# SUPERFUND STANDBY PROGRAM
## New York State
## Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7016

## SITE IDs 286 - 289: GENERAL SUPER PLATING CO., INC.

## SITE SUMMARY REPORT
## DRAFT

Bridge St. Site -
more data for Bridge St.
- env.
- PSA done

# Onondaga Lake Project
# Task 5: 104(e) Review

**Site No. 734030-002**
**Work Assignment Number D003060-27**

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### TABLES



### FIGURES

# 1.0 SITE DESCRIPTION

The information referenced in this report was mainly obtained from the 104(e) responses of General Super Plating Co., Inc. (General Super Plating, Company ID 2039). Three mailings were received from General Super Plating dated October 11, 1996, June 30, 1998, and August 28, 2000. Information obtained from other sources is noted, as necessary. The documents pertaining to General Super Plating operations that were available for review discuss five facilities although detailed information is only provided for three of these facilities.

## 1.1 Location

General Super Plating has occupied five locations in the Syracuse area during its history. Their only present facility is located at 5762 Celi Drive (formerly 22 Celi Drive), East Syracuse, NY (Site ID 286). Previous locations include: 6606 and 6608 Joy Road, East Syracuse, NY (Site IDs 287 and 288); 5781 Bridge Street, East Syracuse, NY (Site ID 289); and Oliva Drive, East Syracuse, NY (no Site ID provided). Figure 1 shows the location of these facilities in relation to Onondaga Lake. Each of these facilities was located near tributaries of Onondaga Lake. The location of the Oliva Drive facility is not shown on Figure 1 since the full street address was not provided. A Site ID was not assigned for this facility since this small adhesive pilot plant only operated for a brief period of time in 1986 and no waste was generated (Mailing No. 1, p. 000004). The two Joy Road facilities are shown on the USGS topographic map in Figure 2. The Celi Drive and Bridge Street facilities are shown on the USGS map in Figure 3.

The current facility at Celi Drive, which was opened in approximately 1980, consists of two buildings that are joined by a small passageway. The exterior characteristics of the site were not described in the available documents. The site is bound to the west by Celi Drive and is

north of the intersection of Towpath Road and Celi Drive. The Joy Road facilities are located at the southwest corner of the intersection of Joy Road and Boss Road. The sites are bound to the south by the NYS Thruway, Route I-90. The Bridge Street facility was bound to the east by Bridge Street, south of the intersection of Enterprise Parkway and Bridge Street and north of the intersection of Celi Drive and Bridge Street.

## 1.2 Geology

The surficial geology of the Syracuse area was strongly influenced by the most recent glacial advance (Wisconsin age, 12,000 to 14,500 years ago). The area occupies a region that was covered by Lake Iroquois, a large glacial lake situated in front of the ice margin. The broad flat-lying plains situated north from Syracuse to Lake Ontario were formed beneath Lake Iroquois and are characterized by lacustrine fine sand and silt deposits. Additional glacial features common to the region are moraines, drumlins, U-shaped valleys, and meltwater channels.

Onondaga Lake and all its major tributaries lie within glacial meltwater channels. These features originally were conduits carrying meltwater at large volumes and high velocities away from the glacier. Sediment types characteristically found in meltwater channels are sands and gravels. These relict features form important water bearing and transmitting units which form an irregularly branching, net-like pattern.

The bedrock geology of the greater Syracuse area includes Lower to Middle Paleozoic age sedimentary rocks predominated by carbonate (dolostone and limestone) and shale, and containing some sandstone, siltstone, and evaporites. Bedrock directly beneath the area (as well as underneath Onondaga Lake) is Silurian Vernon Shale (Rickard and Fischer, 1970) which has low permeability, but does possess secondary porosity due to fractures.

Boring logs were not provided for any of the four General Super Plating sites.

## 1.3 Hydrogeology

According to the Syracuse East USGS map (Figure 3), the ground surface elevation at the Celi Drive facility is between 410 and 420 ft NGVD. No groundwater data at Celi Drive was included with the available documents. However, based on the ground surface contours and the proximity of the South Branch of Ley Creek, groundwater most likely flows northwest towards the South Branch of Ley Creek, which is located approximately 1,700 feet northwest of the site.

According to the Syracuse East USGS map (Figure 2), the ground surface elevation at the Joy Road facility is between 405 and 410 ft NGVD. The groundwater level is known to be about one to three feet below the ground surface at the site (Mailing No. 1, p. 000046) but the direction of groundwater flow was not stated in the available documents. However, based on the ground surface contours and the proximity of the North Branch of Ley Creek, groundwater most likely flows northwest towards the North Branch of Ley Creek, which is located approximately 3,000 feet northwest of the site.

Since a site map of the Joy Road (Adhesive) facility was not provided, the exact location of the site is not known. The site is assumed to be relatively close to the Joy Road facility and, therefore, have approximately the same hydrogeologic information as the Joy Road facility. No groundwater data at the Joy Road (Adhesive) facility was included with the available documents.

According to the Syracuse East USGS map (Figure 3), the ground surface elevation at the Bridge Street facility is at about 410 ft NGVD. No groundwater data at Bridge Street was included with the available documents. However, based on the ground surface contours and

the proximity of the South Branch of Ley Creek, groundwater most likely flows west towards the South Branch of Ley Creek, which is located approximately 1,000 feet northwest of the site.

## 1.4 Surface Water Hydrology

The Celi Drive facility is located approximately 5.7 miles southeast of the southern shore of Onondaga Lake. The South Branch of Ley Creek is located approximately 1,700 feet to the northwest of the site. Sanitary wastewater from the Celi Drive facility is conveyed to the Metropolitan Syracuse Wastewater Treatment Facility (Metro) via "Sewer #1." Pretreated wastewater from electroplating operations is conveyed to Metro via "Sewer #2." The exact location of the facility's sewer connection point(s) is not indicated on any of the available documents. A sketch included with the facility's latest wastewater discharge permit shows the general location of manholes and water meters on site (Mailing No. 3, p. 000350, Exhibit 10C-1).

The Joy Road facility was located approximately 4.7 miles northwest of the southern shore of Onondaga Lake. The North Branch of Ley Creek is located approximately 3,000 feet northwest of the Joy Road facility.

The Joy Road (Adhesive) facility was located approximately 4.7 miles northwest of the southern shore of Onondaga Lake. The North Branch of Ley Creek is located approximately 3,000 feet northwest of the Joy Road (Adhesive) facility. Since a site map of the Joy Road (Adhesive) facility was not provided, the exact location of the site is not known. The site is assumed to be adjacent to the Joy Road facility.

The Bridge Street facility was located approximately 5.7 miles southeast of the southern shore of Onondaga Lake. The South Branch of Ley Creek is located approximately 1,000 feet west of the Bridge Street facility.

## 2.0 SITE HISTORY

### 2.1 Owners/Operators

General Super Plating has been in existence since 1963 (Mailing No. 1, p. 000004). The company was incorporated in 1963 after purchasing the name General Super Plating Co., Inc. from an unrelated corporation (Mailing No. 2, p. 000250). General Super Plating was located at 5781 Bridge Street, East Syracuse, NY. In 1979, there was a fire at the Bridge Street facility. This facility was phased out from 1980 to 1983. In 1980, the company opened a facility at its current location, 22 Celi Drive, East Syracuse, NY. In January 1995, the US Postal Service changed the address of this facility to 5762 Celi Drive (Mailing No. 1, p. 000002).

For a short time in 1986, the company operated a small adhesive pilot plant on Oliva Drive. The exact address at Oliva Drive was not indicated in any of the provided documents. From 1986 to 1990, General Super Plating operated an adhesives application facility, known as Joy Road (Adhesive), at 6608 Joy Road, East Syracuse, NY. From approximately 1987 to 1992, the company operated a facility periodically at 6606 Joy Road.

### 2.2 Site Operations

General Super Plating stated in their first mailing that all records from the Bridge Street facility were destroyed in a fire in 1979 (Mailing No. 1, p. 000004). No records for the Oliva Drive adhesive pilot plant were provided. The activities at General Super Plating's current Celi Drive facility, and former Bridge Street and Joy Road facilities consist of metal finishing on plastic and metal substances. The Joy Road (Adhesive) facility operations included the application of adhesives on metal components (SIC Code 3471). The Oliva Drive pilot plant operated as a prototype for the Joy Road (Adhesive) facility (SIC Code

3471). The wastes that have been generated by General Super Plating operations are discussed in Section 2.3. A description of various processes performed at each plant is provided below. Please note that all dates of operation for specific process lines are approximate.

Celi Drive Facility

The Celi Drive facility currently performs metals plating on both plastics and metal substrates. A building floor plan is presented in Figure 4 herein. The processes involved in metals plating are described as follows with the approximate dates of operation in parentheses: plating of plastics which consists of 1) surface preparation and activation by means of etching the surface of the plastic substrate; 2) electroless plating which involves the coating and autocatalytic deposition of a layer of metal on the plastic; and 3) electroplating which is the electrolytic deposition of the final metallic coating on the initial layer of metal applied in step 2 (1980-present); phosphate process in which a coating of zinc phosphate is deposited onto steel (1983-present); anodizing process which transforms the surface of aluminum substrate into a dyeable corrosion and abrasion resistant aluminum oxide coating (1983-present); miscellaneous metals process which involves electrodeposition onto unspecified metal surfaces (1983-present); preparation to plate and plating of stainless steel stamping (1988-present); and a nickel barrel process which consists of the application of cleaners, activators, and plating solutions (1992-present). This latter process is described as "a closed loop line" with "no discharge" (Mailing No. 1, p. 000007); however, F006 waste is listed as being generated.

From 1983 to 1988, the Celi Drive facility operated a zinc barrel plating line which involved the application of cleaners, activators, and plating solutions to metal parts. Intermittently from 1983 to 1993, a "shielding line" was operated involving the surface preparation and activation via etching of a plastic surface, and electroless plating. Electroless plating is

described as "coating and catalytic deposition of a layer of metal" which facilitates the electrolytic deposition of a metallic coating (Mailing No. 1, p. 000009). The complete history and descriptions of processes at the Celi Drive facility are provided in Mailing No. 1 (pp. 000005-000007).

Joy Road Facility

From 1987 to 1989 and from 1990 to 1992, the Joy Road facility operated a shielding line with a process similar to that operated at the Celi Drive facility. A building floor plan is presented in Figure 5 herein. In addition, from 1989 to 1990, the Joy Road facility operated a nickel plating line, a process which consists of the application of cleaners, activators, and plating solutions during which a layer of nickel is deposited on metallic substrates (Mailing No. 1, p. 000008).

Joy Road (Adhesive) Facility

During its period of operation from 1986 to 1990, the Joy Road (Adhesive) facility operated an adhesive line which involved the spray application of adhesive on metal components.

Bridge Street Facility

The Bridge Street facility, General Super Plating's original location, operated a plastics line from 1964 to 1980. This plating line consisted of surface preparation and activation via etching of a plastic surface, electroless plating, or the autocatalytic deposition of a layer of metal, and electroplating steps. Intermittently from 1963 to 1983, this facility operated a metals line which performed miscellaneous plating processes with electrode deposition on a metal substrate. From 1965 to 1983, a zinc barrel line was operated consisting of the application of cleaners, activators, and plating solutions to "bulk zinc plate" various

unspecified metal parts. In addition, from 1964 to 1983, General Super Plating operated a zinc rack line, comprised of the application of cleaners, activators, and plating solutions to "rack plate zinc" on various unspecified metal parts. The composition of the aforementioned cleaners, activators, and plating solutions was not specified. It should be noted that for the Bridge Street facility "no records of any waste generation exist" (Mailing No. 1, p. 000010).

## 2.3 Generation and Disposal of Wastes

The approximate quantities and types of wastes generated at the Celi Drive, Joy Road, and Joy Road (Adhesive) facilities were indicated in the documents that were provided, and are presented in Table 1 herein. Very little information on waste generation and disposal was provided for the Bridge Street facility. In reference to the Oliva Drive adhesive pilot plant, it is stated in Mailing No. 1, p. 000004 that "no waste was generated by the pilot plant." Known disposal locations are indicated in the text following Table 1. As stated in Mailing No. 3, p. 000279, the information for several disposal facilities was not provided as their location was not within fifty (50) miles of Onondaga Lake. For those wastes which were discussed in the documents that were submitted, but for which no estimated generator quantities or disposal locations were provided (i.e., not shown in Table 1), descriptions of the waste are provided in the text following Table 1.

Hazardous wastes were described in the mailings in terms of their USEPA Hazardous Waste Code and sometimes given a general name indicating the nature of the waste. Therefore, the exact makeup of the wastes is uncertain. Also, amounts of waste generated from specific processes have not been provided. All information provided regarding the makeup of the wastes is presented for each site below.

| Waste Generated | Site Operation | Quantity of Wastes Generated |
|---|---|---|
| **Joy Road (Adhesive) Facility** | | |
| Spent Wash (F002) | Adhesive Line | 1.8 tons/year from 1986 to 1990 |
| D001 | Adhesive Line | 1.2 tons/year from 1986 to 1990 |
| | Facility Shutdown | |
| F005 | Adhesive Line | 0.1 tons/year from 1986 to 1990 |
| | Facility Shutdown | |

**Sources:** General Super Plating, Mailing Nos. 1, 2, and 3.
**Note:** Disposal locations are noted in the accompanying text.

Celi Drive Facility

Types and approximate quantities of wastes generated by operations at the Celi Drive facility were outlined in Mailing No. 1 (p. 000007). Processes related to electroplating on plastic and metal at Celi Drive have generated F006 waste, generally defined as "wastewater treatment sludge from electroplating operations" (USEPA Hazardous Waste Codes). In addition, various plating processes have generated F001 and F002 wastes, including, but not limited to, tetrachloroethylene, trichlorethylene, and 1,1,1-trichloroethane. Stainless steel plating processes generated F007 waste, or "spent cyanide plating bath solutions from electroplating operations." F003 and F005 wastes, the definitions of which include non-halogenated solvents such as xylene, acetone, toluene, benzene, and methyl ethyl ketone, are noted as wastes generated by the stainless steel plating processes. However, the quantity of this waste generated by Celi Drive operations was not listed. Spent gold bath, listed as D003 waste, a reactive waste, is noted as a waste generated from Celi Drive; however, the process from which spent gold bath was generated was not specified. Spent strip, listed as an "industrial recycled material," was generated by the stripping of rejected parts on the nickel barrel line.

Limited information concerning the Celi Drive storage facilities and practices, including the details about containment and spill management, was indicated in the documents available for review. No former or current outdoor storage locations or storage tanks have been indicated to be present on site. Several waste storage areas for F006 waste and "miscellaneous wastes" were shown on a figure entitled "Celi Drive Waste Storage" (Mailing No. 2, p. 000252, Exhibit 7A). The composition of "miscellaneous wastes" is not explained in the available documents.

General Super Plating utilized a storage area/warehouse on the opposite side of Celi Drive (address not specified) from 1986 to 1994 to store F006 waste and "miscellaneous wastes" in "appropriate 55 gallon drums and cubic yard sacks" (Mailing No. 3, p. 000278). Although it was not noted in the available documents how long each waste was stored in the facility, it was indicated that the floor of the building was concrete. General Super Plating no longer uses the building for waste storage and the building was purchased in June 1998 by an unspecified company.

The waste storage area indicated as "Shipping and Receiving" on Exhibit 4A-1 in Mailing No. 1 (see Figure 4 herein), also known as 5860 Whirlybird Lane, was purchased by General Super Plating in August 1997 (Mailing No. 1, p. 000024; Mailing No. 3, p. 000278). This building is shown as being attached to the 5762 Celi Drive facility and was used to store "miscellaneous wastes" from 1995 to 1996. In 1994, General Super Plating began storing F006 waste in this area and was still storing this waste at the time of the second mailing, dated June 30, 1998. Again, the time lapsed between waste generation and disposal during which waste was stored in the "Shipping and Receiving" area was not indicated.

"Miscellaneous wastes" were also stored near the area indicated as "W.T. Chem Storage" on the drawing named "General Super Plating Plant Lay Out" (Mailing No. 1, p. 000024, Exhibit 4A-1). It is assumed that chemicals used in the waste treatment system are still stored

in this area although the layout of this area seems to have changed from the "General Super Plating Plant Lay Out" drawing submitted on October 11, 1996 (Mailing No. 1, p. 000024) to the "Celi Plant Waste Storage" drawing submitted on June 30, 1998 (Mailing No. 2, p. 000252).

Limited information was provided concerning the transport and disposal locations for the wastes generated by operations at the Celi Drive facility. As stated above, General Super Plating did not list the name and address of many of the transport and disposal facilities they used, explaining they were "not applicable" due to the fact that their location was not within fifty (50) miles of Onondaga Lake (Mailing No. 3, p. 000279). Representative waste manifests were provided in Exhibit 6A of Mailing No. 1 for specific shipments of specific wastes; these manifests do not account for all shipments of waste made during the period of operation.

Spent degreaser (F001 and F002 wastes), listed on two representative manifests as 1,1,1-trichloroethane, was transported and disposed of by Solvents and Petroleum Services in Syracuse, NY (Mailing No. 1, p. 000029, Exhibit 6A; Mailing No. 3, p. 000284, Exhibit 6C). In reference to F003 and F005 wastes, supposedly generated by the stainless steel plating line, General Super Plating indicated "no actual volume shipped" (Mailing No. 3, p. 000279).

General Super Plating stated that there was no transporter or disposal facility for spent strip bath from the nickel barrel line (Mailing No. 1, p. 000007). However, a transporter's waste profile report and a waste manifest detailing a shipment of nickel strip bath were provided (Mailing No. 3, pp. 000287-000288, Exhibit 6D). The waste profile report, dated March 6, 1990, outlines a quarterly shipment of four to ten drums of non-hazardous, non-regulated nickel strip bath. The transporter listed on the waste profile report and the manifest was Environmental Service Group (NY), Inc. in Tonawanda, NY (Mailing No. 3, p. 000287, Exhibit 6D). The Michigan Department of Environmental Quality waste manifest that was

signed on May 15, 2000 lists Chem Met Services, Inc. in Brownstown, MI as the disposal facility (Mailing No. 3, p. 000288).

Transport and disposal information for plating sludge (F006) was listed as "not applicable." However, two representative waste manifests document shipments of F006 waste (Mailing No. 1, p. 000028, Exhibit 6A; Mailing No. 1, pp. 000113-000114, Exhibit 10A-1). The former, a Pennsylvania Department of Environmental Resources manifest dated September 29, 1988, documents a shipment of F006 waste transported by BES Environmental Specialists, Inc. to WRC Processing Company (Recycling Facility) in Pottsville, PA for disposal. A Pennsylvania waste manifest notes Del Vecchio Trans. and Matl., Inc. as the transporter and WRC Processing Company (Recycling Facility) in Pottsville, PA as the disposal facility for a shipment of 23 cubic yards of F006 waste on April 26, 1995. The plating sludge (F006) is listed as "currently reclaimed" but the date the reclamation process began is not listed (Mailing No. 1, p. 000007).

The spent gold resin (F007) is listed as "reclaimed" but under disposal facility, "not applicable" is listed, meaning the "disposal facility was not within 50 miles of Onondaga Lake" (Mailing No. 1, p. 000007; Mailing No. 3, p.000279). A New Jersey Department of Environmental Protection waste manifest cites RFE Industries, Inc. in Jersey City, NJ as the transporter and disposal facility for a shipment of 35 tons of F007 waste on April 4, 1995.

Transport and disposal information for spent gold bath (D003) was listed as "not applicable."

Joy Road Facility

Types and approximate quantities of waste generated by operations at the Joy Road facility were outlined in Mailing No. 1 (p. 000008). General Super Plating lists the amount of wastes generated annually between 1988 and 1992 and does not account for 1987 when the

shielding line began operating. The shielding line, which involves electroless plating on plastic, and the nickel plating line, which involves plating on metallic substrates, together generated 7 tons of plating sludge (F006) annually. The shielding line generated an annual amount of 0.5 tons of "miscellaneous waste" (D001), characterized as "ignitable waste." In addition, the Joy Road facility annually generated 6 tons of spent bath (D002), known as "corrosive waste," from the shielding line processes. The shielding line also produced spent bath (D007) containing chromium, in the amount of 18 tons per year.

Details regarding waste storage, transport, and disposal were not included in the available documents. A waste storage area used from 1987 to 1992, the years the Joy Road facility was in operation, was indicated on a drawing entitled "Joy Road Plant" (Mailing No. 2, p. 000253, Exhibit 7B). General Super Plating did not provide facts pertaining to the contents and operations within this waste storage area.

Names or addresses of transport or disposal facilities were not provided and were listed as "not applicable," as defined above. However, Exhibit 6B of Mailing No. 1 is a waste manifest for a shipment of F006 waste transported in February 1992 to WRC Processing Company (Recycling Facility) in Pottsville, PA by BES Environmental Specialists, Inc.

Joy Road (Adhesive) Facility

Types and approximate quantities of wastes generated by operations at the Joy Road (Adhesive) facility between 1986 and 1990 were outlined in Mailing No. 1, p. 000009. The adhesive line generated an annual amount of 1.8 tons of spent wash (F002), which may be comprised of specific spent halogenated solvents and related mixtures. General Super Plating indicated that this facility generated 1.2 tons annually of D001 ignitable waste, and 0.1 tons of F005 waste, which may be comprised of specific spent nonhalogenated solvents and related mixtures. These wastes were related to the "facility's shut down."

A small concrete floor area inside the Joy Road (Adhesive) facility was used to store the generated wastes in 55-gallon drums (Mailing No. 3, p. 000278). A site map specifying this area was not included with the available documents.

Spent wash (F002) was transported and disposed of by Solvents and Petroleum Services, Inc. in Syracuse, NY (Mailing No. 1, p. 000009). Transport and disposal information for D001 and F005 wastes were not provided because they were "not applicable." Waste manifests were not included in the available documents.

Bridge Street Facility

General Super Plating did not provide any documents regarding the Bridge Street facility, explaining that all documents were destroyed in the fire of 1979. Although the facility continued operations through 1983, the only information provided for the phasing-out period was that "process waters and sludges would likely have been generated" (Mailing No. 3, p. 000279). General Super Plating does not believe documentation exists concerning the waste quantities and means of disposal.

Facility Permits

The Hazardous Waste Generator USEPA ID number for the Celi Drive facility was NYD982721656 as of April 1995 (Mailing No. 1, p. 000114, Exhibit 10A-1). The State of Pennsylvania manifests identify Celi Drive by the USEPA ID No. as well.

General Super Plating was issued an Onondaga County Industrial Wastewater Discharge Permit (OCIWDP) Permit Number 37 for the Celi Drive facility, valid between December 16, 1987 and December 16, 1990 (Mailing No. 1, pp. 000095-000106, Exhibit 10A). The permit allows General Super Plating to discharge sanitary wastewater and "electro/electroless

plating process wastewater which has been treated to comply with pretreatment standards" outlined in the permit to the Metropolitan Syracuse Wastewater Treatment Plant via "Sewer #2." This treatment plant discharges to Onondaga Lake. In addition, General Super Plating was issued Onondaga County Industrial Wastewater Discharge Permit Number 36 valid between July 1, 1989 and July 1, 1992 to discharge the wastewater with the same makeup as outlined in Permit Number 37. A copy of the permit was not provided in the mailings for the period between July 1, 1992 and June 12, 1995. However, Permit Number 36 was valid between June 12, 1995 and June 12, 1996. This permit specified only sanitary wastewater could be discharged into Sewer #1 and only pretreatment system effluent originating from the "Big Bertha" automated plating line, manual metals plating line, Gillete plating line, gold plating line, and zinc phosphating line could be discharged to Sewer #2. All discharges must comply with those standards outlined in the permit (Mailing No. 1, pp. 000068-000094, Exhibit 10A). This permit was "extended until issuance" of Permit Number 36, valid between October 24, 1997 and October 24, 2000. This latest permit enclosed in the mailings specifies only sanitary wastewater may be discharged into Sewer #1 and Sewer #2 may accept wastewater from plating on zinc die casting pilot line and specialty line and pretreated wastewater from plating on plastics automated line, metals #1 line, metals #2 line, metals #3 line, and zinc phosphating line (Mailing No. 3, p. 000310, Exhibit 10C-1). All wastewater discharged to the sewer must comply with the effluent limitations specified in the permit (Mailing No. 3, pp. 000307-000354, Exhibit 10C-1).

General Super Plating was issued Onondaga County Industrial Wastewater Discharge Permit Number 11 for the Joy Road facility, which was valid between January 1, 1988 and January 1, 1989 (Mailing No. 1, pp. 000201-000210, Exhibit 10B). The permit allows General Super Plating to discharge sanitary wastewater and "electro/electroless plating process wastewater which has been treated to comply with pretreatment standards" outlined in the permit to the sewer system which discharges to the Metropolitan Syracuse Wastewater Treatment Plant.

Despite the fact that the facility was in operation periodically from 1987 to 1992, according to General Super Plating, "no other permits can be located" (Mailing No. 3, p. 000281).

General Super Plating was issued Onondaga County Industrial Wastewater Discharge Permit Number 14 for the Joy Road (Adhesive) facility, which was valid between December 16, 1987 and December 16, 1990 (Mailing No. 1, pp. 000201-000210, Exhibit 10B). The permit allows General Super Plating to discharge sanitary wastewater and pretreated wastewater from "dilute acid and Oaklite caustic cleaning line processes" to the Metropolitan Syracuse Wastewater Treatment Plant. The facility was in operation periodically from approximately 1986 to 1990. However, no permit was provided for 1986 and the period of 1987 before Permit 14 became effective.

Information on wastewater characteristics and violations of the discharge permits is provided in Section 3.5 herein.

Several NYSDEC Permits to Construct and Certificates to Operate a Process, Exhaust, or Ventilation System were issued to the Celi Drive facility for various emission points (Mailing No. 1, pp. 000033-000040, Exhibit 9A). A permit to construct, effective from April 16, 1985 to April 1, 1990, was issued for the anodized metals plating and finishing process to emit sulfuric acid mist, nitric acid mist, and sodium hydroxide. A permit to construct, effective from August 1, 1989 to August 1, 1990, and a certificate to operate, effective from November 3, 1989 to November 1, 1994, were issued for the gold plating line to emit sodium hydroxide, sodium metasilicate, sodium carbonate, sulphuric acid, and gold potassium cyanide. A permit to construct, effective from August 1, 1989 to August 1, 1990, and a certificate to operate, effective from November 3, 1989 to November 1, 1994, were issued for the chrome plating line, equipped with a control device, to emit sodium hydroxide, sodium metasilicate, sodium carbonate, hydrochloric acid, chromic acid, and fluoride. A permit to construct, effective from August 1, 1989 to August 1, 1990, and a certificate to

operate, effective from November 3, 1989 to November 1, 1994, were issued for the sludge drier for hydroxide sludge, equipped with a control device, to emit particulates. A certificate to operate, effective from May 1, 1990 to November 1, 1994, was issued for the metals plating room to emit potassium hydroxide, phosphoric acid, copper, nickel sulfate, nickel chloride, boric acid, sodium cyanide mist, hydrochloric acid mist, sodium hydroxide, sodium metasilicate, sodium carbonate, tetrasodium pyrophosphate, sodium dodecylbenzene sulfonate, dipentene, calcium silicate, sodium m-nitrobenzene sulfonate, and nitric acid. A certificate to operate, effective from February 10, 1992 to July 31, 1997, was issued for the vapor degreaser to emit 1,1,1-trichloroethane, tertbutyl alcohol, butylene oxide, and dimethoxymethane. Permissible and measured air emission rates of the contaminants listed above are presented in Section 3.4.

A NYSDEC Certificate to Operate a Process, Exhaust, or Ventilation System was issued to the Joy Road facility for the period between December 11, 1989 to April 1, 1994 (Mailing No. 1, pp. 000042-000043, Exhibit 9B). This permit was valid for electroless plating operations emitting nitric acid, mono ethyl glycol ether, diethanolamine, triethanolamine, sodium hydroxide, chromium trioxide, nickel sulfate, acetic acid, sodium hypophosphite, ammonium, hydroxide, nitric acid, and cupric chloride. Permissible and measured air emission rates of the contaminants listed above are presented in Section 3.4.

Several NYSDEC Permits to Construct and Certificates to Operate a Process, Exhaust, or Ventilation System were issued to the Joy Road (Adhesive) facility for various emission points (Mailing No. 1, pp. 000057-000066, Exhibit 9C). A permit to construct, effective from June 25, 1987 to June 1, 1992, was issued for adhesive spray booth #1, equipped with spray booth filters, to emit particulates, ethylene chloride, and perchloroethylene. A permit to construct, effective from June 25, 1987 to June 1, 1992, was issued for adhesive spray booth #2, equipped with spray booth filters, to emit ethanol, phenol, isopropyl alcohol, butyl alcohol, methyl ethyl ketone, and an illegible contaminant. A permit to construct, effective

from June 25, 1987 to June 1, 1992, was issued for despatch curing oven #2 to emit toluene, methyl ethyl ketone, butyl alcohol, ethanol, phenol, and isopropyl alcohol. A permit to construct, effective from June 25, 1987 to June 1, 1992, was issued for adhesive spray booth #3, equipped with spray booth filters, to emit toluene, methyl ethyl ketone, butyl alcohol, ethanol, phenol, and isopropyl alcohol. An application for a certificate to operate, listing a propylene oxide as the contaminant, was included with the available document (Mailing No. 1, pp. 000063-000064). However, this document does not list a process description or have a signature of approval.

Information on permits for the Bridge Street and Oliva Drive facilities was not included in the documents available for review.

# 3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

## 3.1 Soil

Soil on the General Super Plating sites may have been contaminated directly from on-site waste disposal and spills during chemical and waste storage and handling. There were no soil data available for review for the sites.

Celi Drive Facility

No documents were provided that indicate spills or discharges to soil or groundwater have occurred at the Celi Drive facility. All storage areas described in Section 2.3 of this document are located inside the facility buildings, which have concrete floors. From 1986 to 1994, General Super Plating stored waste in a warehouse across the street from 5762 Celi Drive, as discussed in Section 2.3 of this report. Any handling and transport of waste from the Celi Drive facility building to the warehouse created an opportunity for spillage. No information was provided related to the condition of the ground surface surrounding the facility building or the warehouse, i.e., which areas were paved and were equipped with a stormwater collection system. Also, if any storage of hazardous waste was located outside, a spill may have occurred, allowing a release to the soil.

Joy Road Facility

Soils at the site may have been contaminated directly from spills from waste storage and handling areas, or from spills during the manufacturing process. Three spills on site were documented by General Super Plating (Mailing No. 1, p. 000012). Between approximately 1987 and 1988, an unknown amount of chromium solution was released through the floor

lining of the Joy Road facility building. In 1988, about 50 gallons of spent bath solution were spilled in the facility parking lot during off-site removal of the solution. In 1992, approximately 5 gallons of waste oil were spilled "near the facility" while someone was changing the oil in a vehicle. Further information about these spills is provided in Section 4.1 of this report.

All storage areas were shown to be inside the facility building on Exhibit 7B (Mailing No. 2, p. 000253).

Joy Road (Adhesive) Facility

No documents were provided that indicate spills or discharges to soil or groundwater have occurred at the Joy Road (Adhesive) facility. As stated in Section 2.3 of this report, waste was stored within the facility building in an area with a concrete floor.

## 3.2 Surface Water

Contaminated stormwater runoff from the General Super Plating facilities is a potential source of pollutants to off-site surface waters. Each of the sites is near a tributary of Onondaga Lake (see Figure 1). Any spills that may have occurred on a General Super Plating site presented an opportunity for contamination of runoff into a surface water body. Preventive measures to limit runoff contamination at the General Super Plating sites, if any, were not identified in the documents that were available for review. General Super Plating indicated that their only discharges to Onondaga Lake or its tributaries were in the form of pretreated wastewater effluent released to the county sewer system and then to Onondaga Lake following treatment at the Metro plant (Mailing No. 1, p. 000014).

Celi Drive Facility

The Celi Drive facility is located approximately 5.7 miles southeast of the southern shore of Onondaga Lake and approximately 1,700 feet southeast of the South Branch of Ley Creek. If any spills occurred during outdoor handling operations discussed in Section 3.1, contaminants could have been carried to the creek with stormwater runoff.

Joy Road Facility

The Joy Road facility was located approximately 4.7 miles northwest of the southern shore of Onondaga Lake and approximately 3,000 feet southeast of the North Branch of Ley Creek.

General Super Plating indicated that three spills have occurred at the Joy Road facility. Two spills, discussed in Section 3.1, were described as minor and were remediated immediately, in an unspecified manner. Any spillage that remained after remediation could have been conveyed to the North Branch of Ley Creek with stormwater runoff.

The discharge of chromium solution in 1988 also created an opportunity for a release to the lake system. Although the amount of chromium solution that was released into the environment is unknown, the chromium concentration of the groundwater recovered for treatment in January 1989 was elevated at 21 mg/L (Mailing No. 3, p. 000280). During boring activities, the groundwater table was discovered to be from one to three feet below ground surface. It is possible that the contaminated groundwater discharged to the nearby creek. It is not known if the spill reached storm sewers which could have conveyed chromium contaminated runoff directly to the creek.

Joy Road (Adhesive) Facility

The Joy Road (Adhesive) facility was located approximately 4.7 miles northwest of the southern shore of Onondaga Lake and approximately 3,000 feet southeast of the North Branch of Ley Creek. No spills or contamination at this site were noted.

Bridge Street Facility

The Bridge Street facility was located approximately 5.7 miles southeast of the southern shore of Onondaga Lake and approximately 1,000 feet east of the South Branch of Ley Creek. No spills or contamination at this site were noted.

## 3.3 Groundwater

Groundwater beneath the General Super Plating facilities could have been contaminated directly from leaching of contaminants from the facility's waste handling activities, and by the direct release of contaminants to the soil.

Celi Drive Facility

Outdoor waste handling activities as outlined in Section 3.1 appear to be the only potential source of groundwater contamination. No groundwater data or records of groundwater contamination were included in the available documents.

Joy Road Facility

Potential sources of groundwater contamination at the Celi Drive facility are the same as the potential sources of soil contamination (chromium spill, spent bath spill, and waste oil spill).

Analytical data from the boring program and from the groundwater remediation program are presented in Section 4.2.

## 3.4 Air

Air emissions represent a local source of contaminants to the atmosphere with potential deposition to the ground surface and subsequent overland transport to surface waters via surface runoff. Various air permits (permits to construct and certificates to operate) for the Celi Drive facility, Joy Road facility, and the Joy Road (Adhesive) facility were available for review but no air monitoring data were available.

Celi Drive Facility

As noted in Section 2.3, six air permits issued to the Celi Drive facility over its years of operation were available for review. The permitted and actual contaminant emissions listed on the permits are presented in Table 2.

Joy Road Facility

As noted in Section 2.3, one air permit issued to the Joy Road facility over its years of operation was available for review. The permitted and actual contaminant emissions listed on the permit are presented in Table 3.

Joy Road (Adhesive) Facility

As noted in Section 2.3, four air permits issued to the Joy Road (Adhesive) facility over its years of operation were available for review. The permitted and actual contaminant emissions listed on the permits are presented in Table 4.

## Table 2: Permissible and Actual Air Emissions Data, Celi Drive Facility

| Process/Unit Description (Permitted Years) | Regulated Contaminant | Annual Permissible Rate of Emission (lb/yr) | Annual Actual Rate of Emission (lb/yr) |
|---|---|---|---|
| Emission Point 1: Metals Plating Room (05/01/90 - 11/01/94) | | | |
| | Potassium Hydroxide | 13.8 | 13.8 |
| | Phosphoric Acid | 1.5 | 1.5 |
| | Copper (II) | 0.25 | 0.25 |
| | Nickel Sulphate | 6.17 | 6.2 |
| | Nickel Chloride | 1.48 | 1.48 |
| | Boric Acid | 0.5 | 0.5 |
| | Sodium Cyanide Mist | 69 | 69 |
| | Hydrochloric Acid Mist | 215 | 215 |
| | Sodium Hydroxide | 161 | 161 |
| | Sodium Metasilicate | 79.8 | 79.8 |
| | Sodium Carbonate | 31.0 | 31.0 |
| | Tetra-sodium Pyrophosphate | 22.5 | 22.5 |
| | Sodium Dodecylbenzene Sulfonate | 1.0 | 1.0 |
| | Dipentene | 0.5 | 0.5 |
| | Calcium Silicate | 0.5 | 0.5 |
| | Sodium m-Nitrobenzene Sulfonate | 25.0 | 25.0 |
| | Nitric Acid | 27.0 | 27.0 |
| Emission Point 2: Anodized Metals Plating and Finishing (04/16/85 - 04/01/90) | | | |
| | Sulfuric Acid Mist | 8 | 8 |
| | Nitric Acid Mist | 4 | 4 |
| | Sodium Hydroxide | 20 | 20 |

| Process/Unit Description (Permitted Years) | Regulated Contaminant | Annual Permissible Rate of Emission (lb/yr) | Annual Actual Rate of Emission (lb/yr) |
|---|---|---|---|
| Emission Point 10: Gold Plating Line (11/03/89- 11/01/94) | | | |
| | Sodium Hydroxide | 18 | 18 |
| | Sodium Metasilicate | 7.2 | 7.2 |
| | Sodium Carbonate | 3 | 3 |
| | Sulphuric Acid | 228 | 228 |
| | Gold Potassium Cyanide | 0.6 | 0.6 |
| | Potassium Cyanide | 3.6 | 3.6 |
| Emission Point 11: Chrome Plating Line (11/03/89 - 11/01/94) | | | |
| | Sodium Hydroxide | 24 | 24 |
| | Sodium Metasilicate | 12 | 12 |
| | Sodium Carbonate | 6 | 6 |
| | Hydrochloric Acid | 1.8 | 1.8 |
| | Chromic Acid | 186 | 186 |
| | Fluoride | 42 | 42 |
| Emission Point DEG12: Vapor Degreaser (07/10/92 - 07/31/97) | | | |
| | 1,1,1-Trichloroethane | 5,228 | 5,228 |
| | Tert-butyl Alcohol | 82 | 82 |
| | Butylene Oxide | 27 | 27 |
| | Di-methoxymethane | 103 | 103 |
| Emission Point SD13: Sludge Drier for Hydroxide Sludge (11/03/89 - 11/01/94) | | | |
| | Particulates | 120 | 120 |

**Sources:** Mailing No. 1, pp. 000033- 000040, Exhibit 9A.

## Table 3: Permissible and Actual Air Emissions Data, Joy Road Facility

| Process/Unit Description (Permitted Years) | Regulated Contaminant | Annual Permissible Rate of Emission (lb/yr) | Annual Actual Rate of Emission (lb/yr) |
|---|---|---|---|
| Emission Point SH1: Electroless Plating (12/11/89 - 04/01/94) | | | |
| | Nitric Acid | 600 | 600 |
| | Mono-ethyl Glycol Ether | 612 | 612 |
| | Diethanolamine | 36 | 36 |
| | Triethanolamine | 36 | 36 |
| | Sodium Hydroxide | 480 | 480 |
| | Chromium Trioxide | 24 | 24 |
| Emission Point SH2: Electroless Plating (12/11/89 - 04/01/94) | | | |
| | Nickel Sulfate | 468 | 468 |
| | Acetic Acid | 90 | 90 |
| | Sodium Hypophosphite | 7,620 | 7,620 |
| | Ammonium Hydroxide | 1,332 | 1,332 |
| | Nitric Acid | 360 | 360 |
| | Cupric Chloride | 180 | NL |

**Sources:** Mailing No. 1, pp. 000042- 000043, Exhibit 9B.
**Note:** NL = Not Listed

**Table 4: Permissible and Actual Air Emissions Data, Joy Road (Adhesive) Facility**

| Process/Unit Description (Permitted Years) | Regulated Contaminant | Annual Permissible Rate of Emission (lb/yr) | Annual Actual Rate of Emission (lb/yr) |
|---|---|---|---|
| Emission Point 11: Adhesive Spray Booth #1 (06/25/87 - 06/01/92) | | | |
| | Particulates | 196 | 196 |
| | Ethylene Chloride | 10,680 | 10,680 |
| | Perchloroethylene | 7,120 | 7,120 |
| Emission Point 12: Adhesive Spray Booth #2 (06/25/87 - 06/01/92) | | | |
| | Illegible Contaminant | 18,200 | 18,200 |
| | Illegible Contaminant Ketone | 12,200 | 12,200 |
| | Butyl Alcohol | 2,000 | 2,000 |
| | Ethanol | 4,000 | 4,000 |
| | Phenol | 400 | 400 |
| | Isopropyl Alcohol | 2,000 | 2,000 |
| Emission Point 5: Despatch Curing Oven #2 (06/25/87 - 06/01/92) | | | |
| | Toluene | 6,000 | 6,000 |
| | Methyl Ethyl Ketone | 4,000 | 4,000 |
| | Butyl Alcohol | 660 | 660 |
| | Ethanol | 1,320 | 1,320 |
| | Phenol | 132 | 132 |
| | Isopropyl Alcohol | 660 | 660 |
| | Propylene Oxide | 132 | 132 |
| Emission Point 3: Adhesive Spray Booth #3 (06/25/87 - 06/01/92) | | | |
| | Toluene | 18,200 | 18,200 |
| | Methyl Ethyl Ketone | 12,200 | 12,200 |
| | Butyl Alcohol | 2,000 | 2,000 |
| | Ethanol | 4,000 | 4,000 |
| | Phenol | 400 | 400 |
| | Isopropyl Alcohol | 2,000 | 2,000 |

**Sources:** Mailing No. 1, pp. 000057- 000066, Exhibit 9C.

## 3.5 County Sewer System

All four General Super Plating facilities discharged sanitary and process wastewaters into the Onondaga County Department of Drainage and Sanitation (OCDDS) sewer system. Descriptions of the wastewater discharges are presented below.

Celi Drive Facility

The Celi Drive facility has historically discharged sanitary wastewater, and electroplating/electroless plating wastewater into the OCDDS system for treatment at the Metropolitan Syracuse Wastewater Treatment Facility (Metro). Sewer #1 is the discharge point for sanitary wastewater. The latest permit describes Sewer #2 as the discharge point for pretreated wastewater from plating on plastics automated line, metals #1 line, metals #2 line, metals #3 line, zinc phosphating line, plating on zinc die casting pilot line, and specialty line (Mailing No. 3, pp. 000307-000354, Exhibit 10C-1). According to General Super Plating, "pretreatment consists of chrome reduction and conventional hydroxide precipitation with occasional (as needed) cyanide destruction" (Mailing No. 1, p. 000014).

Average daily flowrates and analytical data for Sewer #1 and Sewer #2 for November 1992, April 1995, and June 1996 were included as part of General Super Plating's Self-Monitoring Reports (Mailing No. 1, pp. 000108-000199, Exhibit 10A-1). During the month of November 1992, the Celi Drive facility discharged to Sewer #2 a total of 1,073,421 gallons at an average flow rate of 56,496 gallons per day (gpd) for a total of 19 operating days. During April 1995, the Celi Drive facility discharged to Sewer #2 a total of 2,077,050 gallons at an average flow rate of 90,307 gpd for a total of 23 operating days. During June 1996, the Celi Drive facility discharged to Sewer #2 a total of 2,237,052 gallons at an average flow rate of 74,568 gpd for a total of 30 operating days. During the first three operating days of June

1996, the Celi Drive facility discharged to Sewer #1 a total of 14,287 gallons at an average flow rate of 4,762 gpd.

The aforementioned Self-Monitoring Reports cited only one permit violation at the Celi Drive facility. On June 12, 1996, the pH monitor recorded a pH of 5.2 for approximately 2 minutes, which was out of the acceptable pH range of 5.5 to 9.5. A number of permit violations occurred at various GSP facilities as outlined below.

On May 3, 1988, General Super Plating admitted to violating the Onondaga County Rules and Regulation Relating to the Use of the Public Sewer System by discharging industrial waste to the county sewer system between July 1987 and January 1988. At that time, a self-monitoring program was instituted as outlined in the stipulation (Mailing No. 1, pp. 000238-000240). The address to which the stipulation applied was not specified in the document. The Celi Drive facility and both Joy Road facilities were operational at the time of the unacceptable release. Between June 22, 1988 and March 8, 1994, General Super Plating had fifty-nine (59) exceedances of their OCDDS permit limits for which they received several Notices of Violation (NOVs) and Notices of Non-Compliance (NONs) (Mailing No. 1, pp. 000247-000249, Exhibit 13A-1). General Super Plating noted exceedances of effluent limitations for nickel, copper, chromium, lead, total metals, and pH. The facilities from which these violations occurred were not specified in the provided documents. In July 1995, General Super Plating made an agreement with the Onondaga County Department of Drainage and Sanitation in response to alleged violations of the County's Rules and Regulations regarding the use of the Public Sewer System (Mailing No. 1, pp. 000241-000245). This agreement outlined several actions that General Super Plating would take at its Celi Drive and Joy Road facilities including the drafting and implementation of a gravity settler operating plan, "Operation and Maintenance Manual," "Slug Control Discharge Plan," and a "Pollution Prevention Plan," and the installation of a "flow proportioning/flow monitoring system."

Joy Road Facility

The Joy Road facility historically discharged sanitary, shielding, and electroless plating wastewater into the OCDDS system for treatment at the Metro plant. According to General Super Plating, "pretreatment consisted of chrome reduction and conventional hydroxide precipitation" (Mailing No. 1, p. 000014).

Average daily flowrates and analytical data for Sewer #1 and Sewer #3 for October 1992 and February 1993 were included as part of General Super Plating's Self-Monitoring Report for Joy Road (Mailing No. 1, pp. 000212-000226, Exhibit 10B-1). Sewer #1 was used to discharge process wastewater and Sewer #3 was used to discharge segregated groundwater. During the month of October 1992, the Joy Road facility discharged to Sewer #1 a total of 504,598 gallons at an average flow rate of 22,936 gpd for a total of 22 operating days. During October 1992, the Joy Road facility discharged to Sewer #3 a total of 43,500 gallons at an average flow rate of 2,900 gpd for a total of 15 operating days. During February 1993, the Joy Road facility discharged to Sewer #1 a total of 350,644 gallons at an average flow rate of 18,455 gpd for a total of 19 operating days, typically 2.5 hours per day. During February 1993, the Joy Road facility discharged to Sewer #3 a total of 18,630 gallons at an average flow rate of 1,553 gpd for a total of 12 operating days, typically 1.5 hours per day.

The aforementioned Self-Monitoring Reports did not cite any permit violations at the Joy Road facility. However, this facility was in operation when the NOVs and NONs described in the Celi Drive portion of this section above were issued. The facilities from which the violations originated were not stated in the legal documents available for review. The data tabulated in these reports indicate that both chromium (0.25 mg/L average in February 1993 and 0.12 mg/L average in October 1992) and copper (0.37 mg/L average in February 1993

# 4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

## 4.1 Documented Releases

Documented Spills

The only facility for which General Super Plating specified spills was the Joy Road facility. In May 1988, General Super Plating admitted to disposing of industrial waste in violation of the Onondaga County Rules and Regulations Relating to the Use of the Public Sewer System from July 1987 to January 1988 in a stipulation signed by the OCDDS and General Super Plating (Mailing No. 1, pp. 000238-000240). The details of this unacceptable disposal such as the facility where this violation took place and the type of waste illegally disposed were not included in the stipulation. A summary of General Super Plating's NOVs, NONs, and exceedances between 1988 and 1994 included in Mailing No.1 did not specify the facilities from which the exceedances originated. Additional information regarding these violations was presented in Section 3.5. In 1995, another stipulation was made between OCDDS and General Super Plating, regarding all known alleged violations of the Onondaga County Rules and Regulations Relating to the Use of the Public Sewer System that occurred at the Celi Drive and Joy Road facilities from 1988 until July 19, 1995, the date of execution of the agreement. In this agreement General Super Plating settled the alleged violations without admitting or denying the violations. These violations and their corresponding facility were not cited in the provided documents.

In May 1988, General Super Plating suspected that chromium solution was being released to the environment at the Joy Road facility through a defective floor lining in the containment area inside the building. The amount of chromium solution released is unknown. With NYSDEC's and OCDDS' knowledge of this matter, General Super Plating consulted

Blasland and Bouck Engineers, P.C. to remediate this spill. Shortly thereafter, four wells were installed inside the building to pump groundwater to the then existing on-site treatment system. Information such as the dates and locations of the well installations, means of well construction, soil boring data, and groundwater quality data from this period were not provided in the available documents. As a remedial measure, in approximately June 1988, a 2 to 3-foot deep interception trench was installed as shown on a drawing included in Mailing No. 1, p. 000026 and Mailing No. 2, p. 000253 (shown as "initial recovery system" on Figure 6 herein). This trench was constructed of a horizontal PVC drain pipe, surrounded with granular material, connected to sump pumps on the ends of the trench. Water from this trench was pumped back to the on-site treatment system. When or if these initial remedial measures were discontinued is not mentioned in the mailings.

In mid-June 1988, eleven hand-augered soil borings were completed to the north and west of the facility building within General Super Plating's property lines (Mailing No. 3, p. 000290, Exhibit 9B-2, included as Figure 5 herein). The average depth of the borings was 7 feet. Blasland and Bouck Engineers stated that soil samples were visually described but these visual descriptions were not provided in the available documents (Mailing No. 1, p. 000052, Exhibit 9B-1). Two of the borings showed signs of chromium content, indicated by the high conductivity of a water sample (greater than 5,000 μmhos) or by visual observation (Mailing No. 1, p. 000052). Although it was not indicated which two borings showed signs of chromium contamination, it was stated that these two borings were located immediately adjacent to the building. The specific conductivity results are included in Section 4.2.1 herein.

In September 1988, a more extensive groundwater recovery system was installed consisting of two horizontal sections of 4-inch PVC drain pipe surrounded by pea gravel at a depth from 4 to 6 feet. These two drain pipes are configured in a V-shape as shown on the drawing included with the submissions (Figure 6 herein) and are connected to a 12-foot deep sump

that pumps groundwater back to the treatment plant (Mailing No. 1, pp. 000045-000055, Exhibit 9B-1). Several documents dated March through August 1993 document General Super Plating's appeal to NYSDEC to cease this pump and treat system. General Super Plating indicated that the groundwater system was decommissioned in May 1993 (Mailing No. 2, p. 000250). The latest groundwater sample results enclosed in the mailings have a sampling date of June 21, 1995 (Mailing No. 2, p. 000275). A summary of these results is included in Section 4.2.1 of this report.

In addition to the chromium spill, two other spills occurred at the Joy Road facility. In about 1988, approximately 50 gallons of spent bath solution were discharged in the facility parking lot during the transaction of spent bath from General Super Plating to the transporter's vehicle. General Super Plating stated that this spill was "immediately remediated by the transporter" but did not specify if the spent bath was D002 or D007 waste, nor did they describe the means of remediation or provide the location or condition of the parking lot (Mailing No. 1, p. 000012). The other spill described occurred in 1992 "near the facility" and involved about 5 gallons of waste auto oil that was released during an oil change (Mailing No. 1, p. 000012). This spill was immediately remediated. General Super Plating did not specify the means of remediation or the exact location of the spill nor did they indicate that follow-up sampling was conducted after these two spills.

Ongoing/Recent Releases

The only ongoing releases from the General Super Plating facilities that were described in the documents reviewed were for permitted air emissions and discharges to the municipal sewer. These releases are summarized in Sections 3.4 and 3.5, and in Table 2 herein.

## 4.2 Threat of Release to the Lake System

### 4.2.1 Extent of Site Contamination

General Super Plating only provided information on the extent of site contamination for the Joy Road facility. All of this information is related to the chromium spill that occurred sometime between 1987 and 1988.

Joy Road Facility

Limited information related to the chromium spill was provided in the available documents. The details of the spill and actions taken to remediate the release are described in Section 4.1. A trench drain groundwater recovery system was installed around June 1988. Although the analysis results for the soil excavated in order to construct the trench were not provided, Figure 5 herein (Mailing No. 3, p. 000290, Exhibit 9B-2) shows the specific conductivity of the groundwater in the two sumps that were part of this system. On June 14 and/or 15, 1988, the specific conductivity at sump S-1 was recorded as 4,000 μmhos, and sump S-2 was 6,300 μmhos. Around this time, eleven soil borings were hand augered in the area immediately north and west of the plant building to an average depth of 7 feet. The groundwater table was encountered at approximately 1 to 3 feet below the ground surface. Soil and water descriptions and sample results were not available for review. On June 14 and 15, 1988, during the boring program, the specific conductivity of the groundwater in each boring was measured. Table 5 herein presents the conductivity data from the two sumps and the eleven groundwater locations. The locations of the borings and the specific conductivity isopleths are shown on Figure 5 herein.

**Table 5: Specific Conductivity of Groundwater, Joy Road Facility, June 14-15, 1988**

| Boring | Specific Conductivity (μmhos) |
|---|---|
| B-1 | 2,500 |
| B-2 | 2,000 |
| B-3 | 2,900 |
| B-4 | 3,100 |
| B-5 | 2,600 |
| B-6 | 1,140 |
| B-7 | 6,100 |
| B-8 | 6,500 |
| B-9 | 3,500 |
| B-10 | 6,900 |
| B-11 | 3,900 |
| S-1 | 4,000 |
| S-2 | 6,300 |

**Sources:** Mailing No. 3, p. 000290, Exhibit 9B-2.

In their August 1993 report on the Status of the Groundwater Recovery and Treatment System, Blasland and Bouck noted that they demonstrated to NYSDEC the quantitative correlation between specific conductivity and chromium concentration in the groundwater at the site. Further documentation of this correlation was not provided in the mailings. Using this methodology, high conductivity or visual observation indicated signs of chromium content in two of the borings. Although it was not indicated which two borings showed signs of chromium contamination, it was stated that these two borings were located immediately adjacent to the building.

General Super Plating collected and analyzed groundwater samples at the influent to the groundwater treatment system. The average monthly chromium concentrations from January

1989 until March 1993 are displayed in Figure 7 herein (Mailing No. 3, p. 000293, Exhibit 9B-2). Intermittent laboratory results from August 1993 until June 1995 were included in Mailing No. 2 and are shown in Table 6. Blasland and Bouck did state that the initial chromium concentration, when the recovery system began operating in January 1989, was 21 mg/L and at the time of the status report (August 1993), the average monthly chromium concentration ranged from 0.1 to 0.2 mg/L. General Super Plating indicated that the groundwater system was decommissioned in May 1993 (Mailing No. 2, p. 000250). However, as indicated in Table 6 below, chromium concentrations increased in September 1994 and 1995, ranging from 0.16 mg/L to 0.75 mg/L. NYSDEC's current standard for chromium in groundwater is 0.05 mg/L.

**Table 6: Chromium Concentrations in Groundwater, Joy Road Facility, 1993 - 1995**

| Sample Date | Chromium Concentration (mg/L) |
|---|---|
| 8/16/93 | **0.08** |
| 3/29/94 | <0.05 |
| 6/22/94 | **0.08** |
| 9/14/94 | **0.26** |
| 12/21/94 | **0.22** |
| 3/30/95 | **0.16** |
| 6/21/95 | **0.75** |

**Sources:** Mailing No. 2, pp. 000257-000263.

**Note:** Boldfaced values exceed the NYSDEC Class GA standard (0.05 mg/L).

Sewer Discharges

The available documents cite several instances of General Super Plating violating the Onondaga County Rules and Regulations Relating to the Use of the Public Sewer System between the years 1987 and 1995. The documents specified neither the permits and permit

numbers which were violated nor the facility where the violations occurred. Permit violations, which are discussed in Section 3.5, were noted for nickel, copper, chromium, total metals, and pH (Mailing No. 1, pp. 000247-000249, Exhibit 13A-1).

### 4.2.2 Migration Potential of Contaminants

As indicated in Section 3, there are several potential pathways for the release of contaminants into the lake system. These pathways include erosion and runoff of contaminated soil, discharge of contaminated wastewater and spills/leaks through outfalls into the sewer system, migration of contaminants into groundwater and subsequent transport via groundwater flow, and transport into the atmosphere with subsequent deposition to surface waters. Limited environmental information was provided to evaluate the migration potential of contaminants at the General Super Plating facilities. However, based on the available data and information on historic manufacturing processes at these facilities, and their proximity to tributaries of Onondaga Lake, it is possible that these facilities were sources of contamination to the lake system.

Celi Drive Facility

Based on the information provided, specific sources of potential off-site contaminant migration from the Celi Drive facility are limited to unacceptable releases to the Onondaga County sewer system. No specific information about the releases from Celi Drive was available for review but contaminants released at concentrations over permitted levels include nickel, copper, chromium, and total metals. Depending on the level of exceedance and the ability of the Metro plant to treat the wastewater for the contaminant, these releases would have had a low potential to reach the lake system. Since no significant site contamination (i.e., soil or groundwater) was indicated, NYSDEC's sediment data from the South Branch of Ley Creek were not reviewed.

Joy Road Facility

Specific sources of potential off-site contaminant migration from the Joy Road facility include contaminants from documented spills on-site and unacceptable releases to the Onondaga County sewer system.

The latest groundwater sample results included in the submissions indicate a chromium concentration of 0.75 mg/L for a sample collected on June 21, 1995 (Mailing No. 2, p. 000263, see also Table 6 herein). This concentration is well above the 0.05 mg/L standard set forth by NYSDEC. Groundwater data collected in this area subsequent to June 1995 were not included in the documents available for review. As shown in Table 6, the results from many of the samples collected in 1994 and 1995 exceeded the NYSDEC standard and were greater than the average monthly concentrations in 1992 and 1993 as shown on Figure 7 herein. General Super Plating indicated that the groundwater treatment system was decommissioned in May 1993 (Mailing No. 2, p. 000250) and also stated in 1998 that there is "no current remediation program." It is not known if NYSDEC approved the decommisioning of the system. It should be noted that the groundwater samples collected were limited to the trenches located on site and that no samples were collected downgradient of the Joy Road facility to confirm that the chromium contamination did not travel off site. Assuming that the groundwater treatment system is no longer operational and elevated concentrations persist, the spill of chromium would have a low to medium potential to reach the lake system.

It is assumed that groundwater and runoff flows from the Joy Road site in a westerly direction to the North Branch of Ley Creek, which is approximately 3,000 feet from the site. NYSDEC collected three surface sediment samples in 1996 from the North Branch of Ley Creek, between Molloy Road and the convergence of the North Branch and South Branch (see Figure 1 herein). Concentrations of chromium at these three sample locations (stations

L-14, L-15, and L-16) ranged from 6.5 mg/kg to 7.9 mg/kg, which are less than NYSDEC's sediment screening criterion for chromium of 26 mg/kg.

No specific information about the illegal releases of contaminated wastewater from the Joy Road facility to the sewer was available for review but contaminants released at concentrations above permitted levels may include nickel, copper, chromium, and total metals. Depending on the level of exceedance and the ability of the Metro plant to treat the wastewater for the contaminant, these releases would have had a low potential to reach the lake system.

# 5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE

## 5.1 Hazardous Substance Characteristics

The only three General Super Plating facilities for which information is available regarding hazardous substances that have been generated, stored, and/or disposed, are the Celi Drive, Joy Road, and Joy Road (Adhesive) facilities. Table 1 herein contains a list of the wastes that were generated at these facilities. Wastes that were potentially hazardous include: F006 plating sludge, F007 spent gold resin, F001 and F002 spent degreaser which may be 1,1,1-trichloroethane, and D003 spent gold bath from the Celi Drive facility; F006 plating sludge, D001 miscellaneous wastes, D002 spent bath, and D007 spent bath from the Joy Road facility; and F002 spent wash, D001 waste, and F005 waste from the Joy Road (Adhesive) facility. All General Super Plating waste storage areas described in the available documents are located indoors. No aboveground or underground storage tanks were mentioned in the documents available for review. Of these three sites, the only site for which environmental data are available is the Joy Road facility.

Further investigation would be required to characterize the areas of contamination and contaminants of concern, if any, at all of General Super Plating's facilities.

Celi Drive Facility

General Super Plating indicated that from 1986 to 1994 there was a hazardous waste storage area in a warehouse located across the street from 5762 Celi Drive. F006 and miscellaneous wastes, quantities not specified, were stored in this area. It is possible that a spill occurred in the area between the main building and this warehouse during handling, and that it was a source of contamination to groundwater. There were no incidents of on-site hazardous

waste disposal at the Celi Drive facility described in the documents reviewed. As indicated in Table 2 in Section 3.4, numerous permitted air emissions existed at this facility.

Joy Road Facility

Other than documented spills (see Section 4.1), there were no incidents of on-site hazardous waste disposal at the Joy Road facility described in the documents reviewed. Groundwater north of the facility building was contaminated with chromium from a spill that occurred in 1988. A groundwater collection system was operational from 1988 until 1993. However, concentrations of chromium in groundwater exceeded the NYSDEC standard as of June 1995. As indicated in Table 3 in Section 3.4, numerous permitted air emissions existed at this facility.

Joy Road (Adhesive) Facility

There were no spills or on-site waste disposal activities described for this facility in the documents reviewed. As indicated in Table 4 in Section 3.4, numerous permitted air emissions existed at this facility.

A discussion of hazardous substance characteristics for the primary contaminant of concern at the Joy Road facility, chromium, is provided below.

Mobility

The fate and mobility of chromium in soil is dependent on the pH, redox potential, and sorption characteristics of the soil. Reduction of hexavalent chromium (Cr(VI)) to trivalent chromium (Cr(III)) is facilitated by low pH (USDHHS, 1991). Chromium in soil is predominantly in the trivalent form and as an insoluble oxide, and is, therefore, not very

mobile (USDHHS, 1991). Also, chromium in soil can be transported to the atmosphere as an aerosol or dust or can be transported via surface runoff to receiving waters in soluble or bulk precipitate form. Chromium in soluble and unadsorbed complexes in soil can leach into groundwater, depending upon soil pH (USDHHS, 1991).

Toxicity

Hexavalent chromium is classified as a human carcinogen (USEPA, 1996). Epidemiological studies of chromate facilities in the United States have found an association between chromium exposure and lung cancer. Workers are likely exposed to both Cr(III) and Cr(VI), however, only Cr(VI) has been found to be carcinogenic in animals (USEPA, 1996). Chromium(VI) is also very toxic to aquatic organisms (USEPA, 1979). Exposure to high levels of Cr(III), although an essential element, via inhalation, ingestion, or dermal contact may cause serious health effects (USDHHS, 1991).

Persistence

In surface waters, no data have been found that would indicate that photolysis, biodegradation, and volatilization of chromium are important fate processes (USEPA, 1979). Sorption and bioaccumulation are considered important aquatic fate processes. As discussed above, chemical speciation plays an important role in the fate of chromium in surface water; conditions favorable to Cr(VI) will maintain chromium in soluble form while conditions favorable to Cr(III) will result in precipitation and partitioning to solids and to sediments (USEPA, 1979). Chromium is not considered as persistent in surface water compared to soil and sediment.

Bioaccumulation

Bioaccumulation of chromium in aquatic organisms and passage through the food chain has been demonstrated (USEPA, 1979). However, chromium concentrations decrease with an increase in trophic level. Chromium is not expected to biomagnify in the aquatic food chain (USDHHS, 1991). Partitioning studies indicated that bioconcentration factors of benthic invertebrates to water are approximately 2,000 to 3,000 whereas the bioconcentration factor of benthics to sediments is less than one (USEPA, 1979). In general, chromium is accumulated in aquatic and marine biota to levels much higher than surface water, however, concentrations in biota are usually lower than sediment concentrations. Also, chromium does not biomagnify along the terrestrial food chain from soil to plant to animal (USDHHS, 1991).

## 5.2 Quantity of Substances

Table 1 in Section 2.3 of this report summarizes the quantities of waste generated at the Celi Drive, Joy Road, and Joy Road (Adhesive) facilities. Tables 2, 3, and 4 in Section 3.4 summarize the air emissions rates from the Celi Drive, Joy Road, and Joy Road (Adhesive) facilities, respectively. Although there were environmental investigations conducted at the Joy Road facility, there is not enough information to determine actual quantities of contaminants released to the site's soil or groundwater. Information on environmental investigations at the Celi Drive, Joy Road (Adhesive), and Bridge Street facilities, if performed, was not included in the documents reviewed.

## 5.3 Levels of Contaminants

Chromium contaminant levels for the General Super Plating Joy Road facility were provided for site groundwater. A series of correspondences among NYSDEC, General Super Plating, and Blasland and Bouck, including an August 1993 report by Blasland and Bouck entitled

the "Status of the General Super Plating Joy Road Plant Ground-Water Recovery and Treatment System" were the sources of these data which are presented herein in Tables 5 and 6. Analytical data from the other General Super Plating sites were not available for review.

Sample analysis results for chromium in groundwater north of the Joy Road facility building from January 1989 through June 1995 were available for review. As shown in Figure 7 herein, the concentration of chromium in groundwater shortly after the on-site release was 21 mg/L in January 1989 and concentrations decreased to less than 0.1 mg/L in the second half of 1992 and early 1993 following groundwater recovery. After decommisioning the system in 1993, concentrations increased up to 0.75 mg/L in June 1995. The NYSDEC standard for chromium in groundwater is 0.05 mg/L. Analytical data for other parameters or matrices were not available for review.

## 5.4 Impacts on Special Status Areas

Celi Drive Facility

According to the Syracuse East National Wetlands Inventory (NWI) map (USDOI, 1978), a federal wetland designated POWZx (Palustrine, Open Water, Intermittently, Exposed/Permanent, Excavated) is located upland and about 500 feet south of the Celi Drive facility. Another federal wetland designated PEM1A (Palustrine, Emergent, Persistent, Temporary) is located downgradient and about 2,000 feet north of the site within the I-690 interchange. According to the Syracuse East New York State Freshwater Wetlands Map (NYSDOT, 1973), the nearest state wetland, designated SYE20, is downgradient and approximately 1,500 feet north of the site.

As of August 1996, there was one New York State "Natural Heritage Sensitive Element" located about one mile northwest of the Celi Drive facility. The South Branch of Ley Creek near the site is a Class C waterbody with Class C standards (6 NYCRR Part 895).

Joy Road and Joy Road (Adhesive) Facilities

According to the Syracuse East NWI map (USDOI, 1978), a federal wetland designated PEM5C (Palustrine, Emergent, Mesohaline, Seasonal) is located upland and about 1,000 feet south of the Joy Road facility on the opposite side of the NY State Thruway. The facility is located upland and about 2,000 feet southeast of another federal wetland designated PSS1C (Palustrine, Scrub/Shrub, Broad-leaved Deciduous, Seasonal) and POWFx (Palustrine, Open Water, Semi-permanent, Excavated). The North Branch of Ley Creek, located downgradient and approximately 3,000 feet west of the site, is a federal wetland designated PFO1A (Palustrine, Forested, Hyperhaline, Temporary). Near this site, the North Branch of Ley Creek is a Class C waterbody (6 NYCRR Part 895). According to the Syracuse East Freshwater Wetlands Map (NYSDOT, 1973), a state wetland designated SYE6 is located downgradient and approximately 5,000 feet west of the site, along Ley Creek.

As of August 1996, there were no New York State "Natural Heritage Sensitive Elements" within one mile of the Joy Road facilities.

Bridge Street Facility

According to the Syracuse East NWI map (USDOI, 1978), a federal wetland designated PEM1A (Palustrine, Emergent, Persistent, Temporary) is located about 750 feet north of the site. The nearest state wetland, designated SYE20, is located directly north and west of the site, less than approximately 100 feet from the facility building.

As of August 1996, there was one New York State "Natural Heritage Sensitive Element" located about one mile northwest of the Bridge Street facility. The South Branch of Ley Creek near the site is a Class C waterbody with Class C standards (6 NYCRR Part 895).

## 6.0 SUMMARY OF CONCERNS

Based on the information provided in the three General Super Plating submissions, the following concerns are identified:

- The current status of the groundwater contamination at the Joy Road facility was not indicated by General Super Plating in the reviewed documents. If NYSDEC has not approved appeals by General Super Plating to shut down the groundwater treatment system and call the site remediated, then contamination is assumed to still exist on site and needs further remediation. The most recent sampling event (June 1995) indicates that concentrations of chromium in groundwater remain elevated compared to NYSDEC's standard.

- Clarification is needed on the violations of the Onondaga County Industrial Wastewater Discharge Permits that occurred at General Super Plating's various facilities. The list of violations provided by General Super Plating does not specify which facility was the source of the exceedances. The loadings of contaminants each facility released into the sewer system are needed to evaluate the potential effects each facility might have had on the lake system.

- Further investigations should be conducted to assess the possible environmental impacts the General Super Plating facilities have had on the surrounding area, and specifically, the Onondaga Lake system. The current condition of the sites was not indicated and site contamination data (with the exception of chromium data in groundwater at the Joy Road site), if available, were not provided in the documents reviewed.

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# Site Locations: General Super Plating

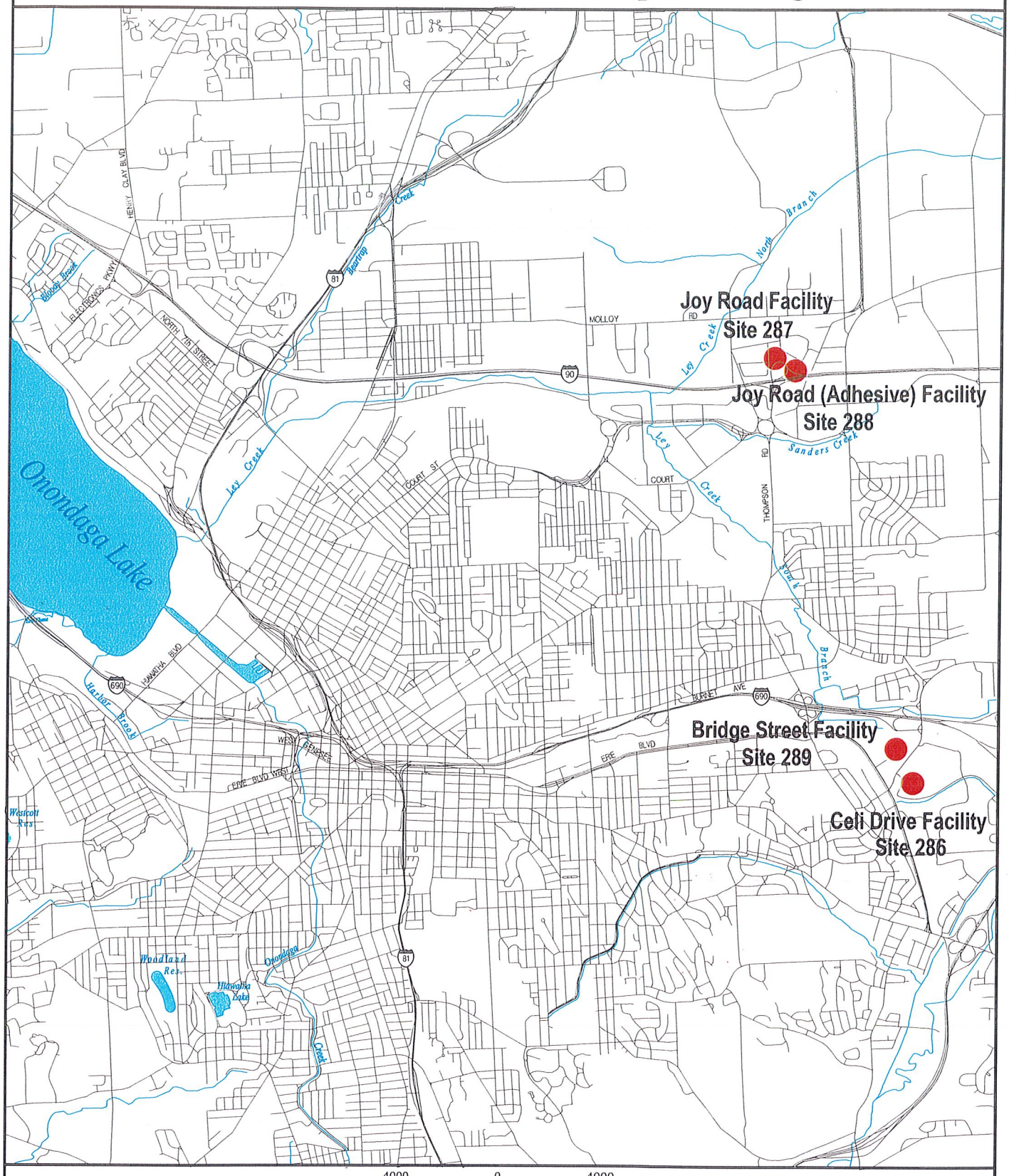
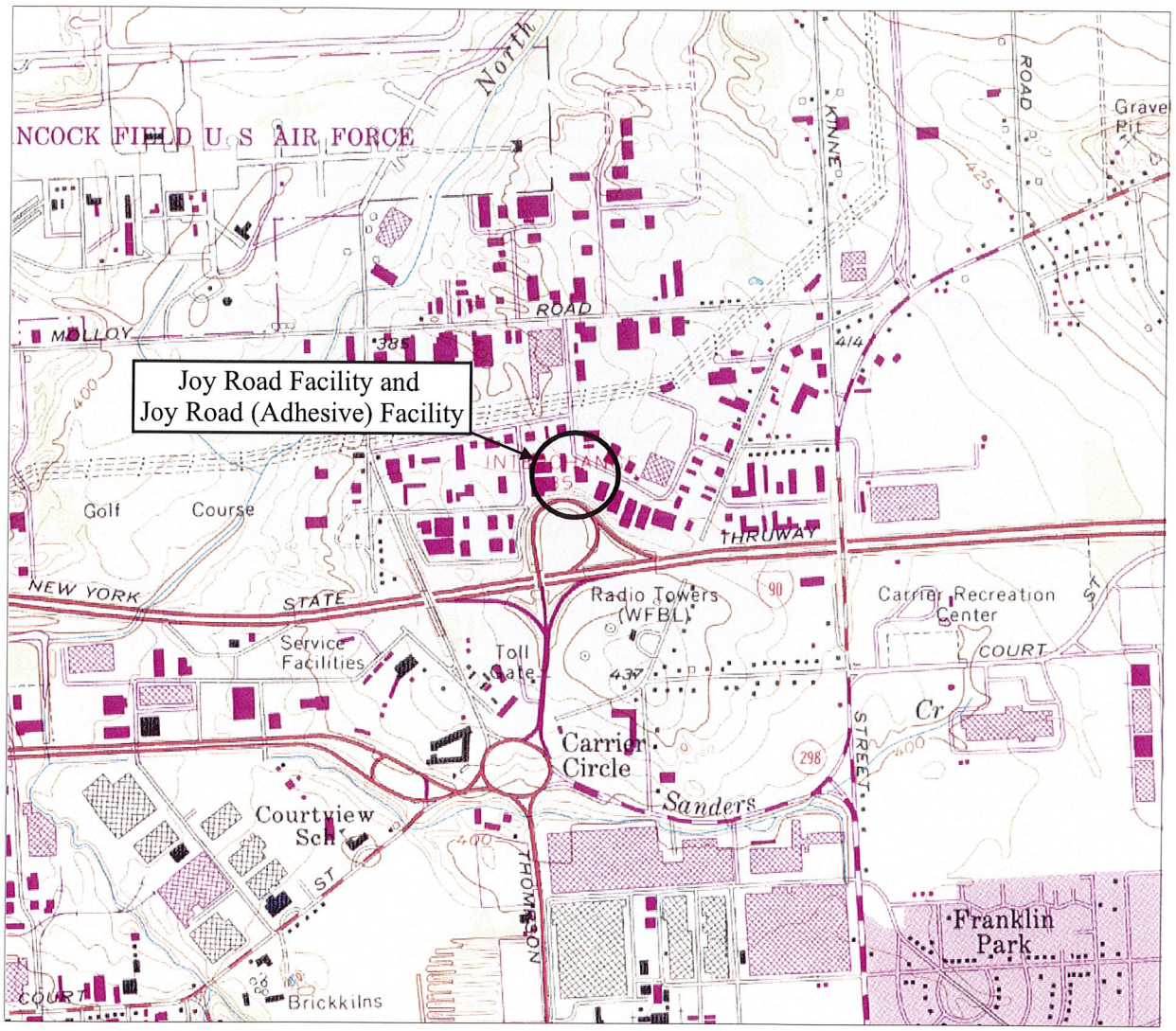



Figure 1




SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETRE

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

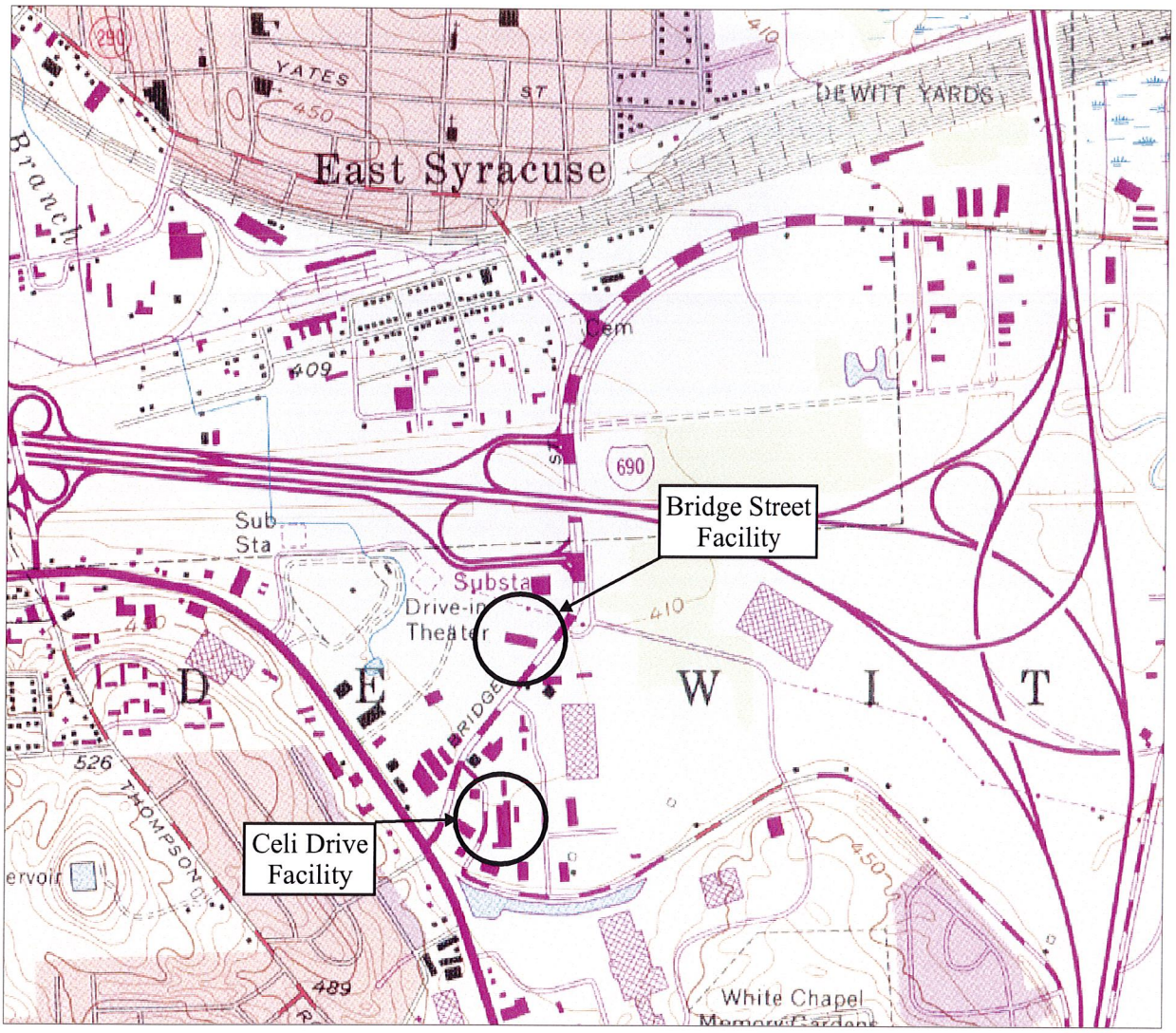
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS 363 FEET IN ONONDAGA LAKE

N

United States Geological Survey
Syracuse East Quadrangle
Onondaga County, New York

TAMS

**Figure 2**
**General Super Plating**
**Joy Road Facility and Joy Road (Adhesive) Facility**

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1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

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CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS 363 FEET IN ONONDAGA LAKE

N

United States Geological Survey
Syracuse East Quadrangle
Onondaga County, New York

TAMS

**Figure 3**
**General Super Plating**
**Bridge Street Facility and Celi Drive Facility**

# GENERAL SUPER PLATING PLANT LAY OUT

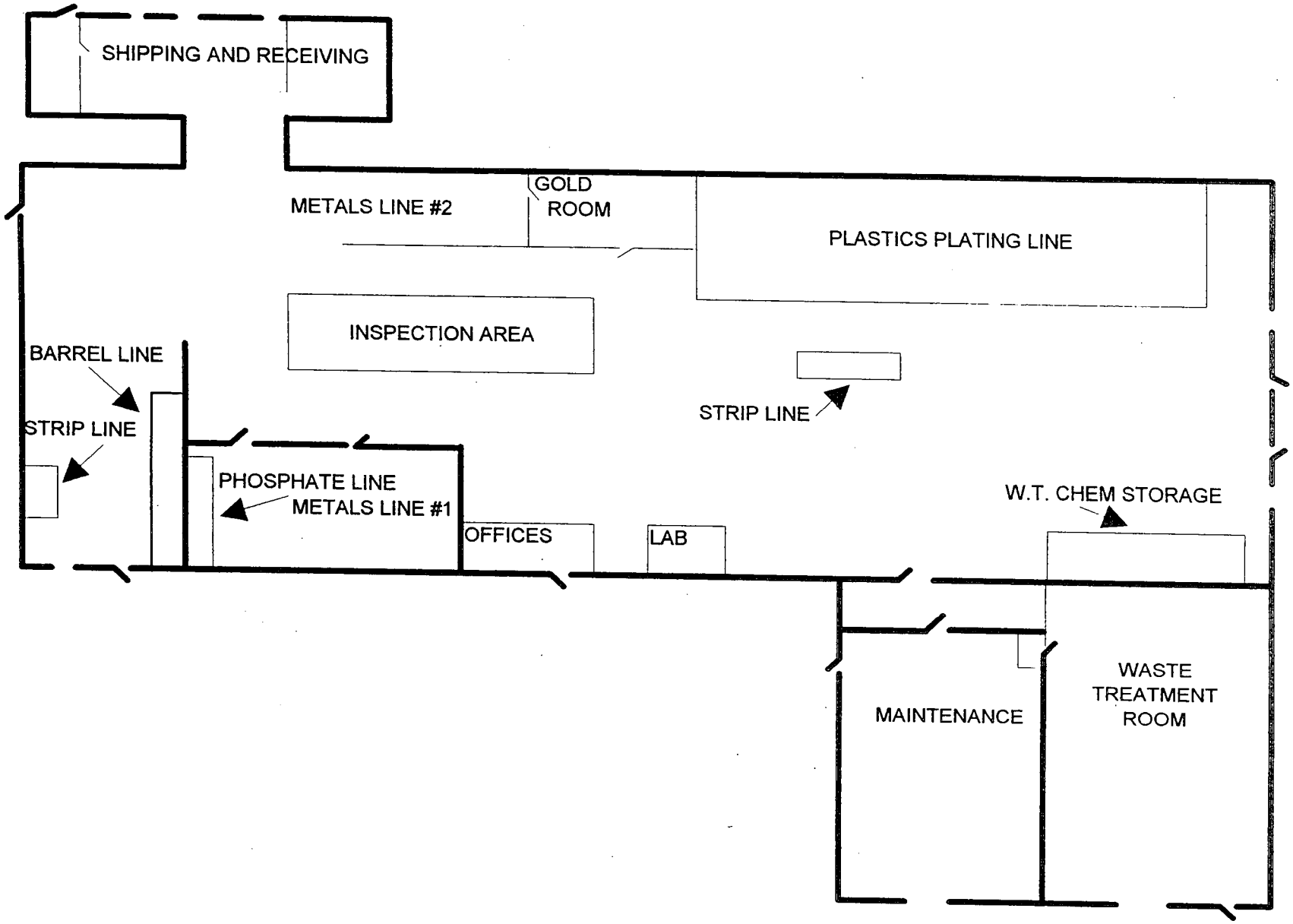


**Figure 4**
**Building Floor Plan, Celi Drive Facility**

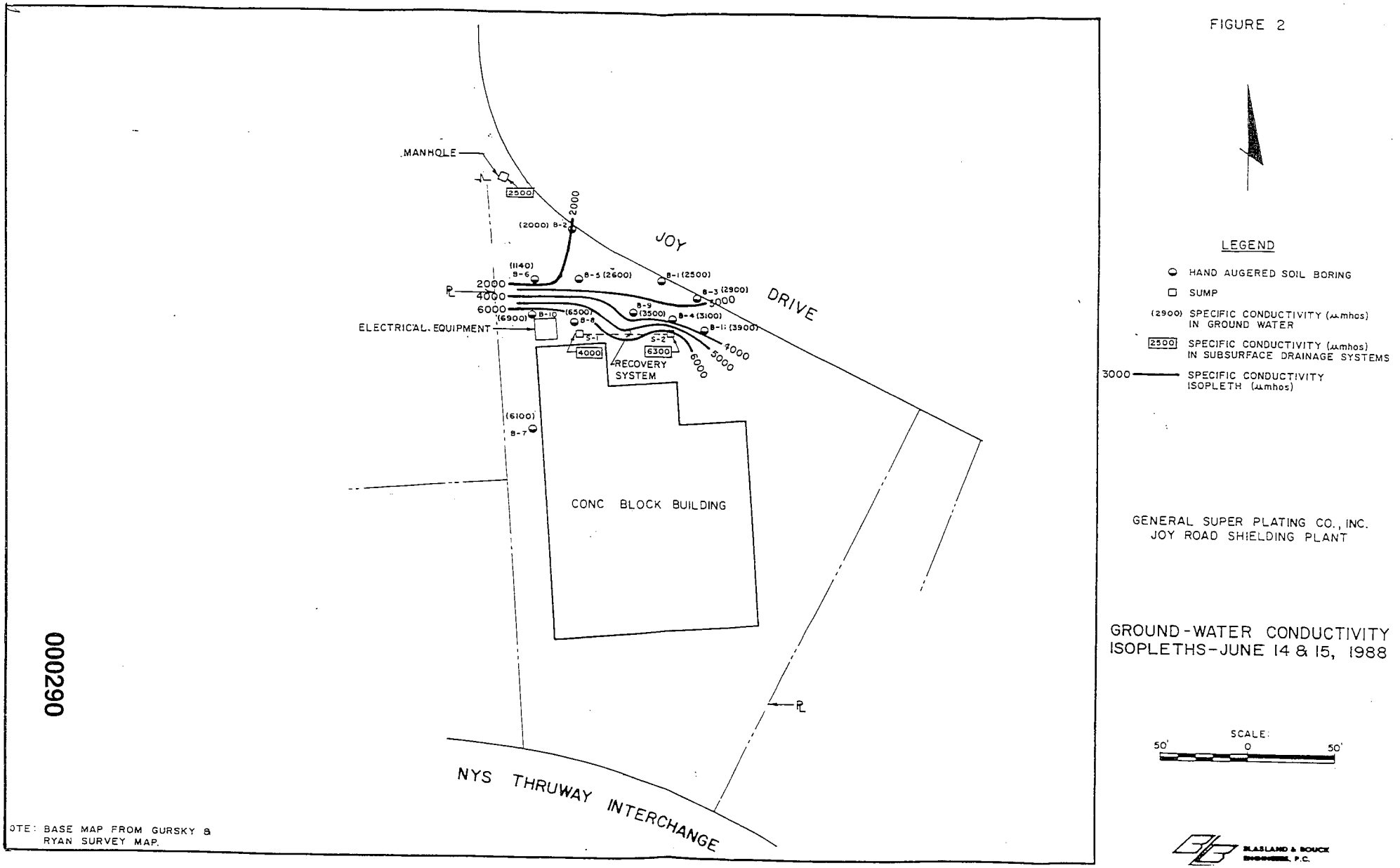


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**Figure 5**
**Building Floor Plan and Soil Boring Locations, Joy Road Facility**

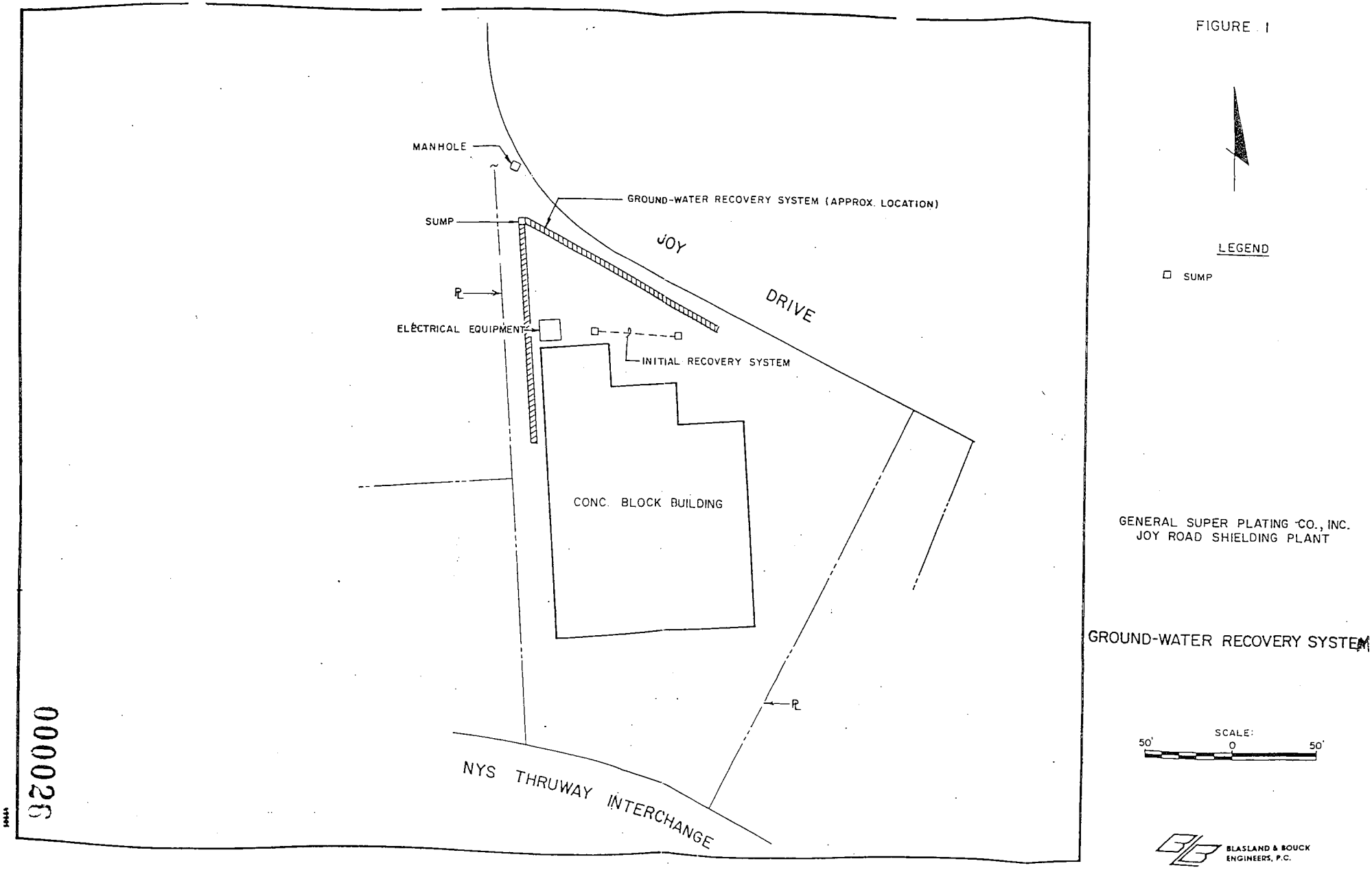


**Figure 6**
**Groundwater Recovery System, Joy Road Facility**

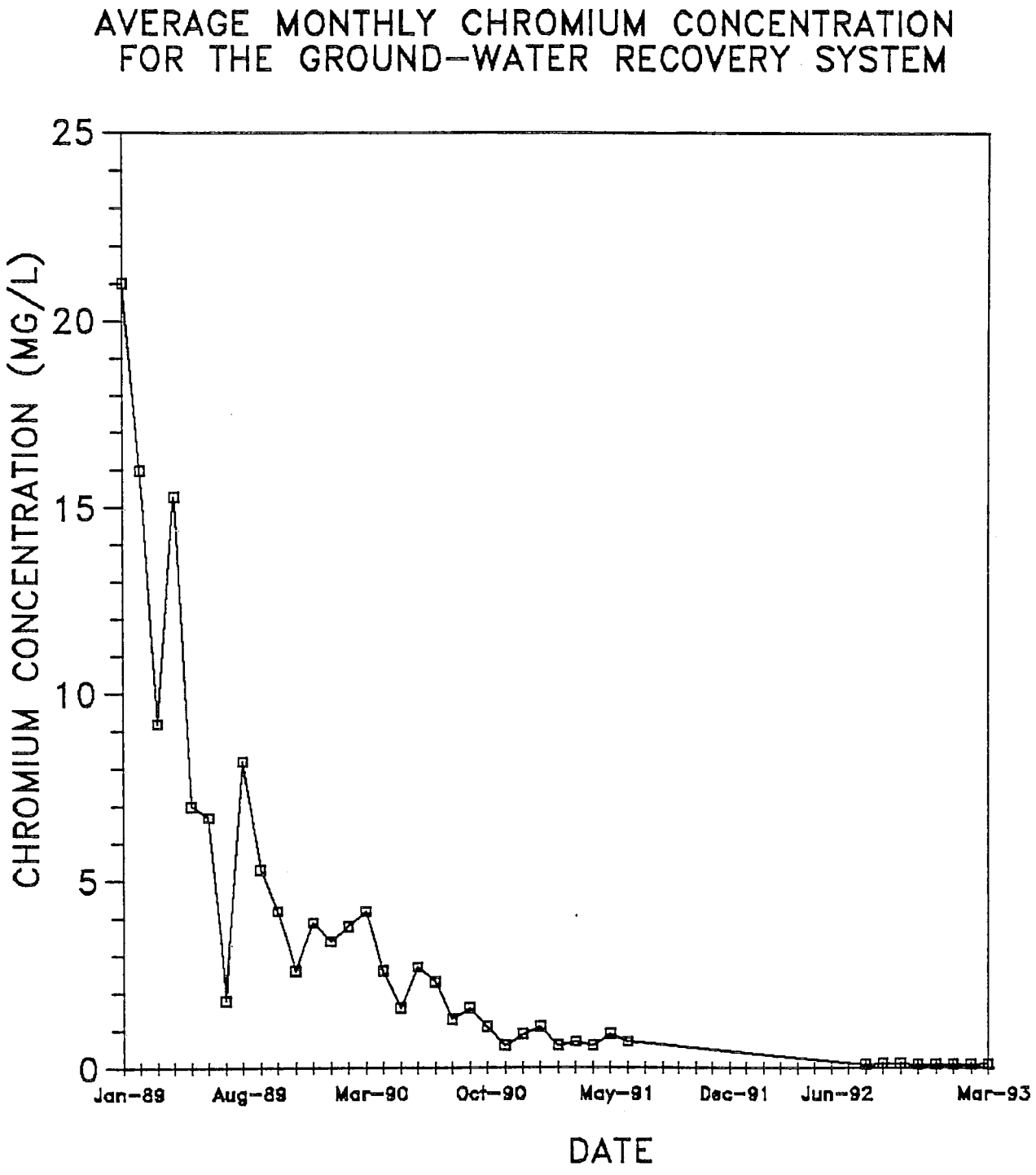
AVERAGE MONTHLY CHROMIUM CONCENTRATION
FOR THE GROUND-WATER RECOVERY SYSTEM
CHROMIUM CONCENTRATION (MG/L)
25
20
15
10
5
0
Jan-89
Aug-89
Mar-90
Oct-90
May-91
Dec-91
Jun-92
Mar-93
DATE

Figure 7