP	0.54	-
S23-GE	RR track area	1.8	-
S25-GE	5 ft north of S3-GE	1.1	-
S26-GE	0-6 in., east face of building/center of RWTEP	2.2	-
S27-GE	Same location as S26-GE; 3 ft deep	180	-

OWS = Oil/water separator.
RWTEP = Rinse water tank excavation pit.
- = No analysis.
ND = Not detected at 0.5 mg/kg detection limit.
Samples collected on 16 October 1986 and analyzed by Chyun Laboratories, EXCEPT:
-GE = Samples taken 1 April 1987 by GE personnel; analysis by Compuchem.
* = Samples analyzed for VOCs by CAMO Laboratories (see Table 1-4).

(From "Work Plan for RCRA Facility Investigation at Buffalo Service Center", Lawler, Matusky & Skelly Engineers, 1991.)

TABLE 3

ANALYTICAL SUMMARY FOR VOCs IN SURFICIAL SOIL SAMPLES
(1986)

PARAMETER	CONCENTRATION (μg/kg) S17 RCRA No. 1	S18 RCRA No. 2	S19 RCRA No. 3
1,1 Dichloroethane	3	LT 1	LT 1
1,1,1-Trichloroethane	20	LT 1	LT 1
Ethyl ether[a]	18	13	9
Orthodichlorobenzene 1,2-Dichlorobenzene[a]		28	
2 Propanol[a]	9		
1 Propanol[a]	36		

[a] Tentatively identified.
All locations adjacent to RCRA storage area.
Samples collected on 16 October 1986.
All other parameters not detected:

Chloromethane
Bromomethane
Vinyl chloride
Chloroethane
Methylene chloride
Xylenes
1,1-Dichloroethylene
Trans-1,2-dichloroethlylene
Dichlorodifluoromethane
Chloroform
1,2-Dichloroethane
Carbon tetrachloride
Bromodichloromethane
1,2-Dichloropropane
Trans-1,3-dichloropropene
Trichloroethylene
Dibromochloromethane
Cis-1,3-dichloropropene
1,1,2-Trichlorethane
Benzene
2-Chloroethylvinyl ether
Bromoform
Tetrachloroethylene
1,1,2,2-Tetrachloroethane
Toluene
Chlorobenzene
Ethylbenzene
Acrolein
Acrylonitrite

(From "Work Plan for RCRA Facility Investigation at Buffalo Service Center", Lawler, Matusky & Skelly Engineers, 1991.)

TABLE 4

ANALYTICAL SUMMARY FOR WATER SAMPLES
(1986)

No.	LOCATION	CONCENTRATION (mg/l) PCB	PHC
W1	Old OWS effluent	LT 0.005	89
W2	Boring B4 (new OWS) soil water	0.74	200
W3	Trench at RR bay entrance	0.005	LT 0.5
W4	Storm manhole - west side of bldg.	LT 0.005	LT 0.5
W5	Key sanitary manhole	0.007	17
W6	Storm manhole - south side of bldg.	LT 0.005	3.2
W7	Accumulator blowdown	ND	6700

OWS - Oil/water separator.
LT 0.5 - Not detected at 0.5 mg/l detection limit (PHC only).
LT 0.005 - Trace detected below 0.005 detection limit (PCBs only).
ND - Not detected.
Samples collected on 16 October 1986 except W2 collected on 14 October 1986.

(From "Work Plan for RCRA Facility Investigation at Buffalo Service Center", Lawler, Matusky & Skelly Engineers, 1991.)

TABLE 5

RESULTS FOR PCB CONTAINER STORAGE AREA
(1988)

SAMPLE ID				CONCENTRATION	
LMS	AQUATEC	LOCATION	UNITS	PCB-1260	OTHERS
-	Method Blank	PCB Field Blank	μg/l	1.0 U	U[b]
4474 4477	88886	PCB Field Blank	μg/l	5.0 U	U[c]
7262	88891	PCB CSA	mg/kg	175[a]	U[d]

U - No PCBs detected at detection limit indicated.
\- No analyzed.
CSA - Container storage area.
[a] Wet Weight concentration. Solids concentration is 88.03%.
[b] Detection limits vary between 0.5 and 1.0 μg/l.
[c] Detection limits vary between 2.5 and 5.0 μg/l.
[d] Detection limits vary between 40 and 80 mg/kg.

(From "Work Plan for RCRA Facility Investigation at Buffalo Service Center", Lawler, Matusky & Skelly Engineers, 1991.)

TABLE 6

RESULTS FOR RCRA CONTAINER STORAGE AREA
(1988)

SAMPLE ID				CONCENTRATION (µg/kg)[a]					
LMS	AQUATEC	LOCATION	SOLIDS (%)	METHYLENE CHLORIDE	1,1,1-TRICHLOROETHANE	1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	1,2-DICHLOROETHANE	TOI
-	Method Blank	Field Blank	-	0.9	-	-	-	-	
4471 4475 4476	88885	Field Blank	-	8.4B	0.8				
-	Method Blank	RCRA CSA 2-4	-	4.6	-	-	-	-	
7332 7347	88892	RCRA CSA 2-4	84.16	100B;290B	1300;1000	58;46	17;12*	-	
-	Method Blank	RCRA CSA 4-6/6-8	-	-	-	-	-	-	
7342 7252	88893	RCRA CSA 4-6	85.50	4L	20000	290	170	29	
7423 7344	88894	RCRA CSA 6-8	87.50	3L	20000	48	120	61	1

[a] Wet weight.
[b] Sample and replicate concentrations are shown.
- Less than (see summary sheets in Attachment C for applicable detection limits).
* = BMDL.
L = Suspended laboratory contamination.
B = Analyte found in blank.
CSA = Container storage area.

(From "Work Plan for RCRA Facility Investigation at Buffalo Service Center", Lawler, Matusky & Skelly Engineers, 1991.)

4.1.3 *Report on RCRA Facility Assessment Sampling Visit at GE Buffalo Service Center (LMS 1988a)*

The sampling reported in this document was conducted in conformance with the NYSDEC-approved *Work Plan for RCRA Facility Assessment Sampling Visit at GE Buffalo Service Center* (LMS 1988b). This work plan was prepared in compliance with the *1987 RCRA Facility Assessment Report Preliminary Review* (NYSDEC 1987).

As part of this program, borings were advanced to depths of 8 and 7 ft near the RCRA CSA and virgin oil tanks, respectively, to collect split-spoon soil samples. The RCRA CSA soil samples were analyzed for VOCs (Table 6). In addition, a surficial soil sample was collected near the PCB CSA and analyzed for PCBs (Table 5). Chemical analysis of all of these samples were performed by Aquatec Environmental Services.

4.2 *RCRA CSA*

The three 1986 surficial soil samples were tested for 31 VOCs; two were detected in one sample at low concentrations: 1,1,-trichloroethane (20 μg/kg) and 1,1-dichloroethane (3 μg/kg) (See Table 3). 1,1 Dichloroethane is a common environmental breakdown product of 1,1,1-trichloroethane. Four compounds were tentatively identified based on the mass spectral data, also at low estimated concentrations: ethyl ether (diethylether), 1,2-dichlorobenzene, 2-propanol, and 1-propanol. Compound-specific analysis was not performed for 1,2-dichlorobenzene (orthodichlorobenzene).

building was excavated and disposed of. Residual liquid in the tank was also disposed of. No sign of excessive corrosion was observed.

Following excavation, perched groundwater was found in the pea gravel backfill above the native clayey-silt overburden--an oily film was noticed on this water surface. In addition, an odor was observed in the excavation area. Soil samples were collected to depths of 11 to 12 ft from the four sides and center of the excavation. Analysis of these samples showed the backfill around the tank's perimeter contained trace concentrations of PCBs. Higher concentrations were present in the backfill materials in the center of the excavation (Table 1).

Surficial soil samples taken by GE personnel from the area adjacent to the rinse water tank excavation and analyzed for PCBs showed concentrations ranging from 0.54 to 180 mg/kg (Table 2; LMS 1987b). The highest concentration of PCBs (180 mg/kg) was observed in sample S27-GE, taken from ≈ 3 ft depth adjacent to the east face of the building.

The excavated tank appeared to be in good condition; therefore, the cause of the release is unknown, but may have been the result of overfilling or leaking fittings.

4.5 *PCB WORK AREA*

This work area is curbed and indoors. The surficial soil adjacent to outside doorways near the work area was sampled for PCBs in 1986. The measured concentrations of PCBs were in the 120-170 mg/kg range. Surficial soil samples collected near the east fence line contained 2 to 4.5 mg/kg PCBs. Therefore, concentrations apparently decrease with distance from the doors. NYSDEC has included the doorway area as part the separator contained PCBs (3.3 to 17 mg/kg [Table 2]). Because the liquid level in this unit is about 3-4 ft below grade, the source of PCBs to the surface soil in this area in unknown. A sample of effluent from this unit contained PCBs below the method quantification limit (5 parts per billion (ppb) and 89 parts per million (ppm) PHC.

4.7 *FLOOR DRAINS AND SEWERS*

A sample of sediment scraped from the truck bay floor trench drain in 1986 contained 160 mg/kg (Table 2). This drain discharges to the storm sewer. A sediment sample taken from the truck bay trench was found to have 51 mg/kg PCBs. This trench also discharges to the storm sewers. Based on the results of these sediment samples, NYSDEC has concluded that corrective measures should be developed and instituted in order to clean up the truck bay trench, drains, and downstream drainage pipes.

LMS has reviewed the previous 12 months of GE's quarterly sampling data for their sanitary sewer required by the POTW discharge permit. This data shows that no PCBs were detected about the detection limit of 1 ppb.

4.8 *RAIL SPUR*

In 1986 three surficial soil samples were collected along the Rail Spur. PCB and PHC concentrations were in the range of 75. to 51 and 640 to 2890 mg/kg, respectively. A 0-6-in. deep soil sample collected by GE from this area (S23-GE) contained low (1.8 mg/kg) levels of PCBs. The mechanism by which the PCBs entered the spur is unknown. Drums of nonhazardous abrasive blast material are also stored in this area. A portion of the ground surface shows signs of spillage of this black material.

4.9 *OTHER LOCATIONS*

A surficial soil sample collected in 1986 from the drainage swale on the west side of the building contained no measurable PCBs (Table 2).

5.0 MIGRATION PATHWAYS AND POTENTIAL RECEPTORS

5.1 MIGRATION PATHWAYS

Test borings were conducted prior to both the building's construction (1968) and expansion (1978). The depth to groundwater observed in the Anderson Drilling Co. test borings (1978) TB-4 (22.4 BGS/≈589.6 ft elev.), TB-5 (26.0 ft BGS/≈586.5 ft elev.), and TB-9 (23.8 ft BGS/≈588.8 ft elev.) suggests that the true water table surface could occur at depths generally greater than 22 ft BGS and dips to the west-northwest.

As previously discussed, LMS supervised the advancement of 12 shallow borings into the site's fill and native soil in October 1986. Eleven of these borings were completed with hollow-stem augers and continuous split spoons to a total depth of approximately 12 ft, while the other borings advanced through the native glaciolacustrine sediments encountered groundwater, including the 25 ft borehole, which remained dry after 6 hours.

5.1.1 *Backfill*

Shallow borings advanced through the fill material adjacent to the new oil/water separator and the rinse water tank excavation encountered saturated gravel. In contrast, shallow borings through the native sediment immediately adjacent to these fill areas encountered unsaturated silt and clay. Clean sand and gravel fill should exhibit a range of intragranular hydraulic conductivities (K) of 1-10 cm/s, in comparison to the expected range of 10^{-6} to 10^{-10} cm/s for the glaciolacustrine sediments (Freeze & Cherry 1979). Therefore, there is a multiple order of magnitude change in K at the fill-sediment interface. If the water table in the sediment is below the fill-sediment interface, conditions are favorable for perched water to occur in the fill; the flow path of water observed in the backfill material associated with the USTs, utilities, oil/water separators, and foundation drainage system would then be likely to follow the geometric dip of the trench fill-sediment contact. Even if the water table in the sediment is at an elevation higher than the fill-sediment interface, the water flow in the fill would still be preferentially directed through the fill.

The shallow borings advanced by LMS revealed that the backfill around the SWMUs, utilities, and building foundation is not only partially saturated, but that it may be a hydraulically interconnected system. The infiltration of local precipitation is likely to exhibit strong control on the degree of saturation/water levels observed in the backfill material. The ultimate discharge area of this fill water system is unknown and will need to be examined in the RFI. There may also be an exchange of water between the backfill and sewer lines. Deep areas of gravel backfill may "dead-end" some water.

The water and soil in the backfill has been sampled at different locations and found to contain PCBs and oil (measured as PHC). Combined with the information discussed above, the backfill system is a potential migration pathway for contaminants associated with the majority of the SWMUs.

5.1.2 *Groundwater*

As previously discussed, groundwater flow through the saturated glaciolacustrine sediments would be retarded by their extremely low hydraulic conductivity. Therefore, the off-site migration of chemical contaminants via the shallow groundwater system is unlikely.

5.1.3 *Surface Water and Sediment Run-off*

Since PCBs have been detected in surficial soil samples, their possible migration with surface water and sediment run-off is a potential pathway.

5.1.4 *Storm Sewers*

In addition to the site stormwater drainage, the truck bay drainage contributed to the storm sewer system.

5.1.5 *Soil Gas*

The VOC concentrations measured in the soil are not high enough for soil gas to be a potential pathway of concern.

5.1.6 *Air*

The concentrations of VOCs measured in the soil indicate that off-gassing to the atmosphere is not a pathway of concern. However, wind-driven dust from PCB-contaminated soil within the PCB Work Area and Rail Spur could be a potential pathway.

5.2 *POTENTIAL RECEPTORS*

5.2.1 *Surface Water*

It is believed that the stormwater drainage system drains to Two Mile Creek, about 3,000 ft west of the site. (Drawings of the system will have to be obtained to verify this.) NYSDEC reports indicate that this surface water is a Class B stream, not used for drinking water.

5.2.2 *Groundwater*

The releases are not believed to have reached the local groundwater, although this must be confirmed through the installation and sampling of monitoring wells. As Tonawanda is reportedly served by a public water supply, the local groundwater may not be used. However, local health department and state records on known withdrawal wells will have to be reviewed.

5.2.3 *Local Population*

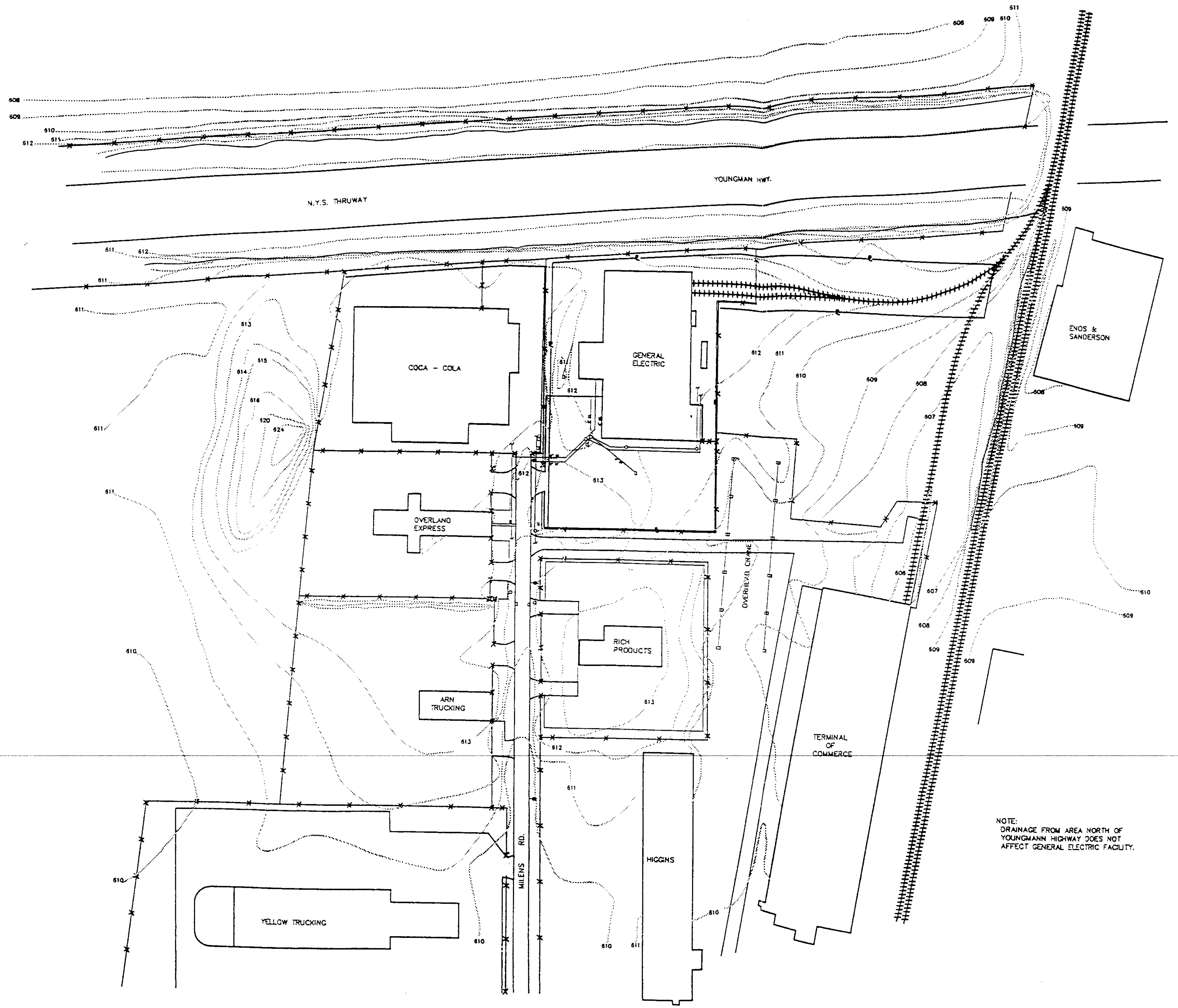
The site is completely fenced and is located in an industrial park. Only authorized individuals, such as industrial workers, have access to the area. Such individuals could be exposed to the PCBs released from the units only by direct contact with the soils on the east side of the building, Rail Spur, and truck bay.

5.2.4 *Environmental Receptors*

The GE facility as well as the properties adjacent to it are industrial. Therefore, impacts on wildlife and biota should not be a concern.

1.6 *CORRECTIVE ACTION IMPLEMENTATION*

No corrective actions have been undertaken at this site.



LEGEND

- FENCE LINE
- RAILROAD
- STREAM OR DITCH
- COUTOUR LINE
- STORM SEWER
- CATCH BASIN
- MANHOLE
- HYDRANT
- PAVED ROAD, LOT
- BUILDING, STRUCTURE
- SANITARY SEWER
- PROPERTY LINE

TITLE

TONAWANDA RCRA SUPPORT
GENERAL ELECTRIC
TONAWANDA, NEW YORK

PREPARED FOR

GENERAL ELECTRIC

ERM-Northeast
Environmental Resources Management

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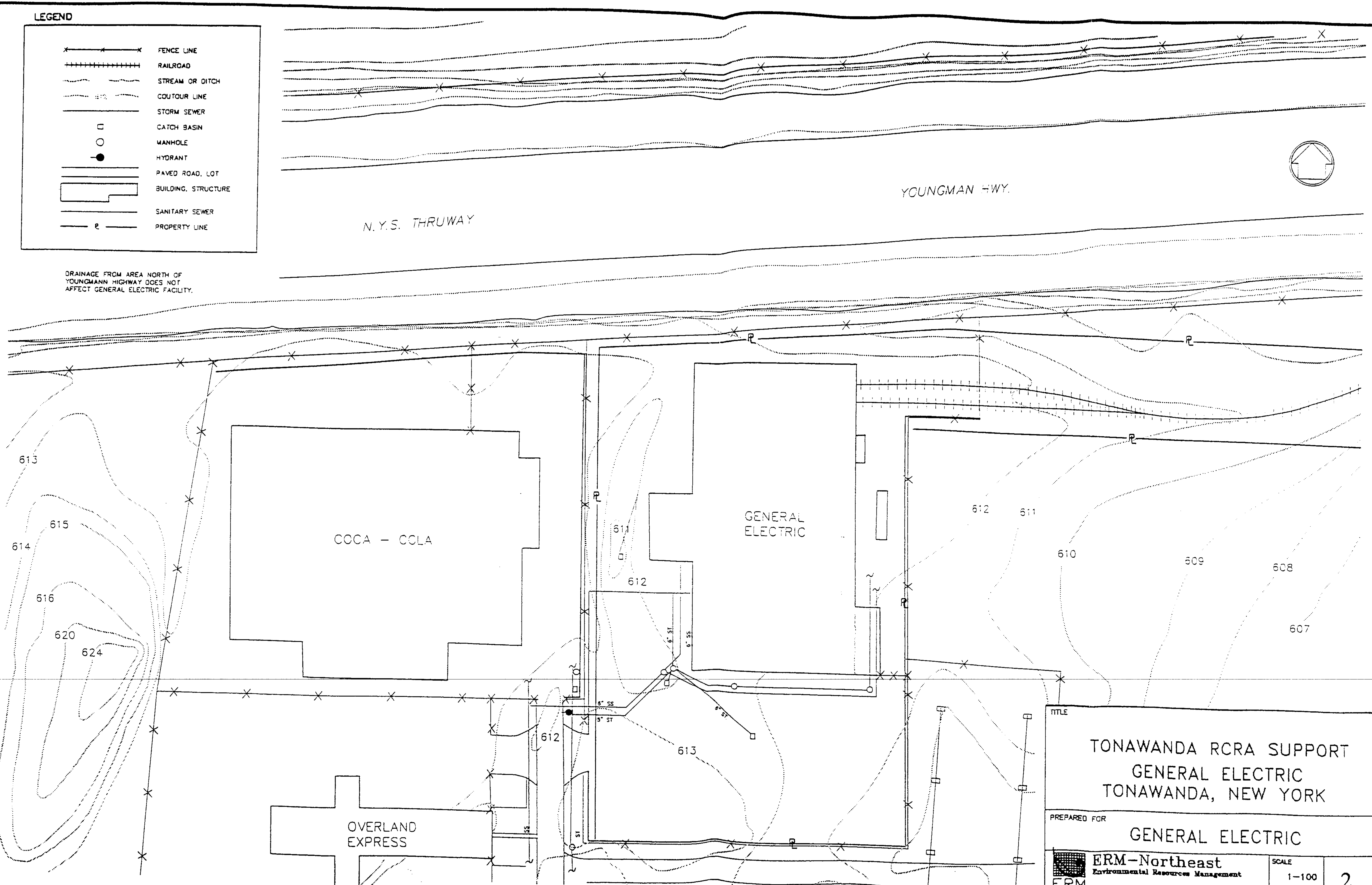

TITLE

TONAWANDA RCRA SUPPORT
GENERAL ELECTRIC
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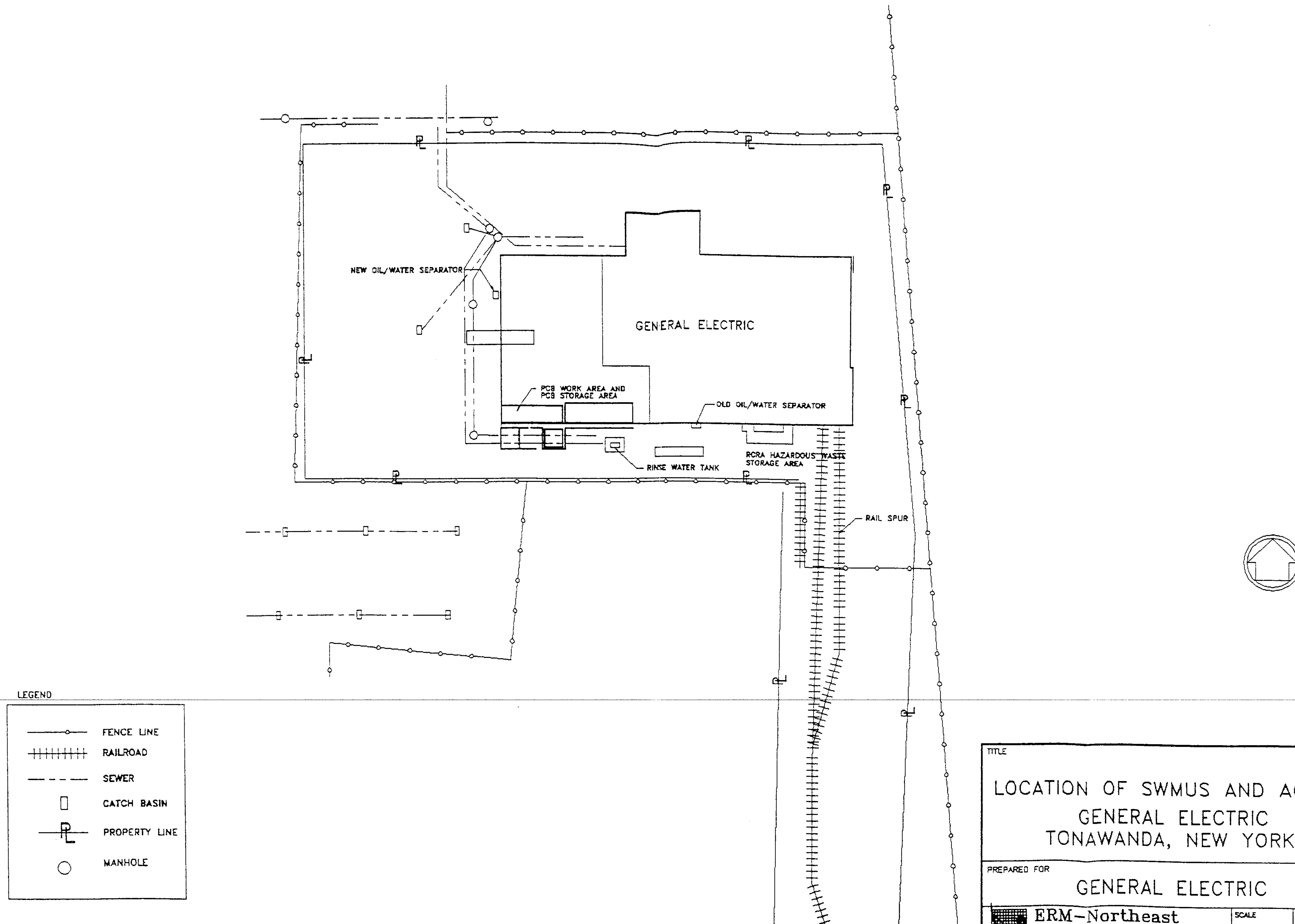
PREPARED FOR

GENERAL ELECTRIC

ERM-Northeast
Environmental Resources Management

DRAWN: GPG	JOB No. 380.152	FILE NAME: SITE152	SCALE 1-100 / DATE 7/12/96	2



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PREPARED FOR: GENERAL ELECTRIC			
ERM-Northeast Environmental Resources Management		SCALE: 1-100 DATE: 7/12/96	3
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